

Volume II

## EAST BRANCH EXTENSION PHASE II

Final Environmental Impact Report  
Technical Appendices  
SCH No. 2007041017

Prepared for:  
Department of Water Resources

January 2009



Volume II

## EAST BRANCH EXTENSION PHASE II

Final Environmental Impact Report  
Technical Appendices  
SCH No. 2007041017

Prepared for:  
Department of Water Resources

January 2009

707 Wilshire Blvd.  
Suite 1450  
Los Angeles, CA 90017  
213.599.4300  
[www.esassoc.com](http://www.esassoc.com)

Oakland

Petaluma

Portland

Sacramento

San Diego

San Francisco

Seattle

Tampa

Woodland Hills

206008.01



# TABLE OF CONTENTS

---

## DWR East Branch Extension Phase II Technical Appendices

### Appendices

A.	Notice of Preparation and Responses from NOP .....	A-1
	A1 – NOP	
	A2 – Responses to NOP	
B.	Air Quality .....	B-1
	B1 – Fugitive Dust Rule 403	
	B2 – URBEMIS Emission Estimates	
	B3 – Electricity Usage	
	B4 – Health Risk Assessment	
C.	Biology .....	C-1
	C1 – Biological Technical Report	
	C2 – Jurisdictional Determination	
	C3 – Santa Ana Sucker and the Santa Ana Speckled Dace	
D.	Hazardous Material .....	D-1
	D1 – Environmental Data Resources Report	
	D2 – DWR Phase I Report	
E.	Output of Land Evaluation and Site Assessment Model (LESA) .....	E-1
F.	Traffic Technical Analysis of Potential Impacts Associated with Construction of the Proposed DWR East Branch Extension Phase II Project .....	F-1

# Appendices



# Appendix A

## Notice of Preparation



**Appendix A**  
Notice of Preparation (NOP)  
Section 1





## **NOTICE OF PREPARATION**

### **DWR East Branch Extension Phase II Project EIR**

---

**To:** Calif. Office of Planning and Research  
Responsible and Trustee Agencies  
Other Interested Parties

**Subject:** Notice of Preparation of Environmental Impact Report

**Project:** East Branch Extension Phase II Project

**Lead Agency:** Department of Water Resources

Pursuant to Section 15082(a) of the California Environmental Quality Act (CEQA), the Department of Water Resources (DWR) will be the lead agency in preparing an Environmental Impact Report (EIR) for the East Branch Extension Phase II project. DWR requests your agency's views, relating to your agency's statutory authority, as to the scope and content of the environmental analysis to be included in the EIR. DWR has concluded that the project could potentially result in significant environmental impacts and therefore is preparing an EIR.

Pursuant to Section 15103 of the CEQA Guidelines, your response to this Notice of Preparation (NOP) must be received no later than thirty (30) days after receipt of this notice. The public comment period on the NOP will close May 4, 2007. Should you have any questions regarding the project or NOP, please contact Department of Water Resources, c/o Tom Barnes. Please mail your written response including any comments you may have on this project to:

Department of Water Resources  
c/o Tom Barnes  
707 Wilshire Boulevard, Suite 1450  
Los Angeles, CA 90017

In order for the public and regulatory agencies to have an opportunity to ask questions and submit comments on the scope of the EIR, a scoping meeting will be held during the NOP review period. The scoping meeting will include a brief presentation providing an overview of the proposed project. After the presentation, oral comments will be accepted. Written comment forms will be supplied for those who wish to submit comments in writing at the scoping meeting; written comments may also be submitted during the NOP review period.

The scoping meeting will be held as follows:

**Wednesday, April 18, 2007 at 7:00 pm**  
**San Bernardino Valley Municipal Water District**  
**1350 South "E" Street**  
**San Bernardino, CA 92408**

**Project Location:** The project site is located in western San Bernardino County within the communities of Redlands, Mentone, and Highland (see Figure 1). Land uses in the project area include residential, business/commercial, agricultural, industrial, open space, and public facilities.

**Project Background and Need:** In 1994, the San Gorgonio Pass Water Agency (SGPWA) completed an EIR for the Water Importation Project to construct facilities to import State Water Project (SWP) water, store water in underground aquifers, and provide treated water to its service area. In 1995 the SGPWA requested that DWR consider implementation of an extension to the East Branch of the California Aqueduct. In 1997, a Supplemental EIR was prepared by DWR evaluating Phase I of the East Branch Extension Project including the Greenspot Pump Station, Crafton Hills Pump Station, Cherry Valley Pump Station, Crafton Hills Reservoir, Pipeline Reach 1, Pipeline Reach 2, and Pipeline Reach 3. Phase I also provided water to the San Bernardino Valley Municipal Water District service area. The Supplemental EIR described Phase II as part of the overall project, but indicated that the specifics of construction would be evaluated in the future.

Construction of Phase II of the East Branch Extension would facilitate importation of SWP water into the SGPWA service area to replenish groundwater basins that have been declining since the 1920's in the Beaumont Storage Unit. The proposed project would allow the SGPWA to receive its longstanding contractual entitlement of 17,300 acre feet of water from the SWP for use for groundwater recharge and replenishment, and for distribution of water to retail water purveyors throughout the SGPWA service area. In addition, the proposed project would provide greater system operating flexibility by providing water storage facilities.

**Project Description:** The East Branch Extension Phase II would connect the San Bernardino Valley Municipal Water District's (SBVMWD) Foothill Pipeline near the intersection of Cone Camp and Greenspot Roads with the Crafton Hills Pump Station located near Mill Creek Road. The proposed project would involve construction of approximately six miles of 72- and 78-inch pipeline, construction of a reservoir providing 525 to 950 acre-feet of storage, construction of a new pump station, and expansion of the existing Crafton Hills Pump Station (see Figure 1). With implementation of the proposed project, the capacity of the East Branch Extension would increase from 50 cubic feet per second (cfs) to 150 cfs.

### ***Pipeline Alignments***

The EIR will analyze three different pipeline alignments: Alternative 1 (the preferred alignment), Alternative 2, and Alternative 3. All alignments would begin at the Foothill Pipeline, adjacent to the Foothill Pump Station, and terminate at Crafton Hills Pump Station.

**Alternative 1** would extend south, parallel to the Metropolitan Water District of Southern California's (MWD's) recently installed Inland Feeder pipeline. The pipeline would cross the Santa Ana River and continue along the northern and eastern boundary of a parcel presently developed as a citrus orchard. The pipeline would then extend east, terminating at Crafton Hills Pump Station. Roadways affected by Alternative 1 include: Greenspot

Road, Cone Camp Road, Opal Avenue, Wabash Avenue, San Bernardino Avenue, Turquoise Street, Amethyst Street, Garnet Street, Sycamore Street, and Valalla Lane.

**Alternative 2** would be similar to Alternative 1 except that the northern portion of the north-south alignment would be located to the east. The east-west portion of Alternative 2 would be further south than Alternative 1. Roadways affected by Alternative 2 include: Greenspot Road, Cone Camp Road, Opal Avenue, Wabash Avenue, Crafton Avenue, Madeira Avenue, Amethyst Street, Garnet Street, Sycamore Street, and Valalla Lane.

**Alternative 3** would be similar to Alternative 1 except that the east-west portion would extend from the northeast corner of the citrus orchard and continue along the Mill Creek levee. Roadways affected by Alternative 3 include: Greenspot Road, Cone Camp Road, Opal Avenue, Wabash Avenue, Amethyst Street, Garnet Street, and Valalla Lane.

### ***Citrus Reservoir***

Citrus Reservoir, providing 525 to 950 acre-feet of storage, would be constructed within an existing citrus orchard north of San Bernardino Avenue. The reservoir surface area would range from approximately 20 acres to 35 acres. The reservoir would provide operational storage for water delivered by gravity through the Foothill Pipeline and East Branch Extension Phase II pipeline.

### ***Citrus Pump Station***

The proposed pump station with ultimate capacity of 200 cfs would consist of a 5,000 square-foot two-story structure adjacent to Citrus Reservoir. The pump station would pump water from Citrus Reservoir through the proposed easterly pipeline to the Crafton Hills Pump Station. A switchyard and air chambers would also be constructed adjacent to the pump station.

### ***Crafton Hills Pump Station Expansion***

An annex to the Crafton Hills Pump Station would be constructed to contain three new 25 cfs pumps and an additional forebay tank.

### ***Construction***

The infrastructure would be constructed in phases over an approximate 4 to 5-year period. Construction activities for installation of the new pipelines, storage reservoir, and pump station may consist of open trenching in city streets, county roads and open space areas, and grading for reservoir and pump station sites. Construction at Citrus Pump Station will include extension of an existing Southern California Edison electric transmission line into the site to power the pump station.

**Issues to Be Addressed In the EIR:** The EIR will evaluate potential impacts of the proposed project including construction and operation of the water pipelines, storage reservoir, pump station, and expansion of Crafton Hills Pump Station. The EIR will discuss alternatives to the proposed project including the No Project Alternative. Alternatives may be added based on input received during the NOP review period and/or input provided at the scoping meeting. Information to be included in the EIR will incorporate input and comments received during the NOP review period and/or received from the scoping meeting. Decision-makers, responsible and trustee agencies under CEQA, property owners,

and interested parties will also have an opportunity to comment on the Draft EIR after it is published and circulated for public review.

**Discussion of Potential Impacts:** The EIR will assess short-term construction impacts as well as longer term direct, indirect, and cumulative effects. The following sections summarize potential effects of the project to be evaluated in the EIR.

**Aesthetics:** Construction of Citrus Reservoir and pump station would have the potential to alter the visual character of the site, which is currently a citrus orchard. The reservoir may also require occasional nighttime security lighting. The EIR will assess these potential impacts and identify mitigation measures if necessary to minimize the effects.

**Air Quality:** Construction activities would consist of excavation and open trenching. Construction emissions would be generated from construction equipment exhaust, earth movement, construction workers' commute, and material hauling for the entire construction period. The project's construction emissions could adversely affect the regional air quality within the South Coast Air Basin. The EIR will estimate daily exhaust and fugitive emissions based on detailed construction activities by project phasing to assess the potential long-term and short-term air quality impact. The EIR will identify sensitive receptors within the project area that could be adversely affected by the project construction. If necessary, measures to mitigate impacts to minimize their significance will be developed or recommended for implementation.

**Biological Resources:** Construction of the pipelines would occur in areas that may consist of natural habitats that support federally or state-designated sensitive plant and/or animal species pursuant to the Federal Endangered Species Act (FESA) or California Endangered Species Act (CESA). The EIR will evaluate potential impacts of the project on sensitive habitats and species. Mitigation measures will be developed if necessary to minimize potential adverse effects of the project.

**Cultural Resources:** Excavation for proposed facilities could encounter previously unknown archaeological and paleontological resources. The EIR will evaluate the potential impacts of the project on archaeological and paleontological resources. The EIR will identify project design alternatives, as necessary, as well as mitigation measures if necessary to minimize impacts to cultural resources.

**Geology, Soils, Seismicity and Mineral Resources:** The project area is located within alluvial deposits associated with the Santa Ana and Mill Creek drainages. The project area is also located in a seismically active region of California. Seismic activity associated with primary faults within the region could cause considerable ground shaking in the project area. The EIR will evaluate the potential hazards associated with ground shaking and flooding from the proposed project and identify mitigation measures, as necessary, to minimize impacts from those hazards.

**Growth Inducement:** The project would increase capacity of the East Branch Extension and support growth in the SBVMWD and SGPWA service areas. The EIR will evaluate the project's relationship to regional growth and will identify the adverse effects of growth. The

EIR will identify responsible agencies and regional mitigation plans prepared to minimize the effects of growth.

**Hazards and Hazardous Materials:** Construction activities could encounter soils and groundwater contaminated by neighboring industrial uses including leaking underground storage tanks. The EIR will assess the potential for encountering contaminated soils and groundwater and other hazardous materials and will develop measures to ensure that any contaminated soils or hazardous materials encountered during construction would be handled in accordance with applicable regulations.

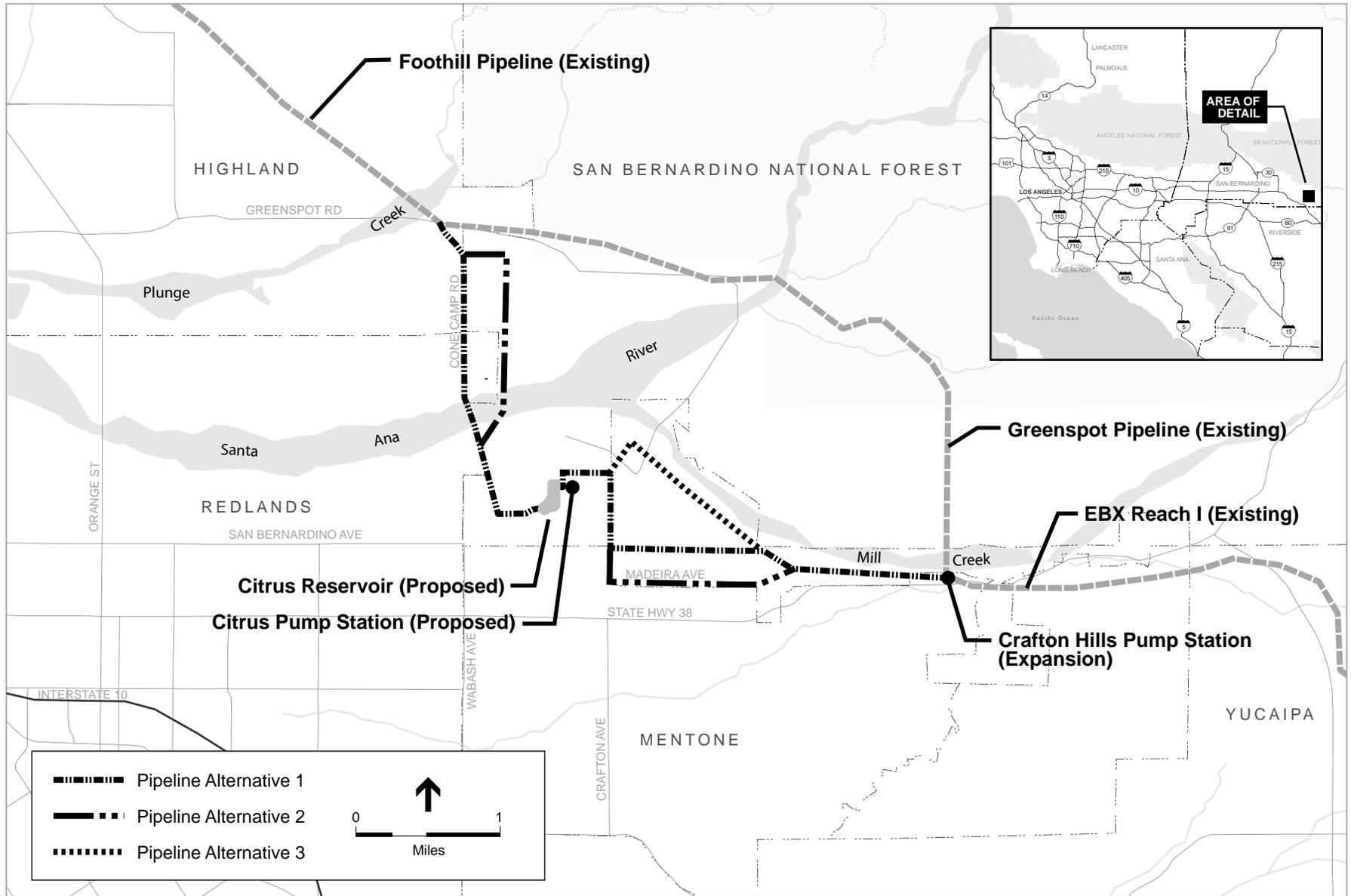
**Hydrology / Water Quality:** The proposed project would require excavation of soils and work within streambeds and percolation ponds. Excavation and construction activities could affect storm water quality. The EIR will identify storm water quality protection measures required during construction activities. The EIR will identify mitigation measures, as necessary, to minimize hydrology and water quality impacts.

**Land Use, Planning and Recreation:** The proposed project would result in long-term impacts to agricultural land. Construction activities associated with the project would result in short-term disturbances to adjacent land uses. The EIR will identify the project's potential effects on land uses and will evaluate the project's consistency with local planning efforts and compatibility with neighboring land uses (i.e., residential, commercial, agricultural etc.). The EIR will identify mitigation measures, as necessary, to minimize any significant land use impacts.

**Noise:** Construction activities associated with the project would generate short-term noise that could affect nearby residences and businesses. Construction activity would be required to comply with local noise ordinances. The EIR will evaluate the proximity of sensitive land uses with noise-generating activities associated with construction and with long-term operation of the proposed pump station and pump station expansion. The EIR will identify mitigation measures, as necessary, to minimize impacts.

**Traffic and Transportation:** Excavation activities associated with the proposed project would temporarily disrupt traffic on roadways, potentially affecting bus routes and emergency vehicle access routes. Open trenching within city streets and county roads would require temporary lane and intersection closure. The EIR will describe the duration and extent of impacts on the roadways affected by the proposed project. The EIR will also evaluate potential impacts to parking. The EIR will identify mitigation measures if necessary to minimize potential adverse effects.

**Utilities and Public Services:** Excavation within city streets and county roads would encounter underground utilities. Local service could be temporarily disrupted during construction. In addition, emergency service providers could be affected by temporary lane and intersection closures. The EIR will evaluate the project's potential to affect utilities and public services and will identify mitigation measures if necessary to minimize the effects.



SOURCE: Street Map USA; ESA, 2007.

DWR - East Branch Extension NOP . 206008

**Figure 1**  
Proposed Facilities

**Appendix A**  
NOP Responses  
Section 2





**FEMA**

April 25, 2007

Tom Barnes  
Department of Water Resources  
707 Wilshire Boulevard, Suite 1450  
Los Angeles, California 90017

Dear Mr. Barnes:

This is in response to your request for comments on the Notice of Preparation of Environmental Impact Report – Project: East Branch Extension Phase II Project.

Please review the current effective countywide Flood Insurance Rate Maps (FIRMs) for the County of San Bernardino (Community 060270), Map revised January 17, 1997. Please note that the County of San Bernardino, California is a participant in the National Flood Insurance Program (NFIP). The minimum, basic NFIP floodplain management building requirements are described in Vol. 44 Code of Federal Regulations (44 CFR), Sections 59 through 65.

A summary of these NFIP floodplain management building requirements are as follows:

- All buildings constructed within a riverine floodplain, (i.e., Flood Zones A, AO, AH, AE, and A1 through A30 as delineated on the FIRM), must be elevated so that the lowest floor is at or above the Base Flood Elevation level in accordance with the effective Flood Insurance Rate Map.
- If the area of construction is located within a Regulatory Floodway as delineated on the FIRM, any *development* must not increase base flood elevation levels. **The term *development* means any man-made change to improved or unimproved real estate, including but not limited to buildings, other structures, mining, dredging, filling, grading, paving, excavation or drilling operations, and storage of equipment or materials.** A hydrologic and hydraulic analysis must be performed *prior* to the start of development, and must demonstrate that the development would not cause any rise in base flood levels. No rise is permitted within regulatory floodways.

Tom Barnes  
Page 2  
April 25, 2007

- Upon completion of any development that changes existing Special Flood Hazard Areas, the NFIP directs all participating communities to submit the appropriate hydrologic and hydraulic data to FEMA for a FIRM revision. In accordance with 44 CFR, Section 65.3, as soon as practicable, but not later than six months after such data becomes available, a community shall notify FEMA of the changes by submitting technical data for a flood map revision. To obtain copies of FEMA's Flood Map Revision Application Packages, please refer to the FEMA website at <http://www.fema.gov/business/nfip/forms.shtm>.

**Please Note:**

Many NFIP participating communities have adopted floodplain management building requirements which are more restrictive than the minimum federal standards described in 44 CFR. Please contact the local community's floodplain manager for more information on local floodplain management building requirements. The County of San Bernardino floodplain manager can be reached by calling Michael J. Fox, Chief, Water Resources/Land Development at (909) 387-8213.

If you have any questions or concerns, please do not hesitate to call Marshall Marik of my staff at (510) 627-7057.

Sincerely,

  
For Michael Shore  
Branch Chief  
Community Mitigation Programs

cc:

Michael J. Fox, Chief, Water Resources/Land Development, San Bernardino County  
Garret Tam Sing/Salomon Miranda, State of California, Department of Water Resources,  
Southern District  
Marshall Marik, Floodplanner, DHS/FEMA, Region IX  
Sandro Amaglio, Environmental Officer, DHS/FEMA, Region IX



U.S Department  
of Transportation  
**Federal Aviation  
Administration**

Western-Pacific Region  
Los Angeles Airports District Office

Federal Aviation Administration  
P.O. Box 92007  
Los Angeles, CA 90009-2007

May 2, 2007

Department of Water Resources  
c/o Tom Barnes  
707 Wilshire Boulevard, Suite 1450  
Los Angeles, CA 90017

Dear Mr. Barnes:

**Notice of Preparation of Environmental Impact Report (EIR)  
for East Branch Extension Phase II Project**

I am in receipt of your Notice of Preparation for the Department of Water Resources East Branch Extension Phase II Project. The East Branch Extension Phase II would include a pipeline extension, reservoir and pump station. Based on the map provided, the project area appears to be in the vicinity of the Redlands Municipal Airport.

In the event that that you consider including a reservoir in your project, please review FAA Advisory Circular 150/5200-33, Hazardous Wildlife Attractants on or Near Airports. This advisory circular provides guidance on locating certain land uses having the potential to attract hazardous wildlife to or in the vicinity of public use airports. If you are planning to build any structures, please coordinate with FAA's Western-Pacific Region System Obstruction Specialist Karen McDonald to address any potential air space obstruction issues. Ms. McDonald may be contacted at 310-725-6557 or [karen.mcdonald@faa.gov](mailto:karen.mcdonald@faa.gov).

Please feel free to give me a call if you have any questions regarding this matter, I can be reached at (310) 725-3637.

Sincerely,

Victor Globa  
Environmental Protection Specialist

MAY 4 2007

**NATIVE AMERICAN HERITAGE COMMISSION**

915 CAPITOL MALL, ROOM 364  
SACRAMENTO, CA 95814  
(916) 653-6251  
Fax (916) 657-5390  
[www.nahc.ca.gov](http://www.nahc.ca.gov)  
ds\_nahc@pacbell.net



April 24, 2007

Mr. Sergio Escobar  
**California Department of Water Resources**  
1416 Ninth Street  
Sacramento, CA 95814

Re: SCH# 2007041017 CEQA Notice of Preparation (NOP) draft Environmental Impact Report (DEIR) for East Branch Extension Phase 2, San Bernardino County, California

Dear Mr. Escobar:

Thank you for the opportunity to comment on the above-referenced document. The California Environmental Quality Act (CEQA) requires that any project that causes a substantial adverse change in the significance of an historical resource, that includes archeological resources, is a 'significant effect' requiring the preparation of an Environmental Impact Report (EIR per CEQA guidelines § 15064.5(b)(c). In order to comply with this provision, the lead agency is required to assess whether the project will have an adverse impact on these resources within the 'area of potential effect (APE),' and if so, to mitigate that effect. To adequately assess the project-related impacts on historical resources, the Commission recommends the following action:

- √ Contact the appropriate California Historic Resources Information Center (CHRIS). Contact information for the 'Information Center' nearest you is available from the State Office of Historic Preservation in Sacramento (916/653-7278). The record search will determine:
  - If a part or the entire (APE) has been previously surveyed for cultural resources.
  - If any known cultural resources have already been recorded in or adjacent to the APE.
  - If the probability is low, moderate, or high that cultural resources are located in the APE.
  - If a survey is required to determine whether previously unrecorded cultural resources are present.
- √ If an archaeological inventory survey is required, the final stage is the preparation of a professional report detailing the findings and recommendations of the records search and field survey.
  - The final report containing site forms, site significance, and mitigation measures should be submitted immediately to the planning department. All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum, and not be made available for public disclosure.
  - The final written report should be submitted within 3 months after work has been completed to the appropriate regional archaeological Information Center.
- √ Contact the Native American Heritage Commission (NAHC) for:
  - \* A Sacred Lands File (SLF) search of the project area and information on tribal contacts in the project vicinity who may have information on cultural resources in or near the APE. Please provide us site identification as follows: USGS 7.5-minute quadrangle citation with name, township, range and section. This will assist us with the SLF.
    - Also, we recommend that you contact the Native American contacts on the attached list to get their input on the effect of potential project (e.g. APE) impact.
- √ Lack of surface evidence of archeological resources does not preclude their subsurface existence.
  - Lead agencies should include in their mitigation plan provisions for the identification and evaluation of accidentally discovered archeological resources, per California Environmental Quality Act (CEQA) §15064.5 (f). In areas of identified archaeological sensitivity, a certified archaeologist and a culturally affiliated Native American, with knowledge in cultural resources, should monitor all ground-disturbing activities.
  - Lead agencies should include in their mitigation plan provisions for the disposition of recovered artifacts, in consultation with culturally affiliated Native Americans.

√ Lead agencies should include provisions for discovery of Native American human remains or unmarked cemeteries in their mitigation plans.

\* CEQA Guidelines, Section 15064.5(d) requires the lead agency to work with the Native Americans identified by this

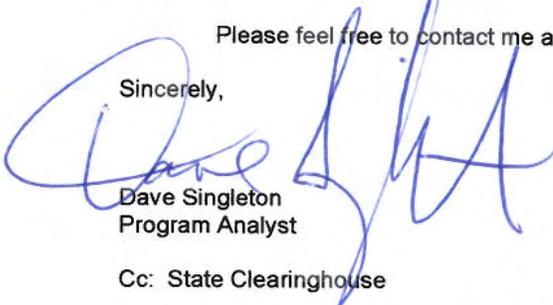
Commission if the initial Study identifies the presence or likely presence of Native American human remains within the APE. CEQA Guidelines provide for agreements with Native American, identified by the NAHC, to assure the appropriate and dignified treatment of Native American human remains and any associated grave liens.

√ Health and Safety Code §7050.5, Public Resources Code §5097.98 and Sec. §15064.5 (d) of the CEQA Guidelines mandate procedures to be followed in the event of an accidental discovery of any human remains in a location other than a dedicated cemetery.

√ Lead agencies should consider avoidance, as defined in § 15370 of the CEQA Guidelines, when significant cultural resources are discovered during the course of project planning.

Please feel free to contact me at (916) 653-6251 if you have any questions.

Sincerely,

  
Dave Singleton  
Program Analyst

Cc: State Clearinghouse

Attachment: List of Native American Contacts

**Native American Contacts**  
San Bernardino County  
April 24, 2007

Cahuilla Band of Indians  
Anthony Madrigal, Jr., Interim-Chairperson  
P.O. Box 391760 Cahuilla  
Anza , CA 92539  
tribalcouncil@cahuilla.net  
(951) 763-2631

(951) 763-2632 Fax

Ramona Band of Mission Indians  
Joseph Hamilton, vice chairman  
P.O. Box 391670 Cahuilla  
Anza , CA 92539  
admin@ramonatribe.com  
(951) 763-4105  
(951) 763-4325 Fax

San Manuel Band of Mission Indians  
Henry Duro, Chairperson  
26569 Community Center Drive Serrano  
Highland , CA 92346  
(909) 864-8933  
(909) 864-3370 Fax

Chemehuevi Reservation  
Charles Wood, Chairperson  
P.O. Box 1976 Chemehuevi  
Chemehuevi Valley , CA 92363  
chemehuevit@yahoo.com  
(760) 858-4301  
(760) 858-5400 Fax

Fort Mojave Indian Tribe  
Nora McDowell, Chairperson  
500 Merriman Ave Mojave  
Needles , CA 92363  
gloriasmith@fortmojave.com  
(760) 629-4591  
(760) 629-5767 Fax

San Fernando Band of Mission Indians  
John Valenzuela, Chairperson  
P.O. Box 221838 Fernandefio  
Newhall , CA 91322 Tataviam  
tsen2u@msn.com Serrano  
(661) 753-9833 Office Vanyume  
(760) 885-0955 Cell Kitanemuk  
(760) 949-1604 Fax

Morongo Band of Mission Indians  
Britt W. Wilson, Cultural Resources-Project Manager  
49750 Seminole Drive Cahuilla  
Cabazon , CA 92230 Serrano  
britt\_wilson@morongo.org  
(951) 755-5206  
(951) 755-5200/323-0822-cell  
(951) 922-8146 Fax

San Manuel Band of Mission Indians  
Ann Brierty, Environmental Department  
101 Pure Water Lane Serrano  
Highland , CA 92346  
abrierty@sanmanuel-nsn.gov  
(909) 863-5899 EXT-4321  
(909) 862-5152 Fax

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native American with regard to cultural resources for the proposed CH#2007041017; Notice of Preparation (NOP) under authority of CEQA; draft Environmental Impact Report (DEIR) for the Department of Water Resources East Branch Extension Phase 2 Project; San Bernardino County, California.

**Native American Contacts**  
**San Bernardino County**  
**April 24, 2007**

Serrano Band of Indians  
Goldie Walker  
6588 Valeria Drive  
Highland, CA 92346  
(909) 862-9883

Serrano

**This list is current only as of the date of this document.**

**Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.**

**This list is only applicable for contacting local Native American with regard to cultural resources for the proposed CH#2007041017; Notice of Preparation (NOP) under authority of CEQA; draft Environmental Impact Report (DEIR) for the Department of Water Resources East Branch Extension Phase 2 Project; San Bernardino County, California.**

# DEPARTMENT OF PUBLIC WORKS

FLOOD CONTROL • SOLID WASTE MGMT • SURVEYOR • TRANSPORTATION

COUNTY OF SAN BERNARDINO  
PUBLIC AND SUPPORT  
SERVICES GROUP



825 East Third Street • San Bernardino, CA 92415-0835 • (909) 387-8104  
Fax (909) 387-8130

VANA R. OLSON  
Director of Public Works

April 10, 2007

Department of Water Resources  
c/o Tom Barnes  
707 Wilshire Boulevard, Suite 1450  
Los Angeles, CA 90017

File #10(ENV)-4.01

RE: NOTICE OF PREPARATION OF EIR FOR THE EAST BRANCH EXTENSION PHASE II PROJECT

Dear Mr. Barnes:

Thank you for giving the San Bernardino County Department of Public Works the opportunity to comment on the above-referenced project.

After reviewing the submitted document, our Department has determined that we would like to receive a copy of the environmental document and any technical reports/studies that will be prepared for this project, when they become available. At that time, our Department will review the project and provide comments.

Sincerely,

A handwritten signature in black ink that reads "Frank Molina".

**FRANK MOLINA**, Supervising Planner  
Environmental Management Division

FM:nh/CEQA Rec'd\_Dept Water Resources\_East Branch Extension Phase II\_EIR Reqst'd

cc: Naresh P. Varma  
VRO/MK Reading File

APR 13 2007

MARK H. UFFER  
County Administrative Officer

NORMAN A. KANOLD  
Assistant County Administrator  
Public and Support  
Services Group

Board of Supervisors  
BRAD MITZELFELT ..... First District  
PAUL BIANE ..... Second District  
JOSIE GONZALES ..... Fifth District  
DENNIS HANSBERGER ..... Third District  
GARY C. OVITT ..... Fourth District

APR 13 2007  
APR 13 2007  
APR 13 2007

City of  
**HIGHLAND**  
Inc. 1987



April 13, 2007

Department of Water Resources  
c/o Tom Barnes  
707 Wilshire Boulevard, Suite 1450  
Los Angeles, CA 90017

RE: Comments on the Notice of Preparation for the East Branch Extension  
Phase II Project

27215 Base Line  
Highland, CA 92346  
(909) 864-6861  
FAX (909) 862-3180  
www.ci.highland.ca.us

Dear Mr. Barnes:

City Council

Mayor  
Ross B. Jones

Mayor Pro Tem  
Penny Lilburn

Larry McCallon  
Jody Scott  
John P. Timmer

City Manager  
Joseph A. Hughes

The following is hereby submitted in response to your Notice of Preparation on the above referenced project. While the majority of the project is located in the City of Redlands and the County of San Bernardino, the City of Highland would like to offer the following comments and thoughts.

As shown on the map that was attached to the project description, the proposed water pipeline will start at Greenspot Road and extend south along existing dirt roads including Cone Camp Road until it leaves the City of Highland. From an environmental standpoint, the City would like to make sure the following issues are discussed.

1. If there is going to be any interruptions to traffic flow on Greenspot Road for any extended period of time, a traffic study should be prepared to show how related traffic impacts, if any, could be mitigated. An extended period of time would be more than 24 hours. In any case, an encroachment permit will be required from the City of Highland for any work to be performed in the Greenspot Road right-of-way.
2. The proposed alignment appears to be in an existing dirt road, following for the most part the previous water line alignment that was constructed in this area. The City of Highland has shown these dirt roads as locations for trails in the Wash area and these have been coordinated with all the local agencies as well as the Metropolitan Water District as part of the Upper Santa Ana River Wash Land Management Plan which is currently undergoing preparation of its own EIR/EIS. This plan is a coordinated effort between a number of local agencies and all the property owners in the Wash. This proposed pipeline goes through the middle of that Plan. These two projects need to be coordinated. The lead agency is the San Bernardino Valley Water Conservation District.
3. The proposed pipeline will cross the Santa Ana River and the Wooley Star Preservation Area (WSPA). As part of the Wash Land Management Plan, an effort was made to extend a trail across the River in the alignment of the existing pipeline, however, that effort was thwarted by USFWS. As part of your plan to cross the River and the WSPA, it would

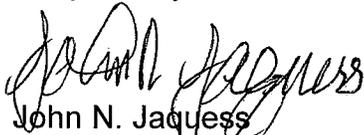
Department of Water Resources  
April 13, 2007  
Page 2

be beneficial to the region if a trail could be included as part of the proposed pipeline project to directly link the proposed Santa Ana River Trail to planned trails across the River to the north. If such a trail connection were possible, the Water Conservation District and its partners could explore long term maintenance and management of the trail.

4. For the alternative 2 Pipeline route, based on the environmental documents prepared for the Wash Land Management Plan, this area would certainly appear to be much more environmentally sensitive and it would seem that the alignment following the existing roadway would be much preferred.
5. For the portion of the project located in the City of Highland, no zoning or land use permits are required.

I hope the above information will be of value to you in preparing the environmental document for the proposed project. If you have any questions, please feel free to contact me at (909) 864 6861 ext. 213.

Respectfully,



John N. Jaquess  
Community Development Director

cc: Joe Hughes, City Manager  
Jeff Shaw, Community Development Director, City of Redlands  
Julie Rynerson, Land Use Services Director, San Bernardino County  
Burnie Cavender, San Bernardino Valley Water Conservation District

/jnj



**MWD**

METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

Executive Office

May 4, 2007

**Via-E-Mail**

Department of Water Resources  
c/o Tom Barnes  
707 Wilshire Boulevard, Suite 1450  
Los Angeles, California 90017

Dear Mr. Barnes:

Notice of Preparation of a  
Environmental Impact Report for the East Branch Extension Phase II Project

The Metropolitan Water District of Southern California (Metropolitan) has received a copy of the Notice of Preparation (NOP) of an Environmental Impact Report (EIR) for the East Branch Extension Phase II Project (Project). The Department of Water Resources (DWR) will be the lead agency in preparing the EIR for this Project. The proposed Project would connect the San Bernardino Valley Municipal Water District's (SBVMWD) Foothill Pipeline near the intersection of Cone Camp and Greenspot Roads with the Crafton Hills Pump Station located near Mill Creek Road. The proposed Project would involve construction of approximately six miles of 72- and 78-inch diameter pipeline, construction of a reservoir providing 525 to 950 acre-feet of storage, construction of a new pump station, and expansion of the existing Crafton Hills Pump Station. With implementation of the proposed Project, the capacity of the East Branch Extension would increase from 50 cubic feet per second (cfs) to 150 cfs. This letter contains Metropolitan's response to the NOP as a potentially affected public agency.

DWR and SBVMWD have contacted Metropolitan regarding this proposed Project, and we appreciate these efforts and look forward to continued coordination on this Project. As noted in the NOP, Metropolitan owns and operates a facility parallel to the proposed Project site. Metropolitan's Inland Feeder Pipeline is an approximately 150-inch diameter pipeline located within permanent easement. Metropolitan is concerned with potential impacts to this facility that may result from implementation of the proposed Project. Metropolitan must be allowed to maintain its rights-of-way and access to its facilities at all times in order to repair and maintain the current condition of this facility. Metropolitan requests that DWR consider Metropolitan's facility in its planning and in the Draft EIR, and avoid potential impacts that may occur due to implementation of the proposed Project.

In order to avoid potential conflicts with Metropolitan's rights-of-way, we require that any design plans for any activity in the area of Metropolitan's pipelines or facilities be submitted for our review and written approval. Approval of the Project where it could impact Metropolitan's property should be contingent on Metropolitan's approval of design plans for the Project.

Department of Water Resources

Page 2

May 4, 2007

Detailed prints of drawings of Metropolitan's pipelines and rights-of-way may be obtained by calling Metropolitan's Substructures Information Line at (213) 217-6564. To assist in preparing plans that are compatible with Metropolitan's facilities, easements, and properties, we have enclosed a copy of the "Guidelines for Developments in the Area of Facilities, Fee Properties, and/or Easements of The Metropolitan Water District of Southern California." Please note that all submitted designs or plans must clearly identify Metropolitan's facilities and rights-of-way.

Additionally, Alternative 1, the preferred alternative, would go through a mitigation area within the Santa Ana River associated with the Inland Feeder project. Mitigation at this site involves the restoration of Riversidian sage scrub and Riversidian alluvial sage scrub habitat previously occupied by the San Bernardino kangaroo rat. DWR should coordinate with Metropolitan to discuss any potential impacts to the restoration site and ensure that the project does not impact Metropolitan's ability to meet its performance criteria pursuant to the Biological Opinion for the project.

We appreciate the opportunity to provide input to your planning process and we look forward to receiving a copy of the Draft EIR. If we can be of further assistance, please contact Dr. Debbie Drezner of the Environmental Planning Team at (213) 217-5687.

Very truly yours,



Delaine W. Shane

Interim Manager, Environmental Planning Team

LIM/lim

(Public Folders/EPU/Letters/07-MAY-07Adoc - DWR)

Enclosure: Guidelines

Guidelines for Developments in the  
Area of Facilities, Fee Properties, and/or Easements  
of The Metropolitan Water District of Southern California

1. Introduction

a. The following general guidelines should be followed for the design of proposed facilities and developments in the area of Metropolitan's facilities, fee properties, and/or easements.

b. We require that 3 copies of your tentative and final record maps, grading, paving, street improvement, landscape, storm drain, and utility plans be submitted for our review and written approval as they pertain to Metropolitan's facilities, fee properties and/or easements, prior to the commencement of any construction work.

2. Plans, Parcel and Tract Maps

The following are Metropolitan's requirements for the identification of its facilities, fee properties, and/or easements on your plans, parcel maps and tract maps:

a. Metropolitan's fee properties and/or easements and its pipelines and other facilities must be fully shown and identified as Metropolitan's on all applicable plans.

b. Metropolitan's fee properties and/or easements must be shown and identified as Metropolitan's with the official recording data on all applicable parcel and tract maps.

c. Metropolitan's fee properties and/or easements and existing survey monuments must be dimensionally tied to the parcel or tract boundaries.

d. Metropolitan's records of surveys must be referenced on the parcel and tract maps.

3. Maintenance of Access Along Metropolitan's Rights-of-Way

a. Proposed cut or fill slopes exceeding 10 percent are normally not allowed within Metropolitan's fee properties or easements. This is required to facilitate the use of construction and maintenance equipment, and provide access to its aboveground and belowground facilities.

b. We require that 16-foot-wide commercial-type driveway approaches be constructed on both sides of all streets crossing Metropolitan's rights-of-way. Openings are required in any median island. Access ramps, if necessary, must be at least 16-foot-wide. Grades of ramps are normally not allowed to exceed 10 percent. If the slope of an access ramp must exceed 10 percent due to the topography, the ramp must be paved. We require a 40-foot-long level area on the driveway approach to access ramps where the ramp meets the street. At Metropolitan's fee properties, we may require fences and gates.

c. The terms of Metropolitan's permanent easement deeds normally preclude the building or maintenance of structures of any nature or kind within its easements, to ensure safety and avoid interference with operation and maintenance of Metropolitan's pipelines or other facilities. Metropolitan must have vehicular access along the easements at all times for inspection, patrolling, and for maintenance of the pipelines and other facilities on a routine basis. We require a 20-foot-wide clear zone around all above-ground facilities for this routine access. This clear zone should slope away from our facility on a grade not to exceed 2 percent. We must also have access along the easements with construction equipment. An example of this is shown on Figure 1.

d. The footings of any proposed buildings adjacent to Metropolitan's fee properties and/or easements must not encroach into the fee property or easement or impose additional loading on Metropolitan's pipelines or other facilities therein. A typical situation is shown on Figure 2. Prints of the detail plans of the footings for any building or structure adjacent to the fee property or easement must be submitted for our review and written approval as they pertain to the pipeline or other facilities therein. Also, roof eaves of buildings adjacent to the easement or fee property must not overhang into the fee property or easement area.

e. Metropolitan's pipelines and other facilities, e.g. structures, manholes, equipment, survey monuments, etc. within its fee properties and/or easements must be protected from damage by the easement holder on Metropolitan's property or the property owner where Metropolitan has an easement, at no expense to Metropolitan. If the facility is a cathodic protection station it shall be located prior to any grading or excavation. The exact location, description and way of protection shall be shown on the related plans for the easement area.

4. Easements on Metropolitan's Property

a. We encourage the use of Metropolitan's fee rights-of-way by governmental agencies for public street and utility purposes, provided that such use does not interfere with Metropolitan's use of the property, the entire width of the property is accepted into the agency's public street system and fair market value is paid for such use of the right-of-way.

b. Please contact the Director of Metropolitan's Right of Way and Land Division, telephone (213) 250-6302, concerning easements for landscaping, street, storm drain, sewer, water or other public facilities proposed within Metropolitan's fee properties. A map and legal description of the requested easements must be submitted. Also, written evidence must be submitted that shows the city or county will accept the easement for the specific purposes into its public system. The grant of the easement will be subject to Metropolitan's rights to use its land for water pipelines and related purposes to the same extent as if such grant had not been made. There will be a charge for the easement. Please note that, if entry is required on the property prior to issuance of the easement, an entry permit must be obtained. There will also be a charge for the entry permit.

5. Landscaping

Metropolitan's landscape guidelines for its fee properties and/or easements are as follows:

a. A green belt may be allowed within Metropolitan's fee property or easement.

b. All landscape plans shall show the location and size of Metropolitan's fee property and/or easement and the location and size of Metropolitan's pipeline or other facilities therein.

c. Absolutely no trees will be allowed within 15 feet of the centerline of Metropolitan's existing or future pipelines and facilities.

d. Deep-rooted trees are prohibited within Metropolitan's fee properties and/or easements. Shallow-rooted trees are the only trees allowed. The shallow-rooted trees will not be permitted any closer than 15 feet from the centerline of the pipeline, and such trees shall not be taller than 25 feet with a root spread no greater than 20 feet in diameter at maturity. Shrubs, bushes, vines, and ground cover are permitted, but larger shrubs and bushes should not be planted directly over our pipeline. Turf is acceptable. We require submittal of landscape plans for Metropolitan's prior review and written approval. (See Figure 3).

e. The landscape plans must contain provisions for Metropolitan's vehicular access at all times along its rights-of-way to its pipelines or facilities therein. Gates capable of accepting Metropolitan's locks are required in any fences across its rights-of-way. Also, any walks or drainage facilities across its access route must be constructed to AASHTO H-20 loading standards.

f. Rights to landscape any of Metropolitan's fee properties must be acquired from its Right of Way and Land Division. Appropriate entry permits must be obtained prior to any entry on its property. There will be a charge for any entry permit or easements required.

## 6. Fencing

Metropolitan requires that perimeter fencing of its fee properties and facilities be constructed of universal chain link, 6 feet in height and topped with 3 strands of barbed wire angled upward and outward at a 45 degree angle or an approved equal for a total fence height of 7 feet. Suitable substitute fencing may be considered by Metropolitan. (Please see Figure 5 for details).

## 7. Utilities in Metropolitan's Fee Properties and/or Easements or Adjacent to Its Pipeline in Public Streets

Metropolitan's policy for the alinement of utilities permitted within its fee properties and/or easements and street rights-of-way is as follows:

a. Permanent structures, including catch basins, manholes, power poles, telephone riser boxes, etc., shall not be located within its fee properties and/or easements.

b. We request that permanent utility structures within public streets, in which Metropolitan's facilities are constructed under the Metropolitan Water District Act, be placed as far from our pipeline as possible, but not closer than 5 feet from the outside of our pipeline.

c. The installation of utilities over or under Metropolitan's pipeline(s) must be in accordance with the requirements shown on the enclosed prints of Drawings Nos. C-11632 and C-9547. Whenever possible we request a minimum of one foot clearance between Metropolitan's pipe and your facility. Temporary support of Metropolitan's pipe may also be required at undercrossings of its pipe in an open trench. The temporary support plans must be reviewed and approved by Metropolitan.

d. Lateral utility crossings of Metropolitan's pipelines must be as perpendicular to its pipeline alignment as practical. Prior to any excavation our pipeline shall be located manually and any excavation within two feet of our pipeline must be done by hand. This shall be noted on the appropriate drawings.

e. Utilities constructed longitudinally within Metropolitan's rights-of-way must be located outside the theoretical trench prism for uncovering its pipeline and must be located parallel to and as close to its rights-of-way lines as practical.

f. When piping is jacked or installed in jacked casing or tunnel under Metropolitan's pipe, there must be at least two feet of vertical clearance between the bottom of Metropolitan's pipe and the top of the jacked pipe, jacked casing or tunnel. We also require that detail drawings of the shoring for the jacking or tunneling pits be submitted for our review and approval. Provisions must be made to grout any voids around the exterior of the jacked pipe, jacked casing or tunnel. If the piping is installed in a jacked casing or tunnel the annular space between the piping and the jacked casing or tunnel must be filled with grout.

g. Overhead electrical and telephone line requirements:

1) Conductor clearances are to conform to the California State Public Utilities Commission, General Order 95, for Overhead Electrical Line Construction or at a greater clearance if required by Metropolitan. Under no circumstances shall clearance be less than 35 feet.

2) A marker must be attached to the power pole showing the ground clearance and line voltage, to help prevent damage to your facilities during maintenance or other work being done in the area.

3) Line clearance over Metropolitan's fee properties and/or easements shall be shown on the drawing to indicate the lowest point of the line under the most adverse conditions including consideration of sag, wind load, temperature change, and support type. We require that overhead lines be located at least 30 feet laterally away from all above-ground structures on the pipelines.

4) When underground electrical conduits, 120 volts or greater, are installed within Metropolitan's fee property and/or easement, the conduits must be incased in a minimum of three inches of red concrete. Where possible, above ground warning signs must also be placed at the right-of-way lines where the conduits enter and exit the right-of-way.

h. The construction of sewerlines in Metropolitan's fee properties and/or easements must conform to the California Department of Health Services Criteria for the Separation of Water Mains and Sanitary Services and the local City or County Health Code Ordinance as it relates to installation of sewers in the vicinity of pressure waterlines. The construction of sewerlines should also conform to these standards in street rights-of-way.

i. Cross sections shall be provided for all pipeline crossings showing Metropolitan's fee property and/or easement limits and the location of our pipeline(s). The exact locations of the crossing pipelines and their elevations shall be marked on as-built drawings for our information.

j. Potholing of Metropolitan's pipeline is required if the vertical clearance between a utility and Metropolitan's pipeline is indicated on the plan to be one foot or less. If the indicated clearance is between one and two feet, potholing is suggested. Metropolitan will provide a representative to assist others in locating and identifying its pipeline. Two-working days notice is requested.

k. Adequate shoring and bracing is required for the full depth of the trench when the excavation encroaches within the zone shown on Figure 4.

l. The location of utilities within Metropolitan's fee property and/or easement shall be plainly marked to help prevent damage during maintenance or other work done in the area. Detectable tape over buried utilities should be placed a minimum of 12 inches above the utility and shall conform to the following requirements:

1) Water pipeline: A two-inch blue warning tape shall be imprinted with:

"CAUTION BURIED WATER PIPELINE"

2) Gas, oil, or chemical pipeline: A two-inch yellow warning tape shall be imprinted with:

"CAUTION BURIED \_\_\_\_\_ PIPELINE"

3) Sewer or storm drain pipeline: A two-inch green warning tape shall be imprinted with:

"CAUTION BURIED \_\_\_\_\_ PIPELINE"

4) Electric, street lighting, or traffic signals conduit: A two-inch red warning tape shall be imprinted with:

"CAUTION BURIED \_\_\_\_\_ CONDUIT"

5) Telephone, or television conduit: A two-inch orange warning tape shall be imprinted with:

"CAUTION BURIED \_\_\_\_\_ CONDUIT"

m. Cathodic Protection requirements:

1) If there is a cathodic protection station for Metropolitan's pipeline in the area of the proposed work, it shall be located prior to any grading or excavation. The exact location, description and manner of protection shall be shown on all applicable plans. Please contact Metropolitan's Corrosion Engineering Section, located at Metropolitan's F. E. Weymouth Softening and Filtration Plant, 700 North Moreno Avenue, La Verne, California 91750, telephone (714) 593-7474, for the locations of Metropolitan's cathodic protection stations.

2) If an induced-current cathodic protection system is to be installed on any pipeline crossing Metropolitan's pipeline, please contact Mr. Wayne E. Risner at (714) 593-7474 or (213) 250-5085. He will review the proposed system and determine if any conflicts will arise with the existing cathodic protection systems installed by Metropolitan.

3) Within Metropolitan's rights-of-way, pipelines and carrier pipes (casings) shall be coated with an approved protective coating to conform to Metropolitan's requirements, and shall be maintained in a neat and orderly condition as directed by Metropolitan. The application and monitoring of cathodic protection on the pipeline and casing shall conform to Title 49 of the Code of Federal Regulations, Part 195.

4) If a steel carrier pipe (casing) is used:

(a) Cathodic protection shall be provided by use of a sacrificial magnesium anode (a sketch showing the cathodic protection details can be provided for the designers information).

(b) The steel carrier pipe shall be protected with a coal tar enamel coating inside and out in accordance with AWWA C203 specification.

n. All trenches shall be excavated to comply with the CAL/OSHA Construction Safety Orders, Article 6, beginning with Sections 1539 through 1547. Trench backfill shall be placed in 8-inch lifts and shall be compacted to 95 percent relative compaction (ASTM D698) across roadways and through protective dikes. Trench backfill elsewhere will be compacted to 90 percent relative compaction (ASTM D698).

o. Control cables connected with the operation of Metropolitan's system are buried within streets, its fee properties and/or easements. The locations and elevations of these cables shall be shown on the drawings. The drawings shall note that prior to any excavation in the area, the control cables shall be located and measures shall be taken by the contractor to protect the cables in place.

p. Metropolitan is a member of Underground Service Alert (USA). The contractor (excavator) shall contact USA at 1-800-422-4133 (Southern California) at least 48 hours prior to starting any excavation work. The contractor will be liable for any damage to Metropolitan's facilities as a result of the construction.

8. Paramount Right

Facilities constructed within Metropolitan's fee properties and/or easements shall be subject to the paramount right of Metropolitan to use its fee properties and/or easements for the purpose for which they were acquired. If at any time Metropolitan or its assigns should, in the exercise of their rights, find it necessary to remove any of the facilities from the fee properties and/or easements, such removal and replacement shall be at the expense of the owner of the facility.

9. Modification of Metropolitan's Facilities

When a manhole or other of Metropolitan's facilities must be modified to accommodate your construction or reconstruction, Metropolitan will modify the facilities with its forces. This should be noted on the construction plans. The estimated cost to perform this modification will be given to you and we will require a deposit for this amount before the work is performed. Once the deposit is received, we will schedule the work. Our forces will coordinate the work with your contractor. Our final billing will be based on actual cost incurred, and will include materials, construction, engineering plan review, inspection, and administrative overhead charges calculated in accordance with Metropolitan's standard accounting practices. If the cost is less than the deposit, a refund will be made; however, if the cost exceeds the deposit, an invoice will be forwarded for payment of the additional amount.

10. Drainage

a. Residential or commercial development typically increases and concentrates the peak storm water runoff as well as the total yearly storm runoff from an area, thereby increasing the requirements for storm drain facilities downstream of the development. Also, throughout the year water from landscape irrigation, car washing, and other outdoor domestic water uses flows into the storm drainage system resulting in weed abatement, insect infestation, obstructed access and other problems. Therefore, it is Metropolitan's usual practice not to approve plans that show discharge of drainage from developments onto its fee properties and/or easements.

b. If water must be carried across or discharged onto Metropolitan's fee properties and/or easements, Metropolitan will insist that plans for development provide that it be carried by closed conduit or lined open channel approved in writing by Metropolitan. Also the drainage facilities must be maintained by others, e.g., city, county, homeowners association, etc. If the development proposes changes to existing drainage features, then the developer shall make provisions to provide for replacement and these changes must be approved by Metropolitan in writing.

11. Construction Coordination

During construction, Metropolitan's field representative will make periodic inspections. We request that a stipulation be added to the plans or specifications for notification of Mr. \_\_\_\_\_ of Metropolitan's Operations Services Branch, telephone (213) 250-\_\_\_\_\_, at least two working days prior to any work in the vicinity of our facilities.

12. Pipeline Loading Restrictions

a. Metropolitan's pipelines and conduits vary in structural strength, and some are not adequate for AASHTO H-20 loading. Therefore, specific loads over the specific sections of pipe or conduit must be reviewed and approved by Metropolitan. However, Metropolitan's pipelines are typically adequate for AASHTO H-20 loading provided that the cover over the pipeline is not less than four feet or the cover is not substantially increased. If the temporary cover over the pipeline during construction is between three and four feet, equipment must be restricted to that which

imposes loads no greater than AASHTO H-10. If the cover is between two and three feet, equipment must be restricted to that of a Caterpillar D-4 tract-type tractor. If the cover is less than two feet, only hand equipment may be used. Also, if the contractor plans to use any equipment over Metropolitan's pipeline which will impose loads greater than AASHTO H-20, it will be necessary to submit the specifications of such equipment for our review and approval at least one week prior to its use. More restrictive requirements may apply to the loading guideline over the San Diego Pipelines 1 and 2, portions of the Orange County Feeder, and the Colorado River Aqueduct. Please contact us for loading restrictions on all of Metropolitan's pipelines and conduits.

b. The existing cover over the pipeline shall be maintained unless Metropolitan determines that proposed changes do not pose a hazard to the integrity of the pipeline or an impediment to its maintenance.

13. Blasting

a. At least 20 days prior to the start of any drilling for rock excavation blasting, or any blasting, in the vicinity of Metropolitan's facilities, a two-part preliminary conceptual plan shall be submitted to Metropolitan as follows:

b. Part 1 of the conceptual plan shall include a complete summary of proposed transportation, handling, storage, and use of explosions.

c. Part 2 shall include the proposed general concept for blasting, including controlled blasting techniques and controls of noise, fly rock, airblast, and ground vibration.

14. CEQA Requirements

a. When Environmental Documents Have Not Been Prepared

1) Regulations implementing the California Environmental Quality Act (CEQA) require that Metropolitan have an opportunity to consult with the agency or consultants preparing any environmental documentation. We are required to review and consider the environmental effects of the project as shown in the Negative Declaration or Environmental Impact Report (EIR) prepared for your project before committing Metropolitan to approve your request.

2) In order to ensure compliance with the regulations implementing CEQA where Metropolitan is not the Lead Agency, the following minimum procedures to ensure compliance with the Act have been established:

a) Metropolitan shall be timely advised of any determination that a Categorical Exemption applies to the project. The Lead Agency is to advise Metropolitan that it and other agencies participating in the project have complied with the requirements of CEQA prior to Metropolitan's participation.

b) Metropolitan is to be consulted during the preparation of the Negative Declaration or EIR.

c) Metropolitan is to review and submit any necessary comments on the Negative Declaration or draft EIR.

d) Metropolitan is to be indemnified for any costs or liability arising out of any violation of any laws or regulations including but not limited to the California Environmental Quality Act and its implementing regulations.

b. When Environmental Documents Have Been Prepared

If environmental documents have been prepared for your project, please furnish us a copy for our review and files in a timely manner so that we may have sufficient time to review and comment. The following steps must also be accomplished:

1) The Lead Agency is to advise Metropolitan that it and other agencies participating in the project have complied with the requirements of CEQA prior to Metropolitan's participation.

2) You must agree to indemnify Metropolitan, its officers, engineers, and agents for any costs or liability arising out of any violation of any laws or regulations including but not limited to the California Environmental Quality Act and its implementing regulations.

15. Metropolitan's Plan-Review Cost

a. An engineering review of your proposed facilities and developments and the preparation of a letter response

giving Metropolitan's comments, requirements and/or approval that will require 8 man-hours or less of effort is typically performed at no cost to the developer, unless a facility must be modified where Metropolitan has superior rights. If an engineering review and letter response requires more than 8 man-hours of effort by Metropolitan to determine if the proposed facility or development is compatible with its facilities, or if modifications to Metropolitan's manhole(s) or other facilities will be required, then all of Metropolitan's costs associated with the project must be paid by the developer, unless the developer has superior rights.

b. A deposit of funds will be required from the developer before Metropolitan can begin its detailed engineering plan review that will exceed 8 hours. The amount of the required deposit will be determined after a cursory review of the plans for the proposed development.

c. Metropolitan's final billing will be based on actual cost incurred, and will include engineering plan review, inspection, materials, construction, and administrative overhead charges calculated in accordance with Metropolitan's standard accounting practices. If the cost is less than the deposit, a refund will be made; however, if the cost exceeds the deposit, an invoice will be forwarded for payment of the additional amount. Additional deposits may be required if the cost of Metropolitan's review exceeds the amount of the initial deposit.

16. Caution

We advise you that Metropolitan's plan reviews and responses are based upon information available to Metropolitan which was prepared by or on behalf of Metropolitan for general record purposes only. Such information may not be sufficiently detailed or accurate for your purposes. No warranty of any kind, either express or implied, is attached to the information therein conveyed as to its accuracy, and no inference should be drawn from Metropolitan's failure to comment on any aspect of your project. You are therefore cautioned to make such surveys and other field investigations as you may deem prudent to assure yourself that any plans for your project are correct.

17. Additional Information

Should you require additional information, please contact:

Civil Engineering Substructures Section  
Metropolitan Water District  
of Southern California  
P.O. Box 54153  
Los Angeles, California 90054-0153  
(213) 217-6000

JEH/MRW/lk

Rev. January 22, 1989

Encl.

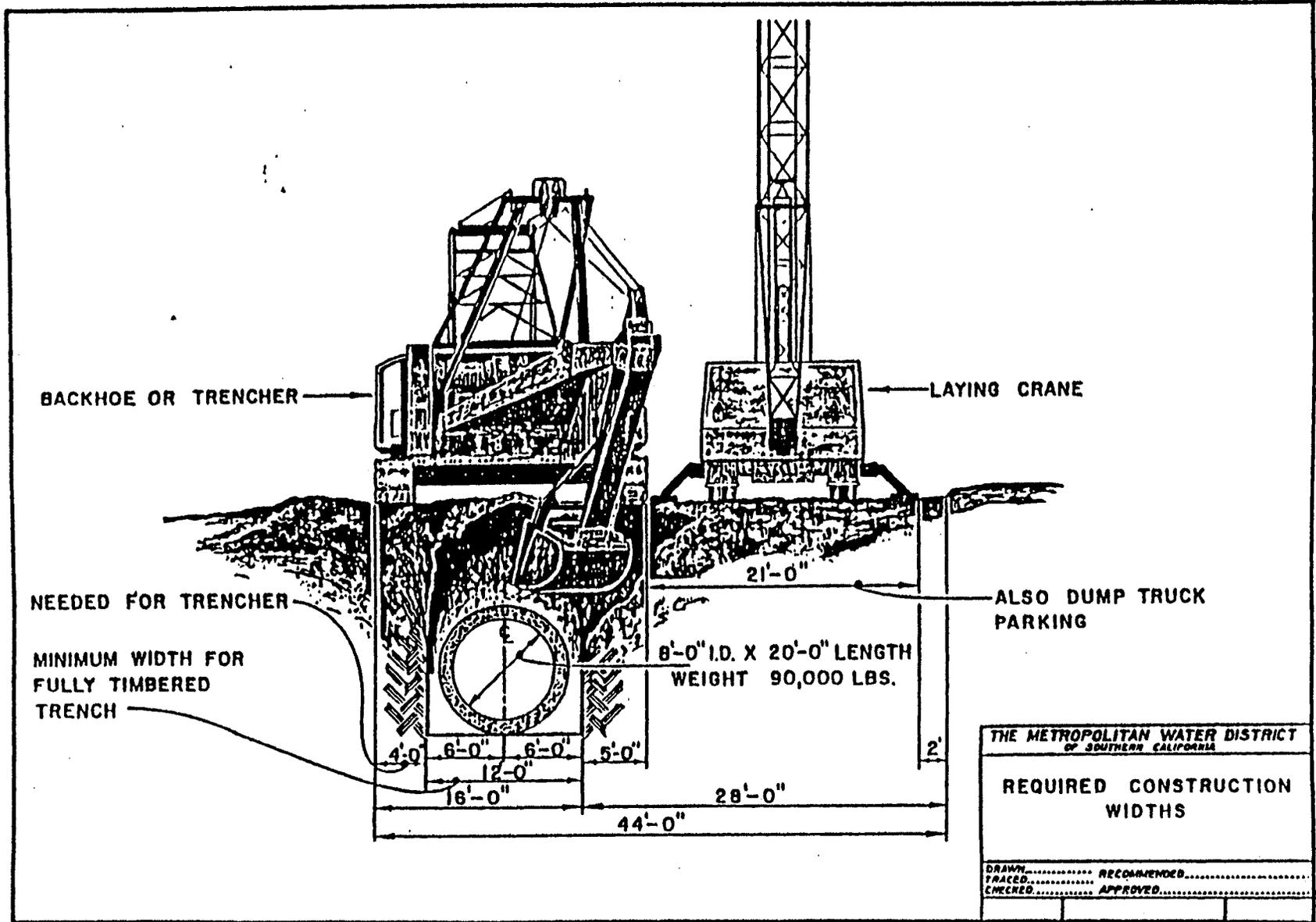
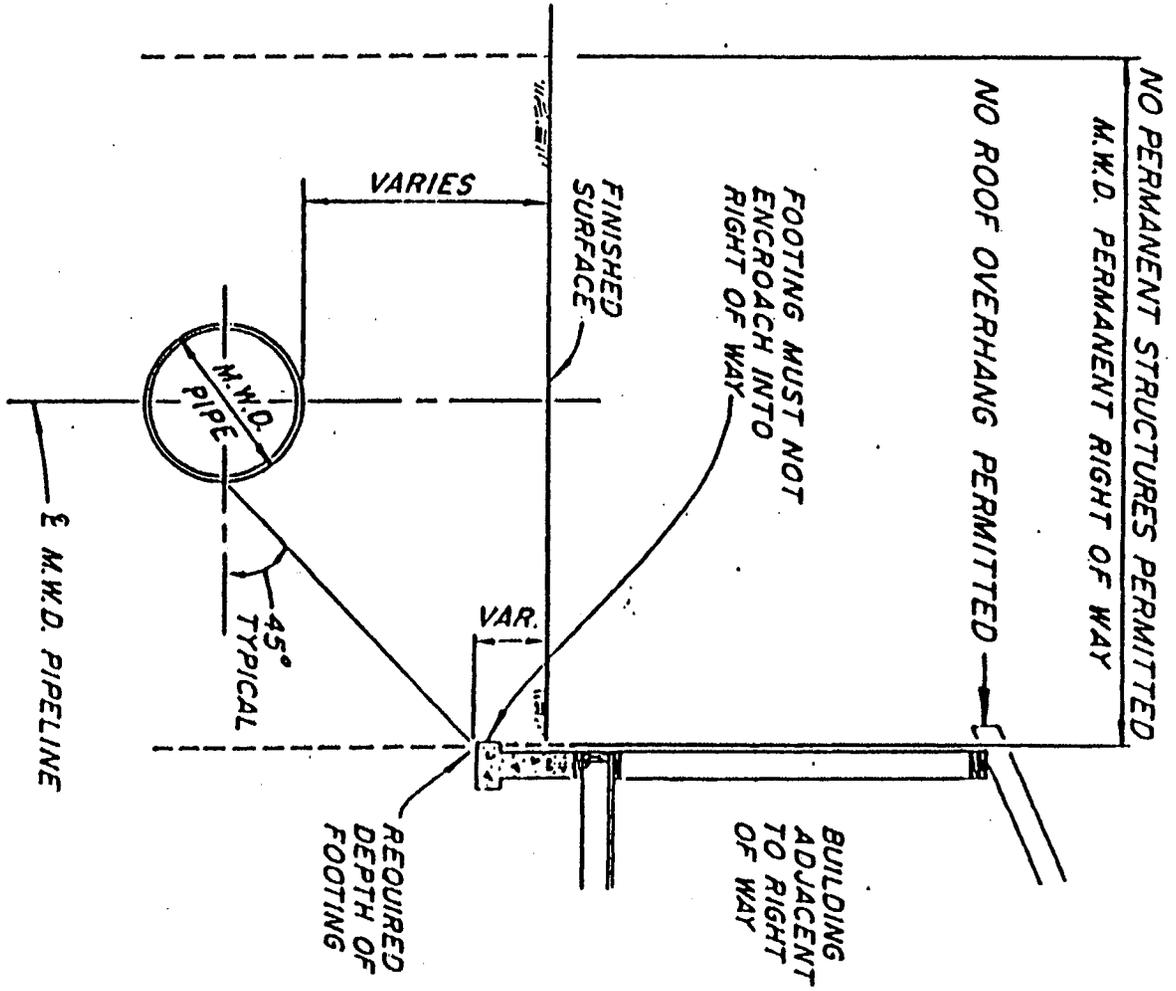


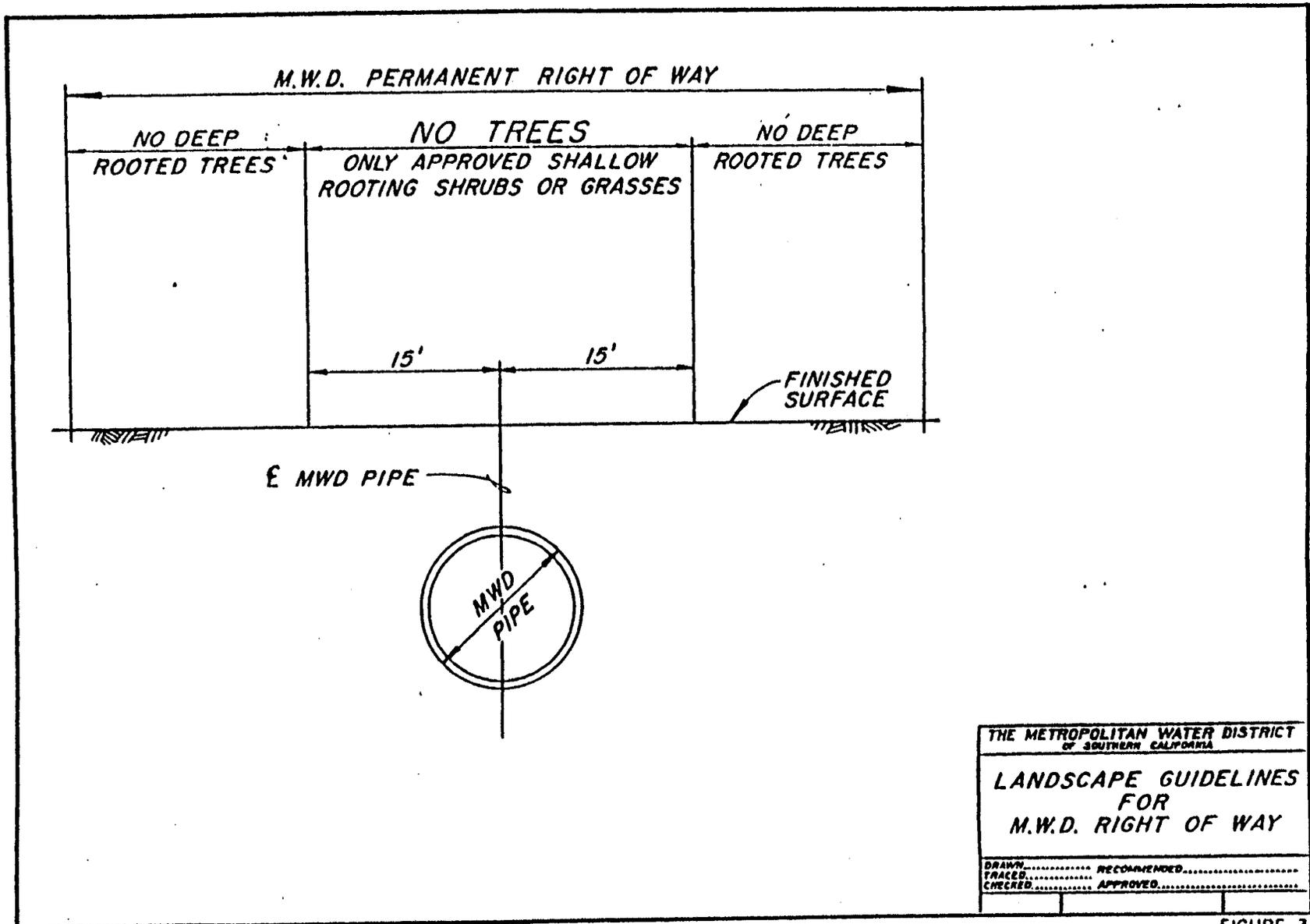
FIGURE 1

NOTE: M.W.D. PIPELINE SIZE, DEPTH, LOCATION AND WIDTH OF PERMANENT RIGHT OF WAY VARIES.



THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA	
REQUIREMENTS FOR BUILDINGS AND FOOTINGS ADJACENT TO M.W.D. RIGHT OF WAY	
DATE:	RECORDED:
PROJECT:	APPROVED:
CHECKED:	

FIGURE 2



THE METROPOLITAN WATER DISTRICT  
OF SOUTHERN CALIFORNIA

**LANDSCAPE GUIDELINES  
FOR  
M.W.D. RIGHT OF WAY**

DRAWN.....	RECOMMENDED.....
TRACES.....	APPROVED.....
CHECKED.....	

FIGURE 3

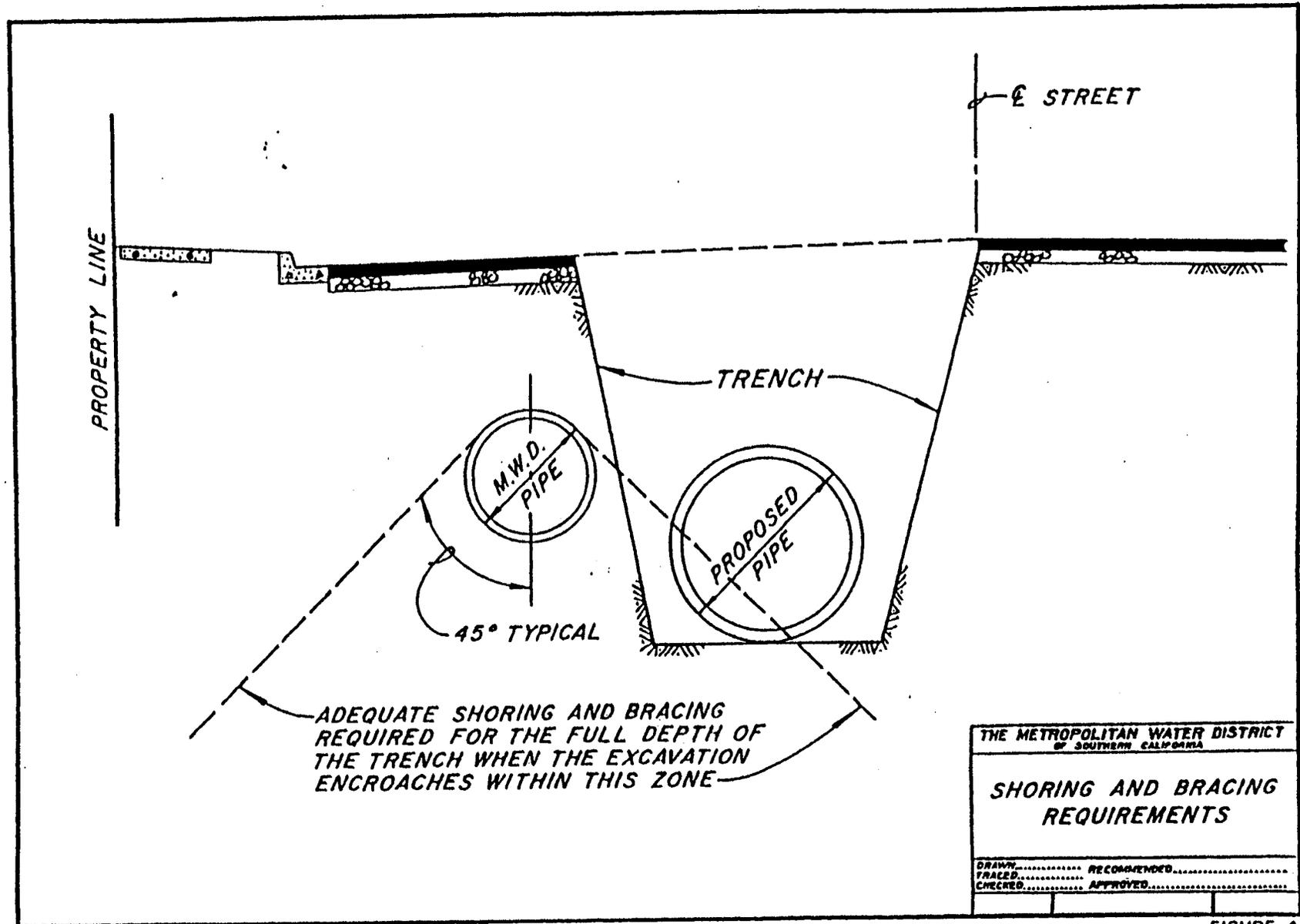
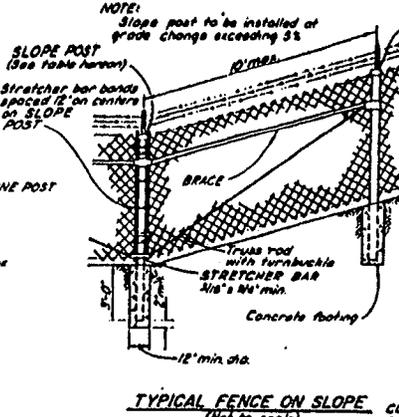
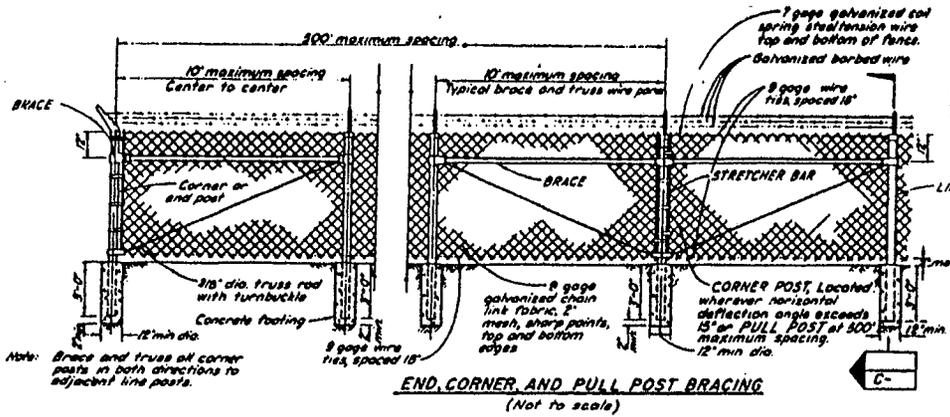
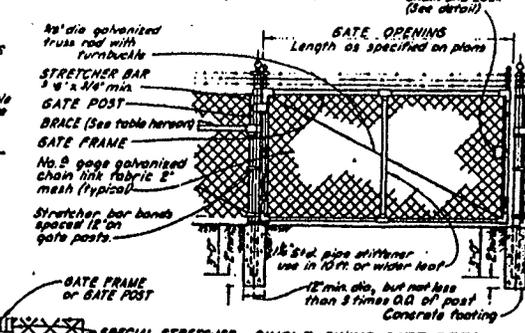
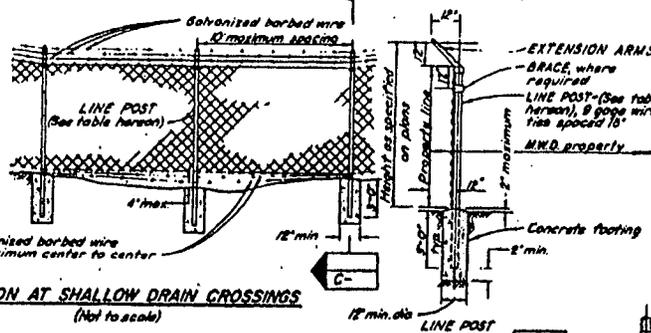


FIGURE 4



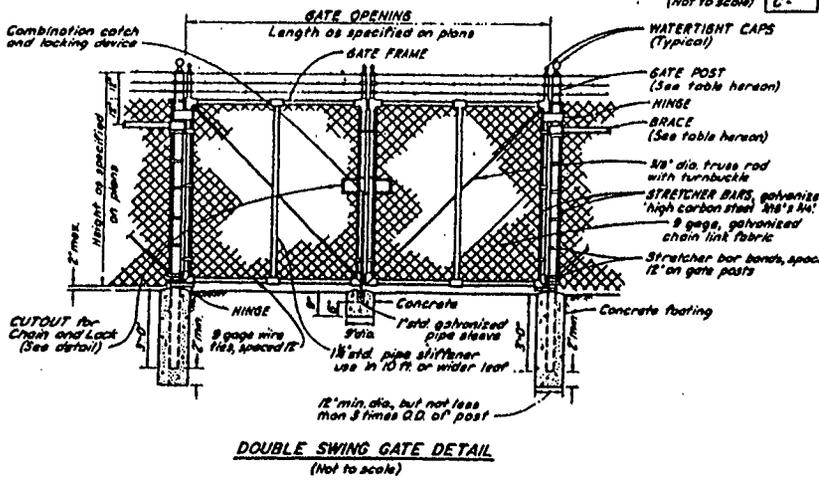
**FENCE POST INSERT FOR CONCRETE WALL AND CONCRETE CURB**  
(Not to scale)



**GENERAL NOTES**

- All ferrous parts and materials shall be galvanized after fabrication
- Adjustable tighteners shall be turnbuckle or equivalent, having minimum 6" takeup
- Extension arms for barbed wire shall be steel, malleable iron or wrought iron and shall be attached to the top of the post with a 1/4 inch round head rivet. The extension arms shall carry three wires each at approximately 5 inch centers in a plane approximately 45° from the vertical.
- All gate hinges shall be heavy duty malleable iron or steel, industrial service type, 270 degree swing, of approved quality and design.
- Secure cap to post with 1/4 inch round head rivet

Use	Type	Nominal Size (Inches)	Actual O.D. (Inches)	Weight per foot (Pounds)
End, corner, slope, pull and gate posts for single gates 6 feet or less in width and double gates 12 feet or less in width for chain link fabric 22" pitches or higher	Pipe	2 1/2	2.875	3.7
End, corner, slope, pull and gate posts for single gates 6 feet or less in width and double gates 12 feet or less in width for chain link fabric less than 22 inches height	Pipe	2	2.375	3.0
Gate posts for single swing gates over 6 feet but not over 15 feet in width and double swing gates over 12 feet but not over 25 feet in width	Pipe	3 1/2	4.000	9.11
Gate posts for single swing gates over 15 feet but not over 18 feet in width and double swing gates over 25 feet but not over 35 feet in width	Pipe	6	6.625	18.9
Gate posts for single swing gates over 18 feet in width and double swing gates over 35 feet in width	Pipe	8	8.625	24.70
Line posts for chain link fabric 22 inches or higher	Pipe N-Section 1 1/2	1 1/2	2.375	3.65
Line posts for chain link fabric less than 22 inches in height	Pipe N-Section 1 1/4	1 1/4	1.800	2.72
Braces	Pipe N-Section 1 1/2	1 1/2	1.950	2.80
Frame for gates	Pipe	1 1/2	1.800	2.72
Stiffeners for gates	Pipe	1 1/2	1.800	2.72

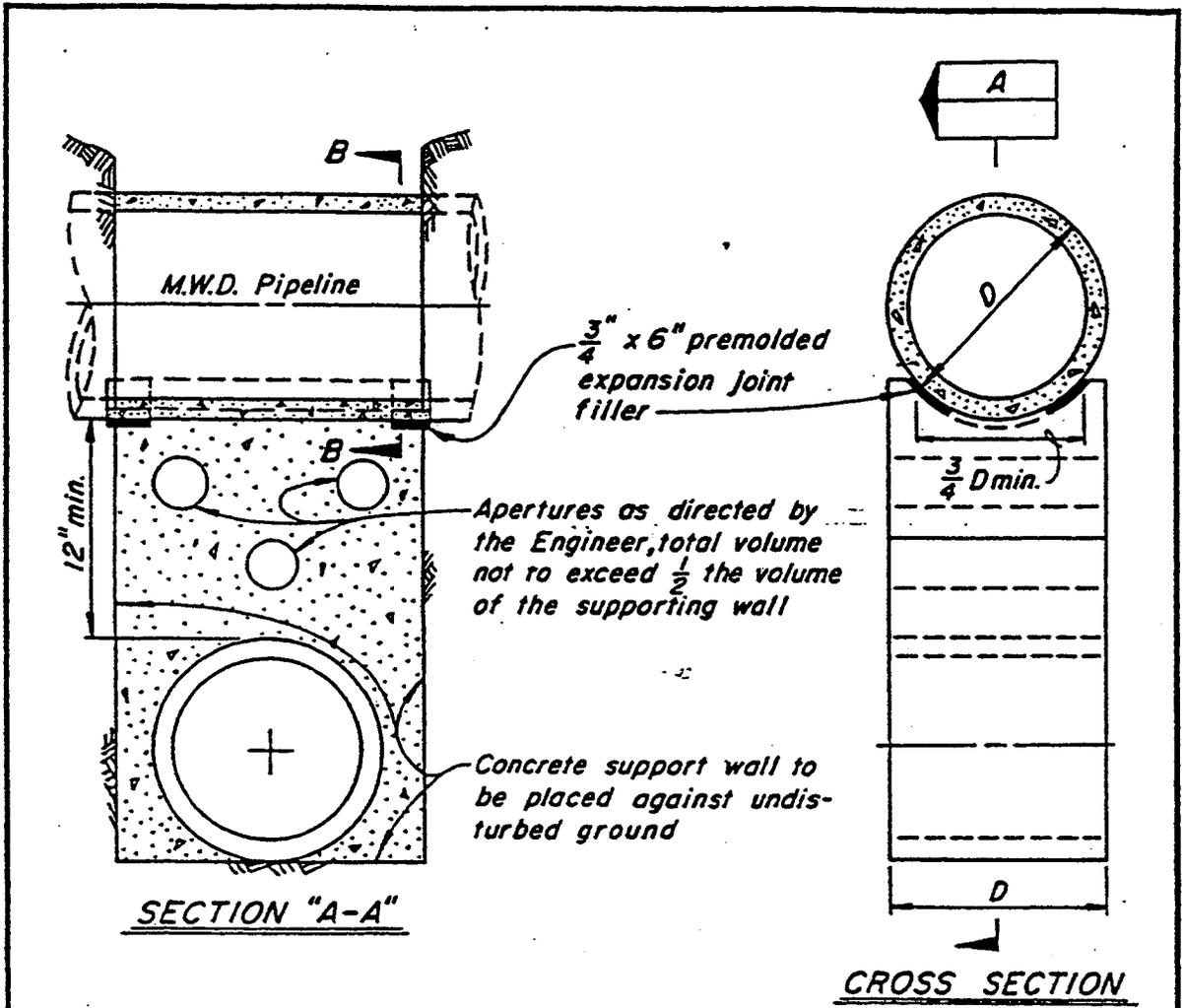


THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA DISTRIBUTION SYSTEM

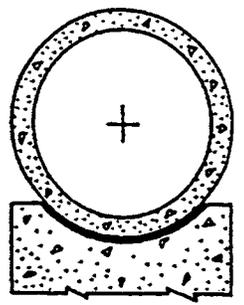
**CHAIN LINK FENCE DETAILS**

DESIGNED BY \_\_\_\_\_ CHECKED BY \_\_\_\_\_ APPROVED BY \_\_\_\_\_  
DATE \_\_\_\_\_ LOS ANGELES

REVISIONS	COORDINATION CHECK
DATE	BY
1	2
2	3
3	4
4	5
5	6
6	7
7	8
8	9
9	10
10	11
11	12
12	13
13	14
14	15
15	16
16	17
17	18
18	19
19	20
20	21
21	22
22	23
23	24
24	25
25	26
26	27
27	28
28	29
29	30
30	31
31	32
32	33
33	34
34	35
35	36
36	37
37	38
38	39
39	40



1. Supporting wall shall have a firm bearing on the subgrade and against the side of the excavation.
2. Premolded expansion joint filler per ASTM D-1751-73 to be used in support for steel pipe only.
3. If trench width is 4 feet or greater, measured along centerline of M.W.D. pipe, concrete support must be constructed.
4. If trench width is less than 4 feet, clean sand backfill, compacted to 90% density in accordance with the provisions of ASTM Standard D-1557-70 may be used in lieu of the concrete support wall.



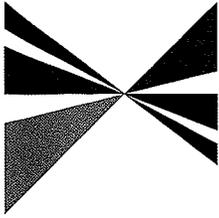
THE METROPOLITAN WATER DISTRICT  
OF SOUTHERN CALIFORNIA

**TYPICAL SUPPORT FOR  
M.W.D. PIPELINE**

DRAWN	RECOMMENDED
TRACED	APPROVED
CHECKED	

C-9547




**ASSOCIATION of  
GOVERNMENTS**
**Main Office**

818 West Seventh Street  
12th Floor  
Los Angeles, California  
90017-3435

t (213) 236-1800

f (213) 236-1825

www.scag.ca.gov

**Officers:** President: Yvonne B. Burke, Los Angeles County • First Vice President: Gary O'vitt, San Bernardino County • Second Vice President: Richard Dixon, Lake Forest • Immediate Past President: Toni Young, Port Hueneme

**Imperial County:** Victor Carrillo, Imperial County • Jon Edney, El Centro

**Los Angeles County:** Yvonne B. Burke, Los Angeles County • Zev Yaroslavsky, Los Angeles County • Jim Aldinger, Manhattan Beach • Harry Baldwin, San Gabriel • Todd Campbell, Burbank • Tony Cardenas, Los Angeles • Stan Carroll, La Habra Heights • Margaret Clark, Rosemead • Gene Daniels, Paramount • Judy Dunlap, Inglewood • Rae Gabelich, Long Beach • David Gafin, Downey • Eric Garcetti, Los Angeles • Wendy Greuel, Los Angeles • Frank Gurulé, Cudahy • Jim Jeffra, Lancaster • Janice Hahn, Los Angeles • Isadore Hall, Compton • Keith W. Hanks, Azusa • Jose Huizar, Los Angeles • Tom LaBonge, Los Angeles • Paula Lantz, Pomona • Paul Nowatka, Torrance • Pam O'Connor, Santa Monica • Bernard Parks, Los Angeles • Jan Perry, Los Angeles • Ed Reyes, Los Angeles • Bill Rosendahl, Los Angeles • Greig Smith, Los Angeles • Tom Sykes, Walnut • Mike Ten, South Pasadena • Tonia Reyes Uranga, Long Beach • Antonio Villaraigosa, Los Angeles • Dennis Washburn, Calabasas • Jack Weiss, Los Angeles • Herb J. Wesson, Jr., Los Angeles • Dennis Zine, Los Angeles

**Orange County:** Chris Norby, Orange County • Christine Barnes, La Palma • John Beauman, Brea • Lou Bone, Tustin • Debbie Cook, Huntington Beach • Leslie Daigle, Newport Beach • Richard Dixon, Lake Forest • Troy Edgar, Los Alamitos • Paul Glaab, Laguna Niguel • Sharon Quirk, Fullerton

**Riverside County:** Jeff Stone, Riverside County • Thomas Buckley, Lake Elsinore • Bonnie Flickinger, Moreno Valley • Ron Loveridge, Riverside • Greg Pettis, Cathedral City • Ron Roberts, Temecula

**San Bernardino County:** Gary O'vitt, San Bernardino County • Lawrence Dale, Barstow • Paul Eaton, Montclair • Lee Ann Garcia, Grand Terrace • Tim Jasper, Town of Apple Valley • Larry McCallon, Highland • Deborah Robertson, Rialto • Alan Wapner, Ontario

**Ventura County:** Linda Parks, Ventura County • Glen Becerra, Simi Valley • Carl Morehouse, San Buenaventura • Toni Young, Port Hueneme

**Orange County Transportation Authority:** Art Brown, Buena Park

**Riverside County Transportation Commission:** Robin Lowe, Hemet

**Ventura County Transportation Commission:** Keith Millhouse, Moorpark

APR 25 2007

April 24, 2007

Mr. Tom Barnes  
Department of Water Resources  
707 Wilshire Boulevard, Suite 1450  
Los Angeles, CA 90017

**RE: SCAG Clearinghouse No. I 20070206 East Branch Extension Phase II Project**

Dear Mr. Barnes:

Thank you for submitting the **East Branch Extension Phase II Project** for review and comment. As areawide clearinghouse for regionally significant projects, SCAG reviews the consistency of local plans, projects and programs with regional plans. This activity is based on SCAG's responsibilities as a regional planning organization pursuant to state and federal laws and regulations. Guidance provided by these reviews is intended to assist local agencies and project sponsors to take actions that contribute to the attainment of regional goals and policies.

We have reviewed the **East Branch Extension Phase II Project**, and have determined that the proposed Project is not regionally significant per SCAG Intergovernmental Review (IGR) Criteria and California Environmental Quality Act (CEQA) Guidelines (Section 15206). Therefore, the proposed Project does not warrant comments at this time. Should there be a change in the scope of the proposed Project, we would appreciate the opportunity to review and comment at that time.

A description of the proposed Project was published in SCAG's **April 1-15, 2007 Intergovernmental Review Clearinghouse Report** for public review and comment.

The project title and SCAG Clearinghouse number should be used in all correspondence with SCAG concerning this Project. Correspondence should be sent to the attention of the Clearinghouse Coordinator. If you have any questions, please contact me at (213) 236-1856. Thank you.

Sincerely,

**SHERYLL DEL ROSARIO**  
Associate Planner  
Intergovernmental Review

*Doc #134902*

**GRESHAM SAVAGE NOLAN & TILDEN**

A PROFESSIONAL CORPORATION  
LAWYERS • FOUNDED 1910

550 EAST HOSPITALITY LANE, SUITE 300  
SAN BERNARDINO, CALIFORNIA 92408-4205  
(909) 890-4499 • FACSIMILE (909) 890-9690  
www.greshamsavage.com

FOR THE FIRM:  
Mark A. Ostoich  
E-Mail:  
mark.ostoich@greshamsavage.com

GSNT FILE NUMBER: S112-032

TOTAL NUMBER OF PAGES (including this page): 5

DATE: May 4, 2007

ATTENTION: **Mr. Tom Barnes**  
c/o Mary Miller

COMPANY: Department of Water Resources

FAX NUMBER: 818/ 543-4604

TELEPHONE NUMBER: 818/ 500-1645

SENDER: Mark A. Ostoich, Esq.

If you do not receive all of the pages, please call Phyllis Jackson as soon as possible at (909) 890-4499, Ext. 1044

The information contained in this facsimile message is privileged and confidential and is intended only for the use of the addressee. If the reader of this message is not the addressee, or the person responsible for delivery to the addressee, you are hereby notified that any dissemination, distribution or copying of the message is strictly prohibited. If you have received this message in error, please notify us by telephone and return the original message to us at the above address via the U.S. Postal Service. Thank you.

**MEMO:**

Re: DWR East Branch Extension Phase II Project EIR

Please see the attached and thank you.

**GRESHAM SAVAGE NOLAN & TILDEN**

A PROFESSIONAL CORPORATION  
LAWYERS • FOUNDED 1910

FOR THE FIRM:  
Mark A. Ostoich  
E-Mail:  
mark.ostoich@greshamsavage.com

550 EAST HOSPITALITY LANE, SUITE 300  
SAN BERNARDINO, CALIFORNIA 92408-4205  
(909) 890-4499 • FACSIMILE (909) 890-9690  
www.greshamsavage.com

May 4, 2007

**VIA FACSIMILE – (818) 543-4604  
AND REGULAR MAIL**

Department of Water Resources  
c/o Mr. Tom Barnes  
707 Wilshire Boulevard, Suite 1450  
Los Angeles, California 90017

Re: Notice of Preparation of Environmental Impact Report,  
DWR East Branch Extension Phase II Project EIR

To Whom It May Concern:

We represent Seven W Enterprises, Inc., the owner of the Seven W Business Park, an approximately 85-acre development located east of Crafton Avenue, north of Madeira Avenue and south of the San Bernardino Avenue right-of-way, in Redlands, California. Because the Seven W Business Park will be directly impacted by the proposed project ("Project"), our client will be actively involved in these proceedings. To that end the purpose of this letter is to provide comments in response to the above-referenced Notice of Preparation ("NOP"). Our comments apply to both construction and operational impacts.

Inasmuch as the Seven W Business Park will be directly impacted by the Project, we trust that you will scope the Environmental Impact Report ("EIR") in such a manner as to facilitate a legally adequate analysis of all relevant environmental impacts, in accordance with applicable law.

**PROJECT DESCRIPTION AND RELATED MATTERS**

Due to imprecise descriptions, it is not possible to completely understand the impacts of Routes 1 and 2. Routes 1 and 2 both appear to run through and/or adjacent to private and public facilities and the impacts may vary substantially based on the precise location of the routes and of the pipeline itself. In addition, Routes 1 and 2 appear to run through long-established public and private facilities, which would require significant mitigation.

In contrast, Route 3 appears to lie exclusively on public land under the jurisdiction of the San Bernardino Valley Water Conservation District ("SBVWCD"), a beneficiary agency of the Project. In addition, Route 3 appears to run along an existing dike that has already disturbed the habitat and appears not to disrupt any existing facilities. The alignment of Route 2 could be improved by relocating it to the north of the current proposed alignment, to be located entirely on public land under the jurisdiction of SBVWCD, without causing significant disruption to existing facilities.

**GRESHAM SAVAGE NOLAN & TILDEN**  
A PROFESSIONAL CORPORATION  
Mark A. Ostoich

Department of Water Resources  
May 4, 2007  
Page 2

Routes 1 and 2 appear to be located too close to developed property, creating many more potential impacts than Route 3. Understanding of the above-mentioned issues would be improved if the alignments of all the proposed routes were more precisely described. To the extent they are not, we believe the Project description in the EIR and the resulting environmental analysis would be legally inadequate. As we are sure you will agree, even minor changes in alignment may have dramatically different environmental impacts.

### **AESTHETICS**

Although the NOP makes no mention of aesthetic impacts along the proposed pipeline routes, there are potential aesthetic impacts from the placement of the pipeline on or adjacent to existing facilities, landscaping and natural amenities, that must be analyzed.

Specifically, Routes 1 and 2 run through developed and inhabited areas and would create aesthetic impacts. Since no information is provided in the NOP regarding right-of-way and associated restrictions on land use required for the pipeline, we cannot fully comment at this time. Sufficient information should be provided and analyzed in the EIR. The EIR should address aesthetic impacts on the adjacent land along the full alignment of the pipeline and, particularly, in areas where inhabited facilities and/or natural amenities exist, not just in the proposed locations of the reservoir and pumping station. Finally, the Project should be screened, to mitigate the aesthetic impacts of the Project.

### **AIR QUALITY**

Because Routes 1 and 2 appear to lie in close proximity to residential development, as well as work places where people congregate daily, the impacts of the Project may affect sensitive receptors and, therefore, legally adequate analysis and appropriate mitigation are essential. Only Route 3 appears to lessen these impacts.

### **BIOLOGICAL RESOURCES**

In addition to identifying and analyzing the impacts of the Project on biological resources, the programs and permits of other state and federal agencies with an interest in biological resources in the area of the Project, should be discussed.

### **HAZARDS AND HAZARDOUS MATERIALS**

Route 3 is the only route that avoids previously developed land where hazards and hazardous materials are more likely to occur. Care should be taken to adequately analyze the impacts of Routes 1 and 2 associated with hazards and hazardous materials.

In addition, because of the nature and anticipated duration of the Project, trenching should be carried out in short segments, to minimize the danger of deep open trenches and

**GRESHAM SAVAGE NOLAN & TILDEN**  
A PROFESSIONAL CORPORATION  
Mark A. Ostoich

Department of Water Resources  
May 4, 2007  
Page 3

impediments to access. In addition, all trenching should be shored, to reduce impacts to adjacent, developed land.

### **LAND USE, PLANNING AND RECREATION**

As discussed above under "*Aesthetics*", Routes 1 and 2 would impact existing land uses, which have been established in this area for many years. Since the precise locations of the pipeline routes and the required right-of-way locations and associated land use restrictions are presently unknown, it is not possible to fully comment at this time.

Routes 1 and 2 run on and/or adjacent to existing facilities and would require the most extensive mitigation measures. Specifically, Routes 1 and 2 may destroy portions of the internal road and parking systems at the Seven W Business Park, buildings, utilities, security fencing, irrigation and fire protection systems, landscaping and other infrastructure and may result in other impairments to land use as well. These impacts must be analyzed.

The potential adverse impacts on land use could be largely mitigated by the selection of Route 3, which runs along the northern boundary of public land operated by SBVWCD, or by relocating the eastern portion of Route 1 entirely onto public land operated by SBVWCD.

### **NOISE**

The basis for our client's concern regarding noise impacts is the same as discussed above under "*Air Quality*" impacts. As discussed above under "*Aesthetics*", the Project should be screened to mitigate noise impacts.

### **TRAFFIC AND TRANSPORTATION**

Route 3 would be subject to the least transportation impacts for area residents and businesses. Routes 1 and 2 would have the most significant transportation impacts and would likely cause serious disruption to business operations of the tenants at the Seven W Business Park (*i.e.*, access to and within the Seven W Business Park would be impaired) and to adjacent residences. Since the precise locations of the pipeline routes and the required right-of-way locations and associated land use restrictions are presently unknown, it is not possible to fully comment at this time. However, the short-term and long-term impacts must be analyzed. Route 3 avoids all of the above-mentioned impacts.

### **UTILITIES AND PUBLIC SERVICES**

The basis for our client's concern regarding impacts to utilities and public services is the same as discussed above under "*Traffic and Transportation*". Adjacent residences and tenants at the Seven W Business Park depend on uninterrupted utility services. Trenching along Routes 1 and 2 poses a high risk of disruption of existing natural gas, water and sewer lines. Route 2 lies in close proximity to municipal water supply wells belonging to the City of Redlands.

**GRESHAM SAVAGE NOLAN & TILDEN**  
A PROFESSIONAL CORPORATION  
Mark A. Ostoich

Department of Water Resources  
May 4, 2007  
Page 4

Construction may disrupt power and water lines to the wells or the wells themselves. In addition, the proximity of Routes 1 and 2 to residences and work places where people congregate on a daily basis, poses particular concerns in the event of a terrorist event focused on major public infrastructure. These impacts must be analyzed. Route 3, solely by virtue of its alignment, mitigates this impact and creates greater opportunity for overall mitigation.

**GLOBAL WARMING**

The impacts of the Project should include an analysis of the impacts of the Project on the phenomenon known as global warming.

As stated above, we trust that you will consider our client's comments in your efforts to prepare a legally adequate EIR.

**REQUEST FOR NOTICE**

In closing, please also consider this letter as a request for notice of proceedings related to the above-referenced Project, pursuant to Section 21092.2 of the California Public Resources Code. Such notices should be given both to our client and to us at the following addresses:

Seven W. Enterprises, Inc.  
1500 Crafton Avenue  
Mentone, CA 92359  
Attn: Bill Caronna

Gresham Savage Nolan & Tilden  
500 E. Hospitality Lane, Suite 300  
San Bernardino, CA 92408  
Attn: Mark A. Ostoich, Esq.

We are copying this letter to the Director of the Department of Water Resources, for the purpose of ensuring compliance with our request for notice.

Very truly yours,



Mark A. Ostoich, of  
GRESHAM SAVAGE  
NOLAN & TILDEN,  
A Professional Corporation

MAO/pmj  
Department of Water Resources-01

cc: Seven W Enterprises, Inc.  
Director, Department of Water Resources

# REDLANDS CONSERVANCY

P O Box 855, Redlands CA 92373; (909) 792-1800; (909) 389-7810  
[www.redlandsconservancy.com](http://www.redlandsconservancy.com)

*Protecting Our Land ~ Our Heritage*

**President:** BOB CLARK  
**Vice Presidents:** MARK GORDEN  
JOHN TERRY

**Secretary:**

**Treasurer:** KATE TAYLOR

**Board of Directors**

LEON ARMANTROUT  
KAREN BRANDSTATER  
LARRY BURGESS  
JIM CAVANAUGH  
BOB CLARK  
ROBERT DAWES  
JOHN GODDARD  
JUDY GODON  
MARK GORDEN  
DONN GREEDA  
FRANK HERENDEEN  
BOB KNIGHT  
STAN KORFMACHER  
BETTINA MCLEOD  
ROLLIE MOORE  
JOHN TERRY

**Executive Director**

SHERLI LEONARD

**CHICAGO COLONY 2007**

- #1 MARK AND CHRISTY GORDEN
- #2 LEON AND MARGIE ARMANTROUT
- #3 GEORGE AND JO LESSARD
- #4 DAVE AND ROBIN MAUPIN
- #5 STAN AND JAN KORFMACHER
- #6 JACK AND LAURA DANGERMOND
- #7 MURRAY AND KAREN BRANDSTATER
- #8 PATRICIA WILLIAMS AND BEATRICE HART
- #9 LARRY AND CHAR BURGESS
- #10 BOB AND NORMA CLARK
- #11 LARRY R. AND YVETTE E. DYLINE
- #12 DEBORAH RADA- RONALD DUVALL
- #13 LINDA OSTER
- #15 MARTY AND JANE DAVIS FAMILY
- #24 RICHARD AND CHRISTINA CHRISTOPHERSON
- #39 RAY AND CINDY TOTTEN
- #48 MARY FRANCES MILLER
- #51 ANONYMOUS

33 MEMBERSHIPS AVAILABLE

**PREMIERE SPONSORS**

- #1 ROBERTO ARGENTINA – THE FARM ARTISAN RESTAURANT
- #2 TRIMFLEX GENERAL TRIM

Department of Water Resources  
c/o Tom Barnes  
707 Wilshire Boulevard, Suite 1450  
Los Angeles CA 90017

May 1, 2007

Dear Mr. Barnes,

I write this letter in response to the Notice of Preparation regarding the East Branch Extension Phase II Project. The Redlands Conservancy owns 100 acres in the vicinity of the proposed project, and has a substantial interest in the project.

Our property was acquired as a gift from the Fish and Wildlife Foundation which had acquired it from the Metropolitan Water District as mitigation for the Inland Feeder Project. The land is placed in permanent conservation, and is habitat for two endangered animals and two endangered plants (state and federal lists).

I understand that all three alternate routes of the proposed East Branch Extension lie along the entire south boundary of our property; therefore, we are concerned about maintaining the integrity of the property's conservation values.

We believe that the project's EIR must be comprehensive and address all issues, with focused attention paid to biological resources, geology, soils, seismicity, and mineral resources, hydrology and water quality, and noise, as these will surely impact the property's conservation values.

We are aware that the construction on the East Branch Extension along any of the proposed alternate routes will likely compromise our property, and we will seek to discuss this matter with the Department of Water Resources.

Regards,



Sherli Leonard, Executive Director

MAY 4 2007



**NOTICE OF PREPARATION**  
**DWR East Branch Extension Phase II Project EIR**

**To:** Calif. Office of Planning and Research  
 Responsible and Trustee Agencies  
 Other Interested Parties

**Subject:** Notice of Preparation of Environmental Impact Report

**Project:** East Branch Extension Phase II Project

**Lead Agency:** Department of Water Resources

Pursuant to Section 15082(a) of the California Environmental Quality Act (CEQA), the Department of Water Resources (DWR) will be the lead agency in preparing an Environmental Impact Report (EIR) for the East Branch Extension Phase II project. DWR requests your agency's views, relating to your agency's statutory authority, as to the scope and content of the environmental analysis to be included in the EIR. DWR has concluded that the project could potentially result in significant environmental impacts and therefore is preparing an EIR.

Pursuant to Section 15103 of the CEQA Guidelines, your response to this Notice of Preparation (NOP) must be received no later than thirty (30) days after receipt of this notice. The public comment period on the NOP will close May 4, 2007. Should you have any questions regarding the project or NOP, please contact Department of Water Resources, c/o Tom Barnes. Please mail your written response including any comments you may have on this project to:

Department of Water Resources  
 c/o Tom Barnes  
 707 Wilshire Boulevard, Suite 1450  
 Los Angeles, CA 90017

In order for the public and regulatory agencies to have an opportunity to ask questions and submit comments on the scope of the EIR, a scoping meeting will be held during the NOP review period. The scoping meeting will include a brief presentation providing an overview of the proposed project. After the presentation, oral comments will be accepted. Written comment forms will be supplied for those who wish to submit comments in writing at the scoping meeting; written comments may also be submitted during the NOP review period.

The scoping meeting will be held as follows:

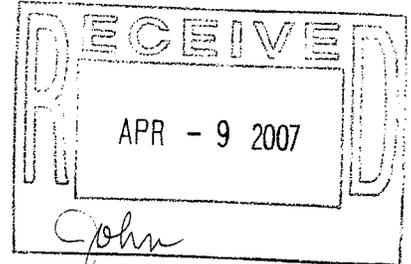
**Wednesday, April 18, 2007 at 7:00 pm**  
**San Bernardino Valley Municipal Water District**  
 1350 South "E" Street  
 San Bernardino, CA 92408

*TRAFFIC IMPACTS*

*DUE TO TEMP ROAD CLOSURES  
 OR LANE REDUCTIONS*

*- IN EXISTING SERVICE ROAD R/W. IMPACT OF TRAILS  
 SHOWN ON GP & MINE PLAN*

*- WOULD LIKE TRAIL ACROSS RIVER & WSPA AS PART OF PROJECT IF POSSIBLE*



# Appendix B

## Air Quality

**Appendix B**  
Air Quality – Section 1  
Fugitive Dust

## SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

### **RULE 403 -- FUGITIVE DUST**

*(Adopted: May 7, 1976)(Amended: November 6, 1992, July 9, 1993, February 14, 1997, December 11, 1998, April 2, 2004, June 3, 2005)*

(a) Purpose

The purpose of this Rule is to reduce the amount of particulate matter entrained in the ambient air as a result of anthropogenic (man-made) fugitive dust sources by requiring actions to prevent, reduce or mitigate fugitive dust emissions.

(b) Applicability

The provisions of this Rule shall apply to any activity or man-made condition capable of generating fugitive dust.

(c) Definitions

- (1) ACTIVE OPERATIONS means any source capable of generating fugitive dust, including, but not limited to, earth-moving activities, construction/demolition activities, disturbed surface area, or heavy- and light-duty vehicular movement.
- (2) AGGREGATE-RELATED PLANTS are defined as facilities that produce and / or mix sand and gravel and crushed stone.
- (3) AGRICULTURAL HANDBOOK means the region-specific guidance document that has been approved by the Governing Board or hereafter approved by the Executive Officer and the U.S. EPA. For the South Coast Air Basin, the Board-approved region-specific guidance document is the Rule 403 Agricultural Handbook dated December 1998. For the Coachella Valley, the Board-approved region-specific guidance document is the Rule 403 Coachella Valley Agricultural Handbook dated April 2, 2004.
- (4) ANEMOMETERS are devices used to measure wind speed and direction in accordance with the performance standards, and maintenance and calibration criteria as contained in the most recent Rule 403 Implementation Handbook.
- (5) BEST AVAILABLE CONTROL MEASURES means fugitive dust control actions that are set forth in Table 1 of this Rule.

- (6) BULK MATERIAL is sand, gravel, soil, aggregate material less than two inches in length or diameter, and other organic or inorganic particulate matter.
- (7) CEMENT MANUFACTURING FACILITY is any facility that has a cement kiln at the facility.
- (8) CHEMICAL STABILIZERS are any non-toxic chemical dust suppressant which must not be used if prohibited for use by the Regional Water Quality Control Boards, the California Air Resources Board, the U.S. Environmental Protection Agency (U.S. EPA), or any applicable law, rule or regulation. The chemical stabilizers shall meet any specifications, criteria, or tests required by any federal, state, or local water agency. Unless otherwise indicated, the use of a non-toxic chemical stabilizer shall be of sufficient concentration and application frequency to maintain a stabilized surface.
- (9) COMMERCIAL POULTRY RANCH means any building, structure, enclosure, or premises where more than 100 fowl are kept or maintained for the primary purpose of producing eggs or meat for sale or other distribution.
- (10) CONFINED ANIMAL FACILITY means a source or group of sources of air pollution at an agricultural source for the raising of 3,360 or more fowl or 50 or more animals, including but not limited to, any structure, building, installation, farm, corral, coop, feed storage area, milking parlor, or system for the collection, storage, or distribution of solid and liquid manure; if domesticated animals, including horses, sheep, goats, swine, beef cattle, rabbits, chickens, turkeys, or ducks are corralled, penned, or otherwise caused to remain in restricted areas for commercial agricultural purposes and feeding is by means other than grazing.
- (11) CONSTRUCTION/DEMOLITION ACTIVITIES means any on-site mechanical activities conducted in preparation of, or related to, the building, alteration, rehabilitation, demolition or improvement of property, including, but not limited to the following activities: grading, excavation, loading, crushing, cutting, planing, shaping or ground breaking.
- (12) CONTRACTOR means any person who has a contractual arrangement to conduct an active operation for another person.
- (13) DAIRY FARM is an operation on a property, or set of properties that are contiguous or separated only by a public right-of-way, that raises cows or

produces milk from cows for the purpose of making a profit or for a livelihood. Heifer and calf farms are dairy farms.

- (14) **DISTURBED SURFACE AREA** means a portion of the earth's surface which has been physically moved, uncovered, destabilized, or otherwise modified from its undisturbed natural soil condition, thereby increasing the potential for emission of fugitive dust. This definition excludes those areas which have:
- (A) been restored to a natural state, such that the vegetative ground cover and soil characteristics are similar to adjacent or nearby natural conditions;
  - (B) been paved or otherwise covered by a permanent structure; or
  - (C) sustained a vegetative ground cover of at least 70 percent of the native cover for a particular area for at least 30 days.
- (15) **DUST SUPPRESSANTS** are water, hygroscopic materials, or non-toxic chemical stabilizers used as a treatment material to reduce fugitive dust emissions.
- (16) **EARTH-MOVING ACTIVITIES** means the use of any equipment for any activity where soil is being moved or uncovered, and shall include, but not be limited to the following: grading, earth cutting and filling operations, loading or unloading of dirt or bulk materials, adding to or removing from open storage piles of bulk materials, landfill operations, weed abatement through disking, and soil mulching.
- (17) **DUST CONTROL SUPERVISOR** means a person with the authority to expeditiously employ sufficient dust mitigation measures to ensure compliance with all Rule 403 requirements at an active operation.
- (18) **FUGITIVE DUST** means any solid particulate matter that becomes airborne, other than that emitted from an exhaust stack, directly or indirectly as a result of the activities of any person.
- (19) **HIGH WIND CONDITIONS** means that instantaneous wind speeds exceed 25 miles per hour.
- (20) **INACTIVE DISTURBED SURFACE AREA** means any disturbed surface area upon which active operations have not occurred or are not expected to occur for a period of 20 consecutive days.
- (21) **LARGE OPERATIONS** means any active operations on property which contains 50 or more acres of disturbed surface area; or any earth-moving operation with a daily earth-moving or throughput volume of 3,850 cubic

meters (5,000 cubic yards) or more three times during the most recent 365-day period.

- (22) OPEN STORAGE PILE is any accumulation of bulk material, which is not fully enclosed, covered or chemically stabilized, and which attains a height of three feet or more and a total surface area of 150 or more square feet.
- (23) PARTICULATE MATTER means any material, except uncombined water, which exists in a finely divided form as a liquid or solid at standard conditions.
- (24) PAVED ROAD means a public or private improved street, highway, alley, public way, or easement that is covered by typical roadway materials, but excluding access roadways that connect a facility with a public paved roadway and are not open to through traffic. Public paved roads are those open to public access and that are owned by any federal, state, county, municipal or any other governmental or quasi-governmental agencies. Private paved roads are any paved roads not defined as public.
- (25) PM<sub>10</sub> means particulate matter with an aerodynamic diameter smaller than or equal to 10 microns as measured by the applicable State and Federal reference test methods.
- (26) PROPERTY LINE means the boundaries of an area in which either a person causing the emission or a person allowing the emission has the legal use or possession of the property. Where such property is divided into one or more sub-tenancies, the property line(s) shall refer to the boundaries dividing the areas of all sub-tenancies.
- (27) RULE 403 IMPLEMENTATION HANDBOOK means a guidance document that has been approved by the Governing Board on April 2, 2004 or hereafter approved by the Executive Officer and the U.S. EPA.
- (28) SERVICE ROADS are paved or unpaved roads that are used by one or more public agencies for inspection or maintenance of infrastructure and which are not typically used for construction-related activity.
- (29) SIMULTANEOUS SAMPLING means the operation of two PM<sub>10</sub> samplers in such a manner that one sampler is started within five minutes of the other, and each sampler is operated for a consecutive period which must be not less than 290 minutes and not more than 310 minutes.
- (30) SOUTH COAST AIR BASIN means the non-desert portions of Los Angeles, Riverside, and San Bernardino counties and all of Orange

County as defined in California Code of Regulations, Title 17, Section 60104. The area is bounded on the west by the Pacific Ocean, on the north and east by the San Gabriel, San Bernardino, and San Jacinto Mountains, and on the south by the San Diego county line.

- (31) **STABILIZED SURFACE** means any previously disturbed surface area or open storage pile which, through the application of dust suppressants, shows visual or other evidence of surface crusting and is resistant to wind-driven fugitive dust and is demonstrated to be stabilized. Stabilization can be demonstrated by one or more of the applicable test methods contained in the Rule 403 Implementation Handbook.
  - (32) **TRACK-OUT** means any bulk material that adheres to and agglomerates on the exterior surface of motor vehicles, haul trucks, and equipment (including tires) that have been released onto a paved road and can be removed by a vacuum sweeper or a broom sweeper under normal operating conditions.
  - (33) **TYPICAL ROADWAY MATERIALS** means concrete, asphaltic concrete, recycled asphalt, asphalt, or any other material of equivalent performance as determined by the Executive Officer, and the U.S. EPA.
  - (34) **UNPAVED ROADS** means any unsealed or unpaved roads, equipment paths, or travel ways that are not covered by typical roadway materials. Public unpaved roads are any unpaved roadway owned by federal, state, county, municipal or other governmental or quasi-governmental agencies. Private unpaved roads are all other unpaved roadways not defined as public.
  - (35) **VISIBLE ROADWAY DUST** means any sand, soil, dirt, or other solid particulate matter which is visible upon paved road surfaces and which can be removed by a vacuum sweeper or a broom sweeper under normal operating conditions.
  - (36) **WIND-DRIVEN FUGITIVE DUST** means visible emissions from any disturbed surface area which is generated by wind action alone.
  - (37) **WIND GUST** is the maximum instantaneous wind speed as measured by an anemometer.
- (d) Requirements
- (1) No person shall cause or allow the emissions of fugitive dust from any active operation, open storage pile, or disturbed surface area such that:

- (A) the dust remains visible in the atmosphere beyond the property line of the emission source; or
  - (B) the dust emission exceeds 20 percent opacity (as determined by the appropriate test method included in the Rule 403 Implementation Handbook), if the dust emission is the result of movement of a motorized vehicle.
- (2) No person shall conduct active operations without utilizing the applicable best available control measures included in Table 1 of this Rule to minimize fugitive dust emissions from each fugitive dust source type within the active operation.
- (3) No person shall cause or allow PM<sub>10</sub> levels to exceed 50 micrograms per cubic meter when determined, by simultaneous sampling, as the difference between upwind and downwind samples collected on high-volume particulate matter samplers or other U.S. EPA-approved equivalent method for PM<sub>10</sub> monitoring. If sampling is conducted, samplers shall be:
- (A) Operated, maintained, and calibrated in accordance with 40 Code of Federal Regulations (CFR), Part 50, Appendix J, or appropriate U.S. EPA-published documents for U.S. EPA-approved equivalent method(s) for PM<sub>10</sub>.
  - (B) Reasonably placed upwind and downwind of key activity areas and as close to the property line as feasible, such that other sources of fugitive dust between the sampler and the property line are minimized.
- (4) No person shall allow track-out to extend 25 feet or more in cumulative length from the point of origin from an active operation. Notwithstanding the preceding, all track-out from an active operation shall be removed at the conclusion of each workday or evening shift.
- (5) No person shall conduct an active operation with a disturbed surface area of five or more acres, or with a daily import or export of 100 cubic yards or more of bulk material without utilizing at least one of the measures listed in subparagraphs (d)(5)(A) through (d)(5)(E) at each vehicle egress from the site to a paved public road.
- (A) Install a pad consisting of washed gravel (minimum-size: one inch) maintained in a clean condition to a depth of at least six inches and extending at least 30 feet wide and at least 50 feet long.

- (B) Pave the surface extending at least 100 feet and at least 20 feet wide.
  - (C) Utilize a wheel shaker/wheel spreading device consisting of raised dividers (rails, pipe, or grates) at least 24 feet long and 10 feet wide to remove bulk material from tires and vehicle undercarriages before vehicles exit the site.
  - (D) Install and utilize a wheel washing system to remove bulk material from tires and vehicle undercarriages before vehicles exit the site.
  - (E) Any other control measures approved by the Executive Officer and the U.S. EPA as equivalent to the actions specified in subparagraphs (d)(5)(A) through (d)(5)(D).
- (6) Beginning January 1, 2006, any person who operates or authorizes the operation of a confined animal facility subject to this Rule shall implement the applicable conservation management practices specified in Table 4 of this Rule.
- (e) Additional Requirements for Large Operations
- (1) Any person who conducts or authorizes the conducting of a large operation subject to this Rule shall implement the applicable actions specified in Table 2 of this Rule at all times and shall implement the applicable actions specified in Table 3 of this Rule when the applicable performance standards can not be met through use of Table 2 actions; and shall:
    - (A) submit a fully executed Large Operation Notification (Form 403 N) to the Executive Officer within 7 days of qualifying as a large operation;
    - (B) include, as part of the notification, the name(s), address(es), and phone number(s) of the person(s) responsible for the submittal, and a description of the operation(s), including a map depicting the location of the site;
    - (C) maintain daily records to document the specific dust control actions taken, maintain such records for a period of not less than three years; and make such records available to the Executive Officer upon request;

- (D) install and maintain project signage with project contact signage that meets the minimum standards of the Rule 403 Implementation Handbook, prior to initiating any earthmoving activities;
  - (E) identify a dust control supervisor that:
    - (i) is employed by or contracted with the property owner or developer;
    - (ii) is on the site or available on-site within 30 minutes during working hours;
    - (iii) has the authority to expeditiously employ sufficient dust mitigation measures to ensure compliance with all Rule requirements;
    - (iv) has completed the AQMD Fugitive Dust Control Class and has been issued a valid Certificate of Completion for the class; and
  - (F) notify the Executive Officer in writing within 30 days after the site no longer qualifies as a large operation as defined by paragraph (c)(18).
- (2) Any Large Operation Notification submitted to the Executive Officer or AQMD-approved dust control plan shall be valid for a period of one year from the date of written acceptance by the Executive Officer. Any Large Operation Notification accepted pursuant to paragraph (e)(1), excluding those submitted by aggregate-related plants and cement manufacturing facilities must be resubmitted annually by the person who conducts or authorizes the conducting of a large operation, at least 30 days prior to the expiration date, or the submittal shall no longer be valid as of the expiration date. If all fugitive dust sources and corresponding control measures or special circumstances remain identical to those identified in the previously accepted submittal or in an AQMD-approved dust control plan, the resubmittal may be a simple statement of no-change (Form 403NC).
- (f) **Compliance Schedule**  
The newly amended provisions of this Rule shall become effective upon adoption. Pursuant to subdivision (e), any existing site that qualifies as a large operation will have 60 days from the date of Rule adoption to comply with the notification and recordkeeping requirements for large operations. Any Large Operation

Notification or AQMD-approved dust control plan which has been accepted prior to the date of adoption of these amendments shall remain in effect and the Large Operation Notification or AQMD-approved dust control plan annual resubmittal date shall be one year from adoption of this Rule amendment.

(g) Exemptions

(1) The provisions of this Rule shall not apply to:

- (A) Dairy farms.
- (B) Confined animal facilities provided that the combined disturbed surface area within one continuous property line is one acre or less.
- (C) Agricultural vegetative crop operations provided that the combined disturbed surface area within one continuous property line and not separated by a paved public road is 10 acres or less.
- (D) Agricultural vegetative crop operations within the South Coast Air Basin, whose combined disturbed surface area includes more than 10 acres provided that the person responsible for such operations:
  - (i) voluntarily implements the conservation management practices contained in the Rule 403 Agricultural Handbook;
  - (ii) completes and maintains the self-monitoring form documenting sufficient conservation management practices, as described in the Rule 403 Agricultural Handbook; and
  - (iii) makes the completed self-monitoring form available to the Executive Officer upon request.
- (E) Agricultural vegetative crop operations outside the South Coast Air Basin whose combined disturbed surface area includes more than 10 acres provided that the person responsible for such operations:
  - (i) voluntarily implements the conservation management practices contained in the Rule 403 Coachella Valley Agricultural Handbook; and
  - (ii) completes and maintains the self-monitoring form documenting sufficient conservation management practices, as described in the Rule 403 Coachella Valley Agricultural Handbook; and
  - (iii) makes the completed self-monitoring form available to the Executive Officer upon request.

- (F) Active operations conducted during emergency life-threatening situations, or in conjunction with any officially declared disaster or state of emergency.
  - (G) Active operations conducted by essential service utilities to provide electricity, natural gas, telephone, water and sewer during periods of service outages and emergency disruptions.
  - (H) Any contractor subsequent to the time the contract ends, provided that such contractor implemented the required control measures during the contractual period.
  - (I) Any grading contractor, for a phase of active operations, subsequent to the contractual completion of that phase of earth-moving activities, provided that the required control measures have been implemented during the entire phase of earth-moving activities, through and including five days after the final grading inspection.
  - (J) Weed abatement operations ordered by a county agricultural commissioner or any state, county, or municipal fire department, provided that:
    - (i) mowing, cutting or other similar process is used which maintains weed stubble at least three inches above the soil; and
    - (ii) any discing or similar operation which cuts into and disturbs the soil, where watering is used prior to initiation of these activities, and a determination is made by the agency issuing the weed abatement order that, due to fire hazard conditions, rocks, or other physical obstructions, it is not practical to meet the conditions specified in clause (g)(1)(H)(i). The provisions this clause shall not exempt the owner of any property from stabilizing, in accordance with paragraph (d)(2), disturbed surface areas which have been created as a result of the weed abatement actions.
  - (K) sandblasting operations.
- (2) The provisions of paragraphs (d)(1) and (d)(3) shall not apply:
- (A) When wind gusts exceed 25 miles per hour, provided that:

- (i) The required Table 3 contingency measures in this Rule are implemented for each applicable fugitive dust source type, and;
    - (ii) records are maintained in accordance with subparagraph (e)(1)(C).
  - (B) To unpaved roads, provided such roads:
    - (i) are used solely for the maintenance of wind-generating equipment; or
    - (ii) are unpaved public alleys as defined in Rule 1186; or
    - (iii) are service roads that meet all of the following criteria:
      - (a) are less than 50 feet in width at all points along the road;
      - (b) are within 25 feet of the property line; and
      - (c) have a traffic volume less than 20 vehicle-trips per day.
  - (C) To any active operation, open storage pile, or disturbed surface area for which necessary fugitive dust preventive or mitigative actions are in conflict with the federal Endangered Species Act, as determined in writing by the State or federal agency responsible for making such determinations.
- (3) The provisions of (d)(2) shall not apply to any aggregate-related plant or cement manufacturing facility that implements the applicable actions specified in Table 2 of this Rule at all times and shall implement the applicable actions specified in Table 3 of this Rule when the applicable performance standards of paragraphs (d)(1) and (d)(3) can not be met through use of Table 2 actions.
  - (4) The provisions of paragraphs (d)(1), (d)(2), and (d)(3) shall not apply to:
    - (A) Blasting operations which have been permitted by the California Division of Industrial Safety; and
    - (B) Motion picture, television, and video production activities when dust emissions are required for visual effects. In order to obtain this exemption, the Executive Officer must receive notification in writing at least 72 hours in advance of any such activity and no nuisance results from such activity.
  - (5) The provisions of paragraph (d)(3) shall not apply if the dust control actions, as specified in Table 2, are implemented on a routine basis for

each applicable fugitive dust source type. To qualify for this exemption, a person must maintain records in accordance with subparagraph (e)(1)(C).

- (6) The provisions of paragraph (d)(4) shall not apply to earth coverings of public paved roadways where such coverings are approved by a local government agency for the protection of the roadway, and where such coverings are used as roadway crossings for haul vehicles provided that such roadway is closed to through traffic and visible roadway dust is removed within one day following the cessation of activities.
- (7) The provisions of subdivision (e) shall not apply to:
  - (A) officially-designated public parks and recreational areas, including national parks, national monuments, national forests, state parks, state recreational areas, and county regional parks.
  - (B) any large operation which is required to submit a dust control plan to any city or county government which has adopted a District-approved dust control ordinance.
  - (C) any large operation subject to Rule 1158, which has an approved dust control plan pursuant to Rule 1158, provided that all sources of fugitive dust are included in the Rule 1158 plan.
- (8) The provisions of subparagraph (e)(1)(A) through (e)(1)(C) shall not apply to any large operation with an AQMD-approved fugitive dust control plan provided that there is no change to the sources and controls as identified in the AQMD-approved fugitive dust control plan.

(h) Fees

Any person conducting active operations for which the Executive Officer conducts upwind/downwind monitoring for PM<sub>10</sub> pursuant to paragraph (d)(3) shall be assessed applicable Ambient Air Analysis Fees pursuant to Rule 304.1. Applicable fees shall be waived for any facility which is exempted from paragraph (d)(3) or meets the requirements of paragraph (d)(3).

**TABLE 1**  
**BEST AVAILABLE CONTROL MEASURES**  
**(Applicable to All Construction Activity Sources)**

Source Category	Control Measure	Guidance
Backfilling	01-1 Stabilize backfill material when not actively handling; and 01-2 Stabilize backfill material during handling; and 01-3 Stabilize soil at completion of activity.	<ul style="list-style-type: none"> <li>✓ Mix backfill soil with water prior to moving</li> <li>✓ Dedicate water truck or high capacity hose to backfilling equipment</li> <li>✓ Empty loader bucket slowly so that no dust plumes are generated</li> <li>✓ Minimize drop height from loader bucket</li> </ul>
Clearing and grubbing	02-1 Maintain stability of soil through pre-watering of site prior to clearing and grubbing; and 02-2 Stabilize soil during clearing and grubbing activities; and 02-3 Stabilize soil immediately after clearing and grubbing activities.	<ul style="list-style-type: none"> <li>✓ Maintain live perennial vegetation where possible</li> <li>✓ Apply water in sufficient quantity to prevent generation of dust plumes</li> </ul>
Clearing forms	03-1 Use water spray to clear forms; or 03-2 Use sweeping and water spray to clear forms; or 03-3 Use vacuum system to clear forms.	<ul style="list-style-type: none"> <li>✓ Use of high pressure air to clear forms may cause exceedance of Rule requirements</li> </ul>
Crushing	04-1 Stabilize surface soils prior to operation of support equipment; and 04-2 Stabilize material after crushing.	<ul style="list-style-type: none"> <li>✓ Follow permit conditions for crushing equipment</li> <li>✓ Pre-water material prior to loading into crusher</li> <li>✓ Monitor crusher emissions opacity</li> <li>✓ Apply water to crushed material to prevent dust plumes</li> </ul>

**TABLE 1  
BEST AVAILABLE CONTROL MEASURES  
(Applicable to All Construction Activity Sources)**

Source Category	Control Measure	Guidance
Cut and fill	05-1 Pre-water soils prior to cut and fill activities; and 05-2 Stabilize soil during and after cut and fill activities.	<ul style="list-style-type: none"> <li>✓ For large sites, pre-water with sprinklers or water trucks and allow time for penetration</li> <li>✓ Use water trucks/pulls to water soils to depth of cut prior to subsequent cuts</li> </ul>
Demolition – mechanical/manual	06-1 Stabilize wind erodible surfaces to reduce dust; and 06-2 Stabilize surface soil where support equipment and vehicles will operate; and 06-3 Stabilize loose soil and demolition debris; and 06-4 Comply with AQMD Rule 1403.	<ul style="list-style-type: none"> <li>✓ Apply water in sufficient quantities to prevent the generation of visible dust plumes</li> </ul>
Disturbed soil	07-1 Stabilize disturbed soil throughout the construction site; and 07-2 Stabilize disturbed soil between structures	<ul style="list-style-type: none"> <li>✓ Limit vehicular traffic and disturbances on soils where possible</li> <li>✓ If interior block walls are planned, install as early as possible</li> <li>✓ Apply water or a stabilizing agent in sufficient quantities to prevent the generation of visible dust plumes</li> </ul>
Earth-moving activities	08-1 Pre-apply water to depth of proposed cuts; and 08-2 Re-apply water as necessary to maintain soils in a damp condition and to ensure that visible emissions do not exceed 100 feet in any direction; and 08-3 Stabilize soils once earth-moving activities are complete.	<ul style="list-style-type: none"> <li>✓ Grade each project phase separately, timed to coincide with construction phase</li> <li>✓ Upwind fencing can prevent material movement on site</li> <li>✓ Apply water or a stabilizing agent in sufficient quantities to prevent the generation of visible dust plumes</li> </ul>

**TABLE 1**  
**BEST AVAILABLE CONTROL MEASURES**  
**(Applicable to All Construction Activity Sources)**

Source Category	Control Measure	Guidance
Importing/exporting of bulk materials	09-1 Stabilize material while loading to reduce fugitive dust emissions; and 09-2 Maintain at least six inches of freeboard on haul vehicles; and 09-3 Stabilize material while transporting to reduce fugitive dust emissions; and 09-4 Stabilize material while unloading to reduce fugitive dust emissions; and 09-5 Comply with Vehicle Code Section 23114.	<ul style="list-style-type: none"> <li>✓ Use tarps or other suitable enclosures on haul trucks</li> <li>✓ Check belly-dump truck seals regularly and remove any trapped rocks to prevent spillage</li> <li>✓ Comply with track-out prevention/mitigation requirements</li> <li>✓ Provide water while loading and unloading to reduce visible dust plumes</li> </ul>
Landscaping	10-1 Stabilize soils, materials, slopes	<ul style="list-style-type: none"> <li>✓ Apply water to materials to stabilize</li> <li>✓ Maintain materials in a crusted condition</li> <li>✓ Maintain effective cover over materials</li> <li>✓ Stabilize sloping surfaces using soil binders until vegetation or ground cover can effectively stabilize the slopes</li> <li>✓ Hydroseed prior to rain season</li> </ul>
Road shoulder maintenance	11-1 Apply water to unpaved shoulders prior to clearing; and 11-2 Apply chemical dust suppressants and/or washed gravel to maintain a stabilized surface after completing road shoulder maintenance.	<ul style="list-style-type: none"> <li>✓ Installation of curbing and/or paving of road shoulders can reduce recurring maintenance costs</li> <li>✓ Use of chemical dust suppressants can inhibit vegetation growth and reduce future road shoulder maintenance costs</li> </ul>

**TABLE 1**  
**BEST AVAILABLE CONTROL MEASURES**  
**(Applicable to All Construction Activity Sources)**

Source Category	Control Measure	Guidance
Screening	12-1 Pre-water material prior to screening; and 12-2 Limit fugitive dust emissions to opacity and plume length standards; and 12-3 Stabilize material immediately after screening.	<ul style="list-style-type: none"> <li>✓ Dedicate water truck or high capacity hose to screening operation</li> <li>✓ Drop material through the screen slowly and minimize drop height</li> <li>✓ Install wind barrier with a porosity of no more than 50% upwind of screen to the height of the drop point</li> </ul>
Staging areas	13-1 Stabilize staging areas during use; and 13-2 Stabilize staging area soils at project completion.	<ul style="list-style-type: none"> <li>✓ Limit size of staging area</li> <li>✓ Limit vehicle speeds to 15 miles per hour</li> <li>✓ Limit number and size of staging area entrances/exits</li> </ul>
Stockpiles/ Bulk Material Handling	14-1 Stabilize stockpiled materials. 14-2 Stockpiles within 100 yards of off-site occupied buildings must not be greater than eight feet in height; or must have a road bladed to the top to allow water truck access or must have an operational water irrigation system that is capable of complete stockpile coverage.	<ul style="list-style-type: none"> <li>✓ Add or remove material from the downwind portion of the storage pile</li> <li>✓ Maintain storage piles to avoid steep sides or faces</li> </ul>

**TABLE 1**  
**BEST AVAILABLE CONTROL MEASURES**  
**(Applicable to All Construction Activity Sources)**

Source Category	Control Measure	Guidance
Traffic areas for construction activities	15-1 Stabilize all off-road traffic and parking areas; and 15-2 Stabilize all haul routes; and 15-3 Direct construction traffic over established haul routes.	<ul style="list-style-type: none"> <li>✓ Apply gravel/paving to all haul routes as soon as possible to all future roadway areas</li> <li>✓ Barriers can be used to ensure vehicles are only used on established parking areas/haul routes</li> </ul>
Trenching	16-1 Stabilize surface soils where trencher or excavator and support equipment will operate; and 16-2 Stabilize soils at the completion of trenching activities.	<ul style="list-style-type: none"> <li>✓ Pre-watering of soils prior to trenching is an effective preventive measure. For deep trenching activities, pre-trench to 18 inches soak soils via the pre-trench and resuming trenching</li> <li>✓ Washing mud and soils from equipment at the conclusion of trenching activities can prevent crusting and drying of soil on equipment</li> </ul>
Truck loading	17-1 Pre-water material prior to loading; and 17-2 Ensure that freeboard exceeds six inches (CVC 23114)	<ul style="list-style-type: none"> <li>✓ Empty loader bucket such that no visible dust plumes are created</li> <li>✓ Ensure that the loader bucket is close to the truck to minimize drop height while loading</li> </ul>
Turf Overseeding	18-1 Apply sufficient water immediately prior to conducting turf vacuuming activities to meet opacity and plume length standards; and 18-2 Cover haul vehicles prior to exiting the site.	<ul style="list-style-type: none"> <li>✓ Haul waste material immediately off-site</li> </ul>

**TABLE 1**  
**BEST AVAILABLE CONTROL MEASURES**  
**(Applicable to All Construction Activity Sources)**

Source Category	Control Measure	Guidance
Unpaved roads/parking lots	19-1 Stabilize soils to meet the applicable performance standards; and 19-2 Limit vehicular travel to established unpaved roads (haul routes) and unpaved parking lots.	✓ Restricting vehicular access to established unpaved travel paths and parking lots can reduce stabilization requirements
Vacant land	20-1 In instances where vacant lots are 0.10 acre or larger and have a cumulative area of 500 square feet or more that are driven over and/or used by motor vehicles and/or off-road vehicles, prevent motor vehicle and/or off-road vehicle trespassing, parking and/or access by installing barriers, curbs, fences, gates, posts, signs, shrubs, trees or other effective control measures.	

**Table 2**  
**DUST CONTROL MEASURES FOR LARGE OPERATIONS**

<b>FUGITIVE DUST SOURCE CATEGORY</b>	<b>CONTROL ACTIONS</b>
<b>Earth-moving (except construction cutting and filling areas, and mining operations)</b>	<p>(1a) Maintain soil moisture content at a minimum of 12 percent, as determined by ASTM method D-2216, or other equivalent method approved by the Executive Officer, the California Air Resources Board, and the U.S. EPA. Two soil moisture evaluations must be conducted during the first three hours of active operations during a calendar day, and two such evaluations each subsequent four-hour period of active operations; OR</p> <p>(1a-1) For any earth-moving which is more than 100 feet from all property lines, conduct watering as necessary to prevent visible dust emissions from exceeding 100 feet in length in any direction.</p>
<b>Earth-moving: Construction fill areas:</b>	<p>(1b) Maintain soil moisture content at a minimum of 12 percent, as determined by ASTM method D-2216, or other equivalent method approved by the Executive Officer, the California Air Resources Board, and the U.S. EPA. For areas which have an optimum moisture content for compaction of less than 12 percent, as determined by ASTM Method 1557 or other equivalent method approved by the Executive Officer and the California Air Resources Board and the U.S. EPA, complete the compaction process as expeditiously as possible after achieving at least 70 percent of the optimum soil moisture content. Two soil moisture evaluations must be conducted during the first three hours of active operations during a calendar day, and two such evaluations during each subsequent four-hour period of active operations.</p>

Table 2 (Continued)

<b>FUGITIVE DUST SOURCE CATEGORY</b>	<b>CONTROL ACTIONS</b>
<b>Earth-moving: Construction cut areas and mining operations:</b>	(1c) Conduct watering as necessary to prevent visible emissions from extending more than 100 feet beyond the active cut or mining area unless the area is inaccessible to watering vehicles due to slope conditions or other safety factors.
<b>Disturbed surface areas (except completed grading areas)</b>	(2a/b) Apply dust suppression in sufficient quantity and frequency to maintain a stabilized surface. Any areas which cannot be stabilized, as evidenced by wind driven fugitive dust must have an application of water at least twice per day to at least 80 percent of the unstabilized area.
<b>Disturbed surface areas: Completed grading areas</b>	(2c) Apply chemical stabilizers within five working days of grading completion; OR  (2d) Take actions (3a) or (3c) specified for inactive disturbed surface areas.
<b>Inactive disturbed surface areas</b>	(3a) Apply water to at least 80 percent of all inactive disturbed surface areas on a daily basis when there is evidence of wind driven fugitive dust, excluding any areas which are inaccessible to watering vehicles due to excessive slope or other safety conditions; OR  (3b) Apply dust suppressants in sufficient quantity and frequency to maintain a stabilized surface; OR  (3c) Establish a vegetative ground cover within 21 days after active operations have ceased. Ground cover must be of sufficient density to expose less than 30 percent of unstabilized ground within 90 days of planting, and at all times thereafter; OR  (3d) Utilize any combination of control actions (3a), (3b), and (3c) such that, in total, these actions apply to all inactive disturbed surface areas.

Table 2 (Continued)

<b>FUGITIVE DUST SOURCE CATEGORY</b>	<b>CONTROL ACTIONS</b>
<b>Unpaved Roads</b>	<p>(4a) Water all roads used for any vehicular traffic at least once per every two hours of active operations [3 times per normal 8 hour work day]; OR</p> <p>(4b) Water all roads used for any vehicular traffic once daily and restrict vehicle speeds to 15 miles per hour; OR</p> <p>(4c) Apply a chemical stabilizer to all unpaved road surfaces in sufficient quantity and frequency to maintain a stabilized surface.</p>
<b>Open storage piles</b>	<p>(5a) Apply chemical stabilizers; OR</p> <p>(5b) Apply water to at least 80 percent of the surface area of all open storage piles on a daily basis when there is evidence of wind driven fugitive dust; OR</p> <p>(5c) Install temporary coverings; OR</p> <p>(5d) Install a three-sided enclosure with walls with no more than 50 percent porosity which extend, at a minimum, to the top of the pile. This option may only be used at aggregate-related plants or at cement manufacturing facilities.</p>
<b>All Categories</b>	<p>(6a) Any other control measures approved by the Executive Officer and the U.S. EPA as equivalent to the methods specified in Table 2 may be used.</p>

**TABLE 3**  
**CONTINGENCY CONTROL MEASURES FOR LARGE OPERATIONS**

<b>FUGITIVE DUST SOURCE CATEGORY</b>	<b>CONTROL MEASURES</b>
<b>Earth-moving</b>	(1A) Cease all active operations; OR (2A) Apply water to soil not more than 15 minutes prior to moving such soil.
<b>Disturbed surface areas</b>	(0B) On the last day of active operations prior to a weekend, holiday, or any other period when active operations will not occur for not more than four consecutive days: apply water with a mixture of chemical stabilizer diluted to not less than 1/20 of the concentration required to maintain a stabilized surface for a period of six months; OR (1B) Apply chemical stabilizers prior to wind event; OR (2B) Apply water to all unstabilized disturbed areas 3 times per day. If there is any evidence of wind driven fugitive dust, watering frequency is increased to a minimum of four times per day; OR (3B) Take the actions specified in Table 2, Item (3c); OR (4B) Utilize any combination of control actions (1B), (2B), and (3B) such that, in total, these actions apply to all disturbed surface areas.
<b>Unpaved roads</b>	(1C) Apply chemical stabilizers prior to wind event; OR (2C) Apply water twice per hour during active operation; OR (3C) Stop all vehicular traffic.
<b>Open storage piles</b>	(1D) Apply water twice per hour; OR (2D) Install temporary coverings.
<b>Paved road track-out</b>	(1E) Cover all haul vehicles; OR (2E) Comply with the vehicle freeboard requirements of Section 23114 of the California Vehicle Code for both public and private roads.
<b>All Categories</b>	(1F) Any other control measures approved by the Executive Officer and the U.S. EPA as equivalent to the methods specified in Table 3 may be used.

**Table 4**  
**(Conservation Management Practices for Confined Animal Facilities)**

<b>SOURCE CATEGORY</b>	<b>CONSERVATION MANAGEMENT PRACTICES</b>
<b>Manure Handling</b>  <b>(Only applicable to Commercial Poultry Ranches)</b>	(1a) Cover manure prior to removing material off-site; AND (1b) Spread the manure before 11:00 AM and when wind conditions are less than 25 miles per hour; AND (1c) Utilize coning and drying manure management by removing manure at laying hen houses at least twice per year and maintain a base of no less than 6 inches of dry manure after clean out; or in lieu of complying with conservation management practice (1c), comply with conservation management practice (1d). (1d) Utilize frequent manure removal by removing the manure from laying hen houses at least every seven days and immediately thin bed dry the material.
<b>Feedstock Handling</b>	(2a) Utilize a sock or boot on the feed truck auger when filling feed storage bins.
<b>Disturbed Surfaces</b>	(3a) Maintain at least 70 percent vegetative cover on vacant portions of the facility; OR (3b) Utilize conservation tillage practices to manage the amount, orientation and distribution of crop and other plant residues on the soil surface year-round, while growing crops (if applicable) in narrow slots or tilled strips; OR (3c) Apply dust suppressants in sufficient concentrations and frequencies to maintain a stabilized surface.
<b>Unpaved Roads</b>	(4a) Restrict access to private unpaved roads either through signage or physical access restrictions and control vehicular speeds to no more than 15 miles per hour through worker notifications, signage, or any other necessary means; OR (4b) Cover frequently traveled unpaved roads with low silt content material (i.e., asphalt, concrete, recycled road base, or gravel to a minimum depth of four inches); OR (4c) Treat unpaved roads with water, mulch, chemical dust suppressants or other cover to maintain a stabilized surface.
<b>Equipment Parking Areas</b>	(5a) Apply dust suppressants in sufficient quantity and frequency to maintain a stabilized surface; OR (5b) Apply material with low silt content (i.e., asphalt, concrete, recycled road base, or gravel to a depth of four inches).

# Appendix B

## Air Quality – Section 2

### Urbemis Emission Estiamtes

Urbemis 2007 Version 9.2.4

Summary Report for Summer Emissions (Pounds/Day)

File Name: C:\Documents and Settings\dsa\Application Data\Urbemis\Version9a\Projects\DWR Citrus Pump Station and Reservoir 6 23 08.urb924

Project Name: DWR Citrus Pump Station and Reservoir 6 23 08

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10 Dust</u>	<u>PM10 Exhaust</u>	<u>PM10</u>	<u>PM2.5 Dust</u>	<u>PM2.5 Exhaust</u>	<u>PM2.5</u>	<u>CO2</u>
2009 TOTALS (lbs/day unmitigated)	20.09	192.83	95.18	0.09	180.33	9.31	189.65	37.70	8.57	46.27	19,572.43
2009 TOTALS (lbs/day mitigated)	20.09	192.83	95.18	0.09	41.15	9.31	50.46	8.63	8.57	17.20	19,572.43
2010 TOTALS (lbs/day unmitigated)	277.97	343.49	224.24	0.31	355.70	15.79	371.49	74.37	14.53	88.89	42,795.26
2010 TOTALS (lbs/day mitigated)	277.97	343.49	224.24	0.31	81.19	15.79	96.98	17.04	14.53	31.57	42,795.26
2011 TOTALS (lbs/day unmitigated)	208.11	195.34	120.49	0.14	10.53	9.02	19.55	2.27	8.29	10.56	26,902.53
2011 TOTALS (lbs/day mitigated)	208.11	195.34	120.49	0.14	2.80	9.02	11.82	0.65	8.29	8.94	26,902.53

Urbemis 2007 Version 9.2.4

Summary Report for Annual Emissions (Tons/Year)

File Name: C:\Documents and Settings\dsa\Application Data\Urbemis\Version9a\Projects\DWR Citrus Pump Station and Reservoir 6 23 08.urb924

Project Name: DWR Citrus Pump Station and Reservoir 6 23 08

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10 Dust</u>	<u>PM10 Exhaust</u>	<u>PM10</u>	<u>PM2.5 Dust</u>	<u>PM2.5 Exhaust</u>	<u>PM2.5</u>	<u>CO2</u>
2009 TOTALS (tons/year unmitigated)	2.62	25.16	12.42	0.01	23.53	1.22	24.75	4.92	1.12	6.04	2,554.20
2009 TOTALS (tons/year mitigated)	2.62	25.16	12.42	0.01	5.37	1.22	6.59	1.13	1.12	2.24	2,554.20
Percent Reduction	0.00	0.00	0.00	0.00	77.18	0.00	73.39	77.10	0.00	62.82	0.00
2010 TOTALS (tons/year unmitigated)	11.00	25.11	16.81	0.02	13.95	1.20	15.15	2.93	1.10	4.03	3,495.37
2010 TOTALS (tons/year mitigated)	11.00	25.11	16.81	0.02	3.23	1.20	4.43	0.69	1.10	1.79	3,495.37
Percent Reduction	0.00	0.00	0.00	0.00	76.84	0.00	70.76	76.53	0.00	55.62	0.00
2011 TOTALS (tons/year unmitigated)	9.80	13.84	9.10	0.01	0.65	0.66	1.30	0.14	0.60	0.74	2,078.04
2011 TOTALS (tons/year mitigated)	9.80	13.84	9.10	0.01	0.18	0.66	0.84	0.05	0.60	0.65	2,078.04
Percent Reduction	0.00	0.00	0.00	0.00	71.32	0.00	35.37	68.03	0.00	12.92	0.00



Urbemis 2007 Version 9.2.4

Detail Report for Summer Construction Mitigated Emissions (Pounds/Day)

File Name: C:\Documents and Settings\dsa\Application Data\Urbemis\Version9a\Projects\DWR Citrus Pump Station and Reservoir 6 23 08.urb924

Project Name: DWR Citrus Pump Station and Reservoir 6 23 08

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES (Summer Pounds Per Day, Mitigated)

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10 Dust</u>	<u>PM10 Exhaust</u>	<u>PM10 Total</u>	<u>PM2.5 Dust</u>	<u>PM2.5 Exhaust</u>	<u>PM2.5 Total</u>	<u>CO2</u>
Time Slice 1/1/2009-12/31/2009 Active Days: 261	<u>20.09</u>	<u>192.83</u>	<u>95.18</u>	<u>0.09</u>	<u>41.15</u>	<u>9.31</u>	<u>50.46</u>	<u>8.63</u>	<u>8.57</u>	<u>17.20</u>	<u>19,572.43</u>
Mass Grading 01/01/2009-07/01/2010	13.81	140.16	66.36	0.08	39.99	6.55	46.53	8.39	6.02	14.41	14,732.84
Mass Grading Dust	0.00	0.00	0.00	0.00	39.68	0.00	39.68	8.29	0.00	8.29	0.00
Mass Grading Off Road Diesel	8.42	69.19	36.92	0.00	0.00	3.58	3.58	0.00	3.29	3.29	5,703.66
Mass Grading On Road Diesel	5.32	70.83	27.18	0.08	0.29	2.96	3.25	0.10	2.72	2.82	8,780.32
Mass Grading Worker Trips	0.07	0.14	2.25	0.00	0.01	0.01	0.02	0.00	0.01	0.01	248.86
Mass Grading 01/01/2009-08/30/2011	6.27	52.67	28.83	0.01	1.16	2.77	3.93	0.25	2.54	2.79	4,839.58
Mass Grading Dust	0.00	0.00	0.00	0.00	1.13	0.00	1.13	0.24	0.00	0.24	0.00
Mass Grading Off Road Diesel	5.84	47.63	24.96	0.00	0.00	2.55	2.55	0.00	2.35	2.35	4,011.44
Mass Grading On Road Diesel	0.37	4.92	1.89	0.01	0.02	0.21	0.23	0.01	0.19	0.20	610.38
Mass Grading Worker Trips	0.06	0.12	1.97	0.00	0.01	0.01	0.02	0.00	0.00	0.01	217.75

6/25/2008 9:31:12 AM

Time Slice 1/1/2010-1/1/2010 Active Days: 1	18.88	179.76	89.53	0.09	41.15	8.63	49.78	8.63	7.94	16.57	19,572.29
Mass Grading 01/01/2009-07/01/2010	12.98	130.17	62.04	0.08	39.99	6.03	46.02	8.39	5.55	13.94	14,732.77
Mass Grading Dust	0.00	0.00	0.00	0.00	39.68	0.00	39.68	8.29	0.00	8.29	0.00
Mass Grading Off Road Diesel	7.96	65.52	35.17	0.00	0.00	3.38	3.38	0.00	3.11	3.11	5,703.66
Mass Grading On Road Diesel	4.95	64.52	24.77	0.08	0.29	2.64	2.93	0.10	2.43	2.53	8,780.32
Mass Grading Worker Trips	0.07	0.12	2.10	0.00	0.01	0.01	0.02	0.00	0.01	0.01	248.79
Mass Grading 01/01/2009-08/30/2011	5.90	49.59	27.49	0.01	1.16	2.60	3.76	0.25	2.39	2.64	4,839.52
Mass Grading Dust	0.00	0.00	0.00	0.00	1.13	0.00	1.13	0.24	0.00	0.24	0.00
Mass Grading Off Road Diesel	5.50	45.00	23.94	0.00	0.00	2.41	2.41	0.00	2.22	2.22	4,011.44
Mass Grading On Road Diesel	0.34	4.49	1.72	0.01	0.02	0.18	0.20	0.01	0.17	0.18	610.38
Mass Grading Worker Trips	0.06	0.11	1.83	0.00	0.01	0.01	0.02	0.00	0.00	0.01	217.69

6/25/2008 9:31:12 AM

Time Slice 1/4/2010-2/1/2010 Active Days: 21	34.75	<u>343.49</u>	161.94	0.19	<u>81.19</u>	<u>15.79</u>	<u>96.98</u>	<u>17.04</u>	<u>14.53</u>	<u>31.57</u>	38,253.00
Fine Grading 01/02/2010-02/01/2010	15.87	163.74	72.40	0.10	40.04	7.16	47.20	8.41	6.59	14.99	18,680.71
Fine Grading Dust	0.00	0.00	0.00	0.00	39.68	0.00	39.68	8.29	0.00	8.29	0.00
Fine Grading Off Road Diesel	9.87	86.21	40.59	0.00	0.00	3.98	3.98	0.00	3.66	3.66	7,898.53
Fine Grading On Road Diesel	5.94	77.40	29.72	0.10	0.35	3.17	3.52	0.12	2.92	3.03	10,533.39
Fine Grading Worker Trips	0.07	0.12	2.10	0.00	0.01	0.01	0.02	0.00	0.01	0.01	248.79
Mass Grading 01/01/2009-07/01/2010	12.98	130.17	62.04	0.08	39.99	6.03	46.02	8.39	5.55	13.94	14,732.77
Mass Grading Dust	0.00	0.00	0.00	0.00	39.68	0.00	39.68	8.29	0.00	8.29	0.00
Mass Grading Off Road Diesel	7.96	65.52	35.17	0.00	0.00	3.38	3.38	0.00	3.11	3.11	5,703.66
Mass Grading On Road Diesel	4.95	64.52	24.77	0.08	0.29	2.64	2.93	0.10	2.43	2.53	8,780.32
Mass Grading Worker Trips	0.07	0.12	2.10	0.00	0.01	0.01	0.02	0.00	0.01	0.01	248.79
Mass Grading 01/01/2009-08/30/2011	5.90	49.59	27.49	0.01	1.16	2.60	3.76	0.25	2.39	2.64	4,839.52
Mass Grading Dust	0.00	0.00	0.00	0.00	1.13	0.00	1.13	0.24	0.00	0.24	0.00
Mass Grading Off Road Diesel	5.50	45.00	23.94	0.00	0.00	2.41	2.41	0.00	2.22	2.22	4,011.44
Mass Grading On Road Diesel	0.34	4.49	1.72	0.01	0.02	0.18	0.20	0.01	0.17	0.18	610.38
Mass Grading Worker Trips	0.06	0.11	1.83	0.00	0.01	0.01	0.02	0.00	0.00	0.01	217.69

6/25/2008 9:31:13 AM

Time Slice 2/2/2010-2/26/2010 Active Days: 19	24.49	203.92	102.89	0.11	41.21	10.28	51.48	8.65	9.45	18.11	22,288.66
Asphalt 02/02/2010-03/01/2010	5.61	24.16	13.35	0.02	0.06	1.65	1.70	0.02	1.51	1.53	2,716.37
Paving Off-Gas	2.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.26	13.45	7.70	0.00	0.00	1.21	1.21	0.00	1.11	1.11	1,084.41
Paving On Road Diesel	0.81	10.62	4.08	0.01	0.05	0.43	0.48	0.02	0.40	0.42	1,445.37
Paving Worker Trips	0.05	0.09	1.57	0.00	0.01	0.01	0.01	0.00	0.00	0.01	186.59
Mass Grading 01/01/2009-07/01/2010	12.98	130.17	62.04	0.08	39.99	6.03	46.02	8.39	5.55	13.94	14,732.77
Mass Grading Dust	0.00	0.00	0.00	0.00	39.68	0.00	39.68	8.29	0.00	8.29	0.00
Mass Grading Off Road Diesel	7.96	65.52	35.17	0.00	0.00	3.38	3.38	0.00	3.11	3.11	5,703.66
Mass Grading On Road Diesel	4.95	64.52	24.77	0.08	0.29	2.64	2.93	0.10	2.43	2.53	8,780.32
Mass Grading Worker Trips	0.07	0.12	2.10	0.00	0.01	0.01	0.02	0.00	0.01	0.01	248.79
Mass Grading 01/01/2009-08/30/2011	5.90	49.59	27.49	0.01	1.16	2.60	3.76	0.25	2.39	2.64	4,839.52
Mass Grading Dust	0.00	0.00	0.00	0.00	1.13	0.00	1.13	0.24	0.00	0.24	0.00
Mass Grading Off Road Diesel	5.50	45.00	23.94	0.00	0.00	2.41	2.41	0.00	2.22	2.22	4,011.44
Mass Grading On Road Diesel	0.34	4.49	1.72	0.01	0.02	0.18	0.20	0.01	0.17	0.18	610.38
Mass Grading Worker Trips	0.06	0.11	1.83	0.00	0.01	0.01	0.02	0.00	0.00	0.01	217.69

6/25/2008 9:31:13 AM

Time Slice 3/1/2010-3/1/2010 Active Days: 1	272.79	204.10	105.92	0.11	41.22	10.29	51.51	8.66	9.46	18.12	22,648.99
Asphalt 02/02/2010-03/01/2010	5.61	24.16	13.35	0.02	0.06	1.65	1.70	0.02	1.51	1.53	2,716.37
Paving Off-Gas	2.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.26	13.45	7.70	0.00	0.00	1.21	1.21	0.00	1.11	1.11	1,084.41
Paving On Road Diesel	0.81	10.62	4.08	0.01	0.05	0.43	0.48	0.02	0.40	0.42	1,445.37
Paving Worker Trips	0.05	0.09	1.57	0.00	0.01	0.01	0.01	0.00	0.00	0.01	186.59
Coating 03/01/2010-06/01/2010	248.30	0.18	3.04	0.00	0.02	0.01	0.03	0.01	0.01	0.01	360.33
Architectural Coating	248.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.10	0.18	3.04	0.00	0.02	0.01	0.03	0.01	0.01	0.01	360.33
Mass Grading 01/01/2009-07/01/2010	12.98	130.17	62.04	0.08	39.99	6.03	46.02	8.39	5.55	13.94	14,732.77
Mass Grading Dust	0.00	0.00	0.00	0.00	39.68	0.00	39.68	8.29	0.00	8.29	0.00
Mass Grading Off Road Diesel	7.96	65.52	35.17	0.00	0.00	3.38	3.38	0.00	3.11	3.11	5,703.66
Mass Grading On Road Diesel	4.95	64.52	24.77	0.08	0.29	2.64	2.93	0.10	2.43	2.53	8,780.32
Mass Grading Worker Trips	0.07	0.12	2.10	0.00	0.01	0.01	0.02	0.00	0.01	0.01	248.79
Mass Grading 01/01/2009-08/30/2011	5.90	49.59	27.49	0.01	1.16	2.60	3.76	0.25	2.39	2.64	4,839.52
Mass Grading Dust	0.00	0.00	0.00	0.00	1.13	0.00	1.13	0.24	0.00	0.24	0.00
Mass Grading Off Road Diesel	5.50	45.00	23.94	0.00	0.00	2.41	2.41	0.00	2.22	2.22	4,011.44
Mass Grading On Road Diesel	0.34	4.49	1.72	0.01	0.02	0.18	0.20	0.01	0.17	0.18	610.38
Mass Grading Worker Trips	0.06	0.11	1.83	0.00	0.01	0.01	0.02	0.00	0.00	0.01	217.69

6/25/2008 9:31:13 AM

Time Slice 3/2/2010-3/31/2010 Active Days: 22	270.50	190.62	165.49	0.18	41.56	9.37	50.93	8.78	8.61	17.39	28,805.40
Building 03/02/2010-06/01/2010	3.33	10.68	72.92	0.09	0.39	0.73	1.13	0.14	0.66	0.80	8,872.78
Building Off Road Diesel	1.00	4.55	3.35	0.00	0.00	0.42	0.42	0.00	0.39	0.39	418.79
Building Vendor Trips	0.18	2.12	1.51	0.00	0.01	0.09	0.10	0.00	0.08	0.09	377.14
Building Worker Trips	2.14	4.01	68.06	0.08	0.38	0.22	0.60	0.14	0.19	0.32	8,076.85
Coating 03/01/2010-06/01/2010	248.30	0.18	3.04	0.00	0.02	0.01	0.03	0.01	0.01	0.01	360.33
Architectural Coating	248.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.10	0.18	3.04	0.00	0.02	0.01	0.03	0.01	0.01	0.01	360.33
Mass Grading 01/01/2009-07/01/2010	12.98	130.17	62.04	0.08	39.99	6.03	46.02	8.39	5.55	13.94	14,732.77
Mass Grading Dust	0.00	0.00	0.00	0.00	39.68	0.00	39.68	8.29	0.00	8.29	0.00
Mass Grading Off Road Diesel	7.96	65.52	35.17	0.00	0.00	3.38	3.38	0.00	3.11	3.11	5,703.66
Mass Grading On Road Diesel	4.95	64.52	24.77	0.08	0.29	2.64	2.93	0.10	2.43	2.53	8,780.32
Mass Grading Worker Trips	0.07	0.12	2.10	0.00	0.01	0.01	0.02	0.00	0.01	0.01	248.79
Mass Grading 01/01/2009-08/30/2011	5.90	49.59	27.49	0.01	1.16	2.60	3.76	0.25	2.39	2.64	4,839.52
Mass Grading Dust	0.00	0.00	0.00	0.00	1.13	0.00	1.13	0.24	0.00	0.24	0.00
Mass Grading Off Road Diesel	5.50	45.00	23.94	0.00	0.00	2.41	2.41	0.00	2.22	2.22	4,011.44
Mass Grading On Road Diesel	0.34	4.49	1.72	0.01	0.02	0.18	0.20	0.01	0.17	0.18	610.38
Mass Grading Worker Trips	0.06	0.11	1.83	0.00	0.01	0.01	0.02	0.00	0.00	0.01	217.69

6/25/2008 9:31:13 AM

Time Slice 4/1/2010-6/1/2010 Active Days: 44	<u>277.97</u>	270.36	<u>224.24</u>	<u>0.31</u>	42.03	12.92	54.96	8.94	11.86	20.81	<u>42,795.26</u>
Building 03/02/2010-06/01/2010	3.33	10.68	72.92	0.09	0.39	0.73	1.13	0.14	0.66	0.80	8,872.78
Building Off Road Diesel	1.00	4.55	3.35	0.00	0.00	0.42	0.42	0.00	0.39	0.39	418.79
Building Vendor Trips	0.18	2.12	1.51	0.00	0.01	0.09	0.10	0.00	0.08	0.09	377.14
Building Worker Trips	2.14	4.01	68.06	0.08	0.38	0.22	0.60	0.14	0.19	0.32	8,076.85
Building 04/01/2010-10/01/2011	7.46	79.74	58.75	0.13	0.47	3.55	4.02	0.16	3.26	3.42	13,989.87
Building Off Road Diesel	1.00	4.55	3.35	0.00	0.00	0.42	0.42	0.00	0.39	0.39	418.79
Building Vendor Trips	6.38	75.05	52.86	0.13	0.46	3.12	3.58	0.16	2.86	3.02	13,269.97
Building Worker Trips	0.08	0.15	2.54	0.00	0.01	0.01	0.02	0.01	0.01	0.01	301.11
Coating 03/01/2010-06/01/2010	248.30	0.18	3.04	0.00	0.02	0.01	0.03	0.01	0.01	0.01	360.33
Architectural Coating	248.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.10	0.18	3.04	0.00	0.02	0.01	0.03	0.01	0.01	0.01	360.33
Mass Grading 01/01/2009-07/01/2010	12.98	130.17	62.04	0.08	39.99	6.03	46.02	8.39	5.55	13.94	14,732.77
Mass Grading Dust	0.00	0.00	0.00	0.00	39.68	0.00	39.68	8.29	0.00	8.29	0.00
Mass Grading Off Road Diesel	7.96	65.52	35.17	0.00	0.00	3.38	3.38	0.00	3.11	3.11	5,703.66
Mass Grading On Road Diesel	4.95	64.52	24.77	0.08	0.29	2.64	2.93	0.10	2.43	2.53	8,780.32
Mass Grading Worker Trips	0.07	0.12	2.10	0.00	0.01	0.01	0.02	0.00	0.01	0.01	248.79
Mass Grading 01/01/2009-08/30/2011	5.90	49.59	27.49	0.01	1.16	2.60	3.76	0.25	2.39	2.64	4,839.52
Mass Grading Dust	0.00	0.00	0.00	0.00	1.13	0.00	1.13	0.24	0.00	0.24	0.00
Mass Grading Off Road Diesel	5.50	45.00	23.94	0.00	0.00	2.41	2.41	0.00	2.22	2.22	4,011.44
Mass Grading On Road Diesel	0.34	4.49	1.72	0.01	0.02	0.18	0.20	0.01	0.17	0.18	610.38
Mass Grading Worker Trips	0.06	0.11	1.83	0.00	0.01	0.01	0.02	0.00	0.00	0.01	217.69

6/25/2008 9:31:13 AM

Time Slice 6/2/2010-7/1/2010 Active Days: 22	26.34	259.50	148.28	0.22	41.62	12.18	53.81	8.79	11.20	19.99	33,562.16
Building 04/01/2010-10/01/2011	7.46	79.74	58.75	0.13	0.47	3.55	4.02	0.16	3.26	3.42	13,989.87
Building Off Road Diesel	1.00	4.55	3.35	0.00	0.00	0.42	0.42	0.00	0.39	0.39	418.79
Building Vendor Trips	6.38	75.05	52.86	0.13	0.46	3.12	3.58	0.16	2.86	3.02	13,269.97
Building Worker Trips	0.08	0.15	2.54	0.00	0.01	0.01	0.02	0.01	0.01	0.01	301.11
Mass Grading 01/01/2009-07/01/2010	12.98	130.17	62.04	0.08	39.99	6.03	46.02	8.39	5.55	13.94	14,732.77
Mass Grading Dust	0.00	0.00	0.00	0.00	39.68	0.00	39.68	8.29	0.00	8.29	0.00
Mass Grading Off Road Diesel	7.96	65.52	35.17	0.00	0.00	3.38	3.38	0.00	3.11	3.11	5,703.66
Mass Grading On Road Diesel	4.95	64.52	24.77	0.08	0.29	2.64	2.93	0.10	2.43	2.53	8,780.32
Mass Grading Worker Trips	0.07	0.12	2.10	0.00	0.01	0.01	0.02	0.00	0.01	0.01	248.79
Mass Grading 01/01/2009-08/30/2011	5.90	49.59	27.49	0.01	1.16	2.60	3.76	0.25	2.39	2.64	4,839.52
Mass Grading Dust	0.00	0.00	0.00	0.00	1.13	0.00	1.13	0.24	0.00	0.24	0.00
Mass Grading Off Road Diesel	5.50	45.00	23.94	0.00	0.00	2.41	2.41	0.00	2.22	2.22	4,011.44
Mass Grading On Road Diesel	0.34	4.49	1.72	0.01	0.02	0.18	0.20	0.01	0.17	0.18	610.38
Mass Grading Worker Trips	0.06	0.11	1.83	0.00	0.01	0.01	0.02	0.00	0.00	0.01	217.69
Time Slice 7/2/2010-12/31/2010 Active Days: 131	13.37	129.34	86.24	0.14	1.64	6.15	7.79	0.41	5.65	6.06	18,829.39
Building 04/01/2010-10/01/2011	7.46	79.74	58.75	0.13	0.47	3.55	4.02	0.16	3.26	3.42	13,989.87
Building Off Road Diesel	1.00	4.55	3.35	0.00	0.00	0.42	0.42	0.00	0.39	0.39	418.79
Building Vendor Trips	6.38	75.05	52.86	0.13	0.46	3.12	3.58	0.16	2.86	3.02	13,269.97
Building Worker Trips	0.08	0.15	2.54	0.00	0.01	0.01	0.02	0.01	0.01	0.01	301.11
Mass Grading 01/01/2009-08/30/2011	5.90	49.59	27.49	0.01	1.16	2.60	3.76	0.25	2.39	2.64	4,839.52
Mass Grading Dust	0.00	0.00	0.00	0.00	1.13	0.00	1.13	0.24	0.00	0.24	0.00
Mass Grading Off Road Diesel	5.50	45.00	23.94	0.00	0.00	2.41	2.41	0.00	2.22	2.22	4,011.44
Mass Grading On Road Diesel	0.34	4.49	1.72	0.01	0.02	0.18	0.20	0.01	0.17	0.18	610.38
Mass Grading Worker Trips	0.06	0.11	1.83	0.00	0.01	0.01	0.02	0.00	0.00	0.01	217.69

6/25/2008 9:31:13 AM

Time Slice 1/3/2011-6/30/2011	12.42	118.43	80.71	0.14	1.64	5.59	7.22	0.41	5.13	5.54	18,829.27
Active Days: 129											
Building 04/01/2010-10/01/2011	6.87	72.04	54.56	0.13	0.47	3.19	3.66	0.16	2.92	3.08	13,989.79
Building Off Road Diesel	0.92	4.29	3.30	0.00	0.00	0.40	0.40	0.00	0.37	0.37	418.79
Building Vendor Trips	5.88	67.61	48.90	0.13	0.46	2.78	3.24	0.16	2.55	2.70	13,269.96
Building Worker Trips	0.07	0.14	2.36	0.00	0.01	0.01	0.02	0.01	0.01	0.01	301.04
Mass Grading 01/01/2009-08/30/2011	5.55	46.39	26.15	0.01	1.16	2.40	3.56	0.25	2.21	2.46	4,839.47
Mass Grading Dust	0.00	0.00	0.00	0.00	1.13	0.00	1.13	0.24	0.00	0.24	0.00
Mass Grading Off Road Diesel	5.18	42.26	22.89	0.00	0.00	2.23	2.23	0.00	2.05	2.05	4,011.44
Mass Grading On Road Diesel	0.32	4.04	1.55	0.01	0.02	0.16	0.18	0.01	0.15	0.16	610.38
Mass Grading Worker Trips	0.05	0.10	1.71	0.00	0.01	0.01	0.02	0.00	0.00	0.01	217.64
Time Slice 7/1/2011-7/29/2011	21.19	195.22	118.36	0.14	2.79	9.01	11.80	0.65	8.28	8.93	26,631.34
Active Days: 21											
Building 04/01/2010-10/01/2011	6.87	72.04	54.56	0.13	0.47	3.19	3.66	0.16	2.92	3.08	13,989.79
Building Off Road Diesel	0.92	4.29	3.30	0.00	0.00	0.40	0.40	0.00	0.37	0.37	418.79
Building Vendor Trips	5.88	67.61	48.90	0.13	0.46	2.78	3.24	0.16	2.55	2.70	13,269.96
Building Worker Trips	0.07	0.14	2.36	0.00	0.01	0.01	0.02	0.01	0.01	0.01	301.04
Fine Grading 07/01/2011-09/30/2011	8.77	76.79	37.65	0.00	1.15	3.43	4.58	0.24	3.15	3.40	7,802.07
Fine Grading Dust	0.00	0.00	0.00	0.00	1.13	0.00	1.13	0.24	0.00	0.24	0.00
Fine Grading Off Road Diesel	8.64	75.83	35.37	0.00	0.00	3.39	3.39	0.00	3.12	3.12	7,424.90
Fine Grading On Road Diesel	0.07	0.85	0.33	0.00	0.00	0.03	0.04	0.00	0.03	0.03	128.44
Fine Grading Worker Trips	0.06	0.11	1.95	0.00	0.01	0.01	0.02	0.00	0.01	0.01	248.74
Mass Grading 01/01/2009-08/30/2011	5.55	46.39	26.15	0.01	1.16	2.40	3.56	0.25	2.21	2.46	4,839.47
Mass Grading Dust	0.00	0.00	0.00	0.00	1.13	0.00	1.13	0.24	0.00	0.24	0.00
Mass Grading Off Road Diesel	5.18	42.26	22.89	0.00	0.00	2.23	2.23	0.00	2.05	2.05	4,011.44
Mass Grading On Road Diesel	0.32	4.04	1.55	0.01	0.02	0.16	0.18	0.01	0.15	0.16	610.38
Mass Grading Worker Trips	0.05	0.10	1.71	0.00	0.01	0.01	0.02	0.00	0.00	0.01	217.64

6/25/2008 9:31:13 AM

Time Slice 8/1/2011-8/30/2011	<u>208.11</u>	<u>195.34</u>	<u>120.49</u>	<u>0.14</u>	<u>2.80</u>	<u>9.02</u>	<u>11.82</u>	<u>0.65</u>	<u>8.29</u>	<u>8.94</u>	<u>26,902.53</u>
Active Days: 22											
Building 04/01/2010-10/01/2011	6.87	72.04	54.56	0.13	0.47	3.19	3.66	0.16	2.92	3.08	13,989.79
Building Off Road Diesel	0.92	4.29	3.30	0.00	0.00	0.40	0.40	0.00	0.37	0.37	418.79
Building Vendor Trips	5.88	67.61	48.90	0.13	0.46	2.78	3.24	0.16	2.55	2.70	13,269.96
Building Worker Trips	0.07	0.14	2.36	0.00	0.01	0.01	0.02	0.01	0.01	0.01	301.04
Coating 08/01/2011-12/01/2011	186.91	0.12	2.13	0.00	0.01	0.01	0.02	0.00	0.01	0.01	271.20
Architectural Coating	186.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.07	0.12	2.13	0.00	0.01	0.01	0.02	0.00	0.01	0.01	271.20
Fine Grading 07/01/2011-09/30/2011	8.77	76.79	37.65	0.00	1.15	3.43	4.58	0.24	3.15	3.40	7,802.07
Fine Grading Dust	0.00	0.00	0.00	0.00	1.13	0.00	1.13	0.24	0.00	0.24	0.00
Fine Grading Off Road Diesel	8.64	75.83	35.37	0.00	0.00	3.39	3.39	0.00	3.12	3.12	7,424.90
Fine Grading On Road Diesel	0.07	0.85	0.33	0.00	0.00	0.03	0.04	0.00	0.03	0.03	128.44
Fine Grading Worker Trips	0.06	0.11	1.95	0.00	0.01	0.01	0.02	0.00	0.01	0.01	248.74
Mass Grading 01/01/2009-08/30/2011	5.55	46.39	26.15	0.01	1.16	2.40	3.56	0.25	2.21	2.46	4,839.47
Mass Grading Dust	0.00	0.00	0.00	0.00	1.13	0.00	1.13	0.24	0.00	0.24	0.00
Mass Grading Off Road Diesel	5.18	42.26	22.89	0.00	0.00	2.23	2.23	0.00	2.05	2.05	4,011.44
Mass Grading On Road Diesel	0.32	4.04	1.55	0.01	0.02	0.16	0.18	0.01	0.15	0.16	610.38
Mass Grading Worker Trips	0.05	0.10	1.71	0.00	0.01	0.01	0.02	0.00	0.00	0.01	217.64

6/25/2008 9:31:13 AM

Time Slice 8/31/2011-9/30/2011 Active Days: 23	202.56	148.95	94.34	0.14	1.64	6.62	8.26	0.41	6.08	6.49	22,063.06
Building 04/01/2010-10/01/2011	6.87	72.04	54.56	0.13	0.47	3.19	3.66	0.16	2.92	3.08	13,989.79
Building Off Road Diesel	0.92	4.29	3.30	0.00	0.00	0.40	0.40	0.00	0.37	0.37	418.79
Building Vendor Trips	5.88	67.61	48.90	0.13	0.46	2.78	3.24	0.16	2.55	2.70	13,269.96
Building Worker Trips	0.07	0.14	2.36	0.00	0.01	0.01	0.02	0.01	0.01	0.01	301.04
Coating 08/01/2011-12/01/2011	186.91	0.12	2.13	0.00	0.01	0.01	0.02	0.00	0.01	0.01	271.20
Architectural Coating	186.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.07	0.12	2.13	0.00	0.01	0.01	0.02	0.00	0.01	0.01	271.20
Fine Grading 07/01/2011-09/30/2011	8.77	76.79	37.65	0.00	1.15	3.43	4.58	0.24	3.15	3.40	7,802.07
Fine Grading Dust	0.00	0.00	0.00	0.00	1.13	0.00	1.13	0.24	0.00	0.24	0.00
Fine Grading Off Road Diesel	8.64	75.83	35.37	0.00	0.00	3.39	3.39	0.00	3.12	3.12	7,424.90
Fine Grading On Road Diesel	0.07	0.85	0.33	0.00	0.00	0.03	0.04	0.00	0.03	0.03	128.44
Fine Grading Worker Trips	0.06	0.11	1.95	0.00	0.01	0.01	0.02	0.00	0.01	0.01	248.74
Time Slice 10/3/2011-12/1/2011 Active Days: 44	189.13	13.13	11.10	0.00	0.02	1.16	1.18	0.01	1.06	1.07	1,557.61
Asphalt 10/01/2011-12/01/2011	2.21	13.00	8.97	0.00	0.01	1.15	1.16	0.00	1.06	1.06	1,286.41
Paving Off-Gas	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.10	12.71	7.66	0.00	0.00	1.14	1.14	0.00	1.05	1.05	1,097.14
Paving On Road Diesel	0.02	0.22	0.09	0.00	0.00	0.01	0.01	0.00	0.01	0.01	33.81
Paving Worker Trips	0.04	0.07	1.22	0.00	0.01	0.00	0.01	0.00	0.00	0.01	155.46
Coating 08/01/2011-12/01/2011	186.91	0.12	2.13	0.00	0.01	0.01	0.02	0.00	0.01	0.01	271.20
Architectural Coating	186.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.07	0.12	2.13	0.00	0.01	0.01	0.02	0.00	0.01	0.01	271.20

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Fine Grading 1/2/2010 - 2/1/2010 - Reservoir Fine Site Grading/Excavation

For Soil Stabilizing Measures, the Apply soil stabilizers to inactive areas mitigation reduces emissions by:

PM10: 84% PM25: 84%

For Soil Stabilizing Measures, the Replace ground cover in disturbed areas quickly mitigation reduces emissions by:

**6/25/2008 9:31:13 AM**

PM10: 5% PM25: 5%

For Soil Stabilizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Soil Stabilizing Measures, the Equipment loading/unloading mitigation reduces emissions by:

PM10: 69% PM25: 69%

The following mitigation measures apply to Phase: Fine Grading 7/1/2011 - 9/30/2011 - Citrus pump Fine Site Grading

For Soil Stabilizing Measures, the Apply soil stabilizers to inactive areas mitigation reduces emissions by:

PM10: 84% PM25: 84%

For Soil Stabilizing Measures, the Replace ground cover in disturbed areas quickly mitigation reduces emissions by:

PM10: 5% PM25: 5%

For Soil Stabilizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Soil Stabilizing Measures, the Equipment loading/unloading mitigation reduces emissions by:

PM10: 69% PM25: 69%

The following mitigation measures apply to Phase: Mass Grading 1/1/2009 - 7/1/2010 - Reservoir Mass Site Grading/Excavation

For Soil Stabilizing Measures, the Apply soil stabilizers to inactive areas mitigation reduces emissions by:

PM10: 84% PM25: 84%

For Soil Stabilizing Measures, the Replace ground cover in disturbed areas quickly mitigation reduces emissions by:

PM10: 5% PM25: 5%

For Soil Stabilizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Soil Stabilizing Measures, the Equipment loading/unloading mitigation reduces emissions by:

PM10: 69% PM25: 69%

The following mitigation measures apply to Phase: Mass Grading 1/1/2009 - 8/30/2011 - Citrus pump Mass Site Grading/Excavation

For Soil Stabilizing Measures, the Apply soil stabilizers to inactive areas mitigation reduces emissions by:

PM10: 84% PM25: 84%

For Soil Stabilizing Measures, the Replace ground cover in disturbed areas quickly mitigation reduces emissions by:

PM10: 5% PM25: 5%

For Soil Stabilizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Soil Stabilizing Measures, the Equipment loading/unloading mitigation reduces emissions by:

PM10: 69% PM25: 69%

Phase Assumptions

Phase: Fine Grading 1/2/2010 - 2/1/2010 - Reservoir Fine Site Grading/Excavation

Page: 13

**6/25/2008 9:31:13 AM**

Total Acres Disturbed: 35

Maximum Daily Acreage Disturbed: 8.75

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 2485.23

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day

1 Rollers (95 hp) operating at a 0.56 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day

3 Scrapers (313 hp) operating at a 0.72 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Fine Grading 7/1/2011 - 9/30/2011 - Citrus pump Fine Site Grading

Total Acres Disturbed: 1

Maximum Daily Acreage Disturbed: 0.25

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 30.3

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day

1 Rollers (95 hp) operating at a 0.56 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day

3 Scrapers (313 hp) operating at a 0.72 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Mass Grading 1/1/2009 - 7/1/2010 - Reservoir Mass Site Grading/Excavation

Total Acres Disturbed: 35

Maximum Daily Acreage Disturbed: 8.75

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 2071.61

Off-Road Equipment:

1 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day

**6/25/2008 9:31:13 AM**

- 1 Off Highway Tractors (267 hp) operating at a 0.65 load factor for 8 hours per day
- 2 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day
- 1 Sweepers/Scrubbers (91 hp) operating at a 0.68 load factor for 8 hours per day
- 2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day
- 1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Mass Grading 1/1/2009 - 8/30/2011 - Citrus pump Mass Site Grading/Excavation

Total Acres Disturbed: 1

Maximum Daily Acreage Disturbed: 0.25

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 144.01

Off-Road Equipment:

- 1 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day
- 1 Off Highway Tractors (267 hp) operating at a 0.65 load factor for 8 hours per day
- 1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day
- 3 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day
- 1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Paving 2/2/2010 - 3/1/2010 - Reservoir Paving

Acres to be Paved: 19

Off-Road Equipment:

- 2 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 0 hours per day
- 1 Concrete/Industrial Saws (10 hp) operating at a 0.73 load factor for 8 hours per day
- 1 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day
- 1 Rollers (95 hp) operating at a 0.56 load factor for 6 hours per day
- 1 Sweepers/Scrubbers (91 hp) operating at a 0.68 load factor for 8 hours per day

Phase: Paving 10/1/2011 - 12/1/2011 - Citrus pump paving

Acres to be Paved: 1

Off-Road Equipment:

- 1 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 6 hours per day
- 1 Concrete/Industrial Saws (10 hp) operating at a 0.73 load factor for 8 hours per day
- 1 Pavers (100 hp) operating at a 0.62 load factor for 7 hours per day
- 1 Rollers (95 hp) operating at a 0.56 load factor for 7 hours per day

**6/25/2008 9:31:13 AM**

1 Sweepers/Scrubbers (91 hp) operating at a 0.68 load factor for 8 hours per day

Phase: Building Construction 3/2/2010 - 6/1/2010 - Reservoir Building Construction

Off-Road Equipment:

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

1 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

Phase: Building Construction 4/1/2010 - 10/1/2011 - Citrus pump building construction

Off-Road Equipment:

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

1 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

Phase: Architectural Coating 3/1/2010 - 6/1/2010 - Reservoir Architectural Coating

Rule: Residential Interior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 100

Rule: Residential Interior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 50

Rule: Residential Exterior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 100

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Phase: Architectural Coating 8/1/2011 - 12/1/2011 - Citrus pump achitectural coating

Rule: Residential Interior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 100

Rule: Residential Interior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 50

Rule: Residential Exterior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 100

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250







Urbemis 2007 Version 9.2.4

Detail Report for Summer Construction Mitigated Emissions (Pounds/Day)

File Name: C:\Documents and Settings\dsa\Application Data\Urbemis\Version9a\Projects\DWR Crafton Hills Pump Station Expansion 6 18 08.urb924

Project Name: DWR Crafton Hills Pump Station Expansion 6 18 08

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES (Summer Pounds Per Day, Mitigated)

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10 Dust</u>	<u>PM10 Exhaust</u>	<u>PM10 Total</u>	<u>PM2.5 Dust</u>	<u>PM2.5 Exhaust</u>	<u>PM2.5 Total</u>	<u>CO2</u>
Time Slice 1/1/2009-1/30/2009 Active Days: 22	0.55	3.33	2.52	0.00	0.00	0.29	0.29	0.00	0.27	0.27	361.22
Demolition 01/01/2009-02/01/2009	0.55	3.33	2.52	0.00	0.00	0.29	0.29	0.00	0.27	0.27	361.22
Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Off Road Diesel	0.54	3.30	1.95	0.00	0.00	0.29	0.29	0.00	0.27	0.27	299.01
Demo On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Worker Trips	0.02	0.03	0.56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	62.22
Time Slice 2/2/2009-10/1/2009 Active Days: 174	<b>5.57</b>	<b>42.44</b>	<b>23.83</b>	<b>0.00</b>	<b>0.20</b>	<b>2.55</b>	<b>2.75</b>	<b>0.04</b>	<b>2.35</b>	<b>2.39</b>	<b>3,899.67</b>
Mass Grading 02/01/2009-10/01/2009	5.57	42.44	23.83	0.00	0.20	2.55	2.75	0.04	2.35	2.39	3,899.67
Mass Grading Dust	0.00	0.00	0.00	0.00	0.18	0.00	0.18	0.04	0.00	0.04	0.00
Mass Grading Off Road Diesel	5.40	40.87	21.31	0.00	0.00	2.49	2.49	0.00	2.29	2.29	3,502.69
Mass Grading On Road Diesel	0.11	1.45	0.55	0.00	0.01	0.06	0.07	0.00	0.06	0.06	179.22
Mass Grading Worker Trips	0.06	0.12	1.97	0.00	0.01	0.01	0.02	0.00	0.00	0.01	217.75



6/25/2008 9:39:03 AM

Time Slice 10/4/2010-12/31/2010	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.31
Active Days: 65												
Coating 09/01/2010-12/31/2011	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.31
Architectural Coating	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.31
Time Slice 1/3/2011-12/30/2011	<u>0.22</u>	<u>0.00</u>	<u>0.31</u>									
Active Days: 260												
Coating 09/01/2010-12/31/2011	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.31
Architectural Coating	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.31

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Fine Grading 10/2/2009 - 1/1/2010 - Default Fine Site Grading/Excavation  
Description

For Soil Stabilizing Measures, the Apply soil stabilizers to inactive areas mitigation reduces emissions by:

PM10: 84% PM25: 84%

For Soil Stabilizing Measures, the Replace ground cover in disturbed areas quickly mitigation reduces emissions by:

PM10: 5% PM25: 5%

For Soil Stabilizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Soil Stabilizing Measures, the Equipment loading/unloading mitigation reduces emissions by:

PM10: 69% PM25: 69%

The following mitigation measures apply to Phase: Mass Grading 2/1/2009 - 10/1/2009 - Default Mass Site Grading/Excavation  
Description

For Soil Stabilizing Measures, the Apply soil stabilizers to inactive areas mitigation reduces emissions by:

PM10: 84% PM25: 84%

For Soil Stabilizing Measures, the Replace ground cover in disturbed areas quickly mitigation reduces emissions by:

PM10: 5% PM25: 5%

For Soil Stabilizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Soil Stabilizing Measures, the Equipment loading/unloading mitigation reduces emissions by:

PM10: 69% PM25: 69%

Phase Assumptions

Phase: Demolition 1/1/2009 - 2/1/2009 - Default Demolition Description

Building Volume Total (cubic feet): 0

Page: 4

**6/25/2008 9:39:03 AM**

Building Volume Daily (cubic feet): 0

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Concrete/Industrial Saws (10 hp) operating at a 0.73 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 6 hours per day

Phase: Fine Grading 10/2/2009 - 1/1/2010 - Default Fine Site Grading/Excavation Description

Total Acres Disturbed: 0.16

Maximum Daily Acreage Disturbed: 0.04

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 8 hours per day

1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day

1 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day

1 Rollers (95 hp) operating at a 0.56 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Mass Grading 2/1/2009 - 10/1/2009 - Default Mass Site Grading/Excavation Description

Total Acres Disturbed: 0.16

Maximum Daily Acreage Disturbed: 0.04

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 42.29

Off-Road Equipment:

1 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day

1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day

1 Sweepers/Scrubbers (91 hp) operating at a 0.68 load factor for 8 hours per day

2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

**6/25/2008 9:39:03 AM**

Phase: Building Construction 1/2/2010 - 10/1/2010 - Default Building Construction Description

Off-Road Equipment:

- 1 Cranes (399 hp) operating at a 0.43 load factor for 4 hours per day
- 2 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day
- 1 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 8 hours per day
- 1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day
- 1 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

Phase: Architectural Coating 9/1/2010 - 12/31/2011 - Default Architectural Coating Description

Rule: Residential Interior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 100

Rule: Residential Interior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 50

Rule: Residential Exterior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 100

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Urbemis 2007 Version 9.2.4

Summary Report for Summer Emissions (Pounds/Day)

File Name: C:\Documents and Settings\dsa\Application Data\Urbemis\Version9a\Projects\DWR pipeline extension 6 18 08.urb924

Project Name: DWR Pipeline Extension 6 18 08

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10 Dust</u>	<u>PM10 Exhaust</u>	<u>PM10</u>	<u>PM2.5 Dust</u>	<u>PM2.5 Exhaust</u>	<u>PM2.5</u>	<u>CO2</u>
2009 TOTALS (lbs/day unmitigated)	13.72	104.22	59.24	0.01	87.23	5.40	92.64	18.22	4.97	23.19	9,627.24
2009 TOTALS (lbs/day mitigated)	13.72	104.22	59.24	0.01	19.81	5.40	25.21	4.14	4.97	9.11	9,627.24
2010 TOTALS (lbs/day unmitigated)	14.17	113.74	60.96	0.01	87.23	5.38	92.61	18.22	4.95	23.17	10,940.38
2010 TOTALS (lbs/day mitigated)	14.17	113.74	60.96	0.01	19.81	5.38	25.18	4.14	4.95	9.09	10,940.38

Urbemis 2007 Version 9.2.4

Summary Report for Annual Emissions (Tons/Year)

File Name: C:\Documents and Settings\dsa\Application Data\Urbemis\Version9a\Projects\DWR pipeline extension 6 18 08.urb924

Project Name: DWR Pipeline Extension 6 18 08

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10 Dust</u>	<u>PM10 Exhaust</u>	<u>PM10</u>	<u>PM2.5 Dust</u>	<u>PM2.5 Exhaust</u>	<u>PM2.5</u>	<u>CO2</u>
2009 TOTALS (tons/year unmitigated)	1.79	13.60	7.73	0.00	11.38	0.70	12.09	2.38	0.65	3.03	1,256.35
2009 TOTALS (tons/year mitigated)	1.79	13.60	7.73	0.00	2.58	0.70	3.29	0.54	0.65	1.19	1,256.35
Percent Reduction	0.00	0.00	0.00	0.00	77.29	0.00	72.79	77.27	0.00	60.72	0.00
2010 TOTALS (tons/year unmitigated)	1.34	10.15	5.76	0.00	8.55	0.53	9.08	1.79	0.49	2.28	985.42
2010 TOTALS (tons/year mitigated)	1.34	10.15	5.76	0.00	1.94	0.53	2.48	0.41	0.49	0.90	985.42
Percent Reduction	0.00	0.00	0.00	0.00	77.29	0.00	72.75	77.27	0.00	60.60	0.00

Urbemis 2007 Version 9.2.4

Detail Report for Summer Construction Mitigated Emissions (Pounds/Day)

File Name: C:\Documents and Settings\dsa\Application Data\Urbemis\Version9a\Projects\DWR pipeline extension 6 18 08.urb924

Project Name: DWR Pipeline Extension 6 18 08

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES (Summer Pounds Per Day, Mitigated)

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10 Dust</u>	<u>PM10 Exhaust</u>	<u>PM10 Total</u>	<u>PM2.5 Dust</u>	<u>PM2.5 Exhaust</u>	<u>PM2.5 Total</u>	<u>CO2</u>
Time Slice 1/1/2009-12/31/2009 Active Days: 261	<u>13.72</u>	<u>104.22</u>	<u>59.24</u>	<u>0.01</u>	<u>19.81</u>	<u>5.40</u>	<u>25.21</u>	<u>4.14</u>	<u>4.97</u>	<u>9.11</u>	<u>9,627.24</u>
Mass Grading 01/01/2009-07/01/2010	5.78	45.04	25.12	0.00	19.79	2.58	22.37	4.14	2.38	6.51	4,173.13
Mass Grading Dust	0.00	0.00	0.00	0.00	19.77	0.00	19.77	4.13	0.00	4.13	0.00
Mass Grading Off Road Diesel	5.60	43.37	22.55	0.00	0.00	2.51	2.51	0.00	2.31	2.31	3,763.25
Mass Grading On Road Diesel	0.12	1.55	0.59	0.00	0.01	0.06	0.07	0.00	0.06	0.06	192.13
Mass Grading Worker Trips	0.06	0.12	1.97	0.00	0.01	0.01	0.02	0.00	0.00	0.01	217.75
Trenching 01/01/2009-09/01/2010	7.93	59.18	34.12	0.00	0.02	2.82	2.84	0.01	2.59	2.60	5,454.10
Trenching Off Road Diesel	7.82	58.98	30.73	0.00	0.00	2.81	2.81	0.00	2.59	2.59	5,080.81
Trenching Worker Trips	0.11	0.20	3.38	0.00	0.02	0.01	0.03	0.01	0.01	0.01	373.29

6/23/2008 2:06:56 PM

Time Slice 1/1/2010-7/1/2010 Active Days: 130	12.98	98.41	56.87	<u>0.01</u>	<u>19.81</u>	5.14	24.95	<u>4.14</u>	4.73	8.87	9,627.06
Mass Grading 01/01/2009-07/01/2010	5.42	42.21	24.37	0.00	19.79	2.42	22.21	4.14	2.23	6.36	4,173.07
Mass Grading Dust	0.00	0.00	0.00	0.00	19.77	0.00	19.77	4.13	0.00	4.13	0.00
Mass Grading Off Road Diesel	5.25	40.69	21.99	0.00	0.00	2.36	2.36	0.00	2.17	2.17	3,763.25
Mass Grading On Road Diesel	0.11	1.41	0.54	0.00	0.01	0.06	0.06	0.00	0.05	0.06	192.13
Mass Grading Worker Trips	0.06	0.11	1.83	0.00	0.01	0.01	0.02	0.00	0.00	0.01	217.69
Trenching 01/01/2009-09/01/2010	7.56	56.20	32.50	0.00	0.02	2.72	2.74	0.01	2.50	2.51	5,454.00
Trenching Off Road Diesel	7.46	56.02	29.35	0.00	0.00	2.71	2.71	0.00	2.49	2.49	5,080.81
Trenching Worker Trips	0.10	0.19	3.14	0.00	0.02	0.01	0.03	0.01	0.01	0.01	373.18
Time Slice 7/2/2010-9/1/2010 Active Days: 44	<u>14.17</u>	<u>113.74</u>	<u>60.96</u>	0.01	19.80	<u>5.38</u>	<u>25.18</u>	4.14	<u>4.95</u>	<u>9.09</u>	<u>10,940.38</u>
Fine Grading 07/02/2010-10/01/2010	6.60	57.53	28.46	0.00	19.78	2.66	22.44	4.13	2.45	6.58	5,486.38
Fine Grading Dust	0.00	0.00	0.00	0.00	19.77	0.00	19.77	4.13	0.00	4.13	0.00
Fine Grading Off Road Diesel	6.55	57.44	26.89	0.00	0.00	2.65	2.65	0.00	2.44	2.44	5,299.79
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.05	0.09	1.57	0.00	0.01	0.01	0.01	0.00	0.00	0.01	186.59
Trenching 01/01/2009-09/01/2010	7.56	56.20	32.50	0.00	0.02	2.72	2.74	0.01	2.50	2.51	5,454.00
Trenching Off Road Diesel	7.46	56.02	29.35	0.00	0.00	2.71	2.71	0.00	2.49	2.49	5,080.81
Trenching Worker Trips	0.10	0.19	3.14	0.00	0.02	0.01	0.03	0.01	0.01	0.01	373.18
Time Slice 9/2/2010-10/1/2010 Active Days: 22	6.60	57.53	28.46	0.00	19.78	2.66	22.44	4.13	2.45	6.58	5,486.38
Fine Grading 07/02/2010-10/01/2010	6.60	57.53	28.46	0.00	19.78	2.66	22.44	4.13	2.45	6.58	5,486.38
Fine Grading Dust	0.00	0.00	0.00	0.00	19.77	0.00	19.77	4.13	0.00	4.13	0.00
Fine Grading Off Road Diesel	6.55	57.44	26.89	0.00	0.00	2.65	2.65	0.00	2.44	2.44	5,299.79
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.05	0.09	1.57	0.00	0.01	0.01	0.01	0.00	0.00	0.01	186.59

6/23/2008 2:06:56 PM

Time Slice 10/4/2010-12/31/2010	3.32	19.14	12.66	0.00	0.02	1.61	1.63	0.01	1.48	1.49	1,803.84
Active Days: 65											
Asphalt 10/02/2010-12/31/2010	3.32	19.14	12.66	0.00	0.02	1.61	1.63	0.01	1.48	1.49	1,803.84
Paving Off-Gas	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	3.03	18.27	10.28	0.00	0.00	1.57	1.57	0.00	1.45	1.45	1,454.55
Paving On Road Diesel	0.06	0.74	0.28	0.00	0.00	0.03	0.03	0.00	0.03	0.03	100.51
Paving Worker Trips	0.07	0.12	2.10	0.00	0.01	0.01	0.02	0.00	0.01	0.01	248.79

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Fine Grading 7/2/2010 - 10/1/2010 - Fine Site Grading/Excavation

For Soil Stabilizing Measures, the Apply soil stabilizers to inactive areas mitigation reduces emissions by:

PM10: 84% PM25: 84%

For Soil Stabilizing Measures, the Replace ground cover in disturbed areas quickly mitigation reduces emissions by:

PM10: 5% PM25: 5%

For Soil Stabilizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Soil Stabilizing Measures, the Equipment loading/unloading mitigation reduces emissions by:

PM10: 69% PM25: 69%

The following mitigation measures apply to Phase: Mass Grading 1/1/2009 - 7/1/2010 - Mass Site Grading/Excavation

For Soil Stabilizing Measures, the Apply soil stabilizers to inactive areas mitigation reduces emissions by:

PM10: 84% PM25: 84%

For Soil Stabilizing Measures, the Replace ground cover in disturbed areas quickly mitigation reduces emissions by:

PM10: 5% PM25: 5%

For Soil Stabilizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Soil Stabilizing Measures, the Equipment loading/unloading mitigation reduces emissions by:

PM10: 69% PM25: 69%

Phase Assumptions

Phase: Fine Grading 7/2/2010 - 10/1/2010 - Fine Site Grading/Excavation

Total Acres Disturbed: 17.45

Maximum Daily Acreage Disturbed: 4.36

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

Page: 4

**6/23/2008 2:06:56 PM**

On Road Truck Travel (VMT): 0

Off-Road Equipment:

- 1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day
- 2 Scrapers (313 hp) operating at a 0.72 load factor for 8 hours per day
- 2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day
- 1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Mass Grading 1/1/2009 - 7/1/2010 - Mass Site Grading/Excavation

Total Acres Disturbed: 17.45

Maximum Daily Acreage Disturbed: 4.36

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 45.33

Off-Road Equipment:

- 2 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day
- 1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day
- 1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day
- 1 Sweepers/Scrubbers (91 hp) operating at a 0.68 load factor for 8 hours per day
- 1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day
- 1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Trenching 1/1/2009 - 9/1/2010 - Trenching

Off-Road Equipment:

- 1 Cranes (399 hp) operating at a 0.43 load factor for 8 hours per day
- 2 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day
- 2 Off Highway Tractors (267 hp) operating at a 0.65 load factor for 8 hours per day
- 1 Other General Industrial Equipment (238 hp) operating at a 0.51 load factor for 8 hours per day
- 2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 0 hours per day
- 4 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

Phase: Paving 10/2/2010 - 12/31/2010 - Paving

Acres to be Paved: 4.36

Off-Road Equipment:

- 1 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 6 hours per day
- 2 Concrete/Industrial Saws (10 hp) operating at a 0.73 load factor for 8 hours per day

**6/23/2008 2:06:56 PM**

- 1 Pavers (100 hp) operating at a 0.62 load factor for 7 hours per day
- 2 Paving Equipment (104 hp) operating at a 0.53 load factor for 6 hours per day
- 1 Rollers (95 hp) operating at a 0.56 load factor for 7 hours per day
- 1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

# Appendix B

## Air Quality – Section 3

### Electricity Usage

## Greenhouse Gas (GHG) Emissions Calculations

Project Name: East Branch Extension  
 ESA Proj. Number: 206008.01

### Indirect Greenhouse Gas (GHG) Emissions from Project use of Electricity (Net New Pump Emissions)

Estimated Project Annual New Pump Use: 39,130,000 kWh (kilowatt hours)/year  
 39,130 MWh (megawatt hours)/year

Indirect GHG gases	Emission Factor lb/MWh	Annual		CO2 Equivalent Factor	Annual
		Project Electricity MWh	GHGs metric tons		CO2 Equivalent Emissions (metric tons)
Carbon Dioxide (CO2)	878.71	39,130	15,596	1	15,596
Nitrous Oxide (N2O)	0.0037	39,130	0.1	296	19
Methane (CH4)	0.0067	39,130	0.1	23	3
<b>Total Indirect GHG Emissions from Project Electricity Use=</b>					<b>15,618</b>

## URBEMIS CONSTRUCTION EMISSIONS

### Maximum Year

Pump station and reservoir	<b>3,495</b>	<b>CO2 tons/yr</b>
Pipeline extension	<b>985</b>	<b>CO2 tons/yr</b>
Crafton Hills Pump station expansion	<b>253</b>	<b>CO2 tons/yr</b>
Total =	<b>4,733</b>	<b>CO2 tons/yr</b>

### Comparison to Statewide GHG Emissions Reduction Goal

CA Annual Reduction Goal	<b>174,000,000</b>	<b>Metric tons CO2e</b>	
Project Pump Operations	<b>15,618</b>	<b>Metric tons CO2e</b>	
Project Contribution %	<b>0.009%</b>		0.005131352

#### Notes and References:

Total Emissions from Indirect Electricity Use

Formulas and Emission Factors from:

California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008

Pg. 33 (CCARRP) gives Equations

Pg. 36 (CCARRP) gives CO2, N2O, and CH4 output emission rates (lbs/MWh)

Pg. 90 (CCARRP) gives CO2 equivalency factors

Pg. 92 (CCARRP) gives Methane and Nitrous Oxide electricity emission factors (lbs/MWh)

Methane - 0.0067 (lbs/MWh)

Nitrous Oxide - 0.0037 (lbs/MWh)

lbs/metric ton = 2204.62

**DWR East Branch Extension**  
**Pump Electricity Usage**

Approximate current energy use during a peak year =	11.46 MkWh
Approximate energy use during a peak year upon completion of phase II =	<u>50.59</u> MkWh*
Approximate net new energy use during a peak year =	39.13 MkWh
Approximate net new energy use during a peak year =	39,130,000 kWh

From section 3.10 Public Service and Utilities

\* This shows a linear increase, assuming current average load per cfs pumped.

Actual energy requirements will vary year to year and may be substantially greater depending on average daily usage of the pumps. Currently, existing pumps operate on average 8-16 hours per day.

In the future, the expanded pump stations may operate at capacity for 24 hours per day during half the year and 16 hours per day for the other half.

# Appendix B

## Air Quality – Section 4

### Health Risk Assessment



# DWR EAST BRANCH EXTENSION

---

## Health Risk Assessment

Recent air pollution studies have shown that emissions from trucks, locomotives, ships and other sources of diesel exhaust are responsible for much of the overall cancer risks from airborne toxics in California. In January 2008, the South Coast Air Quality Management District (SCAQMD) published a draft study that investigates carcinogenic risks from air toxics in the South Coast Air Basin (Basin). According to this study, population weighted cancer risk from existing concentrations of diesel particulate matter (DPM) in the Basin is approximately 682 in one million (SCAQMD, 2008). The SCAQMD has established the CEQA significance threshold for individuals exposed to new toxic air contaminant (TAC) sources as the increased incremental cancer risk of 10 in one million or greater (SCAQMD, 2007). This report analyzes the potential incremental cancer risks to residents in the project vicinity of the East Branch Extension during construction activities.

Four construction activities were identified as potential sources of DPM. These activities include: (1) construction of the pipeline, (2) construction of the Citrus Reservoir and Pump Station, (3) construction of the Crafton Hills Pump Station Expansion, and (4) haul trips to export soil excavated during construction of the Citrus Reservoir. Emissions from these activities were input to the United States Environmental Protection Agency (USEPA) approved dispersion model AERMOD to calculate ambient air concentrations at receptors in the project vicinity. Meteorological data representative of the project site were used along with estimated DPM emissions to calculate pollutant concentrations at various receptor locations. The meteorological station nearest to the project site that would represent wind conditions at the project site and that has data reduced for model input is located in Redlands, approximately 1.5 miles south of the proposed Citrus Reservoir. The data from this station were supplemented with opaque cloud cover data from the Los Angeles International Airport for use in the meteorological preprocessor, AERMET, to prepare hourly surface data files for use in AERMOD.

## Emission Rates

Emission rates from the four activities discussed above were estimated based on the URBEMIS 2007 model. This model incorporates emission factors from the California Air Resources Board's (ARB's) OFFROAD and EMFAC2007 models to estimate construction emissions. Annual emissions of particulate matter less than 2.5 microns in diameter ( $PM_{2.5}$ ) from off road diesel exhaust were used to represent DPM emission rates from construction of the pipeline, the Citrus Pump Station and Reservoir and the Crafton Pump Station. For haul trucks, annual emission rates were calculated based on the assumption that there would be approximately 115 round trips per day with each round trip traveling a distance of 9 miles, resulting in an average of

1,035 vehicle miles traveled per day. Table 1 shows the estimated annual DPM emissions in tons per year for each of the activities described above.

**TABLE 1  
DPM CONSTRUCTION EMISSION RATES**

Activity	tons/year
Pipeline Extension	0.57
Crafton Hills Pump Station Expansion	0.19
Citrus Pump Station and Reservoir	0.56
Haul Trucks from Reservoir	0.19

SOURCE: URBEMIS, 2007.

## Model Inputs

Geographic information systems (GIS) were used to determine the geographic locations of the emissions sources and sensitive receptors for the proposed project. 501 receptor locations with a breathing height of 1 meter above ground were used in the model. Figure 1 shows the locations of these sources and the receptors as they were modeled in AERMOD.

As discussed previously, meteorological data from the Redlands meteorological station was used with opaque cloud cover data from the Los Angeles International Airport to prepare hourly surface files for use in AERMOD. Figure 2 shows a wind rose of the area, and it represents the data used in the model.

Source and receptor elevations were derived from the Redlands and Yucaipa 7.5 minute digital elevation models. These elevations were processed and imported using AERMAP, an accessory program to AERMOD.

Source parameters used to model each of the activities described above are described in more detail below.

### Pipeline Extension

Emissions from construction of the pipeline were modeled as a line source composed of 72 volume sources. Each volume source was given the dimensions of 75 meters by 75 meters to represent the 200 to 300 foot construction corridor. Pipeline Alternative 3 was used to model emissions from the pipeline as this is the environmentally superior alignment.

### Crafton Hills Pump Station Expansion

Diesel emissions from construction of the Crafton Hills Pump Station Expansion were modeled as a series of 4 volume sources, each 30 meters by 30 meters.

### Citrus Pump Station and Reservoir

Emissions from construction of the Citrus Pump Station and Reservoir were modeled as a series of 7 line sources. Each of the 7 line sources was composed of 6 volume sources, each 30 meters by 30 meters. As the reservoir is excavated, emissions will occur below grade which may increase deposition, thus decreasing ambient air concentrations of DPM at nearby receptors. However, to be conservative, no reduction from deposition was accounted for in the model.

## Haul Trucks from the Reservoir

As discussed previously, there will be approximately 115 daily round trips to export excavated soil from the site. The modeled haul route starts at the reservoir site traveling south on Opal Avenue until it reaches San Bernardino Avenue. The route then travels west on San Bernardino Avenue to Orange Avenue where it heads north to a local quarry. The haul route was modeled as a 4.5 mile long line source composed of 182 volume sources, each 20 meters by 20 meters.

## Model Results

The maximum exposed receptor is a private high school located along Opal Avenue at Universal Transverse Mercator (UTM) coordinates [487746.47, 3771190.35]. Estimated DPM concentrations at this receptor for each activity are as follows: 0.344 micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ) from construction of the Citrus Reservoir and Pump Station; 0.067  $\mu\text{g}/\text{m}^3$  from construction of the pipeline; 0.005  $\mu\text{g}/\text{m}^3$  from haul trucks; and 0.001  $\mu\text{g}/\text{m}^3$  from construction of the Crafton Hills Pump Station. Figure 3 shows the incremental cancer risks based on modeled concentrations in the project area from all sources.

## Health Risks from Exposure to DPM

Health risks were evaluated in accordance with the *Air Toxic Hot Spots Program Risk Assessment Guidelines*, as established by the Office of Environmental Health Hazard Assessment (OEHHA). Cancer risk from DPM was based on the estimated exposure through inhalation (dose-inhalation) and the cancer potency slope of 1.1 ( $\text{mg}/\text{kg}\cdot\text{d}$ )<sup>-1</sup>, as established by OEHHA. Dose-inhalation is calculated based on a respiration rate and the concentration of the substance in the air. Dose-inhalation is expressed as milligrams of the substance inhaled per kilogram of body weight per day ( $\text{mg}\cdot\text{kg}/\text{day}$ ). Cancer potency slopes are expressed in units of inverse dose or ( $\text{mg}/\text{kg}\cdot\text{day}$ )<sup>-1</sup>. Therefore, by multiplying the dose inhalation by the cancer potency slope, a unit-less number is derived which represents cancer risk. (OEHHA, 2003)

Health risks were calculated over a lifetime (70 years), assuming that DPM emissions from construction could occur over a two or three year period, depending on the construction activity. It was assumed that DPM emissions would occur over 3 years for construction of the Citrus Reservoir and Pump Station and for haul trips and 2 years for construction of the pipeline and the Crafton Hills Pump Station Expansion. It was assumed that receptors would be exposed to the DPM concentrations for 365 days a year over these periods. The 80<sup>th</sup> percentile breathing rate of 302 liters per kilogram body weight ( $\text{L}/\text{kg}\cdot\text{day}$ ) was applied to determine the dose inhalation as recommended by OEHHA (OEHHA, 2003). The maximum incremental cancer risk from exposure to DPM at the project site was then calculated using the cancer potency slope for DPM of 1.1 ( $\text{mg}/\text{kg}\cdot\text{d}$ )<sup>-1</sup>, as discussed previously.

Table 2 shows the cancer risk associated with each activity as well as the total cancer risk at the maximum exposed receptor. As shown, the total cancer risk at the maximum exposed receptor is 5.6 in one million, which is less than 10 in one million. Therefore, impacts on cancer risk at sensitive receptors in the project vicinity would be less than significant.

**TABLE 2  
CANCER RISK AT THE MAXIMUM EXPOSED RECEPTOR**

Activity	Concentration (ug/m3)	Exposure (years)	Risk (per million)
Haul Route	0.005	3	0.1
Pipeline Construction	0.067	2	0.6
Citrus Reservoir and Pump Station	0.344	3	4.9
Crafton Hills Pump Station	0.001	2	<0.1
<b>Total Combined Cancer Risk</b>			<b>5.6</b>

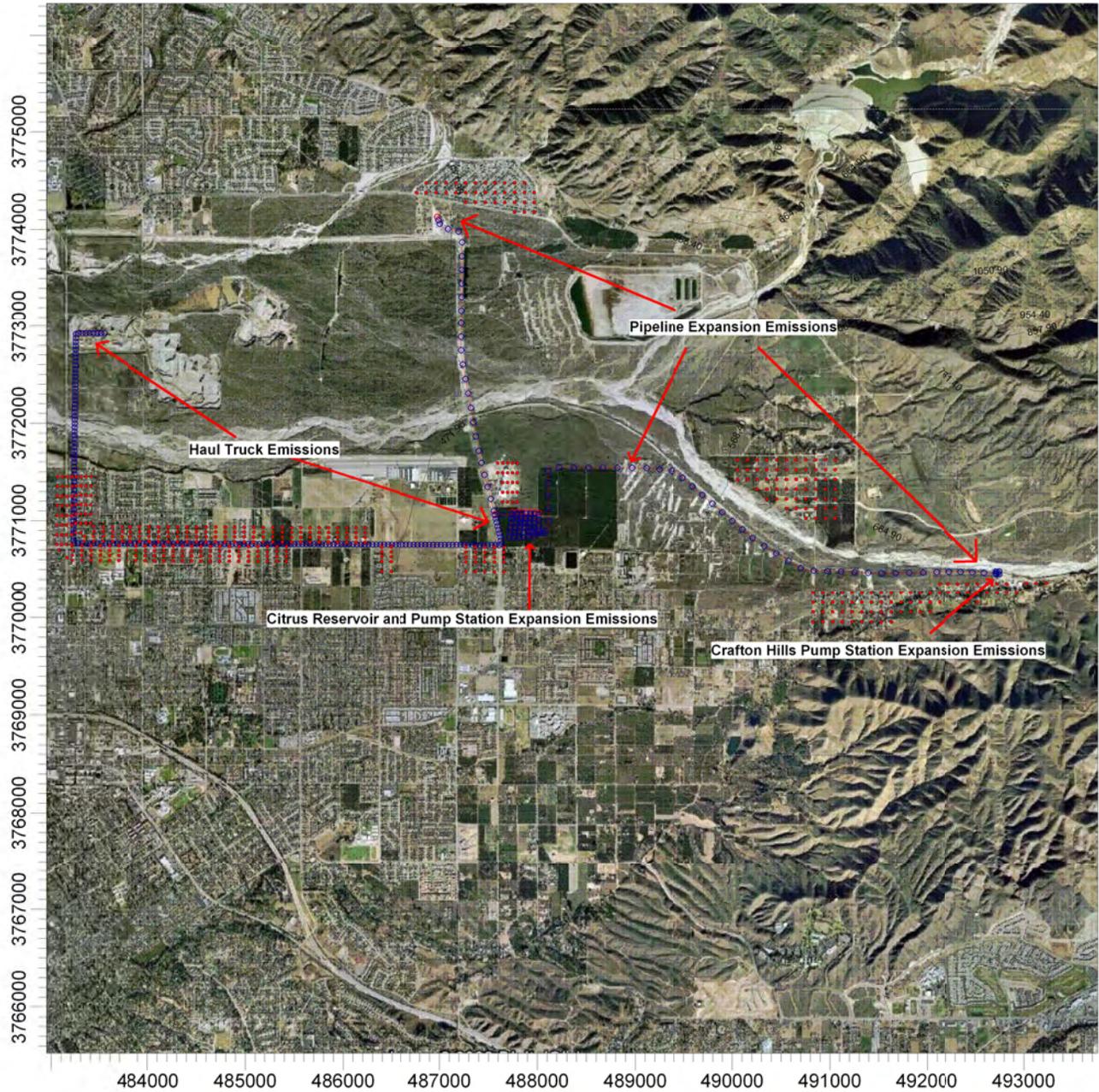
SOURCES: OEHHA, 2003 and Environmental Science Associates, 2008.

## References

- Jones and Stokes Associates, 2007. *Software User's Guide: URBEMIS2007 for Windows Version 9.2 Emissions Estimate for Land Use Development Projects*, November 2007.
- Office of Environmental Health Hazards Assessment (OEHHA), 2003. *The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments*, available online at: [http://www.oehha.org/air/hot\\_spots/pdf/HRAguidefinal.pdf](http://www.oehha.org/air/hot_spots/pdf/HRAguidefinal.pdf), accessed April 29, 2008.
- South Coast Air Quality Management District (SCAQMD), 2007. *Air Quality Significance Thresholds*, revised December 2007, available online at: <http://www.aqmd.gov/ceqa/handbook/signthres.pdf>, accessed May 6, 2008.
- SCAQMD, 2008. *Multiple Air Toxics Exposure Study in the South Coast Air Basin – Draft Report*, January 2008, available online at: <http://www.aqmd.gov/prdas/matesIII/matesIII.html>, accessed May 6, 2008.
- United States Environmental Protection Agency (USEPA), 2004. *Users Guide for the AMS/EPA Regulatory Model – AERMOD*, EPA-454/B-003-01, September 2004.

PROJECT TITLE:

**Figure 1  
Model Layout**



COMMENTS:

13 Sources are used to represent emissions from 4 different construction activities. Haul route and pipeline construction emissions are both represented as a continuous line source. Emissions from construction of the Citrus Reservoir and Pump Station and the Crafton Hills Pump Station Expansion are represented by 7 line sources and 4 volume sources respectively. Red circles represent sensitive receptors in the project vicinity.

SOURCES:

**13**

RECEPTORS:

**501**

COMPANY NAME:

**Environmental Science Associates**

MODELER:

**Nichole Yeto**

SCALE:

1:65,926



DATE:

**5/19/2008**

PROJECT NO.:

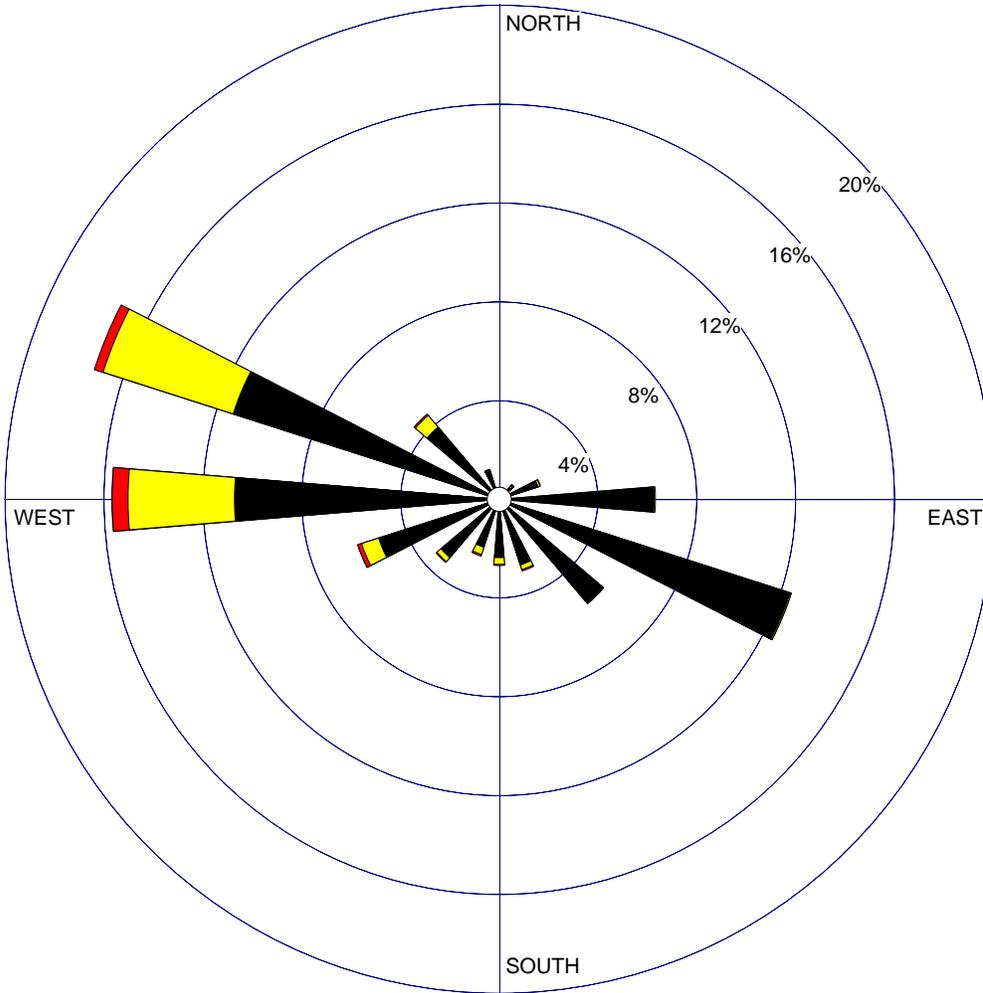
**206008.01**

WIND ROSE PLOT:

**Figure 2**  
**Redlands Wind Rose**

DISPLAY:

**Wind Speed**  
**Direction (blowing from)**



WIND SPEED  
(Knots)

- >= 22
- 17 - 21
- 11 - 17
- 7 - 11
- 4 - 7
- 1 - 4

Calms: 16.10%

COMMENTS:

Wind data for Redlands was obtained from the South Coast Air Quality Management District website and can be found at the following URL:  
<http://www.aqmd.gov/smog/metdata/MeteorologicalData.html>

DATA PERIOD:

1981  
Jan 1 - Dec 31  
00:00 - 23:00

CALM WINDS:

16.10%

AVG. WIND SPEED:

2.81 Knots

COMPANY NAME:

**Environmental Science Associates**

MODELER:

**Nichole Yeto**

TOTAL COUNT:

8760 hrs.

DATE:

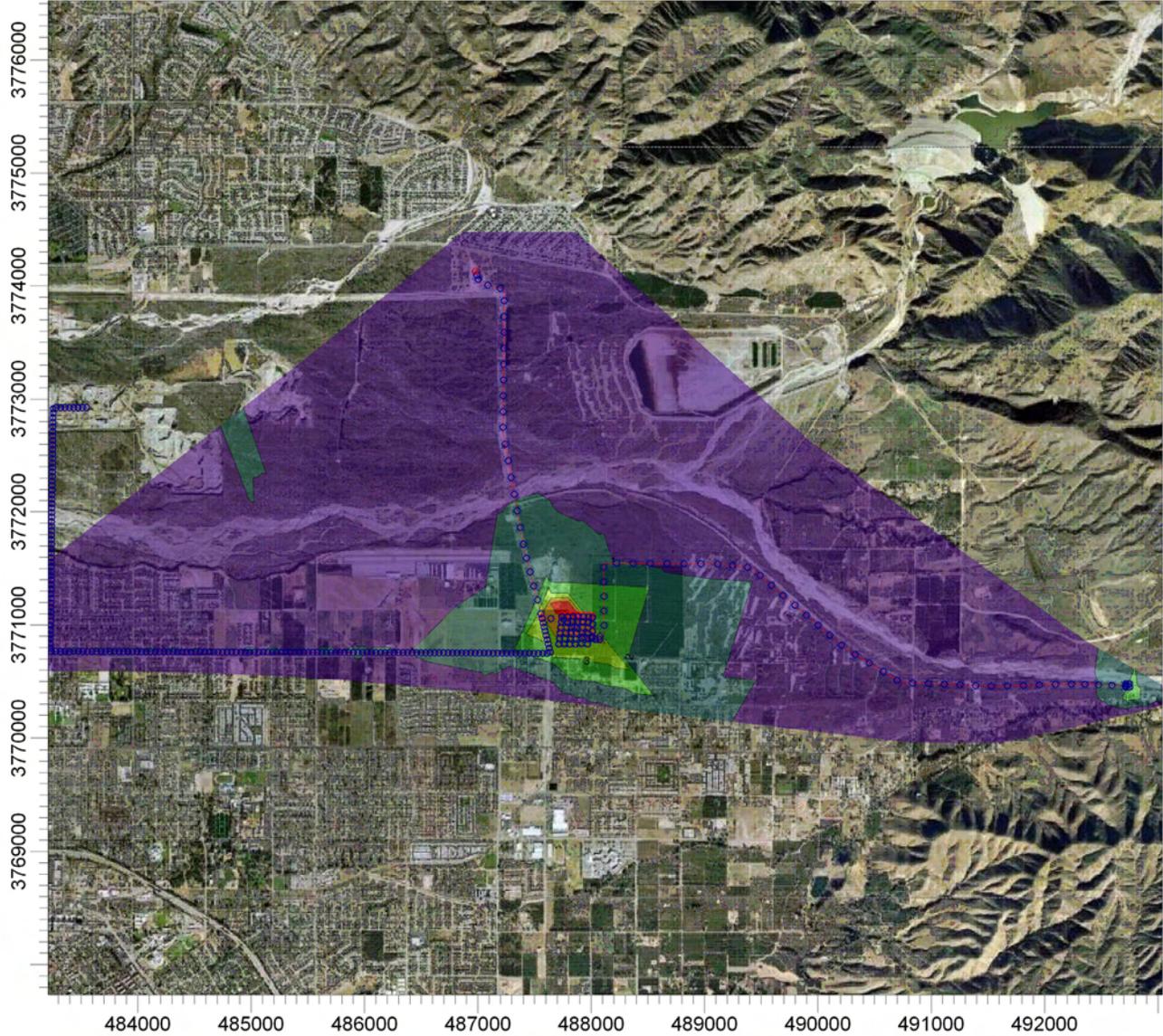
5/6/2008

PROJECT NO.:

206008.01

PROJECT TITLE:

**Figure 3**  
**Incremental Cancer Risk from All Sources**



PLOT FILE OF ANNUAL VALUES FOR SOURCE GROUP: ALL

cancer risk



COMMENTS:  Cancer risk expressed in chances per million.	SOURCES:	COMPANY NAME: <b>Environmental Science Associates</b>	
	RECEPTORS:	MODELER: <b>Nichole Yeto</b>	
	OUTPUT TYPE: <b>Concentration</b>	SCALE: 1:60,000 0  2 km	
	MAX: <b>5.60429 cancer risk</b>	DATE: <b>7/1/2008</b>	PROJECT NO.: <b>206008.01</b>

Emission Rates  
Emissions Summary

Activities	Emission Rates					
	tons/year <sup>a</sup>	lb/day	g/day	g/s	g/s-source	adjusted
Pipeline Extension	0.57	3.0958904	1404.265	0.016253066	0.016253066	0.010835
Pump Station Expansion	0.19	1.0136986	459.8036	0.0053218	0.00133045	0.000887
Citrus Pump Station and Reservoir	0.56	3.0502283	1383.553	0.016013346	0.002287621	0.002288
Truck Route	0.19	1.0410959	472.2307	0.005465633	0.005465633	0.005466

<sup>a</sup> based on URBEMIS output

Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: C:\Documents and Settings\nay\My Documents\Projects\206008.01 - EBX\haul truck emissions.urb924

Project Name: EBX - Haul Route

Project Location: Los Angeles County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10 Dust</u>	<u>PM10 Exhaust</u>	<u>PM10</u>	<u>PM2.5 Dust</u>	<u>PM2.5 Exhaust</u>	<u>PM2.5</u>	<u>CO2</u>
2009 TOTALS (tons/year unmitigated)	0.37	4.70	1.90	0.01	0.02	0.20	0.22	0.01	0.19	0.19	572.47

Emission Rates  
URBEMIS Output  
Haul Truck Emissions

Page: 2

7/1/2008 1:24:34 PM

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10 Dust</u>	<u>PM10 Exhaust</u>	<u>PM10</u>	<u>PM2.5 Dust</u>	<u>PM2.5 Exhaust</u>	<u>PM2.5</u>	<u>CO2</u>
2009	0.37	4.70	1.90	0.01	0.02	0.20	0.22	0.01	0.19	0.19	572.47
Mass Grading 01/01/2009-12/31/2009	0.37	4.70	1.90	0.01	0.02	0.20	0.22	0.01	0.19	0.19	572.47
Mass Grading Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Off Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading On Road Diesel	0.37	4.70	1.90	0.01	0.02	0.20	0.22	0.01	0.19	0.19	572.47
Mass Grading Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

**Annual Average PM2.5 Exhaust Emissions**

**0.19**

Phase Assumptions

Phase: Mass Grading 1/1/2009 - 12/31/2009 - Haul Truck Emissions from Soil Export - Adjusted for modeling

Total Acres Disturbed: 0

Maximum Daily Acreage Disturbed: 0

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 1035

Off-Road Equipment:



6/23/2008 2:08:09 PM

Emission Rates  
URBEMIS Output  
Pipeline Construction Emissions

2010	1.34	10.15	5.76	0.00	1.94	0.53	2.48	0.41	0.49	0.90	985.42
Mass Grading 01/01/2009-07/01/2010	0.35	2.74	1.58	0.00	1.29	0.16	1.44	0.27	0.14	0.41	271.25
Mass Grading Dust	0.00	0.00	0.00	0.00	1.29	0.00	1.29	0.27	0.00	0.27	0.00
Mass Grading Off Road Diesel	0.34	2.64	1.43	0.00	0.00	0.15	0.15	0.00	0.14	0.14	244.61
Mass Grading On Road Diesel	0.01	0.09	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.49
Mass Grading Worker Trips	0.00	0.01	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	14.15
Trenching 01/01/2009-09/01/2010	0.66	4.89	2.83	0.00	0.00	0.24	0.24	0.00	0.22	0.22	474.50
Trenching Off Road Diesel	0.65	4.87	2.55	0.00	0.00	0.24	0.24	0.00	0.22	0.22	442.03
Trenching Worker Trips	0.01	0.02	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	32.47
Fine Grading 07/02/2010-10/01/2010	0.22	1.90	0.94	0.00	0.65	0.09	0.74	0.14	0.08	0.22	181.05
Fine Grading Dust	0.00	0.00	0.00	0.00	0.65	0.00	0.65	0.14	0.00	0.14	0.00
Fine Grading Off Road Diesel	0.22	1.90	0.89	0.00	0.00	0.09	0.09	0.00	0.08	0.08	174.89
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.16
Asphalt 10/02/2010-12/31/2010	0.11	0.62	0.41	0.00	0.00	0.05	0.05	0.00	0.05	0.05	58.62
Paving Off-Gas	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.10	0.59	0.33	0.00	0.00	0.05	0.05	0.00	0.05	0.05	47.27
Paving On Road Diesel	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.27
Paving Worker Trips	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.09

**Total Onsite PM2.5 Exhaust Emissions 1.13**

Construction Related Mitigation Measures

**Annual Average PM2.5 Exhaust Emissions 0.57**

The following mitigation measures apply to Phase: Fine Grading 7/2/2010 - 10/1/2010 - Fine Site Grading/Excavation

For Soil Stabilizing Measures, the Apply soil stabilizers to inactive areas mitigation reduces emissions by:

PM10: 84% PM25: 84%

For Soil Stabilizing Measures, the Replace ground cover in disturbed areas quickly mitigation reduces emissions by:

PM10: 5% PM25: 5%

For Soil Stabilizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Soil Stabilizing Measures, the Equipment loading/unloading mitigation reduces emissions by:





Emission Rates  
URBEMIS Output  
Citrus Reservoir and Pump Station Construction

6/25/2008 9:33:36 AM

2011	9.80	13.84	9.10	0.01	0.18	0.66	0.84	0.05	0.60	0.65	2,078.04
Building 04/01/2010-10/01/2011	0.67	7.02	5.32	0.01	0.05	0.31	0.36	0.02	0.28	0.30	1,364.00
Building Off Road Diesel	0.09	0.42	0.32	0.00	0.00	0.04	0.04	0.00	0.04	0.04	40.83
Building Vendor Trips	0.57	6.59	4.77	0.01	0.04	0.27	0.32	0.02	0.25	0.26	1,293.82
Building Worker Trips	0.01	0.01	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	29.35
Mass Grading 01/01/2009-08/30/2011	0.48	3.99	2.25	0.00	0.10	0.21	0.31	0.02	0.19	0.21	416.19
Mass Grading Dust	0.00	0.00	0.00	0.00	0.10	0.00	0.10	0.02	0.00	0.02	0.00
Mass Grading Off Road Diesel	0.45	3.63	1.97	0.00	0.00	0.19	0.19	0.00	0.18	0.18	344.98
Mass Grading On Road Diesel	0.03	0.35	0.13	0.00	0.00	0.01	0.02	0.00	0.01	0.01	52.49
Mass Grading Worker Trips	0.00	0.01	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	18.72
Fine Grading 07/01/2011-09/30/2011	0.29	2.53	1.24	0.00	0.04	0.11	0.15	0.01	0.10	0.11	257.47
Fine Grading Dust	0.00	0.00	0.00	0.00	0.04	0.00	0.04	0.01	0.00	0.01	0.00
Fine Grading Off Road Diesel	0.29	2.50	1.17	0.00	0.00	0.11	0.11	0.00	0.10	0.10	245.02
Fine Grading On Road Diesel	0.00	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.24
Fine Grading Worker Trips	0.00	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.21
Coating 08/01/2011-12/01/2011	8.32	0.01	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.07
Architectural Coating	8.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.01	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.07
Asphalt 10/01/2011-12/01/2011	0.05	0.29	0.20	0.00	0.00	0.03	0.03	0.00	0.02	0.02	28.30
Paving Off-Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.05	0.28	0.17	0.00	0.00	0.02	0.02	0.00	0.02	0.02	24.14
Paving On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.74
Paving Worker Trips	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.42

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Fine Grading 1/2/2010 - 2/1/2010 - Reservoir Fine Site Grading/Excavation

For Soil Stabilizing Measures, the Apply soil stabilizers to inactive areas mitigation reduces emissions by:

**Total Onsite PM2.5 Exhaust Emissions** 1.67

PM10: 84% PM25: 84%

**Annual Average PM2.5 Exhaust Emissions** 0.56



Emission Rates  
URBEMIS Output  
Crafton Hills Pump Station Expansion

6/25/2008 9:40:04 AM

2010	0.31	2.30	1.03	0.00	0.00	0.11	0.11	0.00	0.10	0.10	253.12
Fine Grading 10/02/2009-01/01/2010	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.59
Fine Grading Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Off Road Diesel	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.48
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11
Building 01/02/2010-10/01/2010	0.30	2.29	1.02	0.00	0.00	0.11	0.11	0.00	0.10	0.10	251.51
Building Off Road Diesel	0.30	2.28	0.99	0.00	0.00	0.11	0.11	0.00	0.10	0.10	248.10
Building Vendor Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.70
Building Worker Trips	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.72
Coating 09/01/2010-12/31/2011	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
Architectural Coating	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
2011	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04
Coating 09/01/2010-12/31/2011	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04
Architectural Coating	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04

**Total Onsite PM2.5 Exhaust Emissions 0.37**

Construction Related Mitigation Measures

**Annual Average PM2.5 Exhaust Emissions 0.19**

The following mitigation measures apply to Phase: Fine Grading 10/2/2009 - 1/1/2010 - Default Fine Site Grading/Excavation

Description  
For Soil Stabilizing Measures, the Apply soil stabilizers to inactive areas mitigation reduces emissions by:

PM10: 84% PM25: 84%

For Soil Stabilizing Measures, the Replace ground cover in disturbed areas quickly mitigation reduces emissions by:

PM10: 5% PM25: 5%

For Soil Stabilizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Soil Stabilizing Measures, the Equipment loading/unloading mitigation reduces emissions by:

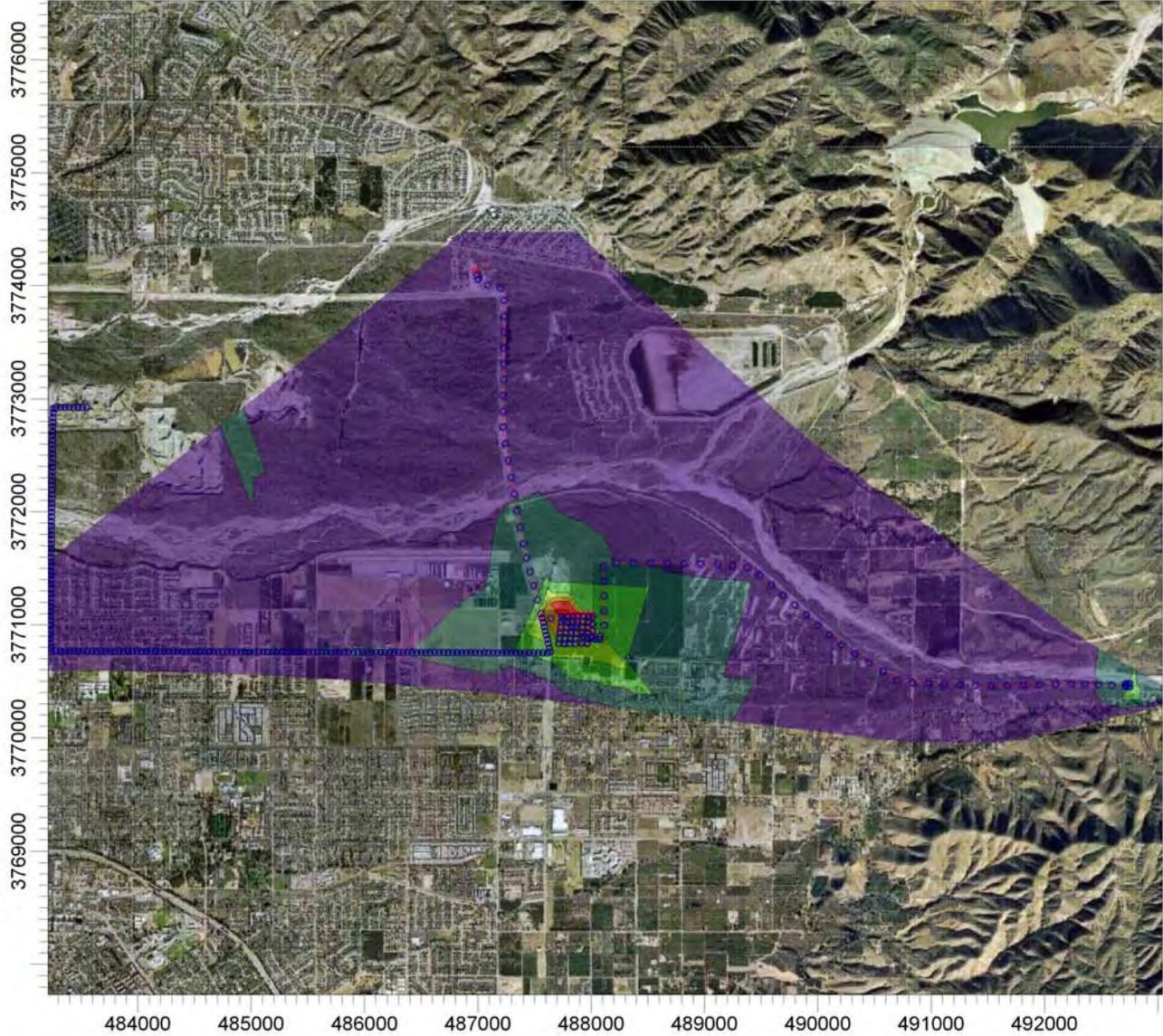
PM10: 69% PM25: 69%

The following mitigation measures apply to Phase: Mass Grading 2/1/2009 - 10/1/2009 - Default Mass Site Grading/Excavation

Description

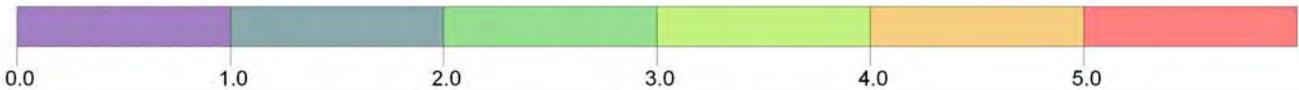
PROJECT TITLE:

**Incremental Cancer Risk from All Sources**



PLOT FILE OF ANNUAL VALUES FOR SOURCE GROUP: ALL

cancer risk



COMMENTS:

Cancer risk expressed in chances per million.

SOURCES:

COMPANY NAME:

**Environmental Science Associates**

RECEPTORS:

MODELER:

**Nichole Yeto**

OUTPUT TYPE:

**Concentration**

SCALE:

1:60,000



MAX:

**5.60429 cancer risk**

DATE:

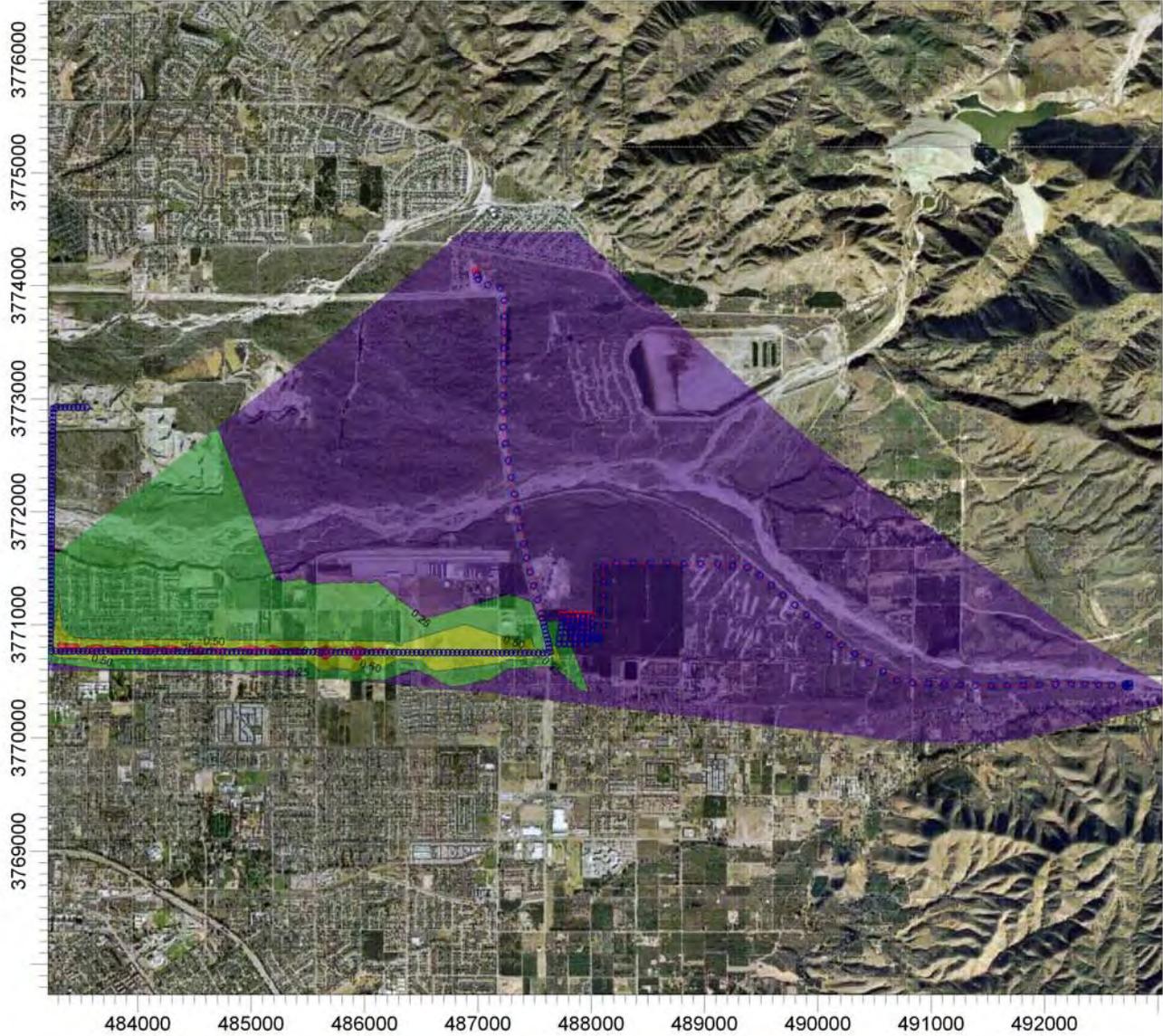
**7/1/2008**

PROJECT NO.:

**206008.01**

PROJECT TITLE:

**Incremental Cancer Risk from Haul Trucks**



PLOT FILE OF ANNUAL VALUES FOR SOURCE GROUP: HAULROUT

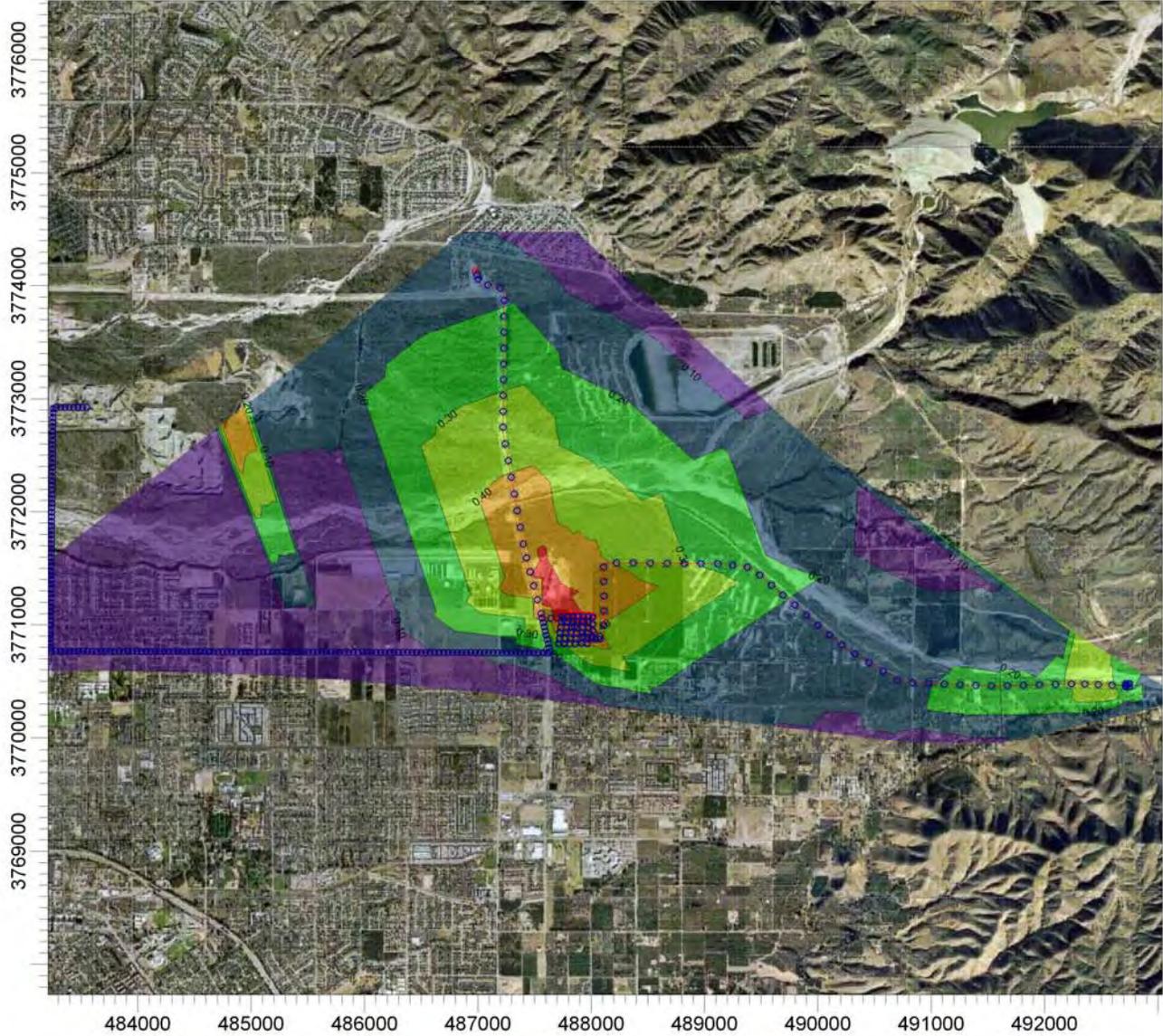
cancer risk



COMMENTS:  Cancer risk expressed in chances per million.	SOURCES:	COMPANY NAME: <b>Environmental Science Associates</b>	
	RECEPTORS:	MODELER: <b>Nichole Yeto</b>	
	OUTPUT TYPE: <b>Concentration</b>	SCALE: 1:60,000	
	MAX: <b>0.99652 cancer risk</b>	DATE: <b>7/1/2008</b>	PROJECT NO.: <b>206008.01</b>

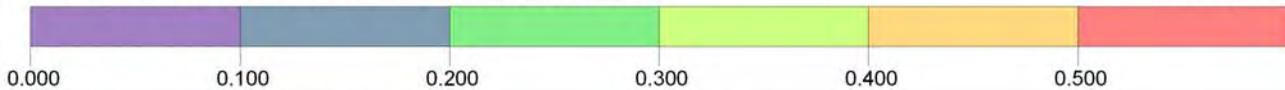
PROJECT TITLE:

**Incremental Cancer Risk from Pipeline Construction Emissions**



PLOT FILE OF ANNUAL VALUES FOR SOURCE GROUP: PIPELINE

cancer risk



COMMENTS:

Cancer risk expressed in chances per million.

SOURCES:

COMPANY NAME:

**Environmental Science Associates**

RECEPTORS:

MODELER:

**Nichole Yeto**

OUTPUT TYPE:

**Concentration**

SCALE:

1:60,000

0 2 km

MAX:

**0.69562 cancer risk**

DATE:

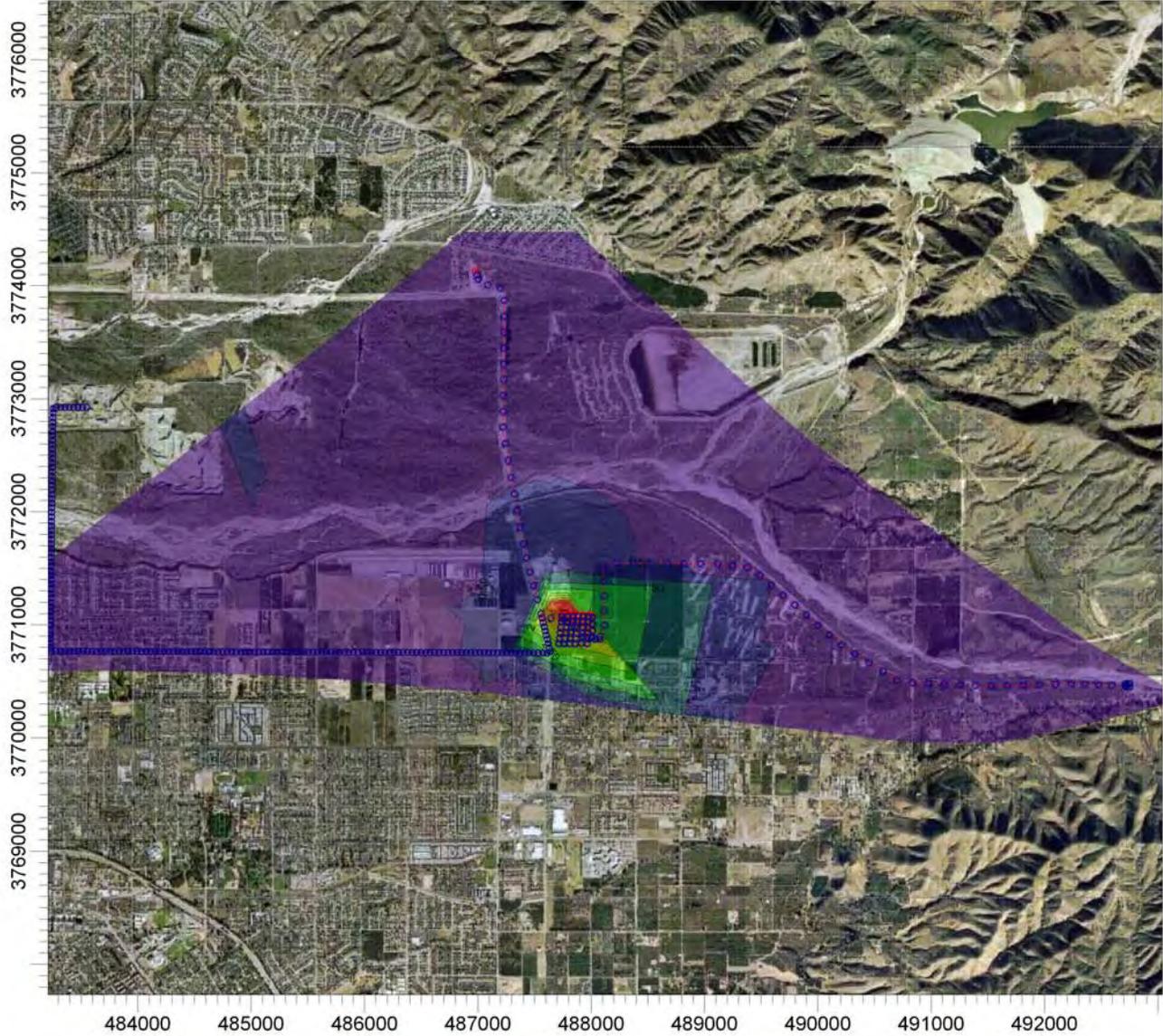
**7/1/2008**

PROJECT NO.:

**206008.01**

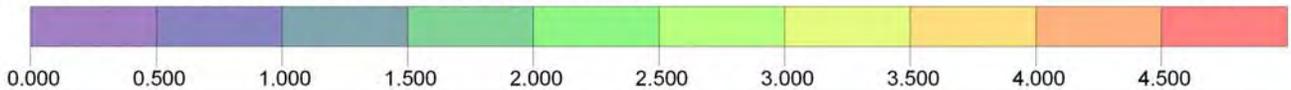
PROJECT TITLE:

**Incremental Cancer Risk from Citrus Reservoir and Pump Station Construction Emissions**



PLOT FILE OF ANNUAL VALUES FOR SOURCE GROUP: RESERVOI

cancer risk



COMMENTS:

Cancer risk expressed in chances per million.

SOURCES:

COMPANY NAME:

**Environmental Science Associates**

RECEPTORS:

MODELER:

**Nichole Yeto**

OUTPUT TYPE:

SCALE:

1:60,000

**Concentration**



MAX:

DATE:

PROJECT NO.:

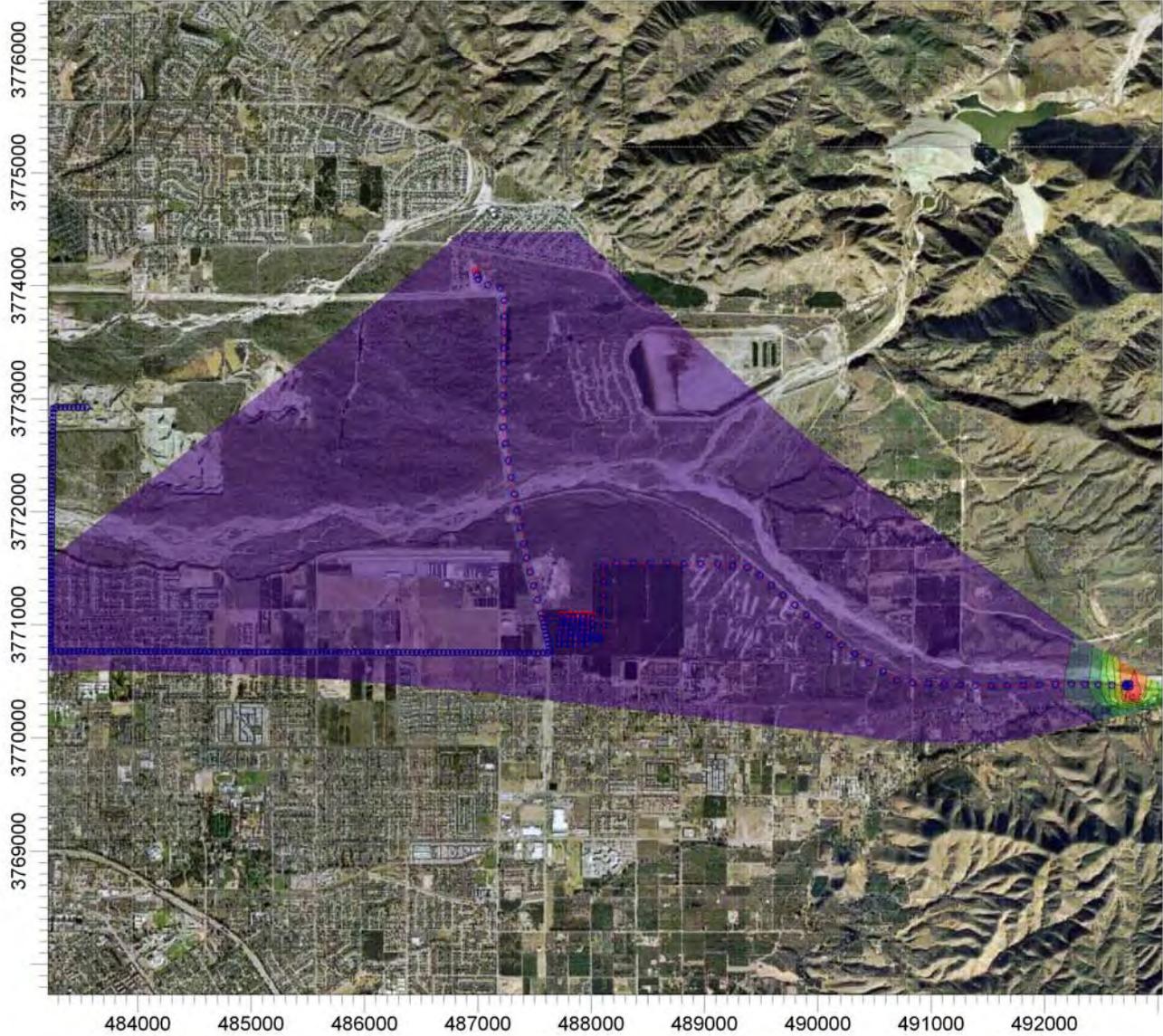
**4.89286 cancer risk**

**7/1/2008**

**206008.01**

PROJECT TITLE:

**Incremental Cancer Risk from Crafton Hills Pump Station Construction Emissions**



PLOT FILE OF ANNUAL VALUES FOR SOURCE GROUP: CRAFTONH

cancer risk



COMMENTS:

Cancer risk expressed in chances per million.

SOURCES:

COMPANY NAME:

**Environmental Science Associates**

RECEPTORS:

MODELER:

**Nichole Yeto**

OUTPUT TYPE:

SCALE:

1:60,000

**Concentration**



MAX:

DATE:

PROJECT NO.:

**1.99744 cancer risk**

**7/1/2008**

**206008.01**

\*\*
\*\*\*\*\*
\*\* AERMOD Input Produced by:
\*\* ISC-AERMOD View Ver. 5.9.0
\*\* Lakes Environmental Software Inc.
\*\* Date: 6/30/2008
\*\* File: C:\Documents and Settings\nay\My Documents\Projects\206008.01 - EBX\EBX0608.ADI
\*\*\*\*\*

CO STARTING
TITLE: C:\Documents and Settings\nay\My Documents\EBX\EBXgprs.isc
MODEL: DEFAULT.COV
AVERAGE: ANNUAL
URBANPOP: 70382 Ci ty\_of\_Redlands\_-\_2006.estimate
POLLUT: PM-2.5
FLAGPOL: 1.00
RUNGRID: RUN
CO FINI SHED
\*\*\*\*\*

\*\* AERMOD Source Pathway
\*\*\*\*\*

SO STARTING
\*\* Source Location on \*\*
\*\* Source ID - Type - X Coord. - Y Coord. \*\*
LOCATION VOL1 VOLUME 492717.903 3770479.800 688.590
LOCATION VOL2 VOLUME 492750.970 3770479.512 690.310
LOCATION VOL3 VOLUME 492718.667 3770449.511 689.170
LOCATION VOL4 VOLUME 492751.727 3770449.129 691.340
\*\* Line Source represented by Separated Volume Sources
\*\*\*\*\*
\*\* LINE Source ID = SLIN1
\*\* DESCR: SRC
\*\* Length of Side = 20.00
\*\* Emission Rate = 0.002465633
\*\* Vertical Dimension = 3.00
\*\* S/NIT = 1.40
\*\* Nodes = 5
\*\* 487565.38 3771064.70 494.80 3.00 0.0 0
\*\* 487642.09 3770749.33 499.34 3.00 17.71
\*\* 483226.95 3770766.38 415.00 3.00 18.50
\*\* 483252.52 3772922.81 393.00 3.00 18.57
\*\* 483559.36 3772922.81 400.75 3.00 17.84
\*\*\*\*\*

LOCATION L0023384 VOLUME 487567.738 3771065.033 494.92
LOCATION L0023385 VOLUME 487576.737 3771019.025 495.22
LOCATION L0023386 VOLUME 487585.736 3770981.017 495.70
LOCATION L0023387 VOLUME 487594.735 3770944.008 496.82
LOCATION L0023388 VOLUME 487603.734 3770907.000 497.12
LOCATION L0023389 VOLUME 487612.734 3770869.992 498.30
LOCATION L0023390 VOLUME 487621.733 3770832.983 498.72
\*\*\*\*\*

LOCATI ON L0023391 VOLUME 487630.732 3770795.975 499.02
LOCATION L0023392 VOLUME 487639.731 3770758.967 499.32
LOCATION L0023393 VOLUME 487612.317 3770749.366 498.41
LOCATION L0023394 VOLUME 487572.541 3770749.522 497.08
LOCATION L0023395 VOLUME 487532.765 3770749.677 495.76
LOCATION L0023396 VOLUME 487492.989 3770749.833 494.43
LOCATION L0023397 VOLUME 487453.213 3770749.988 494.00
LOCATION L0023398 VOLUME 487413.437 3770750.143 492.78
LOCATION L0023399 VOLUME 487373.661 3770750.299 491.45
LOCATION L0023400 VOLUME 487333.884 3770750.454 490.13
LOCATION L0023401 VOLUME 487294.108 3770750.610 488.80
LOCATION L0023402 VOLUME 487254.332 3770750.765 487.48
LOCATION L0023403 VOLUME 487214.556 3770750.920 486.15
LOCATION L0023404 VOLUME 487174.779 3770751.076 484.82
LOCATION L0023405 VOLUME 487135.003 3770751.231 484.50
LOCATION L0023406 VOLUME 487095.227 3770751.387 483.86
LOCATION L0023407 VOLUME 487055.451 3770751.542 482.85
LOCATION L0023408 VOLUME 487015.675 3770751.697 481.52
LOCATION L0023409 VOLUME 486975.899 3770751.853 480.85
LOCATION L0023410 VOLUME 486936.123 3770752.008 479.87
LOCATION L0023411 VOLUME 486896.346 3770752.164 478.54
LOCATION L0023412 VOLUME 486856.570 3770752.319 478.00
LOCATION L0023413 VOLUME 486816.794 3770752.474 476.89
LOCATION L0023414 VOLUME 486777.018 3770752.630 476.00
LOCATION L0023415 VOLUME 486737.241 3770752.785 475.24
LOCATION L0023416 VOLUME 486697.465 3770752.941 473.98
LOCATION L0023417 VOLUME 486657.689 3770753.096 473.36
LOCATION L0023418 VOLUME 486617.913 3770753.251 472.20
LOCATION L0023419 VOLUME 486578.137 3770753.407 470.98
LOCATION L0023420 VOLUME 486538.361 3770753.562 470.46
LOCATION L0023421 VOLUME 486498.584 3770753.718 469.62
LOCATION L0023422 VOLUME 486458.808 3770753.873 468.96
LOCATION L0023423 VOLUME 486419.032 3770754.028 467.90
LOCATION L0023424 VOLUME 486379.256 3770754.184 467.23
LOCATION L0023425 VOLUME 486339.480 3770754.339 466.00
LOCATION L0023426 VOLUME 486299.703 3770754.495 465.48
LOCATION L0023427 VOLUME 486259.927 3770754.650 464.81
LOCATION L0023428 VOLUME 486220.151 3770754.806 464.00
LOCATION L0023429 VOLUME 486180.375 3770754.961 463.48
LOCATION L0023430 VOLUME 486140.599 3770755.116 462.95
LOCATION L0023431 VOLUME 486100.823 3770755.272 461.71
LOCATION L0023432 VOLUME 486061.046 3770755.427 460.70
LOCATION L0023433 VOLUME 486021.270 3770755.583 459.81
LOCATION L0023434 VOLUME 485981.494 3770755.738 458.73
LOCATION L0023435 VOLUME 485941.718 3770755.893 457.92
LOCATION L0023436 VOLUME 485901.942 3770756.049 457.00
LOCATION L0023437 VOLUME 485862.166 3770756.204 456.07
LOCATION L0023438 VOLUME 485822.389 3770756.360 455.91
LOCATION L0023439 VOLUME 485782.613 3770756.515 455.28
LOCATION L0023440 VOLUME 485742.837 3770756.670 454.09
LOCATION L0023441 VOLUME 485703.061 3770756.826 453.77
LOCATION L0023442 VOLUME 485663.285 3770756.981 452.80
LOCATION L0023443 VOLUME 485623.508 3770757.137 452.07
LOCATION L0023444 VOLUME 485583.732 3770757.292 451.63
LOCATION L0023445 VOLUME 485543.956 3770757.447 451.63
LOCATION L0023446 VOLUME 485504.180 3770757.603 451.69
LOCATION L0023447 VOLUME 485464.404 3770757.758 450.00
LOCATION L0023448 VOLUME 485424.628 3770757.914 449.80
LOCATION L0023449 VOLUME 485384.852 3770758.069 449.10
LOCATION L0023450 VOLUME 485345.076 3770758.224 448.50
LOCATION L0023451 VOLUME 485305.300 3770758.380 447.80
\*\*\*\*\*

LOCATION L0023452 VOLUME 485265.524 3770758.535 447.11
LOCATION L0023453 VOLUME 485225.748 3770758.691 446.50
LOCATION L0023454 VOLUME 485185.972 3770758.846 446.00
LOCATION L0023455 VOLUME 485146.196 3770759.001 445.66
LOCATION L0023456 VOLUME 485106.419 3770759.157 445.00
LOCATION L0023457 VOLUME 485066.643 3770759.312 444.56
LOCATION L0023458 VOLUME 485026.867 3770759.468 443.66
LOCATION L0023459 VOLUME 484987.091 3770759.623 442.90
LOCATION L0023460 VOLUME 484947.315 3770759.778 442.00
LOCATION L0023461 VOLUME 484907.539 3770759.934 441.25
LOCATION L0023462 VOLUME 484867.763 3770760.089 440.93
LOCATION L0023463 VOLUME 484827.987 3770760.245 440.00
LOCATION L0023464 VOLUME 484788.211 3770760.400 439.27
LOCATION L0023465 VOLUME 484748.435 3770760.556 438.95
LOCATION L0023466 VOLUME 484708.659 3770760.711 438.00
LOCATION L0023467 VOLUME 484668.883 3770760.866 437.30
LOCATION L0023468 VOLUME 484629.107 3770761.022 436.97
LOCATION L0023469 VOLUME 484589.331 3770761.177 436.00
LOCATION L0023470 VOLUME 484549.555 3770761.333 435.32
LOCATION L0023471 VOLUME 484509.779 3770761.488 434.99
LOCATION L0023472 VOLUME 484470.002 3770761.643 434.00
LOCATION L0023473 VOLUME 484430.226 3770761.799 434.00
LOCATION L0023474 VOLUME 484390.450 3770761.954 433.02
LOCATION L0023475 VOLUME 484350.674 3770762.110 432.69
LOCATION L0023476 VOLUME 484310.898 3770762.265 432.00
LOCATION L0023477 VOLUME 484271.122 3770762.420 431.04
LOCATION L0023478 VOLUME 484231.346 3770762.576 430.00
LOCATION L0023479 VOLUME 484191.570 3770762.731 429.39
LOCATION L0023480 VOLUME 484151.794 3770762.887 429.00
LOCATION L0023481 VOLUME 484112.018 3770763.042 428.00
LOCATION L0023482 VOLUME 484072.242 3770763.197 427.41
LOCATION L0023483 VOLUME 484032.466 3770763.353 427.00
LOCATION L0023484 VOLUME 483992.690 3770763.508 426.00
LOCATION L0023485 VOLUME 483952.914 3770763.664 425.87
LOCATION L0023486 VOLUME 483913.138 3770763.819 425.04
LOCATION L0023487 VOLUME 483873.362 3770763.974 424.32
LOCATION L0023488 VOLUME 483833.586 3770764.130 423.80
LOCATION L0023489 VOLUME 483793.809 3770764.285 423.13
LOCATION L0023490 VOLUME 483754.033 3770764.441 422.80
LOCATION L0023491 VOLUME 483714.257 3770764.596 422.00
LOCATION L0023492 VOLUME 483674.481 3770764.751 422.00
LOCATION L0023493 VOLUME 483634.705 3770764.907 421.00
LOCATION L0023494 VOLUME 483594.929 3770765.062 420.50
LOCATION L0023495 VOLUME 483555.153 3770765.218 420.00
LOCATION L0023496 VOLUME 483515.377 3770765.373 419.31
LOCATION L0023497 VOLUME 483475.601 3770765.528 418.69
LOCATION L0023498 VOLUME 483435.825 3770765.684 418.07
LOCATION L0023499 VOLUME 483396.049 3770765.839 417.87
LOCATION L0023500 VOLUME 483356.273 3770765.995 417.00
LOCATION L0023501 VOLUME 483316.496 3770766.150 416.22
LOCATION L0023502 VOLUME 483276.720 3770766.305 415.89
LOCATION L0023503 VOLUME 483236.944 3770766.461 415.00
LOCATION L0023504 VOLUME 483197.168 3770766.616 415.00
LOCATION L0023505 VOLUME 483157.392 3770766.771 414.00
LOCATION L0023506 VOLUME 483117.616 3770766.926 414.76
LOCATION L0023507 VOLUME 483077.840 3770767.081 414.29
LOCATION L0023508 VOLUME 483038.064 3770767.236 414.31
LOCATION L0023509 VOLUME 482998.288 3770767.391 414.22
LOCATION L0023510 VOLUME 482958.512 3770767.546 414.00
LOCATION L0023511 VOLUME 482918.736 3770767.701 413.36
LOCATION L0023512 VOLUME 482878.960 3770767.856 413.25
\*\*\*\*\*

LOCATION L0023513 VOLUME 483231.558 3771155.806 412.60
LOCATION L0023514 VOLUME 483232.032 3771195.737 412.40
LOCATION L0023515 VOLUME 483233.506 3771235.667 412.00
LOCATION L0023516 VOLUME 483232.980 3771275.598 412.00
LOCATION L0023517 VOLUME 483233.454 3771315.529 411.46
LOCATION L0023518 VOLUME 483234.928 3771355.459 411.82
LOCATION L0023519 VOLUME 483234.402 3771395.390 411.00
LOCATION L0023520 VOLUME 483234.876 3771435.320 410.51
LOCATION L0023521 VOLUME 483235.350 3771475.250 410.00
LOCATION L0023522 VOLUME 483235.824 3771515.181 409.70
LOCATION L0023523 VOLUME 483236.298 3771555.112 409.02
LOCATION L0023524 VOLUME 483236.772 3771595.042 409.00
LOCATION L0023525 VOLUME 483237.246 3771634.973 409.00
LOCATION L0023526 VOLUME 483237.720 3771674.903 407.09
LOCATION L0023527 VOLUME 483238.194 3771714.834 396.61
LOCATION L0023528 VOLUME 483238.668 3771754.764 396.24
LOCATION L0023529 VOLUME 483239.142 3771794.695 396.00
LOCATION L0023530 VOLUME 483239.616 3771834.626 396.00
LOCATION L0023531 VOLUME 483240.090 3771874.556 395.59
LOCATION L0023532 VOLUME 483240.564 3771914.487 395.31
LOCATION L0023533 VOLUME 483241.038 3771954.417 394.73
LOCATION L0023534 VOLUME 483241.512 3771994.348 393.83
LOCATION L0023535 VOLUME 483241.986 3772034.278 393.73
LOCATION L0023536 VOLUME 483242.459 3772074.209 393.20
LOCATION L0023537 VOLUME 483242.933 3772114.139 393.77
LOCATION L0023538 VOLUME 483243.407 3772154.070 393.78
LOCATION L0023539 VOLUME 483243.881 3772194.000 393.80
LOCATION L0023540 VOLUME 483244.355 3772233.930 393.31
LOCATION L0023541 VOLUME 483244.829 3772273.861 393.07
LOCATION L0023542 VOLUME 483245.303 3772313.792 393.00
LOCATION L0023543 VOLUME 483245.777 3772353.723 392.82
LOCATION L0023544 VOLUME 483246.251 3772393.653 392.88
LOCATION L0023545 VOLUME 483246.725 3772433.584 392.89
LOCATION L0023546 VOLUME 483247.199 3772473.514 392.91
LOCATION L0023547 VOLUME 483247.673 3772513.445 392.92
LOCATION L0023548 VOLUME 483248.147 3772553.375 392.94
LOCATION L0023549 VOLUME 483248.621 3772593.306 392.96
LOCATION L0023550 VOLUME 483249.095 3772633.236 392.97
LOCATION L0023551 VOLUME 483249.569 3772673.167 392.99
LOCATION L0023552 VOLUME 483250.043 3772713.097 393.00
LOCATION L0023553 VOLUME 483250.517 3772753.028 393.00
LOCATION L0023554 VOLUME 483250.991 3772792.958 392.91
LOCATION L0023555 VOLUME 483251.465 3772832.889 393.05
LOCATION L0023556 VOLUME 483251.939 3772872.820 393.07
LOCATION L0023557 VOLUME 483252.413 3772912.750 393.08
LOCATION L0023558 VOLUME 483252.887 3772922.750 394.00
LOCATION L0023559 VOLUME 483319.242 3772922.750 394.31
LOCATION L0023560 VOLUME 483396.449 3770765.839 417.87
LOCATION L0023561 VOLUME 483395.953 3772922.750 395.94
LOCATION L0023562 VOLUME 483434.309 3772922.750 396.70
LOCATION L0023563 VOLUME 483472.664 3772922.750 397.74
LOCATION L0023564 VOLUME 483511.020 3772922.750 398.70
LOCATION L0023565 VOLUME 483549.375 3772922.750 399.98
\*\*\*\*\*
\*\* End of Line Source
\*\* Line Source represented by Separated Volume Sources
\*\*\*\*\*
\*\* LINE Source ID = SLIN3
\*\* DESCR: SRC
\*\* Length of Side = 30.00
\*\* Emission Rate = 0.00287621
\*\* Vertical Dimension = 5.00
\*\*\*\*\*

\*\* SZINIT = 2.33
\*\* Nodes = 2
\*\* 487122.81, 3771089.62, 500.00, 5.00, 0.0
\*\* 487712.77, 3770814.65, 500.95, 5.00, 22.92
...
\*\* 487859.81, 3770814.04, 506.12, 5.00, 22.95

-----
LOCATI ON L0023596 VOLUME 487884.403 3771074.566 504.48
LOCATI ON L0023597 VOLUME 487819.767 3771025.440 504.32
LOCATI ON L0023598 VOLUME 487875.131 3770976.313 504.17
...
\*\* 487566.34, 3771063.02, 494.80, 5.00, 59.07

\*\* 487795.98, 3771044.50, 501.55, 5.00, 53.57
\*\* 487962.65, 3770870.42, 507.95, 5.00, 56.04
\*\* 48814.51, 3770903.75, 512.21, 5.00, 15.15
...
\*\* 487997.26, 3771174.66, 505.53, 5.00, 11.11

LOCATI ON L0023663 VOLUME 489900.043 3771086.021 572.67
LOCATI ON L0023664 VOLUME 490002.824 3770997.584 577.71
LOCATI ON L0023665 VOLUME 490105.367 3770909.146 583.81
...
\*\* 488012.10, 3770874.76, 509.84, 5.00, 27.13
\*\* 488091.57, 3770870.98, 512.00, 5.00, 18.50





URBANSRC L0023600
URBANSRC L0023601
URBANSRC L0023602
URBANSRC L0023603
URBANSRC L0023604
URBANSRC L0023605
URBANSRC L0023606
URBANSRC L0023607
URBANSRC L0023608
URBANSRC L0023609
URBANSRC L0023610
URBANSRC L0023611
URBANSRC L0023612
URBANSRC L0023613
URBANSRC VOL1
URBANSRC VOL2
URBANSRC VOL3
URBANSRC VOL4
URBANSRC L0023614
URBANSRC L0023615
URBANSRC L0023616
URBANSRC L0023617
URBANSRC L0023618
URBANSRC L0023619
URBANSRC L0023620
URBANSRC L0023621
URBANSRC L0023622
URBANSRC L0023623
URBANSRC L0023624
URBANSRC L0023625
URBANSRC L0023626
URBANSRC L0023627
URBANSRC L0023628
URBANSRC L0023629
URBANSRC L0023630
URBANSRC L0023631
URBANSRC L0023632
URBANSRC L0023633
URBANSRC L0023634
URBANSRC L0023635
URBANSRC L0023636
URBANSRC L0023637
URBANSRC L0023638
URBANSRC L0023639
URBANSRC L0023640
URBANSRC L0023641
URBANSRC L0023642
URBANSRC L0023643
URBANSRC L0023644
URBANSRC L0023645
URBANSRC L0023646
URBANSRC L0023647
URBANSRC L0023648
URBANSRC L0023649
URBANSRC L0023650
URBANSRC L0023651
URBANSRC L0023652
URBANSRC L0023653
URBANSRC L0023654
URBANSRC L0023655
URBANSRC L0023656

URBANSRC L0023657
URBANSRC L0023658
URBANSRC L0023659
URBANSRC L0023660
URBANSRC L0023661
URBANSRC L0023662
URBANSRC L0023663
URBANSRC L0023664
URBANSRC L0023665
URBANSRC L0023666
URBANSRC L0023667
URBANSRC L0023668
URBANSRC L0023669
URBANSRC L0023670
URBANSRC L0023671
URBANSRC L0023672
URBANSRC L0023673
URBANSRC L0023674
URBANSRC L0023675
URBANSRC L0023676
URBANSRC L0023677
URBANSRC L0023678
URBANSRC L0023679
URBANSRC L0023680
URBANSRC L0023681
URBANSRC L0023682
URBANSRC L0023683
URBANSRC L0023684
URBANSRC L0023685
URBANSRC L0023686
URBANSRC L0023687
URBANSRC L0023688
URBANSRC L0023689
URBANSRC L0023690
URBANSRC L0023691
SRCGROUP HAULROUT L0023384 L0023385 L0023386 L0023387 L0023388 L0023389
SRCGROUP HAULROUT L0023390 L0023391 L0023392 L0023393 L0023394 L0023395
SRCGROUP HAULROUT L0023396 L0023397 L0023398 L0023399 L0023400 L0023401
SRCGROUP HAULROUT L0023402 L0023403 L0023404 L0023405 L0023406 L0023407
SRCGROUP HAULROUT L0023408 L0023409 L0023410 L0023411 L0023412 L0023413
SRCGROUP HAULROUT L0023414 L0023415 L0023416 L0023417 L0023418 L0023419
SRCGROUP HAULROUT L0023420 L0023421 L0023422 L0023423 L0023424 L0023425
SRCGROUP HAULROUT L0023426 L0023427 L0023428 L0023429 L0023430 L0023431
SRCGROUP HAULROUT L0023432 L0023433 L0023434 L0023435 L0023436 L0023437
SRCGROUP HAULROUT L0023438 L0023439 L0023440 L0023441 L0023442 L0023443
SRCGROUP HAULROUT L0023444 L0023445 L0023446 L0023447 L0023448 L0023449
SRCGROUP HAULROUT L0023450 L0023451 L0023452 L0023453 L0023454 L0023455
SRCGROUP HAULROUT L0023456 L0023457 L0023458 L0023459 L0023460 L0023461
SRCGROUP HAULROUT L0023462 L0023463 L0023464 L0023465 L0023466 L0023467
SRCGROUP HAULROUT L0023468 L0023469 L0023470 L0023471 L0023472 L0023473
SRCGROUP HAULROUT L0023474 L0023475 L0023476 L0023477 L0023478 L0023479
SRCGROUP HAULROUT L0023480 L0023481 L0023482 L0023483 L0023484 L0023485
SRCGROUP HAULROUT L0023486 L0023487 L0023488 L0023489 L0023490 L0023491
SRCGROUP HAULROUT L0023492 L0023493 L0023494 L0023495 L0023496 L0023497
SRCGROUP HAULROUT L0023498 L0023499 L0023500 L0023501 L0023502 L0023503
SRCGROUP HAULROUT L0023504 L0023505 L0023506 L0023507 L0023508 L0023509
SRCGROUP HAULROUT L0023510 L0023511 L0023512 L0023513 L0023514 L0023515
SRCGROUP HAULROUT L0023516 L0023517 L0023518 L0023519 L0023520 L0023521
SRCGROUP HAULROUT L0023522 L0023523 L0023524 L0023525 L0023526 L0023527
SRCGROUP HAULROUT L0023528 L0023529 L0023530 L0023531 L0023532 L0023533
SRCGROUP HAULROUT L0023534 L0023535 L0023536 L0023537 L0023538 L0023539

SRCGROUP HAULROUT L0023540 L0023541 L0023542 L0023543 L0023544 L0023545
SRCGROUP HAULROUT L0023546 L0023547 L0023548 L0023549 L0023550 L0023551
SRCGROUP HAULROUT L0023552 L0023553 L0023554 L0023555 L0023556 L0023557
SRCGROUP HAULROUT L0023558 L0023559 L0023560 L0023561 L0023562 L0023563
SRCGROUP HAULROUT L0023564 L0023565
SRCGROUP RESERVOI L0023578 L0023579 L0023580 L0023581 L0023582 L0023583
SRCGROUP RESERVOI L0023584 L0023585 L0023586 L0023587 L0023588 L0023589
SRCGROUP RESERVOI L0023590 L0023591 L0023592 L0023593 L0023594 L0023595
SRCGROUP RESERVOI L0023596 L0023597 L0023598 L0023599 L0023600 L0023601
SRCGROUP RESERVOI L0023602 L0023603 L0023604 L0023605 L0023606 L0023607
SRCGROUP RESERVOI L0023608 L0023609 L0023610 L0023611 L0023612 L0023613
SRCGROUP RESERVOI L0023614 L0023615 L0023616 L0023617 L0023618 L0023619
SRCGROUP PI PELL NE L0023620 L0023621 L0023622 L0023623 L0023624 L0023625
SRCGROUP PI PELL NE L0023626 L0023627 L0023628 L0023629 L0023630 L0023631
SRCGROUP PI PELL NE L0023632 L0023633 L0023634 L0023635 L0023636 L0023637
SRCGROUP PI PELL NE L0023638 L0023639 L0023640 L0023641 L0023642 L0023643
SRCGROUP PI PELL NE L0023644 L0023645 L0023646 L0023647 L0023648 L0023649
SRCGROUP PI PELL NE L0023650 L0023651 L0023652 L0023653 L0023654 L0023655
SRCGROUP PI PELL NE L0023656 L0023657 L0023658 L0023659 L0023660 L0023661
SRCGROUP PI PELL NE L0023662 L0023663 L0023664 L0023665 L0023666 L0023667
SRCGROUP PI PELL NE L0023668 L0023669 L0023670 L0023671 L0023672 L0023673
SRCGROUP PI PELL NE L0023674 L0023675 L0023676 L0023677 L0023678 L0023679
SRCGROUP PI PELL NE L0023680 L0023681 L0023682 L0023683 L0023684 L0023685
SRCGROUP CRAFTONH VOL1 VOL2 VOL3 VOL4
SRCGROUP ALL
SO FINI SHED
\*\*
\*\*\*\*\*
\*\* AERMOD Receptor Pathway \*\*\*\*\*
\*\*
\*\*
RE STARTING
INCLUDED EBX0608.rou
RE FINI SHED
\*\*
\*\*\*\*\*
\*\* AERMOD Meteorol Pathway \*\*\*\*\*
\*\*
\*\*
ME STARTING
SURFILE EBXMET\_SFC
PROFFILE EBXMET\_PFL
SURFDATA 54161 1981 REDLANDS
UAI RDATA 0 1981
PROFBASE 470 METERS
ME FINI SHED
\*\*
\*\*\*\*\*
\*\* AERMOD Output Pathway \*\*\*\*\*
\*\*
\*\*
OU STARTING
\*\* Auto-Generated Plotfiles
PLOTFILE ANNUAL ALL EBX0608.ADVAN00G001.PLT
PLOTFILE ANNUAL Haul Rout EBX0608.ADVAN00G001.PLT
PLOTFILE ANNUAL Reservoir EBX0608.ADVAN00G002.PLT
PLOTFILE ANNUAL Peline EBX0608.ADVAN00G003.PLT

PLTFILE ANNUAL CraftonH EBX0608.ADVAN00G004.PLT
OU FINI SHED
\*\*\*\*\*
\*\* SETUP Fini shes Successfully \*\*\*\*\*
\*\*\*\*\*
\*\*\* AERMOD - VERSION 07026 \*\*\* C:\Documents and Settings\yay\My Documents\EBX\EBXgrps.isc \*\*\*
\*\*MODELOPTs:
CONC DEFAULT ELEV FLGPOL
\*\*\* MODEL SETUP OPTIONS SUMMARY \*\*\*
-----
\*\*Model Is Setup For Calculation of Average CONCENTration Val ues.
-- DEPOSITION LOGIC --
\*\*Model Uses NO DRY DEPLETION. DDPLETE = F
\*\*Model Uses NO WET DEPLETION. WDPLETE = F
\*\*NO GAS DRY DEPOSITION Data Provided.
\*\*Model Uses URBAN Dispersion Algorithm for the SBL for 300 Source(s).
For Total of 1 Urban Area(s):
Urban Population = 70382.0 ; Urban Roughness Length = 1.000 m
\*\*Model Uses Regulatory DEFAULT Options:
1. Stack-Top Downwash.
2. Model Accounts for ELEVated Terrain Effects.
3. Use Calcs Processing Routine.
4. Use Missing Data Processing Routine.
5. No Exponential Decay for URBAN/Non-S02
\*\*Model Accepts FLAGPOLE Receptor Heights.
\*\*Model Calculates ANNUAL Averages Only
\*\*This Run Includes: 300 Source(s); 5 Source Group(s); and 501 Receptor(s)
\*\*The Model Assumes A Pollutant Type of: PM-2.5
\*\*Model Set To Continue RUNNING After the Setup Testing.
\*\*Output Options Selected:
Model Outputs Tables of ANNUAL Averages by Receptor
Model Outputs External File(s) of High Val ues For Plotting (PLOTFILE Keyword)
\*\*NOTE: The Following Flags May Appear Following CONC Values: c for Cal m Hours
m for Miss ing Hours
b for Both Cal m and Miss ing Hours
\*\*Misc. Inputs: Base Elev. for Pot. Temp. Profile (m MSL) = 470.00 ; Decay Coef. = 0.000 ; Rot. Angle = 0.0
Emission Units = GMS/SEC ; Emission Rate Unit Factor = 0.1000E+07
Output Units = MICROGRAMS/M\*\*3
\*\*Approximate Storage Requirements of Model = 1.5 MB of RAM.
\*\*\* AERMOD - VERSION 07026 \*\*\* C:\Documents and Settings\yay\My Documents\EBX\EBXgrps.isc \*\*\*
\*\*MODELOPTs:
CONC DEFAULT ELEV FLGPOL
\*\*\*\*\*
06/30/08
17:08:22
PAGE 1
06/30/08
17:08:22
PAGE 2



AERMOD Output File

Table with columns: SOURCE ID, NUMBER PART, EMISSION RATE (GRAMS/SEC), X (METERS), Y (METERS), BASE ELEV (METERS), RELEASE HEIGHT (METERS), INI. SY (METERS), INI. T. SZ (METERS), URBAN SOURCE, EMISSION RATE SCALAR VARY BY. Includes source IDs L0023558 to L0023591.

\*\*\* VOLUME SOURCE DATA \*\*\*
CONC DEFAULT ELEV FLGPOL

Table with columns: SOURCE ID, NUMBER PART, EMISSION RATE (GRAMS/SEC), X (METERS), Y (METERS), BASE ELEV (METERS), RELEASE HEIGHT (METERS), INI. SY (METERS), INI. T. SZ (METERS), URBAN SOURCE, EMISSION RATE SCALAR VARY BY. Includes source IDs L0023592 to L0023616.

Table with columns: SOURCE ID, NUMBER PART, EMISSION RATE (GRAMS/SEC), X (METERS), Y (METERS), BASE ELEV (METERS), RELEASE HEIGHT (METERS), INI. SY (METERS), INI. T. SZ (METERS), URBAN SOURCE, EMISSION RATE SCALAR VARY BY. Includes source IDs L0023617 to L0023630.

\*\*\* AERMOD - VERSION 07026 \*\*\*
C:\Documents and Settings\my Documents\EBX\EBXgrps.i.sc

\*\*\* MODEL\_OPTS:
CONC DEFAULT ELEV FLGPOL

\*\*\* VOLUME SOURCE DATA \*\*\*

\*\*\* MODEL\_OPTS:
CONC DEFAULT ELEV FLGPOL

Table with columns: SOURCE ID, NUMBER PART, EMISSION RATE (GRAMS/SEC), X (METERS), Y (METERS), BASE ELEV (METERS), RELEASE HEIGHT (METERS), INI. SY (METERS), INI. T. SZ (METERS), URBAN SOURCE, EMISSION RATE SCALAR VARY BY. Includes source IDs L0023632 to L0023663.

Table with columns: SOURCE ID, NUMBER PART, EMISSION RATE (GRAMS/SEC), X (METERS), Y (METERS), BASE ELEV (METERS), RELEASE HEIGHT (METERS), INI. SY (METERS), INI. T. SZ (METERS), URBAN SOURCE, EMISSION RATE SCALAR VARY BY. Includes source IDs L0023664 to L0023677.

\*\*\* AERMOD - VERSION 07026 \*\*\*
C:\Documents and Settings\my Documents\EBX\EBXgrps.i.sc

\*\*\* MODEL\_OPTS:
CONC DEFAULT ELEV FLGPOL

\*\*\* VOLUME SOURCE DATA \*\*\*

Table with columns: SOURCE ID, NUMBER PART, EMISSION RATE (GRAMS/SEC), X (METERS), Y (METERS), BASE ELEV (METERS), RELEASE HEIGHT (METERS), INI. SY (METERS), INI. T. SZ (METERS), URBAN SOURCE, EMISSION RATE SCALAR VARY BY. Includes source IDs L0023672 to L0023691.

Table with columns: SOURCE ID, NUMBER PART, EMISSION RATE (GRAMS/SEC), X (METERS), Y (METERS), BASE ELEV (METERS), RELEASE HEIGHT (METERS), INI. SY (METERS), INI. T. SZ (METERS), URBAN SOURCE, EMISSION RATE SCALAR VARY BY. Includes source IDs L0023420 to L0023431.

\*\*\* AERMOD - VERSION 07026 \*\*\*
C:\Documents and Settings\my Documents\EBX\EBXgrps.i.sc

\*\*\* MODEL\_OPTS:
CONC DEFAULT ELEV FLGPOL

\*\*\* VOLUME SOURCE DATA \*\*\*

Table with columns: SOURCE ID, NUMBER PART, EMISSION RATE (GRAMS/SEC), X (METERS), Y (METERS), BASE ELEV (METERS), RELEASE HEIGHT (METERS), INI. SY (METERS), INI. T. SZ (METERS), URBAN SOURCE, EMISSION RATE SCALAR VARY BY. Includes source IDs L0023480 to L0023631.

\*\*\* MODEL\_OPTS:
CONC DEFAULT ELEV FLGPOL

\*\*\* SOURCE IDs DEFINING SOURCE GROUPS \*\*\*

Table with columns: GROUP ID, SOURCE IDs. Lists source IDs for PI PELINE, HAULROUT, and CRAFTONH.

\*\*\* MODEL\_OPTS:
CONC DEFAULT ELEV FLGPOL

\*\*\* SOURCE IDs DEFINING SOURCE GROUPS \*\*\*

Table with columns: GROUP ID, SOURCE IDs. Lists source IDs for PI PELINE, HAULROUT, and CRAFTONH.



AERMOD Output File

Table with 12 columns of numerical data representing model output for various receptor locations. Includes header information like 'AERMOD - VERSION 07026' and 'C:\Documents and Settings\nay\My Documents\EBX\EBXgrps1.ssc'.

Table with 12 columns of numerical data representing model output for various receptor locations. Includes header information like 'AERMOD - VERSION 07026' and 'C:\Documents and Settings\nay\My Documents\EBX\EBXgrps1.ssc'.

Table with 12 columns of numerical data representing model output for various receptor locations. Includes header information like 'AERMOD - VERSION 07026' and 'C:\Documents and Settings\nay\My Documents\EBX\EBXgrps1.ssc'.

Table with 12 columns of numerical data representing model output for various receptor locations. Includes header information like 'AERMOD - VERSION 07026' and 'C:\Documents and Settings\nay\My Documents\EBX\EBXgrps1.ssc'.

Table with 12 columns of numerical data representing model output for various receptor locations. Includes header information like 'AERMOD - VERSION 07026' and 'C:\Documents and Settings\nay\My Documents\EBX\EBXgrps1.ssc'.

Table with 12 columns of numerical data representing model output for various receptor locations. Includes header information like 'AERMOD - VERSION 07026' and 'C:\Documents and Settings\nay\My Documents\EBX\EBXgrps1.ssc'.



AERMOD Output File

Table with columns for X-COORD (M), Y-COORD (M), CONC, X-COORD (M), Y-COORD (M), CONC. Includes header information for MODEL:CONC, ANNUAL AVERAGE CONCENTRATION, and DISCRETE CARTESIAN RECEPTOR POINTS.

Table with columns for X-COORD (M), Y-COORD (M), CONC, X-COORD (M), Y-COORD (M), CONC. Includes header information for MODEL:CONC, ANNUAL AVERAGE CONCENTRATION, and DISCRETE CARTESIAN RECEPTOR POINTS.

Table with columns for X-COORD (M), Y-COORD (M), CONC, X-COORD (M), Y-COORD (M), CONC. Includes header information for MODEL:CONC, ANNUAL AVERAGE CONCENTRATION, and DISCRETE CARTESIAN RECEPTOR POINTS.

Table with columns for X-COORD (M), Y-COORD (M), CONC, X-COORD (M), Y-COORD (M), CONC. Includes header information for MODEL:CONC, ANNUAL AVERAGE CONCENTRATION, and DISCRETE CARTESIAN RECEPTOR POINTS.



AERMOD Output File

Table with columns: CONC, DEFAULT ELEV, FLGPOL, X-COORD (M), Y-COORD (M), CONC. Includes header information for AERMOD - VERSION 07026 and MODEL OUTPUTS.

Table with columns: X-COORD (M), Y-COORD (M), CONC, X-COORD (M), Y-COORD (M), CONC. Includes header information for AERMOD - VERSION 07026 and MODEL OUTPUTS.

Table with columns: CONC, DEFAULT ELEV, FLGPOL, X-COORD (M), Y-COORD (M), CONC. Includes header information for AERMOD - VERSION 07026 and MODEL OUTPUTS.

Table with columns: X-COORD (M), Y-COORD (M), CONC, X-COORD (M), Y-COORD (M), CONC. Includes header information for AERMOD - VERSION 07026 and MODEL OUTPUTS.

Table with columns: X-COORD (M), Y-COORD (M), CONC, X-COORD (M), Y-COORD (M), CONC. Includes header information for AERMOD - VERSION 07026 and MODEL OUTPUTS.

AERMOD Output File

Table with columns for X-COORD (M), Y-COORD (M), CONC, and various source group identifiers (L002361-L002369). Includes header information for MODELLOPTS and ANNUAL AVERAGE CONCENTRATION.

Table with columns for X-COORD (M), Y-COORD (M), CONC, and various source group identifiers (L002361-L002369). Includes header information for MODELLOPTS and ANNUAL AVERAGE CONCENTRATION.

Table with columns for X-COORD (M), Y-COORD (M), CONC, and various source group identifiers (L002361-L002369). Includes header information for MODELLOPTS and ANNUAL AVERAGE CONCENTRATION.

Table with columns for X-COORD (M), Y-COORD (M), CONC, and various source group identifiers (L002361-L002369). Includes header information for MODELLOPTS and ANNUAL AVERAGE CONCENTRATION.

AERMOD Output File

Table with columns: X-COORD (M), Y-COORD (M), CONC, X-COORD (M), Y-COORD (M), CONC. Includes header information for PM-2.5 and model options.

Table with columns: X-COORD (M), Y-COORD (M), CONC, X-COORD (M), Y-COORD (M), CONC. Includes header information for PM-2.5 and model options.

Table with columns: X-COORD (M), Y-COORD (M), CONC, X-COORD (M), Y-COORD (M), CONC. Includes header information for PM-2.5 and model options.

Table with columns: X-COORD (M), Y-COORD (M), CONC, X-COORD (M), Y-COORD (M), CONC. Includes header information for PM-2.5 and model options.

06/30/08 17:08:22 PAGE 47

06/30/08 17:08:22 PAGE 48

06/30/08 17:08:22 PAGE 50

AERMOD Output File

Table with columns: X-COORD (M), Y-COORD (M), CONC, X-COORD (M), Y-COORD (M), CONC. Contains data for various coordinates and concentrations, including model options and source group information.

Table with columns: X-COORD (M), Y-COORD (M), CONC, X-COORD (M), Y-COORD (M), CONC. Contains data for various coordinates and concentrations, including model options and source group information.

Table with columns: X-COORD (M), Y-COORD (M), CONC, X-COORD (M), Y-COORD (M), CONC. Contains data for various coordinates and concentrations, including model options and source group information.

Table with columns: X-COORD (M), Y-COORD (M), CONC, X-COORD (M), Y-COORD (M), CONC. Contains data for various coordinates and concentrations, including model options and source group information.

AERMOD Output File

Table with columns: X-COORD (M), Y-COORD (M), CONC, X-COORD (M), Y-COORD (M), CONC. Includes header information for PM-2.5 and model options.

Table with columns: X-COORD (M), Y-COORD (M), CONC, X-COORD (M), Y-COORD (M), CONC. Includes header information for PM-2.5 and model options.

Table with columns: X-COORD (M), Y-COORD (M), CONC, X-COORD (M), Y-COORD (M), CONC. Includes header information for PM-2.5 and model options.

Table with columns: X-COORD (M), Y-COORD (M), CONC, X-COORD (M), Y-COORD (M), CONC. Includes header information for PM-2.5 and model options.

\*\*\* THE SUMMARY OF MAXIMUM ANNUAL RESULTS AVERAGED OVER 1 YEARS \*\*\*

\*\* CONC OF PM-2.5 IN MICROGRAMS/M\*\*3 \*\*

GROUP ID	AVERAGE CONC	RECEPTOR (XR, YR, ZELEV, ZHI LL, ZFLAG)	OF TYPE	NETWORK GRID-ID
HAULROUT	1ST HIGHEST VALUE IS 0.06998 AT ( 483436.00, 3770789.00, 418.00, 418.00, 1.00) DC			
	2ND HIGHEST VALUE IS 0.06916 AT ( 484310.34, 3770785.00, 431.81, 431.81, 1.00) DC			
	3RD HIGHEST VALUE IS 0.06890 AT ( 484116.03, 3770786.00, 428.00, 428.00, 1.00) DC			
	4TH HIGHEST VALUE IS 0.06888 AT ( 485184.66, 3770781.25, 446.00, 446.00, 1.00) DC			
	5TH HIGHEST VALUE IS 0.06887 AT ( 484990.38, 3770782.25, 442.80, 442.80, 1.00) DC			
	6TH HIGHEST VALUE IS 0.06844 AT ( 485943.81, 3770778.50, 457.79, 1248.00, 1.00) DC			
	7TH HIGHEST VALUE IS 0.06790 AT ( 483630.28, 3770788.00, 420.87, 420.87, 1.00) DC			
	8TH HIGHEST VALUE IS 0.06779 AT ( 485661.38, 3770779.50, 452.38, 452.38, 1.00) DC			
	9TH HIGHEST VALUE IS 0.06709 AT ( 484504.62, 3770784.25, 434.60, 434.60, 1.00) DC			
	10TH HIGHEST VALUE IS 0.05884 AT ( 485378.97, 3770780.50, 448.83, 448.83, 1.00) DC			
RESERVOI	1ST HIGHEST VALUE IS 0.34360 AT ( 487746.47, 3771190.25, 499.05, 1269.00, 1.00) DC			
	2ND HIGHEST VALUE IS 0.34238 AT ( 487796.47, 3771190.25, 500.55, 1269.00, 1.00) DC			
	3RD HIGHEST VALUE IS 0.32859 AT ( 487696.47, 3771190.25, 496.58, 1269.00, 1.00) DC			
	4TH HIGHEST VALUE IS 0.30974 AT ( 487646.47, 3771190.25, 494.74, 1269.00, 1.00) DC			
	5TH HIGHEST VALUE IS 0.15948 AT ( 487659.88, 3770725.00, 499.99, 1269.00, 1.00) DC			
	6TH HIGHEST VALUE IS 0.15631 AT ( 487746.47, 3771290.25, 497.62, 1269.00, 1.00) DC			
	7TH HIGHEST VALUE IS 0.15592 AT ( 487796.47, 3771290.25, 499.94, 1269.00, 1.00) DC			
	8TH HIGHEST VALUE IS 0.15343 AT ( 487696.47, 3771290.25, 494.40, 1269.00, 1.00) DC			
	9TH HIGHEST VALUE IS 0.15256 AT ( 487646.47, 3771290.25, 492.94, 1269.00, 1.00) DC			
	10TH HIGHEST VALUE IS 0.11609 AT ( 487659.69, 3770675.00, 499.99, 1269.00, 1.00) DC			
PIPELLINE	1ST HIGHEST VALUE IS 0.04885 AT ( 487696.47, 3771190.25, 496.58, 1269.00, 1.00) DC			
	2ND HIGHEST VALUE IS 0.04475 AT ( 487746.47, 3771190.25, 499.05, 1269.00, 1.00) DC			
	3RD HIGHEST VALUE IS 0.04274 AT ( 487796.47, 3771190.25, 500.55, 1269.00, 1.00) DC			
	4TH HIGHEST VALUE IS 0.04200 AT ( 487646.47, 3771290.25, 492.94, 1269.00, 1.00) DC			
	5TH HIGHEST VALUE IS 0.03977 AT ( 487696.47, 3771290.25, 494.40, 1269.00, 1.00) DC			
	6TH HIGHEST VALUE IS 0.03877 AT ( 487646.47, 3771390.25, 492.29, 1269.00, 1.00) DC			
	7TH HIGHEST VALUE IS 0.03823 AT ( 487596.47, 3771490.25, 490.17, 1269.00, 1.00) DC			
	8TH HIGHEST VALUE IS 0.03712 AT ( 487746.47, 3771290.25, 497.62, 1269.00, 1.00) DC			
	9TH HIGHEST VALUE IS 0.03692 AT ( 487646.47, 3771190.25, 494.74, 1269.00, 1.00) DC			
	10TH HIGHEST VALUE IS 0.03620 AT ( 487646.47, 3771490.25, 491.55, 1269.00, 1.00) DC			
*** AERMOD - VERSION 07026 ***				
*** C:\Documents and Settings\nay\My Documents\EBX\EBXgrps.isc ***				
*** 06/30/08 17:08:22 PAGE 61 ***				

\*\*\* THE SUMMARY OF MAXIMUM ANNUAL RESULTS AVERAGED OVER 1 YEARS \*\*\*

\*\* CONC OF PM-2.5 IN MICROGRAMS/M\*\*3 \*\*

GROUP ID	AVERAGE CONC	RECEPTOR (XR, YR, ZELEV, ZHI LL, ZFLAG)	OF TYPE	NETWORK GRID-ID
CRAFTONH	1ST HIGHEST VALUE IS 0.14027 AT ( 492726.19, 3770348.00, 689.87, 1269.00, 1.00) DC			
	2ND HIGHEST VALUE IS 0.13000 AT ( 492826.19, 3770348.00, 694.35, 1269.00, 1.00) DC			
	3RD HIGHEST VALUE IS 0.08843 AT ( 492626.19, 3770348.00, 686.54, 1269.00, 1.00) DC			
	4TH HIGHEST VALUE IS 0.06812 AT ( 493028.22, 3770356.00, 701.87, 1269.00, 1.00) DC			
	5TH HIGHEST VALUE IS 0.05220 AT ( 492526.19, 3770348.00, 682.40, 1269.00, 1.00) DC			

6TH HIGHEST VALUE IS	0.05054 AT ( 492728.22, 3770256.00, 692.23, 1269.00, 1.00) DC
7TH HIGHEST VALUE IS	0.04209 AT ( 492628.22, 3770256.00, 685.94, 1269.00, 1.00) DC
8TH HIGHEST VALUE IS	0.03997 AT ( 493128.22, 3770256.00, 706.27, 1269.00, 1.00) DC
9TH HIGHEST VALUE IS	0.03498 AT ( 492928.22, 3770256.00, 700.67, 1269.00, 1.00) DC
10TH HIGHEST VALUE IS	0.03497 AT ( 492426.19, 3770348.00, 677.74, 1269.00, 1.00) DC
ALL 1ST HIGHEST VALUE IS	0.39356 AT ( 487746.47, 3771190.25, 499.05, 1269.00, 1.00) DC
2ND HIGHEST VALUE IS	0.38969 AT ( 487796.47, 3771190.25, 500.55, 1269.00, 1.00) DC
3RD HIGHEST VALUE IS	0.38344 AT ( 487696.47, 3771190.25, 496.58, 1269.00, 1.00) DC
4TH HIGHEST VALUE IS	0.35346 AT ( 487646.47, 3771190.25, 494.74, 1269.00, 1.00) DC
5TH HIGHEST VALUE IS	0.21402 AT ( 487659.88, 3770725.00, 499.99, 1269.00, 1.00) DC
6TH HIGHEST VALUE IS	0.19784 AT ( 487646.47, 3771290.25, 492.94, 1269.00, 1.00) DC
7TH HIGHEST VALUE IS	0.19786 AT ( 487696.47, 3771290.25, 494.40, 1269.00, 1.00) DC
8TH HIGHEST VALUE IS	0.19775 AT ( 487746.47, 3771290.25, 497.62, 1269.00, 1.00) DC
9TH HIGHEST VALUE IS	0.19586 AT ( 487796.47, 3771290.25, 499.94, 1269.00, 1.00) DC
10TH HIGHEST VALUE IS	0.16245 AT ( 487562.59, 3770725.25, 496.93, 1269.00, 1.00) DC

\*\*\* RECEPTOR TYPES: GC = GRIDCART  
GP = GRIDPOLR  
DC = DISCCART  
DP = DISCPOLR

\*\*\* AERMOD - VERSION 07026 \*\*\* C:\Documents and Settings\nay\My Documents\EBX\EBXgrps.isc \*\*\*

06/30/08  
17:08:22  
PAGE 62

\*\*\* MODEL OPTS: DEFAULT ELEV FLGPOL

\*\*\* Message Summary : AERMOD Model Execution \*\*\*

----- Summary of Total Messages -----

A Total of 0 Fatal Error Message(s)  
A Total of 0 Warning Message(s)  
A Total of 2278 Informational Message(s)  
A Total of 1410 Calm Hours Identified  
A Total of 868 Missing Hours Identified ( 9.91 Percent)

\*\*\*\*\* FATAL ERROR MESSAGES \*\*\*\*\*  
\*\*\* NONE \*\*\*

\*\*\*\*\* WARNING MESSAGES \*\*\*\*\*  
\*\*\* NONE \*\*\*

\*\*\*\*\* AERMOD Finishes Successfully \*\*\*\*\*

# Appendix C

## Biology

**Appendix C**  
Biology – Section 1  
Biological Technical Report



**DRAFT  
BIOLOGICAL TECHNICAL REPORT**

**DEPARTMENT OF WATER RESOURCES  
EAST BRANCH EXTENSION PHASE II PROJECT  
SAN BERNARDINO COUNTY, CALIFORNIA**



*Prepared for:*  
**ENVIRONMENTAL SCIENCE ASSOCIATES**  
707 Wilshire Boulevard, Suite 1450  
Los Angeles, California 90017

*Prepared by:*  
**CHAMBERS GROUP, INC.**  
17671 Cowan Avenue, Suite 100  
Irvine, California 92614

**December 31, 2007**

# TABLE OF CONTENTS

	<u>Page</u>
<b>EXECUTIVE SUMMARY .....</b>	<b>ES-1</b>
<b>SECTION 1.0 – INTRODUCTION .....</b>	<b>1-1</b>
1.1 PROJECT LOCATION .....	1-3
1.1.1 Pipeline Alternative 1 .....	1-3
1.1.2 Pipeline Alternative 2.....	1-4
1.1.3 Pipeline Alternative 3.....	1-4
1.1.4 Pipeline Alternative 4.....	1-4
1.1.5 Citrus Reservoir and Citrus Pump Station.....	1-4
<b>SECTION 2.0 – METHODS .....</b>	<b>2-1</b>
2.1 LITERATURE REVIEW METHODS.....	2-1
2.2 SURVEY METHODS.....	2-2
<b>SECTION 3.0 – RESULTS .....</b>	<b>3-1</b>
3.1 SOILS.....	3-2
3.2 VEGETATION.....	3-2
3.2.1 Vegetation Community Descriptions and Onsite Occurrences .....	3-2
3.2.1.1 Riversidean Alluvial Fan Sage Scrub .....	3-7
3.2.1.2 Pioneer RAFSS and Disturbed Pioneer RAFSS.....	3-8
3.2.1.3 Intermediate RAFSS and Disturbed Intermediate RAFSS .....	3-8
3.2.1.4 Mature RAFSS.....	3-8
3.2.1.5 California Buckwheat Alluvial Fan Association .....	3-9
3.2.1.6 Southern Riparian Scrub.....	3-9
3.2.1.7 Black Willow Series.....	3-9
3.2.1.8 Mule Fat Series and Disturbed Mule Fat Series .....	3-9
3.2.1.9 Fremont Cottonwood Series .....	3-10
3.2.1.10 California Sycamore Series .....	3-10
3.2.1.11 Tamarisk Series .....	3-10
3.2.1.12 Ruderal Vegetation .....	3-11
3.2.1.13 Open Water.....	3-11
3.2.1.14 Ornamental Landscaping.....	3-11
3.2.1.15 Cultivated Agriculture.....	3-11
3.2.1.16 Developed/Disturbed .....	3-12
3.2.2 Sensitive Habitats.....	3-12

**TABLE OF CONTENTS** (continued)

	<u>Page</u>
3.2.3 Special Status Plant Species Descriptions and Onsite Occurrences .....	3-12
3.2.3.1 Nevin’s Barberry ( <i>Berberis nevinii</i> ) .....	3-18
3.2.3.2 Slender-Horned Spineflower ( <i>Dodecahema leptoceras</i> ) .....	3-18
3.2.3.3 Santa Ana River Woollystar ( <i>Eriastrum densiflorum</i> ssp. <i>sanctorum</i> ) .....	3-18
3.2.3.4 Parish’s Checkerbloom ( <i>Sidalcea hickmanii</i> ssp. <i>parishii</i> ) .....	3-19
3.2.3.5 Bird-Foot Checkerbloom ( <i>Sidalcea pedata</i> ) .....	3-19
3.2.3.6 Plummer’s Mariposa Lily ( <i>Calochortus plummerae</i> ) .....	3-19
3.2.3.7 San Bernardino Mountains Owl’s Clover ( <i>Castilleja lasiorhyncha</i> ) .....	3-19
3.2.3.8 Smooth Tarplant ( <i>Centromadia pungens</i> ssp. <i>laevis</i> ) .....	3-19
3.2.3.9 Parry’s Spineflower ( <i>Chorizanthe parryi</i> var. <i>parryi</i> ) .....	3-20
3.2.3.10 Parish’s Alumroot ( <i>Heuchera parishii</i> ) .....	3-20
3.2.3.11 California Satintail ( <i>Imperata brevifolia</i> ) .....	3-20
3.2.3.12 Silver-haired Ivesia ( <i>Ivesia argyrocoma</i> ) .....	3-20
3.2.3.13 Robinson’s Pepper-Grass ( <i>Lepidium virginicum</i> var. <i>robinsoni</i> ) .....	3-20
3.2.3.14 Lemon Lily ( <i>Lilium parryi</i> ) .....	3-21
3.2.3.15 Parish’s Bush Mallow ( <i>Malacothamnus parishii</i> ) .....	3-21
3.2.3.16 Hall’s Monardella ( <i>Monardella macrantha</i> ssp. <i>hallii</i> ) .....	3-21
3.2.3.17 Parish’s Yampah ( <i>Perideridia parishii</i> ssp. <i>parishii</i> ) .....	3-21
3.2.3.18 Parish’s Gooseberry ( <i>Ribes divaricatum</i> var. <i>parishii</i> ) .....	3-21
3.2.3.19 Southern Jewel-flower ( <i>Streptanthus campestris</i> ) .....	3-22
3.2.3.20 Sonoran Maiden Fern ( <i>Thelypteris puberula</i> var. <i>sonorensis</i> ) .....	3-22
3.3 WILDLIFE .....	3-23
3.3.1 Sensitive Wildlife Species Descriptions and Onsite Occurrences .....	3-23
3.3.1.1 Santa Ana Sucker ( <i>Catostomus santaanae</i> ) FT, CSC .....	3-26
3.3.1.2 California Red-Legged Frog ( <i>Rana aurora draytonii</i> ) FT, CSC .....	3-27
3.3.1.3 Mountain Yellow-Legged Frog ( <i>Rana muscosa</i> ) FE, FC, CSC .....	3-27
3.3.1.4 Southern Rubber Boa ( <i>Charina bottae umbratica</i> ) ST .....	3-28
3.3.1.5 Western Yellow-Billed Cuckoo ( <i>Coccyzus americanus occidentalis</i> ) FC, SE .....	3-28
3.3.1.6 White-Tailed Kite ( <i>Elanus leucurus</i> ) FPS .....	3-28
3.3.1.7 Southwestern Willow Flycatcher ( <i>Empidonax traillii extimus</i> ) FE, SE .....	3-29
3.3.1.8 Coastal California Gnatcatcher ( <i>Polioptila californica californica</i> ) FT, CSC .....	3-29
3.3.1.9 Least Bell’s Vireo ( <i>Vireo bellii pusillus</i> ) FE, SE .....	3-30
3.3.1.10 San Bernardino Kangaroo Rat ( <i>Dipodomys merriami parvus</i> ) FE, CSC .....	3-31
3.3.1.11 Stephens’ Kangaroo Rat ( <i>Dipodomys stephensi</i> ) FE, ST .....	3-31
3.3.1.12 Santa Ana Speckled Dace ( <i>Rhinichthys osculus</i> ssp. 3) CSC .....	3-32
3.3.1.13 Silvery Legless Lizard ( <i>Anniella pulchra pulchra</i> ) CSC .....	3-32
3.3.1.14 Orange-Throated Whiptail ( <i>Aspidoscelis hyperythra</i> ) CSC .....	3-32
3.3.1.15 San Bernardino Mountain Kingsnake ( <i>Lampropeltis zonata parvirubra</i> ) CSC .....	3-33

**TABLE OF CONTENTS** (continued)

	<u>Page</u>
3.3.1.16 Coast Horned Lizard ( <i>Phrynosoma coronatum blainvillii</i> ) CSC .....	3-33
3.3.1.17 Two-Striped Garter Snake ( <i>Thamnophis hammondi</i> ) CSC .....	3-34
3.3.1.18 Cooper’s Hawk ( <i>Accipiter cooperii</i> ) CSC .....	3-34
3.3.1.19 Southern California Rufous-Crowned Sparrow ( <i>Aimophila ruficeps canescens</i> ) CSC .....	3-34
3.3.1.20 Great Blue Heron ( <i>Ardea herodias</i> ) .....	3-35
3.3.1.21 Burrowing Owl ( <i>Athene cunicularia</i> ) CSC .....	3-35
3.3.1.22 Lawrence’s Goldfinch ( <i>Carduelis lawrencei</i> ).....	3-36
3.3.1.23 Vaux’s Swift ( <i>Chaetura vauxi</i> ) CSC .....	3-36
3.3.1.24 Northern Harrier ( <i>Circus cyaneus</i> ) CSC .....	3-37
3.3.1.25 Yellow Warbler ( <i>Dendroica petechia brewsteri</i> ) CSC .....	3-37
3.3.1.26 Snowy Egret ( <i>Egretta thula</i> ).....	3-37
3.3.1.27 California Horned Lark ( <i>Eremophila alpestris actia</i> ) CSC .....	3-38
3.3.1.28 Yellow-breasted Chat ( <i>Icteria virens</i> ) CSC .....	3-38
3.3.1.29 Loggerhead Shrike ( <i>Lanius ludovicianus</i> ) CSC .....	3-39
3.3.1.30 American White Pelican ( <i>Pelecanus eryrorhynchos</i> ) CSC .....	3-39
3.3.1.31 Brewer’s Sparrow ( <i>Spizella breweri</i> ).....	3-39
3.3.1.32 Pallid Bat ( <i>Antrozous pallidus</i> ) CSC .....	3-40
3.3.1.33 Northwestern San Diego Pocket Mouse ( <i>Chaetodipus fallax fallax</i> ) CSC ....	3-40
3.3.1.34 California Western Mastiff Bat ( <i>Eumops perotis californicus</i> ) CSC .....	3-41
3.3.1.35 San Bernardino Flying Squirrel ( <i>Glaucomys sabrinus californicus</i> ) CSC .....	3-41
3.3.1.36 Pocketed Free-Tailed Bat ( <i>Nyctinomops femorosaccus</i> ) CSC.....	3-41
3.3.1.37 White-Eared Pocket Mouse ( <i>Perognathus alticolus alticolus</i> ) CSC .....	3-42
3.3.1.38 Los Angeles Pocket Mouse ( <i>Perognathus longimembris brevinasus</i> ) CSC..	3-42
3.3.1.39 American Badger ( <i>Taxidea taxus</i> ) CSC.....	3-43
3.4 PIPELINE ALTERNATIVE 1.....	3-45
3.4.1 Vegetation Communities .....	3-45
3.4.2 Wildlife .....	3-47
3.4.3 Sensitive Plant and Wildlife Species .....	3-47
3.5 PIPELINE ALTERNATIVE 2.....	3-48
3.5.1 Vegetation Communities .....	3-49
3.5.2 Wildlife .....	3-50
3.5.3 Sensitive Plant and Wildlife Species .....	3-51
3.6 PIPELINE ALTERNATIVE 3.....	3-52
3.6.1 Vegetation Communities .....	3-52
3.6.2 Wildlife .....	3-53
3.6.3 Sensitive Plant and Wildlife Species .....	3-54

**TABLE OF CONTENTS (continued)**

	<b><u>Page</u></b>
3.7 PIPELINE ALTERNATIVE 4.....	3-55
3.7.1 Vegetation Communities .....	3-55
3.7.2 Wildlife .....	3-57
3.7.3 Sensitive Plant and Wildlife Species .....	3-57
3.8 CITRUS RESERVOIR AND CITRUS PUMP STATION.....	3-58
3.8.1 Vegetation Communities .....	3-58
3.8.2 Wildlife .....	3-58
3.8.3 Sensitive Plant and Wildlife Species .....	3-59
<b>SECTION 4.0 – DISCUSSION.....</b>	<b>4-1</b>
4.1 REGULATORY SETTING .....	4-1
4.1.1 Federal Endangered Species Act.....	4-1
4.1.2 The Migratory Bird Treaty Act of 1918 .....	4-1
4.1.3 Clean Water Act Section 404 .....	4-1
4.1.4 State of California Endangered Species Act.....	4-2
4.1.5 Section 1602 Lake and Streambed Alteration Agreement.....	4-2
4.2 WILDLIFE MOVEMENT CORRIDORS .....	4-2
4.3 JURISDICTIONAL WATERS.....	4-3
4.4 MINIMIZING IMPACTS TO SENSITIVE HABITATS AND SPECIES .....	4-3
4.4.1 Minimizing Impacts to Wetlands.....	4-3
4.4.2 Minimizing Impacts to Sensitive Plant Species .....	4-4
4.4.3 Minimizing Impacts to Sensitive Wildlife Species.....	4-4
4.5 SUMMARY AND IMPLICATIONS OF RESULTS BY ALTERNATIVE.....	4-5
<b>SECTION 5.0 – RECOMMENDATIONS .....</b>	<b>5-1</b>
<b>SECTION 6.0 – REFERENCES.....</b>	<b>6-1</b>

- APPENDIX A-1 – Plant Species Observed During The Chambers Group 2007 Bioreconnaissance Surveys
- APPENDIX A-2 – All Plant Species Observed At East Branch Extension Phase II
- APPENDIX B-1 – Wildlife Species Detected During Chambers Group 2007 Bioreconnaissance Surveys
- APPENDIX B-2 – All Wildlife Species Observed At East Branch Extension Phase II
- APPENDIX C – P & D Consultants Biological Resources Reconnaissance Report
- APPENDIX D – Pacific Coast Conservation Alliance General Avian Survey And Focused Coastal California Gnatcatcher And Least Bell’s Vireo Survey Report
- APPENDIX E – Aspen Environmental Group Focused Plant Survey Report
- APPENDIX F – Chambers Group Biological Resources Reconnaissance Survey Report On Seven W Property
- APPENDIX G – Chambers Group Focused Plant Survey Report On Seven W Property
- APPENDIX H – Chambers Group Protocol Coastal California Gnatcatcher Survey Report On Seven W Property
- APPENDIX I – Davenport Biological Services San Bernardino Kangaroo Rat Report on Seven W Property

**LIST OF FIGURES**

<u>Figure</u>	<u>Page</u>
1 Project Vicinity Map .....	1-5
2 Project Location Map .....	1-6
3 Vegetation Communities Map .....	3-3
4 Vegetation Communities Map .....	3-4
5 Vegetation Communities Map .....	3-5
6 Vegetation Communities Map .....	3-6
7 Sensitive Species Map .....	3-45

## LIST OF TABLES

<u>Table</u>		<u>Page</u>
1	Criteria for Evaluating Potential for Occurrence (PFO) of Sensitive Species .....	2-2
2	Vegetation Communities Occurring in the Impact Areas of the Proposed EBX II Pipeline Alternatives.....	3-7
3	CNDDDB, CNPSEI, and Literature Review Results for Sensitive Plant Species in the Vicinity of the Proposed EBX II Project Site.....	3-14
4	CNDDDB and Literature Review Results for Sensitive Wildlife Species in the Vicinity of the Proposed EBX II Project Site .....	3-25
5	Summary of Sensitive Biological Resources Present or Potentially Present on the Proposed EBX II Pipeline Alternatives .....	4-6

## EXECUTIVE SUMMARY

Chambers Group, Inc. (Chambers Group) was retained by Environmental Science Associates (ESA) to conduct a literature review and reconnaissance-level biological surveys along four proposed water pipeline rights-of-way (ROW), a proposed reservoir (Citrus Reservoir), and a proposed pump station (Citrus Pump Station) for the State Department of Water Resources (DWR) East Branch Extension Phase II (EBX II) project. The project site includes areas within the cities of Highland and Redlands, and the unincorporated community of Mentone in San Bernardino County, California. The project site is located within the *Redlands* and *Yucaipa* U.S. Geological Service (USGS) quadrangle maps (quads) in Townships 1S, Ranges 2W and 3W. On the *Redlands* quad, the project site is in Sections 1, 6, 7, and 18; on the *Yucaipa* quad, the project site is in Sections 17 and 19-22. Four Alternatives are suggested for the proposed pipeline routes to connect the Crafton Hills Pump Station to the Foothill Pump Station.

Reconnaissance-level surveys were conducted along the pipeline Alternatives and proposed reservoir and pump station sites. The surveys were conducted within and adjacent to the proposed corridors to document existing biological resources, identify and map all vegetation communities, identify sensitive habitats, and assess the site for its potential to support sensitive plant and wildlife species. Prior to performing the surveys, available databases and documentation relevant to the project site was reviewed for known occurrences of sensitive species in the area. The most recent versions of the California Natural Diversity Database (CNDDDB) and California Native Plant Society Electronic Inventory (CNPSEI) databases were searched for sensitive species data on the *Redlands*, *Yucaipa*, *Harrison Mountain*, and *Keller Peak* USGS quads. These databases contain records of reported occurrences of state and federally listed species or otherwise sensitive species and habitats that may occur within the vicinity of the project site.

Prior reports were also reviewed for sensitive species findings as well as general biology results. These reports included:

- P & D Consultants 2005 (P & D 2005, Appendix C),  
A biological resources reconnaissance survey on pipeline Alternatives 1 and 2 (excluding the Seven W Enterprises property) was conducted during July 2005. This survey mapped existing vegetation communities, including Riversidean Alluvial Fan Sage Scrub (RAFSS), and recorded plant and wildlife species observed, including 40 Santa Ana River woollystar individuals (*Eriastrum densifolium* ssp. *sanctorum*) and one pair of coastal California gnatcatcher (*Polioptila californica*), all north of the Santa Ana Wash and primarily along Alternative 1.
- Pacific Coast Conservation Alliance 2006 (PCCA 2006, Appendix D),  
General avian surveys and focused surveys for coastal California gnatcatcher and least Bell's vireo (*Vireo bellii pusillus*) were conducted on portions of pipeline Alternatives 1, 2, and 3 (excluding the Seven W Enterprises property) from May through August 2006. Survey routes included the north-south alignment of Alternative 1 between the Foothill Pump Station and Opal Drive, and the east-west alignment of Alternative 1 between Seven W and the Crafton Hills Pump Station. Alternative 2 was surveyed from the end of Madeira Avenue to Garnet Street, and Alternative 3 was surveyed only along its eastern third section east to the Alternative 1 junction. Seven California gnatcatcher territories were documented along Alternative 1 south of the Santa Ana Wash and north of Opal Drive. Two to three other dispersing individuals were found elsewhere: one at the northeast corner of Seven W, and one to two north of the Santa River. Least Bell's vireo and southwestern willow flycatcher (*Empidonax traillii extimus*) were not detected.
- Aspen Environmental Group 2006 (Aspen 2006, Appendix E),  
Plant surveys were conducted on portions of Alternatives 1, 2, and 3 (excluding the Seven W Enterprises property) during June and July 2006. Survey routes included the north-south

alignment of pipeline Alternative 1, and the entire east-west alignment of Alternatives 1 and 2 from the end of Crafton Avenue to the Crafton Hills Pump Station. Only the extreme eastern end of Alternative 3 was surveyed. Botanists conducted focused surveys for the federally and state endangered Santa Ana River woollystar, and the federally and state endangered slender-horned spineflower (*Dodecahema leptoceras*). CNPS List plant species, Plummer's mariposa lily (*Calochortus plummerae*) and Parry's spineflower, (*Chorizanthe parryi* var. *parryi*), were also included in this survey. Populations of all four species were observed within the project site. Fifteen Santa Ana River woollystar locations were found north of the Santa Ana Wash along Alternative 1 east to Alternative 2, and slender-horned spineflower was found in three locations in this same area. Parry's spineflower was locally abundant, with 73 locations representing thousands of individuals (found mostly along Alternative 1 adjacent to Mill Creek). Plummer's mariposa lily was found in five locations.

- Chambers Group, Inc. 2007 (Chambers Group 2007a, Appendix F),  
A reconnaissance-level biological survey was conducted on the Seven W Enterprises property during November 2006. This survey identified vegetation communities present and inventoried biological resources on the property. Ten sensitive plant species were identified as having the potential to occur within the project site, including Nevin's barberry (*Berberis nevinii*), slender-horned spineflower, and Santa Ana River woollystar. Twenty-six sensitive wildlife species were identified as having the potential to occur within the project site, including the San Bernardino kangaroo rat (*Dipodomys merriami parvus*) and the coastal California gnatcatcher.
- Chambers Group, Inc. 2007 (Chambers Group 2007b, Appendix G),  
A focused survey for sensitive plant species was conducted along pipeline Alternatives 1 and 2 within the Seven W Enterprises property during August 2007. The survey identified the potentials for occurrence of nine sensitive plant species, including Nevin's barberry (absent), slender-horned spineflower (absent), Santa Ana River woollystar (absent), Plummer's mariposa lily (high), smooth tarplant (*Centromadia pungens* ssp. *laevis*) (absent), Parry's spineflower (present), Robinson's pepper-grass (*Lepidium virginicum* var. *robinsoni*) (high), Parish's bush mallow (*Malacothamnus parishii*) (absent), and Hall's monardella (*Monardella macrantha* ssp. *hallii*) (absent). Parry's spineflower was the only sensitive species found; 29 locations, containing 225 individuals, were mapped along Alternative 1, and only six individuals were mapped along Alternative 2.
- Chambers Group, Inc. 2007 (Chambers Group 2007c, Appendix H),  
Protocol surveys for coastal California gnatcatcher were conducted on the Seven W Enterprises property from August through December 2007. Two gnatcatchers were documented along pipeline Alternative 1 at the north-central area of Seven W. Total occupied area within Seven W was approximately 4.6 acres, 2.55 acres of which included Alternative 1.
- Davenport Biological Services 2007 (Davenport 2007, Appendix I),  
A focused trapping study for San Bernardino kangaroo rat was conducted on the Seven W Enterprises property during August 2007. The survey detected the presence of sixteen individual San Bernardino kangaroo rats, six of which were trapped with the area potentially affected by the construction of Alternative 1.

The purpose of this report is to incorporate the findings of all prior reports with the results obtained during Chambers Group literature reviews, reconnaissance-level surveys, and species specific protocol surveys, and to recommend further protocol surveys for potentially occurring sensitive plant and wildlife species within segments of the proposed alignments. In addition to the results of the surveys listed above, other noteworthy findings of the Chambers Group reconnaissance-level surveys and literature reviews include the following:

- Critical Habitat for the coastal California gnatcatcher and the San Bernardino kangaroo rat occurs throughout the project site. The federally threatened coastal California gnatcatcher has been identified within the project site along pipeline Alternatives 1, 2, and 4 (P & D 2005, PCCA 2006, Chambers Group 2007c), and the federally endangered San Bernardino kangaroo rat (SBKR) has been identified within Alternative 1 in the Seven W Enterprises property (Davenport 2007). To date, only the Seven W area has been surveyed for the presence/absence of the SBKR. While presence of this species may be assumed over most of the remaining areas of the project site, without further trapping surveys, local populations can only be hypothesized upon. Also, gnatcatcher surveys have not been conducted along the north-south alignment of Alternative 2, nor along the sage scrub habitat that borders the citrus orchards of Alternative 1, nor Alternative 4, and most of Alternative 3. Without protocol surveys over these remaining areas, gnatcatcher populations over the entire project site will not be fully known.
- Portions of the north-south alignments of pipeline Alternatives 1 and 2 lie within the Santa Ana River Woollystar Preservation Area (Preserve).
- Two federally and state-endangered plant species have been identified within the north-south alignments of pipeline Alternatives 1 and 2 of the project site just north of the Santa Ana River: slender-horned spineflower and Santa Ana River woollystar. Two California Native Plant Society (CNPS) listed plant species have also been documented onsite: Parry's spineflower along all four Alternatives, and Plummer's mariposa lily along Alternatives 1 and 2 (P & D 2005, Aspen 2006, Chambers Group 2007b). The federally and state listed species were all found within the Preserve. Parry's spineflower, although not legally protected, is the most abundant sensitive plant species on the project site to date. Focused plant surveys have not yet occurred on Alternatives 3 and 4 as well as the portion of Alternative 1 that borders the citrus orchard and the north-south alignment of Alternative 2. Further surveys in these remaining areas would likely yield additional locations of some or all of these four species as well as other species that have the potential to occur onsite.
- In addition to those mentioned above, other sensitive wildlife species identified within the project site to date include two-striped garter snake (*Thamnophis hammondi*), American white pelican (*Pelecanus erythrorhynchos*) (migrating), great blue heron (*Ardea herodias*) (foraging/flying over), snowy egret (*Egretta thula*) (foraging/flying over), Cooper's hawk (*Accipiter cooperii*) (nesting status uncertain), white-tailed kite (*Elanus leucurus*) (nesting), northern harrier (*Circus cyaneus*) (nesting status uncertain), Vaux's swift (*Chaetura vauxi*) (migrating), loggerhead shrike (*Lanius ludovicianus*) (nesting status uncertain), yellow warbler (*Dendroica petechia brewsteri*) (nesting status uncertain), Brewer's sparrow (*Spizella brewsteri*) (winter resident), southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*) (permanent resident), Lawrence's goldfinch (*Carduelis lawrencei*) (nesting status uncertain), and northwestern San Diego pocket mouse (*Chaetodipus fallax fallax*) (P & D 2005, PCCA 2006, Chambers Group 2007c, Davenport 2007).

Considering the results of the bio-reconnaissance surveys conducted in 2007 and prior findings, Chambers Group recommends the following actions:

- In order to fully survey all pipeline Alternatives, focused plant surveys should be conducted in spring 2008 along pipeline Alternatives 3 and 4 as well as the portion of Alternative 1 that borders the citrus orchards and the north-south alignment of Alternative 2. These areas represent the portions of the project site that have not had focused plant surveys to date. Surveys should focus on the two federal and state-endangered species known to be present on the project site, Santa Ana River woollystar and slender-horned spineflower, but should also include all other sensitive species identified as having the potential to occur onsite, including Nevin's barberry.
- The project site is in Critical Habitat for the coastal California gnatcatcher. P & D identified one location in 2005. PCCA identified seven gnatcatcher territories north of Opal Drive and south of the Santa Ana Wash along Alternatives 1 and 2, and two to three other dispersing individuals elsewhere: one to two north of the Santa Ana Wash and one at the northeast corner of Seven W (PCCA 2006).

More recent surveys (August – November 2007) on the Seven W Enterprises property and Alternative 4 have resulted in two additional locations (Chambers Group 2007c). Much of the habitat within the pipeline Alternatives is suitable to support gnatcatchers, and to date, protocol surveys have not occurred along the north-south alignment of Alternative 2, nor along the sage scrub habitat that borders the citrus orchards of Alternative 1, nor Alternative 4, and most of Alternative 3. In order to gather complete data on the gnatcatchers within the project site, Chambers Group recommends that protocol surveys be conducted over these remaining areas. Chambers Group also recommends that construction activities be performed outside of the gnatcatcher breeding season (i.e. between September 1 and March 14), and/or that nest clearance surveys for all nesting birds, including gnatcatchers, be performed prior to construction activities that may impact nesting habitats.

- The project site lies within Critical Habitat for the federally endangered San Bernardino kangaroo rat. Only the Seven W Enterprises property, with sixteen detected individuals, has been surveyed for this species. The habitat within the pipeline Alternatives, particularly that within the lower floodplains of the Santa Ana River, is ideal for this species, and year-round presence may be assumed throughout most areas of all four Alternatives. Chambers Group recommends that presence be assumed or that focused trapping surveys be performed on all Alternatives, except within Seven W, and to conduct pre-construction capture and relocation of San Bernardino kangaroo rats along the selected project Alternative. Exclusionary fencing should be placed, maintained, and monitored along impact areas to ensure the complete and safe removal of all San Bernardino kangaroo rats from the project area during construction. A permitted biologist should handle all relocation and trapping efforts.
- Bat sign was found in the abandoned buildings of the old Lockheed site (northeast of Crafton and Madera Avenues), but no bat surveys have been done to date. If the selected Alternative could potentially impact roosting or foraging bat species, particularly the western mastiff bat or pallid bat, Chambers Group recommends that diurnal and nocturnal bat clearance surveys be conducted within thirty days of construction commencement. These clearance surveys should focus on the presence or absence of listed and/or sensitive bat species, roost searches, and bat species usage of the project site. If bats are determined present along the selected Alternative, they should be avoided or safely excluded prior to construction.

Based on all available information collected to date, Alternative 2 may have the least amount of biological impacts. The trapping survey conducted within Seven W yielded no San Bernardino kangaroo rats within the ROW for Alternative 2, avian surveys conducted by PCCA yielded no threatened or endangered birds along the east-west portion of Alternative 2, and focused plant surveys conducted by Aspen yielded no federal or state-listed plant species along the east-west alignment. The vegetative characteristics of the east-west portion of Alternative 2 are not as conducive generally for gnatcatchers and kangaroo rats; the vegetation includes a high amount of tall and mature chamise (*Adenostoma fasciculatum*), which tends to make an area less desirable for gnatcatchers, and there is a greater degree of annual grasses with less openings, which tends to make an area less desirable for San Bernardino kangaroo rats. This generality may be applied to the east-west portion of Alternative 2 between Crafton Avenue and Garnet Street.

Conversely, Alternatives 1, 3, and 4 pass through similar habitats characterized generally as alluvial fan sage scrub associations within a series of percolation basins. The habitats within these Alternatives are more conducive to support SBKR, gnatcatchers, and listed plants.

Despite these observations, the selection of one Alternative over another cannot be completely addressed until focused surveys have been completed over all of the Alternatives. While there certainly is substantial data that has been accrued to date, it is incomplete until all focused surveys have been completed along all four Alternatives, and potential impacts to sensitive biological resources as they occur along the four Alternatives cannot be weighed for the assessment of impacts.

## SECTION 1.0 – INTRODUCTION

Chambers Group, Inc. (Chambers Group) was retained by Environmental Science Associates (ESA) to conduct a literature review and reconnaissance-level biological surveys along four proposed water pipeline rights-of-way (ROW), a proposed reservoir (Citrus Reservoir), and a proposed pump station (Citrus Pump Station) for the State Department of Water Resources (DWR) East Branch Extension Phase II (EBX II) project.

Reconnaissance-level surveys were conducted by the Chambers Group along the pipeline Alternatives, proposed reservoir and pump station sites, and impact areas of each Alternative (200 feet to each side of the pipeline centerlines). The surveys were conducted within and adjacent to the proposed alignments to document existing biological resources, identify sensitive habitats, and assess the site for its potential to support sensitive plant and wildlife species.

The purpose of this report is to incorporate the findings of all prior reports with the results obtained during Chambers Group literature reviews, reconnaissance-level surveys, and species-specific protocol surveys, and to discuss how these findings relate to each Alternative.

Previous surveys on the project site have included a biological reconnaissance survey on Alternatives 1 and 2 (excluding the Seven W Enterprises property) (P & D 2005), general avian surveys and focused surveys for coastal California gnatcatcher (*Polioptila californica californica*) and least Bell's vireo (*Vireo bellii pusillus*) on portions of Alternatives 1, 2, and 3 (excluding the Seven W Enterprises property) (PCCA 2006), general and focused plant surveys on portions of Alternatives 1, 2, and 3 (excluding the Seven W Enterprises property) (Aspen 2006), a reconnaissance-level biological survey on the Seven W Enterprises property (Chambers Group 2007a), a focused sensitive plant survey on the Seven W Enterprises property (Chambers Group 2007b), protocol surveys for coastal California gnatcatcher on the Seven W Enterprises property (Chambers Group 2007c), and a focused trapping study for San Bernardino kangaroo rat (*Dipodomys merriami parvus*) on the Seven W Enterprises property (Davenport 2007).

Summaries of these reports are included below:

- P & D Consultants 2005 (P & D 2005, Appendix C),  
A biological resources reconnaissance survey was conducted on pipeline Alternatives 1 and 2 (excluding the Seven W Enterprises property) during July of 2005. This survey mapped existing vegetation communities, including pioneer, intermediate, and mature Riversidean Alluvial Fan Sage Scrub (RAFSS), and recorded plant and wildlife species observed, including fifteen locations (or approximately 40 individuals) of Santa Ana River woollystar (*Eriastrum densifolium* ssp. *sanctorum*), one pair of coastal California gnatcatcher, coastal cactus wren (*Campylorhynchus brunneicapillus sandiegensis*), and loggerhead shrike (*Lanius ludovicianus*). The report recommended focused surveys for slender-horned spineflower (*Dodecahema leptoceras*), Santa Ana River woollystar, arroyo toad (*Bufo californicus*), least Bell's vireo, coastal California gnatcatcher, and San Bernardino kangaroo rat.
- Pacific Coast Conservation Alliance 2006 (PCCA 2006, Appendix D),  
General avian surveys and focused surveys for coastal California gnatcatcher and least Bell's vireo were conducted on portions of Alternatives 1, 2, and 3 (excluding the Seven W Enterprises property) from May through August of 2006. Survey routes included the north-south alignment of Alternative 1 between the Foothill Pump Station and Opal Drive, and the east-west alignment of Alternative 1 between Seven W and the Crafton Hills Pump Station. Alternative 2 was surveyed from the end of Madeira Avenue to Garnet Street, and Alternative 3 was surveyed only along its eastern third section east to the Alternative 1 junction. Seven California gnatcatcher territories were documented along Alternative 1 south of the Santa Ana Wash and north of Opal Drive. Two to three other dispersing individuals were found

elsewhere: one at the northeast corner of Seven W, and one to two north of the Santa River. Least Bell's vireo and southwestern willow flycatcher (*Empidonax traillii extimus*) were not detected. Focused surveys for southwestern willow flycatcher and yellow-billed cuckoo were not conducted, however if these species were present, they would have been detected during the least Bell's vireo surveys. Other sensitive bird species observed were Cooper's hawk (*Accipiter cooperii*), southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*), coastal cactus wren, northern harrier (*Circus cyaneus*), white-tailed kite (*Elanus leucurus*) (including one documented nest just west of Alternative 1, north of the Santa Ana River), and loggerhead shrike.

- Aspen Environmental Group 2006 (Aspen 2006, Appendix E),  
Plant surveys were conducted on portions of Alternatives 1, 2, and 3 (excluding the Seven W Enterprises property) during June and July of 2006. Botanists identified vegetation types present, created a complete floral inventory, and conducted focused surveys for potentially occurring sensitive species. Survey routes included the north-south alignment of pipeline Alternative 1, and the entire east-west alignment of Alternatives 1 and 2 from the end of Crafton Avenue to the Crafton Hills Pump Station. Only the extreme eastern end of Alternative 3 was surveyed. Botanists conducted focused surveys for the federally and state endangered Santa Ana River woollystar, and the federally and state endangered slender-horned spineflower (*Dodecahema leptoceras*). California Native Plant Society (CNPS) list plant species, Plummer's mariposa lily (*Calochortus plummerae*) and Parry's spineflower, (*Chorizanthe parryi* var. *parryi*), were also included in this survey. Populations of all four species were observed within the project site. Fifteen Santa Ana River woollystar locations were found north of the Santa Ana Wash along Alternative 1 east to Alternative 2, and slender-horned spineflower was found in three locations in this same vicinity, located within the Woolly Star Preserve Area. Parry's spineflower was locally abundant, with 73 locations representing thousands of individuals (found mostly along Alternative 1 adjacent to Mill Creek). Plummer's mariposa lily was found in five locations. The report recommended pre-construction surveys for rare plants to be conducted in the project area.
- Chambers Group, Inc. 2007 (Chambers Group 2007a, Appendix F),  
A reconnaissance-level biological survey was conducted on the Seven W Enterprises property during November of 2006. This survey identified vegetation communities present and inventoried biological resources on the property. Ten sensitive plant species were identified as having the potential to occur within the project site, including Nevin's barberry (*Berberis nevini*), slender-horned spineflower, and Santa Ana River woollystar. Twenty-six sensitive wildlife species were identified as having the potential to occur within the project site, including the San Bernardino kangaroo rat and the coastal California gnatcatcher. The report recommended focused surveys for Nevin's barberry, slender-horned spineflower, and Santa Ana River woollystar, and protocol surveys for San Bernardino kangaroo rat and coastal California gnatcatcher on the Seven W property.
- Chambers Group, Inc. 2007 (Chambers Group 2007b, Appendix G),  
A focused survey for sensitive plant species was conducted on the Seven W Enterprises property during August of 2007. The survey identified the potentials for occurrence of nine sensitive plant species including Nevin's barberry (absent), slender-horned spineflower (absent), Santa Ana River woollystar (absent), Plummer's mariposa lily (high), smooth tarplant (*Centromadia pungens* ssp. *laevis*) (absent), Parry's spineflower (present), Robinson's pepper-grass (*Lepidium virginicum* var. *robinsoni*) (high), Parish's bush mallow (*Malacothamnus parishii*) (absent), and Hall's monardella (*Monardella macrantha* ssp. *hallii*) (absent). Parry's spineflower was the only sensitive species found; 29 locations, containing 225 individuals, were mapped along Alternative 1, and only six individuals were mapped along Alternative 2.

- Chambers Group, Inc. 2007 (Chambers Group 2007c, Appendix H), Protocol surveys for coastal California gnatcatcher were conducted on the Seven W Enterprises property from August through December of 2007. A territory occupied by two gnatcatchers was identified along the north-central border of Seven W during August. Other sensitive bird species observed were northern harrier, Cooper's hawk, Vaux's swift (*Chaetura vauxi*), loggerhead shrike, southern California rufous-crowned sparrow, and Lawrence's goldfinch (*Carduelis lawrencei*).
- Davenport Biological Services 2007 (Davenport 2007, Appendix I), A focused trapping study for San Bernardino kangaroo rat was conducted on the Seven W Enterprises property during August of 2007. The survey detected the presence of sixteen individual San Bernardino kangaroo rats, six of which were trapped within the area potentially affected by the construction of Alternative 1. With the exception of recently graded areas and thick patches of sage scrub and chaparral, the species occurred throughout the undeveloped portions of the parcel.

## 1.1 PROJECT LOCATION

The project site includes areas within the cities of Highland and Redlands, and the unincorporated community of Mentone in San Bernardino County, California (Figure 1). The project is located within the *Redlands* and *Yucaipa* U.S. Geological Service (USGS) quadrangle maps (quads) in Townships 1S, Ranges 2W and 3W. For the *Redlands* quad, the project site is in Sections 1, 6, 7, and 18; for the *Yucaipa* quad, the project site is in Sections 17 and 19-22. Four Alternatives are suggested for the proposed pipeline routes to connect the Crafton Hills Pump Station to the Foothill Pump Station (Figure 2). Elevations range from 1,530 feet in the northwest corner of the site to 2,300 feet at the Crafton Hills Pump Station.

The project site is located in the northeast portion of the San Bernardino Valley, south of the San Bernardino Mountains (part of the Transverse Ranges), near Mill Creek, and through the historic floodplains of Mill Creek and the Santa Ana River. Very little water flows in Mill Creek and the Santa Ana Wash through much of the year, but both systems support several pockets of riparian and scrub vegetation in an otherwise sand, cobble, and boulder strewn streambed. Mill Creek is a tributary of the Santa Ana River. Water diversion practices along both stream systems have led to a decrease of in-stream flow and the degradation of riparian and aquatic habitats. Although streamside riparian habitats no longer receive the regular scouring events they historically experienced, early successional woody riparian plant species are often interspersed along the stream systems of the project site.

In addition to the streamside habitats, the area within the project site is comprised of a mosaic of habitats, including several types of Riversidian alluvial fan sage scrub, ruderal, developed/disturbed, ornamental, and agricultural. Land uses and facilities that surround the project site include residential, light industrial, agricultural (i.e. citrus orchards), gravel mining operations, San Bernardino Valley Municipal Water District operations, and roadways. The area to the south of the project site is largely developed, while the area to the north is much less developed. Expansive open space exists to the east and the west of the project site along the Mill Creek and Santa Ana Wash floodplains, and coniferous forests are visible at the peaks of the mountains to the north and east of the project site.

### 1.1.1 Pipeline Alternative 1

The west end of Pipeline Alternative 1 would be constructed parallel to the Metropolitan Water District (MWD) of Southern California's recently installed Inland Feeder pipeline. This would be about 100 feet east of the centerline of the existing MWD right-of-way (ROW). The pipeline would extend from the

existing Foothill Pump Station, south along Cone Camp Road, cross the Santa Ana Wash, continue along Cone Camp Road, and run parallel to Opal Avenue before turning east. At this point, Alternative 1 continues eastward through existing citrus orchards, then northward through existing citrus orchards, before turning eastward again along a citrus orchards/Riversidian sage scrub ecotone. Here, Alternative 1 turns southward along a similar ecotone before reaching the Seven W Enterprises property. From the northwest corner of the Seven W Enterprises property, Alternative 1 continues eastward through a variety of disturbed, ruderal, and native habitats, including RAFSS communities, southern riparian scrub, mule fat series, and black willow series, before terminating at the existing Crafton Hills Pump Station (Figure 2). All four Alternatives include varying portions of Alternative 1 within their alignments.

### **1.1.2 Pipeline Alternative 2**

Pipeline Alternative 2 would be constructed similarly to Alternative 1 except that the north-south alignment at the west end of the project site would be located to the east of the proposed Alternative 1, and the east-west portion of Alternative 2, east of Crafton Avenue, would be further south than that of Alternative 1 (Figure 2). This Alternative passes through similar habitat types as Alternative 1, but also includes more developed areas and existing paved roadways along Crafton and Madeira Avenues.

### **1.1.3 Pipeline Alternative 3**

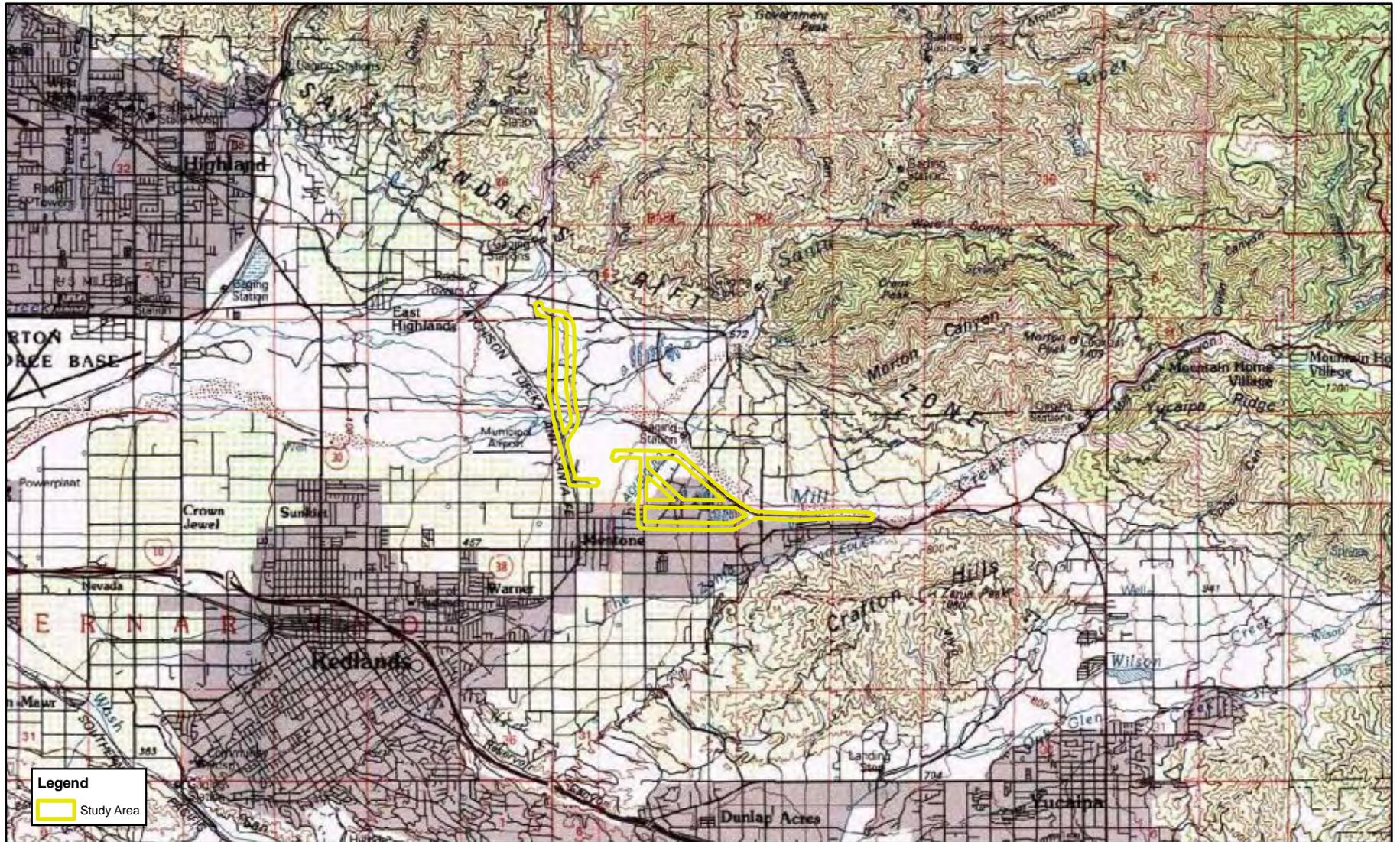
Pipeline Alternative 3 would be constructed similarly to Alternative 1, except that the east-west portion would extend from the northeast corner of the existing citrus orchard area to just south of the Mill Creek levee before joining with the east extension of Alternative 1 at Garnet Street (Figure 2). Alternative 3 passes through similar habitat types as the other three Alternatives, but does not contain such substantially developed areas. However, it does pass through a number of percolation basins. Alternative 3 would include either the north-south alignment of Alternative 1 or Alternative 2 in its final design. For the purpose of this report, calculations and results for Alternative 3 include the north-south alignment of Alternative 1.

### **1.1.4 Pipeline Alternative 4**

Pipeline Alternative 4 would be constructed similarly to Alternative 1, except that the east-west portion would extend from the eastern edge of the existing citrus orchard area to the northwest corner of the Seven W Enterprises property (Figure 2). Alternative 4 passes through similar habitat types as the other three Alternatives, but does not contain such substantially developed areas. However, it does pass through a number of percolation basins. Alternative 4 would include either the north-south alignment of Alternative 1 or Alternative 2 in its final design. For the purpose of this report, calculations and results for Alternative 4 include the north-south alignment of Alternative 1.

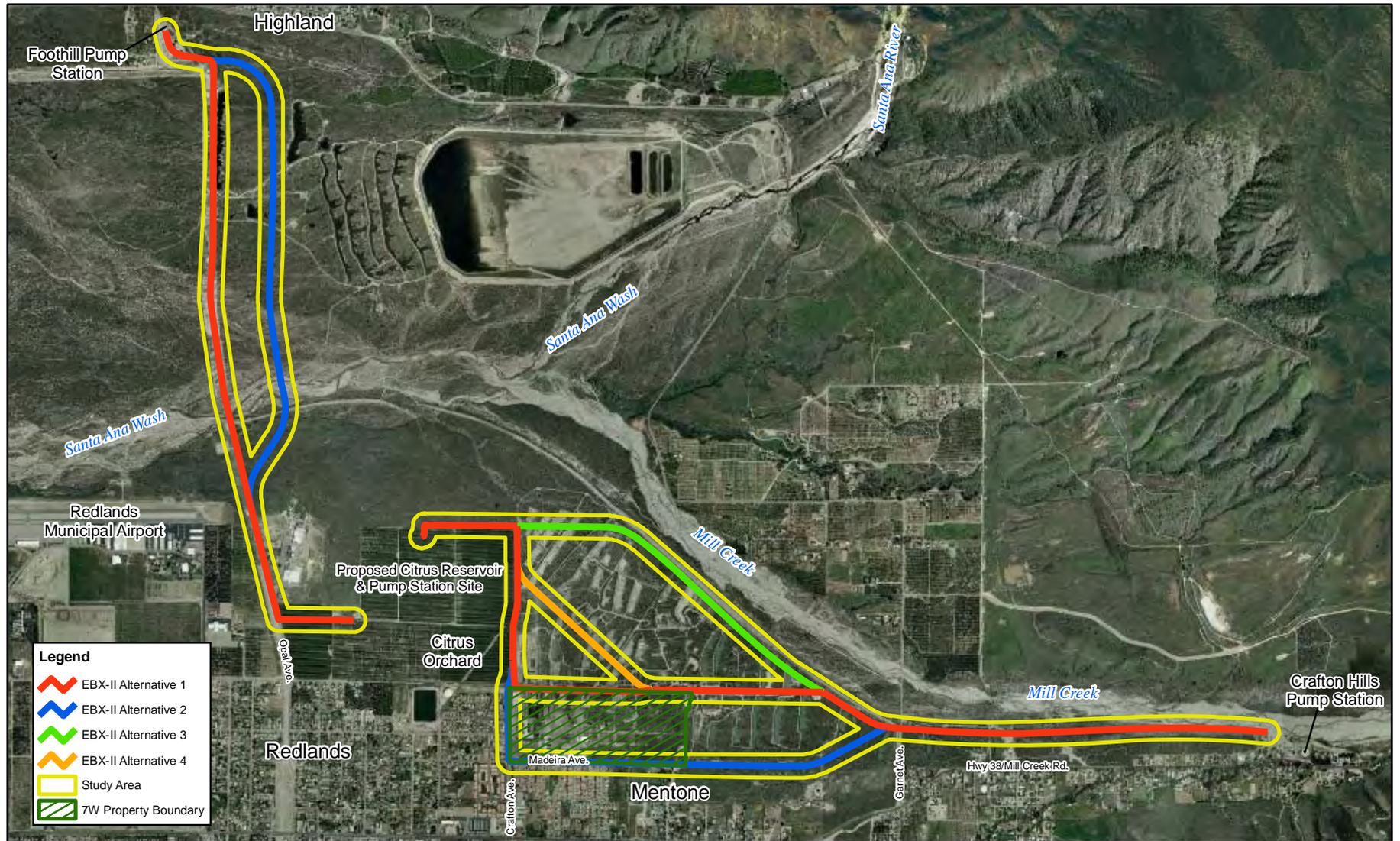
### **1.1.5 Citrus Reservoir and Citrus Pump Station**

The proposed Citrus Reservoir and Pump Station would be constructed entirely within an existing citrus orchard north of San Bernardino Avenue. The proposed Citrus Pump Station would be located adjacent to the proposed reservoir (Figure 2).



DWR - East Branch Extension  
Project Vicinity Map  
**Figure 1**





DWR - East Branch Extension  
Project Location Map  
**Figure 2**

## SECTION 2.0 – METHODS

This biological resources report is based on the results of reconnaissance-level surveys performed by Chambers Group botanists and wildlife biologists along Alternatives 1, 2, 3, and 4 of the EBX II ROW, as well as the proposed pump station and reservoir sites. Additional information, obtained from other surveys on the project site, was included with the findings of the Chambers Group reconnaissance-level surveys. The purpose and results of these previous surveys are summarized in Section 1.0. For methodologies used in other studies, all prior survey reports are provided in Appendices C through I.

Chambers Group reconnaissance-level surveys were conducted along the four pipeline Alternatives and proposed reservoir and pump station sites. The surveys were conducted within and adjacent to the proposed alignments to document existing biological resources, identify sensitive habitats, and to assess the site for its potential to support sensitive plant and wildlife species.

The purpose of this report is to incorporate the findings of all prior reports with the results obtained during Chambers Group literature reviews, reconnaissance-level surveys, and species-specific protocol surveys, and to discuss how these findings relate to each Alternative.

### 2.1 LITERATURE REVIEW METHODS

Prior to performing the reconnaissance-level surveys, available databases, soil maps, and documentation relevant to the project sites were reviewed for soil data and known occurrences of sensitive plant and wildlife species in the area. The most recent versions of the California Natural Diversity Database (CNDDB) and California Native Plant Society Electronic Inventory (CNPSEI) databases were searched for sensitive species data on the *Redlands*, *Yucaipa*, *Harrison Mountain*, and *Keller Peak* US Geological Survey (USGS) 7.5 minute quadrangle maps. These databases contain records of reported occurrences of state and federally listed species or otherwise sensitive species and habitats that may occur within the vicinity of the project site. Prior reports by P&D (2005), PCCA (2006), Aspen (2006), Chambers Group (2007a, 2007b, 2007c), and Davenport Biological Services (2007) were also reviewed for sensitive species findings as well as general biology results.

A sensitive species is considered to potentially occur in the project site if its known geographic range includes part of the project area or adjacent parcels and/or if the general habitat requirements or environmental conditions (e.g., soil type, etc.) required for the species are present within the project site at the time of the survey. The potential for sensitive species to occur was evaluated for the project site using the criteria listed in Table 1.

**Table 1**  
**Criteria for Evaluating Potential for Occurrence (PFO) of Sensitive Species**

PFO	Criteria
<b>Absent:</b>	Species was not observed during focused surveys conducted at an appropriate time for identification of the species or species is restricted to habitats or environmental conditions that do not occur within the site.
<b>Low:</b>	Historical records for this species do not exist within the immediate vicinity (approximately 5 miles) of the site and/or habitats or environmental conditions needed to support the species are of poor quality.
<b>Moderate:</b>	Either a historical record exists of the species within the immediate vicinity of the site (approximately 5 miles) and marginal habitat exists on the site, or the habitat requirements or environmental conditions associated with the species occur within the site, but no historical records exist within the vicinity
<b>High:</b>	Both a historical record exists of the species within the site or its immediate vicinity (approximately 5 miles) and the habitat requirements or environmental conditions associated with the species occur within the site.
<b>Present:</b>	Species was detected within the site at the time of the survey.

## 2.2 SURVEY METHODS

The reconnaissance-level surveys of Alternatives 1, 2, and 3 were conducted from April 9 - 11, 2007 by Chambers Group wildlife biologists Kris Alberts, Shannan Shaffer, and Saraiah Skidmore, and botanist Heather Clayton between the hours of 10:00 a.m. and 4:25 p.m. Weather conditions during the surveys included clear to cloudy skies and temperatures ranging from 62° to 76° Fahrenheit. Wind speeds ranged from 1 - 6 miles per hour. Alternative 4 was surveyed on September 7, 2007 by Chambers Group wildlife biologists Kris Alberts, Shannan Shaffer, and Rob Fletcher, and botanists Nichole Cervin and Heather Clayton between the hours of 5:45 a.m. and 12:55 p.m. Weather conditions during the surveys included clear to cloudy skies and temperatures ranging from 62° to 84° Fahrenheit. Wind speeds ranged from 0-2 miles per hour.

The Chambers Group team walked along all of the pipeline Alternatives as well as the proposed reservoir and pump station sites and impact areas (extending 200 feet each direction from the pipeline centerlines). Vegetation communities on the property were identified, mapped onto aerial photographs, and qualitatively described in the field notes of the botanists. Biological resources on the property were inventoried, and the potentials for the occurrences of sensitive plant and wildlife species and sensitive habitats were assessed, focusing on those species listed as threatened or endangered by the U.S. Fish and Wildlife Service (USFWS) and the California Department of Fish and Game (CDFG). Field data was collected on general vegetation types, plant and wildlife species observed, and sensitive habitats existing on the site.

Plant communities were determined in accordance with the categories set forth in Holland (1986) and Sawyer and Keeler-Wolf (1995). Plant communities on the site were identified, mapped and qualitatively described. Plants of uncertain identity were collected and subsequently identified from keys, descriptions, and illustrations in Hickman (1993) and Munz (1974). Plant nomenclature follows that of *The Jepson Manual: Higher Plants of California* (Hickman 1993).

Wildlife species were determined in accordance with current taxonomic descriptions recognized by the USFWS, CDFG, and American Ornithologist's Union (AOU). In some cases, subspecific determinations were based on current known ranges and existing conditions of the project site.

For methodologies used in other studies, all prior survey reports are provided in Appendices C through I.

## SECTION 3.0 – RESULTS

The database and literature searches identified 20 sensitive plant species and 16 sensitive wildlife species with the potential to occur in the project area, including the following five federal and state-listed plant species and nine federal and/or state-listed wildlife species:

### Plant Species

- Nevin's barberry, federal endangered and state endangered;
- Slender-horned spineflower, federal endangered and state endangered;
- Santa Ana River woollystar, federal endangered and state endangered;
- Bird-foot checkerbloom (*Sidalcea pedata*), federal endangered and state endangered;
- Parish's checkerbloom (*Sidalcea hickmanii* ssp. *parishii*), federal candidate and state rare;

### Wildlife Species

- Santa Ana sucker (*Catostomus santaanae*), federal threatened and state special concern species;
- California red-legged frog (*Rana aurora draytonii*), federal threatened and state special concern species;
- Mountain yellow-legged frog (*Rana muscosa*), federal endangered and state special concern species;
- Southern rubber boa (*Charina bottae umbratica*), state threatened;
- Western yellow-billed cuckoo (*Coccyzus americanus occidentalis*) (nesting), federal candidate and state endangered;
- Southwestern willow flycatcher (nesting), federal endangered and state endangered;
- Coastal California gnatcatcher, federal threatened and state special concern species;
- Least Bell's vireo (nesting), federal endangered and state endangered; and
- San Bernardino kangaroo rat, federal endangered and state special concern species.

The literature review also revealed nine sensitive vegetation communities that are known to occur in the region of the project site: Canyon Live Oak Ravine Forest, Riversidian Alluvial Fan Sage Scrub, Southern Coast Live Oak Riparian Forest, Southern Cottonwood Willow Riparian Forest, Southern Mixed Riparian Forest, Southern Riparian Forest, Southern Riparian Scrub, Southern Sycamore Alder Riparian Woodland, and Southern Willow Scrub.

Table 2 lists the vegetation communities and acreages present on the project site. Tables 3 and 4 list each sensitive plant and wildlife species identified in literature reviews and/or field surveys along with potentials for occurrence on the project site. These results incorporate the findings of prior reconnaissance and focused surveys (P & D 2005; PCCA 2006; Aspen 2006; Chambers Group 2007a, 2007b, and 2007c; Davenport 2007). The purposes and results of previous surveys are summarized in Section 1.0. Full survey reports are provided in Appendices C through I. General soil, vegetation, and wildlife results are discussed in Sections 3.1, 3.2, and 3.3. Sections 3.4 through 3.8 detail results for each pipeline Alternative and the proposed reservoir and pump station.

### 3.1 SOILS

Soil types present were determined in accordance with categories set forth by the USDA Soil Conservation Service. The Soil Survey of San Bernardino County Southwestern Part, California (1980) was used as a reference for soil types. One soil type was found to occur in the project area: Soboba stony loamy sand, 2 to 9 percent slopes (USDA 1980).

**Soboba stony loamy sand (SpC)**, 2 to 9 percent slopes, is a gently sloping to moderately sloping soil that is located on long, broad, smooth alluvial fans. Parent material consists of alluvium derived from granite. Depth to a root restrictive layer is greater than 60 inches; available water to a depth of 60 inches is very low. The natural drainage class is excessively drained. Runoff on this soil is slow, and the hazard of erosion is slight. Shrink-swell potential is low. This soil is rarely flooded, and not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about one percent. This soil does not meet hydric criteria. Soboba stony loamy sand is used for dryfarmed seeded pasture and citrus orchards (USDA 1980).

### 3.2 VEGETATION

To date, up to 304 plant species have been documented along the project site; Chambers Group botanists recorded 199 plant species along the proposed project corridors during the reconnaissance surveys. Appendix A-1 contains a list of plant species observed during the Chambers Group reconnaissance-level surveys, and Appendix A-2 contains a complete plant species list that incorporates prior survey results (P & D 2005, Aspen 2006, Chambers Group 2007b).

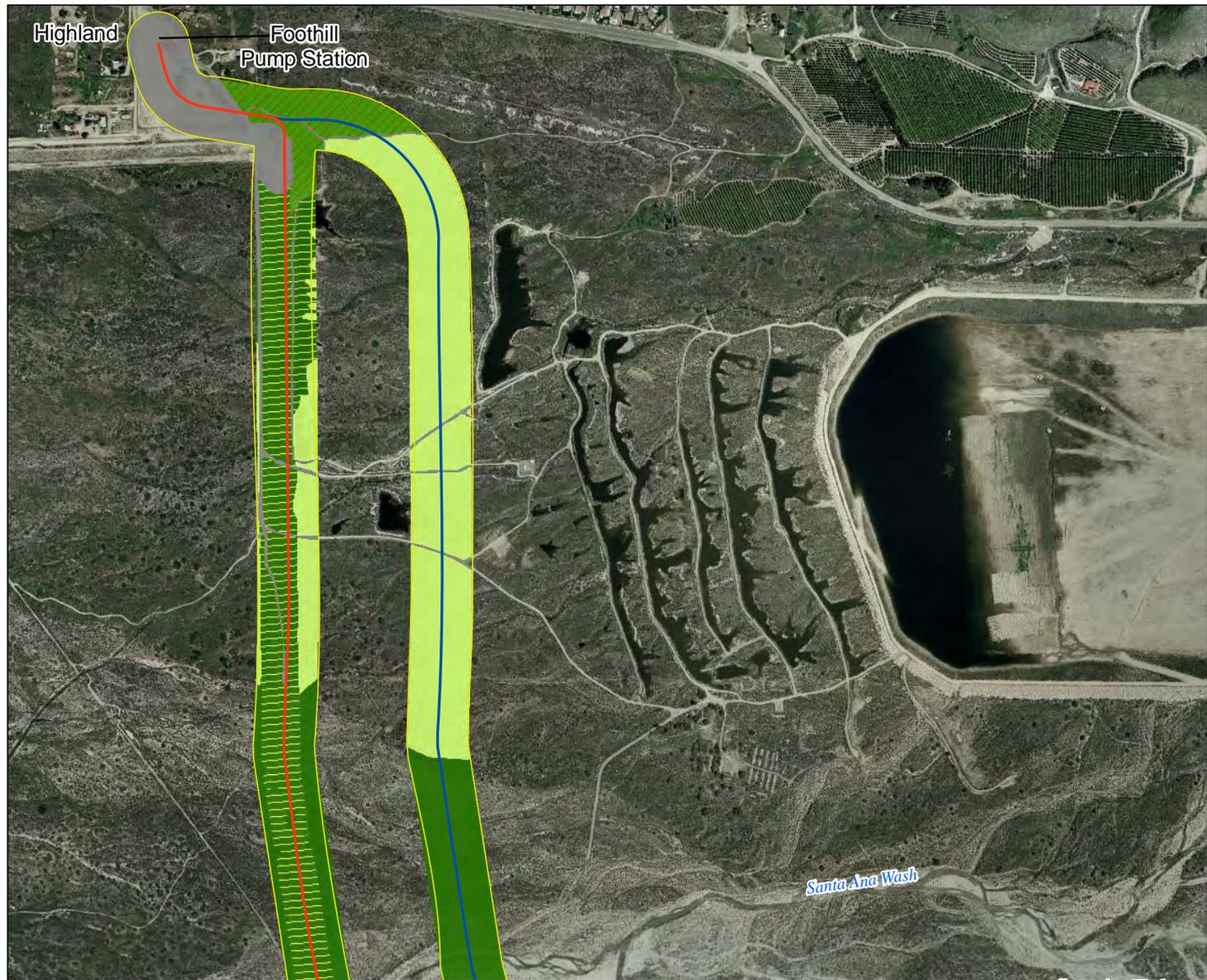
A number of Riversidian Alluvial Fan Sage Scrub and Riparian associations were documented along the four pipeline Alternatives as well as some Developed/Disturbed, Ornamental, Agricultural, and Ruderal associations. The vegetation communities and other areas identified on the project site are shown on the vegetation community maps (Figures 3 to 6). Specific results for present vegetation communities along each Alternative are discussed in sub-sections 3.4 through 3.8 and presented in Table 2.

To date, listed plant species documented onsite include the federally and state-endangered slender-horned spineflower and Santa Ana River woollystar, as well as two otherwise sensitive plant species, Parry's spineflower (CNPS list 3.2) and Plummer's mariposa lily (CNPS list 1B.2) (Figure 7). Specific results for sensitive plant species as they occur along each Alternative are discussed in sub-sections 3.4 through 3.8.

#### 3.2.1 Vegetation Community Descriptions and Onsite Occurrences

The vegetation communities along the four pipeline Alternatives and impact areas have been divided into two types of habitats: Riversidean Alluvial Fan Sage Scrub (RAFSS) communities and Other Communities. The acreages of these communities within the ROW along each of the four Alternatives have been calculated using GIS technology (Table 2). All four Alternatives include varying portions of Alternative 1 within their alignments; therefore, all calculations include Alternative 1 for each Alternative and differ only where the alignments shift. The communities within the proposed Citrus Pump Station and Reservoir areas occur entirely within an existing citrus orchard (Cultivated Agriculture) and are not included in this table.

### DWR - East Branch Extension Vegetation Communities Figure 3



**Legend**

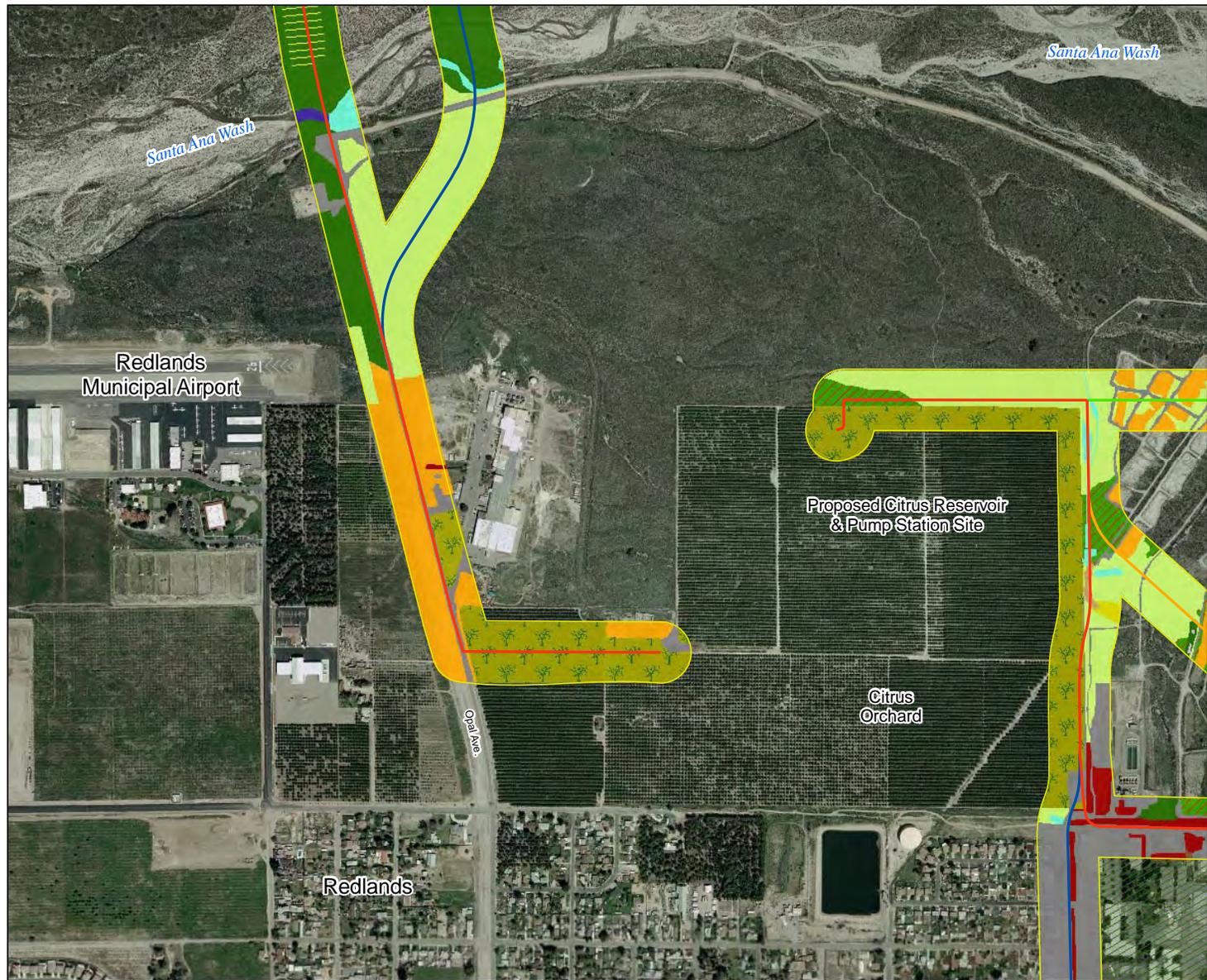
<b>Vegetation Communities</b>	
Mule Fat Series	Intermediate RAFSS
Disturbed Mule Fat Series	Disturbed Intermediate RAFSS
Tamarisk Series	Pioneer RAFSS
Black Willow Series	Disturbed Pioneer RAFSS
California Sycamore Series	Ruderal Vegetation
Fremont Cottonwood Series	Cultivated Agriculture
Southern Riparian Scrub	Ornamental Landscaping
California Buckwheat Alluvial Fan Scrub	Developed/Disturbed
Mature RAFSS	Open Water
<b>Pipeline Alternatives</b>	
EBX-II Alternative 1	Study Area
EBX-II Alternative 2	7W Property Boundary
EBX-II Alternative 3	
EBX-II Alternative 4	



N  
W —+— E  
S

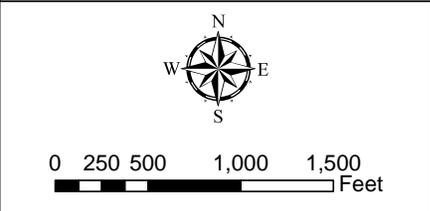
0 250 500 1,000 1,500  
Feet

## DWR - East Branch Extension Vegetation Communities Figure 4

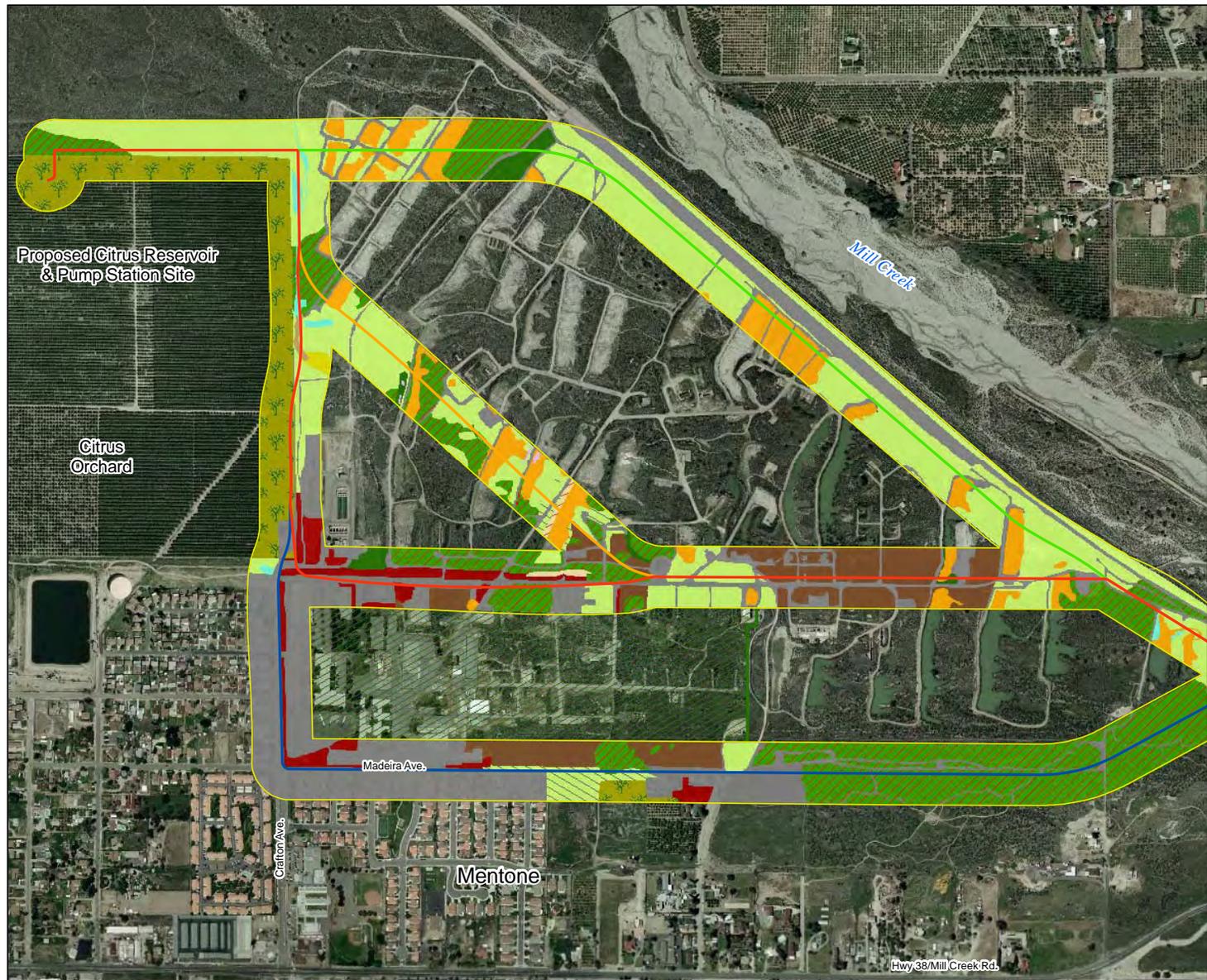


**Legend**

<b>Vegetation Communities</b>	Intermediate RAFSS
Mule Fat Series	Disturbed Intermediate RAFSS
Disturbed Mule Fat Series	Pioneer RAFSS
Tamarisk Series	Disturbed Pioneer RAFSS
Black Willow Series	Ruderal Vegetation
California Sycamore Series	Cultivated Agriculture
Fremont Cottonwood Series	Ornamental Landscaping
Southern Riparian Scrub	Developed/Disturbed
California Buckwheat Alluvial Fan Scrub	Open Water
Mature RAFSS	
<b>Pipeline Alternatives</b>	Study Area
EBX-II Alternative 1	7W Property Boundary
EBX-II Alternative 2	
EBX-II Alternative 3	
EBX-II Alternative 4	



## DWR - East Branch Extension Vegetation Communities Figure 5



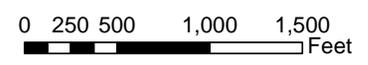
**Legend**

**Vegetation Communities**

	Intermediate RAFSS
	Mule Fat Series
	Disturbed Intermediate RAFSS
	Disturbed Mule Fat Series
	Tamarisk Series
	Black Willow Series
	Pioneer RAFSS
	California Sycamore Series
	Disturbed Pioneer RAFSS
	Fremont Cottonwood Series
	Southern Riparian Scrub
	Ruderal Vegetation
	California Buckwheat Alluvial Fan Scrub
	Mature RAFSS
	Cultivated Agriculture
	Ornamental Landscaping
	Developed/Disturbed
	Open Water

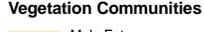
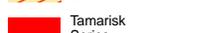
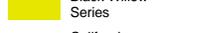
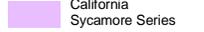
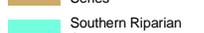
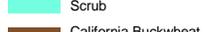
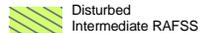
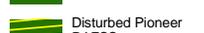
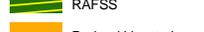
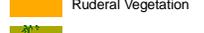
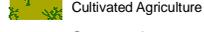
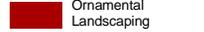
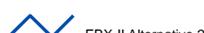
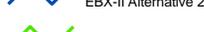
**Pipeline Alternatives**

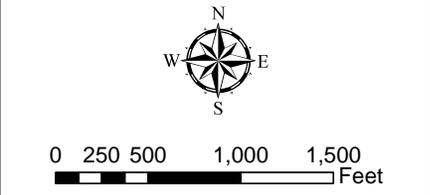
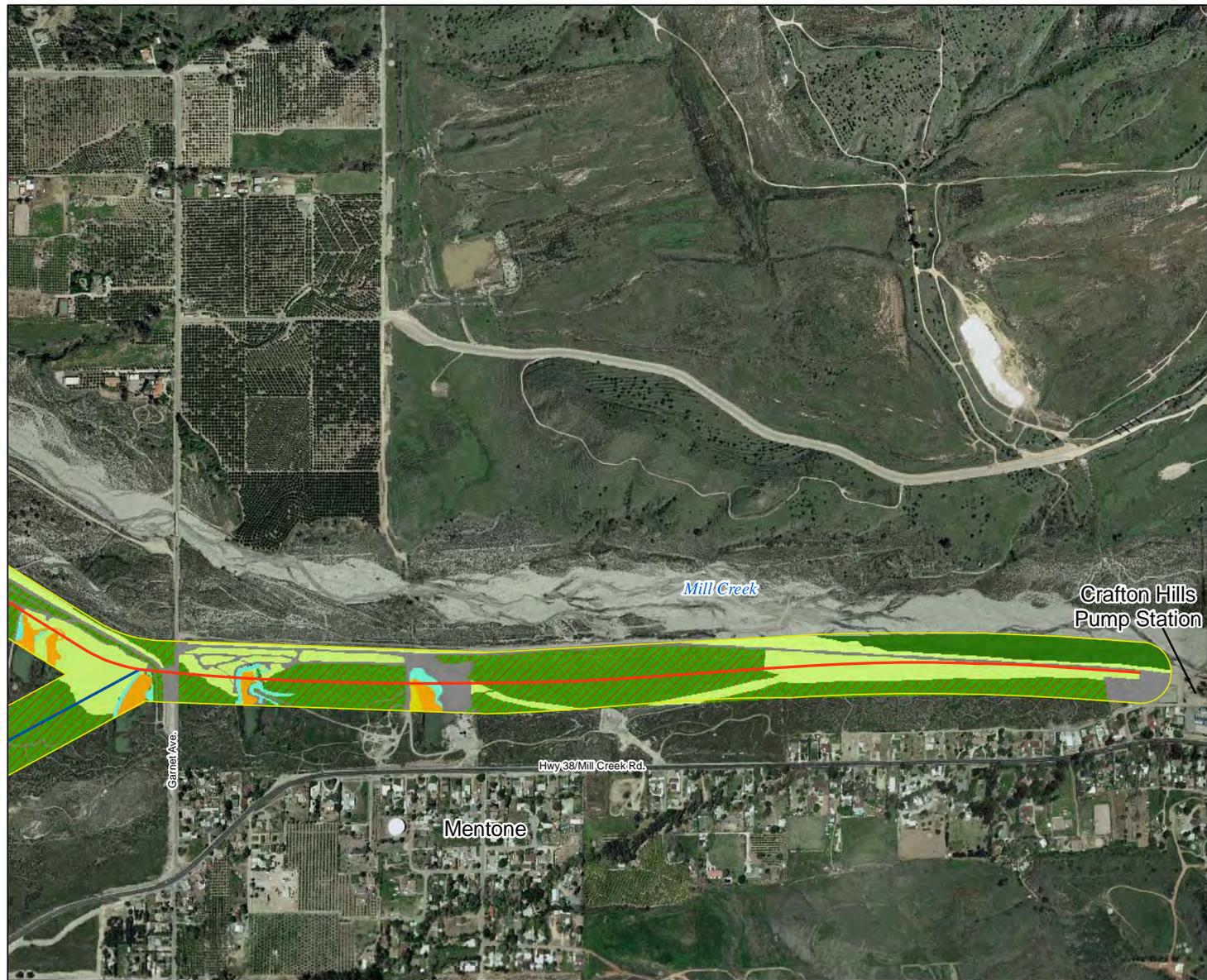
	EBX-II Alternative 1		Study Area
	EBX-II Alternative 2		7W Property Boundary
	EBX-II Alternative 3		
	EBX-II Alternative 4		



## DWR - East Branch Extension Vegetation Communities Figure 6

**Legend**

<b>Vegetation Communities</b>	
	Intermediate RAFSS
	Mule Fat Series
	Disturbed Mule Fat Series
	Tamarisk Series
	Black Willow Series
	California Sycamore Series
	Fremont Cottonwood Series
	Southern Riparian Scrub
	California Buckwheat Alluvial Fan Scrub
	Mature RAFSS
	Disturbed Intermediate RAFSS
	Pioneer RAFSS
	Disturbed Pioneer RAFSS
	Ruderal Vegetation
	Cultivated Agriculture
	Ornamental Landscaping
	Developed/Disturbed
	Open Water
<b>Pipeline Alternatives</b>	
	Study Area
	7W Property Boundary
	EBX-II Alternative 1
	EBX-II Alternative 2
	EBX-II Alternative 3
	EBX-II Alternative 4



**Table 2  
Vegetation Communities Occurring in the  
Impact Areas of the Proposed EBX II Pipeline Alternatives**

<b>Community</b>	<b>Alt. 1 (Acres)</b>	<b>Alt. 2 (Acres)</b>	<b>Alt. 3 (Acres)</b>	<b>Alt. 4 (Acres)</b>
<b>Riversidean Alluvial Fan Sage Scrub Communities (RAFSS)</b>				
Pioneer RAFSS	23.63	24.04	24.13	23.26
Disturbed Pioneer RAFSS	30.38	0.00	30.38	30.38
Intermediate RAFSS	59.07	88.21	74.87	64.53
Disturbed Intermediate RAFSS	0.00	2.52	0.00	0.71
Mature RAFSS	46.93	65.72	41.70	46.86
California Buckwheat Alluvial Fan Association	11.97	5.01	0.00	11.68
<b>Other Natural Communities</b>				
Southern Riparian Scrub	3.47	2.99	2.66	3.41
Black Willow Series	1.07	1.07	0.67	0.68
Mule Fat Series	0.34	0.00	0.00	0.03
Disturbed Mule Fat Series	0.00	0.00	0.00	0.29
Fremont Cottonwood Series	0.29	0.29	0.00	0.02
California Sycamore Series	0.00	0.00	0.00	0.13
Tamarisk Series	0.00	0.00	0.00	0.02
Ruderal Vegetation	18.87	15.73	25.49	22.66
Open Water	0.36	0.00	0.36	0.36
<b>Other Manmade Communities</b>				
Ornamental Landscaping	4.46	4.14	0.09	0.17
Cultivated Agriculture	31.55	32.97	21.69	24.38
Developed / Disturbed	47.21	57.06	40.46	38.31
<b>TOTAL ACRES BY COMMUNITY</b>				
RAFSS Acres	171.98	185.50	171.08	177.42
Other Natural Acres	24.40	20.08	29.09	27.60
Other Manmade Acres	83.22	94.17	62.24	62.86
<b>TOTAL PROPOSED ACRES</b>	<b>279.60</b>	<b>299.75</b>	<b>262.41</b>	<b>267.88</b>

### 3.2.1.1 Riversidean Alluvial Fan Sage Scrub

RAFSS vegetation communities occur on alluvial outwash fans along the base of the San Gabriel, San Bernardino, and San Jacinto mountains. RAFSS communities are generally associated with infrequently scoured areas on floodplains and outwash fans in the Transverse and Peninsular ranges (Holland 1986). It is considered to be a rare or threatened plant community that is highly fragmented due to urbanization and the extensive alteration of natural stream hydrology in southern California. RAFSS communities are composed of a variety of evergreen woody and drought-deciduous shrubs (as is common in Coastal Sage Scrub communities) with a substantial component of larger, evergreen shrubs typically found in Chaparral (Kirkpatrick and Hutchinson 1977, Smith 1980). The species components of this vegetation association reestablish following intense periodic flooding events.

Three seral stages (pioneer, intermediate, and mature) of RAFSS have been described based on the frequency and intensity of these flooding events (Smith 1980, Hanes et al. 1989). Scalebroom (*Lepidospartum squamatum*) is considered to be an indicator species of alluvial scrubs, and is usually described as a dominant or subdominant shrub in alluvial community descriptions, including the Scalebroom Series of Sawyer and Keeler-Wolf (1995) and the *Lepidospartum-Eriodictyon-Yucca* Association described by Kirkpatrick and Hutchinson (1977).

RAFSS (including Pioneer, Disturbed Pioneer, Intermediate, Disturbed Intermediate, and Mature RAFSS, and California Buckwheat Alluvial Fan Association) is the main vegetation community along all four Alternatives of the proposed pipeline route, and occupies large areas (171.08 to 185.50 total acres) on each Alternative. Details of the location of this vegetation community along each Alternative are presented in Sections 3.4 through 3.8.

### **3.2.1.2 Pioneer RAFSS and Disturbed Pioneer RAFSS**

Pioneer RAFSS is the earliest seral stage of RAFSS, and vegetative cover within this seral stage is lowest of the three stages. This vegetation association occurs within the active flood channels of the Santa Ana Wash and Mill Creek and is associated with natural flood events. These flood events regularly scour the banks surrounding the primary channel and redeposit sediment along the path of the water route, laying fresh substrate for seedlings to germinate. Larger shrubs are often not present due to these natural disturbances. The greatest percentage of sand particles of the three stages occur in this community (Smith 1980, Hanes et al. 1989). Species present within Pioneer RAFSS onsite include scalebroom, California croton (*Croton californicus*), brittlebush (*Encelia farinosa*), sapphire eriastrum (*Eriastrum sapphirinum*), California buckwheat (*Eriogonum fasciculatum*), coast goldfields (*Lasthenia californica*), and deerweed (*Lotus scoparius*). Disturbed Pioneer RAFSS is associated with recovery following human related disturbances, such as clearing and grading, and often contains a larger percentage of non-native species. Onsite, disturbed Pioneer RAFSS includes the current restoration area for the Inland Feeder pipeline.

### **3.2.1.3 Intermediate RAFSS and Disturbed Intermediate RAFSS**

Intermediate RAFSS is the mid-seral stage of RAFSS subjected to comparatively fewer flooding events than Pioneer RAFSS (Smith 1980, Hanes et al. 1989). This vegetation association occurs between the active flood channels and upper terraces of the Santa Ana Wash and Mill Creek. Species composition onsite includes scalebroom, California sagebrush (*Artemisia californica*), California croton, brittlebush, interior goldenbush (*Ericameria linearifolia*), hairy yerba santa (*Eriodictyon trichocalyx*), California buckwheat, California matchweed (*Gutierrezia californica*), broom matchweed (*Gutierrezia sarothrae*), telegraph weed (*Heterotheca grandiflora*), coastal goldenbush (*Isocoma menziesii*), scalebroom, coastal prickly pear (*Opuntia littoralis*), valley cholla (*Opuntia parryi*), shrubby butterweed (*Senecio flaccidus*), and Our Lord's candle (*Yucca whipplei*). Disturbed Intermediate RAFSS is associated with a high percent cover of non-native species (i.e. greater than 50 percent) that colonize following human-related disturbance, but some native shrubs are present as well.

### **3.2.1.4 Mature RAFSS**

Mature RAFSS is a seral stage of RAFSS that is rarely subject to flooding due to the distance from active floodplains (Smith 1980). Mature RAFSS dominates within the elevated terraces adjacent to the flood channels of the Santa Ana Wash and Mill Creek. Species present onsite typical of Mature RAFSS include chamise (*Adenostoma fasciculatum*), California brickelbush (*Brickellia californica*), hoary leaf ceanothus (*Ceanothus crassifolius*), chaparral whitethorn (*Ceanothus leucodermis*), California juniper (*Juniperus californica*), California buckwheat, deerweed, holly-leaved cherry (*Prunus ilicifolia*), scrub oak (*Quercus berberidifolia*), spiny redberry (*Rhamnus crocea*), and white sage (*Salvia apiana*).

### **3.2.1.5 California Buckwheat Alluvial Fan Association**

The California Buckwheat Alluvial Fan Association (CBAFA) described by Gordon and White (1994) is a type of RAFSS in which California buckwheat is dominant. Similar to what Sawyer and Keeler-Wolf (1995) refer to as the California Buckwheat Series, this community was made up almost entirely of shrubs less than 3 feet in height and consists of a continuous to intermittent canopy. Vegetative cover is moderate with cover ranging from 20 to 50 percent. Species present onsite typical of this community included California buckwheat as a dominant species, as well as brittlebush, California matchweed, deerweed, and occasional hairy yerba santa and scalebroom.

### **3.2.1.6 Southern Riparian Scrub**

Southern Riparian Scrub communities are dense, broadleaved, winter-deciduous riparian thickets dominated by several willow (*Salix* spp.) species, with scattered emergent Fremont cottonwood (*Populus fremontii*) and western sycamore (*Platanus racemosa*), often intermixed with mule fat (*Baccharis salicifolia*). Riparian Scrub habitats occur along drainages or adjacent to standing water, but are less mature than Riparian Woodland communities. Loose, sandy, or fine gravelly alluvium deposited near stream channels during flood flows characterizes the substrate of Riparian Scrub communities (Holland 1986). Riparian Scrub most closely matches the Mixed Willow Series described by Sawyer and Keeler-Wolf (1995) and Southern Willow Scrub described by Holland (1986).

Southern Riparian Scrub vegetation is present along all four Alternatives in small pockets (2.66 to 3.47 total acres), and is found primarily within the Santa Ana Wash and near several percolation basins south of the Santa Ana River. Details of the location of this vegetation community along each Alternative are presented in Sections 3.4 through 3.8.

### **3.2.1.7 Black Willow Series**

The Black Willow Series, as described by Sawyer and Keeler-Wolf (1995), is a mature, dense, broadleaved, winter-deciduous scrub community dominated by black willow (*Salix goodingii*). This series consists of trees typically less than 100 feet in height with a continuous canopy. The Black Willow Series can form thickets in riparian zones along alluvial fan stream channels, sandy or gravelly floodplains, and in low stream terraces in southern California. The Willow Series are early to mid-seral precursor communities to Southern Cottonwood-Willow Riparian Forest (Holland 1986). Black Willow Series was found along Alternatives 1 and 4 adjacent to a water discharge area that contains water for most, if not all of the year. Other smaller areas of Black Willow Series were found along other portions of the project site as well. In addition to black willow, other riparian species such as red willow (*Salix laevigata*), mule fat, white mulberry (*Morus alba*), and tamarisk (*Tamarix ramosissima*) were occasionally present in some of these areas.

Black Willow Series vegetation is present along all four Alternatives in small pockets (0.67 to 1.07 total acres). Much of this acreage occurs in the water discharge area east of the citrus orchards. Details of the location of this vegetation community along each Alternative are presented in Sections 3.4 through 3.8.

### **3.2.1.8 Mule Fat Series and Disturbed Mule Fat Series**

Mule Fat Scrub Series is a tall, herbaceous riparian scrub community dominated by mule fat. This plant community is generally considered to be a riparian community that typically occurs in intermittent streambeds and seeps. While not a Coastal Sage Scrub community, mule fat is often found in Coastal Sage Scrub communities, particularly at the base of slopes where moisture may accumulate for longer periods of time, or in disturbed areas. This community is an early seral stage that forms in damp sandy

soils and is maintained by frequent flooding. When such flooding is absent, this community usually changes into Cottonwood-Sycamore Riparian Forest or Woodland (Holland 1986). Disturbed Mule Fat Scrub Series typically occurs in areas with sandy substrates where the water supply is less dependable than other riparian habitats. This community often shows evidence of recent scouring, and vegetation is typically sparse and patchy.

Mule Fat Series and Disturbed Mule Fat Series are found along Alternatives 1 and 4 in small pockets (0.03 to 0.34 total acres). Details of the location of this vegetation community along each Alternative are presented in Sections 3.4 through 3.8.

### **3.2.1.9 Fremont Cottonwood Series**

The Fremont Cottonwood Series generally requires a more dependable water supply and is located closer to streambeds or groundwater than the California Sycamore Series. Trees are typically less than 85 feet in height, the canopy may be continuous or open, and shrubs and grape (*Vitis* spp.) lianas can be infrequent to common. This community may be characterized as a wetland where soils are intermittently or seasonally flooded and saturated, and floodplains are often subject to high-intensity flooding. Floodplains have low-gradient depositions along rivers, streams, seeps, banks, and terraces (Sawyer and Keeler-Wolf 1995). Fremont Cottonwood Series is synonymous with Southern Cottonwood–Willow Riparian Forest as described by Holland where it is dominated by tall, open, broadleafed, winter-deciduous riparian species, particularly Fremont cottonwood, along with some willow species. These species require moist, bare mineral soils for germination and establishment (1986).

Fremont Cottonwood Series is found along Alternatives 1, 2, and 4 in small pockets (0.02 to 0.29 total acres). Much of this acreage occurs in the water discharge area east of the citrus orchards. Details of the location of this vegetation community along each Alternative are presented in Sections 3.4 through 3.8.

### **3.2.1.10 California Sycamore Series**

The Sycamore Series described by Sawyer and Keeler-Wolf (1995) is a community in which the California (or western) sycamore is the sole or dominant species in the canopy with willow, oak, cottonwood or other trees often present as well. Trees are usually less than 115 feet in height with an open canopy. Shrubs can be common or infrequent, and the ground layer can be grassy (Sawyer and Keeler-Wolf 1995). This community may be characterized as a wetland with permanently saturated soils and riparian corridors leading into braided, depositional channels of intermittent streams. Terraces can be adjacent to the floodplains and may be subject to high-intensity flooding on an irregular basis. Soils are alluvial in nature, often cobbly and rocky. Holland (1986) describes this type of community as a Riparian Forest or Sycamore Alluvial Woodland.

California Sycamore Series is found only along Alternative 4 in two very small patches (0.13 total acres). Details of the location of this vegetation community along each Alternative are presented in Sections 3.4 through 3.8.

### **3.2.1.11 Tamarisk Series**

Tamarisk Series, described by Sawyer and Keeler-Wolf (1995), is dominated by tamarisk species (*Tamarix* sp.); catclaw acacia (*Acacia greggii*), cheesebush (*Hymenoclea salsola*), saltbush species (*Atriplex* spp.), and willow species may also be present. Tamarisk Series often occurs in wetland and riparian habitats that are occasionally flooded, such as ditches, washes, or watercourses.

Tamarisk Series is found only along Alternative 4 in several very small patches with only a few trees present (0.02 total acres). Details of the location of this vegetation community along each Alternative are presented in Sections 3.4 through 3.8.

### **3.2.1.12 Ruderal Vegetation**

Ruderal Vegetation includes those areas that are typically dominated by non-native herbaceous colonizing species, but may also have a component of native colonizing species. Vegetative cover is usually low. However, if conditions allow the establishment of non-native species, cover may be high, as these non-native species often out-compete native species. Typical vegetation observed onsite consisted of weedy non-native species such as wild oat (*Avena* sp.), shortpod mustard (*Hirschfeldia incana*), ripgut grass (*Bromus diandrus*), foxtail chess (*Bromus madritensis* ssp. *rubens*), tocalote (*Centaurea melitensis*), red-stemmed filaree (*Erodium cicutarium*), and horehound (*Marrubium vulgare*).

A series of percolation basins, operated by the San Bernardino Valley Municipal Water District (SBVMWD), occur along Alternative 3, Alternative 4, and Alternative 1 in the central portion of the project site. The percolation basins were filled with water at the time of the survey in April 2007 and unvegetated; however, these were dry during the later summer months. When dry, the basins tended to be bare towards their centers, with ruderal species occurring in greater coverage over the remainder of the basins. The vegetative cover on the banks of the basins included primarily sparse Mule Fat Series and Intermediate RAFSS species. These basins periodically exhibited varying levels of human disturbance (i.e. grading, mulching) and will revert to RAFSS or ruderal vegetation if left unaffected.

Ruderal Vegetation occurred along all four Alternatives in small to large patches (15.73 to 25.49 total acres). Details of the location of this vegetation community along each Alternative are presented in Sections 3.4 through 3.8.

### **3.2.1.13 Open Water**

Open Water is characterized as an area with permanently flowing or standing water that is devoid of emergent vegetation.

Open Water occurs in one area on 0.36 acres at the Santa Ana Wash crossing shared by Alternatives 1, 3, and 4. While water flow is continuous through the Santa Ana Wash at Alternatives 1 and 2, the presence of riparian vegetation in most areas of these crossings does not warrant the Open Water designation. Details of the location of this vegetation community along each Alternative are presented in Sections 3.4 through 3.8.

### **3.2.1.14 Ornamental Landscaping**

Typically, Ornamental Landscaping includes areas where vegetation is dominated by non-native, horticultural plants, but native vegetation can also be present in these areas.

Ornamental Landscaping occurs in patches (0.09 to 4.46 total acres) along all four Alternatives. Details of the location of this vegetation community along each Alternative are presented in Sections 3.4 through 3.8.

### **3.2.1.15 Cultivated Agriculture**

Cultivated Agriculture includes areas with vegetation dominated by native or non-native plants used for commercial agriculture. This type of vegetation community is typically that of a mono-crop. Onsite

Cultivated Agriculture consists primarily of citrus orchards. Apple (*Malus* spp.) trees are also found in some of these orchards.

Cultivated Agriculture (orchards) occurs in large areas along all four Alternatives (21.69 to 32.97 total acres). Details of the location of this vegetation community along each Alternative are presented in Sections 3.4 through 3.8.

### **3.2.1.16 Developed/Disturbed**

Developed areas are areas that have been altered by human activity and now display man-made structures such as houses, paved roads, buildings, parks, and other maintained areas. Disturbed areas include dirt roads, cleared lots, and bare ground caused by human disturbances. Disturbed areas along the northeastern half of Alternative 3 adjacent to Mill Creek were sparsely vegetated and had been overlaid with gravel. Species present along this area included leather spineflower (*Lastarriaea coriacea*), tree tobacco (*Nicotiana glauca*), short-podded mustard, and popcorn flower (*Plagiobothrys* sp.). Much of the Disturbed areas onsite, however, were unvegetated and consisted of dirt/gravel roads and cleared lots.

Developed/Disturbed areas occur on all four Alternatives (38.31 to 57.06 total acres). Details of the location of this vegetation community along each Alternative are presented in Sections 3.4 through 3.8.

### **3.2.2 Sensitive Habitats**

The database and literature searches revealed that nine sensitive vegetation communities are known to occur in the region of the project site. These communities included Canyon Live Oak Ravine Forest, RAFSS, Southern Coast Live Oak Riparian Forest, Southern Cottonwood Willow Riparian Forest, Southern Mixed Riparian Forest, Southern Riparian Forest, Southern Riparian Scrub, Southern Sycamore Alder Riparian Woodland, and Southern Willow Scrub. RAFSS is the main vegetation community along all four Alternatives of the proposed pipeline route. This community is considered to be a rare or threatened plant community that is highly fragmented due to urbanization and the extensive alteration of natural stream hydrology in Southern California. Small areas of Southern Riparian Scrub were also observed in several areas of the project site, including the Santa Ana Wash crossing.

The other sensitive habitat types listed in the literature search (Canyon Live Oak Ravine Forest, Southern Coast Live Oak Riparian Forest, Southern Cottonwood Willow Riparian Forest, Southern Mixed Riparian Forest, Southern Riparian Forest, Southern Sycamore Alder Riparian Woodland, and Southern Willow Scrub) were not found on the project site.

### **3.2.3 Special Status Plant Species Descriptions and Onsite Occurrences**

The following paragraphs describe sensitive plant species that are known to occur or could potentially occur along the project site and potential impact areas. Table 3 lists each sensitive plant species identified in the literature review with its potential for occurrence on the project site.

Aspen Environmental Group conducted focused plant surveys on portions of Alternatives 1, 2, and 3 (excluding the Seven W property) during June and July of 2006 (Aspen 2006, Appendix E). Chambers Group conducted focused plant surveys on the Seven W Enterprises property during August of 2007 (Chambers Group 2007b, Appendix G).

Aspen Environmental Group conducted focused surveys for Santa Ana River woollystar, slender-horned spineflower, Plummer's mariposa lily, and Parry's spineflower. Populations of all four species were observed within the project site (Aspen 2006, Appendix E). Prior to the Aspen survey, several short

reconnaissance surveys of known reference populations of slender-horned spineflower and Santa Ana River woollystar were conducted. From these reconnaissance surveys, the botanists were able to determine the optimal time to perform the focused plant survey within the plants' flowering periods. The local plant phenology was also considered to be suitable to detect rare plants at the time of the focused survey. This survey was conducted during the blooming period for all four species of interest, and all four were detected. The survey also compiled a complete floral inventory, which did not include any additional sensitive species. The survey team included expert botanists experienced with local plant species. Therefore, the confidence level of this survey is high.

Chambers Group conducted focused surveys for nine sensitive plant species, including Nevin's barberry (absent), slender-horned spineflower (absent), Santa Ana River woollystar (absent), Plummer's mariposa lily (high potential for occurrence), smooth tarplant (absent), Parry's spineflower (present), Robinson's pepper-grass (high potential for occurrence), Parish's bush mallow (absent), and Hall's monardella (absent). While seasonal conditions for vegetation surveys and rare plant detection were relatively poor, several morphological characteristics were suitable to identify sensitive plant species at the time of the survey. Nevin's barberry and Santa Ana River woollystar are perennial and easily identifiable despite blooming periods or seasonal conditions. Morphological differences in the flower perianth structure were sufficient to distinguish both slender-horned and Parry's spineflowers from other spineflower species known to occur in the area of the project site. The survey team included expert botanists experienced with local plant species. Therefore, the confidence level of this survey for the three federally and state-listed endangered plant species, Nevin's barberry, Santa Ana River woollystar, and slender-horned spineflower, is high.

It should be noted that focused plant surveys have only been completed on portions of Alternatives 1, 2, and 3 (Aspen 2006) and on the Seven W property (Chambers Group 2007b). Focused plant surveys have not yet been conducted along pipeline Alternative 4, most of Alternative 3, the north-south alignment of Alternative 2, or the portion of Alternative 1 that borders the citrus orchards. Surveys of these remaining areas would increase the level of confidence for the locations of all sensitive plant species as they may occur throughout all the pipeline Alternatives.

**Table 3**  
**CNDDDB, CNPSEI, and Literature Review Results for Sensitive Plant Species in the**  
**Vicinity of the Proposed EBX II Project Site**

<i>Scientific Name</i> Common Name	Status		Flowering Period	Potential for Occurrence*
<b>Federal and State-Listed Plant Species</b>				
<i>Berberis nevinii</i> Nevin's barberry	USFWS: CDFG: CNPS: S-Rank: G-Rank:	<b>FE</b> <b>SE</b> 1B.1 S2.2 G2	Mar – Apr	Alt 1, 2, 3 & 4: Low
<i>Dodecahema leptoceras</i> slender-horned spineflower	USFWS: CDFG: CNPS: S-Rank: G-Rank:	<b>FE</b> <b>SE</b> 1B.1 S1.1 G2	Apr – Jun	Alt 1: <b>Present</b>  Alt 2, 3 & 4: High
<i>Eriastrum densiflorum</i> ssp. <i>sanctorum</i> Santa Ana River woollystar	USFWS: CDFG: CNPS: S-Rank: G-Rank:	<b>FE</b> <b>SE</b> 1B.1 S1.1 G4T1	Jun – Sep	Alt 1 & 2: <b>Present</b>  Alt 3 & 4: Moderate
<i>Sidalcea hickmanii</i> ssp. <i>parishii</i> Parish's checkerbloom	USFWS: CDFG: CNPS: S-Rank: G-Rank:	<b>FC</b> <b>Rare</b> 1B.2 S1.2 G3T1	Jun – Aug	Alt 1, 2, 3 & 4: Assumed Absent
<i>Sidalcea pedata</i> bird-foot checkerbloom	USFWS: CDFG: CNPS: S-Rank: G-Rank:	<b>FE</b> <b>SE</b> 1B.1 S1.1 G1	May – Aug	Alt 1, 2, 3 & 4: Assumed Absent

**Table 3 (continued)**  
**CNDDDB, CNPSEI, and Literature Review Results for Sensitive Plant Species in the Vicinity**  
**Of the Proposed EBX II Project Site**

<b>Scientific Name Common Name</b>	<b>Status</b>		<b>Flowering Period</b>	<b>Potential for Occurrence*</b>
<b>Other Sensitive Plant Species</b>				
<b><i>Calochortus plummerae</i></b> Plummer's Mariposa Lily	USFWS: CDFG: CNPS: S-Rank: G-Rank:	None None 1B.2 S3.2 G3	May – Jul	Alt 1, 2 & 3: <b>Present</b> Alt 4: High
<b><i>Castilleja lasiorhyncha</i></b> San Bernardino Mountains owl's clover	USFWS: CDFG: CNPS: S-Rank: G-Rank:	None None 1B.2 S2.2 G3	Jun – Aug	Alt 1, 2, 3, & 4: Assumed Absent
<b><i>Centromadia pungens ssp. laevis</i></b> smooth tarplant	USFWS: CDFG: CNPS: S-Rank: G-Rank:	None None 1B.1 S2.1 G3G4T2	Apr – Sep	Alt 1 & 2: Low  Alt 3 & 4: Assumed Absent
<b><i>Chorizanthe parryi var. parryi</i></b> Parry's spineflower	USFWS: CDFG: CNPS: S-Rank: G-Rank:	None None 3.2 S2.1 G2T2	Apr – Jun	Alt 1, 2, 3, & 4: <b>Present</b>
<b><i>Heuchera parishii</i></b> Parish's alumroot	USFWS: CDFG: CNPS: S-Rank: G-Rank:	None None 1B.3 S2.3 G2	June – Aug	Alt 1, 2, 3, & 4: Assumed Absent
<b><i>Imperata brevifolia</i></b> California satintail	USFWS: CDFG: CNPS: S-Rank: G-Rank:	None None 2.1 S2.1 G2	Sept – May	Alt 1 & 2: Low  Alt 3 & 4: Assumed Absent
<b><i>Ivesia argyrocoma</i></b> Silver-haired ivesia	USFWS: CDFG: CNPS: S-Rank: G-Rank:	None None 1B.2 S2.2 G2	Jun – Aug	Alt 1, 2, 3, & 4: Assumed Absent
<b><i>Lepidium virginicum var. robinsoni</i></b> Robinson's pepper-grass	USFWS: CDFG: CNPS: S-Rank: G-Rank:	None None 1B.2 S2.2 G5T2	Jan – Jul	Alt 1, 2, 3, & 4: Moderate
<b><i>Lilium parryi</i></b> lemon lily	USFWS: CDFG: CNPS: S-Rank: G-Rank:	None None 1B.2 S2.1 G3	Jul – Aug	Alt 1, 2, 3, & 4: Assumed Absent

**Table 3 (continued)**  
**CNDDDB, CNPSEI, and Literature Review Results for Sensitive Plant Species in the Vicinity**  
**Of the Proposed EBX II Project Site**

Scientific Name Common Name	Status	Flowering Period	Potential for Occurrence*
<b>Other Sensitive Plant Species</b>			
<i>Malacothamnus parishii</i> Parish's bush mallow	USFWS: None CDFG: None CNPS: 1A S-Rank: SH G-Rank: GHQ	Jun – Jul	Alt 1 & 2: Low  Alt 3 & 4: Assumed Absent
<i>Monardella macrantha ssp. hallii</i> Hall's monardella	USFWS: None CDFG: None CNPS: 1B.3 S-Rank: S3.3 G-Rank: G5T3	Jun – Aug	Alt 1, 2, 3, & 4: Assumed Absent
<i>Perideridia parishii ssp. parishii</i> Parish's yampah	USFWS: None CDFG: None CNPS: 2.2 S-Rank: S2.2 G-Rank: G4T3T4	Jun – Aug	Alt 1, 2, 3, & 4: Assumed Absent
<i>Ribes divaricatum var. parishii</i> Parish's gooseberry	USFWS: None CDFG: None CNPS: 1A S-Rank: SH G-Rank: G4TH	Feb – Apr	Alt 1, 2, 3 & 4: Assumed Absent
<i>Streptanthus campestris</i> southern jewel-flower	USFWS: None CDFG: None CNPS: 1B.3 S-Rank: S2.3 G-Rank: G2	May – Jul	Alt 1, 2, 3, & 4: Assumed Absent
<i>Thelypteris puberula var. sonorensis</i> Sonoran maiden fern	USFWS: None CDFG: None CNPS: 2.2 S-Rank: S2.2 G-Rank: G5T3	Jan – Sep	Alt 1 & 2, 3 & 4: Assumed Absent

**Table 3 (continued)  
 CNDDDB, CNPSEI, and Literature Review Results for Sensitive Plant Species in the Vicinity  
 of the Proposed EBX II Project Site**

<b>Federal designations: (Federal Endangered Species Act, USFWS):</b>	
FE:	Federal-listed, endangered.
FT:	Federal-listed, threatened.
PTH:	Federal-listed, proposed-threatened
FC:	Candidate species.
<b>State designations: (California Endangered Species Act, CDFG)</b>	
SE:	State-listed, endangered.
ST:	State-listed, threatened.
Rare:	State-listed as rare (Listed "Rare" animals have been re-designated as Threatened, but Rare plants have retained the Rare designation.)
<b>California Native Plant Society (CNPS) designations: (Note: According to CNPS [Skinner and Pavlik 1994], plants on Lists 1B and 2 meet definitions for listing as threatened or endangered under Section 1901, Chapter 10 of the California Fish and Game Code. This interpretation is inconsistent with other definitions.</b>	
List 1A:	Plants presumed extinct in California.
List 1B:	Plants rare and endangered in California and throughout their range.
List 2:	Plants rare, threatened, or endangered in California but more commons elsewhere in their range.
List 3:	Plants about which we need more information; a review list.
List 4:	Plants of limited distribution; a watch list.
List Extension 0.1:	Seriously endangered in California (over 80 percent of occurrences threatened/high degree and immediacy of threat)
List Extension 0.2:	Fairly endangered in California (20-80 percent occurrences threatened)
List Extension 0.3:	Not very endangered in California (<20 percent of occurrences threatened)
<b>California Natural Diversity Database (CNDDDB) Global (G) and State (S) ranking designations:</b>	
G1:	Less than 6 viable element occurrences (EOs) OR less than 1,000 individuals OR less than 2,000 acres.
G2:	6-20 EOs OR 1,000-3,000 individuals OR 2,000-10,000 acres.
G3:	21-80 EOs OR 3,000-10,000 individuals OR 10,000-50,000 acres.
G4:	Apparently secure; this rank is clearly lower than G3 but factors exist to cause some concern; (i.e., there is some threat, or somewhat narrow habitat).
G5:	Population or stand demonstrably secure to ineradicable due to being commonly found in the world.
GH:	All sites are historical; the element has not been seen for at least 20 years, but suitable habitat still exists (SH = All California sites are historical).
GX:	All sites are extirpated; this element is extinct in the wild (SX = All California sites are extirpated).
GXC:	Extinct in the wild; exists in cultivation.
G1Q:	The element is very rare, but there are taxonomic questions associated with it.
T:	Applies to a subspecies or variety.
S1:	Less than 6 EOs OR less than 1,000 individuals OR less than 2,000 acres
S2:	6-20 EOs OR 1,000-3,000 individuals OR 2,000-10,000 acres
S3:	21-80 EOs or 3,000-10,000 individuals OR 10,000-50,000 acres
S4:	Apparently secure within California; this rank is clearly lower than S3 but factors exist to cause some concern; i.e., there is some threat, or somewhat narrow habitat. NO THREAT RANK.
S5:	Demonstrably secure to ineradicable in California. NO THREAT RANK.
Extension 0.1:	Very threatened
Extension 0.2:	Threatened
Extension 0.3:	No current threats known
<b>Source: California Natural Diversity Data Base (CNDDDB) and California Native Plant Society Electronic Inventory (CNPSEI) for Yucaipa, Redlands, Harrison Mountain, and Keller Peak 7.5 minute USGS quadrangles, 2007, and review of previous reports (P &amp; D 2005, Aspen 2006, Chambers Group 2007a, Chambers Group 2007b) as well as the 2007 Chambers Group bio-reconnaissance surveys.</b>	
<b>* All species are assumed ABSENT from the proposed Citrus Reservoir and Citrus Pump Station, due to its proposed location entirely within active citrus orchards.</b>	

### **3.2.3.1 Nevin's Barberry (*Berberis nevinii*)**

This federally and state-listed endangered species is an evergreen shrub that occurs in chaparral, cismontane woodlands, coastal sage scrub, and alluvial sage scrub in sandy or gravelly soils on steep, north-facing slopes or in low-grade sandy washes at elevations between 970 and 2,703 ft. above mean sea level (amsl). Nevin's barberry is threatened by habitat loss associated with development and road maintenance. The flowering period for this species is between March and April.

Marginally suitable habitat exists for this species along all four pipeline Alternatives. Many historical occurrences of Nevin's barberry have been extirpated, none of which have been reported within 5 miles of the four pipeline Alternatives. This species is assumed absent from all areas covered by focused plant surveys. However, since marginally suitable habitat is found over most of the project site, this species has a low potential for occurrence in non-surveyed areas. Focused surveys for Nevin's barberry have not yet been conducted on the entire project site; therefore, it is not possible to make a definitive determination of presence/absence at this time.

### **3.2.3.2 Slender-Horned Spineflower (*Dodecahema leptoceras*)**

This federally and state-listed endangered species is an annual herb that occurs in chaparral, cismontane woodlands, and coastal and alluvial sage scrub communities with sandy soils at elevations between 660 and 2,500 ft. amsl. The slender-horned spineflower is threatened by habitat loss associated with development, flood control projects, and vehicle use. The flowering period for this species is between April and June.

Suitable habitat for this species is present along all four Alternatives, and CNDDDB and CNPSEI records reported this species to occur within 5 miles of the site. Additionally, this species was confirmed present in three locations north of the Santa Ana Wash within Alternative 1 (Aspen 2006), and the potential for it to occur along pipeline Alternatives 2, 3, and 4 is high. Focused surveys for slender-horned spineflower have not yet been conducted on the entire project site; therefore, it is not possible to make a definitive determination of presence/absence at this time.

### **3.2.3.3 Santa Ana River Woollystar (*Eriastrum densiflorum* ssp. *sanctorum*)**

This federally and state-listed endangered species is a perennial herb that occurs in open washes and early successional Riversidean alluvial fan sage scrub or on open slopes above main watercourses with regular flooding and scouring events at elevations ranging from 490 to 2,000 ft. amsl. The Santa Ana River Woollystar is known from one extended, but fragmented population, and it is threatened by habitat loss associated with development, sand and gravel mining, grazing, flood control projects, and competition from non-native invasive plants. The flowering period for this species is between June and September.

Suitable habitat for this species is present on all four Alternatives, and historical records report this species to occur within the vicinity of the proposed project sites. Additionally, this species was confirmed present in fifteen locations within the north-south alignments of Alternatives 1 and 2 just north of the Santa Ana Wash (P & D 2005, Aspen 2006). All of these locations were found within the Woolly Star Preservation Area. Less suitable and naturally disturbed habitat exists for this species along Alternatives 3 and 4; therefore, the potential for this species to occur within these two Alternatives is moderate. Focused surveys for Santa Ana River woollystar have not yet been conducted on the entire project site; therefore, it is not possible to make a definitive determination of presence/absence at this time.

#### **3.2.3.4 Parish's Checkerbloom (*Sidalcea hickmanii* ssp. *parishii*)**

This federal candidate and state-listed rare species is a perennial herb that occurs in chaparral, cismontane woodlands, and lower montane coniferous forests on serpentine soils at elevations between 3,280 and 7,020 ft. amsl. The flowering period for this species is between June and August.

All four pipeline Alternatives are well below the elevation range for this species, and suitable habitat within the project areas is not present. Therefore, this species is assumed absent from all four pipeline Alternatives.

#### **3.2.3.5 Bird-Foot Checkerbloom (*Sidalcea pedata*)**

This federally and state-listed endangered species is a perennial herb that occurs in meadows, seeps, and pebble plains in mesic soils at elevations between 5,249 and 8,200 ft. amsl. The flowering period for this species is between May and August.

All four pipeline Alternatives are well below the elevation range for this species, and suitable habitat within the areas is not present. Therefore, this species is assumed absent from all four pipeline Alternatives.

#### **3.2.3.6 Plummer's Mariposa Lily (*Calochortus plummerae*)**

This CNPS list 1B.2 species is an annual bulbiferous herb that occurs in chaparral, cismontane woodlands, coastal and alluvial sage scrubs, lower montane coniferous forest, and valley and foothill grasslands on granitic or rocky soils at elevations between 330 and 5,560 ft. amsl. The flowering period for this species is between May and July.

Suitable habitat for this species is present on all four pipeline Alternatives, and this species has been confirmed present in five total locations within the project site along Alternatives 1, 2, and 3 (P & D 2005, Aspen 2006). The potential for this species to occur within the fourth pipeline Alternative is high.

#### **3.2.3.7 San Bernardino Mountains Owl's Clover (*Castilleja lasiorhyncha*)**

This CNPS list 1B.2 species is an annual hemiparasitic herb that occurs in chaparral, meadows, seeps, pebble plains, and mesic upper montane coniferous forest on mesic soils at elevations between 4,200 and 7850 ft. amsl. The flowering period for this species is between June and August.

All four pipeline Alternatives are well below the elevation range for this species, and suitable habitat within the areas is not present. Therefore, this species is assumed absent from all four pipeline Alternatives.

#### **3.2.3.8 Smooth Tarplant (*Centromadia pungens* ssp. *laevis*)**

This CNPS list 1B.1 species is an annual herb that occurs in chenopod scrub, meadows and seeps, playas, riparian woodlands, and valley and foothill grassland on alkaline soils at elevations between 0 and 1,575 ft. amsl. The flowering period for this species is between April and September.

Minimally suitable habitat for this species exists within the north-south alignments of Alternatives 1 and 2. However, no occurrences of this species have been reported in the area; therefore, the potential for this species to occur within pipeline Alternatives 1 and 2 is low. Suitable habitat for this species is not present within the Alternative 3 and 4 alignments, and these Alternatives are above the elevation range for this species; therefore, this species is assumed absent from pipeline Alternatives 3 and 4.

### **3.2.3.9 Parry's Spineflower (*Chorizanthe parryi* var. *parryi*)**

This CNPS list 3.2 species is an annual herb that occurs in open chaparral and coastal and alluvial sage scrub habitats on sandy or rocky soils at elevations between 130 and 5,600 ft. amsl. The flowering period for this species is between April and June.

This species was confirmed present in all four pipeline Alternatives during reconnaissance and/or focused plant surveys (P & D 2005, Aspen 2006, Chambers Group 2007b). Several thousand individuals occur along all four Alternatives, primarily in open patches between shrubs with sandy soils where it may be locally abundant. Most occurrences were found along the eastern extension of Alternative 1 (Aspen 2006).

### **3.2.3.10 Parish's Alumroot (*Heuchera parishii*)**

This CNPS list 1B.3 species is an annual rhizomatous herb that occurs in alpine boulder and rock fields, lower montane coniferous forests, subalpine coniferous forests, and upper montane coniferous forests on rocky and sometimes carbonate soils at elevations between 4,930 and 12,500 ft. amsl. The flowering period for this species is between June and August.

All four pipeline Alternatives are well below the elevation range for this species, and suitable habitat within the areas is not present. Therefore, this species is assumed absent from all four pipeline Alternatives.

### **3.2.3.11 California Satintail (*Imperata brevifolia*)**

This CNPS list 2.1 species is a perennial rhizomatous herb that occurs in chaparral, coastal sage scrub, alluvial sage scrub, Mojave Desert scrub, meadows and seeps, and riparian scrub on mesic alkaline soils at elevations between 0 and 1,640 ft. amsl. The flowering period for this species is between September and May.

Marginally suitable habitat exists for this species along pipeline Alternatives 1 and 2. However, no occurrences of this species have been reported in the vicinity of the proposed pipeline Alternatives. Alternatives 3 and 4 are above the elevation range of this species, but Alternatives 1 and 2 are not. Therefore, the possibility for this species to occur within pipeline Alternatives 1 and 2 is low, and this species is assumed absent from pipeline Alternatives 3 and 4.

### **3.2.3.12 Silver-haired Ivesia (*Ivesia argyrocoma*)**

This CNPS list 1B.2 species is a perennial rhizomatous herb that occurs in meadows and seeps, pebble plains, and upper montane coniferous forests on mesic alkaline soils at elevations between 4,900 and 8,800 ft. amsl. The flowering period for this species is between June and August.

All four pipeline Alternatives are well below the elevation range for this species, and suitable habitat within the areas is not present. Therefore, this species is assumed absent from all four pipeline Alternatives.

### **3.2.3.13 Robinson's Pepper-Grass (*Lepidium virginicum* var. *robinsoni*)**

This CNPS list 1B.2 species is an annual herb that occurs in chaparral and coastal and alluvial sage scrub communities in dry, open areas at elevations between 3 and 2,800 ft. amsl. The flowering period for this species is between January and July.

Marginally suitable habitat exists for this species within the project area of all four pipeline Alternatives, and historical records indicate that the species has been found within the vicinity of the project site. Therefore, the potential for this species to occur within the four pipeline Alternatives is moderate.

#### **3.2.3.14 Lemon Lily (*Lilium parryi*)**

This CNPS list 1B.2 species is an annual herb that occurs in lower montane coniferous forests, meadows and seeps, riparian forests, and upper montane coniferous forests in mesic soils at elevations between 4,265 and 8,530 ft. amsl. The flowering period for this species is between July and August.

All four pipeline Alternatives are well below the elevation range for this species, and suitable habitat within the areas is lacking. Therefore, this species is assumed absent from the four pipeline Alternatives.

#### **3.2.3.15 Parish's Bush Mallow (*Malacothamnus parishii*)**

This CNPS list 1A species is a deciduous shrub that occurs in chaparral and sage scrub communities at elevations between 1,000 and 1,500 ft. amsl. The flowering period for this species is between June and July.

Marginally suitable habitat exists for this species within the project areas of pipeline Alternatives 1 and 2, and historical records indicate that the species has not been found within the vicinity of the project site; therefore, the potential for this species to occur within pipeline Alternatives 1 and 2 is low. Additionally, Alternatives 3 and 4 are above the elevation range for this species; therefore, the species is assumed absent from these Alternatives.

#### **3.2.3.16 Hall's Monardella (*Monardella macrantha* ssp. *hallii*)**

This CNPS list 1B.3 species is a perennial rhizomatous herb that occurs in broad-leafed upland forests, chaparral, cismontane woodlands, lower montane coniferous forests, and valley and foothill grasslands at elevations between 2,395 and 7,200 ft. amsl. The flowering period for this species is between June and August.

All four pipeline Alternatives are well below the elevation range for this species, and suitable habitat within the areas is not present. Therefore, this species is assumed absent from the four pipeline Alternatives.

#### **3.2.3.17 Parish's Yampah (*Perideridia parishii* ssp. *parishii*)**

This CNPS list 2.2 species is a perennial herb that occurs in lower montane coniferous forests, meadows and seeps, and upper montane coniferous forests in mesic soils at elevations between 4,806 and 9,842 ft. amsl. The flowering period for this species is between June and August.

All four pipeline Alternatives are well below the elevation range for this species, and suitable habitat within the areas is lacking. Therefore, this species is assumed absent from all four pipeline Alternatives.

#### **3.2.3.18 Parish's Gooseberry (*Ribes divaricatum* var. *parishii*)**

This CNPS list 1A species is a deciduous shrub that occurs in riparian woodlands at elevations between 213 and 984 ft. amsl. The flowering period for this species is between February and April.

All four pipeline Alternatives are well above the elevation range for this species. Therefore, this species is assumed absent from all four pipeline Alternatives.

### **3.2.3.19 Southern Jewel-flower (*Streptanthus campestris*)**

This CNPS list 1B.3 species is a perennial herb that occurs in chaparral, lower montane coniferous forests, and pinyon and juniper woodlands on rocky soils at elevations between 2,952 and 7,550 ft. amsl. The flowering period for this species is between May and July.

All four pipeline Alternatives are well below the elevation range for this species, and suitable habitat within the areas is not present. Therefore, this species is assumed absent from the four pipeline Alternatives.

### **3.2.3.20 Sonoran Maiden Fern (*Thelypteris puberula* var. *sonorensis*)**

This CNPS list 2.2 species is a perennial herb that occurs in meadows and seeps in mesic soils at elevations between 164 and 2,000 ft. amsl. The flowering period for this species is between January and September.

No habitat for this species exists along the four pipeline Alternatives, and no known occurrences of this species have been reported within the vicinity of the site; therefore, this species is assumed absent from all four pipeline Alternatives.

### **3.3 WILDLIFE**

During this survey, Chambers Group biologists recorded at least 84 wildlife species along the proposed corridors. Results included one species of amphibian, four species of reptile, 65 species of bird, and considering the bat sign found in the abandoned buildings of the old Lockheed site (northeast of Crafton and Madeira Avenues), at least fourteen species of mammal (Appendix B-1). Specific wildlife data for each Alternative is found in sub-sections 3.4 through 3.8.

Previous surveys also compiled lists of wildlife species detected. A biological reconnaissance survey conducted on portions of Alternatives 1 and 2 (excluding the Seven W property) during July 2005 detected 27 wildlife species (P & D 2005, Appendix C). Avian surveys conducted on portions of Alternatives 1, 2, and 3 (excluding the Seven W property) from May through August 2006 detected 58 bird species (PCCA 2006, Appendix D). A biological reconnaissance survey conducted on the Seven W Enterprises property during November 2006 detected 28 wildlife species (Chambers Group 2007a, Appendix F). A focused survey for California gnatcatcher conducted on Seven W from August through December 2007 detected seven sensitive bird species (Chambers Group 2007c, Appendix H), and a focused survey for San Bernardino kangaroo rat conducted on the Seven W property during August 2007 also detected an additional seven mammal species (Davenport 2007, Appendix I).

To date, at least 98 species of wildlife have been documented along the project area, including one amphibian, four reptiles, 76 birds, and considering the bat sign found in the abandoned buildings of the old Lockheed site, at least seventeen mammals. A complete species list that incorporates the results of prior surveys is presented as Appendix B-2.

#### **3.3.1 Sensitive Wildlife Species Descriptions and Onsite Occurrences**

To date, sixteen listed and otherwise sensitive wildlife species have been detected onsite. Formally listed species include coastal California gnatcatcher, white-tailed kite, and San Bernardino kangaroo rat. Other non-listed special status species include the two-striped garter snake, American white pelican, great blue heron, snowy egret, Cooper's hawk, northern harrier, Vaux's swift, loggerhead shrike, yellow warbler, Brewer's sparrow, southern California rufous-crowned sparrow, Lawrence's goldfinch, and northwestern San Diego pocket mouse (Figure 7).

Table 4 lists each sensitive wildlife species identified in the literature review and/or field surveys with its potential for occurrence on the project site. Specific results for sensitive wildlife species as they occur along each Alternative are discussed in sub-sections 3.4 through 3.8. Table 4 and the following paragraphs describe all sensitive wildlife species detected to date along the project site as well as all sensitive wildlife species that are known to occur or could potentially occur along the project site.

**Table 4**  
**CNDDDB and Literature Review Results for Sensitive Wildlife Species in the Vicinity**  
**of the Proposed EBX II Project Site**

<b>Scientific Name</b> <b>Common Name</b>	<b>Status</b>	<b>Potential for Occurrence</b>
<b>Federal and State-Listed Species</b>		
<b>Fish</b>		
<b><i>Catostomus santaanae</i></b> Santa Ana sucker	USFWS: <b>FT</b> CDFG: <b>CSC</b>	Alt 1 & 2: Low Alt 3 & 4: Absent
<b>Amphibians</b>		
<b><i>Rana aurora draytonii</i></b> California red-legged frog	USFWS: <b>FT</b> CDFG: <b>CSC</b>	Alt 1 & 2: Low Alt 3 & 4: Assumed Absent
<b><i>Rana muscosa</i></b> mountain yellow-legged frog	USFWS: <b>FE</b> CDFG: <b>CSC</b>	Alt 1, 2, 3, & 4: Assumed Absent
<b>Reptiles</b>		
<b><i>Charina bottae umbratica</i></b> southern rubber boa	USFWS: None CDFG: <b>ST</b>	Alt 1, 2, 3, & 4: Assumed Absent
<b>Birds</b>		
<b><i>Coccyzus americanus occidentalis</i></b> western yellow-billed cuckoo (nesting)	USFWS: <b>FC</b> CDFG: <b>SE</b>	Alt 1, 2, 3, & 4: Assumed Absent
<b><i>Elanus leucurus</i></b> white-tailed kite (nesting)	USFWS: None CDFG: <b>FPS</b>	Alt 1 & 4: <b>Present</b> (Alt 1:nest) Alt 2 & 3: High
<b><i>Empidonax traillii extimus</i></b> southwestern willow flycatcher (nesting)	USFWS: <b>FE</b> CDFG: <b>SE</b>	Alt 1, 2, 3, & 4: Assumed Absent
<b><i>Polioptila californica californica</i></b> coastal California gnatcatcher	USFWS: <b>FT</b> CDFG: <b>CSC</b>	Alt 1,2,& 4: <b>Present</b> (resident) Alt 3: High
<b><i>Vireo bellii pusillus</i></b> least Bell's vireo (nesting)	USFWS: <b>FE</b> CDFG: <b>SE</b>	Alt 1, 2, 3, & 4: Assumed Absent
<b>Mammals</b>		
<b><i>Dipodomys merriami parvus</i></b> San Bernardino kangaroo rat	USFWS: <b>FE</b> CDFG: <b>CSC</b>	Alt 1: <b>Present</b> Alt 2, 3, & 4: High
<b><i>Dipodomys stephensi</i></b> Stephens' kangaroo rat	USFWS: <b>FE</b> CDFG: <b>ST</b>	Alt 1, 2, 3, & 4: Assumed Absent
<b>Other Sensitive Species</b>		
<b>Fish</b>		
<b><i>Rhinichthys osculus ssp. 3</i></b> Santa Ana speckled dace	USFWS: None CDFG: <b>CSC</b>	Alt 1 & 2: Moderate Alt 3 & 4: Absent
<b>Reptiles</b>		
<b><i>Anniella pulchra pulchra</i></b> silvery legless lizard	USFWS: None CDFG: <b>CSC</b>	Alt 1, 2, 3, & 4: Low
<b><i>Aspidoscelis hyperythra</i></b> orange-throated whiptail	USFWS: None CDFG: <b>CSC</b>	Alt 1, 2, 3, & 4: Moderate
<b><i>Lampropeltis zonata parvirubra</i></b> San Bernardino mountain kingsnake	USFWS: None CDFG: <b>CSC</b>	Alt 1, 2, 3, & 4: Low
<b><i>Phrynosoma coronatum blainvillii</i></b> coast (San Diego) horned lizard	USFWS: None CDFG: <b>CSC</b>	Alt 1, 2, 3, & 4: High
<b><i>Thamnophis hammondii</i></b> two-striped garter snake	USFWS: None CDFG: <b>CSC</b>	Alt 1 & 2: <b>Present</b> Alt 3 & 4: Absent

**Table 4 (continued)**  
**CNDDDB and Literature Review Results for Sensitive Wildlife Species in the Vicinity of the**  
**Proposed EBX II Project Site**

<i>Scientific Name</i> Common Name	Status	Potential for Occurrence
<b>Other Sensitive Species</b>		
<b>Birds</b>		
<i>Accipiter cooperii</i> Cooper's hawk (nesting)	USFWS: None CDFG: CSC	Alt 1: <b>Present</b> (nesting status unknown) Alt 2, 3, & 4: High
<i>Aimophila ruficeps canescens</i> southern California rufous-crowned sparrow	USFWS: None CDFG: CSC	Alt 1,2,& 3: <b>Present</b> (resident) Alt 4: High
<i>Ardea herodias</i> great blue heron (rookery site)	USFWS: None CDFG: None	Alt 1: <b>Present</b> (foraging; no rookeries onsite) Alt 2, 3, & 4: High
<i>Athene cunicularia</i> burrowing owl	USFWS: None CDFG: CSC	Alt 1, 2, 3, & 4: Low
<i>Carduelis lawrencei</i> Lawrence's goldfinch	USFWS: None CDFG: None	Alt 1 & 3: <b>Present</b> (nesting status unknown) Alt 2 & 4: High
<i>Chaetura vauxi</i> Vaux's swift (nesting)	USFWS: None CDFG: CSC	Alt 1: <b>Present</b> (migrating) Alt 2, 3, & 4: High
<i>Circus cyaneus</i> northern harrier	USFWS: None CDFG: CSC	Alt 1 & 2: <b>Present</b> (nesting status unknown) Alt 3, & 4: High
<i>Dendroica petechia brewsteri</i> yellow warbler (nesting)	USFWS: None CDFG: CSC	Alt 3: <b>Present</b> (migrating) Alt 1, 2, & 4: Moderate
<i>Egretta thula</i> snowy egret (rookery site)	USFWS: None CDFG: None	Alt 1: <b>Present</b> (foraging; no rookeries onsite) Alts 2, 3, & 4: High
<i>Eremophila alpestris actia</i> California horned lark	USFWS: None CDFG: CSC	Alt 1, 2, 3, & 4: Low
<i>Icteria virens</i> yellow-breasted chat (nesting)	USFWS: None CDFG: CSC	Alt 1, 2, 3, & 4: Assumed Absent
<i>Lanius ludovicianus</i> loggerhead shrike (nesting)	USFWS: None CDFG: CSC	Alt 1, 2, & 3: <b>Present</b> (nesting status unknown) Alt 4: High
<i>Pelecanus erythrorhynchos</i> American white pelican (nesting colony)	USFWS: None CDFG: CSC	Alt 1 & 2: <b>Present</b> (migrating; no nesting colonies onsite) Alt 3 & 4: High
<i>Spizella breweri</i> Brewer's sparrow	USFWS: None CDFG: None	Alt 1 & 4: <b>Present</b> (wintering) Alt 2 & 3: High
<b>Mammals</b>		
<i>Antrozous pallidus</i> pallid bat	USFWS: None CDFG: CSC	Alt 1, 2, 3, & 4: Moderate
<i>Chaetodipus (=Perognathus) fallax fallax</i> northwestern San Diego pocket mouse	USFWS: None CDFG: CSC	Alt 1 & 2: <b>Present</b> Alt 3 & 4: High
<i>Eumops perotis californicus</i> California western mastiff bat	USFWS: None CDFG: CSC	Alt 1, 2, 3, & 4: Moderate
<i>Glaucomys sabrinus californicus</i> San Bernardino flying squirrel	USFWS: None CDFG: CSC	Alt 1, 2, 3, & 4: Assumed Absent

**Table 4 (continued)**  
**CNDDDB and Literature Review Results for Sensitive Wildlife Species in the Vicinity of the Proposed EBX II Project Site**

<b><i>Nyctinomops ferrosaccus</i></b> pocketed free-tailed bat	USFWS: None CDFG: CSC	Alt 1, 2, 3, & 4: Assumed Absent
<b><i>Perognathus alticolus alticolus</i></b> white-eared pocket-mouse	USFWS: None CDFG: CSC	Alt 1, 2, 3, & 4: Assumed Absent
<b><i>Perognathus longimembris brevinasus</i></b> Los Angeles pocket mouse	USFWS: None CDFG: CSC	Alt 1, 2, 3, & 4: Moderate
<b><i>Taxidea taxus</i></b> American badger	USFWS: None CDFG: CSC	Alt 1, 2, 3, & 4: Moderate

<b>Notes:</b>	
<b>Federal Designations (Federal Endangered Species Act, USFWS)</b>	
<b>FE</b>	<b>Federal listed, endangered</b>
<b>FT</b>	<b>Federal listed, threatened</b>
<b>FC</b>	<b>Federal candidate for listing</b>
<b>State Designations (California Endangered Species Act, CDFG)</b>	
<b>SE</b>	<b>State listed, endangered</b>
<b>ST</b>	<b>State listed, threatened</b>
<b>CSC</b>	<b>California Special Concern Species</b>
<b>FPS</b>	<b>California Fully Protected Species</b>
Source: CNDDDB for Yucaipa, Redlands, Harrison Mountain, and Keller Peak 7.5 minute USGS quadrangles, 2007, and review of previous reports (P & D 2005, PCCA 2006, Chambers Group 2007a, Chambers Group 2007c, Davenport 2007).	

## Federal and State-Listed Species

### 3.3.1.1 Santa Ana Sucker (*Catostomus santaanae*) FT, CSC

The Santa Ana sucker is a federally threatened species and a California Species of Concern. This species is endemic to the Los Angeles, San Gabriel and Santa Ana River drainages of Southern California. It prefers sand/rubble/boulder bottom streams with cool, clear water and algal growth. It feeds primarily on algae and detritus, although adults have been known to feed on larval insects as well. It is usually less than seven inches in length and is dark gray on top and whitish below. The sides have a faint pattern of dark blotches and indistinct stripes. Many individuals are known to occur within the San Gabriel River system. In fact, the West, East, and North forks of the San Gabriel River may be the only drainages within the range of the species where it is still fairly common. These forks are designated as southern California arroyo chub/Santa Ana sucker streams in the CNDDDB (CDFG 2004). Santa Ana sucker populations are in decline due to deteriorating environmental conditions associated with urbanization, water diversions, dams, pollution, recreational use, and gravel extraction leading to loss of habitat. Competition and predation by non-native species is also suspected in the decline in abundance and distribution of the Santa Ana sucker.

Although suitable habitat is present along Alternatives 1 and 2 at the Santa Ana Wash, this species has been extirpated from the upper Santa Ana River drainage where it was once present in Fish and Santiago Canyons and in Cajon and City Creeks. It survives now only in the lower portions, mainly in reaches with flows enhanced by treated wastewater discharges (Mt. Roubidoux downstream to a few kilometers below Imperial Highway). However, since flowing water is present year-round and a rainy season could enhance movement of the species, it has a low potential to occur along Alternatives 1 and 2 at the Santa Ana Wash crossing. It is absent from all areas of the project site with no permanent flowing water.

### **3.3.1.2 California Red-Legged Frog (*Rana aurora draytonii*) FT, CSC**

The California red-legged frog is a federally threatened species and a California Species of Concern. It is found from Mendocino County in California south to northwestern Baja Mexico. It may occur in a variety of habitats from near sea level to 8,000 feet in elevation and is strongly associated with permanent sources of water, including cattail and tule marshes, reservoirs, ponds, and streamsides. It prefers deep, still, or slow moving water with low salinity levels and shallow margins or riffle zones. This species may disperse far from water (up to one mile) during and after heavy rain events, and other habitats may include moist woodlands and grasslands from the lowlands through the foothills. It may make seasonal movements into riparian thickets and upland habitats for foraging, and where it may seek small mammal burrows, leaf litter, or other moist areas of refuge for shelter or hibernation. The metamorphosis of this species is slower than most large frog species, requiring 11-20 weeks of permanent water for larval development. Most individuals have a dark mask bordered by a whitish jaw stripe, a reddish-orange venter, and coarse red, yellow, black, and/or gray mottling in the groin. This subspecies of the red-legged frog has experienced dramatic population declines since the late 19<sup>th</sup> century; some estimates claim a 75 percent rate of disappearance from its former range. Threats to this species include habitat loss and predation by non-native species, such as bullfrogs and non-native fishes. In addition, this species was historically exploited as a source of frog legs for human consumption.

Only sub-marginal habitat for this species occurs in areas of Alternatives 1, 2, 3, and 4, and historical records indicate that occurrences of this species in the area are ten miles away. Therefore, this species has a low potential to occur at the Santa Ana Wash crossings of Alternatives 1 and 2 and is assumed absent from the proposed Citrus Pump Station and Citrus Reservoir project areas.

### **3.3.1.3 Mountain Yellow-Legged Frog (*Rana muscosa*) FE, FC, CSC**

The mountain yellow-legged frog is a federally endangered species in the southern part of its range, which includes the San Bernardino, San Jacinto, and San Gabriel Mountains, a federal candidate to the north, and a California Species of Concern throughout the State. It was formerly much more common in southern California, with a historic elevation range that extended from 1,214 feet in Eaton Canyon, Los Angeles County, to over 7,546 feet near Bluff Lake in San Bernardino County; it has since been extirpated from over 99 percent of its former range in southern California. Current known populations occur only in four small tributaries of the upper reaches of the San Jacinto River system in the San Jacinto Mountains and four small streams in the San Gabriel Mountains; fewer than 100 adult individuals may remain in these areas. In addition, a population was documented in 2006 at City Creek in San Bernardino County. It seems to prefer gently sloping banks with rocks and/or vegetation up to the edge of the water (Stebbins 2003) and is most always found within several meters of water, including streams, ponds, lakes, reservoirs, and riparian woodlands at moderate to high elevations. In southern California, it is typically found in steep gradient streams along the chaparral belt, but may range into small meadow streams at higher elevations (Zweifel 1955). The mountain yellow-legged frog is relatively small in size, ranging from two to three inches in length. It is typically drab yellowish to reddish in color with black or brown spots or blotches on the dorsum and yellow along the leg margins. It may emit a garlic-like odor when handled. Steep population declines have been attributed to many factors, including habitat loss, pollution, cattle grazing, ozone depletion, mining activities and tailings pollution, off road vehicle disturbance, public dumping, chytrid fungus outbreaks, fires, excessive flooding, and non-native species predation. Predators include non-native bullfrogs, turtles, trout and other fish; it seems to be most successful where predatory fish are absent (Bradford 1989, Bradford et al. 1993, in press).

Although riparian habitat exists along Alternatives 1 and 2 at the Santa Ana Wash crossing and several other water features occur elsewhere, the project site does not contain the typical montane habitat of this species, and no known populations are known to exist near the project site. Another factor to consider for its potential of occurrence is its extremely low regional population. Therefore, this species is assumed absent from all four Alternatives and the proposed pump station and reservoir.

#### **3.3.1.4 Southern Rubber Boa (*Charina bottae umbratica*) ST**

The southern rubber boa is a state-listed threatened species. It is only found in a few disconnected montane areas of the San Bernardino, San Jacinto, and Tehachapi mountains of Southern California. It inhabits grasslands, broken chaparral, oak-conifer, mixed-conifer, and other woodlands at elevations from around 5,000 to 10,000 feet, often near streams or wet meadows. It tends to occur in loose, moist soils suitable for burrowing where rocks, logs, bark, and other debris offer ample shelter opportunities. The southern rubber boa is a small constrictor up to three feet long with a stout body, and a blunt head and tail that lend to its rubbery appearance. With coloration ranging from pinkish tan to olive green to shades of brown above, it is generally uniform in color on its dorsal side and lighter on its ventral side. The southern rubber boa is a good swimmer, burrower and climber that takes a variety of prey items, including mice, shrews, gophers, birds, salamanders, lizards, and other snakes (Stebbins 2003). Although it is fairly common in its range, the southern rubber boa is considered a threatened species primarily due to the continued development and habitat degradation within its limited range.

Suitable habitat to support this species was not present on the project site, and the elevation is well below that required by the species. Therefore, it is assumed to be absent from the project site.

#### **3.3.1.5 Western Yellow-Billed Cuckoo (*Coccyzus americanus occidentalis*) FC, SE**

The western yellow-billed cuckoo (nesting) is a federal candidate for listing and a state-listed endangered species. The yellow-billed cuckoo is found primarily in the eastern U.S., but this subspecies is an extremely rare and localized summer resident of the southwestern U.S. Historically, it was found commonly throughout the Central Valley and California coastline until the early 20<sup>th</sup> century. This subspecies primarily inhabits mature, open riparian woodlands along the broad, lower flood-bottoms of larger river systems. Habitat features usually include some relatively open patches and intermixed low, dense, scrubby vegetation typical of these watercourses. In the southwestern U.S., the western yellow-billed cuckoo also occupies desert riparian woodlands composed of willows (*Salix* spp.), Fremont cottonwoods (*Populus fremontii*), and dense mesquite (*Prosopis* spp.). It typically nests in willows and forages more so among the cottonwoods and other trees. Its diet includes caterpillars, grasshoppers, other large insects, frogs, and some small lizards. It is a medium-sized bird with a brown back, a yellow, decurved bill, and a long grey-brown tail with distinctive white spots on the outer retrices. Populations of the western yellow-billed cuckoo in California were decimated before the mid-20<sup>th</sup> century by the extensive loss of riparian habitat to agriculture, grazing, and development as well as by heavy pesticide use, and they have not rebounded since that time (Hughes 1999).

Riparian areas suitable for the nesting of this species were not present along any of the pipeline Alternatives and the other proposed facilities at the time of the survey; therefore, this species is assumed absent. In addition, protocol surveys conducted in 2006 for the least Bell's vireo would have detected the yellow-billed cuckoo if it were present onsite.

#### **3.3.1.6 White-Tailed Kite (*Elanus leucurus*) FPS**

The white-tailed kite (nesting) is a California Fully Protected Species. In the U.S., its range extends along the Pacific coast from southwest Washington through California and also includes south-central Arizona, south Texas, and south Florida. It also occurs in Mexico and Central America. In California, it is a resident and localized migrant of the Central Valley and Pacific Coast. There has been evidence in recent years to suggest that the range of this species is increasing, although erratic shifts in the distribution of this species are not uncommon. It inhabits low to moderate elevation grasslands, savannahs, agricultural areas, wetlands, oak woodlands, and riparian woodlands and usually breeds in open areas with scattered trees, often near water. The white-tailed kite is a medium-sized raptor with a white head, grey back, long white tail, and large black scapulars. It forages often by "kiting", or hovering in one area while scanning the ground for potential prey. Its diet includes primarily small mammals, but it

will also take large insects, amphibians, and lizards. Degradation or loss of grassland habitat to development or ranching is a severe threat to populations (Dunk, 1995). Historic population declines may be attributed to chemical poisoning.

PCCA documented a nesting pair of white-tailed kites in 2006 near the north portion of Alternative 1 (PCCA 2006) (Figure 7). The Chambers Group bio-reconnaissance survey of Alternative 4 also revealed one adult and one juvenile along its central and western portions, where they were observed perching on sycamore and cottonwood trees (Figure 7). Substantial suitable breeding habitat remains in many areas of the pipeline Alternatives for this species. Therefore, it has a high potential to occur along the other Alternatives, and has a high potential to breed in future years on the project site.

### **3.3.1.7 Southwestern Willow Flycatcher (*Empidonax traillii extimus*) FE, SE**

The southwestern willow flycatcher (nesting) is a federally endangered and state endangered subspecies of willow flycatcher whose summer breeding range includes southern California (from the Santa Ynez River south), Arizona, New Mexico, extreme southern portions of Nevada and Utah, extreme southwest Colorado, and western Texas (USFWS 1995). Records of probable breeding southwestern willow flycatchers in Mexico are rare and restricted to extreme northern Baja California del Norte and Sonora (USGS 2007). The largest California populations occur along the Santa Margarita, San Luis Rey, and South Fork Kern River systems. It is known to breed in a variety of riparian habitats with multi-tiered canopies and surface water and/or saturated soils, whether along streams in broad valleys, in canyon bottoms, around mountain-side seepages, or at the margins of ponds and lakes (Grinnell and Miller 1944). Where willow species dominate, high foliage-volume willow cover is preferred, but with willow patches separated by openings (Harris et al. 1988). Habitat types may include a variety of willow (*Salix* spp.), cottonwood (*Populus* spp.), coast live oak (*Quercus agrifolia*), alder (*Alnus* spp.), and tamarisk (*Tamarix* spp.) woodlands. It is safely distinguished from other members of its genus only by its characteristic “fitzbeu” song and breeding area. It is a relatively non-descript flycatcher with a dark back, two faint wing bars, yellow lower mandible, faint wash of yellow on the belly, and little to no eye ring. It forages for insects on the wing, and embarks on short flights from favorite perches to catch the flying insects. While perched, it characteristically flicks its tail upwards on occasion. This species is in decline primarily due to extensive habitat loss and brood parasitism by the brown-headed cowbird (*Molothrus ater*). In the early 1980’s, the southwestern willow flycatcher population in California was estimated to be less than 80 pairs (Unitt 1987). Current annual population estimates are between 300 and 500 known breeding locations.

Riparian habitats suitable for the nesting of this species were not present on the project site at the time of the Chambers Group surveys, and the PCCA 2006 survey was negative; therefore, this species is assumed absent from all four pipeline Alternatives and proposed facilities.

### **3.3.1.8 Coastal California Gnatcatcher (*Poliioptila californica californica*) FT, CSC**

The coastal California gnatcatcher is a federally threatened species and a California Species of Concern. The historic range of this species extended from the coast and foothills of Ventura County, south through Los Angeles, southwestern San Bernardino, western Riverside, Orange, and San Diego Counties of California into northwestern Baja California, Mexico. Populations have since become increasingly fragmented. It is a permanent resident of Diegan, Riversidean, and Venturan sage scrub sub-associations found from sea level to 2,500 feet in elevation. Within its range, it associates strongly with California sagebrush (*Artemisia californica*) dominant habitats and also occurs in mixed scrub habitats with lesser percentages of this favored shrub. Other plant species important for the nesting and foraging of this species include California buckwheat (*Eriogonum fasciculatum*), white sage (*Salvia apiana*), black sage (*Salvia mellifera*), and chaparral broom (*Baccharis sarothroides*). Chamise, habitats may also support breeding pairs, especially where coastal sage scrub may occur nearby or form a component. The coastal California gnatcatcher is a small, secretive songbird with grayish coloration and faint white

outer tail margins. Males of this species exhibit a black cap during the breeding season. This insectivorous bird nests and forages in moderately dense stands along gentle slopes, arid hillsides, mesas, foothills, and alluvial washes. It gleans a variety of insects within its territory, including caterpillars and other larval insects. It builds a cup nest in suitably dense shrubs and lays four eggs, on average. Both parents participate in all stages of nest-building and rearing of the young. Most studies with large numbers of individually marked gnatcatchers have found home range sizes in excess of ten acres (Mock et al. 1990). Non-breeding season home ranges may be about 80 percent larger than breeding season home ranges (Preston et al. 1998a, Bontrager 1991). Contributing factors in the decline of this species include overly frequent fire cycles, non-native plant invasions, brown-headed cowbird (*Molothrus ater*) nest parasitism, predation, and widespread habitat loss to urbanization and agriculture. Rangewide habitat loss is estimated at 75 to 90 percent (Westman 1981), and the populations that remain are under increasing pressure from development. In 1990, the population of California gnatcatchers was estimated at less than 2,000 pairs (Atwood 1990). Current estimates range between 3,000 and 5,000 breeding pairs, which are largely dependent upon rainfall cycles.

The project site lies within Critical Habitat designated by the USFWS. Suitable habitat for this species is present along most portions of Alternatives 1, 2, 3, and 4. In addition, this species was found to be present in areas along Alternatives 1 and 2 during surveys conducted by P & D (2005) (one location) and PCCA (2006) (at least nine locations) during two breeding seasons. Chambers Group found two additional locations during separate surveys along Alternatives 1 and 4 in the 2007 non-breeding season (Chambers Group 2007c) (Figure 7). No habitat for this species exists within the proposed Citrus Pump Station and Citrus Reservoir project areas. Therefore, this species is present along portions of Alternatives 1, 2, and 4, has a high potential to occur along Alternative 3, and due to a lack of sage scrub habitat, is assumed absent from the Citrus Pump Station and Citrus Reservoir project areas.

### **3.3.1.9 Least Bell's Vireo (*Vireo bellii pusillus*) FE, SE**

The least Bell's vireo (nesting) is a federally and state-listed endangered subspecies of the Bell's vireo. The breeding range of the species extends from North Dakota to Indiana, south through Arkansas and Texas, and west to southern New Mexico, Arizona, California, and northern Mexico. However, the least Bell's vireo subspecies is restricted to coastal California and Baja California, Mexico, and a few inland populations. Its winter range extends along the Pacific coast from northern Mexico south to northern Nicaragua. It is a small gray songbird with two faint wingbars and a faint eyering, and is whiter below. This species prefers to nest in low, dense, scrubby vegetation in early successional areas and is particularly dependent on corridors of habitat along rivers and streams. Habitats may include willow woodlands and dense mule fat, scrub oak, coastal chaparral, and mesquite patches with dense early successional understories. It builds a suspended cup nest about 0.5 to 2.0 meters above the ground and, on average, lays four eggs. It may produce two broods per season. On the breeding grounds, the least Bell's vireo feeds primarily on insects and small spiders that it gleans from twigs and leaves. The two major factors in the decline of least Bell's vireo populations are loss of habitat and nest parasitism by the brown-headed cowbird (*Molothrus ater*). Habitat loss and degradation, especially along streams and rivers due to development, agriculture, flood control projects, logging operations, and intensive cattle grazing practices, are the greatest threats to the continued existence of the least Bell's vireo. Overgrazing has been estimated to reduce nesting sites by 50 percent in some areas, and it has contributed to an increase in non-native invasive plant species that do not typically support the breeding of this species. Cowbird nest parasitism is also an important factor in population declines; the cowbird lays its egg in an unsuspecting vireo nest, which the vireo then may raise as its own. The cowbird egg hatches earlier than the vireo eggs, the chick then grows much larger in less time, eventually out-competing the vireo chicks and causing nest failure. Fragmentation of habitat also increases cowbird nest parasitism by artificially creating favored habitats of cowbirds, and it isolates small, fringe vireo populations. In turn, these populations are more susceptible to localized extirpations, contributing to large-scale range reductions. Domestic and feral cats are also a large predatory force in some areas. Despite historic population losses, recent trends indicate that populations are on the rise and that the least Bell's vireo is returning to parts of its former range, as well as colonizing some new areas.

Although marginally suitable breeding habitat occurs within the project site, the least Bell's vireo was not detected during the PCCA protocol surveys (2006). Therefore, this species is assumed to be absent from the project site.

### **3.3.1.10 San Bernardino Kangaroo Rat (*Dipodomys merriami parvus*) FE, CSC**

The San Bernardino kangaroo rat is a federally endangered species and a California Species of Concern. Its historic range included over 300,000 acres of alluvial sage scrub in San Bernardino and Riverside Counties in California. Its current range includes approximately 3,240 acres of suitable habitat, fragmented in about seven distinct populations. It prefers gravelly and sandy soils in alluvial habitats where it constructs underground burrows and rarely occurs in dense vegetation. This species is a small, nocturnal rodent with pale yellow and dusky brown fur, and dark brown tail stripes, footpads, and tail hairs. Unlike most kangaroo rats, it is active year-round. It can live indefinitely without water, subsisting on dry seeds that it often stores in its burrows for later consumption. It also consumes some green vegetation and insects when available. The primary threats to the continued existence of this species include habitat loss, degradation, and fragmentation due to developments related to housing, mining, and flood control.

The project site lies within Critical Habitat designated by the USFWS. Numerous burrows and scats were found within the project area along the north-south alignments of Alternatives 1 and 2 near the Santa Ana Wash crossing during an initial site visit conducted by Stephen Montgomery, a USFWS permitted biologist who has previous experience trapping the San Bernardino kangaroo rat in the vicinity of the project area. This species was later found present during focused trapping surveys along Alternative 1 within the Seven W Enterprises property (Davenport 2007) and has a high potential to occur along the more open portions of all four Alternatives (Figure 7). Due to a lack of suitable habitat and the presence of exclusionary fencing, this species is assumed to be absent within the proposed Citrus Pump Station and Citrus Reservoir project areas.

Davenport Biological Services conducted a protocol trapping survey for San Bernardino kangaroo rat on the Seven W Enterprises property during August of 2007 (Davenport 2007, Appendix I). The survey detected the presence of sixteen individual San Bernardino kangaroo rats. With the exception of recently graded areas and thick patches of sage scrub and chaparral, the species occurred throughout the undeveloped portions of the parcel.

### **3.3.1.11 Stephens' Kangaroo Rat (*Dipodomys stephensi*) FE, ST**

The Stephens' kangaroo rat is a federally endangered and state threatened species. Current populations exist only in the San Jacinto Valley, western Riverside County, and northwestern San Diego County, California. This species generally occurs in both non-native and perennial grasslands with sparse perennial vegetation, as well as in sparse coastal sage scrub and sagebrush communities with sparse canopy coverage. Plant species may include buckwheat (*Eriogonum* spp.), chamise, brome grasses (*Bromus* spp.), and filarees (*Erodium* spp.). Although it can burrow into firm soil, it prefers areas with well-drained, gravelly or sandy soils for digging its burrows. It can live indefinitely without water, subsisting on dry seeds that it often stores in its burrows for later consumption. It also consumes some green vegetation and insects when available. This species physically resembles other kangaroo rat species with long hind legs, small front legs and feet, brown upper parts, a white belly, and a long, tufted tail. Stephens' kangaroo rat is threatened by the continued destruction, fragmentation, and degradation of its habitat through human and human-induced activities, such as the clearing of land for urban and suburban development, agriculture, water projects, military activities, wildland or prescribed fires, off-road vehicle use, and to a lesser degree, by livestock grazing and the invasion of non-native plant species.

Although habitat for this species exists along the project site, the site exists slightly outside of the known range for this species. Therefore, this species is assumed to be absent from the project site. In addition, this species was not captured during protocol San Bernardino kangaroo rat trapping surveys conducted within the Seven W Enterprises property (Davenport 2007).

## **Special Status Species**

### **3.3.1.12 Santa Ana Speckled Dace (*Rhinichthys osculus* ssp. 3) CSC**

The Santa Ana speckled dace is a California Species of Concern. Although once widely distributed in the Santa Ana, San Gabriel, and Los Angeles River systems, the speckled dace currently has a very limited distribution in the headwaters of the San Gabriel and Santa Ana Rivers. Many individuals are known to occur within the San Gabriel River system. The West, North, and East forks of the San Gabriel River are considered the best remaining habitat for the Santa Ana speckled dace. Found only in permanent flowing streams with summer water temperatures of 17-20° C, it usually inhabits shallow cobble and gravel riffles within its river systems. This small, slender fish species is cryptically colored to mimic its stream substrates. It primarily eats algae, but will also take small insects and larval insects as well. Threats to this species include predation by non-native fishes and bullfrogs, water diversion projects, and flood control operations.

Since this species is historically known to occur in the Santa Ana River and flow conditions and substrate types are conducive for this species, it has a low potential to occur along Alternatives 1 and 2 at the Santa Ana Wash crossing.

### **3.3.1.13 Silvery Legless Lizard (*Anniella pulchra pulchra*) CSC**

The silvery legless lizard is a California Species of Concern. Its range extends from the San Francisco Bay in California to northwestern Baja California, Mexico, and it can also be found on a few offshore islands of California. This species is found in chaparral, pine-oak woodlands, riparian woodlands, and also on beaches from sea level to around 5,100 feet. It occurs less commonly in desert scrub. Within these habitats, it prefers loose soils or sand for burrowing, moisture, warmth, and plant cover (Stebbins 2003). It forages in leaf litter during the day for insects, such as termites, spiders, beetles, and larvae. On warm evenings, it may emerge to forage during the night. This legless lizard has a silver, gray, or beige dorsal coloration with a dark mid-dorsal line and is yellow below. The primary threats to the continued existence of this species include habitat loss due to agriculture and urban sprawl, overabundant non-native vegetation (i.e., iceplant on sand dunes), sand mining operations, off-road vehicle use, and other anthropogenic disturbances, including trampling and over-collecting for the pet trade.

Although suitable substrates are found within the project site, these soils are generally drier than those preferred by the species and leaf litter concentrations are relatively few. In addition, this species is not currently known to occur within five miles of the project site; therefore, this species has a low potential to occur within the project site.

### **3.3.1.14 Orange-Throated Whiptail (*Aspidoscelis hyperythra*) CSC**

The orange-throated whiptail is a California Species of Concern. This species is found from San Bernardino County, California throughout to Baja California, Mexico. It frequents sandy washes, alluvial floodplains, rocky hillsides, and vegetation communities that provide both open territory and adequate shading. This species is often associated with California buckwheat, California sagebrush (*Artemisia californica*), black sage (*Salvia mellifera*), white sage (*Salvia apiana*), chamise (*Adenostema fasciculatum*), and redshank (*A. sparsifolium*) sage scrub and chaparral habitats. Due to similar habitat

requirements, it typically occurs in association with the San Diego horned lizard (*Phrynosoma coronatum blainvillii*). Hibernation sites occur on well-insolated, south-facing open slopes that are often adjacent to terraces with woody perennials. The orange-throated whiptail is a moderately sized, gray, reddish brown, dark brown, or black lizard with five to seven pale yellow or tan stripes along each side. The top of the head has a yellow-brown to olive gray, single, fused frontoparietal scale. Undersurfaces are yellowish white, often with gray or bluish slate on the belly. Adults have varying degrees of red-orange wash that may occur on all undersurfaces. The latter is especially prominent on the throat and chest in breeding males. In hatchlings and juveniles, the tail is a highly visible bright blue. Prey items include a variety of insects and spiders. The primary threat to the continued existence of this species is habitat loss.

Since suitable habitats exist throughout the project site, and this species is known to occur within five miles of the project site, it has a moderate potential to occur within the project site.

### **3.3.1.15 San Bernardino Mountain Kingsnake (*Lampropeltis zonata parvirubra*) CSC**

The San Bernardino Mountain kingsnake is a California Species of Concern. This California endemic is restricted to the San Gabriel, San Bernardino, and San Jacinto mountains of southern California. It occurs in well-illuminated canyons with rocky outcrops or rocky talus in association with bigcone spruce (*Pseudotsuga macrocarpa*) and various canyon chaparral species at lower elevations, and with black oak (*Quercus kelloggii*), incense cedar (*Calocedrus decurrens*), Jeffrey pine (*Pinus jeffreyi*), and ponderosa pine (*Pinus ponderosa*) at higher elevations. The San Bernardino Mountain kingsnake is a medium-sized (21-44 inches total length) snake with a distinctive sequence of red, black, and white rings. The relatively narrow white rings are always bordered by black rings, and red coloration, which can occur as rings or bands, borders alternate black rings. The number of tricolored rings on the body (except the tail) ranges from 35 to 48, and between 4 percent and 100 percent of the red rings are complete. The snout is jet black and the iris is very dark brown. It eats a variety of prey, including birds, eggs, and nestlings, lizards, snakes, and small mammals. The primary threats to this species include habitat loss and over-collection for the pet trade.

Although the habitats found onsite are marginally suitable for this species, the elevations and topography are generally not suitable for this species. The nearest known occurrence is over five miles from the project site; therefore, this species has a low potential to occur within the project site.

### **3.3.1.16 Coast Horned Lizard (*Phrynosoma coronatum blainvillii*) CSC**

The coast (=San Diego) horned lizard is a California Species of Concern. It occurs from the Transverse Ranges in Kern, Los Angeles, Santa Barbara, and Ventura counties southward throughout the Peninsular Ranges of southern California to Baja California, Mexico as far south as San Vicente. It is found in a wide variety of habitats including coastal sage scrub, annual grasslands, chaparral, oak woodlands, riparian woodlands, and coniferous forests. It is perhaps most abundant in riparian and coastal sage scrub habitats on old alluvial fans of the southern California coastal plain. In foothill and mountain habitats that are covered with dense brush or other vegetation, the species is largely restricted to areas with pockets of open microhabitat; this habitat structure can be created by natural events, such as fire and floods or human-created disturbances, such as livestock grazing, fire breaks, and road construction. The key elements of these microhabitats are loose, fine, sandy soils, an abundance of native ants, open areas for basking, and low, but relatively dense shrubs for refuge. The coast horned lizard is a moderately-sized, dorso-ventrally flattened lizard with five backwardly projecting head spines, a large shelf above each eye, large, convex, smooth scales on the forehead, and two parallel rows of pointed scales fringing each side of the body. No stripes radiate from the eyes, and the iris is black. The dorsal color is highly variable, but typically gray, tan, reddish-brown, or whitish, and usually resembles the prevailing soil color, while the venter is yellow to white with discrete, dark spots. Its diet is almost entirely composed of ants, especially harvester ants, but it will take other insects on an opportunistic basis. The primary threat to the continued

existence of this species is habitat loss. Other threats include non-native ants, (especially Argentine ants (*Linepithema humile*), and disturbances related to off-road vehicles.

Since suitable habitat occurs throughout the project site, and known occurrences exist within five miles, this species has a moderate potential to occur along the project site.

### **3.3.1.17 Two-Striped Garter Snake (*Thamnophis hammondi*) CSC**

The two-striped garter snake is a California Species of Concern. It is found in disjunct populations from the San Francisco area in California to northwest Baja California, Mexico. Additional populations occur several hundred miles further to the south in Baja California. It is found in or near permanent and intermittent freshwater, habitats include streams, rivers, ponds, and small lakes from sea level to around 8,000 feet. Oak woodlands, brushlands, sparse coniferous forests, and riparian forests may surround its watery realm. It is recognized by its lack of a mid-dorsal stripe, and coloration is usually olive or brownish above and dull yellow to orange-red or salmon below. Intergrading color morphs are common. This highly aquatic snake is most active at dusk or at night, but it may also forage by day. Its diet includes tadpoles, toads, frogs, small fish, earthworms, California newt (*Taricha torosa torosa*) larvae, and aquatic eggs. The two-striped garter snake is a live-bearing species that gives birth to up to 36 young at a time. The historic range of this species has been lost to housing, urban development, and other human impacts by an estimated 40 percent (Stebbins 2003).

During the Chambers Group bio-reconnaissance surveys, a two-striped garter snake was identified in the Santa Ana Wash crossing along Alternatives 1 and 2 (Figure 7). This species is assumed absent from Alternatives 3 and 4 and the proposed pump station and reservoir sites, as sufficient aquatic habitat did not exist onsite at the time of the Chambers Group surveys.

### **3.3.1.18 Cooper's Hawk (*Accipiter cooperii*) CSC**

The Cooper's hawk (nesting) is a California Species of Concern. This species occurs as a migrant and/or resident over most of the U.S. from southern Canada to northern Mexico. Favored habitats include open woodlands, mature forests, woodland edges, and river orchards. More recently, the Cooper's hawk is known to breed in suburban and urban areas with similar tree structure to native habitats. This medium-sized (i.e., 14-20 inches) hawk is well-adapted for hunting birds as prey with its long tail and short, rounded wings; these features allow maneuverability in pursuit and on the ambush. It is similar in appearance to the sharp-shinned hawk (*Accipiter striatus*), but is distinguished by its larger size, more rounded tail, and darker crown. In addition to birds, it may also take amphibians, reptiles, and small mammals as supplemental prey items. Historic population losses resulted from the widespread use of DDT. Other threats include habitat loss and illegal hunting (Remsen 1978).

The Cooper's hawk has been documented on several occasions along pipeline Alternative 1 (PCCA 2006, Chambers Group 2007c). This species has been observed in sage scrub associations as well as the adjacent citrus orchards near the north end of Opal Avenue. It has also been observed foraging within the Seven W Enterprises property in the developed/natural ecotone (Figure 7). At least one or two individuals appear to permanent residents of the area. This species could potentially breed on the project site and/or include a portion of the site as breeding territory. It has a high potential to occur along the remainder of the project site.

### **3.3.1.19 Southern California Rufous-Crowned Sparrow (*Aimophila ruficeps canescens*) CSC**

The southern California rufous-crowned sparrow is a California Species of Concern. It is one of seventeen recognized subspecies of the rufous-crowned sparrow, whose overall range includes parts of California, Arizona, New Mexico, Texas, Oklahoma, and Arkansas, as well as Mexico. However, this

subspecies is a resident of southwest California on the slopes of the Transverse and Coastal ranges from Los Angeles County south to Baja California Norte; it can also be found on San Martin Island. Habitats include broken sage scrub and chaparral, native grasslands with sparse shrubs, and rocky, brushy hillsides and canyons with open patches. It is a small non-descript sparrow with a rusty crown, white eye-ring, dark whisker marks, and a flat-headed appearance. It is a secretive species that is more often heard than seen as it forages among the shrubs. Habitat loss is the primary factor in the decline of the southern California rufous-crowned sparrow.

The southern California rufous-crowned sparrow has been observed along Alternatives 1, 2, and 3 and is a relatively common permanent resident of the area. Previous surveys as well as the Chambers Group surveys have detected the species onsite (PCCA 2006, Chambers Group 2007c) (Figure 7). It has a high potential to occur along Alternative 4, but is assumed absent from the proposed reservoir and pump station due to a lack of habitat.

### **3.3.1.20 Great Blue Heron (*Ardea herodias*)**

The great blue heron (rookery site) is considered a Least Concern Species by the World Conservation Union and a Sensitive Species by the California Department of Forestry. It is one of the most widespread wading birds, found from southern Alaska and central Canada southward to Central America and the Caribbean. It winters from southern Canada southward to northern South America, and along the coasts as far north as Alaska and Nova Scotia. It is a colonial nester in tall trees, cliffsides, and sequestered spots in marshes along calm freshwater areas and seacoasts. The rookery site is typically located in proximity to foraging sites, which include marshes, lake margins, tide-flats, rivers, streams, and wet meadows. The great blue heron is a large, bluish gray bird with long legs and a long S-shaped neck. It has a long thick bill and a white stripe on its crown, with a black plume extending from behind the eye off the back of the neck. Great blue herons and their communal rookery sites can be negatively affected by anthropogenic disturbances and loss of wetland habitats.

The great blue heron was observed onsite by PCCA and Chambers Group biologists (PCCA 2006) (Figure 7). Chambers Group documented the location of a foraging individual within Mill Creek near the Crafton Hills Pump Station along Alternative 1. This individual was later seen flying downstream. No heron rookeries were observed anywhere on the project site, breeding potential is assumed absent, and the potential for this species to occur as a foraging individual over the remainder of the Alternatives is high.

### **3.3.1.21 Burrowing Owl (*Athene cunicularia*) CSC**

The burrowing owl is a California Species of Concern. It breeds in open plains from southern Canada and the western United States to Baja and central Mexico (Johnsgard 1988); another population occurs in southern Florida. It is found year-round in the southwestern states south of San Francisco through Baja California and central Mexico. It is a common year-round resident of the Salton Sea and Imperial Valley (Garrett and Dunn 1981). Population densities in Imperial County are the highest compared to any other county in California County. This species inhabits dry, open, annual or perennial short grasslands, deserts, treeless plains, coastal dunes, rangelands, scrublands and occasionally, urban areas characterized by low-growing vegetation (Haug et al. 1993). It may occupy golf courses, cemeteries, road rights-of way, airstrips, abandoned buildings, irrigation ditches, and vacant lots with holes or cracks suitable for use as burrows (Haug et al. 1993). It primarily occupies small mammal burrows, particularly ground squirrel, for subterranean shelter and nesting. When burrows are scarce, the burrowing owl may use man-made structures, such as openings beneath cement or asphalt pavement, pipes, culverts, and nest boxes (Robertson 1929). One burrow is typically selected for use as the nest; however, satellite burrows are usually found in the immediate vicinity of the nest burrow within the defended territory of the owl. Most burrows around the Salton Sea are found along irrigation banks and canals (Garrett and Dunn 1981). Breeding typically occurs from March through August, with peak periods in May and July. The

burrowing owl is a small, ground-dwelling owl with a round, grey-brown, tuftless head, long and bare yellow legs, bright yellow iris, brown back, and buffy-white underparts with brown barring. Insects form the bulk of its diet, but small mammals are also occasionally taken. Threats to burrowing owl populations include the loss of habitat to urban development and agriculture, and the destruction of burrows and indirect poisoning via rodent eradication efforts (Collins 1979, James and Espie 1997, Remsen 1978).

Since the nearest known occurrence for this species is over five miles from the project site, and habitat is only marginally suitable in portions of the project site, this species has a low potential to occur within the project site.

### **3.3.1.22 Lawrence's Goldfinch (*Carduelis lawrencei*)**

The Lawrence's goldfinch (nesting) is not a listed species, but it is considered rare in California. It appears on the Watch lists of several conservation groups. It breeds in the foothills surrounding the Central Valley of California and in the coastal Californian foothills from Contra Costa County south to Santa Barbara County. In southern California, it is rarely found at higher elevations of the Colorado Desert and was also found historically in the lower Colorado River Valley. It inhabits arid and open woodlands near chaparral or other bushy areas, tall annual grasslands, and tends to associate with sources of water. Its nesting grounds are frequently dominated by live oaks (*Quercus* spp.) and blue oaks (*Quercus douglasii*) and may also use riparian woodlands, coastal scrub, or broadleaf evergreen forests (Davis, 1999). The Lawrence's goldfinch is a small, grey-backed finch with a conical bill and yellow washes on the breast and wings. The male has a black "mask" covering the lores and chin. The female has similar features but does not have a mask and has duller yellow markings. Unlike many wildlife species, the Lawrence's goldfinch may benefit from non-intensive human activities that increase annual plant populations, consequently providing food for the species. However, the small relative abundance of the species may make it more susceptible to habitat loss.

Several Lawrence's goldfinch individuals were identified during the Chambers Group bio-reconnaissance survey along Alternatives 1 and 3 and within Seven W (Chambers Group 2007c) (Figure 7). All observations were of pairs or of small mixed flocks containing up to eight individuals. While all observations have occurred during the non-breeding season, suitable breeding habitat exists onsite, and its breeding status on the site is uncertain at this time. It has a moderate potential to occur along the remainder of the project site.

### **3.3.1.23 Vaux's Swift (*Chaetura vauxi*) CSC**

The Vaux's swift (nesting) is a California Species of Concern. The breeding range of this species extends along the Pacific coast from southeast Alaska to central California, and as far inland as western Montana. It winters from eastern and western Mexico south to Panama and, disjunctly, on the Yucatan Peninsula and in northern Venezuela (Bull and Beckwith 1993). Migrants occur throughout California, primarily from mid-April to late May in spring, and from late August to mid-October in fall. It occurs in the open sky over foothills, burnt forests, woodlands, lakes, and rivers. This species nests primarily in hollow live trees and forages aerially for insects on the wing. Roosting migrants require some kind of shelter. If available, hollow structures, such as decayed or burned trees, chimneys, barns, outbuildings, or building shafts, are used as roost sites (Bull and Beckwith 1993). If such protection is not available, it may cling to tree trunks on cold nights (Stager 1965), huddling together to reduce thermal stress. The Vaux's swift is dark gray overall with no contrasting markings and a short, stubby tail. Its blunt-ended, cylindrical body and stiff wings give rise to the description "a cigar with wings". Although the Vaux's swift is very similar in appearance to the chimney swift, it can be distinguished by its slightly lighter color and by its characteristic high, insect-like trilling and rapid weak chips as opposed to the loud, staccato chipping calls of the chimney swift. The chief cause of population declines is thought to be the felling of old growth forests and replacement with young, even-aged stands; this deprives swifts of available nest and roost sites (Bull and Beckwith 1993). Man-made structures such as chimneys are used for nest sites in parts of

the breeding range; changes in chimney design and blocking of chimney entrances by screens and spark arresters may eliminate potential nest sites (Bull and Beckwith 1993). A potential threat to migrants is the loss of important, traditional roost sites.

One Vaux's swift was seen in migration along Alternative 1 within Seven W Enterprises (Chambers Group 2007c). The potential for this species to occur as a migrant or as a foraging species over the remainder of the project site is high. It is assumed absent from the project site as a breeding species.

#### **3.3.1.24 Northern Harrier (*Circus cyaneus*) CSC**

The northern harrier is a California Species of Concern. This species includes almost all of North America within its range and extends into South America. True to its nickname, the "marsh hawk", habitats include wetlands, marshy meadows, boglands, pasturelands, wet grasslands, old fields, tundra, open riparian woodlands, and freshwater and brackish marshes. It also occurs on dry uplands, including upland prairies, mesic grasslands, drained marshlands, croplands, and cold desert shrub-steppe, especially where these occur next to water bodies. It nests on the ground in shrubby vegetation, often at the edge of a marsh. Adult males are gray with black wingtips, and females and juveniles are brown; all have a conspicuous white rump. This long-winged, long-tailed hawk hunts by flying low and slow in a characteristic dihedral, looking for and listening for rodents as well as small birds. Its small owl-like face is well-adapted for this hunting strategy. It tends to prefer low perches rather than poles or trees and often perches on the ground. Population declines are attributed to widespread habitat loss and chemical poisoning.

The northern harrier was identified near the Seven W Enterprises area during previous surveys (PCCA 2006, Chambers Group 2007c) (Figure 7). Although much of the project site contains suitable foraging habitat for this species, its breeding status on the project site is uncertain at this time. It has a high potential to occur within the remainder of the project site.

#### **3.3.1.25 Yellow Warbler (*Dendroica petechia brewsteri*) CSC**

The yellow warbler (nesting) is a California Species of Concern. Its breeding range includes most of North America from northern Alaska and northern Canada to the southern U.S. and Mexico. Wintering birds occur from Mexico to Peru. Breeding habitats include wet areas such as riparian woodlands, orchards, gardens, swamp edges, and willow thickets. Most breeding habitats generally contain medium to high-density tree and shrub species with ample early successional understories. In migration, it may occur in other habitats, including early seral riparian habitats. Its plumage is more extensively yellow than most North American wood-warblers and is unique in having yellow on the inner webs of tail feathers, (except the middle pair). Males show rusty streaking on the breast. It is almost entirely insectivorous but also eats a few berries. Populations are in decline in California due to habitat loss, grazing of riparian understories, and brood parasitism by the brown-headed cowbird (it is one of the three most common cowbird host species).

The yellow warbler was identified along Alternative 3 during the Chambers Group bio-reconnaissance survey in 2007 (Figure 7). Although limited suitable breeding habitat is available in denser riparian areas along the pipeline Alternatives, the breeding status of this species on the project site at this time is uncertain. The individual documented onsite was probably in migration.

#### **3.3.1.26 Snowy Egret (*Egretta thula*)**

The snowy egret (rookery) is considered a Least Concern Species by the World Conservation Union, and is also on the United States Bird Conservation Watch list. It is a widespread species with localized breeding areas occurring from the northern U.S. south to Argentina. It is strongly associated with water,

and its habitat may include marshes, shores, ponds, tidal flats, swamps, and riverine woodlands. At 20-27 inches in total length, it is a modestly sized species readily identified by its overall white plumage, black legs and yellow feet, and slender black bill. During the breeding season, its plumage includes longer, recurved plumes along the back. It is an opportunistic forager that takes a variety of prey by stirring up substrates below the water for invertebrates, fish, larvae, insects, and occasionally small vertebrates. This species commonly flocks and roosts communally, particularly non-breeders at night. Numbers historically went into decline due to chemical poisoning on agricultural fields and by hunting for the fashionable hat trade in the early 1900's. Recent declines are due primarily to habitat loss and disruption of rookeries.

The snowy egret was observed in Mill Creek along Alternative 1 during a Chambers Group bio-reconnaissance survey (Figure 7). This individual was later seen flying downstream. No egret rookeries were observed anywhere on the project site, breeding potential is assumed absent, and the potential for this species to occur as a foraging individual over the remainder of the Alternatives is high.

### **3.3.1.27 California Horned Lark (*Eremophila alpestris actia*) CSC**

The California horned lark is a California Species of Concern. It is a subspecies of the horned lark, a widespread species of the northern hemisphere that breeds in California generally from Sonoma County southward. It occurs in a variety of open habitats, including bare ground, sparse short grasslands, dry prairies, open fields, deserts, brushy flats, tundra, and developed habitats, such as fallow agricultural fields, airports, golf courses, parks, and open residential areas. It is present in the winter mostly in flocks. Breeding territories are more widespread, and flocks do not typically occur during the breeding season. In southern California and particularly in the desert region, winter populations are greatly augmented by other subspecies. This dusky brown ground-dwelling species is identifiable by its two black, horn-like feathers, black sideburns, and black chest patch. It is white below. It walks along the ground rather than hops, and forages for seeds and insects. The diet during the breeding season consists primarily of insects, snails, and spiders. Since the California horned lark prefers open habitats, which are easier targets for development, habitat loss is one of the primary factors in the decline of this subspecies. Other factors include pesticide poisoning on agricultural fields, and tilling, harvesting, and mowing operations.

Since substantial, open, barren habitats are not generally found on the project site, this species has a low potential to occur as a breeding species within the project site. It has a higher potential to occur as a winter resident.

### **3.3.1.28 Yellow-breasted Chat (*Icteria virens*) CSC**

The yellow-breasted chat (nesting) is a California Species of Concern. The breeding range of this species includes most of the U.S., south-central Canada, and northern Mexico. It winters from the southern U.S. to Panama. This species is a summer resident along coastal and cismontane California and in the foothills of the Sierra Nevada Range. Migrants and breeders arrive in California in April and return to their wintering grounds in September. Habitats include swamplands, riparian willow thickets and other dense brush, often near watercourses. The yellow-breasted chat feeds on insects, larvae, spiders, berries, and fruits. It breeds from May to August with a clutch of 3-6 eggs. Incubation lasts for 11-15 days, and chicks fledge at 8-11 days. Both parents take care of young till they fledge. Nests are located 2-8 feet from the ground. The yellow-breasted chat is the largest North American warbler, and it behaves more like a mockingbird than a warbler. It mimics songs (often at night), sports an impressive array of sounds, and is often conspicuous within its territory early in the breeding season. It has a characteristic display flight, whereupon it takes off from a perch, tumbles through the air, and sings all the while. Predators include snakes, accipiters, and small mammals. Population declines are due to the loss and degradation of riparian habitats rangewide. The decline is also due to parasitism of brown-headed cowbirds (*Molothrus ater*).

Due to a lack of substantial breeding habitat onsite, this species is assumed to be absent as a breeding species within the project site.

### **3.3.1.29 Loggerhead Shrike (*Lanius ludovicianus*) CSC**

The loggerhead shrike (nesting) is a California Species of Concern. Its range includes most of the U.S. from southern Canada to southern Mexico. The U.S. population is largely resident to the south and migratory to the north, but migrants and residents frequently overlap throughout its range. Habitats may include oak savannas, open chaparral, desert washes, juniper woodlands, Joshua tree woodlands, and other semi-open areas. It can occupy a variety of semi-open habitats with scattered trees, large shrubs, utility poles, and other structures that serve as lookout posts for potential prey. It is a carnivorous species that preys primarily upon insects, but also takes lizards, mice, birds, carrion and other opportunistic items. The loggerhead shrike has a habit of caching its food for later consumption by impaling its prey on thorns, sharp twigs, or barbed wire; hence it is known as the “butcher bird”. It is recognized by its black facial mask, overall gray, black, and white color pattern, relatively big head, and hook-tipped bill, not unlike that of a small raptor. Habitat loss and pesticides are the two dominant factors in the decline of this species (Ehrlich et al. 1988, Scott 1990).

The loggerhead shrike was observed along Alternatives 1 and 2 of the project site (Figure 7). It has been detected during several surveys and is a permanent resident of the area (PCCA 2006, Chambers Group 2007c). Its nesting status is unknown at this time on the project site. While several individuals appear to be residents, additional individuals may overwinter along the project site.

### **3.3.1.30 American White Pelican (*Pelecanus eryrorhynchos*) CSC**

The American white pelican (nesting colony) is a California Species of Concern. The range of this species includes most of western North America, the Gulf of Mexico coastline and Florida south into South America. However, populations tend to be localized within this range. It is a large white bird with a long, pouched, orange-yellow bill and a nine-foot wingspan that shows a large, contrasting black pattern beneath. Habitats include ocean coastlines, estuaries, large lakes, salt ponds, and smaller inland bodies of water. It forages on these habitats in areas where groups can often be seen hunting together to drive fish into the shallows. Nesting colonies typically occur on isolated islands of freshwater lakes. Nest sites usually have flat or gently slopes with loose soils and a lack of shrubs or other obstructions that would impede flight take-off. Threats to the existence of this species include disturbances at nesting colonies from habitat degradation, development, and water control projects. Additional threats include chemical poisoning and water pollution.

A group of four American white pelicans were seen flying in formation at a high altitude north of the Santa Ana Wash during a Chambers Group bio-reconnaissance survey. These individuals were likely in migration, flying from downstream to higher elevations. The potential for this species to occur as a migrant elsewhere along the Alternatives is high. Since no nesting colonies were observed, nesting potential is assumed absent. In addition, the percolation basins, when filled with water, may offer suitable stopover sites during migration.

### **3.3.1.31 Brewer’s Sparrow (*Spizella breweri*)**

The Brewer’s sparrow (nesting) is not a listed species, but it is considered rare in California. It appears on the Watch lists of several conservation groups. It largely breeds in the Great Basin region of the United States into northeastern California, with small populations in the upper plateaus of Southern California. This species winters in sagebrush shrublands and brushy desert habitats of southeast California and central Arizona, including desert scrub dominated by various saltbush species (*Atriplex* spp.) and creosote (*Larrea tridentata*). It breeds in shrublands, especially in scrub dominated by big

sagebrush (*Artemesia tridentata*). It may also occur in large openings in piñon-juniper (*Pinus edulis-Juniperus* spp.) woodlands or large parklands within coniferous forests. The Brewer's sparrow is a nondescript brown sparrow with a finely streaked crown and white eye-ring. It is more easily identified by song: a long, high-pitched, buzzy ascending and descending trill given by the male. It is threatened by habitat degradation due to agriculture and grazing.

A pair of wintering Brewer's sparrow was observed in the sage scrub near the citrus orchard at the junction of Alternatives 1 and 4 during the Chambers Group bio-reconnaissance survey. This species is assumed absent during the breeding season.

### **3.3.1.32 Pallid Bat (*Antrozous pallidus*) CSC**

The pallid bat is listed as a California Species of Concern. Its range extends from southern British Columbia along the Pacific coast south to central Mexico and east to central Kansas and Oklahoma. It occurs in a variety of habitats, including arid desert scrub, oak woodlands, juniper woodlands, grasslands, coniferous forests, and water-associated habitats. It may be more common throughout its range where rocky outcrops provide roost sites. The pallid bat, a member of the Vespertilionidae family (free-tailed bat family), is a rather large, pale, yellowish-brown bat with paler coloration below and a wingspan of about 9 inches. It has large ears crossed by 9-11 transverse lines, no dark hair bases, a blunt pinkish muzzle, and relatively large, strong feet. This species is known to form day roosts of 12-100 individuals. Roosts may be natural or artificial, and often times, alternate night roosts are used as social centers. It emerges from its roost well after dark, later than most other bats. Unlike most other bat species, the pallid bat takes few insects on the wing. It forages by looking for prey on the ground and actually listening for the footsteps of ground-dwelling insects, scorpions, crickets, grasshoppers, spiders, centipedes and other prey. Fifty-four (54) different prey items have been catalogued for the pallid bat. Once located, the bat lands and chases down its prey before consuming it elsewhere. Occasionally, it consumes its prey on the ground. In fact, pallid bats have become so engrossed in eating that researchers have actually been able to pick individuals from the ground. Population dynamics are not fully understood, but one contributing factor in the decline of this species includes roost disturbance; it is highly susceptible to disturbance and may vacate a roost for years afterwards. Other factors include the razing of abandoned buildings, mining operations, pesticide-induced poisoning, and loss of foraging habitats.

Since suitable foraging and roosting habitats occur within the project site and the range of the species includes the area, this species has a moderate potential to occur as a foraging and roosting species over the project site. Potential roost sites are limited, but the old Lockheed structures (northeast of Crafton and Madera Avenues) along the central portion of the entire project site provide the best roost opportunities for this species. In addition, bat sign was observed inside many of these structures during the Chambers Group bio-reconnaissance surveys.

### **3.3.1.33 Northwestern San Diego Pocket Mouse (*Chaetodipus fallax fallax*) CSC**

The northwestern San Diego pocket mouse is a California Species of Concern. It ranges from the northern slopes of the San Bernardino Mountains in California to northern Baja California, Mexico. It occurs in sage scrub, sparse grasslands, and chaparral communities from sea level to about 6,000 feet in elevation. This nocturnal mouse forages for seeds below shrub canopies and spends the day in relatively elaborate burrow systems. It may occasionally consume young herbaceous forbs or grasses and even insects when available. It has relatively small ears and yellowish to orange-tinted pelage along the sides contrasting with a dark brown back. Major threats to its populations include habitat loss and fragmentation via urbanization, agriculture, sand and gravel mining, and flood control projects.

This species was confirmed present and very common along Alternatives 1 and 2 within the Seven W Enterprises property (Davenport 2007) (Figure 7). Suitable habitat is found in many areas over the rest of

the project site. Therefore, this species has a high potential for occurrence along the remainder of the project site.

#### **3.3.1.34 California Western Mastiff Bat (*Eumops perotis californicus*) CSC**

The California western mastiff bat is listed as a California Species of Concern. It is a permanent resident throughout its range in southern California, southern Arizona, Texas, and south to South America. With a wingspan approaching two feet, the western mastiff bat is the largest bat species in North America. It is also unique in that its call can be readily identified with the unaided ear. It roosts in small colonies or singly in primarily natural substrates, such as cliff faces, large boulders, and exfoliating rock surfaces. It is less commonly found in artificial structures, such as buildings and roof tiles. It is found in a wide variety of habitats, including desert scrub, chaparral, woodlands, floodplains, and grasslands. Reasons for observed population declines are unknown.

Since suitable foraging and roosting habitats occur within the project site and the range of the species includes the area, this species has a moderate potential to occur over the project site. Potential roost sites are limited, but the old Lockheed structures (northeast of Crafton and Madera Avenues) along the central portion of the entire project site provide the best roost opportunities for this species. In addition, bat sign was observed inside many of these structures during the Chambers Group bio-reconnaissance surveys.

#### **3.3.1.35 San Bernardino Flying Squirrel (*Glaucomys sabrinus californicus*) CSC**

The San Bernardino flying squirrel is a California Species of Concern. Although little is known about its distribution, populations are known to occur in the San Jacinto and San Bernardino Mountains. The San Bernardino populations are separated from the Sierra Nevada populations by the Mojave Desert. The Banning Pass separates the San Bernardino populations and the San Jacinto populations. This species inhabits various woodlands, including coniferous, mixed coniferous-deciduous, and broadleafed deciduous forests. It prefers old growth forests, but will also occur in second growth forests. Populations of flying squirrels tend to fare better in riparian areas than upland areas. It feeds mostly on fungus and lichens, but will also eat fruit, nuts, staminate cones, seeds, insects, and mammal material. The flying squirrel is mostly nocturnal and also is biphasic in the summer. On specialized stretches of skin between its femurs, it moves by gliding from tree to tree, but will also spend time on the ground. Most nests occur in tree cavities, but leaf nests may be used during summer months. Breeding activity takes place in the spring or summer months, depending on winter rainfall. Females will usually have two litters of 2-6 young per year. Females care for young without the help from males. They will live in family groups outside of the breeding season. Little is known about threats to the San Bernardino flying squirrel, but logging, recreation, and fragmentation of habitat all may all be factors. Flying squirrels have been found entangled in barbed wire, and parasites may pose another problem. More information is needed for the conservation of this species.

Since mature woodland habitats are sparse and disconnected from larger forest habitats, and elevations are generally lower than that which the species prefers, this species is considered absent from the project site.

#### **3.3.1.36 Pocketed Free-Tailed Bat (*Nyctinomops femorosaccus*) CSC**

The pocketed free-tailed bat is a California Species of Concern. This species is common in Mexico, but rare in California. It is rarely found in Riverside, San Diego, and Imperial Counties. While its movements are not well-known in California, it is most likely a year-long resident. It inhabits pinyon-juniper woodlands, desert scrub, desert succulent shrub, desert riparian, desert washes, alkali desert scrub, Joshua tree, and palm oasis habitats. It roosts in small groups in rock crevices, caverns, and buildings.

The pocketed free-tailed bat emerges from its roost after sunset and feeds on insects flying over arid habitats, streams, or ponds. This species feeds on many different insects, but mostly moths. It gives birth to one young per year, which takes place in June or July. Lactation occurs in July and August. Reasons for observed population declines are unknown.

Since the current known range of this species is just to the south of the project site, and its range within the U.S. is not well known, this species has a low potential for occurrence within the project site. There are no known occurrences within the vicinity of the project site. Any individuals detected onsite would likely be foraging or widely dispersing individuals. Potential roost sites are limited, but the old Lockheed structures (northeast of Crafton and Madera Avenues) along the central portion of the entire project site provide the best roost opportunities for this species. In addition, bat sign was observed inside many of these structures during the Chambers Group bio-reconnaissance surveys.

### **3.3.1.37 White-Eared Pocket Mouse (*Perognathus alticolus alticolus*) CSC**

The white-eared pocket mouse is a California Species of Concern. This species only occurs in California, mostly in the western San Bernardino Mountains in the Strawberry Creek area and in the Mount Pinos area. It occurs in elevations between 3,500 and 5,900 feet. It inhabits ponderosa and Jeffrey pine forests with grass and bracken fern undergrowth. Although uncommon, it has also been found in chaparral, sagebrush habitats, and in a field of Russian thistle (*Salsola tragus*). Very little is known about this species. The white-eared pocket mouse feeds on seeds, mostly from grasses, and maybe some insects. It forages on open ground and under shrubs. It burrows in loose soils and builds nests of grass inside the burrows. It is a nocturnal species that will aestivate in very hot summers and hibernate in cold winters. Reproduction for this species is probably like that of a very similar species, *P. parvus*. This species breeds from March to April, and its average litter size is five young. Predators are probably weasels, coyotes, fox, owls, and snakes. Population declines are likely the result of urban sprawl, frequent fires, and other habitat degradation.

The elevations are well below those known for this species, and the habitat types present within the project site are atypical; therefore, this species is assumed to be absent from the project site. In addition, this species was not captured during protocol San Bernardino kangaroo rat trapping surveys conducted within the Seven W Enterprises property (Davenport 2007).

### **3.3.1.38 Los Angeles Pocket Mouse (*Perognathus longimembris brevinasus*) CSC**

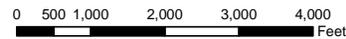
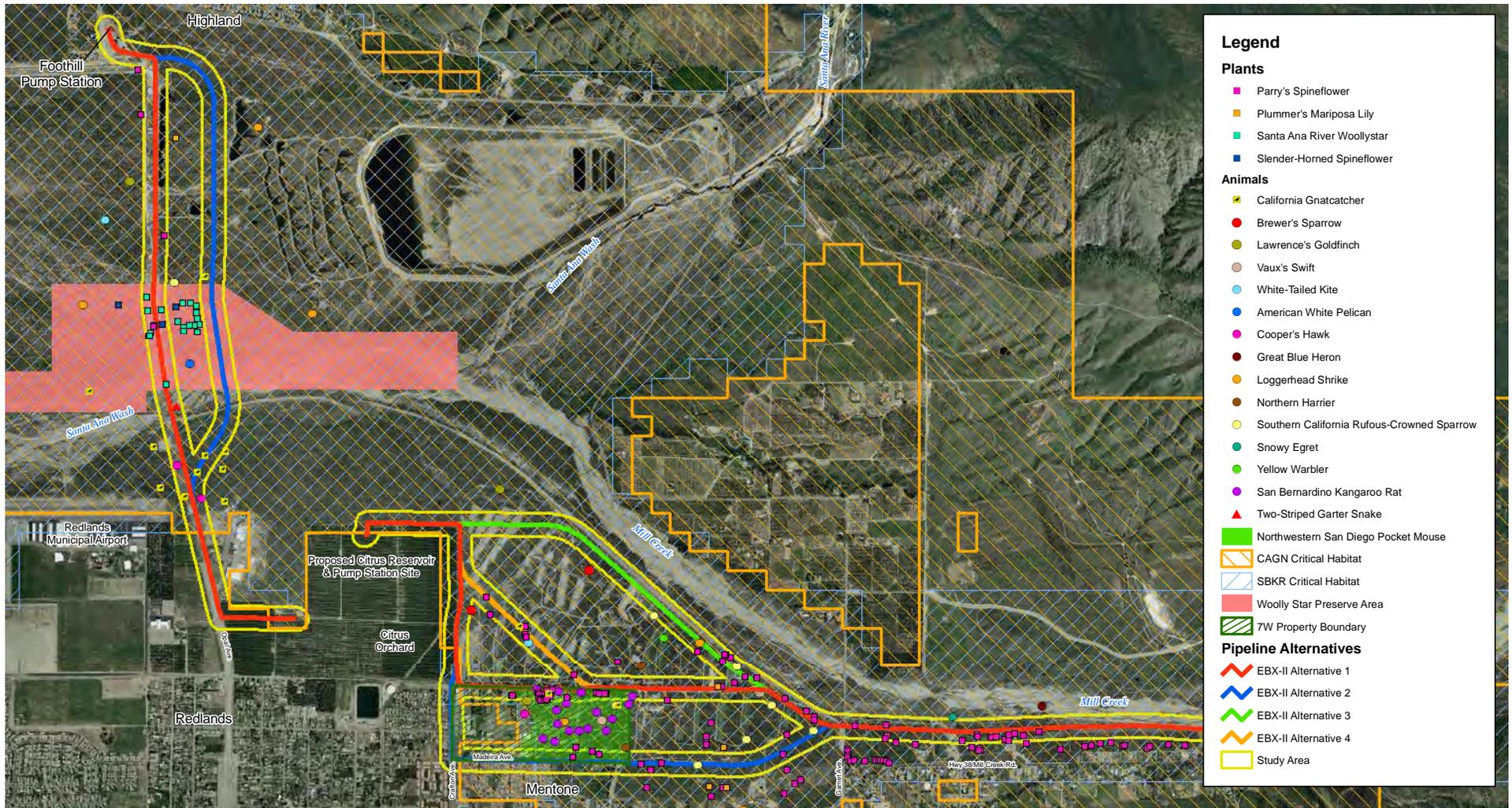
The Los Angeles pocket mouse is a California Species of Concern. This pocket mouse occurs in lower elevation grasslands and sage scrub communities in the Los Angeles Basin of California, including Burbank and San Fernando on the northwest to San Bernardino on the northeast, and Cabazon, Hemet, and Aguanga on the east and southeast. Habitats include non-native grasslands, sparse Riversidean sage scrub, Riversidean alluvial fan sage scrub, and redshank chaparral. Within its habitats, it occurs in open patches with fine sandy soils potentially suitable for burrowing (CDFG 1986). The Los Angeles pocket mouse is primarily a granivore, foraging under shrub and tree canopies or around rock crevices. It has a characteristically short rostrum and is grayish-yellow to buff above with brownish or white underparts. Its tail is uniformly brownish, and it has two small white patches at the base of its ears (Whitaker 2001). Major threats to its populations include habitat loss and fragmentation via urbanization, agriculture, sand and gravel mining, and flood control projects.

Although suitable habitat is present in many patches within the project area, the nearest known occurrences are over ten miles away; therefore, this species has a low potential for occurrence within the project area. In addition, this species was not captured during protocol San Bernardino kangaroo rat trapping surveys conducted within the Seven W Enterprises property (Davenport 2007).

### **3.3.1.39 American Badger (*Taxidea taxus*) CSC**

The American badger is a California Species of Concern. This carnivorous species ranges over most of the western U.S and upper midwestern U.S. south into central Mexico. In California, the badger may occupy a variety of habitats, especially grasslands, savannas, montane meadows, sparse scrublands, and deserts. It prefers friable soils for burrowing, and relatively open, uncultivated ground. Prey items include gophers, ground squirrels, marmots, kangaroo rats, other rodents, and the occasional reptile or amphibian. This tenacious mammal may weigh up to 25 pounds and is easily recognized by its overall yellowish gray coloration, the white stripe on top of its head, white cheeks, and black feet with noticeably long front claws. It is a heavy-bodied animal with short legs and a characteristic pigeon-toed gait. It is chiefly nocturnal, but it is often seen by day as well. It gives birth to 2-5 young anywhere from February to May, depending on its altitude and latitude. Threats to this species include habitat loss to agriculture, housing, and other land conversions, and illegal hunting.

This species is known to occur within five miles of the site, and suitable habitat exists within the project area; therefore, this species has a moderate potential for occurrence.



DWR - East Branch Extension  
Sensitive Species Locations  
**Figure 7**

### 3.4 PIPELINE ALTERNATIVE 1

The following sub-sections describe the vegetation communities, wildlife, and sensitive species results along Alternative 1. Since not all areas were surveyed during prior surveys, the results for Alternative 1 have incorporated the findings of prior reports whenever possible (P & D 2005, Aspen 2006, PCCA 2006, Chambers Group 2007a, 2007b, 2007c).

#### 3.4.1 Vegetation Communities

Alternative 1 primarily consists of RAFSS communities (171.98 acres) and encompasses 279.60 total acres. Disturbed/Developed (47.21 acres), Cultivated Agriculture (31.55 acres), and Ruderal Vegetation (18.87 acres) habitats also occupy large portions of Alternative 1. Other communities observed along Alternative 1 include Ornamental Landscaping (4.46 acres), Southern Riparian Scrub (3.47 acres), Black Willow Series (1.07 acres), Mule Fat Series (0.34 acres), Fremont Cottonwood Series (0.29 acres), and Open Water (0.36 acres). Several areas of this Alternative are fed by discharge water that forms drainages, and percolation basins that periodically contain water support small areas of riparian habitats. Developed/Disturbed areas occur intermittently along Alternative 1 in the form of dirt/gravel access roads, cleared areas, abandoned buildings, paved roads, and active buildings. Figures 3 to 6 illustrate all vegetation communities along Alternative 1.

Pioneer RAFSS and Disturbed Pioneer RAFSS communities occur on 54.01 acres of Alternative 1. Disturbed Pioneer RAFSS occurs within the restoration area along the recently installed Inland Feeder pipeline north of the Santa Ana River. Pioneer RAFSS primarily occurs along the lower terraces of the Santa Ana River. Both of these vegetation communities occur predominantly throughout the north-south alignment of Alternative 1 from the Foothill Pump Station to south of the Santa Ana River. Pioneer RAFSS also occurs in small areas along the northern border of the Seven W Enterprises boundary as well as at the east end of Alternative 1 near the Crafton Hills Pump Station, between the active flood channels and terraces of the Santa Ana Wash and Mill Creek. Some areas of Pioneer RAFSS exhibit disturbances from dirt roadways, cut channels, and restoration sites, indicative of Disturbed RAFSS. Common species within these series found along Alternative 1 include scalebroom, California croton, brittlebush, California buckwheat, coast goldfields, and deerweed.

Intermediate RAFSS occurs on 59.07 acres of Alternative 1. Intermediate RAFSS occurs in patches below the Foothill Pump Station and along the majority of the north and east borders of the citrus orchards. Other patches of Intermediate RAFSS also occur along the northern border of the Seven W Enterprises boundary, and run east between the active flood channels and terraces of the Santa Ana Wash and Mill Creek, terminating at the Crafton Hills Pump Station. The dominant species found within Intermediate RAFSS along Alternative 1 include California sagebrush, California croton, brittlebush, interior goldenbush, hairy yerba santa, California buckwheat, California matchweed, broom matchweed, telegraph weed, coastal goldenbush, coastal prickly pear, valley cholla, shrubby butterweed, and Our Lord's candle.

Mature RAFSS occurs on 46.93 acres of Alternative 1. The majority of this vegetation community occupies the elevated terraces adjacent to the flood channels of the Santa Ana Wash and Mill Creek. The largest area of this community type begins at Garnet Street and continues east until the Crafton Hills Pump Station. Patches also occur near the proposed Citrus Reservoir adjacent to the citrus orchards, along the northern boundary of the Seven W Enterprises property, and at the northwest corner of the project site near Greenspot Road. Common species within the Mature RAFSS along Alternative 1 include chamise, California brickelbush, hoary leaf ceanothus, chaparral whitethorn, California juniper, California buckwheat, deerweed, holly-leaved cherry, spiny redberry, and white sage.

California Buckwheat Alluvial Fan Association occurs on 11.97 acres of Alternative 1. This vegetation community occurs primarily east of the Seven W Enterprises property, but it also occurs in smaller areas along the northern border of the Seven W Enterprises boundary. Species common in this series

occurring onsite include brittlebush, California buckwheat, coastal goldenbush, deerweed, and common monkey-flower (*Mimulus guttatus*), and black sage (*Salvia mellifera*).

Southern Riparian Scrub occurs on 3.47 acres of Alternative 1. These areas occur within the Santa Ana River, south of the Foothill Pump Station, and are interspersed in other areas as well where water is present enough of the year to allow the establishment of riparian species. This community is also present within and adjacent to several of the percolation basins east of the citrus orchards to east of Garnet Street. This community is composed primarily of black willow, mule fat, and white mulberry (*Morus alba*). Occasional western sycamore, Mexican elderberry (*Sambucus mexicana*), and tamarisk (*Tamarix ramosissima*) were also observed. Riparian herb species present within this community along Alternative 1 include mugwort (*Artemisia douglasiana*), California cottonweed (*Epilobium ciliatum*), scarlet monkey-flower (*Mimulus cardinalis*), common monkey-flower, annual beard grass (*Polypogon monspeliensis*), blackberry (*Rubus* sp.), and broad-leaved cattail (*Typha latifolia*). In addition, non-native species such as giant reed (*Arundo donax*), castor bean (*Ricinus communis*), and pepper trees (*Schinus* spp.) have encroached into some areas along the upper banks.

Black Willow Series is found in 1.08 acres of Alternative 1. Most of this acreage occurs at the water discharge area east of the citrus orchards. Onsite Black Willow Series is dominated by black willow, but mule fat, red willow, mulberry, and tamarisk are also found on occasion.

Mule Fat Series occurs on 0.34 acres of Alternative 1. The largest area of this association is found just north of the Seven W Enterprises property where mule fat is the sole shrub species.

Fremont Cottonwood Series occurs on 0.29 acres of Alternative 1 in the water discharge area east of the citrus orchards. Young Fremont cottonwood trees form this community, and mule fat is also present within this area.

Ruderal Vegetation occurs in 18.87 acres of Alternative 1 and primarily occurs adjacent to the citrus orchards and developed areas at the south end of the north-south alignment of the Alternative. Ruderal Vegetation is also found within the percolation basins of Alternative 1 between the northern boundary of the Seven W Enterprises boundary to the east side of Garnet Street. Typical Ruderal Vegetation observed onsite consists of weedy non-native colonizing species such as wild oat, black mustard, foxtail chess, Italian thistle (*Carduus pycnocephalus*), tocalote, bull thistle (*Cirsium vulgare*), broad-leaved filaree (*Erodium botrys*), red-stemmed filaree, horehound, and London rocket (*Sisymbrium irio*).

Open Water occurs on 0.36 acres at the Santa Ana Wash crossing. Where Open Water occurs within riparian habitats, the vegetation community has been labeled according to the vegetation that is present. Therefore, the actual acreage of open water is higher than that which is represented in these calculations.

Ornamental Landscaping occurs in 4.46 acres of Alternative 1, mainly along the border of the Seven W Enterprises boundary within the developed areas. Vegetation in this community consists mainly of horticultural and ornamental plants, including lily-of-the-Nile (*Agapanthus praecox*), bougainvillea (*Bougainvillea spectabilis*), Italian cypress (*Cupressus sempervirens*), English ivy (*Hedera helix*), jacaranda (*Jacaranda mimosifolia*), common lantana (*Lantana camara*), oleander (*Nerium oleander*), ornamental rose (*Rosa* sp.), Peruvian pepper tree (*Schinus molle*), Brazilian pepper tree (*Schinus terebinthifolius*), and fan palm (*Washingtonia filifera* and *W. robusta*).

Cultivated Agriculture comprises 31.55 acres of Alternative 1 and occurs at the south-central portions along the citrus orchards adjacent to the Proposed Citrus Reservoir. This type of vegetation community is typically that of a commercial mono-crop. Onsite Cultivated Agriculture is mostly made up of various *Citrus* species.

Developed/Disturbed areas occur on 47.21 acres of Alternative 1 in large patches near the Foothill Pump Station and the Seven W Enterprises boundary. It also occurs intermittently in smaller patches and linear segments throughout the project site. Much of the Developed areas are man-made structures, paved

roads, parking lots, and houses. The Disturbed areas consist primarily of dirt/gravel access roads and cleared areas devoid of vegetation.

### 3.4.2 Wildlife

Common wildlife species detected within Alternative 1 included amphibians, reptiles, birds, and mammals (Appendix B-1). One amphibian and four reptile species were detected during the Chambers Group surveys, including the Pacific chorus frog (*Pseudacris regilla*), common side-blotched lizard (*Uta stansburiana*), western fence lizard (*Sceloporus occidentalis*), coastal western whiptail (*Cnemidophorus tigris stejnegeri*), and two-striped garter snake.

In addition, 51 bird species were detected by Chambers Group within the corridor (Appendix B-1). Common species included the California quail (*Callipepla californica*), red-shouldered hawk (*Buteo lineatus*), red-tailed hawk (*Buteo jamaicensis*), mourning dove (*Zenaidura macroura*), Anna's hummingbird (*Calypte anna*), Cassin's kingbird (*Tyrannus vociferans*), western scrub-jay (*Aphelocoma californica*), American crow (*Corvus brachyrhynchos*), common raven (*Corvus corax*), barn swallow (*Hirundo rustica*), northern rough-winged swallow (*Stelgidopteryx serripennis*), rock wren (*Salpinctes obsoletus*), blue-gray gnatcatcher (*Polioptila caerulea*), northern mockingbird (*Mimus polyglottos*), yellow-rumped warbler (*Dendroica coronata*), California towhee (*Pipilo crissalis*), white-crowned sparrow (*Zonotrichia leucophrys*), lesser goldfinch (*Carduelis psaltria*), and house finch (*Carpodacus mexicanus*).

At least fourteen mammal species were detected by the Chambers Group within Alternative 1. Common species included Virginia opossum (*Didelphis virginiana*), desert cottontail (*Sylvilagus audubonii*), California ground squirrel (*Spermophilus beecheyi*), desert woodrat (*Neotoma lepida*), coyote (*Canis latrans*), raccoon (*Procyon lotor*), and striped skunk (*Mephitis mephitis*). Long-tailed weasel (*Mustela frenata*), bobcat (*Lynx rufus*), mountain lion (*Felis concolor*), and other mammals were also found along this Alternative (Appendix B-1). Bat sign was observed in the abandoned buildings of the former Lockheed site (northeast of Crafton and Madera Avenues), and small rodent burrows were observed throughout the site, so an additional number of small mammal species are expected to occur onsite as well.

Appendix B-2 contains a comprehensive wildlife list for the entire project site. In addition to the species mentioned above and contained within Appendix B-1, it is expected that other wildlife species may be found along this Alternative as well.

### 3.4.3 Sensitive Plant and Wildlife Species

Sensitive plant and wildlife species include endangered, threatened, proposed threatened or endangered, and rare species of the USFWS and CDFG, California Special Concern Species, plants listed by CNPS, and otherwise sensitive species.

Four sensitive plant species were detected along Alternative 1 during the Chambers Group bio-reconnaissance surveys and/or previous surveys (P & D 2005, Aspen 2006, Chambers Group 2007b). These sensitive plant species include the federally and state-endangered slender-horned spineflower and Santa Ana River woollystar, as well as the non-listed sensitive species, Parry's spineflower (CNPS list 3.2) and Plummer's mariposa lily (CNPS list 1B.2) (Figure 7).

Five Santa Ana River woollystar locations occur within the ROW north of the Santa Ana River, and an additional twelve locations occur just east of these between Alternatives 1 and 2. One slender-horned spineflower location occurs within the ROW in the vicinity of the woollystar population, and two additional locations are found outside the ROW. All woollystar and slender-horned spineflower locations documented onsite occur within the Woollystar Preservation Area.

Thousands of Parry's spineflower individuals have been documented along Alternative 1. Most of these were found along the east-west alignment between Crafton Avenue and the Crafton Hills Pump Station, including within the Seven W Enterprises property. This species was found primarily in small open patches between RAFSS shrub species on sandy soils.

Plummer's mariposa lily was found in one location near the eastern junction of Alternatives 1 and 3 within the ROW for Alternative 1. An additional location was found just outside of the ROW near the Foothill Pump Station.

Two federally listed wildlife species were found present along Alternative 1: the coastal California gnatcatcher and the San Bernardino kangaroo rat (Figure 7). The federally threatened coastal California gnatcatcher was documented along Alternative 1 during previous surveys (P & D 2005, PCCA 2006, Chambers Group 2007c). In addition, scat and burrow evidence documented by Stephen Montgomery during initial Chambers Group site visits suggested the likelihood that the federally endangered San Bernardino kangaroo rat was present along some portions of Alternative 1 around the Santa Ana Wash crossing. Arthur Davenport later confirmed the presence of this species along Alternative 1 within the Seven W Enterprises property (Davenport 2007). To date, trapping surveys have only been completed within Seven W; therefore, while the rest of the Alternative likely contains many more individuals, Seven W contains the only known individuals anywhere on the project site.

One gnatcatcher location was documented by P&D along Alternative 1. Seven gnatcatcher territories were documented by PCCA between Opal Drive and the Santa Ana Wash along Alternative 1, and an additional two to three individuals were found elsewhere along Alternative 1. Of these PCCA occurrences, at least two were within the ROW. However, the proximity of all occurrences to the Alternative suggests that most or all locations included some part of Alternative 1 as territory. In addition to these occurrences, Chambers Group documented and mapped the presence of two gnatcatchers at the north-central boundary of Seven W. These birds were mapped on 4.580 total acres, 2.555 of which occurred in the ROW.

One California Fully-Protected Species, the white-tailed kite, was found nesting near the north portion of Alternative 1 west of Cone Camp Road (PCCA 2006) (Figure 7). In addition, one juvenile and one adult white-tailed kite were observed perching in the riparian area adjacent to the citrus orchards along Alternative 1 during the Chambers bio-reconnaissance survey of Alternative 4.

Eight CSC wildlife species were detected along Alternative 1 during Chambers Group bio-reconnaissance surveys and/or prior surveys (P & D 2005, PCCA 2006, Chambers Group 2007c) (Figure 7). These included two-striped garter snake (one individual in the Santa Ana River), American white pelican (four individuals seen in migration), Cooper's hawk (nesting status uncertain; three locations), northern harrier (nesting status uncertain; one location), loggerhead shrike (nesting status uncertain; three locations within 1,000 feet of the ROW), Vaux's swift (one individual seen in migration within Seven W), southern California rufous-crowned sparrow (permanent resident; four locations), and northwestern San Diego pocket mouse (common to abundant within Seven W).

Other sensitive wildlife species detected along Alternative 1 included great blue heron (seen foraging/flying overhead; one documented location), snowy egret (seen foraging/flying overhead; one documented location), Brewer's sparrow (winter resident; one pair near the citrus orchard), and Lawrence's goldfinch (nesting status uncertain; two locations) (Figure 7). The heron and egret observations were documented between Garnet Street and the Crafton Hills Pump Station. No rookeries were observed anywhere on the project site.

### **3.5 PIPELINE ALTERNATIVE 2**

The following sub-sections describe the vegetation communities, wildlife, and sensitive species results along Alternative 2. Since not all areas were surveyed during prior surveys, the results for Alternative 2

have incorporated the findings of prior reports whenever possible (P & D 2005, Aspen 2006, PCCA 2006, Chambers Group 2007a, 2007b, 2007c).

### 3.5.1 Vegetation Communities

Alternative 2 primarily consists of RAFSS communities (185.50 acres) and encompasses 299.75 total acres. Developed/Disturbed (57.06 acres), Cultivated Agriculture (32.97 acres), and Ruderal Vegetation (15.73 acres) habitats also occupy large portions of Alternative 2. Other vegetation communities observed along Alternative 2 include Ornamental Landscaping (4.14 acres), Southern Riparian Scrub (2.99 acres), Black Willow Series (1.07 acres), and Fremont Cottonwood Series (0.29 acres). Several areas of this Alternative are fed by discharge water, and the drainages and percolation basins found along this Alternative periodically contain water and support small riparian habitats. Figures 3 to 6 illustrate all vegetation communities along Alternative 2.

Pioneer RAFSS occurs on 24.04 acres of Alternative 2. This vegetation community within Alternative 2 is most dominant south of Greenspot Road north of and within the Santa Ana Wash crossing. Common species within this community along Alternative 2 include scalebroom, wild celery, California croton, hairy yerba santa, goose grass (*Galium aparine*), scalebroom, wild cucumber (*Marah macrocarpus*), black sage, and hairy horsebrush (*Tetradymia comosa*).

Intermediate RAFSS and Disturbed Intermediate RAFSS communities comprise another 90.73 acres of Alternative 2. The largest Intermediate RAFSS community begins in the northern portion of Alternative 2 near the Foothill Pump Station and terminates just north of the Santa Ana River. Other large areas include the portion south of the Santa Ana Wash and convergent sections with Alternative 1, including the the portion adjacent to the citrus orchard, and the area just west of Garnet Street. Smaller patches occur regularly along Alternative 2 and the convergent portions with Alternative 1. Disturbed Intermediate RAFSS occurs only along the southern border of Seven W. Common species within these communities along Alternative 2 include California sagebrush, California croton, brittlebush, hairy yerba santa, California buckwheat, California matchweed, broom matchweed, telegraph weed, coastal goldenbush, coastal prickly pear, and valley cholla.

Mature RAFSS occupies 65.72 acres along Alternative 2. The largest area occupied by this community type begins at the southeast corner of the Seven W Enterprises property and continues east to the Crafton Hills Pump Station. It also occurs in patches adjacent to the citrus orchards and near the Foothill Pump Station. Common species within the Mature RAFSS along Alternative 2 include chamise, California juniper, California buckwheat, deerweed, and white sage.

CBAFA occurs on 5.01 acres of Alternative 2. The majority of this community type is observed along the southern border of the Seven W Enterprises boundary. Species occurring onsite include brittlebush, California buckwheat, deerweed, and black sage.

Southern Riparian Scrub occurs on 2.99 acres of Alternative 2. These areas occur within the Santa Ana Wash crossing, and are interspersed in other areas as well where water is present enough of the year to allow the establishment of riparian species. This community is also present within and adjacent to several of the percolation basins between the citrus orchards and the Crafton Hills Pump Station. This community is composed primarily of black willow, mule fat, and white mulberry. Occasional scarlet pimpernel (*Anagallis arvensis*), wild celery (*Apium angustifolium*), Bermuda grass (*Cynodon dactylon*), western sycamore, Mexican elderberry, and tamarisk were also observed.

Black Willow Series is found in 1.08 acres of Alternative 2, convergent with portions of Alternative 1. Most of this acreage occurs at the water discharge area east of the citrus orchards. Onsite Black Willow Series is dominated by black willow, but mule fat, red willow, mulberry, and tamarisk are also found on occasion.

Fremont Cottonwood Series occurs on 0.29 acres of Alternative 2, convergent with Alternative 1, in the water discharge area east of the citrus orchards. Young Fremont cottonwood trees form this habitat, and mule fat is also present within this area.

Ruderal Vegetation occupies 15.73 acres within Alternative 2 and primarily occurs in convergent portions of Alternative 1. Species typical of this vegetation community observed onsite include wild oat, black mustard, rigput grass, foxtail chess, tocalote, red-stemmed filaree, and horehound.

Ornamental Landscaping occurs on 4.46 acres of Alternative 2. Ornamental landscaping is maintained in much of the Developed areas on the Seven W Enterprises property and along parts of Madeira and Crafton Avenues. Ornamental species in this area include crimson bottlebrush (*Callistemon citrinus*), carrotwood (*Cupaniopsis anacardioides*), English ivy, jacaranda, common lantana, apple trees, sacred bamboo (*Nandina domestica*), oleander, olive (*Olea europea*), ornamental roses, Peruvian pepper tree, Brazilian pepper tree, Mexican fan palm (*Washingtonia robusta*), along with several species of non-native grasses (i.e. *Avena* spp., *Bromus* spp.).

Cultivated Agriculture comprises 32.97 acres of Alternative 2 and occurs convergent with Alternative 1 at the south-central portions along the citrus orchards adjacent to the Proposed Citrus Reservoir. A smaller area also occurs south of the Seven W Enterprises property. This type of vegetation community is typically that of a commercial mono-crop. Onsite Cultivated Agriculture is mostly made up of various *Citrus* species.

Developed/Disturbed areas occur on 57.06 acres of Alternative 2. The majority of Developed/Disturbed areas occur along the southern and western borders of the Seven W Enterprises boundary, adjacent to Madera Avenue and Crafton Avenue. Developed areas are also found in other areas, such as where maintained roads intersect the project boundary. Much of the Developed areas along this Alternative contain man-made structures, such as paved roads, parking lots, houses, and infrastructure. The Disturbed areas consist primarily of dirt/gravel access roads and cleared areas devoid of vegetation.

### 3.5.2 Wildlife

Common wildlife species detected along Alternative 2 included amphibians, reptiles, birds, and mammals (Appendix B-1). One amphibian and four reptile species were detected during the Chambers Group surveys, including the Pacific chorus frog, common side-blotched lizard, western fence lizard, coastal western whiptail, and two-striped garter snake.

In addition to a majority of the species detected along Alternative 1, 31 bird species were specifically detected by the Chambers Group where Alternative 2 shifts from Alternative 1. Common bird species detected along Alternative 2 included California quail, red-tailed hawk, killdeer (*Charadrius vociferus*), mourning dove, white-throated swift (*Aeronautes saxatalis*), Anna's hummingbird, western scrub-jay, American crow, common raven, northern rough-winged swallow, bushtit (*Psaltriparus minimus*), northern mockingbird, yellow-rumped warbler, California towhee, spotted towhee (*Pipilo maculatus*), white-crowned sparrow, lesser goldfinch, and house finch (Appendix B-1).

In addition to a majority of the species detected along Alternative 1, six mammal species were specifically detected by the Chambers Group where Alternative 2 shifts from Alternative 1. These included desert cottontail, California ground squirrel, desert woodrat, coyote, raccoon, and bobcat (Appendix B-1). Bat sign was observed in the abandoned buildings of the former Lockheed site (northeast of Crafton and Madera Avenues), and small rodent burrows were observed throughout the site, so an additional number of small mammal species are expected to occur onsite as well.

Appendix B-2 contains a comprehensive wildlife list for the entire project site. In addition to the species mentioned above and contained within Appendix B-1, it is expected that other wildlife species may be found along this Alternative as well.

### 3.5.3 Sensitive Plant and Wildlife Species

Sensitive plant and wildlife species include endangered, threatened, proposed threatened or endangered, and rare species of the USFWS and CDFG, California Special Concern Species, plants listed by CNPS, and otherwise sensitive species.

Three sensitive plant species were detected along Alternative 2 and convergent portions of Alternative 1 during the Chambers Group bio-reconnaissance surveys and/or previous surveys (P & D 2005, Aspen 2006, Chambers Group 2007b). These sensitive plant species include the federally and state-endangered Santa Ana River woollystar and CNPS-listed Parry's spineflower (CNPS list 3.2) and Plummer's mariposa lily (CNPS list 1B.2) (Figure 7).

While the woollystar was not documented within the ROW for Alternative 2, twelve locations were documented between Alternative 1 and 2 north of the Santa Ana River. At least five of these locations are immediately adjacent to the west edge of Alternative 2. Parry's spineflower was most numerous along the convergent portion with Alternative 1 between Garnet Street and the Crafton Hills Pump Station. Approximately twelve additional locations were found within or adjacent to Alternative 2 along its southern extension, and thousands of individuals are present along Alternative 2. Three Plummer's mariposa lily locations were also found in the area of this southern extension.

One federally threatened bird species, the coastal California gnatcatcher, was documented along Alternative 2 during previous surveys, and other recent gnatcatcher locations were found along convergent portions of Alternative 1 (P & D 2005, PCCA 2006) (Figure 7). Four gnatcatcher locations occur within the ROW for Alternative 2, and at least five additional locations may use part of Alternative 2 as territory. In addition, scat and burrow evidence documented by Stephen Montgomery during initial Chambers Group site visits suggests the likelihood that the federally endangered San Bernardino kangaroo rat is present along some portions of Alternative 2. This species has been confirmed present just north of Alternative 2, and only within the Seven W Enterprises property (Davenport 2007). To date, trapping surveys have only been completed within Seven W; therefore, while the rest of the Alternative likely contains many more individuals, Seven W contains the only known individuals anywhere on the project site.

One California Fully-Protected Species, the white-tailed kite, was found nesting near the north portion of Alternative 1 west of Cone Camp Road (PCCA 2006). This breeding pair likely included a portion of Alternative 2 as breeding territory (Figure 7). In addition, one juvenile and one adult white-tailed kite were observed perching in the riparian area adjacent to the citrus orchards along the convergent portion with Alternative 1 during the Chambers bio-reconnaissance survey of Alternative 4.

Seven CSC wildlife species were detected within or adjacent to Alternative 2 and/or convergent portions of Alternative 1 during Chambers Group bio-reconnaissance surveys and/or prior surveys (P & D 2005, PCCA 2006, Chambers Group 2007c) (Figure 7). These include two-striped garter snake (one individual at the Santa Ana Wash crossing), American white pelican (four individuals seen in migration), Cooper's hawk (nesting status uncertain; two locations), northern harrier (nesting status uncertain; one location), loggerhead shrike (nesting status uncertain; three locations), southern California rufous-crowned sparrow (permanent resident; three locations), and northwestern San Diego pocket mouse (common to abundant within Seven W).

Other sensitive wildlife species detected along Alternative 2 and/or convergent portions of Alternative 1 included great blue heron (seen foraging/flying overhead; one documented location), snowy egret (seen foraging/flying overhead; one documented location), Brewer's sparrow (winter resident; one pair near the citrus orchard), and Lawrence's goldfinch (nesting status uncertain; one location) (Figure 7). The heron and egret observations were documented between Garnet Street and the Crafton Hills Pump Station. No rookeries were observed anywhere on the project site.

### 3.6 PIPELINE ALTERNATIVE 3

The following sub-sections describe the vegetation communities, wildlife, and sensitive species results along Alternative 3. Since not all areas were surveyed during prior surveys, the results for Alternative 3 have incorporated the findings of prior reports whenever possible (P & D 2005, Aspen 2006, PCCA 2006, Chambers Group 2007a, 2007b, 2007c).

#### 3.6.1 Vegetation Communities

For the purpose of this report, all calculations for the completed route of Alternative 3 between the Foothill Pump Station and the Crafton Hills Pump Station include the north-south alignment of Alternative 1, rather than the north-south alignment of Alternative 2. Alternative 3 primarily consists of RAFSS communities (171.08 acres) and encompasses 262.41 total acres. Developed/Disturbed (40.46 acres), Ruderal Vegetation (25.49 acres), and Cultivated Agriculture (21.69 acres) habitats also occupy large portions of Alternative 3. Other vegetation communities observed along Alternative 3 include Southern Riparian Scrub (2.66 acres), Black Willow Series (0.67 acres), Open Water (0.36 acres), and Ornamental Landscaping (0.09 acres). Several areas of this Alternative are fed by discharge water, and the drainages and percolation basins found along this Alternative periodically contain water and support small riparian habitats. Figures 3 to 6 illustrate all vegetation communities along Alternative 3.

Pioneer RAFSS and Disturbed Pioneer RAFSS communities occupy 54.51 acres of Alternative 3. These vegetation communities occur predominantly along the convergent portion of Alternative 1 from the Foothill Pump Station to south of the Santa Ana River. Pioneer RAFSS also occurs at the east end of the convergent portion of Alternative 1 near the Crafton Hills Pump Station, between the active flood channel of Mill Creek and the Mill Creek levee. An additional patch of Pioneer RAFSS occurs in the Alternative 3 alignment near the percolation basins. Common species within these series found along Alternative 3 include scalebroom, California croton, brittlebush, California buckwheat, coast goldfields, and deerweed.

Intermediate RAFSS occurs on 74.87 acres of Alternative 3. This vegetation community occurs along convergent portions of Alternative 1 as well as along a majority of the Alternative 3 segment. The largest continuous portion of this habitat type occurs along the portion that borders the Mill Creek levee. Smaller patches are also found to the east between Garnet Street and the Crafton Hills Pump Station. The dominant species found within Intermediate RAFSS along Alternative 3 include California sagebrush, California croton, brittlebush, hairy yerba santa, California buckwheat, California matchweed, broom matchweed, telegraph weed, and coastal prickly pear.

Mature RAFSS occurs on 41.70 acres of Alternative 3. This vegetation community primarily occurs along Alternative 3 on convergent portions of Alternative 1 between Garnet Street and the Crafton Hills Pump Station. Smaller areas of this community also occur at the northeast edge of the citrus orchards, just west of Garnet Street, near the percolation basins, and near the Foothill Pump Station. Species typical of this vegetation community observed on site include California sagebrush, hairy yerba santa, wishbone bush, caterpillar phacelia (*Phacelia cicutaria*), and Our Lord's candle.

Southern Riparian Scrub occurs on 2.66 acres of Alternative 3. These areas occur primarily within convergent portions of Alternative 1 at the Santa Ana Wash crossing as well as near some of the percolation basins along the Alternative 3 segment. Additional areas are found east of Garnet Street along convergent portions of Alternative 1. This series is composed primarily of black willow, mule fat, and white mulberry. Occasional western sycamore, Mexican elderberry, and tamarisk were also observed.

Black Willow Series occurs on 0.67 acres of Alternative 3. This series is found in a convergent section of Alternative 1 between Garnet Street and the Crafton Hills Pump Station. Onsite Black Willow Series is dominated by black willow, but mule fat and tamarisk are also found on occasion.

Ruderal Vegetation occurs on 25.49 acres of Alternative 3 and primarily occurs within the percolation basins as well as convergent portions of Alternative 1 at the south end of the north-south alignment of Alternative 1. Smaller areas of Ruderal Vegetation occur east of Garnet Street in the percolation basins convergent with the Alternative 1 alignment. Species observed within the ruderal areas of this Alternative include popcorn flower, black mustard, telegraph weed, tree tobacco, leather spineflower, and pectocarya.

Open Water occurs on 0.36 acres of Alternative 3 along the convergent section of Alternative 1 at the Santa Ana Wash crossing. Where Open Water occurs within riparian habitats, the vegetation community has been labeled according to the vegetation that is present. Therefore, the actual acreage of open water is higher than that which is represented in these calculations.

Ornamental Landscaping occurs on 0.09 acres of Alternative 3 in a convergent section of Alternative 1 at the south end of the north-south alignment.

Cultivated Agriculture occurs on 21.69 acres of Alternative 3 in convergent sections of Alternative 1 in the south-central portion of the project site. This type of vegetation community is typically that of a commercial mono-crop. Onsite Cultivated Agriculture is mostly made up of various *Citrus* species.

Developed/Disturbed areas cover 40.46 acres of Alternative 3 and occur primarily adjacent to the Mill Creek levee. These habitats also occur along convergent sections of Alternative 1. Much of the Developed areas along this Alternative contain man-made structures, such as paved roads, parking areas, and infrastructure (i.e. levee). The Disturbed areas consist primarily of dirt/gravel access roads and cleared areas devoid of vegetation.

### 3.6.2 Wildlife

Common wildlife species detected along Alternative 3 included amphibians, reptiles, birds, and mammals (Appendix B-1). One amphibian, the Pacific chorus frog, and three reptile species were detected along the Alternative 3 segment and/or convergent portions of Alternative 1 during the Chambers Group surveys. Reptiles included the common side-blotched lizard, western fence lizard, and coastal western whiptail.

In addition to a majority of the species detected along Alternative 1, 32 bird species were specifically detected along the Alternative 3 alignment during the Chambers Group surveys (Appendix B-1). Common bird species detected along Alternative 3 included California quail, red-tailed hawk, mourning dove, Anna's hummingbird, black phoebe (*Sayornis nigricans*), ash-throated flycatcher (*Myiarchus cinerascens*), common raven, cliff swallow (*Petrochelidon pyrrhonota*), northern rough-winged swallow, bushtit, rock wren (*Salpinctes obsoletus*), Bewick's wren (*Thryomanes bewickii*), northern mockingbird, California towhee, spotted towhee, southern California rufous-crowned sparrow, white-crowned sparrow, lesser goldfinch, and house finch (Appendix B-1).

In addition to a majority of the species detected along Alternative 1, three mammal species were specifically detected along Alternative 3, including desert cottontail, desert woodrat, and coyote (Appendix B-1). Bat sign was observed in the abandoned buildings of the former Lockheed site (northeast of Crafton and Madera Avenues), and small rodent burrows were observed throughout the site, so an additional number of small mammal species are expected to occur onsite as well.

Appendix B-2 contains a comprehensive wildlife list for the entire project site. In addition to the species mentioned above and those listed in Appendix B-1, it is expected that other wildlife species may be found along this Alternative as well.

### 3.6.3 Sensitive Plant and Wildlife Species

Sensitive plant and wildlife species include endangered, threatened, proposed threatened or endangered, and rare species of the USFWS and CDFG, California Special Concern Species, plants listed by CNPS, and otherwise sensitive species.

Parry's spineflower was observed along Alternative 3 and convergent portions of Alternative 1 during previous surveys (Aspen 2006, Chambers Group 2007b). This species was the most abundant sensitive plant species found to date on Alternative 3 and was most numerous along the convergent portion with Alternative 1 between Garnet Street and the Crafton Hills Pump Station. Thousands of individuals are present along Alternative 3 and/or convergent portions with Alternative 1. Two Plummer's mariposa lily locations were also found adjacent to the Alternative 3 ROW during the Aspen survey (2006).

The federally and state-endangered slender-horned spineflower and Santa Ana River woollystar were also found along the convergent portion of Alternative 1 north of the Santa Ana Wash (Figure 7). While the woollystar was not documented within the ROW for the Alternative 3 segment, twelve locations were documented between Alternative 1 and 2 north of the Santa Ana River, and six locations were documented within the ROW for Alternative 1. These woollystar locations occur in or adjacent to the convergent portions with Alternative 1. Three slender-horned spineflower locations also occur along this convergent portion.

One federally threatened bird species, the coastal California gnatcatcher, was documented along convergent portions with Alternative 1 during previous surveys, and other recent gnatcatcher locations were found along convergent portions of Alternative 1 (P & D 2005, PCCA 2006, Chambers Group 2007c) (Figure 7). Four gnatcatcher locations occur within or immediately adjacent to the ROW for convergent portions of Alternative 1, and at least eight additional locations may use part of Alternative 3 or convergent portions with Alternative 1 as territory. In addition, scat and burrow evidence documented by Stephen Montgomery during initial Chambers Group site visits suggests the likelihood that the federally endangered San Bernardino kangaroo rat is present along some portions of Alternative 3. This species has been confirmed present within convergent portions of Alternative 1, and only within the Seven W Enterprises property (Davenport 2007). To date, trapping surveys have only been completed within Seven W; therefore, while the rest of the Alternative likely contains many more individuals, Seven W contains the only known individuals anywhere on the project site.

One California Fully-Protected Species, the white-tailed kite, was found nesting near the north portion of Alternative 1 west of Cone Camp Road (PCCA 2006). This location is included in the convergent section with Alternative 1.

In addition to four CSC species found along the convergent portions of Alternative 1 (i.e. American white pelican (four in migration), Cooper's Hawk (two locations), southern California rufous-crowned sparrow (three locations), and two-striped garter snake (one location)), three CSC wildlife species, loggerhead shrike (nesting status uncertain; one location), yellow warbler (nesting status uncertain; one location), and southern California rufous-crowned sparrow (permanent resident; two additional locations), were observed on the Alternative 3 segment during the Chambers Group surveys and/or prior surveys (P & D 2005, PCCA 2006) (Figure 7).

In addition to other sensitive species found along convergent portions of Alternative 1 (i.e. great blue heron (one location), snowy egret (one location), and Lawrence's goldfinch (one location)), other sensitive species detected along the Alternative 3 segment during the Chambers Group surveys included Lawrence's goldfinch (nesting status uncertain; one additional location) (Figure 7).

### **3.7 PIPELINE ALTERNATIVE 4**

The following sub-sections describe the vegetation communities, wildlife, and sensitive species results along Alternative 4. Since not all areas were surveyed during prior surveys, the results for Alternative 4 have incorporated the findings of prior reports whenever possible (P & D 2005, Aspen 2006, PCCA 2006, Chambers Group 2007a, 2007b, 2007c).

#### **3.7.1 Vegetation Communities**

For the purpose of this report, all calculations for the completed route of Alternative 4 between the Foothill Pump Station and the Crafton Hills Pump Station include the north-south alignment of Alternative 1, rather than the north-south alignment of Alternative 2. Alternative 4 primarily consists of RAFSS communities (177.42 acres) and encompasses 267.88 total acres. Developed/Disturbed (38.31 acres), Cultivated Agriculture (24.38 acres), and Ruderal Vegetation (22.66 acres) also occupy large portions of Alternative 4. Other vegetation communities observed along Alternative 4 include Southern Riparian Scrub (3.41 acres), Black Willow Series (0.68 acres), Open Water (0.36 acres), Disturbed Mule Fat Series (0.29 acres), Ornamental Landscaping (0.17 acres), California Sycamore Series (0.13 acres), Mule Fat Series (0.03 acres), Fremont Cottonwood Series (0.02 acres), and Tamarisk Series (0.02 acres). Several areas of this Alternative are fed by discharge water, and the drainages and percolation basins found along this Alternative periodically contain water and support small riparian habitats. Figures 3 to 6 illustrate all vegetation communities along Alternative 4.

Pioneer RAFSS and Disturbed Pioneer RAFSS communities occupy 53.64 acres of Alternative 4. These vegetation communities occur predominantly along the convergent portion of Alternative 1 from the Foothill Pump Station to south of the Santa Ana River. Pioneer RAFSS also occurs at the east end of the convergent portion of Alternative 1 near the Crafton Hills Pump Station, between the active flood channel of Mill Creek and the Mill Creek levee. Common species within these series along convergent portions of Alternative 1 include scalebroom, California croton, brittlebush, California buckwheat, coast goldfields, and deerweed.

Intermediate RAFSS occurs on 65.24 acres of Alternative 4. This series primarily occurs along convergent portions of Alternative 1, but the Alternative 4 segment also contains large patches between the percolation basins. The dominant species found within Intermediate RAFSS along Alternative 4 and convergent sections of Alternative 1 include California sagebrush, California croton, brittlebush, hairy yerba santa, California buckwheat, California matchweed, broom matchweed, telegraph weed, and coastal prickly pear.

Mature RAFSS occurs on 46.86 acres of Alternative 4. This vegetation community primarily occurs along Alternative 4 on convergent sections of Alternative 1 just east of Garnet Street to the Crafton Hills Pump Station. Small areas also occur at the northern edge of the citrus orchards and along the portion of Alternative 4 that runs from the northeast corner of the Seven W Enterprises boundary to the citrus orchard. Species typical of this vegetation community observed onsite include California sagebrush, hairy yerba santa, wishbone bush, caterpillar phacelia, and Our Lord's candle.

CBAFA is found on 11.68 acres of Alternative 4. Most of this is found on convergent sections of Alternative 1 between Garnet Street and the south end of Alternative 4, but some areas are also found at the south end of the Alternative 4 segment. Species occurring onsite include brittlebush, California buckwheat, deerweed, and black sage.

Southern Riparian Scrub occurs on 3.41 acres of Alternative 4. These areas occur primarily within convergent sections of Alternative 1 along the Santa Ana Wash crossing, along the portion of Alternative 4 that runs adjacent to the citrus orchard, and convergent sections of Alternative 1 bordering the percolation basins near Garnet Street. Species typical of this vegetation community onsite include black

willow, mule fat, and white mulberry. Occasionally, western sycamore, Mexican elderberry, and tamarisk were also observed.

Black Willow Series occurs on 0.68 acres of Alternative 4. Most of this occurs in a convergent section of Alternative 1 east of Garnet Street, and an additional, much smaller area is found along the Alternative 4 segment. Onsite Black Willow Series is dominated by black willow, but mule fat and tamarisk are also found on occasion.

Mule Fat Series is found on 0.03 acres of Alternative 4. This series occurs at the south end of the Alternative 4 segment where it converges with Alternative 1. Mule fat is the sole shrub species in this location.

Disturbed Mule Fat Series is found on 0.29 acres of Alternative 4. This series occurs along the edge of a percolation basin within the Alternative 4 segment. This area shows evidence of excavation, and shrub cover is lower than that typical of established Mule Fat Series.

Fremont Cottonwood Series occurs on 0.02 acres of Alternative 4. This series occurs at the west end of the Alternative 4 segment where the ROW converges with Alternative 1. This habitat is populated by young Fremont cottonwood trees, and mule fat is also present within this area.

California Sycamore Series occurs on 0.13 acres of Alternative 4. This series is found in two small patches within the Alternative 4 segment and is dominated by California sycamore. The understory species are typical of onsite RAFSS communities.

Tamarisk Series is found on 0.02 acres of Alternative 4. This series occurs in several small patches within the central portion of the Alternative 4 section, where tamarisk is the dominant species.

Ruderal Vegetation occurs on 22.66 acres of Alternative 4 and primarily occurs in convergent sections of Alternative 1, especially at the south end of the north-south alignment. Several ruderal areas are also found within the percolation basins of Alternative 4 and convergent sections of Alternative 1. The majority of these areas exist within the percolation basins, but smaller areas occur elsewhere along the route. Species observed within the Ruderal Vegetation areas of this Alternative include popcorn flower, black mustard, telegraph weed, tree tobacco, leather spineflower, and pectocarya.

Open Water occurs on 0.36 acres of Alternative 4 along the convergent section of Alternative 1 at the Santa Ana Wash crossing. Where Open Water occurs within riparian habitats, the vegetation community has been labeled according to the vegetation that is present. Therefore, the actual acreage of open water is higher than that which is represented in these calculations.

Ornamental Landscaping is found on 0.17 acres of Alternative 4. These areas primarily occur in small patches where Alternative 1 meets Alternative 4 as well as convergent sections of Alternative 1. Species composition includes those species associated with this community along Alternative 1.

Cultivated Agriculture occurs on 24.38 acres of Alternative 4. Agricultural areas along this Alternative occur in convergent sections of Alternative 1 on the west, north, and east edges of the citrus orchards. This type of vegetation community is typically that of a commercial mono-crop. Onsite Cultivated Agriculture is mostly made up of various *Citrus* species.

Developed/Disturbed areas cover 38.31 acres of Alternative 4 and primarily occur in convergent sections of Alternative 1. Many of the Developed portions along Alternative 4 contain abandoned and current man-made structures and maintained roads. The Disturbed areas consist primarily of dirt/gravel access roads and cleared areas devoid of vegetation.

### 3.7.2 Wildlife

Common wildlife species detected along Alternative 4 included reptiles, birds, and mammals (Appendix B-1). In addition to the species found in convergent sections of Alternative 1, two reptile species, the side-blotched lizard and western fence lizard, were specifically detected along the Alternative 4 segment during the Chambers Group surveys.

In addition to a majority of the species detected along Alternative 1, 31 bird species were specifically detected along the Alternative 4 segment. Common species detected along the corridor included California quail, red-shouldered hawk, red-tailed hawk, killdeer, mourning dove, white-throated swift, Anna's hummingbird, black phoebe, western scrub-jay, American crow, cliff swallow, bushtit, rock wren, blue-gray gnatcatcher, California towhee, spotted towhee, white-crowned sparrow, lesser goldfinch, and house finch (Appendix B-1).

In addition to a majority of the species detected along Alternative 1, six mammal species, including desert cottontail, desert woodrat, coyote, raccoon, and striped skunk, were specifically detected along the Alternative 4 segment (Appendix B-1). Bat sign was observed in the abandoned buildings of the former Lockheed site within the Alternative 4 segment (northeast of Crafton and Madeira Avenues), and small rodent burrows were observed throughout the site, so an additional number of small mammal species are expected to occur onsite as well.

Appendix B-2 contains a comprehensive wildlife list for the entire project site. In addition to the species mentioned above and contained within Appendix B-1, it is expected that other wildlife species may be found along this Alternative as well.

### 3.7.3 Sensitive Plant and Wildlife Species

Sensitive plant and wildlife species include endangered, threatened, proposed threatened or endangered, and rare species of the USFWS and CDFG, California Special Concern Species, plants listed by CNPS, and otherwise sensitive species.

One sensitive plant species, Parry's spineflower (CNPS List 3.2), was detected along the Alternative 4 segment during the Chambers Group bio-reconnaissance surveys (Figure 7). For convergent portions with Alternative 1, the federally and state-endangered slender-horned spineflower and Santa Ana River woollystar were also found as well as Plummer's mariposa lily. While the woollystar was not documented within the ROW for the Alternative 4 segment, twelve locations were documented between Alternative 1 and 2 north of the Santa Ana River, and six locations were documented within the ROW for Alternative 1. These woollystar locations occur in or adjacent to the convergent portions with Alternative 1. Three slender-horned spineflower locations also occur along this convergent portion. Plummer's mariposa lily occurs in two locations in convergent portions of Alternative 1.

One federally threatened bird species, the coastal California gnatcatcher, was documented along convergent portions with Alternative 1 during previous surveys, and other recent gnatcatcher locations were found along convergent portions of Alternative 1 (P & D 2005, PCCA 2006, Chambers Group 2007c) (Figure 7). An additional location was documented during the Chambers Group bio-reconnaissance survey of Alternative 4. Six gnatcatcher locations occur within or immediately adjacent to the ROW for Alternative 4 and convergent portions of Alternative 1, and at least seven additional locations may use part of Alternative 4 or convergent portions with Alternative 1 as territory. In addition, scat and burrow evidence documented by Stephen Montgomery during initial Chambers Group site visits suggests the likelihood that the federally endangered San Bernardino kangaroo rat is present along some portions of Alternative 4. This species has been confirmed present within convergent portions of Alternative 1, and only within the Seven W Enterprises property (Davenport 2007). To date, trapping surveys have only been completed within Seven W; therefore, while the rest of the Alternative likely

contains many more individuals, Seven W contains the only known individuals anywhere on the project site.

One California Fully-Protected Species, the white-tailed kite, was found nesting near the north portion of Alternative 1 west of Cone Camp Road (PCCA 2006). This location is included in the convergent section with Alternative 1. The white-tailed kite (one juvenile and one adult) was also detected along the Alternative 4 segment during the Chambers Group bio-reconnaissance surveys (Figure 7).

Seven CSC species were found along the convergent portions of Alternative 1. These included two-striped garter snake (one location), American white pelican (four in migration), Cooper's hawk (two locations), northern harrier (one location), loggerhead shrike (one location), Vaux's swift (one location), and southern California rufous-crowned sparrow (three locations) (P & D 2005, PCCA 2006, Chambers Group 2007c) (Figure 7).

In addition to other sensitive species found along convergent portions of Alternative 1 (i.e. great blue heron (one location), snowy egret (one location), and Lawrence's goldfinch (one location)), other sensitive species detected along the Alternative 4 segment during the Chambers Group surveys included Brewer's sparrow (winter resident; one pair) (Figure 7).

### **3.8 CITRUS RESERVOIR AND CITRUS PUMP STATION**

The following sub-sections describe the vegetation communities, wildlife, and sensitive species results for the proposed Citrus Reservoir and Citrus Pump Station. Since not all areas were surveyed during prior surveys, the results for the proposed reservoir and pump station have incorporated the findings of prior reports whenever possible (P & D 2005, Aspen 2006, PCCA 2006, Chambers Group 2007a, 2007b, 2007c).

#### **3.8.1 Vegetation Communities**

The citrus orchard at the west end of the east-west alignment portion of Alternative 1 is the location for the proposed Citrus Reservoir and the proposed Citrus Pump Station. This portion of the project site is an active citrus orchard. The orchard comprises nearly the entire proposed footprint. Plant species found on the proposed Citrus Reservoir and Citrus Pump Station site included mature orange (*Citrus sinensis*) and grapefruit (*Citrus sp.*) trees.

Disturbed areas of sparse vegetation were also observed throughout the proposed reservoir site where citrus trees were absent. Species found within these areas included coast prickly pear, California buckwheat, tree tobacco, cheat grass (*Bromus tectorum*), California sagebrush, brittlebush, flax-leaved horseweed (*Coryza bonariensis*), foxtail chess, and black mustard.

#### **3.8.2 Wildlife**

Limited amphibian, reptile, mammal, and bird species were observed within the proposed reservoir and pump station sites. The common side-blotched lizard and the western fence lizard were the only detected reptile species within these sites (Appendix B-1).

Twenty-six bird species were detected within the vicinity of the proposed reservoir and pump station sites, including red-shouldered hawk, common raven, American crow, black phoebe, Anna's hummingbird, barn swallow, northern mockingbird, yellow-rumped warbler, California towhee, white-crowned sparrow, lesser goldfinch, and house finch (Appendix B-1).

The four detected mammal species included desert cottontail, desert woodrat, coyote, and raccoon (Appendix B-1).

### **3.8.3 Sensitive Plant and Wildlife Species**

No sensitive plant or wildlife species were detected within the proposed Citrus Reservoir and Citrus Pump Station sites during the surveys. In addition, exclusionary fencing has been installed along the fence line surrounding the property to reduce the potential for the San Bernardino kangaroo rat to inhabit the area.

## **SECTION 4.0 – DISCUSSION**

The Discussion section includes sub-sections on regulatory setting, wildlife corridors, jurisdictional waters, sensitive habitats, and sensitive plant and animal species.

### **4.1 REGULATORY SETTING**

The following paragraphs describe the state and federal laws that apply to this project. Applicable laws and codes include the Federal and State Endangered Species Acts, Migratory Bird Act, Clean Water Act, and California Department of Fish and Game Code 1600.

#### **4.1.1 Federal Endangered Species Act**

The USFWS in the Department of the Interior, and the National Oceanic and Atmospheric Administration (NOAA) in the Department of Commerce share responsibility for administration of the Endangered Species Act (ESA). The ESA provides broad protection for species of fish, wildlife and plants that are listed as threatened or endangered in the United States or elsewhere. The ESA has four major components: provisions for listing species, requirements for consultation with USFWS, prohibitions against “taking” of listed species, and provisions for permits that allow incidental “take”. The ESA also discusses recovery plans and the designation of critical habitat for listed species.

#### **4.1.2 The Migratory Bird Treaty Act of 1918**

The Migratory Bird Treaty Act (MBTA) of 1918 (16 U.S.C. 703-711) makes it unlawful to possess, buy, sell, purchase, barter or “take” any migratory bird listed in Title 50 of the Code of Federal Regulations Part 10. “Take” is defined as possession or destruction of migratory birds as well as their nests or eggs. Disturbances that cause nest abandonment and/or loss of reproductive effort or the loss of habitats upon which these birds depend would be in violation of the MBTA.

#### **4.1.3 Clean Water Act Section 404**

Although definitions vary to some degree, wetlands are generally considered to be areas that are periodically or permanently inundated by surface or groundwater and support vegetation adapted to life in saturated soil. Wetlands are recognized as important features on a regional and national level due to their high inherent value to fish and wildlife, use as storage areas for storm and flood waters, and water recharge, filtration, and purification functions. Technical standards for delineating wetlands have been developed by the U.S. Army Corps of Engineers (USACE) and the USFWS, which generally define wetlands through consideration of three criteria: hydrology, soils, and vegetation. Under Section 404 of the Clean Water Act (CWA), the USACE is responsible for regulating the discharge of fill material into waters of the United States. The term “waters” includes wetlands and non-wetland bodies of water that meet specific criteria as defined in the Code of Federal Regulations. All three of the identified technical criteria must be met for an area to be identified as a wetland under USACE jurisdiction, unless the area has been modified by human activity. In general, a permit must be obtained before fill can be placed in wetlands or other waters of the United States. The type of permit depends on the amount of acreage and the purpose of the proposed fill, subject to discretion of the USACE and the Regional Water Quality Control Board (RWQCB).

The RWQCB is responsible for implementing Section 401 of the CWA and for upholding state water quality standards. Pursuant to Section 401 of the CWA, projects that apply for a USACE permit for discharge of dredge or fill material, and projects that qualify for a Nationwide Permit must obtain water

quality certification. The RWQCB has taken an increasing role over regulating wetlands that are hydrologically isolated following the U.S. Supreme Court decision in 2001 regarding the case *Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers (SWANCC)*, which limits the jurisdictional authority of the USACE under Section 404. These hydrologically isolated features are now regulated by the RWQCB under authority of Section 401 of the CWA and the Porter-Cologne Water Quality Control Act.

#### **4.1.4 State of California Endangered Species Act**

The California Endangered Species Act (CESA) is similar to the main provisions of the federal ESA and is administered by the CDFG. Unlike its federal counterpart, CESA applies take prohibitions to species petitioned for listing (state candidates), as well as threatened and endangered species. Section 86 of the Fish and Game Code defines “take” as “hunt, pursue, catch, capture, kill, or attempt to hunt, pursue, catch, capture, or kill”. The CDFG maintains lists for Candidate-Endangered Species and Candidate-Threatened Species, which have the same protection as listed species. Under CESA the term “endangered species” is defined as a species of plant, fish, or wildlife that is “in serious danger of becoming extinct throughout all, or a significant portion of its range” and is limited to species or subspecies native to California. CESA prohibits the “taking” of listed species except as otherwise provided in State law.

#### **4.1.5 Section 1602 Lake and Streambed Alteration Agreement**

Jurisdictional authority of the CDFG over wetland areas is established under Section 1600 of the Fish and Game Code, which pertains to activities that would disrupt the natural flow or alter the channel, bed, or bank of any lake, river, or stream. The Fish and Game Code stipulates that it is unlawful to substantially divert or obstruct the natural flow or substantially change the bed, channel or bank of any river, stream or lake without notifying the CDFG, incorporating necessary mitigation, and obtaining a Streambed Alteration Agreement (SAA).

### **4.2 WILDLIFE MOVEMENT CORRIDORS**

The concept of habitat corridors addresses the linkage between large blocks of habitat that allows the safe movement of mammals and other wildlife species from one habitat area to another. The definition of a corridor is varied, but corridors may include such areas as greenbelts, refuge systems, underpasses, and biogeographic landbridges, for example. In general, a corridor is described as a linear habitat, embedded in a dissimilar matrix that connects two or more large blocks of habitat.

Wildlife movement corridors are critical for the survivorship of ecological systems for several reasons. Corridors can connect water, food, and cover sources, spatially linking these three resources with wildlife in different areas. In addition, wildlife movement between habitat areas provides for the potential of genetic exchange between wildlife species populations, thereby maintaining genetic variability and adaptability to maximize the success of wildlife species in response to changing environmental conditions. This is especially critical for small populations subject to loss of variability from genetic drift and effects of inbreeding. Naturally, the nature of corridor use and wildlife movement patterns varies greatly among species.

Drainages generally serve as movement corridors because wildlife can move easily through these areas, and fresh water may be available. Corridors also offer wildlife unobstructed terrain for foraging and for the dispersal of young individuals. Due to the protective cover afforded by dense vegetation, movement corridors along drainages are particularly important to larger terrestrial species, such as mountain lion (*Felis concolor*), coyote (*Canis latrans*), bobcat (*Lynx rufus*), and mule deer (*Odocoileus hemionus*).

The project site is surrounded by open space, agricultural, light industrial, water district, and residential land uses. A number of species known to use wildlife corridors, including coyote and mountain lion, have been detected on the project site (Chambers Group 2007a, Chambers Group 2007c, Davenport 2007). The undeveloped portions of the Santa Ana Wash and Mill Creek alluvial fans over the project site serve as important habitat movement corridors for wildlife. The location of the project site at the upper reaches of the San Bernardino Valley and the width of the area between the foothills to the north and the residential and agricultural developments to the south further highlight the importance of this area as a wildlife corridor.

### **4.3 JURISDICTIONAL WATERS**

Jurisdictional features are present in some areas along all four pipeline Alternatives. The main feature is the Santa Ana River. There are several active drainage channels throughout the northern portions of pipeline Alternatives 1 and 2. In addition, there are historic drainages associated with the percolation basins. As would be expected in a wide alluvial plain such as that within the project site, other ephemeral drainages occur throughout the project site. Therefore, USACE, CDFG, and RWQCB jurisdiction will apply in various portions of the project site, and permits will be required from these agencies prior to construction (See the 2007 Chambers Group *Jurisdictional and Wetland Delineation Report for the East Branch Extension Phase II Project* for more detailed information).

### **4.4 MINIMIZING IMPACTS TO SENSITIVE HABITATS AND SPECIES**

The following paragraphs discuss minimizing impacts to wetlands and sensitive plant and animal species as they may occur along the pipeline Alternatives. If proper avoidance and minimization measures are followed throughout the construction of the proposed project, potential impacts along the selected Alternative should be reduced to less than significant levels.

#### **4.4.1 Minimizing Impacts to Wetlands**

Impacts to wetlands should be minimized during construction of the pipeline where it crosses known watercourses, especially in the Santa Ana River. Minimization measures will likely include the implementation of Best Management Practices (BMPs) and bio-monitoring of wetland areas. BMPs may include the installation of silt fencing, straw wattles, sand bags, and/or fiber mats around wetland perimeters during construction. Stockpiles should not contact native soils where leaching may occur to surrounding wetlands, and stockpiles may need to be covered in the event of rain or high winds. Construction equipment should arrive clean and free of mud and seed sources from other project sites. BMPs and permit conditions will be determined by the regulatory agencies and should be enforced by bio-monitors.

Few wetlands occur along any of the pipeline Alternatives. Some sensitive wildlife species have been observed onsite that are known to occupy riparian and/or wetland areas (i.e., two-striped garter snake), and additional species have some potential to occur, most notably the Santa Ana speckled dace and the Santa Ana sucker. Temporary water diversions and/or blocking nets may be necessary to minimize potential impacts to these and other species. Depending on the characteristics of each wetland habitat, jurisdiction may fall under the RWQCB, CDFG, and/or the USACE.

Applicable permits related to this project are discussed in the previous section under the Clean Water Act Section 404 and Section 1602 Lake and Streambed Alteration Agreement headings. Refer to the Chambers Group Jurisdictional and Wetland Delineation Report for information related to any impacts to wetlands that may occur along the pipeline Alternatives.

#### 4.4.2 Minimizing Impacts to Sensitive Plant Species

Impacts to sensitive plant species should be minimized with the use of bio-monitors knowledgeable with the federal or state-listed species that may occur within the impact areas. If a formally listed species is detected during pre-construction surveys or bio-monitoring, avoidance or transplantation measures may be implemented to minimize impacts. Potentially impacted and endangered species known to occur at this time within the pipeline Alternatives include Santa Ana River woollystar and slender-horned spineflower, both of which have only been found along Alternative 1 and between Alternative 1 and 2 north of the Santa Ana River. These species will require USFWS consultation for mitigation, transplanting, and/or seed collection and dispersal methods for use in the final mitigation and monitoring plan. Additional sensitive species include Parry's spineflower and Plummer's mariposa lily. Additional focused plant surveys may yield additional locations of these and other sensitive plant species. Impacts to all identified sensitive plant species should be minimized during construction, and restoration plans should incorporate all onsite sensitive plant species into the final palette.

#### 4.4.3 Minimizing Impacts to Sensitive Wildlife Species

Impacts to sensitive wildlife species should be minimized during all phases of construction. Minimization measures may include pre-construction surveys, silt fence installation, temporary water diversions, active bio-monitoring, flagging/avoidance of sensitive areas, and relocations of sensitive species. Avoidance and minimization suggestions related to this project are discussed as follows:

- **Migratory Birds.** To minimize impacts to migratory and resident birds covered under the MBTA, including the coastal California gnatcatcher, loggerhead shrike, and southern California rufous-crowned sparrow, vegetation removal and construction activities should occur during the non-breeding season (September 1 to March 14). If vegetation removal and/or construction activities must occur during the breeding season, construction areas may require active bio-monitoring to minimize impacts to all covered birds. Pre-construction nest search surveys should be conducted during the breeding season, and all covered nesting species should be avoided during construction.
- **Nesting Raptors.** All nesting raptors, including the white-tailed kite, should be avoided during construction. Raptors typically begin nesting earlier than most other migratory and resident bird species, so the breeding season window begins before March 15. An agency-approved buffer area should be established around any and all identified active raptor nests found during construction; this buffer may be up to 500 feet from a nest. Within the buffer, construction activities may not substantially deter the possibility for the nest to successfully fledge its young. Avoidance and minimization measures may include the avoidance of nest sites, nest monitoring, erection of sound walls, and possible delays in construction.
- **San Bernardino Kangaroo Rat and Northwestern San Diego Pocket Mouse Relocations.** Silt fencing should be installed along all areas identified during protocol trapping surveys where the San Bernardino kangaroo rat and northwestern San Diego pocket mouse are present and/or where they are assumed to be present. Traps should be set within the fenced areas to capture all remaining individuals prior to construction, and removed individuals should be transported a safe distance from the fenced impact areas while construction is underway. Coordination with USFWS will be required for impacts to the San Bernardino kangaroo rat.
- **Aquatic Wildlife Species.** Measures to protect potentially occurring sensitive aquatic species, such as the two-striped garter snake, at the Santa Ana Wash crossing and/or the riparian drainage adjacent to the eastern edge of the citrus orchard may include temporary water diversions, installation and monitoring of blocking nets, active relocation, and regular bio-monitoring.

#### 4.5 SUMMARY AND IMPLICATIONS OF RESULTS BY ALTERNATIVE

The EBX II project includes four Alternatives for a proposed pipeline route to connect the Crafton Hills Pump Station to the Foothill Pump Station. To date, the following surveys have been conducted on the project site:

- **Biological reconnaissance surveys:**
  - Alternatives 1 and 2 (excluding the Seven W property), July 2005 (P & D 2005, Appendix C);
  - Alternatives 1 through 4 (all alignments, excluding Seven W property), April to September 2007 (this report);
  - Seven W property, November 2006 (Chambers Group 2007a, Appendix F);
  
- **General and focused plant surveys:**
  - Portions of Alternatives 1, 2, and 3 (i.e. the north-south alignment of pipeline Alternative 1, and the entire east-west alignment of Alternatives 1 and 2 from the end of Crafton Avenue to the Crafton Hills Pump Station, and only the extreme eastern end of Alternative 3), June and July 2006 (Aspen 2006, Appendix E);
  - Seven W property, August 2007 (Chambers Group 2007b, Appendix G);
  
- **General and focused wildlife surveys:**
  - General avian and focused surveys for coastal California gnatcatcher and least Bell's vireo on portions of Alternatives 1, 2, and 3 (i.e. the north-south alignment of Alternative 1 between the Foothill Pump Station and Opal Drive, the east-west alignment of Alternative 1 between Seven W and the Crafton Hills Pump Station; Alternative 2 from the end of Madeira Avenue to Garnet Street; Alternative 3 only along its eastern third section east to the Alternative 1 junction, and excluding the Seven W property), May through August 2006, (PCCA 2006, Appendix D);
  - Focused surveys for coastal California gnatcatcher on Seven W Enterprises property, August through November 2007, (Chambers Group 2007c, Appendix H);
  - Focused trapping survey for San Bernardino kangaroo rat on Seven W property, August 2007, (Davenport 2007, Appendix I).

These surveys have yielded a body of data for the project site that may be used in the selection of the preferred pipeline Alternative. Results of the surveys done to date are summarized by Alternative in Table 5. Based on the information collected to date, the following eight federal or state-listed plant and wildlife species are present or have some potential to occur on the project site:

##### Plant Species

- Nevin's barberry (federal endangered, state endangered) – low potential for occurrence on Alternatives 1, 2, 3, and 4.
- Slender-horned spineflower (federal endangered, state endangered) – present on Alternative 1, high potential for occurrence on Alternatives 2, 3, and 4.
- Santa Ana River woollystar (federal endangered, state endangered) – present on Alternatives 1 and 2, moderate potential for occurrence on Alternatives 3 and 4.

## Wildlife Species

- Santa Ana sucker (federal threatened) – low potential for occurrence on Alternatives 1 and 2, absent on Alternatives 3 and 4.
- California red-legged frog (federal threatened) – low potential for occurrence on Alternatives 1 and 2, absent on Alternatives 3 and 4.
- Coastal California gnatcatcher (federal threatened) – present on Alternatives 1, 2, and 4, high potential for occurrence on Alternative 3.
- White-tailed kite (California fully-protected) – present on Alternatives 1 and 4, high potential for occurrence on Alternatives 2 and 3.
- San Bernardino kangaroo rat (federal endangered) – present on Alternative 1, high potential for occurrence on Alternatives 2, 3, and 4.

**Table 5  
Summary of Sensitive Biological Resources  
Present or Potentially Present on the Proposed EBX II Pipeline Alternatives**

<b>Resource and Status</b>	<b>Alt. 1 279.60 acres</b>	<b>Alt. 2 299.75 acres</b>	<b>Alt. 3 262.41 acres</b>	<b>Alt. 4 267.88 acres</b>
<b>Sensitive Habitats (Acres)</b>				
RAFSS – rare/threatened plant community	171.98	185.50	171.08	177.42
Southern Riparian Scrub – sensitive community	3.47	2.99	2.66	3.41
<b>Sensitive Plant Species (Potentials for Occurrence) Federal and State Listed Plant Species</b>				
Nevin's barberry – <b>FE, SE</b>	Low	Low	Low	Low
Slender-horned spineflower – <b>FE, SE</b>	<b>Present</b>	High	High	High
Santa Ana River woollystar – <b>FE, SE</b>	<b>Present</b>	<b>Present</b>	Moderate	Moderate
<b>Other Sensitive Plant Species</b>				
Plummer's mariposa lily – CNPS 1B.2	<b>Present</b>	<b>Present</b>	<b>Present</b>	High
Smooth tarplant – CNPS 1B.1	Low	Low	*Absent	*Absent
Parry's spineflower – CNPS 3.2	<b>Present</b>	<b>Present</b>	<b>Present</b>	<b>Present</b>
California satintail – CNPS 2.1	Low	Low	*Absent	*Absent
Robinson's pepper-grass – CNPS 1B.2	Moderate	Moderate	Moderate	Moderate
Parish's bush mallow – CNPA 1A	Low	Low	*Absent	*Absent
<b>Sensitive Wildlife Species (Potentials for Occurrence) Federal and State Listed Wildlife Species</b>				
Santa Ana sucker – <b>FT, CSC</b>	Low	Low	Absent	Absent
California red-legged frog – <b>FT, CSC</b>	Low	Low	*Absent	*Absent
Coastal California gnatcatcher – <b>FT, CSC</b>	† <b>Present</b>	† <b>Present</b>	High	† <b>Present</b>
San Bernardino kangaroo rat – <b>FE, CSC</b>	<b>Present</b>	High	High	High
White-tailed kite (nesting) – <b>FPS</b>	<b>**Present</b>	High	High	<b>Present</b>
<b>Other Sensitive Wildlife Species</b>				
Santa Ana speckled dace – <b>CSC</b>	Moderate	Moderate	Absent	Absent
Silvery legless lizard – <b>CSC</b>	Low	Low	Low	Low
Orange-throated whiptail – <b>CSC</b>	Moderate	Moderate	Moderate	Moderate
San Bernardino mountain kingsnake – <b>CSC</b>	Low	Low	Low	Low
Coast (San Diego) horned lizard – <b>CSC</b>	High	High	High	High
Two-striped garter snake – <b>CSC</b>	<b>Present</b>	<b>Present</b>	Absent	Absent

**Table 5 (continued)**  
**Summary of Sensitive Biological Resources**  
**Present or Potentially Present on the Proposed EBX II Pipeline Alternatives**

Cooper's hawk – CSC	<b>*Present</b>	High	High	High
Southern California rufous-crowned sparrow – CSC	<b>†Present</b>	<b>†Present</b>	<b>†Present</b>	High
Great blue heron – none	<b>†Present</b>	High	High	High
Burrowing owl – CSC	Low	Low	Low	Low
Lawrence's goldfinch – none	<b>*Present</b>	High	<b>*Present</b>	High
Vaux's swift – CSC	<b>††Present</b>	High	High	High
Northern harrier – CSC	<b>*Present</b>	<b>*Present</b>	High	High
Yellow warbler (nesting) – CSC	Moderate	Moderate	<b>††Present</b>	Moderate
Snowy egret – none	<b>†Present</b>	High	High	High
California horned lark – CSC	Low	Low	Low	Low
Loggerhead shrike – CSC	<b>*Present</b>	<b>*Present</b>	<b>*Present</b>	High
American white pelican –CSC	<b>††Present</b>	<b>††Present</b>	High	High
Brewer's sparrow –none	<b>• Present</b>	High	High	<b>• Present</b>
Pallid bat – CSC	Moderate	Moderate	Moderate	Moderate
Northwestern San Diego pocket mouse – CSC	<b>Present</b>	<b>Present</b>	High	High
California western mastiff bat – CSC	Moderate	Moderate	Moderate	Moderate
Los Angeles pocket mouse – CSC	Moderate	Moderate	Moderate	Moderate
American badger – CSC	Moderate	Moderate	Moderate	Moderate
<b>Notes:</b>				
* Absent = Assumed Absent				
† Present = Resident				
* Present = nesting status unknown				
• Present = winter resident				
†† Present = migrating				
** Present = nesting				
Results based on information collected to date (December 31, 2007).				
<b>Federal designations: (Federal Endangered Species Act, USFWS):</b>				
FE:	Federal-listed, endangered.			
FT:	Federal-listed, threatened.			
FC:	Candidate species.			
<b>State designations: (California Endangered Species Act, CDFG)</b>				
SE:	State-listed, endangered.			
ST:	State-listed, threatened.			
FPS:	California Fully Protected Species			
CSC:	California Special Concern Species			
Rare:	State-listed as rare (Listed "Rare" animals have been re-designated as Threatened, but Rare plants have retained the Rare designation.)			

**Table 5 (continued)**  
**Summary of Sensitive Biological Resources**  
**Present or Potentially Present on the Proposed EBX II Pipeline Alternatives**

California Native Plant Society (CNPS) designations: (Note: According to CNPS [Skinner and Pavlik 1994], plants on Lists 1B and 2 meet definitions for listing as threatened or endangered under Section 1901, Chapter 10 of the California Fish and Game Code. This interpretation is inconsistent with other definitions.	
List 1A:	Plants presumed extinct in California.
List 1B:	Plants rare and endangered in California and throughout their range.
List 2:	Plants rare, threatened, or endangered in California but more common elsewhere in their range.
List 3:	Plants about which we need more information; a review list.
List 4:	Plants of limited distribution; a watch list.
List Extension 0.1:	Seriously endangered in California (over 80 percent of occurrences threatened/ high degree and immediacy of threat)
List Extension 0.2:	Fairly endangered in California (20-80 percent occurrences threatened)
List Extension 0.3:	Not very endangered in California (<20 percent of occurrences threatened)
Source: California Natural Diversity Data Base (CNDDB) and California Native Plant Society Electronic Inventory (CNPSEI) for Yucaipa, Redlands, Harrison Mountain, and Keller Peak 7.5 minute USGS quadrangles, 2007, and review of previous reports (P & D 2005, PCCA 2006, Aspen 2006, Chambers Group 2007a, Chambers Group 2007b, Chambers Group 2007c, Davenport 2007) as well as the 2007 Chambers Group bio-reconnaissance surveys.	

Considering all data collected to date over the project site, important findings of the combined surveys include the following:

- Sensitive Habitats.** RAFSS and its sub-associations are by far the most abundant sensitive habitat onsite. Acreage amounts include 171.98 acres for Alternative 1, 185.50 acres for Alternative 2, 171.08 acres for Alternative 3, and 185.50 acres for Alternative 4. Other sensitive habitats include Southern Riparian Scrub; however, the acreages are far less, and some of the occurrences exist along percolation basin edges (not along natural watercourses). The only areas with Southern Riparian Scrub along a natural drainage are within the Santa Ana Wash crossings at Alternatives 1 and 2. Acreage totals include 3.47 acres for Alternative 1, 2.99 acres for Alternative 2, 2.66 acres for Alternative 3, and 3.41 acres for Alternative 4. Given these acreages, Alternatives 1 and 3 would have the least impacts on sensitive habitats.
- Sensitive Plant Species.** Alternative 1 contains the most sensitive plant species, both in terms of number of species and number of individuals, which have been documented to date. The north-south alignment of Alternative 1 contains six locations of Santa Ana River woollystar and one location of slender-horned spineflower, both of which are federally and state-endangered. Other sensitive species that are not formally listed found along Alternative 1 include Parry's spineflower and Plummer's mariposa lily. Thousands of Parry's spineflowers occur along this Alternative (mostly along the east-west alignment), while two locations of Plummer's mariposa lily have been documented to date. Alternatives 2, 3, and 4 contain lesser amounts of sensitive plant species and contain no federal or state-listed plants; however, focused plant surveys have not occurred on the entire project site. While these data may be applied towards the selection of the preferred Alternative, it is important to note that all Alternatives contain some portions of Alternative 1 through their alignments and that focused sensitive species have not been completed along all portions of the Alternatives. Therefore, these data should be considered preliminary until such surveys have been completed.
- Sensitive Wildlife Species.** Alternative 1 contains the most sensitive wildlife species, both in terms of number of species and number of individuals, which have been documented to date. Eleven coastal California gnatcatcher locations have been documented within 1,000 feet of the Alternative 1 pipeline centerline; only two other locations exist. Six San Bernardino kangaroo rats have been trapped within the 200-foot buffer for Alternative 1 within Seven W Enterprises; this species has not

been documented anywhere else within the project site. Other resident sensitive wildlife species documented within and/or adjacent to Alternative 1 include two-striped garter snake (one individual in the Santa Ana River), white-tailed kite (one nesting pair north of the Santa Ana River), Cooper's hawk (at least one or two individuals; nesting status uncertain), northern harrier (at least one or two individuals; nesting status uncertain), great blue heron (at least one individual; does not nest onsite), snowy egret (at least one individual; does not nest onsite), loggerhead shrike (several locations formed of resident and wintering birds; nesting status uncertain), and northwestern San Diego pocket mouse (abundantly trapped within Seven W). Other migrating and/or wintering wildlife species documented within and/or adjacent to Alternative 1 include American white pelican (four seen in migration), Vaux's swift (one individual seen in migration), Brewer's sparrow (wintering pair), and Lawrence's goldfinch (two locations with approximately twelve total birds). For federal and state-listed species along other Alternatives, Alternative 2 has nine gnatcatcher locations within 1,000 feet of the pipeline centerline and no San Bernardino kangaroo rats documented within its ROW (although two locations were found within 300 feet of the centerline). The Alternative 4 segment has one gnatcatcher location and one white-tailed kite location, and the Alternative 3 segment has no federal or state listed wildlife species. For other sensitive wildlife species: Alternative 2 segments have Cooper's hawk (at least one or two individuals; nesting status uncertain), northern harrier (at least one or two individuals; nesting status uncertain), and southern California rufous crowned sparrow (three locations); the Alternative 3 segment has loggerhead shrike (one location), yellow warbler (one individual seen in migration), southern California rufous crowned sparrow (two locations), and Lawrence's goldfinch (one location with several individuals); and the Alternative 4 segment has Brewer's sparrow (wintering pair). While these hard data may be applied towards the selection of the preferred Alternative, it is important to note that all Alternatives contain some portions of Alternative 1 through their alignments and that focused sensitive species have not been completed along all portions of the Alternatives. Therefore, these data should be considered preliminary until such surveys have been completed.

Based on these preliminary data, Alternative 2 may be the preferred Alternative at this point. This Alternative includes developed areas along Madeira Avenue and Crafton Avenue that are biologically unimportant, and given that focused plant and avian surveys have occurred along the entire length of its east-west alignment, it also contains relatively few sensitive plant and animal species (i.e. nine Parry's spineflower locations, one Plummer's mariposa lily location, one northern harrier location, and three southern California rufous-crowned sparrow locations). No federal or state-listed plant or animal species have been found along the east-west alignment of Alternative 2. The vegetative characteristics of the east-west portion of Alternative 2 are not as conducive generally for gnatcatchers and kangaroo rats when compared to Alternatives 1, 3, and 4; the vegetation includes a higher amount of tall and mature chamise, which tends to make an area less desirable for gnatcatchers, and there is a greater degree of annual grasses with less openings, which tends to make an area less desirable for San Bernardino kangaroo rats. This generality may be applied to the east-west portion of Alternative 2 between Crafton Avenue and Garnet Street and compared with the east-west alignments of Alternatives 1, 3, and 4. However, until focused surveys have been completed along the north-south alignment of Alternative 2 and the remainder of the unsurveyed areas over the rest of the project site, the selection of a preferred Alternative is premature. In addition, without focused trapping surveys, impacts to San Bernardino kangaroo rats and northwestern San Diego pocket mice cannot be addressed for the east-west portion of Alternative 2, excluding the Seven W Enterprises property.

## SECTION 5.0 – RECOMMENDATIONS

Prior to the commencement of construction, Chambers Group recommends focused/protocol surveys for the species listed below. Surveys are recommended to aid in the selection of one Alternative and to assess potential impacts for all sensitive species as they occur along each Alternative. These recommended surveys are based on listing statuses, Critical Habitat designations, Preservation Areas, known occurrences, and potentials to occur within the impact areas of the project site:

- **Focused Plant Surveys.** Focused plant surveys have been completed on portions of Alternatives 1, 2, and 3 (Aspen 2006) and on the Seven W property (Chambers Group 2007b). Aspen survey routes included the north-south alignment of pipeline Alternative 1, and the entire east-west alignment of Alternatives 1 and 2 from the end of Crafton Avenue to the Crafton Hills Pump Station. Only the extreme eastern end of Alternative 3 was surveyed. Focused plant surveys have not yet been completed on the entire project site. Chambers Group therefore recommends focused plant surveys during the spring 2008 blooming periods for the presence/absence of all sensitive plant species known to occur or that could potentially occur along the portions of Alternatives 1, 2, 3, and 4 that have not yet been surveyed (i.e. along pipeline Alternatives 3 and 4 as well as the portion of Alternative 1 that borders the citrus orchards, and the north-south alignment of Alternative 2). Surveys should focus on the two federal and state-endangered species known to be present on the project site, Santa Ana River woollystar and slender-horned spinyflower, and also those formally listed species that have the potential to occur, such as Nevin's barberry.
- **Coastal California Gnatcatcher Surveys.** The project site is within Critical Habitat for the coastal California gnatcatcher. Protocol gnatcatcher surveys have been conducted on portions of Alternatives 1, 2 and 3 and in the Seven W Enterprises property (PCCA 2006, Chambers Group 2007c). PCCA survey routes included the north-south alignment of Alternative 1 between the Foothill Pump Station and Opal Drive, and the east-west alignment of Alternative 1 between Seven W and the Crafton Hills Pump Station. Alternative 2 was surveyed from the end of Madeira Avenue to Garnet Street, and Alternative 3 was surveyed only along its eastern third section east to the Alternative 1 junction. Chambers Group therefore recommends protocol coastal California gnatcatcher surveys be conducted along the north-south alignment of Alternative 2, the portion of Alternative 1 that borders the citrus orchard, Alternative 4, and the western 2/3 of Alternative 3.
- **San Bernardino Kangaroo Rat and Northwestern San Diego Pocket Mouse Surveys and Relocations.** The project site is within Critical Habitat for the federally endangered San Bernardino kangaroo rat. Only the Seven W Enterprises property has been surveyed for this species, where sixteen individuals were identified (six within the impact area for Alternative 1). The northwestern San Diego pocket mouse was the most abundantly trapped small mammal within Seven W. In order to assess populations of these two sensitive species along each of the Alternatives, Chambers Group recommends further trapping surveys for the remainder of the project site. The resulting data could then be applied in the selection of one Alternative. If trapping surveys are not completed over the four Alternatives, then Chambers Group recommends that presence be assumed throughout the site. If presence is assumed, then pre-construction capture and relocation of San Bernardino kangaroo rats and northwestern San Diego pocket mice along the selected project Alternative should ensure the safety of these sensitive species during construction.
- **Bat Surveys and Exclusions.** Bat sign was found in the abandoned buildings of the old Lockheed site (northeast of Crafton and Madera Avenues), but no bat surveys have been done to date on the project site. It is therefore recommended that diurnal and nocturnal bat surveys be conducted to determine bat species usage of the project site and the presence or absence of listed and/or sensitive bat species, especially along the portions of Alternatives 1, 3, and 4 where these abandoned buildings exist. If bats are determined to use the area only as foraging grounds, and no roosts are detected within the vicinity of the selected Alternative, then construction should proceed as planned. However, if a roost is detected in the vicinity of the selected Alternative, especially the roost of a

sensitive species, then the roost should be avoided or safely excluded prior to the commencement of construction.

With the recommended additional focused sensitive species surveys along the portions of the project site detailed above, the selection of the preferred Alternative can be based on hard data collected from the P&D bio-reconnaissance surveys of 2005 through the completion of these recommended surveys. Until such time, Alternative 2 only appears to be the optimal choice in minimizing potential impacts to the biological resources on the project site. A proper analysis of potential impacts to sensitive species as they occur along the four Alternatives cannot be completed until such surveys are complete

## SECTION 6.0 – REFERENCES

### Aspen Environmental Group (Aspen)

- 2006 Rare Plant Survey Report for the East Branch Extension Project, Phase II, San Bernardino County, California. Aspen Environmental Group, Agoura Hills, California. Prepared for the Department of Water Resources, Unpublished Report.

### Atwood, J. L.

- 1990 Status review of the California Gnatcatcher (*Polioptila californica*). Manomet Bird Observatory, P.O. Box 1770, Manomet, Massachusetts 02345.

### Bontrager, D.R.

- no date Habitat requirements, home range requirements, and breeding biology of the California Gnatcatcher (*Polioptila californica*) in south Orange County, California. Prepared for Santa Margarita Company, Ranch Santa Margarita, California. April.

### Bradford, D. F.

- 1989 Allotropic distribution of native frogs and introduced fishes in high Sierra Nevada lakes of California USA: Implication of the negative effect of fish introductions. *Copeia*. 1989:775-778.

### Bradford, D. F., F. Tabatabai, and D. M. Graber

- 1993 Isolation of remaining populations of the native frog, *Rana muscosa*, by introduced fishes in Sequoia and Kings Canyon National Parks, California. *Conservation Biology*. 7:882-888.

### Bull, E.L. and R.C. Beckwith

- 1993 Diet and foraging behavior of Vaux's Swifts in northeastern Oregon. *Condor* 96:1016-1023.

### California Department of Fish and Game (CDFG)

- 2000 The Status of Rare, Threatened, and Endangered Animals and Plants of California, Stephens' Kangaroo Rat. URL: [http://www.dfg.ca.gov/hcpb/cgi-bin/more\\_info.asp?idKey=ssc\\_tespp&specy=mammals&query=Dipodomys%20stephensi](http://www.dfg.ca.gov/hcpb/cgi-bin/more_info.asp?idKey=ssc_tespp&specy=mammals&query=Dipodomys%20stephensi) accessed on July 20, 2007.

### California Natural Diversity Database (CNDDDB)

- 2007 Database Record Search for Yucaipa, Keller Peak, Harrison Mountain, and Redlands, California 7.5-minute USGS quadrangles. California Department of Fish and Game, State of California Resources Agency, Sacramento, California.

### California Native Plant Society Electronic Inventory (CNPSEI)

- 2007 Database Record Search for Yucaipa, Keller Peak, Harrison Mountain, and Redlands, California 7.5-minute USGS quadrangles. California Native Plant Society, Sacramento, California. [www.CNPS.org](http://www.CNPS.org).

### Chambers Group

- 2007a Amended Results of the Biological Reconnaissance for Area 7W (EBX II- Alt 1 /Alt 2), unincorporated community of Mentone, San Bernardino County, California. July 20, 2007.

### Chambers Group

- 2007b Focused Plant Survey Report for Seven W Enterprises. Draft.
- 2007c California Gnatcatcher Survey at Seven W Enterprises (preliminary findings).
- 2007d Jurisdictional and Wetland Delineation Report for the East Branch Extension Phase II Project.

- Davenport, Arthur  
 2007 San Bernardino Kangaroo Rat (*Dipodomys merriami parvus*) Presence/Absence & Los Angeles Pocket Mouse (*Perognathus longimembris brevinasus*) Survey, Mentone Pipeline Project. Draft.
- Davis, J. N.  
 1999 Lawrence's Goldfinch (*Carduelis lawrencei*). In The Birds of North America, No. 480 (A. Poole and F. Gill, eds.). The Birds of North America, Inc., Philadelphia, Pennsylvania.
- Dunk, J. R.  
 1995 White-tailed Kite (*Elanus leucurus*). In The Birds of North America, No. 178 (A. Poole and F. Gill, eds.). The Academy of Natural Sciences, Philadelphia, and The American Ornithologists' Union, Washington, D.C.
- ERCE  
 1990 Phase I report, Amber Ridge California gnatcatcher study. Unpublished report prepared for Weingarten, Siegel, Fletcher Group, Inc., San Diego, California.
- Ehrlich, P.R., Dobkin, D.S., Wheye, D.  
 1988 The Birders Handbook: A Field Guide to the Natural History of North American Birds. New York: Simon and Schuster.
- Gordon, H.J. and T.C. White  
 1994 Ecological guide to southern California chaparral plant series. Technical Publication R5-ECOL-TP-005. USDA, Forest Service, Pacific Southwest Region, San Francisco, California.
- Hanes, T.L., R.D. Friesen, and K. Keane  
 1989 Alluvial Scrub Vegetation in Coastal Southern California. Pages 187-193. Proceedings of the California Riparian Systems Conference, September 22-24, 1988. Davis, California. USDA Forest Service Gen. Tech. Rep. PSW-110.
- Hickman, J. C. (Editor)  
 1993 The Jepson Manual: Higher Plants of California. University of California Press, Berkeley, California.
- Holland, R.F.  
 1986 Preliminary Descriptions of the Terrestrial Natural Communities of California. State of California, The Resources Agency.
- Hughes, J. M.  
 1999 Yellow-billed Cuckoo (*Coccyzus americanus*). In The Birds of North America, No. 418 (A. Poole and F. Gill, eds.). The Birds of North America, Inc., Philadelphia, Pennsylvania.
- Kirkpatrick, J.B. and Hutchinson, C.F.  
 1977 The Community Composition of California Coastal Sage Scrub. Vegetatio 25: 21-33.
- Mock, Patrick J., Barry L. Jones, Mary Grishaver, John Konecny, David King D.  
 Home range size and habitat preferences of the California Gnatcatcher in San Diego County. 108<sup>th</sup> Meeting of the American Ornithologists' Union, 60<sup>th</sup> Meeting on Cooper Ornithological Society, 1990. 95pp.
- Munz, P. A.  
 1974 A Flora of Southern California. University of California Press, Berkeley, California.

Pacific Coast Conservation Alliance (PCCA)

- 2006 Sensitive Avian Surveys in Support of the California Department of Water Resources East Branch Extension Project Phase II.

P&D Consultants (P & D)

- 2005 Results of the Biological Resources Reconnaissance Survey for the East Branch Extension Phase II Project. P&D Consultants, Orange, California. Prepared for the California Department of Water Resources, Unpublished Report.

Preston K.L., P.J. Mock, M.A. Grishaver, E.A. Bailey, and D.F. King

- 1998a California territorial behavior. *Western Birds* 29: 242-257.

Remsen, J.V.

- 1978 Bird species of special concern in California: An annotated list of declining or vulnerable bird species. CDFG Wildlife Management Branch. Report No. 78-1.

Rotenberry, J. T., M. A. Patten, and K. L. Preston

- 1999 Brewer's Sparrow (*Spizella breweri*). In *The Birds of North America*, No. 390 (A. Poole and F. Gill, eds.). The Birds of North America, Inc., Philadelphia, Pennsylvania.

Sawyer, J.O., Jr. and T. Keeler-Wolf

- 1995 A Manual of California Vegetation. California Native Plant Society, Sacramento, California.

Scott, T. A., and M. L. Morrison

- 1990 Natural history and management of the San Clemente loggerhead shrike. *Proceedings of the Western Foundation of Vertebrate Zoology* 4:23-57.

Skinner, M.W., and B.M. Paulik

- 1994 California Native Plant Society Inventory of Rare and Endangered Vascular Plants of California. California Native Plant Society, Sacramento, California.

Sedgwick, J.A.

- 1987 Avian habitat relationships in pinyon-juniper woodland. *Wilson Bulletin* 99: 413-431.  
2000 Willow Flycatcher (*Empidonax traillii*). In *The Birds of North America*, No. 533 (A. Poole and F. Gill, eds.). The Birds of North America, Inc., Philadelphia, Pennsylvania.

Smith, R.L.

- 1980 Alluvial Scrub Vegetation of the San Gabriel River Floodplain, California. *Madrono* 27:126-138.

Stager, K. E.

- 1965 An exposed nocturnal roost of migrant Vaux's Swifts. *Condor* 67:81-82.

Stebbins, R.C.

- 2003 A Field Guide to Western Reptiles and Amphibians. 3rd edition. Houghton Mifflin, Boston, Massachusetts.

Unitt, P.

- 1987 *Empidonax traillii extimus*: an endangered subspecies. *Western Birds* 18: 137-162.

U.S. Fish and Wildlife Service (USFWS)

- 1998 Draft Recovery Plan for the Least Bell's Vireo. U.S. Fish and Wildlife Service, Portland, Oregon. 139 pp.

U.S. Geological Survey (USGS)

- 1980 Harrison Mountain, Keller Peak, Redlands, and Yucaipa 7.5' Topographic Quadrangles, 1967; photorevised 1980.
- 2007 Breeding Ranges of Willow Flycatcher Subspecies. URL: <http://sbsc.wr.usgs.gov/cprs/research/projects/swwf/wiflrang.asp>. Accessed on June 18, 2007.

U.S. Department of Agriculture (USDA)

- 1980 Survey of San Bernardino County, California, Southwestern Part. Washington, D. C.

Westman, W.E.

- 1981 Diversity relations and succession in Californian coastal sage scrub. *Ecology* 62: 439-455.

Zweifel, R. G.

- 1955 Ecology, distribution, and systematics of frogs of the *Rana boylei* group. University of California Publ. Zool. 54:207-292.

**APPENDIX A-1 – PLANT SPECIES OBSERVED DURING THE  
CHAMBERS GROUP 2007 SURVEYS**

**Appendix A-1**  
**Plant Species Observed During the Chambers Group 2007 Surveys**

Scientific Name	Common Name	1	2	3	4	Reservoir/ Pump Station
<b>FERNS AND FERN ALLIES</b>						
<b>PTERIDACEAE</b>	<b>BRAKE FAMILY</b>					
<i>Pellaea andromedifolia</i>	coffee fern	X		X		
<i>Pellaea mucronata</i>	bird's-foot fern	X		X		
<i>Pentagramma triangularis</i>	goldenback fern			X		
<b>GYMNOSPERMS</b>						
<b>CUPRESSACEAE</b>	<b>CYPRESS FAMILY</b>					
<i>Cupressus sempervirens*</i>	Italian cypress	X	X			
<i>Juniperus californica</i>	California juniper	X	X	X	X	
<b>ANGIOSPERMS (DICOTYLEDONS)</b>						
<b>ANACARDIACEAE</b>	<b>SUMAC OR CASHEW FAMILY</b>					
<i>Malosma laurina</i>	laurel sumac	X				
<i>Rhus ovata</i>	sugar bush	X			X	
<i>Rhus trilobata</i>	skunkbrush	X				
<i>Schinus molle*</i>	Peruvian pepper tree	X	X			
<i>Schinus terebinthifolius*</i>	Brazilian pepper tree	X	X		X	
<b>APIACEAE</b>	<b>CARROT FAMILY</b>					
<i>Apiastrum angustifolium</i>	wild celery		X			
<b>APOCYNACEAE</b>	<b>DOGBANE FAMILY</b>					
<i>Nerium oleander*</i>	oleander	X	X			
<b>ARALIACEAE</b>	<b>GINSENG FAMILY</b>					
<i>Hedera helix*</i>	English ivy	X	X			
<b>ASTERACEAE</b>	<b>SUNFLOWER FAMILY</b>					
<i>Ambrosia acanthicarpa</i>	annual bur-sage	X	X	X		
<i>Ambrosia psilostachya</i>	western ragweed	X	X		X	
<i>Artemisia californica</i>	California sagebrush	X	X	X	X	X
<i>Artemisia douglasiana</i>	mugwort	X				
<i>Artemisia dracunculus</i>	tarragon	X			X	
<i>Baccharis salicifolia</i>	mule fat	X	X		X	
<i>Bebbia juncea</i>	sweetbush	X				
<i>Brickellia californica</i>	California brickellbush	X				
<i>Carduus pycnocephalus*</i>	Italian thistle	X				
<i>Centaurea melitensis*</i>	totalote	X	X		X	
<i>Chaenactis glabriuscula</i>	yellow pincushion	X		X		
<i>Chamomilla suaveolens*</i>	pineapple weed	X				
<i>Cirsium occidentale</i>	cobweb thistle	X				
<i>Cirsium vulgare*</i>	bull thistle	X			X	
<i>Conyza bonariensis*</i>	flax-leaved horseweed	X	X		X	
<i>Conyza canadensis</i>	horseweed	X	X		X	
<i>Encelia californica</i>	bush sunflower				X	

**Appendix A-1 (continued)**  
**Plant Species Observed During the Chambers Group 2007 Surveys**

Scientific Name	Common Name	1	2	3	4	Reservoir/ Pump Station
<b>ANGIOSPERMS (DICOTYLEDONS)</b>						
<b>ASTERACEAE</b>	<b>SUNFLOWER FAMILY</b>					
<i>Encelia farinosa</i>	brittlebush	X	X	X	X	X
<i>Ericameria linearifolia</i>	interior goldenbush	X		X	X	
<i>Filago californica</i>	California fluffweed	X	X	X		
<i>Filago gallica</i> *	fluffweed	X		X		
<i>Gnaphalium bicolor</i>	bicolored cudweed	X				
<i>Gnaphalium californicum</i>	California everlasting	X			X	
<i>Gnaphalium canescens</i>	felty everlasting	X				
<i>Gnaphalium luteo-album</i> *	white cudweed	X				
<i>Gutierrezia californica</i>	California matchweed	X	X	X	X	
<i>Gutierrezia sarothrae</i>	broom matchweed	X	X			
<i>Helianthus annuus</i>	common sunflower	X				
<i>Heterotheca grandiflora</i>	telegraph weed	X	X	X	X	
<i>Heterotheca villosa</i>	hairy false goldenaster				X	
<i>Hypochaeris glabra</i> *	smooth cat's-ear	X				
<i>Hypochaeris radicata</i> *	hairy cat's-ear			X		
<i>Isocoma menziesii</i>	coastal goldenbush	X				
<i>Lactuca serriola</i> *	prickly lettuce	X				
<i>Lasthenia californica</i>	coast goldfields	X				
<i>Lepidospartum squamatum</i>	scale-broom	X	X	X	X	
<i>Lessingia filaginifolia</i>	cudweed aster	X	X			
<i>Senecio flaccidus</i>	shrubby butterweed	X				
<i>Senecio vulgaris</i> *	common groundsel	X	X	X		
<i>Silybum marianum</i> *	milk thistle	X				
<i>Sonchus asper</i> ssp. <i>asper</i> *	prickly sow thistle	X	X	X		
<i>Sonchus oleraceus</i> *	common sow thistle	X				
<i>Stephanomeria</i> sp.	wreathplant	X				
<i>Stephanomeria exigua</i>	wire lettuce				X	
<i>Tetradymia comosa</i>	hairy horsebrush		X			
<i>Xanthium strumarium</i>	cocklebur	X				
<b>BERBERIDACEAE</b>	<b>BARBERRY FAMILY</b>					
<i>Nandina domestica</i> *	sacred bamboo	X	X			
<b>BIGNONIACEAE</b>	<b>BIGNONIA FAMILY</b>					
<i>Jacaranda mimosifolia</i> *	jacaranda	X	X			
<b>BORAGINACEAE</b>	<b>BORAGE FAMILY</b>					
<i>Amsinckia menziesii</i>	common fiddleneck	X	X		X	
<i>Cryptantha</i> sp.	cryptantha	X	X	X		
<i>Heliotropium curassavicum</i>	salt heliotrope				X	

**Appendix A-1 (continued)**  
**Plant Species Observed During the Chambers Group 2007 Surveys**

Scientific Name	Common Name	1	2	3	4	Reservoir/ Pump Station
<b>ANGIOSPERMS (DICOTYLEDONS)</b>						
<b>BORAGINACEAE</b>	<b>BORAGE FAMILY</b>					
<i>Pectocarya linearis</i> ssp. <i>ferocula</i>	slender pectocarya	X	X	X		
<i>Pectocarya pencillata</i>	sleeping combseed	X				
<i>Plagiobothrys</i> sp.	popcornflower	X	X	X	X	
<b>BRASSICACEAE</b>	<b>MUSTARD FAMILY</b>					
<i>Brassica nigra</i> *	black mustard	X	X	X	X	X
<i>Hirschfeldia incana</i>	shortpod mustard				X	
<i>Lepidium</i> sp.	peppergrass	X		X		
<i>Lobularia maritima</i> *	sweet-alyssum	X				
<i>Sisymbrium irio</i> *	London rocket	X				
<i>Thysanocarpus curvipes</i>	hairy fringe pod	X				
<b>CACTACEAE</b>	<b>CACTUS FAMILY</b>					
<i>Opuntia littoralis</i>	coastal prickly pear	X			X	X
<i>Opuntia oricola</i>	pancake prickly pear	X	X			
<i>Opuntia parryi</i>	valley cholla	X		X		
<i>Opuntia prolifera</i>	coast cholla	X	X			
<b>CAPRIFOLIACEAE</b>	<b>HONEYSUCKLE FAMILY</b>					
<i>Sambucus mexicana</i>	Mexican elderberry	X	X		X	
<b>CARYOPHYLLACEAE</b>	<b>PINK FAMILY</b>					
<i>Cardionema ramosissima</i>	sand mat			X		
<b>CHENOPODIACEAE</b>	<b>GOOSEFOOT FAMILY</b>					
<i>Chenopodium ambrosioides</i> *	Mexican tea	X				
<i>Chenopodium californicum</i>	California goosefoot	X			X	
<i>Salsola tragus</i>	Russian thistle				X	
<b>CONVOLVULACEAE</b>	<b>MORNING-GLORY FAMILY</b>					
<i>Calystegia macrostegia</i>	western bindweed	X				
<b>CRASSULACEAE</b>	<b>STONECROP FAMILY</b>					
<i>Crassula connata</i>	pygmy-weed	X	X	X		
<i>Dudleya lanceolata</i>	lance-leaved dudleya	X				
<b>CUCURBITACEAE</b>	<b>GOURD FAMILY</b>					
<i>Cucurbita foetidissima</i>	calabazilla			X		
<i>Marah macrocarpus</i>	wild cucumber	X	X	X	X	
<b>CUSCUTACEAE</b>	<b>DODDER FAMILY</b>					
<i>Cuscuta californica</i>	California dodder	X				
<b>EUPHORBIACEAE</b>	<b>SPURGE FAMILY</b>					
<i>Chamaesyce</i> sp.	spurge	X	X			
<i>Croton californicus</i>	California croton	X	X	X	X	

**Appendix A-1 (continued)**  
**Plant Species Observed During the Chambers Group 2007 Surveys**

Scientific Name	Common Name	1	2	3	4	Reservoir/ Pump Station
<b>ANGIOSPERMS (DICOTYLEDONS)</b>						
<b>EUPHORBIACEAE</b>	<b>SPURGE FAMILY</b>					
<i>Eremocarpus setigerus</i>	dove weed	X	X			
<i>Ricinus communis</i> *	castor-bean	X		X	X	
<b>FABACEAE</b>	<b>LEGUME FAMILY</b>					
<i>Lotus scoparius</i>	deerweed	X	X	X	X	
<i>Lotus</i> sp.	lotus	X				
<i>Lupinus bicolor</i>	miniature lupine	X		X		
<i>Lupinus hirsutissimus</i>	stinging lupine	X		X		
<i>Lupinus sparsiflorus</i>	Coulter's lupine	X				
<i>Mellilotus indica</i> *	sourclover	X				
<b>FAGACEAE</b>	<b>OAK FAMILY</b>					
<i>Quercus berberidifolia</i>	scrub oak	X				
<b>GERANIACEAE</b>	<b>GERANIUM FAMILY</b>					
<i>Erodium botrys</i> *	broad-lobed filaree	X			X	
<i>Erodium cicutarium</i> *	red-stemmed filaree	X	X	X		
<b>HYDROPHYLLACEAE</b>	<b>WATERLEAF FAMILY</b>					
<i>Eriodictyon trichocalyx</i>	hairy yerba santa	X	X	X	X	
<i>Phacelia campanularia</i>	California blue-bell	X	X			
<i>Phacelia cicutaria</i>	caterpillar phacelia	X	X	X		
<i>Phacelia minor</i>	wild canterbury-bell			X		
<i>Phacelia ramosissima</i>	branching phacelia				X	
<i>Pholistoma membranaceum</i>	white fiesta flower		X			
<b>LAMIACEAE</b>	<b>MINT FAMILY</b>					
<i>Marrubium vulgare</i> *	horehound	X	X		X	
<i>Salvia apiana</i>	white sage	X				
<i>Salvia columbariae</i>	chia	X		X	X	
<i>Salvia mellifera</i>	black sage	X	X		X	
<b>MORACEAE</b>	<b>MULBERRY FAMILY</b>					
<i>Morus alba</i> *	white mulberry	X			X	
<b>MYRTACEAE</b>	<b>MYRTLE FAMILY</b>					
<i>Callistemon citrinus</i>	crimson bottlebrush	X	X			
<i>Eucalyptus globulus</i> *	blue gum	X				
<i>Eucalyptus polyanthemos</i> *	silver dollar gum	X		X		
<b>NYCTAGINACEAE</b>	<b>FOUR O'CLOCK FAMILY</b>					
<i>Bougainvillea spectabilis</i> *	bougainvillea	X				
<i>Mirabilis californica</i>	California wishbone bush	X	X	X	X	

**Appendix A-1 (continued)**  
**Plant Species Observed During the Chambers Group 2007 Surveys**

Scientific Name	Common Name	1	2	3	4	Reservoir/ Pump Station
<b>ANGIOSPERMS (DICOTYLEDONS)</b>						
<b>OLEACEAE</b>	<b>OLIVE FAMILY</b>					
<i>Olea europaea*</i>	olive	X	X			
<b>ONAGRACEAE</b>	<b>EVENING PRIMROSE FAMILY</b>					
<i>Camissonia bistorta</i>	California sun cup	X	X	X		
<i>Camissonia californica</i>	California evening primrose	X		X		
<i>Camissonia micrantha</i>	small primrose	X				
<i>Clarkia purpurea</i> ssp. <i>quadrivulnera</i>	four spot	X				
<i>Epilobium ciliatum</i>	California cottonweed	X				
<b>PAEONIACEAE</b>	<b>PEONY FAMILY</b>					
<i>Paeonia californica</i>	California peony				X	
<b>PLANTAGINACEAE</b>	<b>PLANTAIN FAMILY</b>					
<i>Plantago indica</i>	Indian plantain			X		
<b>PLATANACEAE</b>	<b>SYCAMORE FAMILY</b>					
<i>Platanus racemosa</i>	western sycamore	X			X	
<b>POLEMONIACEAE</b>	<b>PHLOX FAMILY</b>					
<i>Eriastrum densifolium</i> ssp. <i>sanctorum</i>	Santa Ana River woollystar	X	X			
<i>Eriastrum sapphirinum</i>	sapphire eriastrum	X	X	X	X	
<i>Gilia</i> sp.	gilia	X				
<i>Navarretia hamata</i>	hooked navarretia				X	
<b>POLYGONACEAE</b>	<b>BUCKWHEAT FAMILY</b>					
<i>Chorizanthe parryi</i> var. <i>parryi</i>	Parry's spineflower	X	X	X	X	
<i>Eriogonum fasciculatum</i>	California buckwheat	X	X	X	X	X
<i>Lastarriaea coriacea</i>	leather spineflower	X		X	X	
<i>Polygonum hydropiperoides</i>	water pepper	X				
<i>Pterostegia drymarioides</i>	California thread-stem	X	X	X		
<i>Rumex</i> sp.	dock	X				
<b>PORTULACACEAE</b>	<b>PURSLANE FAMILY</b>					
<i>Calyptidium monandrum</i>	common calyptidium	X				
<i>Claytonia perfoliata</i>	miner's lettuce	X	X			
<b>PRIMULACEAE</b>	<b>PRIMROSE FAMILY</b>					
<i>Anagallis arvensis*</i>	scarlet pimpernel	X	X			
<b>RANUNCULACEAE</b>	<b>BUTTERCUP FAMILY</b>					
<i>Delphinium parryi</i>	Parry's larkspur	X				
<i>Delphinium</i> sp.	larkspur		X			
<b>RHAMNACEAE</b>	<b>BUCKTHORN FAMILY</b>					
<i>Ceanothus crassifolius</i>	hoary leaf ceanothus	X				

**Appendix A-1 (continued)**  
**Plant Species Observed During the Chambers Group 2007 Surveys**

Scientific Name	Common Name	1	2	3	4	Reservoir/ Pump Station
<b>ANGIOSPERMS (DICOTYLEDONS)</b>						
<b>RHAMNACEAE</b>	<b>BUCKTHORN FAMILY</b>					
<i>Ceanothus leucodermis</i>	chaparral whitethorn	X				
<i>Rhamnus crocea</i>	spiny redberry	X				
<b>ROSACEAE</b>	<b>ROSE FAMILY</b>					
<i>Adenostoma fasciculatum</i>	chamise	X	X		X	
<i>Malus</i> sp.*	apple	X	X			
<i>Prunus ilicifolia</i>	holly-leaved cherry	X				
<i>Prunus</i> sp.	peach	X	X			
<i>Rosa</i> sp.	ornamental rose	X	X			
<i>Rubus</i> sp.	blackberry	X				
<b>RUBIACEAE</b>	<b>MADDER FAMILY</b>					
<i>Galium aparine</i>	goose grass	X	X			
<b>RUTACEAE</b>	<b>RUE FAMILY</b>					
<i>Citrus sinensis</i> *	orange	X	X			X
<i>Citrus</i> sp.*	grapefruit	X	X			X
<b>SALICACEAE</b>	<b>WILLOW FAMILY</b>					
<i>Populus fremontii</i>	Fremont cottonwood	X		X	X	
<i>Salix gooddingii</i>	black willow	X	X		X	
<i>Salix laevigata</i>	red willow	X			X	
<b>SAPINOACEAE</b>	<b>SOAPBERRY FAMILY</b>					
<i>Cupaniopsis anacardioides</i> *	carrotwood	X	X			
<b>SCROPHULARIACEAE</b>	<b>FIGWORT FAMILY</b>					
<i>Mimulus cardinalis</i>	scarlet monkey-flower	X				
<i>Mimulus guttatus</i>	common monkey-flower	X				
<i>Veronica anagallis-aquatica</i> *	water speedwell	X				
<b>SIMAROUBACEAE</b>	<b>QUASSIA FAMILY</b>				X	
<i>Ailanthus altissima</i>	tree of heaven					
<b>SOLANACEAE</b>	<b>NIGHTSHADE FAMILY</b>					
<i>Datura wrightii</i>	jimson weed	X	X	X	X	
<i>Nicotiana glauca</i> *	tree tobacco	X	X	X	X	
<i>Solanum douglasii</i>	Douglas' nightshade	X	X			
<i>Solanum xanti</i>	chaparral nightshade	X		X		
<b>TAMARICACEAE</b>	<b>TAMARISK FAMILY</b>					
<i>Tamarix ramosissima</i> *	Mediterranean tamarisk	X			X	
<b>URTICACEAE</b>	<b>NETTLE FAMILY</b>					
<i>Urtica dioica</i>	stinging nettle	X				
<i>Urtica urens</i> *	dwarf nettle	X				

**Appendix A-1 (continued)**  
**Plant Species Observed During the Chambers Group 2007 Surveys**

Scientific Name	Common Name	1	2	3	4	Reservoir/ Pump Station
<b>ANGIOSPERMS (DICOTYLEDONS)</b>						
<b>VERBENACEAE</b>	<b>VERVAIN FAMILY</b>					
<i>Lantana camara</i> *	common lantana	X	X			
<i>Verbena bracteata</i>	prostrate vervain			X		
<b>VISACEAE</b>	<b>MISTLETOE FAMILY</b>					
<i>Phoradendron densum</i>	dense mistletoe	X				
<b>ANGIOSPERMS (MONOCOTYLEDONS)</b>						
<b>ARECACEAE</b>	<b>PALM FAMILY</b>					
<i>Washingtonia robusta</i>	Mexican fan palm	X	X			
<i>Washingtonia</i> sp.	fan palm	X				
<b>CYPERACEAE</b>	<b>SEDGE FAMILY</b>					
<i>Cyperus involucratus</i> *	umbrella-plant	X	X			
<b>LILIACEAE</b>	<b>LILY FAMILY</b>					
<i>Agapanthus praecox</i> *	lily-of-the-Nile	X	X			
<i>Dichelostemma capitatum</i>	blue dicks	X	X			
<i>Yucca whipplei</i>	our Lord's candle	X	X	X	X	
<b>POACEAE</b>	<b>GRASS FAMILY</b>					
<i>Arundo donax</i> *	giant reed	X				
<i>Avena barbata</i> *	slender wild oat	X	X	X		
<i>Avena</i> sp.*	wild oat	X	X		X	
<i>Bromus diandrus</i> *	ripgut grass	X	X	X		
<i>Bromus hordeaceus</i> *	soft chess	X		X	X	
<i>Bromus madritensis</i> ssp. <i>rubens</i>	foxtail chess	X	X	X	X	X
<i>Bromus tectorum</i> *	cheat grass	X	X			X
<i>Cynodon dactylon</i> *	Bermuda grass	X	X			
<i>Eleusine indica</i> *	goose grass	X	X			
<i>Hordeum murinum</i> *	glaucous foxtail barley	X				
<i>Lamarckia aurea</i> *	goldentop	X	X	X		
<i>Leymus condensatus</i>	giant wild rye	X		X		
<i>Melica californica</i>	California melic grass	X				
<i>Melica imperfecta</i>	coast range melic			X		
<i>Muhlenbergia rigens</i>	deergrass	X				
<i>Pennisetum setaceum</i> *	fountain grass	X	X			
<i>Piptatherum miliaceum</i> *	smilo grass	X				
<i>Poa annua</i> *	annual bluegrass	X		X		
<i>Polypogon monspeliensis</i> *	annual beard grass	X				
<i>Schismus barbatus</i> *	Mediterranean schismus	X	X	X	X	
<i>Vulpia myuros</i> *	fescue	X	X	X	X	
<i>Zea mays</i> *	corn	X	X			

**Appendix A-1 (continued)**  
**Plant Species Observed During the Chambers Group 2007 Surveys**

Scientific Name	Common Name	1	2	3	4	Reservoir/ Pump Station
<b>ANGIOSPERMS (MONOCOTYLEDONS)</b>						
<b>TYPHACEAE</b>	<b>CATTAIL FAMILY</b>					
<i>Typha latifolia</i>	broad-leaved cattail	X			X	
<b>* Non-Native Species</b>						

**APPENDIX A-2– ALL PLANT SPECIES OBSERVED AT EAST BRANCH  
EXTENSION PHASE II**

**Appendix A-2**  
**All Plant Species Observed at East Branch Extension Phase II Project**

<b>Scientific Name</b>	<b>Common Name</b>	<b>Listing Status</b>	<b>Native/Introduced</b>
<b>FERNS AND FERN ALLIES</b>			
<b>POLYPODIACEAE</b>	<b>POLYPODY FAMILY</b>		
<i>Polypodium californicum</i>	California polypody	None	Native
<i>Pellaea andromedifolia</i>	coffee fern	None	Native
<i>Pellaea mucronata</i>	bird's-foot fern	None	Native
<i>Pentagramma triangularis</i>	goldenback fern	None	Native
<b>SELAGINELLACEAE</b>	<b>SPIKE-MOSS FAMILY</b>		
<i>Selaginella bigelovii</i>	Bigelow's spike-moss	None	Native
<b>GYMNOSPERMS</b>			
<b>CUPRESSACEAE</b>	<b>CYPRESS FAMILY</b>		
<i>Cupressus sempervirens</i>	Italian cypress	None	Native
<i>Juniperus californica</i>	California juniper	None	Native
<i>Juniperus</i> sp.	juniper	None	Introduced
<b>ANGIOSPERMS (DICOTYLEDONS)</b>			
<b>AMARANTHACEAE</b>	<b>AMARANTH FAMILY</b>		
<i>Amaranthus albus</i>	tumbling pigweed	None	Introduced
<i>Amaranthus blitoides</i>	prostrate amaranth	None	Native
<b>ANACARDIACEAE</b>	<b>SUMAC OR CASHEW FAMILY</b>		
<i>Malosma laurina</i>	laurel sumac	None	Native
<i>Rhus ovata</i>	sugar bush	None	Native
<i>Rhus trilobata</i>	skunkbrush	None	Native
<i>Schinus molle</i>	Peruvian pepper tree	None	Native
<i>Schinus terebinthifolius</i>	Brazilian pepper tree	None	Native
<i>Toxicodendron diversilobum</i>	poison oak	None	Native
<b>APIACEAE</b>	<b>CARROT FAMILY</b>		
<i>Apiastrum angustifolium</i>	wild celery	None	Native
<i>Conium maculatum</i>	poison hemlock	None	Introduced
<i>Daucus pusillus</i>	rattlesnake weed	None	Native
<b>APOCYNACEAE</b>	<b>DOGBANE FAMILY</b>		
<i>Nerium oleander</i>	oleander	None	Introduced
<b>ARALIACEAE</b>	<b>GINSENG FAMILY</b>		
<i>Hedera helix</i>	English ivy	None	Introduced
<b>ASCLEPIADACEAE</b>	<b>MILKWEED FAMILY</b>		
<i>Sarcostemma cynanchoides</i> ssp. <i>hartwegii</i>	climbing milkweed	None	Native
<b>ASTERACEAE</b>	<b>SUNFLOWER FAMILY</b>		
<i>Ambrosia acanthicarpa</i>	annual bur-sage	None	Native
<i>Ambrosia artemisiifolia</i>	common ragweed	None	Native
<i>Ambrosia psilostachya</i>	western ragweed	None	Native
<i>Anthemis cotula</i>	mayweed	None	Introduced
<i>Artemisia californica</i>	California sagebrush	None	Native
<i>Artemisia douglasiana</i>	mugwort	None	Native
<i>Artemisia dracuncululus</i>	tarragon	None	Native
<i>Baccharis pilularis</i>	coyote brush	None	Native
<i>Baccharis salicifolia</i>	mule fat	None	Native
<i>Bebbia juncea</i>	sweetbush	None	Native
<i>Bidens</i> sp.	beggar-ticks	None	Introduced
<i>Brickellia californica</i>	California brickellbush	None	Native
<i>Carduus pycnocephalus</i>	Italian thistle	None	Introduced

**Appendix A-2 (continued)**  
**All Plant Species Observed at East Branch Extension Phase II Project**

<b>Scientific Name</b>	<b>Common Name</b>	<b>Listing Status</b>	<b>Native/Introduced</b>
<b>ANGIOSPERMS (DICOTYLEDONS)</b>			
<b>ASTERACEAE</b>	<b>SUNFLOWER FAMILY</b>		
<i>Centaurea solstitialis</i>	yellow star thistle	None	Introduced
<i>Chaenactis glabriuscula</i>	yellow pincushion	None	Native
<i>Chamomilla suaveolens</i>	pineapple weed	None	Introduced
<i>Cirsium occidentale</i> var. <i>californicum</i>	cobweb thistle	None	Native
<i>Cirsium occidentale</i> var. <i>occidentale</i>	western thistle	None	Native
<i>Cirsium vulgare</i>	bull thistle	None	Introduced
<i>Cnicus benedictus</i>	blessed thistle	None	Introduced
<i>Conyza bonariensis</i>	flax-leaved horseweed	None	Introduced
<i>Conyza canadensis</i>	horseweed	None	Native
<i>Encelia californica</i>	California encelia	None	Native
<i>Encelia farinosa</i>	brittlebush	None	Native
<i>Ericameria linearifolia</i>	interior goldenbush	None	Native
<i>Erigeron foliosus</i>	leafy daisy	None	Native
<i>Eriophyllum confertiflorum</i>	golden yarrow	None	Native
<i>Filago californica</i>	California fluffweed	None	Native
<i>Filago gallica</i>	fluffweed	None	Introduced
<i>Gnaphalium bicolor</i>	bicolored cudweed	None	Native
<i>Gnaphalium californicum</i>	California everlasting	None	Native
<i>Gnaphalium canescens</i>	felty everlasting	None	Native
<i>Gnaphalium luteo-album</i>	white cudweed	None	Introduced
<i>Gutierrezia californica</i>	California matchweed	None	Native
<i>Gutierrezia sarothrae</i>	broom matchweed	None	Native
<i>Helianthus annuus</i>	common sunflower	None	Native
<i>Heterotheca grandiflora</i>	telegraph weed	None	Native
<i>Heterotheca sessiliflora</i>	hairy golden-aster	None	Native
<i>Heterotheca villosa</i>	hairy false goldenaster	None	Native
<i>Hypochaeris glabra</i>	smooth cat's-ear	None	Introduced
<i>Hypochaeris radicata</i>	hairy cat's-ear	None	Introduced
<i>Isocoma menziesii</i>	coastal goldenbush	None	Native
<i>Lactuca serriola</i>	prickly lettuce	None	Introduced
<i>Lasthenia californica</i>	coast goldfields	None	Native
<i>Lasthenia coronaria</i>	royal goldfields	None	Native
<i>Lepidospartum squamatum</i>	scale-broom	None	Native
<i>Lessingia filaginifolia</i>	cudweed aster	None	Native
<i>Microseris lindleyi</i>	Lindleys' silverpuffs	None	Native
<i>Rafinesquia californica</i>	California chicory	None	Native
<i>Senecio californicus</i>	California butterweed	None	Native
<i>Senecio flaccidus</i> var. <i>douglasii</i>	shrubby butterweed	None	Native
<i>Senecio vulgaris</i>	common groundsel	None	Introduced
<i>Silybum marianum</i>	milk thistle	None	Introduced
<i>Sonchus asper</i> ssp. <i>asper</i>	prickly sow thistle	None	Introduced
<i>Sonchus oleraceus</i>	common sow thistle	None	Introduced
<i>Stephanomeria exigua</i>	small wreathplant	None	Native
<i>Stephanomeria pauciflora</i>	wire lettuce	None	Native
<i>Stephanomeria virgata</i>	twiggy wreathplant	None	Native
<i>Stylocline gnaphaloides</i>	everlasting nest straw	None	Native
<i>Taraxacum officinale</i>	common dandelion	None	Introduced

**Appendix A-2 (continued)**  
**All Plant Species Observed at East Branch Extension Phase II Project**

<b>Scientific Name</b>	<b>Common Name</b>	<b>Listing Status</b>	<b>Native/Introduced</b>
<b>ANGIOSPERMS (DICOTYLEDONS)</b>			
<b>ASTERACEAE</b>	<b>SUNFLOWER FAMILY</b>		
<i>Centaurea melitensis</i>	tochalote	None	Introduced
<i>Tetradymia comosa</i>	hairy horsebrush	None	Native
<i>Xanthium strumarium</i>	cocklebur	None	Native
<i>Wyethia</i> sp.	mule's ears	None	Native
<b>BERBERIDACEAE</b>	<b>BARBERRY FAMILY</b>		
<i>Nandina domestica</i>	sacred bamboo	None	Introduced
<b>BETULACEAE</b>	<b>BIRCH FAMILY</b>		
<i>Alnus rhombifolia</i>	white alder	None	Native
<b>BIGNONIACEAE</b>	<b>BIGNONIA FAMILY</b>		
<i>Jacaranda mimosifolia</i>	jacaranda	None	Introduced
<b>BORAGINACEAE</b>	<b>BORAGE FAMILY</b>		
<i>Amsinckia intermedia</i>	fiddleneck	None	Native
<i>Amsinckia menziesii</i>	common fiddleneck	None	Native
<i>Cryptantha decipiens</i>	gravelbar cryptantha	None	Native
<i>Cryptantha intermedia</i>	common forget-me-not	None	Native
<i>Cryptantha micrantha</i> var. <i>lepida</i>	small-flowered cryptantha	None	Native
<i>Cryptantha microstachys</i>	cryptantha	None	Native
<i>Cryptantha muricata</i>	prickly cryptantha	None	Native
<i>Heliotropium curassavicum</i>	salt heliotrope	None	Native
<i>Pectocarya linearis</i> ssp. <i>ferocula</i>	slender pectocarya	None	Native
<i>Pectocarya penicillata</i>	combseed	None	Native
<i>Plagiobothrys canescens</i>	valley popcornflower	None	Native
<i>Plagiobothrys collinus</i>	California popcorn flower	None	Native
<b>BRASSICACEAE</b>	<b>MUSTARD FAMILY</b>		
<i>Brassica geniculata</i>	summer mustard	None	Introduced
<i>Brassica nigra</i>	black mustard	None	Introduced
<i>Brassica tournefortii</i>	wild turnip	None	Introduced
<i>Hirschfeldia incana</i>	shortpod mustard	None	Introduced
<i>Lepidium</i> sp.	peppergrass	None	Native
<i>Lobularia maritime</i>	sweet-alyssum	None	Introduced
<i>Sisymbrium irio</i>	London rocket	None	Introduced
<i>Thysanocarpus curvipes</i>	hairy fringe pod	None	Introduced
<b>CACTACEAE</b>	<b>CACTUS FAMILY</b>		
<i>Opuntia ficus-indica</i>	Indian fig	None	Introduced
<i>Opuntia littoralis</i>	coastal prickly pear	None	Native
<i>Opuntia oricola</i>	pancake prickly pear	None	Native
<i>Opuntia parryi</i>	valley cholla	None	Native
<i>Opuntia prolifera</i>	coast cholla	None	Native
<b>CAPRIFOLIACEAE</b>	<b>HONEYSUCKLE FAMILY</b>		
<i>Sambucus mexicana</i>	Mexican elderberry	None	Native
<b>CARYOPHYLLACEAE</b>	<b>PINK FAMILY</b>		
<i>Cardionema ramosissima</i>	sand mat	None	Native
<i>Cerastium glomeratum</i>	mouse-ear chickweed	None	Native
<i>Loeflingia squarrosa</i>	California loeflingia	None	Native
<i>Polycarpon tetraphyllum</i>	four-leaved allseed	None	Introduced
<i>Spergularia rubra</i>	sand spurrey	None	Introduced

**Appendix A-2 (continued)**  
**All Plant Species Observed at East Branch Extension Phase II Project**

<b>Scientific Name</b>	<b>Common Name</b>	<b>Listing Status</b>	<b>Native/Introduced</b>
<b>ANGIOSPERMS (DICOTYLEDONS)</b>			
<b>CHENOPODIACEAE</b>	<b>GOOSEFOOT FAMILY</b>		
<i>Atriplex semibaccata</i>	Australian saltbush	None	Introduced
<i>Chenopodium album</i>	Lamb's quarters	None	Introduced
<i>Chenopodium ambrosioides</i>	Mexican tea	None	Introduced
<i>Chenopodium berlandieri</i>	pitseed goosefoot	None	Native
<i>Chenopodium botrys</i>	Jerusalem oak goosefoot	None	Introduced
<i>Chenopodium californicum</i>	California goosefoot	None	Native
<i>Chenopodium murale</i>	nettle-leaved goosefoot	None	Introduced
<i>Chenopodium pumilio</i>	ridged goosefoot	None	Introduced
<i>Salsola tragus</i>	Russian thistle	None	Introduced
<b>CISTACEAE</b>	<b>ROCK-ROSE FAMILY</b>		
<i>Helianthemum scoparium</i>	peak rush-rose	None	Native
<b>CONVOLVULACEAE</b>	<b>MORNING-GLORY FAMILY</b>		
<i>Calystegia macrostegia</i>	western bindweed	None	Native
<b>CRASSULACEAE</b>	<b>STONECROP FAMILY</b>		
<i>Crassula connata</i>	pygmy-weed	None	Native
<i>Dudleya lanceolata</i>	lance-leaved dudleya	None	Native
<b>CUCURBITACEAE</b>	<b>GOURD FAMILY</b>		
<i>Cucurbita foetidissima</i>	calabazilla	None	Native
<i>Cucurbita palmata</i>	coyote melon	None	Native
<i>Marah macrocarpus</i>	wild cucumber	None	Native
<b>CUSCUTACEAE</b>	<b>DODDER FAMILY</b>		
<i>Cuscuta</i> sp.	dodder	None	Native
<i>Cuscuta californica</i>	California dodder	None	Native
<b>EUPHORBIACEAE</b>	<b>SPURGE FAMILY</b>		
<i>Chamaesyce albomarginata</i>	rattlesnake weed	None	Native
<i>Chamaesyce serpyllifolia</i>	thyme-leaved spurge	None	Native
<i>Croton californicus</i>	California croton	None	Native
<i>Croton setiger</i>	croton	None	Native
<i>Eremocarpus setigerus</i>	dove weed	None	Native
<i>Euphorbia maculata</i>	spotted sandmat	None	Introduced
<i>Ricinus communis</i>	castor-bean	None	Introduced
<b>FABACEAE</b>	<b>LEGUME FAMILY</b>		
<i>Lotus heermannii</i>	woolly lotus	None	Native
<i>Lotus purshianus</i> var. <i>purshianus</i>	Spanish clover	None	Native
<i>Lotus scoparius</i> ssp. <i>brevialatus</i>	deerweed	None	Native
<i>Lupinus bicolor</i>	miniature lupine	None	Native
<i>Lupinus hirsutissimus</i>	stinging lupine	None	Native
<i>Lupinus sparsiflorus</i>	Coulter's lupine	None	Native
<i>Melilotus indica</i>	sourclover	None	Native
<i>Parkinsonia aculeata</i>	Mexican palo verde	None	Introduced
<i>Spartium junceum</i>	Spanish broom	None	Introduced
<i>Trifolium microcephalum</i>	small-headed clover	None	Native
<b>FAGACEAE</b>	<b>OAK FAMILY</b>		
<i>Quercus berberidifolia</i>	scrub oak	None	Native
<b>GERANIACEAE</b>	<b>GERANIUM FAMILY</b>		
<i>Erodium botrys</i>	broad-lobed filaree	None	Introduced
<i>Erodium cicutarium</i>	red-stemmed filaree	None	Introduced

**Appendix A-2 (continued)**  
**All Plant Species Observed at East Branch Extension Phase II Project**

<b>Scientific Name</b>	<b>Common Name</b>	<b>Listing Status</b>	<b>Native/Introduced</b>
<b>ANGIOSPERMS (DICOTYLEDONS)</b>			
<b>GROSSULARIACEAE</b>	<b>GOOSEBERRY FAMILY</b>		
<i>Ribes indecorum</i>	white flowering currant	None	Native
<b>HYDROPHYLLACEAE</b>	<b>WATERLEAF FAMILY</b>		
<i>Emmenanthe penduliflora</i>	whispering bells	None	Native
<i>Eriodictyon trichocalyx</i>	hairy yerba santa	None	Native
<i>Eucrypta chrysanthemifolia</i>	common eucrypta	None	Native
<i>Phacelia campanularia</i>	California blue-bell	None	Native
<i>Phacelia cicutaria</i> var. <i>hispidia</i>	hispid caterpillar phacelia	None	Native
<i>Phacelia distans</i>	wild heliotrope	None	Native
<i>Phacelia minor</i>	wild canterbury-bell	None	Native
<i>Phacelia ramosissima</i>	branching phacelia	None	Native
<i>Pholistoma membranaceum</i>	white fiesta flower	None	Native
<b>JUGLANDACEAE</b>	<b>WALNUT FAMILY</b>		
<i>Juglans californica</i>	California black walnut	None	Native
<b>LAMIACEAE</b>	<b>MINT FAMILY</b>		
<i>Marrubium vulgare</i>	horehound	None	Introduced
<i>Salvia apiana</i>	white sage	None	Native
<i>Salvia columbariae</i>	chia	None	Native
<i>Salvia mellifera</i>	black sage	None	Native
<b>MORACEAE</b>	<b>MULBERRY FAMILY</b>		
<i>Ficus carica</i>	edible fig	None	Introduced
<i>Morus alba</i>	white mulberry	None	Introduced
<b>MYRTACEAE</b>	<b>MYRTLE FAMILY</b>		
<i>Callistemon citrinus</i>	Crimson bottlebrush	None	Native
<i>Eucalyptus globules</i>	blue gum	None	Introduced
<i>Eucalyptus polyanthemos</i>	silver dollar gum	None	Introduced
<i>Eucalyptus populnea</i>	poplar box	None	Introduced
<b>NYCTAGINACEAE</b>	<b>FOUR O'CLOCK FAMILY</b>		
<i>Bougainvillea spectabilis</i>	bougainvillea	None	Native
<i>Mirabilis californica</i>	California wishbone bush	None	Native
<i>Mirabilis laevis</i>	wishbone	None	Native
<b>OLEACEAE</b>	<b>OLIVE FAMILY</b>		
<i>Olea europaea</i>	olive	None	Introduced
<b>ONAGRACEAE</b>	<b>EVENING PRIMROSE FAMILY</b>		
<i>Camissonia bistorta</i>	California sun cup	None	Native
<i>Camissonia californica</i>	California evening primrose	None	Native
<i>Camissonia micrantha</i>	small primrose	None	Native
<i>Clarkia purpurea</i>	winecup clarkia	None	Native
<i>Epilobium ciliatum</i>	California cottonweed	None	Native
<i>Oenothera elata</i> ssp. <i>Hookeri</i>	evening primrose	None	Native
<i>Oenothera laciniata</i>	cutleaf evening-primrose	None	Introduced
<b>PAEONIACEAE</b>	<b>PEONY FAMILY</b>		
<i>Paeonia californica</i>	California peony	None	Native
<b>PAPAVERACEAE</b>	<b>POPPY FAMILY</b>		
<i>Argemone munita</i>	prickly poppy	None	Native
<i>Eschscholzia californica</i>	California poppy	None	Native

**Appendix A-2 (continued)**  
**All Plant Species Observed at East Branch Extension Phase II Project**

<b>Scientific Name</b>	<b>Common Name</b>	<b>Listing Status</b>	<b>Native/Introduced</b>
<b>ANGIOSPERMS (DICOTYLEDONS)</b>			
<b>PAPAVERACEAE</b>	<b>POPPY FAMILY</b>		
<i>Dendromecon rigida</i>	bush poppy	None	Native
<b>PLANTAGINACEAE</b>	<b>PLANTAIN FAMILY</b>		
<i>Plantago indica</i>	Indian plantain	None	Native
<b>PLATANACEAE</b>	<b>SYCAMORE FAMILY</b>		
<i>Platanus racemosa</i>	western sycamore	None	Native
<i>Eriastrum densifolium</i> ssp. <i>sanctorum</i>	Santa Ana River woollystar	FE, SE, CNPS List 1B	Native
<i>Eriastrum sapphirinum</i>	sapphire eriastrum	None	Native
<i>Gilia angelensis</i>	angel gilia	None	Native
<i>Navarretia atractyloides</i>	holly-leaved navarretia	None	Native
<i>Navarretia hamata</i>	hooked navarretia	None	Native
<b>POLYGONACEAE</b>	<b>BUCKWHEAT FAMILY</b>		
<i>Chorizanthe coriacea</i>	chorizante	None	Native
<i>Chorizante parryi</i> var. <i>parryi</i>	Parry's spineflower	CNPS List 3.2	Native
<i>Dodecahema leptoceras</i>	slender-horned spineflower	FE, SE, CNPS List 1B	Native
<i>Eriogonum elongatum</i> var. <i>elongatum</i>	long-stemmed buckwheat	None	Native
<i>Eriogonum fasciculatum</i> var. <i>foliosum</i>	California buckwheat	None	Native
<i>Eriogonum fasciculatum</i> var. <i>polifolium</i>	California buckwheat	None	Native
<i>Eriogonum gracile</i>	slender woolly buckwheat	None	Native
<i>Eriogonum roseum</i>	wand buckwheat	None	Native
<i>Eriogonum thurberi</i>	Thurber's buckwheat	None	Native
<i>Lastarriaea coriacea</i>	leather spineflower	None	Native
<i>Polygonum aviculare</i>	prostrate knotweed	None	Introduced
<i>Polygonum hydropiperoides</i>	water pepper	None	Native
<i>Polygonum lapathifolium</i>	willow-weed	None	Introduced
<i>Pterostegia drymarioides</i>	California thread-stem	None	Native
<i>Rumex conglomerates</i>	dock	None	Introduced
<i>Rumex crispus</i>	curly dock	None	Introduced
<i>Rumex violascens</i>	violet dock	None	Introduced
<b>PORTULACACEAE</b>	<b>PURSLANE FAMILY</b>		
<i>Calandrinia ciliata</i>	red maids	None	Native
<i>Calyptridium monandrum</i>	common calyptridium	None	Native
<i>Claytonia perfoliata</i>	miner's lettuce	None	Native
<b>PRIMULACEAE</b>	<b>PRIMROSE FAMILY</b>		
<i>Anagallis arvensis</i>	scarlet pimpernel	None	Introduced
<b>RANUNCULACEAE</b>	<b>BUTTERCUP FAMILY</b>		
<i>Clematis pauciflora</i>	ropevine	None	Native
<i>Delphinium parryi</i>	Parry's larkspur	None	Native
<b>RHAMNACEAE</b>	<b>BUCKTHORN FAMILY</b>		
<i>Ceanothus crassifolius</i>	hoary leaf ceanothus	None	Native
<i>Ceanothus leucodermis</i>	chaparral whitethorn	None	Native

**Appendix A-2 (continued)**  
**All Plant Species Observed at East Branch Extension Phase II Project**

<b>Scientific Name</b>	<b>Common Name</b>	<b>Listing Status</b>	<b>Native/Introduced</b>
<b>ANGIOSPERMS (DICOTYLEDONS)</b>			
<b>RHAMNACEAE</b>	<b>BUCKTHORN FAMILY</b>		
<i>Rhamnus crocea</i>	spiny redberry	None	Native
<b>ROSACEAE</b>	<b>ROSE FAMILY</b>		
<i>Adenostoma fasciculatum</i>	chamise	None	Native
<i>Malus</i> sp.	apple	None	Introduced
<i>Prunus ilicifolia</i>	holly-leaved cherry	None	Native
<i>Prunus</i> sp.	peach	None	Introduced
<i>Rosa</i> sp.	ornamental rose	None	Introduced
<i>Rubus</i> sp.	blackberry	None	Native
<b>RUBIACEAE</b>	<b>MADDER FAMILY</b>		
<i>Galium angustifolium</i>	narrow-leaved bedstraw	None	Native
<i>Galium aparine</i>	goose grass	None	Introduced
<i>Galium parisiense</i>	wall bedstraw	None	Introduced
<b>RUTACEAE</b>	<b>RUE FAMILY</b>		
<i>Citrus sinensis</i>	orange	None	Introduced
<i>Citrus</i> sp.	grapefruit	None	Introduced
<b>SALICACEAE</b>	<b>WILLOW FAMILY</b>		
<i>Populus fremontii</i>	Fremont cottonwood	None	Native
<i>Salix gooddingii</i>	black willow	None	Native
<i>Salix laevigata</i>	red willow	None	Native
<b>SAPINOACEAE</b>	<b>SOAPBERRY FAMILY</b>		
<i>Cupaniopsis anacardioides</i>	carrotwood	None	Introduced
<b>SCROPHULARIACEAE</b>	<b>FIGWORT FAMILY</b>		
<i>Mimulus cardinalis</i>	scarlet monkey-flower	None	Native
<i>Mimulus floribundus</i>	many-flowered monkeyflower	None	Native
<i>Mimulus pilosus</i>	mimelanthe	None	Native
<i>Mimulus guttatus</i>	common monkey-flower	None	Native
<i>Verbascum thapsus</i>	woolly mullein	None	Introduced
<i>Verbascum virgatum</i>	wand mullein	None	Introduced
<i>Veronica anagallis-aquatica</i>	water speedwell	None	Introduced
<i>Veronica peregrina</i>	purslane speedwell	None	Native
<b>SIMAROUBACEAE</b>	<b>QUASSIA FAMILY</b>		
<i>Ailanthus altissima</i>	tree of heaven	None	Introduced
<b>SOLANACEAE</b>	<b>NIGHTSHADE FAMILY</b>		
<i>Datura wrightii</i>	jimson weed	None	Native
<i>Nicotiana glauca</i>	tree tobacco	None	Introduced
<i>Solanum douglasii</i>	Douglas' nightshade	None	Native
<i>Solanum xanti</i>	chaparral nightshade	None	Native
<b>TAMARICACEAE</b>	<b>TAMARISK FAMILY</b>		
<i>Tamarix ramosissima</i>	Mediterranean tamarisk	None	Introduced
<b>URTICACEAE</b>	<b>NETTLE FAMILY</b>		
<i>Hesperocnide tenella</i>	western nettle	None	Native
<i>Parietaria hespera</i>	western pellitory	None	Native
<i>Urtica dioica</i> ssp. <i>holosericea</i>	giant creek nettle	None	Native
<i>Urtica urens</i>	dwarf nettle	None	Introduced

**Appendix A-2 (continued)**  
**All Plant Species Observed at East Branch Extension Phase II Project**

<b>Scientific Name</b>	<b>Common Name</b>	<b>Listing Status</b>	<b>Native/Introduced</b>
<b>ANGIOSPERMS (DICOTYLEDONS)</b>			
<b>VERBENACEAE</b>	<b>VERVAIN FAMILY</b>		
<i>Lantana camara</i>	common lantana	None	Introduced
<i>Lantana montevidensis</i>	trailing lantana	None	Introduced
<i>Verbena bracteata</i>	prostrate vervain	None	Native
<b>VISCACEAE</b>	<b>MISTLETOE FAMILY</b>		
<i>Phoradendron densum</i>	dense mistletoe	None	Native
<b>ANGIOSPERMS (MONOCOTYLEDONS)</b>			
<b>ARECACEAE</b>	<b>PALM FAMILY</b>		
<i>Washingtonia filifera</i>	Washington fan palm	None	
<i>Washingtonia robusta</i>	Mexican fan palm	None	Introduced
<b>CYPERACEAE</b>	<b>SEDGE FAMILY</b>		
<i>Cyperus eragrostis</i>	tall cyperus	None	Introduced
<i>Cyperus involucratus</i>	umbrella-plant	None	Introduced
<b>JUNCACEAE</b>	<b>RUSH FAMILY</b>		
<i>Juncus balticus</i>	wire rush	None	Native
<b>LILIACEAE</b>	<b>LILY FAMILY</b>		
<i>Agapanthus praecox</i>	lily-of-the-Nile	None	Native
<i>Calochortus plummerae</i>	Plummer's mariposa lily	CNPS List 1B	Native
<i>Chlorogalum pomeridianum</i>	soap plant	None	Native
<i>Dichelostemma capitatum</i>	blue dicks	None	Native
<i>Yucca schidigera</i>	Mojave yucca	None	Native
<i>Yucca whipplei</i>	our Lord's candle	None	Native
<b>POACEAE</b>	<b>GRASS FAMILY</b>		
<i>Agrostis stolonifera</i>	redtop	None	Introduced
<i>Agrostis viridis</i>	water bentgrass	None	Introduced
<i>Aristida ternipes</i> var. <i>hamulosa</i>	hook three awn	None	Native
<i>Arundo donax</i>	giant reed	None	Introduced
<i>Avena barbata</i>	slender wild oat	None	Introduced
<i>Avena fatua</i>	wild oat	None	Introduced
<i>Bromus diandrus</i>	ripgut grass	None	Introduced
<i>Bromus hordeaceus</i>	soft chess	None	Introduced
<i>Bromus madritensis</i> ssp. <i>rubens</i>	foxtail chess	None	Introduced
<i>Cynodon dactylon</i>	Bermuda grass	None	Introduced
<i>Eleusine indica</i>	goose grass	None	Introduced
<i>Hordeum murinum</i>	glaucous foxtail barley	None	Introduced
<i>Lamarckia aurea</i>	goldentop	None	Introduced
<i>Leymus condensatus</i>	giant wild rye	None	Native
<i>Lolium perenne</i>	perennial ryegrass	None	Introduced
<i>Melica californica</i>	California melic grass	None	Native
<i>Melica imperfecta</i>	coast range melic	None	Native
<i>Muhlenbergia rigens</i>	deergrass	None	Native
<i>Pennisetum setaceum</i>	fountain grass	None	Introduced
<i>Piptatherum miliaceum</i>	smilo grass	None	Introduced
<i>Poa annua</i>	annual bluegrass	None	Introduced
<i>Polypogon monspeliensis</i>	annual beard grass	None	Introduced
<i>Schismus barbatus</i>	Mediterranean schismus	None	Introduced
<i>Setaria parviflora</i>	marsh bristlegrass	None	Introduced

**Appendix A-2 (continued)**  
**All Plant Species Observed at East Branch Extension Phase II Project**

<i>Scientific Name</i>	<b>Common Name</b>	<b>Listing Status</b>	<b>Native/Introduced</b>
<b>ANGIOSPERMS (MONOCOTYLEDONS)</b>			
<b>POACEAE (continued)</b>	<b>GRASS FAMILY</b>		
<i>Stipa coronata</i>	giant ricegrass	None	Native
<i>Stipa speciosa</i>	desert needlegrass	None	Native
<i>Vulpia myuros</i>	fescue	None	Introduced
<i>Zea mays</i>	corn	None	Introduced
<b>TYPHACEAE</b>	<b>CATTAIL FAMILY</b>		
<i>Typha latifolia</i>	broad-leaved cattail	None	Native

**APPENDIX B-1 – WILDLIFE SPECIES DETECTED DURING CHAMBERS GROUP  
2007 SURVEYS**

**Appendix B-1**  
**Wildlife Species Detected During Chambers Group 2007 Bio-Reconnaissance Surveys**

<b>Scientific Name</b> Common Name	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Citrus Pump Station & Reservoir
<b>CLASS INSECTA: INSECTS</b>					
<i>Papilio rutulus</i> western tiger swallowtail			O		
<i>Artogeia rapae</i> cabbage white	O				
<i>Nymphalis antiopa</i> mourning cloak			O		
<i>Apodemia mormo virgulti</i> Behr's metalmark			O		
<b>CLASS AMPHIBIA: AMPHIBIANS</b>					
<i>Pseudacris regilla</i> Pacific chorus frog	O	O			
<b>CLASS REPTILIA: REPTILES</b>					
<i>Uta stansburiana</i> common side-blotched lizard	O	O	O	O	O
<i>Sceloporus occidentalis</i> western fence lizard	O	O	O	O	O
<i>Cnemidophorus tigris stejnegeri</i> coastal western whiptail	O	O	O		
<i>Thamnophis hammondi</i> two-striped garter snake *	O	O			
<b>CLASS AVES: BIRDS</b>					
<i>Anas platyrhynchos</i> mallard	O	O			
<i>Callipepla californica</i> California quail	O, V	O, V	V	O, V	O, V
<i>Pelecanus erythrorhynchos</i> American white pelican *	O	O			
<i>Ardea herodias</i> great blue heron *	O				
<i>Egretta thula</i> snowy egret *	O				
<i>Accipiter cooperii</i> Cooper's hawk *	O, V	O			
<i>Buteo lineatus</i> red-shouldered hawk	O, V	O, V	V	O	O, V
<i>Buteo jamaicensis</i> red-tailed hawk	O, V, Fe	O	O, V	O	O
<i>Elanus leucurus</i> white-tailed kite *				O	
<i>Falco sparverius</i> American kestrel	O		O	Fe	
<i>Charadrius vociferous</i> killdeer	O, V	O		V	
<i>Columba livia</i> rock pigeon	O				O

**Appendix B-1 (continued)**  
**Wildlife Species Detected During Chambers Group 2007 Bio-Reconnaissance Surveys**

<b>Scientific Name</b> Common Name	<b>Alt. 1</b>	<b>Alt. 2</b>	<b>Alt. 3</b>	<b>Alt. 4</b>	<b>Citrus Pump Station &amp; Reservoir</b>
<b>Zenaida macroura</b> mourning dove	O, V	O, V	O, V	O, V	V
<b>Columbina passerine</b> common ground-dove		O			O
<b>Geococcyx californianus</b> greater roadrunner	O		O	T	
<b>Tyto alba</b> barn owl				S	
<b>Bubo virginianus</b> great horned owl	S				
<b>Chordeiles acutipennis</b> lesser nighthawk	O				
<b>Aeronautes saxatalis</b> white-throated swift		O		O	
<b>Ceryle alcyon</b> belted kingfisher				O, V	
<b>Calypte anna</b> Anna's hummingbird	O, V	O, V	O, V	O, V	O
<b>Calypte costae</b> Costa's hummingbird	O, V	O	O		V
<b>Sayornis nigricans</b> black phoebe		O	O, V	V	O, V
<b>Sayornis saya</b> Say's phoebe	O, V		O		
<b>Myiarchus cinerascens</b> ash-throated flycatcher	O		O		
<b>Tyrannus vociferans</b> Cassin's kingbird	O				
<b>Aphelocoma californica</b> western scrub-jay	O, V	O, V		O, V	O, V
<b>Corvus brachyrhynchos</b> American crow	O, V	O		O, V	
<b>Corvus corax</b> common raven	O, V	O, V	O, V		O
<b>Petrochelidon pyrrhonota</b> cliff swallow	O		O	O	
<b>Tachycineta bicolor</b> tree swallow				O	
<b>Hirundo rustica</b> barn swallow	O	O			O

**Appendix B-1 (continued)**  
**Wildlife Species Detected During Chambers Group 2007 Bio-Reconnaissance Surveys**

<b>Scientific Name</b> Common Name	<b>Alt. 1</b>	<b>Alt. 2</b>	<b>Alt. 3</b>	<b>Alt. 4</b>	<b>Citrus Pump Station &amp; Reservoir</b>
<i>Tachycineta thalassina</i> violet-green swallow				O	
<i>Stelgidopteryx serripennis</i> northern rough-winged swallow	O	O	O		O
<i>Psaltriparus minimus</i> bushtit	V	O, V	O, V	O, V	O
<i>Campylorhynchus brunneicapillus</i> cactus wren	N		V		
<i>Salpinctes obsoletus</i> rock wren	O, V		O, V	O, V	
<i>Thryomanes bewickii</i> Bewick's wren	O, V	V	V		V
<i>Chamaea fasciata</i> wrentit	V	V	V		V
<i>Polioptila caerulea</i> blue-gray gnatcatcher	V			V	
<i>Polioptila californica californica</i> * coastal California gnatcatcher				O, V	
<i>Toxostoma redivivum</i> California thrasher	O, V		V		
<i>Mimus polyglottos</i> northern mockingbird	O, V	V	V		O, V
<i>Phainopepla nitens</i> phainopepla	O				
<i>Vermivora celata</i> orange-crowned warbler			O, V		O,
<i>Dendroica coronata</i> yellow-rumped warbler	O	O			O, V
<i>Dendroica petechia brewsteri</i> yellow warbler *			O, V		
<i>Pipilo crissalis</i> California towhee	O	V	O, V	O, V	O
<i>Pipilo maculatus</i> spotted towhee	O, V	V	V	O, V	O, V
<i>Aimophila ruficeps canescens</i> rufous-crowned sparrow *	O, V	V	V		

**Appendix B-1 (continued)**  
**Wildlife Species Detected During Chambers Group 2007 Bio-Reconnaissance Surveys**

<b>Scientific Name</b> Common Name	<b>Alt. 1</b>	<b>Alt. 2</b>	<b>Alt. 3</b>	<b>Alt. 4</b>	<b>Citrus Pump Station &amp; Reservoir</b>
<b><i>Amphispiza bilineata</i></b> black-throated sparrow				O, V	
<b><i>Chondestes grammacus</i></b> lark sparrow	O				
<b><i>Melospiza melodia</i></b> song sparrow		O, V		V	V
<b><i>Spizella breweri</i></b> Brewer's sparrow *	O, V		O, V		
<b><i>Zonotrichia leucophrys</i></b> white-crowned sparrow	O, V	V	O, V	O, V	V
<b><i>Guiraca caerulea</i></b> blue grosbeak		O	O		
<b><i>Agelaius phoeniceus</i></b> red-winged blackbird	O, V				V
<b><i>Icterus cucullatus</i></b> hooded oriole	O, V				
<b><i>Icterus bullockii</i></b> Bullock's oriole	O				
<b><i>Sturnella neglecta</i></b> western meadowlark	O, V				
<b><i>Carduelis lawrencei</i></b> Lawrence's goldfinch *	O		O, V		
<b><i>Carduelis psaltria</i></b> lesser goldfinch	O	O	O	O, V	V
<b><i>Carduelis tristis</i></b> American goldfinch	O				
<b><i>Carpodacus mexicanus</i></b> house finch	O, V	O, V	O, V	O, V	O
<b><i>Passer domesticus</i></b> house sparrow	O, V				
<b>CLASS MAMMALIA: MAMMALS</b>					
<b><i>Chiroptera</i></b> unidentified bat	S			S	
<b><i>Didelphis virginiana</i></b> Virginia opossum	T				
<b><i>Sylvilagus audubonii</i></b> desert cottontail	O, Fu, S, T	O, S	O, S	O, S	O
<b><i>Spermophilus beecheyi</i></b> California ground squirrel	B, V	B			
<b><i>Chaetodipus sp.</i></b> pocket mouse	C, Fu				

**Appendix B-1 (continued)**  
**Wildlife Species Detected During Chambers Group 2007 Bio-Reconnaissance Surveys**

<b>Scientific Name</b> Common Name	<b>Alt. 1</b>	<b>Alt. 2</b>	<b>Alt. 3</b>	<b>Alt. 4</b>	<b>Citrus Pump Station &amp; Reservoir</b>
<b><i>Neotoma lepida</i></b> desert woodrat	N, S				
<b><i>Canis familiaris</i></b> domestic dog	S				
<b><i>Urocyon cinereoargenteus</i></b> gray fox	S				
<b><i>Canis latrans</i></b> coyote	S, T	S, T	S	S	S, T
<b><i>Procyon lotor</i></b> raccoon	T	T		S, T	T
<b><i>Mephitis mephitis</i></b> striped skunk	Od			T	
<b><i>Mustela frenata</i></b> long-tailed weasel	S				
<b><i>Felis concolor</i></b> mountain lion	S, T				
<b><i>Lynx rufus</i></b> bobcat	S, T	S			
<b>B = Burrow, C = Carcass, Fe = Feathers, Fu = Fur, N = Nest, O = Observed,            Od = Odor, S = Scat/Pellets, T = Tracks, V = Vocalization            * Denotes sensitive species</b>					

**APPENDIX B-2 – ALL WILDLIFE SPECIES OBSERVED AT EAST  
BRANCH EXTENSION PHASE II**

**Appendix B-2**  
**All Wildlife Species Observed at East Branch Extension Phase II Project Site**

Scientific Name	Common Name
<b>CLASS INSECTA</b>	<b>INSECTS</b>
<i>Papilio rutulus</i>	western tiger swallowtail
<i>Artogeia rapae</i>	cabbage white
<i>Nymphalis antiopa</i>	mourning cloak
<i>Apodemia mormo virgulti</i>	Behr's metalmark
<i>Pontia protodice</i>	common white
<i>Plebejus acmon</i>	Acmon's blue
<b>CLASS AMPHIBIA</b>	<b>AMPHIBIANS</b>
<i>Pseudacris regilla</i>	Pacific chorus frog
<b>CLASS REPTILIA</b>	<b>REPTILES</b>
<i>Uta stansburiana</i>	common side-blotched lizard
<i>Sceloporus occidentalis</i>	western fence lizard
<i>Cnemidophorus tigris stejnegeri</i>	coastal western whiptail
<i>Thamnophis hammondi</i> *	two-striped garter snake *
<b>CLASS AVES</b>	<b>BIRDS</b>
<i>Anas platyrhynchos</i>	mallard
<i>Callipepla californica</i>	California quail
<i>Pelecanus erythrorhynchos</i> *	American white pelican *
<i>Ardea herodias</i> *	great blue heron *
<i>Egretta thula</i> *	snowy egret *
<i>Butorides virescens</i>	green heron
<i>Elanus leucurus</i> *	white-tailed kite *
<i>Circus cyaneus</i> *	northern harrier *
<i>Accipiter cooperii</i> *	Cooper's hawk *
<i>Buteo lineatus</i>	red-shouldered hawk
<i>Buteo jamaicensis</i>	red-tailed hawk
<i>Falco sparverius</i>	American kestrel
<i>Charadrius vociferous</i>	killdeer
<i>Columba livia</i>	rock pigeon
<i>Streptopelia decaocto</i>	Eurasian collared-dove
<i>Zenaida macroura</i>	mourning dove
<i>Columbina passerine</i>	common ground-dove
<i>Amazona oratrix</i>	yellow-headed parrot
<i>Geococcyx californianus</i>	greater roadrunner
<i>Tyto alba</i>	barn owl
<i>Bubo virginianus</i>	great horned owl
<i>Chordeiles acutipennis</i>	lesser nighthawk
<i>Aeronautes saxatalis</i>	white-throated swift
<i>Chaetura vauxi</i> *	Vaux's swift *
<i>Ceryle alcyon</i>	belted kingfisher
<i>Calypte anna</i>	Anna's hummingbird
<i>Calypte costae</i>	Costa's hummingbird
<i>Selasphorus sasin</i>	Allen's hummingbird
<i>Sayornis nigricans</i>	black phoebe
<i>Sayornis saya</i>	Say's phoebe
<i>Myiarchus cinerascens</i>	ash-throated flycatcher
<i>Tyrannus vociferans</i>	Cassin's kingbird
<i>Tyrannus verticalis</i>	western kingbird
<i>Picoides nuttallii</i>	Nuttall's woodpecker

**Appendix B-2 (continued)**  
**All Wildlife Species Observed at East Branch Extension Phase II Project Site**

Scientific Name	Common Name
<b>CLASS AVES</b>	<b>BIRDS</b>
<i>Lanius ludovicianus</i> *	loggerhead shrike *
<i>Aphelocoma californica</i>	western scrub-jay
<i>Corvus brachyrhynchos</i>	American crow
<i>Corvus corax</i>	common raven
<i>Petrochelidon pyrrhonota</i>	cliff swallow
<i>Tachycineta bicolor</i>	tree swallow
<i>Hirundo rustica</i>	barn swallow
<i>Tachycineta thalassina</i>	violet-green swallow
<i>Stelgidopteryx serripennis</i>	northern rough-winged swallow
<i>Psaltiriparus minimus</i>	bushtit
<i>Campylorhynchus brunneicapillus</i>	cactus wren
<i>Salpinctes obsoletus</i>	rock wren
<i>Thryomanes bewickii</i>	Bewick's wren
<i>Chamaea fasciata</i>	wrentit
<i>Polioptila caerulea</i>	blue-gray gnatcatcher
<i>Polioptila californica californica</i> *	California gnatcatcher *
<i>Mimus polyglottos</i>	northern mockingbird
<i>Toxostoma redivivum</i>	California thrasher
<i>Phainopepla nitens</i>	phainopepla
<i>Vermivora celata</i>	orange-crowned warbler
<i>Dendroica coronata</i>	yellow-rumped warbler
<i>Dendroica petechia brewsteri</i> *	yellow warbler *
<i>Agelaius phoeniceus</i>	red-winged blackbird
<i>Icterus cucullatus</i>	hooded oriole
<i>Icterus bullockii</i>	Bullock's oriole
<i>Sturnella neglecta</i>	western meadowlark
<i>Pipilo crissalis</i>	California towhee
<i>Pipilo maculatus</i>	spotted towhee
<i>Aimophila ruficeps canescens</i> *	southern California rufous-crowned sparrow *
<i>Amphispiza bilineata</i>	black-throated sparrow
<i>Chondestes grammacus</i>	lark sparrow
<i>Melospiza melodia</i>	song sparrow
<i>Spizella breweri</i> *	Brewer's sparrow *
<i>Zonotrichia leucophrys</i>	white-crowned sparrow
<i>Passerina caerulea</i>	blue grosbeak
<i>Passerina amoena</i>	lazuli bunting
<i>Molothrus ater</i>	brown-headed cowbird
<i>Carduelis lawrencei</i> *	Lawrence's goldfinch *
<i>Carduelis psaltria</i>	lesser goldfinch
<i>Carduelis tristis</i>	American goldfinch
<i>Carpodacus mexicanus</i>	house finch
<i>Passer domesticus</i>	house sparrow
<b>CLASS MAMMALIA</b>	<b>MAMMALS</b>
<i>Chiroptera</i>	unidentified bat sp.
<i>Didelphis virginiana</i>	Virginia opossum
<i>Sylvilagus audubonii</i>	desert cottontail
<i>Spermophilus beecheyi</i>	California ground squirrel
<i>Dipodomys merriami parvus</i> *	San Bernardino kangaroo rat *

**Appendix B-2 (continued)**  
**All Wildlife Species Observed at East Branch Extension Phase II Project Site**

Scientific Name	Common Name
<b>CLASS MAMMALIA</b>	<b>MAMMALS</b>
<i>Chaetodipus sp.</i>	pocket mouse sp.
<i>Chaetodipus fallax fallax</i> *	northwestern San Diego pocket mouse *
<i>Perognathus eremicus</i>	cactus mouse
<i>Neotoma lepida</i>	desert woodrat
<i>Peromyscus maniculatus</i>	deer mouse
<i>Canis familiaris</i>	domestic dog
<i>Urocyon cinereoargenteus</i>	gray fox
<i>Canis latrans</i>	coyote
<i>Procyon lotor</i>	raccoon
<i>Mephitis mephitis</i>	striped skunk
<i>Mustela frenata</i>	long-tailed weasel
<i>Felis concolor</i>	mountain lion
<i>Lynx rufus</i>	bobcat
<b>* indicates sensitive species</b>	

**APPENDIX C – P & D CONSULTANTS BIOLOGICAL RESOURCES  
RECONNAISSANCE REPORT**

August 31, 2005

Ms. Mary Miller  
California Department of Water Resources  
770 Fairmont Avenue  
Suite 102  
Glendale, CA 91203

**SUBJECT: Results of the Biological Resources Reconnaissance Survey for the East Branch Extension Phase II Project**

Dear Ms. Miller,

P&D Consultants is pleased to submit this assessment of the biological resources found along Alternatives 7A-2, 7A-3, 7B-2, and 7B-3 of the East Branch Extension Phase II (EBX II) Project located in San Bernardino County, California. Figure 1 is a regional map of the project site and Figure 2 is a vicinity map. The purpose of this survey was to map the existing vegetation communities, catalogue flora and fauna observed, and assess the potential for other sensitive species to occur in the project area. This letter report includes the methods and results for the 2005 biological resources reconnaissance survey along with recommendations for future focused species surveys likely needed for the environmental documentation program and to meet regulatory requirements.

**METHODS**

The construction area for the EBX II pipeline will extend 150 feet on each side of the centerline of the pipeline. The Biological Survey Area (BSA) for the pipeline alternatives consists of a 500 foot-wide zone centered on the pipeline. Thus, the pipeline BSA includes the pipeline construction area and an additional 100 feet on each side of the construction area. The BSA for the proposed reservoir includes the citrus orchard reservoir site. The BSAs for Alternatives 7A/2, 7A/3, 7B/2 and 7B/3 are shown on Figures 3-A, 3-B, 3-C and 3-D, respectively.

The north/south segment of Alternatives 7A/2 and 7A/3 is centered 30 feet east of the centerline of the Inland Feeder Pipeline. The north/south segment of Alternatives 7B/2 and 7B/3 is centered 150 feet east of the east edge of the Inland Feeder construction limits.

Biologists Danielle Tannourji, Talula Wiater, and Aaron Johnson surveyed the BSA on July 5, 6, and 7, 2005. Each survey was conducted by walking meandering transects on foot throughout the BSA. Each plant community was mapped using a minimum mapping unit of approximately 0.1-acre on a 2000 aerial base map with a scale of 1 inch = 200 feet and transferred onto a 2005 aerial base map with the same scale. Plant communities were identified based on the dominant life forms present according to Holland (1986) or Sawyer and Keeler-Wolfe (1995), as appropriate. A photograph was also taken for each vegetation community identified in the BSA. In addition, all plant and wildlife species observed or heard during the mapping effort were identified to species according to the *Jepson Manual* (Hickman 1993) and the *Complete List of Amphibians, Reptiles, Birds, and Mammals in California* (CDFG 2003). Sensitive flora and fauna accounts were reviewed using the California

Natural Diversity Database (CNDDDB 2005) and observations during the surveys were recorded using a geographic positioning system (GPS) to accurately map their location in the BSA.

## RESULTS

### ***Vegetation Classification***

The following vegetation communities depicted in Figures 3A-3D were observed in the BSA. Below is a brief description of each community including the vegetation code, and dominant plant species, soil characteristics, and vegetative cover within the BSA. Table 1 summarizes the acreages for each vegetation type by Alternative. Appendix A includes photographs that are representative of the native vegetation communities in the BSA. A photograph of the Santa Ana River woolly-star is also provided. Locations of the photographs are shown on Figures 3-A, 3-B, 3-C and 3-D.

### **Riversidean Alluvial Fan Sage Scrub (Vegetation Code 32720)**

Riversidean alluvial fan sage scrub (RAFSS) is a Mediterranean shrubland community that dominates washes, floodplains, and alluvial fans in southern California. This vegetation community is comprised of a number of diverse plants, including drought-deciduous and evergreen shrubs, succulents, and desert riparian species (Sawyer and Keeler-Wolfe 1995). Because alluvial fan sage scrub is characterized by its diversity, it can also be described as an intermediate between chaparral and sage scrub habitats, in that all three vegetation communities share similar floral components. However, the distinguishing factor is that alluvial fan sage scrub undergoes periodic scouring from frequent flooding events, creating three seral stages; pioneer, intermediate, and mature. Each seral type is distinct due to soil type, dominant floral species, vegetative cover, and elevation.

During the biological reconnaissance survey, all three seral stages were detected in the BSA. Below is a brief description of each seral stage observed in the BSAs for Alternatives 7A-2, 7A-3, 7B-2, and 7B-3.

#### *Pioneer RAFSS*

This habitat strictly occurs within the active flood channels of the Santa Ana River and Mill Creek. Typical plant species observed in the pioneer RAFSS in the BSA are scalebroom (*Lepidospartum squamatum*), California buckwheat (*Eriogonum fasciculatum*), brittlebush (*Encelia farinosa*), and deerweed (*Lotus scoparius*). Soils can be characterized as coarse, sandy Riverwash, typical of southern California floodplains, with a vegetative cover less than approximately 20 percent.

#### *Intermediate RAFSS*

This habitat generally occurs between the active flood channels and terraces of the Santa Ana River and Mill Creek, and is subjected to infrequent flooding events. Typical plant species observed in the intermediate RAFSS include California buckwheat, brittlebush, yerba santa (*Eriodictyon californicum*), California sagebrush (*Artemisia californica*), matchweed (*Gutierrezia californica*), prickly-pear cactus (*Opuntia oricola*), coastal cholla (*Opuntia proliferata*), and Mohave yucca (*Yucca schidigera*). Soils are mainly gravelly, coarse alluvium with approximately 50 percent vegetative cover.

#### *Mature RAFSS*

This seral stage dominates the elevated terraces adjacent to the flood channels of the Santa Ana River and Mill Creek. These terraces are rarely subject to flooding events due to their distance and elevation from the active floodplains, which allow for long intervals of uninterrupted vegetative growth. As a result, this community is defined by diverse floral species, higher vegetative cover, and stable soils.

An array of southern California native plants were observed in the mature RAFSS in the BSA including: chamise (*Adenostoma fasciculatum*), California juniper (*Juniperus californica*), holly-leaf

cherry (*Prunus ilicifolia*), sugar bush (*Rhus ovata*), California buckwheat, brittlebush, yerba santa, California sagebrush, matchweed, prickly-pear cactus, coastal cholla, Mohave yucca, and white sage (*Salvia apiana*). Soils are mainly gravelly, coarse alluvium with presence of cryptogamic crust and the vegetative cover is more than approximately 50 percent. A cryptogamic crust is a microhabitat that contains soil, bacteria, algae, lichens, and mosses. These crusts act as a living mulch in that they retain soil moisture and discourage the growth of annuals and weeds, as well as resisting wind and water erosion.

**California Buckwheat Alluvial Fan Scrub** (Vegetation Code 32.040.04)

As listed in Sawyer and Keeler-Wolfe (1995), California buckwheat alluvial fan scrub is another alluvial scrub found adjacent to major floodplains. However, unlike intermediate/mature RAFSS, this vegetation class is dominated only by California buckwheat with occasional associates such as brittlebush and deerweed. Vegetative cover is moderate (20-50%) and soils are characterized as loose, coarse alluvia.

In the BSA, this community was primarily associated with previously disturbed areas, such as the Inland Feeder Easement in the northern part of the BSA which has been reseeded. Areas in the southern part of the BSA, which also had evidence of prior human-induced disturbances such as grading, were dominated by recovering patches of California buckwheat alluvial fan scrub. This scrub habitat is thought to be in the initial stages of habitat recovery and over time will develop into a more diverse, structural community as seen in the surrounding intermediate/mature RAFSS communities.

**Mulefat Scrub** (Vegetation Code 63310)

This riparian scrub community is primarily associated with a number of pools and isolated ponds adjacent to both the Santa Ana River and Mill Creek in the southeast part of the BSA. It is strongly dominated by mulefat (*Baccharis salicifolia*), in association with several willow species (*Salix* spp.). Due to the past human disturbances and frequent flooding, this community can be characterized as recovering mulefat scrub. Most areas are dominated by 1- to 3-year old mulefat individuals with a small number of isolated mature black willows (*Salix goodingii*).

**Open Water**

These inundated areas consist of a number of basins adjacent to both the Santa Ana River and Mill Creek along the four Alternatives. The purpose of these basins is unknown at this time. However, they have become a valuable resource to the local wildlife in the area. Many amphibian and bird species were observed within and adjacent to the basins, and mammal sign was also observed.

**Non-Native Grassland** (Vegetation Code 42200)

The non-native grassland community in the BSA is dominated by introduced annual grasses such as common rippgut grass (*Bromus diandrus*), soft chess (*Bromus hordeaceus*), foxtail chess (*Bromus madritensis* ssp. *rubens*), and wild oat (*Avena fatua*). Some native annual and perennial species such as California bluebells (*Phacelia minor*) and California buckwheat were also present in isolated patches.

**Agricultural Lands**

These areas in the BSA are dominated by several species of citrus trees (*Citrus* spp.). The Mentone Citrus orchard in the BSA is the location for the proposed reservoir.

**Disturbed Lands**

The areas classified as disturbed habitat have been altered due to human activities such as grading to create dirt roads or trails to access certain areas within the BSA. Typically, no native vegetation will re-establish within these kinds of areas due to the level of ongoing human disturbance.

**Developed Lands**

These areas are termed developed due to the presence of urban, commercial or residential developments. The lands surrounding these developments are typically dominated by ornamental, non-native species that are used specifically for aesthetic purposes. Some developed areas in the BSA are old, abandoned buildings, commercial facilities, electrical substations, and private residences. The concrete wall that spans the southern banks of Mill Creek is another component of this classification.

**Table 1: Vegetation Acreages within the Proposed Alternatives**

<b>Vegetation Type</b>	<b>Alt. 7A-2</b>	<b>Alt. 7A-3</b>	<b>Alt. 7B-2</b>	<b>Alt. 7B-3</b>
RAFSS - <i>Pioneer</i>	12.41	12.41	14.81	14.81
RAFSS - <i>Intermediate</i>	38.11	24.15	38.70	24.75
RAFSS - <i>Mature</i>	83.14	108.85	102.81	128.52
Ca. Buckwheat Alluvial Fan Scrub	78.92	64.97	54.88	40.93
Mulefat Scrub	1.75	2.00	1.75	2.01
Open Water	9.42	6.79	9.58	6.94
Non-Native Grassland	2.66	9.17	2.66	9.17
Agricultural Lands	126.13	126.14	124.20	124.20
Disturbed Lands	26.94	19.72	22.56	15.34
Developed Lands	35.73	57.10	39.77	61.14
<b>Total</b>	<b>415.21</b>	<b>431.13</b>	<b>411.72</b>	<b>427.80</b>

**Flora**

Common native perennial floral species present in the BSAs of the four Alternatives include California buckwheat, brittlebush, deerweed, chamise, Mexican elderberry (*Sambucus mexicana*), and sugar bush. Common native annual species include virgate wreath plant (*Stephanomeria virgata* ssp. *virgata*), slender buckwheat (*Eriogonum gracile*), California bluebells, California sun cup (*Camissonia bistorta*), California croton (*Croton californicus*), telegraph weed (*Heterotheca grandiflora*), and prickly cryptantha (*Cryptantha muricata*). Appendix B lists all plant species identified during the biological reconnaissance survey.

**Fauna**

Common wildlife species seen and/or heard during the biological reconnaissance survey include a number of local insects, reptiles, birds, and mammals. Three butterfly species were observed in the BSA: Acmon's blue (*Plebejus acmon*); common white (*Pontia protodice*); and Behr's metalmark (*Apodemia mormo virgulti*). Common reptiles encountered were the coastal western whiptail (*Cnemidophorus tigris*), western fence lizard (*Sceloporus occidentalis*), and side-blotch lizard (*Uta stansburiana*). Approximately 15 bird species were detected. Common birds included black phoebe (*sayornis nigricans*), northern mockingbird (*Mimus polyglottos*), rock wren (*Salpinctes obsoletus*), and western kingbird (*Tyrannus verticalis*). In addition, three mammal species were seen in the BSA: California ground squirrel (*Spermophilus beecheyi*); desert cottontail (*Sylvilagus audobonii*); and coyote (*Canis latrans*). Appendix C lists all wildlife species identified during the biological reconnaissance survey.

**Wetlands and Waters**

There are several active drainage channels (i.e., tributaries) that cross the BSA, primarily in the northern part of the BSA (Figures 3A-3D). These channels will be further defined through a formal wetland delineation process to assess potential jurisdictional project impacts and potential permit requirements under the Federal Clean Water Act and State Fish and Game Code.

## **SPECIAL STATUS SPECIES**

Below are descriptions for each of the special status plant and wildlife species that are known to occur within the region of EBX II (CNDDDB 2005). Each description includes suitable habitat characteristics for each species and their potential for occurrence within the BSA.

### Santa Ana Woolly-Star

The Santa Ana River woolly-star (*Eriastrum densifolium* ssp. *sanctorum*) is an annual plant of the Phlox family (Polemoniaceae) listed as federally and state endangered and as a California Native Plant Society (CNPS) List 1B species. Its preferred habitat is comprised of sandy soils of alluvial terraces and benches within alluvial fan sage scrub. This species has been extirpated from large areas of its historical range and now only occupies approximately 18 linear miles of river floodplain along the Santa Ana River, City Creek, and Plunge Creek (CNPS 2005).

The Santa Ana woolly-star was detected in the BSA along all four Alternatives, in an area designated as the Santa Ana Habitat Conservation Area managed by the San Bernardino County Flood Control District. Figures 3A-3D depict each population. Approximately 40 individuals were identified in the intermediate RAFSS community north of the Santa Ana River. Most individuals detected were in bloom, but many small seedlings were just starting to emerge. Appendix A includes photographs of the species and the surrounding habitat. In addition, there is a high potential for this species to occur in the intermediate RAFSS habitat throughout the BSA.

### Slender-horned Spineflower

The slender-horned spineflower (*Dodecahema leptoceras*) is an annual of the buckwheat family (Polygonaceae) listed as federally and state endangered and as a CNPS List 1B species. Its preferred habitat is comprised of sandy alluvium along floodplain terraces within alluvial fan sage scrub. It occurs in only eight watersheds: Santa Clara River, Big Tujunga Wash, Lytle Creek, Santa Ana River, San Jacinto River, Bautista Creek, Temescal Canyon, and Vail Lake. The slender-horned spineflower is known to occur along each of the four Alternatives. Although no current populations were detected during the reconnaissance survey, there is a high potential for this species to occur in suitable RAFSS habitats throughout the BSA.

### CNPS-Listed Plant Species

Three other sensitive floral species listed by CNPS as rare or threatened are known to occur in the vicinity of the project: Plummer's mariposa lily (*Calochortus plummerae*); Parry's spineflower (*Chorizanthe parryi* var. *parryi*); and southern California black walnut (*Juglans californica*). Plummer's mariposa lily and Parry's spineflower are both CNPS List 1B species and the southern California black walnut is a CNPS List 4 species. All three species occur in RAFSS habitat and have a moderate to high potential to occur within the BSA.

### Arroyo Toad

The arroyo toad (*Bufo microscaphus californicus*) is a federally endangered species and a state species of special concern. The arroyo toad prefers semi-arid regions near washes or intermittent streams including desert washes and valley and foothill riparian corridors with surrounding upland habitats such as mixed chaparral and sagebrush. Although the biological reconnaissance survey was conducted late in the season to assess potential seasonal pools, the Santa Ana River and Mill Creek floodplain are characterized as low potential habitat for the arroyo toad because this species does not appear on the CNDDDB for the area.

#### Least Bell's Vireo

The least Bell's vireo (*Vireo bellii pusillus*) is a federally and state listed endangered species that typically occurs in riparian systems dominated by mulefat, several species of willows, cottonwood (*Populus* spp.), and Mexican elderberry. Its breeding range covers most of southern California, but is most abundant in Riverside and San Diego Counties. This summer resident has been known to occur in the vicinity of the project, especially downstream along the Santa Ana River (2005). There is only a relatively low potential for this species to occur in the BSA, however, due to marginally suitable habitat. This habitat is restricted to the detention basins in the southeast portion of the BSA on all alternatives.

#### Coastal California Gnatcatcher

The coastal California gnatcatcher (*polioptila californica californica*) is a federally threatened species and a state species of special concern that generally occupies sage scrub habitats dominated by California sagebrush and/or California buckwheat. It is also known to forage in chaparral, grassland, and riparian habitats if in close proximity to suitable occupied habitat. In addition, this species may utilize any of the seral stages of alluvial fan sage scrub as habitat if suitable plant species composition and structure are present. During the first day of the 2005 reconnaissance survey, a pair of coastal California gnatcatchers were observed in the BSA as shown in Figures 3A-3D.

#### San Bernardino Kangaroo Rat

The San Bernardino kangaroo rat (*Dipodomys merriami parvus*) (SBKR) is a federally endangered mammal species that only is known to occur in isolated patches of alluvial fan sage scrub in Riverside and San Bernardino Counties. Approximately 250 acres of the BSA occur within the boundaries of the SBKR Critical Habitat area designated by the U.S. Fish and Wildlife Service (USFWS). Some burrows in the BSA have a high potential to be SBKR burrows, but no SBKR individuals were detected during the 2005 survey.

The Mentone Citrus orchard in the BSA was assessed for suitable habitat for the SBKR. Typically, SBKR-occupied orchards are characterized as having a dominant understory of weedy annual plant species due to the lack of weed maintenance. These annual plants provide a food source. Also, occupied orchards generally do not have silt fences adjacent to the RAFSS habitat along the property boundaries to deter local, ground-dwelling wildlife (MBA 2005). These parameters often create a suitable niche for the SBKR, if they are present in the area.

Conversely, the Mentone Citrus orchard lacks an herbaceous understory due to frequent weed maintenance and is surrounded with a 20-inch-tall wire mesh fence accompanied with a 12-inch-tall silt fence. Moreover, no kangaroo rat burrows or sign were detected in the orchard during the habitat assessment. Based on these results, the Mentone Citrus orchard does not provide suitable habitat for the SBKR.

#### Species of Special Concern

In addition to the listed species discussed above, there are several faunal species designated as species of special concern by the resource agencies that have a high potential to occur within the BSA. Sensitive reptile species known or with potential to occur in the vicinity of the BSA include orange-throated whiptail (*Cnemidophorus hyperythrus*) and San Diego horned lizard (*Phrynosoma coronatum blainvillei*). Sensitive birds that have a high potential to forage and/or breed in the BSA are: burrowing owl (*Athene cunicularia*); Bell's sage sparrow (*Amphispiza belli belli*); California horned lark (*Eremophila alpestris actia*); yellow warbler (*Dendroica petechia*); yellow-breasted chat (*Icteria virens*); and rufous-crowned sparrow (*Aimophila ruficeps canescens*). Three sensitive rodent species are known from the vicinity of the project: San Diego woodrat (*Neotoma lepida intermedia*); San Diego pocket mouse (*Chaetodipus fallax fallax*); and Los Angeles little pocket mouse (*Perognathus longimembris*).

Two species of special concern, the coastal cactus wren (*Campylorhynchus brunneicapillus couesi*) and loggerhead shrike (*Lanius ludovicianus*), were observed in the BSA during the 2005 reconnaissance survey. Figures 3A-3D show each of the locations of sensitive faunal species detected during the survey. A coastal cactus wren family unit was noted in the same area as the coastal California gnatcatcher with approximately five nests built in the neighboring coastal cholla stands, and a lone loggerhead shrike was observed along the intermediate RAFSS in Alternatives 7A/3 and 7B/3 (Figures 3Aa-3D).

### RECOMMENDATIONS FOR FUTURE FOCUSED SURVEYS

Focused surveys are recommended for each of the special status species described above based on the likely requirements for the environmental documentation program, including regulatory requirements. Table 2 outlines the focused survey schedule for each species according to the USFWS protocol survey timeline.

**Table 2: USFWS Protocol Survey Timeline**

<b>Species</b>	<b>Focused Survey Months</b>
Slender-horned Spineflower	April-June
Santa Ana River Woolly-Star	April-September
CNPS-Listed Species	February-September
Arroyo Toad	March-July
Least Bell's Vireo	April-July
Coastal California Gnatcatcher	February-August
San Bernardino Kangaroo Rat	February-September
Special Species of Concern	February-September

If you have any questions or concerns regarding this letter report, please feel free to reach me at 619-291-1475.

Sincerely,

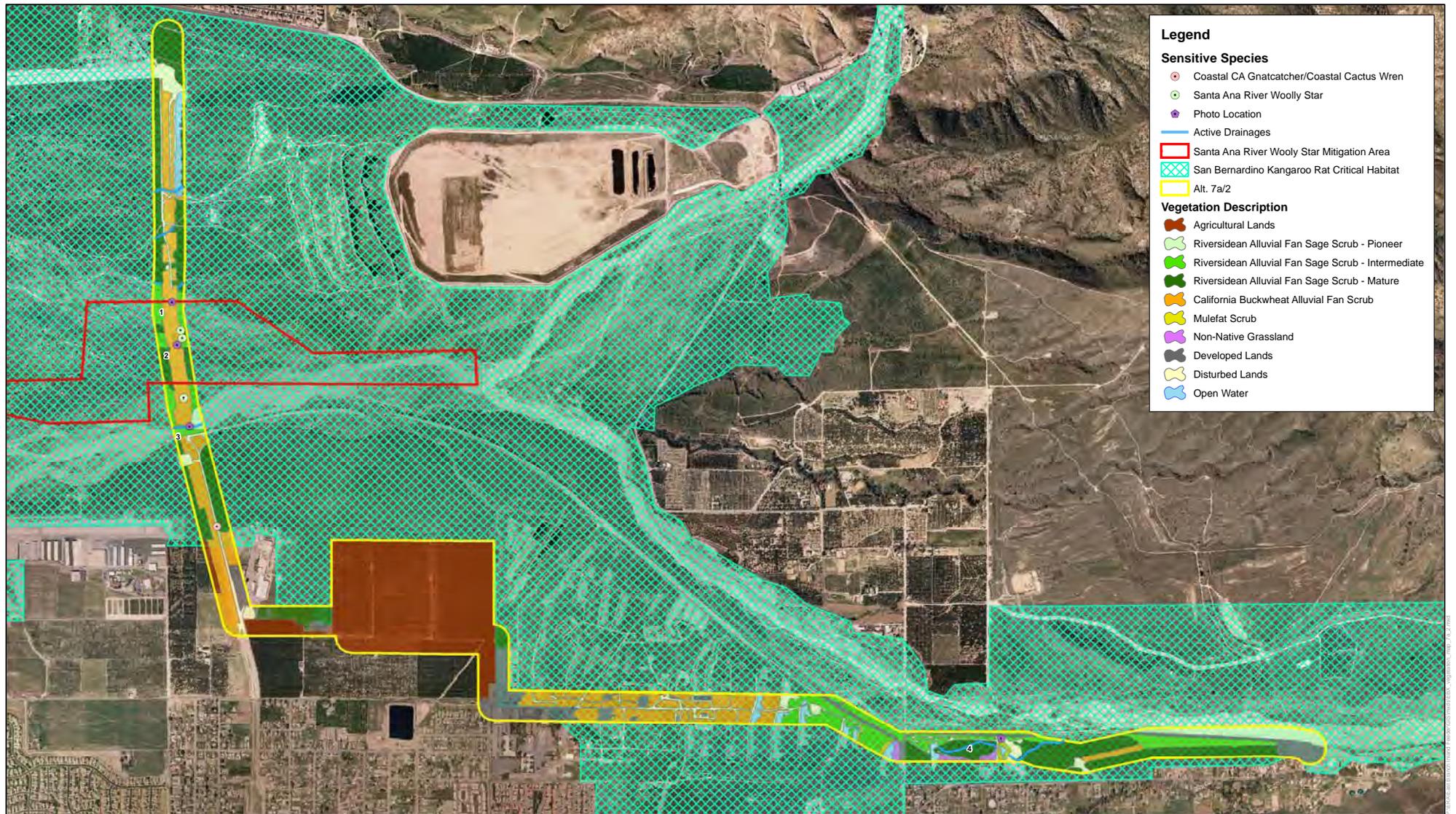
Danielle Tannourji  
Associate Biologist  
P&D Consultants

## REFERENCES

- California Department of Fish and Game. 2005. California Natural Diversity Database (CNDDDB). Special Plants List. California Department of Fish and Game, State of California Resources Agency. Sacramento, California.
- California Department of Fish and Game in cooperation with the California Interagency Wildlife Task Group. 2003. *List of California Amphibians, Reptiles, Birds, and Mammals*. California Wildlife Habitat Relationships System. William E. Grenfell, Monica D. Parisi, Darlene McGriff. August, 2003.
- California Native Plant Society (CNPS). 2005. CNPS Online Inventory.  
<http://www.cal.net/~levinel/cgi-bin/cnps/sensinv.cgi>
- Hickman, J.C. 1993. *The Jepson Manual: Higher Plants of California*. University of California Press. Berkeley, California.
- Holland, R. F. 1986. *Preliminary Descriptions of the Terrestrial Natural Communities of California*. California Department of Fish and Game, State of California Resources Agency. Sacramento, California.
- Michael Brandman Associates (MBA). 2005. San Bernardino Kangaroo Rat Habitat Assessment Letter Report. Michael Brandman Associates. June 22, 2005. 3pp.
- Sawyer, J.O. and Todd Keeler-Wolfe. 1995. *A Manual of California Vegetation*.  
<http://davisherb.ucdavis.edu/CNPSActiveServer/index.html>

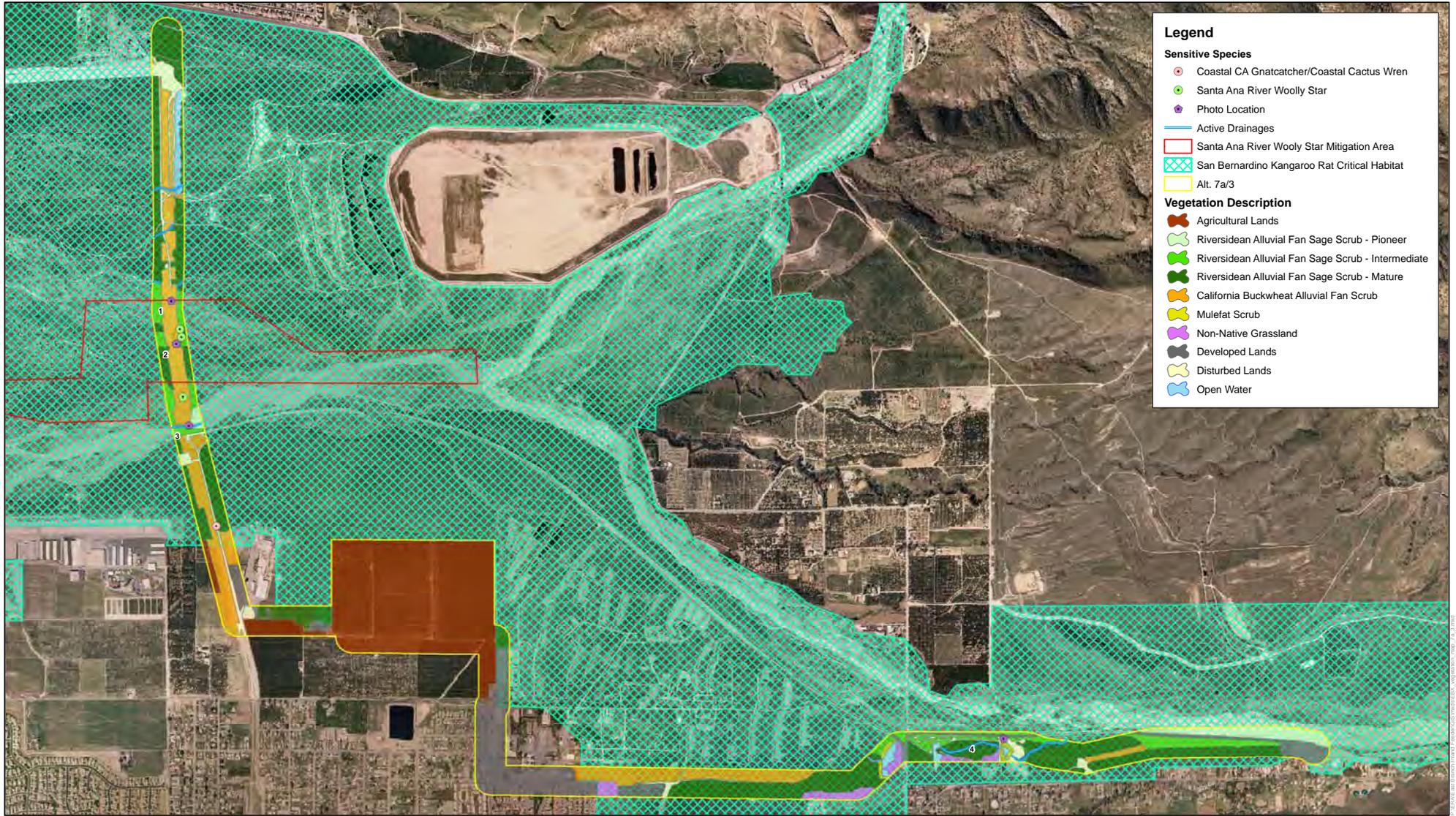
**Figure 1 – Regional Location**

**Figure 2 – Vicinity Map**



1 inch equals 1,500 feet

Vegetation Delineation, Alt. 7A/2



**Legend**

**Sensitive Species**

- Coastal CA Gnatcatcher/Coastal Cactus Wren
- Santa Ana River Woolly Star
- Photo Location

**Vegetation Description**

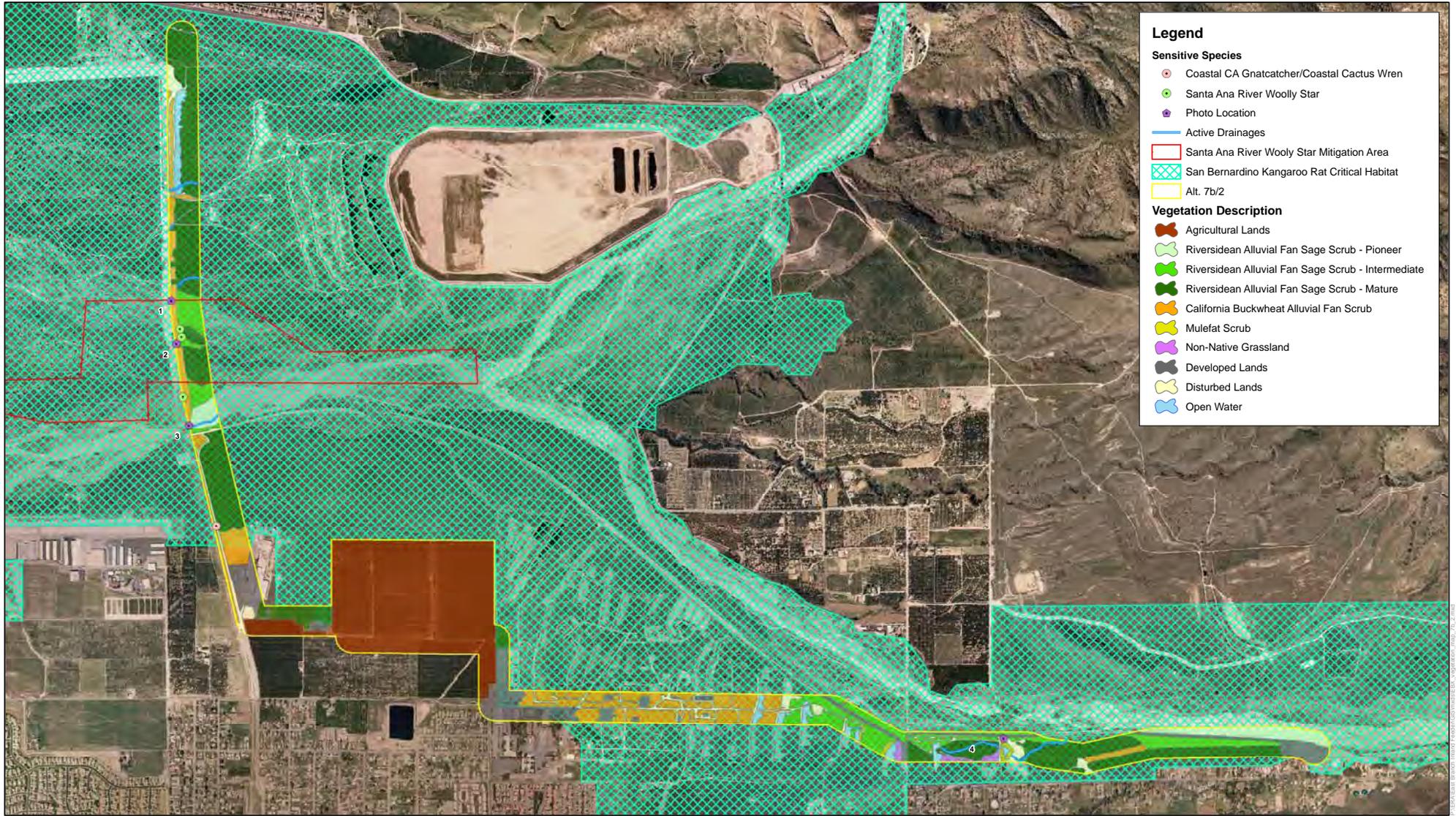
- Agricultural Lands
- Riversidean Alluvial Fan Sage Scrub - Pioneer
- Riversidean Alluvial Fan Sage Scrub - Intermediate
- Riversidean Alluvial Fan Sage Scrub - Mature
- California Buckwheat Alluvial Fan Scrub
- Mulefat Scrub
- Non-Native Grassland
- Developed Lands
- Disturbed Lands
- Open Water

**Other Symbols:**

- Active Drainages
- Santa Ana River Woolly Star Mitigation Area
- San Bernardino Kangaroo Rat Critical Habitat
- Alt. 7a/3

▲ 1 inch equals 1,500 feet

Vegetation Delineation, Alt. 7A/3



**Legend**

**Sensitive Species**

- Coastal CA Gnatcatcher/Coastal Cactus Wren
- Santa Ana River Woolly Star
- Photo Location

**Vegetation Description**

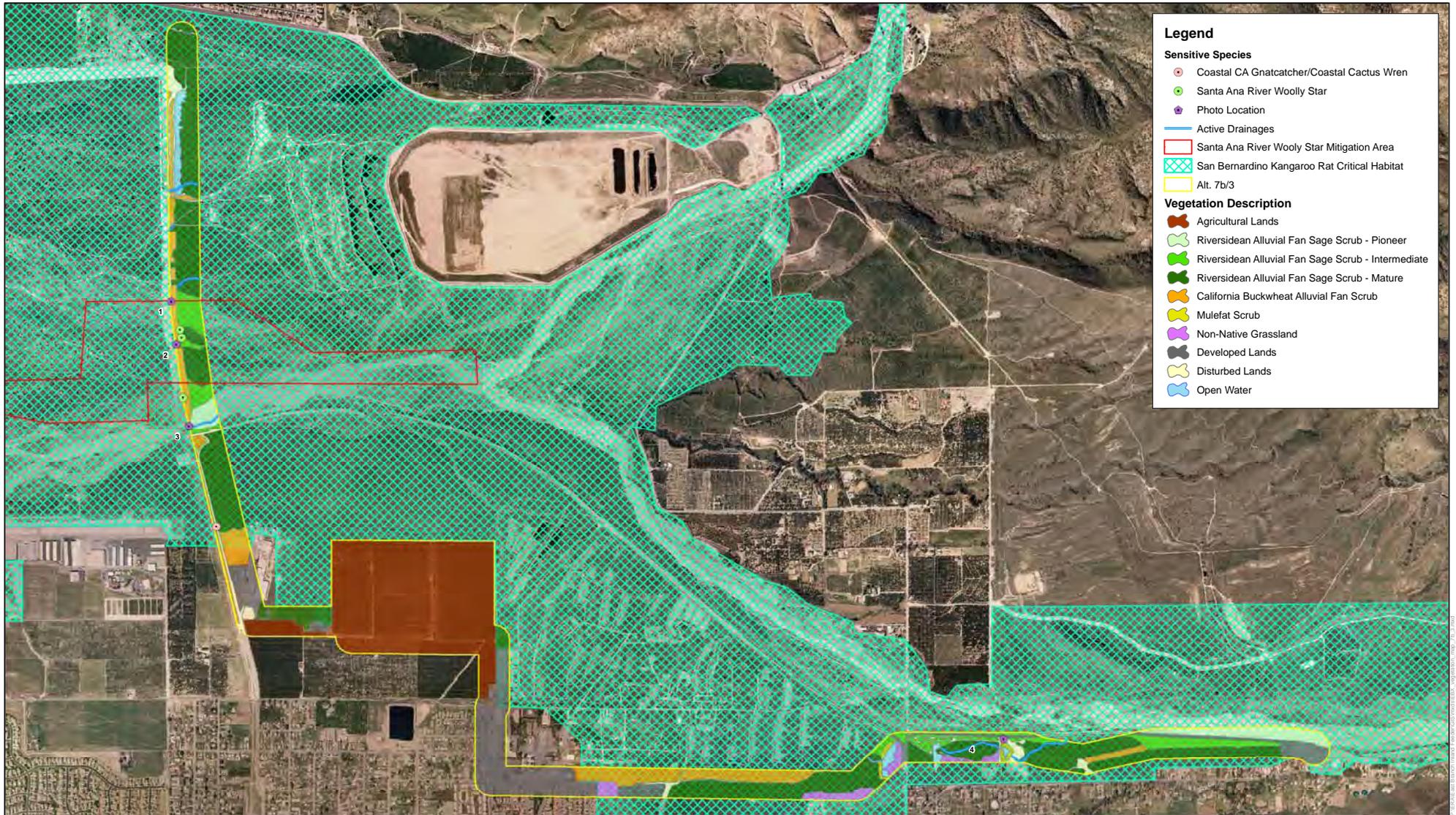
- Agricultural Lands
- Riversidean Alluvial Fan Sage Scrub - Pioneer
- Riversidean Alluvial Fan Sage Scrub - Intermediate
- Riversidean Alluvial Fan Sage Scrub - Mature
- California Buckwheat Alluvial Fan Scrub
- Mulefat Scrub
- Non-Native Grassland
- Developed Lands
- Disturbed Lands

**Other Features**

- Active Drainages
- Santa Ana River Woolly Star Mitigation Area
- San Bernardino Kangaroo Rat Critical Habitat
- Alt. 7b/2
- Open Water

1 inch equals 1,500 feet

Vegetation Delineation, Alt. 7B/2



1 inch equals 1,500 feet

Vegetation Delineation, Alt. 7B/3

# **A P P E N D I X   A**



Pioneer Riversidean Alluvial Fan Sage Scrub (RAFSS) in the foreground, Intermediate RAFSS in the middle of the picture, and Mature RAFSS in background, Santa Ana River, in all Alternatives (north section).

---



Mature RAFSS along the northern portion of all Alternatives.

---



---

California Buckwheat Alluvial Fan Scrub along the northern portion of all Alternatives.



---

Mule Fat Scrub and Open Water habitat found in all Alternatives.



Santa Ana River Woolly-Star observed along all Alternatives.

---

## **A P P E N D I C E S   B & C**

**APPENDIX B**  
**Plant Species Observed in the BSA**

<b>Scientific Name</b>	<b>Common Name</b>	<b>Native or Non-native</b>
<i>Ambrosia psilostachya</i>	Western Ragweed	Native
<i>Adenostoma fasciculatum</i>	Chamise	Native
<i>Amsinckia menziesii</i> var. <i>intermedia</i>	Fiddleneck	Native
<i>Artemisia californica</i>	California sagebrush	Native
<i>Artemisia douglasiana</i>	California Mugwort	Native
<i>Avena fatua</i>	Wild Oat	Non-Native
<i>Baccharis pilularis</i>	Coyote Brush	Native
<i>Baccharis salicifolia</i>	Mulefat	Native
<i>Brassica nigra</i>	Black Mustard	Non-Native
<i>Bromus diandrus</i>	Common Ripgut Grass	Non-Native
<i>Bromus hordeaceus</i>	Soft Chess	Non-Native
<i>Bromus madritensis</i> ssp. <i>rubens</i>	Foxtail Chess	Non-Native
<i>Camissonia bistorta</i>	California Sun Cup	Native
<i>Centaurea melitensis</i>	Tocalote	Non-Native
<i>Chamomilla suaveolens</i>	Pineapple Weed	Non-Native
<i>Chenopodium album</i>	Pig Weed	Non-Native
<i>Citrus</i> sp.	Citrus Tree	Non-Native
<i>Conyza canadensis</i>	Horseweed	Native
<i>Croton californicus</i>	Croton	Native
<i>Cryptantha muricata</i>	Cryptantha	Native
<i>Cucurbita palmate</i>	Coyote gourd	Native
<i>Cynodon dactylon</i>	Bermuda Grass	Non-Native
<i>Datura wrightii</i>	Jimson Weed	Native
<i>Encelia farinosa</i>	Brittlebush	Native
<b><i>Eriastrum densifolium</i> ssp. <i>sanctorum</i></b>	Santa Ana River Woolly-Star	Native - FE
<i>Eridictyon californicum</i>	Yerba Santa	Native
<i>Eriogonum fasciculatum</i>	California Buckwheat	Native
<i>Eriogonum gracile</i>	Slender Buckwheat	Native
<i>Erodium cicutarium</i>	Storksbill, Filaree	Non-Native
<i>Gutierrezia californica</i>	Broom Matchweed	Native
<i>Helianthus annuus</i>	Common Sunflower	Native
<i>Heterotheca grandiflora</i>	Telegraph Weed	Native
<i>Juniperus californica</i>	California Juniper	Native
<i>Lactuca serriola</i>	Prickly Lettuce	Non-Native
<i>Lepidospartum squamatum</i>	Scalebroom	Native
<i>Lotus scoparius</i>	Deerweed	Native
<i>Nicotiana glauca</i>	Tree Tobacco	Non-Native
<i>Opuntia oricola</i>	Prickly Pear	Native
<i>Opuntia prolifera</i>	Coastal Cholla	Native
<i>Phacelia minor</i>	California Blue Bells	Native

<b>Scientific Name</b>	<b>Common Name</b>	<b>Native or Non-native</b>
<i>Platanus racemosa</i>	California Sycamore	Native
<i>Plantago major</i>	Common Plantain	Non-Native
<i>Polypogon monspeliensis</i>	Annual beard grass	Non-Native
<i>Populus fremontii</i> ssp. <i>fremontii</i>	Fremont Cottonwood	Native
<i>Prunus ilicifolia</i>	Holly Leaf Cherry	Native
<i>Rhus ovata</i>	Sugarbush	Native
<i>Ribes indecorum</i>	Winter Currant	Native
<i>Rumex crispus</i>	Curley Dock	Non-Native
<i>Salix gooddingii</i>	Goodding's Willow	Native
<i>Salsola tragus</i>	Russian Thistle	Non-Native
<i>Salvia apiana</i>	White Sage	Native
<i>Salvia columbariae</i>	Chia	Native
<i>Salvia mellifera</i>	Black Sage	Native
<i>Sambucus mexicana</i>	Blue Elderberry	Native
<i>Sonchus oleraceus</i>	Common Sowthistle	Non-Native
<i>Stephanomeria virgata</i> ssp. <i>virgata</i>	Varigated Wreath-Plant	Native
<i>Vulpia myuros</i>	Foxtail Fescue	Non-Native
<i>Yucca schidigera</i>	Mohave yucca	Native

Note: Bold font depicts special status species  
 FE = Federal Endangered Species

**APPENDIX C**  
**Wildlife Observed in the BSA**

Scientific Name	Common Name
<b>Butterflies</b>	
<i>Apodemia mormo virgulti</i>	Behr's Metalmark
<i>Pontia protodice</i>	Common White
<i>Plebejus acmon</i>	Acmon's Blue
<b>Reptiles</b>	
<i>Sceloporus occidentalis</i>	Western Fence Lizard
<i>Uta stansburiana</i>	Side-Blotched Lizard
<i>Cnemidophorus tigris</i>	California Whiptail
<b>Birds</b>	
<i>Anas platyrhynchos</i>	Mallard
<i>Buteo jamaicensis</i>	Red-Tailed Hawk
<b><i>Campylorhynchus brunneicapillus couesi</i></b>	<b>Coastal Cactus Wren</b>
<i>Calypte anna</i>	Anna Hummingbird
<i>Corvus brachyrhynchos</i>	American Crow
<i>Corvus corax</i>	Common Raven
<i>Geococcyx californianus</i>	Greater Roadrunner
<b><i>Lanius ludovicianus</i></b>	<b>Loggerhead Shrike</b>
<i>Mimus polyglottos</i>	Northern Mockingbird
<i>Phainopepla nitens</i>	Phainopepla
<b><i>Polioptila californica californica</i></b>	<b>Coastal California Gnatcatcher</b>
<i>Salpinctes obsoletus</i>	Rock Wren
<i>Sayornis nigricans</i>	Black Phoebe
<i>Stelgidopteryx serripennis</i>	Northern Rough-winged Swallow
<i>Sternella neglecta</i>	Western Meadowlark
<i>Troglodytes aedon</i>	House Wren
<i>Tyrannus verticalis</i>	Western Kingbird
<i>Zenaida macroura</i>	Mourning Dove
<b>Mammals</b>	
<i>Canis latrans</i>	Coyote
<i>Spermophilus beecheyi</i>	California Ground Squirrel
<i>Sylvilagus audubonii</i>	Desert Cottontail

Note: Bold font depicts special status species

**APPENDIX D – PACIFIC COAST CONSERVATION ALLIANCE GENERAL AVIAN SURVEY  
AND FOCUSED COASTAL CALIFORNIA GNATCATCHER AND  
LEAST BELL’S VIREO SURVEY REPORT**

**SENSITIVE AVIAN SURVEYS**

In Support of the

**CALIFORNIA DEPARTMENT  
OF WATER RESOURCES**

**EAST BRANCH EXTENSION PROJECT**

**Phase II**

**Prepared for:**

California Department of Water Resources  
Division of Engineering  
1416 9th Street  
Sacramento, CA 95814

**Under Contract to:**

Aspen Environmental Group  
30423 Canwood Street, Suite 215  
Agoura Hills, CA 91301-4316

**Prepared by:**

**William E. Haas and Alisa C. Zych**  
Pacific Coast Conservation Alliance  
10650 Scripps Ranch Boulevard, Suite 200  
San Diego, CA 92131

**December 2006**

## Introduction

Phase 2 of the California Department of Water Resources' East Branch Extension Project (EBX) would require construction of approximately 6 miles of new pipeline from the San Bernardino Valley Municipal Water District's Foothill Pipeline in the vicinity of Greenspot Road and Cone Camp Road, southward across the Santa Ana Wash through orchards located just east of the Municipal Airport. The preferred route would be through the Metropolitan Water District of Southern California's Inland Feeder disturbed right-of-way (MWDROW). From this location the project would head east along San Bernardino Avenue or one block to the south along Madeira Avenue. The latter route would cross the retired Lockheed facility which is now utilized by private firms. East of the Lockheed facility the pipeline would be located parallel to Mill Creek just south of the Mill Creek floodwall. This area contains percolation basins surrounded by native habitat of several types. At Garnet Avenue, the pipeline would be located primarily along disturbed right-of-way south of the existing floodwall between Garnet and the Crafton Hills Pump Station. General avian surveys and focused surveys for the California gnatcatcher (*Polioptila californica*) and the least Bell's vireo (*Vireo bellii pusillus*) were conducted by vertebrate biologists from the Pacific Coast Conservation Alliance (PCCA). Information gathered by PCCA biologists will be used in the environmental mitigation plan developed by the California Department of Water Resources.

## Description of Survey Area

The entire survey area, which lays within the city limits of Mentone, California, consisted of approximately 9.40 linear kilometers (km) and included the area 152.5 meters (500 feet) wide on both sides of the centerline of the survey route. However, no surveys were conducted between Opal Street and western terminus of Madeira (that is, along San Bernardino Avenue), a linear distance of approximately 2.15 km, which is populated by residences, orchards, and warehouses (Figures A-2, A-3).

The actual survey area was therefore divided into two segments. Segment 1 included the area between the southern terminus of Cone Camp Road and the northern terminus of Opal Street; this survey route, the centerline of which was the MWDROW, crosses the Santa Ana River just north of Opal Street. Segment 2, all of which lies east of Crafton Avenue, included the area between the eastern terminus of Madeira Avenue and the Crafton Hills Pump Station (Appendix A, Figure A-1). Habitats differed between the two survey segments.

### Segment 1. Cone Camp Road to Opal Street (2.90 linear km)

Sensitive bird species surveys, including focused surveys for the California gnatcatcher, were conducted within the survey segment from Cone Camp Road to Opal Street. Habitats within this survey area included several vegetation associations. Between Opal Road and the Santa Ana River the survey area was dominated by mature, dense Riversidian sage scrub (RSS) dominated by California sagebrush (*Artemisia californica*) and California buckwheat (*Eriogonum fasciculatum*) that included dense pockets of cholla (*Cylindropuntia* spp.) and prickly pear (*Opuntia* spp.) throughout. Other shrub species within the RSS were chaparral yucca (*Hesperoyucca whipplei*), brittlebush (*Encelia farinosa*), saltbush (*Atriplex canescens*), and white sage (*Salvia apiana*).

The wide dry wash of the Santa Ana River supports sparse brittlebush and California buckwheat and pockets of willow scrub. North of the Santa Ana River, there are several vegetation associations that form a series of transitions from Riversidian sage scrub into chamise chaparral. Chamise chaparral, dominated by chamise (*Adenostoma fasciculatum*) is widespread in the northern most region of the

survey route, north of the Santa Ana River to Cone Camp Road. Just north of the river is scrub habitat that includes components of RSS as well as Alluvial Fan Scrub. The northward transition then includes scrub habitats that include pockets of monotypic buckwheat and others composed of brittlebush. The dominant scrub in the area is dominated by sugarbush (*Rhus ovata*), holly-leaf cherry (*Prunus ilicifolia*), and California juniper (*Juniperus californica*), which comprise a broken canopy above an herbaceous layer of sparse non-native grasses (e.g., *Bromus* spp., *Avena* spp.) and native scrub species. Percolation basins in this area support very little riparian or riparian scrub vegetation.

## **Segment 2. Madeira Avenue to Crafton Hills Pump Station (4.35 linear km)**

The second survey segment consisted of two sections and a total of 4.35 linear km; one section included the area between the western end of Madeira Avenue and Garnet Avenue, the second section included the area between Garnet Avenue and the Crafton Hills Pump Station. The northern boundary of this entire survey segment was the Mill Creek floodwall. Between Crafton and Garnet avenues, residence along the north side of Mentone Boulevard formed the southern survey boundary; east of Garnet Avenue, Mill Creek Road formed its southern border.

The Madeira to Garnet section contains the most heterogeneous landscape in this survey area. The vegetative make-up consists of a mosaic of RSS, chamise chaparral, areas of disturbance, non-native grassland, patches of monotypic herbaceous species such as brittlebush, and numerous percolation basins, many of which support populations of southern willow and baccharis scrubs along their periphery. Surveys for the least Bell's vireo were conducted in the vicinity of each of these basins.

Between Garnet Avenue and the Crafton Hills Pump Station the habitats are less varied but diverse. Here the vegetative mosaic consists of dense RSS, chamise chaparral, relatively sparse shrub habitat, and several large percolation basins. Vireo surveys were also conducted at these basins.

## **Methods**

Due to the relatively wide breadth of the survey area, each survey segment was divided into transects of an approximate 75-meter width within which the biologist walked a meandering survey route. This type of survey is conducive to detection of the of the typically vocal, highly territorial California gnatcatcher.

Surveys for the least Bell's vireo, which were focused in very specific locations, were conducted by slowly walking the perimeter of each percolation basin around which there was sufficient amount of riparian scrub vegetation to potentially support the species. Surveys were conducted between 31 May and 4 August 2006 (Appendix B, Table B-1).

## **California Gnatcatcher**

Surveys for the California gnatcatcher were conducted in accordance with USFWS survey protocols:

1. Surveys were conducted between 0600 and 1200 hours (Table B-2).
2. Surveys were halted when ambient temperature reached 90° F (32° C.) to avoid periods of excessive heat; wind, rain, fog, and other types of inclement weather were never a factor during the survey period.
3. Surveys were conducted while slowly walking meandering survey routes through the entire survey area.
4. No more than 75 acres were surveyed on any day.

Six surveys of the Gnatcatcher surveys were conducted between 31 May and 21 July, 2006 (Table B-1). W. Haas conducted all California gnatcatcher surveys. K. Bender and A. Zych assisted by collecting vegetation data and compiling species lists and documenting sensitive species locations.

### **Least Bell's Vireo**

Surveys for the least Bell's vireo were conducted in accordance with USFWS survey guidelines:

1. Eight surveys of all potentially suitable vireo habitats were conducted.
2. Surveys were conducted by K. Bender and A. Zych, qualified biologists familiar with the songs, whisper songs, calls, scolds, and plumage characteristics of adult and juvenile vireos based on extensive experience spot-mapping Bell's vireos at several southern California locations.
3. Surveys were conducted between dawn and 1100 hours (Table B-2).
4. Surveys were halted when ambient temperature reached 90° F (32° C.) to avoid periods of excessive heat; wind, rain, fog, and other types of inclement weather were never a factor during the survey period.
5. Each surveyor covered less than 2 linear kilometers per survey; all surveys were conducted from outside the periphery of willow and baccharis scrub that surrounded the numerous percolation basins. Because the riparian scrub vegetation occurred in narrow bands surrounding percolation basins, surveys could be conducted without disturbance to potentially suitable vireo habitats.

Surveys for the least Bell's vireo were conducted between 31 May and 4 August, 2006 (Table B-1). A. Zych and K. Bender conducted all vireo surveys; W. Haas accompanied Zych and Bender during the initial survey at each survey location to assess their suitability to support the southwestern willow flycatcher.

### **Southwestern Willow Flycatcher**

No suitable breeding habitat was found within the survey area; hence no focused surveys were conducted for this species. However, as surveys for this species generally overlap those for Least Bell's vireo this species would have been detected if present.

### **Surveys for Sensitive Bird Species**

Data for sensitive bird species were collected during every survey; however, no focused surveys were conducted for any species other than the California gnatcatcher and the least Bell's vireo. Therefore, all data for sensitive bird species were collected while biologists conducted meandering transects through upland habitats (i.e., during surveys for the gnatcatcher) or while listening and looking for the Bell's vireo in the vicinity of percolation basins. Once a sensitive species (e.g., the southern California rufous-crowned sparrow, *Aimophila ruficeps canescens*) was found, additional information was gathered when possible; this included status (e.g., paired or solitary), evidence of breeding (e.g., carrying food to a nest, presence of fledglings in the presence of adults) as well as location of the observation.

## **Results**

### **California Gnatcatcher**

Seven territories of the California gnatcatcher were found within the survey area (Table B-3). All seven territories were located south of the Santa Ana River, north of the northern terminus of Opal Drive. The habitat that supported all seven territories was high quality sage scrub; that is, the sage scrub

supported a very low percentage of exotic- invasive plants species and the native sage scrub species provided a shrub overstory typically in the range of 70 to 100 percent cover. The seven territories were distributed to the east and west of the MWDROW; two territories were located west of the ROW at the eastern edge of the Redlands Municipal Airport. Five of the territories were located east of the ROW.

During the survey period, there were three additional observations (detections) of the California gnatcatcher:

1. On 20 July 2006 a juvenile California gnatcatcher was observed in sage scrub at the eastern edge of the Lockheed facility. No gnatcatchers had been observed previously in this area; none were detected during subsequent surveys despite a focused effort to locate the species (Figure A-2).
2. On 3 August 2006, an adult male in molt (black cap virtually non-existent) was observed foraging in a holly-leaf cherry tree north of the Santa Ana River. The individual advertised incessantly and moved from east to west across the MWDROW. The individual was observed to forage between transitory flights from one large shrub to the next. No territorial defense was observed and the habitats where this individual was observed would be extremely atypical for the species (Figure A-3).
3. On 3 August 2006, an adult California gnatcatcher was observed west of the MWDROW and north of the Santa Ana River. This individual, like the one discussed immediately above, advertised incessantly and moved from east to west alighting on larger shrubs between movements and ultimately entering an area of dense chamise chaparral. It is possible that this individual was the same as described in #2 above; plumage, behaviors and movement patterns were similar during both period of observation.

### **Least Bell's Vireo**

The least Bell's vireo was not detected during any survey in 2006. Habitat that may be suitable for the species occurs in the vicinity of several percolation basins; however, most of these are surrounded by narrow bands of riparian scrub vegetation and correspondingly exhibited depauperate avifauna (Figure A-4). The black phoebe (*Sayornis nigricans*) was the most commonly occurring species in this area and often was the only species detected. Several of the basins in the vicinity of Garnet Avenue, however, supported more robust riparian scrub habitats. This characteristic corresponded with a more diverse bird fauna, although many of the species are not riparian obligates. Only the song sparrow (*Melospiza melodia*) is typically associated with riparian and marsh habitats, although it is not truly a riparian obligate. Other species using the riparian scrub habitats for shelter included the California towhee (*Pipilo crissalis*), the spotted towhee (*P. maculatus*), the house finch (*Carpodacus mexicanus*), and the greater roadrunner (*Geococcyx californianus*).

All of the percolation basins west of Garnet Avenue appeared sterile. Few, if any, flying insects were observed in or near these basins. The waters of the basins west of Garnet Avenue were clear and insect larvae were absent. Lack of an insect prey base would help explain the absence from the vicinity of percolation basins not only the least Bell's vireo but also other obligate and non-obligate riparian species.

East of Garnet Avenue, the largest of the percolation basins, and correspondingly the basin that supported the densest adjacent growth of riparian scrub also supported the most diverse avifauna. In July and August, adult and juvenile tree swallows (*Tachycineta bicolor*) foraged over the basin and the riparian scrub saw regular use by song sparrows, blue grosbeaks (*Guiraca caerulea*), house finches, a Nuttall's woodpecker (*Picoides nuttallii*) and two flickers (*Colaptes auratus*).

### **Southwestern Willow Flycatcher**

No willow flycatchers were detected in any portion of the survey area during 2006 surveys. All of the surveyors conducting field work for this project are familiar with the song and calls of this extremely rare species; all have extensive experience with the species through studies of its ecology at California's largest colony, which populates the upper San Luis Rey River northwest of Lake Henshaw in San Diego County.

### **Sensitive Species**

Two pairs of the coastal cactus wren (*Campylorhynchus brunneicapillus sandiegoense*) share with five pairs of the California gnatcatcher the sage scrub that occurs between the Santa Ana River and Opal Drive on the west side of the MWDROW (Table B-4).

One pair of white-tailed kites (*Elanus leucurus*), which fledged at least two young from a nest placed in sugarbush, were regularly found perched or foraging above the survey area just south of the southern end of Cone Camp road. Between Cone Camp road and the Santa Ana River, the loggerhead shrike (*Lanius ludovicianus*) occupies at least two territories within the survey area.

At least five pairs of rufous-crowned sparrows held territories in the Riversidian sage scrub-chamise chaparral mosaic between Madeira and Garnet avenues (Figure A-5). In addition, the loggerhead shrike was observed on all surveys at three locations, at least one of which was a territory based on the presence of two fledglings that foraged in the vicinity of an adult shrike. One northern harrier (*Circus cyaneus*) was observed foraging over relatively open RSS just east of the eastern end of Madeira Avenue. Its occurrence away from breeding habitat late in the species' typical breeding season and its observation on only one occasion indicate the individual was a transient.

# Appendix A

## Figures

**A.1 General Area of survey and Survey routes.**

**A-2. Habitat of transient juvenile California gnatcatcher.**

**A-3. Habitat of transient adult California gnatcatcher**

**A-4. Habitat of the rufous-crowned sparrow**

**A-5. Vegetation along the periphery of percolation basin**





**Figure A-2.** One transient juvenile California gnatcatcher was observed (20 July 2006) in an area behind the security fence at the western edge of the Lockheed facility, which is located at the western edge of the Madeira to Garnet survey route. The juvenile was observed while it moved through the sage scrub.



**Figure A-3.** Habitat of transient California gnatcatcher between the Santa Ana River and Cone Camp Road. One transient adult male gnatcatcher was observed moving through this area on 3 August.



**Figure A-4. Sparse riparian vegetation along the periphery of one of several percolation basins that occur within the survey area. No listed birds were detected in these basins.**



**Figure A-5. Rufous-crowned sparrow breeding habitat located along the Madeira and Garnet survey route.**

# **Appendix B**

## **Tables**

**B-1. Dates and times of sensitive species surveys**

**B-2. Weather conditions during sensitive species surveys**

**B-3. GPS coordinates of California gnatcatcher locations**

**B-4. GPS coordinates of sensitive birds species**

**Table B-1. Dates and times of sensitive species surveys  
for the  
East Branch Extension Project.**

<b>Date</b>	<b>Time</b>	<b>Biologists</b>	<b>Type of Survey/ (Number in series)</b>
30 May	09:00 – 12:00	A. Zych	Initial site visit
31 May	07:00 – 11:00	W. Haas, A. Zych, K. Bender	CAGN (1)/LBVI (1)
01 June	06:00 – 11:00	W. Haas, A. Zych, K. Bender	CAGN (1)/LBVI (1)
10 June	06:00 – 11:00	W. Haas, A. Zych, K. Bender	CAGN (2)/LBVI (2)
11 June	06:00 – 11:15	W. Haas, A. Zych, K. Bender	CAGN (2)/LBVI (2)
19 June	07:00 – 11:15	W. Haas, A. Zych, K. Bender	CAGN (3)/LBVI (3)
20 June	06:15 – 11:15	W. Haas, A. Zych, K. Bender	CAGN (3)/LBVI (3)
28 June	06:00 – 10:50	W. Haas, A. Zych, K. Bender	CAGN (4)/LBVI (4)
29 June	05:30 – 10:30	W. Haas, A. Zych, K. Bender	CAGN (4)/LBVI (4)
07 July	05:30 – 10:45	W. Haas, A. Zych, K. Bender	CAGN (5)/LBVI (5)
08 July	05:45 – 10:45	W. Haas, A. Zych, K. Bender	CAGN (5)/LBVI (5)
20 July	07:00 – 11:00	W. Haas, A. Zych, K. Bender	CAGN (6)/LBVI (6)
21 July	07:15 – 10:00	W. Haas, A. Zych, K. Bender	CAGN (6)/LBVI (6)
27 July	06:15 – 10:15	A. Zych, K. Bender	LBVI (7)/Vegetation
28 July	06:15 – 10:30	A. Zych, K. Bender	LBVI (7)/Vegetation
02 August	06:30 – 11:30	W. Haas, A. Zych, K. Bender	Vegetation/LBVI (8)
03 August	07:00 – 11:15	W. Haas, A. Zych, K. Bender	Vegetation/LBVI (8)

**Table B-2. Weather conditions during sensitive species surveys  
for the  
East Branch Extension Project.**

**Time, temperature, and cloud cover for the survey start to end are reported.**

<b>Date</b>	<b>Time</b>	<b>Temperature (°F)</b>	<b>Cloud Cover (%) (Start/End)</b>	<b>Wind Range (mph)</b>
30 May	09:00 - 12:00	Initial site visit, reconnaissance		
31 May	07:00 - 11:00	59 - 90	0	1 - 4
31 May	11:00 - 13:30	Reconnaissance		
01 June	06:00 - 11:00	62 - 89	0	1 - 4
01 June	12:00 - 13:30	Reconnaissance		
10 June	06:00 - 11:00	68 - 86	100 - 0	1 - 4
11 June	06:00 - 11:15	64 - 87	80 - 0	0 - 2
19 June	07:00 - 11:15	66 - 87	30 - 0	0 - 3
20 June	06:15 - 11:15	68 - 90	20 - 0	0 - 3
28 June	6:00 - 10:50	75 - 90	20 - 5	1 - 4
29 June	05:30 - 10:30	69 - 88	0	0 - 1
07 July	05:30 - 10:45	69 - 90	0	0 - 1
08 July	05:45 - 10:45	69 - 89	0	0 - 1
20 July	7:00 - 11:00	73 - 91	15 - 0	0 - 3
21 July	7:15 - 10:00	79 - 90	0	1 - 4
27 July	06:15 - 10:15	79 - 87	60 - 0	0 - 2
28 July	06:15 - 10:30	78 - 88	70 - 0	
03 August	6:30 - 11:30	73 - 78	20	0 - 3
04 August	7:00 - 11:15	70 - 82	100 - 50	0 - 5

**Table B-3. GPS coordinates of California gnatcatcher locations  
within the  
East Branch Extension Project survey area.  
(May - July 2006)**

Location (Dec. Deg.)		Elevation (Meters)	Notes
Latitude	Longitude		
34.08623	-117.13808	481	California Gnatcatcher (FT, SSC) Territory
34.08697	-117.13596	486	California Gnatcatcher - Territory
34.08711	-117.13455	487	California Gnatcatcher - Territory
34.08819	-117.13849	478	California Gnatcatcher - Territory
34.08794	-117.13438	487	California Gnatcatcher - Territory
34.0856	-117.13443	491	California Gnatcatcher - Territory: Adult male w/juvenile
34.08775	-117.13555	483	California Gnatcatcher - Territory - nest w/3 nestlings
4.09078	-117.14213	467	California Gnatcatcher - Transient adult male
34.0962	-117.13555	481	California Gnatcatcher - Transient adult
34.07602	-117.11216	571	California Gnatcatcher - Transient juvenile

**Key to Species Status**

FT - Federal Threatened Species  
SSC- California Species of Special Concern

**Table B-4. GPS coordinates of sensitive birds species  
Recorded within the East Branch Extension Project.  
(May - July 2006)**

Location (Dec. Deg.)		Elevation (Meters)	Notes
Latitude	Longitude		
34.08633	-117.13432	489	Coastal cactus wren (SSC)
34.0853	-117.13508	489	Coastal cactus wren - Pair + 3 juv.
34.08731	-117.13714	483	Cooper's hawk (SSC) - Ad. F flying overhead
34.10319	-117.13261	494	Loggerhead shrike (SSC)
34.09444	-117.1295	497	Loggerhead shrike
34.07113	-117.10505	595	Loggerhead shrike territory
34.09488	-117.14249	465	Loggerhead shrike territory
34.079	-117.10758	582	Loggerhead shrike territory
34.07406	-117.11175	573	Northern harrier (SSC)
34.07441	-117.10493	597	RCSP (SSC) Territory
34.07602	-117.10346	600	RCSP Territory
34.07485	-117.10111	608	RCSP Territory
34.07783	-117.10546	590	RCSP Territory
34.07323	-117.10769	587	RCSP Territory (M, F, 2 Juv.)
34.09884	-117.14125	469	Adult White-tailed kite on nest (CFPS)

**Key to Sensitive Species Status**

SSC- California Species of Special Concern

CFPS - California Fully Protected Species

## Appendix C

### List of Avian Species Documented in Project Area

Allen's hummingbird (*Selasphorus sasin*)  
Anna's hummingbird (*Calypte anna*)  
American kestrel (*Falco sparverius*)  
Ash-throated flycatcher (*Myiarchus cinerascens*)  
Barn swallow (*Hirundo rustica*)  
Bewick's wren (*Thryomanes bewickii*)  
Black phoebe (*Sayornis nigricans*)  
Black-throated sparrow (*Amphispiza bilineata*)  
Blue-gray gnatcatcher (*Polioptila caerulea*)  
Blue grosbeak (*Guiraca caerulea*)  
Brown-headed cowbird (*Molothrus ater*)  
Bushtit (*Psaltriparus minimus*)  
**Coastal cactus wren (*Campylorhynchus brunneicapillus sandiegoense*) - SSC**  
**California gnatcatcher (*Polioptila californica*) - SSC, FT**  
California quail (*Callipepla californica*)  
California thrasher (*Toxostoma redivivum*)  
California towhee (*Pipilo crissalis*)  
Cassin's kingbird (*Tyrannus vociferans*)  
Common raven (*Corvus corax*)  
**Cooper's hawk (*Accipiter cooperii*) - SSC**  
Costa's hummingbird (*Calypte costae*)  
Great blue heron (*Ardea herodias*)  
Greater roadrunner (*Geococcyx californianus*)  
Green heron (*Butoroides virescens*)  
Hooded oriole (*Icterus cucullatus*)  
House finch (*Carpodacus mexicanus*)  
House sparrow (*Passer domesticus*)  
House wren (*Troglodytes aedon*)  
Killdeer (*Charadrius vociferus*)  
Lark sparrow (*Chondestes grammacus*)  
Lawrence's goldfinch (*Carduelis lawrencei*)  
Lazuli bunting (*Passerina amoena*)  
Lesser goldfinch (*Carduelis psaltria*)  
Lesser nighthawk (*Chordeiles acutipennis*)  
**Loggerhead shrike (*Lanius ludovicianus*) - SSC**  
Mallard (*Anas platyrhynchos*)  
Mourning dove (*Zenaida macroura*)  
**Northern harrier (*Circus cyaneus*) - SSC**  
Northern mockingbird (*Mimus polyglottos*)  
Northern rough-winged swallow (*Stelgidopteryx serripennis*)

Nuttall's woodpecker (*Picoides nuttallii*)

Phainopepla (*Phainopepla nitens*)

Red-shouldered hawk (*Buteo lineatus*)

Red-tailed hawk (*Buteo jamaicensis*)

Rock dove (*Columba livia*)

Rock wren (*Salpinctes obsoletus*)

**Rufous-crowned sparrow (*Aimophila ruficeps canescens*) - SSC**

Say's phoebe (*Sayornis saya*)

Song sparrow (*Melospiza melodia*)

Spotted towhee (*Pipilo maculatus*)

Tree swallow (*Tachycineta bicolor*)

Western kingbird (*Tyrannus verticalis*)

Western meadowlark (*Sturnella neglecta*)

Western scrub-jay (*Aphelocoma californica*)

**White-tailed kite (*Elanus leucurus*) - SSC, CDFG Fully Protected Species**

White-throated swift (*Aeronautes saxatalis*)

Wrentit (*Chamaea fasciata*)

Yellow-headed parrot (*Amazona oratrix*)

SCC- California Species of Special Concern

FT- Federally Threatened Species

CDFG Fully Protected Species

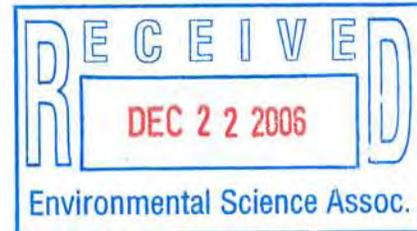
**APPENDIX E – ASPEN ENVIRONMENTAL GROUP FOCUSED PLANT SURVEY REPORT**



# Aspen

## *Environmental Group*

30423 Canwood Street, Suite 215, Agoura Hills, CA 91301  
Telephone (818) 597-3407x325 Fax (818) 597-8001 E-Mail:  
[Aspen@AspenEG.com](mailto:Aspen@AspenEG.com)



\*\*\* TRANSMITTAL \*\*\*

**To:** Mary Miller  
**Agency:** Department of Water Resources 770  
**Address:** Fairmont Avenue, Suite 102  
Glendale, CA 91203-1035  
**From:** Chris Huntley  
**Date:** November 10, 2006  
**Subject:** EBX maps

Hi Mary,

Enclosed please find two copies of the maps identifying the location of rare plants at the EBX right of way. I have mapped out locations for wooly star, slender homed spine flower, Plummer's mariposa lilies, and Parry's spine flower. No other rare plants were identified. It is important to note that the locations for Parry's are only point data and that the entire area was virtually carpeted with this species. The points for this species were intended to represent sample locations only. There is no practical way to avoid some impacts to this plant. However, it was generally not located on the disturbed right of way. In addition, the status of this plant should not adversely affect the pipeline location. Please let me know if you have any questions.

Thanks,

Chris

818-292-2327

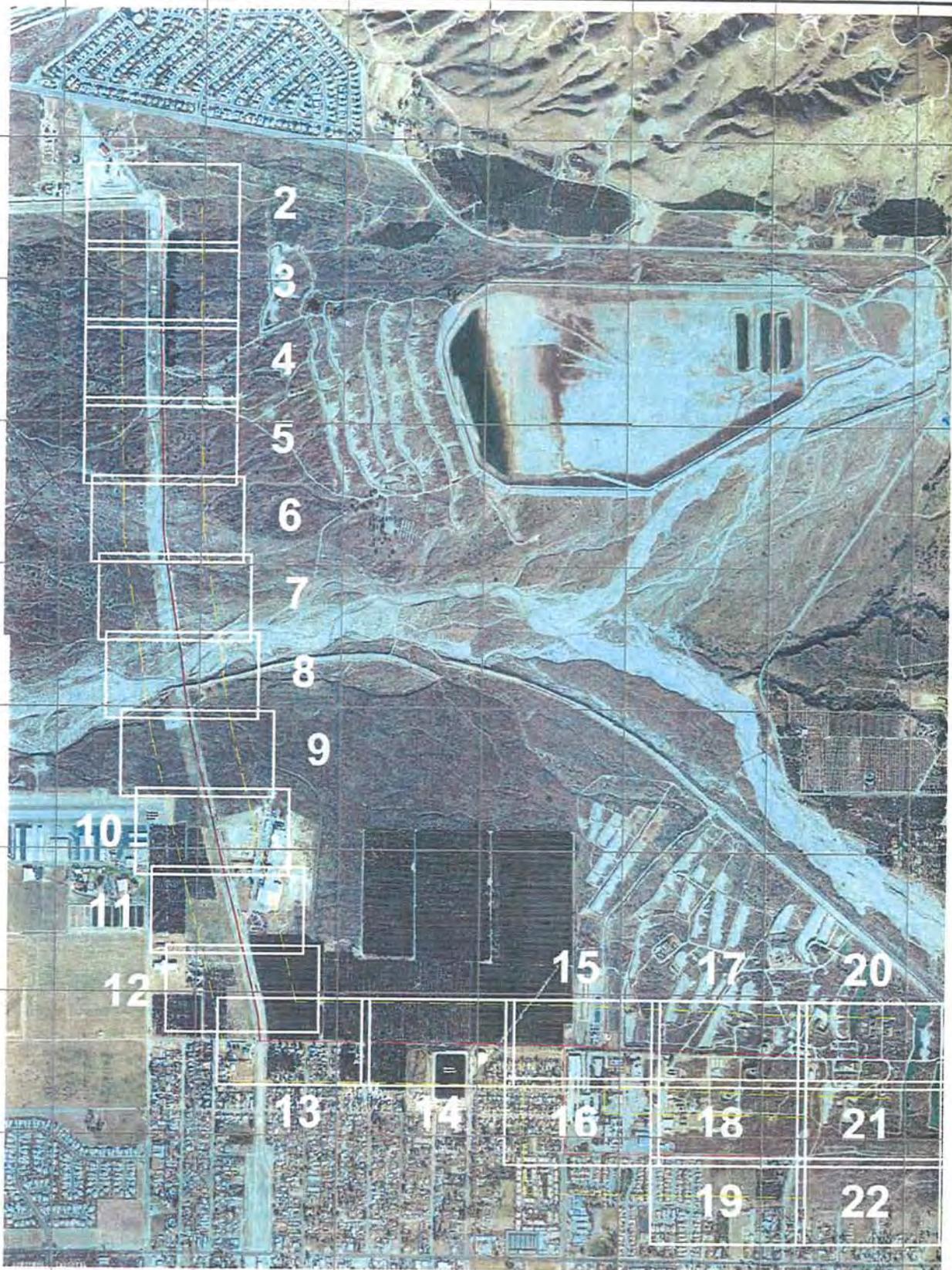
cc: File

State Plane NAO 83 Zone 5 Feet

10 No.	Plant Species	X	y
01	Parry's Spineflower	6822197.55	1862032.06
02	Plummer's Mariposa Lilv	6822855.97	1860869.70
03	Parry's Spineflower	6822674.80	1859208.69
04	Slender-horned Spineflower	6821889.36	1858019.71
05	Santa Ana River Wooly Star	6822631.62	1857941.41
06	Slender-horned Spineflower	6822877.68	1857989.06
07	Santa Ana River Wooly Star	6822988.60	1858062.94
08	Santa Ana River Woolv Star	6823131.08	1858058.87
09	Santa Ana River W oolv Star	6823228.36	1858010.03
10	Santa Ana River Wooly Star	6823228.94	1857895.52
11	Santa Ana River Wooly Star	6823255.91	1857798.33
12	Santa Ana River Wooly Star	6823277.79	1857689.06
13	Santa Ana River Wooly Star	6823251.28	1857559.91
14	Santa Ana River W ooly Star	6823206.90	1857671.84
15	Santa Ana River Woolv Star	6823121.57	1857678.27
16	Santa Ana River Wooly Star	6823024.97	1857636.43
17	Santa Ana River Wooly Star	6823017.21	1857583.94
18	Santa Ana River Wooly Star	6822919.95	1857736.12
19	Slender-horned Spineflower	6822658.55	1857691.14
20	Santa Ana River Wooly Star	6822520.13	1857676.40
21	Santa Ana River Wooly Star	6822506.17	1857649.30
22	Parry's Spineflower	6830510.17	1851980.12
23	Parry's Spineflower	6831370.99	1851328.63
24	Parry's Spineflower	6830923.13	1850241.37
25	Parry's Spineflower	6831090.45	1850139.49
26	Parry's Spineflower	6831274.64	1850254.20
27	Parry's Spineflower	6831027.95	1849843.23
28	Parry's Spineflower	6831882.71	1852171.81
29	Parry's Spineflower	6832309.32	1852013.64
30	Parry's Spineflower	6832691.80	1851733.54
31	Parry's Spineflower	6832514.99	1851629.64
32	Parry's Spineflower	6832303.04	1851561.73
33	Plummer's Mariposa Lily	6832229.12	1851564.86
34	Parry's Spineflower	6832126.00	1850941.91
35	Parry's Spineflower	6832043.15	1850721.93
36	Parry's Spineflower	6832045.63	1850586.71
37	Plummer's Mariposa Lily	6832349.06	1850538.12
38	Plummer's Mariposa Lily	6832100.90	1849856.24
39	Parry's Spineflower	6832136.28	1849701.24
40	Parry's Spineflower	6832331.69	1849856.36
41	Plummer's Mariposa Lily	6832391.83	1849850.33
42	Parry's Spineflower	6833384.42	1851385.47
43	Parry's Spineflower	6833755.67	1851167.21
44	Parry's Spineflower	6833886.12	1851069.97
45	Parry's Spineflower	6833889.31	1851019.56
46	Parry's Spineflower	6833420.90	1850766.90
47	Parry's Spineflower	6833432.92	1850153.33

State Plane NAD 83 Zone 5 Feet

IDNo.	Plant Species	X	y
48	Parry's Spineflower	6833671.91	1849996.33
49	Parry's Spineflower	6833567.54	1849934.95
50	Parry's Spineflower	6833386.94	1849755.33
51	Parry's Spineflower	6834587.88	1850916.95
52	Parry's Spineflower	6835120.38	1850939.27
53	Parry's Spineflower	6835133.06	1850759.40
54	Parry's Spineflower	6835106.80	1850715.76
55	Parry's Spineflower	6835296.67	1850640.75
56	Parry's Spineflower	6835623.83	1850620.43
57	Parry's Spineflower	6834458.56	1850514.31
58	Parry's Spineflower	6834466.47	1850480.44
59	Parry's Spineflower	6834482.72	1850425.56
60	Parry's Spineflower	6834459.65	1850386.94
61	Parry's Spineflower	6834517.23	1850327.32
62	Parry's Spineflower	6834579.45	1850338.35
63	Parry's Spineflower	6834759.73	1850332.17
64	Parry's Spineflower	6834949.82	1850340.49
65	Parry's Spineflower	6834990.76	1850347.10
66	Parry's Spineflower	6835033.21	1850347.91
67	Parry's Spineflower	6835073.91	1850339.13
68	Parry's Spineflower	6835128.77	1850324.18
69	Parry's Spineflower	6835178.09	1850298.02
71	Parry's Spineflower	6836433.02	1850689.71
72	Parry's Spineflower	6836592.93	1850579.22
73	Parry's Spineflower	6836669.40	1850791.71
74	Parry's Spineflower	6836696.67	1850756.00
75	Parry's Spineflower	6836734.77	1850562.59
76	Parry's Spineflower	6836747.72	1850529.97
77	Parry's Spineflower	6836710.75	1850521.16
78	Parry's Spineflower	6836930.97	1850738.60
79	Parry's Spineflower	6837013.48	1850762.90
80	Parry's Spineflower	6837164.67	1850710.64
81	Parry's Spineflower	6837220.51	1850703.61
82	Parry's Spineflower	6837227.50	1850797.28
83	Parry's Spineflower	6837332.24	1850814.52
84	Parry's Spineflower	6837480.39	1850786.39
85	Parry's Spineflower	6837520.39	1850657.77
86	Parry's Spineflower	6837737.30	1850859.78
87	Parry's Spineflower	6838105.15	1850557.75
88	Parry's Spineflower	6838528.43	1850606.45
89	Parry's Spineflower	6838651.18	1850635.25
90	Parry's Spineflower	6838795.33	1850667.47
91	Parry's Spineflower	6838984.28	1850674.50
92	Parry's Spineflower	6839170.93	1850612.95
93	Parry's Spineflower	6839212.06	1850634.96
94	Parry's Spineflower	6839600.18	1850588.32
95	Parry's Spineflower	6839643.13	1850621.09
96	Parry's Spineflower	6839968.80	1850653.87
97	Parry's Spineflower	6840243.05	1850648.78

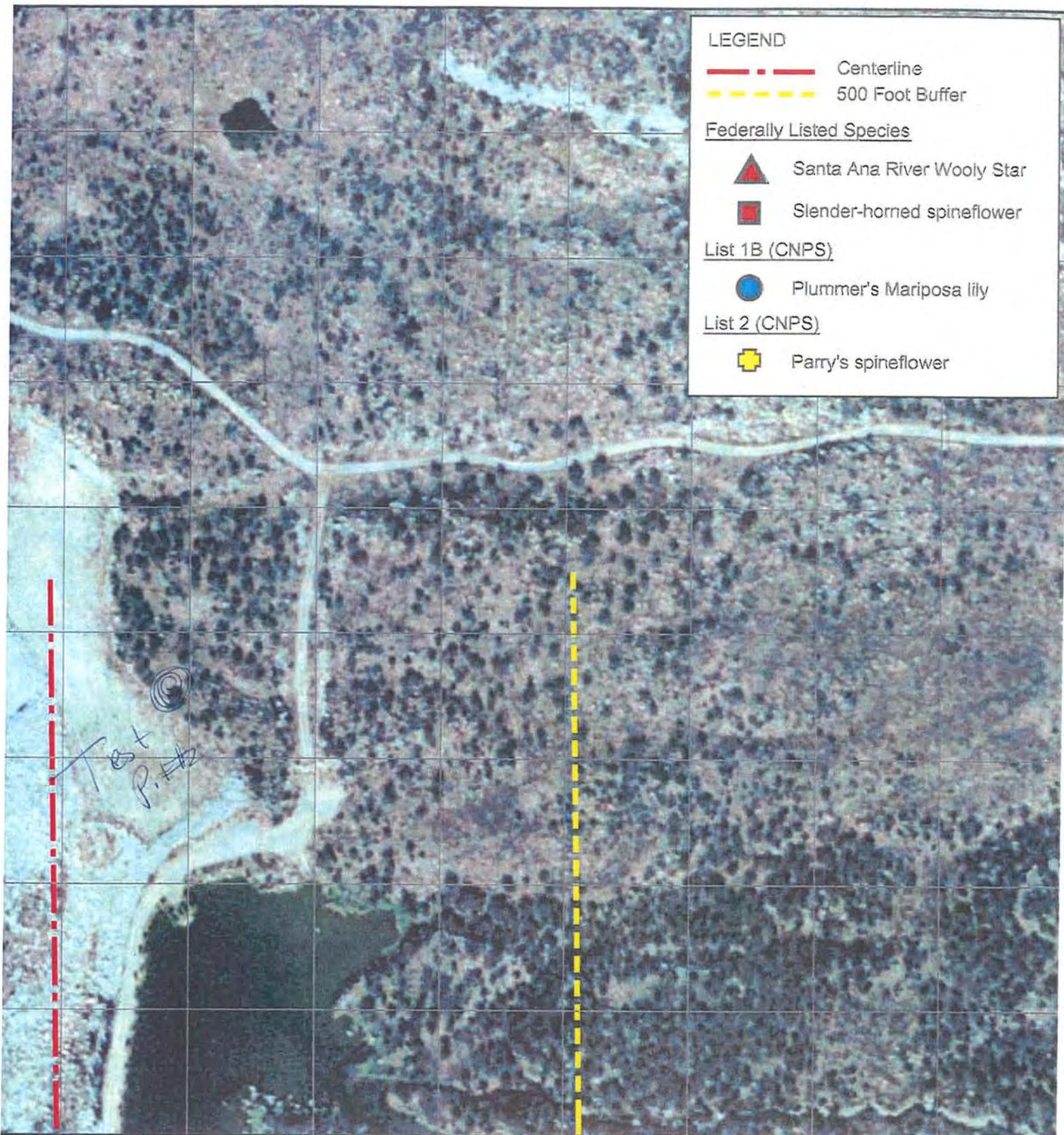




1" = 1,800'  
November 10, 2006  
14-EBXmapveg.dwg

**Rare Plant Locations**

**East Branch Extension Survey**



1" = 120'  
 November 10, 2006  
 14-EBXmapveg.dwg

### Rare Plant Locations

East Branch Extension Survey

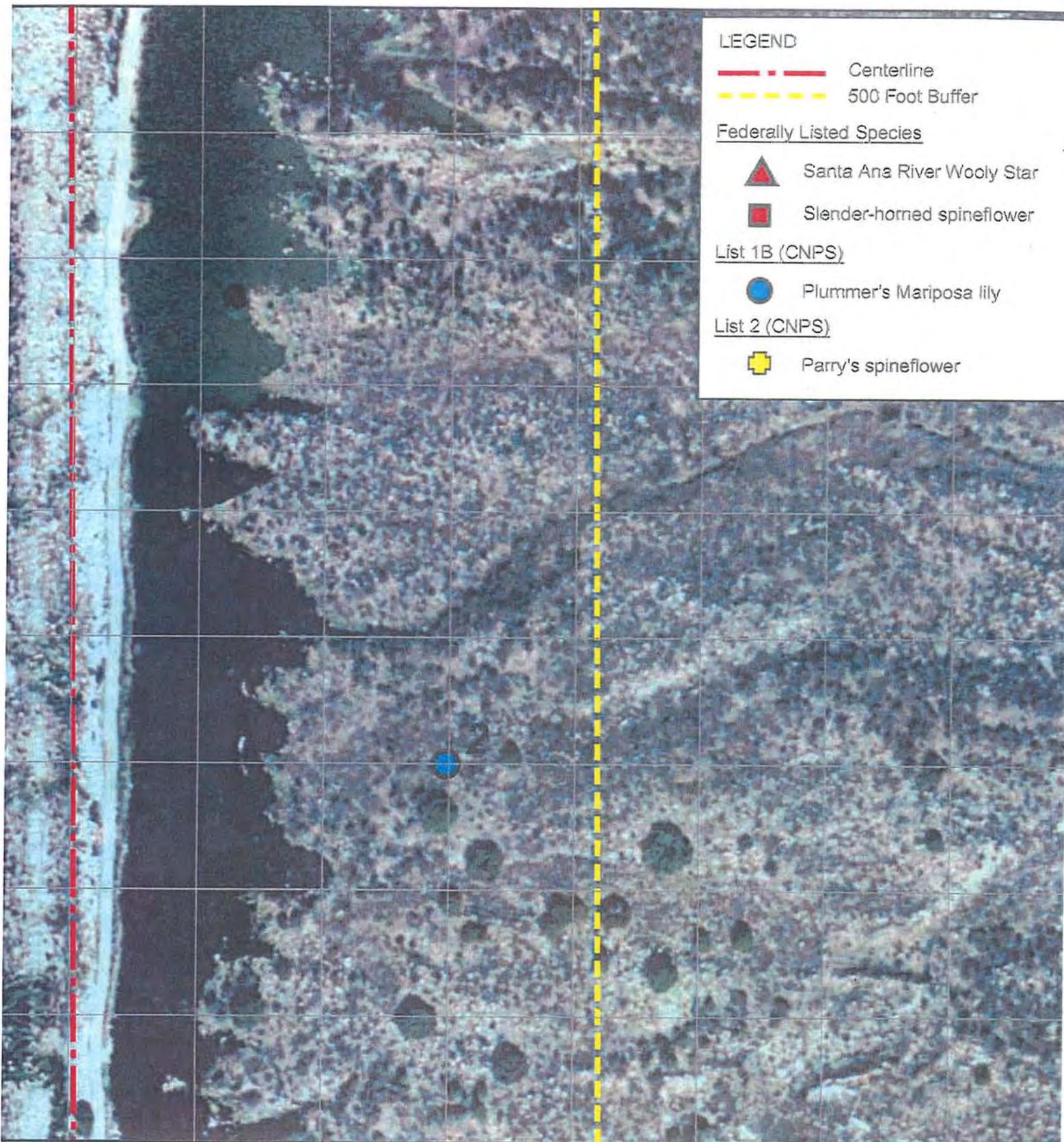


PREPARED BY  
**Aspen**  
Environmental Group

**East Branch Extension**  
**Department of Water Resources**



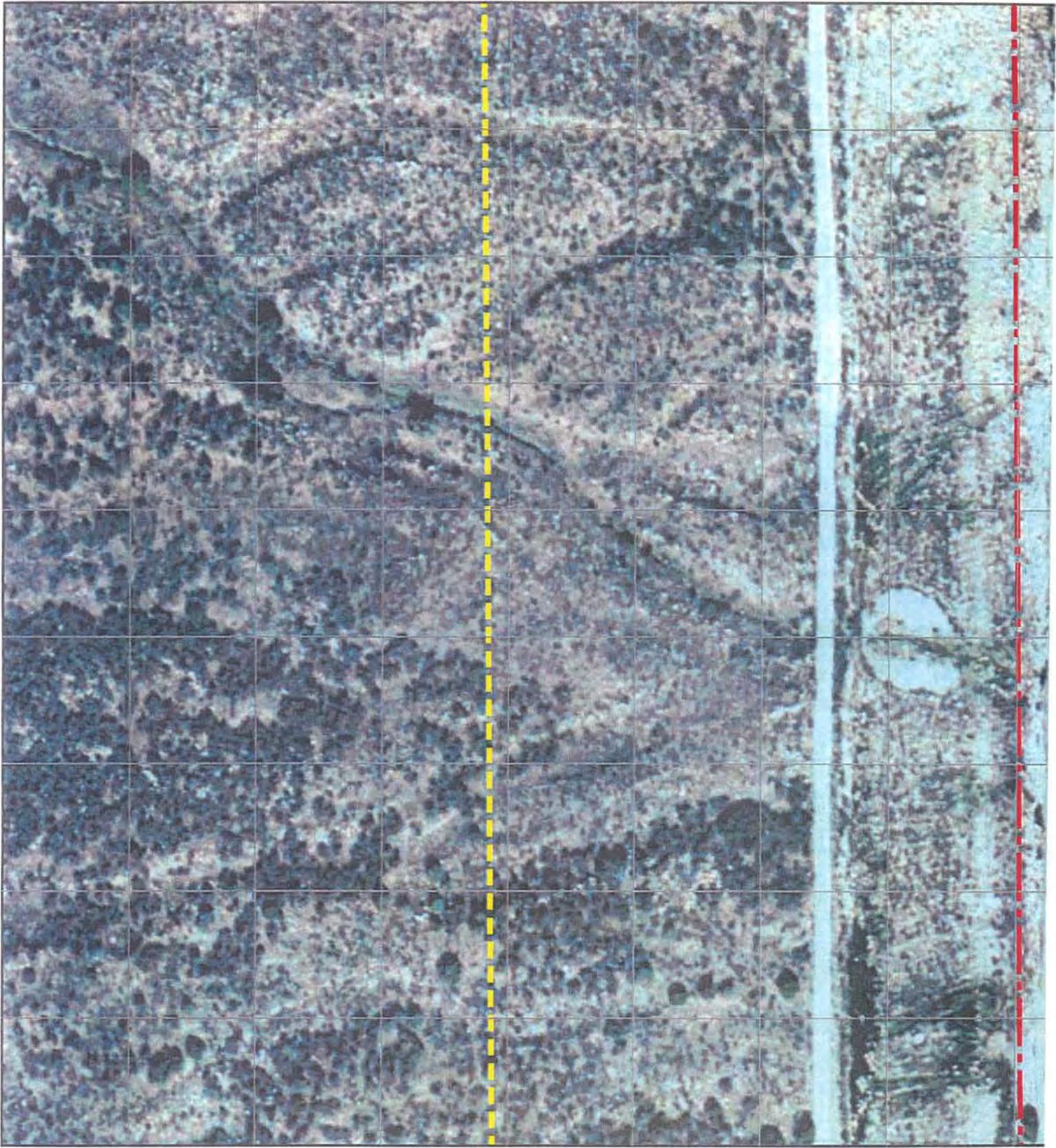
Scale: 1" = 120'  
Date: November 10,  
File: 1614-EBXmapy



1" = 120'  
 November 10, 2006  
 314-EBXmapveg.dwg

**Rare Plant Locations**

**East Branch Extension Survey**



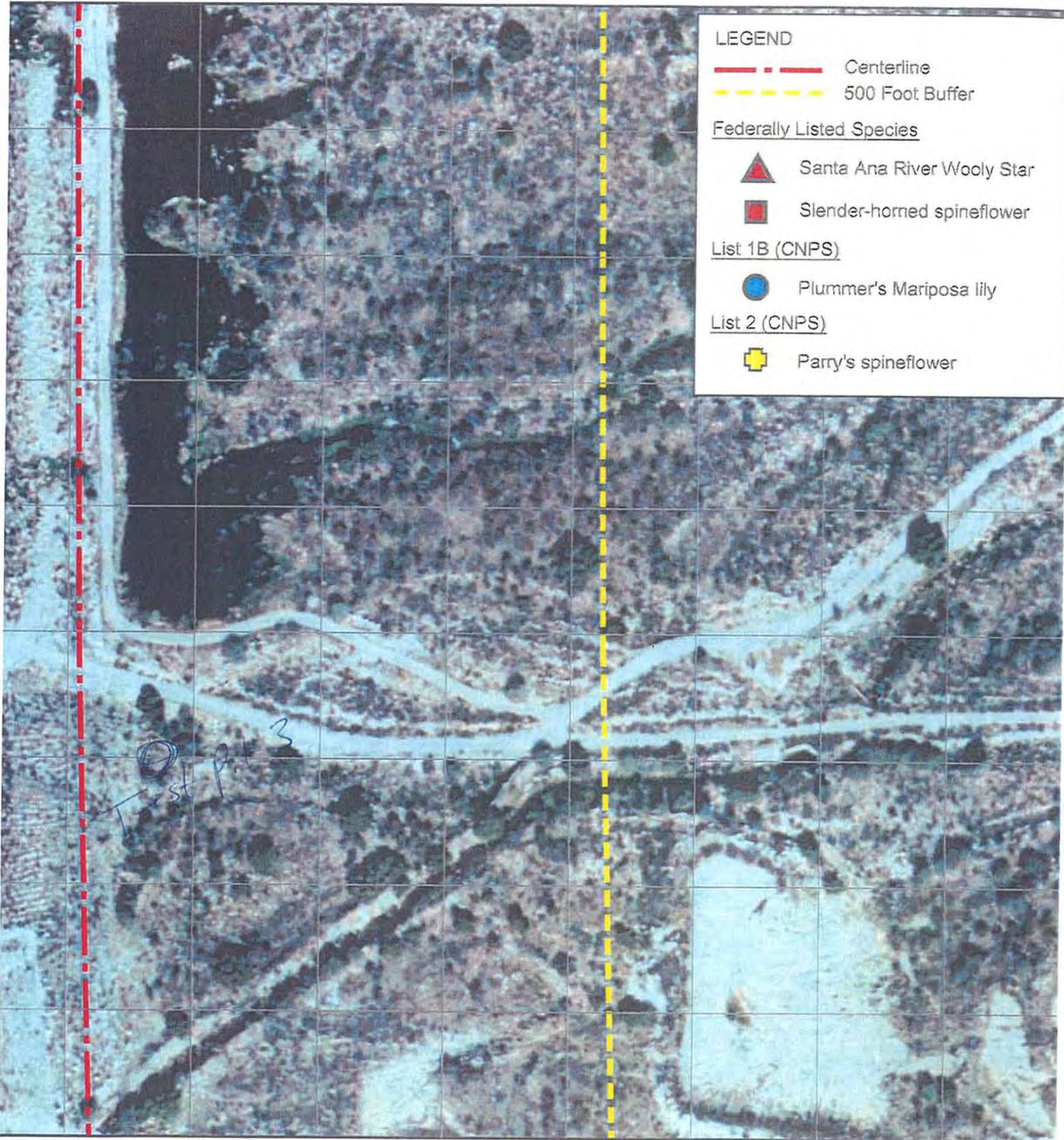
PREPARED BY

**Aspen**  
Environmental Group

**East Branch Extension  
Department of Water Resources**



Scale: 1" = 120'  
Date: November 10,  
File: 1614-EBXmap



**LEGEND**

--- Centerline  
 --- 500 Foot Buffer

Federally Listed Species

▲ Santa Ana River Woolly Star  
 ■ Slender-horned spineflower

List 1B (CNPS)

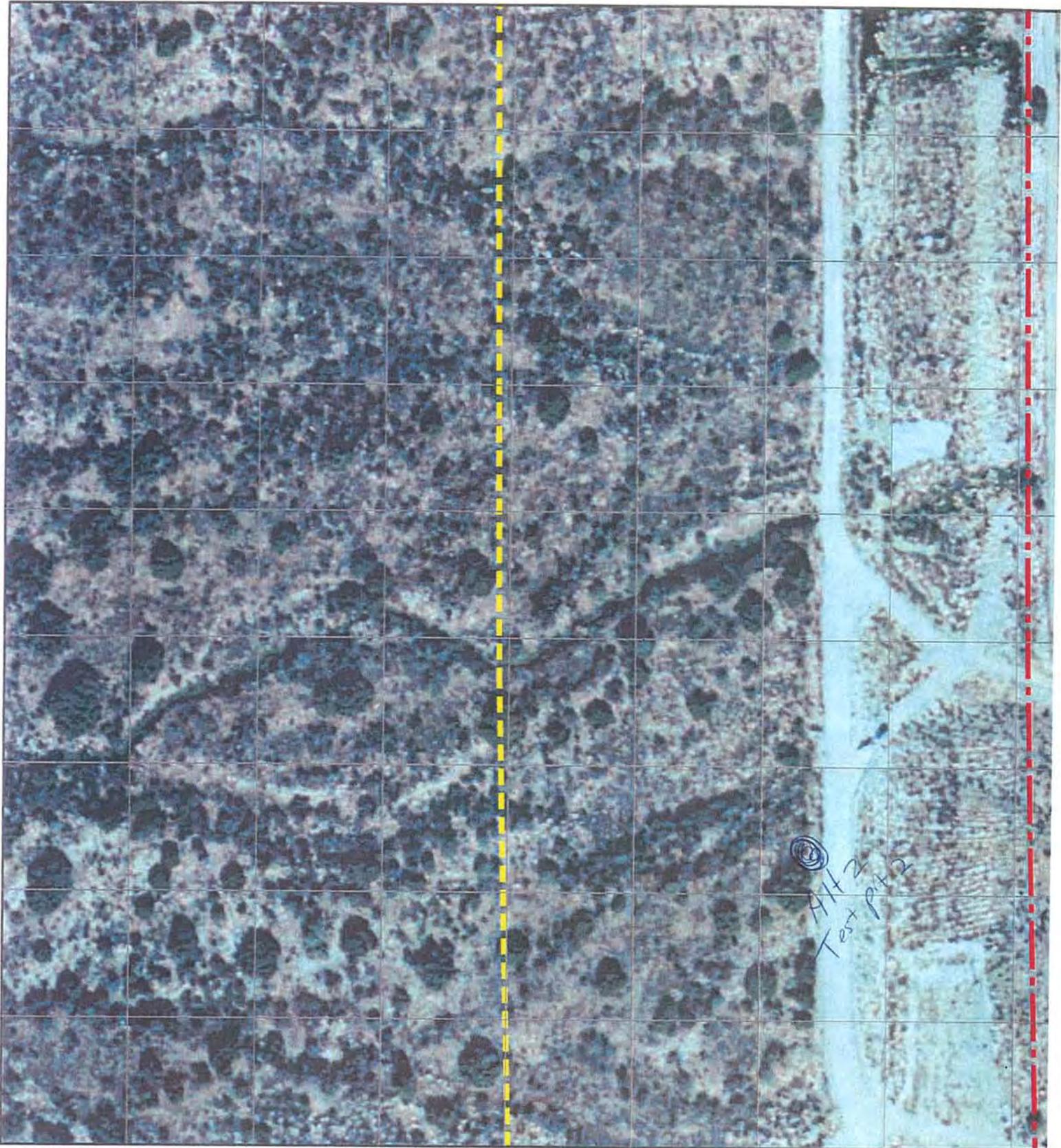
● Plummer's Mariposa lily

List 2 (CNPS)

⊕ Parry's spineflower

1" = 120'  
 November 10, 2006  
 314-EBXmapveg.dwg

**Rare Plant Locations**



PREPARED BY

**Aspen**  
Environmental Group

**East Branch Extension**  
**Department of Water Resources**



Scale: 1" = 120'

Date: November 10,

File: 1614-EBXmap



1" = 120'  
 November 10, 2006  
 14-EBXmapveg.dwg

Rare Plant Locations



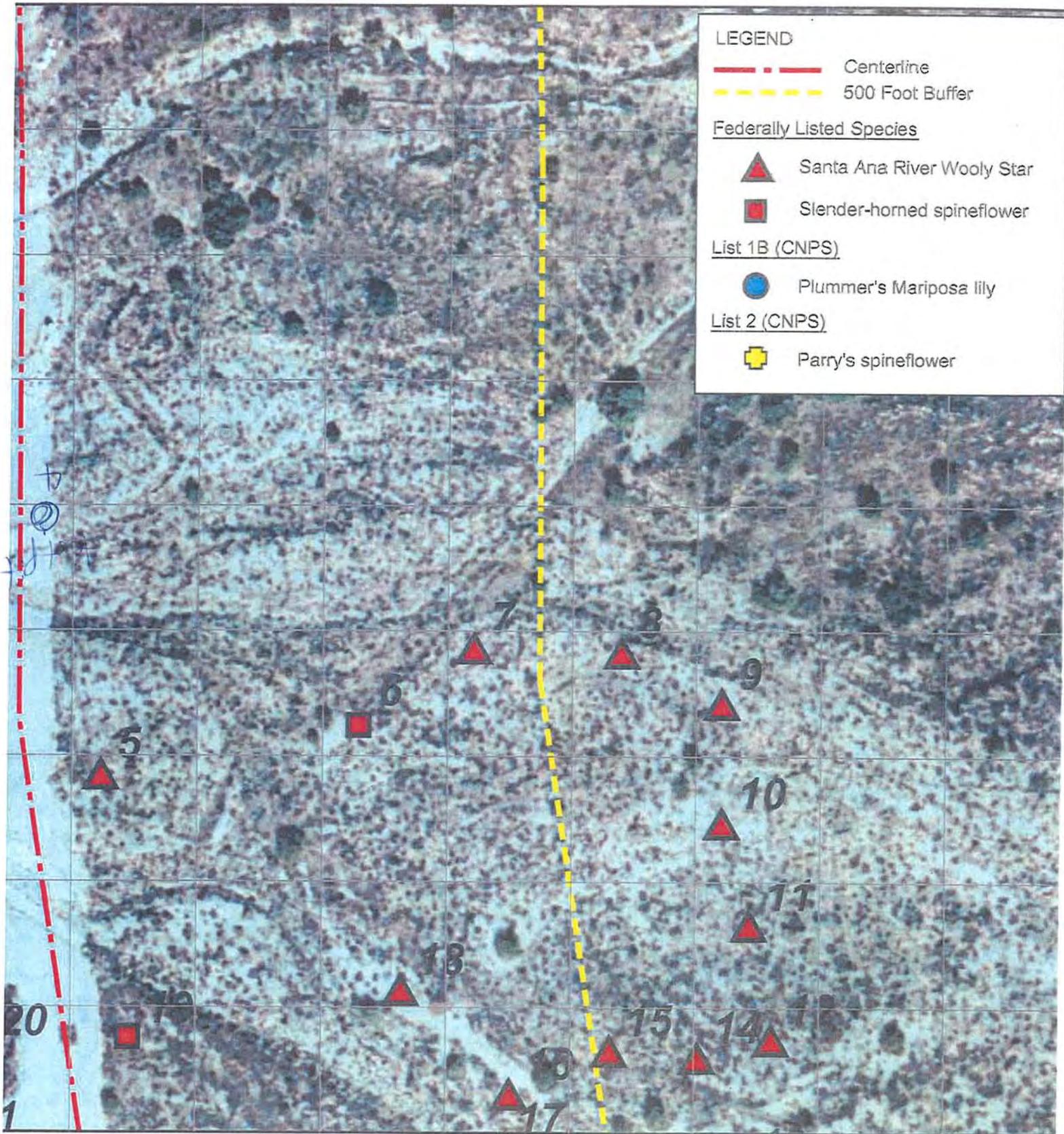
PREPARED BY

**Aspen**  
Environmental Group

**East Branch Extension  
Department of Water Resources**



Scale: 1" = 120'  
Date: November 10,  
File: 1614-EBXmap.v



**LEGEND**

--- Centerline  
 --- 500 Foot Buffer

Federally Listed Species

▲ Santa Ana River Woolly Star  
 ■ Slender-horned spineflower

List 1B (CNPS)

● Plummer's Mariposa lily

List 2 (CNPS)

■ Parry's spineflower

1" = 120'  
 November 10, 2006  
 314-EBXmapveg.dwg

**Rare Plant Locations**



PREPARED BY  
**Aspen**  
Environmental Group

**East Branch Extension**  
**Department of Water Resources**



Scale: 1" = 120'  
Date: November 10  
File: 1614-EBXmap

**LEGEND**

-  Centerline
-  500 Foot Buffer

Federally Listed Species

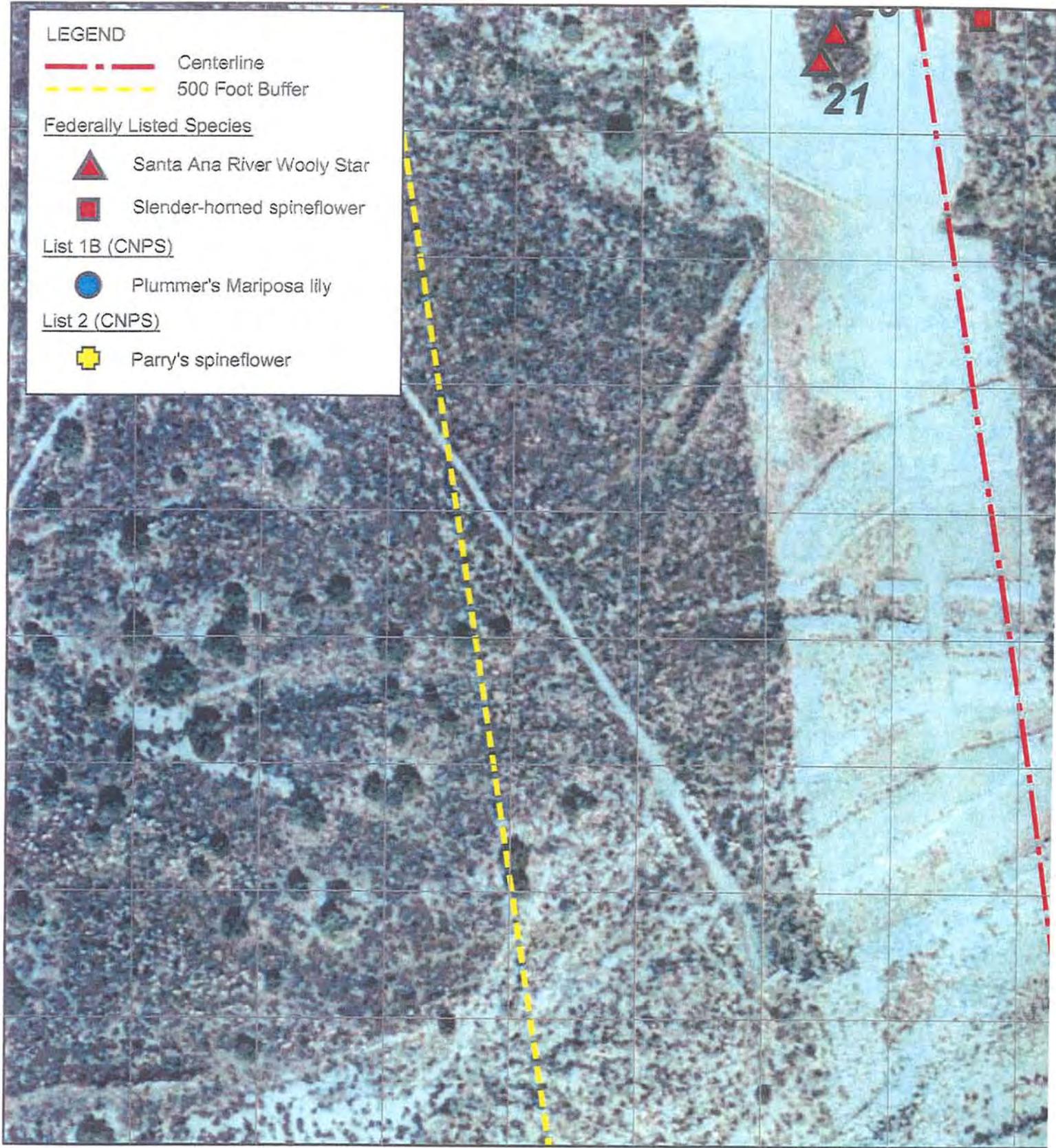
-  Santa Ana River Woolly Star
-  Slender-horned spineflower

List 1B (CNPS)

-  Plummer's Mariposa lily

List 2 (CNPS)

-  Parry's spineflower

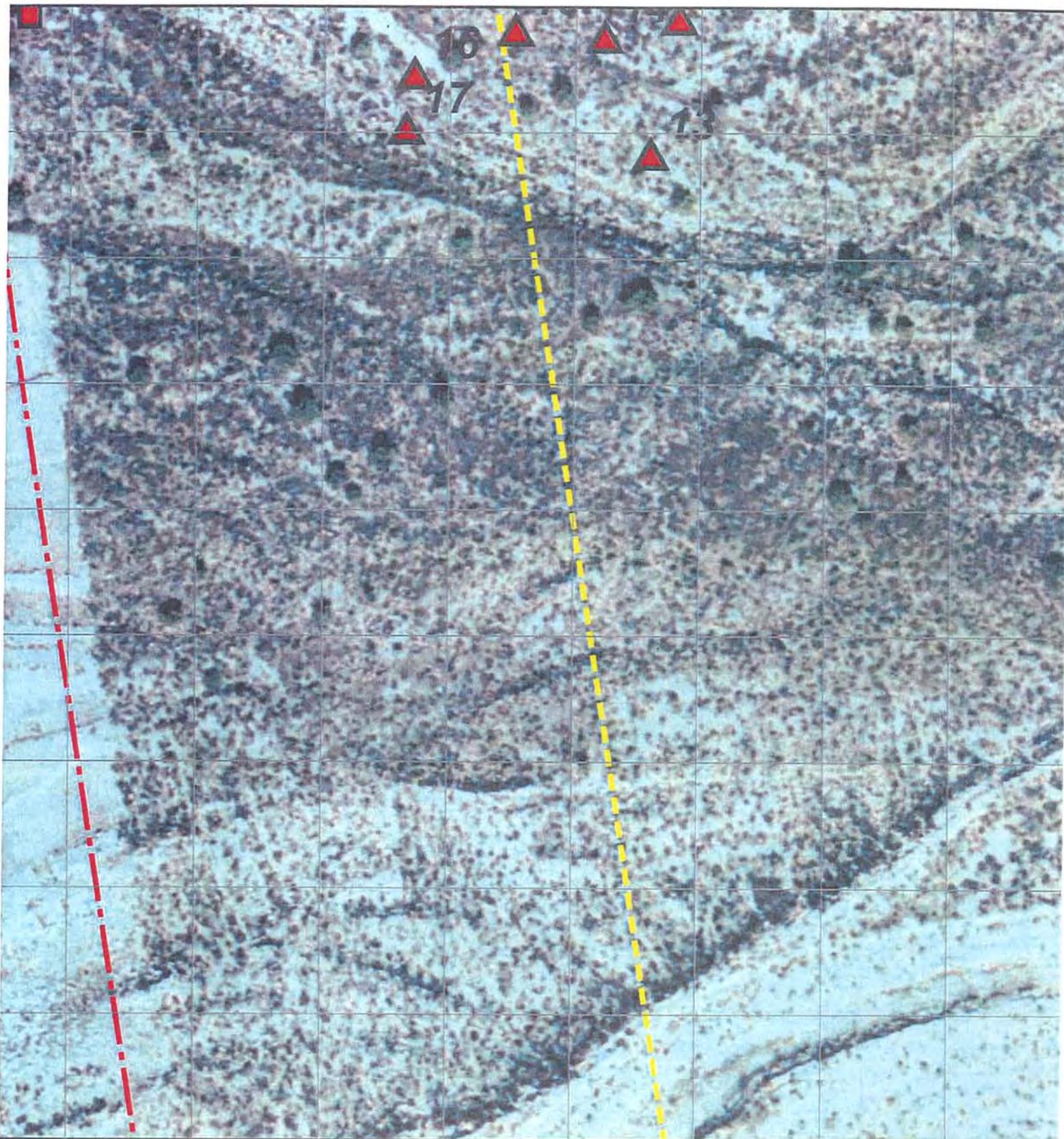


PREPARED BY  
**Aspen**  
Environmental Group

**East Branch Extension**  
**Department of Water Resources**



Scale: 1" = 120'  
Date: November 10,  
File: 1614-EBXmapv



1" = 120'

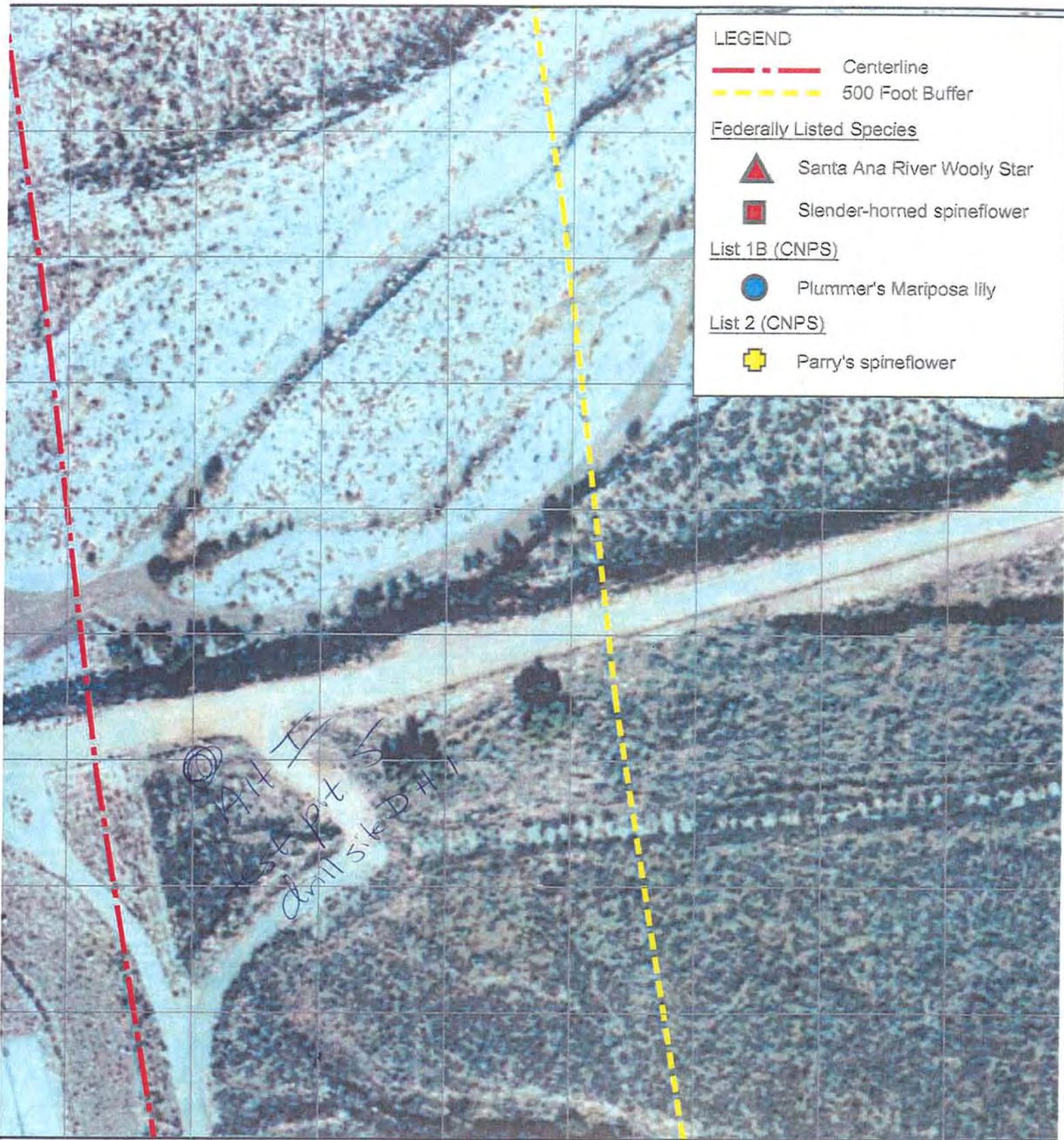
November 10, 2006

314-EBXmapveg.dwg

### Rare Plant Locations

East Branch Extension Survey

Map 7 29



**LEGEND**

- - - Centerline
- - - 500 Foot Buffer

Federally Listed Species

- ▲ Santa Ana River Woolly Star
- Slender-horned spineflower

List 1B (CNPS)

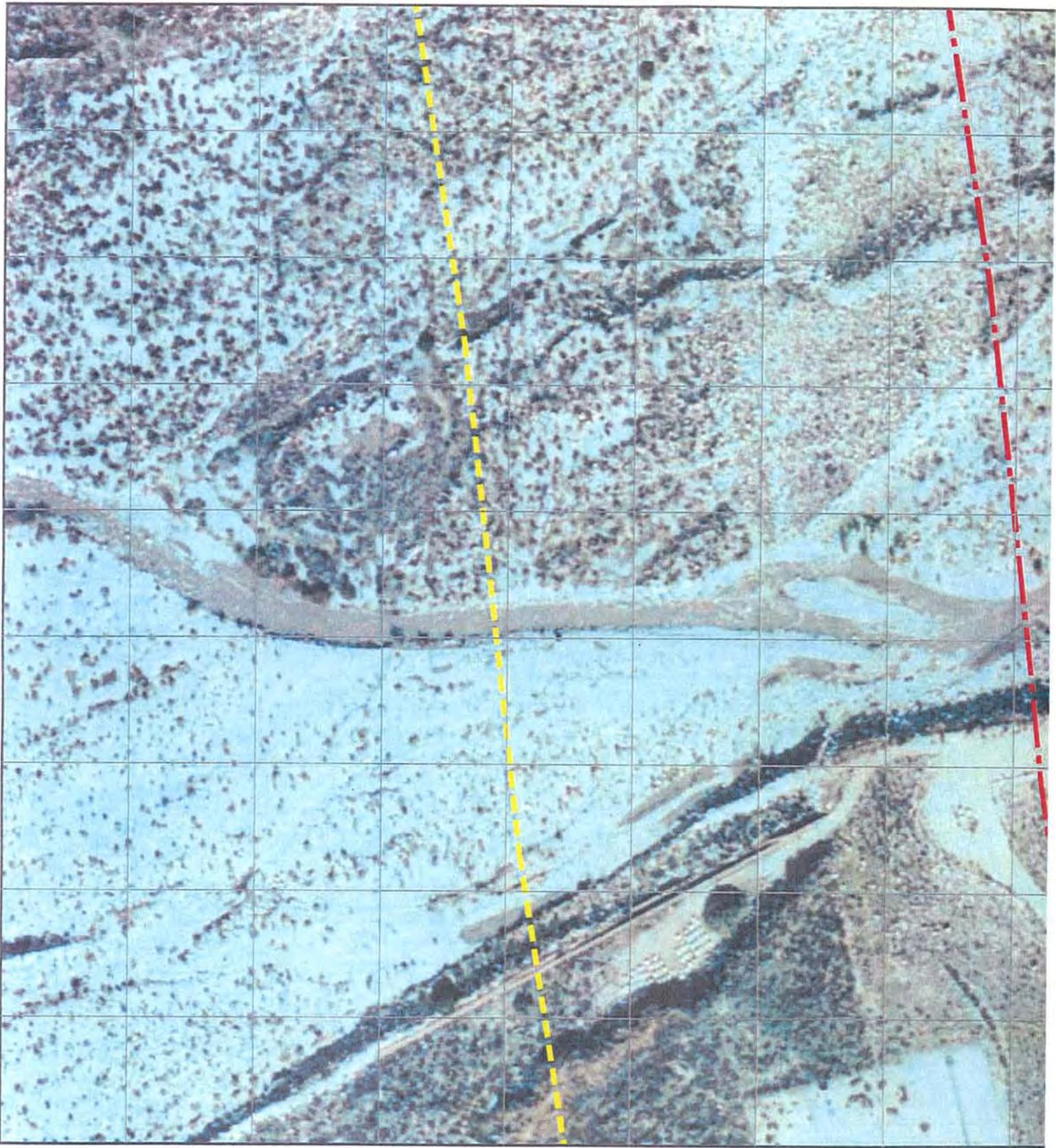
- Plummer's Mariposa lily

List 2 (CNPS)

- ⊕ Parry's spineflower

1" = 120'  
 November 10, 2006  
 14-EBXmapveg.dwg

**Rare Plant Locations**

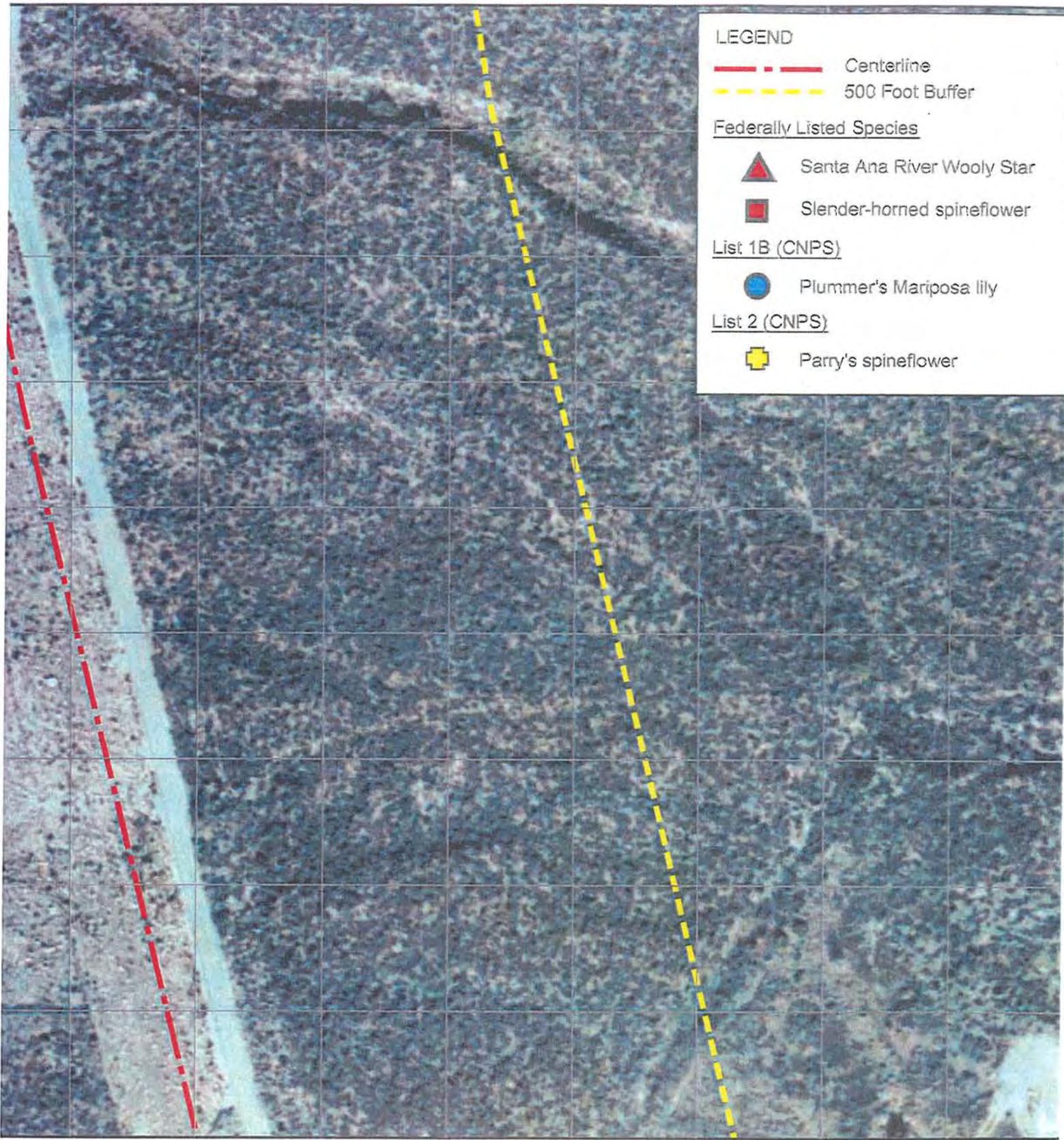


PREPARED BY  
**Aspen**  
Environmental Group

**East Branch Extension**  
**Department of Water Resources**



Scale: 1" = 120'  
Date: November 10,  
File: 1614-EBXmapv



**LEGEND**

- - - Centerline
- - - 500 Foot Buffer

Federally Listed Species

- ▲ Santa Ana River Woolly Star
- Slender-horned spineflower

List 1B (CNPS)

- Plummer's Mariposa lily

List 2 (CNPS)

- ⊕ Parry's spineflower

1" = 120'  
 November 10, 2006  
 314-EBXmapveg.dwg

**Rare Plant Locations**

**East Branch Extension Survey**



PREPARED BY

**Aspen**  
Environmental Group

**East Branch Extension  
Department of Water Resources**



Scale: 1" = 120'  
Date: November 10,  
File: 1614-EBXmap



**LEGEND**

--- Centerline  
 --- 500 Foot Buffer

Federally Listed Species

▲ Santa Ana River Woolly Star  
 ■ Slender-horned spineflower

List 1B (CNPS)

● Plummer's Mariposa lily

List 2 (CNPS)

⊕ Parry's spineflower

1" = 120'  
 November 10, 2006  
 14-EBXmapveg.dwg

**Rare Plant Locations**



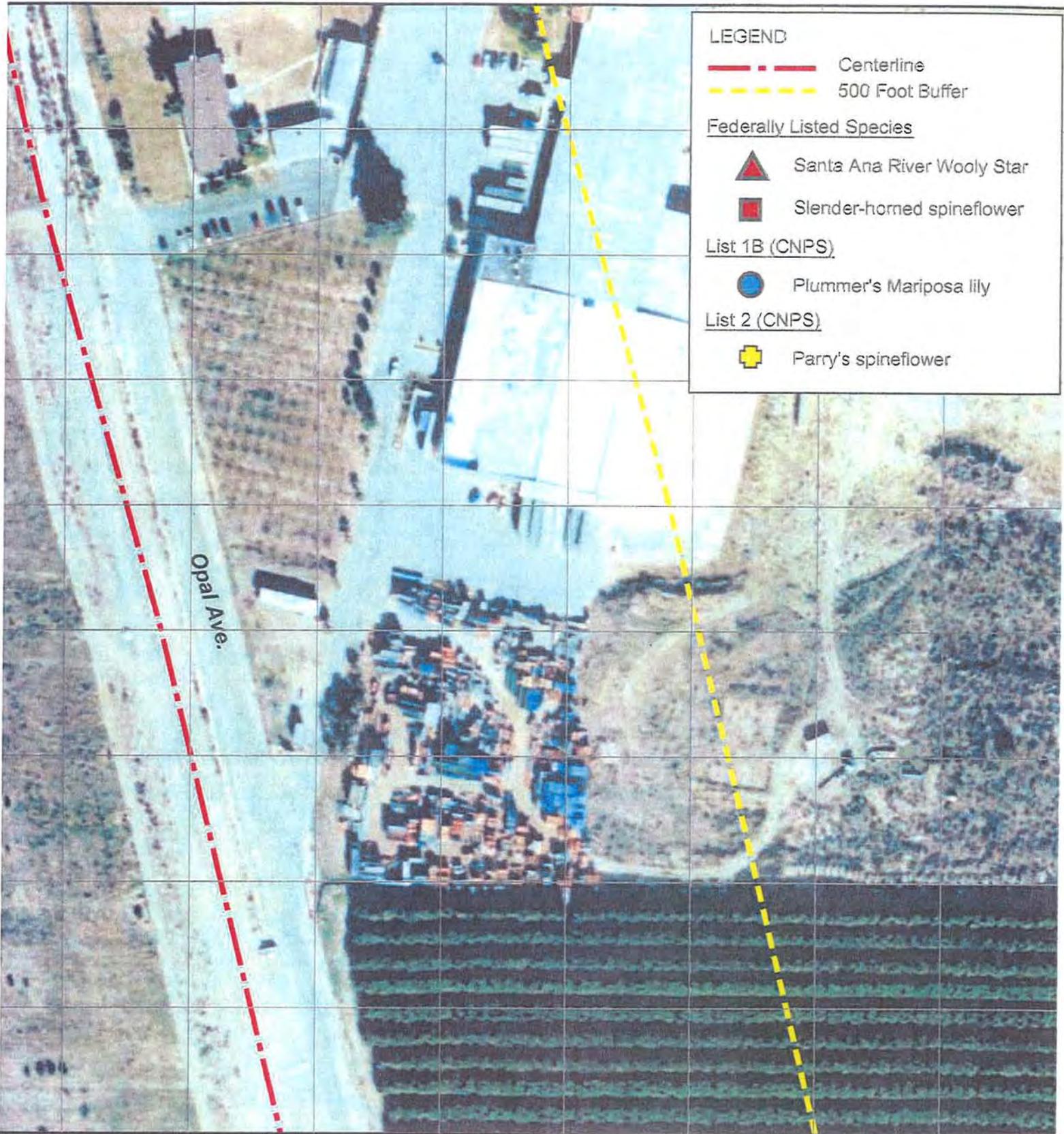
**Redlands  
Municipal  
Airport**

PREPARED BY  
**Aspen**  
Environmental Group

**East Branch Extension  
Department of Water Resources**



Scale: 1" = 120'  
Date: November 10,  
File: 1614-EBXmap



**LEGEND**

- - - Centerline
- - - 500 Foot Buffer

Federally Listed Species

- ▲ Santa Ana River Woolly Star
- Slender-horned spineflower

List 1B (CNPS)

- Plummer's Mariposa lily

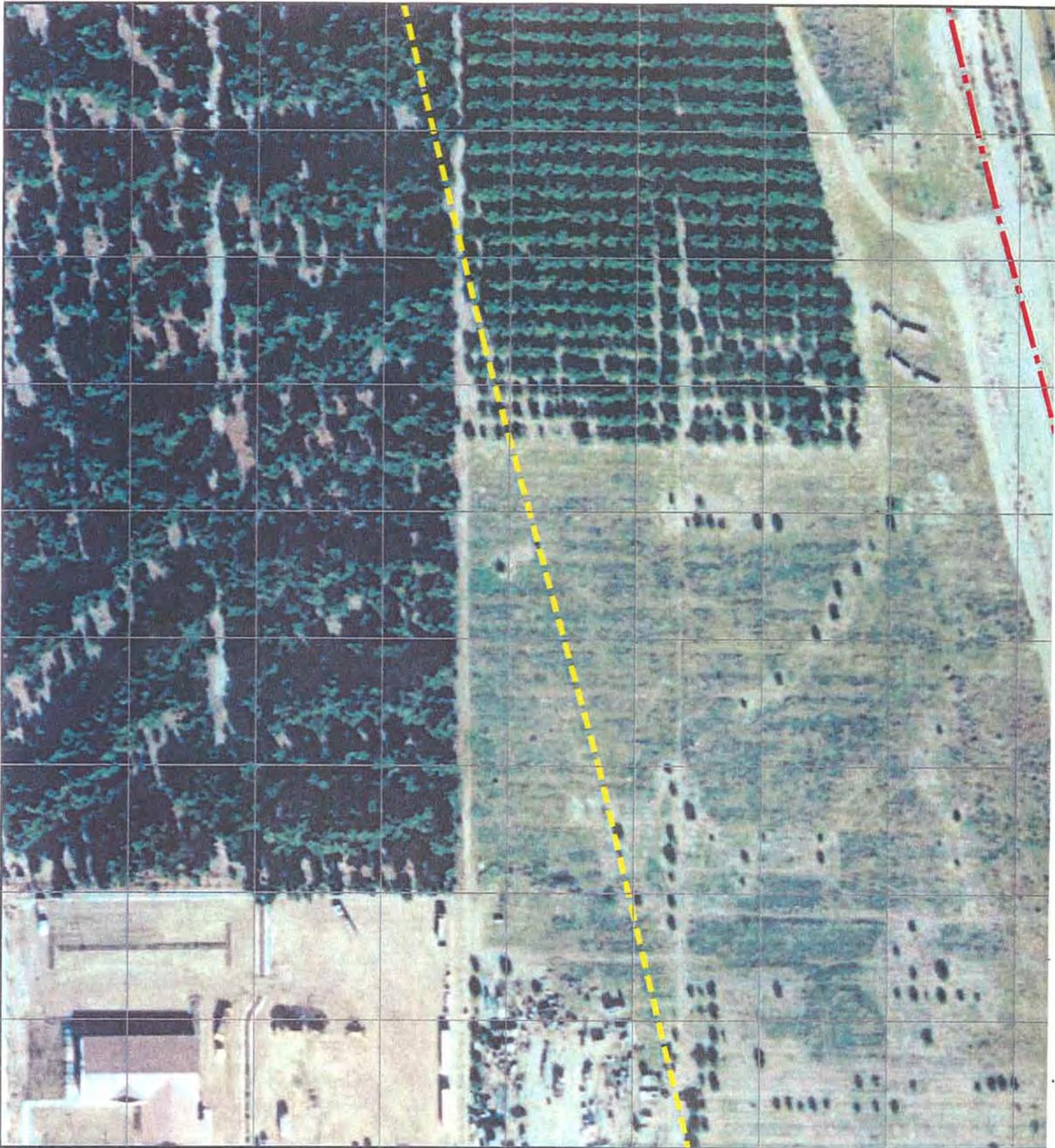
List 2 (CNPS)

- + Parry's spineflower

Opal Ave.

1" = 120'  
 November 10, 2006  
 14-EBXmapveg.dwg

**Rare Plant Locations**

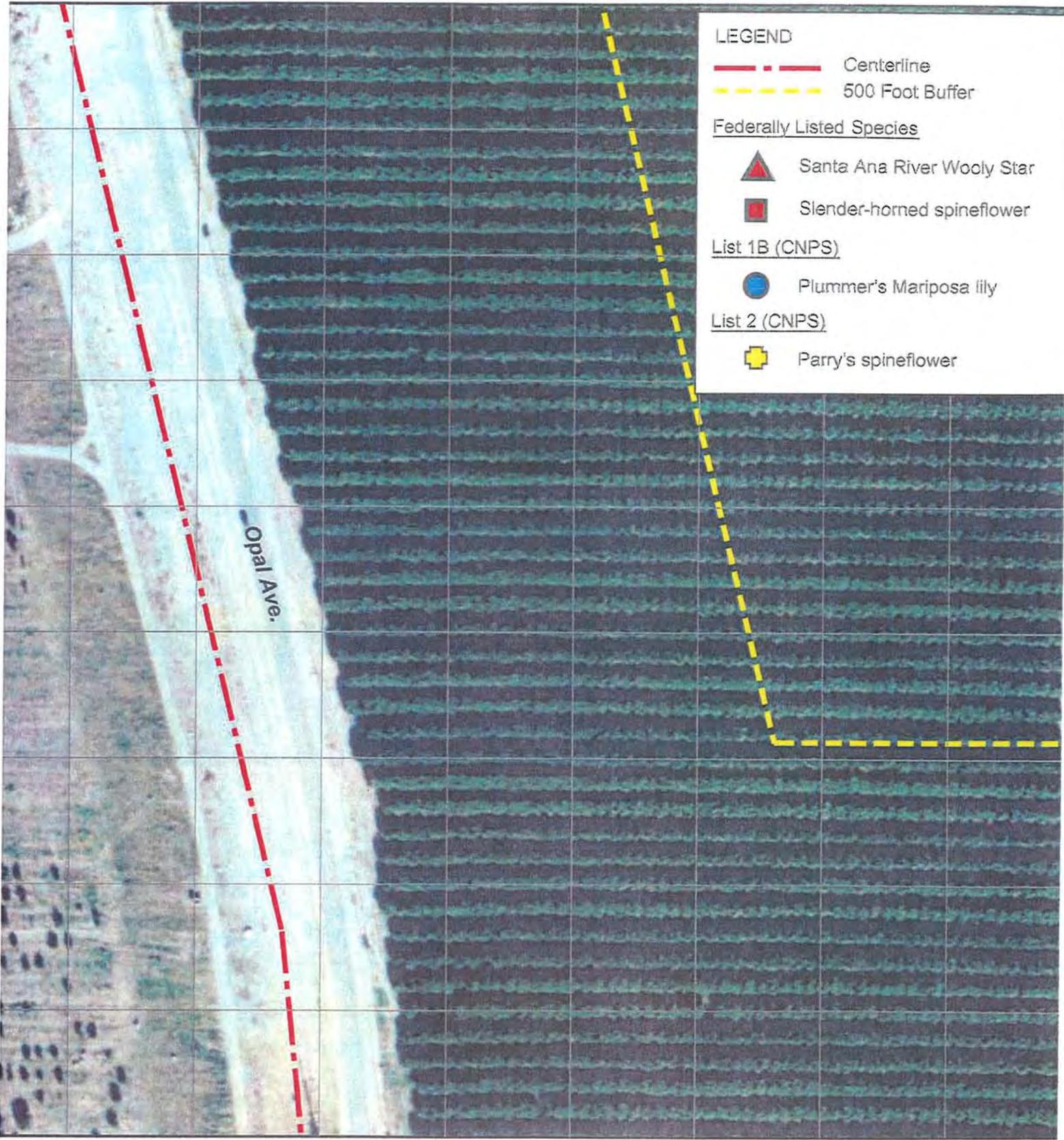


PREPARED BY  
**Aspen**  
Environmental Group

**East Branch Extension**  
**Department of Water Resources**



Scale: 1" = 120'  
Date: November 10,  
File: 1614-EBXmap

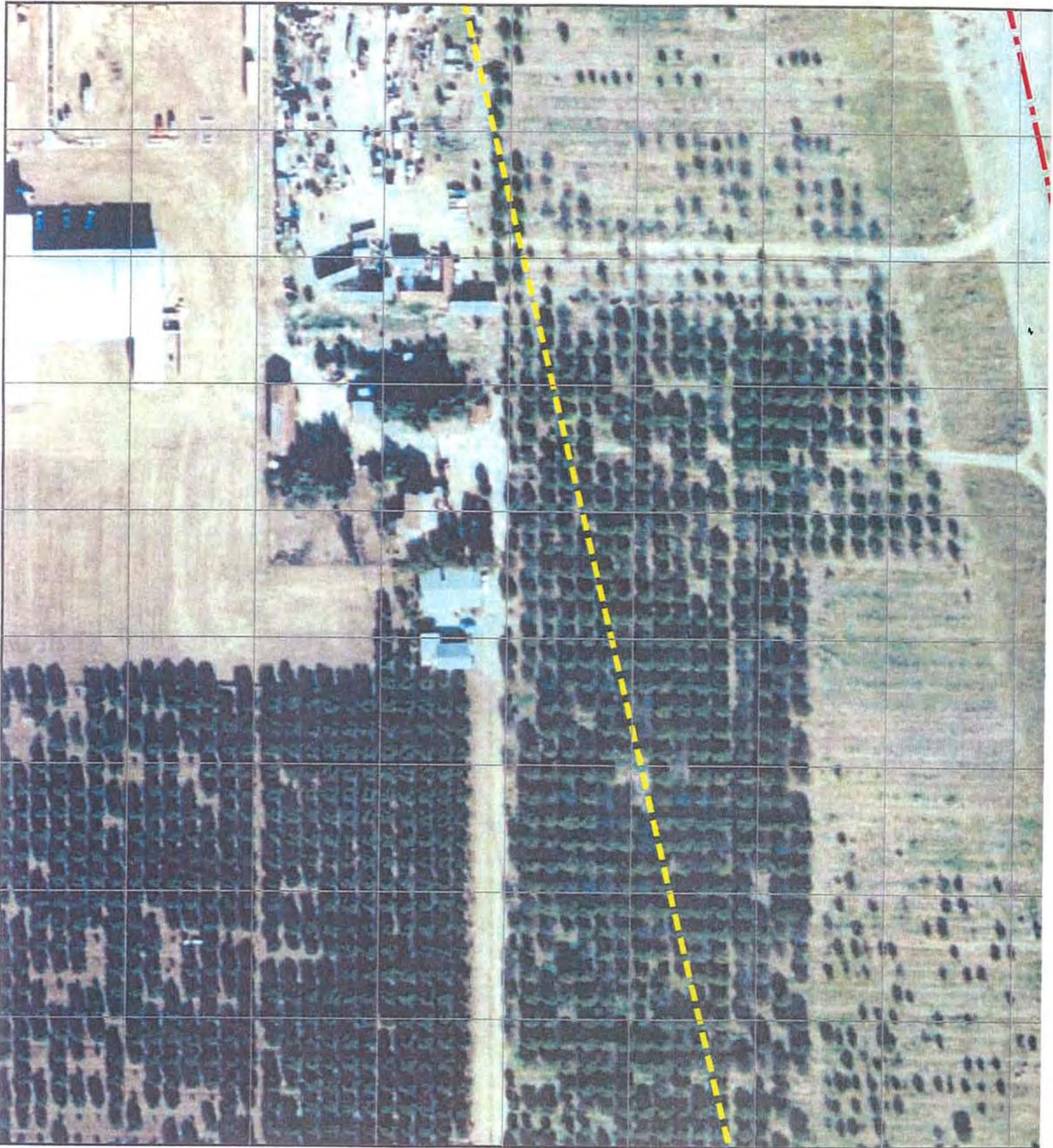


1" = 120'  
 November 10, 2006  
 314-EBXmapveg.dwg

Rare Plant Locations

East Branch Extension Survey

Map 12 of 29



PREPARED BY

**Aspen**  
Environmental Group

**East Branch Extension**  
**Department of Water Resources**



Scale: 1" = 120'  
Date: November 10,  
File: 1614-EBXmap



**LEGEND**

- - - Centerline
- - - 500 Foot Buffer

Federally Listed Species

- ▲ Santa Ana River Woolly Star
- Slender-horned spineflower

List 1B (CNPS)

- Plummer's Mariposa lily

List 2 (CNPS)

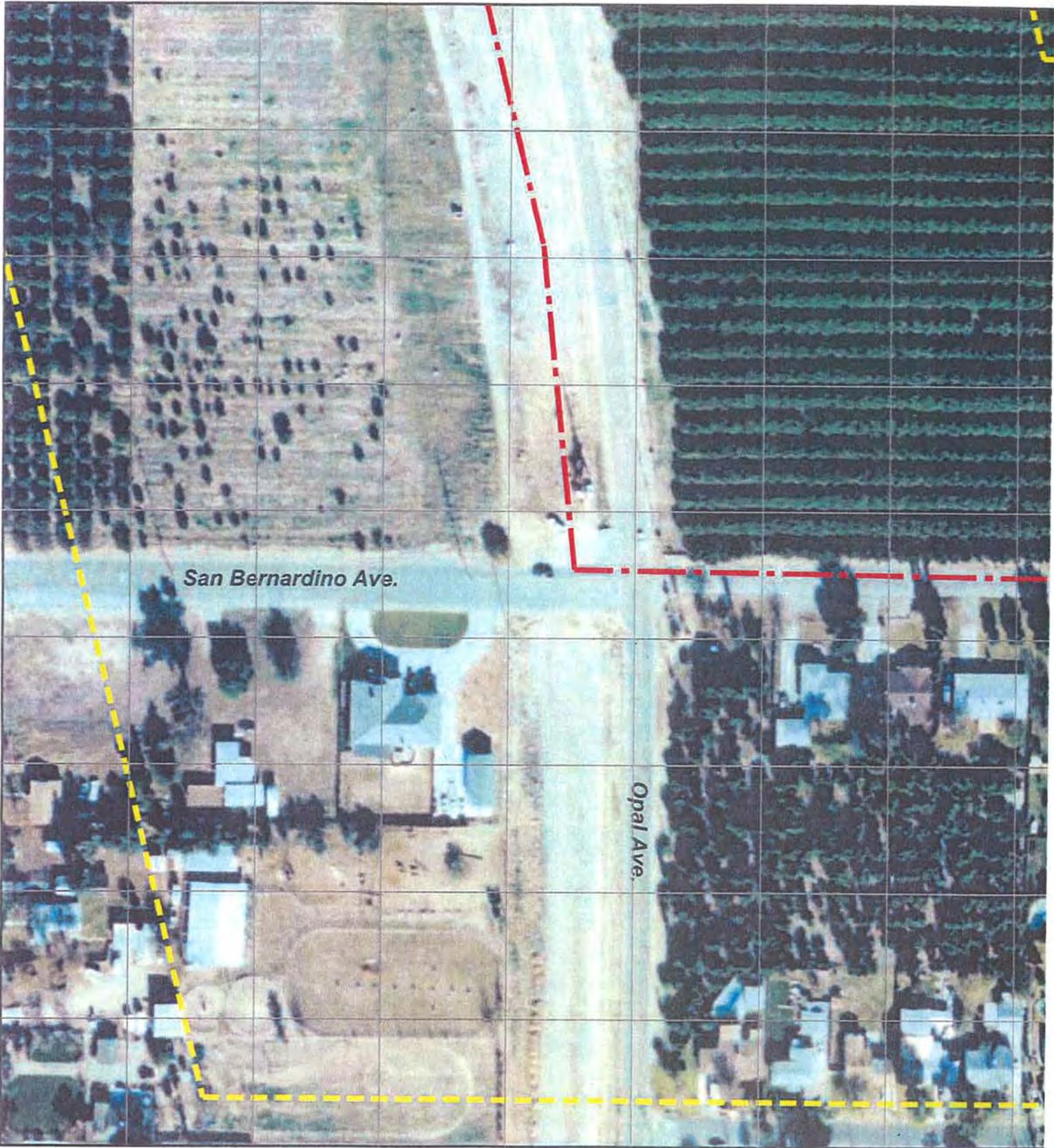
- + Parry's spineflower

Turquoise Ave.

Soffel Ave.

1" = 120'  
 November 10, 2006  
 i14-EBXmapveg.dwg

**Rare Plant Locations**



San Bernardino Ave.

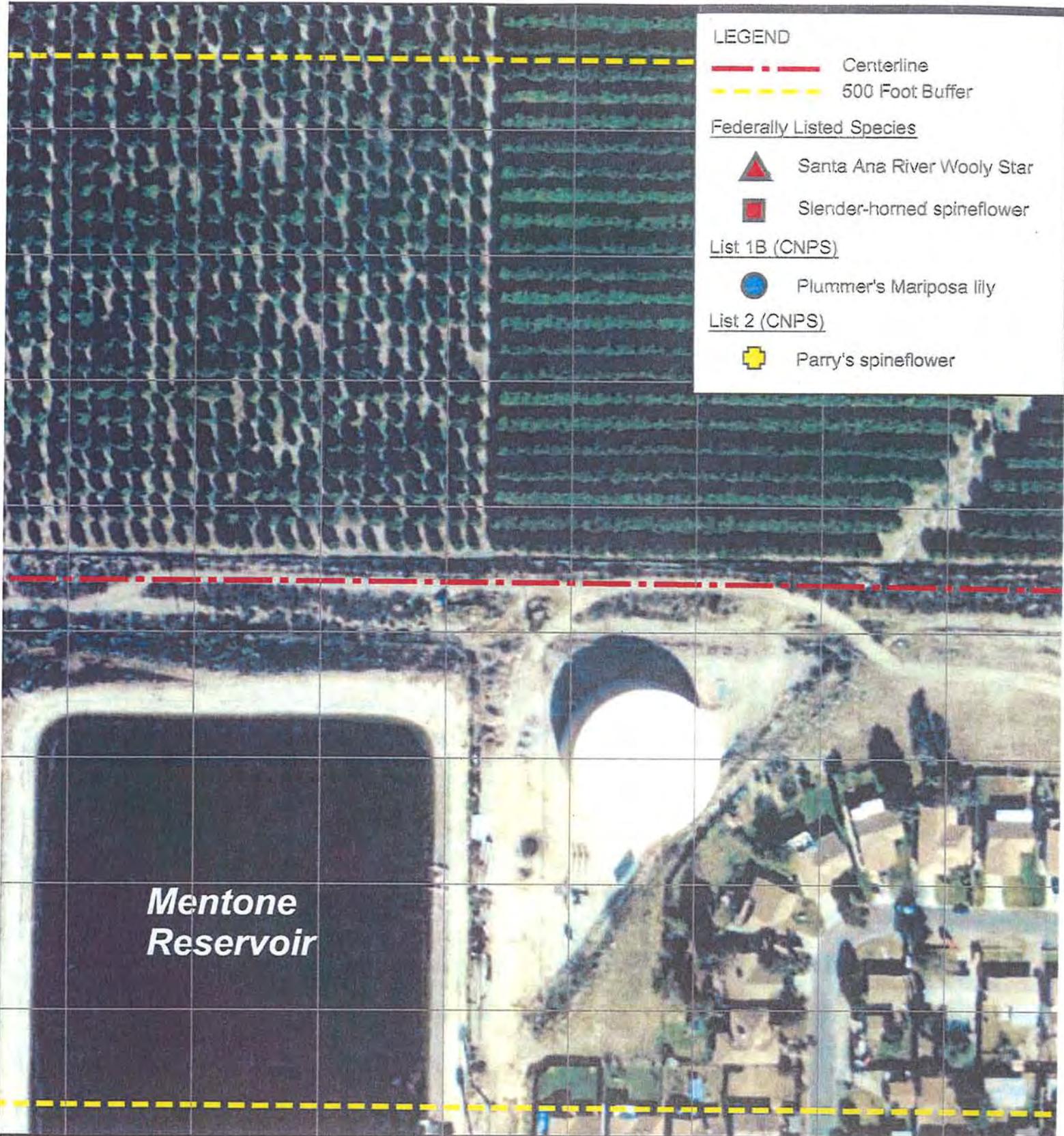
Opal Ave.

PREPARED BY  
**Aspen**  
Environmental Group

**East Branch Extension**  
**Department of Water Resources**

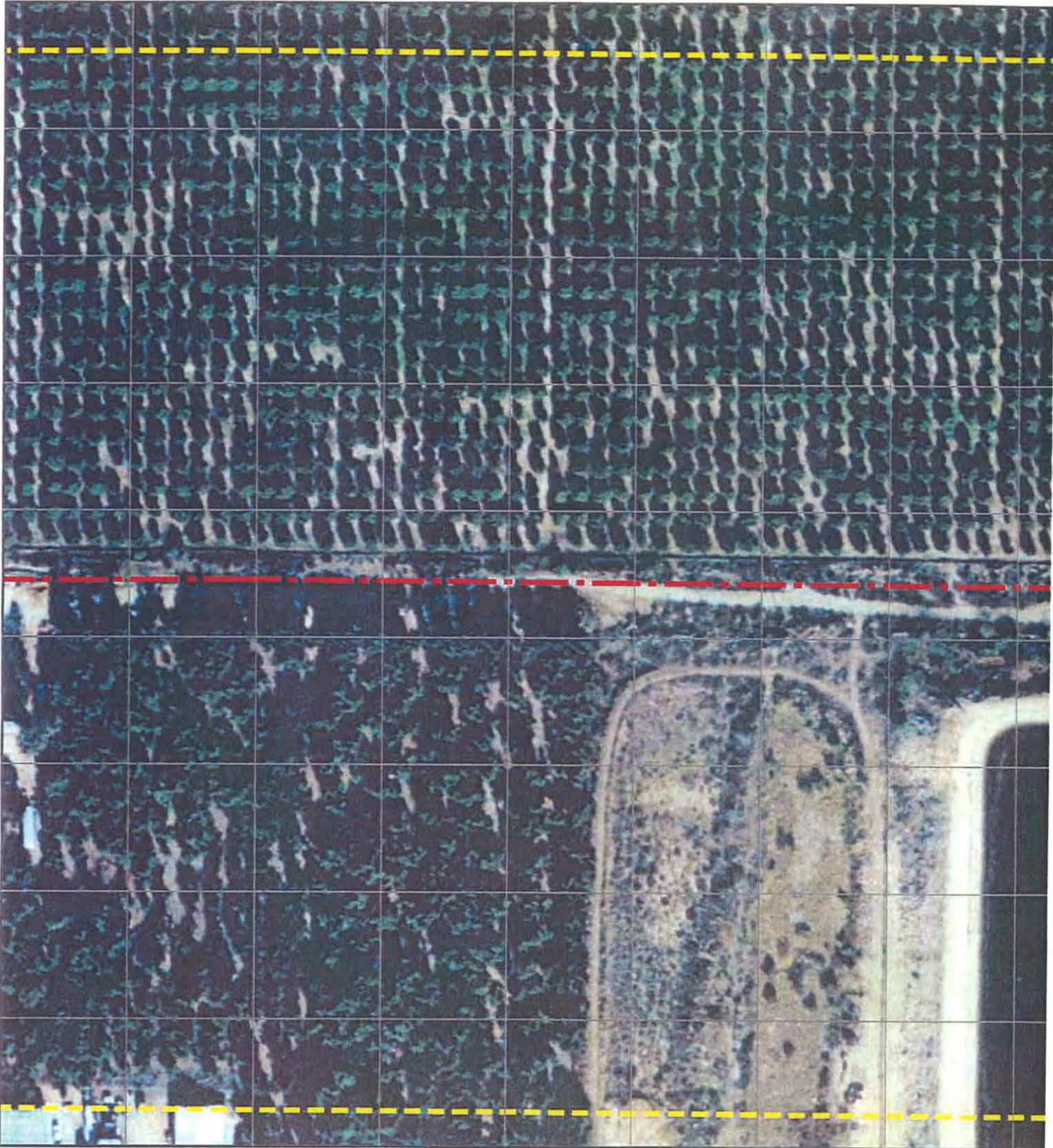


Scale: 1" = 120'  
Date: November 10,  
File: 1614-EBXmap



1" = 120'  
 November 10, 2006  
 314-EBXmapveg.dwg

**Rare Plant Locations**



PREPARED BY  
**Aspen**  
Environmental Group

**East Branch Extension**  
**Department of Water Resources**



Scale: 1" = 120'  
Date: November 10,  
File: 1614-EBXmap



**LEGEND:**

-  Centerline
-  500 Foot Buffer

Federally Listed Species

-  Santa Ana River Woolly Star
-  Slender-horned spineflower

List 1B (CNPS)

-  Plummer's Mariposa lily

List 2 (CNPS)

-  Parry's Spineflower

1" = 120'

November 10, 2006

314-EBXmapveg.dwg

**Rare Plant Locations**

**East Branch Extension Survey**

**Map 15 of 29**



PREPARED BY  
**Aspen**  
Environmental Group

**East Branch Extension**  
**Department of Water Resources**



Scale: 1" = 120'  
Date: November 10,  
File: 1614-EBXmap



1" = 120'  
 November 10, 2006  
 614-EBXmapveg.dwg

**Rare Plant Locations**

**East Branch Extension Survey**

**Map 16 of 29**



Griffon Ave.

PREPARED BY  
**Aspen**  
Environmental Group

**East Branch Extension**  
**Department of Water Resources**



Scale: 1" = 120'  
Date: November 10,  
File: 1614-EBXmap

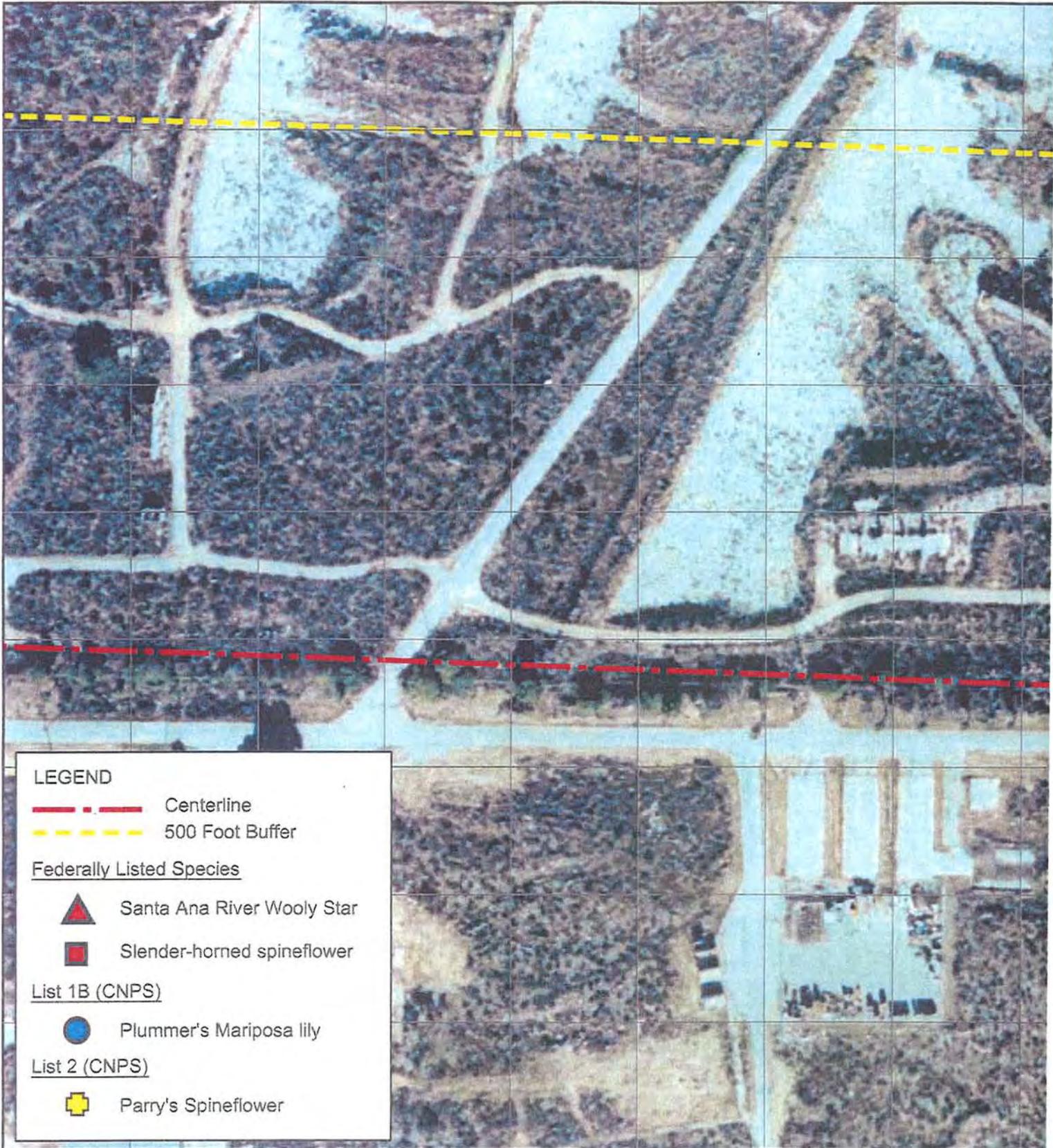


1" = 120'  
November 10, 2006  
614-EBXmapveg.dwg

### Rare Plant Locations

East Branch Extension Survey

Map 17 of 29





**LEGEND**

-  Centerline
-  500 Foot Buffer

Federally Listed Species

-  Santa Ana River Woolly Star
-  Slender-horned spineflower

List 1B (CNPS)

-  Plummer's Mariposa lily

List 2 (CNPS)

-  Parry's Spineflower

1" = 120'  
 November 10, 2006  
 614-EBXmapveg.dwg

**Rare Plant Locations**

**East Branch Extension Survey**

Map 18 of 29



PREPARED BY  
**Aspen**  
Environmental Group

**East Branch Extension**  
**Department of Water Resources**



Scale: 1" = 120'  
Date: November 10  
File: 1614-EBXmap



1" = 120'

November 10, 2006

14-EBXmapveg.dwg

### Rare Plant Locations

**East Branch Extension Survey**

Map 19 of 29



Cedar Lane

PREPARED BY

**Aspen**  
Environmental Group

**East Branch Extension**  
**Department of Water Resources**



Scale: 1" = 120'

Date: November 10,

File: 1614-EBXmapv



1" = 120'  
November 10, 2006  
314-EBXmapveg.dwg

**Rare Plant Locations**

**East Branch Extension Survey**



**LEGEND**

-  Centerline
-  500 Foot Buffer

Federally Listed Species

-  Santa Ana River Wooly Star
-  Slender-horned spineflower

List 1B (CNPS)

-  Plummer's Mariposa lily

List 2 (CNPS)

-  Parry's Spineflower



**East Branch Extension**  
**Department of Water Resources**



Scale: 1" = 120'  
 Date: November 10,  
 File: 1614-EBXmapy



1" = 120'

November 10, 2006

314-EBXmapveg.dwg

### Rare Plant Locations

East Branch Extension Survey

Map 21 of 29

LEGEND

-  Centerline
-  500 Foot Buffer

Federally Listed Species

-  Santa Ana River Woolly Star
-  Slender-horned spineflower

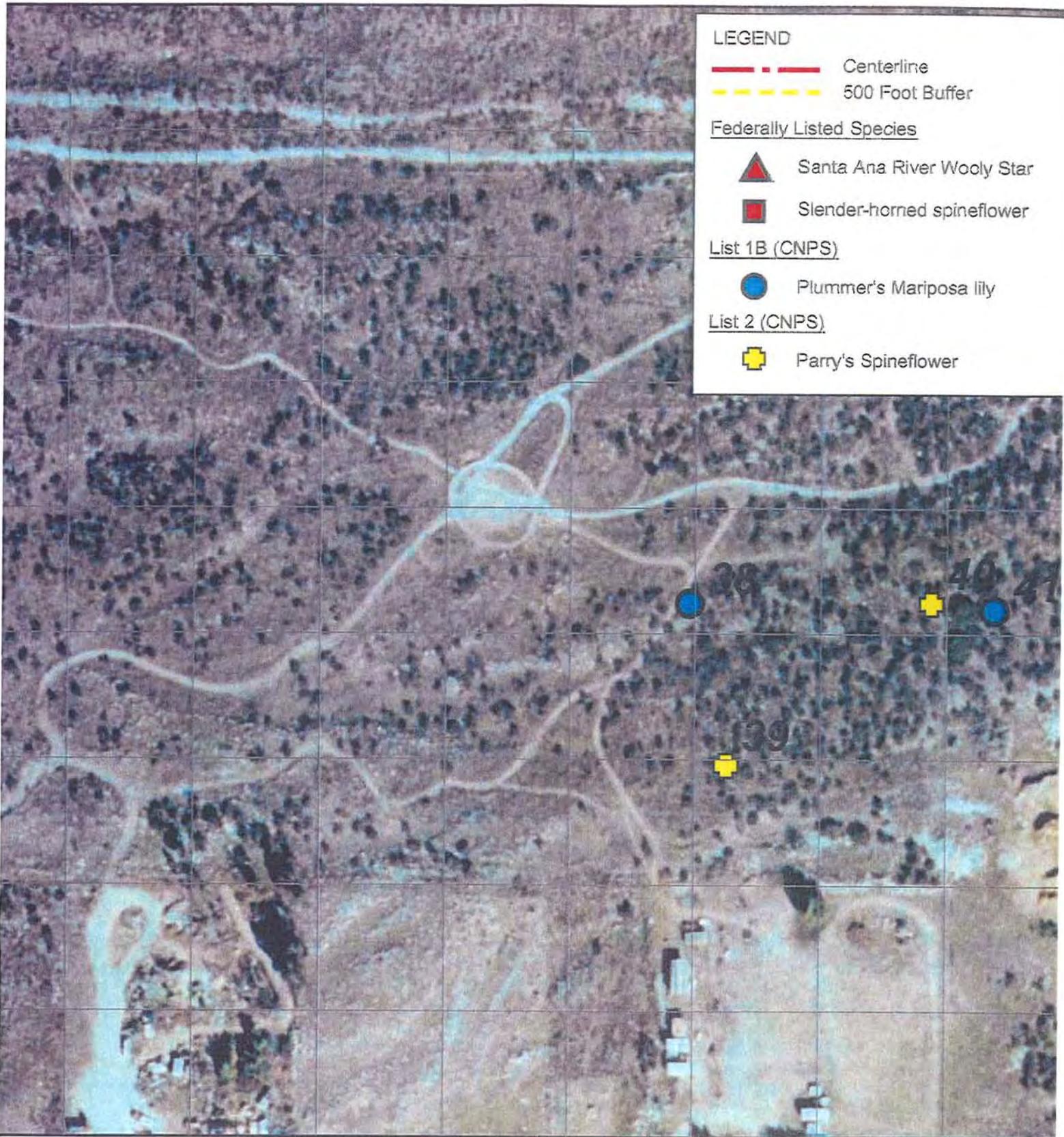
List 1B (CNPS)

-  Plummer's Mariposa lily

List 2 (CNPS)

-  Parry's Spineflower





1" = 120'  
 November 10, 2006  
 14-EBXmapveg.dwg

**Rare Plant Locations**

**East Branch Extension Survey**



PREPARED BY  
**Aspen**  
Environmental Group

**East Branch Extension**  
**Department of Water Resources**



Scale: 1" = 120'  
Date: November 10,  
File: 1614-EBXmap



**LEGEND**

-  Centerline
-  500 Foot Buffer

Federally Listed Species

-  Santa Ana River Woolly Star
-  Slender-horned spineflower

List 1B (CNPS)

-  Plummer's Mariposa lily

List 2 (CNPS)

-  Parry's Spineflower

1" = 120'  
 November 10, 2006  
 314-EBXmapveg.dwg

**Rare Plant Locations**

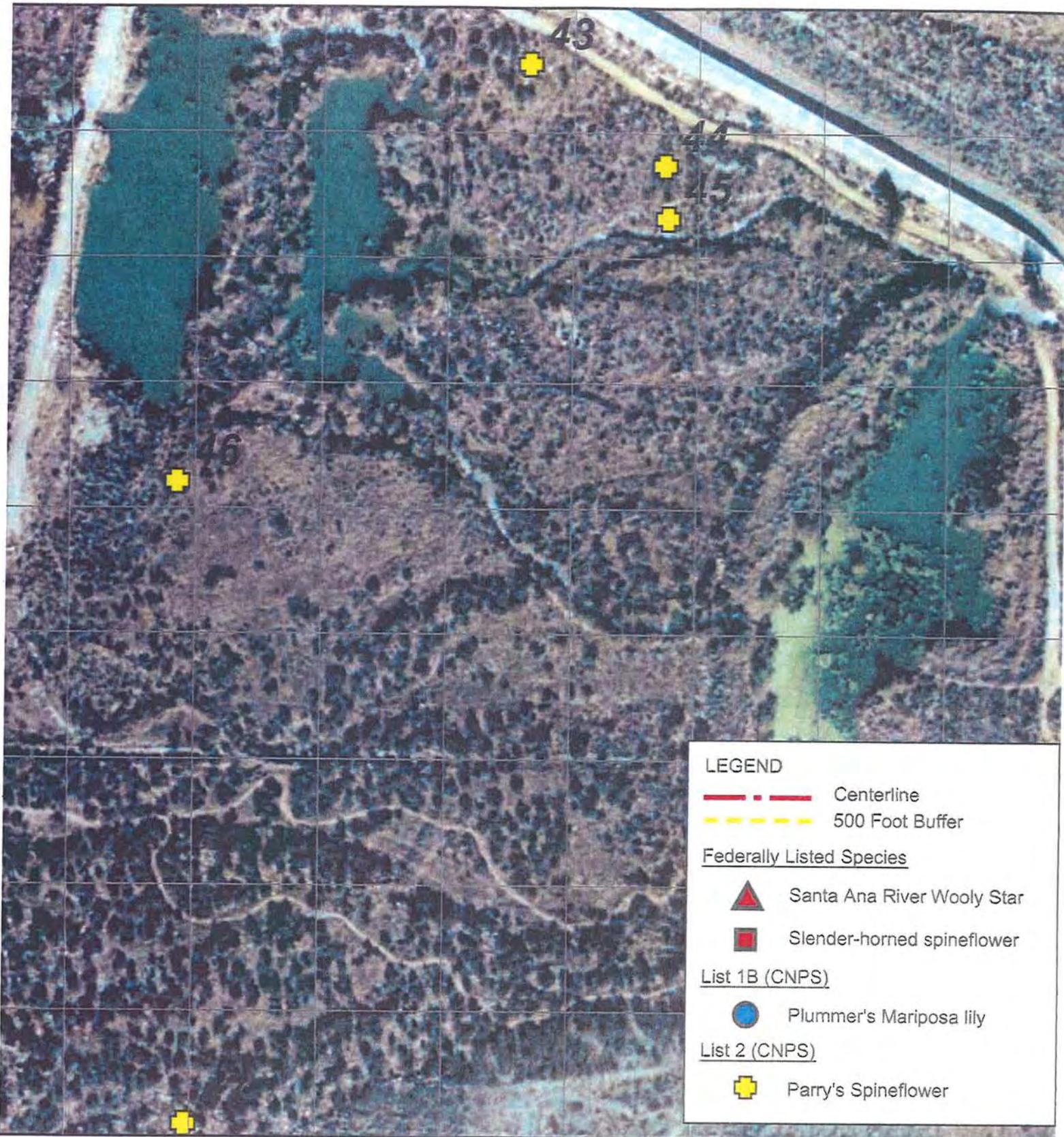


PREPARED BY  
**Aspen**  
Environmental Group

**East Branch Extension**  
**Department of Water Resources**



Scale: 1" = 120'  
Date: November 10,  
File: 1614-EBXmap



1" = 120'  
 November 10, 2006  
 i14-EBXmapveg.dwg

**Rare Plant Locations**



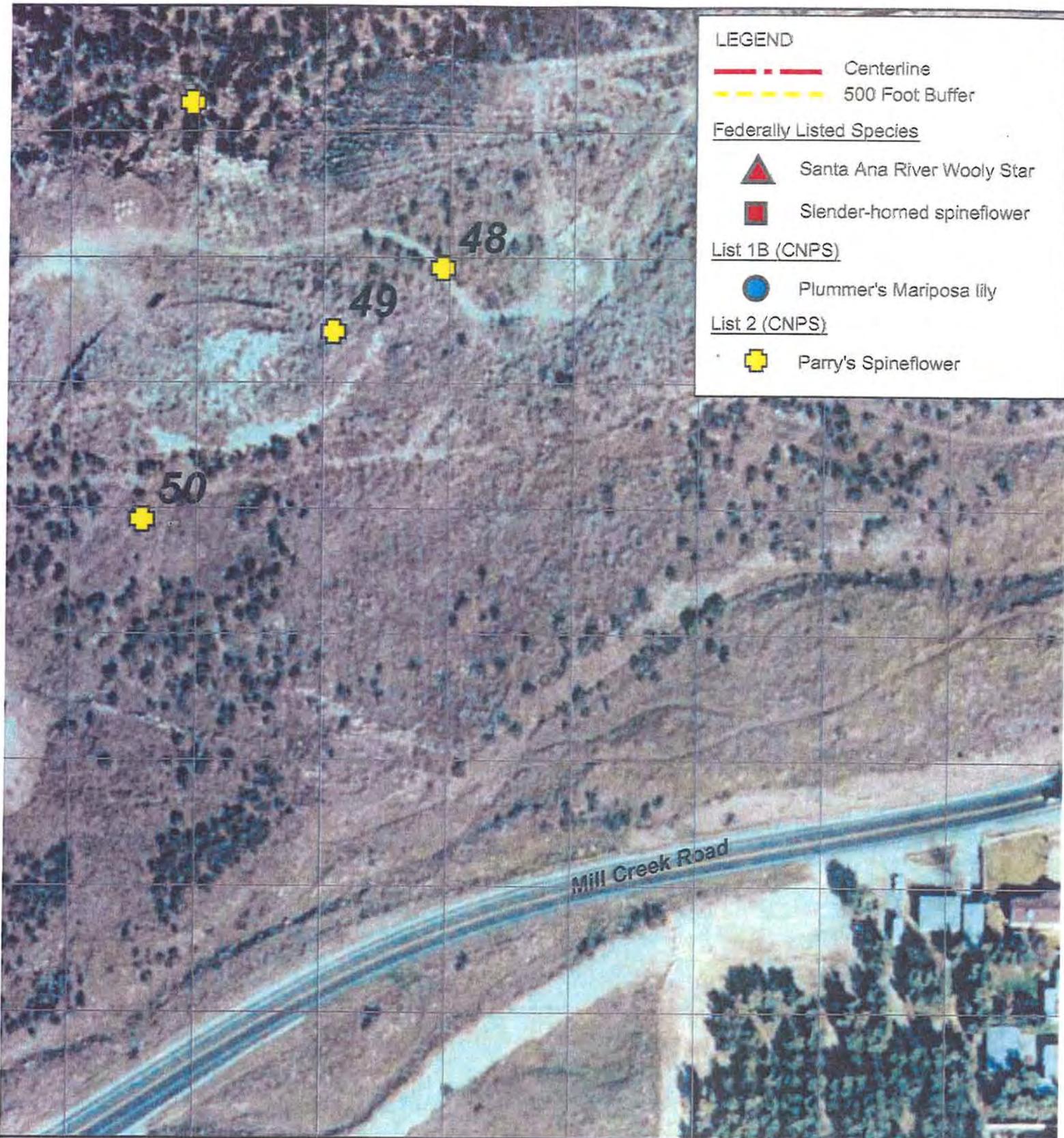
PREPARED BY

**Aspen**  
Environmental Group

**East Branch Extension**  
**Department of Water Resources**



Scale: 1" = 120'  
Date: November 10,  
File: 1614-EBXmapv



1" = 120'

November 10, 2006

14-EBXmapveg.dwg

**Rare Plant Locations**

**East Branch Extension Survey**

**Map 25 of 29**



Amherst St.

PREPARED BY

**Aspen**  
Environmental Group

**East Branch Extension**  
**Department of Water Resources**



Scale: 1" = 120'  
Date: November 10,  
File: 1614-EBXmapv



1" = 120'  
 November 10, 2006  
 14-EBXmapveg.dwg

**Rare Plant Locations**

**East Branch Extension Survey**



PREPARED BY

**Aspen**  
Environmental Group

**East Branch Extension**  
**Department of Water Resources**



Scale: 1" = 120'  
Date: November 10,  
File: 1614-EBXmapv



**LEGEND**

-  Centerline
-  500 Foot Buffer

Federally Listed Species

-  Santa Ana River Woolly Star
-  Slender-horned spineflower

List 1B (CNPS)

-  Plummer's Mariposa lily

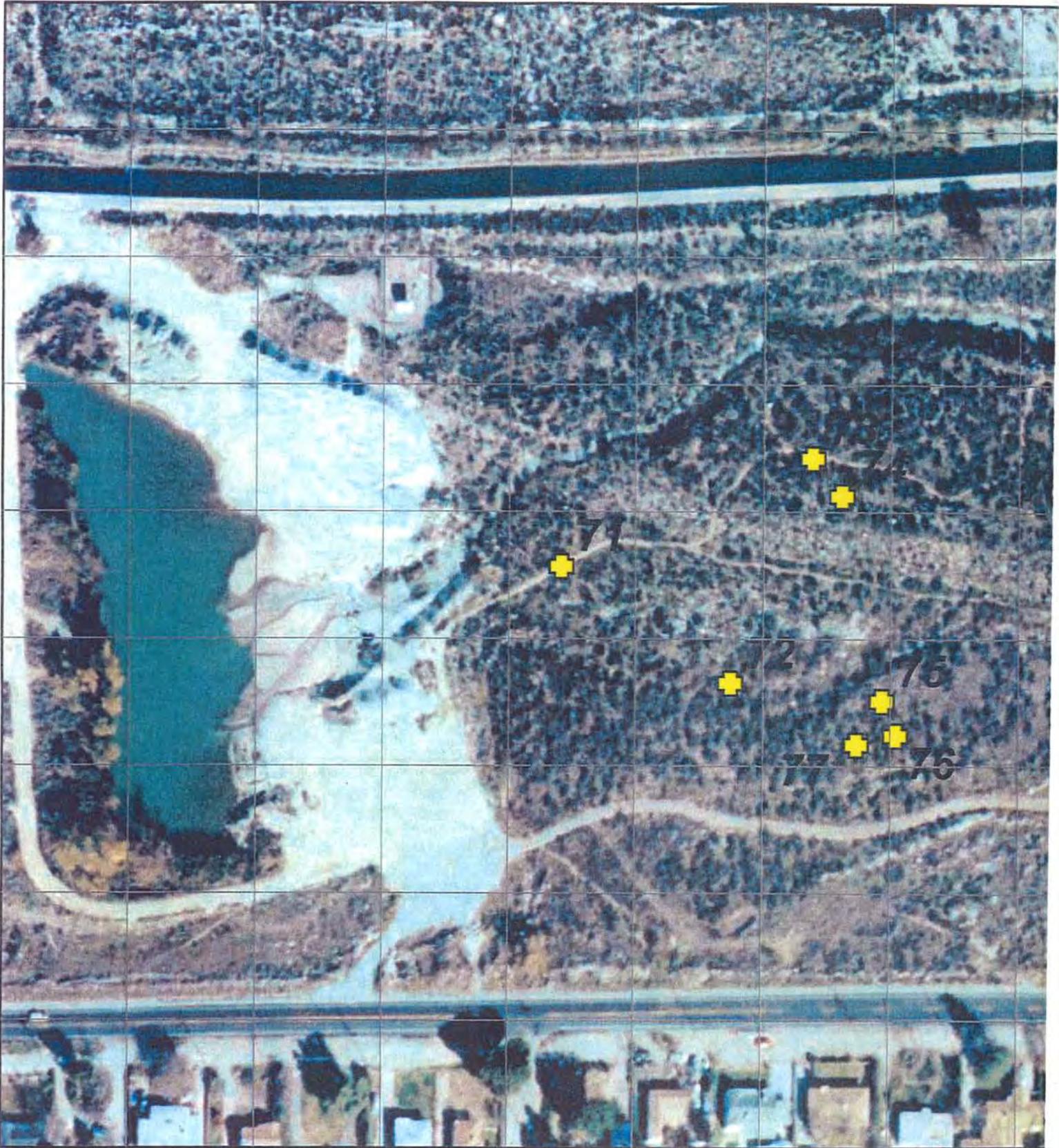
List 2 (CNPS)

-  Parry's Spineflower

1" = 120'  
 November 10, 2006  
 14-EBXmapveg.dwg

**Rare Plant Locations**

**East Branch Extension Survey**

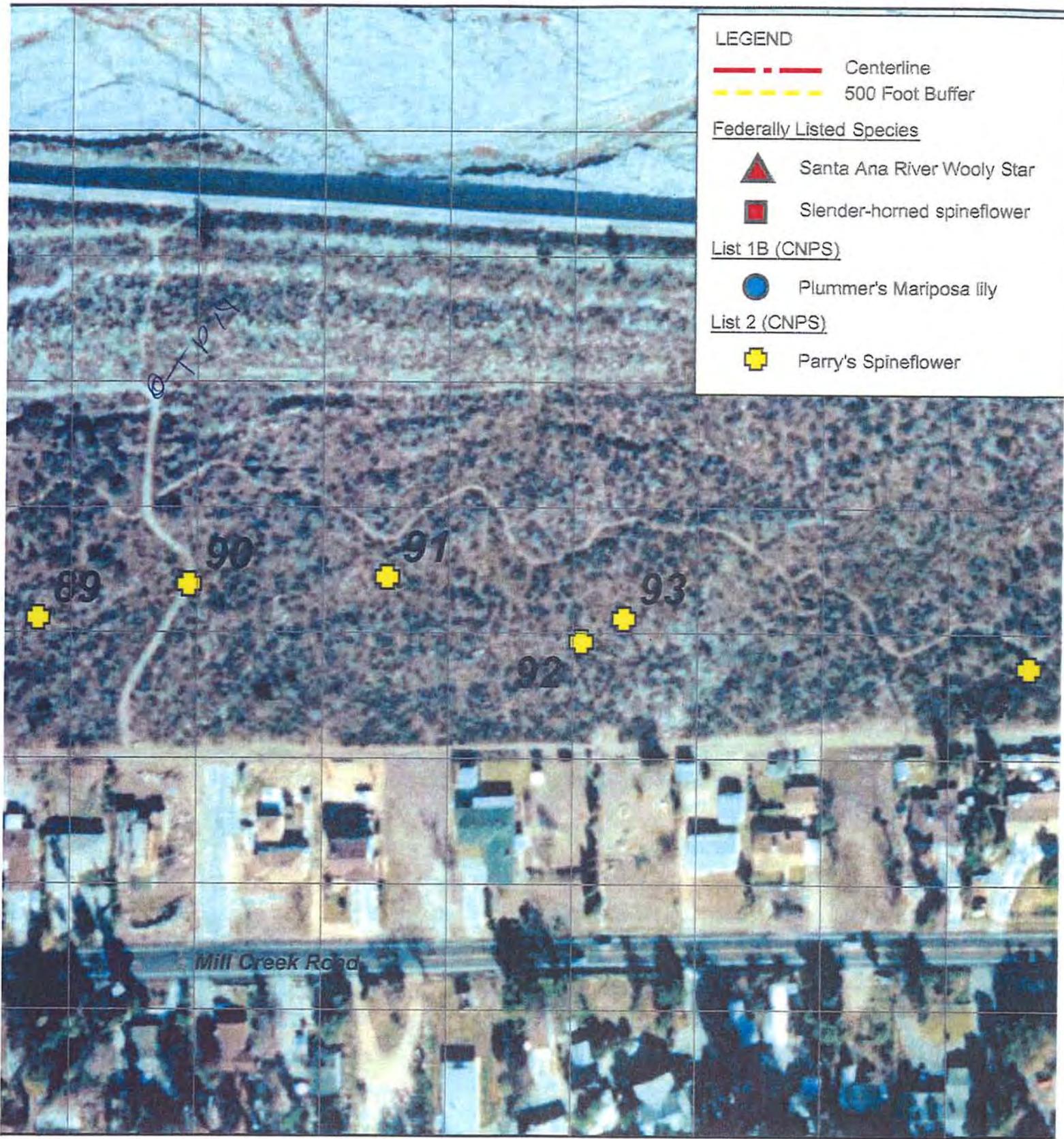


PREPARED BY  
**Aspen**  
Environmental Group

**East Branch Extension**  
**Department of Water Resources**



Scale: 1" = 120'  
Date: November 10,  
File: 1614-EBXmap



**LEGEND**

- - - Centerline
- - - 500 Foot Buffer

Federally Listed Species

- ▲ Santa Ana River Woolly Star
- Slender-horned spineflower

List 1B (CNPS)

- Plummer's Mariposa lily

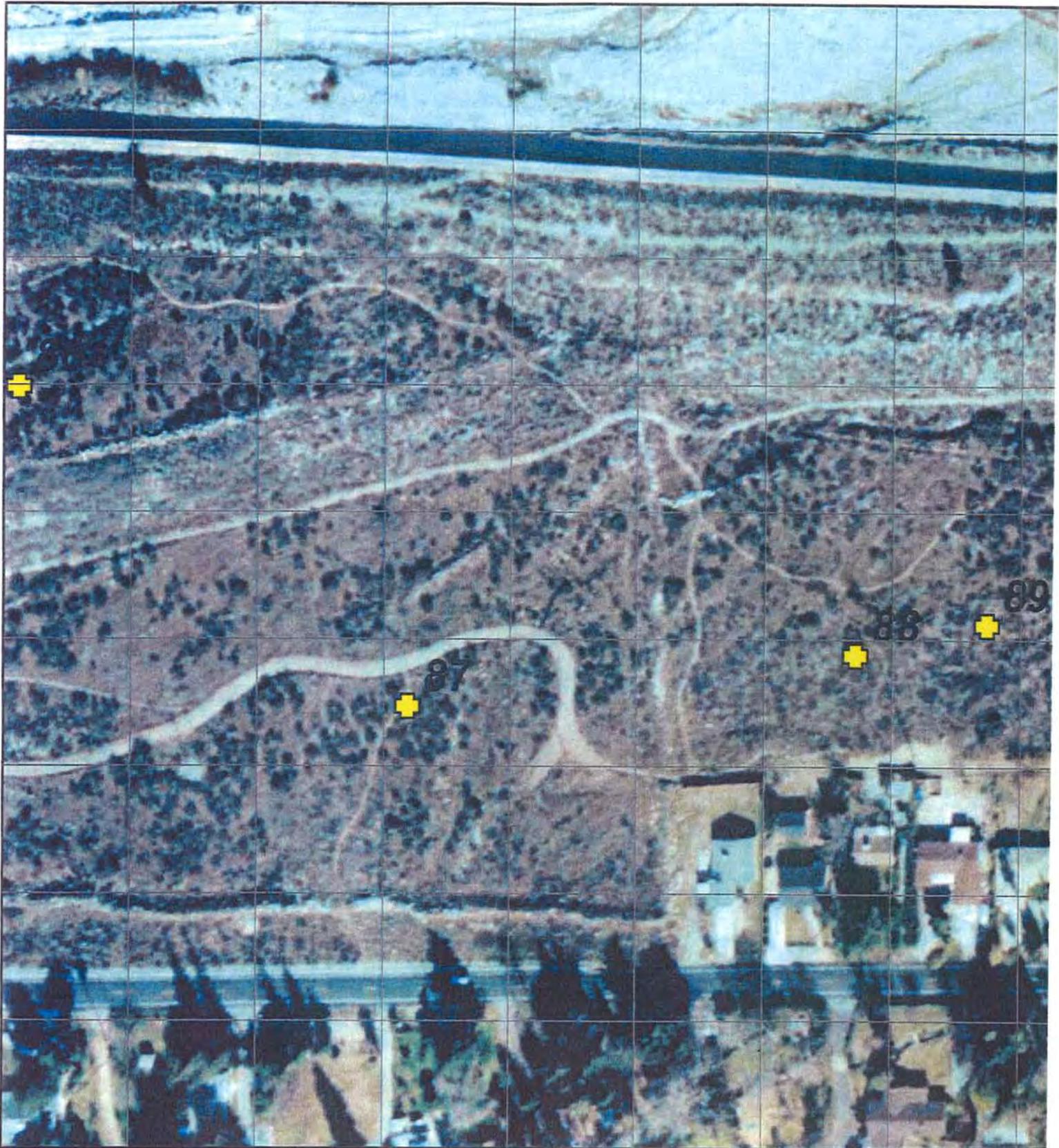
List 2 (CNPS)

- + Parry's Spineflower

1" = 120'  
 November 10, 2006  
 314-EBXmapveg.dwg

**Rare Plant Locations**

**East Branch Extension Survey**

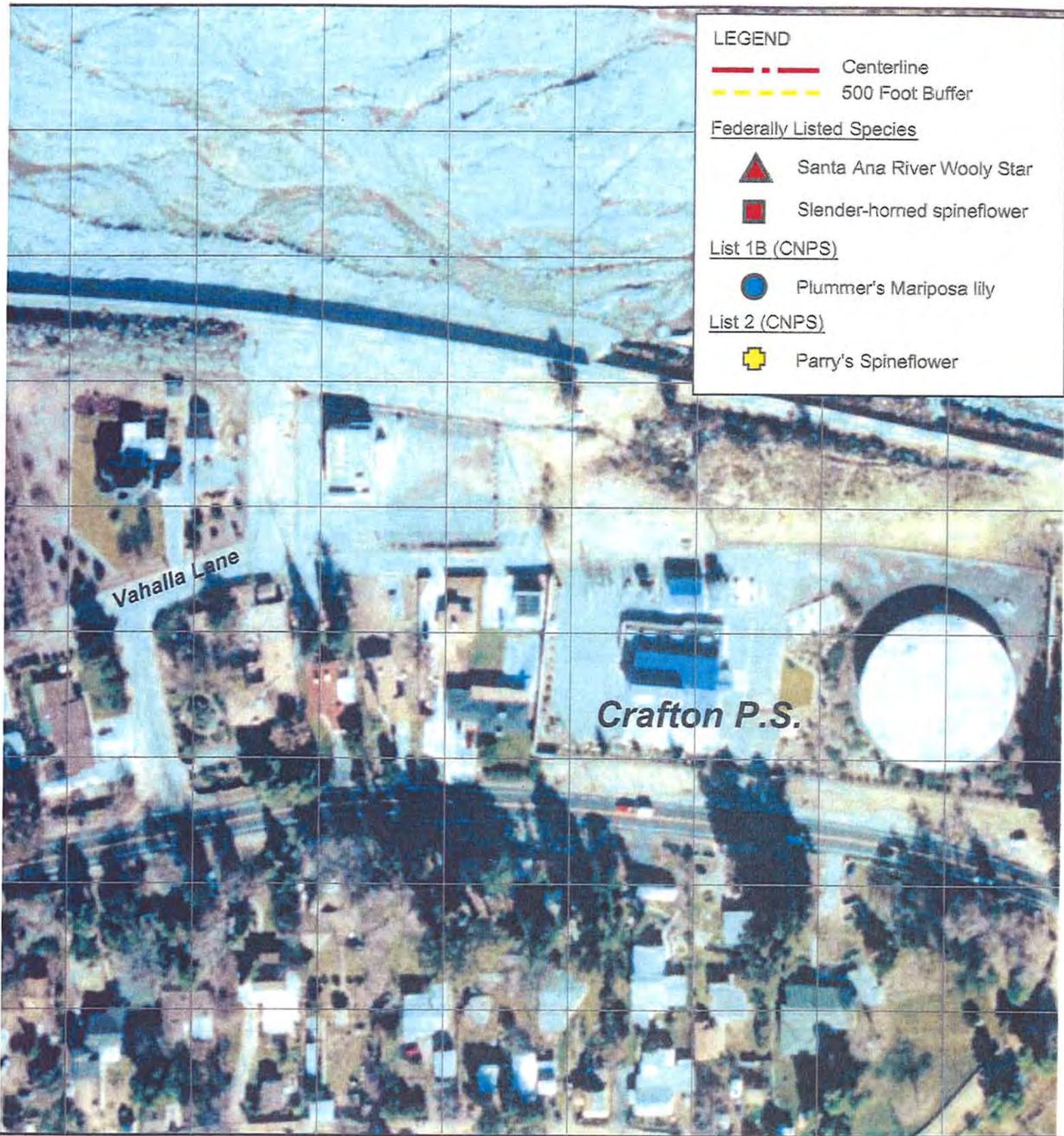


PREPARED BY  
**Aspen**  
Environmental Group

**East Branch Extension**  
**Department of Water Resources**



Scale: 1" = 120'  
Date: November 10,  
File: 1614-EBXmap



**LEGEND**

-  Centerline
-  500 Foot Buffer

Federally Listed Species

-  Santa Ana River Woolly Star
-  Slender-horned spineflower

List 1B (CNPS)

-  Plummer's Mariposa lily

List 2 (CNPS)

-  Parry's Spineflower

Vahalla Lane

Crafton P.S.

1" = 120'

November 10, 2006  
 14-EBXmapveg.dwg

Rare Plant Locations

East Branch Extension Survey

Map 29 of 29



PREPARED BY  
**Aspen**  
Environmental Group

**East Branch Extension**  
**Department of Water Resources**



Scale: 1" = 120'  
Date: November 10,  
File: 1614-EBXmapv

**APPENDIX F – CHAMBERS GROUP BIOLOGICAL RECONNAISSANCE SURVEY  
REPORT ON SEVEN W PROPERTY**

July 20, 2007  
(6938 001)

Tom Barnes  
ESA Water  
707 Wilshire Boulevard, Suite 1450  
Los Angeles, CA 90017

Subject: Amended results of the Biological Reconnaissance for Area 7W (EBX-II Alt 1/Alt2), unincorporated community of Mentone, San Bernardino County, California.

Dear Mr. Barnes:

Chambers Group, Inc. (Chambers Group) was retained by ESA to conduct a literature review and reconnaissance-level biological surveys along proposed pipeline rights-of-way in an approximately 80-acre site in the unincorporated community of Mentone, San Bernardino County, California. The survey was conducted to document existing biological resources, identify sensitive habitats, and assess the site for its potential to support sensitive plant and wildlife species.

The Area 7W site is located to the northeast of the intersection of Crafton Avenue and Madeira Avenue. The elevation on the site ranges from 1780 feet above sea level (msl) in the western portion of the site to approximately 1880 feet above msl in the eastern portion of the site. The 7W site is located in the U.S. Geological Survey *Yucaipa* 7.5-minute topographic quadrangle, in Section 17, Township 1 South, Range 2 West.

The purpose of this report is to document the findings of the reconnaissance-level surveys as they pertain to sensitive habitats, plants, and wildlife on or in the vicinity of the site. As a result of the reconnaissance-level surveys conducted on the site, the following is recommended:

- Focused surveys for the state and/or federally listed Nevin's barberry (*Berberis nevinii*), slender-horned spineflower (*Dodecahema leptoceras*), and Santa Ana River woollystar (*Eriastrum densifolium* ssp. *sanctorum*) should be conducted during the appropriate blooming season (April to June) to determine presence or absence. If surveys are conducted while these species are not in bloom, particularly for the slender-horned spineflower, further surveys may be necessary in the 2008 blooming period (April-June).
- Protocol trapping for San Bernardino kangaroo rat (*Dipodomys merriami parvus*) will be necessary to determine its presence or absence on the project site. The trapping program must occur between March 1 and September 30, 2007. If work is to be performed prior to the trapping season, presence of San Bernardino kangaroo rat should be assumed and mitigation will be required.
- Off-season protocol surveys for coastal California gnatcatcher (*Poliioptila californica californica*) are recommended to determine presence or absence, and if the species is present, territory locations and acreages. Surveys must occur between August 1, 2007 and March 15, 2008.

## **METHODOLOGY**

Prior to performing the reconnaissance-level field surveys, Chambers Group staff reviewed existing documentation relevant to the site. The most recent records of the California Natural Diversity Database (CNDDB 2006) and the California Native Plant Society Electronic Inventory of Rare and Endangered Vascular Plants of California (CNPSEI 2006) were reviewed for the quadrangles containing and adjacent to the site (*Yucaipa*, California USGS 7.5-minute quadrangle). These databases contain records of reported occurrences of state or federally listed endangered or threatened species, California special concern species (CSC), or otherwise sensitive species and habitats that may occur within the site or its vicinity.

The reconnaissance-level surveys were conducted on November 14, 2006 by Chambers Group biologists Shari Norton and Shannan Shaffer between the hours of 8:25 a.m. and 3:20 p.m. Weather conditions during the surveys included cloudy skies and temperatures ranging from 58° to 84° Fahrenheit. Wind speeds ranged from 0 to 3 miles per hour. Vegetation communities on the property were identified and qualitatively described. Biological resources on the property were inventoried and the potential for occurrence of sensitive plant and wildlife species and sensitive habitats was assessed, focusing on those species listed as threatened or endangered by the California Department of Fish and Game (CDFG) and/or the U.S. Fish and Wildlife Service (USFWS). Notes were made on general vegetation types, species observed, and sensitive habitats existing on the site. Data sheets are included as Appendix A.

Plant communities were determined in accordance with the categories set forth in Holland (1986) and Sawyer and Keeler-Wolf (1995). Plant communities on the site were identified and qualitatively described. Plants of uncertain identity were collected and subsequently identified from keys, descriptions, and illustrations in Hickman (1993) and Munz (1974). Plant nomenclature follows that of *The Jepson Manual: Higher Plants of California* (Hickman 1993). Sixty-two (62) plant species were observed on the project site (Appendix B).

## **SENSITIVE SPECIES**

A sensitive species is considered a potential inhabitant of the site if its known geographic range encompasses part of the site or adjacent parcels and/or if the general habitat requirements or environmental conditions (e.g. soil type, etc.) required for the species are present on the site at the time of the survey. The potential for each species to occur on the site was assessed based on standardized criteria (Table 1).

Historical information on the location of some sensitive species is not available; therefore, for survey purposes, landscape factors associated with species occurrence requirements may be considered sufficient to give a species a potential for occurrence. Each species and its potential for occurrence on the site are discussed in Section 3.0.

**Table 1  
 Criteria for Evaluating Potential for Occurrence (PFO) of Sensitive Species**

PFO	CRITERIA
<b>Absent:</b>	Species was not observed during focused surveys conducted at an appropriate time for identification of the species or species is restricted to habitats or environmental conditions that do not occur within the site.
<b>Low:</b>	Historical records for this species do not exist within the immediate vicinity (approximately 5 miles) of the site and/or habitats or environmental conditions needed to support the species are of poor quality.
<b>Moderate:</b>	Either a historical record exists of the species within the immediate vicinity of the site (approximately 5 miles) and marginal habitat exists on the site, or the habitat requirements or environmental conditions associated with the species occur within the site, but no historical records exist within the vicinity.
<b>High:</b>	Both a historical record exists of the species within the site or its immediate vicinity (approximately 5 miles) and the habitat requirements or environmental conditions associated with the species occur within the site.
<b>Present:</b>	Species was detected within the site at the time of the survey.

**RESULTS**

**Soils**

Soil types present were determined in accordance with categories set forth by the USDA Soil Conservation Service. The Soil Survey of San Bernardino County Southwestern Part, California (1980) was used as a reference for soil types. One soil type was found to exist on the site: Soboba stony loamy sand, 2 to 9 percent slopes (USDA 1980).

Soboba stony loamy sand, (SpC), 2 to 9 percent slopes, is a gently sloping to moderately sloping soil that is located on long, broad, smooth alluvial fans. Runoff on this soil is slow, and the hazard of erosion is slight. Soboba stony loamy sand is used for dryfarmed seeded pasture and citrus groves (USDA 1980).

**Vegetation Communities**

**California Annual Grassland**

The California annual grassland series as described by Sawyer and Keeler-Wolf (1995) is dominated by a continuous to open ground layer of annual grasses and herbs, less than one meter in height. The floristic composition of this vegetation community also matches the non-native grassland described by Holland (1986); it exists on fine-textured, usually clay soils in valleys and foothills below 3,000 feet elevation. This community includes annual species that germinate with the onset of the late fall rains, with growth, flowering and seed production occurring from winter through spring. Plants usually die and persist as seeds through the summer-fall dry season (Holland 1986).

The California annual grassland series is present within the site in the southeastern portion of 7W, along Alternative Route 2. Plant species found on the site typical of the California annual grassland series include ripgut grass (*Bromus diandrus*), foxtail chess (*Bromus madritensis* ssp. *rubens*), wild oats (*Avena* sp.), goldentop (*Lamarckia aurea*), and fescue (*Vulpia myuros*). Other species observed within the California annual grassland series included: non-native black mustard (*Brassica nigra*) and horehound (*Marrubium vulgare*), and native long-stemmed buckwheat (*Eriogonum elongatum*).

### **Disturbed Riversidean Alluvial Fan Sage Scrub Series**

Riversidean Alluvial Fan Sage Scrub (RAFSS) vegetation communities occur on alluvial outwash fans along the base of the San Gabriel, San Bernardino, and San Jacinto mountains. Alluvial Scrub communities are generally associated with infrequently scoured areas on floodplains and outwash fans in the Transverse and Peninsular ranges (Holland 1986). It is considered a rare or threatened plant community that is highly fragmented due to urbanization and the extensive alteration of natural stream hydrology in southern California. Alluvial Scrub communities are composed of a variety of evergreen woody and drought-deciduous shrubs, with a significant component of larger evergreen shrubs typically found in chaparral adapted to survival in the presence of intense periodic flooding. Scalebroom (*Lepidospartum squamatum*) is considered an indicator species of alluvial scrubs, and is usually described as a dominant or subdominant shrub in alluvial community descriptions.

The Disturbed RAFSS community present within the project area is of moderate quality with a high percentage of non-native weedy species (i.e., greater than 20 percent of the species cover) and shows evidence of prior disturbance (grading and fill or is in the process of recovering from grading or fill activities). The plants found here are mostly small in size and mixed with non-native weedy species. This community contains an open canopy with sparsely distributed California buckwheat (*Eriogonum fasciculatum*) and deerweed (*Lotus scoparius*) present. Disturbed RAFSS occurs along the entire northern edge of the 7W site and the central portion of the southern edge of the 7W site. Both areas of disturbed RAFFS connect to a larger alluvial wash vegetation areas offsite to the north and east of Area 7W.

Common plants observed in this community on the 7W site include California buckwheat, horseweed (*Conyza canadensis*), California croton (*Croton californicus*), jimson weed (*Datura wrightii*), dove weed (*Eremocarpus setigerus*), hairy yerba santa (*Eriodictyon trichocalyx*), telegraph weed (*Heterotheca grandiflora*), scalebroom (*Lepidospartum squamatum*), Douglas' nightshade (*Solanum douglasii*), California juniper (*Juniperus californica*), California sagebrush (*Artemisia californica*), brittlebush (*Encelia farinosa*), broom matchweed (*Gutierrezia sarothrae*), pancake prickly pear (*Opuntia oricola*), coast cholla (*Cylindropuntia prolifera*), and sapphire eriastrum (*Eriastrum sapphirinum*). Non-native species present in this community that decreased the relative quality of habitat include black mustard, foxtail chess (*Bromus madritensis* ssp. *Rubens*), Italian thistle (*Carduus pycnocephalus*), tocalote (*Centaurea melitensis*), tree tobacco (*Nicotiana glauca*), red-stemmed filaree (*Erodium cicutarium*), and flax-leaved horseweed (*Conyza bonariensis*).

### **Developed/Ornamental**

Developed areas are areas that have been altered by human activity and now display man-made structures such as houses, paved roads, buildings, parks, and other maintained areas. Ornamental landscaping is maintained in much of the developed areas on the site. Typically, ornamental landscaping includes areas where vegetation is dominated by non-native, horticultural plants, but native vegetation can also be planted in these areas. Areas of ornamental landscaping were present in the developed areas along the western and southwestern edges of the project site, and intermixed with the RAFFS along the northwestern edge of the 7W site. Ornamental species in this area include olive (*Olea europea*),

Peruvian pepper tree (*Schinus molle*), Brazilian pepper tree (*Schinus terebinthifolius*), oleander (*Nerium oleander*), English ivy (*Hedera helix*), sacred bamboo (*Nandina domestica*), jacaranda (*Jacaranda mimosifolia*), crimson bottlebrush (*Callistemon citrinus*), apple trees (*Malus* sp.), ornamental roses (*Rosa* sp.), carrotwood (*Cupaniopsis anacardioides*), common lantana (*Lantana camara*), Mexican fan palm (*Washingtonia robusta*), and several species of non-native grasses. In one location where runoff accumulated from a paved area was a small area of riparian species, including a few small black willows (*Salix gooddingii*) and mulefat (*Baccharis salicifolia*), intermixed with corn (*Zea mays*), scarlet pimpernel (*Anagallis arvensis*), and Bermuda grass (*Cynodon dactylon*).

## **Wildlife**

### **General**

The 7W project site supports a variety of wildlife species that are characteristic of the vegetation communities described above. The following paragraphs describe the wildlife species observed during the biological reconnaissance survey, and a list of all wildlife species observed can be found in Appendix C.

### **Amphibians**

There were no amphibian species observed or detected during the survey. Suitable aquatic habitat was not present on the site at the time of the survey.

### **Reptiles**

No reptile species were observed during the survey. However, the survey was conducted at the time of year when most reptile species hibernate; reptile activity, and therefore detectability, was expected to be low.

### **Birds**

Birds were the most abundant wildlife species observed on the site. A total of twenty (20) species were detected during the reconnaissance survey via direct observation, vocalization detection, or observation of sign (Appendix C). A majority of the species detected included those commonly occurring in grasslands, RAFSS, and developed or urban areas, including mourning dove (*Zenaida macroura*), California towhee (*Pipilo crissalis*), western meadowlark (*Sturnella neglecta*), northern mockingbird (*Mimus polyglottos*) and the western scrub jay (*Aphelocoma californica*). Two (2) raptor species- red-tailed hawk (*Buteo jamaicensis*) and great horned owl (*Bubo virginianus*)- were observed or detected (pellets) during the survey. Both species would be expected to forage within the site as well as in the surrounding area.

### **Mammals**

Eight (8) mammal species were detected during the survey: bobcat (*Lynx rufus*), coyote (*Canis latrans*), mountain lion (*Felis concolor*), desert woodrat (*Neotoma lepida*), long-tailed weasel (*Mustela frenata*), desert cottontail (*Sylvilagus audubonii*), gray fox (*Urocyon cinereoargenteus*), and pocket mouse (*Chaetodipus* sp.). Additionally, several small burrows were located throughout the site.

**Sensitive Plant Species**

The CNDDDB and CNPSEI database reviews resulted in a list of ten (10) sensitive plant species that have records of occurrence within and adjacent to the USGS quadrangle where the site is located (Table 2). Two (2) of the ten (10) species are considered absent from the site due to a lack of suitable habitat. Six (6) of the sensitive plant species have a moderate to high potential to occur on the site: Nevin's barberry, slender-horned spineflower, Santa Ana River woollystar, Plummer's mariposa lily (*Calochortus plummerae*), Parry's spineflower (*Chorizanthe parryi* var. *parryi*), and Robinson's peppergrass (*Lepidium virginicum* var. *robinsonii*). Of these six (6) species, three (3) (Nevin's barberry, slender-horned spineflower, and Santa Ana River woollystar) are state or federally listed as threatened or endangered.

**Table 2  
 CNDDDB and CNPSEI Results for Sensitive Plants Potentially Occurring on the 7W Property**

Special Status Species	Habitat and Distribution	Flowering Season	Status Designation	Potential to Occur
<b>FEDERAL AND/ OR STATE-LISTED SPECIES</b>				
<i>Berberis nevinii</i> Nevin's barberry	Evergreen shrub. Occurs in chaparral, coastal and riparian scrub communities and cismontane woodland, in gravelly soils. Associated with steep slopes and low-grade sandy washes. From 950 to 2,705 feet in elevation.	March – April	Fed: <b>END</b> CA: <b>END</b> CNPS: List 1B.1	<b>Moderate.</b> Disturbed communities associated with species occurrence are present onsite. No known occurrences are reported within the vicinity of the site.
<i>Dodecahema leptoceras</i> slender-horned spineflower	Annual herb. Occurs in coastal scrub (alluvial fans), chaparral, and cismontane woodlands on sandy soils. From 660 to 2,495 feet in elevation.	April - June	Fed: <b>END</b> CA: <b>END</b> CNPS: List 1B.1	<b>Moderate.</b> Disturbed communities associated with species occurrence are present onsite. Occurrences are reported within the vicinity of the site, i.e. as close as one (1) mile.
<i>Eriastrum densifolium</i> ssp. <i>sanctorum</i> Santa Ana River woollystar	Perennial herb. Occurs in coastal scrub and chaparral on sandy soils. Usually on river floodplains or terraced fluvial deposits. From 490 to 2,000 feet in elevation.	June – September	Fed: <b>END</b> CA: <b>END</b> CNPS: List 1B.1	<b>Moderate.</b> Disturbed communities associated with species occurrence are present onsite. Occurrences are reported within the vicinity of the site, i.e. within one (1) mile.

OTHER SENSITIVE SPECIES				
<p><b><i>Calochortus plummerae</i></b>            Plummer's mariposa lily</p>	<p>Bulbiferous perennial herb. Occurs in coastal scrub, chaparral, cismontane woodland, lower montane coniferous forest, and valley and foothill grassland on alluvial or granitic, rocky or sandy soils. From 330 to 5,580 feet in elevation.</p>	<p>May - July</p>	<p>Fed: None            CA: None            CNPS: List 1B.2</p>	<p><b>High.</b>            Disturbed communities associated with species occurrence are present onsite. Occurrences are reported within the vicinity of the site, i.e. as close as one (1) mile.</p>
<p><b><i>Centromadia pungens ssp. laevis</i></b>            smooth tarplant</p>	<p>Annual herb. Occurs in chenopod scrub, meadows, playas, riparian woodland, valley and foothill grassland. Often in alkaline soils. Up to 1,575 feet in elevation.</p>	<p>April-September</p>	<p>Fed: None            Ca: None            CNPS: List 1B.1</p>	<p><b>Low.</b>            Disturbed communities associated with species occurrence are present onsite. No known occurrences are reported within the vicinity of the site.</p>
<p><b><i>Chorizanthe parryi</i> var. <i>parryi</i></b>            Parry's spineflower</p>	<p>Annual herb. Occurs in chaparral and coastal scrub, in openings, slopes, and flats on dry, sandy or rocky soil. From 130 to 5,595 feet in elevation.</p>	<p>April - June</p>	<p>Fed: None            CA: None            CNPS: List 3.2</p>	<p><b>High.</b>            Disturbed communities associated with species occurrence are present onsite. Occurrences are reported within the vicinity of the site, i.e. as close as one (1) mile.</p>
<p><b><i>Lepidium virginicum</i> var. <i>robinsonii</i></b>            Robinson's peppergrass</p>	<p>Annual herb. Occurs in coastal scrub and chaparral on dry soils. Up to 3,100 feet in elevation.</p>	<p>January - July</p>	<p>Fed: None            CA: None            CNPS: List 1B.2</p>	<p><b>High.</b>            Disturbed communities associated with species occurrence are present onsite. Occurrences are reported within the vicinity of the site, i.e. as close as two (2) miles.</p>

<p><b><i>Monardella macrantha</i> ssp. <i>hallii</i></b>          Hall's monardella</p>	<p>Rhizomatous perennial herb. Occurs in broadleaved upland forest, chaparral, lower montane coniferous forest, cismontane woodland, and valley and foothill grassland, on dry slopes and ridges in openings within the above communities. From 2,395 to 7,200 feet in elevation.</p>	<p>June-August</p>	<p>Fed: None          CA: None          CNPS: List 1B.3</p>	<p><b>Low.</b>          Communities associated with species occurrence are present onsite. No known occurrences are reported within the vicinity of the site.</p>
<p><b><i>Ribes divaricatum</i> var. <i>parishii</i></b>          Parish's gooseberry</p>	<p>Deciduous shrub. Occurs in riparian woodland. From 215 to 330 feet in elevation.</p>	<p>February - April</p>	<p>Fed: None          CA: None          CNPS: List 1B.1</p>	<p><b>Absent.</b>          The site occurs substantially above the elevation range for this species. No communities associated with species occurrence are present onsite.</p>
<p><b><i>Sidalcea hickmanii</i> ssp. <i>parishii</i></b>          Parish's checkerbloom</p>	<p>Perennial herb. Occurs in chaparral, cismontane woodland, and lower montane coniferous forest. From 3,280 7,005 feet in elevation.</p>	<p>June - August</p>	<p>Fed: None          CA: <b>Rare</b>          CNPS: List 1B          R-E-D: 3-2-3</p>	<p><b>Absent.</b>          The site occurs substantially below the elevation range for this species. No communities associated with species occurrence are present onsite.</p>
<p><b>Federal designations: (Federal Endangered Species Act, USFWS)</b></p>				
<p>END: Federal-listed, endangered.          THR: Federal-listed, threatened.          PTH: Federal-listed, proposed-threatened          CAN: Candidate species.</p>				
<p><b>State designations: (California Endangered Species Act, CDFG)</b></p>				
<p>END: State-listed, endangered.          THR: State-listed, threatened.          RARE: State-listed as rare (Listed "Rare" animals have been re-designated as Threatened, but Rare plants have retained the Rare designation.)</p>				
<p><b>California Native Plant Society (CNPS) designations: (Note: According to CNPS [Skinner and Pavlik 1994], plants on Lists 1B and 2 meet definitions for listing as threatened or endangered under Section 1901, Chapter 10 of the California Fish and Game Code. This interpretation is inconsistent with other definitions.)</b></p>				
<p>List 1A: Plants presumed extinct in California.          List 1B: Plants rare and endangered in California and throughout their range.          List 2: Plants rare, threatened or endangered in California but more commons elsewhere in their range.          List 3: Plants about which we need more information; a review list.          List 4: Plants of limited distribution; a watch list.          Extension 0.1: Seriously endangered in California (over 80% of occurrences threatened/high degree and immediacy of threat)          Extension 0.2: Fairly endangered in California (20-80% occurrences threatened)          Extension 0.3: Not very endangered in California (&lt;20% of occurrences threatened)</p>				

<b>California Natural Diversity Database (CNDDB) Global (G) and State (S) ranking designations where (?) represents uncertainty:</b>	
<b>G1:</b> <b>G2:</b> <b>G3:</b> <b>G4:</b> <b>G5:</b>	Less than 6 viable element occurrences (EOs) OR less than 1,000 individuals OR less than 2,000 acres. 6-20 EOs OR 1,000-3,000 individuals OR 2,000-10,000 acres. 21-80 EOs OR 3,000-10,000 individuals OR 10,000-50,000 acres. Apparently secure; this rank is clearly lower than G3 but factors exist to cause some concern; i.e., there is some threat, or somewhat narrow habitat. Population or stand demonstrably secure to ineradicable due to being commonly found in the world.
<b>GH:</b> <b>GX:</b> <b>GXC:</b> <b>G1Q:</b> <b>T:</b>	All sites are historical; the element has not been seen for at least 20 years, but suitable habitat still exists (SH = All California sites are historical). All sites are extirpated; this element is extinct in the wild (SX = All California sites are extirpated). Extinct in the wild; exists in cultivation. The element is very rare, but there are taxonomic questions associated with it. Applies to a subspecies or variety.
<b>S1:</b> <b>S2:</b> <b>S3:</b> <b>S4:</b> <b>S5:</b> <b>Extension 0.1:</b> <b>Extension 0.2:</b> <b>Extension 0.3:</b>	Less than 6 EOs OR less than 1,000 individuals OR less than 2,000 acres 6-20 EOs OR 1,000-3,000 individuals OR 2,000-10,000 acres 21-80 EOs or 3,000-10,000 individuals OR 10,000-50,000 acres Apparently secure within California; this rank is clearly lower than S3 but factors exist to cause some concern; i.e. there is some threat, or somewhat narrow habitat. NO THREAT RANK. Demonstrably secure to ineradicable in California. NO THREAT RANK. Very threatened Threatened No current threats known
<b>Source: California Natural Diversity Data Base (CNDDB 2006), California Native Plant Society Electronic Inventory (CNPSEI 2006) Redlands and Yucaipa, California 7.5-minute quadrangles.</b>	

**Federal and/or State-Listed Species Descriptions – Moderate Potential for Occurrence**

**Nevin’s barberry** (*Berberis nevinii*) is a federal- and state-listed endangered species that blooms from March through April. This evergreen shrub typically occurs in chaparral, cismontane woodland, coastal sage scrub, and riparian scrub, on steep, north-facing slopes or in low-grade sandy washes on gravelly soils from 950 to 2,705 feet in elevation. This species is threatened by habitat loss associated with development and road maintenance. Many historical occurrences of Nevin’s barberry have been extirpated.

**Slender-horned spineflower** (*Dodecahema leptoceras*) is a federal- and state-listed endangered species that blooms from April through June. This annual herb occurs in chaparral, cismontane woodlands, and coastal scrub, particularly alluvial fan sage scrub, on flood deposited terraces and washes from 660 to 2,495 feet in elevation. Rare plant surveys conducted by Aspen in 2006 revealed a number of locations along the project site. This species is threatened by habitat loss associated with development, flood control projects, and vehicle use.

**Santa Ana River woollystar** (*Eriastrum densifolium* ssp. *sanctorum*) is a federal- and state-listed endangered species. This perennial herb occurs in chaparral and coastal scrub in sandy or gravelly soils, usually on alluvial terraces from 490 to 2,000 feet in elevation. Rare plant surveys conducted by Aspen in 2006 revealed a number of locations along the project site. This species is known from one extended, but fragmented, population, and is threatened by habitat loss associated with development, sand and gravel mining, grazing, flood control projects, and competition from non-native invasive plants.

**CNPS-Sensitive Species Descriptions– High Potential for Occurrence**

**Plummer's mariposa lily** (*Calochortus plummerae*) is a CNPS 1B.2 listed species that blooms from May through July. This perennial herb from an underground bulb occurs in chaparral, cismontane woodland, coastal scrub, valley and foothill grassland, and lower montane coniferous forest in sandy granitic, rocky, or alluvial soil from 300 to 5,580 feet in elevation. Rare plant surveys conducted by Aspen in 2006 revealed a number of locations along the project site. This species' populations have been significantly reduced by development.

**Parry's spineflower** (*Chorizanthe parryi* var. *parryi*) is a CNPS List 3.2 species that blooms from April through June. This species is known to occur in flats and foothills of Los Angeles, Riverside, and San Bernardino Counties, and in the San Gabriel, San Bernardino, and San Jacinto Mountains. It occurs in coastal scrub and chaparral communities on dry slopes and flats, where sandy and rocky soils exist, typically at elevations ranging from 130 to 5,595 feet above sea level. Rare plant surveys conducted by Aspen in 2006 revealed a number of locations along the project site. The habitat of this species is dwindling rapidly due to urbanization.

**Robinson's pepper-grass** (*Lepidium virginicum* var. *robinsonii*) is a CNPS List 1B.2 species that blooms from January through July. This annual herb occurs in chaparral and coastal scrub on dry soils up to 3,100 feet in elevation.

**Sensitive Wildlife Species**

The CNDDDB and literature review resulted in a list of twenty-six (26) sensitive wildlife species with a potential to occur on or within the vicinity of the project site (Table 3). Ten (10) of the twenty-six (26) are considered absent from the site due to a lack of habitat. Seven (7) of these twenty-six (26) sensitive wildlife species are state and/or federally listed as endangered or threatened.

**Table 3  
 CNDDDB Results for Sensitive Wildlife Species Potentially Occurring on the 7W Property**

Scientific Name	Common Name	Status	Habitat	Potential to Occur Onsite
<b>CLASS OSTEICHTHYES</b>				
BONY FISH				
<b>CYPRINIDAE</b>				
MINNOWS AND CARP				
<i>Rhinichthys osculus</i> ssp. 3	Santa Ana Speckled dace	Fed: None CA: None CDFG: CSC	Found only in permanent flowing streams with summer water temperatures of 17-20° C. Usually inhabits shallow cobble and gravel riffles.	<b>Absent</b> – The site does not support suitable aquatic habitat for this species.
<b>CLASS AMPHIBIA</b>				
AMPHIBIANS				
<b>RANIDAE</b>				
TRUE FROGS				
<i>Rana muscosa</i>	Mountain yellow-legged frog	Fed: <b>FE</b> CA: None CDFG: CSC	Found in streams that flow through southern sycamore alder riparian woodlands. Always encountered within a few feet of water. Tadpoles may require up to 2 years to complete their aquatic development.	<b>Absent</b> - The site does not support suitable aquatic habitat for this species.
<b>CLASS REPTILIA</b>				
REPTILES				
<b>PHRYNOSOMATIDAE</b>				
NORTH AMERICAN SPINY LIZARDS AND RELATIVES				
<i>Phrynosoma coronatum blainvillei</i>	San Diego horned lizard	Fed: None CA: None CDFG: CSC	Occurs in coastal sage scrub, open chaparral, riparian woodland, annual grassland habitats that support adequate prey species.	<b>Moderate</b> – This site supports suitable habitat and historical records occur within two miles of the site.

Scientific Name	Common Name	Status	Habitat	Potential to Occur Onsite
<b>ANNIELLIDAE</b>				
LEGLESS LIZARDS				
<i>Anniella pulchra pulchra</i>	silvery legless lizard	Fed: None CA: None CDFG: CSC	Requires loose soils for burrowing, moisture, warmth, and plant cover. Frequents the sparse vegetation of beaches, chaparral, pine-oak woodland, and streamside growth of sycamores, cottonwoods, and oaks. Occasionally enters desert scrub. Burrows in washes, dune sand of beaches, and loose soil near the bases of slopes and near permanent or temporary streams.	<b>Absent</b> – This site does not support suitable soils for burrowing or appropriate moisture levels required by this species.
<b>TEIIDAE</b>				
WHIPTAIL LIZARDS				
<i>Aspidoscelis hyperythra</i>	orange-throated whiptail	Fed: None CA: None CDFG: CSC	Inhabits sandy washes, rocky hillsides, and coastal sage scrub that support adequate prey species.	<b>Moderate</b> - This site supports suitable habitat and historical records occur within one (1) mile of the site.
<b>COLUBRIDAE</b>				
EGG-LAYING SNAKES				
<i>Lampropeltis zonata parvirubra</i>	San Bernardino mountain kingsnake	Fed: None CA: None CDFG: CSC	Inhabits moist woodlands including coniferous forests, woodlands, and chaparral. Found in well-lit rocky streams in wooded areas where there are rotting logs.	<b>Absent</b> - The site does not support suitable habitat for this species.
<i>Thamnophis hammondi</i>	two-striped garter snake	Fed: None CA: None CDFG: CSC	Found in or near fresh water, often along streams with rocky beds and riparian growth.	<b>Absent</b> - The site does not support suitable aquatic habitat for this species.
<b>CLASS AVES</b>				
BIRDS				
<b>ACCIPITRIDAE</b>				
HAWKS, KITES, HARRIERS, AND EAGLES				
<i>Accipiter cooperii</i>	Cooper's hawk	Fed: None CA: None CDFG: CSC	Foraging - Prefers open grasslands and woodland margins. Nesting – Usually requires riparian vegetation nearby and trees for nesting.	<b>High</b> – This site does contain suitable foraging habitat and historical records for this species occur within five (5) miles from the site.

Scientific Name	Common Name	Status	Habitat	Potential to Occur Onsite
<b>STRIGIDAE</b>				
OWLS				
<i>Athene cunicularia hypugea</i>	burrowing owl	Fed: None CA: None CDFG: CSC	Prefers open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. Prefers small mammal burrows (particularly ground squirrels) for its subterranean nesting.	<b>Low</b> - This site supports poor quality habitat for this species. Historical records for this species occur six (6) miles from the site.
<b>SYLVIIDAE</b>				
GNATCATCHERS				
<i>Poliophtila californica californica</i>	coastal California gnatcatcher	Fed: <b>FT</b> CA: None CDFG: CSC	Occurs in coastal sage scrub vegetation on mesas, arid hillsides, and in washes.	<b>Moderate</b> – This site contains suitable habitat to support this species, and known locations exist within 1 mile of the project site.
<b>LANIIDAE</b>				
SHRIKES				
<i>Lanius ludovicianus</i>	loggerhead shrike	Fed: None CA: None CDFG: CSC	Prefers grasslands or open areas with scattered trees or other perch sites for foraging.	<b>High</b> - This site supports suitable habitat and historical records occur within five (5) miles of the site.
<b>CUCULIDAE</b>				
CUCKOOS AND RELATIVES				
<i>Coccyzus americanus occidentalis</i>	western yellow-billed cuckoo (nesting)	Fed: FC CA: <b>SE</b>	Riparian forest nester, along the broad, lower flood-bottoms of larger river systems. Also prefers thickets of willow mixed with cottonwood.	<b>Absent</b> - This site does not contain suitable habitat to support nesting by this species. In addition, recent historical records for this species in the vicinity of the site do not exist.
<b>VIREONIDAE</b>				
VIREOS				
<i>Vireo bellii pusillus</i>	least Bell's vireo (nesting)	Fed: <b>FE</b> CA: <b>SE</b>	Occurs in moist thickets and riparian areas, especially those composed of willow and mule fat.	<b>Absent</b> - This site does not contain suitable habitat to support nesting by this species.

Scientific Name	Common Name	Status	Habitat	Potential to Occur Onsite
<b>PARULIDAE</b>				
WOOD-WARBLERS				
<i>Dendroica petechia</i>	yellow warbler (nesting)	Fed: None CA: None CDFG: CSC	Inhabits primarily riparian habitats, but can be found in other terrestrial habitats during migration. It favors wet habitats, especially alders, open woodlands, and occasionally gardens.	<b>Absent</b> - This site does not contain suitable habitat to support nesting by this species.
<i>Icteria virens</i>	yellow-breasted chat (nesting)	Fed: None CA: None CDFG: CSC	Inhabits dense thickets near water courses and willow-riparian areas with a dense understory.	<b>Absent</b> - This site does not contain suitable habitat to support nesting by this species.
<b>EMBERIZIDAE</b>				
SPARROWS, WARBLERS, BUNTINGS, AND RELATIVES				
<i>Aimophila ruficeps canescens</i>	southern California rufous-crowned sparrow	Fed: None CA: None CDFG: CSC	Prefers coastal sage scrub and chaparral vegetation communities.	<b>Moderate</b> - This site contains suitable habitat to support this species, and known locations exist within 1 mile of the project site.
<b>ALAUDIDAE</b>				
LARKS				
<i>Eremophila alpestris actia</i>	California horned lark	Fed: None CA: None CDFG: CSC	In winter, typically present in large flocks. Forages for arthropods and vegetative parts on the ground in a variety of open habitats including salt panne and ruderal.	<b>Low</b> - This site contains only marginal habitat for this species. Historical records for this species occur seven (7) miles from the site.
<b>TYRANNIDAE</b>				
TYRANT FLYCATCHERS				
<i>Empidonax traillii extimus</i>	southwestern willow flycatcher	Fed: <b>FE</b> CA: <b>SE</b>	This species breeds in riparian habitat along rivers, streams, and other wetlands in floodplains and broader canyons. It prefers dense riparian thickets near surface water dominated by dense stands of willows, mule fat, or other tree species, usually with scattered cottonwood.	<b>Absent</b> - This site does not contain suitable habitat to support this species.

Scientific Name	Common Name	Status	Habitat	Potential to Occur Onsite
<b>CLASS MAMMALIA</b>				
MAMMALS				
<b>HETEROMYIDAE</b>				
POCKET MICE, KANGAROO RATS, AND KANGAROO MICE				
<i>Chaetodipus fallax fallax</i>	northwestern San Diego pocket mouse	Fed: None CA: None CDFG: CSC	Occurs in dry, open, weedy, sandy lowland areas.	<b>High</b> - This site supports suitable habitat and historical records occur within one (1) mile of the site.
<i>Dipodomys merriami parvus</i>	San Bernardino kangaroo rat	Fed: <b>FE</b> CA: None CDFG: CSC	Occurs in sagebrush and early to moderate seral stages of alluvial scrub vegetation characteristic of alluvial fans and floodplains. Can be found in a great variety of soil types.	<b>Moderate</b> - This site supports suitable habitat and historical records occur within one mile of the site.
<i>Dipodomys stephensi</i>	Stephen's kangaroo rat	Fed: <b>FE</b> CA: <b>ST</b>	Inhabits annual and perennial grasslands, as well as coastal sage scrub and sagebrush with sparse canopy cover. Prefers buckwheat, chamise, brome grass, and filaree and will burrow into firm soils.	<b>Low</b> - Although the site appears to support suitable habitat for this species, historical records occur seven (7) miles from the site.
<i>Perognathus longimembris brevinasus</i>	Los Angeles pocket mouse	Fed: None CA: None CDFG: CSC	Occurs in lower elevation grasslands and coastal sage scrub communities in the Los Angeles Basin. Prefers open ground with fine sandy soils.	<b>Low</b> - Although the site supports suitable habitat for this species, historical records occur six (6) miles from the site.
<b>VESPERTILIONIDAE</b>				
EVENING BATS				
<i>Antrozous pallidus</i>	pallid bat	Fed: None CA: None CDFG: CSC	Occurs in deserts and canyons, and in various habitats including grassland, scrub, and chaparral communities with caves, rocky crevices and hollow trees; roosts in buildings and crevices.	<b>High</b> - This site supports suitable habitat and historical records occur within four (4) miles of the site.
<b>MOLOSSIDAE</b>				
FREE-TAILED BATS				
<i>Eumops perotis californicus</i>	California mastiff bat	Fed: None CA: None CDFG: CSC	Inhabits semi-arid habitats including coastal sage scrub, grassland, and chaparral communities with rocky crevices and hollow trees.	<b>Moderate</b> - Although the site supports suitable habitat for this species, historical records occur six (6) miles from the site.

Scientific Name	Common Name	Status	Habitat	Potential to Occur Onsite
<b>MUSTELIDAE</b>				
<b>WEASELS AND SKUNKS</b>				
<i>Taxidea taxus</i>	American badger	Fed: None CA: None CDFG: CSC	Found in open plains and prairies, farmland, and sometimes edges of woods.	<b>Low</b> – Only marginal habitat exists on site and historical records for this species occur nine (9) miles from the site.
<b>Status Codes</b>				
<b>Federal</b>				
FE = Federally listed; Endangered				
FT = Federally listed; Threatened				
FC = Federal Candidate Species				
<b>State</b>				
ST = State listed; Threatened				
SE = State listed; Endangered				
<b>CDFG</b>				
CSC = California Species of Special Concern				
* -- Taxa that are biologically rare, very restricted in distribution, declining throughout their range, or at a critical stage in their life cycle when residing in California.				
-- Population(s) in California that may be peripheral to the major portion of a taxon's range, but which are threatened with extirpation within California.				
-- Taxa closely associated with a habitat that is declining in California (e.g., wetlands, riparian, old growth forest).				
<b>Source:</b> California Natural Diversity Data Base (CNDDB). <i>Redlands and Yucaipa quads</i> , 2006				

**Federal and/or State-Listed Species –Moderate Potential for Occurrence**

The **coastal California gnatcatcher** is a federal-listed threatened species and CSC. It is a permanent resident of Diegan, Riversidian, and Venturan subassociations of coastal sage scrub, generally occurring below 2,500 feet. It is a territorial species that typically resides on the gentle slopes of foothills threatened by urban development and low intensity recreational use. This species has a moderate potential to occur on the project site due to the suitable habitat and historical occurrences near the project site.

The **San Bernardino kangaroo rat** is a federal-listed endangered species and CSC. It is associated with early to moderate seral stages of alluvial scrub vegetation characteristic of alluvial fans and floodplains. Burrows are often constructed at the base of shrubs in areas with sparse to moderate canopy. This species prefers fine to coarse sandy loam substrates but will also use rocky flats. Due to the suitable habitat found on the project site and historical occurrences within one (1) mile of the site, this species is considered to have a moderate potential to occur.

**Jurisdictional Waters Assessment**

The northwestern corner of the project site did contain a concrete drainage area. However, no portion of the 7W project site including the northwestern corner contained any of the hydrological features associated with an active definable channel or wetland, pursuant to Section 404 of the Clean Water Act or

Section 1602 of the CDFG code. Therefore, no Army Corps of Engineers (ACOE) or CDFG jurisdiction was identified on the 7W project site.

## **RECOMMENDATIONS**

### **Sensitive Plant Species**

A total of ten (10) sensitive plant species were identified as having the potential to occur within the project site. Three (3) of these sensitive plant species, Nevin's barberry, slender-horned spineflower, and Santa Ana River woollystar, are federal- or state-listed as threatened or endangered. Focused surveys for these species should be conducted during the appropriate blooming season to determine the presence or absence of these species. If surveys are conducted while these species are not in bloom, particularly for the slender-horned spineflower, further surveys may be necessary in the 2008 blooming period (April-June)

### **Sensitive Wildlife**

A total of twenty-six (26) sensitive wildlife species were identified as having the potential to occur within the project site (Table 3). Two (2) of those sensitive species are federally listed as threatened or endangered: the federally listed endangered San Bernardino kangaroo rat was determined to have a high potential for occurrence, and the federally listed threatened and CSC coastal California gnatcatcher was determined to have a moderate potential for occurrence. Eleven (11) CSCs were determined to have moderate to high potential for occurrence, four (4) CSCs had a low potential for occurrence, and ten (10) sensitive species of various status were considered absent from the site due to lack of suitable habitat.

Protocol trapping for San Bernardino kangaroo rat will be necessary to determine its presence or absence on the project site. The trapping programs for this species must occur between March 1 and September 30. If work is to be performed prior to the trapping season, presence of the San Bernardino kangaroo rat should be assumed and mitigation will be required.

Off-season protocol surveys for coastal California gnatcatcher are recommended to determine presence or absence, and if the species is present, territory location and size. Surveys must occur between August 1 and March 15.

Focused surveys are not required for the remaining sensitive wildlife species.

### **Jurisdictional Waters Assessment**

There are no hydrological features associated with a definable channel or wetland located on the property. Therefore no USACE or CDFG jurisdictional areas were present onsite, and no formal jurisdictional delineation needs to be conducted.

Mr. Tom Barnes  
July 20, 2007  
Page 18

If you have any questions regarding this letter report, please do not hesitate to call.

Sincerely,

**CHAMBERS GROUP, INC.**

A handwritten signature in cursive script that reads "Kris Alberts".

**Kris Alberts**  
Senior Biologist

Attachments:

- A – Field Data Sheets
- B – Plant Species Observed
- C – Wildlife Species Observed

## REFERENCES

- Atwood, J. L., and D. R. Bontrager. 2001. California Gnatcatcher. In *The Birds of North America*, No. 574 (A. Poole and F. Gill, eds.). The Birds of North America, Inc., Philadelphia, PA.
- California Burrowing Owl Consortium  
1993 *Burrowing Owl Survey Protocol and Mitigation Guidelines*. April 1993.
- California Natural Diversity Database (CNDDDB)  
2006 Database Record Search for *Yucaipa* and *Redlands*, California 7.5-minute USGS quadrangles. California Department of Fish and Game, State of California Resources Agency, Sacramento, California.
- California Native Plant Society Electronic Inventory (CNPSEI)  
2006 Database Record Search for *Yucaipa* and *Redlands*, California 7.5-minute USGS quadrangles. California Native Plant Society, Sacramento, California. Website: [www.CNPS.org](http://www.CNPS.org).
- Hickman, J. C. (Editor)  
1993 *The Jepson Manual: Higher Plants of California*. University of California Press, Berkeley, California.
- Holland, R.F.  
1986 *Preliminary Descriptions of the Terrestrial Natural Communities of California*. State of California, The Resources Agency.
- Munz, P. A.  
1974 *A Flora of Southern California*. University of California Press, Berkeley, California.
- Sawyer, J.O., Jr. and T. Keeler-Wolf  
1995 *A Manual of California Vegetation*. California Native Plant Society, Sacramento, California.
- U.S. Geological Survey (USGS)  
1980 Redlands West 7.5' Topographic Quadrangle, 1967; photorevised 1980.
- U. S. Department of Agriculture (USDA).  
1979 Survey of San Bernardino County, California, Southwestern Part. Washington, D. C.

**ATTACHMENT A**  
**FIELD DATA SHEETS**

Area 7W Biorecon (EBX-11 Alt 1/Alt 2) 11/14/06

SURVEYOR(S):

S. Norton / S. Shaffer

SPECIES:

NOTES:

<i>Pennisetum setaceum</i> *	
<i>Lantana camara</i> *	Northern pipeline rte (Alt 1) is a mixture of relict Kanssian Pluvial Pan sage scrub (1st seal stage due to presence of <i>L. squamatum</i> ), ornamental, & ruderal habitats on western end, eastern end of Alt 1 is intermediate stage RAFSS (moderately disturbed) - as is southern pipeline route (Alt 2) in eastern portion of undeveloped 7W & western portion of 7W is developed / ornamental
<i>Croton californicus</i>	
<i>Heterotheca grandiflora</i>	
<i>Eremocarpus setigerus</i>	
<i>Chamaesyce</i> sp.	
<i>Eriogonum fasciculatum</i> var. <i>polifolium</i>	
<i>Lotus scoparius</i>	
<i>Brassica nigra</i> *	
<i>Cupanopsis anacardioides</i> *	
<i>Centaurea melitensis</i> *	
<i>Encelia farinosa</i>	
<i>Cryptantha</i> sp.	
<i>Ambrosia psilostachya</i>	
<i>Nerium oleander</i> *	
<i>Nandina domestica</i> *	
<i>Schinus molle</i> *	
<i>Schinus terebinthifolius</i> *	
<i>Washingtonia robusta</i> *	
<i>Lepidospartum squamatum</i>	
<i>Opuntia oricola</i>	
<i>Cylindropuntia prolifera</i>	
<i>Eriodictyon trichocalyx</i>	
<i>Yucca whipplei</i>	
<i>Manihot vulgare</i> *	
<i>Lamarckia aurea</i> *	
<i>Prunus</i> sp. *	
<i>Malus</i> sp. *	
<i>Rosa</i> sp. *	
<i>Cynodon dactylon</i> *	
<i>Citrus sinensis</i> *	
<i>Citrus</i> sp. *	
<i>Srodium cicutarium</i> *	
<i>Avena</i> sp. *	
<i>Elymus indica</i> *	
<i>Coryza canadensis</i>	
<i>Coryza bonariensis</i> *	
<i>Bromus diandrus</i>	
<i>Bromus madritensis</i> ssp. <i>rubens</i> *	

\* = non-native

Area 7W Biocon (ERX-11 AH1/AH2) | 11/14/06

SURVEYOR(S):

S. Norton | S. Shuffa

SPECIES:

NOTES:

*Juniperus californicus*  
*Nicotiana glauca* \*  
*Olea europaea* \*  
*Eucalyptus* sp. \*  
*Datura wrightii*  
*Jacaranda mimosifolia* \*  
*Hedera helix* \*  
*Solanum douglasii*  
*Zea mays* \*  
*Sonchus asper* \*  
*Cyperus involucreatus* \*  
*Anagallis arvensis* \*  
*Salix goodingii*  
*Callistemon citrinus* \*  
*Agapanthus praecox* \*  
*Vulpia myuros* \*  
*Cupressus sempervirens* \*  
*Baccharis salicifolia*  
*Sambucus mexicana*  
*Artemisia californica*  
*Adonostoma fasciculatum*  
*Eriogonum saphronum*

\* = non-native



**ATTACHMENT B**  
**PLANT SPECIES LIST**

## Appendix B

### Plant Species List for Area 7W

Scientific Name	Common Name
<b>GYMNOSPERMS</b>	
<b>CUPRESSACEAE</b>	<b>CYPRESS FAMILY</b>
<i>Cupressus sempervirens</i> *	Italian cypress
<i>Juniperus californica</i>	California juniper
<b>ANGIOSPERMS (DICOTYLEDONS)</b>	
<b>ANACARDIACEAE</b>	<b>SUMAC OR CASHEW FAMILY</b>
<i>Schinus molle</i> *	Peruvian pepper tree
<i>Schinus terebinthifolius</i> *	Brazilian pepper tree
<b>APOCYNACEAE</b>	<b>DOGBANE FAMILY</b>
<i>Nerium oleander</i> *	oleander
<b>ARALIACEAE</b>	<b>GINSENG FAMILY</b>
<i>Hedera helix</i> *	English ivy
<b>ASTERACEAE</b>	<b>SUNFLOWER FAMILY</b>
<i>Ambrosia psilostachya</i>	western ragweed
<i>Artemisia californica</i>	California sagebrush
<i>Baccharis salicifolia</i>	mule fat
<i>Centaurea mellitensis</i> *	totalote
<i>Conyza bonariensis</i> *	flax-leaved horseweed
<i>Conyza canadensis</i>	horseweed
<i>Encelia farinosa</i>	brittlebush
<i>Gutierrezia sarothrae</i>	broom matchweed
<i>Heterotheca grandiflora</i>	telegraph weed
<i>Lepidospartum squamatum</i>	scale-broom
<i>Sonchus asper</i> ssp. <i>asper</i> *	prickly sow thistle
<b>BERBERIDACEAE</b>	<b>BARBERRY FAMILY</b>
<i>Nandina domestica</i> *	sacred bamboo
<b>BIGNONIACEAE</b>	<b>BIGNONIA FAMILY</b>
<i>Jacaranda mimosifolia</i> *	jacaranda
<b>BORAGINACEAE</b>	<b>BORAGE FAMILY</b>
<i>Cryptantha</i> sp.	cryptantha
<b>BRASSICACEAE</b>	<b>MUSTARD FAMILY</b>
<i>Brassica nigra</i> *	black mustard
<b>CACTACEAE</b>	<b>CACTUS FAMILY</b>
<i>Opuntia oricola</i>	pancake prickly pear
<i>Cylindropuntia prolifera</i>	coast cholla
<b>CAPRIFOLIACEAE</b>	<b>HONEYSUCKLE FAMILY</b>
<i>Sambucus mexicana</i>	Mexican elderberry
<b>EUPHORBIACEAE</b>	<b>SPURGE FAMILY</b>
<i>Chamaesyce</i> sp.	spurge
<i>Eremocarpus setigerus</i>	dove weed
<b>FABACEAE</b>	<b>LEGUME FAMILY</b>
<i>Lotus scoparius</i>	deerweed

## Appendix B (continued) Plant Species List

<b>GERANIACEAE</b>	<b>GERANIUM FAMILY</b>
<i>Erodium cicutarium</i> *	red-stemmed filaree
<b>HYDROPHYLLACEAE</b>	<b>WATERLEAF FAMILY</b>
<i>Eriodictyon trichocalyx</i>	hairy yerba santa
<b>LAMIACEAE</b>	<b>MINT FAMILY</b>
<i>Marrubium vulgare</i> *	horehound
<b>MYRTACEAE</b>	<b>MYRTLE FAMILY</b>
<i>Callistemon citrinus</i> *	crimson bottlebrush
<i>Eucalyptus</i> sp.*	gum tree
<b>OLEACEAE</b>	<b>OLIVE FAMILY</b>
<i>Olea europaea</i> *	olive
<b>POLEMONIACEAE</b>	<b>PHLOX FAMILY</b>
<i>Eriastrum sapphirinum</i>	sapphire eriastrum
<b>POLYGONACEAE</b>	<b>BUCKWHEAT FAMILY</b>
<i>Eriogonum fasciculatum</i> var. <i>polifolium</i>	California buckwheat
<i>Eriogonum elongatum</i>	long-stemmed buckwheat
<b>PRIMULACEAE</b>	<b>PRIMROSE FAMILY</b>
<i>Anagallis arvensis</i> *	scarlet pimpernel
<b>ROSACEAE</b>	<b>ROSE FAMILY</b>
<i>Adenostoma fasciculatum</i>	chamise
<i>Malus</i> sp.*	apple
<i>Prunus</i> sp.*	peach
<i>Rosa</i> sp.	ornamental rose
<b>RUTACEAE</b>	<b>RUE FAMILY</b>
<i>Citrus sinensis</i> *	orange
<i>Citrus</i> sp.*	grapefruit
<b>SALICACEAE</b>	<b>WILLOW FAMILY</b>
<i>Salix gooddingii</i>	black willow
<b>SAPINOACEAE</b>	<b>SOAPBERRY FAMILY</b>
<i>Cupaniopsis anacardioides</i> *	carrotwood
<b>SOLANACEAE</b>	<b>NIGHTSHADE FAMILY</b>
<i>Datura wrightii</i>	jimson weed
<i>Nicotiana glauca</i> *	tree tobacco
<i>Solanum douglasii</i>	Douglas' nightshade
<b>VERBENACEAE</b>	<b>VERVAIN FAMILY</b>
<i>Lantana camara</i> *	common lantana
<b>ANGIOSPERMS (MONOCOTYLEDONS)</b>	
<b>ARECACEAE</b>	<b>PALM FAMILY</b>
<i>Washingtonia robusta</i> *	Mexican fan palm
<b>CYPERACEAE</b>	<b>SEDGE FAMILY</b>
<i>Cyperus involucratus</i> *	umbrella-plant
<b>LILIACEAE</b>	<b>LILY FAMILY</b>
<i>Agapanthus praecox</i> *	lily-of-the-Nile
<i>Yucca whipplei</i>	Our Lord's candle

## Appendix B (continued) Plant Species List

POACEAE	GRASS FAMILY
<i>Avena</i> sp.*	wild oat
<i>Bromus diandrus</i> *	ripgut grass
<i>Bromus madritensis</i> ssp. <i>rubens</i> *	foxtail chess
<i>Cynodon dactylon</i> *	Bermuda grass
<i>Eleusine indica</i> *	goose grass
<i>Lamarckia aurea</i> *	goldentop
<i>Pennisetum setaceum</i> *	fountain grass
<i>Vulpia myuros</i> *	fescue
<i>Zea mays</i> *	corn

\* nonnative species

**ATTACHMENT C**  
**WILDLIFE SPECIES LIST**

## Appendix C Wildlife List for 7W Property

Scientific Name	Common Name	Sign
<b>CLASS AVES</b>	<b>BIRDS</b>	
<b>ANATIDAE</b>	<b>DUCKS, GEESE, SWANS</b>	
<i>Anas platyrhynchos</i>	mallard	O
<b>ACCIPITRIDAE</b>	<b>HAWKS, KITES, EAGLES</b>	
<i>Buteo jamaicensis</i>	red-tailed hawk	O, Fe
<b>COLUMBIDAE</b>	<b>PIGEONS &amp; DOVES</b>	
<i>Columba livia</i>	rock pigeon	O
<i>Zenaida macroura</i>	mourning dove	O
<b>STRIGIDAE</b>	<b>TRUE OWLS</b>	
<i>Bubo virginianus</i>	great horned owl	S
<b>TROCHILIDAE</b>	<b>HUMMINGBIRDS</b>	
<i>Calypte anna</i>	Anna's hummingbird	O, V
<b>HIRUNDINIDAE</b>	<b>SWALLOWS</b>	
<i>Stelgidopteryx serripennis</i>	northern rough-winged swallow	O
<b>CORVIDAE</b>	<b>JAYS &amp; CROWS</b>	
<i>Aphelocoma californica</i>	western scrub-jay	O, V
<i>Corvus brachyrhynchos</i>	American crow	O, V
<i>Corvus corax</i>	common raven	O, V
<b>AEGITHALIDAE</b>	<b>BUSHTITS</b>	
<i>Psaltriparus minimus</i>	bushtit	V
<b>TROGLODYTIDAE</b>	<b>WRENS</b>	
<i>Thryomanes bewickii</i>	Bewick's wren	O, V
<b>SYLVIIDAE</b>	<b>OLD WORLD WARBLERS, GNATCATCHERS</b>	
<i>Poliophtila caerulea</i>	blue-gray gnatcatcher	V
<b>MIMIDAE</b>	<b>MOCKINGBIRDS, THRASHERS</b>	
<i>Mimus polyglottos</i>	northern mockingbird	O, V
<b>PARULIDAE</b>	<b>WOOD WARBLERS</b>	
<i>Dendroica coronata</i>	yellow-rumped warbler	O
<b>ICTERIDAE</b>	<b>BLACKBIRDS</b>	
<i>Sturnella neglecta</i>	western meadowlark	O, V
<b>EMBERIZIDAE</b>	<b>EMBERIZIDS</b>	
<i>Pipilo crissalis</i>	California towhee	O
<i>Zonotrichia leucophrys</i>	white-crowned sparrow	O, V
<b>FRINGILLIDAE</b>	<b>FINCHES</b>	
<i>Carpodacus mexicanus</i>	house finch	O, V
<b>PASSERIDAE</b>	<b>OLD WORLD SPARROWS</b>	
<i>Passer domesticus</i>	house sparrow	O, V
<b>CLASS MAMMALIA</b>	<b>MAMMALS</b>	
<b>LEPORIDAE</b>	<b>HARES &amp; RABBITS</b>	
<i>Sylvilagus audubonii</i>	desert cottontail	T
<b>HETEROMYIDAE</b>	<b>POCKET MICE &amp; KANGAROO RATS</b>	
<i>Chaetodipus sp</i>	pocket mouse	C, F
<b>MURIDAE</b>	<b>MICE, RATS, AND VOLES</b>	
<i>Neotoma lepida</i>	desert woodrat	N
<b>CANIDAE</b>	<b>WOLVES &amp; FOXES</b>	
<i>Canis latrans</i>	coyote	S
<i>Urocyon cinereoargenteus</i>	gray fox	S

## Appendix C Wildlife List for 7W Property

Scientific Name	Common Name	Sign
<b>MUSTELIDAE</b>	<b>WEASELS, SKUNKS &amp; OTTERS</b>	
<i>Mustela frenata</i>	long-tailed weasel	S
<b>FELIDAE</b>	<b>CATS</b>	
<i>Felis concolor</i>	mountain lion	S
<i>Lynx rufus</i>	bobcat	S, T
<b>C = Carcass, Fe = Feathers, F = Fur, N = Nest, O = Observed, S = Scat, T = Tracks, V = Vocalization</b>		

**APPENDIX G – CHAMBERS GROUP FOCUSED PLANT SURVEY REPORT  
ON SEVEN W PROPERTY**

# **FOCUSED PLANT SURVEY REPORT FOR SEVEN W ENTERPRISES**



***Prepared for:***  
**Environmental Science Associates, Inc.**  
**707 Wilshire Blvd., Suite 1450**  
**Los Angeles, CA 90017**

***Prepared by:***  
**Chambers Group, Inc.**  
**17671 Cowan Ave., Suite 100**  
**Irvine, CA 92614**

**September 14, 2007**

## TABLE OF CONTENTS

<b>EXECUTIVE SUMMARY .....</b>	<b>1</b>
<b>SECTION 1.0 - INTRODUCTION .....</b>	<b>1</b>
<b>SECTION 2.0 – METHODOLOGY .....</b>	<b>4</b>
2.1 FOCUSED PLANT SURVEY .....	4
2.1.1 Sensitive Species Identification .....	5
2.2 Photographic Documentation .....	<b>Error! Bookmark not defined.</b>
<b>SECTION 3.0 – RESULTS .....</b>	<b>8</b>
3.1 Focused Plant Survey .....	8
3.1.1 Sensitive Plant Species .....	8
3.1.2 Federal and State-Listed Plant Species Descriptions and On-site Occurrences .....	11
3.2 PIPELINE ALTERNATIVES .....	12
3.2.1 Pipeline Alternative 1 .....	12
3.2.2 Pipeline Alternative 2 .....	12
<b>SECTION 4.0 – DISCUSSION.....</b>	<b>15</b>
4.1 Regulatory Setting .....	15
4.1.1 Federal Endangered Species Act.....	15
4.1.2 State of California Endangered Species Act .....	15
4.2 Sensitive Plant Species.....	15
4.2.1 Impacts to Sensitive Plant Species .....	15
<b>SECTION 5.0 – RECOMMENDATIONS .....</b>	<b>16</b>
<b>SECTION 6.0 – REFERENCES.....</b>	<b>17</b>

## EXECUTIVE SUMMARY

Chambers Group, Inc. (Chambers Group) was retained by Environmental Science Associates conduct a focused plant survey and document the presence or absence of federal and/or state threatened, endangered, and/or otherwise sensitive plant species along two proposed alternative pipeline routes and impact areas within the Seven W Enterprises property boundary, for the State Department of Water Resources (DWR) East Branch Extension Phase II (EBX II) project. The project site covers approximately 80 acres within the unincorporated community of Mentone, San Bernardino County, California.

Prior to performing the focused plant survey, available databases and documentation relevant to the project site were reviewed for known occurrences of sensitive plant species in and adjacent to the project area. The most recent versions of the California Natural Diversity Database (CNDDDB) and California Native Plant Society Electronic Inventory (CNPSEI) databases were searched for sensitive species known to occur in the *Redlands* and *Yucaipa* USGS topographic quadrangles. Prior reports by P & D Consultants (P&D 2005), Aspen Environmental Group (2006), and Chambers Group (2007) were also reviewed for sensitive species findings, as well as general biology results.

The purpose of this report is to provide the results obtained during the Chambers Group literature review and focused plant survey that took place within the Seven W Enterprises property. Significant findings of the Chambers Group literature reviews and focused plant survey included the following:

- Based on the literature review and subsequent reconnaissance-level and focused surveys, there were three federal and state-listed endangered plant species determined to have a potential for occurrence on the project site. These species included Nevin's barberry (*Berberis nevinii*), slender-horned spineflower (*Dodecahema leptoceras*), and Santa Ana River woollystar (*Eriastrum densiflorum* ssp. *sanctorum*). Other special status species with potentials for occurrence on-site included Plummer's mariposa lily (*Calochortus plummerae*), smooth tarplant (*Centromadia pungens* ssp. *laevis*), Parry's spineflower (*Chorizanthe parryi* var. *parryi*), Robinson's pepper-grass (*Lepidium virginicum* var. *robinsoni*), Parish's bush mallow (*Malacothamnus parishii*), and Hall's monardella (*Monardella macrantha* ssp. *hallii*) (Aspen 2006, Chambers Group 2007).
- One sensitive plant species, Parry's spineflower (*Chorizanthe parryi* var. *parryi*), was detected within the Right Of Way of both pipeline alternatives 1 and 2 during the Chambers Group focused plant survey. This CNPS list 3.2 species is an annual herb that occurs in open chaparral and coastal scrub habitats on sandy or rocky soils at elevations between 130 and 5,600 feet above mean sea level. The flowering period for this species is between April and June. This species was found in 33 locations on-site and a total of 231 individuals were observed within the Seven W Enterprises Site.

Considering the findings of the focused plant survey, Chambers Group recommends the following actions:

- Include Parry's spineflower in the seed mix for any restoration areas within the Seven W property resulting from the completion of this water pipeline project.
- Restore all temporary impacts within the Seven W property, following an approved mitigation and monitoring plan. Riversidean alluvial fan sage scrub and other sage scrub communities shall form the dominant re-planted mosaic. Mitigation ratios shall be at a 2:1 ratio.
- All soil removed from trenching activities will be stockpiled on-site and replaced once trenching is complete. No foreign soils will be imported for restoration. The replacement of native soils ensures the habitat requirements of on-site sensitive species.

## SECTION 1.0 - INTRODUCTION

Chambers Group, Inc. (Chambers Group) was retained by Environmental Science Associates to conduct a focused plant survey along two proposed pipelines and their respective impact areas in an approximately 80-acre site located in the unincorporated community of Mentone, San Bernardino County, California (Figure 1) for the Department of Water Resources (DWR) East Branch Extension Phase II project. The survey was conducted to document the presence or absence of federal and/or state threatened, endangered, and/or otherwise sensitive plant species within the Seven W Enterprises boundary.

The Seven W Enterprises site is located in the U.S. Geological Survey (USGS) *Redlands* 7.5-minute topographic quadrangle, in Section 17, Township 1 South, and Range 2 West (Figure 2). The Seven W Enterprises property is located on the northwest corner of the intersection of Crafton Avenue and Madeira Avenue. The elevation of the site ranges from 1,780 feet above mean sea level (msl) in the western portion of the site to approximately 1,880 feet above msl in the eastern portion of the site.

Pipeline alternative 1 extends approximately 0.58 miles along of the northern limit of the Seven W Enterprises boundary and would affect approximately 13.7 acres within the property enclosure. Pipeline alternative 2 extends approximately 0.59 miles along of the southern limit of the Seven W Enterprises boundary and would affect approximately 17.8 acres within the property enclosure.

The purpose of this report is to document the findings of a focused survey as it pertains to sensitive plant species found on or near the two alternative pipelines impact areas located within the Seven W Enterprises project boundary and to make recommendations based on the findings of the survey.

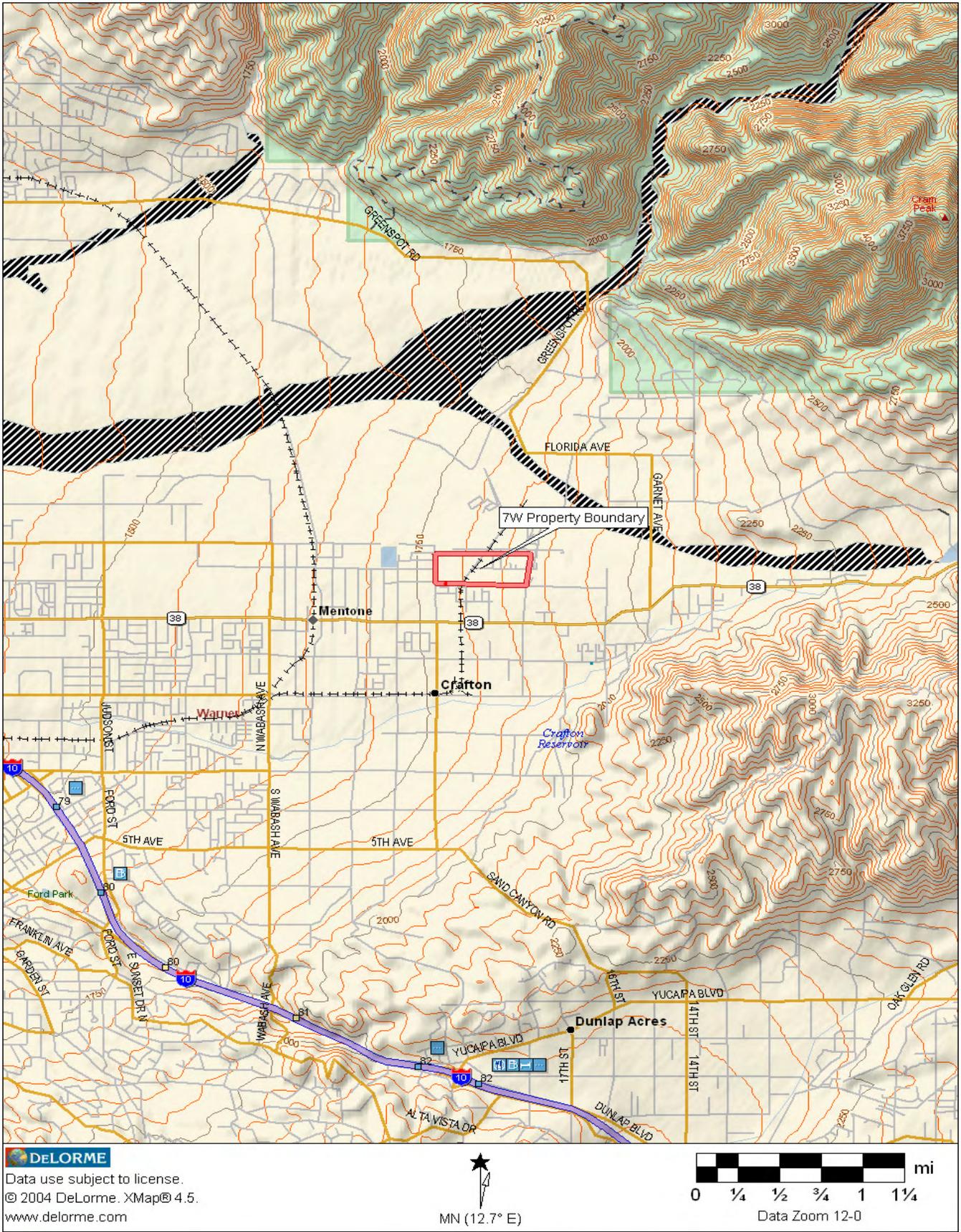


SCALE 1:250,000

SOURCE: DeLorme 3-D Topo Quads

**EBX II Pipeline Extension Project (7W Property)  
 Project Vicinity Map  
 Figure 1**





SCALE 1:50,000

SOURCE: DeLorme 3-D Topo Quads

**EBX II Pipeline Extension Project (7W Property)**  
**Project Location Map**  
**Figure 2**



## SECTION 2.0 – METHODOLOGY

Prior to performing the focused plant survey, existing documentation relevant to the project site was reviewed. The most recent records of the California Natural Diversity Data Base (CNDDDB 2007) and the California Native Plant Society Electronic Inventory of Rare and Endangered Vascular Plants of California (CNPSEI 2007) were reviewed for the quadrangles containing and surrounding the project site (i.e., *Redlands* and *Yucaipa*, California USGS 7.5-minute topographic quadrangles).

Chambers Group conducted a reconnaissance-level survey on the Seven W Enterprises property on November 16, 2006. The objectives of this survey were to identify the vegetation communities and the distribution and relative abundance of general and sensitive wildlife habitats on the property, as well as to assess these habitats for the potential for the occurrence of sensitive plant species. During this survey, vegetation communities on the property were identified and qualitatively described. Biological resources on the property were inventoried and the potential for the presence of sensitive plant species and sensitive habitats was assessed, focusing on those species listed as threatened or endangered by the state and federal agencies. A list of sensitive plant species potentially occurring within the project site was recorded.

A sensitive species is considered to potentially occur in a project area if its known geographic range includes part of the project area or adjacent parcels and/or if the general habitat or environmental conditions (e.g., soil type, etc.) required for the species are present. The criteria for evaluating a species potential to occur on a site is presented in Table 1.

**Table 1  
Criteria for Evaluating Potential for Occurrence (PFO) of Sensitive Species**

PFO	CRITERIA
<b>Absent:</b>	Species was not observed during focused surveys conducted at an appropriate time for identification of the species or species is restricted to habitats or environmental conditions that do not occur within the site.
<b>Low:</b>	Historical records for this species do not exist within the immediate vicinity (approximately 5 miles) of the site and/or habitats or environmental conditions needed to support the species are of poor quality.
<b>Moderate:</b>	Either a historical record exists of the species within the immediate vicinity of the site (approximately 5 miles) and marginal habitat exists on the site, or the habitat requirements or environmental conditions associated with the species occur within the site, but no historical records exist within the vicinity.
<b>High:</b>	Both a historical record exists of the species within the site or its immediate vicinity (approximately 5 miles) and the habitat requirements and environmental conditions associated with the species occur within the site.
<b>Present:</b>	Species was detected within the site at the time of the survey.

### 2.1 FOCUSED PLANT SURVEY

Based on the findings of the literature search and reconnaissance level biological survey, focused surveys were recommended and conducted within the pipeline impact areas within the Seven W Enterprises boundary. Chambers Group botanists Kris Alberts, Rebecca Alvidrez, Nichole Cervin, and Heather Clayton conducted the focused survey on August 1 and 2, 2007. The survey consisted of walking the entire area within the pipeline impact areas and noting all plant species. Plants of uncertain

identity were collected and subsequently identified from keys, descriptions, and illustrations in Hickman (1993) and Munz (1974). Plant nomenclature follows that of *The Jepson Manual, Higher Plants of California* (Hickman 1993). A complete list of plant species observed during the focused survey is presented in Appendix A.

To ensure the detection of rare plants, the survey members were organized into a single line and were spaced 15 to 30 feet apart to form adjacent belt transects. The edge of each transect abutted the adjacent transect leaving no gaps between each belt for at least 100 percent coverage. Each crewmember then walked in the direction of the agreed upon endpoint within the individual belt transect. Each person walked the transect in a slightly meandering pattern for maximum and overlapping coverage. When suitable microhabitats were encountered, the team member would stop and carefully scan the immediate area for the range of the microhabitat. If a microhabitat was greater than 10 feet in radius, another team member would mark their own location and then assist in the survey of the microhabitat. Handheld Garmin Global Positioning System units (GPS) were used to record survey coverage and to document the locations of any target sensitive plant species found. A map of the area covered by this survey is provided in Figure 3.

### **2.1.1 Sensitive Species Identification**

In recent years, the region had experienced unprecedented drought conditions and the pattern of rainfall and seasonal temperature varied. While seasonal conditions for vegetation surveys and rare plant detection were relatively poor, a wide variety of plant types were identified during the survey and several morphological characteristics were suitable to identify federal and/or state-listed endangered, threatened, and/or other sensitive plants species during the time of the survey.

Based on literature searches and reconnaissance surveys, three federally and state-listed endangered plant species were determined to have potential for occurrence on-site. Two of the three plant species, Nevin's barberry (*Berberis nevinii*) and Santa Ana River woollystar (*Eriastrum densiflorum* ssp. *sanctorum*), are perennial and easily identifiable despite blooming periods or seasonal conditions. The third federal plant species, slender-horned spineflower (*Dodecahema leptoceras*), is similar to other spineflower species known to occur in the area of the project site. These species include Parry's spineflower (*Chorizanthe parryi* var. *parryi*) and leather spineflower (*Lastarriaea coriacea*).

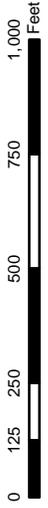
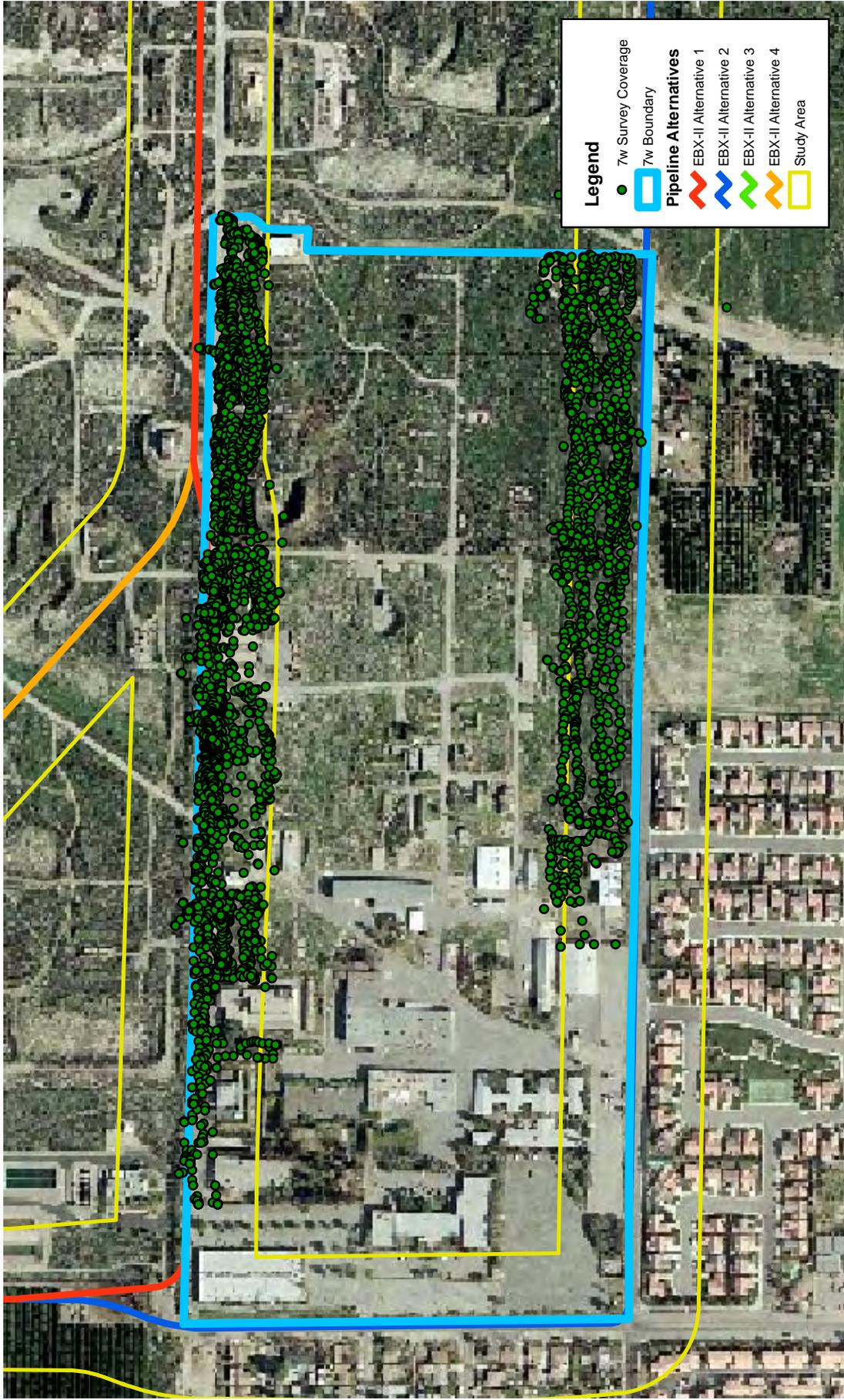
These three spineflower species were successfully distinguished from each other based on differences in flower perianth structure. Differences in perianth structure were discerned from identification keys provided in the Jepson Manual combined with field observations of each species (Hickman 1993). Based on these sources, it was determined that spineflowers could be distinguished from each other based on the number of perianth bracts present on the specimen (Table 2). Furthermore, Parry's spineflower and the leather spineflower have hooked perianth bracts, whereas, the perianth bracts of the slender-horned spineflower are straight. Leather spineflower is also segmented at the nodes, while the other two species are not.

**Table 2**  
**Defining Characteristics of Three Spineflowers with Potentials to Occur within the Impact Areas of Pipeline Alternative 1 and Alternative 2 of the Seven W Enterprises Boundary**

Species	Perianth Structure	Perianth Bracts (#)
Parry's spineflower	Hooked	3
Leather spineflower	Hooked	5
Slender-horned spineflower	Straight	6

## 2.2 PHOTOGRAPHIC DOCUMENTATION

Vegetation communities and other site conditions within each pipeline alternative were documented with photographs. Photographs were also taken to document the habitat type of any sensitive plant species observed (Appendix B).



EBXII Pipeline Project  
7w Focus Plant Survey  
Survey Routes  
**Figure 3**

## SECTION 3.0 – RESULTS

### 3.1 FOCUSED PLANT SURVEY

Based on the reconnaissance-level and focused plant surveys performed by Chambers Group, 133 plant species have been documented within the project site. Appendix A contains a list of plant species observed during these surveys.

#### 3.1.1 Sensitive Plant Species

The CNDDDB and CNPSEI literature review resulted in a list of nine sensitive plant species that have records of occurrence within or near the same topographic quad as the project site. Three of the nine sensitive plant species are both federal and state-listed endangered species; specifically, Nevin's barberry, slender-horned spineflower, and Santa Ana River woollystar. Other special status species with a potential for occurrence on-site included Plummer's mariposa lily (*Calochortus plummerae*), smooth tarplant (*Centromadia pungens* ssp. *laevis*), Parry's spineflower, Robinson's pepper-grass (*Lepidium virginicum* var. *robinsoni*), Parish's bush mallow (*Malacothamnus parishii*), and Hall's monardella (*Monardella macrantha* ssp. *hallii*) (P&D 2005, Aspen 2006, Chambers Group 2007).

Of the nine special status plant species, four species, including all three federal and state-listed endangered species, were determined to be absent from the project site; one of the nine species was designated as having a high potential to occur onsite; two species were determined to have low potentials for occurrence onsite, and one species was found present onsite. These special status plant species, their current listing status, habitat requirements, and justifications for their potentials for occurrence or absence from the site are summarized in Table 3.

Special status plant species documented on-site include the CNPS-listed Parry's spineflower (Figure 4). Additionally, it has been determined that all potential federal and/or state-listed endangered and/or threatened plant species are absent from pipeline alternatives 1 and 2 within the boundary of Seven W Enterprises. Specific results for sensitive plant species, as they occur along the proposed pipeline alternatives 1 and 2 within the Seven W Enterprises boundary, are discussed in sub-sections 3.2.1 and 3.2.2.

**Table 3**  
**Sensitive Plant Species with Potentials to Occur Within Pipeline Alternatives 1 and 2 of the Seven W Enterprises Impact Area of the Proposed EBX II Pipeline**

Special Status Species	Status	Habit, Habitat, and Distribution	Flowering Period	Potential to Occur On-site
<b>Threatened or Endangered Species</b>				
<i><b>Berberis nevinii</b></i> Nevin's barberry	USFWS: CDFG: CNPS: S-Rank: G-Rank:	<b>FE</b> <b>SE</b> 1B.1 S2.2 G2	Perennial evergreen shrub. Occurs in chaparral, cismontane woodland, coastal scrub, and riparian scrub on sandy or gravelly soils between 0 and 1,500 ft. elevation.	Mar-Apr  <b>ABSENT:</b> This species was not observed in or around the site during the focused plant survey.
<i><b>Dodecahema leptoceras</b></i> slender-horned spineflower	USFWS: CDFG: CNPS: S-Rank: G-Rank:	<b>FE</b> <b>SE</b> 1B.1 S1.1 G2	Annual herb. Occurs in chaparral, montane woodland and coastal scrub gravelly soils between 700 and 2,500 ft elevation.	Apr-Jun  <b>ABSENT:</b> This species was not observed in or around the site during the focused plant survey.
<i><b>Eriastrum densiflorum ssp. sanctorum</b></i> Santa Ana River woollystar	USFWS: CDFG: CNPS: S-Rank: G-Rank:	<b>FE</b> <b>SE</b> 1B.1 S1.1 G4T1	Perennial herb. Occurs in chaparral and coastal scrub on sandy or gravelly alluvial fans between 300 and 2,000 ft. elevation.	Jun-Sep  <b>ABSENT:</b> This species was not observed in or around the site during the focused plant survey.
<i><b>Calochortus plummerae</b></i> Plummer's mariposa lily	USFWS: CDFG: CNPS: S-Rank: G-Rank:	None None 1B.2 S3.2 G3	Perennial bulbiferous herb. Occurs in chaparral, coniferous forests, and valley and foothill grasslands on granitic rocky soil between 300 and 5,600 ft. elevation.	May-Jul  <b>High:</b> Disturbed communities associated with this species are present on-site. Occurrences are reported within the vicinity of the site.
<i><b>Centromadia pungens ssp. laevis</b></i> smooth tarplant	USFWS: CDFG: CNPS: S-Rank: G-Rank:	None None 1B.1 S2.1 G3T2	Annual herb. Occurs in alkaline scrub, meadows and seeps, riparian woodland valley and foothill grasslands between 0 and 1640 ft. elevation.	Apr-Sep  <b>ABSENT:</b> No known occurrences are report within the vicinity of the site and species was not observed on-site during focused plant survey.
<i><b>Chorizanthe parryi var. parryi</b></i> Parry's spineflower	USFWS: CDFG: CNPS: S-Rank: G-Rank:	None None 3.2 S2.1 G2T2	Annual herb. Occurs in chaparral, coastal scrub in sandy or rocky openings between 130 and 5,600 ft. elevation.	Apr-Jun  <b>PRESENT:</b> Species was observed on-site during focused plant survey.

**Table 3 (continued)**  
**Sensitive Plant Species with Potentials to Occur Within Pipeline Alternatives 1 and 2 of the Seven W Enterprises Impact Areas of the Proposed EBX II Pipeline**

Special Status Species	Status	Habit, Habitat, and Distribution	Flowering Period	Potential to Occur On-site
<b>Other Sensitive Species</b>				
<i>Lepidium virginicum</i> var. <i>robinsoni</i> Robinson's pepper-grass	USFWS: None CDFG: None CNPS: 1B.2 S-Rank: S2.2 G-Rank: G5T2	Annual herb. Occurs in chaparral and coastal scrub between 0 and 3,000 ft. elevation.	Jan-Jul	<b>High:</b> Disturbed communities associated with species occurrence are present on-site occurrences are reported within the vicinity of the site.
<i>Malacothamnus parishii</i> Parish's bush mallow	USFWS: None CDFG: None CNPS: 1A S-Rank: SH G-Rank: GHQ	Perennial deciduous shrub. Occurs in chaparral and coastal scrub between 1,000 and 1,500 ft. elevation.	Jun-Jul	<b>ABSENT:</b> Species was not observed on-site during focused plant survey.
<i>Monardella macrantha</i> ssp. <i>hallii</i> Hall's monardella	USFWS: None CDFG: None CNPS: 1B.3 S-Rank: G-Rank	Rhizomatous perennial herb. Occurs in broadleaved upland forest, chaparral, lower montane coniferous forest, cismontane woodland, and valley and foothill grassland, between 2,395 and 7,200 ft. elevation.	Jun-Aug	<b>ABSENT:</b> Site is below the elevation range of the species and the species was not observed on-site during focused plant survey.
<b>Federal designations (Federal Endangered Species Act, USFWS)</b>				
	FE: Federal-listed, endangered. FT: Federal-listed, threatened. PTH: Federal-listed, proposed-threatened. FC: Candidate species.			
<b>State designations: (California Endangered Species Act, CDFG)</b>				
	SE: State-listed, endangered. ST: State-listed, threatened. Rare: State-listed as rare (Listed "Rare" animals have been re-designated as Threatened, but Rare plants have retained the Rare designation.)			
California Native Plant Society (CNPS) designations: (Note: According to CNPS [Skinner and Pavlik 1994], plants on Lists 1B and 2 meet definitions for listing as threatened or endangered under Section 1901, Chapter 10 of the California Fish and Game Code. This interpretation is inconsistent with other definitions.				
	List 1A: Plants presumed extinct in California. List 1B: Plants rare and endangered in California and throughout their range. List 2: Plants rare, threatened or endangered in California but more commons elsewhere in their range. List 3: Plants about which we need more information; a review list. List 4: Plants of limited distribution; a watch list. Extension 0.1: Seriously endangered in California (over 80% of occurrences threatened/high degree and immediacy of threat) Extension 0.2: Fairly endangered in California (20-80% occurrences threatened) Extension 0.3: Not very endangered in California (<20% of occurrences threatened)			
	G1: Less than 6 viable element occurrences (EOs) OR less than 1,000 individuals OR less than 2,000 acres. G2: 6-20 EOs OR 1,000-3,000 individuals OR 2,000-10,000 acres. G3: 21-80 EOs OR 3,000-10,000 individuals OR 10,000-50,000 acres. G4: Apparently secure; this rank is clearly lower than G3 but factors exist to cause some concern; (i.e., there is some threat, or somewhat narrow habitat). G5: Population or stand demonstrably secure to ineradicable due to being commonly found in the world.			

**Table 3 (continued)**  
**Sensitive Plant Species with a potential to Occur Within Alternative 1 and 2 of the Seven W Enterprises Right of Way of the Proposed EBX II Pipeline**

Special Status Species	Status	Habit, Habitat, and Distribution	Flowering Period	Potential to Occur On-site
<b>California Natural Diversity Database (CNDDDB) Global (G) and State (S) ranking designations:</b>				
	S1:	Less than 6 EOs OR less than 1,000 individuals OR less than 2,000 acres		
	S2:	6-20 EOs OR 1,000-3,000 individuals OR 2,000-10,000 acres		
	S3:	21-80 EOs or 3,000-10,000 individuals OR 10,000-50,000 acres		
	S4:	Apparently secure within California; this rank is clearly lower than S3 but factors exist to cause some concern; i.e., there is some threat, or somewhat narrow habitat. NO THREAT RANK.		
	S5:	Demonstrably secure to ineradicable in California. NO THREAT RANK.		
	Extension 0.1:	Very threatened		
	Extension 0.2:	Threatened		
	Extension 0.3:	No current threats known		
Source: California Natural Diversity Data Base (CNDDDB) and California Native Plant Society Electronic Inventory (CNPSEI) for Yucaipa and Redlands 7.5-minute USGS quadrangles, 2007.				

### 3.1.2 Federal and State-Listed Plant Species Descriptions and On-site Occurrences

The following paragraphs describe federally and state-listed plant species that are known to occur or could potentially occur along the project site and potential impact areas.

#### **Nevin's Barberrry (*Berberis nevini*)**

This federally and state-listed endangered species is an evergreen shrub that occurs in chaparral, cismontane woodlands, coastal scrub, and riparian scrub in sandy or gravelly soils at elevations between 970 and 2,703 ft. above mean sea level (amsl). The flowering period for this species is between March and April.

Suitable habitat for this species exists on-site. Although the focused survey occurred following the flowering period of this species, it is a large perennial shrub that is identifiable year-round; therefore, the species is confirmed absent from the project sites.

#### **Slender-Horned Spineflower (*Dodecahema leptoceras*)**

This federally and state-listed endangered species is an annual herb that occurs in chaparral, cismontane woodlands, and coastal scrub with sandy soils at elevations between 660 and 2,500 ft. amsl. The flowering period for this species is between April and June.

Suitable habitat for this species exists on-site. Although the focused survey was conducted following the flowering period of this species, this species is identifiable year-round and may be differentiated from other spineflower species. This species was not observed during the focused plant survey; therefore, it can be confirmed absent from the project site.

#### **Santa Ana River Woollystar (*Eriastrum densiflorum* ssp. *sanctorum*)**

This federally and state-listed endangered species is a perennial herb that occurs in open washes and early successional Riversidian Alluvial Fan Sage Scrub (RAFSS) or on open slopes above main watercourses with regular flooding and scouring events at elevations ranging from 490 to 2,000 ft. amsl. The flowering period for this species is between June and September.

Marginally suitable habitat for this species exists on-site and known occurrences exist within two miles of the Seven W property. This species is perennial and was not observed during the focused plant survey; therefore, it is confirmed absent from the project site.

## **3.2 PIPELINE ALTERNATIVES**

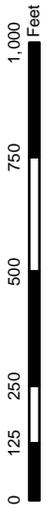
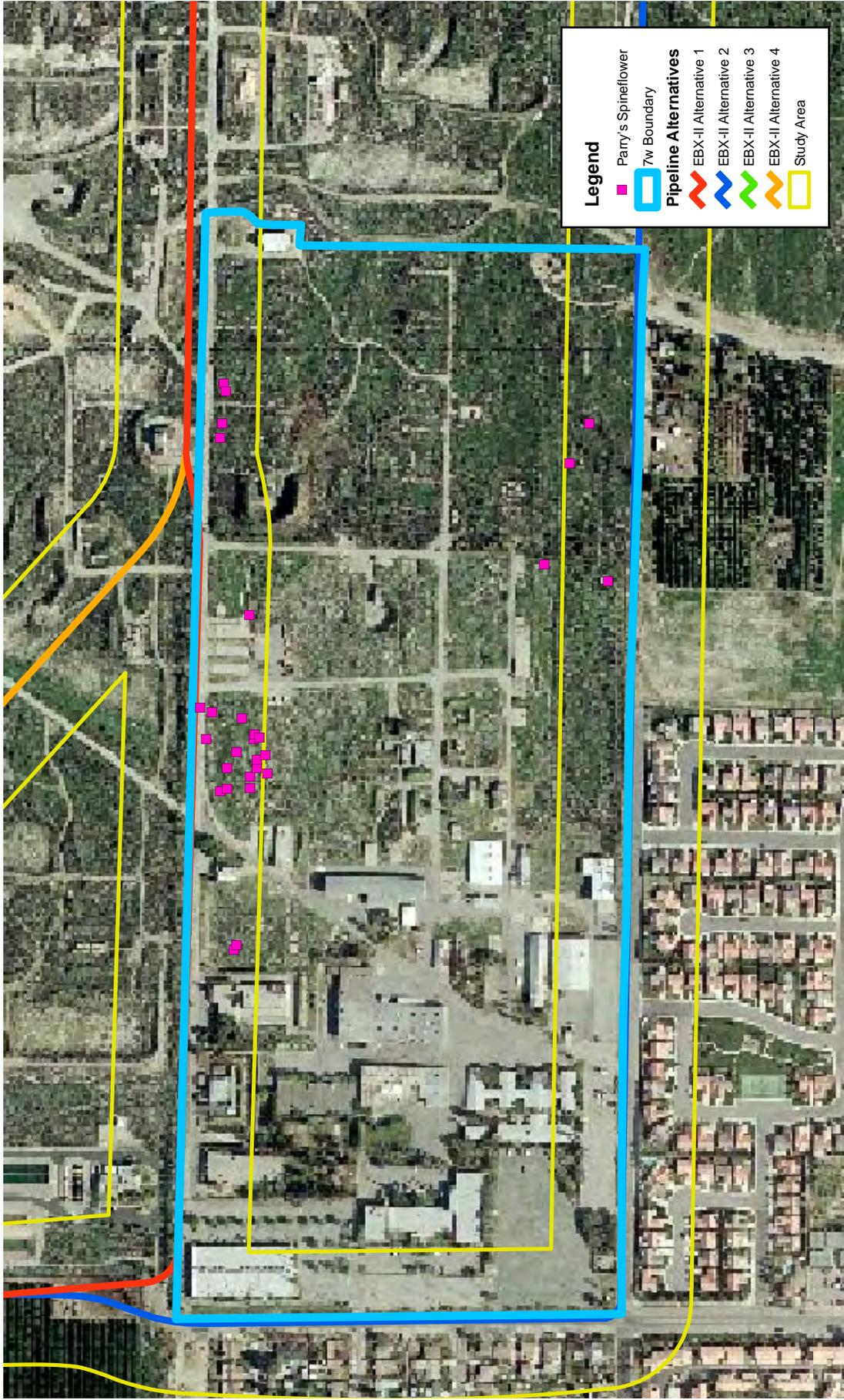
Sensitive plant and wildlife species include endangered, threatened, proposed threatened or endangered, and rare species of the USFWS and CDFG, California Special Concern Species, CNPS-listed plants, and otherwise sensitive species. The following sub-sections describe the sensitive plant species found within the impact areas for proposed pipeline alternatives 1 and 2 within the Seven W Enterprises boundary.

### **3.2.1 Pipeline Alternative 1**

One sensitive plant species, Parry's spineflower, was detected along the Pipeline alternative 1 impact area during the Chambers Group focused plant survey. This CNPS list 3.2 species is an annual herb that occurs in open chaparral and coastal scrub habitats on sandy or rocky soils at elevations between 130 and 5,600 ft. amsl. The flowering period for this species is between April and June. This species was observed in 29 locations with a total of 225 individuals present. A map of Parry's spineflower occurrences is provided in Figure 4 and the GPS data for each location is presented in Table 4.

### **3.2.2 Pipeline Alternative 2**

One sensitive plant species, Parry's spineflower, was detected along Pipeline alternative 2 impact area during the Chambers Group focused plant survey. There were four observed locations with a total of six individuals observed. A map of Parry's spineflower occurrences is provided in Figure 4 and the GPS data for each location is presented in Table 4.



EBXII Pipeline Project  
7w Focus Plant Survey  
**Figure 4**

**Table 4**  
**Parry's Spineflower Locations in the Seven W Enterprises Boundary of the Proposed EBX II**  
**Pipeline Alternatives 1 and 2 Impact Areas**

<b>Individuals Observed (#)</b>	<b>Elevation (ft)</b>	<b>Diameter (ft)</b>	<b>Easting<sup>1</sup></b>	<b>Northing</b>
<b>Pipeline Alternative 1</b>				
8	1826	11	489303	3770661
2	1823	8.8	489280	3770666
4	1835	10.8	489387	3770629
54	1819	40	489269	3770640
18	1832	20	489255	3770648
4	1813	10	489235	3770654
6	1810	5	489237	3770648
8	1797	8	489098	3770642
6	1807	3	489102	3770640
6	1812	6	489238	3770628
6	1817	3	489247	3770628
4	1825	2	489255	3770622
20	1822	4	489262	3770622
15	1823	6	489280	3770625
4	1824	2	489284	3770624
8	1821	6	489298	3770635
11	1823	10.4	489307	3770671
3	1812	15.5	489250	3770613
1	1808	13.9	489266	3770615
2	1820	7.6	489281	3770620
8	1861	12.1	489587	3770651
2	1836	4	489540	3770654
2	1832	----	489431	3770374
4	1827	3	489553	3770652
21	1861	9.6	489581	3770649
<b>Pipeline Alternative 2</b>				
1	1843	10.8	489553	3770335
2	1816	3	489416	3770319
1	1843	15.1	489518	3770352
2	1848	11.7	409471	3770325
<b><sup>1</sup>UTM coordinates in meters, NAD83, Zone 11S</b>				

## **SECTION 4.0 – DISCUSSION**

The Discussion section includes sub-sections on regulatory setting and sensitive plant species.

### **4.1 REGULATORY SETTING**

The following paragraphs describe the state and federal laws that apply to this project. Applicable laws and codes include the Federal and State Endangered Species Acts and California Department of Fish and Game Code 1600.

#### **4.1.1 Federal Endangered Species Act**

The USFWS in the Department of the Interior, and the National Oceanic and Atmospheric Administration (NOAA) in the Department of Commerce share responsibility for administration of the Endangered Species Act (ESA). The ESA provides broad protection for species of fish, wildlife and plants that are listed as threatened or endangered in the United States or elsewhere. The ESA has four major components: provisions for listing species, requirements for consultation with USFWS, prohibitions against “taking” of listed species, and provisions for permits that allow incidental “take”. The ESA also discusses recovery plans and the designation of critical habitat for listed species.

#### **4.1.2 State of California Endangered Species Act**

The California Endangered Species Act (CESA) is similar to the main provisions of the federal ESA and is administered by the CDFG. Unlike its federal counterpart, CESA applies take prohibitions to species petitioned for listing (i.e., state candidates), as well as threatened and endangered species. Section 86 of the Fish and Game Code defines “take” as “hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill”. The CDFG maintains lists for Candidate-Endangered Species and Candidate-Threatened Species, which have the same protection as listed species. Under CESA the term “endangered species” is defined as a species of plant, fish, or wildlife that is “in serious danger of becoming extinct throughout all, or a significant portion of its range” and is limited to species or subspecies native to California. CESA prohibits the “taking” of listed species, except as otherwise provided in State law.

### **4.2 SENSITIVE PLANT SPECIES**

Parry’s spineflower was found along both alternative pipeline routes during the focused plant survey. Two species (i.e., Plummer’s mariposa lily and Robinson’s pepper-grass) have a potential to occur within the impact areas that were not included in the focused survey. Any persistent vegetation at the time of the year when the survey took place would not be sufficient to identify these two plants to the species level. However, neither of these species are federally and/or state-listed as endangered or threatened; therefore, further focused surveys for these two species are not required. Six sensitive species (i.e., Nevin’s barberry, slender-horned spineflower, Santa Ana River woollystar, smooth tarplant, Parish’s bush mallow, and Hall’s monardella) with a potential to occur within the site would have been flowering or easily recognizable at the time of the survey. These species were not observed and have been determined to be absent from the site.

#### **4.2.1 Impacts to Sensitive Plant Species**

Impacts to sensitive plant species will be minimized during construction with the use of bio-monitors knowledgeable with the federal or state-listed species that may occur within the impact areas. If a listed species is detected during pre-construction surveys or bio-monitoring, avoidance or transplantation measures may be implemented to minimize impacts. Potentially impacted species known to occur at this time within the Seven W Enterprise boundary alternatives include only Parry’s spineflower. This species may require USFWS consultation for mitigation, transplanting, and/or seed collection and dispersal, and its seed shall be incorporated into the seed mix for the agency-approved mitigation and monitoring plan.

## SECTION 5.0 – RECOMMENDATIONS

Prior to the commencement of construction, Chambers Group recommends the following actions:

- Include Parry's spineflower in the seed mix for any restoration areas within the Seven W property resulting from the completion of this water pipeline project;
- Restore all temporary impacts within the Seven W property, following an approved mitigation and monitoring plan. Riversidean alluvial fan sage scrub and other sage scrub communities shall form the dominant re-planted mosaic. Mitigation ratios shall be at a 2:1 ratio; and
- All soil removed from trenching activities will be stockpiled on-site and replaced once trenching is complete. No foreign soils will be imported for restoration. The replacement of native soils ensures the habitat requirements of on-site sensitive species.

## SECTION 6.0 – REFERENCES

### Aspen Environmental Group

- 2006 *Rare Plant Survey Report for the East Branch Extension Project, Phase II, San Bernardino County, California.* Aspen Environmental Group, Agoura Hills, California. Prepared for the Department of Water Resources, Unpublished Report.

### California Natural Diversity Database (CNDDB)

- 2007 Database Record Search for *Yucaipa* and *Redlands*, California 7.5-minute USGS quadrangles. California Department of Fish and Game, State of California Resources Agency, Sacramento, California.

### California Native Plant Society Electronic Inventory (CNPSEI)

- 2007 Database Record Search for *Yucaipa* and *Redlands*, California 7.5-minute USGS quadrangles. California Native Plant Society, Sacramento, California. [www.CNPS.org](http://www.CNPS.org).

### Chambers Group Inc.

- 2007 Results of the Biological Reconnaissance-level Surveys for the Seven W Enterprises, Inc. (Seven W) property, within the unincorporated community of Mentone, San Bernardino County, California

### Hickman, J. C. (Editor)

- 1993 *The Jepson Manual: Higher Plants of California.* University of California Press, Berkeley, California.

### Munz, P. A.

- 1974 *A Flora of Southern California.* University of California Press, Berkeley, California.

### P&D Consultants

- 2005 *Results of the Biological Resources Reconnaissance Survey for the East Branch Extension Phase II Project.* P&D Consultants, Orange, California. Prepared for the California Department of Water Resources, Unpublished Report.

### U.S. Geological Survey (USGS)

- 1980 Redlands and Yucaipa 7.5' Topographic Quadrangles, 1967; photorevised 1980.

**APPENDIX A**  
**Master Plant List**

**Appendix A**  
**Plant Species Observed during Seven W Enterprises Focused Survey**

Scientific Name	Common Name	Status	Native / Introduced
<b>FERNS AND FERN ALLIES</b>			
<b>PTERIDACEAE</b>	<b>BRAKE FAMILY</b>		
<i>Pellaea mucronata</i>	bird's-foot fern	None	Native
<b>SELAGINELLACEAE</b>	<b>SPIKE-MOSS FAMILY</b>		
<i>Selaginella bigelovii</i>	Bigelow's spike-moss	None	Native
<b>GYMNOSPERMS</b>			
<b>CUPRESSACEAE</b>	<b>CYPRESS FAMILY</b>		
<i>Cupressus sempervirens</i>	Italian cypress	None	Introduced
<i>Juniperus californica</i>	California juniper	None	Native
<i>Juniperus</i> sp.	juniper	None	Introduced
<b>ANGIOSPERMS (DICOTYLEDONS)</b>			
<b>AMARANTHACEAE</b>	<b>AMARANTH FAMILY</b>		
<i>Amaranthus</i> sp.	pigweed	None	Introduced
<b>ANACARDIACEAE</b>	<b>SUMAC OR CASHEW FAMILY</b>		
<i>Schinus molle</i>	Peruvian pepper tree	None	Introduced
<i>Schinus terebinthifolius</i>	Brazilian pepper tree	None	Introduced
<b>APOCYNACEAE</b>	<b>DOGBANE FAMILY</b>		
<i>Nerium oleander</i>	oleander	None	Introduced
<b>ARALIACEAE</b>	<b>GINSENG FAMILY</b>		
<i>Hedera helix</i>	English ivy	None	Introduced
<b>ASCLEPIADACEAE</b>	<b>MILKWEED FAMILY</b>		
<i>Sarcostemma cynanchoides</i> ssp. <i>hartwegii</i>	climbing milkweed	None	Native
<b>ASTERACEAE</b>	<b>SUNFLOWER FAMILY</b>		
<i>Ambrosia acanthicarpa</i>	annual bur-sage	None	Native
<i>Ambrosia artemisiifolia</i>	common ragweed	None	Native
<i>Artemisia californica</i>	California sagebrush	None	Native
<i>Artemisia dracunculoides</i>	tarragon	None	Native
<i>Baccharis salicifolia</i>	mule fat	None	Native
<i>Centaurea melitensis</i>	toxicole	None	Introduced
<i>Centaurea solstitialis</i>	yellow star-thistle	None	Introduced
<i>Conyza canadensis</i>	horseweed	None	Native
<i>Encelia farinosa</i>	brittlebush	None	Native
<i>Ericameria linearifolia</i>	interior goldenbush	None	Native
<i>Filago californica</i>	California fluffweed	None	Native
<i>Filago gallica</i>	fluffweed	None	Introduced
<i>Gnaphalium luteo-album</i>	white cudweed	None	Introduced
<i>Gnaphalium palustre</i>	lowland cudweed	None	Native
<i>Gutierrezia californica</i>	California matchweed	None	Native
<i>Heterotheca grandiflora</i>	telegraph weed	None	Native
<i>Heterotheca villosa</i>	hairy false goldaster	None	Native
<i>Isocoma menziesii</i>	coastal goldenbush	None	Native
<i>Lactuca serriola</i>	prickly lettuce	None	Introduced
<i>Lepidospartum squamatum</i>	scale-broom	None	Native
<i>Lessingia filaginifolia</i>	cudweed aster	None	Native
<i>Sonchus asper</i> ssp. <i>asper</i>	prickly sow thistle	None	Introduced
<i>Stephanomeria exigua</i>	small wreathplant	None	Native

**Appendix A (continued)**  
**Plant Species Observed during Seven W Enterprises Focused Survey**

Scientific Name	Common Name	Status	Native / Introduced
<b>ASTERACEAE (continued)</b>	<b>SUNFLOWER FAMILY</b>		
<i>Stephanomeria pauciflora</i>	wire lettuce	None	Native
<i>Stephanomeria virgata</i>	twiggy wreathplant	None	Native
<i>Taraxacum officinale</i>	common dandelion	None	Introduced
<i>Wyethia</i> sp.	mules ears	None	Native
<b>BERBERIDACEAE</b>	<b>BARBERRY FAMILY</b>		
<i>Nandina domestica</i>	sacred bamboo	None	Introduced
<b>BETULACEAE</b>	<b>BIRCH FAMILY</b>		
<i>Alnus rhombifolia</i>	white alder	None	Native
<b>BIGNONIACEAE</b>	<b>BIGNONIA FAMILY</b>		
<i>Jacaranda mimosifolia</i>	jacaranda	None	Introduced
<b>BORAGINACEAE</b>	<b>BORAGE FAMILY</b>		
<i>Amsinckia menziesii</i>	common fiddleneck	None	Native
<i>Cryptantha</i> sp.	cryptantha	None	Native
<i>Cryptantha intermedia</i>	common forget-me-not	None	Native
<i>Pectocarya pencillata</i>	sleeping combseed	None	Native
<i>Pectocarya</i> sp.	pectocarya	None	Native
<i>Plagiobothrys</i> sp.	popcornflower	None	Native
<b>BRASSICACEAE</b>	<b>MUSTARD FAMILY</b>		
<i>Brassica nigra</i>	black mustard	None	Introduced
<i>Brassica tournefortii</i>	wild turnip	None	Introduced
<i>Hirshfeldia incana</i>	short-podded mustard	None	Introduced
<i>Lobularia maritima</i>	sweet-alyssum	None	Introduced
<i>Sisymbrium irio</i>	London rocket	None	Introduced
<b>CACTACEAE</b>	<b>CACTUS FAMILY</b>		
<i>Opuntia littoralis</i>	coastal prickly pear	None	Native
<i>Opuntia oricola</i>	pancake prickly pear	None	Native
<i>Opuntia parryi</i>	valley cholla	None	Native
<b>CAPRIFOLIACEAE</b>	<b>HONEYSUCKLE FAMILY</b>		
<i>Sambucus mexicana</i>	Mexican elderberry	None	Native
<i>Spergula</i> sp.	stickwort	None	Native
<b>CHENOPODIACEAE</b>	<b>GOOSEFOOT FAMILY</b>		
<i>Atriplex semibaccata</i>	Australian saltbush	None	Introduced
<i>Chenopodium</i> sp.	goosefoot	None	Introduced
<i>Salsola tragus</i>	Russian thistle	None	Introduced
<b>CONVOLVULACEAE</b>	<b>MORNING-GLORY FAMILY</b>		
<i>Calystegia macrostegia</i>	western bindweed	None	Native
<b>CRASSULACEAE</b>	<b>STONECROP FAMILY</b>		
<i>Crassula connata</i>	pygmy-weed	None	Native
<b>CUCURBITACEAE</b>	<b>GOURD FAMILY</b>		
<i>Cucurbita foetidissima</i>	calabazilla	None	Native
<i>Marah macrocarpus</i>	wild cucumber	None	Native
<b>EUPHORBIACEAE</b>	<b>SPURGE FAMILY</b>		
<i>Chamaesyce albomarginata</i>	rattlesnake weed	None	Native
<i>Croton californicus</i>	California croton	None	Native

**Appendix A (continued)**  
**Plant Species Observed during Seven W Enterprises Focused Survey**

Scientific Name	Common Name	Status	Native / Introduced
<b>EUPHORBIACEAE (continued)</b>	<b>SPURGE FAMILY</b>		
<i>Eremocarpus setigerus</i>	dove weed	None	Native
<b>FABACEAE</b>	<b>LEGUME FAMILY</b>		
<i>Lotus scoparius</i>	deerweed	None	Native
<i>Lupinus bicolor</i>	miniature lupine	None	Native
<i>Prosopis glandulosa</i>	honey mesquite	None	Native
<b>GERANIACEAE</b>	<b>GERANIUM FAMILY</b>		
<i>Erodium cicutarium</i>	red-stemmed filaree	None	Introduced
<b>HYDROPHYLLACEAE</b>	<b>WATERLEAF FAMILY</b>		
<i>Eriodictyon trichocalyx</i>	hairy yerba santa	None	Native
<i>Phacelia ramosissima</i>	branching phacelia	None	Native
<i>Phacelia</i> sp.	phacelia	None	Native
<b>LAMIACEAE</b>	<b>MINT FAMILY</b>		
<i>Marrubium vulgare</i>	horehound	None	Introduced
<i>Salvia apiana</i>	white sage	None	Native
<i>Salvia columbariae</i>	chia	None	Native
<i>Salvia mellifera</i>	black sage	None	Native
<b>MORACEAE</b>	<b>MULBERRY FAMILY</b>		
<i>Morus alba</i>	white mulberry	None	Introduced
<b>MYRTACEAE</b>	<b>MYRTLE FAMILY</b>		
<i>Callistemon citrinus</i>	crimson bottlebrush	None	Introduced
<i>Eucalyptus</i> sp.	gum tree	None	Introduced
<b>NYCTAGINACEAE</b>	<b>FOUR O'CLOCK FAMILY</b>		
<i>Mirabilis californica</i>	California wishbone bush	None	Native
<b>OLEACEAE</b>	<b>OLIVE FAMILY</b>		
<i>Olea europaea</i>	olive	None	Native
<b>ONAGRACEAE</b>	<b>EVENING PRIMROSE FAMILY</b>		
<i>Camissonia bistorta</i>	California sun cup	None	Native
<i>Clarkia</i> sp.	evening primrose	None	Native
<b>PAEONIACEAE</b>	<b>PEONY FAMILY</b>		
<i>Paeonia californica</i>	California peony	None	Native
<b>PLANTAGINACEAE</b>	<b>PLANTAIN FAMILY</b>		
<i>Plantago erecta</i>	western plantain	None	Native
<b>POLEMONIACEAE</b>	<b>PHLOX FAMILY</b>		
<i>Eriastrum sapphirinum</i>	sapphire eriastrum	None	Native
<i>Gilia</i> sp.	Gilia	None	Native
<i>Navarretia hamata</i> ssp. <i>hamata</i>	hooked navarretia	None	Native
<b>POLYGONACEAE</b>	<b>BUCKWHEAT FAMILY</b>		
<i>Chorizanthe parryi</i> var. <i>parryi</i>	Parry's spineflower	<b>CNPS List 3</b>	<b>Native</b>
<i>Eriogonum elongatum</i> var. <i>elongatum</i>	long-stemmed buckwheat	None	Native
<i>Eriogonum fasciculatum</i>	California buckwheat	None	Native
<i>Eriogonum gracile</i>	slender woolly buckwheat	None	Native
<i>Eriogonum roseum</i>	wand buckwheat	None	Native

**Appendix A (continued)**  
**Plant Species Observed during Seven W Enterprises Focused Survey**

Scientific Name	Common Name	Status	Native / Introduced
<b>POLYGONACEAE (continued)</b>	<b>BUCKWHEAT FAMILY</b>		
<i>Lastarriaea coriacea</i>	leather spineflower	None	Native
<i>Pterostegia drymarioides</i>	California thread-stem	None	Native
<b>PRIMULACEAE</b>	<b>PRIMROSE FAMILY</b>		
<i>Anagallis arvensis</i>	scarlet pimpernel	None	Introduced
<b>RHAMNACEAE</b>	<b>BUCKTHORN FAMILY</b>		
<i>Rhamnus crocea</i>	spiny redberry	None	Native
<b>ROSACEAE</b>	<b>ROSE FAMILY</b>		
<i>Adenostoma fasciculatum</i>	chamise	None	Native
<i>Malus</i> sp.	apple	None	Introduced
<i>Prunus dulcis</i>	almond	None	Introduced
<i>Rosa</i> sp.	ornamental rose	None	Introduced
<i>Verbascum</i> sp.	mullein	None	Native
<b>RUTACEAE</b>	<b>RUE FAMILY</b>		
<i>Citrus sinensis</i>	orange	None	Introduced
<i>Citrus</i> sp.	grapefruit	None	Introduced
<b>SIMAROUBACEAE</b>	<b>QUASSIA FAMILY</b>		
<i>Ailanthus altissima</i>	tree of heaven	None	Introduced
<b>SOLANACEAE</b>	<b>NIGHTSHADE FAMILY</b>		
<i>Datura wrightii</i>	jimson weed	None	Native
<i>Nicotiana glauca</i>	tree tobacco	None	Introduced
<i>Solanum xanti</i>	chaparral nightshade	None	Native
<b>VERBENACEAE</b>	<b>VERVAIN FAMILY</b>		
<i>Lantana camara</i>	common lantana	None	Introduced
<i>Lantana montevidensis</i>	trailing lantana	None	Introduced
<b>ANGIOSPERMS (MONOCOTYLEDONS)</b>			
<b>ARECACEAE</b>	<b>PALM FAMILY</b>		
<i>Washingtonia filifera</i>	California fan palm	None	Native
<i>Washingtonia robusta</i>	Mexican fan palm	None	Introduced
<b>LILIACEAE</b>	<b>LILY FAMILY</b>		
<i>Calochortus</i> sp.	mariposa lily	None	Native
<i>Chlorogalum pomeridianum</i>	soap plant	None	Native
<i>Dichelostemma capitatum</i>	blue dicks	None	Native
<i>Yucca whipplei</i>	Our Lord's candle	None	Native
<b>POACEAE</b>	<b>GRASS FAMILY</b>		
<i>Agrostis stolonifera</i>	redtop	None	Introduced
<i>Aristida ternipes</i> var. <i>hamulosa</i>	hook three-awn	None	Native
<i>Avena barbata</i>	slender wild oat	None	Introduced
<i>Avena fatua</i>	wild oat	None	Introduced
<i>Bromus diandrus</i>	ripgut grass	None	Introduced
<i>Bromus madritensis</i> ssp. <i>rubens</i>	foxtail chess	None	Introduced
<i>Bromus tectorum</i>	cheat grass	None	Introduced
<i>Cynodon dactylon</i>	Bermuda grass	None	Introduced
<i>Hordeum murinum</i>	glaucous foxtail barley	None	Introduced
<i>Pennisetum setaceum</i>	fountain grass	None	Introduced

**Appendix A (continued)**  
**Plant Species Observed during Seven W Enterprises Focused Survey**

Scientific Name	Common Name	Status	Native / Introduced
<b>POACEAE (continued)</b>	<b>GRASS FAMILY</b>		
<i>Poa annua</i>	annual bluegrass	None	Introduced
<i>Schismus barbatus</i>	Mediterranean schismus	None	Introduced
<i>Vulpia myuros</i>	fescue	None	Introduced
<i>Zea mays</i>	corn	None	Introduced

**APPENDIX B**  
**Site Photographs**



Photo 1: This photo is representative of the habitat where Parry's spineflower was observed within the Alternative 1 ROW of the Seven W Enterprises boundary.



Photo 2: This photo shows Parry's spineflower growing in an open area within the Alternative 1 ROW of the Seven W Enterprises boundary.



Photo 3: Parry's spineflower was observed growing along this road. The road is located approximately 100 ft. from the Alternative 2 ROW of the Seven W Enterprises boundary.



Photo 4: This photo is representative of the habitat where Parry's spineflower was observed along the Alternative 2 ROW of the Seven W Enterprises boundary.

**APPENDIX H – CHAMBERS GROUP PROTOCOL COASTAL CALIFORNIA  
GNATCATCHER SURVEY REPORT ON SEVEN W PROPERTY**

**DRAFT**

**COASTAL CALIFORNIA GNATCATCHER  
PROTOCOL SURVEY RESULTS**

**SEVEN W ENTERPRISES  
SAN BERNARDINO COUNTY, CA**

**Prepared for:  
Environmental Science Associates, Inc.  
707 Wilshire Blvd., Suite 1450  
Los Angeles, CA 90017**

**Prepared by:  
Chambers Group, Inc.  
17671 Cowan Ave., Suite 100  
Irvine, CA 92614**

**December 31, 2007**

## TABLE OF CONTENTS

	<u>Page</u>
<b>SECTION 1.0 - INTRODUCTION .....</b>	<b>1</b>
<b>SECTION 2.0 - METHODOLOGY .....</b>	<b>4</b>
<b>SECTION 3.0 - RESULTS .....</b>	<b>5</b>
<b>3.1 VEGETATION COMMUNITIES.....</b>	<b>5</b>
<b>3.2 COASTAL CALIFORNIA GNATCATCHER .....</b>	<b>6</b>
<b>3.3 OTHER SENSITIVE SPECIES.....</b>	<b>6</b>
3.3.1 Sensitive Species Descriptions and Onsite Occurrences.....	8
3.3.1.1 Northern Harrier ( <i>Circus cyaneus</i> ) .....	8
3.3.1.2 Cooper's Hawk ( <i>Accipiter cooperii</i> ) .....	9
3.3.1.3 Vaux's Swift ( <i>Chaetura vauxi</i> ) .....	9
3.3.1.4 Loggerhead Shrike ( <i>Lanius ludovicianus</i> ) .....	9
3.3.1.5 Coastal California Gnatcatcher ( <i>Polioptila californica californica</i> ) .....	10
3.3.1.6 Southern California Rufous-Crowned Sparrow ( <i>Aimophila ruficeps canescens</i> ) .....	10
3.3.1.7 Lawrence's Goldfinch ( <i>Carduelis lawrencei</i> ) .....	11
<b>SECTION 4.0 - DISCUSSION AND RECOMMENDATIONS.....</b>	<b>12</b>
<b>SECTION 5.0 - REFERENCES .....</b>	<b>14</b>

**LIST OF FIGURES**

<b><u>Figure</u></b>		<b><u>Page</u></b>
1	Project Site Vicinity Map.....	3
2	Project Site Location Map.....	4
3	Survey Results Map .....	10

**LIST OF TABLES**

<b><u>Table</u></b>		<b><u>Page</u></b>
1	Vegetation Communities .....	7
2	Survey Results.....	9

**APPENDIX A - WILDLIFE SPECIES DETECTED DURING GNATCATCHER SURVEYS**

## SECTION 1.0 - INTRODUCTION

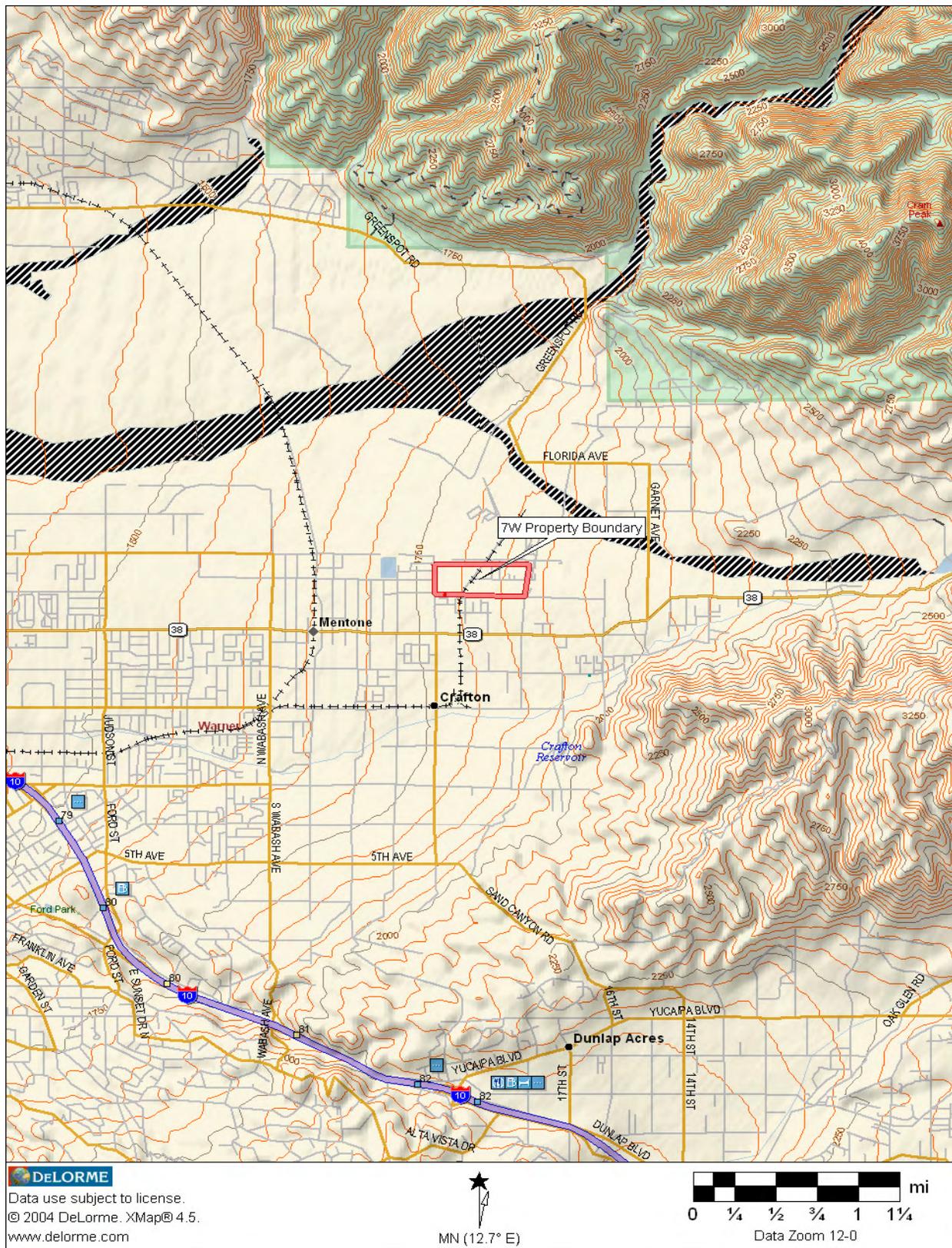
Chambers Group, Inc. (Chambers Group) was retained by Environmental Science Associates (ESA) to conduct focused protocol surveys for the federally threatened coastal California gnatcatcher (*Polioptila californica californica*) (gnatcatcher) on approximately 80 acres of the Seven W Enterprises property (Seven W), in the unincorporated community of Mentone, San Bernardino County, California (Figure 1). The northern, southern, and western borders of the project site are adjacent to two proposed pipeline rights-of-way (Alternatives 1 and 2, respectively) for the California Department of Water Resources (DWR) East Branch Extension Phase II (EBX II) project.

Seven W is located northeast of the intersection of Crafton Avenue and Madeira Avenue, continuing east adjacent to Madeira Avenue, and south of a percolation basin area operated by the San Bernardino Valley Municipal Water District (SBVMWD). The elevation on the site ranges from 1,780 feet above mean sea level (ft. amsl) in the western portion of the site to approximately 1,880 ft. amsl in the eastern portion of the site. Seven W is located in the U.S. Geological Survey (USGS) Yucaipa 7.5-minute topographic quadrangle, in Section 17, Township 1 South, and Range 2 West (Figure 2). Most of the central and eastern portions of the site are undeveloped and contain several abandoned facilities once operated by Lockheed. This undeveloped area is dominated by Riversidean alluvial fan sage scrub habitats, suitable to support gnatcatchers. The developed areas of the western portion of Seven W are not suitable to support gnatcatchers, and therefore, were not surveyed for this project.

The coastal California gnatcatcher was listed as threatened by the U.S. Fish and Wildlife Service (USFWS) in March 1993. The gnatcatcher is a non-migratory songbird that nests and forages in moderately dense stands of sage scrub habitats occurring on semi-arid hillsides, mesas, and washes. Loss of suitable habitat and fragmentation of habitat from expanding development and agriculture have been the major factors of declining populations for this species. Critical Habitat was designated on October 24, 2000 by the USFWS. Seven W is located within designated Critical Habitat, and suitable habitat for the species occurs throughout the undeveloped portions of the site (Chambers Group 2007). Recent occurrences of the species have been reported on the eastern portion of the site (PCCA 2006) and within one mile of the site (P & D 2005, PCCA 2006). Since DWR is proposing to construct new water pipelines adjacent to Seven W, protocol presence/absence surveys for the gnatcatcher became necessary, and nine non-breeding season surveys occurred between August 2, 2007 and December 17, 2007.



Figure 1 - Seven W Enterprises Gnatcatcher Survey Project Vicinity Map



**Figure 2 - Seven W Enterprises Gnatcatcher Survey Project Location Map**

## SECTION 2.0 - METHODOLOGY

USFWS-permitted Chambers Group biologist Kris Alberts (TE# -039640-1), assisted by Chambers Group biologists Saraiah Skidmore, Rebecca Alvidrez, and Paul Morrissey, conducted gnatcatcher surveys according to non-breeding season protocol established by USFWS guidelines (1997). The presence/absence surveys were conducted to determine the distribution and abundance of gnatcatchers within the survey area. Nine surveys of the site were conducted at a minimum of 14 days apart during the period between July 1, 2007 and March 14, 2008. These surveys occurred on August 2, August 20, September 6, September 20, October 4, October 18, November 1, November 16, and December 17, 2007. Due to access restrictions, all surveys occurred between 8:00 a.m. and 12:35 p.m. Surveys were not conducted during periods of excessive heat, cold, wind, rain, fog, or other adverse weather conditions. Various routes, walked through all appropriately suitable gnatcatcher habitats, were utilized in order to conduct an unbiased presence/absence survey of the site. No more than 80 acres were surveyed in one day. Tape recordings of gnatcatcher calls were not utilized during the first two surveys, but they were used during all other surveys in an attempt to locate individuals. The first two surveys relied more on pishing calls made by Mr. Alberts to detect potential gnatcatchers.

The locations of all observed gnatcatchers were mapped onto high-resolution aerial photographs. Territories were mapped by noting the locations of individual gnatcatchers within a given observation period, resulting in a territory map for the period. This mapping effort allowed acreages of occupied habitat to be compared to acres of unoccupied, yet still suitable, sage scrub habitats present onsite.

In addition to gnatcatcher observations, this report includes observations of other sensitive wildlife species recognized by the California Department of Fish and Game (CDFG). Results of the Chambers Group gnatcatcher surveys and other sensitive species observed are presented in Section 3.

Onsite vegetation was surveyed and mapped during a previous reconnaissance survey by Chambers Group (2007). Plant communities were determined in accordance with the categories set forth in Holland (1986) and Sawyer and Keeler-Wolf (1995). Vegetation characteristics are summarized in Section 3. The previously mapped vegetation communities were used in the analysis for gnatcatcher occupied and unoccupied areas within the potential impact areas of the two pipeline Alternatives adjacent to the north and south borders of Seven W.

## SECTION 3.0 - RESULTS

### 3.1 VEGETATION COMMUNITIES

The Seven W project site encompasses approximately 80 acres. A 400-foot wide total buffer (200 feet each side) from the proposed pipeline centerlines was created by the DWR along the two pipeline Alternatives that run adjacent to the north, south, and west sides of the Seven W boundary. Although the entire undeveloped portion of Seven W and suitable habitats just outside of Seven W were surveyed for gnatcatchers, this buffer area was the focal study area for this survey. The focal study area is the area that may be impacted by construction if one of the two pipeline Alternatives were installed adjacent to Seven W. Vegetative communities in the 200-foot buffer were mapped, and acreages of each community within the buffer were calculated (Figure 3). All communities and acreages are listed in Table 1. Eleven vegetation communities occur within the focal study area, totaling approximately 72 acres, and include Pioneer Riversidian Alluvial Fan Sage Scrub (RAFSS), Intermediate RAFSS, Disturbed Intermediate RAFSS, Mature RAFSS, California Buckwheat Alluvial Fan Association, Southern Riparian Scrub, Mulefat Scrub, Ruderal Vegetation, Ornamental Vegetation, Cultivated Agriculture, and Developed/Disturbed. The calculations include land within Seven W along the 200-foot buffer extending from pipeline centerlines, as well as land outside of Seven W within the 200-foot buffer.

Vegetation communities likely to be inhabited by the gnatcatcher were the primary focus during presence/absence surveys, and included Pioneer RAFSS, Intermediate RAFSS, Disturbed Intermediate RAFSS, Mature RAFSS, and California Buckwheat Alluvial Fan Association. These communities encompass approximately 25 acres of the focal study area. Gnatcatchers were observed utilizing vegetation communities mentioned above in the north-central portion of the study area along pipeline Alternative 1. These areas included Intermediate and Mature RAFSS communities with Developed/Disturbed, Ornamental, and Mulefat habitats between sage scrub patches. Acreages of each vegetation community within the 400 foot-wide buffer area occupied by gnatcatchers were also calculated and are listed in Table 1. Detections and observations are described in detail in Section 3.2.

**Table 1**  
**Vegetation Communities and Gnatcatcher Occupied Acreages**

Vegetation Communities	Approximate Total Acreages	Gnatcatcher Occupied Acreages
Pioneer RAFSS	0.7449	0
Intermediate RAFSS	6.1070	0.7237
Disturbed Intermediate RAFSS	2.5434	0
Mature RAFSS	7.5728	0.9500
California Buckwheat Alluvial Fan Association	8.3268	0
Southern Riparian Scrub	0.0916	0
Mulefat Scrub	0.3358	0.0234
Ruderal Vegetation	0.4991	0
Ornamental Landscaping	6.1945	0.0208
Developed/Disturbed	37.9291	0.8369
<b>TOTAL:</b>	<b>71.914</b>	<b>2.555</b>

### 3.2 COASTAL CALIFORNIA GNATCATCHER

Prior to the commencement of protocol gnatcatcher presence/absence surveys and during a focused plant survey conducted on Seven W on August 1, a coastal California gnatcatcher was detected mewing repetitively by Kris Alberts. Its location along the north-central edge of Seven W was noted, and this occurrence has been included in this report as an incidental observation.

On August 20, from 8:52 a.m. to 9:22 a.m., during a gnatcatcher survey, two individual coastal California gnatcatchers, probably representing a pair, were detected along generally the same north-central portion of Seven W as the earlier incidental observation. The first individual was detected by vocalization with a faint mewing call. This gnatcatcher mewed about five times in this time frame, but was never seen. These behaviors suggest a female gnatcatcher. A more vocal gnatcatcher was observed several times during this time frame foraging and perching on the tops of several shrubs, presumably in response to the initial pishing of Mr. Alberts during the observation period. This observed gnatcatcher did not have any trace of a black cap, and did not have any USFWS bands on its legs. An adult male should normally exhibit at least *some* degree of black on its cap at the time of this observation. However, since this individual had no black coloration, and its responsive behavior was typical for males of this species, this observed gnatcatcher was either an adult male with no cap remaining or a juvenile male. The behaviors of these gnatcatchers suggested a pair, with the male being more vocal and perching on top of shrubs in reaction to pishing calls, while the female was quieter and remained hidden. Another possibility for this sighting is that these two individuals may represent dispersing juvenile male and female siblings. Nevertheless, this area was observed as occupied by two gnatcatchers on August 20.

The incidental observation of August 1 was transposed with the use area documented on August 20 to result in a 4.580 acre polygon of gnatcatcher occupied habitat within and just north of Seven W. 2.555 acres of this total area occur within the focal study area for pipeline Alternative 1. It is highly likely that the bird observed on August 1 was one of the two birds observed on August 20. Therefore, the polygon is considered to be occupied by two gnatcatchers.

A summary of dates and observations of gnatcatchers is included as Table 2. A map of the locations of observed gnatcatchers and gnatcatcher territories is included as Figure 3.

### 3.3 OTHER SENSITIVE SPECIES

In addition to the gnatcatcher observations, six other sensitive wildlife species were found on the Seven W project site during the surveys. These included northern harrier (*Circus cyaneus*), Cooper's hawk (*Accipiter cooperii*), Vaux's swift (*Chaetura vauxi*), loggerhead shrike (*Lanius ludovicianus*), southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*), and Lawrence's goldfinch (*Carduelis lawrencei*). A list of sensitive species found during the surveys is included in Table 2. Locations of the observations of these sensitive species are depicted in Figure 3.

**Figure 3 - Survey Results Map**

**Table 2**

**Coastal California Gnatcatcher Survey Results for Seven W**

<b>Date</b>	<b>CAGN present?</b>	<b>Other sensitive species present?</b>
8/2/2007	<b>Yes</b> * (* incidentally on 8-1-07; 1 CAGN heard mewing north of and within the north-central Seven W area)	None detected
8/20/2007	<b>Yes</b> (two individuals observed foraging from 0852 to 0922 in the north-central Seven W area)	None detected
9/6/2007	None detected	1 rufous-crowned sparrow heard (resident), small flock of Lawrence's goldfinch
9/20/2007	None detected	2 loggerhead shrikes (foraging), 1 Vaux's swift (migrating)
10/4/2007	None detected	1 loggerhead shrike (foraging), 1 Cooper's hawk (foraging)
10/18/2007	None detected	1 rufous-crowned sparrow heard (resident), 1 loggerhead shrike (foraging), 1 northern harrier (soaring)
11/1/2007	None detected	None detected
11/16/2007	None detected	None detected
12/17/2007	None detected	None detected

**3.3.1 SENSITIVE SPECIES DESCRIPTIONS AND ONSITE OCCURRENCES**

The following paragraphs describe all sensitive wildlife species observed during the gnatcatcher surveys. Each description includes dates of observation, observed behaviors, and other pertinent information related to how each species was observed within Seven W.

**3.3.1.1 Northern Harrier (*Circus cyaneus*)**

The northern harrier (nesting) is a California Species of Concern. This species includes almost all of North America within its range and extends into South America. True to its nickname, the “marsh hawk”, habitats include wetlands, marshy meadows, boglands, pasturelands, wet grasslands, old fields, tundra, open riparian woodlands, and freshwater and brackish marshes. It also occurs on dry uplands, including upland prairies, mesic grasslands, drained marshlands, croplands, and cold desert shrub-steppe, especially where these occur next to water bodies. It nests on the ground in shrubby vegetation, often at the edge of a marsh (Call 1978). Adult males are gray with black wingtips, and females and juveniles are brown; all have a conspicuous white rump. This long-winged, long-tailed hawk hunts by flying low and slow in a characteristic dihedral, looking for and listening for rodents as well as small birds. Its small owl-like face is well adapted for this hunting strategy. It tends to prefer low perches rather than poles or tall trees and often perches on the ground (Kaufman 2000). Population declines are attributed to widespread habitat loss and chemical poisoning (MacWhirter and Bildstein 1996).

One northern harrier was observed soaring at very high altitudes over the Santa Ana River just north of the Seven W project site on October 18, 2007 (Figure 3).

### 3.3.1.2 Cooper's Hawk (*Accipiter cooperii*)

The Cooper's hawk (nesting) is a California Species of Concern. This species occurs as a migrant and/or resident over most of the U.S. from southern Canada to northern Mexico. Favored habitats include open woodlands, mature forests, woodland edges, and river groves. Recent studies show that the Cooper's hawk will breed in suburban and urban areas that have similar tree structures to native habitats. This medium-sized (14-20 inches) hawk is well adapted for hunting birds as prey with its long tail and short, rounded wings; these features allow maneuverability in pursuit and on the ambush. It is similar in appearance to the sharp-shinned hawk (*Accipiter striatus*), but is distinguished by its larger size, more rounded tail, and darker crown. In addition to birds, it may also take amphibians, reptiles and small mammals as supplemental prey items. Historic population losses resulted from the widespread use of DDT. Other threats include habitat loss and illegal hunting (Remsen 1978).

One Cooper's hawk was observed flying up to and perching on a pole near the northern boundary of the project site on October 4, 2007 (Figure 3). After sitting on the pole for a couple minutes, the hawk quickly flew down and apparently captured a bird near the ground, as it was not seen returning up from the ground.

### 3.3.1.3 Vaux's Swift (*Chaetura vauxi*)

The Vaux's swift (nesting) is a California Species of Concern. The breeding range of this species extends along the Pacific coast from southeast Alaska to central California, and as far inland as western Montana. It winters from eastern and western Mexico south to Panama and, on the Yucatan Peninsula and in northern Venezuela (Bull and Beckwith 1993). Migrants occur throughout California, primarily from mid-April to late May in spring, and from late August to mid-October in fall. It occurs in the open sky over foothills, burnt forests, woodlands, lakes, and rivers. This species nests primarily in hollow live trees and forages aerially for insects on the wing. Roosting migrants require some kind of shelter. If available, hollow structures, such as decayed or burned trees, chimneys, barns, outbuildings, or building shafts, are used as roost sites (Bull and Beckwith 1993). If such protection is not available, it may cling to tree trunks on cold nights (Stager 1965), huddling together to reduce thermal stress. The Vaux's swift is dark gray overall with no contrasting markings and a short, stubby tail. Its blunt-ended, cylindrical body and stiff wings give rise to the description "a cigar with wings" (Sibley 2003). Although the Vaux's swift is very similar in appearance to the chimney swift, it can be distinguished by its slightly lighter color and by its characteristic high, insect-like trilling and rapid weak chips as opposed to the loud, staccato chipping calls of the chimney swift. The chief cause of population declines is thought to be the felling of old growth forests and replacement with young, even-aged stands; this deprives swifts of available nest and roost sites (Bull and Beckwith 1993). Man-made structures such as chimneys are used for nest sites in parts of the breeding range; changes in chimney design and blocking of chimney entrances by screens and spark arresters may eliminate potential nest sites (Bull and Beckwith 1993). A potential threat to migrants is the loss of important, traditional roost sites.

Vaux's swift was observed migrating over the Seven W project site on September 20, 2007 in a west to east direction. One individual was observed near the eastern boundary of the project site (Figure 3).

### 3.3.1.4 Loggerhead Shrike (*Lanius ludovicianus*)

The loggerhead shrike (nesting) is a California Species of Concern. Its range includes most of the U.S. from southern Canada to southern Mexico. The U.S. population is largely resident to the south and migratory to the north, but migrants and residents frequently overlap throughout its range. Habitats may include oak savannas, open chaparral, desert washes, juniper woodlands, Joshua tree woodlands, and other semi-open areas. It can occupy a variety of semi-open habitats with scattered trees, large shrubs, utility poles, and other structures that serve as lookout posts for potential prey. It is a carnivorous species that preys primarily upon insects, but also takes lizards, mice, birds, carrion and other opportunistic items. The loggerhead shrike has a habit of caching its food for later consumption by impaling its prey on thorns,

sharp twigs, or barbed wire; hence the terms “butcher bird”. This species is recognized by; its black facial mask, overall gray, black, and white color pattern, relatively big head, and hook-tipped bill. Habitat loss and pesticides are the two dominant factors in the decline of this species (Ehrlich et al. 1988, Scott 1990).

Two loggerhead shrikes were observed several times on the project site (Figure 3). One shrike was observed perched on the eastern boundary fence pruning itself on September 20, 2007. The other shrike was observed in the center of the Seven W project site on September 20, and again on October 4 and 10, 2007. It was unclear whether these were resident or migratory individuals, but all shrike observations suggested that these individuals were actively foraging on Seven W.

### **3.3.1.5 Coastal California Gnatcatcher (*Polioptila californica californica*)**

The coastal California gnatcatcher is a federally threatened species and a California Species of Concern. The historic range of this species extended from the coast and foothills of Ventura County, south through Los Angeles, southwestern San Bernardino, western Riverside, Orange, and San Diego Counties of California into northwestern Baja California, Mexico. Populations have since become increasingly fragmented. It is a permanent resident of Diegan, Riversidian, and Venturan sage scrub sub-associations found from sea level to 2,500 feet in elevation. Within its range, it associates strongly with California sagebrush (*Artemisia californica*) dominant habitats and also occurs in mixed scrub habitats with lesser percentages of this favored shrub. Other plant species important for the nesting and foraging of this species include California buckwheat (*Eriogonum fasciculatum*), white sage (*Salvia apiana*), black sage (*Salvia mellifera*), and chaparral broom (*Baccharis sarothroides*). Chamise (*Adenostoma fasciculatum*) habitats may also support breeding pairs, especially where coastal sage scrub may occur nearby or form a component (Bontrager 1991). The coastal California gnatcatcher is a small, secretive songbird with grayish coloration and faint white outer tail margins. Males of this species exhibit a black cap during the breeding season. This insectivorous bird nests and forages in moderately dense stands along gentle slopes, arid hillsides, mesas, foothills, and alluvial washes (ERCE 1990). It gleans a variety of insects within its territory, including caterpillars and other larval insects. It builds a cup nest in suitably dense shrubs and lays four eggs, on average. Both parents participate in all stages of nest building and rearing of the young. Most studies with large numbers of individually marked gnatcatchers have found home range sizes in excess of ten acres. Non-breeding season home ranges may be about 80% larger than breeding season home ranges (Preston et al. 1998). Contributing factors in the decline of this species include overly frequent fire cycles, non-native plant invasions, brown-headed cowbird (*Molothrus ater*) nest parasitism, predation, and widespread habitat loss to urbanization and agriculture (Mock et al. 1990, Bontrager 1991). Rangewide habitat loss is estimated at 75 to 90% (Westman 1981), and the populations that remain are under increasing pressure from development. In 1993, the population of California gnatcatchers was estimated at less than 2,000 pairs (USFWS). Current estimates range between 3,000 and 5,000 breeding pairs, which are largely dependent upon rainfall cycles.

The coastal California gnatcatcher was detected/observed twice on the Seven W project site. The first individual was heard mewing on August 1 by Kris Alberts during a focused plant survey on Seven W. Two California gnatcatchers were detected/observed in the same general area as the prior observation on August 20, 2007 during a protocol gnatcatcher survey. Both detections occurred at the north-central boundary of Seven W, along the potential impact area for pipeline Alternative 1. A 4.580-acre polygon was created to illustrate the occupied area of these two observations, which most likely represent that of two, but not three, individual gnatcatchers. 2.555 acres of this total occur within the impact area for pipeline Alternative 1 (Figure 3).

### **3.3.1.6 Southern California Rufous-Crowned Sparrow (*Aimophila ruficeps canescens*)**

The southern California rufous-crowned sparrow is a California Species of Concern. It is one of seventeen recognized subspecies of the rufous-crowned sparrow, whose overall range includes parts of California, Arizona, New Mexico, Texas, Oklahoma and Arkansas as well as Mexico. However, this subspecies is a resident of southwest California on the slopes of the Transverse and Coastal ranges from

Los Angeles County south to Baja California Norte; it can also be found on San Martin Island. Habitats include broken sage scrub and chaparral, native grasslands with sparse shrubs, and rocky, brush hillsides and canyons with open patches. They are known to have a preference for habitat with California sagebrush (*Artemisia californica*). It is a small non-descript sparrow with a rusty crown, white eye-ring, dark whisker marks, and a flat-headed appearance. It is a secretive species that is more often heard than seen (Kaufman 2000). Rufous-crowned sparrows forage on insects during the breeding season and on forbs, grasses, and seeds, during the rest of the year (Verner and Boss 1980; Bent 1968). They are very sensitive to fragmentation and edge effects (Bolger *et al.* 1997). Habitat loss is the primary factor in the decline of the southern California rufous-crowned sparrow.

The southern California rufous-crowned sparrow was detected on September 6 and October 18, 2007. For both occurrences, the species was detected by vocalizations on the north-eastern side of Seven W (Figure 3). The proximity of these detections suggest that these two observations are likely that of one territory, and may represent a breeding pair.

#### **3.3.1.7 Lawrence's Goldfinch (*Carduelis lawrencei*)**

The Lawrence's goldfinch (nesting) is not a listed species, but it is considered rare in California. It appears on the Watch lists of several conservation groups. It breeds in the foothills surrounding the Central Valley of California and in the coastal Californian foothills from Contra Costa County south to Santa Barbara County. In southern California, it is rarely found at higher elevations of the Colorado Desert and was also found historically in the lower Colorado River Valley. It inhabits arid and open woodlands near chaparral or other bushy areas, tall annual grasslands, and tends to associate with sources of water. Its nesting grounds are frequently dominated by live oaks (*Quercus* spp.) or blue oaks (*Quercus douglasii*), and it may also use riparian woodlands, coastal scrub, or broadleaf evergreen forests (Davis, 1999). The Lawrence's goldfinch is a small, grey finch with a conical bill and yellow washes on the breast and wings. The male has a black "mask" covering the lores and chin. The female has similar features but does not have a mask and has duller yellow markings. Unlike many wildlife species, the Lawrence's goldfinch may benefit from non-intensive human activities that increase annual plant populations, consequently providing food for the species. However, the small relative abundance of the species may make it more susceptible to habitat loss.

A small flock of up to eight individuals were observed foraging within a mixed flock of lesser goldfinch and house finch on September 6, 2007. It is unlikely that this species breeds on the project site.

## SECTION 4.0 - DISCUSSION AND RECOMMENDATIONS

Throughout the course of these surveys, an area occupied by no less than two California gnatcatchers was identified along the north-central portion of Seven W, representing 4.580 total acres of occupied habitat. Occupied habitats include Intermediate and Mature RAFSS communities. Other habitats within the defined occupied polygon shown in Figure 3 were used merely as flyways between sage scrub habitats, and not as foraging areas during the observation period.

Because gnatcatchers were only observed on Seven W on August 1 and 20, 2007, the occupied area may represent an extended territory used during the non-breeding season. A heavily defended, more centralized gnatcatcher location would have undoubtedly yielded more positive results during this survey period. Gnatcatcher territory sizes tend to increase during the non-breeding season, when plant growth has slowed and consequential food sources become less abundant. Therefore, non-breeding season territory sizes tend to be larger than those defended during the breeding season, so that the individuals will obtain enough food over the winter to survive into the next breeding season. Lower food availability is also affected by low rainfall. Consequently, the onsite habitats were not as abundant with insects or their larvae suitable for gleaning by foraging gnatcatchers, a dual function of two successive drought years and the drought-deciduous nature of the woody sage scrub species during the period of this survey. Because insects and their larvae are the only food sources for gnatcatchers, territory sizes on and near Seven W were expected to be abnormally large, and when factoring in two consecutive dry years with only these two observations (out of nine potential observations) obtained during the non-breeding season of late 2007, it suggests that the area of occupancy within Seven W is just an outer extension of a larger foraging area.

Despite the limited gnatcatcher results for Seven W, the undeveloped portions of Seven W and all surrounding Riversidean alluvial fan sage scrub communities should be considered potentially occupied habitat by gnatcatchers before beginning any construction onsite. Avoidance and minimization measures implemented for the selected pipeline Alternative should ensure the safety of all California gnatcatchers on Seven W as well as the remainder of the selected route.

Other recommendations relative to gnatcatchers on Seven W include the following:

- Construction activities should occur during the non-breeding season (i.e. between September 1 and February 14).
- Qualified biological monitors should be present prior to and during all construction activities that occur between February 15 and August 31 to fully minimize the amount of disturbance to the gnatcatcher by detecting any individuals occurring within the project area. Gnatcatchers detected within or adjacent to (e.g., within 1,000 feet) the project activities should not be "flushed" out of habitat. Rather, if gnatcatchers are detected on the proposed project site, including within a 1,000-foot radius, construction activities should cease, and the USFWS should be contacted for further instructions before resuming construction.
- If construction must occur during the breeding season, pre-construction nest clearance surveys should be performed along the selected route to protect gnatcatchers and all other bird species protected by the Migratory Bird Treaty Act, the Federal Endangered Species Act, the California Endangered Species Act, and all California Fully-Protected Species.
- If construction must occur during the breeding season, sound level meters should be deployed around construction areas to ensure that average sound levels do not surpass 60 average decibels. If this level is surpassed, sound barriers may need to be installed to ensure that noise impacts are not negatively affecting the gnatcatchers around the project site.
- If a gnatcatcher nest or the nest of another protected bird species is found during construction activities, a buffer area of 500 to 1,000 feet should be established around the perimeter of the

nest where construction-related activities will not be allowed until a qualified biologist has determined that the nest has failed or fledged its young and that the young are mobile enough to avoid construction areas upon resuming construction activities.

- Whenever possible, construction activities should minimize disturbances to native habitats.
- All impacted native Riversidean sage scrub habitats should be restored in a manner conducive for gnatcatchers as well as all other known sensitive species onsite (i.e. San Bernardino kangaroo rat, Parry's spineflower, loggerhead shrike, southern California rufous-crowned sparrow, Cooper's hawk, etc.).

## SECTION 5.0 - REFERENCES

- Bull, E.L. and R.C. Beckwith  
1993 Diet and foraging behavior of Vaux's Swifts in northeastern Oregon. *Condor* 96:1016-1023.
- Chambers Group, Inc.  
2007 Amended results of the Biological Reconnaissance for Area Seven W (EBX-II Alt 1/Alt2), unincorporated community of Mentone, San Bernardino County, California. Letter report to ESA Water dated July 20, 2007.
- Ehrlich, P. R., D. S. Dobkin, and D. Wheye.  
1988 *The birder's handbook*. Simon and Schuster, New York.
- Holland, R. F.  
1986 *Preliminary Descriptions of the Terrestrial Natural Communities of California*. Unpublished report available from California Department of Fish and Game, Sacramento, California.
- Kaufman, Ken.  
2000 *Birds of North America*. Hillstar Editions L.C. New York.
- Pacific Coast Conservation Alliance (PCCA)  
2006 Sensitive Avian Surveys in Support of the California Department of Water Resources East Branch Extension Project Phase II.
- P&D Consultants (P & D)  
2005 Results of the Biological Resources Reconnaissance Survey for the East Branch Extension Phase II Project. P&D Consultants, Orange, California. Prepared for the California Department of Water Resources, Unpublished Report.
- Remsen, J. V., Jr.  
1978 Bird species of special concern in California: an annotated list of declining or vulnerable bird species. Calif. Dept. Fish and Game, Nongame Wildl. Invest., Wildl. Mgmt. Branch, Admin. Rep.No. 78-I.
- Riverside County Integrated Project (RCIP) - Western Riverside County Species Accounts  
1968 Bent, A.C. Life histories of North American cardinals, grosbeaks, buntings, towhees, finches, sparrows, and allies. U.S. National Museum Bulletin 237:1889 pp.  
1997 Bolger, D. T., T. A. Scott and J. T. Rotenberry. Breeding bird abundance in an urbanizing landscape in coastal Southern California. *Conservation Biology*, v.11, n.2, 1997:406-421.  
1991 Bontrager, D. R. Habitat requirements, home range and breeding biology of the California gnatcatcher (*Polioptila californica*) in South Orange County, California. Prepared for Santa Margarita Company, Rancho Santa Margarita, California.  
1978 Call, M. W. Nesting habits and survey techniques for common western raptors. U. S. Dep. Inter., Bur. Land Manage., Portland, OR. Tech. Note No. 316. 115pp.  
1990 Environmental and Energy Services Co. Phase I Report Amber Ridge California Gnatcatcher Study. Prepared for Weingarten, Siegel, Fletcher Group, Inc.  
1996 MacWhirter, R. B., and K. L. Bildstein. Northern Harrier (*Circus cyaneus*). *In* The Birds of North America, No. 210 (A. Poole and F. Gill, eds.). The Academy of Natural Sciences, Philadelphia, and The American Ornithologists' Union, Washington, D.C.

- 1990 Mock, P.J., B. L. Jones, and J. Konecny. California Gnatcatcher Survey Guidelines. ERC Environmental and Energy Services Co.
- 1981a Westman, W. Diversity relations and succession in California coastal sage scrub. *Ecology* 62:170-184.
- 1981b Westman, W. Factors influencing the distribution of species of California coastal sage scrub. *Ecology* 62:439-455.
- 1998 Preston, K. L., P. J. Mock, M. A. Grishaver, E. A. Bailey, and D. F. King. 1998. California gnatcatcher territorial behavior. *Western Birds* 29: 242-257.
- 1979 Verner, J., and A. B. Boss. California wildlife and their habitats: western Sierra Nevada. U.S. Dept. Agriculture, Forest Service. Berkeley. General Technical Report PSW-37. 439 pp.
- Sawyer, J.O., Jr. and T. Keeler-Wolf  
 1995 A Manual of California Vegetation. California Native Plant Society, Sacramento, California.
- Scott, T.A. and M.L. Morrison.  
 1990 Natural history and management of the San Clemente loggerhead shrike. *Proc. West. Found. Vertebr. Zool.* 4:23-57.
- Sibley  
 2003 The Sibley Field Guide to Birds of Western North America. Chanticleer Press, Inc. New York.
- Stager, K. E.  
 1965 An exposed nocturnal roost of migrant Vaux's Swifts. *Condor* 67:81-82.
- U. S. Fish and Wildlife Service (USFWS)  
 1993 *Endangered and threatened wildlife and plants; determination of threatened status for the coastal California gnatcatcher.* Final rule. *Federal Register* 58: 16742-16757.
- 1997 Coastal California Gnatcatcher (*Polioptila californica californica*): Presence/Absence Survey Guidelines. Unpublished Paper. Sacramento, CA.
- 2000 Final Determination of Critical Habitat for the Coastal California Gnatcatcher in Los Angeles, Orange, Riverside, San Bernardino, and San Diego Counties, California. *Federal Register* 65:63679-63743.
- U. S. Geological Survey (USGS)  
 1980 Yucaipa 7.5' Topographic Quadrangle, 1967; photo revised 1980.

**APPENDIX A – GNATCATCHER WILDLIFE LIST**

**Appendix A  
Gnatcatcher Wildlife List**

Scientific Name	Common Name
<b>CLASS AMPHIBIA</b>	<b>AMPHIBIANS</b>
<b>HYLIDAE</b>	<b>TREEFROGS</b>
<i>Pseudacris regilla</i>	Pacific chorus treefrog
<b>CLASS REPTILIA</b>	<b>REPTILES</b>
<b>PHRYNOSOMATIDAE</b>	<b>ZEBRA-TAILED, EARLESS, FRINGE-TOED, SPINY, TREE, SIDE-BLOTCHED, AND HORNLY LIZARDS</b>
<i>Sceloporus occidentalis</i>	western fence lizard
<i>Uta stansburiana</i>	common side-blotched lizard
<b>TEIIDAE</b>	<b>WHIPTAIL LIZARDS</b>
<i>Cnemidophorus tigris</i>	western whiptail
<b>CLASS AVES</b>	<b>BIRDS</b>
<b>ACCIPITRIDAE</b>	<b>HAWKS, KITES, EAGLES</b>
<i>Circus cyaneus</i>	northern harrier
<i>Accipiter cooperii</i>	Cooper's hawk
<i>Buteo jamaicensis</i>	red-tailed hawk
<i>Buteo lineatus</i>	red-shouldered hawk
<b>FALCONIDAE</b>	<b>FALCONS</b>
<i>Falco sparverius</i>	American kestrel
<b>ODONTOPHORIDAE</b>	<b>NEW WORLD QUAIL</b>
<i>Callipepla californica</i>	California quail
<b>COLUMBIDAE</b>	<b>PIGEONS &amp; DOVES</b>
<i>Columba livia</i>	rock pigeon
<i>Streptopelia decaocto</i>	Eurasian collared-dove
<i>Zenaida macroura</i>	mourning dove
<b>CUCULIDAE</b>	<b>CUCKOOS &amp; ROADRUNNERS</b>
<i>Geococcyx californianus</i>	greater roadrunner
<b>PSITTACIDAE</b>	<b>PARROTS AND PARAKEETS</b>
<i>Amazona oratrix</i>	yellow-headed parrot
<b>TYTONIDAE</b>	<b>BARN OWLS</b>
<i>Tyto alba</i>	barn owl
<b>STRIGIDAE</b>	<b>TRUE OWLS</b>
<i>Bubo virginianus</i>	great horned owl
<b>APODIDAE</b>	<b>SWIFTS</b>
<i>Chaetura vauxi</i>	Vaux's swift

**Appendix A  
Gnatcatcher Wildlife List  
(continued)**

<b>TROCHILIDAE</b>	<b>HUMMINGBIRDS</b>
<i>Calypte anna</i>	Anna's hummingbird
<i>Calypte costae</i>	Costa's hummingbird
<b>PICIDAE</b>	<b>WOODPECKERS</b>
<i>Colaptes auratus</i>	northern flicker
<i>Picoides nuttallii</i>	Nuttall's woodpecker
<b>TYRANNIDAE</b>	<b>TYRANT FLYCATCHERS</b>
<i>Sayornis nigricans</i>	black phoebe
<i>Sayornis saya</i>	Say's phoebe
<i>Tyrannus verticalis</i>	western kingbird
<i>Tyrannus vociferans</i>	Cassin's kingbird
<b>HIRUNDINIDAE</b>	<b>SWALLOWS</b>
<i>Petrochelidon pyrrhonota</i>	cliff swallow
<i>Hirundo rustica</i>	barn swallow
<i>Stelgidopteryx serripennis</i>	northern rough-winged swallow
<i>Tachycineta thalassina</i>	violet-green swallow
<b>CORVIDAE</b>	<b>JAYS &amp; CROWS</b>
<i>Aphelocoma californica</i>	Western scrub-jay
<i>Corvus brachyrhynchos</i>	American crow
<i>Corvus corax</i>	common raven
<b>AEGITHALIDAE</b>	<b>BUSHTITS</b>
<i>Psaltriparus minimus</i>	bushtit
<b>TROGLODYTIDAE</b>	<b>WRENS</b>
<i>Campylorhynchus brunneicapillus</i>	cactus wren
<i>Thryomanes bewickii</i>	Bewick's wren
<b>TIMALIIDAE</b>	<b>BABBLERS</b>
<i>Chamaea fasciata</i>	wrentit
<b>SYLVIIDAE</b>	<b>OLD WORLD WARBLERS, GNATCATCHERS</b>
<i>Polioptila caerulea</i>	blue-gray gnatcatcher
<i>Polioptila californica californica</i>	coastal California gnatcatcher
<b>MIMIDAE</b>	<b>MOCKINGBIRDS, THRASHERS</b>
<i>Mimus polyglottos</i>	northern mockingbird
<i>Toxostoma redivivum</i>	California thrasher
<b>PTILOGONATIDAE</b>	<b>SILKY-FLYCATCHERS</b>
<i>Phainopepla nitens</i>	phainopepla

**Appendix A  
Gnatcatcher Wildlife List  
(continued)**

<b>LANIIDAE</b>	<b>SHRIKES</b>
<i>Lanius ludovicianus</i>	loggerhead shrike
<b>STURNIDAE</b>	<b>STARLINGS</b>
<i>Sturnus vulgaris</i>	European starling
<b>PARULIDAE</b>	<b>WOOD WARBLERS</b>
<i>Dendroica coronata</i>	yellow-rumped warbler
<b>EMBERIZIDAE</b>	<b>EMBERIZIDS</b>
<i>Aimophila ruficeps canescens</i>	southern California rufous-crowned sparrow
<i>Pipilo crissalis</i>	California towhee
<i>Pipilo maculatus</i>	spotted towhee
<i>Zonotrichia leucophrys</i>	white-crowned sparrow
<b>CARDINALIDAE</b>	<b>CARDINALS</b>
<i>Guiraca caerulea</i>	blue grosbeak
<b>FRINGILLIDAE</b>	<b>FINCHES</b>
<i>Carduelis lawrencei</i>	Lawrence's goldfinch
<i>Carduelis psaltria</i>	lesser goldfinch
<i>Carpodacus mexicanus</i>	house finch
<b>CLASS MAMMALIA</b>	<b>MAMMALS</b>
<b>DIDELPHIDAE</b>	<b>NEW WORLD OPOSSUMS</b>
<i>Didelphis virginiana</i>	Virginia opossum
<b>LEPORIDAE</b>	<b>HARES &amp; RABBITS</b>
<i>Sylvilagus audubonii</i>	desert cottontail
<b>SCIURIDAE</b>	<b>SQUIRRELS</b>
<i>Spermophilus beecheyi</i>	California ground squirrel
<b>HETEROMYIDAE</b>	<b>POCKET MICE &amp; KANGAROO RATS</b>
<b>MURIDAE</b>	<b>MICE, RATS, AND VOLES</b>
<i>Neotoma lepida</i>	desert woodrat
<b>CANIDAE</b>	<b>WOLVES &amp; FOXES</b>
<i>Canis latrans</i>	coyote
<i>Urocyon cinereoargenteus</i>	gray fox
<b>PROCYONIDAE</b>	<b>RACCOONS</b>
<i>Procyon lotor</i>	raccoon
<b>FELIDAE</b>	<b>CATS</b>
<i>Lynx rufus</i>	bobcat

**APPENDIX I – DAVENPORT BIOLOGICAL SERVICES SAN BERNARDINO  
KANGAROO RAT REPORT**

**San Bernardino Kangaroo Rat (*Dipodomys merriami parvus*)**  
**Presence/Absence Survey**  
**Mentone Pipeline Project**  
**Mentone, California**  
(T1S, R2W, Section 20, USGS Yucaipa 7.5 Minute Quadrangle)

**Prepared for:**

**Chambers Group, Inc.**  
**Corporate Headquarters**  
**17671 Cowan Ave., Suite 100**  
**Irvine, CA 92614**

**Prepared by:**

**Arthur Davenport**  
**Davenport Biological Services**  
**P.O. Box 1692**  
**Barstow, Ca 92312**

**September 29, 2007**

## **INTRODUCTION**

On 20 August 2007, Davenport Biological Services (DBS) was hired by the Chambers Group, Inc., to determine the presence or absence of the San Bernardino kangaroo rat (*Dipodomys merriami parvus*)(SBKR) on what is identified as the 7W parcel (a portion of the proposed project area of the Mentone Pipeline Project). A preliminary site visit of the 7W parcel was completed on 20 August 2007 between DBS and Kris Alberts, Chambers Group, Inc. The site was reviewed and access to various portions of the site discussed. Surveys for the SBKR were initiated on 20 August 2007.

The 7W parcel is approximately 80 acres in size. Approximately 60 acres of the site were thought to have potential for the SBKR. The survey area is located in San Bernardino County (Figure 1); the survey area is depicted in Figure 2.

Due to legal constraints regarding access to the 7W parcel, trapping sessions were shortened to four consecutive nights. Thus, the 7W parcel was trapped during two separate, four night, sessions. The first trapping session occurred between August 20 and 24, 2007. The second trapping session occurred between August 27 and 31, 2007.

The study was completed under recovery permit No. TE-802450-5.

### **Species Information**

The SBKR is one of 25 subspecies of *Dipodomys merriami* (Hall, 1982). The SBKR is one of two subspecies of *D. merriami* that occur on the coastal plain of southern California (i.e., south of the Transverse Range and west of the Peninsular Ranges). The SBKR is typically associated with alluvial sage scrub and adjacent plant communities where the soils are typically sandy. The number of SBKR seems to remain highest in areas where shrub cover is low (e.g., less than 60 percent), annual vegetation is sparse, and the ground tends to be predominantly composed of sand and gravel. Like other kangaroo rats, the SBKR predominantly collects and consumes seeds (e.g., grass), but will eat green vegetation as well as an occasional insect.

The SBKR was listed as an endangered species under the Federal Endangered Species Act of 1973, as amended (FESA), on September 24, 1998 (Federal Register 63:51005).

The SBKR is identified by the State as a species of special concern (CDFG, 2003). Based on information provided with their list of "Special Animals," the Department of Fish and Game has designated certain vertebrate species as "Species of Special Concern" because declining population levels, limited ranges, and/or continuing threats have made them vulnerable to extinction. The goal of this designation is to halt or reverse their decline by calling attention to their plight and addressing the issues of concern early enough to secure their continued existence.

## **Previous Records**

Sixty-six specimens of SBKR are kept at the Museum of Vertebrate Zoology, Berkeley. Based on review of those specimens, SBKR have been collected within the Santa Ana River Wash in Redlands (MVZ Mamm 182964, 182965, and 182966). The Redlands records were collected in 1993.

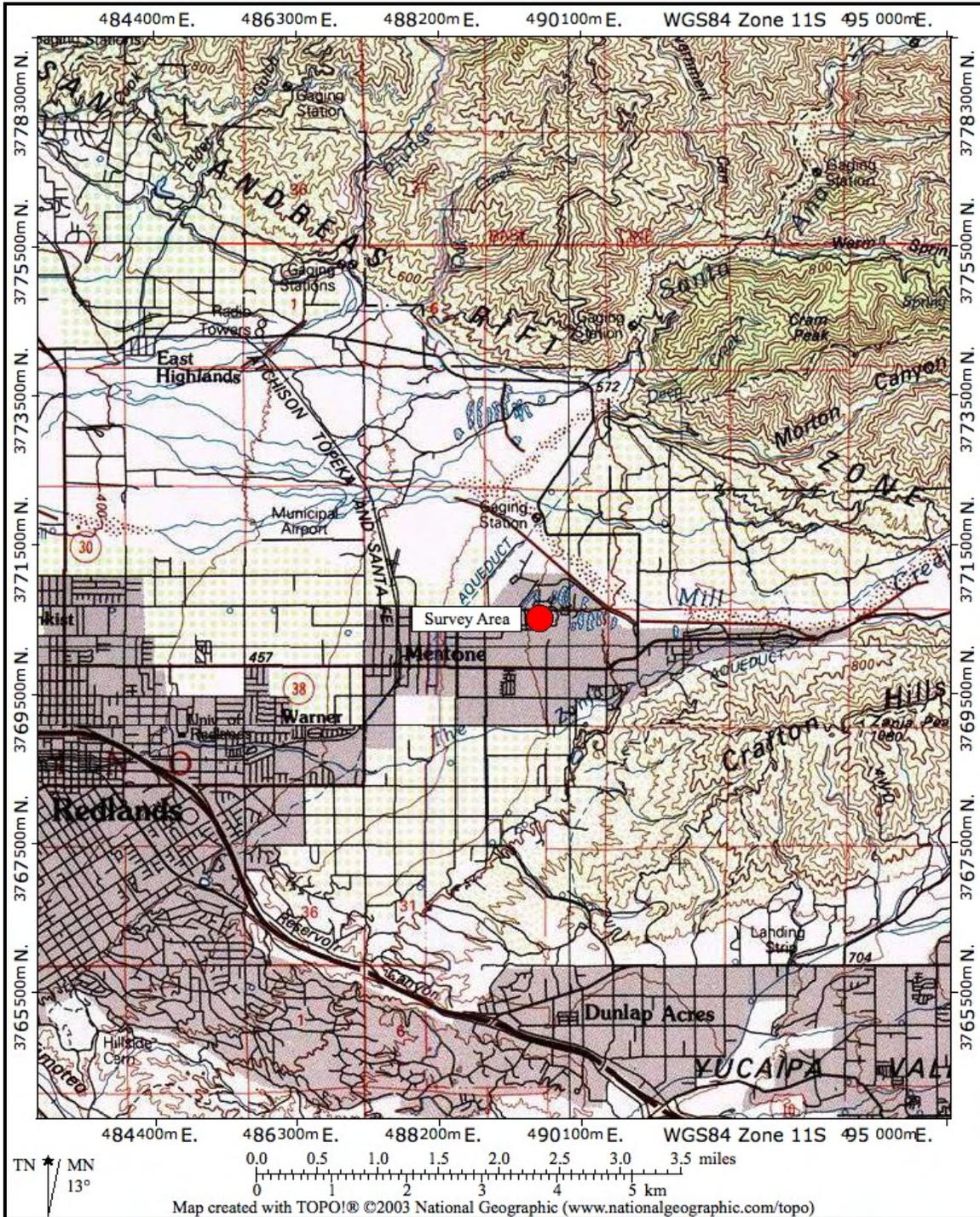
As of June 30, 2007, there were 19 records of SBKR in the Department of Fish and Game's Natural Diversity Data Base. Of these records, one record indicated the presence of SBKR along Mill Creek (Sections 16 and 22 of the Yucaipa, 7.5 Minute Quadrangle) (Occurrence No. 14). All other records of SBKR in the vicinity of the study area are referring to specimens held at the Museum of Vertebrate Zoology, Berkeley, and have already been discussed above.

In addition to the museum and database records, SBKRs have also been trapped recently near the Redlands Municipal Airport (Michael Brandman Associates 2002; Davenport 2006). The presence of SBKR on the alluvial fan near the Redlands Airport (i.e., outside the flood plain of a river or stream) supports the potential for SBKR occurring elsewhere on the alluvial fan in the Redlands and Mentone area.

## **Soils**

The San Bernardino kangaroo rat is often found on sandy/gravelly substrates. Thus, soil types were reviewed in an effort to evaluate the potential for SBKR. As indicated by the soil map produced by the United States Department of Agriculture, Natural Resource Conservation Service, the soil type for the 7W parcel is identified as SpC (i.e., Soboba, stony, loamy, sand)(Figure 3). This soil type provides ample burrowing opportunities, and is well drained. Well-drained soils tend to have low vegetative cover, which is positively correlated with the presence of the SBKR (Davenport 2006). Therefore, the soil type on the 7W parcel is suitable for SBKR.

Figure 1. Shows general location of project area.



**Figure 2.** Shows area surveyed during this study.



**Figure 3.** Soil Map (Soil Survey Geographic Data Base from Natural Resource Conservation Service).



## Plant Community

The SBKR typically occurs within native plant communities where the aerial cover provided by shrubs and trees is low and the ground is largely devoid of vegetation or debris. Thus, in general, except for the dense coastal sage scrub and/or chaparral located within portions of the study area, the majority of the non-developed areas of the study site contains suitable habitat for this species. Exceptions to this generalization include areas with dense grasses and artificial plantings (e.g., lawns).

## METHODS

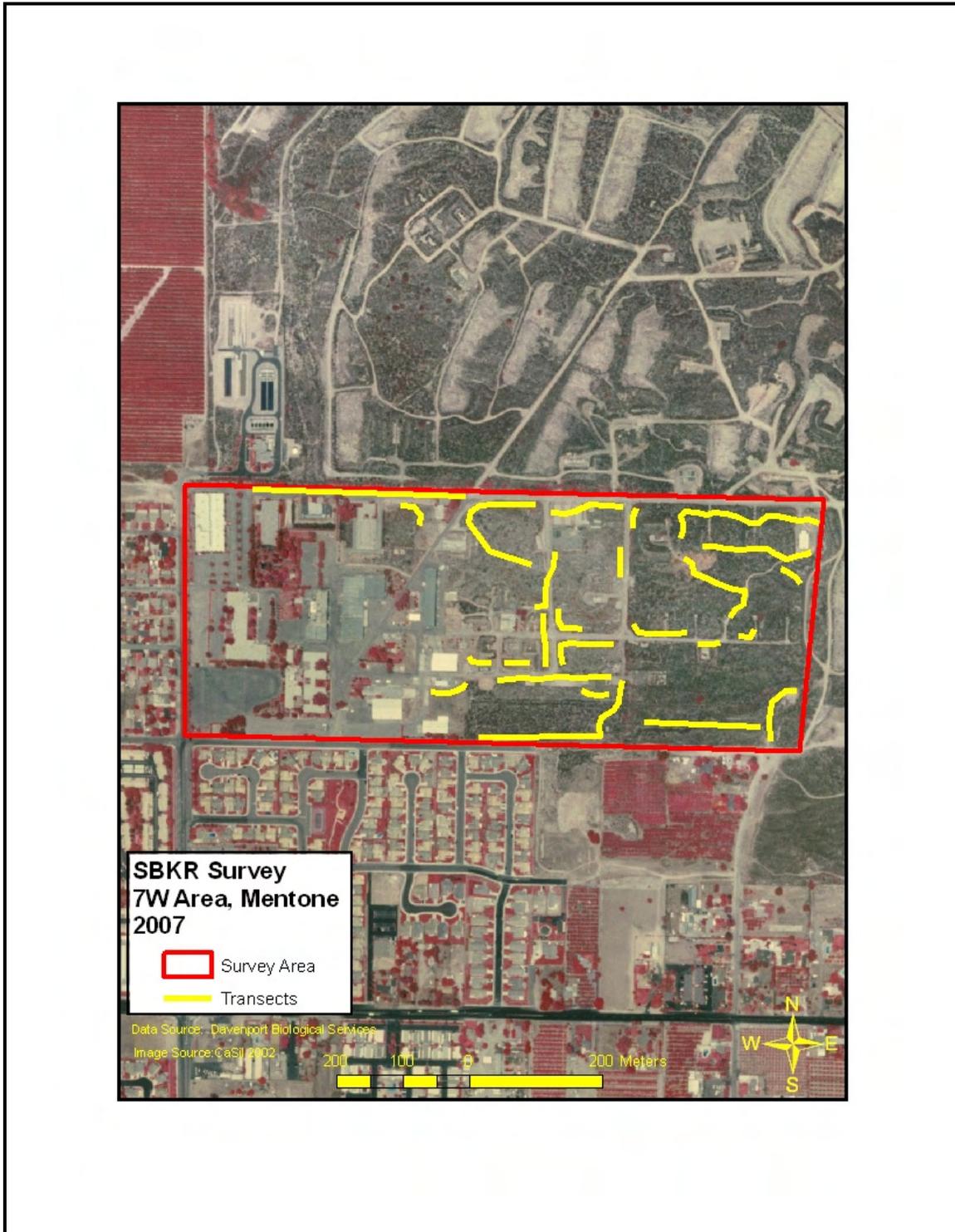
All habitat thought to be suitable for SBKR, within the proposed project area, was visually inspected in an effort to locate burrows and/or other sign attributable to a kangaroo rat. This initial survey was completed by walking parallel transects throughout all suitable and marginally suitable habitats on site. The survey transects were spaced no further than approximately five meters apart. Where kangaroo rat sign was located, or where the potential for their presence was thought to exist, live-traps were set at burrows and/or transects were established as appropriate. Traps were also placed in some areas where no kangaroo rat sign was observed to guard against missed sign. All kangaroo rats were temporarily marked on their upper throat areas with a colored pen (i.e., Sharpie®). All traps used were 12 inch, Sherman®, folding live-traps. In total, 500 traps were set (Table 1; Figure 4).

**Table 1.** Number of traps per transect.

Transects	Number of Traps	Number of Trap Nights
1	40	160
2	20	80
3	20	80
4	6	24
5	6	24
6	8	32
7	10	40
8	20	80
9	40	160
10	40	160
11	10	40
12	20	80
13	10	40
14	20	80
15	10	40
16	18	72
17	16	64
18	10	40
19	20	80
20	16	64
21	12	48
22	30	120
23	8	32
24	6	24
<b>Total</b>	<b>416</b>	<b>1,664</b>

A total of 416 trap locations were used during this study. Traps along transects were generally spaced approximately 15 meters apart and were paired at kangaroo rat burrows. Each trap location within each grid was trapped for four consecutive nights. Thus, a total of 1,664 trap nights were used during this study. Traps were checked near midnight and then again in the morning. All traps were closed during the day and reopened and baited each evening. Traps were baited with a bird-seed mix (contained milo, white millet, black oil sunflower, striped sunflower, and safflower seed).

**Figure 4.** Shows location of transects used during this study.



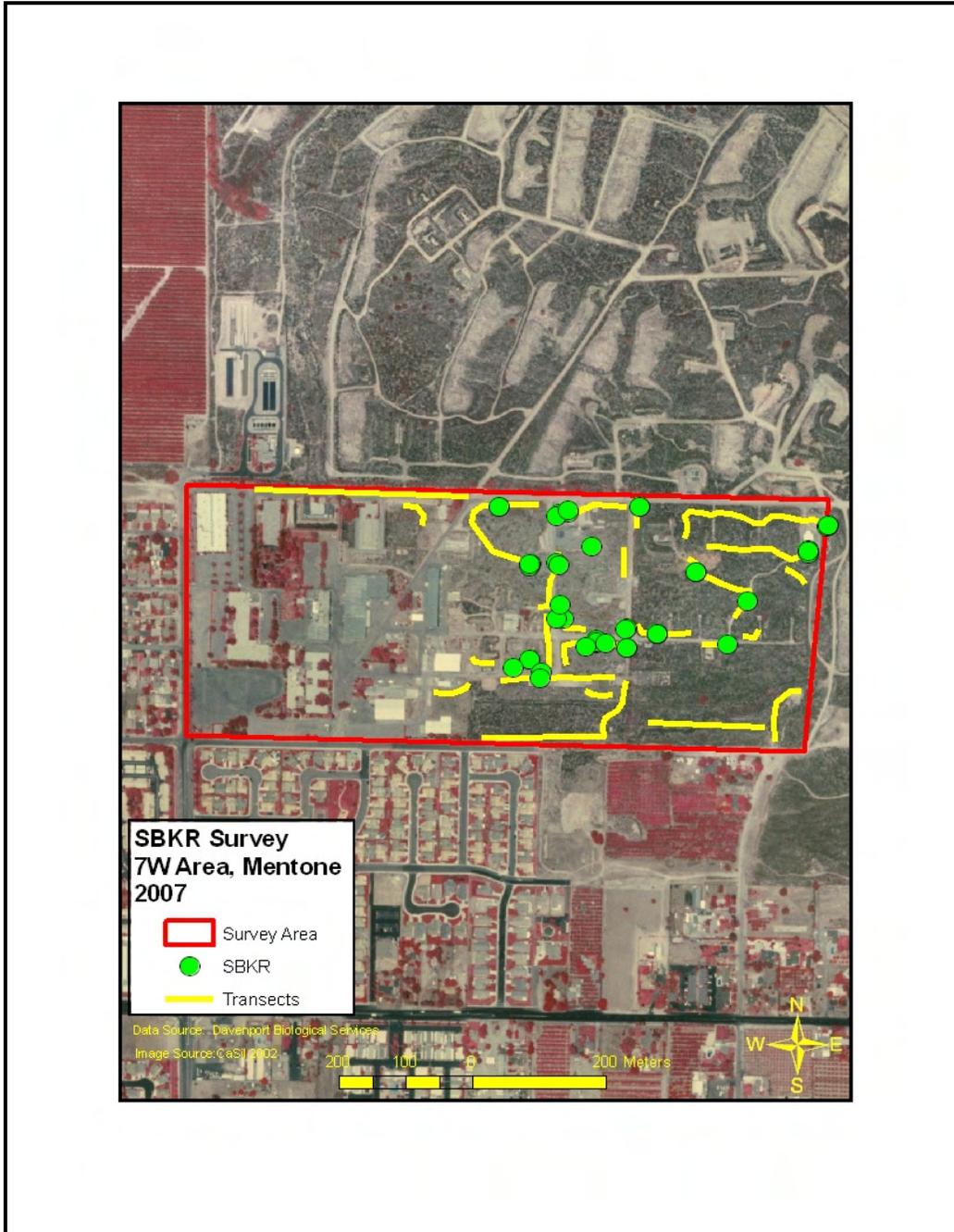
## RESULTS

SBKR were captured a total of 51 times during this study (Table 2). The 51 captures were composed of sixteen individual SBKR. These animals were captured at various locations during this survey (Figure 5). In addition to the SBKR, four other species of rodent were trapped, and three carnivores were observed or otherwise detected within the project area. The rodents included the desert woodrat (*Neotoma lepida*)(NELE), northwestern San Diego pocket mouse (*Chaetodipus fallax fallax*)(CHFA), deer mouse (*Peromyscus maniculatus gambelii*)(PEMA), and cactus mouse (*Peromyscus eremicus fraterculus*)(PEER). Regarding the carnivores, striped skunk (*Mephitis mephitis holzneri*), bobcat (*Felis rufus californicus*), and coyote (*Canis latrans clepticus*) were detected onsite.

**Table 2.** Shows number of individuals of each species caught per night.

Species	21st	22nd	23rd	24th	27th	28th	29th	30th	Total Captures
SBKR	8	8	8	8	5	4	5	5	51
CHFA	14	25	25	17	8	14	21	18	142
NELE	0	2	1	1	1	0	2	1	8
PEMA	5	4	7	6	3	3	2	3	33
PEER	3	2	1	1	0	1	0	0	8

**Figure 5.** Shows locations of where 16 individual SBKR were captured during this survey (includes multiple captures of individuals).



## **DISCUSSION**

During this study, 16 individual SBKR were trapped. The reason for their apparent absence in many areas of the site is likely due to the presence of thick stands of exotic grasses (e.g., *Bromus tectorum*) and/or shrubs. Additionally, some areas had experienced recent disturbance (i.e., grading). Areas that had experienced recent grading (e.g., at transects 13 and 22) will likely be occupied by the SBKR in the near future. The basis for this assertion lies in the correlation between this species and areas with low shrub and annual plant cover. The nearby presence of SBKR to these disturbed sites also increases the likelihood of occupation.

Dense non-native grasses currently appear to preclude the occupation of some areas on site by the SBKR. Due to the negative effect to non-native annual grasses, continuation of below average winter rains will likely result in expansion of the SBKR population into currently unoccupied habitat onsite. That is, below average winter rainfall will decrease the density of non-native grasses and increase the suitability of some sites for SBKR.

### **Significance**

Given the loss of habitat the SBKR has experienced due to urban, industrial, and agricultural developments throughout its range, the SBKR located within the study area are significant and important to the long-term conservation of the species. The basis for this assertion lies in the large number of animals caught within a relatively small area, during a relatively short period of time, and their location outside of the flood plain of a river or stream. Their location makes them less vulnerable to flood events. Thus, populations outside of flood plains, such as this, can serve as a source population following major flood events. In addition, their presence in this habitat represents a portion of their historic distribution that has been largely lost. The area is biologically connected to contiguous suitable habitat to the north (i.e., the Santa Ana River), which contains one of the three largest remaining populations of SBKR. It is important to note that the study area, as well as habitat within the immediate flood plain of the Santa Ana River, was designated as Critical Habitat for the SBKR (Federal Register 67: 19812).

### **Other Sensitive Species**

#### **Northwestern San Diego Pocket Mouse**

The northwestern San Diego pocket mouse (*Chaetodipus fallax fallax*)(CHFA) was also caught during this survey. The CHFA is a California species of special concern (CDFG, 2003). This was the most abundantly trapped small mammal for this project, and based on this survey, this subspecies is common onsite.

## **CONCLUSION**

The 7W parcel was found to be occupied by SBKR. Except for the southern border of the parcel, thick patches of sage scrub and chaparral, and recently graded areas, SBKR were found to occur throughout the undeveloped portions of the parcel.

## **RECOMMENDATIONS**

- Chose project alignment that avoids impacts to SBKR;
- Reduce area of disturbance due to project activities to the smallest area practicable;
- Preclude SBKR from construction areas through the installation of adequate drift fences;
- Protect occupied habitat from disturbance factors, and;
- Control exotic vegetation in post construction area.

## LITERATURE CITED

- California Natural Diversity Data Base. 1996-2006. The California Natural Diversity Data Base. California Department of Fish and Game, Natural Heritage Division, Sacramento, CA.
- Davenport, Arthur, E. 2006. Redlands Sports Park, San Bernardino Kangaroo Rat, *Dipodomys merriami parvus*, Population Monitoring Study. Prepared for the City of Redlands.
- Hall, Raymond, E. 1981. The Mammals of North America. Second Edition; Volume 1. A Wiley-Interscience Publication. John Wiley & Sons, New York.
- Ingles, Loyd, G. 1965. Mammals of the Pacific States. Stanford University Press, Stanford, California.
- Krebs, Charles, J. 1999. Ecological Methodology, 2<sup>nd</sup> Edition. Benjamin Cummings, An imprint of Addison Wesley Longman, Inc., Menlo Park, CA.
- Michael Brandman Associates. 2002. San Bernardino Kangaroo Rat Presence/Absence Trapping Studies on City of Redlands Sports Park Project Site. Prepared for: City of Redlands.

# Appendix C

## Biology – Section 2

### Jurisdictional Determination



**FINAL  
JURISDICTIONAL DETERMINATION  
& WETLAND DELINEATION**

**EAST BRANCH EXTENSION PHASE II PROJECT  
SAN BERNARDINO COUNTY, CALIFORNIA**



*Prepared for:*  
**ENVIRONMENTAL SCIENCE ASSOCIATES**  
707 Wilshire Boulevard, Suite 1450  
Los Angeles, CA 90017

*Prepared by:*  
**CHAMBERS GROUP, INC.**  
8787 Complex Drive, Suite 110  
San Diego, CA 92123

**January 21, 2008**

## TABLE OF CONTENTS

	<u>Page</u>
<b>EXECUTIVE SUMMARY .....</b>	<b>1</b>
<b>SECTION 1 - INTRODUCTION .....</b>	<b>1-1</b>
1.1 PROJECT LOCATION & PURPOSE.....	1-1
1.1.1 Pipeline Alternative 1 .....	1-1
1.1.2 Pipeline Alternative 2 .....	1-1
1.1.3 Pipeline Alternative 3 .....	1-2
1.1.4 Pipeline Alternative 4 .....	1-2
1.1.5 Citrus Reservoir and Pump Station.....	1-2
<b>SECTION 2 - METHODS .....</b>	<b>2-1</b>
<b>SECTION 3 - DEFINITIONS OF JURISDICTIONAL LIMITS.....</b>	<b>3-1</b>
3.1 U.S. ARMY CORPS OF ENGINEERS .....	3-1
3.2 REGIONAL WATER QUALITY CONTROL BOARD .....	3-2
3.3 CALIFORNIA DEPARTMENT OF FISH AND GAME.....	3-3
<b>SECTION 4 - ENVIRONMENTAL SETTING.....</b>	<b>4-1</b>
4.1 GENERAL SITE CONDITIONS .....	4-1
4.2 GEOLOGY AND SOILS.....	4-1
4.3 LAND USE.....	4-3
4.4 VEGETATION COMMUNITIES .....	4-4
4.4.1 Southern Riparian Scrub.....	4-4
4.4.2 Black Willow Series.....	4-4
4.4.3 Fremont Cottonwood Series .....	4-5
4.4.4 Ruderal Vegetation .....	4-5
4.4.5 Open Water.....	4-5
4.5 HYDROLOGY .....	4-5
4.5.1 General Description .....	4-5
4.5.2 Drainages North of the Santa Ana Wash.....	4-6
4.5.3 Santa Ana Wash and Mill Creek Mainstem Channels .....	4-7
4.5.4 Drainages South of the Santa Ana Wash and South of the Mill Creek Levee.....	4-7
4.5.5 Treatment Plant Washback Discharge Channel Along Citrus Orchard Boundary.....	4-8
<b>SECTION 5 - RESULTS .....</b>	<b>5-1</b>
5.1 DRAINAGE FEATURES.....	5-1
5.1.1 Ephemeral Drainages .....	5-1
5.1.2 Percolation Basins .....	5-2
5.1.3 Perennial Streams and Wetlands .....	5-3
5.2 DISCUSSION OF THE RAPANOS DECISION .....	5-4
5.3 JURISDICTIONAL DATA TABLES.....	5-5
<b>SECTION 6 - REFERENCES .....</b>	<b>6-1</b>

## TABLE OF CONTENTS

### APPENDICES

APPENDIX A – WETLAND DATA SHEETS

APPENDIX B – SITE PHOTOS

APPENDIX C – SAMPLE JURISDICTIONAL DETERMINATION FORM

### LIST OF FIGURES

<u>Figure</u>		<u>Page</u>
1-1	Location and Regional Hydrology .....	1-3
1-2	Project Alternatives & Location Map .....	1-4
5-1	RPW and non-RPW Features .....	5-6
5-2	Jurisdictional Delineation Figure 5-2 .....	5-8
5-3	Jurisdictional Delineation Figure 5-3 .....	5-9
5-4	Jurisdictional Delineation Figure 5-4 .....	5-10
5-5	Jurisdictional Delineation Figure 5-5 .....	5-11
5-6	Jurisdictional Delineation Figure 5-6 .....	5-12
5-7	Jurisdictional Delineation Figure 5-7 .....	5-13
5-8	Jurisdictional Delineation Figure 5-8 .....	5-14
5-9	Jurisdictional Delineation Figure 5-9 .....	5-15
5-10	Jurisdictional Delineation Figure 5-10 .....	5-16

### LIST OF TABLES

<u>Table</u>		<u>Page</u>
5-1	Common Plant Species of Ephemeral Drainages .....	5-2
5-2	Common Riparian Plant Species of Four Easternmost Percolation Basin Edges .....	5-3
5-3	Common Riparian Plant Species of Perennial Streams and Wetlands .....	5-3
5-4	Alternative 1 Jurisdictional Impacts Matrix .....	5-7
5-5	Alternative 2 Jurisdictional Impacts Matrix .....	5-7
5-6	Alternative 3 Jurisdictional Impacts Matrix .....	5-7
5-7	Alternative 4 Jurisdictional Impacts Matrix .....	5-7

## EXECUTIVE SUMMARY

Chambers Group, Inc. was retained by Environmental Science Associates to conduct a jurisdictional determination and wetland delineation survey along four proposed water pipeline Alternatives, a proposed reservoir (Citrus Reservoir), and a proposed pump station (Citrus Pump Station) for the State Department of Water Resources (DWR) East Branch Extension Phase II (EBX II) project. The project site includes areas within the communities of Highland and Redlands, and the unincorporated community of Mentone, San Bernardino County, California, and lies within the historic alluvial flood plain along the upper reaches of the Santa Ana Wash and Mill Creek. The project site is located within the Redlands and Yucaipa U.S. Geological Service (USGS) 7.5 minute quadrangle maps (quads) in Township 1S, Ranges 2W and 3W. For the Redlands quad, the project site is in Sections 1, 6, 7, and 18; for the Yucaipa quad, the project site is in Sections 17 and 19-22. Four Alternatives are suggested for the proposed pipeline routes to connect the Crafton Hills Pump Station to the Foothill Pump Station. Each Alternative included a study area of 200 feet from either side of the pipeline centerline.

Most drainage features associated with this project area are ephemeral drainages, or non-relatively permanent waters (non-RPW), that were historically direct or indirect tributaries to the Santa Ana Wash or Mill Creek. Many of these ephemeral washes are now obstructed by percolation basins, Cone Camp Road, dirt access roads, or other ground disturbances. Non-obstructed non-RPWs north of the Santa Ana Wash drain to Plunge Creek or the Santa Ana Wash, which then drains to the Santa Ana River, before terminating in the Pacific Ocean, the nearest traditionally navigable water (TNW) to the project site. The total river length of the route from the project site to the Pacific Ocean covers approximately 70 miles. Since it flows for over three months per typical year, the Santa Ana Wash is considered a relatively permanent water (RPW). This is the only natural RPW that was found onsite. A man-induced RPW that connects directly to the Santa Ana Wash exists at the east edge of a citrus orchard. Both of these RPWs contain wetland areas. The remainder of the site is characterized as primarily an assemblage of man-made percolation basins with several small isolated wetlands.

The alluvial terraces along both the north and south sides of the Santa Ana Wash and Mill Creek have all been affected to varying degrees by flood control and water reclamation purposes. Many of the drainage features south of the Santa Ana and Mill Creek channels have been altered through the installation of a levee system or have been converted into groundwater percolation basins operated by the San Bernardino Valley Municipal Water District (SBVMWD). Most of the drainage features north of the Santa Ana Wash are remnant features, ultimately converging with Plunge Creek or the Santa Ana Wash. The flood plain north of the levee system and the south banks does not experience the traditional scouring it historically had, due to the upstream construction and operation of the Bear Valley Dam and the Seven Oaks Dam. All onsite ephemeral washes are dry on a nearly year-round basis. The features south of the Santa Ana Wash are predominantly dry, man-made percolation basins connected by ephemeral ditches or channels. These basins are tributary to the Santa Ana Wash as well.

The north-south alignments of pipeline Alternatives 1 and 2 cross the Santa Ana Wash itself. The crossing has characteristics consistent with jurisdiction under all three permitting agencies: the U.S. Army Corps of Engineers (USACE), the Regional Water Quality Control Board (RWQCB), and the California Department of Fish and Game (CDFG). This area contained the largest jurisdictional area for the project site, as measured by **9.36** total CDFG bank-to-bank acres (i.e. **4.13** acres for the Alternative 1 segment and **5.23** acres for the Alternative 2 segment). Jurisdictional findings over the project site included the following:

- USACE jurisdiction includes approximately **3.83** acres for Alternative 1, **5.23** acres for Alternative 2, **2.95** acres for Alternative 3, and **3.28** acres for Alternative 4. These acreages include RPWs and wetlands that directly abut RPWs. Onsite RPWs and associated wetlands include the Santa Ana Wash and a man-induced washback discharge channel that is a direct tributary of the Santa Ana Wash. The lateral extent of USACE jurisdiction for RPWs terminates at the ordinary high water mark (OHWM) and/or the wetland boundary. Under court decisions reached in *Rapanos v.*

*United States and Carabell v. United States* (126 S. Ct. 2208 (2006)) (“Rapanos”), non-RPWs are now generally considered non-USACE jurisdictional features. A significant nexus analysis performed for the onsite non-RPWs confirmed that the ephemeral washes scattered throughout the site are not under USACE jurisdiction.

- Due to broad authority under the Porter-Cologne Act, the RWQCB has considerably more area of jurisdiction than the USACE. A significant nexus with a TNW is not required for RWQCB jurisdiction. Like the USACE, RWQCB jurisdiction also extends laterally to the OHWM and/or the wetland boundary. However, since the RWQCB regulates any activity that could affect surface *and* groundwaters within the State, their jurisdiction extends to most features found on the project site, including wetlands. Alternative 1 contains **15.14** acres of RWQCB jurisdiction, Alternative 2 has **9.38** acres, Alternative 3 has **20.19** acres, and Alternative 4 has **19.10** acres.
- The CDFG Streambed Alteration Program protects not only waterways, but also the habitat associated with waterways. This extends the lateral limits of jurisdiction to the widest extent of the uppermost banks or the outer dripline of the vegetation along the banks, whichever is greater. These calculations also include wetlands. CDFG has jurisdiction on approximately **9.97** acres of streambed and/or streambed-associated habitat within Alternative 1, **10.47** acres in Alternative 2, **9.40** acres in Alternative 3, and **9.54** acres in Alternative 4. Riparian habitats along the edges of percolation basins and isolated wetland areas were found to be non-CDFG jurisdictional, while those within natural and naturalized stream channels were found to be under the jurisdiction of the CDFG.
- Several small wetlands along the project site total a combined **1.36** acres. Of this acreage, **1.13** are under USACE, RWQCB, and CDFG jurisdiction. The remaining **0.22** acres are under the jurisdiction of the RWQCB and the CDFG. Alternative 1 has **1.19** acres of wetlands, Alternative 2 has **1.29** wetland acres, Alternative 3 has **0.33** wetland acres, and Alternative 4 has **0.58** wetland acres.

This report does not describe the spatial, physical, biological, or temporal impacts of the proposed project, but merely quantifies the potential temporary impacts within the four pipeline Alternatives. While the general project design calls for trenching to accommodate the new pipelines and facilities, the full design was not yet complete or available during the survey. Nevertheless, all impacts are being considered temporary for this project. This report is intended to accurately reflect jurisdictional findings based on the most current regulations, court decisions, and methods, and to be used in the planning and permitting process to help avoid, minimize, and/or mitigate for any impacts.

## SECTION 1 - INTRODUCTION

### 1.1 PROJECT LOCATION & PURPOSE

The project site includes areas within the communities of Highland and Redlands, and the unincorporated community of Mentone, San Bernardino County, California (Figure 1-1). The project site is located within the *Redlands* and *Yucaipa* U.S. Geological Service (USGS) quadrangle maps (quads) in Township 1S, Ranges 2W and 3W. For the *Redlands* quad, the project site is in Sections 1, 6, 7, and 18; for the *Yucaipa* quad, the project site is in Sections 17 and 19-22. The proposed project involves the construction of a new water pipeline, reservoir, and pump station between two existing pump stations; four Alternatives are suggested for the proposed pipeline routes to connect the Crafton Hills Pump Station to the Foothill Pump Station (Figure 1-2). Each Alternative included a study area of 200 feet from either side of the pipeline centerline.

The purpose of the proposed project is to connect the San Bernardino Valley Municipal Water District's (SBVMWD) Foothill Pipeline to the Crafton Hills Pump Station to bring in State Water Project (SWP) water to the San Gorgonio Pass Water Agency (SGPWA) and San Bernardino Valley Municipal Water District service areas. SWP water would replenish groundwater basins and provide potable water to customers of the SGPWA. With implementation of the proposed project, the capacity of the water conveyance system would increase from 50 cubic feet per second (cfs) to 150 cfs.

The purpose of this report is to detail the jurisdictional features on the project site. Jurisdictional results are reported in acreages within the study area for each Alternative for the three permitting agencies over watercourses within California: the U.S. Army Corps of Engineers (USACE), Regional Water Quality Control Board (RWQCB), and the California Department of Fish and Game (CDFG).

#### 1.1.1 Pipeline Alternative 1

The west end of Pipeline Alternative 1 would be constructed parallel to the Metropolitan Water District (MWD) of Southern California's recently installed Inland Feeder pipeline. This will be about 100 feet east of the centerline of the existing MWD right-of-way (ROW). The pipeline would extend from the existing Foothill Pump Station, south along Cone Camp Road, cross the Santa Ana Wash, continue along Cone Camp Road, and run parallel to Opal Avenue before turning east. At this point, Alternative 1 continues eastward through existing citrus orchards, then northward through existing citrus orchards, before turning eastward again along a citrus orchard/Riversidian sage scrub ecotone. Here, Alternative 1 turns southward along a similar ecotone before reaching the Seven W Enterprises property. From the northwest corner of the Seven W Enterprises property, Alternative 1 continues eastward through a variety of disturbed, ruderal, and native habitats, including RAFSS communities, Southern Riparian Scrub, Mulefat Series, and Black Willow Series, before terminating at the existing Crafton Hills Pump Station (Figure 1-2). All four Alternatives include varying portions of Alternative 1 within their alignments. For the purpose of this report, all calculations for Alternatives 1, 3, and 4 included the north-south alignment of Alternative 1, as opposed to Alternative 2.

#### 1.1.2 Pipeline Alternative 2

Pipeline Alternative 2 would be constructed similarly to Alternative 1 except that the north-south alignment at the west end of the project site would be located to the east of the proposed Alternative 1, and the east-west portion of Alternative 2, east of Crafton Avenue, would be further south than that of Alternative 1 (Figure 1-2). This Alternative passes through similar habitat types as Alternative 1, but also includes more developed areas and existing paved roadways along Crafton and Madeira Avenues.

### **1.1.3 Pipeline Alternative 3**

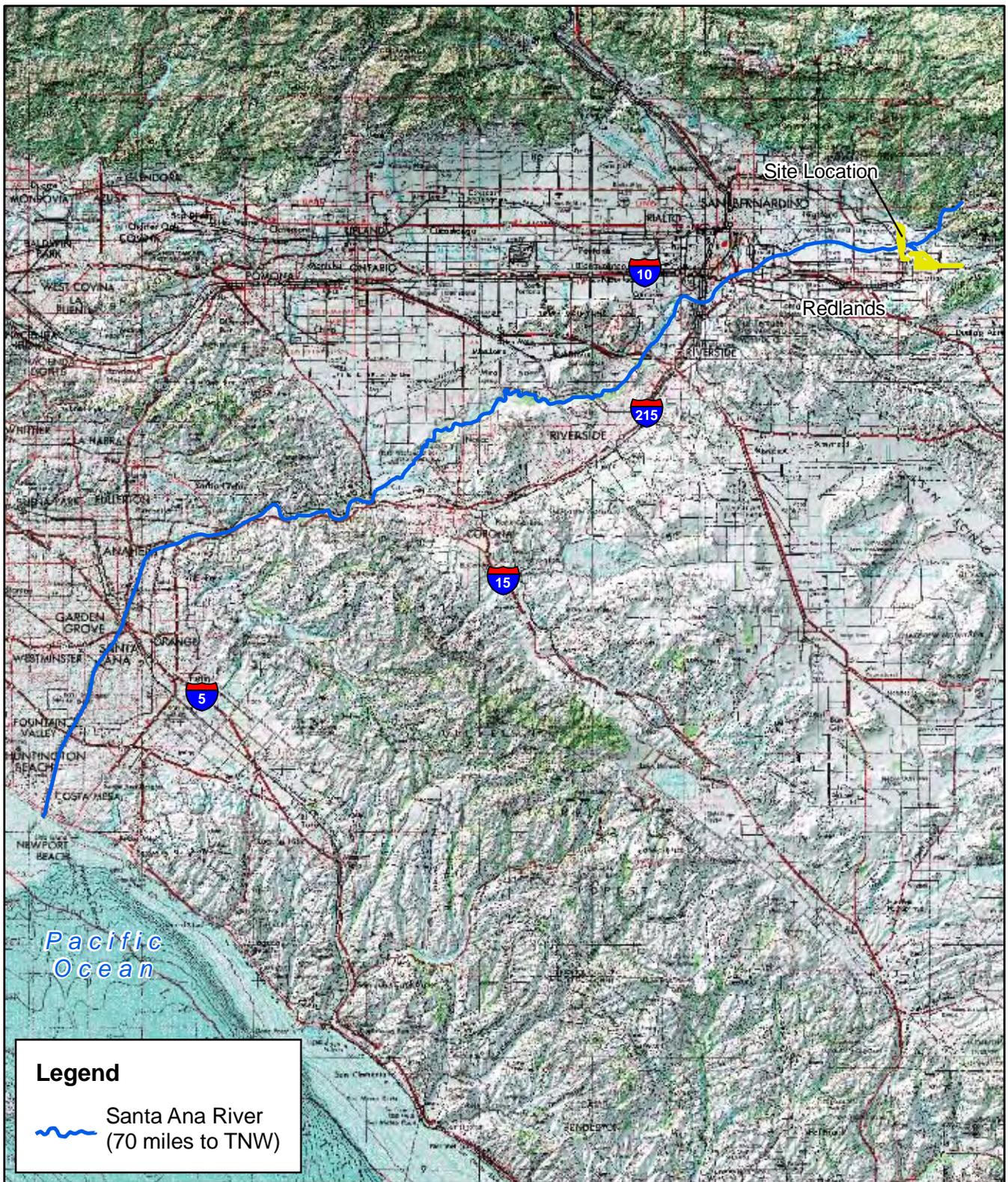
Pipeline Alternative 3 would be constructed similarly to Alternative 1, except that the east-west portion would extend from the northeast corner of the existing citrus orchard area to just south of the Mill Creek levee before joining with the east extension of Alternative 1 at Garnet Street (Figure 1-2). Alternative 3 passes through similar habitat types as the other three Alternatives, but does not contain such substantially developed areas. However, it does pass through a number of percolation basins. Alternative 3 would include either the north-south alignment of Alternative 1 or Alternative 2 in its final design. For the purpose of this report, all calculations and acreages for Alternative 3 included the north-south alignment of Alternative 1.

### **1.1.4 Pipeline Alternative 4**

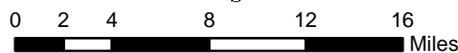
Pipeline Alternative 4 would be constructed similarly to Alternative 1, except that the east-west portion would extend from the eastern edge of the existing citrus orchard area to the northwest corner of the Seven W Enterprises property (Figure 1-2). Alternative 4 passes through similar habitat types as the other three Alternatives, but does not contain such substantially developed areas. However, it does pass through a number of percolation basins. Alternative 4 would include either the north-south alignment of Alternative 1 or Alternative 2 in its final design. For the purpose of this report, all calculations and acreages for Alternative 4 included the north-south alignment of Alternative 1.

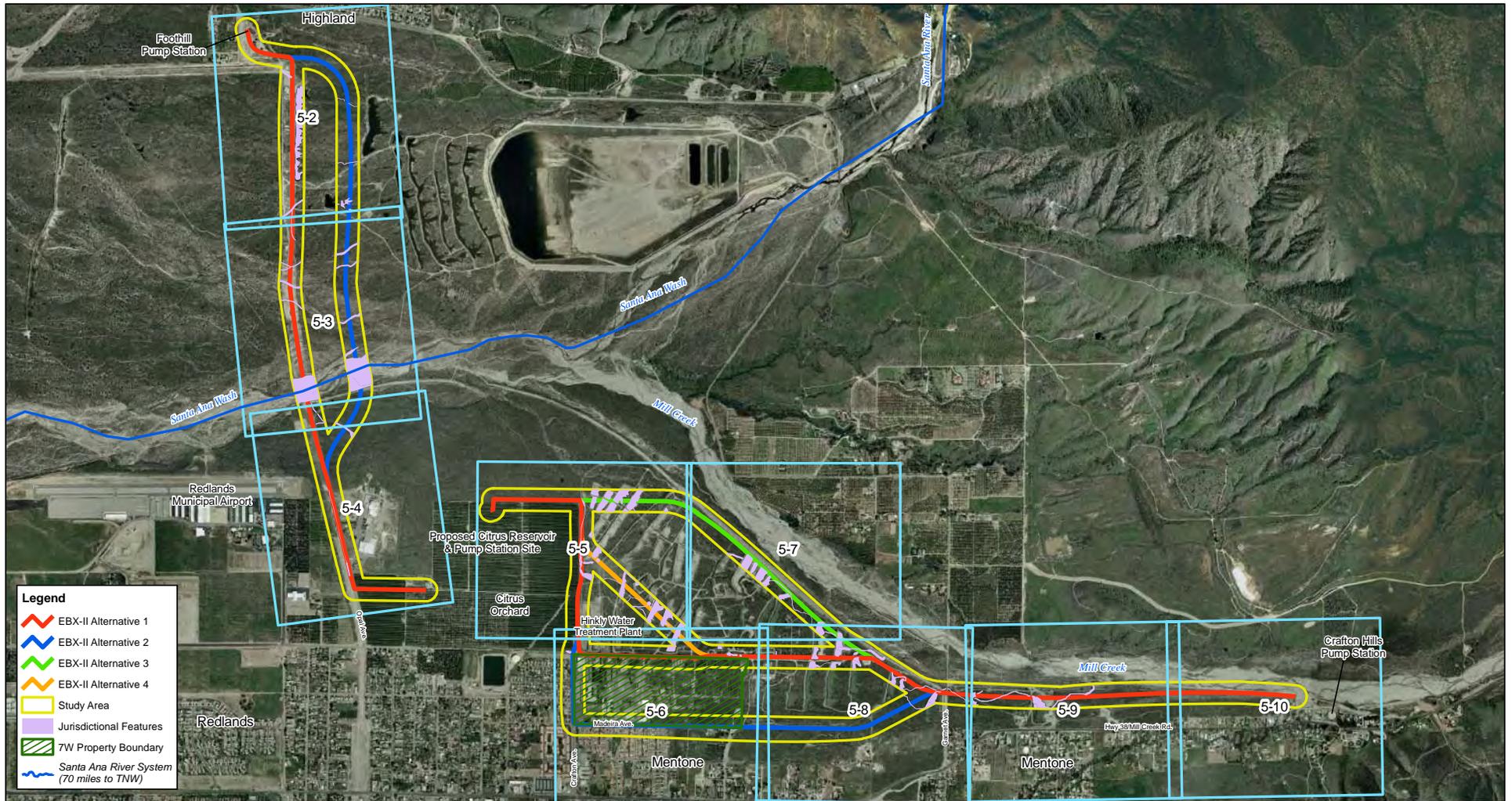
### **1.1.5 Citrus Reservoir and Pump Station**

The proposed Citrus Reservoir and Citrus Pump Station would be constructed entirely within an existing citrus orchard north of San Bernardino Avenue. The proposed pump station would be located adjacent to the proposed reservoir (Figure 1-2).

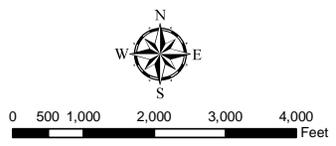


DWR - East Branch Extension  
Vicinity and Regional Hydrology Map  
**Figure 1-1**





- Legend**
- EBX-II Alternative 1
  - EBX-II Alternative 2
  - EBX-II Alternative 3
  - EBX-II Alternative 4
  - Study Area
  - Jurisdictional Features
  - 7W Property Boundary
  - Santa Ana River System (70 miles to TNW)



DWR - East Branch Extension  
 Project Alternatives and Location Map  
**Figure 1-2**

## SECTION 2 - METHODS

Prior to beginning the field delineation, high-resolution aerial photographs and USGS topographic maps of the project site were examined to determine the potential areas of USACE/RWQCB/CDFG jurisdiction. In the field, boundaries and dimensions of jurisdictional features were recorded on aerial photographs. Features within the 400 foot-wide study areas along the four pipeline Alternatives were investigated for the presence of drainages, water bodies, riparian habitats, and potential wetlands. All features were examined in the field for true connectivity (Figure 5-1). The only area that was *not* investigated for a jurisdictional determination was on the channel side of the Mill Creek levee at the eastern end of the project. It had been determined by DWR that no potential impacts would occur beyond the levee walls at that point.

Features that exhibited the potential to be three-parameter wetlands (i.e. vegetation, soils, and hydrology) were investigated and recorded onto standardized data sheets. Recorded data included present vegetation and percent covers, soil profiles in dug soil pits, and evidence of hydrology. These potential wetland habitats were evaluated using the methodology set forth in the *U.S. Army Corps of Engineers Wetland Delineation Manual* (USACE 1987), hereafter called 1987 Wetland Manual. The 2006 Arid West Supplement (Arid Supplement) to the 1987 Wetland Manual was in effect at the time this survey commenced and was therefore applied to this project. Data related to potential wetlands was recorded on Wetland Determination Data Forms – Arid West Region (Appendix A) for each individually numbered soil pit. A photo of each soil pit or data point location is included in Appendix B with the photo number corresponding exactly to each location number as shown on the delineation maps (Figures 5-2 to 5-10). Features with no evidence of wetland hydrology, and which supported only upland vegetation, were evaluated for their upward limits of jurisdiction only and not for wetland parameters.

Potential CDFG jurisdictional riparian habitats were evaluated using the guidance described in *A Field Guide to Lake and Streambed Alteration Agreements Sections 1600-1607* (CDFG 1994). Potential USACE/RWQCB/CDFG jurisdictional areas were field checked for the presence of definable channels and/or wetland vegetation, riparian habitat, soils, and hydrology. The lateral extent of a jurisdictional drainage was measured in several ways depending on the particular situation. In the absence of a defined wetland, the USACE traditionally uses the determination of the presence of a bed and bank to the upper limit of the ordinary high water mark (OHWM). Under court decisions reached in *Rapanos v. United States* and *Carabell v. United States* (126 S. Ct. 2208 (2006)) (Rapanos), the USACE now excludes jurisdiction over many dry or ephemeral washes (non-RPWs) in California. The RWQCB includes all USACE jurisdictional areas as well as the OHWM in non-RPWs. The CDFG takes jurisdiction to the top of the bank on both sides of the drainage, or to the outer edge of all riparian vegetation, whichever is greater. This edge, as determined by the “drip line” of the riparian canopy, is used as the line of demarcation between riparian and upland habitats. On smaller streams or dry washes with little or no riparian habitat, the top of the bank was used to mark the lateral extent of CDFG jurisdictional drainages.

Hydrologic indicators were observed per the 1987 Wetland Manual guidelines. Indicators included evidence of inundation, saturation, high water table, watermarks, drift lines, sediment deposits, surface soil cracks, water-stained leaves, biotic crust, aquatic invertebrates, hydrogen sulfide odor, and the presence or oxidation/reduction features in the soil, among several others. Consideration of the climate and flow frequency was given when observing watermarks and drift lines. For the purpose of determining hydrologic connectivity to a navigable water body (i.e., Pacific Ocean via Santa Ana River, Santa Ana Wash, and Mill Creek), aerial photos and USGS quads were referenced. All features were inspected in the field for true connectivity.

During the wetland delineation, plants were categorized according to their probability to occur in wetlands versus non-wetlands in accordance with the categories in the *National List of Species that Occur in Wetlands* (Reed et al. 1988). More specifically, the California (Region 0) wetlands plant list was used, which is a regional adaptation of the *National List*. The wetland species categories are:

- I. **Obligate Wetland (OBL)** – Occur almost always (estimated probability >99 %) under natural conditions in wetlands.
- II. **Facultative Wetland (FACW)** – Usually occur in wetlands (estimated probability 67 % to 99 %), but occasionally found in non-wetlands.
- III. **Facultative (FAC)** – Equally likely to occur in wetlands or non-wetlands (estimated probability 34 % to 66 %).
- IV. **Facultative Upland (FACU)** – Usually occur in non-wetlands (estimated probability 67 % to 99 %), but occasionally found in wetlands.
- V. **Obligate Upland (UPL)** – May occur in wetlands in another region, but occur almost always (estimated probability >99 %) under natural conditions in non-wetlands in southern California. All species not listed on the *National List of Species that Occur in Wetlands* (Reed et al. 1988) are considered to be UPL.
- VI. **No Indicator (NI)** – NI was recorded for those species for which insufficient information was available to determine an indicator status.

As prescribed by the 1987 Wetland Manual, all available lists of hydric soils were referenced to identify any occurrence of hydric soils listed within the project area. The national, state, and local hydric soils lists were used along with local soil survey maps. Data points and soil pits were recorded and used to delineate the wetland boundaries. The delineations were then digitized for the mapping and determination of jurisdictional areas. Where no wetlands were present, the lateral limits of USACE/RWQCB/CDFG jurisdiction were measured and recorded onto aerial photographs or field notes. All measurements were obtained in feet for ease of calculation into acres. All data on jurisdictional determinations and wetland delineations were later digitized using Global Information System (GIS) software and reproduced on aerial maps for this report (Figures 5-2 to 5-10).

## SECTION 3 - DEFINITIONS OF JURISDICTIONAL LIMITS

### 3.1 U.S. ARMY CORPS OF ENGINEERS

Pursuant to Section 404 of the Clean Water Act, the USACE regulates the discharge of dredged and/or fill material into waters of the United States. Waters of the United States include navigable waterways and wetlands adjacent to navigable waterways, and non-navigable waterways and wetlands adjacent to non-navigable waters that are contiguous with navigable waterways. The term "waters of the United States" is defined at 33 Code of Federal Regulations (CFR) Part 328 and currently includes (1) all navigable waters (including all waters subject to the ebb and flow of the tide), (2) all interstate waters and wetlands, (3) all other waters (e.g., lakes, rivers, intermittent streams) that could affect interstate or foreign commerce, (4) all impoundments of waters mentioned above, (5) all tributaries to waters mentioned above, (6) the territorial seas, and (7) all wetlands adjacent to waters mentioned above.

Wetlands are defined in 33 CFR 328.3(b) as "those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support...a prevalence of vegetation typically adapted for life in saturated soil conditions." In 1987 the USACE published a manual to guide its field personnel in determining jurisdictional wetland boundaries. Currently, the 1987 Wetland Manual provides the legally accepted methodology for identification and delineation of USACE-jurisdictional wetlands.

The methodology set forth in the 1987 Wetland Manual generally requires that, in order to be considered a wetland, the vegetation, soils, and hydrology of an area must exhibit at least minimally hydric characteristics. Currently, the 1987 Wetland Manual, as amended by the Arid West Supplement of 2006, provides the legally accepted method for identification and delineation of USACE-jurisdictional wetlands in California. While the 1987 Wetland Manual provides great detail in methodology and allows for varying special conditions, a wetland should normally meet each of the following three criteria:

- More than 50 percent of the dominant plant species at the site must be typical of wetlands (i.e. rated as facultative or wetter in the 1988 National List of Plant Species that Occur in Wetlands [Reed, P.B., Jr., et al. 1988]). These plants are known as "hydrophytic vegetation";
- Soils must exhibit physical and/or chemical characteristics indicative of permanent or periodic saturation (e.g., a gleyed color, or mottles with a matrix of low chroma indicating a relatively consistent fluctuation between aerobic and anaerobic conditions). Such soils, known as "hydric soils", have characteristics that indicate they were developed in conditions where soil oxygen is limited by the presence of saturated soil for long periods during the growing season; and
- Hydrologic characteristics must indicate that the ground is saturated to within 12 inches of the surface for at least five percent of the growing season during a normal rainfall year. For most of low-lying southern California, five percent of the growing season is equivalent to 18 days.

Although the most reliable evidence of wetland hydrology may be provided by a gauging station or groundwater well data, such information is often limited for most areas. Thus, most hydrologic indicators are those that can be observed during field inspection. The following indicators provide some evidence of hydrology: (1) standing or flowing water; (2) water-logged soils during the growing season; (3) water marks present on trees or other objects associated with a drainage; (4) drift lines, or small piles of debris oriented in the direction of water movement through an area; (5) shelving; (6) destruction of terrestrial vegetation; and (7) thin layers of sediments deposited on leaves or other objects. The Arid West Supplement of 2006 includes all of these indicators as well as surface soil creeks, inundation visible on aerial imagery, salt and biotic crusts, aquatic invertebrates, hydrogen sulfide odor, oxidation/reduction reactions within the soil profile, and several others. In general, a combination of hydrologic indicators indicates a more defined hydrological system.

In the absence of wetlands, the limits of USACE jurisdiction in non-tidal waters, including intermittent RPW streams, extend to the OHWM, which is defined at 33 CFR 328.3(e) as:

*...that line on the shore established by the fluctuation of water and indicated by physical characteristics such as clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.*

On January 9, 2001, the U.S. Supreme Court ruled (in *Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers*) ("SWANCC") that USACE jurisdiction does not extend to previously regulated isolated waters, including but not limited to isolated ponds, reservoirs, and wetlands. Examples of isolated waters that are affected by this ruling include vernal pools, stock ponds, lakes (without outlets), playa lakes, and desert washes that are not tributary to navigable or interstate waters or to other jurisdictional waters.

A joint guidance by the U.S. Environmental Protection Agency (EPA) and the USACE was issued on June 5, 2007 to clarify circumstances where a Clean Water Act (CWA) Section 404 permit would be required before conducting activities in wetlands, tributaries, and other waters. This guidance is consistent with the Supreme Court's decision in the consolidated cases *Rapanos v. United States* and *Carabell v. United States* (126 S. Ct. 2208 (2006)) ("Rapanos"), which address the jurisdiction over waters of the United States under the Clean Water Act (33 U.S.C. §1251 et seq.). This Rapanos guidance does not supersede the 2003 guidance interpreting SWANCC, and the agencies will continue to evaluate jurisdiction over isolated waters on a case-by-case basis.

The USACE will continue to assert jurisdiction over traditional navigable waters, wetlands adjacent to traditional navigable waters, non-navigable tributaries of traditional navigable waters that are relatively permanent where the tributaries typically flow year-round or have continuous flow at least seasonally (e.g., typically three months), and wetlands that directly abut such tributaries.

The USACE will use fact-specific analysis to determine whether waters have a significant nexus with a traditional navigable water for non-navigable tributaries that are not relatively permanent, wetlands adjacent to non-navigable tributaries that are not relatively permanent, and wetlands adjacent to, but that do not directly abut, a relatively permanent non-navigable tributary. "A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by all wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical and biological integrity of downstream traditional navigable waters," including consideration of hydrologic and ecologic factors.

In May 2007, the USACE and EPA jointly published and authorized the use of the *Jurisdictional Determination Form Instructional Guidebook* (USACE 2007). The form and guidebook define how to determine if an area is jurisdictional, and if there is a significant nexus per the Rapanos decision. A nexus is defined as some property of a drainage that has an effect on the physical, chemical, or biological integrity of a downstream TNW. A significant nexus is more than insubstantial and more than speculative.

### **3.2 REGIONAL WATER QUALITY CONTROL BOARD**

The State of California (State) regulates discharge of material into waters of the State pursuant to Section 401 of the Clean Water Act and the California Porter-Cologne Water Quality Control Act (Cal. Water Code, Div. 7, §13000 et seq.). Porter-Cologne reserves the right for the State of California to regulate activities that could affect the quantity and/or quality of surface and/or ground waters, including isolated wetlands, within the State. Waters of the State determined to be jurisdictional for these purposes require, if impacted, waste discharge requirements and a 401 Certification (in the case of the required USACE permit). The State Water Resources Control Board (SWRCB) and the local Regional Water Quality Control Boards (RWQCB) are the relevant permitting agencies. Limits of jurisdiction include wetland boundaries and the OHWM of TNWs, RPWs and non-RPWs.

### **3.3 CALIFORNIA DEPARTMENT OF FISH AND GAME**

Pursuant to Division 2, Chapter 6, Sections 1600-1602 of the California Fish and Game Code, the CDFG regulates all diversions, obstructions, or changes to the natural flow or bed, channel, or bank of any river, stream, or lake, which supports fish or wildlife.

CDFG defines a “stream” (including creeks and rivers) as “a body of water that flows at least periodically or intermittently through a bed or channel having banks and supports fish or other aquatic life. This includes watercourses having surface or subsurface flow that supports or has supported riparian vegetation”. CDFG’s definition of “lake” includes “natural lakes or man-made reservoirs”. CDFG limits of jurisdiction include the maximum extents of the uppermost bank-to-bank distance or riparian vegetation dripline.

CDFG jurisdiction within altered or artificial waterways is based upon the value of those waterways to fish and wildlife. CDFG Legal Advisor has prepared the following opinion:

- Natural waterways that have been subsequently modified and which have the potential to contain fish, aquatic insects and riparian vegetation will be treated like natural waterways;
- Artificial waterways that have acquired the physical attributes of natural stream courses and which have been viewed by the community as natural stream courses, should be treated as natural waterways; and
- Artificial waterways without the attributes of natural waterways should generally not be subject to Fish and Game Code provisions.

## SECTION 4 - ENVIRONMENTAL SETTING

### 4.1 GENERAL SITE CONDITIONS

The project site lies in the San Bernardino Valley region at an elevation ranging from 1,530 to 2,300 feet above mean sea level (amsl) in southwestern San Bernardino County, California. The pipeline Alternatives bisect portions of the communities of Highland, Redlands, and Mentone. A majority of the project to the west is located in the Santa Ana Wash and the alluvial terrace north of the Santa Ana Wash. The remainder runs adjacent and parallel to Mill Creek along the eastern portion of the proposed project site. Many areas over the project site contain percolation basins maintained by the SBVMWD. Given the proximity of the proposed project site to these human-manipulated hydrologic features, and its adjacency to urban areas, a significant portion of the Area of Potential Effects (APE) has been subjected to a substantial amount of disturbance or alteration. The terraces to the north and south of Santa Ana Wash and Mill Creek have been historically used as spreading grounds with constructed groundwater percolation basins. A levee has also been constructed along the southern bank of Santa Ana Wash and Mill Creek within the project site. Much of the physical topography, hydrologic regime, and vegetative cover are subject to human alteration for maintenance of the spreading grounds and groundwater percolation basins. Although this is not a natural condition, it has been the permanent condition of the proposed project site since the latter half of the 20th century and is now considered the "new normal" condition with no anticipated change in the foreseeable future.

### 4.2 GEOLOGY AND SOILS

Unconsolidated sedimentary deposits consisting of boulder gravels, coarse cobble gravels, arkosic sands, silts, and muds from the Holocene Epoch (less than 10,000 years before present (ybp)) are mapped throughout Riverside and San Bernardino Counties in areas of low relief where recent detrital sediments are accumulated as they are shed by upland surfaces and fill low depressions. These deposits within the project site are mapped as Quaternary Wash (Qw) and older wash deposits (Qow) of the Santa Ana River Wash Alluvium. Dibblee (1968, 2004) maps the active channels of the Santa Ana River and Mill Creek as Qg and the surface of the Santa Ana Wash as Qa. These coarse gravels and sands are exposed on the surface and underlie much of the ground surface beneath the project site, extending to depths that appear to exceed 20 feet based upon the exposures visible in a gravel quarry just west and downstream of the project site. The gray to light brown color of the dominantly arkosic sands and their poor consolidation indicate a young age that probably does not exceed 10,000 years in age at greater than 15 feet in depth. The coarse nature of this geologic material generally precludes the formation of hydric soils as it is excessively well drained.

The soil surrounding the APE consists of a sandy, silty alluvium with few pebbles or rocks. However, large cobbles and boulders, ranging in size from six inches to three feet in diameter, are abundant throughout the project site. Soil types present were determined in accordance with categories set forth by the USDA Soil Conservation Service. The Soil Survey of San Bernardino County Southwestern Part, California (1980) was used as a reference for soil types. No mapped hydric soils occur in the APE. One predominant soil type was found to occur in the project area: Soboba stony loamy sand, 2 to 9 % slopes (USDA 1980).

**Soboba stony loamy sand (SpC), 2 to 9 percent slopes**, is a gently sloping to moderately sloping soil that is located on long, broad, smooth alluvial fans. Parent material consists of alluvium derived from granite. Depth to a root restrictive layer is greater than 60 inches; available water to a depth of 60 inches is very low. The natural drainage class is excessively drained. Runoff on this soil is slow, and the hazard of erosion is slight. Shrink-swell potential is low. This soil is rarely flooded, and not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is

about one percent. This soil does not meet hydric criteria. Soboba stony loamy sand is used for dryfarmed seeded pasture and citrus orchards (USDA 1980).

Except for a few areas within the groundwater percolation basins and the RPWs, the soils encountered within the APE generally match the profile description for SpC. Some of the groundwater percolation basins had accumulations of fine materials that were not sands and not stony. With a few exceptions, the bottoms of these groundwater percolation basins typically contained deposits of silt loam material with little development of structure. Desilting of the basins as a part of normal maintenance could affect the potential to develop hydric soil or hydric indicators. In addition, onsite RPWs (i.e. Santa Ana Wash and the washback discharge channel), due to regular scouring events and/or man-induced flow regimes, exhibited hydric characteristics on an inconsistent basis. The RPWs were considered "significantly disturbed" for hydrology, which in turn, led to "significantly disturbed" soils in some cases.

The four initial considerations for evaluating wetland soils are: 1) whether or not "typical" conditions exist; 2) whether or not "normal circumstances" exist; 3) whether the site is "significantly disturbed" or not; and 4) whether or not the site is "naturally problematic". For the purposes of this wetland delineation, the "significantly disturbed" soils encountered in the RPWs and percolation basins were in their "new normal circumstances". The basins have been routinely maintained since their construction and will continue to be maintained in the same manner for the foreseeable future. Although the hydrology of the alluvial terraces is controlled, or "significantly disturbed" in some cases, it is now the "new normal" hydrologic regime and, provided that surface soils are not scraped or removed, would not have an effect on morphologic features observable in hydric soils. The 1987 Wetland Manual describes "problem areas" where the soil is truly under anaerobic conditions during the growing season but has no hydric indicators. Chapter 5 of the 2006 Arid West Supplement to the 1987 Manual also describes "Problematic Soils". While some areas within the RPWs and the percolation basins were considered "significantly disturbed", the RPWs and basins in question did not meet any of the criteria for being problematic in nature. If wetland hydrology truly exists in these basins and is theoretically allowed to persist for many years into the future, there should be some indicators of hydric soils in time.

All soils observed in this delineation were in their normal circumstance or "new normal circumstance" and were not problematic by current definition. "Atypical situations" are defined as wetlands in which vegetation, soil, or hydrology indicators are absent due to disturbance by recent human activities or natural events. In addition, the Arid West Supplement discusses problems specific to the arid west, which can make identification of wetland indicators difficult. Upon investigation in the field, there were some areas of recent or very recent disturbance that would explain the absence of wetland indicators on the proposed project site. The only mechanical disturbances appeared to be the periodic scraping or ripping of the bottom portions of the groundwater percolation basins on the north and south spreading grounds. There was no evidence of stockpiling or material export. According to the SBVMWD, the groundwater percolation basins south of the Mill Creek levee had been charged for several weeks periodically in 2007, and had not been maintained or desilted in 2007. Chambers Group biologists also witnessed inundation of the groundwater percolation basins during the growing season in prior surveys of 2007. In most cases, there was no observable disturbance to explain an absence of hydric soil indicators in the percolation basins, ephemeral drainages, isolated wetlands, or the main stem of the Santa Ana Wash and Mill Creek channels. Conversely, conditions appropriate for hydric soil genesis and morphology were observed in prior surveys in the same year. However, the relatively young geological age of these areas may preclude hydric soil indicators in some of the man-altered basins and channels. In addition, regular or semi-regular natural scouring of the Santa Ana Wash may preclude hydric soil characteristics at those locations.

The Arid West Supplement describes two situations considered to be Problematic Hydric Soils. One condition is that there are indicators of hydric soils, but they are relict or induced. Relict hydric soils may have formed in the past when conditions were wetter than the present day. Hydric soil indicators may also be induced by irrigation. If the other two indicators of wetlands are present (i.e. vegetation and hydrology), then the hydric soil indicators can be assumed to be contemporary. There were no areas

within the delineation boundary where hydric soil indicators were found but lacked wetland vegetation or hydrology.

The more common problem in soils of the arid west is that hydric soils can lack hydric indicators, or they may be faint. There are several explanations for this phenomenon, none of which applied to the soils encountered in this delineation.

- Moderate to Very Strongly Alkaline Soils - Soboba (SpC) is slightly acidic;
- Volcanic Ash – Soboba (SpC) is of mixed mineralogy and is not volcanic;
- Sand and Gravel Bars within Floodplains – only applies within active channels;
- Recently Developed Wetlands – no onsite areas have recently been converted to wetlands;
- Seasonally Pondered Wetlands – there are no naturally occurring seasonally ponded areas due to restricted drainage as described in the Arid West Supplement (i.e. vernal pools and prairie potholes)

For the purposes of this delineation, all soil was considered to be in a normal (or "new normal") and non-problematic state. However, some soils were considered "significantly disturbed", either by percolation maintenance activities, artificial hydrology, or natural scouring.

#### **4.3 LAND USE**

The proposed project site is located in the northeast portion of the San Bernardino Valley, south of the San Bernardino Mountains (part of the Transverse Ranges), near Mill Creek, and through the historic floodplains of Mill Creek and the Santa Ana Wash. Very little water flows through Mill Creek and the Santa Ana Wash for most of the year, but both systems support several pockets of riparian and scrub vegetation in an otherwise sand, cobble, and boulder-strewn streambed. Mill Creek is a tributary of the Santa Ana Wash. Water diversion practices along both stream systems have led to a decrease of in-stream flow and the degradation of riparian and aquatic habitats. Although streamside riparian habitats no longer receive the regular scouring events they historically experienced, early successional woody riparian plant species were often interspersed along the stream systems of the proposed project site.

In general, many areas of the proposed project site are disturbed but primarily undeveloped. Groundwater percolation basins on either side of the Santa Ana Wash and Mill Creek were constructed to divert and capture water from high flow events. The basins allow for percolation into the groundwater at volumes much greater than would naturally occur. The groundwater recharge has been used to irrigate citrus crops and to provide public water within the project vicinity. The SBVMWD conducts periodic maintenance on the basins. In addition, the Seven W Enterprises property, which has been used for years as an industrial park, has been subjected to further disturbance, including the placement of buildings, access roads, and bunkers associated with the Lockheed Propulsion Company occupation that occurred from 1961 to 1974.

In addition to the streamside habitats, the area within the project site is composed of a mosaic of habitats, including several types of Riversidian alluvial fan sage scrub, ruderal, developed/disturbed, ornamental, and agricultural communities. Land uses and facilities that surround the project site include residential, light industrial, agricultural (i.e. citrus orchards), gravel mining operations, SBVMWD operations, and roadways. The area to the south of the project site is largely developed, while the area to the north is much less developed. Expansive open space exists to the east and the west of the project site along the Mill Creek and Santa Ana Wash floodplains, and coniferous forests are visible at the peaks of the mountains to the north and east of the project site.

## 4.4 VEGETATION COMMUNITIES

To date, up to 304 plant species have been documented along the project site. A number of Riversidian Alluvial Fan Sage Scrub (RAFSS) and riparian associations were documented along the four pipeline Alternatives as well as substantial developed, disturbed, and ruderal associations. Minor areas of riparian habitat and wetlands were also encountered and documented onsite.

It should also be noted that two federally and state-endangered plant species have been identified within the north-south alignments of Alternatives 1 and 2 of the project site just north of the Santa Ana Wash: slender-horned spineflower (*Dodecahema leptoceras*) and Santa Ana River woollystar (*Eriastrum densiflorum* ssp. *sanctorum*). Two California Native Plant Society (CNPS) list plant species have also been documented onsite: Parry's spineflower (*Chorizanthe parryi* var. *parryi*) along all four Alternatives and Plummer's mariposa lily (*Calochortus plummerae*) along Alternatives 1 and 2 (P & D 2005, Aspen 2006, Chambers Group 2007a, Chambers Group 2007b).

Although RAFSS was the predominant vegetation type encountered within the proposed project site, the actual drainages delineated were often unvegetated or nearly so. Vegetation communities associated with the wetter features included Southern Riparian Scrub, Black Willow Series, Fremont Cottonwood Series, Ruderal Vegetation, and Open Water. These communities are described briefly in the following paragraphs.

### 4.4.1 Southern Riparian Scrub

Southern Riparian Scrub communities are dense, broadleafed, winter-deciduous riparian thickets dominated by several willow (*Salix* spp.) species, with scattered emergent Fremont cottonwood (*Populus fremontii*) and western sycamore (*Platanus racemosa*) often intermixed with mule fat (*Baccharis salicifolia*). Riparian Scrub habitats occur along drainages or adjacent to standing water, but are less mature than Riparian Woodland communities. Loose, sandy, or fine gravelly alluvium deposited near stream channels during flood flows characterizes the substrate of Riparian Scrub communities (Holland 1986). Riparian Scrub most closely matches the Mixed Willow Series described by Sawyer and Keeler-Wolf (1995) and Southern Willow Scrub described by Holland (1986).

Southern Riparian Scrub was the most common riparian series found in delineated areas. It was found along the edges of four percolation basins at the east end of Alternatives 1, 2, 3, and 4, in the washback discharge channel adjacent to the east end of the citrus orchard along Alternatives 1, 2, 3, and 4, in an isolated wetland at the northwest corner of the Seven W property at the Alternative 1 and 2 junction, and within the Santa Ana Wash for all Alternatives.

### 4.4.2 Black Willow Series

The Black Willow Series, as described by Sawyer and Keeler-Wolf (1995), is a mature, dense, broadleafed, winter-deciduous scrub community dominated by black willow (*Salix goodingii*). This series consists of trees typically less than 100 feet in height with a continuous canopy. The Black Willow Series can form thickets in riparian zones along alluvial fan stream channels, sandy or gravelly floodplains, and in low stream terraces in southern California. The Willow Series are early to mid-seral precursor communities to Southern Cottonwood-Willow Riparian Forest (Holland 1986).

Black Willow Series was found along Alternative 1, 2, and 4 in the washback discharge channel next to the citrus orchard. It was also found in all four Alternatives along the edge of the easternmost percolation basin on the project site. In addition to black willow, other riparian species, such as red willow (*Salix laevigata*), mule fat, white mulberry (*Morus alba*), and tamarisk (*Tamarix ramosissima*) were occasionally present in some of these areas.

#### **4.4.3 Fremont Cottonwood Series**

The Fremont Cottonwood Series generally requires a more dependable water supply and is located closer to streambeds or groundwater than the California Sycamore Series. Trees are typically less than 85 feet in height, the canopy may be continuous or open, and shrubs and grape (*Vitis* spp.) lianas can be infrequent to common. This community may be characterized as a wetland where soils are intermittently or seasonally flooded and saturated, and floodplains are often subject to high-intensity flooding. Floodplains have low-gradient depositions along rivers, streams, seeps, banks, and terraces (Sawyer and Keeler-Wolf 1995). Fremont Cottonwood Series is synonymous with Southern Cottonwood–Willow Riparian Forest as described by Holland where it is dominated by tall, open, broadleaved, winter-deciduous riparian species, particularly Fremont cottonwood, along with some willow species. These species require moist, bare mineral soils for germination and establishment (1986).

This series was found along Alternatives 1, 2, and 4 in the washback discharge channel next to the citrus orchard.

#### **4.4.4 Ruderal Vegetation**

Ruderal Vegetation includes those areas that are typically dominated by non-native herbaceous colonizing species, but may also have a component of native colonizing species. Vegetative cover is usually low. However, if conditions allow the establishment of non-native species, cover may be high, as these non-native species often out-compete native species. Typical vegetation observed onsite consisted of weedy non-native species such as wild oat (*Avena* sp.), shortpod mustard (*Hirschfeldia incana*), ripgut grass (*Bromus diandrus*), foxtail chess (*Bromus madritensis* ssp. *rubens*), tocalote (*Centaurea melitensis*), red-stemmed filaree (*Erodium cicutarium*), and horehound (*Marrubium vulgare*). Pioneer RAFSS species (i.e. brittlebush (*Encelia farinosa*) and flat-topped buckwheat (*Eriogonum fasciculatum*)) were also observed within some of the basins.

Several percolation basins were delineated along all four Alternatives in the central portion of the proposed project site and several basins along the north-south alignments north of the Santa Ana Wash. The basins were mostly bare toward their centers with Ruderal Vegetation generally occurring along the remainders of the basins. These areas periodically exhibit varying levels of human disturbance (i.e. grading, scraping, and mulching) and will revert to Ruderal Vegetation or Pioneer RAFSS if left unaffected.

#### **4.4.5 Open Water**

Open Water is characterized as an area with permanently flowing or standing water that is devoid of emergent vegetation.

Open Water occurs at the Santa Ana Wash, and it also occurs seasonally while percolation basins are flooded. While water flow is relatively continuous through the Santa Ana Wash, the presence of Southern Riparian Scrub in most areas of these crossings does not warrant the Open Water designation.

### **4.5 HYDROLOGY**

#### **4.5.1 General Description**

Flows of the Santa Ana River and Santa Ana Wash watersheds have been controlled for over a century. Big Bear Lake was built in 1886 on the North Fork of the Santa Ana River and, except for the extremely high flood events that happened in 1916 and 1937, has experienced mostly controlled flows after that date. After that date, Southern California Edison hydroelectric plants were installed in the upper

watersheds for both the Santa Ana River and Mill Creek. These plants were responsible for the controls on major flood flows as well as the Bear Valley Dam, which was built to pass the "100" year flood downstream.

The Mill creek controls were in place after the 1940's and were reservoirs built to stabilize the three hydroelectric plants on Mill Creek. The reservoirs all had large forebays that could store and then later release flood flows that happened in the months between November and May. These reservoirs effectively controlled the flooding that was present in the pre-1940 water years.

The Santa Ana River, Santa Ana Wash, and Mill Creek watersheds are now also controlled by the just-adjudicated "Integrated Water Management Plan" for water districts downstream from the project site. The USGS stream gauge (11-0515.01) Santa Ana River near Mentone (Total Flow) has flow records from 1916 to the present. This gauge best represents flows through the project site for the Santa Ana Wash floodplain. Unregulated flooding events in 1916 (16,000 cfs) and in 1937 (15,000 cfs) were responsible for most of the geomorphological features that exist today on the project site. Large boulders and incising of the major flood plain cross-section were formed during these events and remain largely unchanged today. Peak flows after this period were around 5,000 cfs (during 1968, 1969, and 1980). Average yearly flows over this period are below 50 cfs.

The USGS gauge (11-0550.00) Mill Creek near Mentone has incomplete records from 1940 to 1965, but average yearly flows ranged from 20 cfs (during 1941 and 1958) to 0.2 cfs (in 1949) of zero flow. Seventeen years of the total 25 years of record for the gauge had average yearly flows below 0.50 cfs.

The Santa Ana Wash and Mill Creek channels respond to flood flows that move sand and gravel to form braided and multiple low flow channels. Some of these channels will be consistent over several years, until high winter flows again change the channel shapes and locations.

However, many areas in the terraced Santa Ana River, Santa Ana Wash, and Mill Creek floodplains have large disconnected sections of river channels that are not part of the "normal" river flow channels and have not conveyed any water since at least the 1940's. Some of the higher terraces of the Mill Creek cross sections, which were found south of the Mill Creek levee in many areas of the pipeline Alternatives, have been permanently altered by the presence of the levee. Areas to the south behind this levee are cut off from the main stem flows, and historic ephemeral drainages now serve as connective channels for the groundwater percolation basins.

For the purposes of this report, four general drainage areas are discussed:

- Drainages to the north of the Santa Ana Wash
- Santa Ana Wash and Mill Creek main stem channels
- Drainages to the south of the Santa Ana Wash and Mill Creek
- Treatment plant washback discharge channel along the citrus orchard boundary

#### **4.5.2 Drainages North of the Santa Ana Wash**

As discussed above, these drainages (ephemeral drainages and percolation basins) have not been affected by uncontrolled flows since the 1940's. The dominant feature of this drainage area is the spreading diversion grounds (percolation basins), which control flows diverted to this area from upstream of the project site before crossing the Santa Ana Wash floodplain (Figure 5-1). The spreading of water in the various basins effectively controls any moving water in this area. A series of constructed north-south berms provides for the ponding of water flows and therefore, were built to retain any flows not naturally conveyed downstream. Diversions of water flows into and out of these drainages are adjudicated by agreements between the downstream and local water user agencies. The objective is to percolate as much of the yearly flow as possible and still meet the requirements of the downstream users.

No consistent channel flows were noted in the field, and this confirms the altered hydrological conditions for this part of the project site. There are no outlet gates as there are on the south terrace groundwater percolation basins. Surface water is intended to be entirely retained within the spreading grounds. It appears on aerial imagery as if a network of braided drainages leads westward along the north terrace toward a sand and gravel operation. However, this is a false appearance. While many of the ephemeral drainages appear to be historic channels prior to the construction of the percolation basins, field investigations revealed no consistent hydrologic connectivity. While some of the ephemeral washes were ultimately connected to the Santa Ana Wash or Plunge Creek, most were cut off by percolation basins, access roads, or Cone Camp Road. Some evidence of ponding and seepage was noted in the field, all the result of controls in the upslope areas to maximize the ponding of water for percolation.

The percolation basins north of the Santa Ana Wash are under the jurisdiction of the RWQCB. The ephemeral washes are under the jurisdiction of the RWQCB and the CDFG.

#### **4.5.3 Santa Ana Wash and Mill Creek Mainstem Channels**

The mainstem channels for both the Santa Ana Wash and Mill Creek can be seen easily in the whiter areas along the mainstems of these two watercourses in aerial photographs. Channels in these areas are connected in some pattern yearly, depending on the amount of water from rainfall, snowmelt, and dam releases that move throughout the system. The mainstem areas are typically low in vegetative cover and have braided, meandering channels that follow a natural pathway. However, outside of the mainstem areas, few natural channels exist with unaltered pathways to the Santa Ana Wash. Most are remnant features altered by the placement of berms or roads. Others appear to be man-made or otherwise manipulated by human activity for some diversion and/or channel to convey water between percolation basins.

The Mill Creek levee has two openings or outfall release points back into the mainstem channel of Mill Creek (Figure 5-1). Variable amounts of water are released from upstream depending on the amount of runoff that is anticipated that water year (i.e. October 1 to Sept 30 of next year). Rainstorms, abundant winter snowmelt, and high volume dam releases also contribute to these mainstem flows; higher discharges can form new braided channels as discussed above. There are years that almost no uncontrolled flows occur in these two mainstem channels.

The USACE, RWQCB, and the CDFG all have jurisdiction over this area of the project site.

#### **4.5.4 Drainages South of the Santa Ana Wash and South of the Mill Creek Levee**

The ephemeral drainages to the south of the Santa Ana Wash mainstem and along the western EBX II alignments near Opal Road are more difficult to identify on aerial photography. These drainages, considered tributaries to the Santa Ana Wash, mostly flow during controlled flow events, but will also flow during high rain events.

Many drainages south of the Mill Creek levee are tributaries to Mill Creek through the two levee openings or outfalls as discussed in section 4.5.3. Other tributary discharges to the Santa Ana Wash are from controlled runoff and discharges from the Hinkley water treatment plant and other industrial, commercial and some residentially developed sub-watersheds (see section 4.5.5 below).

The SBVMWD allows water to enter the spreading grounds south of the levee by opening any of two inlet gates as shown on Figure 5-1. Percolation basins are scattered throughout the spreading grounds. The diversions and spreading grounds were constructed prior to the levee. These structures were built and maintained to capture water flows throughout the spreading grounds. The Mill Creek levee was constructed by the USACE in the early 1970's following a flood in 1969. Gates were constructed in the levee to allow the SBVMWD to continue its water spreading activities. The gates are opened during the

winter wet season when flows are steady and relatively low in turbidity. Because all flows behind the levee are controlled; any drainage feature that existed prior to construction of the levee is now hydrologically isolated from the Santa Ana and Mill Creek systems. Since all inflows and outflows are now controlled, constructed drainage features, such as the groundwater percolation basins east of Garnet Road, are now hydrologically isolated from Mill Creek and the Santa Ana Wash. The levee wall (on top of the levee) was constructed in 1991 along with some grouted riprap armoring. There are two doors in the levee wall above where the gates are located; the gates are located at the foot of the levee. Water flows by gravity into the spreading grounds, and is not pumped. All water that exceeds the capacity of the percolation basins is returned by gravity to the Santa Ana Wash at the northwest end of the spreading grounds (Figure 5-1). The filling of the percolation basins by controlled gravity flow through the spreading grounds is not anticipated to be discontinued in the future.

Several isolated wetlands were observed south of the Mill Creek levee. One small isolated wetland exists near the entrance to the Hinkley Water treatment Plant at the terminus of Crafton Drive. Although this area is well south of the levee wall, it is isolated from any other surface drainage behind the levee. Landscape irrigation runoff from the Seven W Enterprises property is the likely source of water to this roadside ditch. Runoff from impervious surfaces may also contribute to the localized hydrology. Standing water and Southern Riparian Scrub vegetation were observed at this location with no downslope continuation of the drainage. Two other small isolated wetland areas were found in the percolation basins east of Garnet Street. These two wetlands were found in the lowest portions of the basins and only formed as a result of the construction of and ponding of the basins.

The field delineation surveys identified the potential tributaries to the Mill Creek and Santa Ana Wash mainstem channels and found little "normal" seasonal uncontrolled runoff that would feed into the mainstem channels. The various gates and basin systems effectively control storm runoff. Since flows are highly controlled south of the Santa Ana Wash and Mill Creek, there is very little natural hydrologic regime along this portion of the project site.

The percolation basins, ephemeral washes, and isolated wetlands are all under the jurisdiction of the RWQCB, and the CDFG has jurisdiction over the bed and bank areas of the washes and the isolated wetlands.

#### **4.5.5 Treatment Plant Washback Discharge Channel Along Citrus Orchard Boundary**

Flows into the Santa Ana Wash are also controlled by the Hinkley Water Treatment Plant (Plant), which discharges into the Santa Ana Wash from a riparian channel near the eastern edge of the citrus orchard north of Crafton Drive. The Plant at the north end of Crafton Drive is operated by the Redlands Municipal Utilities Department. An irregular flow of washback flows from their settling ponds into the Santa Ana Wash via water that is intentionally pumped into and through this riparian channel. The Plant receives water from the upper Santa Ana River via aqueduct. The excess water, or washback, is a necessary result of the process to remove sediment from municipal drinking water. The Plant is operated nearly year-round, but discharges are sporadic. Some areas with wetland conditions were found along this manmade drainage constructed in uplands; however, this human-manipulated and managed water flow lends to a "significantly disturbed" nature for the hydrologic parameter, and in some cases, the soil parameter, within this channel.

Wetland vegetation along this channel was dense and multi-canopied over most areas near the discharge point, indicating frequent inundation events over very long durations. Several trees, including Fremont cottonwood and black willow, were very large individuals, again indicating a long period of man-induced hydrology in this channel. Since it was apparent that this drainage had been allowed to flow for many years, and water discharges will likely not cease in the foreseeable future, this drainage was considered to be under "new normal circumstances" at the time of this delineation. The channel was not considered "naturally problematic", but was considered "atypical" for hydrology and soils, in some cases.

This washback discharge channel is best characterized as a man-induced RPW with some directly abutting wetlands. Except for increased flows during high rain events, the hydrology of this channel is entirely manipulated by human activities. Water enters the channel through an opening inside the wetland vegetation, continues along a man-altered wash at the east edge of the citrus orchard (presumably constructed to avoid flooding the citrus orchard), joins a historic wash near the northeast corner of the citrus orchard, and continues above the ground all the way to the Santa Ana Wash.

Although portions of the wash along this route are man-altered, and hydrology is almost entirely man-controlled, the direct connectivity of the Santa Ana Wash with this washback discharge channel, where water flows for more than three months per year, establishes USACE jurisdiction over the washback discharge channel. The channel is also under the jurisdiction of the RWQCB and the CDFG.

## SECTION 5 - RESULTS

Field surveys were conducted in July, August, and October 2007. Chambers Group investigators included Damon Corley, Kris Alberts, Saraiah Skidmore, Melissa Stepek, and Carla Wakeman.

The features encountered generally fit into three discrete types (i.e. ephemeral drainages, percolation basins, and perennial streams and wetlands) and are described in Section 5.1. Total quantities of jurisdictional areas are reported in the Jurisdictional Tables of Section 5.2. The locations of all drainage features are shown on the Delineation Maps in Section 5.3. Drainages containing special aquatic habitats, such as wetlands or riparian habitats, are also shown on the Delineation Maps. All features have been mapped and entered into a GIS database. The GIS files provided can be queried for additional information and can be viewed at any scale. A photo of each soil pit or data point location is included in Appendix B with the photo number corresponding exactly to each location number as shown on the Delineation Maps (Figures 5-2 to 5-10).

### 5.1 DRAINAGE FEATURES

#### 5.1.1 Ephemeral Drainages

Features with surface hydrology contributing directly or indirectly to the Santa Ana Wash, but which do not flow relatively permanently, were the second most common drainage feature encountered in this survey. Most of these drainages generally meandered between percolation basins on the alluvial terraces to the north and south of the Santa Ana Wash. Some of these drainages had sediment deposition but no real hydric soil development due to infrequent historic inundation, and the presence of only the undeveloped stone and cobble parent material. A lack of hydrophytic vegetation indicated that these ephemeral drainages would not likely have hydric soil indicators per USACE guidance. Debris marks from old flow events were often the only clear hydrologic indicators in these drainages. Because these features ultimately flow to the Pacific Ocean, they are considered indirectly tributary to a TNW per USACE guidance. These drainages flow extremely infrequently and only during above average rainfall events or during intentional water releases to flood the percolation basins. Specifically, the ephemeral drainages to the south behind the levee wall are controlled and flow primarily only when the levee gates are opened. They are considered indirectly tributary to a TNW, but due to their infrequent and temporary flows, they are classified as non-RPW's. The ephemeral nature of these drainages is evidenced onsite by the presence of upland plants and the absence of facultative wetland plants within and adjacent to the banks.

The wetland indicator statuses (if any) of common plant species within the ephemeral drainages are listed in Table 5-1 along with the common and scientific names of each species. Obligate plants (OBL) are almost always found in wetlands, whereas facultative (FAC) plants are equally likely to occur in wetlands, and upland (UPL) plants almost always do not occur in wetlands. Commonly, these ephemeral features were sparsely vegetated or only vegetated along their banks.

Plant species typically found along banks and adjacent to these ephemeral drainages best fits the description of Intermediate and Mature Riversidean Alluvial Fan Sage Scrub (RAFSS), as shown on the following page in Table 5-1.

Lacking the factors necessary to be considered three-parameter wetlands (i.e. soils, hydrology, and vegetation), these ephemeral drainages are not wetlands per USACE guidance. Under Rapanos, the USACE generally does not consider ephemeral drainages that do not flow relatively permanently to be under their regulatory jurisdiction. A significant nexus analysis for the onsite ephemeral washes resulted in a finding that they do not significantly affect the chemical, physical, and biological integrity of downstream traditional navigable waters. For regulatory purposes, these ephemeral drainages are subject to RWQCB jurisdiction and CDFG jurisdiction only. The drainages are depicted on the Delineation Maps with a solid fill in the area of RWQCB jurisdiction (i.e. OHWMs), and with light blue depicting the slightly larger area of CDFG jurisdiction (i.e. bank-to-bank or riparian dripline extents).

**Table 5-1  
Common Plant Species of Ephemeral Drainages**

Intermediate RAFSS *		Mature RAFSS *	
scalebroom <b>FAc</b>	<i>Lepidospartum squamatum</i>	chamise	<i>Adenostoma fasciculatum</i>
California sagebrush	<i>Artemisia californica</i>	California brickelbush <b>FAcU</b>	<i>Brickellia californica</i>
California croton	<i>Croton californicus</i>	hoary leaf ceanothus	<i>Ceanothus crassifolius</i>
Brittlebush	<i>Encelia farinosa</i>	chaparral whitethorn	<i>Ceanothus leucodermis</i>
interior goldenbush	<i>Ericameria linearifolia</i>	California juniper	<i>Juniperus californica</i>
California buckwheat	<i>Eriogonum fasciculatum</i>	California buckwheat	<i>Eriogonum fasciculatum</i>
hairy yerba santa	<i>Eriodictyon trichocalyx</i>	deerweed	<i>Lotus scoparius</i>
California matchweed	<i>Gutierrezia californica</i>	holly-leaved cherry	<i>Prunus ilicifolia</i>
broom matchweed	<i>Gutierrezia sarothrae</i>	scrub oak	<i>Quercus berberidifolia</i>
telegraph weed	<i>Heterotheca grandiflora</i>	spiny redberry	<i>Rhamnus crocea</i>
coastal goldenbush	<i>Isocoma menziesii</i>	white sage	<i>Salvia apiana</i>
coastal prickly pear	<i>Opuntia littoralis</i>		
valley cholla	<i>Opuntia parryi</i>		
shrubby butterweed	<i>Senecio flaccidus</i>		
Our Lord's candle	<i>Yucca whipplei</i>	<b>*Those with no listing are all UPL</b>	

### 5.1.2 Percolation Basins

Percolation basins are manmade impoundments with no natural hydrologic regime. These regularly maintained and graded basins made up the greatest area of jurisdictional features within the study area. Except for significant rainfall events, their flows and filling capacities are controlled by the operation of gates connected ultimately to Mill Creek and also between the basins themselves. The percolation basins are inundated infrequently, and the OHWMs within these basins were ground-truthed using aerial imagery that depicted inundation and cross referencing the images to changes within the vegetation communities. The percolation basins were generally bare and/or contained ruderal vegetation with some pioneer RAFSS species present. An abrupt shift from these relatively barren basins occurred coincidentally where the OHWM was visible from aerial imagery, and where more mature native vegetation communities generally bounded each basin. Typical vegetation observed within the basins consisted of weedy non-native species, such as wild oats (*Avena* spp.), short-podded mustard (*Hirschfeldia incana*), ripgut grass (*Bromus diandrus*), foxtail chess (*Bromus madritensis* ssp. *rubens*), tocalote (*Centaurea melitensis*), and red-stemmed filaree (*Erodium cicutarium*). Because these basin features ultimately flow to the Pacific Ocean, they are considered indirectly tributary to a TNW. All percolation basins and small areas of associated isolated wetlands are under the jurisdiction of only the RWQCB.

Of the 36 percolation basins within the 400-foot wide study areas along the four Alternatives, four exhibited wetland features and/or were bounded by riparian scrub vegetation. These four basins are the four easternmost basins of the proposed project site. The wetland vegetation is similar to that described in the following subsection; however, there is no relatively permanently flowing water in the percolation basins, and since these four areas do not occur along watercourses, they do not fall under CDFG jurisdiction. Common plant species at the edges of these four basins and within the wetland areas along with their wetland indicator statuses are listed in table 5.2. All basins are shown in brown on Figures 5-2 to 5-10.

**Table 5-2  
Common Riparian Plant Species of Four Easternmost Percolation Basin Edges**

<b>Southern Riparian Scrub, Black Willow Series</b>	
mulefat <b>FACW</b>	<i>Baccharis salicifolia</i>
black willow <b>OBL</b>	<i>Salix goodingii</i>
Mexican elderberry <b>FAC</b>	<i>Sambucus mexicana</i>
tamarisk <b>FAC</b>	<i>Tamarix ramossisima</i>
Fremont cottonwood <b>FACW</b>	<i>Populus fremontii</i>
tree tobacco <b>FAC</b>	<i>Nicotiana glauca</i>

**5.1.3 Perennial Streams and Wetlands**

Perennial streams and wetlands are classified as hydrologic features displaying the permanent or nearly permanent presence of water at or near the ground surface. These features receive a sufficient supply of water to manifest wetland hydrology and/or surface flow and contain riparian or wetland vegetation. Onsite streams (i.e. the Santa Ana Wash and the washback discharge channel) had relatively permanently flowing water generally supporting riparian vegetation, while wetland features supported a dominance of hydrophytic vegetation.

The wetlands on the project site occurred in three general locations: in the Santa Ana wash, in the washback discharge channel along the citrus orchard boundary, and in three isolated locations. Those in the Santa Ana Wash were formed by natural processes, while those elsewhere were not. The presence of water and wetland conditions in the two isolated wetlands at the east end of the project site is due to rainfall and/or the intentional manipulation of Mill Creek water flows into the percolation basins in which they are found. The presence of water and wetland conditions in the small wetland at the northwest corner of the Seven W Enterprises property is due primarily to irrigation runoff. None of these three isolated wetlands have any direct outlet to a RPW. The presence of water and wetland conditions in the washback discharge channel is due to the intentional release of water from the Plant via a pipeline from the purification process to remove sediment from the treatment process. The presence of water in the Santa Ana Wash is primarily due to rainfall, snowmelt, and manipulated release from the Bear Valley Dam and the Seven Oaks Dam in this historic channel. The wetlands within the Santa Ana Wash were the only naturally occurring wetlands on the project site and represented the only natural wetlands under USACE jurisdiction on the project site. However, because water flows for over three months per year and the channel directly connects to the Santa Ana Wash, the man-induced wetlands and perennial stream of the washback discharge channel are also under USACE jurisdiction. SWANCC and general site conditions precludes USACE jurisdiction on the three isolated wetlands (the three isolated wetlands are of low-quality, are isolated, are small in size, and are periodically maintained). However, all wetlands on the project site are under RWQCB jurisdiction.

The wetland indicator statuses are listed below along with the common and scientific names of the common plant species found in the onsite perennial streams and wetlands. Vegetation within the perennial streams and wetlands on the project site best fits the Sawyer & Keeler-Wolf (1995) description of Southern Riparian Scrub, as shown in Table 5-3, but also includes smaller areas of Fremont Cottonwood and Black Willow Series.

**Table 5-3  
Common Riparian Plant Species of Perennial Streams and Wetlands**

<b>Southern Riparian Scrub, Black Willow Series, and Fremont Cottonwood Series</b>	
black willow <b>OBL</b>	<i>Salix gooddingii</i>
arroyo willow <b>FACW</b>	<i>Salix lasiolepis</i>
mulefat <b>FACW</b>	<i>Baccharis salicifolia</i>
Fremont cottonwood <b>FACW</b>	<i>Populus fremontii</i>
Mexican elderberry <b>FAC</b>	<i>Sambucus mexicana</i>
coyote brush <b>UPL</b>	<i>Baccharis pilularis</i>
white mulberry <b>NI</b>	<i>Morus alba</i>
tamarisk <b>FAC</b>	<i>Tamarix ramossissima</i>
broad-leaved cattail <b>OBL</b>	<i>Typha latifolia</i>
willow herb <b>FACW</b>	<i>Epilobium ciliatum</i>
waterpepper <b>OBL</b>	<i>Polygonum hydropiperoides</i>

## 5.2 DISCUSSION OF THE RAPANOS DECISION

As mentioned in Section 3, a recent (2007) Supreme Court decision, known as the Rapanos decision, has further defined the upward limits of USACE jurisdiction for the purpose of regulating Section 404 of the Clean Water Act. The decision stipulates that, in general, the agencies will assert jurisdiction over waterbodies that are traditionally navigable waters (TNW), all wetlands adjacent to TNWs, non-navigable tributaries of TNWs that are relatively permanent (RPW), and wetlands that directly abut such tributaries. In addition, the agencies will assert jurisdiction over every non-RPW waterbody if that waterbody is determined to have a significant nexus with a TNW, as determined on the basis of a fact-specific analysis. The term "navigable" was defined to mean those waters that have traditionally been considered navigable for Clean Water Act regulatory purposes. "Relatively permanently flowing water" was defined as those waters that flow at least seasonally and more than three months per year. "Non-RPWs" were defined as those waters that flow less than three months per year, and are therefore not considered relatively permanent waters. Figure 5-1 on the following page shows the location of all RPW and non-RPW drainages within the proposed Alternatives. A significant nexus is one that has a significant effect on the physical, chemical, or biological integrity of the downstream TNW.

To implement this decision, the EPA and the USACE jointly revised their form for jurisdictional determinations and published a *Jurisdictional Determination Form Instructional Guidebook* to assist in the determination of a significant nexus decision (USACE 2007). The guidebook states that a nexus is significant if the potential to affect the integrity of the downstream TNW is more than insubstantial and more than just speculative. To aid in this determination, a Jurisdictional Determination Form (JD form) for the project site is included in Appendix D.

Overall, the natural and man-made RPWs (i.e. Mill Creek, Santa Ana Wash, and the washback discharge channel) within the project site have the potential to affect the integrity of the nearest TNW (i.e. the Pacific Ocean). The percolation basins and intermittent washes in the southern and northern alluvial terraces have the potential to trap flowing water, thereby allowing sediment to drop out rather than being conveyed downstream; this can be considered a positive effect of the percolation basins. Conversely, disturbance of these areas could potentially influence downstream water quality in a negative manner. However, the degree to which the non-RPWs within the study area have an effect on the integrity of the Pacific Ocean is not substantial. This is partly due to the intermittent nature of the Santa Ana Wash and the Santa Ana River, but also due to other man-made influences. Sand and gravel operations downstream from the project site have far greater potential to affect the water quality tributary to the Pacific Ocean. Urban runoff and groundwater recharge facilities in the lower reaches also have far more potential to affect the integrity of the Pacific Ocean. The relative potential to affect the chemical, physical, or biological integrity of the Pacific Ocean could only be described as insubstantial. Furthermore, the downstream Prado Dam

and its associated wetlands effectively treat Santa Ana River water before it enters the Pacific Ocean. The potential influence that the drainages of the project site, situated 30 miles upstream of Prado Dam have on the Pacific Ocean, can only be speculated upon, as the flows out of Prado Dam are controlled and regulated. In addition, the project site itself is 70 river miles from the Pacific Ocean.

All those areas within the study area that have natural RPWs (i.e. the portions of Alternatives 1 and 2 that cross the Santa Ana Wash) are USACE jurisdictional because they are directly or indirectly tributary to a TNW. The Santa Ana Wash is an upper reach within the Santa Ana River, which is directly tributary to the Pacific Ocean. According to the Rapanos decision, there is no requirement of significant nexus analysis or determination if the drainage in question is a RPW that flows directly or indirectly into a TNW. The Santa Ana Wash crossing is also under the jurisdiction of the RWQCB and the CDFG.

Despite its unnatural state and significantly disturbed hydrology, the man-induced RPW that borders the eastern edge of the citrus orchard is under the jurisdiction of the USACE. This RPW was not formed under naturally occurring conditions and is the result of back flow intentionally pumped through this area as part of the water purification process from the Plant. The wetlands and riparian channels of this man-induced RPW ultimately connect directly with the Santa Ana Wash just east of the north-south alignments, and they are under the jurisdiction of the USACE, RWQCB, and the CDFG.

In summary, for this project, all non-RPWs (i.e. ephemeral washes and percolation basins) are not USACE jurisdictional because their potentials to affect a TNW are insubstantial and speculative. The RPWs are all USACE jurisdictional by definition, regardless of potential effects on a TNW. The location of the project site 70 river miles upstream of the Pacific Ocean and the presence of Prado Dam and other diversionary land uses between the project site and the Pacific Ocean were factors in determining that potential effects of onsite non-RPWs would not be substantial, and therefore, non-USACE jurisdictional. However, the percolation basins are still under the jurisdiction of the RWQCB, and the ephemeral washes are under the jurisdiction of both the RWQCB and the CDFG.

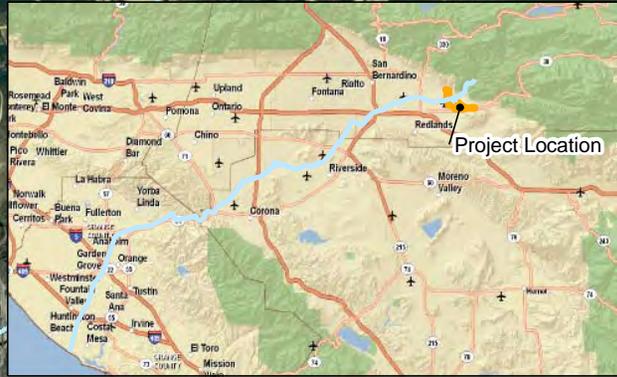
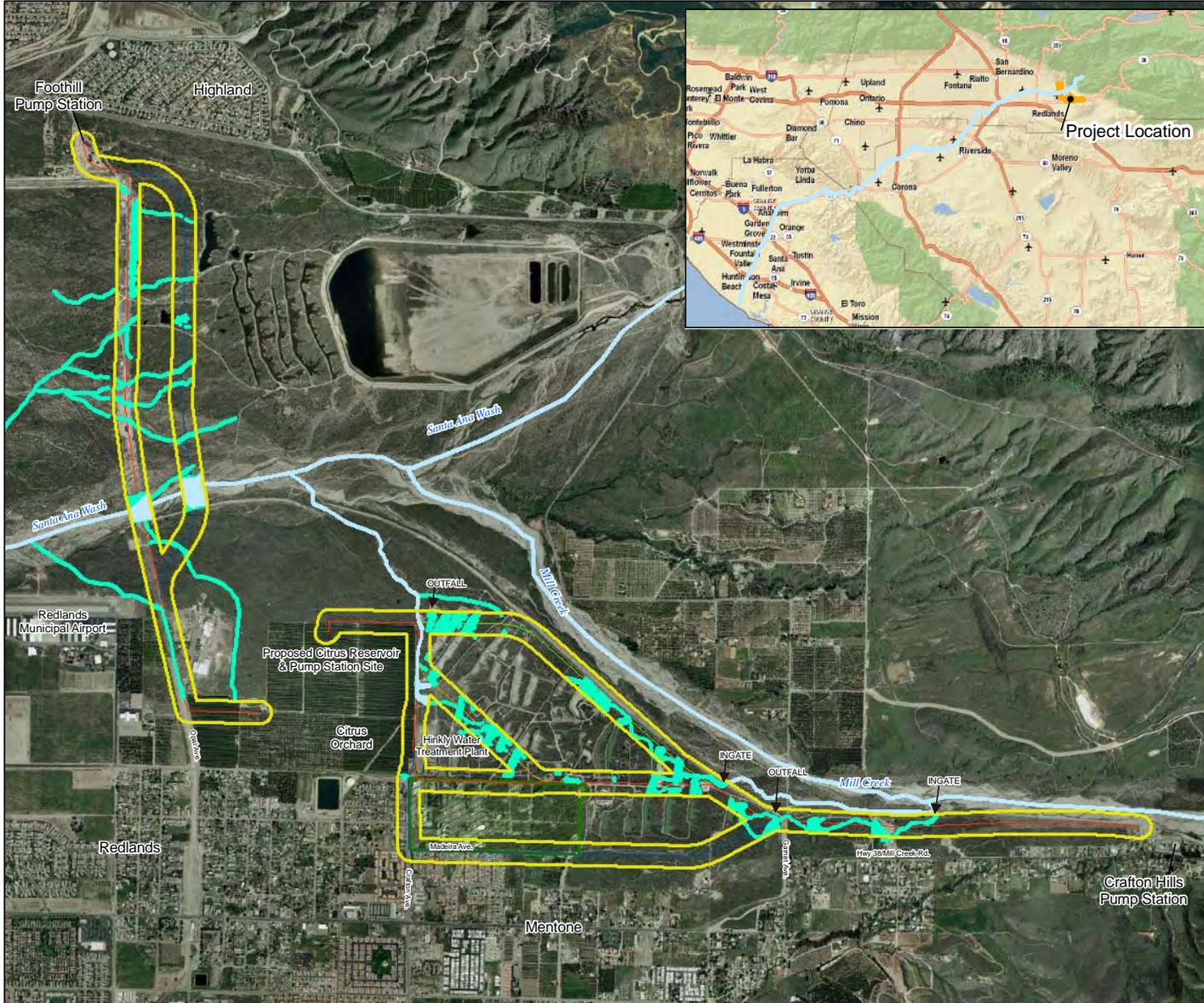
### **5.3 JURISDICTIONAL DATA TABLES**

The acres of potential impacts are shown per each pipeline Alternative route in Tables 5-4 through 5-7. Alternatives 1 and 2 have been calculated for their respective routes: Alternatives 3 and 4 have been calculated to join with Alternative 1 for their full routes. It should be noted that Alternatives 3 and 4 could include either the north-south alignment of Alternative 1 or Alternative 2 within the final design, but for the purposes of this report, calculations were based only on the north-south alignment of Alternative 1. It is also important to note that these reported acres include all areas within each pipeline Alternative surrounded by a 400-foot wide total buffer area.

The following matrices separate the total impacts by Alternative into categories, quantifying the nature of potential impacts (i.e. temporary vs. permanent), and the quality of the potentially impacted features. For the purposes of this delineation, the percolation basins have been separated into their own category. Although they might be considered as other non-wetland waters of the U.S., the basins in question are of such low functional value that they have been considered separately from other features. Since the project design calls for trenching to install the new pipelines, all impacts are being considered temporary, and no impacts are considered permanent.

The potential for avoidance is not taken into account, and the full project design is not yet complete or available. These data should be used to help avoid and minimize potential impacts to jurisdictional features on the project site. In addition, minimization and mitigation measures should be implemented to ensure that there are no more than temporary impacts.

## DWR - East Branch Extension Relatively Permanent Waters Figure 5-1



### Legend

- RPW
- non-RPW
- Santa Ana River (70 miles to TNW)
- EBX-II Alternative 1
- EBX-II Alternative 2
- EBX-II Alternative 3
- EBX-II Alternative 4
- Study Area
- 7W Property Boundary



**Table 5-4  
Alternative 1 Jurisdictional Impacts Matrix**

<b>Authority</b>	<b>Wetlands Permanent</b>	<b>Stream, Riparian, &amp; Other Waters Permanent</b>	<b>Basins Permanent</b>	<b>Total Permanent</b>
USACE	0	0	0	0 ac
RWQCB	0	0	0	0 ac
CDFG	0	0	0	0 ac
<b>Authority</b>	<b>Wetlands Temporary</b>	<b>Stream, Riparian, &amp; Other Waters Temporary</b>	<b>Basins Temporary</b>	<b>Total Temporary</b>
USACE	0.99 ac	2.84 ac	0	3.83 ac
RWQCB	1.19 ac	4.64 ac	9.31 ac	15.14 ac
CDFG	1.19 ac	8.78 ac	0	9.97 ac

**Table 5-5  
Alternative 2 Jurisdictional Impacts Matrix**

<b>Authority</b>	<b>Wetland Permanent</b>	<b>Stream, Riparian, &amp; Other Waters Permanent</b>	<b>Basins Permanent</b>	<b>Total Permanent</b>
USACE	0	0	0	0 ac
RWQCB	0	0	0	0 ac
CDFG	0	0	0	0 ac
<b>Authority</b>	<b>Wetland Temporary</b>	<b>Stream, Riparian, &amp; Other Waters Temporary</b>	<b>Basins Temporary</b>	<b>Total Temporary</b>
USACE	1.06 ac	4.17 ac	0	5.23 ac
RWQCB	1.29 ac	5.45 ac	2.64 ac	9.38 ac
CDFG	1.29 ac	9.18 ac	0	10.47 ac

**Table 5-6  
Alternative 3 Jurisdictional Impacts Matrix**

<b>Authority</b>	<b>Wetland Permanent</b>	<b>Stream, Riparian, &amp; Other Waters Permanent</b>	<b>Basins Permanent</b>	<b>Total Permanent</b>
USACE	0	0	0	0 ac
RWQCB	0	0	0	0 ac
CDFG	0	0	0	0 ac
<b>Authority</b>	<b>Wetland Temporary</b>	<b>Stream, Riparian, &amp; Other Waters Temporary</b>	<b>Basins Temporary</b>	<b>Total Temporary</b>
USACE	0.19 ac	2.76 ac	0	2.95 ac
RWQCB	0.33 ac	4.91 ac	14.95 ac	20.19 ac
CDFG	0.33 ac	9.07 ac	0	9.40 ac

**Table 5-7  
Alternative 4 Jurisdictional Impacts Matrix**

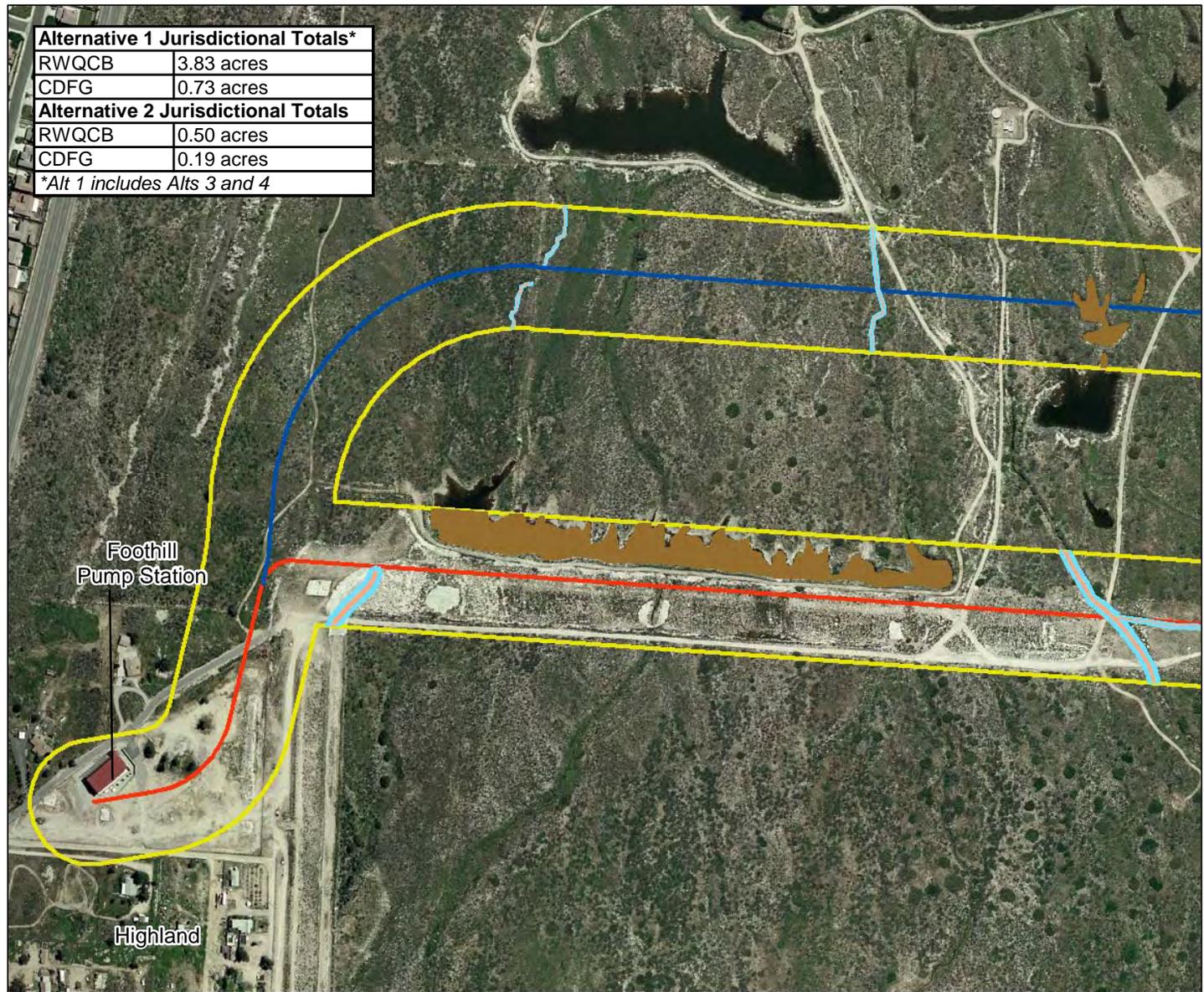
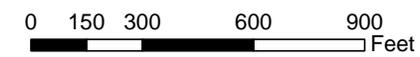
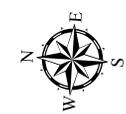
<b>Authority</b>	<b>Wetland Permanent</b>	<b>Stream, Riparian, &amp; Other Waters Permanent</b>	<b>Basins Permanent</b>	<b>Total Permanent</b>
USACE	0	0	0	0 ac
RWQCB	0	0	0	0 ac
CDFG	0	0	0	0 ac
<b>Authority</b>	<b>Wetland Temporary</b>	<b>Stream, Riparian, &amp; Other Waters Temporary</b>	<b>Basins Temporary</b>	<b>Total Temporary</b>
USACE	0.44 ac	2.84 ac	0	3.28 ac
RWQCB	0.58 ac	4.96 ac	13.56 ac	19.10 ac
CDFG	0.58 ac	8.96 ac	0	9.54 ac

Alternative 1 Jurisdictional Totals*	
RWQCB	3.83 acres
CDFG	0.73 acres
Alternative 2 Jurisdictional Totals	
RWQCB	0.50 acres
CDFG	0.19 acres
*Alt 1 includes Alts 3 and 4	

### DWR - East Branch Extension Jurisdictional Delineation Figure 5-2

#### Legend

-  USACE / RWQCB / CDFG Wetland
  -  RWQCB/CDFG Wetland
  -  USACE / RWQCB OHWM
  -  RWQCB OHWM
  -  CDFG Bank to Bank / Dripline
  -  Non-Jurisdictional Riparian
  -  RWQCB Percolation Basin
  -  Soil Pit
- 
- #### Pipeline Alternatives
-  EBX-II Alternative 1
  -  EBX-II Alternative 2
  -  EBX-II Alternative 3
  -  EBX-II Alternative 4
- 
-  7W Property Boundary
  -  Study Area



**Alternative 1 Jurisdictional Totals\***

USACE	2.82 acres
RWQCB	3.23 acres
CDFG	5.40 acres

**Alternative 2 Jurisdictional Totals**

USACE	4.23 acres
RWQCB	4.50 acres
CDFG	6.69 acres

\*Alt 1 includes Alts 3 and 4

**Alt. 2 Santa Ana Wash Jurisdictional Totals**  
 USACE/RWQCB = 4.23 acres  
 CDFG = 5.23 acres

**Alt. 1 Santa Ana Wash Jurisdictional Totals\***  
 USACE/RWQCB = 2.82 acres  
 CDFG = 4.13 acres  
 \*Alt. 1 includes Alts 3 and 4

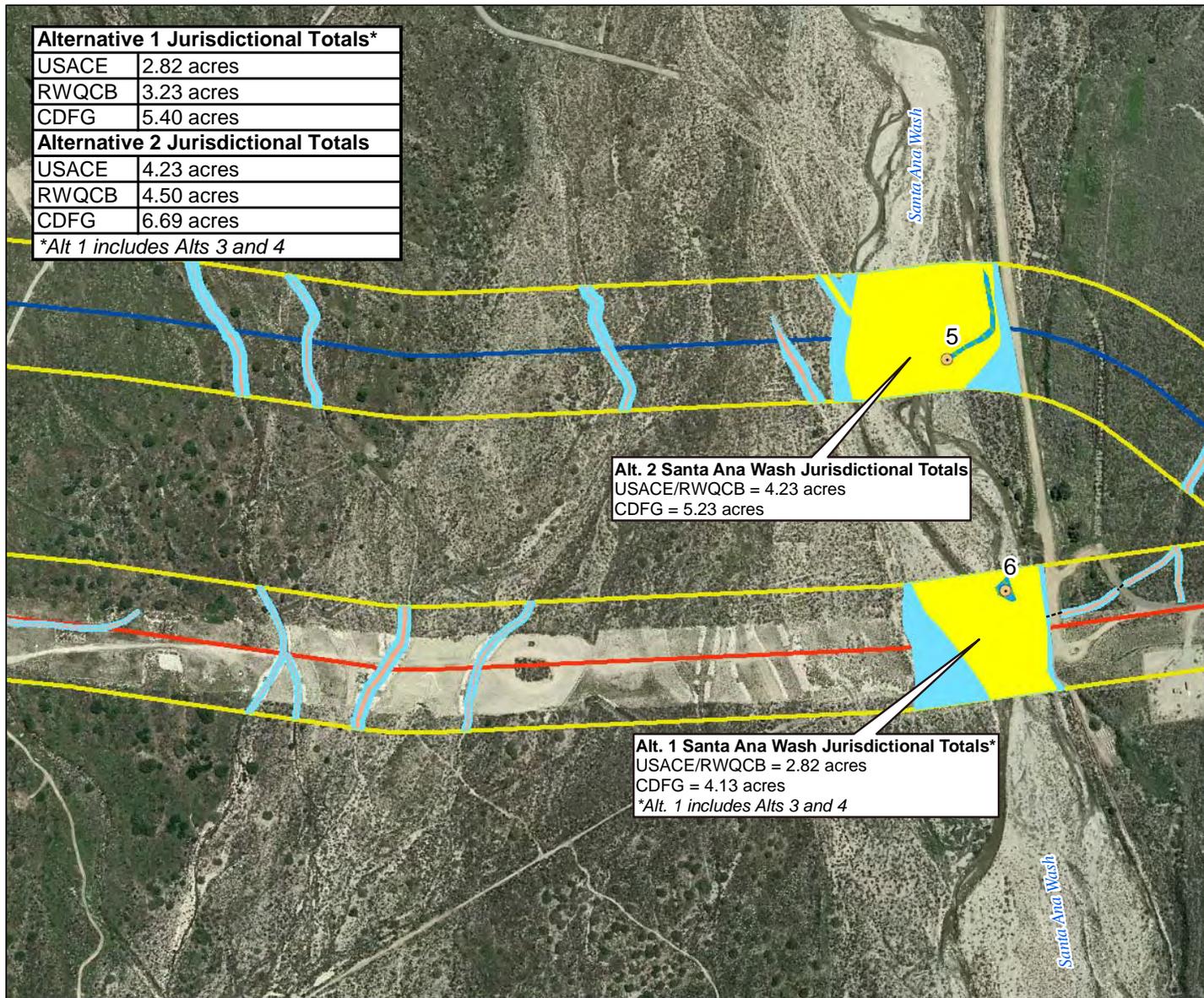
**DWR - East Branch Extension  
 Jurisdictional Delineation  
 Figure 5-3**

**Legend**

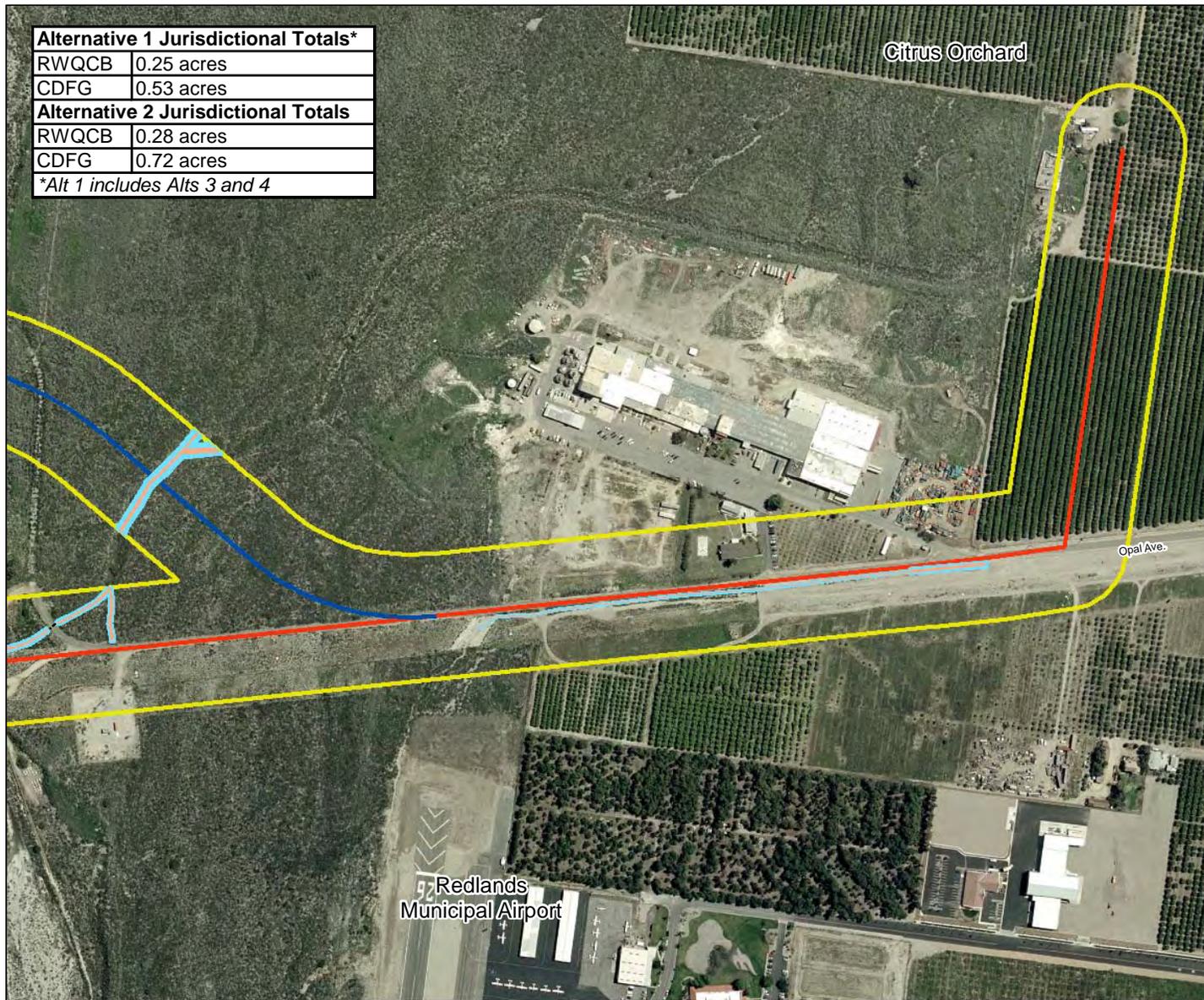
-  USACE / RWQCB / CDFG Wetland
-  RWQCB/CDFG Wetland
-  USACE / RWQCB OHWM
-  RWQCB OHWM
-  CDFG Bank to Bank / Dripline
-  Non-Jurisdictional Riparian
-  RWQCB Percolation Basin
-  Soil Pit

**Pipeline Alternatives**

-  EBX-II Alternative 1
-  EBX-II Alternative 2
-  EBX-II Alternative 3
-  EBX-II Alternative 4
-  7W Property Boundary
-  Study Area



Alternative 1 Jurisdictional Totals*	
RWQCB	0.25 acres
CDFG	0.53 acres
Alternative 2 Jurisdictional Totals	
RWQCB	0.28 acres
CDFG	0.72 acres
*Alt 1 includes Alts 3 and 4	



## DWR - East Branch Extension Jurisdictional Delineation Figure 5-4

### Legend

-  USACE / RWQCB / CDFG Wetland
-  RWQCB/CDFG Wetland
-  USACE / RWQCB OHWM
-  RWQCB OHWM
-  CDFG Bank to Bank / Dripline
-  Non-Jurisdictional Riparian
-  RWQCB Percolation Basin
-  Soil Pit

### Pipeline Alternatives

-  EBX-II Alternative 1
-  EBX-II Alternative 2
-  EBX-II Alternative 3
-  EBX-II Alternative 4

-  7W Property Boundary
-  Study Area



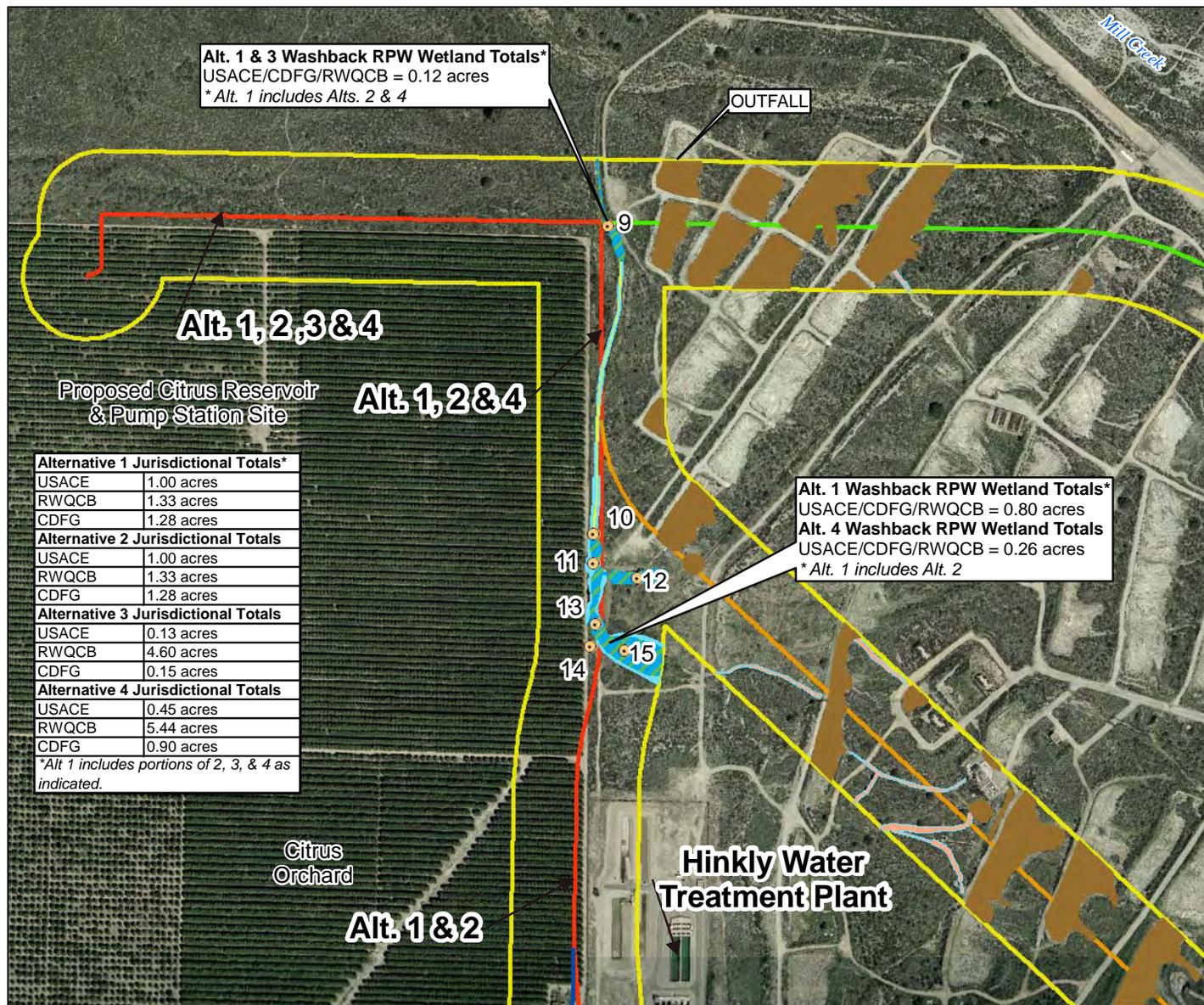
### DWR - East Branch Extension Jurisdictional Delineation Figure 5-5

#### Legend

-  USACE / RWQCB / CDFG Wetland
-  RWQCB/CDFG Wetland
-  USACE / RWQCB OHWM
-  RWQCB OHWM
-  CDFG Bank to Bank / Dripline
-  Non-Jurisdictional Riparian
-  RWQCB Percolation Basin
-  Soil Pit

#### Pipeline Alternatives

-  EBX-II Alternative 1
-  EBX-II Alternative 2
-  EBX-II Alternative 3
-  EBX-II Alternative 4
-  7W Property Boundary
-  Study Area



**Alt. 1 & 3 Washback RPW Wetland Totals\***  
USACE/CDFG/RWQCB = 0.12 acres  
\*Alt. 1 includes Alts. 2 & 4

**Alt. 1 Washback RPW Wetland Totals\***  
USACE/CDFG/RWQCB = 0.80 acres  
**Alt. 4 Washback RPW Wetland Totals**  
USACE/CDFG/RWQCB = 0.26 acres  
\*Alt. 1 includes Alt. 2

Alternative 1 Jurisdictional Totals*	
USACE	1.00 acres
RWQCB	1.33 acres
CDFG	1.28 acres
Alternative 2 Jurisdictional Totals	
USACE	1.00 acres
RWQCB	1.33 acres
CDFG	1.28 acres
Alternative 3 Jurisdictional Totals	
USACE	0.13 acres
RWQCB	4.60 acres
CDFG	0.15 acres
Alternative 4 Jurisdictional Totals	
USACE	0.45 acres
RWQCB	5.44 acres
CDFG	0.90 acres

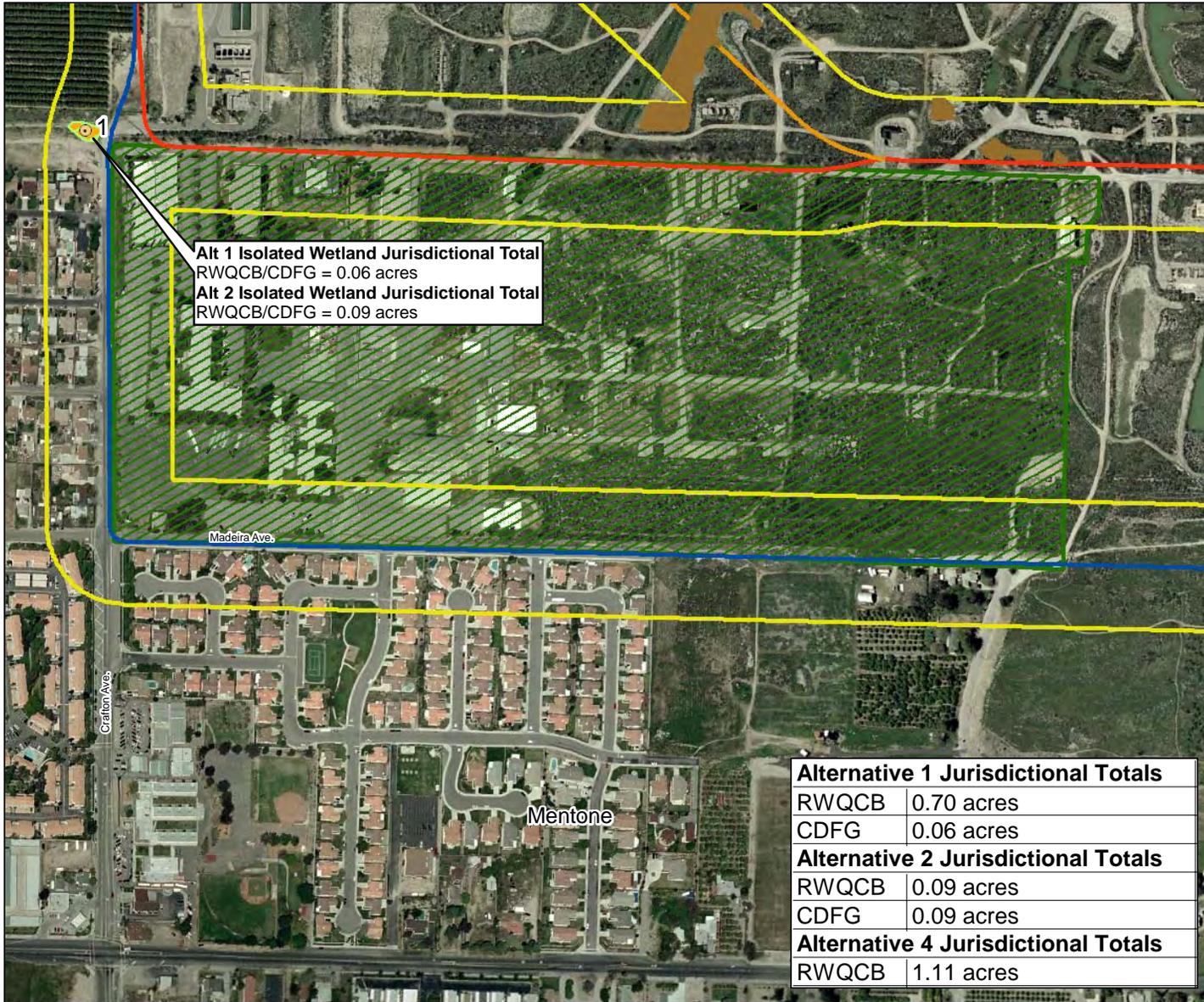
\*Alt 1 includes portions of 2, 3, & 4 as indicated.

**Alt. 1,2,3&4**

**Alt. 1,2&4**

**Alt. 1&2**

## DWR - East Branch Extension Jurisdictional Delineation Figure 5-6



### Legend

-  USACE / RWQCB / CDFG Wetland
-  RWQCB/CDFG Wetland
-  USACE / RWQCB OHWM
-  RWQCB OHWM
-  CDFG Bank to Bank / Dripline
-  Non-Jurisdictional Riparian
-  RWQCB Percolation Basin
-  Soil Pit

### Pipeline Alternatives

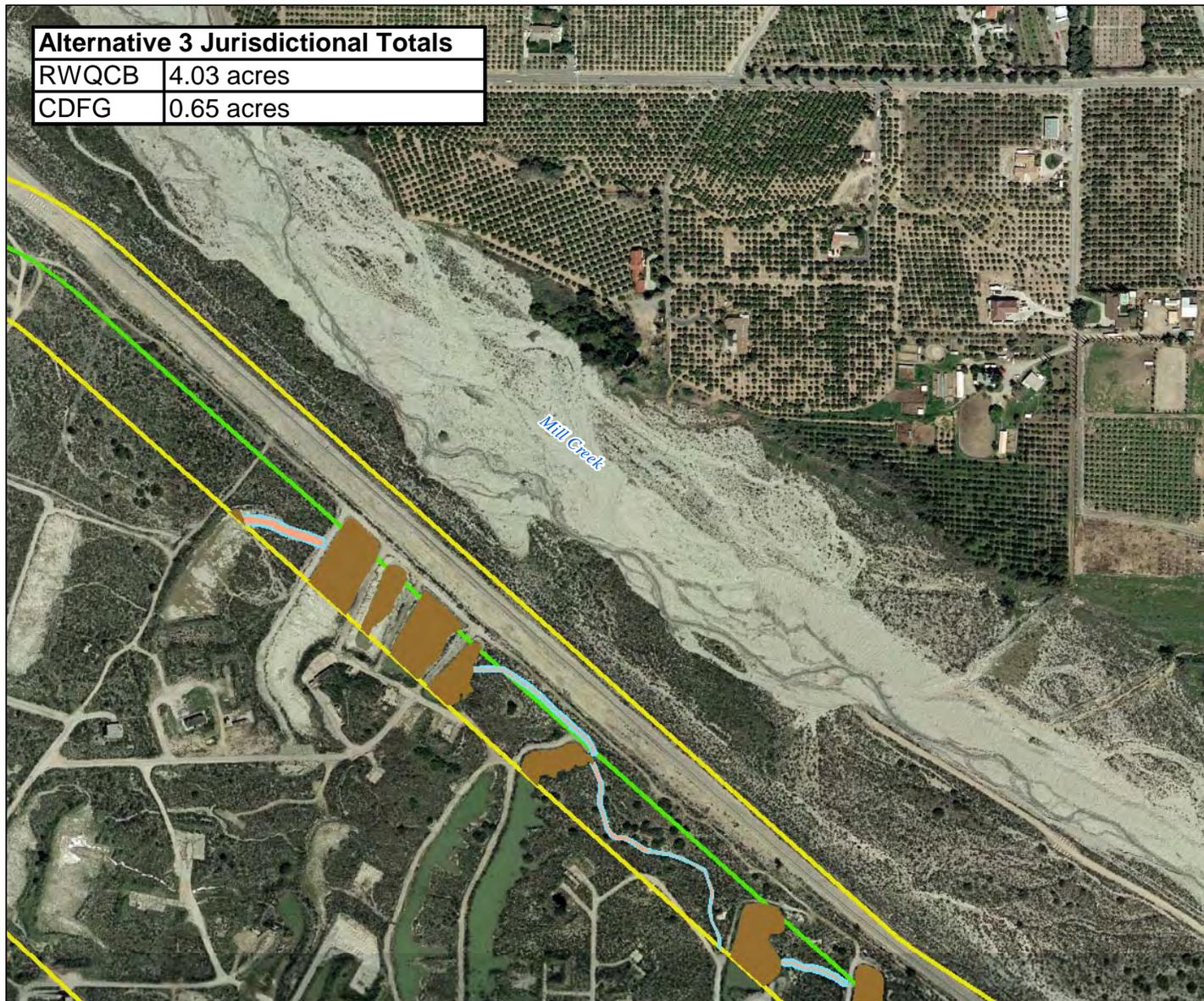
-  EBX-II Alternative 1
-  EBX-II Alternative 2
-  EBX-II Alternative 3
-  EBX-II Alternative 4
-  7W Property Boundary
-  Study Area

Alternative 1 Jurisdictional Totals	
RWQCB	0.70 acres
CDFG	0.06 acres
Alternative 2 Jurisdictional Totals	
RWQCB	0.09 acres
CDFG	0.09 acres
Alternative 4 Jurisdictional Totals	
RWQCB	1.11 acres



**Alternative 3 Jurisdictional Totals**

RWQCB	4.03 acres
CDFG	0.65 acres



**DWR - East Branch Extension  
Jurisdictional Delineation  
Figure 5-7**

**Legend**

-  USACE / RWQCB / CDFG Wetland
-  RWQCB/CDFG Wetland
-  USACE / RWQCB OHWM
-  RWQCB OHWM
-  CDFG Bank to Bank / Dripline
-  Non-Jurisdictional Riparian
-  RWQCB Percolation Basin
-  Soil Pit

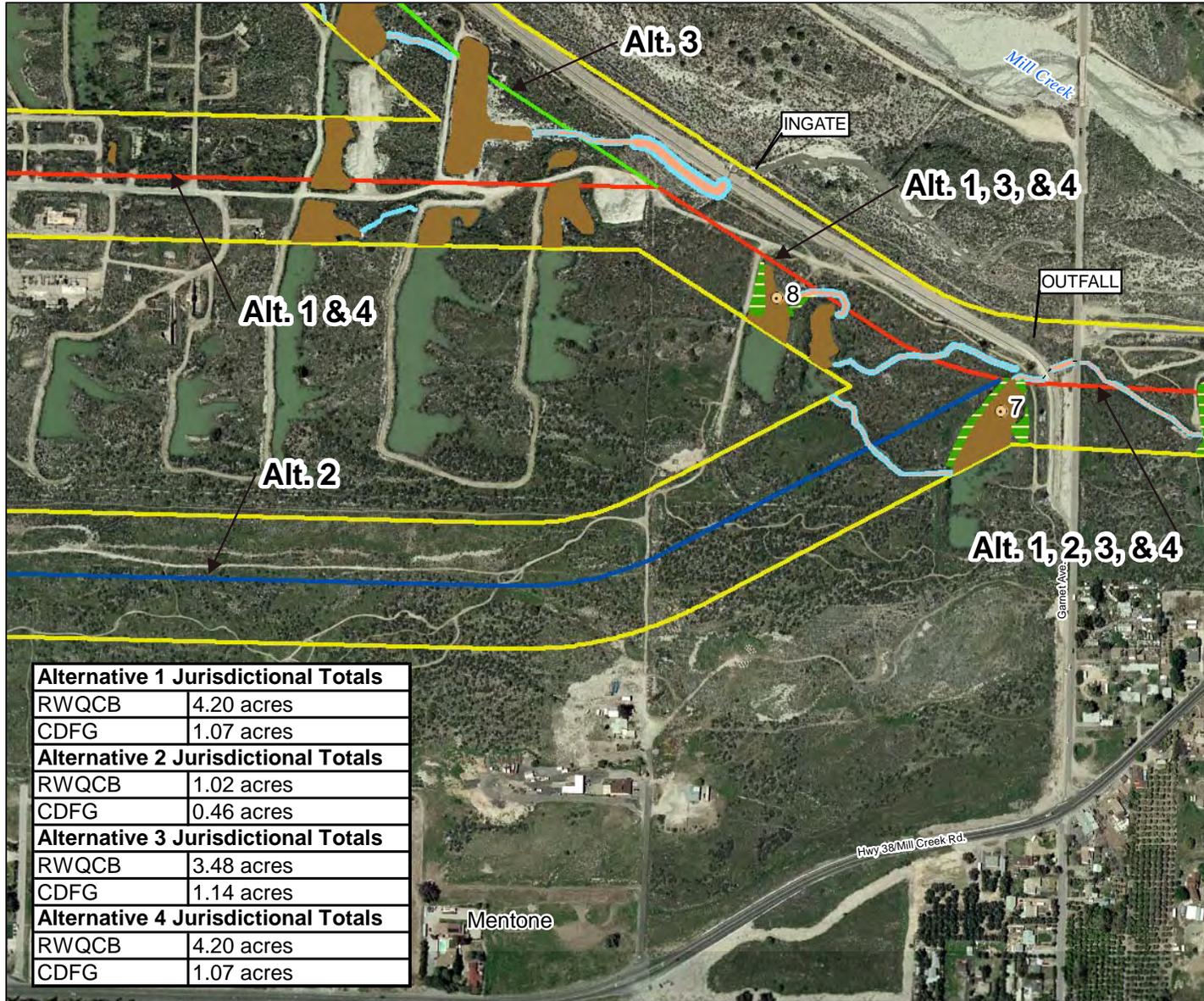
**Pipeline Alternatives**

-  EBX-II Alternative 1
-  EBX-II Alternative 2
-  EBX-II Alternative 3
-  EBX-II Alternative 4

-  7W Property Boundary
-  Study Area



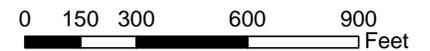
### DWR - East Branch Extension Jurisdictional Delineation Figure 5-8



**Legend**

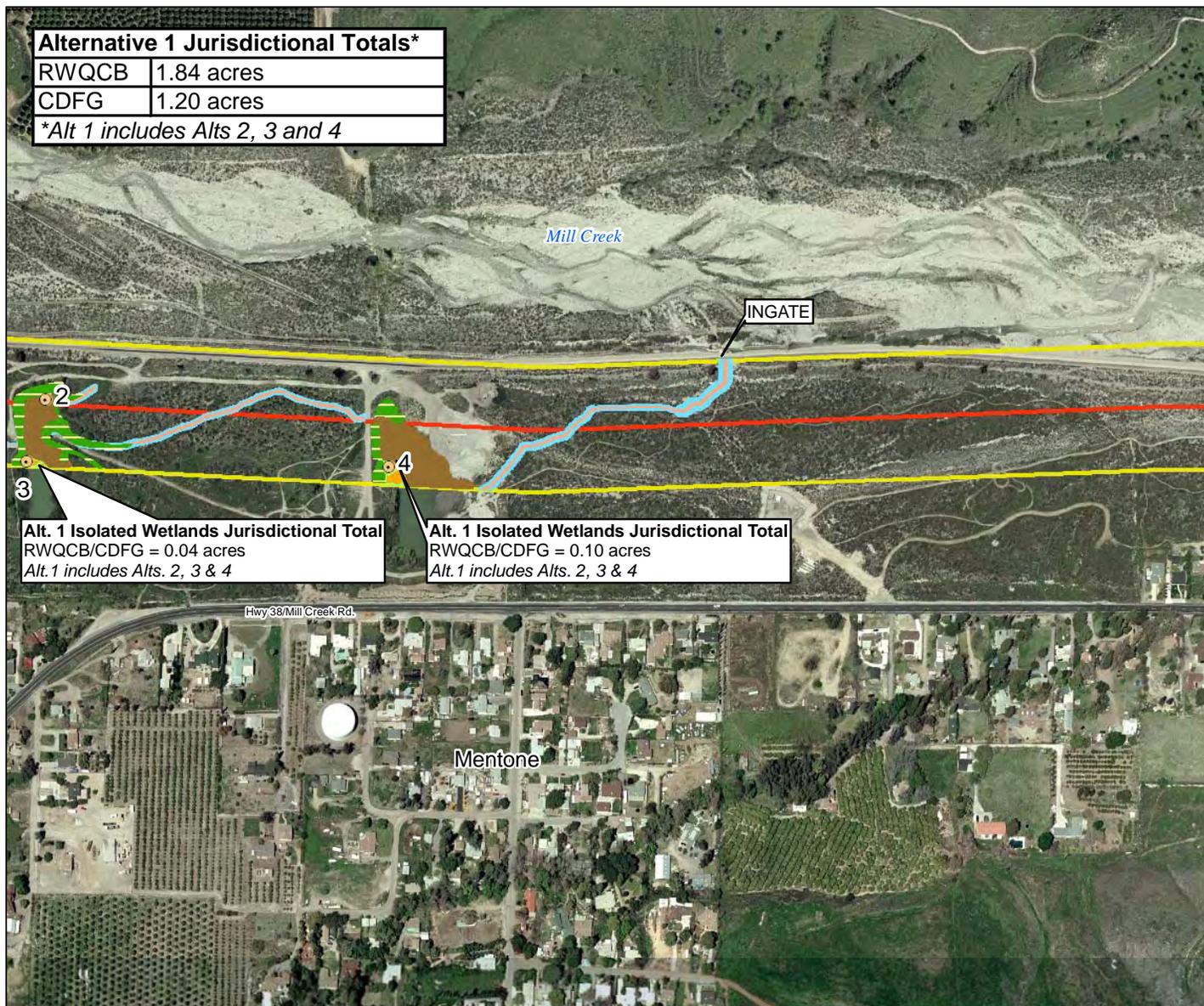
-  USACE / RWQCB / CDFG Wetland
  -  RWQCB/CDFG Wetland
  -  USACE / RWQCB OHWM
  -  RWQCB OHWM
  -  CDFG Bank to Bank / Dripline
  -  Non-Jurisdictional Riparian
  -  RWQCB Percolation Basin
  -  Soil Pit
  -  7W Property Boundary
  -  Study Area
- Pipeline Alternatives**
-  EBX-II Alternative 1
  -  EBX-II Alternative 2
  -  EBX-II Alternative 3
  -  EBX-II Alternative 4

Alternative 1 Jurisdictional Totals	
RWQCB	4.20 acres
CDFG	1.07 acres
Alternative 2 Jurisdictional Totals	
RWQCB	1.02 acres
CDFG	0.46 acres
Alternative 3 Jurisdictional Totals	
RWQCB	3.48 acres
CDFG	1.14 acres
Alternative 4 Jurisdictional Totals	
RWQCB	4.20 acres
CDFG	1.07 acres



## DWR - East Branch Extension Jurisdictional Delineation Figure 5-9

Alternative 1 Jurisdictional Totals*	
RWQCB	1.84 acres
CDFG	1.20 acres
*Alt 1 includes Alts 2, 3 and 4	



**Alt. 1 Isolated Wetlands Jurisdictional Total**  
RWQCB/CDFG = 0.04 acres  
Alt.1 includes Alts. 2, 3 & 4

**Alt. 1 Isolated Wetlands Jurisdictional Total**  
RWQCB/CDFG = 0.10 acres  
Alt.1 includes Alts. 2, 3 & 4

### Legend

- USACE / RWQCB / CDFG Wetland
  - RWQCB/CDFG Wetland
  - USACE / RWQCB OHWM
  - RWQCB OHWM
  - CDFG Bank to Bank / Dripline
  - Non-Jurisdictional Riparian
  - RWQCB Percolation Basin
  - Soil Pit
  - 7W Property Boundary
  - Study Area
- Pipeline Alternatives**
- EBX-II Alternative 1
  - EBX-II Alternative 2
  - EBX-II Alternative 3
  - EBX-II Alternative 4

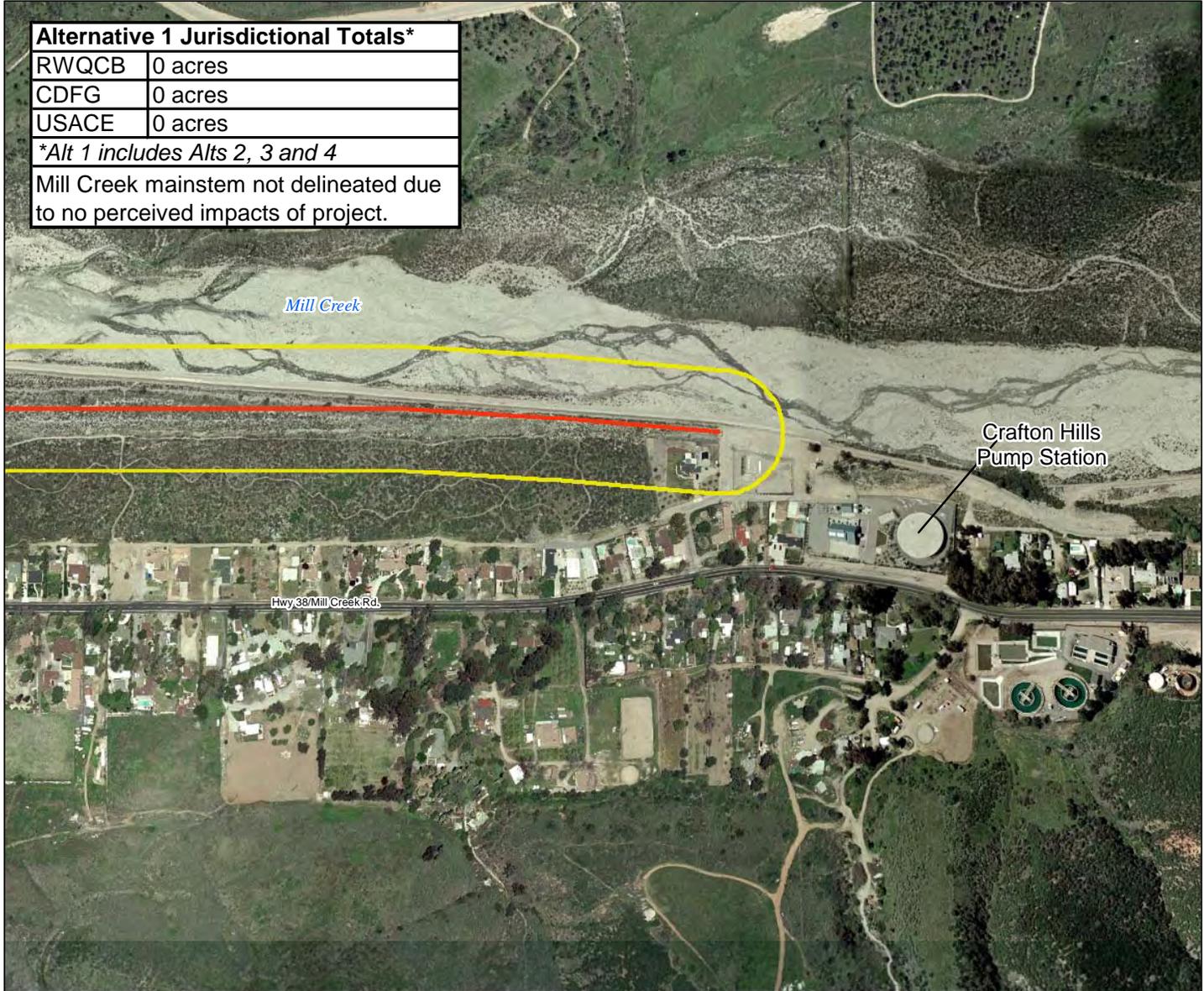


**Alternative 1 Jurisdictional Totals\***

RWQCB	0 acres
CDFG	0 acres
USACE	0 acres

\*Alt 1 includes Alts 2, 3 and 4

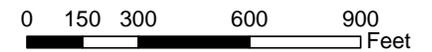
Mill Creek mainstem not delineated due to no perceived impacts of project.



**DWR - East Branch Extension  
Jurisdictional Delineation  
Figure 5-10**

**Legend**

-  USACE / RWQCB / CDFG Wetland
-  RWQCB/CDFG Wetland
-  USACE / RWQCB OHWM
-  RWQCB OHWM
-  CDFG Bank to Bank / Dripline
-  Non-Jurisdictional Riparian
-  RWQCB Percolation Basin
-  Soil Pit
- Pipeline Alternatives**
-  EBX-II Alternative 1
-  EBX-II Alternative 2
-  EBX-II Alternative 3
-  EBX-II Alternative 4
-  7W Property Boundary
-  Study Area



## SECTION 6 - REFERENCES

### Aspen Environmental Group (Aspen)

- 2006 Rare Plant Survey Report for the East Branch Extension Project, Phase II, San Bernardino County, California. Aspen Environmental Group, Agoura Hills, California. Prepared for the Department of Water Resources, Unpublished Report.

### California Department of Fish and Game (CDFG)

- 1994 *A Field Guide to Lake and Streambed Alteration Agreements, Sections 1600-1607.* Environmental Services Division.

### Chambers Group, Inc.

- 2007a Final Biological Technical Report, Department of Water Resources East Branch Extension Phase II Project, San Bernardino County, California.

### Chambers Group, Inc.

- 2007b Focused Plant Survey Report for Seven W Enterprises. Draft.

### Dibblee, T.W.

- 1968 Geologic map of the Yucaipa quadrangle, San Bernardino County, California: U.S. Geological Survey Open-File Report OF-[68-73], scale 1:24,000.

### Environmental Science Associates (ESA)

- 2007 Electronic communication December 31, 2007.

### Hanes, T.L., R.D. Friesen, and K. Keane

- 1989 "Alluvial Scrub Vegetation in Coastal Southern California." Pages 187-193. Proceedings of the California Riparian Systems Conference, September 22-24, 1988. Davis, California. USDA Forest Service Gen. Tech. Rep. PSW-110.

### Hickman, J. C., editor.

- 1993 *The Jepson manual: higher plants of California.* University of California Press, Berkeley and Los Angeles.

### Holland, R.F.

- 1986 *Preliminary descriptions of the terrestrial natural communities of California.* California Department of Fish and Game, Sacramento, California.

### Kirkpatrick, J.B. and Hutchinson, C.F.

- 1977 The Community Composition of California Coastal Sage Scrub. *Vegetatio* 25: 21-33.

### P&D Consultants (P & D)

- 2005 Results of the Biological Resources Reconnaissance Survey for the East Branch Extension Phase II Project. P&D Consultants, Orange, California. Prepared for the California Department of Water Resources, Unpublished Report.

### Reed, Jr., P. B. et al.

- 1988 *National List of Plant Species That Occur in Wetlands: Intermountain (Region 8).* U.S. Fish and Wildlife Service Biological Report 88 (26.8).

### Sawyer, J. O., and T. Keeler-Wolf

- 1995 *A Manual of California Vegetation.* California Sacramento, California.

- Smith, R.L.  
1980 Alluvial Scrub Vegetation of the San Gabriel River Floodplain, California. Madrono 27:126-138.
- U.S. Army Corps of Engineers (USACE)  
1987 *U.S. Army Corps of Engineers Wetlands Delineation Manual*, Technical Report Y-87-1, U.S. Army Engineer Waterways Experimental Station, ViCreeksburg, Mississippi.
- 2006 Interim Regional Supplement to the *Corps of Engineer, Wetlands Delineation Manual: Arid West Region*, ERDC/EL TR-06-16, U.S. Army Engineer Research and Development Center, ViCreeksburg, Mississippi.
- U.S. Department of Agriculture Soil Conservation Service (USDA)  
1980 The Soil Survey of San Bernardino County Southwestern Part, California.

## **APPENDIX A WETLAND DATA SHEETS**

## **Additional Notes for Wetland Determination Data Forms**

After 1) collecting the field data and analyzing site conditions for the soil pits, wetlands, riparian channels, ephemeral washes, and percolation basins, 2) reviewing accepted terminologies and their applications to the project site, and 3) an informal consultation with Charles J. Newling (Professional Wetland Scientist, Certified Wildlife Biologist, Wetland Training Institute instructor, and co-author of the 1987 Corps of Engineers Manual: Field Guide for Wetland Delineations (1987 Manual)) of Wetland Science Applications, Inc. on January 10, 2008, the following notes apply to the EBX Phase II project site:

### **Terminology and Definitions**

**Atypical situation:** *"As used herein, this term refers to areas in which one or more parameters (vegetation, soil, and/or hydrology) have been sufficiently altered by recent human activities or natural events to preclude the presence of wetland indicators of the parameter"* (Page 98, 1987 Manual).

This definition includes the subject of whether or not a site is *significantly disturbed*. If an atypical situation exists, then it is appropriate to indicate which of the three parameters is significantly disturbed, resulting in an atypical situation (Newling, pers. comm. 2008).

**Problem Areas:** *"There are certain wetland types and/or conditions that may make application of indicators of one or more parameters difficult, at least at certain times of the year. These are not considered to be atypical situations. Instead, they are wetland types in which wetland indicators of one or more parameters may be periodically lacking due to normal seasonal or annual variations in environmental conditions that result from causes other than human activities or catastrophic natural events"* (Paragraph 77, Section G, Page 91, 1987 Manual).

Types of Problem Areas discussed in Section G of the 1987 Manual include wetlands on drumlins, seasonal wetlands (i.e., vernal pools), prairie potholes, and vegetated flats. Problem areas are *not* intended for man-made situations (Newling, pers. comm. 2008).

**Normal Circumstances:** *"The definition of wetlands (paragraph 26a) contains the phrase 'under normal circumstances,' which was included because there are instances in which the vegetation in a wetland has been inadvertently or purposely removed or altered as a result of recent natural events or human activities. Other examples of human alterations that may affect wetlands are draining, ditching, levees, deposition of fill, irrigation, and impoundments. When such activities occur, an area may fail to meet the diagnostic criteria for a wetland. Likewise, positive hydric soil indicators may be absent in some recently created wetlands. In such cases, an alternative method must be employed in masking wetland determinations"* (Paragraph 12a, Part 1, Page 4, 1987 Manual).

*"Natural events may also result in sufficient modification of an area that indicators of one or more wetland parameters are absent. For example, changes in river course may significantly alter hydrology, or beaver dams may create new wetland areas that lack hydric soil conditions. Catastrophic events (e.g., fires, avalanches, mudslides, and volcanic activities) may also alter or destroy wetland indicators on a site. Such atypical situations occur throughout the United States..."* (Paragraph 12b, Part 1, Page 4-5, 1987 Manual).

Furthermore, Paragraph 26a, Part II, Page 9 of the 1987 Manual states that 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 under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions."*

The term "normal circumstances" applies to a given wetland site under permanent or relatively permanent conditions resulting from natural or human-induced effects; the presence of all three

parameters indicates that "normal circumstances" are present. Conversely, the absence of one or more of the parameters may indicate that "normal circumstances" are *not* present (Newling, pers. comm. 2008). In addition, temporary natural or man-induced conditions where vegetation and hydrology wetland parameters exist are typically considered *not* to be under "normal circumstances" (Newling, pers. comm. 2008). For example, a ditch that exhibits wetland characteristics on an ongoing construction site or an access road with depressions that now exhibit wetland conditions both are the result of temporary watering events artificially placed at the identified sites for the duration of the given projects. Once the temporary source of water is removed, these sites would no longer exhibit wetland conditions and, therefore, "normal circumstances" would not be considered present while these types of wetland conditions exist (Newling, pers. comm. 2008).

There also are permanent and relatively permanent conditions associated with natural and human-caused conditions that may result in "new normal circumstances". These "new normal circumstances" may have originated from atypical situations or disturbance events, such as the flooding of a river that resulted in an altered course and the formation of new wetlands (i.e., oxbow wetlands, wetlands adjacent to relatively permanent waters, wetlands that abut relatively permanent waters, and isolated wetlands caused by massive flooding, deposition/repositioning of substrates, and new topographical alignments suitable for isolated wetland genesis). Human-induced atypical situations may also lead to "new normal circumstances" if the frequency and duration of ponding or saturation is sufficient to stimulate and support wetland conditions over a period of time. Examples of "new normal circumstances" include artificially-created basins (i.e., stormwater basins, groundwater percolation basins, created wetlands, and runoff ditches). These "new normal circumstances" may or may not be USACE-jurisdictional, depending on the particular case. Human-induced situations in this category are referred to as "man-induced wetlands" in the 1987 Manual.

**Man-Induced Wetlands:** *"A man-induced wetland is an area that has developed at least some characteristics of naturally occurring wetlands due to either intentional or incidental human activities. Examples of man-induced wetlands include irrigated wetlands, wetlands resulting from impoundment (e.g., reservoir shorelines), wetlands resulting from filling of formerly deep-water habitats, dredged material disposal areas, and wetlands resulting from stream channel realignment. Some man-induced wetlands may be subject to Section 404. In virtually all cases, man-induced wetlands involve a significant change in the hydrologic regime, which may either increase or decrease the wetness of the area. Although wetland indicators of all three parameters (i.e., vegetation, soils, and hydrology) may be found in some man-induced wetlands, indicators of hydric soils are usually absent. Hydric soils require long periods (hundreds of years) for development of wetness characteristics, and most man-induced wetlands have not been in existence for a sufficient period to allow development of hydric soil characteristics. Therefore, application of the multiparameter approach in making wetland determinations in man-induced wetlands must be based on the presence of hydrophytic vegetation and wetland hydrology. There must also be documented evidence that the wetland resulted from human activities"* (Paragraph 76, Subsection 4, Part F, Page 89, 1987 Manual).

This subsection further states *"when wetland indicators of all three parameters are found, the area is a wetland. When indicators of hydrophytic vegetation and wetland hydrology are found and there is documented evidence that the change in hydrology occurred so recently that soils could not have developed hydric characteristics, the area is a wetland. In such cases, it is assumed that the soils are functioning as hydric soils. **CAUTION:** If hydrophytic vegetation is being maintained only because of man-induced wetland hydrology that would no longer exist if the activity (e.g., irrigation) were to be terminated, the area should not be considered a wetland "* (Step 4, Page 90, 1987 Manual).

### Additional Notes for Data Points

- **Data Point 1:** All three parameters were met at this point. This isolated wetland exhibited "new normal circumstances" at the time of the survey, was not atypical, was not significantly disturbed, and was not naturally problematic. The presence of soil smelling of hydrogen sulfide indicated a very long period of saturation/inundation that has led this most advanced stage of wetland soil formation. It is highly probable that these wetland conditions are not temporary and this area will exhibit wetland characteristics into the foreseeable future. The willow tree also appeared to be to be at least approximately five to ten years old based on its relative height of 12 feet and its numerous branches. There was no outlet for this small wetland to a downstream water body other than sub-surface flow, which would not be significant. Data point 1 represents a non-USACE jurisdictional man-induced isolated wetland subject only to RWQCB jurisdiction.
- **Data Points 2, 3, and 4:** Data points 3 and 4 exhibited all three parameters, while data point 2 did not exhibit the soil parameter. These data points occurred in the two easternmost percolation basins and were considered to be under "new normal circumstances" at the time of the survey, were not naturally problematic, but were considered "atypical" due to recent disturbances. By the maintenance that these basins periodically receive, vegetation, soil, and hydrology were all considered "significantly disturbed" for these points. The hydrology is primarily a result of intentional flooding due to opening the Mill Creek levee inlet after snowmelt and rainfall events. The hydrology is also affected by water ponded in these areas after significant rainfall. Hydrology occurs for long to very long durations at least once every other year, and has historically been ample enough to support some of the largest riparian patches on the proposed project site. Furthermore, the very function and purpose of these basins and the fact that they have been in existence for over 40 years indicates that these basins will continue to function in their human-manipulated ways into the foreseeable future. The soil indicators for points 2 and 3 were weak or non-existent, which is not unusual for man-induced wetlands. However, Point 3 is considered a wetland due to its location at the bottom of the basin and by this rationale: "*when indicators of hydrophytic vegetation and wetland hydrology are found and there is documented evidence that the change in hydrology occurred so recently that soils could not have developed hydric characteristics, the area is a wetland. In such cases, it is assumed that the soils are functioning as hydric soils.*" Point 4 is considered a wetland because it meets all three parameters. However, points 3 and 4 exist in man-induced, isolated wetlands. Data points 2, 3, and 4 represent non-USACE jurisdictional man-induced isolated wetlands subject only to RWQCB jurisdiction.
- **Data Points 5 and 6:** These data points occurred in the Santa Ana Wash. This area was considered to be in "normal circumstances, was not naturally problematic, and except for soils, was not significantly disturbed. These points were considered "atypical" due to the recently disturbed soil profiles. Braided channels with sandy soils characterize this wash. The braided nature of these soils combined with the relatively new appearance of the wetland vegetation indicated that these wetland areas were recent in their genesis; the lack of strong hydric soil indicators confirmed this hypothesis. The problematic soils are considered significantly disturbed due to fluctuations in the stream course brought on by annual flooding, snowmelt, and large rainfall events that scour the main stem and create new primary channels. However, the presence of hydrophytic vegetation and hydrologic parameters indicates that these data points represent wetlands despite the lack of positive hydric soil indicators (see rationale for data points 3 and 4). Data points 5 and 6 represent USACE, RWQCB, and CDFG jurisdictional natural wetlands abutting and within a Relatively Permanent Water (the Santa Ana Wash).
- **Data Points 7 and 8:** These data points occurred in two percolation basins just west of Garnet Street and were considered to be under "new normal circumstances" at the time of the survey, were not naturally problematic, but were considered "atypical". By the

maintenance that these basins periodically receive, vegetation, soil, and hydrology were all considered "significantly disturbed" for these points. Evidence of very recent mechanical disturbance was noted, and a thin layer of mulch covered both basins. This mulch was obviously artificially placed. Hydric soil indicators were absent. Both of these data points were in man-induced, isolated basins, and were not characterized as wetlands. The areas were significantly disturbed at the time of the delineation. Data points 7 and 8 represent non-USACE jurisdictional man-induced isolated wetlands subject only to RWQCB jurisdiction.

- **Data Points 9-15:** All these data points occurred in the washback discharge channel on the east edge of the citrus orchard. These data points were considered to be under "new normal circumstances" at the time of this delineation, were not naturally problematic, but were "significantly disturbed" for hydrology (all points) and soils (some points). Therefore, data points 9-15 were all considered "atypical". The San Bernardino Valley Water Conservation District controls all flows through this area (except for natural rain flows). The frequency and volume of these flows are entirely manipulated, and water is brought to this location via an underground pipeline. It is intentionally released at the origin of this wetland area near the junction of the west end of Alternative 4 and a north-south section of Alternative 1, and the route of the water from this point continues above ground and follows a wash directly to the Santa Ana Wash. The first section of this wash adjacent to the citrus orchard appears to have been historically man-altered to prevent water flows from entering the orchard area. As the wash continues to the north, it connects to a historic wash near the northeast corner of the citrus orchard. As indicated by the presence of large riparian trees, dense wetland vegetation, high organic content and/or muck in many soil pits, and the visual observation of flowing water every time Chambers Group visited this area in 2007, the water flows for at least three months per year; therefore, it meets the definition of a Relatively Permanent Water. All water from this man-induced Relatively Permanent Water channel is directly tributary to a Relatively Permanent Water (the Santa Ana Wash), which then becomes the Santa Ana River, and terminates at the Pacific Ocean, which is the nearest Traditionally Navigable Water. The water released through these data points is a part of the water treatment process to remove sediment from water during the purification process at the Hinkley Treatment Plant, located just to the south of the channel at the northwest corner of the Seven W Enterprises property. Positive to very strong indicators were found for all three parameters at most data points in this wetland area. By an analysis of the collected data, these data points represent wetlands. By assessing the lush and vigorous wetland and riparian growth associated with data points 9-15, this channel has been in use for many years, and the cessation of water release into this site is not in the foreseeable future. Therefore, it is considered to be a man-induced RPW with wetland characteristics formed under "new normal circumstances", with water flow confirmed as continuing above ground from the release point to a direct connection with the Santa Ana Wash. This connection of RPW's and its associated wetlands, although man-induced and significantly disturbed in some respects, is USACE-jurisdictional. It is also under the jurisdiction of the RWQCB and the CDFG.

**WETLAND DETERMINATION DATA FORM – Arid West Region**

Project/Site: East Branch Extension Phase II City/County: Monte/San Bernardino Sampling Date: 8-2-07  
 Applicant/Owner: Department of Water Resources State: CA Sampling Point: 1  
 Investigator(s): Damon Corley, Carla Wakeman Section, Township, Range: \_\_\_\_\_  
 Landform (hillslope, terrace, etc.): alluvial floodplain Local relief (concave, convex, none): concave Slope (%): 0  
 Subregion (LRR): California LRR C Lat: 488754.6722 Long: 3770705.4886 Datum: UTM NAD 83  
 Soil Map Unit Name: Soboba stony loam sand (SpC) 2 to 9% slopes NWM classification: not hydric  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No \_\_\_\_\_ (if no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes  No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____
Remarks: <p align="center"><i>New normal" circumstances caused by constant source of water (i.e. irrigation runoff) on a permanent or relatively permanent basis - man-induced wetland</i></p>	

**VEGETATION**

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Salix goodingii</u>	<u>100</u>	<input checked="" type="checkbox"/>	<u>FACW</u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A)
2. _____				Total Number of Dominant Species Across All Strata: <u>3</u> (B)
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
4. _____				
Total Cover: <u>100</u>				
Sapling/Shrub Stratum				Prevalence Index worksheet:
1. <u>Salix goodingii</u>	<u>100</u>	<input checked="" type="checkbox"/>	<u>FACW</u>	Total % Cover of: _____ Multiply by: _____
2. _____				OBL species <u>30</u> x 1 = <u>30</u>
3. _____				FACW species <u>200</u> x 2 = <u>400</u>
4. _____				FAC species _____ x 3 = _____
5. _____				FACU species _____ x 4 = _____
				UPL species _____ x 5 = _____
Total Cover: <u>100</u>				Column Totals: <u>230</u> (A) <u>430</u> (B)
				Prevalence Index = B/A = <u>1.9</u>
Herb Stratum				Hydrophytic Vegetation Indicators:
1. <u>Typha latifolia</u>	<u>30</u>	<input checked="" type="checkbox"/>	<u>OBL</u>	<input checked="" type="checkbox"/> Dominance Test is >50%
2. <u>Cyperus sp.</u>	<u>5</u>			<input checked="" type="checkbox"/> Prevalence Index is ≤3.0 <sup>1</sup>
3. _____				<input checked="" type="checkbox"/> Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
4. _____				<input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
5. _____				
6. _____				
7. _____				
8. _____				
Total Cover: <u>35</u>				
Woody Vine Stratum				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present.
1. _____				
2. _____				
Total Cover: _____				
% Bare Ground in Herb Stratum <u>30</u>		% Cover of Biotic Crust _____		Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____
Remarks: <p align="center"><i>aerenchymous tissue in Typha and Cyperus</i></p>				

**SOIL**

Sampling Point: 1

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-4	5Y 5/1	100	—	—	—	—	Sandy loam	thin muck layer on surface

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix.    <sup>2</sup>Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 1 cm Muck (A9) (LRR C)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> 2 cm Muck (A10) (LRR B)
<input checked="" type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Stratified Layers (A5) (LRR C)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Red Parent Material (TF2)
<input checked="" type="checkbox"/> 1 cm Muck (A9) (LRR D)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input checked="" type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Vernal Pools (F9)	

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

**Restrictive Layer (if present):**

Type: \_\_\_\_\_

Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes  No

Remarks: Putrid, sulfuric odor and surface water

**HYDROLOGY**

**Wetland Hydrology Indicators:**

<b>Primary Indicators (any one indicator is sufficient)</b>		<b>Secondary Indicators (2 or more required)</b>
<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Water Marks (B1) (Riverine)
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Biotic Crust (B12)	<input type="checkbox"/> Sediment Deposits (B2) (Riverine)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Drift Deposits (B3) (Riverine)
<input checked="" type="checkbox"/> Water Marks (B1) (Nonriverine)	<input checked="" type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input checked="" type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Drift Deposits (B3) (Nonriverine)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> Shallow Aquitard (D3)
		<input checked="" type="checkbox"/> FAC-Neutral Test (D5)

**Field Observations:**

Surface Water Present? Yes  No  Depth (inches): 2

Water Table Present? Yes  No  Depth (inches): \_\_\_\_\_

Saturation Present? Yes  No  Depth (inches): \_\_\_\_\_  
(includes capillary fringe)

Wetland Hydrology Present? Yes  No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: irrigation runoff probable source of water - isolated wetland

**WETLAND DETERMINATION DATA FORM – Arid West Region**

Project/Site: East Branch Extension Phase II City/County: Monte/San Bernardino Sampling Date: 8.9.07  
 Applicant/Owner: Department of Water Resources State: CA Sampling Point: 2  
 Investigator(s): Daman Corley, Sarah Skidmore Section, Township, Range: \_\_\_\_\_  
 Landform (hillslope, terrace, etc.): alluvial floodplain Local relief (concave, convex, none): concave Slope (%): 0  
 Subregion (LRR): Californis LRR C Lat: 490979.5650 Long: 3770478.6646 Datum: UTM NAD 83  
 Soil Map Unit Name: Soboba stony loam sand (SpC) 2 to 9% slopes NWI classification: not hydric  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes \_\_\_\_\_ No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology  significantly disturbed? Are "Normal Circumstances" present? Yes  No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Remarks: <u>Soil pit not in lowest part of basin. "New normal circumstances" present. Vegetation, Soil, and hydrology parameters are "significantly disturbed" due to maintenance of the basin.</u>	

**VEGETATION**

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Salix laevigata</u>	<u>20</u>	<input checked="" type="checkbox"/>	<u>FACW</u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)
2. _____				Total Number of Dominant Species Across All Strata: <u>2</u> (B)
3. _____				
4. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
Total Cover: _____				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species <u>40</u> x 2 = <u>80</u> FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: <u>40</u> (A) <u>80</u> (B)  Prevalence Index = B/A = <u>2.0</u>
<b>Sapling/Shrub Stratum</b>				
1. <u>Baccharis salicifolia</u>	<u>20</u>	<input checked="" type="checkbox"/>	<u>FACW</u>	
2. _____				
3. _____				
4. _____				
5. _____				
Total Cover: _____				
<b>Herb Stratum</b>				
1. _____				
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
Total Cover: _____				
<b>Woody Vine Stratum</b>				
1. _____				
2. _____				
Total Cover: _____				
% Bare Ground in Herb Stratum <u>80</u>		% Cover of Biotic Crust _____		
Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____				
Remarks:				

**SOIL**

Sampling Point: 2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-14	5Y 5/2	100	—	—	—	—	Silt	water-deposited layers

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix. <sup>2</sup>Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) (LRR C)
- 1 cm Muck (A9) (LRR D)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Vernal Pools (F9)

Indicators for Problematic Hydric Soils<sup>3</sup>:

- 1 cm Muck (A9) (LRR C)
- 2 cm Muck (A10) (LRR B)
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: \_\_\_\_\_  
Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes \_\_\_\_\_ No

Remarks:

- thin surface organic layer (less than 1 cm.)  
- absence of indicators could be due to past maintenance or location of pit

**HYDROLOGY**

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1) (Nonriverine)
- Sediment Deposits (B2) (Nonriverine)
- Drift Deposits (B3) (Nonriverine)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Water-Stained Leaves (B9)
- Salt Crust (B11)
- Biotic Crust (B12)
- Aquatic invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Plowed Soils (C6)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- Water Marks (B1) (Riverine)
- Sediment Deposits (B2) (Riverine)
- Drift Deposits (B3) (Riverine)
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Thin Muck Surface (C7)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Shallow Aquitard (D3)
- FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes \_\_\_\_\_ No  Depth (inches): \_\_\_\_\_  
Water Table Present? Yes \_\_\_\_\_ No  Depth (inches): \_\_\_\_\_  
Saturation Present? Yes \_\_\_\_\_ No  Depth (inches): \_\_\_\_\_  
(includes capillary fringe)

Wetland Hydrology Present? Yes  No \_\_\_\_\_

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

**WETLAND DETERMINATION DATA FORM – Arid West Region**

Project/Site: East Branch Extension Phase II City/County: Monte/San Bernardino Sampling Date: 8.9.07  
 Applicant/Owner: Department of Water Resources State: CA Sampling Point: 3  
 Investigator(s): Damon Corley, Sarah Skidmore Section, Township, Range: \_\_\_\_\_  
 Landform (hillslope, terrace, etc.): alluvial floodplain Local relief (concave, convex, none): concave Slope (%): 0  
 Subregion (LRR): California LRR C Lat: 490962.2536 Long: 3770418.3541 Datum: UTM NAD 83  
 Soil Map Unit Name: Soboba stony loam sand (SpC) 2 to 9% slopes NWI classification: not hydric  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes \_\_\_\_\_ No  (If no, explain in Remarks.)  
 Are Vegetation  Soil  or Hydrology  significantly disturbed? Are "Normal Circumstances" present? Yes  No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_ Soil \_\_\_\_\_ or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____
--	--

Remarks: "New normal circumstances" caused by frequency and duration of water in basin from intentional flooding via Mill Creek levee opening and rainfall - man-induced, isolated wetland. Vegetation, soil, and hydrology parameters are "significantly disturbed" due to maintenance of the basin.

**VEGETATION**

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:																																		
1. <u>Sambucus mexicana</u>	<u>20</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A)																																		
2. <u>Tamarix ramosissima</u>	<u>20</u>	<input checked="" type="checkbox"/>	<u>FACW</u>																																			
3. _____				Total Number of Dominant Species Across All Strata: <u>4</u> (B)																																		
4. _____																																						
Total Cover: <u>40</u>				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)																																		
Sapling/Shrub Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet:																																		
1. <u>Baccharis salicifolia</u>	<u>20</u>	<input checked="" type="checkbox"/>	<u>FACW</u>	<table style="width:100%; border-collapse: collapse;"> <tr> <td align="center" colspan="2">Total % Cover of:</td> <td align="center" colspan="2">Multiply by:</td> </tr> <tr> <td>OBL species</td> <td>_____</td> <td>x 1 =</td> <td>_____</td> </tr> <tr> <td>FACW species</td> <td align="center"><u>60</u></td> <td>x 2 =</td> <td align="center"><u>120</u></td> </tr> <tr> <td>FAC species</td> <td align="center"><u>20</u></td> <td>x 3 =</td> <td align="center"><u>60</u></td> </tr> <tr> <td>FACU species</td> <td>_____</td> <td>x 4 =</td> <td>_____</td> </tr> <tr> <td>UPL species</td> <td>_____</td> <td>x 5 =</td> <td>_____</td> </tr> <tr> <td>Column Totals:</td> <td align="center"><u>80</u></td> <td>(A)</td> <td align="center"><u>180</u></td> <td>(B)</td> </tr> <tr> <td align="center" colspan="4">Prevalence Index = B/A = <u>2.25</u></td> <td></td> </tr> </table>	Total % Cover of:		Multiply by:		OBL species	_____	x 1 =	_____	FACW species	<u>60</u>	x 2 =	<u>120</u>	FAC species	<u>20</u>	x 3 =	<u>60</u>	FACU species	_____	x 4 =	_____	UPL species	_____	x 5 =	_____	Column Totals:	<u>80</u>	(A)	<u>180</u>	(B)	Prevalence Index = B/A = <u>2.25</u>				
Total % Cover of:		Multiply by:																																				
OBL species	_____	x 1 =	_____																																			
FACW species	<u>60</u>	x 2 =	<u>120</u>																																			
FAC species	<u>20</u>	x 3 =	<u>60</u>																																			
FACU species	_____	x 4 =	_____																																			
UPL species	_____	x 5 =	_____																																			
Column Totals:	<u>80</u>	(A)	<u>180</u>	(B)																																		
Prevalence Index = B/A = <u>2.25</u>																																						
2. _____																																						
3. _____																																						
4. _____																																						
5. _____																																						
Total Cover: <u>20</u>																																						
Herb Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators:																																		
1. <u>Baccharis salicifolia</u>	<u>20</u>	<input checked="" type="checkbox"/>	<u>FACW</u>	<input checked="" type="checkbox"/> Dominance Test is >50% <input checked="" type="checkbox"/> Prevalence Index is ≤3.0 <sup>1</sup> _____ Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) _____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)																																		
2. _____																																						
3. _____																																						
4. _____																																						
5. _____																																						
6. _____																																						
7. _____																																						
8. _____																																						
Total Cover: <u>20</u>																																						
Woody Vine Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Footnote:																																		
1. _____				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present.																																		
2. _____																																						
Total Cover: _____																																						
% Bare Ground in Herb Stratum <u>75</u> % Cover of Biotic Crust _____				Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____																																		

Remarks:

**SOIL**

Sampling Point: 3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-1	10 YR 4/2	100	—	—	—	—	clay loam	high organic content
1-5	2.5 Y 6/1	85	G/Ry 7/N	13	C	M	silty loam	2% red mottling also (no collar taken)
5-14	5 YR 5/1	100	—	—	—	—	silty loam	not stratified

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix. <sup>2</sup>Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils<sup>3</sup>:

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) (LRR C)
- 1 cm Muck (A9) (LRR D)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Vernal Pools (F9)

- 1 cm Muck (A9) (LRR C)
- 2 cm Muck (A10) (LRR B)
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: \_\_\_\_\_  
Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes  No

Remarks:

appears to be Loamy Gleyed Matrix in early formative process. True hydric soil indicators may be lacking in this man-induced wetland. Determination primarily based on other two parameters.

**HYDROLOGY**

Wetland Hydrology Indicators:

Secondary Indicators (2 or more required)

Primary Indicators (any one indicator is sufficient)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1) (Nonriverine)
- Sediment Deposits (B2) (Nonriverine)
- Drift Deposits (B3) (Nonriverine)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Water-Stained Leaves (B9)
- Salt Crust (B11)
- Biotic Crust (B12)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Plowed Soils (C6)
- Other (Explain in Remarks)

- Water Marks (B1) (Riverine)
- Sediment Deposits (B2) (Riverine)
- Drift Deposits (B3) (Riverine)
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Thin Muck Surface (C7)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Shallow Aquitard (D3)
- FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes  No  Depth (inches): \_\_\_\_\_  
 Water Table Present? Yes  No  Depth (inches): \_\_\_\_\_  
 Saturation Present? Yes  No  Depth (inches): \_\_\_\_\_  
 (Includes capillary fringe)

Wetland Hydrology Present? Yes  No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Hydrology primarily affected by levee opening of Mill Creek. Isolated, man-induced wetland. Rainfall also leads to ponded water.

**WETLAND DETERMINATION DATA FORM - Arid West Region**

Project/Site: East Branch Extension Phase II City/County: Montrose/San Bernardino Sampling Date: 8.9.07  
 Applicant/Owner: Department of Water Resources State: CA Sampling Point: 4  
 Investigator(s): Damon Corley, Sarah Skidmore Section, Township, Range: \_\_\_\_\_  
 Landform (hillslope, terrace, etc.): Alluvial floodplain Local relief (concave, convex, none): Concave Slope (%): 0  
 Subregion (LRR): California LRR C Lat: 491311.8184 Long: 3770415.8683 Datum: UTM NAD83  
 Soil Map Unit Name: Soboba stony loam sand (SpC) 2 to 9% slopes NMI classification: not hydric  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes \_\_\_\_\_ No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology  significantly disturbed? Are "Normal Circumstances" present? Yes  No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____
--	--

Remarks: "New normal circumstances" caused by frequency and duration of water in basin from intentional flooding via Mill Creek levee opening and rainfall - man-induced, isolated wetland vegetation, soil, and hydrology parameters are "significantly disturbed" due to maintenance of the basin.

**VEGETATION**

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Salix laevigata</u>	<u>10</u>	<input checked="" type="checkbox"/>	<u>FACW</u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A)
2. _____				Total Number of Dominant Species Across All Strata: <u>4</u> (B)
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>75</u> (A/B)
4. _____				
Total Cover: <u>10</u>				
Sapling/Shrub Stratum				Prevalence Index worksheet:
1. <u>Baccharis salicifolia</u>	<u>20</u>	<input checked="" type="checkbox"/>	<u>FACW</u>	Total % Cover of: _____ Multiply by: _____
2. <u>Amaranthus sp.</u>	<u>20</u>	<input checked="" type="checkbox"/>	<u>FACW</u>	OBL species _____ x 1 = _____
3. <u>Salix laevigata</u>	<u>40</u>	<input checked="" type="checkbox"/>	<u>FACW</u>	FACW species <u>70</u> x 2 = <u>140</u>
4. _____				FAC species _____ x 3 = _____
5. _____				FACU species <u>20</u> x 4 = <u>80</u>
Total Cover: <u>80</u>				UPL species _____ x 5 = _____
Herb Stratum				Column Totals: <u>90</u> (A) <u>220</u> (B)
1. _____				Prevalence Index = B/A = <u>2.4</u>
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
Total Cover: _____				
Woody Vine Stratum				
1. _____				
2. _____				
Total Cover: _____				
% Bare Ground in Herb Stratum <u>25</u> % Cover of Biotic Crust <u>0</u>				Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____

Remarks: Thousands of small Salix 18"-24" tall.

**SOIL**

Sampling Point: 4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-14	Grey	4/10Y	100	—	—	—	Sandy loam	> 50% organic content

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix. <sup>2</sup>Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)	Indicators for Problematic Hydric Soils <sup>3</sup> :
<input checked="" type="checkbox"/> Histosol (A1)	<input type="checkbox"/> 1 cm Muck (A9) (LRR C)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> 2 cm Muck (A10) (LRR B)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Stratified Layers (A5) (LRR C)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> 1 cm Muck (A9) (LRR D)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	
<input type="checkbox"/> Thick Dark Surface (A12)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	
<input type="checkbox"/> Sandy Redox (S5)	
<input type="checkbox"/> Stripped Matrix (S6)	
<input type="checkbox"/> Loamy Mucky Mineral (F1)	
<input checked="" type="checkbox"/> Loamy Gleyed Matrix (F2)	
<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Redox Depressions (F8)	
<input type="checkbox"/> Vernal Pools (F9)	

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):  
 Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes  No

Remarks:

**HYDROLOGY**

Wetland Hydrology Indicators:	Secondary Indicators (2 or more required)
<u>Primary Indicators (any one indicator is sufficient)</u>	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water Marks (B1) (Riverine)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Sediment Deposits (B2) (Riverine)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Drift Deposits (B3) (Riverine)
<input type="checkbox"/> Water Marks (B1) (Nonriverine)	<input checked="" type="checkbox"/> Drainage Patterns (B10)
<input checked="" type="checkbox"/> Sediment Deposits (B2) (Nonriverine)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Drift Deposits (B3) (Nonriverine)	<input type="checkbox"/> Thin Muck Surface (C7)
<input checked="" type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Crayfish Burrows (C8)
<input checked="" type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Salt Crust (B11)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Biotic Crust (B12)	
<input type="checkbox"/> Aquatic Invertebrates (B13)	
<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	
<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	
<input type="checkbox"/> Presence of Reduced Iron (C4)	
<input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6)	
<input type="checkbox"/> Other (Explain in Remarks)	

Field Observations:

Surface Water Present? Yes \_\_\_\_\_ No  Depth (inches): \_\_\_\_\_

Water Table Present? Yes \_\_\_\_\_ No  Depth (inches): \_\_\_\_\_

Saturation Present? Yes \_\_\_\_\_ No  Depth (inches): \_\_\_\_\_  
 (includes capillary fringe)

Wetland Hydrology Present? Yes  No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Hydrology primarily affected by levee opening of Mill Creek. Isolated, man-induced wetland. Rainfall also contributes to ponding of water.

**WETLAND DETERMINATION DATA FORM – Arid West Region**

Project/Site: East Branch Extension Phase II City/County: Mentone/San Bernardino Sampling Date: 8.13.07  
 Applicant/Owner: Department of Water Resources State: CA Sampling Point: 5  
 Investigator(s): Damon Corley, Carla Wiskeman Section, Township, Range: \_\_\_\_\_  
 Landform (hillslope, terrace, etc.): alluvial floodplain Local relief (concave, convex, none): concave Slope (%): 0-2  
 Subregion (LRR): California LRR C Lat: 487574.2578 Long: 3772207.4142 Datum: UTM NAD 83  
 Soil Map Unit Name: Soboba Stony loam sand (SpC) 2 to 9% slopes NWI classification: not hydric  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes \_\_\_\_\_ No  (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil  or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes  No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_ or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____
Remarks: <u>In Santa Ana Wash, Braided nature of sandy soils likely precludes absence of hydric soil indicators.</u>	

**VEGETATION**

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
Total Cover: _____				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species <u>58</u> x 2 = <u>116</u> FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: <u>58</u> (A) <u>116</u> (B) Prevalence Index = B/A = <u>2.0</u>
<b>Sapling/Shrub Stratum</b>				
1. <u>Arundo donax</u>	<u>33</u>	<input checked="" type="checkbox"/>	<u>FACW</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
Total Cover: <u>33</u>				
<b>Herb Stratum</b>				
1. <u>Cyperus sp</u>	<u>20</u>	<input checked="" type="checkbox"/>	<u>FACW</u>	
2. <u>Polygonum monspeliensis</u>	<u>5</u>	<input checked="" type="checkbox"/>	<u>FACW</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
Total Cover: <u>25</u>				
<b>Woody Vine Stratum</b>				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
Total Cover: _____				
% Bare Ground in Herb Stratum <u>10</u> % Cover of Biotic Crust <u>0</u>		Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____		
Remarks: <u>derrhynchymous tissue in Cyperus. Also algae in water.</u>				

**SOIL**

Sampling Point: 5

Profile Description: (Describe to the depth needed to document the Indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-12	5Y 7/1	100	—	—	—	—	Sand	100% sand, but cohesive

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix. <sup>2</sup>Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils<sup>3</sup>:

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) (LRR C)
- 1 cm Muck (A9) (LRR D)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Vernal Pools (F9)

- 1 cm Muck (A9) (LRR C)
- 2 cm Muck (A10) (LRR B)
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: \_\_\_\_\_  
Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes  No

Remarks: Pit walls slumped lower than 12 inches. Appears to be newer wetland in braided main stem of Santa Ana Wash. Problematic soil due to braiding likely precludes indicators, but obvious hydric regime due to presence of flowing water, slaps, and hydrophytic vegetation. Soil significantly disturbed due to changes in primary water course.

**HYDROLOGY**

Wetland Hydrology Indicators:

Secondary Indicators (2 or more required)

Primary Indicators (any one indicator is sufficient)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1) (Nonriverine)
- Sediment Deposits (B2) (Nonriverine)
- Drift Deposits (B3) (Nonriverine)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Water-Stained Leaves (B9)
- Salt Crust (B11)
- Biotic Crust (B12)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Plowed Soils (C6)
- Other (Explain in Remarks)

- Water Marks (B1) (Riverine)
- Sediment Deposits (B2) (Riverine)
- Drift Deposits (B3) (Riverine)
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Thin Muck Surface (C7)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Shallow Aquitard (D3)
- FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes  No  Depth (inches): \_\_\_\_\_  
Water Table Present? Yes  No  Depth (inches): 12  
Saturation Present? (includes capillary fringe) Yes  No  Depth (inches): 10

Wetland Hydrology Present? Yes  No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

**WETLAND DETERMINATION DATA FORM – Arid West Region**

Project/Site: East Branch Extension Phase II City/County: Monte/San Bernardino Sampling Date: 6  
 Applicant/Owner: Department of Water Resources State: CA Sampling Point: 8.21.07  
 Investigator(s): Damon Corley, Carla Wakeman Section, Township, Range: \_\_\_\_\_  
 Landform (hillslope, terrace, etc.): Alluvial floodplain Local relief (concave, convex, none): concave Slope (%): 2-5  
 Subregion (LRR): California LRR C Lat: 487356.1927 Long: 3772128.7322 Datum: UTM NAD 83  
 Soil Map Unit Name: Soboba Stony loam sand (SpC) 2 to 9% slopes NMI classification: not hydric  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes \_\_\_\_\_ No  (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil , or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes  No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_ or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____
Remarks: <u>In Santa Ana Wash. Braided nature of sandy soils likely precludes absence of strong hydric soil indicators.</u>	

**VEGETATION**

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Salix goodingii</u>	<u>50</u>	<input checked="" type="checkbox"/>	<u>FACW</u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)
2. _____				Total Number of Dominant Species Across All Strata: <u>2</u> (B)
3. _____				
4. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
Total Cover: <u>50</u>				
<b>Sapling/Shrub Stratum</b>				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species <u>20</u> x 1 = <u>20</u> FACW species <u>50</u> x 2 = <u>100</u> FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: <u>70</u> (A) <u>120</u> (B)  Prevalence Index = B/A = <u>1.7</u>
1. _____				
2. _____				
3. _____				
4. _____				
5. _____				
Total Cover: _____				
<b>Herb Stratum</b>				<b>Hydrophytic Vegetation Indicators:</b> <input checked="" type="checkbox"/> Dominance Test is >50% <input checked="" type="checkbox"/> Prevalence Index is ≤3.0 <sup>1</sup> <input checked="" type="checkbox"/> Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) _____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
1. <u>Typha latifolia</u>	<u>20</u>	<input checked="" type="checkbox"/>	<u>OBL</u>	
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
Total Cover: <u>20</u>				
<b>Woody Vine Stratum</b>				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present.  <b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No _____
1. _____				
2. _____				
Total Cover: _____				
% Bare Ground in Herb Stratum <u>0</u> % Cover of Biotic Crust _____				
Remarks: <u>desynchronous tissue in Typha. Ground surface covered by 100% leaf litter</u>				

**SOIL**

Sampling Point: 6

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-8	5Y 7/2	100	—	—	—	—	fine sand	cobblestones

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix. <sup>2</sup>Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils<sup>3</sup>:

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) (LRR C)
- 1 cm Muck (A9) (LRR D)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Vernal Pools (F9)

- 1 cm Muck (A9) (LRR C)
- 2 cm Muck (A10) (LRR B)
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: \_\_\_\_\_  
Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes  No

Remarks:

Cobblestone (large) at 8". Water at 8". Newer wetland in braided main stem of Santa Ana Wash. Problematic soil due to braiding likely precludes indicators, but obvious hydric regime due to presence of flowing water and hydrophytic vegetation. Soil significantly disturbed due to changes in primary water course.

**HYDROLOGY**

Wetland Hydrology Indicators:

Secondary Indicators (2 or more required)

Primary Indicators (any one indicator is sufficient)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1) (Nonriverine)
- Sediment Deposits (B2) (Nonriverine)
- Drift Deposits (B3) (Nonriverine)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Water-Stained Leaves (B9)
- Salt Crust (B11)
- Biotic Crust (B12)
- Aquatic invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Plowed Soils (C6)
- Other (Explain in Remarks)

- Water Marks (B1) (Riverine)
- Sediment Deposits (B2) (Riverine)
- Drift Deposits (B3) (Riverine)
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Thin Muck Surface (C7)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Shallow Aquitard (D3)
- FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes  No  Depth (inches): \_\_\_\_\_  
 Water Table Present? Yes  No  Depth (inches): 8  
 Saturation Present? Yes  No  Depth (inches): 6  
 (includes capillary fringe)

Wetland Hydrology Present? Yes  No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

**WETLAND DETERMINATION DATA FORM – Arid West Region**

Project/Site: East Branch Extension Phase II City/County: Montone/San Bernardino Sampling Date: 8.20.07  
 Applicant/Owner: Department of Water Resources State: CA Sampling Point: 7  
 Investigator(s): Damon Corley, Carla Wakeman Section, Township, Range: \_\_\_\_\_  
 Landform (hillslope, terrace, etc.): Alluvial floodplain Local relief (concave, convex, none): Concave Slope (%): 0  
 Subregion (LRR): California LRR C Lat: 490757.3209 Long: 3770455.3354 Datum: UTMAd 83  
 Soil Map Unit Name: Soboba stony loam sand (SpC) 2 to 9% slopes NWI classification: not hydric  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes \_\_\_\_\_ No  (If no, explain in Remarks.)  
 Are Vegetation  Soil  or Hydrology  significantly disturbed? Are 'Normal Circumstances' present? Yes \_\_\_\_\_ No   
 Are Vegetation \_\_\_\_\_ Soil \_\_\_\_\_ or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Remarks: <u>Evidence of heavy equipment - vegetation clearing and soil scraping mulch layer is aberrant and purposefully placed inside basin.</u>	

**VEGETATION**

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)  Total Number of Dominant Species Across All Strata: <u>2</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
Total Cover: _____				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species <u>30</u> x 2 = <u>60</u> FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: <u>30</u> (A) <u>60</u> (B)  Prevalence Index = B/A = <u>2.0</u>
<b>Sapling/Shrub Stratum</b>				
1. <u>Baccharis salicifolia</u>	<u>20</u>	<input checked="" type="checkbox"/>	<u>FACW</u>	
2. <u>Populus fremontii</u>	<u>10</u>	<input checked="" type="checkbox"/>	<u>FACW</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	<b>Hydrophytic Vegetation Indicators:</b> <input checked="" type="checkbox"/> Dominance Test is >50% <input checked="" type="checkbox"/> Prevalence Index is ≤3.0 <sup>1</sup> _____ Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) _____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present.
Total Cover: <u>30</u>				
<b>Herb Stratum</b>				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No _____
Total Cover: _____				
<b>Woody Vine Stratum</b> 1. _____ 2. _____ Total Cover: _____				
% Bare Ground in Herb Stratum <u>0</u> % Cover of Biotic Crust <u>0</u>				
Remarks:				

**SOIL**

Sampling Point: 7

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-3	5Y 6/2	100	—	—	—	—	Silt loam	
3-12	2.5YR 5/2	100	—	—	—	—	Sandy loam	50% ±3" cobbles (diameter)

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix. <sup>2</sup>Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils<sup>3</sup>:

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) (LRR C)
- 1 cm Muck (A9) (LRR D)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Vernal Pools (F9)

- 1 cm Muck (A9) (LRR C)
- 2 cm Muck (A10) (LRR B)
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: \_\_\_\_\_

Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes \_\_\_\_\_ No

Remarks: *layer of mulch on surface. Man-induced basin may not exhibit hydric soil indicators due to manipulated maintenance regimen. However, the age of this basin is not significantly newer than Data Points 3 and 4.*

**HYDROLOGY**

Wetland Hydrology Indicators:

Secondary Indicators (2 or more required)

Primary Indicators (any one indicator is sufficient)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1) (Nonriverine)
- Sediment Deposits (B2) (Nonriverine)
- Drift Deposits (B3) (Nonriverine)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Water-Stained Leaves (B9)
- Salt Crust (B11)
- Biotic Crust (B12)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Plowed Soils (C6)
- Other (Explain in Remarks)

- Water Marks (B1) (Riverine)
- Sediment Deposits (B2) (Riverine)
- Drift Deposits (B3) (Riverine)
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Thin Muck Surface (C7)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Shallow Aquitard (D3)
- FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes \_\_\_\_\_ No  Depth (inches): \_\_\_\_\_

Water Table Present? Yes \_\_\_\_\_ No  Depth (inches): \_\_\_\_\_

Saturation Present? (includes capillary fringe) Yes \_\_\_\_\_ No  Depth (inches): \_\_\_\_\_

Wetland Hydrology Present? Yes  No \_\_\_\_\_

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

**WETLAND DETERMINATION DATA FORM – Arid West Region**

Project/Site: East Branch Extension Phase II City/County: Montone/San Bernardino Sampling Date: 8-21-07  
 Applicant/Owner: Department of Water Resources State: CA Sampling Point: 8  
 Investigator(s): Domen Corley, Carla Wakeman Section, Township, Range: \_\_\_\_\_  
 Landform (hillslope, terrace, etc.): alluvial floodplain Local relief (concave, convex, none): concave Slope (%): 0  
 Subregion (LRR): California LRR C Lat: 490539.4911 Long: 3770563.5098 Datum: UTM Nad 83  
 Soil Map Unit Name: Soboba stony loam sand (SpC) 2 to 9% slopes NWI classification: not hydric  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes \_\_\_\_\_ No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology  significantly disturbed? Are "Normal Circumstances" present? Yes \_\_\_\_\_ No   
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Remarks: <u>evidence of fairly recent mechanical disturbance. mulch layer is aberrant and purposefully placed inside basin.</u>	

**VEGETATION**

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:																																
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)  Total Number of Dominant Species Across All Strata: <u>1</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)																																
2. _____	_____	_____	_____																																	
3. _____	_____	_____	_____																																	
4. _____	_____	_____	_____																																	
Total Cover: _____				<b>Prevalence Index worksheet:</b> <table style="width:100%; border-collapse: collapse;"> <tr> <td align="right" colspan="2">Total % Cover of:</td> <td align="right" colspan="2">Multiply by:</td> </tr> <tr> <td>OBL species</td> <td>_____</td> <td>x 1 =</td> <td>_____</td> </tr> <tr> <td>FACW species</td> <td><u>5</u></td> <td>x 2 =</td> <td><u>10</u></td> </tr> <tr> <td>FAC species</td> <td>_____</td> <td>x 3 =</td> <td>_____</td> </tr> <tr> <td>FACU species</td> <td>_____</td> <td>x 4 =</td> <td>_____</td> </tr> <tr> <td>UPL species</td> <td>_____</td> <td>x 5 =</td> <td>_____</td> </tr> <tr> <td>Column Totals:</td> <td><u>5</u> (A)</td> <td></td> <td><u>10</u> (B)</td> </tr> <tr> <td align="center" colspan="4">Prevalence Index = B/A = <u>2.0</u></td> </tr> </table>	Total % Cover of:		Multiply by:		OBL species	_____	x 1 =	_____	FACW species	<u>5</u>	x 2 =	<u>10</u>	FAC species	_____	x 3 =	_____	FACU species	_____	x 4 =	_____	UPL species	_____	x 5 =	_____	Column Totals:	<u>5</u> (A)		<u>10</u> (B)	Prevalence Index = B/A = <u>2.0</u>			
Total % Cover of:		Multiply by:																																		
OBL species	_____	x 1 =	_____																																	
FACW species	<u>5</u>	x 2 =	<u>10</u>																																	
FAC species	_____	x 3 =	_____																																	
FACU species	_____	x 4 =	_____																																	
UPL species	_____	x 5 =	_____																																	
Column Totals:	<u>5</u> (A)		<u>10</u> (B)																																	
Prevalence Index = B/A = <u>2.0</u>																																				
<b>Sapling/Shrub Stratum</b>																																				
1. <u>Baccharis salicifolia</u>	<u>5</u>	<input checked="" type="checkbox"/>	<u>FACW</u>																																	
2. _____	_____	_____	_____																																	
3. _____	_____	_____	_____																																	
4. _____	_____	_____	_____																																	
5. _____	_____	_____	_____																																	
Total Cover: <u>5</u>																																				
<b>Herb Stratum</b>																																				
1. _____	_____	_____	_____																																	
2. _____	_____	_____	_____																																	
3. _____	_____	_____	_____																																	
4. _____	_____	_____	_____																																	
5. _____	_____	_____	_____																																	
6. _____	_____	_____	_____																																	
7. _____	_____	_____	_____																																	
8. _____	_____	_____	_____																																	
Total Cover: _____																																				
<b>Woody Vine Stratum</b>																																				
1. _____	_____	_____	_____																																	
2. _____	_____	_____	_____																																	
Total Cover: _____																																				
% Bare Ground in Herb Stratum <u>0</u>		% Cover of Biotic Crust <u>0</u>																																		
Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____																																				
Remarks: <u>evidence of mechanical disturbance may have resulted in low cover.</u>																																				

**SOIL**

Sampling Point: 8

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-3/4"	10Y 4/2	100	—	—	—	—	clay loam	
3/4"-4	5YR 5/2	100	—	—	—	—	silt loam	25% rock

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix. <sup>2</sup>Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils<sup>3</sup>:

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) (LRR C)
- 1 cm Muck (A9) (LRR D)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Vernal Pools (F9)

- 1 cm Muck (A9) (LRR C)
- 2 cm Muck (A10) (LRR B)
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: \_\_\_\_\_  
Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes \_\_\_\_\_ No

Remarks:

layer of mulch on surface. Man-induced basin may not exhibit hydric soil indicators due to manipulated maintenance regimen. However, the age of this basin is not significantly newer than Data Points 3 and 4.

**HYDROLOGY**

Wetland Hydrology Indicators:

Secondary Indicators (2 or more required)

Primary Indicators (any one indicator is sufficient)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1) (Nonriverine)
- Sediment Deposits (B2) (Nonriverine)
- Drift Deposits (B3) (Nonriverine)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Water-Stained Leaves (B9)
- Salt Crust (B11)
- Biotic Crust (B12)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Plowed Soils (C6)
- Other (Explain in Remarks)

- Water Marks (B1) (Riverine)
- Sediment Deposits (B2) (Riverine)
- Drift Deposits (B3) (Riverine)
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Thin Muck Surface (C7)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Shallow Aquitard (D3)
- FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes \_\_\_\_\_ No  Depth (inches): \_\_\_\_\_  
 Water Table Present? Yes \_\_\_\_\_ No  Depth (inches): \_\_\_\_\_  
 Saturation Present? Yes \_\_\_\_\_ No  Depth (inches): \_\_\_\_\_  
 (includes capillary fringe)

Wetland Hydrology Present? Yes  No \_\_\_\_\_

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

water marks weak.

**WETLAND DETERMINATION DATA FORM – Arid West Region**

Project/Site: East Branch Extension Phase II City/County: Montrose/San Bernardino Sampling Date: 8-21-07  
 Applicant/Owner: Department of Water Resources State: CA Sampling Point: 9  
 Investigator(s): Damon Corley, Carla Wakeman Section, Township, Range: \_\_\_\_\_  
 Landform (hillslope, terrace, etc.): Alluvial floodplain Local relief (concave, convex, none): none Slope (%): 0  
 Subregion (LRR): California LRR C Lat: 488829.7673 Long: 3771534.9412 Datum: UTM NAD 83  
 Soil Map Unit Name: Soboba stony loam sand (SpC) 2 to 9% slopes NWI classification: not hydric  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes \_\_\_\_\_ No  (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology  significantly disturbed? Are "Normal Circumstances" present? Yes  No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____
--	--

Remarks: "New normal circumstances" present due to relatively permanent man-induced conditions. Hydrology considered "significantly disturbed" due to position inside man-altered channel and artificial water regime.

**VEGETATION**

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status																									
1. <u>Populus fremontii</u>	<u>10</u>	<input checked="" type="checkbox"/>	<u>FACW</u>	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)																								
2. <u>Salix goodingii</u>	<u>10</u>	<input checked="" type="checkbox"/>	<u>FACW</u>																									
3. _____																												
4. _____																												
Total Cover: <u>20</u>				<b>Prevalence Index worksheet:</b> <table style="width:100%; border-collapse: collapse;"> <tr> <td align="right">Total % Cover of:</td> <td align="right">Multiply by:</td> <td></td> </tr> <tr> <td>OBL species _____</td> <td>x 1 = _____</td> <td></td> </tr> <tr> <td>FACW species <u>175</u></td> <td>x 2 = <u>350</u></td> <td></td> </tr> <tr> <td>FAC species _____</td> <td>x 3 = _____</td> <td></td> </tr> <tr> <td>FACU species _____</td> <td>x 4 = _____</td> <td></td> </tr> <tr> <td>UPL species _____</td> <td>x 5 = _____</td> <td></td> </tr> <tr> <td>Column Totals: <u>175</u> (A)</td> <td><u>350</u> (B)</td> <td></td> </tr> <tr> <td align="center" colspan="3">Prevalence Index = B/A = <u>2.0</u></td> </tr> </table>	Total % Cover of:	Multiply by:		OBL species _____	x 1 = _____		FACW species <u>175</u>	x 2 = <u>350</u>		FAC species _____	x 3 = _____		FACU species _____	x 4 = _____		UPL species _____	x 5 = _____		Column Totals: <u>175</u> (A)	<u>350</u> (B)		Prevalence Index = B/A = <u>2.0</u>		
Total % Cover of:	Multiply by:																											
OBL species _____	x 1 = _____																											
FACW species <u>175</u>	x 2 = <u>350</u>																											
FAC species _____	x 3 = _____																											
FACU species _____	x 4 = _____																											
UPL species _____	x 5 = _____																											
Column Totals: <u>175</u> (A)	<u>350</u> (B)																											
Prevalence Index = B/A = <u>2.0</u>																												
<b>Sapling/Shrub Stratum</b>																												
1. <u>Baccharis salicifolia</u>	<u>75</u>	<input checked="" type="checkbox"/>	<u>FACW</u>																									
2. <u>Artemisia californica</u>	<u>3</u>																											
3. <u>Baccharis pilularis</u>	<u>1</u>																											
4. _____																												
5. _____																												
Total Cover: <u>79</u>																												
<b>Herb Stratum</b>																												
1. <u>Pennisetum setaceum</u>	<u>5</u>																											
2. <u>Chenopodium ambrosioides</u>	<u>10</u>																											
3. <u>Epilobium ciliatum</u>	<u>2</u>																											
4. <u>Polygonum hydrophyloides</u>	<u>1</u>																											
5. <u>Solanum douglasii</u>	<u>3</u>																											
6. <u>Baccharis salicifolia</u>	<u>80</u>	<input checked="" type="checkbox"/>	<u>FACW</u>																									
7. _____																												
8. _____																												
Total Cover: <u>101</u>																												
<b>Woody Vine Stratum</b>																												
1. _____																												
2. _____																												
Total Cover: _____																												
% Bare Ground in Herb Stratum <u>0</u>		% Cover of Biotic Crust <u>—</u>																										

**Hydrophytic Vegetation Indicators:**  
 Dominance Test is >50%  
 Prevalence Index is ≤3.0<sup>1</sup>  
 Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)  
 Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present.

**Hydrophytic Vegetation Present?** Yes  No \_\_\_\_\_

Remarks:

**SOIL**

Sampling Point: 9

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-1	5Y 5/2	100	—	—	—	—	silt loam	muck on surface
1-4	5Y 5/2	100	—	—	—	—	sandy clay loam	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix. <sup>2</sup>Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils <sup>3</sup> :
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 1 cm Muck (A9) (LRR C)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> 2 cm Muck (A10) (LRR B)
<input type="checkbox"/> Black Histic (A3)	<input checked="" type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Stratified Layers (A5) (LRR C)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Other (Explain in Remarks)
<input checked="" type="checkbox"/> 1 cm Muck (A9) (LRR D)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Depressions (F8)	
<input checked="" type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Vernal Pools (F9)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)		

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

**Restrictive Layer (if present):**  
 Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes  No

Remarks:

**HYDROLOGY**

Wetland Hydrology Indicators:		Secondary Indicators (2 or more required)
<b>Primary Indicators (any one indicator is sufficient)</b>		
<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Water Marks (B1) (Riverine)
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Biotic Crust (B12)	<input type="checkbox"/> Sediment Deposits (B2) (Riverine)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Drift Deposits (B3) (Riverine)
<input type="checkbox"/> Water Marks (B1) (Nonriverine)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input checked="" type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Drift Deposits (B3) (Nonriverine)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input checked="" type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input checked="" type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> Shallow Aquitard (D3)
		<input checked="" type="checkbox"/> FAC-Neutral Test (D5)

**Field Observations:**

Surface Water Present? Yes  No  Depth (inches): 3

Water Table Present? Yes  No  Depth (inches): \_\_\_\_\_

Saturation Present? (includes capillary fringe) Yes  No  Depth (inches): \_\_\_\_\_

Wetland Hydrology Present? Yes  No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Hydrology at this point is within man-stored channel. Water diverted from discharge point in order to avoid citrus orchard... joins historic wash downstream. Artificial hydric regime.

**WETLAND DETERMINATION DATA FORM – Arid West Region**

Project/Site: East Branch Extension Phase II City/County: Meatone/San Bernardino Sampling Date: 8-21-07  
 Applicant/Owner: Department of Water Resources State: CA Sampling Point: 10  
 Investigator(s): Damon Colby, Carla Wiskeman Section, Township, Range: \_\_\_\_\_  
 Landform (hillslope, terrace, etc.): Alluvial floodplain Local relief (concave, convex, none): none Slope (%): 0-2  
 Subregion (LRR): California LRR C Lat: 488817.6709 Long: 3771235.7721 Datum: UTM NAD 83  
 Soil Map Unit Name: Soboba stony loam sand (SpC) 2 to 9% slopes NWI classification: not hydric  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes \_\_\_\_\_ No  (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil , or Hydrology  significantly disturbed? Are "Normal Circumstances" present? Yes  No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____
--	--

Remarks: Very rocky - very little soil present. "New normal circumstances" present due to relatively permanent man-induced conditions. Hydrology and soil considered "significantly disturbed" due to man-altered channel and artificial water regime.

**VEGETATION**

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>4</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>75</u> (A/B)
4. _____	_____	_____	_____	Prevalence Index worksheet:
Total Cover: _____				
<b>Sapling/Shrub Stratum</b>				OBL species <u>30</u> x 1 = <u>30</u>
1. <u>Baccharis salicifolia</u>	<u>1</u>	<input checked="" type="checkbox"/>	<u>FACW</u>	FACW species <u>46</u> x 2 = <u>92</u>
2. _____	_____	_____	_____	FAC species _____ x 3 = _____
3. _____	_____	_____	_____	FACU species _____ x 4 = _____
4. _____	_____	_____	_____	UPL species <u>25</u> x 5 = <u>125</u>
5. _____	_____	_____	_____	Column Totals: <u>101</u> (A) <u>247</u> (B)
Total Cover: _____				Prevalence Index = B/A = <u>2.45</u>
<b>Herb Stratum</b>				Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> Dominance Test is >50% <input checked="" type="checkbox"/> Prevalence Index is $\leq 3.0^1$ <input checked="" type="checkbox"/> Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
1. <u>Scirpus maritimus</u>	<u>20</u>	<input checked="" type="checkbox"/>	<u>OBL</u>	
2. <u>Epilobium ciliatum</u>	<u>35</u>	<input checked="" type="checkbox"/>	<u>FACW</u>	
3. <u>Pennisetum setaceum</u>	<u>25</u>	<input checked="" type="checkbox"/>	<u>UPL</u>	
4. <u>Polygonum monspeliensis</u>	<u>10</u>	_____	<u>FACW</u>	
5. <u>Polygonum hydropiperoides</u>	<u>10</u>	_____	<u>OBL</u>	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
Total Cover: <u>100</u>				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present.
<b>Woody Vine Stratum</b>				
1. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____
2. _____	_____	_____	_____	
Total Cover: _____				
% Bare Ground in Herb Stratum <u>0</u> % Cover of Biotic Crust _____				

Remarks: denychymous tissul in Scirpus

**SOIL**

Sampling Point: 10

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-10	2.5 YR 3/1	100	—	—	—	—	Silt loam	many cobblestones present

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix. <sup>2</sup>Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils<sup>3</sup>:

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) (LRR C)
- 1 cm Muck (A9) (LRR D)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Vernal Pools (F9)

- 1 cm Muck (A9) (LRR C)
- 2 cm Muck (A10) (LRR B)
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: \_\_\_\_\_  
Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes  No

Remarks: Many cobblestones in soil. High organic content in matrix. Water movement may have stripped much original parent material.

**HYDROLOGY**

Wetland Hydrology Indicators:

Secondary Indicators (2 or more required)

Primary Indicators (any one indicator is sufficient)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1) (Nonriverine)
- Sediment Deposits (B2) (Nonriverine)
- Drift Deposits (B3) (Nonriverine)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Water-Stained Leaves (B9)
- Salt Crust (B11)
- Biotic Crust (B12)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Plowed Soils (C6)
- Other (Explain in Remarks)

- Water Marks (B1) (Riverine)
- Sediment Deposits (B2) (Riverine)
- Drift Deposits (B3) (Riverine)
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Thin Muck Surface (C7)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Shallow Aquitard (D3)
- FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes  No  Depth (inches): 4  
 Water Table Present? Yes  No  Depth (inches): \_\_\_\_\_  
 Saturation Present? Yes  No  Depth (inches): \_\_\_\_\_  
 (includes capillary fringe)

Wetland Hydrology Present? Yes  No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Hydrology at this point is within man-altered channel. Water diverted from discharge point in order to avoid citrus orchard... joins historic wash downstream. Artificial hydric regime.

**WETLAND DETERMINATION DATA FORM - Arid West Region**

Project/Site: East Branch Extension Phase II City/County: Montrose/San Bernardino Sampling Date: 8.21.07  
 Applicant/Owner: Department of Water Resources State: CA Sampling Point: 11  
 Investigator(s): Doman Corley, Carlo Wiskeman Section, Township, Range: \_\_\_\_\_  
 Landform (hillslope, terrace, etc.): Alluvial floodplain Local relief (concave, convex, none): none Slope (%): 0  
 Subregion (LRR): California LRR C Lat: 488817.8488 Long: 3771208.0296 Datum: UTM NAD 83  
 Soil Map Unit Name: Soboba stony loam sand (SpC) 2 to 9% slopes NWI classification: not hydric  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes \_\_\_\_\_ No  (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil , or Hydrology  significantly disturbed? Are "Normal Circumstances" present? Yes  No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____
--	--

Remarks: "New normal circumstances" present due to relatively permanent man-induced conditions. Soil and hydrology considered "significantly disturbed due to man-altered channel and artificial water regime."

**VEGETATION**

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)  Total Number of Dominant Species Across All Strata: <u>2</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
Total Cover: _____				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species <u>120</u> x 1 = <u>120</u> FACW species <u>10</u> x 2 = <u>20</u> FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: <u>130</u> (A) <u>140</u> (B)  Prevalence Index = B/A = <u>1.1</u>
Sapling/Shrub Stratum	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Tamarix ramosissima</u>	<u>10</u>	<input checked="" type="checkbox"/>	<u>FACW</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
Total Cover: <u>10</u>				
Herb Stratum	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Typha latifolia</u>	<u>80</u>	<input checked="" type="checkbox"/>	<u>OBL</u>	
2. <u>Chenopodium ambrosioides</u>	<u>5</u>	_____	<u>FAC</u>	
3. <u>Scirpus maritimus</u>	<u>20</u>	_____	<u>OBL</u>	
4. <u>Polygonum hydropiperoides</u>	<u>20</u>	_____	<u>OBL</u>	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
Total Cover: <u>125</u>				
Woody Vine Stratum	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
Total Cover: _____				
% Bare Ground in Herb Stratum <u>0</u> % Cover of Biotic Crust _____				
Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____				

Remarks: aerenchymous tissue in Typha and Scirpus

**SOIL**

Sampling Point: 11

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of Indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-4	2.5 YR 4/3	100	—	—	—	—	Silt loam	mucky surface

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix. <sup>2</sup>Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils <sup>3</sup> :
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 1 cm Muck (A9) (LRR C)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> 2 cm Muck (A10) (LRR B)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Stratified Layers (A5) (LRR C)	<input type="checkbox"/> Depleted Matrix (F3)	<input checked="" type="checkbox"/> Other (Explain in Remarks)
<input checked="" type="checkbox"/> 1 cm Muck (A9) (LRR D)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Depressions (F8)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Vernal Pools (F9)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)		<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):  
 Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes  No

Remarks: Chroma not low enough to be F1, but may be in formative stage. Obvious hydric regime.

**HYDROLOGY**

Wetland Hydrology Indicators:		Secondary Indicators (2 or more required)
Primary Indicators (any one indicator is sufficient)		<input type="checkbox"/> Water Marks (B1) (Riverine)
<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Sediment Deposits (B2) (Riverine)
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Biotic Crust (B12)	<input type="checkbox"/> Drift Deposits (B3) (Riverine)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input checked="" type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Water Marks (B1) (Nonriverine)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input checked="" type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Drift Deposits (B3) (Nonriverine)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6)	<input checked="" type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Water-Stained Leaves (B9)		<input checked="" type="checkbox"/> FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes  No  Depth (inches): 2

Water Table Present? Yes  No  Depth (inches): \_\_\_\_\_

Saturation Present? Yes  No  Depth (inches): \_\_\_\_\_  
 (includes capillary fringe)

Wetland Hydrology Present? Yes  No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Hydrology at this point is within man-altered channel. Water diverted from discharge point through re-contoured substrate in order to avoid citrus orchard ... joins historic wash downstream. Artificial hydric regime.

**WETLAND DETERMINATION DATA FORM - Arid West Region**

Project/Site: East Branch Extension Phase II City/County: Montone/San Bernardino Sampling Date: 8.21.07  
 Applicant/Owner: Department of Water Resources State: CA Sampling Point: 12  
 Investigator(s): Damon Corley, Carla Wakemdn Section, Township, Range: \_\_\_\_\_  
 Landform (hillslope, terrace, etc.): Alluvial floodplain Local relief (concave, convex, none): flat Slope (%): 0  
 Subregion (LRR): California LRR C Lat: 488860.2787 Long: 3771193.7779 Datum: UTM NAD 83  
 Soil Map Unit Name: Soboba stony loam sand (SpC) 2 to 9% slopes NMI classification: not hydric  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes \_\_\_\_\_ No  (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology  significantly disturbed? Are 'Normal Circumstances' present? Yes  No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____
--	--

Remarks: "New normal circumstances" present due to relatively permanent man-induced conditions. Hydrology considered "significantly disturbed" due to man-tered channel and artificial water regime.

**VEGETATION**

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)  Total Number of Dominant Species Across All Strata: <u>2</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
Total Cover: _____				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: OBL species <u>10</u> x 1 = <u>10</u> FACW species <u>205</u> x 2 = <u>410</u> FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: <u>225</u> (A) <u>420</u> (B)  Prevalence Index = B/A = <u>1.9</u>
<b>Sapling/Shrub Stratum</b>				
1. <u>Salix exigua</u>	<u>100</u>	<input checked="" type="checkbox"/>	<u>FACW</u>	
2. <u>Tamarix ramosissima</u>	<u>5</u>	_____	<u>FACW</u>	
3. <u>Boerhaavia salicifolia</u>	<u>20</u>	_____	<u>FACW</u>	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	_____
Total Cover: <u>125</u>				<b>Hydrophytic Vegetation Indicators:</b> <input checked="" type="checkbox"/> Dominance Test is >50% <input checked="" type="checkbox"/> Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present.
<b>Herb Stratum</b>				
1. <u>Epilobium ciliatum</u>	<u>80</u>	<input checked="" type="checkbox"/>	<u>FACW</u>	
2. <u>Polygonum hydropiperoides</u>	<u>10</u>	_____	<u>OBL</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
Total Cover: <u>90</u>				
<b>Woody Vine Stratum</b>				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
Total Cover: _____				
% Bare Ground in Herb Stratum <u>0</u> % Cover of Biotic Crust _____				
<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No _____				
Remarks:				

**SOIL**

Sampling Point: 12

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-4	2.5YR	4/4	100	—	—	—	Silt	mucky contact within and on surface

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix. <sup>2</sup>Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils<sup>3</sup>:

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) (LRR C)
- 1 cm Muck (A9) (LRR D)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Vernal Pools (F9)

- 1 cm Muck (A9) (LRR C)
- 2 cm Muck (A10) (LRR B)
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: \_\_\_\_\_  
Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes  No

Remarks:

**HYDROLOGY**

Wetland Hydrology Indicators:

Secondary Indicators (2 or more required)

Primary Indicators (any one indicator is sufficient)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1) (Nonriverine)
- Sediment Deposits (B2) (Nonriverine)
- Drift Deposits (B3) (Nonriverine)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Water-Stained Leaves (B9)
- Salt Crust (B11)
- Biotic Crust (B12)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Plowed Soils (C6)
- Other (Explain in Remarks)

- Water Marks (B1) (Riverine)
- Sediment Deposits (B2) (Riverine)
- Drift Deposits (B3) (Riverine)
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Thin Muck Surface (C7)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Shallow Aquitard (D3)
- FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes  No  Depth (inches): 4  
 Water Table Present? Yes  No  Depth (inches): \_\_\_\_\_  
 Saturation Present? Yes  No  Depth (inches): \_\_\_\_\_  
 (includes capillary fringe)

Wetland Hydrology Present? Yes  No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Hydrology at this point is within man-altered channel. Water diverted from discharge area through re-contoured wash in order to avoid citrus orchard... joins historic wash downstream. Artificial hydric regime.

**WETLAND DETERMINATION DATA FORM – Arid West Region**

Project/Site: East Branch Extension Phase II City/County: Montrose/San Bernardino Sampling Date: 10.17.07  
 Applicant/Owner: Department of Water Resources State: CA Sampling Point: 13  
 Investigator(s): Kris Alberts, Sarah Skidmore Section, Township, Range: \_\_\_\_\_  
 Landform (hillslope, terrace, etc.): alluvial floodplain Local relief (concave, convex, none): none Slope (%): 0  
 Subregion (LRR): California LRR C Lat: 488820.1167 Long: 377148.4016 Datum: UTM NAD 83  
 Soil Map Unit Name: Soboba stony loam sand (SpC) 2 to 9% slopes NWI classification: not hydric  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes \_\_\_\_\_ No  (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil , or Hydrology  significantly disturbed? Are "Normal Circumstances" present? Yes  No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No _____	Is the Sampled Area within a Wetland?	Yes <input checked="" type="checkbox"/>	No _____
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No _____			
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No _____			

Remarks: "New normal circumstances" present due to relatively permanent man-induced conditions. Soil and hydrology considered "significantly disturbed" due to man-altered channel and artificial water regime.

**VEGETATION**

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC:	<u>1</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata:	<u>1</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC:	<u>100</u> (A/B)
4. _____	_____	_____	_____	Prevalence Index worksheet:	
Total Cover: _____				Total % Cover of:	Multiply by:
Sapling/Shrub Stratum				OBL species	<u>100</u> x 1 = <u>100</u>
1. <u>Typha latifolia</u>	<u>100</u>	<input checked="" type="checkbox"/>	<u>OBL</u>	FACW species	<u>10</u> x 2 = <u>20</u>
2. <u>Sagittaria arifolia</u>	<u>10</u>	_____	<u>FACW</u>	FAC species	_____ x 3 = _____
3. _____	_____	_____	_____	FACU species	_____ x 4 = _____
4. _____	_____	_____	_____	UPL species	_____ x 5 = _____
5. _____	_____	_____	_____	Column Totals:	<u>110</u> (A) <u>120</u> (B)
Total Cover: <u>110</u>				Prevalence Index = B/A = <u>1.1</u>	
Herb Stratum				Hydrophytic Vegetation Indicators:	
1. _____	_____	_____	_____	<input checked="" type="checkbox"/> Dominance Test is >50%	
2. _____	_____	_____	_____	<input checked="" type="checkbox"/> Prevalence Index is ≤3.0 <sup>1</sup>	
3. _____	_____	_____	_____	<input checked="" type="checkbox"/> Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)	
4. _____	_____	_____	_____	_____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
5. _____	_____	_____	_____	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present.	
6. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____	
7. _____	_____	_____	_____		
8. _____	_____	_____	_____		
Total Cover: _____					
Woody Vine Stratum					
1. _____	_____	_____	_____		
2. _____	_____	_____	_____		
Total Cover: _____					
% Bare Ground in Herb Stratum <u>0</u> % Cover of Biotic Crust <u>0</u>					
Remarks: <u>desynchronous tissue in Typha</u>					

**SOIL**

Sampling Point: 13

Profile Description: (Describe to the depth needed to document the Indicator or confirm the absence of Indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-13	10YR 2/2	100	—	—	—	—	Silty clay loam	
13-18	2.5/N	100	—	—	—	—	Sandy loam	very black throughout

Type: C=Concentration, D=Depletion, RM=Reduced Matrix. <sup>2</sup>Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils<sup>3</sup>:

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) (LRR C)
- 1 cm Muck (A9) (LRR D)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Vernal Pools (F9)

- 1 cm Muck (A9) (LRR C)
- 2 cm Muck (A10) (LRR B)
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: \_\_\_\_\_  
Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes  No

Remarks: *Sandy mucky mineral from 13"-18". Extremely black throughout on organic-coated sand grains (fine to coarse). Profile depths historically disturbed due to proximity of this pit to water release point at end of pipeline. Obvious man-induced hydrologic regime.*

**HYDROLOGY**

Wetland Hydrology Indicators:

Secondary Indicators (2 or more required)

Primary Indicators (any one indicator is sufficient)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1) (Nonriverine)
- Sediment Deposits (B2) (Nonriverine)
- Drift Deposits (B3) (Nonriverine)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Water-Stained Leaves (B9)
- Salt Crust (B11)
- Biotic Crust (B12)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Plowed Soils (C6)
- Other (Explain in Remarks)

- Water Marks (B1) (Riverine)
- Sediment Deposits (B2) (Riverine)
- Drift Deposits (B3) (Riverine)
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Thin Muck Surface (C7)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Shallow Aquitard (D3)
- FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes  No  Depth (inches): \_\_\_\_\_  
 Water Table Present? Yes  No  Depth (inches): 16  
 Saturation Present? (includes capillary fringe) Yes  No  Depth (inches): 12

Wetland Hydrology Present? Yes  No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: *organic content staining on granitic grains of 13"-18" layer. (black). Hydrology at this point is within a man-altered channel. Water diverted from discharge area through re-contoured wash to avoid flooding a citrus orchard. Joins historic wash downstream. Artificial hydrologic regime.*

**WETLAND DETERMINATION DATA FORM – Arid West Region**

Project/Site: East Branch Extension Phase II City/County: Mentone/San Bernardino Sampling Date: 10-17-07  
 Applicant/Owner: Department of Water Resources State: CA Sampling Point: 14  
 Investigator(s): Kris Alberts, Soraisa Skidmore Section, Township, Range: \_\_\_\_\_  
 Landform (hillslope, terrace, etc.): alluvial floodplain Local relief (concave, convex, none): none Slope (%): 0  
 Subregion (LRR): California LRR C Lat: 488814.7478 Long: 3771127.1993 Datum: UTM Nad 83  
 Soil Map Unit Name: Soboba stony loam sand (SpC) 2 to 9% slopes NMI classification: not hydric  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes  No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/> Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Remarks:	

**VEGETATION**

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____				Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A)  Total Number of Dominant Species Across All Strata: <u>4</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A/B)
2. _____				
3. _____				
4. _____				
Total Cover: _____				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species <u>121</u> x 5 = <u>605</u> Column Totals: <u>121</u> (A) <u>605</u> (B)  Prevalence Index = B/A = <u>5</u>
<b>Sapling/Shrub Stratum</b>				
1. <u>Artemisia californica</u>	<u>2</u>		<u>UPL</u>	
2. <u>Eriogonum fasciculatum</u>	<u>15</u>	<input checked="" type="checkbox"/>	<u>UPL</u>	
3. <u>Eriodictyon trichocalyx</u>	<u>20</u>	<input checked="" type="checkbox"/>	<u>UPL</u>	
4. <u>Opuntia littoralis</u>	<u>1</u>		<u>UPL</u>	
5. <u>Adenostoma fasciculatum</u>	<u>1</u>		<u>UPL</u>	
6. <u>Lotus scoparius</u>			<u>UPL</u>	
Total Cover: <u>40</u>				
<b>Herb Stratum</b>				
1. <u>Bromus madritensis ssp. rubens</u>	<u>35</u>	<input checked="" type="checkbox"/>	<u>UPL</u>	
2. <u>Bromus tectorum</u>	<u>35</u>	<input checked="" type="checkbox"/>	<u>UPL</u>	
3. <u>Cryptantha intermedia</u>	<u>4</u>		<u>UPL</u>	
4. <u>Eriogonum gracile</u>	<u>2</u>		<u>UPL</u>	
5. <u>Centropus melitensis</u>	<u>2</u>		<u>UPL</u>	
6. <u>Schismus barbatus</u>	<u>3</u>		<u>UPL</u>	
7. _____				
8. _____				
Total Cover: <u>81</u>				
<b>Woody Vine Stratum</b>				
1. _____				
2. _____				
Total Cover: _____				
% Bare Ground in Herb Stratum <u>20</u> % Cover of Biotic Crust <u>0</u>				
Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/>				
Remarks:				

**SOIL**

Sampling Point: 14

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type	Loc <sup>2</sup>		
0-12	2.5 Y	3/2	100	—	—	—	Sandy loam	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix. <sup>2</sup>Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils <sup>3</sup> :
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 1 cm Muck (A9) (LRR C)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> 2 cm Muck (A10) (LRR B)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Stratified Layers (A5) (LRR C)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> 1 cm Muck (A9) (LRR D)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Depressions (F8)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Vernal Pools (F9)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)		

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):  
 Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes \_\_\_\_\_ No

Remarks:

**HYDROLOGY**

Wetland Hydrology Indicators:		Secondary Indicators (2 or more required)
<u>Primary Indicators (any one indicator is sufficient)</u>		
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Water Marks (B1) (Riverine)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Biotic Crust (B12)	<input type="checkbox"/> Sediment Deposits (B2) (Riverine)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Drift Deposits (B3) (Riverine)
<input type="checkbox"/> Water Marks (B1) (Nonriverine)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Drift Deposits (B3) (Nonriverine)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> Shallow Aquitard (D3)
		<input type="checkbox"/> FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes \_\_\_\_\_ No  Depth (inches): \_\_\_\_\_

Water Table Present? Yes \_\_\_\_\_ No  Depth (inches): \_\_\_\_\_

Saturation Present? Yes \_\_\_\_\_ No  Depth (inches): \_\_\_\_\_  
 (includes capillary fringe)

Wetland Hydrology Present? Yes \_\_\_\_\_ No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

**WETLAND DETERMINATION DATA FORM – Arid West Region**

Project/Site: East Branch Extension Phase II City/County: Mentone/San Bernardino Sampling Date: 10.17.07  
 Applicant/Owner: Department of Water Resources State: CA Sampling Point: 15  
 Investigator(s): Kris Alberts, Sarah Skidmore Section, Township, Range: \_\_\_\_\_  
 Landform (hillslope, terrace, etc.): alluvial floodplain Local relief (concave, convex, none): none Slope (%): 0  
 Subregion (LRR): California LRR C Lat: 488848.3585 Long: 3771123.7596 Datum: UTM NAD 83  
 Soil Map Unit Name: Soboba Stony loam sand (SpC) 2 to 9% slopes NMI classification: not hydric  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes \_\_\_\_\_ No  (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology  significantly disturbed? Are 'Normal Circumstances' present? Yes  No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes _____ No _____
Remarks: <u>The drainage is considered under "new normal circumstances" with significantly disturbed hydrology due to its position inside a man-altered channel with an artificial water regime.</u>	

**VEGETATION**

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:																
1. <u>Morus alba</u>	<u>7</u>	<input checked="" type="checkbox"/>	<u>FACU</u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A)  Total Number of Dominant Species Across All Strata: <u>6</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>66%</u> (A/B)																
2. <u>Tamarix ramosissima</u>	<u>8</u>	<input checked="" type="checkbox"/>	<u>FAC</u>																	
3. <u>Ulmus pumila</u>	<u>4</u>	<input checked="" type="checkbox"/>	<u>UPL</u>																	
4. _____																				
Total Cover: <u>19</u>				<b>Prevalence Index worksheet:</b> <table style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%;">Total % Cover of:</td> <td style="width:50%;">Multiply by:</td> </tr> <tr> <td>OBL species <u>25</u></td> <td>x 1 = <u>25</u></td> </tr> <tr> <td>FACW species <u>70</u></td> <td>x 2 = <u>140</u></td> </tr> <tr> <td>FAC species <u>32</u></td> <td>x 3 = <u>93</u></td> </tr> <tr> <td>FACU species <u>12</u></td> <td>x 4 = <u>48</u></td> </tr> <tr> <td>UPL species <u>5</u></td> <td>x 5 = <u>25</u></td> </tr> <tr> <td>Column Totals: <u>144</u> (A)</td> <td><u>331</u> (B)</td> </tr> <tr> <td align="center" colspan="2">Prevalence Index = B/A = <u>2.3</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>25</u>	x 1 = <u>25</u>	FACW species <u>70</u>	x 2 = <u>140</u>	FAC species <u>32</u>	x 3 = <u>93</u>	FACU species <u>12</u>	x 4 = <u>48</u>	UPL species <u>5</u>	x 5 = <u>25</u>	Column Totals: <u>144</u> (A)	<u>331</u> (B)	Prevalence Index = B/A = <u>2.3</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>25</u>	x 1 = <u>25</u>																			
FACW species <u>70</u>	x 2 = <u>140</u>																			
FAC species <u>32</u>	x 3 = <u>93</u>																			
FACU species <u>12</u>	x 4 = <u>48</u>																			
UPL species <u>5</u>	x 5 = <u>25</u>																			
Column Totals: <u>144</u> (A)	<u>331</u> (B)																			
Prevalence Index = B/A = <u>2.3</u>																				
<b>Sapling/Shrub Stratum</b>																				
1. <u>Sambucus mexicana</u>	<u>5</u>	<input checked="" type="checkbox"/>	<u>FACU</u>																	
2. <u>Baccharis salicifolia</u>	<u>2</u>	<input checked="" type="checkbox"/>	<u>FACW</u>																	
3. <u>Ficus carica</u>	<u>1</u>		<u>UPL</u>																	
4. _____																				
5. _____																				
Total Cover: <u>8</u>																				
<b>Herb Stratum</b>																				
1. <u>Artemisia douglasiana</u>	<u>3</u>		<u>FAC</u>																	
2. <u>Urtica dioica</u>	<u>6</u>		<u>FACW</u>																	
3. <u>Caryz canadensis</u>	<u>20</u>		<u>FAC</u>																	
4. <u>Cyperus eragrostis</u>	<u>2</u>		<u>FACW</u>																	
5. <u>Polygonum hydropiperoides</u>	<u>25</u>	<input checked="" type="checkbox"/>	<u>OBL</u>																	
6. <u>Epilobium ciliatum</u>	<u>60</u>	<input checked="" type="checkbox"/>	<u>FACW</u>																	
7. <u>Lactuca scariola</u>	<u>1</u>		<u>FAC</u>																	
8. _____																				
Total Cover: <u>117</u>																				
<b>Woody Vine Stratum</b>																				
1. _____																				
2. _____																				
Total Cover: _____																				
% Bare Ground in Herb Stratum <u>0</u> % Cover of Biotic Crust <u>0</u>																				
Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____																				

Remarks: Polygonum floating on water extending beyond "banks". Prostrate off water surface. Sclerenchymous tissue in Cyperus.

**SOIL**

Sampling Point: 15

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-12	10YR 3/2	96	2.5YR 2.5/2	1	C	RC	Sandy loam	
			2.5YR 3/6	3	C	M	Sandy loam	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix. <sup>2</sup>Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils<sup>3</sup>:

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) (LRR C)
- 1 cm Muck (A9) (LRR D)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Vernal Pools (F9)

- 1 cm Muck (A9) (LRR C)
- 2 cm Muck (A10) (LRR B)
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: \_\_\_\_\_  
Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes  No

Remarks:

**HYDROLOGY**

Wetland Hydrology Indicators:

Secondary Indicators (2 or more required)

Primary Indicators (any one indicator is sufficient)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1) (Nonriverine)
- Sediment Deposits (B2) (Nonriverine)
- Drift Deposits (B3) (Nonriverine)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Water-Stained Leaves (B9)
- Salt Crust (B11)
- Biotic Crust (B12)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Plowed Soils (C6)
- Other (Explain in Remarks)

- Water Marks (B1) (Riverine)
- Sediment Deposits (B2) (Riverine)
- Drift Deposits (B3) (Riverine)
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Thin Muck Surface (C7)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Shallow Aquitard (D3)
- FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes  No  Depth (inches): \_\_\_\_\_  
 Water Table Present? Yes  No  Depth (inches): \_\_\_\_\_  
 Saturation Present? (includes capillary fringe) Yes  No  Depth (inches): \_\_\_\_\_

Wetland Hydrology Present? Yes  No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Water is flowing one foot away from soil pit, but saturation not present. Hydrology at this point is within a man-sterred channel. Water diverted from discharge area through re-contoured wash to avoid flooding a citrus orchard. Joins historic wash downstream. Artificial hydric regime.

## **APPENDIX B SITE PHOTOS**



**Soil Pit - Data Point 1 Isolated wetland in ditch at the terminus of Crafton Avenue.**



**Soil Pit - Data Point 2 Non-wetland percolation basin area surrounded by riparian scrub.**



**Soil Pit - Data Point 3 Isolated wetland area with soil concretions in percolation basin.**



**Soil Pit - Data Point 4 Isolated wetland area in percolation basin.**



**Soil Pit - Data Point 5 Wetland area in perennial intermittent Santa Ana Wash.**



**Soil Pit - Data Point 6 Wetland area in perennial intermittent Santa Ana Wash.**



**Soil Pit - Data Point 7 Non-wetland area in percolation basin.**



**Soil Pit - Data Point 8 Ephemeral drainage entering percolation basin with riparian fringe.**



**Not a Data Point - Typical percolation basin on alluvial terrace in south spreading grounds.**



**Not a Data Point - Typical percolation basin on alluvial terrace in north spreading grounds.**



**Soil Pit - Data Point 9 Wetland in relatively permanent tributary to Santa Ana Wash.**



**Soil Pit - Data Point 10 Wetland in relatively permanent tributary to Santa Ana Wash.**



**Soil Pit - Data Point 11 Wetland in relatively permanent tributary to Santa Ana Wash.**



**Soil Pit - Data Point 12 Wetland in relatively permanent tributary to Santa Ana Wash.**



**Soil Pit - Data Point 13 Wetland in relatively permanent tributary to Santa Ana Wash.**



**Soil Pit - Data Point 14 Wetland next to upland pit in relatively permanent tributary to Santa Ana Wash.**



**Soil Pit - Data Point 15 Wetland in relatively permanent tributary to Santa Ana Wash.**



**Not a Data Point – Typical remnant swale on alluvial fan lacking hydrologic indicators and also lacking apparent inlet or outlet; considered not to be a drainage.**

**APPENDIX C SAMPLE JURISDICTIONAL DETERMINATION FORM**

**APPROVED JURISDICTIONAL DETERMINATION FORM**  
**U.S. Army Corps of Engineers**

This form should be completed by following the instructions provided in Section IV of the JD Form Instructional Guidebook.

**SECTION I: BACKGROUND INFORMATION**

**A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD):** NA

**B. DISTRICT OFFICE, FILE NAME, AND NUMBER:** NA

**C. PROJECT LOCATION AND BACKGROUND INFORMATION:**

State: CA County/parish/borough: San Bernadino City: Mentone  
Center coordinates of site (lat/long in degree decimal format): Lat. ° N, Long. ° E.  
Universal Transverse Mercator: UTM 11 488428E 3771280N (NAD27)

Name of nearest waterbody: Santa Ana River

Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: the Pacific Ocean

Name of watershed or Hydrologic Unit Code (HUC): Reach 5 of Santa Ana River 801.52 & 801.57, 18070203

Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.

Check if other sites (e.g., offsite mitigation sites, disposal sites, etc...) are associated with this action and are recorded on a different JD form.

**D. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):**

Office (Desk) Determination. Date:

Field Determination. Date(s):

**SECTION II: SUMMARY OF FINDINGS**

**A. RHA SECTION 10 DETERMINATION OF JURISDICTION.**

There **Are no** "navigable waters of the U.S." within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area. [Required]

Waters subject to the ebb and flow of the tide.

Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce.

Explain: .

**B. CWA SECTION 404 DETERMINATION OF JURISDICTION.**

There **Are** "waters of the U.S." within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area. [Required]

**1. Waters of the U.S.**

**a. Indicate presence of waters of U.S. in review area (check all that apply):<sup>1</sup>**

TNWs, including territorial seas

Wetlands adjacent to TNWs

Relatively permanent waters<sup>2</sup> (RPWs) that flow directly or indirectly into TNWs

Non-RPWs that flow directly or indirectly into TNWs

Wetlands directly abutting RPWs that flow directly or indirectly into TNWs

Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs

Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs

Impoundments of jurisdictional waters

Isolated (interstate or intrastate) waters, including isolated wetlands

**b. Identify (estimate) size of waters of the U.S. in the review area:**

Non-wetland waters: linear feet: width (ft) and/or 9 acres.

Wetlands: 1 acres.

**c. Limits (boundaries) of jurisdiction based on: 1987 Delineation Manual**

Elevation of established OHWM (if known): .

**2. Non-regulated waters/wetlands (check if applicable):<sup>3</sup>**

Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional.

Explain: .

<sup>1</sup> Boxes checked below shall be supported by completing the appropriate sections in Section III below.

<sup>2</sup> For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).

<sup>3</sup> Supporting documentation is presented in Section III.F.

### SECTION III: CWA ANALYSIS

#### A. TNWs AND WETLANDS ADJACENT TO TNWs

The agencies will assert jurisdiction over TNWs and wetlands adjacent to TNWs. If the aquatic resource is a TNW, complete Section III.A.1 and Section III.D.1. only; if the aquatic resource is a wetland adjacent to a TNW, complete Sections III.A.1 and 2 and Section III.D.1.; otherwise, see Section III.B below.

1. **TNW**

Identify TNW: .

Summarize rationale supporting determination: .

2. **Wetland adjacent to TNW**

Summarize rationale supporting conclusion that wetland is "adjacent": .

#### B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):

This section summarizes information regarding characteristics of the tributary and its adjacent wetlands, if any, and it helps determine whether or not the standards for jurisdiction established under *Rapanos* have been met.

The agencies will assert jurisdiction over non-navigable tributaries of TNWs where the tributaries are "relatively permanent waters" (RPWs), i.e. tributaries that typically flow year-round or have continuous flow at least seasonally (e.g., typically 3 months). A wetland that directly abuts an RPW is also jurisdictional. If the aquatic resource is not a TNW, but has year-round (perennial) flow, skip to Section III.D.2. If the aquatic resource is a wetland directly abutting a tributary with perennial flow, skip to Section III.D.4.

A wetland that is adjacent to but that does not directly abut an RPW requires a significant nexus evaluation. Corps districts and EPA regions will include in the record any available information that documents the existence of a significant nexus between a relatively permanent tributary that is not perennial (and its adjacent wetlands if any) and a traditional navigable water, even though a significant nexus finding is not required as a matter of law.

If the waterbody<sup>4</sup> is not an RPW, or a wetland directly abutting an RPW, a JD will require additional data to determine if the waterbody has a significant nexus with a TNW. If the tributary has adjacent wetlands, the significant nexus evaluation must consider the tributary in combination with all of its adjacent wetlands. This significant nexus evaluation that combines, for analytical purposes, the tributary and all of its adjacent wetlands is used whether the review area identified in the JD request is the tributary, or its adjacent wetlands, or both. If the JD covers a tributary with adjacent wetlands, complete Section III.B.1 for the tributary, Section III.B.2 for any onsite wetlands, and Section III.B.3 for all wetlands adjacent to that tributary, both onsite and offsite. The determination whether a significant nexus exists is determined in Section III.C below.

1. **Characteristics of non-TNWs that flow directly or indirectly into TNW**

(i) **General Area Conditions:**

Watershed size: 250 **square miles**

Drainage area: 11 **acres**

Average annual rainfall: 12 inches

Average annual snowfall: 0 inches

(ii) **Physical Characteristics:**

(a) Relationship with TNW:

Tributary flows directly into TNW.

Tributary flows through **2** tributaries before entering TNW.

Project waters are **30 (or more)** river miles from TNW.

Project waters are **1 (or less)** river miles from RPW.

Project waters are **30 (or more)** aerial (straight) miles from TNW.

Project waters are **1 (or less)** aerial (straight) miles from RPW.

Project waters cross or serve as state boundaries. Explain: NA.

Identify flow route to TNW<sup>5</sup>: .

Tributary stream order, if known: 4.

<sup>4</sup> Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.

<sup>5</sup> Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.

(b) General Tributary Characteristics (check all that apply):

- Tributary is:**  Natural  
 Artificial (man-made). Explain: Majority is constructed percolation basins behind levee walls.  
 Manipulated (man-altered). Explain: Remainder is controlled flow with stabilized banks..

**Tributary properties with respect to top of bank (estimate):**

Average width: 10-15 feet  
Average depth: 5-10 feet  
Average side slopes: **2:1**.

**Primary tributary substrate composition (check all that apply):**

- |  |  |                                   |
|--|--|-----------------------------------|
| <input type="checkbox"/> Silts           | <input checked="" type="checkbox"/> Sands          | <input type="checkbox"/> Concrete |
| <input type="checkbox"/> Cobbles         | <input checked="" type="checkbox"/> Gravel         | <input type="checkbox"/> Muck     |
| <input type="checkbox"/> Bedrock         | <input type="checkbox"/> Vegetation. Type/% cover: |                                   |
| <input type="checkbox"/> Other. Explain: |  |                                   |

Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain: Stable.

Presence of run/riffle/pool complexes. Explain: none.

Tributary geometry: **Relatively straight**

Tributary gradient (approximate average slope): 2-9 %

(c) Flow:

Tributary provides for: **Ephemeral flow**

Estimate average number of flow events in review area/year: **2-5**

Describe flow regime:

Other information on duration and volume:

Surface flow is: **Discrete and confined**. Characteristics:

Subsurface flow: **Yes**. Explain findings: Substrait is excessively well drained.

Dye (or other) test performed:

Tributary has (check all that apply):

- |  |   |
|--|---|
| <input checked="" type="checkbox"/> Bed and banks  |   |
| <input checked="" type="checkbox"/> OHWM <sup>6</sup> (check all indicators that apply): |   |
| <input type="checkbox"/> clear, natural line impressed on the bank                       | <input checked="" type="checkbox"/> the presence of litter and debris |
| <input type="checkbox"/> changes in the character of soil                                | <input type="checkbox"/> destruction of terrestrial vegetation        |
| <input checked="" type="checkbox"/> shelving   | <input type="checkbox"/> the presence of wrack line                   |
| <input type="checkbox"/> vegetation matted down, bent, or absent                         | <input type="checkbox"/> sediment sorting                             |
| <input type="checkbox"/> leaf litter disturbed or washed away                            | <input type="checkbox"/> scour  |
| <input checked="" type="checkbox"/> sediment deposition                                  | <input type="checkbox"/> multiple observed or predicted flow events   |
| <input type="checkbox"/> water staining  | <input type="checkbox"/> abrupt change in plant community             |
| <input type="checkbox"/> other (list):   |   |
| <input type="checkbox"/> Discontinuous OHWM. <sup>7</sup> Explain:                       |   |

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction (check all that apply):

- |  |  |
|--|--|
| <input checked="" type="checkbox"/> High Tide Line indicated by:   | <input checked="" type="checkbox"/> Mean High Water Mark indicated by: |
| <input type="checkbox"/> oil or scum line along shore objects      | <input type="checkbox"/> survey to available datum;                    |
| <input type="checkbox"/> fine shell or debris deposits (foreshore) | <input type="checkbox"/> physical markings;                            |
| <input type="checkbox"/> physical markings/characteristics         | <input type="checkbox"/> vegetation lines/changes in vegetation types. |
| <input type="checkbox"/> tidal gauges                              |  |
| <input type="checkbox"/> other (list):                             |  |

(iii) **Chemical Characteristics:**

Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).

Explain: Ephemeral, water quality not observed.

Identify specific pollutants, if known:

<sup>6</sup>A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.

<sup>7</sup>Ibid.

(iv) **Biological Characteristics. Channel supports (check all that apply):**

- Riparian corridor. Characteristics (type, average width):
- Wetland fringe. Characteristics:
- Habitat for:
  - Federally Listed species. Explain findings: Santa Ana River Woollystar, Plummer's Mariposa Lily
  - Fish/spawn areas. Explain findings:
  - Other environmentally-sensitive species. Explain findings:
  - Aquatic/wildlife diversity. Explain findings:

2. **Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW**

(i) **Physical Characteristics:**

(a) General Wetland Characteristics:

Properties:

Wetland size: 0.5 combined acres

Wetland type. Explain: 6 small disjunct areas along drainages, with Black Willow type, but also some ruderal spp.

Wetland quality. Explain: Average, because water source is mostly urban runoff low habitat size and density.

Project wetlands cross or serve as state boundaries. Explain: NA.

(b) General Flow Relationship with Non-TNW:

Flow is: **Intermittent flow**. Explain: 4 of the 6 have intermittent flow, and 2 are both ephemeral and intermittent.

Surface flow is: **Discrete and confined**

Characteristics: 4 of 6 are within man made structures .

Subsurface flow: **Unknown**. Explain findings: No percolation tests done.

Dye (or other) test performed:

(c) Wetland Adjacency Determination with Non-TNW:

- Directly abutting
- Not directly abutting
  - Discrete wetland hydrologic connection. Explain:
  - Ecological connection. Explain:
  - Separated by berm/barrier. Explain:

(d) Proximity (Relationship) to TNW

Project wetlands are **30 (or more)** river miles from TNW.

Project waters are **30 (or more)** aerial (straight) miles from TNW.

Flow is from: **Wetland to navigable waters**.

Estimate approximate location of wetland as within the **2-year or less** floodplain.

(ii) **Chemical Characteristics:**

Characterize wetland system (e.g., water color is clear, brown, oil film on surface; water quality; general watershed characteristics; etc.). Explain: No turbidity.

Identify specific pollutants, if known: 1 of 6 is urban runoff, another 1 of 6 is possibly treated waste water.

(iii) **Biological Characteristics. Wetland supports (check all that apply):**

- Riparian buffer. Characteristics (type, average width):
- Vegetation type/percent cover. Explain: Black Willow community but not forest or riparian forest.
- Habitat for:
  - Federally Listed species. Explain findings:
  - Fish/spawn areas. Explain findings:
  - Other environmentally-sensitive species. Explain findings:
  - Aquatic/wildlife diversity. Explain findings: Available surface water and cover vs. surrounding upland scrub.

3. **Characteristics of all wetlands adjacent to the tributary (if any)**

All wetland(s) being considered in the cumulative analysis: **6**

Approximately ( 1 ) acres in total are being considered in the cumulative analysis.

For each wetland, specify the following:

<u>Directly abuts? (Y/N)</u>	<u>Size (in acres)</u>	<u>Directly abuts? (Y/N)</u>	<u>Size (in acres)</u>
1 Y in SAR	0.10	5 Y	0.13
2 Y in SAR	0.04	6 Y	0.07
3 Y RPW	0.09		
4 Y RPW	0.74		

Summarize overall biological, chemical and physical functions being performed:

### C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Draw connections between the features documented and the effects on the TNW, as identified in the *Rapanos* Guidance and discussed in the Instructional Guidebook. Factors to consider include, for example:

- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to carry pollutants or flood waters to TNWs, or to reduce the amount of pollutants or flood waters reaching a TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), provide habitat and lifecycle support functions for fish and other species, such as feeding, nesting, spawning, or rearing young for species that are present in the TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to transfer nutrients and organic carbon that support downstream foodwebs?
- Does the tributary, in combination with its adjacent wetlands (if any), have other relationships to the physical, chemical, or biological integrity of the TNW?

**Note: the above list of considerations is not inclusive and other functions observed or known to occur should be documented below:**

1. **Significant nexus findings for non-RPW that has no adjacent wetlands and flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary itself, then go to Section III.D:
2. **Significant nexus findings for non-RPW and its adjacent wetlands, where the non-RPW flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D:
3. **Significant nexus findings for wetlands adjacent to an RPW but that do not directly abut the RPW.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D:

### D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE (CHECK ALL THAT APPLY):

1. **TNWs and Adjacent Wetlands.** Check all that apply and provide size estimates in review area:

- TNWs: linear feet width (ft), Or, acres.
- Wetlands adjacent to TNWs: acres.

2. **RPWs that flow directly or indirectly into TNWs.**

- Tributaries of TNWs where tributaries typically flow year-round are jurisdictional. Provide data and rationale indicating that tributary is perennial:
- Tributaries of TNW where tributaries have continuous flow "seasonally" (e.g., typically three months each year) are jurisdictional. Data supporting this conclusion is provided at Section III.B. Provide rationale indicating that tributary flows seasonally:

Provide estimates for jurisdictional waters in the review area (check all that apply):

- Tributary waters: linear feet width (ft).  
 Other non-wetland waters: acres.  
Identify type(s) of waters: .

**3. Non-RPWs<sup>8</sup> that flow directly or indirectly into TNWs.**

- Waterbody that is not a TNW or an RPW, but flows directly or indirectly into a TNW, and it has a significant nexus with a TNW is jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional waters within the review area (check all that apply):

- Tributary waters: linear feet width (ft).  
 Other non-wetland waters: 9 acres.  
Identify type(s) of waters: **Ephemeral, and intermittent.**

**4. Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.**

- Wetlands directly abut RPW and thus are jurisdictional as adjacent wetlands.  
 Wetlands directly abutting an RPW where tributaries typically flow year-round. Provide data and rationale indicating that tributary is perennial in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: .  
 Wetlands directly abutting an RPW where tributaries typically flow "seasonally." Provide data indicating that tributary is seasonal in Section III.B and rationale in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: .

Provide acreage estimates for jurisdictional wetlands in the review area: acres.

**5. Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs.**

- Wetlands that do not directly abut an RPW, but when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide acreage estimates for jurisdictional wetlands in the review area: acres.

**6. Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs.**

- Wetlands adjacent to such waters, and have when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional wetlands in the review area: 1 acres.

**7. Impoundments of jurisdictional waters.<sup>9</sup>**

As a general rule, the impoundment of a jurisdictional tributary remains jurisdictional.

- Demonstrate that impoundment was created from "waters of the U.S.," or  
 Demonstrate that water meets the criteria for one of the categories presented above (1-6), or  
 Demonstrate that water is isolated with a nexus to commerce (see E below).

**E. ISOLATED [INTERSTATE OR INTRA-STATE] WATERS, INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS (CHECK ALL THAT APPLY):<sup>10</sup>**

- which are or could be used by interstate or foreign travelers for recreational or other purposes.  
 from which fish or shellfish are or could be taken and sold in interstate or foreign commerce.  
 which are or could be used for industrial purposes by industries in interstate commerce.  
 Interstate isolated waters. Explain: .  
 Other factors. Explain: .

**Identify water body and summarize rationale supporting determination:** .

<sup>8</sup>See Footnote # 3.

<sup>9</sup>To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.

<sup>10</sup>Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA Memorandum Regarding CWA Act Jurisdiction Following Rapanos.

Provide estimates for jurisdictional waters in the review area (check all that apply):

- Tributary waters: linear feet width (ft).
- Other non-wetland waters: acres.  
Identify type(s) of waters: .
- Wetlands: acres.

**F. NON-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY):**

- If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements.
- Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce.
  - Prior to the Jan 2001 Supreme Court decision in "SWANCC," the review area would have been regulated based solely on the "Migratory Bird Rule" (MBR).
- Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction. Explain: .
- Other: (explain, if not covered above): .

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment (check all that apply):

- Non-wetland waters (i.e., rivers, streams): linear feet width (ft).
- Lakes/ponds: acres.
- Other non-wetland waters: acres. List type of aquatic resource: .
- Wetlands: acres.

Provide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (check all that apply):

- Non-wetland waters (i.e., rivers, streams): linear feet, width (ft).
- Lakes/ponds: acres.
- Other non-wetland waters: acres. List type of aquatic resource: .
- Wetlands: acres.

**SECTION IV: DATA SOURCES.**

**A. SUPPORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked and requested, appropriately reference sources below):**

- Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: .
- Data sheets prepared/submitted by or on behalf of the applicant/consultant.
  - Office concurs with data sheets/delineation report.
  - Office does not concur with data sheets/delineation report.
- Data sheets prepared by the Corps: .
- Corps navigable waters' study: .
- U.S. Geological Survey Hydrologic Atlas: .
  - USGS NHD data.
  - USGS 8 and 12 digit HUC maps.
- U.S. Geological Survey map(s). Cite scale & quad name: 1:24,000 Redlands (CA).
- USDA Natural Resources Conservation Service Soil Survey. Citation: .
- National wetlands inventory map(s). Cite name: .
- State/Local wetland inventory map(s): .
- FEMA/FIRM maps: .
- 100-year Floodplain Elevation is: (National Geodetic Vertical Datum of 1929)
- Photographs:  Aerial (Name & Date): .  
or  Other (Name & Date): .
- Previous determination(s). File no. and date of response letter: .
- Applicable/supporting case law: .
- Applicable/supporting scientific literature: .
- Other information (please specify): .

**B. ADDITIONAL COMMENTS TO SUPPORT JD:**

# Appendix C

Biology – Section 3

Distribution and Habitat of the  
Santa Ana Sucker and the  
Santa Ana Speckled Dace



# Memorandum

To: David K. Wolff, ESA, Inc.  
From: Thomas R. Haglund and Jonathan N. Baskin, Principal Senior Scientists  
Date: March 21, 2008  
Re: Distribution and Habitat of the Santa Ana Sucker and the Santa Ana Speckled Dace

---

## **Santa Ana Sucker (*Catostomus santaanae*)**

The Santa Ana sucker is listed under the federal Endangered Species Act as a Threatened Species. Historically, the sucker appears to be native only to the rivers and larger streams of the Los Angeles Basin--the Los Angeles, San Gabriel, and Santa Ana River drainage systems in Los Angeles, Orange, Riverside, and San Bernardino Counties. Although historic records are scarce, Santa Ana suckers presumably ranged from near the Pacific Ocean to the uplands of the Los Angeles and San Gabriel River systems, and in the Santa Ana River to at least where Pump House #1 is now located (near the San Bernardino National Forest boundary).

Although the Santa Ana sucker was described as common in the 1970s, the species has experienced declines throughout most of its range. The species is now restricted to three noncontiguous populations: lower Big Tujunga Creek (Los Angeles River drainage); the East, West, and North Forks of the San Gabriel River (San Gabriel River drainage); and the lower and middle Santa Ana River (Santa Ana River drainage from La Cadena Drive crossing in the city of Colton, downstream at least to Imperial Highway in Orange County). A population also occurs in portions of the Santa Clara River drainage system in Ventura and northern Los Angeles Counties. The Santa Clara River population is presumed to be an introduced population, although this presumption is based on the absence of the species from early collections, and not on any documented records of introduction.

Both the Santa Ana River near Mentone and Mill Creek likely represent historical Santa Ana sucker habitat and present conditions there are suitable to support the species (see

below). However, today no Santa Ana suckers are known from this area or anywhere upstream of La Cadena in the Santa Ana River. The area below La Cadena in the Santa Ana River provides relatively stable habitat and but a drop structure prevents upstream movement from La Cadena. Therefore, there is no natural recolonization route to the Mentone area and Mill Creek. No recent surveys have found suckers above La Cadena.

Suckers are known recently from the Santa Ana River in the vicinity of the City of Riverside wastewater treatment plant, however they are uncommon. Habitat conditions in this part of the river are marginal as the substrate is almost entirely made up of sand, a condition not favored by adult suckers (see below).

The Santa Ana sucker inhabits flowing streams that are generally small and shallow, with currents ranging from swift (in canyons) to sluggish (in the bottomlands). All these streams are subject to periodic severe flooding. Santa Ana suckers appear to be most abundant where the water is cool (less than 22 deg. Celsius (72 deg. Fahrenheit)), unpolluted, and clear, although they can tolerate and survive in seasonally turbid water. Santa Ana suckers are associated with algae but not macrophytes. Santa Ana suckers feed mostly on algae, diatoms, and detritus scraped from rocks and other hard substrates, with aquatic insects making up a very small component of their diet. Larger fish generally feed more on insects than do smaller fish. Although the sucker seems to be quite generalized in its habitat requirements, they are intolerant of polluted or highly modified streams.

### **Santa Ana Speckled Dace (*Rhinichthys osculus*)**

Although the Santa Ana speckled dace is not a listed species under either the federal or state endangered species act, it is of great concern to regulatory agencies in southern California. It is listed as a State Species of Special Concern by the California Department of Fish and Game. In recent years many populations of the dace have declined precipitously and others have been extirpated.

The dace was once widespread in the drainages of the Los Angeles Basin: the Los Angeles, Santa Ana, and San Gabriel river systems. The species presently has a very limited distribution in the headwater areas of the Santa Ana, San Gabriel and Los Angeles river systems. This species is probably the rarest native freshwater fish in coastal southern California. Attempts have been made to introduce this species into the Santa Clara and Cuyama rivers; however, both of these introductions failed. The largest remaining population of Santa Ana speckled dace is in the Angeles National Forest in lower reaches of the east, north, and west forks of the San Gabriel River, including Cattle Canyon, Bear Creek, and Fish Canyon. Other reported occurrences include Pacoima Creek, Little Tujunga Creek, and Big Tujunga Creek of the Los Angeles River basin, but more recent information indicates of these populations only the Big Tujunga population survives.

In the Santa Ana River basin, in the San Bernardino National Forest, small Santa Ana speckled dace populations did occur in the North Fork of Lytle Creek, Cajon Wash, Lone Pine Canyon, Strawberry Creek, Plunge Creek, Twin Creek, City Creek, Mill Creek (i.e., a population located just downstream of the San Bernardino National Forest boundary), and the South Fork of the San Jacinto River. Of these, at least the Strawberry Creek, Twin Creek and City Creek populations have recently been extirpated. On the Cleveland National Forest, there is a small population on Santiago Creek, and there is potentially a historic population in Silverado Canyon; this population, however, may have been extirpated. A genetically different form of speckled dace occurs in San Luis Obispo and northern Santa Barbara Counties. San Luis Obispo speckled dace occurs on the Los Padres National Forest on the Cuyama and Sisquoc Rivers as well as on Manzana and San Luis Obispo Creeks.

In the Santa Ana River currently the dace occurs in Mill, Cajon, Lytle and Plunges Creeks. It sometimes has been recorded from the Santa Ana River mainstem in the Mentone area. The Mill Creek population has been present over at least the last 20 years of records, but the mainstem population is more variable. Dace have been specifically found in the Santa Ana River at Mentone. We know of records from the late 1980s as well as within the last 5 years, but the precise current status is unknown. The dace can occur within the Mentone area whenever hydrologic conditions are appropriate to support it, because upstream populations occur which can provide a source population for recolonization. Santa Ana speckled dace should always be considered as potentially present in the Santa Ana River near Mentone

The Santa Ana speckled dace inhabits a number of stream and channel types, small springs, brooks, and pools in intermittent streams and large rivers. In general, this species requires abundant cover and well-oxygenated clear water flowing over shallow cobble and gravel riffles and prefers moderate to high gradients. The preferred summer water temperature is 63°F–68°F (17°C–20°C). They are found where the dominant habitat types are runs and riffles with gravel and cobble substrate. Speckled dace appear to be moderately tolerant of high water temperatures and low dissolved oxygen. Recruitment success can be low during high-flow years. They are highly successful at colonizing habitat disturbed by high flows. Movement depends on habitat conditions. Flooding contributes to the downstream dispersal of the species.

### **SMEA Habitat Utilization Study**

In addition to the general habitat preferences described above, the following are the results of a habitat utilization study by SMEA of Santa Ana suckers and Santa Ana speckled dace in the North and East Forks of the San Gabriel River. SMEA found on the East Fork of the San Gabriel River that:

- Adult Santa Ana suckers show a strong preference for run habitat and a water depth of 40 cm and greater, but no strong substrate preference. 36.49% of all adult suckers observed occupied a microhabitat where their nose velocity was 0.00 fps.

- Juvenile Santa Ana suckers prefer riffle and run habitat, depths greater than 30 cm, and gravel substrate. 26.32% of all juvenile suckers observed occupied a microhabitat where their nose velocity was 0.00 fps.
- Adult Santa Ana speckled dace show a preference for gravel substrate and a lesser preference for cobble substrate, a preference for flowing habitats (riffle, run, glide), and variability in depth preference but greater than the average available depth. 55.07% of all adult dace observed occupied a microhabitat where their nose velocity was 0.00 fps.
- Juvenile Santa Ana speckled dace show a preference for sand and gravel, pool and riffle habitat, and depths greater than the average available depth. 81.25% of all juvenile dace observed occupied a microhabitat where their nose velocity was 0.00 fps.
- Fry of both Santa Ana suckers and Santa Ana speckled dace were found exclusively in edgewater habitat over silt at depths of less than 17 cm where there was no measurable flow. These are a highly correlated set of attributes. This shallow water habitat reduces contact with predaceous fish.

The North Fork study area had less flow and overall substrate heterogeneity than the Eat Fork. Despite these differences the study found that:

- Adult Santa Ana suckers preferred depths greater than 40 cm
- Adult Santa Ana suckers preferred run habitat
- Juvenile Santa Ana suckers preferred riffles and runs
- Juvenile Santa Ana suckers preferred depths greater than 30 cm
- Both species preferred a low bottom velocity
- Both species preferred coarser substrates

The above results are consistent in both studies despite significant differences in habitat availability.

# Appendix D

## Hazardous Materials

# Appendix D

Hazardous Materials – Section  
1, Environmental Data  
Resources Report





**EDR®** Environmental  
Data Resources Inc

# **EDR DataMap® Area Study**

**East Branch Extension  
Mentone, CA 92359**

**June 25, 2007**

**Inquiry number 01958978.1r**

## **The Standard in Environmental Risk Information**

440 Wheelers Farms Road  
Milford, Connecticut 06461

### **Nationwide Customer Service**

Telephone: 1-800-352-0050  
Fax: 1-800-231-6802  
Internet: [www.edrnet.com](http://www.edrnet.com)

***Thank you for your business.***  
Please contact EDR at 1-800-352-0050  
with any questions or comments.

**Disclaimer - Copyright and Trademark Notice**

This Report contains certain information obtained from a variety of public and other sources reasonably available to Environmental Data Resources, Inc. It cannot be concluded from this Report that coverage information for the target and surrounding properties does not exist from other sources. **NO WARRANTY EXPRESSED OR IMPLIED, IS MADE WHATSOEVER IN CONNECTION WITH THIS REPORT. ENVIRONMENTAL DATA RESOURCES, INC. SPECIFICALLY DISCLAIMS THE MAKING OF ANY SUCH WARRANTIES, INCLUDING WITHOUT LIMITATION, MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE OR PURPOSE. ALL RISK IS ASSUMED BY THE USER. IN NO EVENT SHALL ENVIRONMENTAL DATA RESOURCES, INC. BE LIABLE TO ANYONE, WHETHER ARISING OUT OF ERRORS OR OMISSIONS, NEGLIGENCE, ACCIDENT OR ANY OTHER CAUSE, FOR ANY LOSS OF DAMAGE, INCLUDING, WITHOUT LIMITATION, SPECIAL, INCIDENTAL, CONSEQUENTIAL, OR EXEMPLARY DAMAGES. ANY LIABILITY ON THE PART OF ENVIRONMENTAL DATA RESOURCES, INC. IS STRICTLY LIMITED TO A REFUND OF THE AMOUNT PAID FOR THIS REPORT.** Purchaser accepts this Report "AS IS". Any analyses, estimates, ratings, environmental risk levels or risk codes provided in this Report are provided for illustrative purposes only, and are not intended to provide, nor should they be interpreted as providing any facts regarding, or prediction or forecast of, any environmental risk for any property. Only a Phase I Environmental Site Assessment performed by an environmental professional can provide information regarding the environmental risk for any property. Additionally, the information provided in this Report is not to be construed as legal advice.

Copyright 2006 by Environmental Data Resources, Inc. All rights reserved. Reproduction in any media or format, in whole or in part, of any report or map of Environmental Data Resources, Inc., or its affiliates, is prohibited without prior written permission.

EDR and its logos (including Sanborn and Sanborn Map) are trademarks of Environmental Data Resources, Inc. or its affiliates. All other trademarks used herein are the property of their respective owners.

# EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc. (EDR).

## TARGET PROPERTY INFORMATION

### ADDRESS

MENTONE, CA 92359  
MENTONE, CA 92359

## DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records within the requested search area for the following databases:

## FEDERAL RECORDS

<b>NPL</b>	National Priority List
<b>Proposed NPL</b>	Proposed National Priority List Sites
<b>Delisted NPL</b>	National Priority List Deletions
<b>NPL LIENS</b>	Federal Superfund Liens
<b>CERC-NFRAP</b>	CERCLIS No Further Remedial Action Planned
<b>CORRACTS</b>	Corrective Action Report
<b>RCRA-TSDF</b>	Resource Conservation and Recovery Act Information
<b>RCRA-LQG</b>	Resource Conservation and Recovery Act Information
<b>ERNS</b>	Emergency Response Notification System
<b>HMIRS</b>	Hazardous Materials Information Reporting System
<b>US ENG CONTROLS</b>	Engineering Controls Sites List
<b>US INST CONTROL</b>	Sites with Institutional Controls
<b>DOD</b>	Department of Defense Sites
<b>FUDS</b>	Formerly Used Defense Sites
<b>US BROWNFIELDS</b>	A Listing of Brownfields Sites
<b>CONSENT</b>	Superfund (CERCLA) Consent Decrees
<b>ROD</b>	Records Of Decision
<b>UMTRA</b>	Uranium Mill Tailings Sites
<b>ODI</b>	Open Dump Inventory
<b>TRIS</b>	Toxic Chemical Release Inventory System
<b>TSCA</b>	Toxic Substances Control Act
<b>FTTS</b>	FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
<b>SSTS</b>	Section 7 Tracking Systems
<b>LIENS 2</b>	CERCLA Lien Information
<b>RADINFO</b>	Radiation Information Database
<b>US CDL</b>	Clandestine Drug Labs
<b>HIST FTTS</b>	FIFRA/TSCA Tracking System Administrative Case Listing
<b>ICIS</b>	Integrated Compliance Information System
<b>LUCIS</b>	Land Use Control Information System
<b>DOT OPS</b>	Incident and Accident Data
<b>PADS</b>	PCB Activity Database System

## EXECUTIVE SUMMARY

<b>MLTS</b> .....	Material Licensing Tracking System
<b>MINES</b> .....	Mines Master Index File
<b>RAATS</b> .....	RCRA Administrative Action Tracking System

### STATE AND LOCAL RECORDS

<b>HIST Cal-Sites</b> .....	Historical Calsites Database
<b>CA BOND EXP. PLAN</b> .....	Bond Expenditure Plan
<b>SCH</b> .....	School Property Evaluation Program
<b>Toxic Pits</b> .....	Toxic Pits Cleanup Act Sites
<b>SWF/LF</b> .....	Solid Waste Information System
<b>CA WDS</b> .....	Waste Discharge System
<b>WMUDS/SWAT</b> .....	Waste Management Unit Database
<b>SWRCY</b> .....	Recycler Database
<b>LIENS</b> .....	Environmental Liens Listing
<b>AST</b> .....	Aboveground Petroleum Storage Tank Facilities
<b>CHMIRS</b> .....	California Hazardous Material Incident Report System
<b>Notify 65</b> .....	Proposition 65 Records
<b>DEED</b> .....	Deed Restriction Listing
<b>VCP</b> .....	Voluntary Cleanup Program Properties
<b>CLEANERS</b> .....	Cleaner Facilities
<b>WIP</b> .....	Well Investigation Program Case List

### TRIBAL RECORDS

<b>INDIAN RESERV</b> .....	Indian Reservations
<b>INDIAN LUST</b> .....	Leaking Underground Storage Tanks on Indian Land
<b>INDIAN UST</b> .....	Underground Storage Tanks on Indian Land

### EDR PROPRIETARY RECORDS

<b>Manufactured Gas Plants</b> ...	EDR Proprietary Manufactured Gas Plants
------------------------------------	---

### SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified.

Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

### FEDERAL RECORDS

**CERCLIS:** The Comprehensive Environmental Response, Compensation and Liability Information System contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA). CERCLIS contains sites which are either proposed to or on the National Priorities List (NPL) and sites which are in the screening and assessment phase for possible inclusion on the NPL.

A review of the CERCLIS list, as provided by EDR, and dated 02/27/2007 has revealed that there is 1

## EXECUTIVE SUMMARY

CERCLIS site within the searched area.

<u>Site</u>	<u>Address</u>	<u>Map ID</u>	<u>Page</u>
<b>LOCKHEED PROPULSION CO</b>	<b>1500 CRAFTON AVE</b>	<b>8</b>	<b>9</b>

**RCRAInfo:** RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act ( RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. RCRAInfo replaces the data recording and reporting abilities of the Resource Conservation and Recovery Information System(RCRIS). The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month. Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month Large quantity generators generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month. Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

A review of the RCRA-SQG list, as provided by EDR, and dated 06/13/2006 has revealed that there are 3 RCRA-SQG sites within the searched area.

<u>Site</u>	<u>Address</u>	<u>Map ID</u>	<u>Page</u>
<b>SEVEN W ENTERPRISES, INC</b>	<b>1500 CRAFTON AVE</b>	<b>8</b>	<b>18</b>
<b>BAUMAC INTERNATIONAL</b>	<b>1500 CRAFTON AVE</b>	<b>8</b>	<b>30</b>
<b>WESTEL SVC CORP</b>	<b>1500 CRAFTON AVE</b>	<b>8</b>	<b>32</b>

**FINDS:** The Facility Index System contains both facility information and "pointers" to other sources of information that contain more detail. These include: RCRIS; Permit Compliance System (PCS); Aerometric Information Retrieval System (AIRS); FATES (FIFRA [Federal Insecticide Fungicide Rodenticide Act] and TSCA Enforcement System, FTTS [FIFRA/TSCA Tracking System]; CERCLIS; DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes); Federal Underground Injection Control (FURS); Federal Reporting Data System (FRDS); Surface Impoundments (SIA); TSCA Chemicals in Commerce Information System (CICS); PADS; RCRA-J (medical waste transporters/disposers); TRIS; and TSCA. The source of this database is the U.S. EPA/NTIS.

A review of the FINDS list, as provided by EDR, and dated 01/18/2007 has revealed that there are 6 FINDS sites within the searched area.

<u>Site</u>	<u>Address</u>	<u>Map ID</u>	<u>Page</u>
<b>LOCKHEED PROPULSION CO</b>	<b>1500 CRAFTON AVE</b>	<b>8</b>	<b>9</b>
<b>SEVEN W ENTERPRISES, INC</b>	<b>1500 CRAFTON AVE</b>	<b>8</b>	<b>18</b>
<b>HIGHLAND SUPPLY CORP</b>	<b>1500 CRAFTON AVE</b>	<b>8</b>	<b>22</b>
<b>BAUMAC INTERNATIONAL</b>	<b>1500 CRAFTON AVE</b>	<b>8</b>	<b>30</b>
<b>WESTEL SVC CORP</b>	<b>1500 CRAFTON AVE</b>	<b>8</b>	<b>32</b>
<b>MENTONE ELEMENTARY</b>	<b>1320 CRAFTON AVE.</b>	<b>15</b>	<b>40</b>

## EXECUTIVE SUMMARY

### STATE AND LOCAL RECORDS

**CORTESE:** This database identifies public drinking water wells with detectable levels of contamination, hazardous substance sites selected for remedial action, sites with known toxic material identified through the abandoned site assessment program, sites with USTs having a reportable release and all solid waste disposal facilities from which there is known migration. The source is the California Environmental Protection Agency/Office of Emergency Information.

A review of the Cortese list, as provided by EDR, and dated 04/01/2001 has revealed that there is 1 Cortese site within the searched area.

<u>Site</u>	<u>Address</u>	<u>Map ID</u>	<u>Page</u>
<b>HIGHLAND SUPPLY/SEVEN-W ENT.</b>	<b>1500 CRAFTON AVE</b>	<b>8</b>	<b>11</b>

**LUST:** The Leaking Underground Storage Tank Incident Reports contain an inventory of reported leaking underground storage tank incidents. The data come from the State Water Resources Control Board Leaking Underground Storage Tank Information System.

A review of the LUST list, as provided by EDR, and dated 04/10/2007 has revealed that there is 1 LUST site within the searched area.

<u>Site</u>	<u>Address</u>	<u>Map ID</u>	<u>Page</u>
<b>HIGHLAND SUPPLY/SEVEN-W ENT.</b> Facility Status: Case Closed	<b>1500 CRAFTON AVE</b>	<b>8</b>	<b>11</b>

**CA FID:** The Facility Inventory Database contains active and inactive underground storage tank locations. The source is the State Water Resource Control Board.

A review of the CA FID UST list, as provided by EDR, and dated 10/31/1994 has revealed that there is 1 CA FID UST site within the searched area.

<u>Site</u>	<u>Address</u>	<u>Map ID</u>	<u>Page</u>
<b>HIGHLAND SUPPLY/SEVEN-W ENT.</b>	<b>1500 CRAFTON AVE</b>	<b>8</b>	<b>11</b>

**CA SLIC:** SLIC Region comes from the California Regional Water Quality Control Board.

A review of the SLIC list, as provided by EDR, and dated 04/10/2007 has revealed that there are 2 SLIC sites within the searched area.

<u>Site</u>	<u>Address</u>	<u>Map ID</u>	<u>Page</u>
<b>LOCKHEED PROPULSION CO</b>	<b>1500 CRAFTON AVE</b>	<b>8</b>	<b>9</b>
<b>HIGHLAND SUPPLY CORPORATION</b>	<b>1500 CRAFTON AVENUE</b>	<b>8</b>	<b>28</b>

## EXECUTIVE SUMMARY

**UST:** The Underground Storage Tank database contains registered USTs. USTs are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA). The data come from the State Water Resources Control Board's Hazardous Substance Storage Container Database.

A review of the UST list, as provided by EDR, and dated 04/10/2007 has revealed that there is 1 UST site within the searched area.

<u>Site</u>	<u>Address</u>	<u>Map ID</u>	<u>Page</u>
HORACE HINKLEY WATER TRT	1600 N CRAFTON AV	8	34

**HIST UST:** Historical UST Registered Database.

A review of the HIST UST list, as provided by EDR, and dated 10/15/1990 has revealed that there are 2 HIST UST sites within the searched area.

<u>Site</u>	<u>Address</u>	<u>Map ID</u>	<u>Page</u>
<b>HIGHLAND SUPPLY CORPORATION</b>	<b>1500 CRAFTON AVENUE</b>	<b>8</b>	<b>28</b>
<b>A-G MORNING FRESH EGG FARMS</b>	<b>1331 SAPPHIRE AVE</b>	<b>16</b>	<b>40</b>

**SWEEPS:** Statewide Environmental Evaluation and Planning System. This underground storage tank listing was updated and maintained by a company contacted by the SWRCB in the early 1980's. The listing is no longer updated or maintained. The local agency is the contact for more information on a site on the SWEEPS list.

A review of the SWEEPS UST list, as provided by EDR, and dated 06/01/1994 has revealed that there are 2 SWEEPS UST sites within the searched area.

<u>Site</u>	<u>Address</u>	<u>Map ID</u>	<u>Page</u>
<b>HIGHLAND SUPPLY CORP</b>	<b>1500 CRAFTON AVE</b>	<b>8</b>	<b>22</b>
<b>A-G MORNING FRESH EGG FARMS</b>	<b>1331 SAPPHIRE AVE</b>	<b>16</b>	<b>40</b>

**CDL:** A listing of drug lab locations. Listing of a location in this database does not indicate that any illegal drug lab materials were or were not present there, and does not constitute a determination that the location either requires or does not require additional cleanup work.

A review of the CDL list, as provided by EDR, and dated 12/31/2006 has revealed that there are 2 CDL sites within the searched area.

<u>Site</u>	<u>Address</u>	<u>Map ID</u>	<u>Page</u>
Not reported	1365 CRAFTON AVE, BUILD	9	34
Not reported	1365 CRAFTON AVE, CROSS	9	34

## EXECUTIVE SUMMARY

**RESPONSE:** Identifies confirmed release sites where DTSC is involved in remediation, either in a lead or oversight capacity. These confirmed release sites are generally high-priority and high potential risk.

A review of the RESPONSE list, as provided by EDR, and dated 02/27/2007 has revealed that there is 1 RESPONSE site within the searched area.

<u>Site</u>	<u>Address</u>	<u>Map ID</u>	<u>Page</u>
<b>LOCKHEED PROPULSION CORPORATIO</b>	<b>1500 CRAFTON AVENUE</b>	<b>8</b>	<b>24</b>

**DEHS Permit System:** San Bernardino County Fire Department Hazardous Materials Division.

A review of the San Bern. Co. Permit list, as provided by EDR, and dated 03/23/2007 has revealed that there are 11 San Bern. Co. Permit sites within the searched area.

<u>Site</u>	<u>Address</u>	<u>Map ID</u>	<u>Page</u>
WATER TREATMENT PLANT #129	7800 CALLE DEL RIO ST	1	3
WATER TREATMENT PLANT #125	GREENSPOT/CONE CAMP RD	2	3
<b>MILL CREEK STUDIOS INC</b>	<b>9461 OPAL AVE_NORTH</b>	<b>4</b>	<b>3</b>
MISSION AVIATION FELLOWSHIP	1849 N WABASH AVE	6	9
MOBIL PROS	1868 1/2 SOFFEL AVE	7	9
<b>HIGHLAND SUPPLY/SEVEN-W ENT.</b>	<b>1500 CRAFTON AVE</b>	<b>8</b>	<b>11</b>
WELL-MADEIRA WELL	1500 CRAFTON AVE	8	28
BLUE SKY MEADOW	3780 STATE HWY 38	10	36
HENRY TATE WATER TRT	3050 MILL CREEK RD	11	37
J & S TRUCKING	1333 AMETHYST	13	39
WELL #3-EAST LUGONIA	2551 MILL CREEK RD	14	39

**HAZNET:** The data is extracted from the copies of hazardous waste manifests received each year by the DTSC. The annual volume of manifests is typically 700,000-1,000,000 annually, representing approximately 350,000-500,000 shipments. Data from non-California manifests & continuation sheets are not included at the present time. Data are from the manifests submitted without correction, and therefore many contain some invalid values for data elements such as generator ID, TSD ID, waste category, & disposal method. The source is the Department of Toxic Substance Control is the agency

A review of the HAZNET list, as provided by EDR, and dated 12/31/2005 has revealed that there are 22 HAZNET sites within the searched area.

<u>Site</u>	<u>Address</u>	<u>Map ID</u>	<u>Page</u>
SUNCAL CO.	30610 1/2 GREENSPOT RD	3	3
<b>MILL CREEK STUDIOS INC</b>	<b>9461 OPAL AVE_NORTH</b>	<b>4</b>	<b>3</b>
MILL CREEK STUDIOS INC	9461 N OPAL AVE	4	5
DONOVAN B CONSTRUCTION	9477 NORTH OPAL AVENUE	4	6
ADJUSTER SVS CORP DBA REDLANDS	1795 SESSUMS DRIVE	5	7
MISSION AVIATION FELLOWSHIP	1849 WABASH	6	7
HIGHLAND SUPPLY CORP	1500 CRAFTON AVE	8	14
<b>GTE- GENERAL TELEPHONE &amp; ELECT</b>	<b>1500 CRAFTON AVE</b>	<b>8</b>	<b>16</b>
<b>SEVEN W ENTERPRISES, INC</b>	<b>1500 CRAFTON AVE</b>	<b>8</b>	<b>18</b>
<b>GENERAL TELEPHONE OF CALIFORNI</b>	<b>1500 CRAFTON AVE</b>	<b>8</b>	<b>20</b>
GTE CALIFORNIA INC	1500 CRAFTON AVE	8	22
G T E	1500 CRAFTON AVE	8	22
<b>BAUMAC INTERNATIONAL</b>	<b>1500 CRAFTON AVE</b>	<b>8</b>	<b>30</b>
CITY OF REDLANDS/	1604 CRAFTON AVE	8	33

## EXECUTIVE SUMMARY

<u>Site</u>	<u>Address</u>	<u>Map ID</u>	<u>Page</u>
CITY OF REDLANDS - DEPT OF WAT	1604 CRAFTON AVE	8	33
CITY OF REDLANDS	1604 CRAFTON AVE	8	34
HUD INTOWN PROPERTIES	1365 CRAFTON AVE # 2005	9	35
INTOWN PROPERTIES	1365 CRASTON	9	35
DUTCHMAN'S PAINT & BODY THE	1811B MENTONE BLVD	10	37
CITY OF REDLANDS - DEPT OF WAT	3050 MILL CREEK RD	11	37
HUD	2787 MILL CREEK RD	12	38
HAZMAT	1331 SAPPHIRE	16	41

**Emissions Inventory Data:** Toxics and criteria pollutant emissions data collected by the ARB and local air pollution agencies

A review of the EMI list, as provided by EDR, and dated 12/31/2005 has revealed that there are 3 EMI sites within the searched area.

<u>Site</u>	<u>Address</u>	<u>Map ID</u>	<u>Page</u>
ASPECTS INC	9477 N OPAL AVE	4	6
<b>GTE- GENERAL TELEPHONE &amp; ELECT</b>	<b>1500 CRAFTON AVE</b>	<b>8</b>	<b>16</b>
<b>GENERAL TELEPHONE OF CALIFORNI</b>	<b>1500 CRAFTON AVE</b>	<b>8</b>	<b>20</b>

**ENVIROSTOR:** The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifies sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

A review of the ENVIROSTOR list, as provided by EDR, and dated 02/27/2007 has revealed that there is 1 ENVIROSTOR site within the searched area.

<u>Site</u>	<u>Address</u>	<u>Map ID</u>	<u>Page</u>
<b>LOCKHEED PROPULSION CORPORATIO</b>	<b>1500 CRAFTON AVENUE</b>	<b>8</b>	<b>24</b>
Facility Status: Refer: RWQCB			

## **EXECUTIVE SUMMARY**

Please refer to the end of the findings report for unmapped orphan sites due to poor or inadequate address information.

MAP FINDINGS SUMMARY

<u>Database</u>	<u>Total Plotted</u>
<b><u>FEDERAL RECORDS</u></b>	
NPL	0
Proposed NPL	0
Delisted NPL	0
NPL LIENS	0
CERCLIS	1
CERC-NFRAP	0
CORRACTS	0
RCRA TSD	0
RCRA Lg. Quan. Gen.	0
RCRA Sm. Quan. Gen.	3
ERNS	0
HMIRS	0
US ENG CONTROLS	0
US INST CONTROL	0
DOD	0
FUDS	0
US BROWNFIELDS	0
CONSENT	0
ROD	0
UMTRA	0
ODI	0
TRIS	0
TSCA	0
FTTS	0
SSTS	0
LIENS 2	0
RADINFO	0
CDL	0
HIST FTTS	0
ICIS	0
LUCIS	0
DOT OPS	0
PADS	0
MLTS	0
MINES	0
FINDS	6
RAATS	0
<b><u>STATE AND LOCAL RECORDS</u></b>	
Hist Cal-Sites	0
CA Bond Exp. Plan	0
SCH	0
Toxic Pits	0
State Landfill	0
CA WDS	0
WMUDS/SWAT	0
Cortese	1

MAP FINDINGS SUMMARY

<u>Database</u>	<u>Total Plotted</u>
SWRCY	0
LUST	1
CA FID UST	1
SLIC	2
UST	1
HIST UST	2
LIENS	0
AST	0
SWEEPS UST	2
CHMIRS	0
Notify 65	0
DEED	0
VCP	0
DRYCLEANERS	0
WIP	0
CDL	2
RESPONSE	1
San Bern. Co. Permit	11
HAZNET	22
EMI	3
ENVIROSTOR	1
 <b><u>TRIBAL RECORDS</u></b>	
INDIAN RESERV	0
INDIAN LUST	0
INDIAN UST	0
 <b><u>EDR PROPRIETARY RECORDS</u></b>	
Manufactured Gas Plants	0

NOTES:

Sites may be listed in more than one database

MAP FINDINGS

Map ID  
 Direction  
 Distance  
 Distance (ft.)Site Database(s) EPA ID Number  
 EDR ID Number

**1 WATER TREATMENT PLANT #129 San Bern. Co. Permit S106446598**  
**7800 CALLE DEL RIO ST N/A**  
**HIGHLAND, CA 92346**

San Bern. Co. Permit:  
 Region: SAN BERNARDINO  
 Facility ID: FA0008105  
 Owner: EAST VALLEY WATER DIST  
 Permit Number: PT0014774  
 Permit Category: HAZMAT HANDLER 0-10 EMPLOYEES  
 Facility Status: ACTIVE  
 Expiration Date: 2/28/2008

**2 WATER TREATMENT PLANT #125 San Bern. Co. Permit S106446601**  
**GREENSPOT/CONE CAMP RD N/A**  
**HIGHLAND, CA 92346**

San Bern. Co. Permit:  
 Region: SAN BERNARDINO  
 Facility ID: FA0008104  
 Owner: EAST VALLEY WATER DIST  
 Permit Number: PT0014773  
 Permit Category: HAZMAT HANDLER 0-10 EMPLOYEES  
 Facility Status: ACTIVE  
 Expiration Date: 2/28/2008

**3 SUNCAL CO. HAZNET S103989804**  
**30610 1/2 GREENSPOT RD N/A**  
**HIGHLANDS, CA 92346**

HAZNET:  
 Gepaid: CAC002136761  
 Contact: SUNCAL CO.  
 Telephone: 7146936700  
 Facility Addr2: Not reported  
 Mailing Name: Not reported  
 Mailing Address: 2109 E. LA PALMA  
 Mailing City,St,Zip: ANAHEIM, CA 928070000  
 Gen County: 1  
 TSD EPA ID: CAT080013352  
 TSD County: Los Angeles  
 Waste Category: Tank bottom waste  
 Disposal Method: Recycler  
 Tons: 14.5950  
 Facility County: 1

**4 MILL CREEK STUDIOS INC HAZNET S103676958**  
**9461 OPAL AVE\_NORTH San Bern. Co. Permit N/A**  
**MENTONE, CA 92359**

HAZNET:  
 Gepaid: CAL000041646  
 Contact: STEPHEN HERRERO  
 Telephone: 9097944547  
 Facility Addr2: Not reported  
 Mailing Name: Not reported  
 Mailing Address: 9461 OPAL AVE\_NORTH

MAP FINDINGS

Map ID  
 Direction  
 Distance  
 Distance (ft.)Site

EDR ID Number

Database(s) EPA ID Number

**MILL CREEK STUDIOS INC (Continued)**

**S103676958**

Mailing City,St,Zip: MENTONE, CA 923599719  
 Gen County: Fresno  
 TSD EPA ID: CAD009452657  
 TSD County: San Mateo  
 Waste Category: Oxygenated solvents (acetone, butanol, ethyl acetate, etc.)  
 Disposal Method: Recycler  
 Tons: 6.3591  
 Facility County: Fresno

Gepaid: CAL000041646  
 Contact: STEPHEN HERRERO  
 Telephone: 9097944547  
 Facility Addr2: Not reported  
 Mailing Name: Not reported  
 Mailing Address: 9461 OPAL AVE\_NORTH  
 Mailing City,St,Zip: MENTONE, CA 923599719  
 Gen County: Fresno  
 TSD EPA ID: CAD089446710  
 TSD County: Los Angeles  
 Waste Category: Unspecified solvent mixture Waste  
 Disposal Method: Transfer Station  
 Tons: .2293  
 Facility County: Fresno

Gepaid: CAL000041646  
 Contact: STEPHEN HERRERO  
 Telephone: 9097944547  
 Facility Addr2: Not reported  
 Mailing Name: Not reported  
 Mailing Address: 9461 OPAL AVE\_NORTH  
 Mailing City,St,Zip: MENTONE, CA 923599719  
 Gen County: Fresno  
 TSD EPA ID: CAT080022148  
 TSD County: San Bernardino  
 Waste Category: Oxygenated solvents (acetone, butanol, ethyl acetate, etc.)  
 Disposal Method: Recycler  
 Tons: .4587  
 Facility County: Fresno

Gepaid: CAL000041646  
 Contact: STEPHEN HERRERO  
 Telephone: 9097944547  
 Facility Addr2: Not reported  
 Mailing Name: Not reported  
 Mailing Address: 9461 OPAL AVE\_NORTH  
 Mailing City,St,Zip: MENTONE, CA 923599719  
 Gen County: Fresno  
 TSD EPA ID: CAT080022148  
 TSD County: San Bernardino  
 Waste Category: Other empty containers 30 gallons or more  
 Disposal Method: Transfer Station  
 Tons: .3000  
 Facility County: Fresno

Gepaid: CAL000041646  
 Contact: STEPHEN HERRERO  
 Telephone: 9097944547

MAP FINDINGS

Map ID  
 Direction  
 Distance  
 Distance (ft.)Site

EDR ID Number  
 EPA ID Number

Database(s)

**MILL CREEK STUDIOS INC (Continued)**

**S103676958**

Facility Addr2: Not reported  
 Mailing Name: Not reported  
 Mailing Address: 9461 OPAL AVE\_NORTH  
 Mailing City,St,Zip: MENTONE, CA 923599719  
 Gen County: Fresno  
 TSD EPA ID: CAT080022148  
 TSD County: San Bernardino  
 Waste Category: Other organic solids  
 Disposal Method: Transfer Station  
 Tons: .6500  
 Facility County: Fresno

[Click this hyperlink](#) while viewing on your computer to access 22 additional CA\_HAZNET: record(s) in the EDR Site Report.

San Bern. Co. Permit:

Region: SAN BERNARDINO  
 Facility ID: FA0004731  
 Owner: HERRERO, STEPHEN  
 Permit Number: PT0005971  
 Permit Category: HAZMAT HANDLER 11-25 EMPLOYEES (W/GEN PRMT)  
 Facility Status: INACTIVE  
 Expiration Date: 4/30/2004

Region: SAN BERNARDINO  
 Facility ID: FA0004731  
 Owner: HERRERO, STEPHEN  
 Permit Number: PT0005972  
 Permit Category: GENERATOR - 11-25 EMPLOYEES  
 Facility Status: INACTIVE  
 Expiration Date: 4/30/2004

Region: SAN BERNARDINO  
 Facility ID: FA0004731  
 Owner: HERRERO, STEPHEN  
 Permit Number: PT0012725  
 Permit Category: CE ANNUAL FEE  
 Facility Status: INACTIVE  
 Expiration Date: 4/30/2003

4

**MILL CREEK STUDIOS INC**  
**9461 N OPAL AVE**  
**MENTONE, CA 92359**

**HAZNET S107145492**  
**N/A**

HAZNET:

Gepaid: CAL000041646  
 Contact: ARNOLD BELER/PLANT MANAGER  
 Telephone: 9097944547  
 Facility Addr2: Not reported  
 Mailing Name: Not reported  
 Mailing Address: 1670 SESSUMS DR  
 Mailing City,St,Zip: REDLANDS, CA 92374  
 Gen County: San Bernardino  
 TSD EPA ID: AZD009015389  
 TSD County: San Bernardino  
 Waste Category: Oxygenated solvents (acetone, butanol, ethyl acetate, etc.)  
 Disposal Method: Recycler

MAP FINDINGS

Map ID			EDR ID Number
Direction			
Distance			
Distance (ft.)Site		Database(s)	EPA ID Number

---

**MILL CREEK STUDIOS INC (Continued)**

**S107145492**

Tons: 0.2  
 Facility County: San Bernardino

Gepaid: CAL000041646  
 Contact: ARNOLD BELER/PLANT MANAGER  
 Telephone: 9097944547  
 Facility Addr2: Not reported  
 Mailing Name: Not reported  
 Mailing Address: 1670 SESSUMS DR  
 Mailing City,St,Zip: REDLANDS, CA 92374  
 Gen County: San Bernardino  
 TSD EPA ID: AZD009015389  
 TSD County: 99  
 Waste Category: Not reported  
 Disposal Method: Not reported  
 Tons: 0.12  
 Facility County: Not reported

**4 DONOVAN B CONSTRUCTION  
 9477 NORTH OPAL AVENUE  
 MENTONE, CA 92359**

**HAZNET S105087868  
 N/A**

HAZNET:  
 Gepaid: CAC002318185  
 Contact: DONOVAN B CONSTRUCTION  
 Telephone: 0000000000  
 Facility Addr2: Not reported  
 Mailing Name: Not reported  
 Mailing Address: 9477 NORTH OPAL AVENUE  
 Mailing City,St,Zip: MENTONE, CA 923590000  
 Gen County: San Bernardino  
 TSD EPA ID: CAT080033681  
 TSD County: Los Angeles  
 Waste Category: Unspecified oil-containing waste  
 Disposal Method: Disposal, Land Fill  
 Tons: .2293  
 Facility County: San Bernardino

**4 ASPECTS INC  
 9477 N OPAL AVE  
 MENTONE, CA 92359**

**EMI S106826318  
 N/A**

EMI:  
 Year: 1987  
 Carbon Monoxide Emissions Tons/Yr: 36  
 Air Basin: SC  
 Facility ID: 52372  
 Air District Name: SC  
 SIC Code: 7538  
 Air District Name: SOUTH COAST AQMD  
 Community Health Air Pollution Info System: Not reported  
 Consolidated Emission Reporting Rule: Not reported  
 Total Organic Hydrocarbon Gases Tons/Yr: 1  
 Reactive Organic Gases Tons/Yr: 0  
 Carbon Monoxide Emissions Tons/Yr: 0  
 NOX - Oxides of Nitrogen Tons/Yr: 0

MAP FINDINGS

Map ID  
 Direction  
 Distance  
 Distance (ft.)Site

EDR ID Number  
 Database(s)  
 EPA ID Number

**ASPECTS INC (Continued)**

**S106826318**

SOX - Oxides of Sulphur Tons/Yr: 0  
 Particulate Matter Tons/Yr: 0  
 Part. Matter 10 Micrometers & Smllr Tons/Yr: 0

**5 ADJUSTER SVS CORP DBA REDLANDS AVIATION  
 1795 SESSUMS DRIVE  
 REDLANDS, CA 92374**

**HAZNET S103636835  
 N/A**

HAZNET:

Gepaid: CAL000040839  
 Contact: REDLANDS AVIATION  
 Telephone: 9097945642  
 Facility Addr2: Not reported  
 Mailing Name: Not reported  
 Mailing Address: 1745 SESSUMS DR  
 Mailing City,St,Zip: REDLANDS, CA 923741907  
 Gen County: San Bernardino  
 TSD EPA ID: CAT000613893  
 TSD County: Los Angeles  
 Waste Category: Oxygenated solvents (acetone, butanol, ethyl acetate, etc.)  
 Disposal Method: Transfer Station  
 Tons: .1710  
 Facility County: San Bernardino

Gepaid: CAL000040839  
 Contact: REDLANDS AVIATION  
 Telephone: 9097945642  
 Facility Addr2: Not reported  
 Mailing Name: Not reported  
 Mailing Address: 1745 SESSUMS DR  
 Mailing City,St,Zip: REDLANDS, CA 923741907  
 Gen County: San Bernardino  
 TSD EPA ID: CAT000613893  
 TSD County: Los Angeles  
 Waste Category: Oxygenated solvents (acetone, butanol, ethyl acetate, etc.)  
 Disposal Method: Not reported  
 Tons: .0135  
 Facility County: San Bernardino

**6 MISSION AVIATION FELLOWSHIP  
 1849 WABASH  
 REDLANDS, CA 92374**

**HAZNET S103977859  
 N/A**

HAZNET:

Gepaid: CAC000728256  
 Contact: NON PROFIT CORPORATION  
 Telephone: 0000000000  
 Facility Addr2: Not reported  
 Mailing Name: Not reported  
 Mailing Address: P O BOX 2302  
 Mailing City,St,Zip: REDLANDS, CA 923730000  
 Gen County: San Bernardino  
 TSD EPA ID: CAD000088252  
 TSD County: Los Angeles  
 Waste Category: Other organic solids  
 Disposal Method: Transfer Station

MAP FINDINGS

Map ID  
 Direction  
 Distance  
 Distance (ft.)Site

EDR ID Number  
 EPA ID Number

Database(s)

**MISSION AVIATION FELLOWSHIP (Continued)**

**S103977859**

Tons: .0300  
 Facility County: San Bernardino

Gepaid: CAC000728256  
 Contact: NON PROFIT CORPORATION  
 Telephone: 0000000000  
 Facility Addr2: Not reported  
 Mailing Name: Not reported  
 Mailing Address: P O BOX 2302  
 Mailing City,St,Zip: REDLANDS, CA 923730000  
 Gen County: San Bernardino  
 TSD EPA ID: CAD000088252  
 TSD County: Los Angeles  
 Waste Category: Paint sludge  
 Disposal Method: Transfer Station  
 Tons: .2085  
 Facility County: San Bernardino

Gepaid: CAC002251425  
 Contact: MISSION AVIATION FELLOWSHIP  
 Telephone: 9097941151  
 Facility Addr2: Not reported  
 Mailing Name: Not reported  
 Mailing Address: PO BOX 3202  
 Mailing City,St,Zip: REDLANDS, CA 923730000  
 Gen County: San Bernardino  
 TSD EPA ID: AZD980892731  
 TSD County: 99  
 Waste Category: Unspecified solvent mixture Waste  
 Disposal Method: Not reported  
 Tons: .1042  
 Facility County: San Bernardino

Gepaid: CAC000728256  
 Contact: NON PROFIT CORPORATION  
 Telephone: 0000000000  
 Facility Addr2: Not reported  
 Mailing Name: Not reported  
 Mailing Address: P O BOX 2302  
 Mailing City,St,Zip: REDLANDS, CA 923730000  
 Gen County: San Bernardino  
 TSD EPA ID: CAT080022148  
 TSD County: San Bernardino  
 Waste Category: Unspecified solvent mixture Waste  
 Disposal Method: Transfer Station  
 Tons: .1042  
 Facility County: San Bernardino

Gepaid: CAC000728256  
 Contact: NON PROFIT CORPORATION  
 Telephone: 0000000000  
 Facility Addr2: Not reported  
 Mailing Name: Not reported  
 Mailing Address: P O BOX 2302  
 Mailing City,St,Zip: REDLANDS, CA 923730000  
 Gen County: San Bernardino  
 TSD EPA ID: CAT080022148

MAP FINDINGS

Map ID			EDR ID Number
Direction			
Distance			
Distance (ft.)Site		Database(s)	EPA ID Number

---

**MISSION AVIATION FELLOWSHIP (Continued)**

**S103977859**

TSD County: San Bernardino  
 Waste Category: Paint sludge  
 Disposal Method: Transfer Station  
 Tons: .2293  
 Facility County: San Bernardino

[Click this hyperlink](#) while viewing on your computer to access  
 1 additional CA\_HAZNET: record(s) in the EDR Site Report.

<b>6</b>	<b>MISSION AVIATION FELLOWSHIP 1849 N WABASH AVE REDLANDS, CA 92374</b>	<b>San Bern. Co. Permit</b>	<b>S106230222 N/A</b>
----------	---	-----------------------------	---------------------------

San Bern. Co. Permit:  
 Region: SAN BERNARDINO  
 Facility ID: FA0004749  
 Owner: MISSION AVIATION FELLOWSHIP  
 Permit Number: PT0004141  
 Permit Category: LIMITED QUANTITY GENERATOR(B)  
 Facility Status: ACTIVE  
 Expiration Date: 7/31/2007

<b>7</b>	<b>MOBIL PROS 1868 1/2 SOFFEL AVE MENTONE, CA 92359</b>	<b>San Bern. Co. Permit</b>	<b>S104768305 N/A</b>
----------	---	-----------------------------	---------------------------

San Bern. Co. Permit:  
 Region: SAN BERNARDINO  
 Facility ID: FA0004776  
 Owner: LOMBARD, KIRBY  
 Permit Number: PT0009541  
 Permit Category: LIMITED QUANTITY GENERATOR(B)  
 Facility Status: ACTIVE  
 Expiration Date: 11/30/2007

<b>8</b>	<b>LOCKHEED PROPULSION CO 1500 CRAFTON AVE REDLANDS, CA 92373</b>	<b>CERCLIS FINDS SLIC</b>	<b>1000270338 CAD980893093</b>
----------	---	-----------------------------------	------------------------------------

CERCLIS:  
 Site ID: 0902225  
 Federal Facility: Not a Federal Facility  
 NPL Status: Not on the NPL  
 Non NPL Status: Other Cleanup Activity: State-Lead Cleanup

CERCLIS Site Contact Name(s):  
 Contact Name: Matt Mitguard  
 Contact Tel: (415) 972-3096  
 Contact Title: Site Assessment Manager (SAM)

Contact Name: Jere Johnson  
 Contact Tel: (415) 972-3094  
 Contact Title: Site Assessment Manager (SAM)

MAP FINDINGS

Map ID  
 Direction  
 Distance  
 Distance (ft.)Site

EDR ID Number  
 EPA ID Number

Database(s)

**LOCKHEED PROPULSION CO (Continued)**

**1000270338**

Contact Name: Dawn Richmond  
 Contact Tel: (415) 972-3097  
 Contact Title: Site Assessment Manager (SAM)

Contact Name: Dan McMIndes  
 Contact Tel: (415) 972-3401  
 Contact Title: Site Assessment Manager (SAM)

Site Description: SST recommendation that site is High Priority 7/19/06 - The Lockheed Propulsion Co. (CAD980893093) site has been under oversight from RWQCB for over twenty years. Three consent orders are in place between RWQCB and the responsible parties at the site (#94-11; #94-37; and #97-58). These orders require that the responsible parties conduct a remedial investigation and address any associated contamination in the groundwater. RWQCB considers the remedial investigation (as required in order #94-11) to be almost complete and plans to rescind that order. A pump and treat remediation for VOC contamination was started in the late 1990's (as required in order #94-37) and an ion exchange remediation for perchlorate contamination was started in 2002 (as required in order #97-58). Both of these processes are currently on-going with RWQCB oversight.

CERCLIS Assessment History:

Action: DISCOVERY  
 Date Started: Not reported  
 Date Completed: 04/01/1985  
 Priority Level: Not reported

Action: PRELIMINARY ASSESSMENT  
 Date Started: 04/09/1985  
 Date Completed: 07/01/1985  
 Priority Level: Low

Action: PRELIMINARY ASSESSMENT  
 Date Started: Not reported  
 Date Completed: 12/29/1988  
 Priority Level: High

Action: SITE INSPECTION  
 Date Started: Not reported  
 Date Completed: 09/09/1991  
 Priority Level: High

Action: SITE REASSESSMENT  
 Date Started: Not reported  
 Date Completed: 07/19/2006  
 Priority Level: High

FINDS:

Other Pertinent Environmental Activity Identified at Site

CERCLIS (Comprehensive Environmental Response, Compensation, and Liability Information System) is the Superfund database that is used to support management in all phases of the Superfund program. The system contains information on all aspects of hazardous waste sites, including an inventory of sites, planned and actual site activities, and financial information.

MAP FINDINGS

Map ID  
 Direction  
 Distance  
 Distance (ft.)Site

EDR ID Number  
 EPA ID Number

Database(s)

**LOCKHEED PROPULSION CO (Continued)**

**1000270338**

SLIC:

Type: Soil  
 Facility Status: 6  
 Lead Agency: Regional Board  
 Region: 8  
 Cross Street: Not reported  
 Sub Release: TCE,DCE,TCA  
 Staff: Kamron Saremi, Tel 909-782-4303, SLIC  
 Location Code: Not reported  
 Thomas Bros map: Not reported  
 Facility ID: 191  
 Program: SLIC  
 Complexity: Not reported  
 CAO Number: Not reported  
 ACL Number: Not reported  
 Permit Number: Not reported

8

**HIGHLAND SUPPLY/SEVEN-W ENT.  
 1500 CRAFTON AVE  
 REDLANDS, CA 92373**

**LUST 1000594021  
 Cortese N/A  
 CA FID UST  
 San Bern. Co. Permit**

LUST:

Region: STATE  
 Case Type: Soil only  
 Cross Street: Not reported  
 Enf Type: Not reported  
 Funding: Not reported  
 How Discovered: Tank Closure  
 How Stopped: Not reported  
 Leak Cause: UNK  
 Leak Source: UNK  
 Global Id: T0607100287  
 Stop Date: 1993-06-03 00:00:00  
 Confirm Leak: 1993-06-03 00:00:00  
 Workplan: Not reported  
 Prelim Assess: Not reported  
 Pollution Char: Not reported  
 Remed Plan: 1993-06-03 00:00:00  
 Remed Action: Not reported  
 Monitoring: Not reported  
 Close Date: 1993-07-15 00:00:00  
 Discover Date: 1993-06-03 00:00:00  
 Enforcement Dt: Not reported  
 Release Date: 1993-06-22 00:00:00  
 Review Date: 1993-10-05 00:00:00  
 Enter Date: 1993-10-05 00:00:00  
 MTBE Date: Not reported  
 GW Qualifier: Not reported  
 Soil Qualifier: Not reported  
 Max MTBE GW ppb: Not reported  
 Max MTBE Soil ppb: Not reported  
 County: 36  
 Org Name: Not reported  
 Reg Board: Santa Ana Region  
 Status: Case Closed  
 Chemical: Diesel

MAP FINDINGS

Map ID  
 Direction  
 Distance  
 Distance (ft.)Site

EDR ID Number  
 EPA ID Number

Database(s)

**HIGHLAND SUPPLY/SEVEN-W ENT. (Continued)**

**1000594021**

Contact Person: Not reported  
 Responsible Party: SEVEN-W ENTERPRISES  
 RP Address: 1500 CRAFTON AVE., REDLANDS, CA 92373  
 Interim: Not reported  
 Oversight Prgm: LUST  
 MTBE Class: \*  
 MTBE Conc: 0  
 MTBE Fuel: 0  
 MTBE Tested: Not Required to be Tested.  
 Staff: CAB  
 Staff Initials: CB5  
 Lead Agency: Local Agency  
 Local Agency: 36000L  
 Hydr Basin #: UPPER SANTA ANA VALL  
 Beneficial: Not reported  
 Priority: Not reported  
 Cleanup Fund Id: Not reported  
 Work Suspended: Not reported  
 Local Case #: 93029  
 Case Number: 083602317T  
 Qty Leaked: Not reported  
 Abate Method: Not reported  
 Operator: Not reported  
 Water System Name: LOCKHEED PROPULSION CO  
 Well Name: Not reported  
 Distance To Lust: 0  
 Waste Discharge Global ID: W0606501392  
 Waste Disch Assigned Name: 3301392-001GEN  
 Summary: Not reported

**LUST:**

Region: 8  
 Case Type: Soil only  
 Cross Street: Not reported  
 Enf Type: Not reported  
 Funding: Not reported  
 How Discovered: Tank Closure  
 How Stopped: Not reported  
 Leak Cause: UNK  
 Leak Source: UNK  
 Global ID: T0607100287  
 How Stopped Date: 6/3/1993  
 Review Date: 6/3/1993  
 Workplan: Not reported  
 Prelim Assess: Not reported  
 Pollution Char: Not reported  
 Remed Plan: 6/3/1993  
 Remed Action: Not reported  
 Monitoring: Not reported  
 Close Date: 7/15/1993  
 Discover Date: 6/3/1993  
 Enforcement Date: Not reported  
 Review Date: 10/5/1993  
 Enter Date: 10/5/1993  
 MTBE Date: Not reported  
 GW Qualifies: Not reported  
 Soil Qualifies: Not reported

MAP FINDINGS

Map ID  
 Direction  
 Distance  
 Distance (ft.)Site

EDR ID Number  
 EPA ID Number

Database(s)

**HIGHLAND SUPPLY/SEVEN-W ENT. (Continued)**

**1000594021**

Max MTBE GW: Not reported  
 Max MTBE Soil: Not reported  
 County: San Bernardino  
 Operator: Not reported  
 Regional Board: 08  
 Facility Status: Case Closed  
 Substance: 12034  
 Facility Contact: Not reported  
 Interim: Not reported  
 Oversight Program: LUST  
 Latitude: 34.0415722  
 Longitude: -117.1830672  
 MTBE Concentration: 0  
 MTBE Fuel: 0  
 MTBE Tested: NRQ  
 Staff: CAB  
 Staff Initials: CB5  
 Lead Agency: Local Agency  
 Local Agency: 36000L  
 Hydr Basin #: UPPER SANTA ANA VALL  
 Beneficial: Not reported  
 Priority: Not reported  
 Cleanup Fund Id: Not reported  
 Work Suspended: Not reported  
 Local Case Num: 93029  
 Case Number: 083602317T  
 Qty Leaked: Not reported  
 Abate Method: Not reported  
 MTBE Class: \*  
 Summary: Not reported

**Cortese:**

Region: CORTESE  
 Facility Addr2: Not reported  
  
 Region: CORTESE  
 Facility Addr2: Not reported

**CA FID UST:**

Facility ID: 36002455  
 Regulated By: UTNKA  
 Regulated ID: 00065542  
 Cortese Code: Not reported  
 SIC Code: Not reported  
 Facility Phone: Not reported  
 Mail To: Not reported  
 Mailing Address: P O BOX  
 Mailing Address 2: Not reported  
 Mailing City,St,Zip: REDLANDS 92373  
 Contact: Not reported  
 Contact Phone: Not reported  
 DUNs Number: Not reported  
 NPDES Number: Not reported  
 EPA ID: Not reported  
 Comments: Not reported  
 Status: Active

MAP FINDINGS

Map ID  
 Direction  
 Distance  
 Distance (ft.)Site

EDR ID Number  
 EPA ID Number

Database(s)

**HIGHLAND SUPPLY/SEVEN-W ENT. (Continued)**

**1000594021**

San Bern. Co. Permit:

Region: SAN BERNARDINO  
 Facility ID: FA0003803  
 Owner: HIGHLAND SUPPLY CORP.  
 Permit Number: PT0002024  
 Permit Category: HAZMAT HANDLER 0-10 EMPLOYEES (W/GEN PRMT)  
 Facility Status: ACTIVE  
 Expiration Date: 5/31/2007

Region: SAN BERNARDINO  
 Facility ID: FA0003803  
 Owner: HIGHLAND SUPPLY CORP.  
 Permit Number: PT0002025  
 Permit Category: GENERATOR - 0-10 EMPLOYEES  
 Facility Status: ACTIVE  
 Expiration Date: 5/31/2007

Region: SAN BERNARDINO  
 Facility ID: FA0003803  
 Owner: HIGHLAND SUPPLY CORP.  
 Permit Number: PT0014967  
 Permit Category: ABOVEGROUND PETROLEUM STORAGE (AST) (SPCC)  
 Facility Status: INACTIVE  
 Expiration Date: 5/31/2004

8

**HIGHLAND SUPPLY CORP  
 1500 CRAFTON AVE  
 REDLANDS, CA 92374**

**HAZNET 1001614875  
 N/A**

HAZNET:

Gepaid: CAD981379753  
 Contact: HIGHLAND SUPPLY CORP  
 Telephone: 9097942181  
 Facility Addr2: Not reported  
 Mailing Name: Not reported  
 Mailing Address: PO BOX 1730  
 Mailing City,St,Zip: REDLANDS, CA 923731730  
 Gen County: San Bernardino  
 TSD EPA ID: CAD000633164  
 TSD County: Imperial  
 Waste Category: Waste oil and mixed oil  
 Disposal Method: Treatment, Tank  
 Tons: .9000  
 Facility County: San Bernardino

Gepaid: CAD981379753  
 Contact: HIGHLAND SUPPLY CORP  
 Telephone: 9097942181  
 Facility Addr2: Not reported  
 Mailing Name: Not reported  
 Mailing Address: PO BOX 1730  
 Mailing City,St,Zip: REDLANDS, CA 923731730  
 Gen County: San Bernardino  
 TSD EPA ID: AZD983476680  
 TSD County: 99  
 Waste Category: Polychlorinated biphenyls and material containing PCB's  
 Disposal Method: Recycler

MAP FINDINGS

Map ID  
 Direction  
 Distance  
 Distance (ft.)Site

EDR ID Number  
 EPA ID Number

Database(s)

**HIGHLAND SUPPLY CORP (Continued)**

**1001614875**

Tons: 0.1  
 Facility County: San Bernardino

Gepaid: CAD981379753  
 Contact: HIGHLAND SUPPLY CORP  
 Telephone: 9097942181  
 Facility Addr2: Not reported  
 Mailing Name: Not reported  
 Mailing Address: PO BOX 1730  
 Mailing City,St,Zip: REDLANDS, CA 923731730  
 Gen County: San Bernardino  
 TSD EPA ID: CAD009007626  
 TSD County: Los Angeles  
 Waste Category: Asbestos-containing waste  
 Disposal Method: Disposal, Land Fill  
 Tons: 0.0842  
 Facility County: San Bernardino

Gepaid: CAD981379753  
 Contact: HIGHLAND SUPPLY CORP  
 Telephone: 9097942181  
 Facility Addr2: Not reported  
 Mailing Name: Not reported  
 Mailing Address: PO BOX 1730  
 Mailing City,St,Zip: REDLANDS, CA 923731730  
 Gen County: San Bernardino  
 TSD EPA ID: UTD981552177  
 TSD County: 99  
 Waste Category: Unspecified oil-containing waste  
 Disposal Method: Treatment, Incineration  
 Tons: 0.033  
 Facility County: San Bernardino

Gepaid: CAD981379753  
 Contact: LINDA H VERHOEVEN  
 Telephone: 9097942181  
 Facility Addr2: Not reported  
 Mailing Name: Not reported  
 Mailing Address: PO BOX 1730  
 Mailing City,St,Zip: REDLANDS, CA 923731730  
 Gen County: San Bernardino  
 TSD EPA ID: AZ0000337360  
 TSD County: San Bernardino  
 Waste Category: Polychlorinated biphenyls and material containing PCB's  
 Disposal Method: Recycler  
 Tons: 0.01  
 Facility County: San Bernardino

[Click this hyperlink](#) while viewing on your computer to access 22 additional CA\_HAZNET: record(s) in the EDR Site Report.

MAP FINDINGS

Map ID  
 Direction  
 Distance  
 Distance (ft.)Site

EDR ID Number

Database(s) EPA ID Number

**8 GTE- GENERAL TELEPHONE & ELECTRIC CALIF  
 1500 CRAFTON AVE  
 MENTONE, CA 92359**

**HAZNET S103966920  
 EMI N/A**

HAZNET:

Gepaid: CAC000729456  
 Contact: GTE  
 Telephone: 8003318891  
 Facility Addr2: Not reported  
 Mailing Name: Not reported  
 Mailing Address: PO BOX 725  
 Mailing City,St,Zip: CHINO, CA 917080000  
 Gen County: San Bernardino  
 TSD EPA ID: CAD009007626  
 TSD County: Los Angeles  
 Waste Category: Asbestos-containing waste  
 Disposal Method: Not reported  
 Tons: .8428  
 Facility County: San Bernardino

Gepaid: CAC000729456  
 Contact: GTE  
 Telephone: 8003318891  
 Facility Addr2: Not reported  
 Mailing Name: Not reported  
 Mailing Address: PO BOX 725  
 Mailing City,St,Zip: CHINO, CA 917080000  
 Gen County: San Bernardino  
 TSD EPA ID: CAD009007626  
 TSD County: Los Angeles  
 Waste Category: Asbestos-containing waste  
 Disposal Method: Disposal, Land Fill  
 Tons: .8428  
 Facility County: San Bernardino

EMI:

Year: 1987  
 Carbon Monoxide Emissions Tons/Yr: 36  
 Air Basin: SC  
 Facility ID: 44323  
 Air District Name: SC  
 SIC Code: 4922  
 Air District Name: SOUTH COAST AQMD  
 Community Health Air Pollution Info System: Not reported  
 Consolidated Emission Reporting Rule: Not reported  
 Total Organic Hydrocarbon Gases Tons/Yr: 0  
 Reactive Organic Gases Tons/Yr: 0  
 Carbon Monoxide Emissions Tons/Yr: 0  
 NOX - Oxides of Nitrogen Tons/Yr: 0  
 SOX - Oxides of Sulphur Tons/Yr: 0  
 Particulate Matter Tons/Yr: 0  
 Part. Matter 10 Micrometers & Smlr Tons/Yr: 0

Year: 1990  
 Carbon Monoxide Emissions Tons/Yr: 36  
 Air Basin: SC  
 Facility ID: 44323  
 Air District Name: SC  
 SIC Code: 3661

MAP FINDINGS

Map ID  
 Direction  
 Distance  
 Distance (ft.)Site

EDR ID Number  
 EPA ID Number

Database(s)

**GTE- GENERAL TELEPHONE & ELECTRIC CALIF (Continued)**

**S103966920**

Air District Name: SOUTH COAST AQMD  
 Community Health Air Pollution Info System: Not reported  
 Consolidated Emission Reporting Rule: Not reported  
 Total Organic Hydrocarbon Gases Tons/Yr: 0  
 Reactive Organic Gases Tons/Yr: 0  
 Carbon Monoxide Emissions Tons/Yr: 0  
 NOX - Oxides of Nitrogen Tons/Yr: 0  
 SOX - Oxides of Sulphur Tons/Yr: 0  
 Particulate Matter Tons/Yr: 0  
 Part. Matter 10 Micrometers & Smlr Tons/Yr: 0

Year: 1993  
 Carbon Monoxide Emissions Tons/Yr: 36  
 Air Basin: SC  
 Facility ID: 44323  
 Air District Name: SC  
 SIC Code: 3661  
 Air District Name: SOUTH COAST AQMD  
 Community Health Air Pollution Info System: Not reported  
 Consolidated Emission Reporting Rule: Not reported  
 Total Organic Hydrocarbon Gases Tons/Yr: 0  
 Reactive Organic Gases Tons/Yr: 0  
 Carbon Monoxide Emissions Tons/Yr: 0  
 NOX - Oxides of Nitrogen Tons/Yr: 0  
 SOX - Oxides of Sulphur Tons/Yr: 0  
 Particulate Matter Tons/Yr: 0  
 Part. Matter 10 Micrometers & Smlr Tons/Yr: 0

Year: 1995  
 Carbon Monoxide Emissions Tons/Yr: 36  
 Air Basin: SC  
 Facility ID: 61557  
 Air District Name: SC  
 SIC Code: 3479  
 Air District Name: SOUTH COAST AQMD  
 Community Health Air Pollution Info System: Not reported  
 Consolidated Emission Reporting Rule: Not reported  
 Total Organic Hydrocarbon Gases Tons/Yr: 4  
 Reactive Organic Gases Tons/Yr: 3  
 Carbon Monoxide Emissions Tons/Yr: 0  
 NOX - Oxides of Nitrogen Tons/Yr: 0  
 SOX - Oxides of Sulphur Tons/Yr: 0  
 Particulate Matter Tons/Yr: 0  
 Part. Matter 10 Micrometers & Smlr Tons/Yr: 0

Year: 1995  
 Carbon Monoxide Emissions Tons/Yr: 36  
 Air Basin: SC  
 Facility ID: 44323  
 Air District Name: SC  
 SIC Code: 3661  
 Air District Name: SOUTH COAST AQMD  
 Community Health Air Pollution Info System: Not reported  
 Consolidated Emission Reporting Rule: Not reported  
 Total Organic Hydrocarbon Gases Tons/Yr: 0  
 Reactive Organic Gases Tons/Yr: 0  
 Carbon Monoxide Emissions Tons/Yr: 0

MAP FINDINGS

Map ID			EDR ID Number
Direction			
Distance			
Distance (ft.)Site		Database(s)	EPA ID Number

**GTE- GENERAL TELEPHONE & ELECTRIC CALIF (Continued)**

**S103966920**

NOX - Oxides of Nitrogen Tons/Yr: 0  
 SOX - Oxides of Sulphur Tons/Yr: 0  
 Particulate Matter Tons/Yr: 0  
 Part. Matter 10 Micrometers & Smllr Tons/Yr: 0

**8 SEVEN W ENTERPRISES, INC  
 1500 CRAFTON AVE  
 REDLANDS, CA 92374**

**RCRA-SQG 1000206953  
 FINDS CAD981392764  
 HAZNET**

RCRAInfo:

Owner: NOT REQUIRED  
 (415) 555-1212  
 EPA ID: CAD981392764  
 Contact: Not reported  
 Classification: Small Quantity Generator  
 TSDF Activities: Not reported  
 Violation Status: No violations found

FINDS:

Other Pertinent Environmental Activity Identified at Site

California - Hazardous Waste Tracking System - Datamart

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

HAZNET:

Gepaid: CAD981392764  
 Contact: SEVEN W ENTERPRISES  
 Telephone: 0000000000  
 Facility Addr2: Not reported  
 Mailing Name: Not reported  
 Mailing Address: PO BOX 1730  
 Mailing City,St,Zip: REDLANDS, CA 923731730  
 Gen County: San Bernardino  
 TSD EPA ID: CAD009007626  
 TSD County: Los Angeles  
 Waste Category: Asbestos-containing waste  
 Disposal Method: Disposal, Land Fill  
 Tons: 6.3210  
 Facility County: San Bernardino

Gepaid: CAD981392764  
 Contact: SEVEN W ENTERPRISES  
 Telephone: 0000000000  
 Facility Addr2: Not reported  
 Mailing Name: Not reported

MAP FINDINGS

Map ID  
 Direction  
 Distance  
 Distance (ft.)Site

EDR ID Number

Database(s) EPA ID Number

**SEVEN W ENTERPRISES, INC (Continued)**

**1000206953**

Mailing Address: PO BOX 1730  
 Mailing City,St,Zip: REDLANDS, CA 923731730  
 Gen County: San Bernardino  
 TSD EPA ID: CAT080013352  
 TSD County: Los Angeles  
 Waste Category: Waste oil and mixed oil  
 Disposal Method: Recycler  
 Tons: .1668  
 Facility County: San Bernardino

Gepaid: CAD981392764  
 Contact: SEVEN W ENTERPRISES  
 Telephone: 0000000000  
 Facility Addr2: Not reported  
 Mailing Name: Not reported  
 Mailing Address: PO BOX 1730  
 Mailing City,St,Zip: REDLANDS, CA 923731730  
 Gen County: San Bernardino  
 TSD EPA ID: CAD009007626  
 TSD County: Los Angeles  
 Waste Category: Asbestos-containing waste  
 Disposal Method: Disposal, Land Fill  
 Tons: 6.9952  
 Facility County: San Bernardino

Gepaid: CAD981392764  
 Contact: SEVEN W ENTERPRISES  
 Telephone: 0000000000  
 Facility Addr2: Not reported  
 Mailing Name: Not reported  
 Mailing Address: PO BOX 1730  
 Mailing City,St,Zip: REDLANDS, CA 923731730  
 Gen County: San Bernardino  
 TSD EPA ID: UTD981552177  
 TSD County: 99  
 Waste Category: Laboratory waste chemicals  
 Disposal Method: Treatment, Incineration  
 Tons: .2445  
 Facility County: San Bernardino

Gepaid: CAD981392764  
 Contact: SEVEN W ENTERPRISES  
 Telephone: 0000000000  
 Facility Addr2: Not reported  
 Mailing Name: Not reported  
 Mailing Address: PO BOX 1730  
 Mailing City,St,Zip: REDLANDS, CA 923731730  
 Gen County: San Bernardino  
 TSD EPA ID: UTD981552177  
 TSD County: 99  
 Waste Category: Not reported  
 Disposal Method: Treatment, Incineration  
 Tons: .0417  
 Facility County: San Bernardino

MAP FINDINGS

Map ID  
 Direction  
 Distance  
 Distance (ft.)Site

EDR ID Number  
 EPA ID Number

Database(s)

**SEVEN W ENTERPRISES, INC (Continued)**

**1000206953**

[Click this hyperlink](#) while viewing on your computer to access  
 5 additional CA\_HAZNET: record(s) in the EDR Site Report.

8

**GENERAL TELEPHONE OF CALIFORNIA  
 1500 CRAFTON AVE  
 REDLANDS, CA 92359**

**HAZNET S103965816  
 EMI N/A**

HAZNET:

Gepaid: CAD980890230  
 Contact: Not reported  
 Telephone: 0000000000  
 Facility Addr2: Not reported  
 Mailing Name: Not reported  
 Mailing Address: PO BOX 725  
 Mailing City,St,Zip: CHINO, CA 917080000  
 Gen County: San Bernardino  
 TSD EPA ID: CAD008302903  
 TSD County: Los Angeles  
 Waste Category: Off-specification, aged, or surplus organics  
 Disposal Method: Not reported  
 Tons: .0625  
 Facility County: San Bernardino

Gepaid: CAD980890230  
 Contact: Not reported  
 Telephone: 0000000000  
 Facility Addr2: Not reported  
 Mailing Name: Not reported  
 Mailing Address: PO BOX 725  
 Mailing City,St,Zip: CHINO, CA 917080000  
 Gen County: San Bernardino  
 TSD EPA ID: CAD008302903  
 TSD County: Los Angeles  
 Waste Category: Off-specification, aged, or surplus organics  
 Disposal Method: Recycler  
 Tons: .0625  
 Facility County: San Bernardino

EMI:

Year: 1987  
 Carbon Monoxide Emissions Tons/Yr: 36  
 Air Basin: SC  
 Facility ID: 5550  
 Air District Name: SC  
 SIC Code: 3497  
 Air District Name: SOUTH COAST AQMD  
 Community Health Air Pollution Info System: Not reported  
 Consolidated Emission Reporting Rule: Not reported  
 Total Organic Hydrocarbon Gases Tons/Yr: 64  
 Reactive Organic Gases Tons/Yr: 59  
 Carbon Monoxide Emissions Tons/Yr: 0  
 NOX - Oxides of Nitrogen Tons/Yr: 0  
 SOX - Oxides of Sulphur Tons/Yr: 0  
 Particulate Matter Tons/Yr: 0  
 Part. Matter 10 Micrometers & Smllr Tons/Yr: 0

Year: 1990

MAP FINDINGS

Map ID  
 Direction  
 Distance  
 Distance (ft.)Site

EDR ID Number

Database(s) EPA ID Number

**GENERAL TELEPHONE OF CALIFORNIA (Continued)**

**S103965816**

Carbon Monoxide Emissions Tons/Yr: 36  
 Air Basin: SC  
 Facility ID: 5550  
 Air District Name: SC  
 SIC Code: 3497  
 Air District Name: SOUTH COAST AQMD  
 Community Health Air Pollution Info System: Not reported  
 Consolidated Emission Reporting Rule: Not reported  
 Total Organic Hydrocarbon Gases Tons/Yr: 26  
 Reactive Organic Gases Tons/Yr: 11  
 Carbon Monoxide Emissions Tons/Yr: 0  
 NOX - Oxides of Nitrogen Tons/Yr: 0  
 SOX - Oxides of Sulphur Tons/Yr: 0  
 Particulate Matter Tons/Yr: 0  
 Part. Matter 10 Micrometers & Smlr Tons/Yr: 0

Year: 1993  
 Carbon Monoxide Emissions Tons/Yr: 36  
 Air Basin: SC  
 Facility ID: 5550  
 Air District Name: SC  
 SIC Code: 3497  
 Air District Name: SOUTH COAST AQMD  
 Community Health Air Pollution Info System: Not reported  
 Consolidated Emission Reporting Rule: Not reported  
 Total Organic Hydrocarbon Gases Tons/Yr: 2  
 Reactive Organic Gases Tons/Yr: 2  
 Carbon Monoxide Emissions Tons/Yr: 0  
 NOX - Oxides of Nitrogen Tons/Yr: 0  
 SOX - Oxides of Sulphur Tons/Yr: 0  
 Particulate Matter Tons/Yr: 0  
 Part. Matter 10 Micrometers & Smlr Tons/Yr: 0

Year: 1995  
 Carbon Monoxide Emissions Tons/Yr: 36  
 Air Basin: SC  
 Facility ID: 5550  
 Air District Name: SC  
 SIC Code: 3497  
 Air District Name: SOUTH COAST AQMD  
 Community Health Air Pollution Info System: Not reported  
 Consolidated Emission Reporting Rule: Not reported  
 Total Organic Hydrocarbon Gases Tons/Yr: 2  
 Reactive Organic Gases Tons/Yr: 2  
 Carbon Monoxide Emissions Tons/Yr: 0  
 NOX - Oxides of Nitrogen Tons/Yr: 0  
 SOX - Oxides of Sulphur Tons/Yr: 0  
 Particulate Matter Tons/Yr: 0  
 Part. Matter 10 Micrometers & Smlr Tons/Yr: 0

MAP FINDINGS

Map ID  
 Direction  
 Distance  
 Distance (ft.)Site

EDR ID Number  
 Database(s)  
 EPA ID Number

8      **GTE CALIFORNIA INC**  
**1500 CRAFTON AVE**  
**MENTONE, CA 92359**

HAZNET      **S103966867**  
**N/A**

HAZNET:  
 Gepaid:            CAC001376968  
 Contact:           GTE CALIFORNIA INC  
 Telephone:        8003318891  
 Facility Addr2:    Not reported  
 Mailing Name:     Not reported  
 Mailing Address:   PO BOX 725  
 Mailing City,St,Zip: CHINO, CA 917080000  
 Gen County:        San Bernardino  
 TSD EPA ID:        CAD044429835  
 TSD County:        Los Angeles  
 Waste Category:   Off-specification, aged, or surplus organics  
 Disposal Method:   Disposal, Other  
 Tons:                .0750  
 Facility County:    San Bernardino

8      **G T E**  
**1500 CRAFTON AVE**  
**MENTONE, CA 92359**

HAZNET      **S103965423**  
**N/A**

HAZNET:  
 Gepaid:            CAC000757560  
 Contact:           G T E  
 Telephone:        0000000000  
 Facility Addr2:    Not reported  
 Mailing Name:     Not reported  
 Mailing Address:   P O BOX 725  
 Mailing City,St,Zip: CHINO, CA 917080000  
 Gen County:        San Bernardino  
 TSD EPA ID:        CAD088504881  
 TSD County:        Orange  
 Waste Category:   Other inorganic solid waste  
 Disposal Method:   Transfer Station  
 Tons:                .0750  
 Facility County:    San Bernardino

8      **HIGHLAND SUPPLY CORP**  
**1500 CRAFTON AVE**  
**REDLANDS, CA 92373**

FINDS      **1006080011**  
 SWEEPS UST      **110002144439**

FINDS:  
 Other Pertinent Environmental Activity Identified at Site

The NEI (National Emissions Inventory) database contains information on stationary and mobile sources that emit criteria air pollutants and their precursors, as well as hazardous air pollutants (HAPs).

TRIS (Toxics Release Inventory System) contains information from facilities on the amounts of over 300 listed toxic chemicals that these facilities release directly to air, water, land, or that are transported off-site.

MAP FINDINGS

Map ID  
 Direction  
 Distance  
 Distance (ft.)Site

EDR ID Number

Database(s) EPA ID Number

**HIGHLAND SUPPLY CORP (Continued)**

**1006080011**

SWEEPS UST:

Status: Not reported  
 Comp Number: 8477  
 Number: Not reported  
 Board Of Equalization: 44-021413  
 Ref Date: Not reported  
 Act Date: Not reported  
 Created Date: Not reported  
 Tank Status: Not reported  
 Owner Tank Id: Not reported  
 Swrcb Tank Id: 36-000-008477-000001  
 Actv Date: Not reported  
 Capacity: 1  
 Tank Use: OIL  
 Stg: WASTE  
 Content: WASTE OIL  
 Number Of Tanks: 5

Status: Not reported  
 Comp Number: 8477  
 Number: Not reported  
 Board Of Equalization: 44-021413  
 Ref Date: Not reported  
 Act Date: Not reported  
 Created Date: Not reported  
 Tank Status: Not reported  
 Owner Tank Id: Not reported  
 Swrcb Tank Id: 36-000-008477-000002  
 Actv Date: Not reported  
 Capacity: 4000  
 Tank Use: M.V. FUEL  
 Stg: PRODUCT  
 Content: LEADED  
 Number Of Tanks: Not reported

Status: Not reported  
 Comp Number: 8477  
 Number: Not reported  
 Board Of Equalization: 44-021413  
 Ref Date: Not reported  
 Act Date: Not reported  
 Created Date: Not reported  
 Tank Status: Not reported  
 Owner Tank Id: Not reported  
 Swrcb Tank Id: 36-000-008477-000003  
 Actv Date: Not reported  
 Capacity: 4000  
 Tank Use: M.V. FUEL  
 Stg: PRODUCT  
 Content: REG UNLEADED  
 Number Of Tanks: Not reported

Status: Not reported  
 Comp Number: 8477  
 Number: Not reported  
 Board Of Equalization: 44-021413  
 Ref Date: Not reported

MAP FINDINGS

Map ID  
 Direction  
 Distance  
 Distance (ft.)Site

EDR ID Number  
 EPA ID Number

Database(s)

**HIGHLAND SUPPLY CORP (Continued)**

**1006080011**

Act Date: Not reported  
 Created Date: Not reported  
 Tank Status: Not reported  
 Owner Tank Id: Not reported  
 Swrcb Tank Id: 36-000-008477-000004  
 Actv Date: Not reported  
 Capacity: 4000  
 Tank Use: M.V. FUEL  
 Stg: PRODUCT  
 Content: REG UNLEADED  
 Number Of Tanks: Not reported

Status: Not reported  
 Comp Number: 8477  
 Number: Not reported  
 Board Of Equalization: 44-021413  
 Ref Date: Not reported  
 Act Date: Not reported  
 Created Date: Not reported  
 Tank Status: Not reported  
 Owner Tank Id: Not reported  
 Swrcb Tank Id: 36-000-008477-000005  
 Actv Date: Not reported  
 Capacity: 10000  
 Tank Use: M.V. FUEL  
 Stg: PRODUCT  
 Content: DIESEL  
 Number Of Tanks: Not reported

8

**LOCKHEED PROPULSION CORPORATION  
 1500 CRAFTON AVENUE  
 REDLANDS, CA 92373**

**RESPONSE S101272835  
 ENVIROSTOR N/A**

RESPONSE:

Facility ID: 36370018  
 Site Type: State Response  
 Site Type Detail: State Response or NPL  
 Acres: Not reported  
 National Priorities List: NO  
 Cleanup Oversight Agencies: DTSC  
 Lead Agency: NONE SPECIFIED  
 Lead Agency Description: Not reported  
 Project Manager: PETER GARCIA  
 Supervisor: \* HSALLOUM  
 Division Branch: So Cal - Cypress  
 Site Code: 400042  
 Assembly: 65  
 Senate: 31  
 Status: Refer: RWQCB  
 Status Date: 1995-04-25 00:00:00  
 Restricted Use: NO  
 Funding: Responsible Party  
 Latitude: 0  
 Longitude: 0  
 Alias Name: CAD980893093  
 400042  
 7-W ENTERPRISES (1978 - PRESENT)  
 CITY OF REDLANDS

MAP FINDINGS

Map ID  
 Direction  
 Distance  
 Distance (ft.)Site

EDR ID Number  
 EPA ID Number

Database(s)

**LOCKHEED PROPULSION CORPORATION (Continued)**

**S101272835**

36370018  
 GRAND CENTRAL ROCKET (1958-1961)  
 HIGHLAND SUPPLY COMPANY  
 SAN BERNARDINO COUNTY WATER DISTRICT  
 CRAFTON-REDLANDS AREA  
 Alias Type: EPA Identification Number  
 Project Code (Site Code)  
 Alternate Name  
 Alternate Name  
 Alternate Name  
 Alternate Name  
 Alternate Name  
 Alternate Name  
 Calsites ID Number  
 APN: NONE SPECIFIED  
 APN Description: Not reported  
 Comments: JANUARY 28, 1994. CLEANUP AND ABATEMENT ORDER ADOPTED.Cleanup and Abatement Order adopted 28 January 1994.SITE SCREENING DONE ON BEP LIST AS CRAFTON-REDLANDSFACILITY IDENTIFIED ID'VIA TELEPHONE DIRECTORY (1965) MISSILE MFGSOURCE ACT: J.OLCKERSE,LOCKHEED,818-847-6607,7/19/84 - AEROSPACE INDUST PROD. MIXING SOLID FUEL IN 300GAL BATCH W/ A PERCHLORATE MATL USED AS A PROPELLANT (LOCKHEED), MFG A SULFIDE-TYPE PROPELLNT (GRAND). FAC TYPE: RESIDEUS/WASTES WERE BURND ONSITE, IN 1965 PROHIBITED BY APCD DRAINS ON SITE LEACH FIELDS. CITY OF RE- DLANDS SHUT DOWN WELLS W OF SITE DUE TO PROB OF ORG CHEM. DHS/RWQCB ARE INVESTG SUBMIT TO EPA VIOLATION DETECTED TCE POURED DOWN DRAIN & ONTO GRND BEHIND PLANT-REP BY EX-EMPLOYEE. ACCIDENTAL FIRE IN C-U HOUSES & RESEARCH AREA. PRELIM ASSESS DONE CERCLA 104  
 Completed Area Name: PROJECT WIDE  
 Completed Sub Area Name: Not reported  
 Completed Document Type: Site Screening  
 Completed Date: / /  
 Completed Area Name: PROJECT WIDE  
 Completed Sub Area Name: Not reported  
 Completed Document Type: Site Screening  
 Completed Date: / /  
 Completed Area Name: PROJECT WIDE  
 Completed Sub Area Name: Not reported  
 Completed Document Type: Site Screening  
 Completed Date: / /  
 Completed Area Name: PROJECT WIDE  
 Completed Sub Area Name: Not reported  
 Completed Document Type: Preliminary Assessment Report  
 Completed Date: / /  
 Completed Area Name: PROJECT WIDE  
 Completed Sub Area Name: Not reported  
 Completed Document Type: Discovery  
 Completed Date: / /  
 Confirmed: NONE SPECIFIED  
 Confirmed Description: Not reported  
 Future Area Name: Not reported  
 Future Sub Area Name: Not reported  
 Future Document Type: Not reported  
 Future Due Date: Not reported  
 Media Affected: 10003, 10193, 10196, 10198  
 Media Affected Desc: Not reported  
 Media Affected Desc: Not reported

MAP FINDINGS

Map ID  
 Direction  
 Distance  
 Distance (ft.)Site

EDR ID Number  
 EPA ID Number

Database(s)

**LOCKHEED PROPULSION CORPORATION (Continued)**

**S101272835**

Media Affected Desc: Not reported  
 Media Affected Desc: Not reported  
 Management Required: NONE SPECIFIED  
 Management Required Desc: Not reported  
 Potential: NONE SPECIFIED  
 Potential Description: Not reported  
 Schedule Area Name: Not reported  
 Schedule Sub Area Name: Not reported  
 Schedule Document Type: Not reported  
 Schedule Due Date: Not reported  
 Schedule Revised Date: Not reported  
 PastUse: NONE SPECIFIED

**ENVIROSTOR:**

Site Type: State Response  
 Site Type Detailed: State Response or NPL  
 Acres: Not reported  
 NPL: NO  
 Regulatory Agencies: DTSC  
 Lead Agency: NONE SPECIFIED  
 Program Manager: PETER GARCIA  
 Supervisor: \* HSALLOUM  
 Division Branch: So Cal - Cypress  
 Facility ID: 36370018  
 Site Code: 400042  
 Assembly: 65  
 Senate: 31  
 Special Program: \* Site Char & Assess Grant (CERCLA 104)  
**Status:** **Refer: RWQCB**  
 Status Date: 1995-04-25 00:00:00  
 Restricted Use: NO  
 Funding: Responsible Party  
 Latitude: 0  
 Longitude: 0  
 Alias Name: CAD980893093  
 400042  
 7-W ENTERPRISES (1978 - PRESENT)  
 CITY OF REDLANDS  
 36370018  
 GRAND CENTRAL ROCKET (1958-1961)  
 HIGHLAND SUPPLY COMPANY  
 SAN BERNARDINO COUNTY WATER DISTRICT  
 CRAFTON-REDLANDS AREA  
 Alias Type: EPA Identification Number  
 Project Code (Site Code)  
 Alternate Name  
 Alternate Name  
 Alternate Name  
 Alternate Name  
 Alternate Name  
 Alternate Name  
 Calsites ID Number  
 APN: NONE SPECIFIED  
 APN Description: Not reported  
 Comments: JANUARY 28, 1994. CLEANUP AND ABATEMENT ORDER ADOPTED.Cleanup and Abatement Order adopted 28 January 1994.SITE SCREENING DONE ON BEP LIST AS CRAFTON-REDLANDSFACILITY IDENTIFIED ID'VIA TELEPHONE

MAP FINDINGS

Map ID  
 Direction  
 Distance  
 Distance (ft.)Site

EDR ID Number

Database(s) EPA ID Number

**LOCKHEED PROPULSION CORPORATION (Continued)**

**S101272835**

DIRECTORY (1965) MISSILE MFGSOURCE ACT: J.OLCKERSE,LOCKHEED,818-847-6607,7/19/84 - AEROSPACE INDUST PROD. MIXING SOLID FUEL IN 300GAL BATCH W/ A PERCHLORATE MATL USED AS A PROPELLANT (LOCKHEED), MFG A SULFIDE-TYPE PROPELLNT (GRAND). FAC TYPE: RESIDEUS/WASTES WERE BURND ONSITE, IN 1965 PROHIBITED BY APCD DRAINS ON SITE LEACH FIELDS. CITY OF RE- DLANDS SHUT DOWN WELLS W OF SITE DUE TO PROB OF ORG CHEM. DHS/RWQCB ARE INVESTG SUBMIT TO EPA VIOLATION DETECTED TCE POURED DOWN DRAIN & ONTO GRND BEHIND PLANT-REP BY EX-EMPLOYEE. ACCIDENTAL FIRE IN C-U HOUSES & RESEARCH AREA. PRELIM ASSESS DONE CERCLA 104

Completed Area Name: PROJECT WIDE  
 Completed Sub Area Name: Not reported  
 Completed Document Type: Site Screening  
 Completed Date: / /  
 Completed Area Name: PROJECT WIDE  
 Completed Sub Area Name: Not reported  
 Completed Document Type: Site Screening  
 Completed Date: / /  
 Completed Area Name: PROJECT WIDE  
 Completed Sub Area Name: Not reported  
 Completed Document Type: Site Screening  
 Completed Date: / /  
 Completed Area Name: PROJECT WIDE  
 Completed Sub Area Name: Not reported  
 Completed Document Type: Preliminary Assessment Report  
 Completed Date: / /  
 Completed Area Name: PROJECT WIDE  
 Completed Sub Area Name: Not reported  
 Completed Document Type: Discovery  
 Completed Date: / /  
 Confirmed: NONE SPECIFIED  
 Confirmed Description: Not reported  
 Future Area Name: Not reported  
 Future Sub Area Name: Not reported  
 Future Document Type: Not reported  
 Future Due Date: Not reported  
 Media Affected: 10003, 10193, 10196, 10198  
 Media Affected Desc: Not reported  
 Management Required: NONE SPECIFIED  
 Management Required Desc: Not reported  
 Potential: NONE SPECIFIED  
 Potental Description: Not reported  
 Schedule Area Name: Not reported  
 Schedule Sub Area Name: Not reported  
 Schedule Document Type: Not reported  
 Schedule Due Date: Not reported  
 Schedule Revised Date: Not reported  
 PastUse: NONE SPECIFIED

MAP FINDINGS

Map ID  
 Direction  
 Distance  
 Distance (ft.)Site

EDR ID Number  
 EPA ID Number

Database(s)

**8 WELL-MADEIRA WELL  
 1500 CRAFTON AVE  
 REDLANDS, CA 92373**

San Bern. Co. Permit

**S105974392  
 N/A**

San Bern. Co. Permit:

Region: SAN BERNARDINO  
 Facility ID: FA0007821  
 Owner: CITY OF REDLANDS WATER  
 Permit Number: PT0015167  
 Permit Category: RISK MANAGEMENT PLAN - LEVEL II  
 Facility Status: ACTIVE  
 Expiration Date: 5/31/2007

Region: SAN BERNARDINO  
 Facility ID: FA0007821  
 Owner: CITY OF REDLANDS WATER  
 Permit Number: PT0013544  
 Permit Category: EPCRA FACILITY  
 Facility Status: ACTIVE  
 Expiration Date: 5/31/2007

Region: SAN BERNARDINO  
 Facility ID: FA0007821  
 Owner: CITY OF REDLANDS WATER  
 Permit Number: PT0013541  
 Permit Category: HAZMAT HANDLER 0-10 EMPLOYEES  
 Facility Status: ACTIVE  
 Expiration Date: 5/31/2007

Region: SAN BERNARDINO  
 Facility ID: FA0007821  
 Owner: CITY OF REDLANDS WATER  
 Permit Number: PT0013542  
 Permit Category: CALARP FACILITY PERMIT  
 Facility Status: ACTIVE  
 Expiration Date: 5/31/2007

**8 HIGHLAND SUPPLY CORPORATION  
 1500 CRAFTON AVENUE  
 REDLANDS, CA 92374**

**SLIC 1000242427  
 HIST UST N/A**

SLIC:

Region: STATE  
 Global Id: SL188093855  
 Assigned Name: SLICSITE  
 Lead Agency Contact: Not reported  
 Lead Agency: Not reported  
 Lead Agency Case Number: Not reported  
 Responsible Party: LOCKHEED MARTIN CORP  
 Recent Dtw: Not reported  
 Substance Released: PER, VOC  
**Facility Status: Not reported**

HIST UST:

Region: STATE  
 Facility ID: 00000065542  
 Tank Num: 001  
 Container Num: 1  
 Year Installed: Not reported

MAP FINDINGS

Map ID  
 Direction  
 Distance  
 Distance (ft.)Site

EDR ID Number

Database(s) EPA ID Number

**HIGHLAND SUPPLY CORPORATION (Continued)**

**1000242427**

Tank Capacity: 00000000  
 Facility Type: Other  
 Other Type: FOIL CONVERTER  
 Total Tanks: 0005  
 Tank Used for: WASTE  
 Type of Fuel: WASTE OIL  
 Tank Construction: Not reported  
 Leak Detection: None  
 Contact Name: Not reported  
 Telephone: 7147942181  
 Owner Name: HIGHLAND SUPPLY CORP.  
 Owner Address: P.O. BOX 111  
 Owner City,St,Zip: REDLANDS, CA 92373

Region: STATE  
 Facility ID: 00000065542  
 Tank Num: 002  
 Container Num: 3  
 Year Installed: Not reported  
 Tank Capacity: 00004000  
 Facility Type: Other  
 Other Type: FOIL CONVERTER  
 Total Tanks: 0005  
 Tank Used for: PRODUCT  
 Type of Fuel: REGULAR  
 Tank Construction: Not reported  
 Leak Detection: Stock Inventor  
 Contact Name: Not reported  
 Telephone: 7147942181  
 Owner Name: HIGHLAND SUPPLY CORP.  
 Owner Address: P.O. BOX 111  
 Owner City,St,Zip: REDLANDS, CA 92373

Region: STATE  
 Facility ID: 00000065542  
 Tank Num: 003  
 Container Num: 2  
 Year Installed: Not reported  
 Tank Capacity: 00000000  
 Facility Type: Other  
 Other Type: FOIL CONVERTER  
 Total Tanks: 0005  
 Tank Used for: WASTE  
 Type of Fuel: Not reported  
 Tank Construction: Not reported  
 Leak Detection: None  
 Contact Name: Not reported  
 Telephone: 7147942181  
 Owner Name: HIGHLAND SUPPLY CORP.  
 Owner Address: P.O. BOX 111  
 Owner City,St,Zip: REDLANDS, CA 92373

Region: STATE  
 Facility ID: 00000065542  
 Tank Num: 004  
 Container Num: 4  
 Year Installed: Not reported

MAP FINDINGS

Map ID  
 Direction  
 Distance  
 Distance (ft.)Site

EDR ID Number  
 EPA ID Number

Database(s)

**HIGHLAND SUPPLY CORPORATION (Continued)**

**1000242427**

Tank Capacity: 00004000  
 Facility Type: Other  
 Other Type: FOIL CONVERTER  
 Total Tanks: 0005  
 Tank Used for: PRODUCT  
 Type of Fuel: UNLEADED  
 Tank Construction: Not reported  
 Leak Detection: Stock Inventor  
 Contact Name: Not reported  
 Telephone: 7147942181  
 Owner Name: HIGHLAND SUPPLY CORP.  
 Owner Address: P.O. BOX 111  
 Owner City,St,Zip: REDLANDS, CA 92373

Region: STATE  
 Facility ID: 00000065542  
 Tank Num: 005  
 Container Num: 5  
 Year Installed: Not reported  
 Tank Capacity: 00010000  
 Facility Type: Other  
 Other Type: FOIL CONVERTER  
 Total Tanks: 0005  
 Tank Used for: PRODUCT  
 Type of Fuel: DIESEL  
 Tank Construction: Not reported  
 Leak Detection: Stock Inventor  
 Contact Name: Not reported  
 Telephone: 7147942181  
 Owner Name: HIGHLAND SUPPLY CORP.  
 Owner Address: P.O. BOX 111  
 Owner City,St,Zip: REDLANDS, CA 92373

8

**BAUMAC INTERNATIONAL  
 1500 CRAFTON AVE  
 MENTONE, CA 92359**

**RCRA-SQG 1000294873  
 FINDS CAD067663872  
 HAZNET**

RCRAInfo:  
 Owner: NOT REQUIRED  
 (415) 555-1212  
 EPA ID: CAD067663872  
 Contact: Not reported  
 Classification: Small Quantity Generator  
 TSD Activities: Not reported  
 Violation Status: No violations found

FINDS:  
 Other Pertinent Environmental Activity Identified at Site

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

MAP FINDINGS

Map ID  
 Direction  
 Distance  
 Distance (ft.)Site

EDR ID Number

Database(s) EPA ID Number

**BAUMAC INTERNATIONAL (Continued)**

**1000294873**

HAZNET:

Gepaid: CAD067663872  
 Contact: DAVID L SORENSON  
 Telephone: 0000000000  
 Facility Addr2: Not reported  
 Mailing Name: Not reported  
 Mailing Address: 1500 CRAFTON AVE  
 Mailing City,St,Zip: MENTONE, CA 923590000  
 Gen County: San Bernardino  
 TSD EPA ID: CAT080010101  
 TSD County: San Diego  
 Waste Category: Unspecified solvent mixture Waste  
 Disposal Method: Transfer Station  
 Tons: .4378  
 Facility County: San Bernardino

Gepaid: CAD067663872  
 Contact: DAVID L SORENSON  
 Telephone: 0000000000  
 Facility Addr2: Not reported  
 Mailing Name: Not reported  
 Mailing Address: 1500 CRAFTON AVE  
 Mailing City,St,Zip: MENTONE, CA 923590000  
 Gen County: San Bernardino  
 TSD EPA ID: CAT080022148  
 TSD County: San Bernardino  
 Waste Category: Solids or sludges with halogenated organic compounds > 1000mg/kg  
 Disposal Method: Not reported  
 Tons: 0.3  
 Facility County: San Bernardino

Gepaid: CAD067663872  
 Contact: DAVID L SORENSON  
 Telephone: 0000000000  
 Facility Addr2: Not reported  
 Mailing Name: Not reported  
 Mailing Address: 1500 CRAFTON AVE  
 Mailing City,St,Zip: MENTONE, CA 923590000  
 Gen County: San Bernardino  
 TSD EPA ID: AZD980892731  
 TSD County: 99  
 Waste Category: Off-specification, aged, or surplus inorganics  
 Disposal Method: Not reported  
 Tons: .0300  
 Facility County: San Bernardino

Gepaid: CAD067663872  
 Contact: DAVID L SORENSON  
 Telephone: 0000000000  
 Facility Addr2: Not reported  
 Mailing Name: Not reported  
 Mailing Address: 1500 CRAFTON AVE  
 Mailing City,St,Zip: MENTONE, CA 923590000  
 Gen County: San Bernardino  
 TSD EPA ID: AZD980892731  
 TSD County: 99  
 Waste Category: Other organic solids

MAP FINDINGS

Map ID			EDR ID Number
Direction			
Distance			
Distance (ft.)Site		Database(s)	EPA ID Number

---

**BAUMAC INTERNATIONAL (Continued)**

**1000294873**

Disposal Method: Not reported  
 Tons: .4500  
 Facility County: San Bernardino

Gepaid: CAD067663872  
 Contact: DAVID L SORENSON  
 Telephone: 0000000000  
 Facility Addr2: Not reported  
 Mailing Name: Not reported  
 Mailing Address: 1500 CRAFTON AVE  
 Mailing City,St,Zip: MENTONE, CA 923590000  
 Gen County: San Bernardino  
 TSD EPA ID: AZD980892731  
 TSD County: 99  
 Waste Category: Off-specification, aged, or surplus organics  
 Disposal Method: Not reported  
 Tons: .0499  
 Facility County: San Bernardino

[Click this hyperlink](#) while viewing on your computer to access  
 16 additional CA\_HAZNET: record(s) in the EDR Site Report.

**8 WESTEL SVC CORP  
 1500 CRAFTON AVE  
 MENTONE, CA 92359**

**RCRA-SQG 1000400004  
 FINDS CAD982360745**

RCRAInfo:  
 Owner: NOT REQUIRED  
 (415) 555-1212  
 EPA ID: CAD982360745  
 Contact: Not reported  
 Classification: Small Quantity Generator  
 TSD Activities: Not reported  
 Violation Status: No violations found

**FINDS:**  
 Other Pertinent Environmental Activity Identified at Site

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

MAP FINDINGS

Map ID  
 Direction  
 Distance  
 Distance (ft.)Site

EDR ID Number  
 Database(s) EPA ID Number

**8 CITY OF REDLANDS/  
 1604 CRAFTON AVE  
 REDLANDS, CA 92373** **HAZNET S108202291  
 N/A**

HAZNET:  
 Gepaid: CAC002592306  
 Contact: TOM JURGENS  
 Telephone: 9098417660  
 Facility Addr2: Not reported  
 Mailing Name: Not reported  
 Mailing Address: 1270 W PARK AVE  
 Mailing City,St,Zip: REDLANDS, CA 923730000  
 Gen County: San Bernardino  
 TSD EPA ID: CAT080013352  
 TSD County: Los Angeles  
 Waste Category: Tank bottom waste  
 Disposal Method: Not reported  
 Tons: 0.2  
 Facility County: Not reported

**8 CITY OF REDLANDS - DEPT OF WATER PRODUCTION  
 1604 CRAFTON AVE  
 MENTONE, CA 92399** **HAZNET S107148146  
 N/A**

HAZNET:  
 Gepaid: CAL000261238  
 Contact: D N. COMMONS, WATER OPTNS MGR  
 Telephone: 9097987698  
 Facility Addr2: Not reported  
 Mailing Name: Not reported  
 Mailing Address: PO BOX 3005  
 Mailing City,St,Zip: REDLANDS, CA 923733005  
 Gen County: San Bernardino  
 TSD EPA ID: AZD049318009  
 TSD County: San Bernardino  
 Waste Category: Laboratory waste chemicals  
 Disposal Method: Treatment, Incineration  
 Tons: 0.18  
 Facility County: San Bernardino

Gepaid: CAL000261238  
 Contact: D N. COMMONS, WATER OPTNS MGR  
 Telephone: 9097987698  
 Facility Addr2: Not reported  
 Mailing Name: Not reported  
 Mailing Address: PO BOX 3005  
 Mailing City,St,Zip: REDLANDS, CA 923733005  
 Gen County: San Bernardino  
 TSD EPA ID: CAD097030993  
 TSD County: Los Angeles  
 Waste Category: Alkaline solution without metals (pH > 12.5)  
 Disposal Method: Disposal, Other  
 Tons: 1.2  
 Facility County: Not reported

MAP FINDINGS

Map ID			EDR ID Number
Direction			
Distance			
Distance (ft.)	Site	Database(s)	EPA ID Number

---

<b>8</b>	<b>CITY OF REDLANDS</b> <b>1604 CRAFTON AVE</b> <b>REDLANDS, CA 00000</b>	<b>HAZNET</b>	<b>S104568277</b> N/A
----------	---	---------------	--------------------------

HAZNET:

Gepaid:	CAC001471824
Contact:	CITY OF REDLANDS
Telephone:	9097987567
Facility Addr2:	Not reported
Mailing Name:	Not reported
Mailing Address:	1270 W PARK AVE
Mailing City,St,Zip:	REDLANDS, CA 923730000
Gen County:	San Bernardino
TSD EPA ID:	CAD982484933
TSD County:	7
Waste Category:	Other empty containers 30 gallons or more
Disposal Method:	Disposal, Other
Tons:	0.275
Facility County:	San Bernardino

---

<b>8</b>	<b>HORACE HINKLEY WATER TRT</b> <b>1600 N CRAFTON AV</b> <b>REDLANDS, CA 92374</b>	<b>UST</b>	<b>U003785203</b> N/A
----------	--	------------	--------------------------

UST:

Region:	STATE
Local Agency:	36000
Facility ID:	90021476

---

<b>9</b>	<b>1365 CRAFTON AVE, BUILDING 59</b> <b>MENTONE, CA 0</b>	<b>CDL</b>	<b>S107528351</b> N/A
----------	--	------------	--------------------------

CDL:

Facility ID:	200011148
Date:	2000-11-29 00:00:00
Abandoned Waste:	Not reported
Illegal Drug Lab:	Yes
Mobile Lab:	Not reported

---

<b>9</b>	<b>1365 CRAFTON AVE, CROSS LUGONIA</b> <b>MENTONE, CA 92359</b>	<b>CDL</b>	<b>S107528352</b> N/A
----------	--	------------	--------------------------

CDL:

Facility ID:	200004105
Date:	2000-04-20 00:00:00
Abandoned Waste:	Not reported
Illegal Drug Lab:	Yes
Mobile Lab:	Not reported

MAP FINDINGS

Map ID  
 Direction  
 Distance  
 Distance (ft.)Site

EDR ID Number  
 Database(s)  
 EPA ID Number

**9 HUD INTOWN PROPERTIES HAZNET S103968737**  
**1365 CRAFTON AVE # 2005 N/A**  
**MENTONE, CA 92359**

HAZNET:  
 Gepaid: CAC001363664  
 Contact: HUD  
 Telephone: 0000000000  
 Facility Addr2: Not reported  
 Mailing Name: Not reported  
 Mailing Address: 2086 S E ST STE 204  
 Mailing City,St,Zip: SAN BERNARDINO, CA 924080000  
 Gen County: San Bernardino  
 TSD EPA ID: CAT080022148  
 TSD County: San Bernardino  
 Waste Category: Unspecified oil-containing waste  
 Disposal Method: Not reported  
 Tons: .4500  
 Facility County: San Bernardino

Gepaid: CAC001363664  
 Contact: HUD  
 Telephone: 0000000000  
 Facility Addr2: Not reported  
 Mailing Name: Not reported  
 Mailing Address: 2086 S E ST STE 204  
 Mailing City,St,Zip: SAN BERNARDINO, CA 924080000  
 Gen County: San Bernardino  
 TSD EPA ID: CAT080022148  
 TSD County: San Bernardino  
 Waste Category: Household waste  
 Disposal Method: Transfer Station  
 Tons: .2000  
 Facility County: San Bernardino

**9 INTOWN PROPERTIES HAZNET S103970129**  
**1365 CRASTON N/A**  
**MENTONE, CA 92359**

HAZNET:  
 Gepaid: CAC001338272  
 Contact: INTOWN PROPERTIES  
 Telephone: 0000000000  
 Facility Addr2: Not reported  
 Mailing Name: Not reported  
 Mailing Address: 2086 SOUTH EAST ST STE 204  
 Mailing City,St,Zip: SAN BERNARDINO, CA 924080000  
 Gen County: San Bernardino  
 TSD EPA ID: CAD028409019  
 TSD County: Los Angeles  
 Waste Category: Household waste  
 Disposal Method: Treatment, Tank  
 Tons: .0083  
 Facility County: San Bernardino

Gepaid: CAC001338272  
 Contact: INTOWN PROPERTIES  
 Telephone: 0000000000  
 Facility Addr2: Not reported  
 Mailing Name: Not reported

MAP FINDINGS

Map ID  
 Direction  
 Distance  
 Distance (ft.)Site

EDR ID Number  
 EPA ID Number

Database(s)

**INTOWN PROPERTIES (Continued)**

**S103970129**

Mailing Address: 2086 SOUTH EAST ST STE 204  
 Mailing City,St,Zip: SAN BERNARDINO, CA 924080000  
 Gen County: San Bernardino  
 TSD EPA ID: CAD028409019  
 TSD County: Los Angeles  
 Waste Category: Not reported  
 Disposal Method: Transfer Station  
 Tons: .0208  
 Facility County: San Bernardino

10

**BLUE SKY MEADOW  
 3780 STATE HWY 38  
 BIG BEAR CITY, CA 92314**

**San Bern. Co. Permit**

**S106911254  
 N/A**

San Bern. Co. Permit:

Region: SAN BERNARDINO  
 Facility ID: FA0007985  
 Owner: LOS ANGELES COUNTY EDUCATION  
 Permit Number: PT0014035  
 Permit Category: AST OPERATING PERMIT  
 Facility Status: INACTIVE  
 Expiration Date: 7/31/2004

Region: SAN BERNARDINO  
 Facility ID: FA0007985  
 Owner: LOS ANGELES COUNTY EDUCATION  
 Permit Number: PT0014034  
 Permit Category: ABOVEGROUND PETROLEUM STORAGE (AST) (SPCC)  
 Facility Status: INACTIVE  
 Expiration Date: 7/31/2004

Region: SAN BERNARDINO  
 Facility ID: FA0007985  
 Owner: LOS ANGELES COUNTY EDUCATION  
 Permit Number: PT0014033  
 Permit Category: EPCRA FACILITY  
 Facility Status: INACTIVE  
 Expiration Date: 7/31/2004

Region: SAN BERNARDINO  
 Facility ID: FA0007985  
 Owner: LOS ANGELES COUNTY EDUCATION  
 Permit Number: PT0014031  
 Permit Category: SPECIAL GENERATOR(B)  
 Facility Status: INACTIVE  
 Expiration Date: 7/31/2004

Region: SAN BERNARDINO  
 Facility ID: FA0007985  
 Owner: LOS ANGELES COUNTY EDUCATION  
 Permit Number: PT0014032  
 Permit Category: HAZMAT HANDLER 0-10 EMPLOYEES (W/GEN PRMT)  
 Facility Status: INACTIVE  
 Expiration Date: 7/31/2004

MAP FINDINGS

Map ID  
 Direction  
 Distance  
 Distance (ft.)Site  
 Database(s)  
 EPA ID Number  
 EDR ID Number  
 EPA ID Number

10 **DUTCHMAN'S PAINT & BODY THE** **HAZNET** **S100860934**  
**1811B MENTONE BLVD** **N/A**  
**MENTONE, CA 92359**

HAZNET:  
 Gepaid: CAL000039443  
 Contact: VAN KOOTEN MARTY  
 Telephone: 0000000000  
 Facility Addr2: Not reported  
 Mailing Name: Not reported  
 Mailing Address: 1811B MENTONE BLVD  
 Mailing City,St,Zip: MENTONE, CA 923590000  
 Gen County: San Bernardino  
 TSD EPA ID: CAD008252405  
 TSD County: Los Angeles  
 Waste Category: Unspecified solvent mixture Waste  
 Disposal Method: Recycler  
 Tons: .0625  
 Facility County: San Bernardino

11 **CITY OF REDLANDS - DEPT OF WATER PRODUCTION** **HAZNET** **S107148145**  
**3050 MILL CREEK RD** **N/A**  
**MENTONE, CA 92374**

HAZNET:  
 Gepaid: CAL000261237  
 Contact: D N. COMMONS, WATER OPTNS MGR  
 Telephone: 9097987698  
 Facility Addr2: Not reported  
 Mailing Name: Not reported  
 Mailing Address: PO BOX 3005  
 Mailing City,St,Zip: REDLANDS, CA 923733005  
 Gen County: San Bernardino  
 TSD EPA ID: AZD049318009  
 TSD County: San Bernardino  
 Waste Category: Laboratory waste chemicals  
 Disposal Method: Treatment, Incineration  
 Tons: 0.04  
 Facility County: San Bernardino

11 **HENRY TATE WATER TRT** **San Bern. Co. Permit** **S102044166**  
**3050 MILL CREEK RD** **N/A**  
**REDLANDS, CA 92373**

San Bern. Co. Permit:  
 Region: SAN BERNARDINO  
 Facility ID: FA0003747  
 Owner: CITY OF REDLANDS WATER  
 Permit Number: PT0005987  
 Permit Category: HAZMAT HANDLER 0-10 EMPLOYEES (W/GEN PRMT)  
 Facility Status: ACTIVE  
 Expiration Date: 8/31/2007  
  
 Region: SAN BERNARDINO  
 Facility ID: FA0003747  
 Owner: CITY OF REDLANDS WATER  
 Permit Number: PT0005988  
 Permit Category: CALARP FACILITY PERMIT

MAP FINDINGS

Map ID  
 Direction  
 Distance  
 Distance (ft.)Site

EDR ID Number

Database(s) EPA ID Number

**HENRY TATE WATER TRT (Continued)**

**S102044166**

Facility Status: ACTIVE  
 Expiration Date: 8/31/2007

Region: SAN BERNARDINO  
 Facility ID: FA0003747  
 Owner: CITY OF REDLANDS WATER  
 Permit Number: PT0013069  
 Permit Category: SPECIAL GENERATOR(B)  
 Facility Status: ACTIVE  
 Expiration Date: 8/31/2007

Region: SAN BERNARDINO  
 Facility ID: FA0003747  
 Owner: CITY OF REDLANDS WATER  
 Permit Number: PT0005977  
 Permit Category: EPCRA FACILITY  
 Facility Status: ACTIVE  
 Expiration Date: 8/31/2007

Region: SAN BERNARDINO  
 Facility ID: FA0003747  
 Owner: CITY OF REDLANDS WATER  
 Permit Number: PT0005990  
 Permit Category: RISK MANAGEMENT PLAN - LEVEL III  
 Facility Status: ACTIVE  
 Expiration Date: 8/31/2007

12

**HUD  
 2787 MILL CREEK RD  
 MENTONE, CA 92359**

**HAZNET S103649007  
 N/A**

HAZNET:

Gepaid: CAC001302936  
 Contact: HUD  
 Telephone: 0000000000  
 Facility Addr2: Not reported  
 Mailing Name: Not reported  
 Mailing Address: 2086 SOUTH E ST STE 202  
 Mailing City,St,Zip: SAN BERNARDINO, CA 924080000  
 Gen County: San Bernardino  
 TSD EPA ID: CAD000088252  
 TSD County: Los Angeles  
 Waste Category: Oxygenated solvents (acetone, butanol, ethyl acetate, etc.)  
 Disposal Method: Transfer Station  
 Tons: .0083  
 Facility County: San Bernardino

MAP FINDINGS

Map ID  
 Direction  
 Distance  
 Distance (ft.)Site

EDR ID Number  
 Database(s) EPA ID Number

**13 J & S TRUCKING San Bern. Co. Permit S104767262**  
**1333 AMETHYST N/A**  
**MENTONE, CA 92359**

San Bern. Co. Permit:  
 Region: SAN BERNARDINO  
 Facility ID: FA0004048  
 Owner: BURROK, JULIAN  
 Permit Number: PT0006799  
 Permit Category: SPECIAL HANDLER  
 Facility Status: ACTIVE  
 Expiration Date: 8/31/2007

Region: SAN BERNARDINO  
 Facility ID: FA0004048  
 Owner: BURROK, JULIAN  
 Permit Number: PT0006800  
 Permit Category: SPECIAL GENERATOR(B)  
 Facility Status: ACTIVE  
 Expiration Date: 8/31/2007

**14 WELL #3-EAST LUGONIA San Bern. Co. Permit S105974404**  
**2551 MILL CREEK RD N/A**  
**REDLANDS, CA 92374**

San Bern. Co. Permit:  
 Region: SAN BERNARDINO  
 Facility ID: FA0007817  
 Owner: CITY OF REDLANDS WATER  
 Permit Number: PT0013524  
 Permit Category: HAZMAT HANDLER 0-10 EMPLOYEES  
 Facility Status: ACTIVE  
 Expiration Date: 5/31/2007

Region: SAN BERNARDINO  
 Facility ID: FA0007817  
 Owner: CITY OF REDLANDS WATER  
 Permit Number: PT0013527  
 Permit Category: EPCRA FACILITY  
 Facility Status: ACTIVE  
 Expiration Date: 5/31/2007

Region: SAN BERNARDINO  
 Facility ID: FA0007817  
 Owner: CITY OF REDLANDS WATER  
 Permit Number: PT0013525  
 Permit Category: CALARP FACILITY PERMIT  
 Facility Status: ACTIVE  
 Expiration Date: 5/31/2007

Region: SAN BERNARDINO  
 Facility ID: FA0007817  
 Owner: CITY OF REDLANDS WATER  
 Permit Number: PT0015180  
 Permit Category: RISK MANAGEMENT PLAN - LEVEL II  
 Facility Status: ACTIVE  
 Expiration Date: 5/31/2007



MAP FINDINGS

Map ID  
 Direction  
 Distance  
 Distance (ft.)Site

EDR ID Number  
 EPA ID Number

Database(s)

**A-G MORNING FRESH EGG FARMS (Continued)**

**U001575202**

Status: A  
 Comp Number: 37221  
 Number: 9  
 Board Of Equalization: Not reported  
 Ref Date: 09-03-91  
 Act Date: 09-03-91  
 Created Date: 02-29-88  
 Tank Status: A  
 Owner Tank Id: 1  
 Swrcb Tank Id: 36-000-037221-000001  
 Actv Date: 08-26-88  
 Capacity: 5000  
 Tank Use: M.V. FUEL  
 Stg: P  
 Content: LEADED  
 Number Of Tanks: 2

Status: A  
 Comp Number: 37221  
 Number: 9  
 Board Of Equalization: Not reported  
 Ref Date: 09-03-91  
 Act Date: 09-03-91  
 Created Date: 02-29-88  
 Tank Status: A  
 Owner Tank Id: 2  
 Swrcb Tank Id: 36-000-037221-000002  
 Actv Date: 08-26-88  
 Capacity: 500  
 Tank Use: M.V. FUEL  
 Stg: P  
 Content: REG UNLEADED  
 Number Of Tanks: Not reported

16

**HAZMAT  
 1331 SAPPHIRE  
 MENTONE, CA 92359**

**HAZNET S104570197  
 N/A**

HAZNET:  
 Gepaid: CAC002133681  
 Contact: KARL MCKNIGHT  
 Telephone: 0000000000  
 Facility Addr2: Not reported  
 Mailing Name: Not reported  
 Mailing Address: 1331 SAPPHIRE  
 Mailing City,St,Zip: MENTONE, CA 923590000  
 Gen County: San Bernardino  
 TSD EPA ID: CAT080013352  
 TSD County: Los Angeles  
 Waste Category: Tank bottom waste  
 Disposal Method: Recycler  
 Tons: 1.668  
 Facility County: San Bernardino

## ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
HEMET	S104571686	SPRINT PCS	34035 HWY 74	92359	HAZNET
HIGHLAND	S103995560	WESTERN DESERT	APN 297001-20 GREENSPOT RD / PLUNGE CRK	92346	HAZNET
HIGHLAND	S107149030	LH WOODS & SONS, INC	30447 CONE CAMP RD	92346	HAZNET
HIGHLAND	S107538620		GREENSPOT RD, 1/4 MI E OF SANTA ANA	92346	CDL
HIGHLAND	S108087266	EAST HIGHLANDS RANCH HOA	28950 LOVE ST	92346	San Bern. Co. Permit
HIGHLAND	S108205655	EASTEND HYDRO/SO CALIF EDISON	7865 SANTA ANA CANYON RD	92346	HAZNET
HIGHLAND	S107142993	EAST VALLEY WATER DISTRICT	28214 5TH ST UNIT A / B	92346	HAZNET
HIGHLAND-EAST HIGHLAN	S103702339	PLUNGE CREEK LANDFILL LEVEES	NORTH SIDE OF SANTA ANA RIVER	92346	WMUDS/SWAT
MENTONE	S105974295	WELL # 2-AGATE	1580 AGATE AVE	92359	San Bern. Co. Permit
MENTONE	S106910985	MENTONE BEACH V W REPAIR	1316 AGATE AVE I	92359	San Bern. Co. Permit
MENTONE	S105974299	WELL #-6- EAST LUGONIA	1500 N AMETHYST ST	92359	San Bern. Co. Permit
MENTONE	S103958846	COUNTY OF SAN BERNARDINO	NW CORNER OF HWY 38 / OPAL ST	92374	HAZNET
MENTONE	S106826716	BAUMAC CORP	1500 CRAFTON AV BLDG. 129	92359	EMI
MENTONE	U003937446	AG-JACINTO, FRANK JR	3RD & CRAFTON, NE CORNER	92359	UST, San Bern. Co. Permit
MENTONE	S108419383	MILL CREEK #2/3 POWERHOUSE	ON HIGHWAY 387 MILES EAST OF MENTONE	92359	San Bern. Co. Permit
MENTONE	S104574444	SO CAL EDISON MILL CREEK 213	MILL CREEK 2/3 RT1 BOX 265	92359	HAZNET
MENTONE	S106911420	SCE-MILL CREEK COMM SITE	MILL CREEK #2 / 3 INTAKE POND	92359	San Bern. Co. Permit
MENTONE	U001576059	L-12 RTR	OPAL AVE.	92359	HIST UST
MENTONE	S106090700	RETREAD TIRE SPECIALTIES	891 WABASH AVE	92359	HAZNET
MENTONE	S106832753	HUDSON & ODOM TIRE & RUBBER CO	885 WABASH AVENUE	92359	EMI
MENTONE	S106838187	RETREAD SPECIALTIES	881 WABASH AV	92359	EMI
REDLANDS	S101591751	S/E CORNER CITRUS/WABASH AVE	SE CIR OF WABASH / CITR AVE	92374	CA FID UST, SWEEPS UST
REDLANDS	U003937445	AG-JACINTO RANCHES	CITRUS / WABASH SE COR AVE	92374	San Bern. Co. Permit
REDLANDS	U004050740	AG-JACINTO RANCHES	CITRUS & WABASH SE COR AVE	92374	UST
REDLANDS	1008243321	REDLANDS EAST VALLEY HIGH	31000 E. COLTON AVE.	92374	FINDS
REDLANDS	S108196136	1X REDLANDS UNIFIED SCHOOL DISTRICT	CRAFTON ELEMENTARY SCHOOL	92374	HAZNET
REDLANDS	S105298664	KRAGEN AUTO PARTS #1562	515 N ORANGE AVE	92374	San Bern. Co. Permit
REDLANDS	S105974413	WELL-MENTONE ACRES	1590 PIONEER AVE	92374	San Bern. Co. Permit
REDLANDS	1009216647	MOUNTAINVIEW POWER COMPANY LLC	2492 W SAN BERNARDINO AVE	92374	RCRA-LQG
REDLANDS	1009958694	MOUNTAINVIEW POWER COMPANY	2492 W SAN BERNARDINO AVE	92374	ICIS
REDLANDS	S106094141	BECTON DICKINSON/C/O GENCO	2200 W SAN BERNARDINO AVE	92374	HAZNET, San Bern. Co. Permit
REDLANDS	S107030279	MOUNTAINVIEW POWER CO LLC	2492 W SAN BERNARDINO AVE	92374	San Bern. Co. Permit
REDLANDS	S107139320	GENCO HERSHEY INC	2300 W SAN BERNARDINO	92374	HAZNET
REDLANDS	S104769461	REDLANDS COLOR LAB	461 TENNESSEE ST F	92374	San Bern. Co. Permit
SAN BERNARDINO	S104566146	EAST VALLEY WATER DISTRICT	HIGHLAND AVE AT PATTON STATE HOSPITAL	92346	HAZNET

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

**Number of Days to Update:** Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

## **FEDERAL RECORDS**

### **NPL: National Priority List**

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 01/25/2007	Source: EPA
Date Data Arrived at EDR: 01/31/2007	Telephone: N/A
Date Made Active in Reports: 03/12/2007	Last EDR Contact: 05/03/2007
Number of Days to Update: 40	Next Scheduled EDR Contact: 07/30/2007
	Data Release Frequency: Quarterly

### **NPL Site Boundaries**

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)  
Telephone: 202-564-7333

EPA Region 1  
Telephone 617-918-1143

EPA Region 6  
Telephone: 214-655-6659

EPA Region 3  
Telephone 215-814-5418

EPA Region 7  
Telephone: 913-551-7247

EPA Region 4  
Telephone 404-562-8033

EPA Region 8  
Telephone: 303-312-6774

EPA Region 5  
Telephone 312-886-6686

EPA Region 9  
Telephone: 415-947-4246

EPA Region 10  
Telephone 206-553-8665

### **Proposed NPL: Proposed National Priority List Sites**

A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

Date of Government Version: 09/27/2006	Source: EPA
Date Data Arrived at EDR: 11/01/2006	Telephone: N/A
Date Made Active in Reports: 11/22/2006	Last EDR Contact: 05/03/2007
Number of Days to Update: 21	Next Scheduled EDR Contact: 07/30/2007
	Data Release Frequency: Quarterly

### **DELISTED NPL: National Priority List Deletions**

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 12/28/2006	Source: EPA
Date Data Arrived at EDR: 01/31/2007	Telephone: N/A
Date Made Active in Reports: 03/12/2007	Last EDR Contact: 05/03/2007
Number of Days to Update: 40	Next Scheduled EDR Contact: 07/30/2007
	Data Release Frequency: Quarterly

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## **NPL LIENS:** Federal Superfund Liens

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/1991	Source: EPA
Date Data Arrived at EDR: 02/02/1994	Telephone: 202-564-4267
Date Made Active in Reports: 03/30/1994	Last EDR Contact: 05/21/2007
Number of Days to Update: 56	Next Scheduled EDR Contact: 08/20/2007
	Data Release Frequency: No Update Planned

## **CERCLIS:** Comprehensive Environmental Response, Compensation, and Liability Information System

CERCLIS contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). CERCLIS contains sites which are either proposed to or on the National Priorities List (NPL) and sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 02/27/2007	Source: EPA
Date Data Arrived at EDR: 03/21/2007	Telephone: 703-412-9810
Date Made Active in Reports: 04/27/2007	Last EDR Contact: 06/20/2007
Number of Days to Update: 37	Next Scheduled EDR Contact: 09/17/2007
	Data Release Frequency: Quarterly

## **CERCLIS-NFRAP:** CERCLIS No Further Remedial Action Planned

Archived sites are sites that have been removed and archived from the inventory of CERCLIS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list this site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. This decision does not necessarily mean that there is no hazard associated with a given site; it only means that, based upon available information, the location is not judged to be a potential NPL site.

Date of Government Version: 03/21/2007	Source: EPA
Date Data Arrived at EDR: 04/27/2007	Telephone: 703-412-9810
Date Made Active in Reports: 05/25/2007	Last EDR Contact: 06/15/2007
Number of Days to Update: 28	Next Scheduled EDR Contact: 09/17/2007
	Data Release Frequency: Quarterly

## **CORRACTS:** Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 03/14/2007	Source: EPA
Date Data Arrived at EDR: 03/20/2007	Telephone: 800-424-9346
Date Made Active in Reports: 04/27/2007	Last EDR Contact: 06/04/2007
Number of Days to Update: 38	Next Scheduled EDR Contact: 09/03/2007
	Data Release Frequency: Quarterly

## **RCRA:** Resource Conservation and Recovery Act Information

## GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. RCRAInfo replaces the data recording and reporting abilities of the Resource Conservation and Recovery Information System (RCRIS). The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month. Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month. Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month. Transporters are individuals or entities that move hazardous waste from the generator off-site to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 06/13/2006	Source: EPA
Date Data Arrived at EDR: 06/28/2006	Telephone: (415) 495-8895
Date Made Active in Reports: 08/23/2006	Last EDR Contact: 06/05/2007
Number of Days to Update: 56	Next Scheduled EDR Contact: 07/16/2007
	Data Release Frequency: Quarterly

### **ERNS:** Emergency Response Notification System

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 12/31/2006	Source: National Response Center, United States Coast Guard
Date Data Arrived at EDR: 01/24/2007	Telephone: 202-267-2180
Date Made Active in Reports: 03/12/2007	Last EDR Contact: 04/24/2007
Number of Days to Update: 47	Next Scheduled EDR Contact: 07/23/2007
	Data Release Frequency: Annually

### **HMIRS:** Hazardous Materials Information Reporting System

Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 03/05/2007	Source: U.S. Department of Transportation
Date Data Arrived at EDR: 04/17/2007	Telephone: 202-366-4555
Date Made Active in Reports: 05/14/2007	Last EDR Contact: 04/17/2007
Number of Days to Update: 27	Next Scheduled EDR Contact: 07/16/2007
	Data Release Frequency: Annually

### **US ENG CONTROLS:** Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 04/20/2007	Source: Environmental Protection Agency
Date Data Arrived at EDR: 04/26/2007	Telephone: 703-603-8905
Date Made Active in Reports: 05/25/2007	Last EDR Contact: 04/02/2007
Number of Days to Update: 29	Next Scheduled EDR Contact: 07/02/2007
	Data Release Frequency: Varies

### **US INST CONTROL:** Sites with Institutional Controls

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 04/20/2007	Source: Environmental Protection Agency
Date Data Arrived at EDR: 04/26/2007	Telephone: 703-603-8905
Date Made Active in Reports: 05/25/2007	Last EDR Contact: 04/02/2007
Number of Days to Update: 29	Next Scheduled EDR Contact: 07/02/2007
	Data Release Frequency: Varies

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## **DOD:** Department of Defense Sites

This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 12/31/2005	Source: USGS
Date Data Arrived at EDR: 11/10/2006	Telephone: 703-692-8801
Date Made Active in Reports: 01/11/2007	Last EDR Contact: 05/11/2007
Number of Days to Update: 62	Next Scheduled EDR Contact: 08/06/2007
	Data Release Frequency: Semi-Annually

## **FUDS:** Formerly Used Defense Sites

The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 12/31/2005	Source: U.S. Army Corps of Engineers
Date Data Arrived at EDR: 09/20/2006	Telephone: 202-528-4285
Date Made Active in Reports: 11/22/2006	Last EDR Contact: 04/02/2007
Number of Days to Update: 63	Next Scheduled EDR Contact: 07/02/2007
	Data Release Frequency: Varies

## **US BROWNFIELDS:** A Listing of Brownfields Sites

Included in the listing are brownfields properties addresses by Cooperative Agreement Recipients and brownfields properties addressed by Targeted Brownfields Assessments. Targeted Brownfields Assessments-EPA's Targeted Brownfields Assessments (TBA) program is designed to help states, tribes, and municipalities--especially those without EPA Brownfields Assessment Demonstration Pilots--minimize the uncertainties of contamination often associated with brownfields. Under the TBA program, EPA provides funding and/or technical assistance for environmental assessments at brownfields sites throughout the country. Targeted Brownfields Assessments supplement and work with other efforts under EPA's Brownfields Initiative to promote cleanup and redevelopment of brownfields. Cooperative Agreement Recipients--States, political subdivisions, territories, and Indian tribes become Brownfields Cleanup Revolving Loan Fund (BCRLF) cooperative agreement recipients when they enter into BCRLF cooperative agreements with the U.S. EPA. EPA selects BCRLF cooperative agreement recipients based on a proposal and application process. BCRLF cooperative agreement recipients must use EPA funds provided through BCRLF cooperative agreement for specified brownfields-related cleanup activities.

Date of Government Version: 04/04/2007	Source: Environmental Protection Agency
Date Data Arrived at EDR: 04/04/2007	Telephone: 202-566-2777
Date Made Active in Reports: 05/25/2007	Last EDR Contact: 06/11/2007
Number of Days to Update: 51	Next Scheduled EDR Contact: 09/10/2007
	Data Release Frequency: Semi-Annually

## **CONSENT:** Superfund (CERCLA) Consent Decrees

Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 08/23/2006	Source: Department of Justice, Consent Decree Library
Date Data Arrived at EDR: 03/06/2007	Telephone: Varies
Date Made Active in Reports: 04/10/2007	Last EDR Contact: 04/23/2007
Number of Days to Update: 35	Next Scheduled EDR Contact: 07/23/2007
	Data Release Frequency: Varies

## **ROD:** Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 03/27/2007	Source: EPA
Date Data Arrived at EDR: 03/27/2007	Telephone: 703-416-0223
Date Made Active in Reports: 04/27/2007	Last EDR Contact: 03/27/2007
Number of Days to Update: 31	Next Scheduled EDR Contact: 07/02/2007
	Data Release Frequency: Annually

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## **UMTRA:** Uranium Mill Tailings Sites

Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Date of Government Version: 12/31/2005	Source: Department of Energy
Date Data Arrived at EDR: 11/08/2006	Telephone: 505-845-0011
Date Made Active in Reports: 01/29/2007	Last EDR Contact: 06/22/2007
Number of Days to Update: 82	Next Scheduled EDR Contact: 09/17/2007
	Data Release Frequency: Varies

## **ODI:** Open Dump Inventory

An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985	Source: Environmental Protection Agency
Date Data Arrived at EDR: 08/09/2004	Telephone: 800-424-9346
Date Made Active in Reports: 09/17/2004	Last EDR Contact: 06/09/2004
Number of Days to Update: 39	Next Scheduled EDR Contact: N/A
	Data Release Frequency: No Update Planned

## **TRIS:** Toxic Chemical Release Inventory System

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/2004	Source: EPA
Date Data Arrived at EDR: 06/22/2006	Telephone: 202-566-0250
Date Made Active in Reports: 08/23/2006	Last EDR Contact: 06/19/2007
Number of Days to Update: 62	Next Scheduled EDR Contact: 09/17/2007
	Data Release Frequency: Annually

## **TSCA:** Toxic Substances Control Act

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2002	Source: EPA
Date Data Arrived at EDR: 04/14/2006	Telephone: 202-260-5521
Date Made Active in Reports: 05/30/2006	Last EDR Contact: 04/16/2007
Number of Days to Update: 46	Next Scheduled EDR Contact: 07/16/2007
	Data Release Frequency: Every 4 Years

## **FTTS:** FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 02/26/2007	Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Date Data Arrived at EDR: 03/01/2007	Telephone: 202-566-1667
Date Made Active in Reports: 04/10/2007	Last EDR Contact: 06/15/2007
Number of Days to Update: 40	Next Scheduled EDR Contact: 09/17/2007
	Data Release Frequency: Quarterly

## **FTTS INSP:** FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act) A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 02/26/2007	Source: EPA
Date Data Arrived at EDR: 03/01/2007	Telephone: 202-566-1667
Date Made Active in Reports: 04/10/2007	Last EDR Contact: 06/15/2007
Number of Days to Update: 40	Next Scheduled EDR Contact: 09/17/2007
	Data Release Frequency: Quarterly

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## **SSTS:** Section 7 Tracking Systems

Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 12/31/2005	Source: EPA
Date Data Arrived at EDR: 03/13/2007	Telephone: 202-564-4203
Date Made Active in Reports: 04/27/2007	Last EDR Contact: 04/12/2007
Number of Days to Update: 45	Next Scheduled EDR Contact: 07/16/2007
	Data Release Frequency: Annually

## **CDL:** Clandestine Drug Labs

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 12/01/2006	Source: Drug Enforcement Administration
Date Data Arrived at EDR: 01/08/2007	Telephone: 202-307-1000
Date Made Active in Reports: 01/11/2007	Last EDR Contact: 06/06/2007
Number of Days to Update: 3	Next Scheduled EDR Contact: 06/25/2007
	Data Release Frequency: Quarterly

## **DOT OPS:** Incident and Accident Data

Department of Transportation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 02/14/2007	Source: Department of Transportation, Office of Pipeline Safety
Date Data Arrived at EDR: 02/28/2007	Telephone: 202-366-4595
Date Made Active in Reports: 04/10/2007	Last EDR Contact: 05/30/2007
Number of Days to Update: 41	Next Scheduled EDR Contact: 08/27/2007
	Data Release Frequency: Varies

## **HIST FTTS:** FIFRA/TSCA Tracking System Administrative Case Listing

A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006	Source: Environmental Protection Agency
Date Data Arrived at EDR: 03/01/2007	Telephone: 202-564-2501
Date Made Active in Reports: 04/10/2007	Last EDR Contact: 06/15/2007
Number of Days to Update: 40	Next Scheduled EDR Contact: 09/17/2007
	Data Release Frequency: No Update Planned

## **ICIS:** Integrated Compliance Information System

The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 02/21/2007	Source: Environmental Protection Agency
Date Data Arrived at EDR: 04/03/2007	Telephone: 202-564-5088
Date Made Active in Reports: 05/14/2007	Last EDR Contact: 04/16/2007
Number of Days to Update: 41	Next Scheduled EDR Contact: 07/16/2007
	Data Release Frequency: Quarterly

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## **RADINFO:** Radiation Information Database

The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

Date of Government Version: 05/01/2007	Source: Environmental Protection Agency
Date Data Arrived at EDR: 05/03/2007	Telephone: 202-343-9775
Date Made Active in Reports: 05/25/2007	Last EDR Contact: 05/03/2007
Number of Days to Update: 22	Next Scheduled EDR Contact: 07/30/2007
	Data Release Frequency: Quarterly

## **LUCIS:** Land Use Control Information System

LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Date of Government Version: 12/09/2005	Source: Department of the Navy
Date Data Arrived at EDR: 12/11/2006	Telephone: 843-820-7326
Date Made Active in Reports: 01/11/2007	Last EDR Contact: 06/11/2007
Number of Days to Update: 31	Next Scheduled EDR Contact: 09/10/2007
	Data Release Frequency: Varies

## **LIENS 2:** CERCLA Lien Information

A Federal CERCLA ("Superfund") lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties.

Date of Government Version: 03/08/2007	Source: Environmental Protection Agency
Date Data Arrived at EDR: 04/12/2007	Telephone: 202-564-6023
Date Made Active in Reports: 05/14/2007	Last EDR Contact: 05/21/2007
Number of Days to Update: 32	Next Scheduled EDR Contact: 08/20/2007
	Data Release Frequency: Varies

## **PADS:** PCB Activity Database System

PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 10/17/2006	Source: EPA
Date Data Arrived at EDR: 11/29/2006	Telephone: 202-566-0500
Date Made Active in Reports: 01/11/2007	Last EDR Contact: 06/08/2007
Number of Days to Update: 43	Next Scheduled EDR Contact: 08/06/2007
	Data Release Frequency: Annually

## **MLTS:** Material Licensing Tracking System

MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/05/2007	Source: Nuclear Regulatory Commission
Date Data Arrived at EDR: 04/25/2007	Telephone: 301-415-7169
Date Made Active in Reports: 05/25/2007	Last EDR Contact: 04/02/2007
Number of Days to Update: 30	Next Scheduled EDR Contact: 07/02/2007
	Data Release Frequency: Quarterly

## **MINES:** Mines Master Index File

Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 02/06/2007	Source: Department of Labor, Mine Safety and Health Administration
Date Data Arrived at EDR: 03/28/2007	Telephone: 303-231-5959
Date Made Active in Reports: 05/14/2007	Last EDR Contact: 03/28/2007
Number of Days to Update: 47	Next Scheduled EDR Contact: 06/25/2007
	Data Release Frequency: Semi-Annually

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## **FINDS:** Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 01/18/2007	Source: EPA
Date Data Arrived at EDR: 01/23/2007	Telephone: (415) 947-8000
Date Made Active in Reports: 02/27/2007	Last EDR Contact: 05/14/2007
Number of Days to Update: 35	Next Scheduled EDR Contact: 07/02/2007
	Data Release Frequency: Quarterly

## **RAATS:** RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995	Source: EPA
Date Data Arrived at EDR: 07/03/1995	Telephone: 202-564-4104
Date Made Active in Reports: 08/07/1995	Last EDR Contact: 06/04/2007
Number of Days to Update: 35	Next Scheduled EDR Contact: 09/03/2007
	Data Release Frequency: No Update Planned

## **BRS:** Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2005	Source: EPA/NTIS
Date Data Arrived at EDR: 03/06/2007	Telephone: 800-424-9346
Date Made Active in Reports: 04/13/2007	Last EDR Contact: 06/12/2007
Number of Days to Update: 38	Next Scheduled EDR Contact: 09/10/2007
	Data Release Frequency: Biennially

## **STATE AND LOCAL RECORDS**

### **HIST CAL-SITES:** Calsites Database

The Calsites database contains potential or confirmed hazardous substance release properties. In 1996, California EPA reevaluated and significantly reduced the number of sites in the Calsites database. No longer updated by the state agency. It has been replaced by ENVIROSTOR.

Date of Government Version: 08/08/2005	Source: Department of Toxic Substance Control
Date Data Arrived at EDR: 08/03/2006	Telephone: 916-323-3400
Date Made Active in Reports: 08/24/2006	Last EDR Contact: 05/25/2007
Number of Days to Update: 21	Next Scheduled EDR Contact: 08/27/2007
	Data Release Frequency: No Update Planned

### **CA BOND EXP. PLAN:** Bond Expenditure Plan

Department of Health Services developed a site-specific expenditure plan as the basis for an appropriation of Hazardous Substance Cleanup Bond Act funds. It is not updated.

Date of Government Version: 01/01/1989	Source: Department of Health Services
Date Data Arrived at EDR: 07/27/1994	Telephone: 916-255-2118
Date Made Active in Reports: 08/02/1994	Last EDR Contact: 05/31/1994
Number of Days to Update: 6	Next Scheduled EDR Contact: N/A
	Data Release Frequency: No Update Planned

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## **SCH:** School Property Evaluation Program

This category contains proposed and existing school sites that are being evaluated by DTSC for possible hazardous materials contamination. In some cases, these properties may be listed in the CalSites category depending on the level of threat to public health and safety or the environment they pose.

Date of Government Version: 02/27/2007	Source: Department of Toxic Substances Control
Date Data Arrived at EDR: 02/28/2007	Telephone: 916-323-3400
Date Made Active in Reports: 04/06/2007	Last EDR Contact: 05/30/2007
Number of Days to Update: 37	Next Scheduled EDR Contact: 08/27/2007
	Data Release Frequency: Quarterly

## **TOXIC PITS:** Toxic Pits Cleanup Act Sites

Toxic PITS Cleanup Act Sites. TOXIC PITS identifies sites suspected of containing hazardous substances where cleanup has not yet been completed.

Date of Government Version: 07/01/1995	Source: State Water Resources Control Board
Date Data Arrived at EDR: 08/30/1995	Telephone: 916-227-4364
Date Made Active in Reports: 09/26/1995	Last EDR Contact: 04/30/2007
Number of Days to Update: 27	Next Scheduled EDR Contact: 07/30/2007
	Data Release Frequency: No Update Planned

## **SWF/LF (SWIS):** Solid Waste Information System

Active, Closed and Inactive Landfills. SWF/LF records typically contain an inventory of solid waste disposal facilities or landfills. These may be active or inactive facilities or open dumps that failed to meet RCRA Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 03/12/2007	Source: Integrated Waste Management Board
Date Data Arrived at EDR: 03/15/2007	Telephone: 916-341-6320
Date Made Active in Reports: 04/06/2007	Last EDR Contact: 06/13/2007
Number of Days to Update: 22	Next Scheduled EDR Contact: 09/10/2007
	Data Release Frequency: Quarterly

## **WMUDS/SWAT:** Waste Management Unit Database

Waste Management Unit Database System. WMUDS is used by the State Water Resources Control Board staff and the Regional Water Quality Control Boards for program tracking and inventory of waste management units. WMUDS is composed of the following databases: Facility Information, Scheduled Inspections Information, Waste Management Unit Information, SWAT Program Information, SWAT Report Summary Information, SWAT Report Summary Data, Chapter 15 (formerly Subchapter 15) Information, Chapter 15 Monitoring Parameters, TPCA Program Information, RCRA Program Information, Closure Information, and Interested Parties Information.

Date of Government Version: 04/01/2000	Source: State Water Resources Control Board
Date Data Arrived at EDR: 04/10/2000	Telephone: 916-227-4448
Date Made Active in Reports: 05/10/2000	Last EDR Contact: 06/04/2007
Number of Days to Update: 30	Next Scheduled EDR Contact: 09/03/2007
	Data Release Frequency: Quarterly

## **CA WDS:** Waste Discharge System

Sites which have been issued waste discharge requirements.

Date of Government Version: 03/19/2007	Source: State Water Resources Control Board
Date Data Arrived at EDR: 03/21/2007	Telephone: 916-341-5227
Date Made Active in Reports: 04/27/2007	Last EDR Contact: 06/20/2007
Number of Days to Update: 37	Next Scheduled EDR Contact: 09/17/2007
	Data Release Frequency: Quarterly

## **CORTESE:** "Cortese" Hazardous Waste & Substances Sites List

The sites for the list are designated by the State Water Resource Control Board (LUST), the Integrated Waste Board (SWF/LS), and the Department of Toxic Substances Control (Cal-Sites). This listing is no longer updated by the state agency.

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 04/01/2001  
Date Data Arrived at EDR: 05/29/2001  
Date Made Active in Reports: 07/26/2001  
Number of Days to Update: 58

Source: CAL EPA/Office of Emergency Information  
Telephone: 916-323-3400  
Last EDR Contact: 04/23/2007  
Next Scheduled EDR Contact: 07/23/2007  
Data Release Frequency: No Update Planned

## **SWRCY:** Recycler Database

A listing of recycling facilities in California.

Date of Government Version: 04/09/2007  
Date Data Arrived at EDR: 04/11/2007  
Date Made Active in Reports: 04/27/2007  
Number of Days to Update: 16

Source: Department of Conservation  
Telephone: 916-323-3836  
Last EDR Contact: 04/11/2007  
Next Scheduled EDR Contact: 07/09/2007  
Data Release Frequency: Quarterly

## **LUST REG 9:** Leaking Underground Storage Tank Report

Orange, Riverside, San Diego counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 03/01/2001  
Date Data Arrived at EDR: 04/23/2001  
Date Made Active in Reports: 05/21/2001  
Number of Days to Update: 28

Source: California Regional Water Quality Control Board San Diego Region (9)  
Telephone: 858-637-5595  
Last EDR Contact: 04/12/2007  
Next Scheduled EDR Contact: 07/16/2007  
Data Release Frequency: No Update Planned

## **LUST REG 8:** Leaking Underground Storage Tanks

California Regional Water Quality Control Board Santa Ana Region (8). For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/14/2005  
Date Data Arrived at EDR: 02/15/2005  
Date Made Active in Reports: 03/28/2005  
Number of Days to Update: 41

Source: California Regional Water Quality Control Board Santa Ana Region (8)  
Telephone: 909-782-4496  
Last EDR Contact: 05/07/2007  
Next Scheduled EDR Contact: 08/06/2007  
Data Release Frequency: Varies

## **LUST REG 6V:** Leaking Underground Storage Tank Case Listing

Leaking Underground Storage Tank locations. Inyo, Kern, Los Angeles, Mono, San Bernardino counties.

Date of Government Version: 06/07/2005  
Date Data Arrived at EDR: 06/07/2005  
Date Made Active in Reports: 06/29/2005  
Number of Days to Update: 22

Source: California Regional Water Quality Control Board Victorville Branch Office (6)  
Telephone: 760-241-7365  
Last EDR Contact: 04/02/2007  
Next Scheduled EDR Contact: 07/02/2007  
Data Release Frequency: No Update Planned

## **LUST REG 6L:** Leaking Underground Storage Tank Case Listing

For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/09/2003  
Date Data Arrived at EDR: 09/10/2003  
Date Made Active in Reports: 10/07/2003  
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Lahontan Region (6)  
Telephone: 530-542-5572  
Last EDR Contact: 06/04/2007  
Next Scheduled EDR Contact: 09/03/2007  
Data Release Frequency: No Update Planned

## **LUST REG 5:** Leaking Underground Storage Tank Database

Leaking Underground Storage Tank locations. Alameda, Alpine, Amador, Butte, Colusa, Contra Costa, Calveras, El Dorado, Fresno, Glenn, Kern, Kings, Lake, Lassen, Madera, Mariposa, Merced, Modoc, Napa, Nevada, Placer, Plumas, Sacramento, San Joaquin, Shasta, Solano, Stanislaus, Sutter, Tehama, Tulare, Tuolumne, Yolo, Yuba counties.

Date of Government Version: 04/01/2007  
Date Data Arrived at EDR: 04/25/2007  
Date Made Active in Reports: 05/10/2007  
Number of Days to Update: 15

Source: California Regional Water Quality Control Board Central Valley Region (5)  
Telephone: 916-464-4834  
Last EDR Contact: 04/25/2007  
Next Scheduled EDR Contact: 07/02/2007  
Data Release Frequency: Quarterly

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## **LUST REG 4:** Underground Storage Tank Leak List

Los Angeles, Ventura counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/07/2004  
Date Data Arrived at EDR: 09/07/2004  
Date Made Active in Reports: 10/12/2004  
Number of Days to Update: 35

Source: California Regional Water Quality Control Board Los Angeles Region (4)  
Telephone: 213-576-6710  
Last EDR Contact: 03/27/2007  
Next Scheduled EDR Contact: 06/25/2007  
Data Release Frequency: No Update Planned

## **LUST REG 3:** Leaking Underground Storage Tank Database

Leaking Underground Storage Tank locations. Monterey, San Benito, San Luis Obispo, Santa Barbara, Santa Cruz counties.

Date of Government Version: 05/19/2003  
Date Data Arrived at EDR: 05/19/2003  
Date Made Active in Reports: 06/02/2003  
Number of Days to Update: 14

Source: California Regional Water Quality Control Board Central Coast Region (3)  
Telephone: 805-542-4786  
Last EDR Contact: 05/14/2007  
Next Scheduled EDR Contact: 08/13/2007  
Data Release Frequency: No Update Planned

## **LUST REG 2:** Fuel Leak List

Leaking Underground Storage Tank locations. Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, Sonoma counties.

Date of Government Version: 09/30/2004  
Date Data Arrived at EDR: 10/20/2004  
Date Made Active in Reports: 11/19/2004  
Number of Days to Update: 30

Source: California Regional Water Quality Control Board San Francisco Bay Region (2)  
Telephone: 510-622-2433  
Last EDR Contact: 04/06/2007  
Next Scheduled EDR Contact: 07/09/2007  
Data Release Frequency: Quarterly

## **LUST REG 1:** Active Toxic Site Investigation

Del Norte, Humboldt, Lake, Mendocino, Modoc, Siskiyou, Sonoma, Trinity counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/01/2001  
Date Data Arrived at EDR: 02/28/2001  
Date Made Active in Reports: 03/29/2001  
Number of Days to Update: 29

Source: California Regional Water Quality Control Board North Coast (1)  
Telephone: 707-570-3769  
Last EDR Contact: 05/21/2007  
Next Scheduled EDR Contact: 08/20/2007  
Data Release Frequency: No Update Planned

## **LUST:** Geotracker's Leaking Underground Fuel Tank Report

Leaking Underground Storage Tank Incident Reports. LUST records contain an inventory of reported leaking underground storage tank incidents. Not all states maintain these records, and the information stored varies by state. For more information on a particular leaking underground storage tank sites, please contact the appropriate regulatory agency.

Date of Government Version: 04/10/2007  
Date Data Arrived at EDR: 04/11/2007  
Date Made Active in Reports: 04/27/2007  
Number of Days to Update: 16

Source: State Water Resources Control Board  
Telephone: N/A  
Last EDR Contact: 04/11/2007  
Next Scheduled EDR Contact: 07/09/2007  
Data Release Frequency: Quarterly

## **LUST REG 7:** Leaking Underground Storage Tank Case Listing

Leaking Underground Storage Tank locations. Imperial, Riverside, San Diego, Santa Barbara counties.

Date of Government Version: 02/26/2004  
Date Data Arrived at EDR: 02/26/2004  
Date Made Active in Reports: 03/24/2004  
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Colorado River Basin Region (7)  
Telephone: 760-776-8943  
Last EDR Contact: 05/21/2007  
Next Scheduled EDR Contact: 08/20/2007  
Data Release Frequency: No Update Planned

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## CA FID UST: Facility Inventory Database

The Facility Inventory Database (FID) contains a historical listing of active and inactive underground storage tank locations from the State Water Resource Control Board. Refer to local/county source for current data.

Date of Government Version: 10/31/1994	Source: California Environmental Protection Agency
Date Data Arrived at EDR: 09/05/1995	Telephone: 916-341-5851
Date Made Active in Reports: 09/29/1995	Last EDR Contact: 12/28/1998
Number of Days to Update: 24	Next Scheduled EDR Contact: N/A
	Data Release Frequency: No Update Planned

## SLIC: Statewide SLIC Cases

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/10/2007	Source: State Water Resources Control Board
Date Data Arrived at EDR: 04/11/2007	Telephone: 866-480-1028
Date Made Active in Reports: 04/27/2007	Last EDR Contact: 04/11/2007
Number of Days to Update: 16	Next Scheduled EDR Contact: 07/09/2007
	Data Release Frequency: Varies

## SLIC REG 1: Active Toxic Site Investigations

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2003	Source: California Regional Water Quality Control Board, North Coast Region (1)
Date Data Arrived at EDR: 04/07/2003	Telephone: 707-576-2220
Date Made Active in Reports: 04/25/2003	Last EDR Contact: 05/21/2007
Number of Days to Update: 18	Next Scheduled EDR Contact: 08/20/2007
	Data Release Frequency: No Update Planned

## SLIC REG 2: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/30/2004	Source: Regional Water Quality Control Board San Francisco Bay Region (2)
Date Data Arrived at EDR: 10/20/2004	Telephone: 510-286-0457
Date Made Active in Reports: 11/19/2004	Last EDR Contact: 04/06/2007
Number of Days to Update: 30	Next Scheduled EDR Contact: 07/09/2007
	Data Release Frequency: Quarterly

## SLIC REG 3: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/18/2006	Source: California Regional Water Quality Control Board Central Coast Region (3)
Date Data Arrived at EDR: 05/18/2006	Telephone: 805-549-3147
Date Made Active in Reports: 06/15/2006	Last EDR Contact: 05/14/2007
Number of Days to Update: 28	Next Scheduled EDR Contact: 08/13/2007
	Data Release Frequency: Semi-Annually

## SLIC REG 4: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/17/2004	Source: Region Water Quality Control Board Los Angeles Region (4)
Date Data Arrived at EDR: 11/18/2004	Telephone: 213-576-6600
Date Made Active in Reports: 01/04/2005	Last EDR Contact: 04/23/2007
Number of Days to Update: 47	Next Scheduled EDR Contact: 07/23/2007
	Data Release Frequency: Varies

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

**SLIC REG 5: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing**

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/01/2005  
Date Data Arrived at EDR: 04/05/2005  
Date Made Active in Reports: 04/21/2005  
Number of Days to Update: 16

Source: Regional Water Quality Control Board Central Valley Region (5)  
Telephone: 916-464-3291  
Last EDR Contact: 04/05/2007  
Next Scheduled EDR Contact: 07/02/2007  
Data Release Frequency: Semi-Annually

**SLIC REG 6V: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing**

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/24/2005  
Date Data Arrived at EDR: 05/25/2005  
Date Made Active in Reports: 06/16/2005  
Number of Days to Update: 22

Source: Regional Water Quality Control Board, Victorville Branch  
Telephone: 619-241-6583  
Last EDR Contact: 04/02/2007  
Next Scheduled EDR Contact: 07/02/2007  
Data Release Frequency: Semi-Annually

**SLIC REG 6L: SLIC Sites**

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/07/2004  
Date Data Arrived at EDR: 09/07/2004  
Date Made Active in Reports: 10/12/2004  
Number of Days to Update: 35

Source: California Regional Water Quality Control Board, Lahontan Region  
Telephone: 530-542-5574  
Last EDR Contact: 06/04/2007  
Next Scheduled EDR Contact: 09/03/2007  
Data Release Frequency: No Update Planned

**SLIC REG 7: SLIC List**

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/24/2004  
Date Data Arrived at EDR: 11/29/2004  
Date Made Active in Reports: 01/04/2005  
Number of Days to Update: 36

Source: California Regional Quality Control Board, Colorado River Basin Region  
Telephone: 760-346-7491  
Last EDR Contact: 05/21/2007  
Next Scheduled EDR Contact: 08/20/2007  
Data Release Frequency: No Update Planned

**SLIC REG 8: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing**

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/06/2006  
Date Data Arrived at EDR: 04/06/2006  
Date Made Active in Reports: 05/11/2006  
Number of Days to Update: 35

Source: California Region Water Quality Control Board Santa Ana Region (8)  
Telephone: 951-782-3298  
Last EDR Contact: 04/03/2007  
Next Scheduled EDR Contact: 07/03/2007  
Data Release Frequency: Semi-Annually

**SLIC REG 9: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing**

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 03/13/2007  
Date Data Arrived at EDR: 03/14/2007  
Date Made Active in Reports: 04/06/2007  
Number of Days to Update: 23

Source: California Regional Water Quality Control Board San Diego Region (9)  
Telephone: 858-467-2980  
Last EDR Contact: 06/11/2007  
Next Scheduled EDR Contact: 08/27/2007  
Data Release Frequency: Annually

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## **UST:** Active UST Facilities

Active UST facilities gathered from the local regulatory agencies

Date of Government Version: 04/10/2007	Source: SWRCB
Date Data Arrived at EDR: 04/11/2007	Telephone: 916-480-1028
Date Made Active in Reports: 05/03/2007	Last EDR Contact: 04/11/2007
Number of Days to Update: 22	Next Scheduled EDR Contact: 07/09/2007
	Data Release Frequency: Semi-Annually

## **UST MENDOCINO:** Mendocino County UST Database

A listing of underground storage tank locations in Mendocino County.

Date of Government Version: 02/05/2007	Source: Department of Public Health
Date Data Arrived at EDR: 02/06/2007	Telephone: 707-463-4466
Date Made Active in Reports: 03/21/2007	Last EDR Contact: 03/26/2007
Number of Days to Update: 43	Next Scheduled EDR Contact: 06/25/2007
	Data Release Frequency: Varies

## **HIST UST:** Hazardous Substance Storage Container Database

The Hazardous Substance Storage Container Database is a historical listing of UST sites. Refer to local/county source for current data.

Date of Government Version: 10/15/1990	Source: State Water Resources Control Board
Date Data Arrived at EDR: 01/25/1991	Telephone: 916-341-5851
Date Made Active in Reports: 02/12/1991	Last EDR Contact: 07/26/2001
Number of Days to Update: 18	Next Scheduled EDR Contact: N/A
	Data Release Frequency: No Update Planned

## **LIENS:** Environmental Liens Listing

A listing of property locations with environmental liens for California where DTSC is a lien holder.

Date of Government Version: 05/07/2007	Source: Department of Toxic Substances Control
Date Data Arrived at EDR: 05/08/2007	Telephone: 916-323-3400
Date Made Active in Reports: 05/25/2007	Last EDR Contact: 02/22/2007
Number of Days to Update: 17	Next Scheduled EDR Contact: 08/06/2007
	Data Release Frequency: Varies

## **AST:** Aboveground Petroleum Storage Tank Facilities

Registered Aboveground Storage Tanks.

Date of Government Version: 05/01/2007	Source: State Water Resources Control Board
Date Data Arrived at EDR: 05/01/2007	Telephone: 916-341-5712
Date Made Active in Reports: 05/25/2007	Last EDR Contact: 04/30/2007
Number of Days to Update: 24	Next Scheduled EDR Contact: 07/30/2007
	Data Release Frequency: Quarterly

## **SWEEPS UST:** SWEEPS UST Listing

Statewide Environmental Evaluation and Planning System. This underground storage tank listing was updated and maintained by a company contacted by the SWRCB in the early 1980's. The listing is no longer updated or maintained. The local agency is the contact for more information on a site on the SWEEPS list.

Date of Government Version: 06/01/1994	Source: State Water Resources Control Board
Date Data Arrived at EDR: 07/07/2005	Telephone: N/A
Date Made Active in Reports: 08/11/2005	Last EDR Contact: 06/03/2005
Number of Days to Update: 35	Next Scheduled EDR Contact: N/A
	Data Release Frequency: No Update Planned

## **CHMIRS:** California Hazardous Material Incident Report System

California Hazardous Material Incident Reporting System. CHMIRS contains information on reported hazardous material incidents (accidental releases or spills).

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 12/31/2005  
Date Data Arrived at EDR: 02/23/2007  
Date Made Active in Reports: 04/06/2007  
Number of Days to Update: 42

Source: Office of Emergency Services  
Telephone: 916-845-8400  
Last EDR Contact: 05/21/2007  
Next Scheduled EDR Contact: 08/20/2007  
Data Release Frequency: Varies

## **NOTIFY 65:** Proposition 65 Records

Proposition 65 Notification Records. NOTIFY 65 contains facility notifications about any release which could impact drinking water and thereby expose the public to a potential health risk.

Date of Government Version: 10/21/1993  
Date Data Arrived at EDR: 11/01/1993  
Date Made Active in Reports: 11/19/1993  
Number of Days to Update: 18

Source: State Water Resources Control Board  
Telephone: 916-445-3846  
Last EDR Contact: 04/12/2007  
Next Scheduled EDR Contact: 07/16/2007  
Data Release Frequency: No Update Planned

## **DEED:** Deed Restriction Listing

Site Mitigation and Brownfields Reuse Program Facility Sites with Deed Restrictions & Hazardous Waste Management Program Facility Sites with Deed / Land Use Restriction. The DTSC Site Mitigation and Brownfields Reuse Program (SMBRP) list includes sites cleaned up under the program's oversight and generally does not include current or former hazardous waste facilities that required a hazardous waste facility permit. The list represents deed restrictions that are active. Some sites have multiple deed restrictions. The DTSC Hazardous Waste Management Program (HWMP) has developed a list of current or former hazardous waste facilities that have a recorded land use restriction at the local county recorder's office. The land use restrictions on this list were required by the DTSC HWMP as a result of the presence of hazardous substances that remain on site after the facility (or part of the facility) has been closed or cleaned up. The types of land use restriction include deed notice, deed restriction, or a land use restriction that binds current and future owners.

Date of Government Version: 04/03/2007  
Date Data Arrived at EDR: 04/05/2007  
Date Made Active in Reports: 04/27/2007  
Number of Days to Update: 22

Source: Department of Toxic Substances Control  
Telephone: 916-323-3400  
Last EDR Contact: 04/05/2007  
Next Scheduled EDR Contact: 07/02/2007  
Data Release Frequency: Semi-Annually

## **VCP:** Voluntary Cleanup Program Properties

Contains low threat level properties with either confirmed or unconfirmed releases and the project proponents have request that DTSC oversee investigation and/or cleanup activities and have agreed to provide coverage for DTSC's costs.

Date of Government Version: 02/27/2007  
Date Data Arrived at EDR: 02/28/2007  
Date Made Active in Reports: 04/06/2007  
Number of Days to Update: 37

Source: Department of Toxic Substances Control  
Telephone: 916-323-3400  
Last EDR Contact: 05/30/2007  
Next Scheduled EDR Contact: 08/27/2007  
Data Release Frequency: Quarterly

## **DRYCLEANERS:** Cleaner Facilities

A list of drycleaner related facilities that have EPA ID numbers. These are facilities with certain SIC codes: power laundries, family and commercial; garment pressing and cleaner's agents; linen supply; coin-operated laundries and cleaning; drycleaning plants, except rugs; carpet and upholster cleaning; industrial launderers; laundry and garment services.

Date of Government Version: 04/18/2005  
Date Data Arrived at EDR: 04/18/2005  
Date Made Active in Reports: 05/06/2005  
Number of Days to Update: 18

Source: Department of Toxic Substance Control  
Telephone: 916-327-4498  
Last EDR Contact: 06/25/2007  
Next Scheduled EDR Contact: 10/01/2007  
Data Release Frequency: Annually

## **WIP:** Well Investigation Program Case List

Well Investigation Program case in the San Gabriel and San Fernando Valley area.

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 03/01/2007  
Date Data Arrived at EDR: 03/13/2007  
Date Made Active in Reports: 04/06/2007  
Number of Days to Update: 24

Source: Los Angeles Water Quality Control Board  
Telephone: 213-576-6726  
Last EDR Contact: 04/27/2007  
Next Scheduled EDR Contact: 07/23/2007  
Data Release Frequency: Varies

## **CDL:** Clandestine Drug Labs

A listing of drug lab locations. Listing of a location in this database does not indicate that any illegal drug lab materials were or were not present there, and does not constitute a determination that the location either requires or does not require additional cleanup work.

Date of Government Version: 12/31/2006  
Date Data Arrived at EDR: 03/07/2007  
Date Made Active in Reports: 04/06/2007  
Number of Days to Update: 30

Source: Department of Toxic Substances Control  
Telephone: 916-255-6504  
Last EDR Contact: 04/23/2007  
Next Scheduled EDR Contact: 07/23/2007  
Data Release Frequency: Varies

## **RESPONSE:** State Response Sites

Identifies confirmed release sites where DTSC is involved in remediation, either in a lead or oversight capacity. These confirmed release sites are generally high-priority and high potential risk.

Date of Government Version: 02/27/2007  
Date Data Arrived at EDR: 02/28/2007  
Date Made Active in Reports: 04/06/2007  
Number of Days to Update: 37

Source: Department of Toxic Substances Control  
Telephone: 916-323-3400  
Last EDR Contact: 05/30/2007  
Next Scheduled EDR Contact: 08/27/2007  
Data Release Frequency: Quarterly

## **HAZNET:** Facility and Manifest Data

Facility and Manifest Data. The data is extracted from the copies of hazardous waste manifests received each year by the DTSC. The annual volume of manifests is typically 700,000 - 1,000,000 annually, representing approximately 350,000 - 500,000 shipments. Data are from the manifests submitted without correction, and therefore many contain some invalid values for data elements such as generator ID, TSD ID, waste category, and disposal method.

Date of Government Version: 12/31/2005  
Date Data Arrived at EDR: 11/20/2006  
Date Made Active in Reports: 01/03/2007  
Number of Days to Update: 44

Source: California Environmental Protection Agency  
Telephone: 916-255-1136  
Last EDR Contact: 05/11/2007  
Next Scheduled EDR Contact: 08/06/2007  
Data Release Frequency: Annually

## **EMI:** Emissions Inventory Data

Toxics and criteria pollutant emissions data collected by the ARB and local air pollution agencies.

Date of Government Version: 12/31/2005  
Date Data Arrived at EDR: 04/17/2007  
Date Made Active in Reports: 05/10/2007  
Number of Days to Update: 23

Source: California Air Resources Board  
Telephone: 916-322-2990  
Last EDR Contact: 04/17/2007  
Next Scheduled EDR Contact: 07/16/2007  
Data Release Frequency: Varies

## **ENVIROSTOR:** EnviroStor Database

The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifies sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 02/27/2007  
Date Data Arrived at EDR: 02/28/2007  
Date Made Active in Reports: 04/06/2007  
Number of Days to Update: 37

Source: Department of Toxic Substances Control  
Telephone: 916-323-3400  
Last EDR Contact: 05/30/2007  
Next Scheduled EDR Contact: 08/27/2007  
Data Release Frequency: Quarterly

## TRIBAL RECORDS

### **INDIAN RESERV:** Indian Reservations

This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2005  
Date Data Arrived at EDR: 02/06/2006  
Date Made Active in Reports: 01/11/2007  
Number of Days to Update: 339

Source: USGS  
Telephone: 202-208-3710  
Last EDR Contact: 05/11/2007  
Next Scheduled EDR Contact: 08/06/2007  
Data Release Frequency: Semi-Annually

### **INDIAN LUST R10:** Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 03/01/2007  
Date Data Arrived at EDR: 03/01/2007  
Date Made Active in Reports: 04/04/2007  
Number of Days to Update: 34

Source: EPA Region 10  
Telephone: 206-553-2857  
Last EDR Contact: 05/21/2007  
Next Scheduled EDR Contact: 08/20/2007  
Data Release Frequency: Quarterly

### **INDIAN LUST R9:** Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 03/30/2007  
Date Data Arrived at EDR: 03/30/2007  
Date Made Active in Reports: 04/27/2007  
Number of Days to Update: 28

Source: Environmental Protection Agency  
Telephone: 415-972-3372  
Last EDR Contact: 05/21/2007  
Next Scheduled EDR Contact: 08/20/2007  
Data Release Frequency: Quarterly

### **INDIAN LUST R1:** Leaking Underground Storage Tanks on Indian Land

A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 12/01/2006  
Date Data Arrived at EDR: 12/01/2006  
Date Made Active in Reports: 01/29/2007  
Number of Days to Update: 59

Source: EPA Region 1  
Telephone: 617-918-1313  
Last EDR Contact: 05/21/2007  
Next Scheduled EDR Contact: 08/20/2007  
Data Release Frequency: Varies

### **INDIAN LUST R8:** Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 02/19/2007  
Date Data Arrived at EDR: 02/27/2007  
Date Made Active in Reports: 04/04/2007  
Number of Days to Update: 36

Source: EPA Region 8  
Telephone: 303-312-6271  
Last EDR Contact: 05/21/2007  
Next Scheduled EDR Contact: 08/20/2007  
Data Release Frequency: Quarterly

### **INDIAN LUST R7:** Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 09/06/2006  
Date Data Arrived at EDR: 10/04/2006  
Date Made Active in Reports: 11/08/2006  
Number of Days to Update: 35

Source: EPA Region 7  
Telephone: 913-551-7003  
Last EDR Contact: 05/21/2007  
Next Scheduled EDR Contact: 08/20/2007  
Data Release Frequency: Varies

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

**INDIAN LUST R6:** Leaking Underground Storage Tanks on Indian Land  
LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 01/04/2005	Source: EPA Region 6
Date Data Arrived at EDR: 01/21/2005	Telephone: 214-665-6597
Date Made Active in Reports: 02/28/2005	Last EDR Contact: 05/21/2007
Number of Days to Update: 38	Next Scheduled EDR Contact: 08/20/2007
	Data Release Frequency: Varies

**INDIAN LUST R4:** Leaking Underground Storage Tanks on Indian Land  
LUSTs on Indian land in Florida, Minnesota, Mississippi and North Carolina.

Date of Government Version: 03/20/2007	Source: EPA Region 4
Date Data Arrived at EDR: 04/16/2007	Telephone: 404-562-8677
Date Made Active in Reports: 05/14/2007	Last EDR Contact: 05/21/2007
Number of Days to Update: 28	Next Scheduled EDR Contact: 08/20/2007
	Data Release Frequency: Semi-Annually

**INDIAN UST R1:** Underground Storage Tanks on Indian Land  
A listing of underground storage tank locations on Indian Land.

Date of Government Version: 12/01/2006	Source: EPA, Region 1
Date Data Arrived at EDR: 12/01/2006	Telephone: 617-918-1313
Date Made Active in Reports: 01/29/2007	Last EDR Contact: 05/21/2007
Number of Days to Update: 59	Next Scheduled EDR Contact: 08/20/2007
	Data Release Frequency: Varies

**INDIAN UST R8:** Underground Storage Tanks on Indian Land

Date of Government Version: 02/19/2007	Source: EPA Region 8
Date Data Arrived at EDR: 02/27/2007	Telephone: 303-312-6137
Date Made Active in Reports: 04/04/2007	Last EDR Contact: 05/21/2007
Number of Days to Update: 36	Next Scheduled EDR Contact: 08/20/2007
	Data Release Frequency: Quarterly

**INDIAN UST R5:** Underground Storage Tanks on Indian Land

Date of Government Version: 12/02/2004	Source: EPA Region 5
Date Data Arrived at EDR: 12/29/2004	Telephone: 312-886-6136
Date Made Active in Reports: 02/04/2005	Last EDR Contact: 05/21/2007
Number of Days to Update: 37	Next Scheduled EDR Contact: 08/20/2007
	Data Release Frequency: Varies

**INDIAN UST R9:** Underground Storage Tanks on Indian Land

Date of Government Version: 03/26/2007	Source: EPA Region 9
Date Data Arrived at EDR: 03/27/2007	Telephone: 415-972-3368
Date Made Active in Reports: 04/27/2007	Last EDR Contact: 05/21/2007
Number of Days to Update: 31	Next Scheduled EDR Contact: 08/20/2007
	Data Release Frequency: Quarterly

**INDIAN UST R7:** Underground Storage Tanks on Indian Land

Date of Government Version: 09/06/2006	Source: EPA Region 7
Date Data Arrived at EDR: 10/04/2006	Telephone: 913-551-7003
Date Made Active in Reports: 11/08/2006	Last EDR Contact: 05/21/2007
Number of Days to Update: 35	Next Scheduled EDR Contact: 08/20/2007
	Data Release Frequency: Varies

**INDIAN UST R6:** Underground Storage Tanks on Indian Land

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 01/11/2007  
Date Data Arrived at EDR: 01/12/2007  
Date Made Active in Reports: 01/29/2007  
Number of Days to Update: 17

Source: EPA Region 6  
Telephone: 214-665-7591  
Last EDR Contact: 05/21/2007  
Next Scheduled EDR Contact: 08/20/2007  
Data Release Frequency: Semi-Annually

## **INDIAN UST R4:** Underground Storage Tanks on Indian Land

Date of Government Version: 03/20/2007  
Date Data Arrived at EDR: 04/16/2007  
Date Made Active in Reports: 05/14/2007  
Number of Days to Update: 28

Source: EPA Region 4  
Telephone: 404-562-9424  
Last EDR Contact: 05/21/2007  
Next Scheduled EDR Contact: 08/20/2007  
Data Release Frequency: Semi-Annually

## **INDIAN UST R10:** Underground Storage Tanks on Indian Land

Date of Government Version: 03/01/2007  
Date Data Arrived at EDR: 03/01/2007  
Date Made Active in Reports: 04/04/2007  
Number of Days to Update: 34

Source: EPA Region 10  
Telephone: 206-553-2857  
Last EDR Contact: 05/21/2007  
Next Scheduled EDR Contact: 08/20/2007  
Data Release Frequency: Quarterly

## **EDR PROPRIETARY RECORDS**

### **Manufactured Gas Plants:** EDR Proprietary Manufactured Gas Plants

The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: N/A  
Date Data Arrived at EDR: N/A  
Date Made Active in Reports: N/A  
Number of Days to Update: N/A

Source: EDR, Inc.  
Telephone: N/A  
Last EDR Contact: N/A  
Next Scheduled EDR Contact: N/A  
Data Release Frequency: No Update Planned

## **COUNTY RECORDS**

### **ALAMEDA COUNTY:**

#### **Contaminated Sites**

A listing of contaminated sites overseen by the Toxic Release Program (oil and groundwater contamination from chemical releases and spills) and the Leaking Underground Storage Tank Program (soil and ground water contamination from leaking petroleum USTs).

Date of Government Version: 04/24/2007  
Date Data Arrived at EDR: 04/26/2007  
Date Made Active in Reports: 05/10/2007  
Number of Days to Update: 14

Source: Alameda County Environmental Health Services  
Telephone: 510-567-6700  
Last EDR Contact: 04/23/2007  
Next Scheduled EDR Contact: 07/23/2007  
Data Release Frequency: Semi-Annually

#### **Underground Tanks**

Underground storage tank sites located in Alameda county.

Date of Government Version: 04/24/2007  
Date Data Arrived at EDR: 04/26/2007  
Date Made Active in Reports: 05/07/2007  
Number of Days to Update: 11

Source: Alameda County Environmental Health Services  
Telephone: 510-567-6700  
Last EDR Contact: 04/23/2007  
Next Scheduled EDR Contact: 07/23/2007  
Data Release Frequency: Semi-Annually

### **CONTRA COSTA COUNTY:**

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## Site List

List includes sites from the underground tank, hazardous waste generator and business plan/2185 programs.

Date of Government Version: 02/27/2007	Source: Contra Costa Health Services Department
Date Data Arrived at EDR: 03/01/2007	Telephone: 925-646-2286
Date Made Active in Reports: 04/06/2007	Last EDR Contact: 05/29/2007
Number of Days to Update: 36	Next Scheduled EDR Contact: 08/27/2007
	Data Release Frequency: Semi-Annually

## FRESNO COUNTY:

### CUPA Resources List

Certified Unified Program Agency. CUPA's are responsible for implementing a unified hazardous materials and hazardous waste management regulatory program. The agency provides oversight of businesses that deal with hazardous materials, operate underground storage tanks or aboveground storage tanks.

Date of Government Version: 04/09/2007	Source: Dept. of Community Health
Date Data Arrived at EDR: 04/10/2007	Telephone: 559-445-3271
Date Made Active in Reports: 04/27/2007	Last EDR Contact: 05/07/2007
Number of Days to Update: 17	Next Scheduled EDR Contact: 08/06/2007
	Data Release Frequency: Semi-Annually

## KERN COUNTY:

### Underground Storage Tank Sites & Tank Listing

Kern County Sites and Tanks Listing.

Date of Government Version: 04/13/2007	Source: Kern County Environment Health Services Department
Date Data Arrived at EDR: 04/16/2007	Telephone: 661-862-8700
Date Made Active in Reports: 05/07/2007	Last EDR Contact: 06/18/2007
Number of Days to Update: 21	Next Scheduled EDR Contact: 09/03/2007
	Data Release Frequency: Quarterly

## LOS ANGELES COUNTY:

### San Gabriel Valley Areas of Concern

San Gabriel Valley areas where VOC contamination is at or above the MCL as designated by region 9 EPA office.

Date of Government Version: 12/31/1998	Source: EPA Region 9
Date Data Arrived at EDR: 07/07/1999	Telephone: 415-972-3178
Date Made Active in Reports: N/A	Last EDR Contact: 05/16/2006
Number of Days to Update: 0	Next Scheduled EDR Contact: N/A
	Data Release Frequency: No Update Planned

### HMS: Street Number List

Industrial Waste and Underground Storage Tank Sites.

Date of Government Version: 01/31/2007	Source: Department of Public Works
Date Data Arrived at EDR: 04/12/2007	Telephone: 626-458-3517
Date Made Active in Reports: 04/27/2007	Last EDR Contact: 05/14/2007
Number of Days to Update: 15	Next Scheduled EDR Contact: 08/13/2007
	Data Release Frequency: Semi-Annually

### List of Solid Waste Facilities

Solid Waste Facilities in Los Angeles County.

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 02/13/2007  
Date Data Arrived at EDR: 03/09/2007  
Date Made Active in Reports: 04/06/2007  
Number of Days to Update: 28

Source: La County Department of Public Works  
Telephone: 818-458-5185  
Last EDR Contact: 05/16/2007  
Next Scheduled EDR Contact: 08/13/2007  
Data Release Frequency: Varies

## City of Los Angeles Landfills

Landfills owned and maintained by the City of Los Angeles.

Date of Government Version: 03/01/2007  
Date Data Arrived at EDR: 03/27/2007  
Date Made Active in Reports: 04/27/2007  
Number of Days to Update: 31

Source: Engineering & Construction Division  
Telephone: 213-473-7869  
Last EDR Contact: 06/11/2007  
Next Scheduled EDR Contact: 09/10/2007  
Data Release Frequency: Varies

## Site Mitigation List

Industrial sites that have had some sort of spill or complaint.

Date of Government Version: 12/04/2006  
Date Data Arrived at EDR: 01/09/2007  
Date Made Active in Reports: 01/24/2007  
Number of Days to Update: 15

Source: Community Health Services  
Telephone: 323-890-7806  
Last EDR Contact: 05/14/2007  
Next Scheduled EDR Contact: 08/13/2007  
Data Release Frequency: Annually

## City of El Segundo Underground Storage Tank

Underground storage tank sites located in El Segundo city.

Date of Government Version: 12/14/2006  
Date Data Arrived at EDR: 12/15/2006  
Date Made Active in Reports: 01/23/2007  
Number of Days to Update: 39

Source: City of El Segundo Fire Department  
Telephone: 310-524-2236  
Last EDR Contact: 05/14/2007  
Next Scheduled EDR Contact: 08/13/2007  
Data Release Frequency: Semi-Annually

## City of Long Beach Underground Storage Tank

Underground storage tank sites located in the city of Long Beach.

Date of Government Version: 03/28/2003  
Date Data Arrived at EDR: 10/23/2003  
Date Made Active in Reports: 11/26/2003  
Number of Days to Update: 34

Source: City of Long Beach Fire Department  
Telephone: 562-570-2563  
Last EDR Contact: 05/30/2007  
Next Scheduled EDR Contact: 08/20/2007  
Data Release Frequency: Annually

## City of Torrance Underground Storage Tank

Underground storage tank sites located in the city of Torrance.

Date of Government Version: 02/20/2007  
Date Data Arrived at EDR: 02/21/2007  
Date Made Active in Reports: 03/21/2007  
Number of Days to Update: 28

Source: City of Torrance Fire Department  
Telephone: 310-618-2973  
Last EDR Contact: 05/29/2007  
Next Scheduled EDR Contact: 08/13/2007  
Data Release Frequency: Semi-Annually

## MARIN COUNTY:

### Underground Storage Tank Sites

Currently permitted USTs in Marin County.

Date of Government Version: 01/26/2007  
Date Data Arrived at EDR: 02/20/2007  
Date Made Active in Reports: 03/21/2007  
Number of Days to Update: 29

Source: Public Works Department Waste Management  
Telephone: 415-499-6647  
Last EDR Contact: 04/30/2007  
Next Scheduled EDR Contact: 07/30/2007  
Data Release Frequency: Semi-Annually

## NAPA COUNTY:

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## Sites With Reported Contamination

A listing of leaking underground storage tank sites located in Napa county.

Date of Government Version: 04/09/2007	Source: Napa County Department of Environmental Management
Date Data Arrived at EDR: 04/10/2007	Telephone: 707-253-4269
Date Made Active in Reports: 04/27/2007	Last EDR Contact: 04/09/2007
Number of Days to Update: 17	Next Scheduled EDR Contact: 06/25/2007
	Data Release Frequency: Semi-Annually

## Closed and Operating Underground Storage Tank Sites

Underground storage tank sites located in Napa county.

Date of Government Version: 04/09/2007	Source: Napa County Department of Environmental Management
Date Data Arrived at EDR: 04/10/2007	Telephone: 707-253-4269
Date Made Active in Reports: 04/24/2007	Last EDR Contact: 04/09/2007
Number of Days to Update: 14	Next Scheduled EDR Contact: 06/25/2007
	Data Release Frequency: Annually

## ORANGE COUNTY:

### List of Industrial Site Cleanups

Petroleum and non-petroleum spills.

Date of Government Version: 03/01/2007	Source: Health Care Agency
Date Data Arrived at EDR: 03/20/2007	Telephone: 714-834-3446
Date Made Active in Reports: 04/06/2007	Last EDR Contact: 06/06/2007
Number of Days to Update: 17	Next Scheduled EDR Contact: 09/03/2007
	Data Release Frequency: Annually

### List of Underground Storage Tank Cleanups

Orange County Underground Storage Tank Cleanups (LUST).

Date of Government Version: 03/01/2007	Source: Health Care Agency
Date Data Arrived at EDR: 03/20/2007	Telephone: 714-834-3446
Date Made Active in Reports: 04/06/2007	Last EDR Contact: 06/06/2007
Number of Days to Update: 17	Next Scheduled EDR Contact: 09/03/2007
	Data Release Frequency: Quarterly

### List of Underground Storage Tank Facilities

Orange County Underground Storage Tank Facilities (UST).

Date of Government Version: 03/01/2007	Source: Health Care Agency
Date Data Arrived at EDR: 03/20/2007	Telephone: 714-834-3446
Date Made Active in Reports: 04/12/2007	Last EDR Contact: 06/06/2007
Number of Days to Update: 23	Next Scheduled EDR Contact: 09/03/2007
	Data Release Frequency: Quarterly

## PLACER COUNTY:

### Master List of Facilities

List includes aboveground tanks, underground tanks and cleanup sites.

Date of Government Version: 04/04/2007	Source: Placer County Health and Human Services
Date Data Arrived at EDR: 04/05/2007	Telephone: 530-889-7312
Date Made Active in Reports: 04/27/2007	Last EDR Contact: 06/18/2007
Number of Days to Update: 22	Next Scheduled EDR Contact: 09/17/2007
	Data Release Frequency: Semi-Annually

## RIVERSIDE COUNTY:

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## Listing of Underground Tank Cleanup Sites

Riverside County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 02/06/2007	Source: Department of Public Health
Date Data Arrived at EDR: 02/07/2007	Telephone: 951-358-5055
Date Made Active in Reports: 02/27/2007	Last EDR Contact: 04/16/2007
Number of Days to Update: 20	Next Scheduled EDR Contact: 07/16/2007
	Data Release Frequency: Quarterly

## Underground Storage Tank Tank List

Underground storage tank sites located in Riverside county.

Date of Government Version: 02/06/2007	Source: Health Services Agency
Date Data Arrived at EDR: 02/07/2007	Telephone: 951-358-5055
Date Made Active in Reports: 03/21/2007	Last EDR Contact: 04/16/2007
Number of Days to Update: 42	Next Scheduled EDR Contact: 07/16/2007
	Data Release Frequency: Quarterly

## SACRAMENTO COUNTY:

### Contaminated Sites

List of sites where unauthorized releases of potentially hazardous materials have occurred.

Date of Government Version: 01/31/2007	Source: Sacramento County Environmental Management
Date Data Arrived at EDR: 02/16/2007	Telephone: 916-875-8406
Date Made Active in Reports: 02/27/2007	Last EDR Contact: 05/01/2007
Number of Days to Update: 11	Next Scheduled EDR Contact: 07/30/2007
	Data Release Frequency: Quarterly

### ML - Regulatory Compliance Master List

Any business that has hazardous materials on site - hazardous material storage sites, underground storage tanks, waste generators.

Date of Government Version: 01/31/2007	Source: Sacramento County Environmental Management
Date Data Arrived at EDR: 02/15/2007	Telephone: 916-875-8406
Date Made Active in Reports: 02/27/2007	Last EDR Contact: 05/01/2007
Number of Days to Update: 12	Next Scheduled EDR Contact: 07/30/2007
	Data Release Frequency: Quarterly

## SAN BERNARDINO COUNTY:

### Hazardous Material Permits

This listing includes underground storage tanks, medical waste handlers/generators, hazardous materials handlers, hazardous waste generators, and waste oil generators/handlers.

Date of Government Version: 03/23/2007	Source: San Bernardino County Fire Department Hazardous Materials Division
Date Data Arrived at EDR: 03/27/2007	Telephone: 909-387-3041
Date Made Active in Reports: 04/27/2007	Last EDR Contact: 06/04/2007
Number of Days to Update: 31	Next Scheduled EDR Contact: 09/03/2007
	Data Release Frequency: Quarterly

## SAN DIEGO COUNTY:

### Hazardous Materials Management Division Database

The database includes: HE58 - This report contains the business name, site address, business phone number, establishment 'H' permit number, type of permit, and the business status. HE17 - In addition to providing the same information provided in the HE58 listing, HE17 provides inspection dates, violations received by the establishment, hazardous waste generated, the quantity, method of storage, treatment/disposal of waste and the hauler, and information on underground storage tanks. Unauthorized Release List - Includes a summary of environmental contamination cases in San Diego County (underground tank cases, non-tank cases, groundwater contamination, and soil contamination are included.)

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 05/16/2005  
Date Data Arrived at EDR: 05/18/2005  
Date Made Active in Reports: 06/16/2005  
Number of Days to Update: 29

Source: Hazardous Materials Management Division  
Telephone: 619-338-2268  
Last EDR Contact: 04/05/2007  
Next Scheduled EDR Contact: 07/02/2007  
Data Release Frequency: Quarterly

## Solid Waste Facilities

San Diego County Solid Waste Facilities.

Date of Government Version: 11/01/2006  
Date Data Arrived at EDR: 01/03/2007  
Date Made Active in Reports: 01/24/2007  
Number of Days to Update: 21

Source: Department of Health Services  
Telephone: 619-338-2209  
Last EDR Contact: 06/04/2007  
Next Scheduled EDR Contact: 08/20/2007  
Data Release Frequency: Varies

## Environmental Case Listing

The listing contains all underground tank release cases and projects pertaining to properties contaminated with hazardous substances that are actively under review by the Site Assessment and Mitigation Program.

Date of Government Version: 03/29/2007  
Date Data Arrived at EDR: 04/24/2007  
Date Made Active in Reports: 05/10/2007  
Number of Days to Update: 16

Source: San Diego County Department of Environmental Health  
Telephone: 619-338-2371  
Last EDR Contact: 04/04/2007  
Next Scheduled EDR Contact: 07/02/2007  
Data Release Frequency: Varies

## SAN FRANCISCO COUNTY:

### Local Oversight Facilities

A listing of leaking underground storage tank sites located in San Francisco county.

Date of Government Version: 03/08/2007  
Date Data Arrived at EDR: 03/13/2007  
Date Made Active in Reports: 04/06/2007  
Number of Days to Update: 24

Source: Department Of Public Health San Francisco County  
Telephone: 415-252-3920  
Last EDR Contact: 06/04/2007  
Next Scheduled EDR Contact: 09/03/2007  
Data Release Frequency: Quarterly

### Underground Storage Tank Information

Underground storage tank sites located in San Francisco county.

Date of Government Version: 03/08/2007  
Date Data Arrived at EDR: 03/13/2007  
Date Made Active in Reports: 04/12/2007  
Number of Days to Update: 30

Source: Department of Public Health  
Telephone: 415-252-3920  
Last EDR Contact: 06/04/2007  
Next Scheduled EDR Contact: 09/03/2007  
Data Release Frequency: Quarterly

## SAN JOAQUIN COUNTY:

### San Joaquin Co. UST

A listing of underground storage tank locations in San Joaquin county.

Date of Government Version: 04/06/2007  
Date Data Arrived at EDR: 04/10/2007  
Date Made Active in Reports: 04/24/2007  
Number of Days to Update: 14

Source: Environmental Health Department  
Telephone: N/A  
Last EDR Contact: 04/02/2007  
Next Scheduled EDR Contact: 04/16/2007  
Data Release Frequency: Semi-Annually

## SAN MATEO COUNTY:

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## Business Inventory

List includes Hazardous Materials Business Plan, hazardous waste generators, and underground storage tanks.

Date of Government Version: 04/30/2007  
Date Data Arrived at EDR: 05/01/2007  
Date Made Active in Reports: 05/25/2007  
Number of Days to Update: 24

Source: San Mateo County Environmental Health Services Division  
Telephone: 650-363-1921  
Last EDR Contact: 04/09/2007  
Next Scheduled EDR Contact: 07/09/2007  
Data Release Frequency: Annually

## Fuel Leak List

A listing of leaking underground storage tank sites located in San Mateo county.

Date of Government Version: 04/11/2007  
Date Data Arrived at EDR: 04/12/2007  
Date Made Active in Reports: 04/27/2007  
Number of Days to Update: 15

Source: San Mateo County Environmental Health Services Division  
Telephone: 650-363-1921  
Last EDR Contact: 04/09/2007  
Next Scheduled EDR Contact: 07/09/2007  
Data Release Frequency: Semi-Annually

## SANTA CLARA COUNTY:

### HIST LUST - Fuel Leak Site Activity Report

A listing of open and closed leaking underground storage tanks. This listing is no longer updated by the county. Leaking underground storage tanks are now handled by the Department of Environmental Health.

Date of Government Version: 03/29/2005  
Date Data Arrived at EDR: 03/30/2005  
Date Made Active in Reports: 04/21/2005  
Number of Days to Update: 22

Source: Santa Clara Valley Water District  
Telephone: 408-265-2600  
Last EDR Contact: 03/26/2007  
Next Scheduled EDR Contact: 06/25/2007  
Data Release Frequency: No Update Planned

## LOP Listing

A listing of leaking underground storage tanks located in Santa Clara county.

Date of Government Version: 03/26/2007  
Date Data Arrived at EDR: 03/27/2007  
Date Made Active in Reports: 04/27/2007  
Number of Days to Update: 31

Source: Department of Environmental Health  
Telephone: 408-918-3417  
Last EDR Contact: 03/26/2007  
Next Scheduled EDR Contact: 06/25/2007  
Data Release Frequency: Varies

## Hazardous Material Facilities

Hazardous material facilities, including underground storage tank sites.

Date of Government Version: 04/03/2007  
Date Data Arrived at EDR: 04/04/2007  
Date Made Active in Reports: 04/27/2007  
Number of Days to Update: 23

Source: City of San Jose Fire Department  
Telephone: 408-277-4659  
Last EDR Contact: 06/04/2007  
Next Scheduled EDR Contact: 09/03/2007  
Data Release Frequency: Annually

## SOLANO COUNTY:

### Leaking Underground Storage Tanks

A listing of leaking underground storage tank sites located in Solano county.

Date of Government Version: 03/26/2007  
Date Data Arrived at EDR: 04/16/2007  
Date Made Active in Reports: 05/10/2007  
Number of Days to Update: 24

Source: Solano County Department of Environmental Management  
Telephone: 707-784-6770  
Last EDR Contact: 03/26/2007  
Next Scheduled EDR Contact: 06/25/2007  
Data Release Frequency: Quarterly

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## Underground Storage Tanks

Underground storage tank sites located in Solano county.

Date of Government Version: 03/26/2007  
Date Data Arrived at EDR: 04/18/2007  
Date Made Active in Reports: 05/07/2007  
Number of Days to Update: 19

Source: Solano County Department of Environmental Management  
Telephone: 707-784-6770  
Last EDR Contact: 03/26/2007  
Next Scheduled EDR Contact: 06/25/2007  
Data Release Frequency: Quarterly

## SONOMA COUNTY:

### Leaking Underground Storage Tank Sites

A listing of leaking underground storage tank sites located in Sonoma county.

Date of Government Version: 04/23/2007  
Date Data Arrived at EDR: 04/24/2007  
Date Made Active in Reports: 05/10/2007  
Number of Days to Update: 16

Source: Department of Health Services  
Telephone: 707-565-6565  
Last EDR Contact: 04/23/2007  
Next Scheduled EDR Contact: 07/23/2007  
Data Release Frequency: Quarterly

## SUTTER COUNTY:

### Underground Storage Tanks

Underground storage tank sites located in Sutter county.

Date of Government Version: 05/04/2007  
Date Data Arrived at EDR: 05/04/2007  
Date Made Active in Reports: 05/24/2007  
Number of Days to Update: 20

Source: Sutter County Department of Agriculture  
Telephone: 530-822-7500  
Last EDR Contact: 05/04/2007  
Next Scheduled EDR Contact: 07/02/2007  
Data Release Frequency: Semi-Annually

## VENTURA COUNTY:

### Business Plan, Hazardous Waste Producers, and Operating Underground Tanks

The BWT list indicates by site address whether the Environmental Health Division has Business Plan (B), Waste Producer (W), and/or Underground Tank (T) information.

Date of Government Version: 03/28/2007  
Date Data Arrived at EDR: 04/25/2007  
Date Made Active in Reports: 05/10/2007  
Number of Days to Update: 15

Source: Ventura County Environmental Health Division  
Telephone: 805-654-2813  
Last EDR Contact: 06/12/2007  
Next Scheduled EDR Contact: 09/10/2007  
Data Release Frequency: Quarterly

### Inventory of Illegal Abandoned and Inactive Sites

Ventura County Inventory of Closed, Illegal Abandoned, and Inactive Sites.

Date of Government Version: 08/01/2006  
Date Data Arrived at EDR: 09/05/2006  
Date Made Active in Reports: 10/05/2006  
Number of Days to Update: 30

Source: Environmental Health Division  
Telephone: 805-654-2813  
Last EDR Contact: 05/21/2007  
Next Scheduled EDR Contact: 08/20/2007  
Data Release Frequency: Annually

### Listing of Underground Tank Cleanup Sites

Ventura County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 02/28/2007  
Date Data Arrived at EDR: 03/23/2007  
Date Made Active in Reports: 04/27/2007  
Number of Days to Update: 35

Source: Environmental Health Division  
Telephone: 805-654-2813  
Last EDR Contact: 06/12/2007  
Next Scheduled EDR Contact: 09/10/2007  
Data Release Frequency: Quarterly

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## Underground Tank Closed Sites List

Ventura County Operating Underground Storage Tank Sites (UST)/Underground Tank Closed Sites List.

Date of Government Version: 03/28/2007	Source: Environmental Health Division
Date Data Arrived at EDR: 04/24/2007	Telephone: 805-654-2813
Date Made Active in Reports: 05/07/2007	Last EDR Contact: 04/10/2007
Number of Days to Update: 13	Next Scheduled EDR Contact: 07/09/2007
	Data Release Frequency: Quarterly

## YOLO COUNTY:

### Underground Storage Tank Comprehensive Facility Report

Underground storage tank sites located in Yolo county.

Date of Government Version: 02/05/2007	Source: Yolo County Department of Health
Date Data Arrived at EDR: 02/20/2007	Telephone: 530-666-8646
Date Made Active in Reports: 03/21/2007	Last EDR Contact: 04/30/2007
Number of Days to Update: 29	Next Scheduled EDR Contact: 07/16/2007
	Data Release Frequency: Annually

## OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

### **CT MANIFEST:** Hazardous Waste Manifest Data

Facility and manifest data. Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a tsd facility.

Date of Government Version: 12/31/2004	Source: Department of Environmental Protection
Date Data Arrived at EDR: 02/17/2006	Telephone: 860-424-3375
Date Made Active in Reports: 04/07/2006	Last EDR Contact: 06/13/2007
Number of Days to Update: 49	Next Scheduled EDR Contact: 09/10/2007
	Data Release Frequency: Annually

### **NJ MANIFEST:** Manifest Information

Hazardous waste manifest information.

Date of Government Version: 04/01/2007	Source: Department of Environmental Protection
Date Data Arrived at EDR: 04/05/2007	Telephone: N/A
Date Made Active in Reports: 05/08/2007	Last EDR Contact: 04/05/2007
Number of Days to Update: 33	Next Scheduled EDR Contact: 07/02/2007
	Data Release Frequency: Annually

### **NY MANIFEST:** Facility and Manifest Data

Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

Date of Government Version: 10/26/2006	Source: Department of Environmental Conservation
Date Data Arrived at EDR: 11/29/2006	Telephone: 518-402-8651
Date Made Active in Reports: 01/05/2007	Last EDR Contact: 06/01/2007
Number of Days to Update: 37	Next Scheduled EDR Contact: 08/27/2007
	Data Release Frequency: Annually

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## **PA MANIFEST:** Manifest Information

Hazardous waste manifest information.

Date of Government Version: 12/31/2005  
Date Data Arrived at EDR: 03/17/2006  
Date Made Active in Reports: 06/06/2006  
Number of Days to Update: 81

Source: Department of Environmental Protection  
Telephone: N/A  
Last EDR Contact: 06/11/2007  
Next Scheduled EDR Contact: 09/10/2007  
Data Release Frequency: Annually

## **RI MANIFEST:** Manifest information

Hazardous waste manifest information

Date of Government Version: 04/09/2007  
Date Data Arrived at EDR: 04/12/2007  
Date Made Active in Reports: 04/27/2007  
Number of Days to Update: 15

Source: Department of Environmental Management  
Telephone: 401-222-2797  
Last EDR Contact: 06/18/2007  
Next Scheduled EDR Contact: 09/17/2007  
Data Release Frequency: Annually

## **WI MANIFEST:** Manifest Information

Hazardous waste manifest information.

Date of Government Version: 12/31/2006  
Date Data Arrived at EDR: 04/27/2007  
Date Made Active in Reports: 06/08/2007  
Number of Days to Update: 42

Source: Department of Natural Resources  
Telephone: N/A  
Last EDR Contact: 04/24/2007  
Next Scheduled EDR Contact: 07/09/2007  
Data Release Frequency: Annually

**Sensitive Receptors:** There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

### **AHA Hospitals:**

Source: American Hospital Association, Inc.  
Telephone: 312-280-5991

The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

### **Medical Centers: Provider of Services Listing**

Source: Centers for Medicare & Medicaid Services  
Telephone: 410-786-3000

A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

### **Nursing Homes**

Source: National Institutes of Health  
Telephone: 301-594-6248

Information on Medicare and Medicaid certified nursing homes in the United States.

### **Public Schools**

Source: National Center for Education Statistics  
Telephone: 202-502-7300

The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

### **Private Schools**

Source: National Center for Education Statistics  
Telephone: 202-502-7300

The National Center for Education Statistics' primary database on private school locations in the United States.

### **Daycare Centers: Licensed Facilities**

Source: Department of Social Services  
Telephone: 916-657-4041

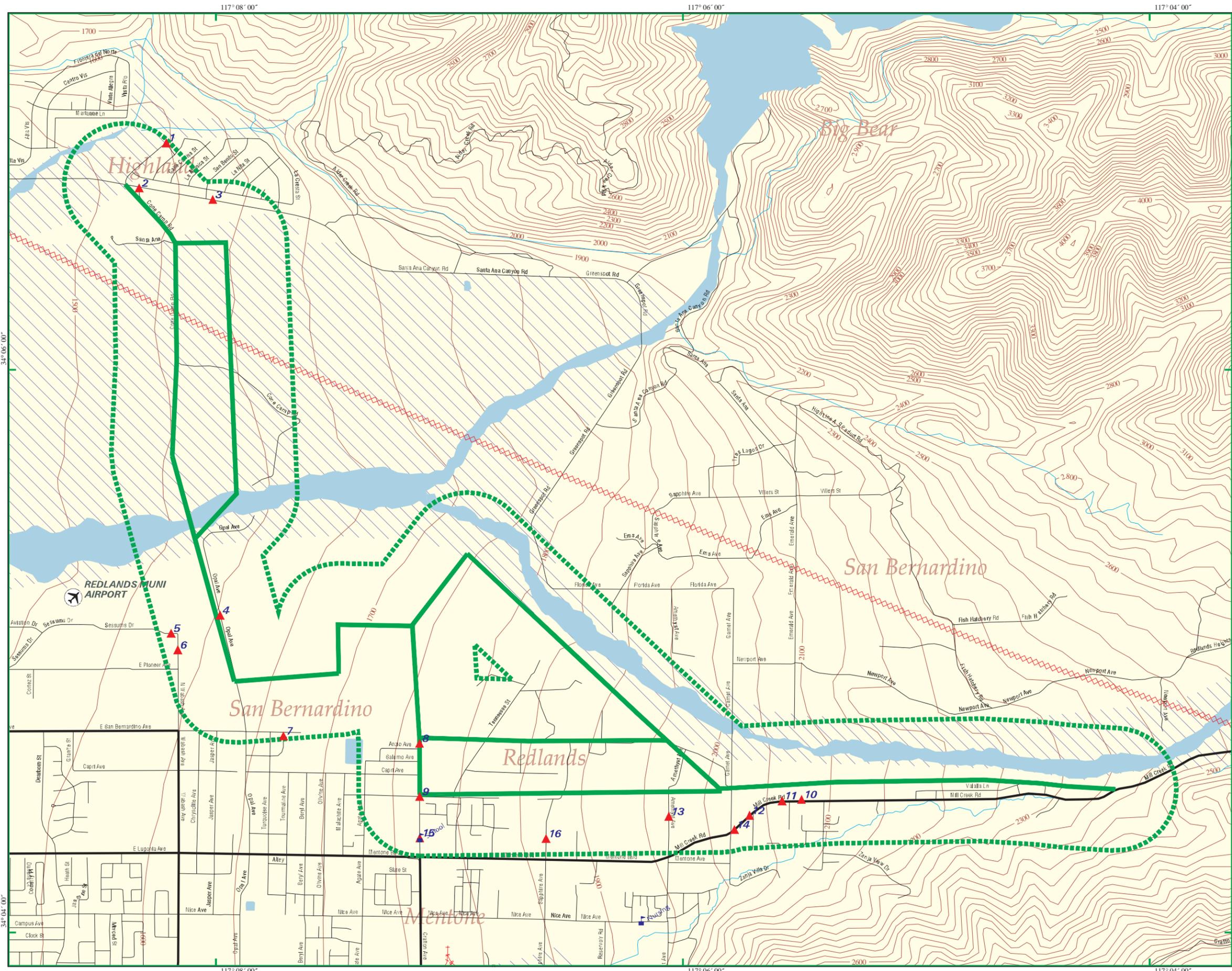
**Flood Zone Data:** This data, available in select counties across the country, was obtained by EDR in 1999 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

## GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

**NWI:** National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002 and 2005 from the U.S. Fish and Wildlife Service.

### **STREET AND ADDRESS INFORMATION**

© 2007 Tele Atlas North America, Inc. All rights reserved. This material is proprietary and the subject of copyright protection and other intellectual property rights owned by or licensed to Tele Atlas North America, Inc. The use of this material is subject to the terms of a license agreement. You will be held liable for any unauthorized copying or disclosure of this material.



### East Branch Extension

- Listed Sites
- Earthquake Epicenters (Richter 5 or greater)
- Search Boundary
- Roads
- Major Roads
- Waterways
- Railroads
- Contour Lines
- Pipelines
- Powerlines
- Fault Lines
- Water
- Superfund Sites
- Federal DOD Sites
- Indian Reservations BIA
- 100-Yr Flood Zones



Mentone, CA



Scale in Miles



# Appendix D

## Hazardous Materials – Section 2, Phase I Report



# Phase I Environmental Site Assessment

---

State of California  
The Resources Agency  
Department of Water Resources  
Division of Environmental Services  
Environmental Site Assessment Section  
1725 23<sup>rd</sup> Street, Suite 220  
Sacramento, California 95816

## East Branch Extension Phase II , Seven-W Enterprises Property

*San Bernardino County, CA*

November 2007



ARNOLD SCHWARZENEGGER  
Governor  
State of California

MIKE CHRISMAN  
Secretary for Resources  
The Resources Agency

LESTER A. SNOW  
Director  
Department of Water Resources

# **FOREWARD**

---

*PHASE I Environmental Site Assessment – November 2007*

The Department of Water Resources' (DWR) Environmental Site Assessment Section (ESAS) conducted this Phase I Environmental Site Assessment (ESA) for a portion of the East Branch Extension Phase II Project. DWR is proposing to extend the East Branch Extension and is currently working on Phase II (EBX-II). EBXII will construct approximately six miles of 72 and 78 inch pipeline between the San Bernardino Valley Municipal Water District (SBVMWD) Foothill pipeline, located at Cone Camp and Greenspot roads, to the Crafton Hills pumping station located near Mills Creek road. The expansion will allow the San Geronio Pass Water Agency (SGPWA) to obtain its contractual allotment for 17,300 acre feet of water.

DWR is evaluating four alternative alignments for the expansion of EBX-II. Two of the proposed alignments, EBXII Alt. 1 and EBXII Alt.2, are adjacent to Seven W Enterprises, Inc. (Seven W, aka Site) property. Both alignments intersect Seven W property at the northwest corner of the abandoned portion of San Bernardino Avenue and Crafton Avenue. The EBX-II Alt.1 alignment follows what is considered as the abandoned San Bernardino Ave. This proposed alignment is the northern boundary of the Seven W property. The EBX Alt.2 alignment follows Crafton Ave. south along the west side of the Seven W property to Maderia Ave., where the proposed alignment turns east and follows Maderia Ave. for approximately two miles. Crafton and Maderia Avenues are public streets. Both of these proposed alignments have the potential to temporarily impact ingress and egress to Seven W property.

This Phase I ESA was performed in conformance with the scope and limitations of the American Society for Testing and Materials (ASTM) E1527-05 standard practice and the requirements set forth in Title 40, Part 312 of the Code of Federal Regulations (CFR). The contents of this Phase I ESA report are based on information from the following activities: a site reconnaissance, historical review of land use, review of land title records, consultation with local environmental health officials, contact with the land owner, review of available maps and records, review of cultural resource databases, and review of federal and State environmental databases.

A Cultural Resources assessment for the East Branch Extension Phase II was completed separately from this ESA. The Cultural Resources report *EAST BRANCH EXTENSIONS PHASE II ARCHEOLOGICAL SURVEY REPORT SAN BERNARDINO COUNTY, CALIFORNIA*, September 2007 was prepared by Tiffany Schmid, Associate Environmental Planner-Archeologist, and Janis Offermann, Senior Environmental Planner with DWR's Cultural, Recreation and Environmental Planning Section.

This Phase 1 ESA revealed issues of concern in regards to the past usage of the Seven W property, which was previously owned and operated by Lockheed Propulsion Company (Lockheed). The Santa Ana Regional Water Quality Control Board (RWQCB), under Investigation Order 94-11 and Clean up and Abatement Orders 94-37, 97-58 and 01-56 requires Lockheed to test and monitor for Trichloroethylene (TCE) and perchlorate in the ground water.

Overall, this assessment did reveal evidence of "recognized environmental conditions" in connection with the Site, which is continuing to be addressed by

the Santa Ana RWQCB. However, the preexisting environmental conditions at the Site would not prohibit or otherwise impact DWR's use of the site for either the EBXII Alt.1 or EBXII Alt. 2 alternative project alignments.

For further information, please contact Donald C. Guy, Environmental Scientist, at (916) 445-6390.

Barbara McDonnell, Chief  
Division of Environmental Services

# TABLE OF CONTENTS

---

**FOREWARD ..... IV**

**TABLES AND FIGURES ..... VIII**

**ORGANIZATION..... ERROR! BOOKMARK NOT DEFINED.**  
STATE OF CALIFORNIA.....Error! Bookmark not defined.  
THE RESOURCES AGENCY .....Error! Bookmark not defined.  
THE DEPARTMENT OF WATER RESOURCES.....Error! Bookmark not defined.  
DIVISION OF ENVIRONMENTAL SERVICES .....Error! Bookmark not defined.  
THIS REPORT WAS PREPARED UNDER THE SUPERVISION OF.....Error! Bookmark not defined.

**1.0 INTRODUCTION ..... 1**

**1.1 Purpose ..... 1**

**1.2 Scope of Services ..... 2**

**1.3 Limitations ..... 2**

**2.0 SITE LOCATION..... 3**

**2.1 Legal Description ..... 3**

**2.2 Site Reconnaissance..... 3**

**3.1 Aerial Photos..... 6**

**3.2 Land Use Records ..... 6**

**3.3 Land Use ..... 7**

**3.4 Land Owner Interview ..... 8**

**3.5 Cultural Historical Resources..... 8**

**4.0 AREA DEVELOPMENT ..... 10**

**4.1 Adjacent Properties..... 10**

**4.2 Regulatory Agency Database Review..... 10**

**4.2.1 Database Review ..... 12**

**4.3 Local and Regional Regulatory Agency Review..... 12**

**4.3.1 ...County, Agricultural Commissioner (CAC) Office ..... 12**

4.3.2 ...County, Department of Environmental Health .....	13
<b>5.0 ENVIRONMENTAL FEATURES .....</b>	<b>14</b>
5.1 Topography .....	14
5.2 Soils.....	14
5.2.1 Soil Samples .....	14
5.2.2 Naturally Occurring Asbestos (NOA) .....	15
5.3 Recognized Environmental Conditions .....	15
5.3.1 Asbestos .....	16
5.3.2 Radon .....	16
5.3.3 Lead.....	16
5.3.4 Polychlorinated biphenyls (PCBs) .....	16
5.3.5 Septic Systems .....	16
5.4 Biology .....	16
<b>6.0 CONCLUSIONS AND RECOMMENDATIONS .....</b>	<b>19</b>
6.1 Data Gaps .....	19
6.2 Conclusion .....	19
6.2 Recommendations.....	19
<b>7.0 REFERENCES .....</b>	<b>21</b>
<b>8.0 SIGNATURES .....</b>	<b>23</b>

## **TABLES AND FIGURES**

TABLE 1 – LEGAL DESCRIPTION.....	3
TABLE 2 - LAND TITLE RECORD SUMMARY .....	6
TABLE 3 - REGULATORY AGENCY DATABASES .....	10
TABLE 4 - SEVEN W SOIL .....	14

# **ORGANIZATION**

---

## **STATE OF CALIFORNIA**

Arnold Schwarzenegger.....Governor

## **THE RESOURCES AGENCY**

Mike Chrisman.....Secretary for Resources

## **THE DEPARTMENT OF WATER RESOURCES**

Lester Snow .....Director  
Vacant .....Chief Deputy Director  
Leslie Harder, Jr.....Deputy Director  
Gerald Johns.....Deputy Director  
Ralph Torres...Deputy Director  
Timothy Haines.....Deputy Director  
Reuben Jimenez.....Deputy Director  
Mark Cowin.....Deputy Director  
David Sandino.....Chief Counsel

## **DIVISION OF ENVIRONMENTAL SERVICES**

Barbara McDonnell.....Chief, Division of Environmental Services  
Delores Brown.....Chief, Office of Environmental Compliance

## **THIS REPORT WAS PREPARED UNDER THE SUPERVISION OF**

Derrick Adachi.....Chief, Environmental Compliance and Evaluation Branch  
Karen Enstrom.....Chief, Environmental Site Assessment Section

## **BY**

Leah McNearney.....Environmental Scientist  
Donald Guy.....Environmental Scientist

# **1.0 INTRODUCTION**

## **1.1 Purpose**

This Phase I ESA was performed in accordance with standards prescribed by the American Society for Testing and Materials (ASTM) Designation E 1527-05 and the Environmental Protection Agency all appropriate inquiry (AAI) as required under 40 CFR §312.21. The contents of this Phase I ESA report are based on information from the following activities: a site reconnaissance, historical review of land use, review of land title records, consultation with local environmental health officials, contact with the land owner, review of available maps and records, review of cultural resource databases, and review of federal and State environmental databases.

The purpose of this Phase I ESA is to identify recognized environmental conditions. This ASTM standard defines the term “recognized environmental conditions” as:

“...the presence or likely presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release, or material threat of a release of any hazardous substances or petroleum products into structures on the property or into the ground, groundwater, or surface water of the property. The term includes hazardous substances or petroleum products even under conditions in compliance with laws...The term is not intended to include de minimis conditions that generally do not present a material risk of harm to public health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate government agencies.”

The Department of Water Resources’ (DWR) Environmental Site Assessment Section (ESAS) conducted this Phase I Environmental Site Assessment (ESA) for a portion of the East Branch Extension Phase II Project. DWR is proposing to extend the East Branch Extension and is currently working on Phase II (EBX-II). EBXII will construct approximately six miles of 72 and 78 inch pipeline between the San Bernardino Valley Municipal Water District (SBVMWD) Foothill pipeline, located at Cone Camp and Greenspot road, to the Crafton Hills pumping station, located near Mills Creek road. The expansion will allow the San Gorgonio Pass Water Agency (SGPWA) to obtain its contractual allotment of 17,300 acre feet of water.

DWR is evaluating four alternative alignments for the expansion of EBX-II. Two of the proposed alignments, EBXII Alt. 1 and EBXII Alt.2, are adjacent to Seven W Enterprises, Inc. (Seven W, aka Site) property. Both alignments intersect Seven W property at the northwest corner of the abandoned portion of San Bernardino Avenue and Crafton Avenue. The EBX-II Alt.1 alignment follows what is considered as the abandoned San Bernardino Ave. This proposed alignment is the northern boundary of the Seven W property. The EBX Alt.2 alignment follows Crafton Ave. south along the west side of the Seven W property to Maderia Ave., where the proposed alignment turns east and follows Maderia Ave. for approximately two miles. Crafton and Maderia Avenues are public streets. Both of

these proposed alignments have the potential to temporarily impact ingress and egress to Seven W property. (See Figures)

## **1.2 Scope of Services**

This investigation has been conducted in accordance with the aforementioned industry-accepted EPA AAI and ASTM standard practice for Phase I ESA's along with the Department of Water Resources (DWR) guidelines.

DWR's investigation included the following tasks:

- Reconnaissance of the Site
- Review of historic land use
- Review of land title records
- Communication with the current land owner or operator
- Review of federal and State regulatory agency environmental databases
- Consultation with local environmental health officials
- Review of a cultural resources record search

## **1.3 Limitations**

Any level of assessment cannot determine that a property is free of all potential environmental impairments such as chemicals and toxic substances. DWR cannot certify or guarantee the absence of these conditions on the subject site.

Variations could exist beyond or between areas investigated for this assessment. Conditions listed or observed could change because of the migration of contaminants, change in grades, rainfall variation, temperature, and/or other factors not apparent at the time of this assessment.

This assessment was performed for the sole use of DWR. Any reliance or use of information contained herein by a third party is at such party's sole risk. Other parties who rely on information provided in this report are responsible for determining the adequacy of information provided herein.

As described in the standards, this assessment is presumed to be valid for 180 days. After that period, it should not be used without a current investigation of conditions likely to affect recognized environmental conditions on the property, which may have changed materially since this assessment was first conducted.

The services performed by DWR have been conducted consistent with the level of care and skill exercised by members of our profession currently practicing under similar conditions in the State of California. No other warranty, either expressed or implied, is made.

## **2.0 SITE LOCATION**

The following section discusses the legal description, location, and general characteristics of the subject property (Site) for the proposed alignments EBXII Alt. 1 and EBXII Alt. 2. See Figures 1 and 2 for location.

### **2.1 Legal Description**

The proposed EBXII Alt 1 and EBXII Alt 2 alignments are located in the city of Redlands, in San Bernardino County, California. This ESA assesses the portion of the Seven W property that intersects the proposed EBXII Alt 1 and EBXII Alt 2 alignments. Seven W property consists of three continuous parcels in the NW corner of Section 20, T1S, R2W on the Yucaipa USGS 7.5-minute quadrangle map. See Table 1.

**Table 1 – Legal Description of Seven W Properties**

<b>County</b>	<b>APN</b>	<b>Size</b>	<b>Location</b>
San Bernardino County	0168-381-03	8.66 acres	Northwest corner Section 20, T1S, R2W of Yucaipa USGS 7.5 minute quadrangle
	0168-371-04	61.60 acres	
	0168-371-06	15.34 acres	

### **2.2 Site Reconnaissance**

A site reconnaissance of Seven W's property was performed on November 14 and 15, 2006 by Leah McNearney and Donald C. Guy, Environmental Scientists with the Department of Water Resources, Environmental Site Assessment Section. Seven W Enterprises, Inc. General Manager, Bill Caronna, was in attendance with Environmental Site Assessment Section (ESAS) staff during the inspection of the buildings on the Seven W property.

DWR found it necessary to obtain a court-ordered entry permit for the Seven W property. As required by the CEQA process, DWR needed to determine the environmental impacts from EBXII Alt 1 and EBXII Alt 2 pipeline alternative alignments. In order for DWR to qualify under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) (42 U.S.C. §9601), the *innocent landowner, contiguous property owner, or bona fide prospective purchaser limitations on CERCLA liability*", ESAS staff requested the Court to grant permission to survey and evaluate all buildings and their contents on the Seven W property. Seven W property representatives and the Court requested that DWR use discretion during the ESA process, observing Seven W's tenants' proprietary rights of confidentiality.. To comply with the ASTM and AAI requirements and to allow DWR to qualify for CERCLA protection, Donald Guy, Environmental Scientist with DWR and a Registered Environmental Assessor (REA 08040 ) with the Department of Toxic Substance Control, surveyed the buildings on Seven W property to assess any potential impacts.

#### Alignments and Associated Buildings:

The alignment alternative EBXII Alt 1 begins at Crafton Ave. and heads east following the northern property boundary of Seven W's property line. Approximately ten feet of vegetated area exists between Seven W's property line fence and the paved parking lot. The vegetated area and pavement continue the length of the Seven W Industrial Park on the north side. There are five buildings that have the potential to be impacted if EBXII Alt 1 is chosen, all of which are approximately 50 feet from the northern property line. (see figures)

Building 7W-1 is an approximately 40,000 sq ft warehouse and was built post-Lockheed for General Telephone and Electronics (GTE) as one of their regional centers. At the time of the ESAS site visit, the interior of the building was being used by the Highlands Supply Company to warehouse merchandise. Highlands Supply is one of the associates of Seven W. All outer perimeter office spaces were vacant. No chemicals were observed.

Building 118 was built in the 1950's and was also being used to warehouse merchandise for Highlands Supply. The building floors are comprised of nine-inch tiles, presumably Asbestos Containing Material (ACM).

Building 115 was being used by the Highlands Supply company to mix the chemicals used in their dyeing process of aluminum foil. The drums contained inks and solvents. Mr. Caronna stated that most of the work for the Highland Supply is now produced in the Highlands Supply facility in Mexico, with very little of the work being done at the Seven W facility.

Building 114 has not been occupied for 30 years. The building houses office space with floors comprised of nine-inch floor tiles, presumably ACM.

Building 111 is occupied by Inland Empire Coffee company. The building contained office spaces and a small coffee roasting facility. No roasting activities were occurring at the time of our site visit.

The bone yard contained no materials that would affect or interfere with the construction of the pipeline.

On the northeast corner of the Seven W property is building 131. This building was being used to store cardboard and sheetrock. The sheetrock was stacked on pallets that were 10-15 feet tall. The material had been in the building for several years. Damage from weather and vandalism was evident.

The alignment alternative EBX-II Alt 2 would be placed outside, but adjacent to Seven W property, within the right-of-way of Crafton and Madeira Avenues. There are only two buildings on Crafton Ave. within the Seven W properties that have a potential to be impacted.

Building 7W-1 is approximately 65 feet from Crafton Ave. (See above, EBXII Alt 1 Building 7W-1, for building description)

Buildings 125, 126, and 127 are connected by common walls or breeze-ways. The buildings are approximately 200 feet from Crafton Ave. Building 125 was occupied by GTE until the 1990's. The building is currently vacant. Building 126 is used by Seven W as office space. Building 127 contained merchandise and the library for Highlands Supply Corporation.

Along Maderia Ave there are three buildings on Seven W property that potentially could be impacted if the EBXII Alt 2 alignment alternative is chosen.

At the time of this ESA, wings A and B were being used by The Highlands Supply Corporation owners as residence quarters with a recreational fitness room and a machine shop. Wing C was being used for storage and a residence quarters for visiting family members. Wing D was once office space for Lockheed. At the time of our site visit the building was used as a commercial bakery, no name was given during the interview with Mr. Caronna. Wing E was used as a storage area for Highlands Supply Corporation.

Building 128 is being used as a warehouse for Highlands Supply Corporation.

Building 132 is leased to a private construction business. The building was nearly empty with the exception of an end-loader, work truck and two jet skis. (See Appendix A).

### 3.0 HISTORICAL LAND USE

The following section reviews aerial photographs, land title records, land use and owner input for the Site and vicinity.

#### **3.1 Aerial Photos**

Aerial photographs are considered a customary historical source according to the ASTM standard. They are to be reviewed provided they are necessary, reasonably ascertainable, and likely to be useful in identifying the past and present uses of the Site.

ESAS staff reviewed USGS TerraServer aerial photographs from August 14, 1989, 2005, and Google Earth aerial photographs from 2007. The aerial photos revealed little has changed on the Site; however, did show that a significant amount of residential development has occurred around the Site since 1989.

#### **3.2 Land Use Records**

Land Title records were provided by Delia Grijalva, Associate Land Agent with DWR's Division of Engineering, Acquisitions and Utility Relocations Section. The Land Title records indicated that no documents or agreements to transfer any of the easements were recorded within two years prior to the date of this Phase I ESA report. The current owner/operator is Seven W Enterprises, Inc., A Delaware Corporation.

In general, the land title records did reveal past and present potential sources of environmental degradation due to land ownership uses. A summary of the land title records is found in Table 2 below.

**TABLE 2 - Land Title Record Summary**

<b>GRANT TYPE</b>	<b>GRANTED IN FAVOR OF</b>	<b>PURPOSE</b>	<b>RECORDED</b>
<b>APN 0168-371-04, 06; APN 0168-381-03</b>			
Easement	Sunnyside Ditch	Water drainage	Book 51 page 43 of Deeds
Easement	Pipe line and incidental purposes	Incidental purposes	Book 69 page 144 of Deeds
Judgment and Decree	Action 19388 Superior Court San Bernardino	121 miners inches of water rights	Book 748 of Deed, Page 101& book 746 of Deeds, page 138
Easements	Pole lines, conduit, incidental	Electrical	Document of records book 366, page 376
Easement	Pole line, transformer pad and incidentals	Electrical	Document of records book 4554, page 413
Easement	Underground electrical lines	Electrical	Document of records book 6951, page 200

Easement	Underground electrical supply system	Electrical	Document of records book 7683, page 990
Easement	City of Redlands	Roads, public utilities and public services	May 12, 1981, Instrument No. 81-103860 81-103861
Easement	City of Redlands	Pipeline, ingress and egress public utilities and public services	September 12, 1986, Instrument No. 86-264711
Easement	City of Redlands, municipal corporation	Well	December 15, 1987 Instrument No. 87-437988 December 15, 1987 Instrument No. 88-076100
Easement	So California Edison Company	Public Utilities	February 23, 1988 Instrument No. 88-053201
Easement	So California Edison Company	Public Utilities	February 20, 1990 Instrument No. 90-065575

### 3.3 Land Use

Tom Patterson, with Strategic Engineering and Science Inc., is the Project Coordinator for Seven W property for Lockheed Martin Propulsion Corporation. In an email dated January 5, 2007, Mr. Patterson chronicled the property known as Seven W Enterprises, Inc. Business Park from Lockheed Martin's records.

1920's

The Site in and around Seven W property was used for ground water recharge.

1920-1978

Owned by the city of Redlands, the Site was leased to Lockheed Martin.

1954-1961

Grand Central Rocket Company (GCRC) began operation in 1954, leasing 400 acres from the city of Redlands. GCRC developed and tested solid rocket propellant.

1961-1974

Lockheed Propulsion Company (aka Lockheed Martin Propulsion Corporation) acquired the Site from GCRC in 1961 and used the Site to develop and test solid fuel rockets for military and commercial use.

1978-current

The city of Redlands deeded a large portion of the area to the San Bernardino Valley Water Conservation District.

1979-current

Lockheed Propulsion Company purchased 66 acres from the city of Redlands and sold it to Seven W.

Currently

Seven W Enterprises, Inc. leases several of the buildings for commercial use. At the time of the site visit, there was heavy construction machinery in one warehouse, a bakery, a coffee grinding business, welding shop, and small manufacturer. A majority of the buildings were used by the Highlands Supplies company for storage.

### **3.4 Land Owner Interview**

Seven W's General Manager, Mr. Caronna, was handed copies of the ESAS's Owners Audit for Seven W and copies were also provided to each of the tenants within the Seven W Enterprises Inc. Business Park during our site visit November 14, 2006. Mr. Caronna stated that he would forward the copies to Seven W legal counsel. No Owner Audit forms from Seven W or their tenants have been provided to date. All questions asked of Mr. Caronna pertaining to the environmental condition of the Site were answered with "all the information pertaining to the Site already exists in the quarterly reports required by the SARWQCB" under Investigation Order 94-11 and Clean up and Abatement Orders 94-37, 97-58 and 01-56. SARWQCB has required Lockheed to test and monitor for Trichloroethylene (TCE) and percolate in the ground water.

### **3.5 Cultural Historical Resources**

Cultural Resources Assessment for the East Branch Extension Phase II was completed separately from this ESA. The Cultural Resources report *EAST BRANCH EXTENSIONS PHASE II ARCHEOLOGICAL SURVEY REPORT SAN BERNARDINO COUNTY, CALIFORNIA*, September 2007 was prepared by Tiffany Schmid, Associate Environmental Planner-Archeologist, and Janis Offermann, Senior Environmental Planner with DWR Cultural, Recreation and Environmental Planner Section.

## 4.0 Area Development

### 4.1 Adjacent Properties

North of Seven W is the Horace P. Hinckley Water Treatment Plant which owns approximately 400 acres that is operated by the San Bernardino Valley Water District. Most of the 400 acres is occupied by percolation ponds. There are two main structures, six large holding ponds and six smaller filtering tanks on the property. There are abandoned structures northeast and east of the water treatment facility that were part of the Lockheed Jet Propulsion Site, which are all in a state of disrepair.

The northwest corner of the Site consists of a citrus orchard.

The residential housing tract exists along the west side of Crafton Ave.

To the south side of Maderia Ave. is a residential subdivision. The neighborhood is fenced by a sound-wall. Maderia Ave. ends about half the length of Seven W property. At the end of Maderia Ave. there are approximately 20 acres of vacant field owned by Vitoria Homes. A cellular tower that looks like a water tank is located on the southern end of this parcel.

Further east is the Jac T property, which has a residential home. Several recreational vehicles were being stored here at the time of our site visit. Next to the Jac T property is another private residence owned by the Theissen's.

### 4.2 Regulatory Agency Database Review

Table 3 shows a list of the databases that were reviewed for this Phase 1 ESA.

Table 3 - Regulatory Agency Databases

DATABASE	ACRONYM	SUMMARY
<b>Federal Sources</b>		
National Priority List	NPL	Prioritizes USEPA sites with significant risk to human health and the environment.
Comprehensive Environmental Response, Compensation, and Liability Information System	CERCLIS	Tracks activities conducted under CERCLA and SARA.
No Further Remedial Action Planned Sites	NFRAP	Lists facilities that have been removed from the CERCLIS list.
Federal Facilities	FEDFAC	Lists federal facilities with known or suspected environmental problems.
Emergency Response Notification System	ERNS	Lists unauthorized releases of oil and hazardous substances.
Site Enforcement Tracking System	SETS	Tracks parties identified with potential financial responsibility for remediation of uncontrolled hazardous waste sites.
Enforcement Docket System (DOCKET)/Consent Decree Tracking System (CDETS)	DO	Tracks civil judicial cases against environmental polluters and processes court settlements called consent decrees.
Criminal Docket System (C-DOCKET)	CD	Tracks criminal enforcement actions and handles data for environmental statute and tracks enforcement actions.

Table 3 - Regulatory Agency Databases

DATABASE	ACRONYM	SUMMARY
RCRA Corrective Action Report	RCRA or CORRACTS	Tracks "cradle to grave" regulation of hazardous waste generators, transporters, and storage, treatment, and disposal facilities.
Federal Enforcement Dockets	FD	Lists sites under enforcement by the US EPA.
<b>California State Sources</b>		
Annual Work Plan	AW	Identifies California hazardous waste sites targeted for cleanup by responsible parties.
CALSITES	CALS	Potential hazardous waste sites as identified by the Historical Abandoned Site Survey Program.
CALSITES – No Further Action	CALS	Sites on the CALSITES list that have been flagged for no further action by CalEPA.
State of California Office of Planning and Research	CORTESE	Consolidated information potential and confirmed hazardous waste or substance sites.
Leaking Underground Storage Tanks	LUST	Tracking provided by the State Water Resources Control Board.
Solid Waste Information System	SWIS	Lists active solid waste disposal sites, inactive or closed solid waste disposal sites and transfer facilities.
Well Investigation Program	WIP	Identifies groundwater that is already contaminated.
Drinking Water Program	WQ	Tracks information on the quality of public drinking water wells.
<b>Regional Sources</b>		
Toxic Releases	NT	Tracks toxic unauthorized releases, spills, leaks, investigations, cleanups, non-tank releases, and lists of toxics.
Toxic Pits	TPC	Tracks discharge of liquid hazardous wastes into surface impoundments, toxic ponds, pits, and lagoons.
Solid Waste Assessment Test – Regional	SWAT®	Tracks disposal sites with more than 50,000 cubic yards of waste which have discharges.
Resource Conservation and Recovery Information System – Generators	RCRA-G	Tracks hazardous waste generators.
Resource Conservation and Recover Information System – Treatment, Storage & Disposal	RCRA-D	Tracks hazardous waste treatment, storage, and disposal facilities.
Superfund Amendments and Reauthorization Act, Title III, Section 313	SARA	Tracks owners or operators of facilities that manufacture, process, or use more than a threshold of a certain chemical.
Nuclear Regulatory Commission Licensees	NC	Tracks the licensing, inspection and environmental impact assessment for all nuclear facilities and activities, and for all import and export of special nuclear material.
PCB Waste Handlers Database	PCB	Tracks generators, transporters, commercial stores, and disposers of PCBs.
Permit Compliance System	PCS	Tracks permit, compliance, and enforcement states of NPDES facilities.
AIRS Facility System	AFS	Contains emissions and compliance data on air pollution point sources.
Section Seven Tracking System (SSTS)	PE	Tracks registration of all pesticide producing establishments and types, amounts, active ingredients, and devices produced.

**Table 3 - Regulatory Agency Databases**

<b>DATABASE</b>	<b>ACRONYM</b>	<b>SUMMARY</b>
Federal Insecticide, Fungicide, and Rodenticide Control Act	FIFRA	Supports implementation of FIFRA and the Toxic Substance Control Act.
Federal Facilities Information System	FFIS	Lists all treatment, storage, and disposal facilities owned and operated by federal agencies.
<b>Operating Permits</b>		
Chemicals in Commerce Information System	CICIS	Inventories chemicals manufactured in commerce or imported for regulated commercial purposes.
FINDS EPA Facility Index System	FINDS	Indexes all facilities that are regulated or have been assigned an identification number.
Hazardous Waste Information System	HWIS	Tracks the movement and disposal of hazardous waste.
Permitted Underground Storage Tanks	UST	List of registered underground storage tanks.

**4.2.1 Database Review**

ESAS staff reviewed the database information for those locations listed within the approximate minimum search distance of the Site, emphasizing those locations expected to be up-gradient of the Site and that have been subject to groundwater contamination. In most cases, further file review is conducted only on listed sites identified as being (1) subject to groundwater contamination, (2) within one-eighth mile of the Site, or (3) that may be up gradient of the Site. The environmental database report identifies recorded contaminated sites within one mile of the Site. If contaminated sites are identified, they are plotted to determine their relation to the Site. The database search revealed no incidences that have occurred within approximately a quarter mile of the Site.

The database search did not identify any facilities or incidences within the one-mile radius search that pose an adverse environmental impact unless the present status differs from that reported on the database report.

**4.3 Local and Regional Regulatory Agency Review**

**4.3.1 County, Agricultural Commissioner (CAC) Office**

The Deputy Agricultural Commissioner, Jim Mitchell, of the San Bernardino County Agricultural Commissioner Office was contacted on February 5, 2007,. The Site was not historically used for agricultural purposes. However, the site next to Seven W is currently a citrus orchard.

Brad Sanford, Agricultural Standards Officers 4 with the San Bernardino CAC and working in the Pesticide Unit, was contacted on February 7, 2007. ESAS discussed the issue of high zinc concentrations found in the one sample taken on the Seven W property close to the Mentone citrus orchard. The Mentone citrus orchard has a restricted permit, issued in 2005, which does not allow the use of zinc compounds. Zinc phosphate is used as a pesticide for rodents. Zinc can also be used in fertilizers. Mr. Sanford stated that the Mentone Citrus orchard said they

were only using cow manure as a fertilizer and that they were not using a zinc-based rodenticide.

#### **4.3.2 County, Department of Environmental Health**

During a phone conversation with Ann Reed with the San Bernadino County Environmental Health Department on November 9, 2007, she stated that there were two water wells, one located at the intersection of Crafton and San Bernardino Avenues and one located at the intersection of Crafton and Maderia Avenues. Ms. Reed stated that both wells were installed in August of 2004. No further information about the wells was given.

#### **4.3.3 Regional Water Quality Control Board**

Kamron Saremi with the Santa Ana RWQCB has been investigating LPC/Seven W property for 20 years. Mr. Saremi has provided copies of the annual reports as required by the SARWQCB of the former LPC Investigation Order No. 94-11 and Redlands Plum clean-up and Abatement orders 94-37 and 97-58, as amended by 01-56. The Site was determined to be one of the origins of a TCE and perchlorate ground water plume. Mr. Saremi stated in phone conversation 2/15/07 that the water below the Site is clean, but the RWQCB will require LPC to monitor the Site for another year or two.

Mr. Saremi stated that if DWR encounters ground water during construction of the EBXII, and if the water has to be pumped out during construction, the RWQCB would like the water pumped into a baker tank before being placed in a percolation pond.

## **5.0 ENVIRONMENTAL FEATURES**

The following section discusses the environmental features of the Site and their potential effect, if any. The topics discussed here include topography, geology, soil, recognized environmental conditions, and biology of the Site and vicinity.

### **5.1 Topography**

This Site is located on the Yucaipa, California SE/4 Redlands 15' Quadrangle topographic in T1S, R2W northwest ¼ section 20. The approximate center of the Site is located at 034°04'31.6"N, 117°06'57.42"W with an elevation of 1818 feet. The ground has been significantly disturbed, there are berms built from the surrounding soils around several of the structures, remnants of old buildings, and in-ground structures.

### **5.2 Soils**

ESAS staff reviewed the First American Commercial Real Estate Services, Inc. record check to identify soil types for East Branch Extension Project Phase II in San Bernardino County

The following soil types and slopes were identified:

Buren	2% to 8% slope, 4% of total	Gorgonio	2% to 8% slope, 2% of total
Gorgonio	2% to 15% slope, 15% of total	Greenfield	2% to 8% slope, 26% of total
Hanford	2% to 8% slope, 18% of total	Hanford	2% to 15% slope, 2% of total
Madera	2% to 8% slope, 4% of total	Ramona	0% to 2% slope, 5% of total
Ramona	15% to 25% slope, 2% of total	Tujunga	0% to 8% slope, 1% of total
Tujunga	0% to 8% slope, 3% of total	Urban Land	0% to 15% slope, 8% of total

#### **5.2.1 Soil Samples**

Five soils sample were collected on the last day of ESAS site reconnaissance. ESAS staff used a hand auger to a depth of 3 feet. The samples were tested for semi-volatile organics by GC/MS-Chemical Ionization (EPA 3520C/1625C-CI MOD), for metals, Inorganics, CMI-VOL Organics by GC/MS-Chemical Ionization (EPA 3520/1625C-CI MOD) by Test America Analytical Testing Corporation. Sample W-5 Zinc was the sample that was outside the normal concentration distribution for the area.

**Table 4 - Seven W Soil**

Metal	Seven W-1	Seven W-2	Seven W-3	Seven W-4	Seven W-5
Barium	49	60	77	64	56
Chromium	16	18	29	18	23
Cobalt	6.3	7.3	10	7.8	7.6
Copper	10	12	19	14	24
Lead	3.5	4.2	14	4.4	40
Nickel	8.9	11	17	11	15
Vanadium	28	29	44	34	28
Zinc	34	39	59	44	<b>930</b>

### **5.2.2 Naturally Occurring Asbestos (NOA)**

In July 2001, the California Air Resources Control Board approved an Asbestos Airborne Toxic Control Measure (ATCM) for Construction, Grading, Quarrying, and Surface Mining Operations that was adopted into Section 93105 of Title 17, California Code of Regulations. This ATCM requires road construction and maintenance activities, construction and grading operations, and quarrying and surface mining operations in areas where NOA is likely to be found, to employ the best available dust mitigation measures.

To determine the applicability of the ATCM, the regulation provides that a geologic evaluation be performed by a registered geologist to determine whether NOA, such as serpentine or ultramafic rock, is present or likely to be found in the area to be disturbed.

Based on a review of available geologic maps for California, it does not appear that the Site is situated within a region known to contain NOA. Nonetheless, to ensure compliance with the above regulation, a geologic evaluation by a registered geologist may be needed.

### **5.3 Recognized Environmental Conditions**

During the site reconnaissance, ESAS staff conducted a visual survey to identify any recognized environmental conditions, such as past or present releases of hazardous substances or petroleum products. As a guideline to identify recognized environmental conditions, the

The AAI and ASTM standards suggest looking for the following uses and conditions when conducting a site reconnaissance:

- Hazardous substances and petroleum products in connection with identified uses
- Storage tanks
- Odors
- Pools of liquid
- Drums
- Hazardous substance or petroleum product containers
- Unidentified substance containers
- Polychlorinated biphenyl (PCB)
- Pits, ponds, or lagoons
- Stained soil or pavement
- Stressed vegetation
- Solid waste
- Waste water
- Wells
- Septic systems

### **5.3.1 Asbestos**

As reported in Section 2.2, there were potential sources of ACM through out the structures through out the Site. EBXII Alt 1 or EBXII Alt 2 if chosen would not have an impact on the asbestos with in the structures.

### **5.3.2 Radon**

Based on the information from the U.S. Environmental Protection Agency, the existence of radon does not likely present a significant concern to the Site. The Site is located in Radon Zone Level 2, with a predicted average indoor screening level of less than 2.0 – 4.0 pCi/L (US EPA, 2002). The U.S. EPA guideline for radon is 4.0 pCi/L.

### **5.3.3 Lead**

Due to the age and the visual inspection of the structure on Seven W, a majority of the structures that are painted have the potential for contain lead-based paint.

EBXII Alt 1 and EBXII Alt 2 alternative alignments would not have a significant impact on the structures; therefore, contamination from the lead-based paint would not occur as a result of the project.

### **5.3.4 Polychlorinated biphenyls (PCBs)**

The federal Toxic Substance Control Act (TSCA) generally prohibited the domestic manufacture of PCBs after 1979; however, there is a potential for the dielectric fluid in electrical and hydraulic equipment manufactured prior to that date to contain PCBs. From special electrical transformers, hydraulic equipment, capacitors, and similar equipment may contain polychlorinated biphenyls (PCBs) in hydraulic or dielectric insulating fluids within the unit.

Located in the center of the industrial portion of the Site is a transformer that services the Site. Mr. Caronna asked that ESAS not look in the building that houses the transformer, due to the size of the transformer and that safety training and safety equipment would be required to enter the building. From the age of the buildings and equipment located on the Site, it can be reasonably assumed that there is a high probability the transformer does contain PCB's.

### **5.3.5 Septic Systems**

There were no septic systems observed at the Site.

## **5.4 Biology**

Mary Miller, Senior Environmental Scientist with the Recreation and Environmental Studies Section of DWR's Southern District (SD), is working on a comprehensive biological evaluation for the entire East Branch Extension Phase II Project EIR. If

you have any questions pertaining to the biological sensitivity of the Site, all questions should be directed to Mary Miller.



## **6.0 CONCLUSIONS AND RECOMMENDATIONS**

This Phase I ESA was performed in accordance with the scope and limitations of EPA AAI and ASTM E 1527-05 standard and practice. Any exceptions to, or deletions from, this standard practice are described in the text of the report.

### **6.1 Data Gaps**

Seven W and their representatives, Mr. Caronna and Seven W legal staff, were provided with several copies of DWR's Environmental Site Assessment Section's Owner/Operator Disclosure Audit. Several copies were provided for Seven W and the tenants of the Site. No completed Audits have been returned to DWR to date.

### **6.2 Conclusion**

Based on the information available at the time of this Phase I ESA investigation, this assessment has revealed evidence of recognized environmental conditions in connection with the Site. However, the current environmental conditions of the Site would not significantly impact, or be impacted by, EBX Alt-1 or EBX Alt-2 project alignments.

### **6.2 Recommendations**

There is no environmental condition that should prohibit either EBX II Alternative 1 or 2 from being chosen. In discussion with the SA RWQCB, if EBXII Alt-1 or 2 is chosen and ground water is encountered during construction, the water should be pumped into a baker tank and held for a couple of days before being discharged into a percolation pond for ground water recharge. The RWQCB should be consulted and notified regarding when and where construction activity will be taking place to make sure construction activities do not interfere or impact existing monitoring wells in or around the Site.

As stated in Section 2.2, several buildings are being used for storage and one of the buildings is being used by the Highland Supply company to mix and store chemicals. For safety reasons, if either if the alignments are chosen, Seven W and their tenants should be pre-notified to allow them ample time to secure stored chemicals and to notify personnel to take the appropriate safety precautions.



## **7.0 REFERENCES**

---

American Society for Testing Materials, Designation E-1527-05 "Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process," 2005.

California Department of Water Resources, Division of Engineering, Real Estate Branch, Photogrammetry and Computer Mapping Section, Aerial Photos, 2006. Delorme Mapping Company, Southern and Central California Atlas and Gazetteer, Fourth Edition. 95p. 1990.

First American Commercial Real Estate Services, Inc, Rec-Check, The New Standard for ASTM Radius Searches, Seven W Properties, 2006

Maptech, Incorporated. 1999, Version 4.05. *Barstow/San Bernardino County* CD-ROM. Terrain Navigator Central California CD-ROM set.

**Test America analytical Testing Corporation, December 5, 2006.**

U. S. Department of Agriculture, Soil Conservation Service 1969. *Report and General Soil Map . San Bernardino County Southern Part, California.*

**U.S Environmental Protection Agency, 2007. EPA Map of Radon Zones, California.** <http://www.epa.gov/iaq/radon/zonemap/california.htm> 02/02/07.

**U.S Environmental Protection Agency, 1996. Soil Screening Guidance: User Guide, Publication 9355.4-23.**

**<http://www.co.san-bernardino.ca.us/assessor/10/27/07>**

**<http://www.sbcounty.gov/dehs/sitemap/sitemap.htm>**



## **8.0 SIGNATURES**

---

The Environmental Protection Agency on November 1, 2006 adopted under the Federal Register 40 CFR Part 312, standards and practices, for conducting All Appropriate Inquiries as required under section 101(35)(B)(ii) and (III) of the Comprehensive Environmental Response Compensation, and Liability Act.

*"[I, We] declare that, to the best of [my, our] professional knowledge and belief, [I, we] meet the definition of Environmental Professional as defined in §312.10 of this part."*

*"[I, We] have the specific qualifications based on educational, training, and experience to assess a property of the nature, history, and setting of the subject property. [I, We] have developed and performed the all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312."*

Prepared by

Reviewed by

---

Donald C. Guy  
Environmental Scientist  
REA-08040

---

Derrick J. Adachi  
Environmental Compliance and  
Evaluation Branch, Chief  
REA-0676

## **8.0 SIGNATURES**

---

The Environmental Protection Agency on November 1, 2006 adopted under the Federal Register 40 CFR Part 312, standards and practices, for conducting All Appropriate Inquiries as required under section 101(35)(B)(ii) and (III) of the Comprehensive Environmental Response Compensation, and Liability Act.

*"[I, We] declare that, to the best of [my, our] professional knowledge and belief, [I, we] meet the definition of Environmental Professional as defined in §312.10 of this part."*

*"[I, We] have the specific qualifications based on educational, training, and experience to assess a property of the nature, history, and setting of the subject property. [I, We] have developed and performed the all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312."*

Prepared by

Reviewed by

---

Donald C. Guy  
Environmental Scientist  
REA-08040

---

Derrick J. Adachi  
Environmental Compliance and  
Evaluation Branch, Chief  
REA-0676

# Appendix E

## Output of Land Evaluation and Site Assessment Model (LESA)

## **Land Evaluation and Site Assessment (LESA) Model Analysis Results Summary Table**

The following tables were developed using the California Department of Conservation Office of Land Conservation Land Evaluation and Site Assessment Model methodologies. On site soils were determined using the *Soil Survey of San Bernardino County, Southwest Part, California*. United States Department of Agriculture Soil Conservation Service 1980

Table 1A  
Land Evaluation Worksheet  
Land Capability Classification (LCC) and Storie Index Scores  
Soil = (SoC) Soboba gravelly loamy sand, 0 to 9 percent slopes  
Soil = (SpC) Soboba stony loamy sand, 2 to 9 percent slopes

*Analysis (LCC = Vls-1 and Storie Index = 29{SoC} and 22{SpC})*

A	B	C	D	E	F	G	H
Soil Map Unit	Project Acres	Proportion of Project Area	LCC	LCC Rating	LCC Score	Storie Index	Storie Index Score
SoC	17	0.49	6	20	9.71	29	14.09
SpC	18	0.51	6	20	10.29	22	11.31
<b>Total</b>	<b>35</b>			<b>LCC Total</b>	<b>20</b>	<b>Storie Index Total</b>	<b>25.4</b>

Table 1B  
Site Assessment Worksheet 1  
Project Size Score

	I	J	K
	LCC Class I-II	LCC Class III	LCC Class IV-VIII
Total Acres			35
Project Size Scores			0
<b>Highest Project Size Score</b>		<b>0</b>	

Table 4  
Site Assessment Worksheet 2  
Water Resource Availability

A	B	C	D	E
Project Portion	Water Source	Proportion of Project Area	Water Availability Score	Weighted Availability Score (C x D)
1	Groundwater	1	95	95
			<b>Total Water Resource Score</b>	<b>95</b>

Table 8  
Final LESA Scoresheet

*Analysis (LCC = Vls-1 and Storie Index = 29{SoC} and 22{SpC})*

A	B		C		D
Factor Name	Factor Rating (0-100 points)	x	Factor Weighting (Total = 1.00)	=	Weighted Factor Rating
<u>Land Evaluation</u>					
1. Land Capability Classification	<b>20</b>	x	0.25	=	<b>5</b>
2. Storie Index Rating	<b>25.4</b>	x	0.25	=	<b>6.35</b>
<b>Subtotal</b>					<b>11.35</b>
<u>Site Assessment</u>					
1. Project Size	<b>0</b>	x	0.15	=	<b>0</b>
2. Water Resource Availability	<b>95</b>	x	0.15	=	<b>14.25</b>
3. Surrounding Agricultural Lands	<b>40</b>	x	0.15	=	<b>6</b>
4. Protected Resource Lands	<b>0</b>	x	0.05	=	<b>0</b>
<b>Total LESA score</b>					<b>31.6</b>

Based on LESA Model significant thresholds, this analysis indicates a less than significant impact would result; the Land Evaluation score is less than 20.

# Appendix F

## Traffic Technical Analysis





# memorandum

date June 26, 2008

to Tom Barnes and Tim Dodson, ESA Project Managers

from Jack Hutchison, P.E. (TR 1411)

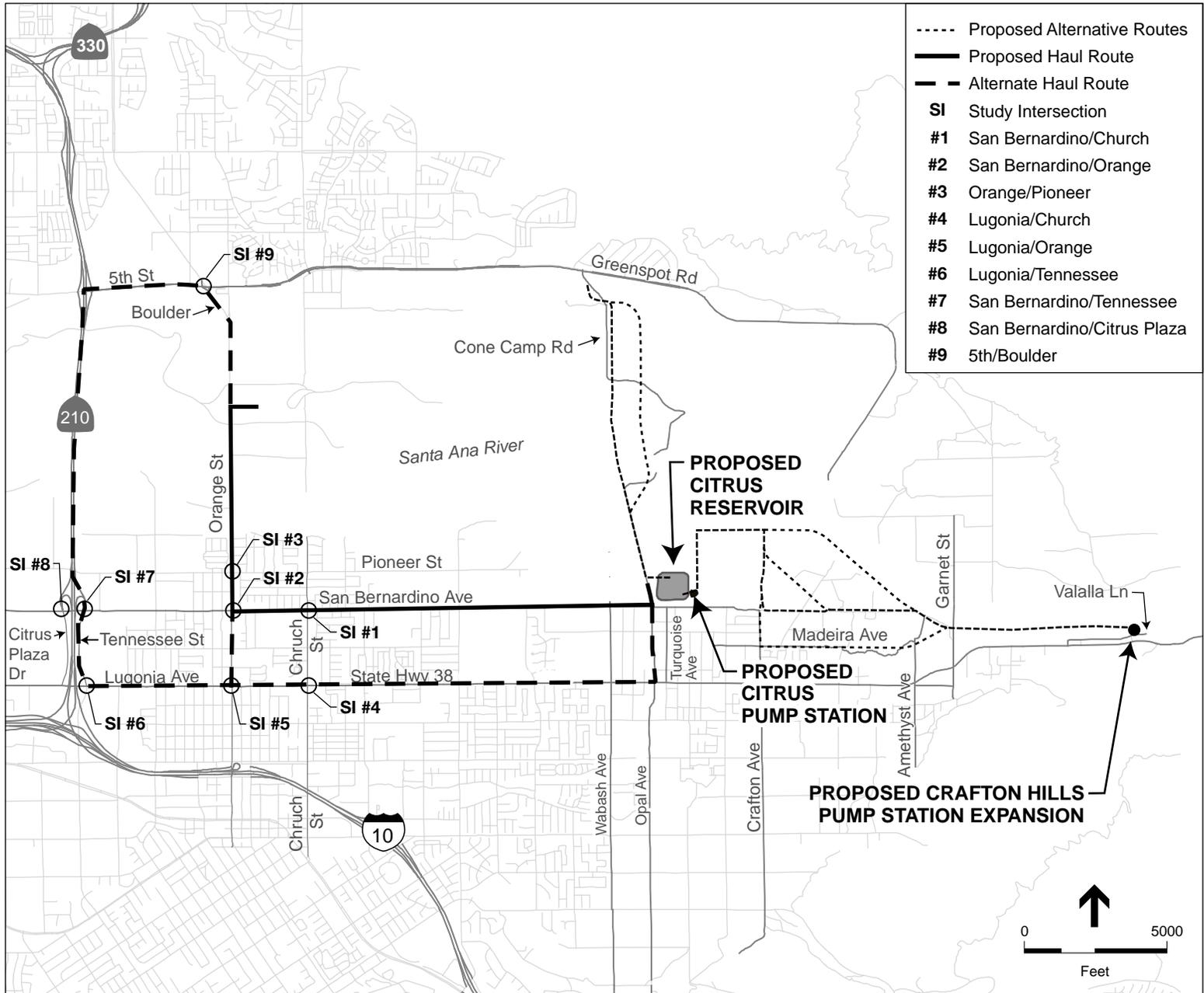
subject Traffic Technical Analysis of Potential Impacts Associated with Construction of the Proposed DWR East Branch Extension Phase II Project

This technical analysis of potential traffic impacts associated with construction of the proposed East Branch Extension Phase II project has been prepared as the resource document for the EIR. The focus was placed on impacts if there were simultaneous construction of all project components, with a secondary analysis of traffic impacts during construction of the proposed Citrus Reservoir if simultaneous construction would cause a significant impact. The proposed reservoir was chosen for the secondary analysis because it is the project component that would generate the highest number of vehicle trips (trucks and worker vehicles) during the expected three years of construction. This memo addresses potential traffic impacts on the following alternative haul routes (shown in Figure F-1) for trucks transporting excavated material to one of the local aggregate mines within the Santa Ana River Wash<sup>1</sup>:

Route 1. Outbound (full) trucks: Southbound on Opal Avenue to State Route (SR) 38 (Mentone Boulevard), or westbound on San Bernardino Avenue to Wabash Avenue, and southbound on Wabash Avenue to SR 38 (Mentone Boulevard / Lugonia Avenue); westbound on SR 38 / Lugonia Avenue (designated truck route) to Tennessee Street; northbound on Tennessee Street to San Bernardino Avenue / Northbound On-Ramp to Interstate 210 (I-210); northbound on I-210 to 5th Street; eastbound on 5th Street (designated truck route) to Boulder Avenue; southbound on Boulder Avenue – Orange Street to signalized intersection with access road to the existing gravel quarry on the north side of the Santa Ana River Wash. Inbound (empty) trucks: Left turn onto Orange Street; southbound on Orange Street to SR 38 / Lugonia Avenue; and return to the reservoir site via roads used on the outbound trip. The haul truck route is about 8.5 miles for loaded trucks, and about 5 miles for the return trip by empty trucks.

---

<sup>1</sup> The alternative haul routes evaluated in this memo were selected to provide DWR and affected jurisdictions with options for transporting excavated material to the river wash. San Bernardino Avenue provides the shortest route, but is not a designated truck route. Lugonia Avenue is a designated truck route, but the configuration of its intersection with Orange Street does not accommodate right turns by haul trucks from westbound Lugonia Avenue to northbound Orange Street.



SOURCE: ESA, 2008.

DWR - East Branch Extension . 206008.01

**Figure F-1**  
Area Roadways & Study Intersections

Route 2. Outbound (full) trucks: Westbound on San Bernardino Avenue to Orange Street; northbound on Orange Street, crossing the Santa Ana River, to signalized intersection with access road to the existing gravel quarry on the north side of the Santa Ana River Wash.

Inbound (empty) trucks: reverse the above-described route. The haul truck route is about 4 miles in each direction.

Traffic volumes and characterization of existing traffic levels of service at area intersections in the City of Redlands were taken from the recent Draft Joint Program/Project EIR for *Concept Plan No. 7 (Redlands Commons / Trojan Groves) and the Redlands Commons Development Plan* (City of Redlands, 2008). The City of Highlands provided traffic volumes for the 5th Street / Boulder Avenue intersection.

## SETTING

*San Bernardino Avenue*, which varies in width between two and four lanes, with separate turn lanes at intersections, connects (at an interchange) with the I-210 freeway, and extends east to Opal Avenue. East of Wabash Avenue, San Bernardino Avenue has two lanes with an unpaved shoulder on the north side. Its eastern terminus is at Mentone Reservoir, where a roadblock prohibits further access to the unimproved service road that leads to Crafton Avenue and the water treatment plant. Parking is generally permitted along the roadway. Average daily traffic volume on San Bernardino Avenue is about 3,100 vehicles east of Church Street and about 7,000 vehicles between Church Street and Orange Street (City of Redlands, 2008). Traffic on San Bernardino Avenue is controlled by traffic signals at Orange Street, Texas Street, and the I-210 Northbound and Southbound Ramps, and by all-way stop signs at Church Street. Each of those intersections are currently operating at an acceptable LOS C or better, except San Bernardino Avenue / I-210 Southbound Ramps, where an acceptable LOS D prevails during the p.m. peak hour (City of Redlands, 2008).<sup>2</sup>

*Opal Avenue*, between San Bernardino Avenue and Mentone Boulevard, is a two-lane roadway. Traffic is controlled by a stop sign at Mentone Boulevard; the cross traffic on Mentone Boulevard does not stop. The east side of Opal Avenue is developed with residences. There is no development fronting the west side, except the Mentone Senior Center & Library just north of Mentone Boulevard.

*Wabash Avenue*, between San Bernardino Avenue and Lugonia Avenue / Mentone Boulevard, is a two-lane roadway. Traffic is controlled by all-way stop-sign control at San Bernardino Avenue, and by traffic signals at Lugonia Avenue / Mentone Boulevard. The east side of Wabash Avenue is developed with residences and a senior assisted living center. There are existing houses and new houses are being built on the west side of Wabash Avenue.

*Lugonia Avenue* is designated State Route 38 (and is designated as a truck route by the City of Redlands) for most of its course in the project area, and varies in width between two lanes (with center

---

<sup>2</sup> Level of service (LOS) is a measure of the quality of traffic flow on roadways and at intersections, measured in terms of average vehicle delay experienced by motorists. The delay at intersections is a function of the signal timing, intersection lane configuration, hourly traffic volumes, and other factors. Service levels range from LOS A (free flow, little congestion) to LOS F (forced flow, extreme congestion). The minimum acceptable LOS established by the City of Redlands is LOS C for City intersections, and LOS D for freeway ramp intersections. LOS descriptions and corresponding ranges of average control delay are shown in Table A-1 (Attachment A).

two-way left-turn median) and four lanes, with separate turn lanes at intersections. East of Wabash Avenue, the name changes to Mentone Boulevard. Traffic on Lugonia Avenue is controlled by traffic signals at Church, Orange, and Tennessee Streets. Those intersections are currently operating at an acceptable LOS C or better (City of Redlands, 2008).

*Orange Street* varies in configuration, changing from a two-lane roadway (with separate turn lanes at major intersections) south of San Bernardino Avenue, to a four-lane roadway (with a center turn lane and room for on-street parking on both sides of the road) north of San Bernardino Avenue. Orange Street, near Beattie Lane and Hubbard Court (two cul-de-sacs that do not intersect with Orange Street), narrows to once again be a two-lane roadway with a narrow shoulder as it crosses the Santa Ana River. Until Beattie Lane, Orange Street passes through a developed area. There is a traffic signal on Orange Street where vehicles enter the CMEX USA site. Average daily traffic volume on Orange Street is about 8,950 vehicles north of Pioneer Avenue (City of Redlands, 2008). Traffic on Orange Street is controlled by traffic signals at Lugonia Avenue and San Bernardino Avenue, and by all-way stop signs at Pioneer Avenue. Each of those intersections are currently operating at an acceptable LOS C or better (City of Redlands, 2008).

*Tennessee Street* and *Citrus Plaza Drive* provide connections with I-210 at San Bernardino Avenue. Tennessee Street connects with the northbound on-ramp, and Citrus Plaza Drive connects with the southbound off-ramp. Traffic on these roads is controlled by traffic signals at Lugonia and San Bernardino Avenues.

The I-210 / 5th Street interchange (in the City of Highland), and eastbound on 5th Street, provides access to Orange Street and the Santa Ana River Wash via signalized intersections at 5th Street / I-210 Northbound Ramps and 5th Street / Boulder Avenue. *Boulder Avenue* becomes Orange Street at the Highland/Redlands city boundary. 5th Street and Boulder Avenue are designated as truck routes by the City of Highland.

## PROJECT CHARACTERISTICS

DWR proposes Phase II of the East Branch Extension of the California Aqueduct (proposed project), with project construction scheduled for completion in 2012. The proposed project would include construction of the following facilities (see **Table 1**):

- Approximately six miles of 72- and 78-inch pipeline within one of four proposed alignments
- A 560 acre-foot storage reservoir (Citrus Reservoir)
- A pump station (Citrus Pump Station)
- Expansion of the existing Crafton Hills Pump Station
- An additional pump at the existing Cherry Valley Pump Station

Construction activity at the existing Crafton Hills Pump Station and the proposed Citrus Pump Station, as well as construction of new pipelines and a new reservoir, would generate an increase in vehicle

**TABLE 1**  
**DWR EAST BRANCH EXTENSION PHASE II**  
**SUMMARY OF PROPOSED IMPROVEMENTS**

<b>East Branch System Facility</b>	<b>Improvements</b>
Pipelines (Alternative 1, 2, 3, or 4)	Construction of approximately six miles of 72- and 78-inch pipeline, extending from the Foothill Pipeline near the intersection of Cone Camp and Greenspot Roads to the Crafton Hills Pump Station on Mill Creek Road.
Citrus Reservoir	A new reservoir would be constructed within an existing citrus orchard north of San Bernardino Avenue, providing 560 acre-feet of water storage. The water surface area would be approximately 21 acres.
Citrus Pump Station	A new pump station would be constructed adjacent to the new reservoir, consisting of a 20,000-square-foot, single-story structure. The pump station would include seven pumps totaling 135 cubic feet per second (cfs) pumping capacity. Space and plumbing fittings would be created to allow the future installation of three more pumps that would bring the total capacity of the pump station to 200 cfs.
Expansion of Crafton Hills Pump Station	The existing Crafton Hills Pump Station would be expanded adjacent to the existing building to accommodate additional pump units, motors, valves, and piping. The expansion also includes an additional forebay tank. Three 25 cfs pumps would be added to increase the capacity to 135 cfs.
Cherry Valley Pump Station	The existing Cherry Valley Pump Station would be expanded within the existing building to accommodate an additional pump unit, motors, valves, and piping. One 24 cfs pump would be added to the station bringing the total pumping capacity to 56 cfs.

SOURCE: DWR (2008)

trips by construction workers and construction vehicles on area roadways for up to three years. **Table 2** presents the estimated vehicle trip generation for the proposed project (by construction activity) for each project component, and for a scenario with simultaneous construction of all project components.<sup>3</sup>

## **IMPACTS**

The analysis of potential project impacts presented in this memo focuses on impacts during project construction because once construction is complete, operation of the facilities (pipelines, reservoir, and pump stations) would only generate occasional maintenance trips, which would not individually or cumulatively degrade the operation of roadways or intersections. The primary off-site impacts from the movement of construction trucks (primarily soil-hauling trucks and material deliveries) would include intermittent lessening of roadway capacities due to slower movements and larger turning radii of the trucks compared to passenger vehicles.

The project would have a significant impact if it resulted in substantial adverse effect on traffic due to vehicle trips made by construction workers and construction activities. A substantial adverse impact

<sup>3</sup> The Cherry Valley Pump Station project component is not included in Table 2 because traffic generated during the three- to six-month construction period at that site would be negligible (limited to the delivery of the pump and commute trips by the five workers needed to install the pump). Impacts would be less than significant.

**TABLE 2  
SUMMARY OF ANTICIPATED CONSTRUCTION ACTIVITIES  
AND AVERAGE NUMBER OF VEHICLE TRIPS<sup>1</sup> (TRUCKS AND WORKERS)**

<b>Construction Activity</b>	<b>East Branch Extension Pipeline</b>	<b>Citrus Reservoir</b>	<b>Citrus Pump Station</b>	<b>Crafton Hills Pump Station Expansion</b>	<b>Total Trips (if simultaneous construction)</b>
Excavation Trips (one-way trips) <sup>2</sup>	100 (total) <sup>3</sup> Up to 2 trips/day	Up to 460 trips/day (over 18 months)	16 trips/day (over 8 months)	8 trips/day (over 4 months)	Up to 486 trips/day (over 4 months)
Delivery Trips <sup>4</sup> (one-way trips)	2,800 total trips Up to 8 trips/day (over 18 months)	15,400 total trips Up to 40 trips/day (over 18 months)	500 total trips Up to 2 trips/day (over 3 years)	320 total trips Up to 2 trips/day (over 2 years)	19,020 total trips Up to 52 trips/day (over 18 months)
Worker Trips (one-way trips)	Crew size of 25 per heading (2 headings) 100 trips/day	Crew size of 35 (up to two crews) up to 140 trips/day	Crew size of 20 (one crew) 40 trips/day	Crew size of 20 (one crew) 40 trips/day	Up to 320 trips/day
Total Daily Trips (one-way trips) <sup>5</sup>	Up to 110 trips/day (over 18 months)	Up to 640 trips/day (over 18 months)	58 trips/day (over 8 months)	50 trips/day (over 4 months)	Up to 858 trips/day (over 4 months)
Estimated Duration	18-24 months	18-36 months	36 months	24 months	

<sup>1</sup> Vehicle trip is defined as a one-way vehicle movement with its origin or destination at the work site. The number of excavation trucks is estimated by dividing the cubic yards (cy) of material by the truck capacity in cy per truck, and the number of truck trips is twice the number of trucks because each truck has to enter and leave the work site. The number of worker vehicle trips is twice the number of workers because each worker arrives at the work site in the morning and departs from the work site in the evening.

<sup>2</sup> Excavation trips are assumed based a 20 cubic yard truck capacity, estimated excavation volume and duration.

<sup>3</sup> Material excavated during pipeline construction would be temporarily stockpiled adjacent to the trench, and the great majority of the excavated spoils would be used for backfill, with oversized rocks and displaced excavated material spread within the Santa Ana River Wash. It is estimated that 1,000 cubic yards of soil would be exported from the site.

<sup>4</sup> **Delivery trips:**

Pipeline - based on 250 soil trucks, 667 concrete trucks, 32,000 linear feet of pipe, 1,700 tons of rebar, and other deliveries.

Reservoir - based on 167 concrete trucks, 1,500 asphalt concrete trucks, 6,000 soil trucks and other deliveries.

Citrus Pump Station - based on 222 concrete trucks and other deliveries.

Crafton Hills Pump Station - based on 155 concrete trucks and other deliveries.

<sup>5</sup> Total vehicle trips per day includes excavation, delivery, and worker commute trips occurring during the five work days a week for the duration of overlapping construction activities.

Note: The Cherry Valley Pump Station project component is not included because traffic generated during the three- to six-month construction period at that site would be negligible (limited to the delivery of the pump and commute trips by the five workers needed to install the pump).

SOURCE: ESA, based on construction activity information provided by DWR, 2008

would result if traffic operating conditions were degraded during project operations. The City of Redlands (General Plan Goal 5.20) has identified a minimum level of service (LOS) standard of LOS C for City intersections. The minimum acceptable LOS established by Caltrans for freeway ramp intersections is LOS D. For purposes of this analysis, the City and Caltrans standards have been used to judge project impacts during the up to three-year construction period.

Common to all project components is that traffic-generating construction activities would consist of the daily commute trips by construction workers, and trucks hauling equipment and materials, to and from the work site(s) over the construction period of varying lengths (with an 11-hour work day of 7:00 AM to 6:00 PM).<sup>4</sup> In addition to haul trucks, there would be irregular deliveries of other construction components that would be shipped on demand to the construction site throughout the construction period. Note: As used below, the term “vehicle trip” is defined as a one-way vehicle movement with its origin or destination at the work site. The number of excavation trucks is estimated by dividing the

<sup>4</sup> The construction work hours of 7:00 AM to 6:00 PM were set in accordance with the City of Redlands Noise Ordinance (Municipal Code, Chapter 8.06: Community Noise Control).

cubic yards (cy) of material by the truck capacity in cy per truck, and the number of truck trips is twice the number of trucks because each truck has to enter and leave the work site. The number of worker vehicle trips is twice the number of workers because each worker arrives at the work site in the morning and departs from the work site in the evening.

### **Summary of Project Components (Pipeline Installation, Citrus Reservoir, Citrus Pump Station, Crafton Hills Pump Station Expansion, and Cherry Valley Pump Station)**

Pipeline Installation. Traffic-generating construction activities would occur for a period of 18 to 24 months. It is assumed there would be two work crews (with about 25 workers each), and worker commute trips per day would total (for the two crews) about 100 one-way trips (i.e., 50 trips to each day's work site in the morning and 50 trips away from the work site in the evening). The installation of the 72- and 78-inch diameter pipelines would use open trench installation techniques. Approximately 550,000 cubic yards (cy) of material would be excavated during pipeline construction, but the excavated material would be stockpiled in a staging area within the construction corridor, and the material that could not be used as backfill would be spread on-site. It has been estimated that only about 1,000 cy of soil would be exported from the work site (i.e., a total of about 50 trucks [100 one-way truck trips] over the 18- to 24-month construction period). Approximately 5,000 cy of soil and 6,000 cy of concrete would be imported for use as engineered backfill and road pavement, and pipe, rebar, and other material would be delivered as needed. As shown in Table 2, a total of about 2,800 one-way truck trips would be needed to deliver the needed material, which would generate up to an average of about eight one-way truck trips per day (over an 18-month period).

Citrus Reservoir. Traffic-generating construction activities would occur for a period of 18 to 36 months. Construction crews would number about 35 workers for a 36-month construction period. It is assumed there would be up to two work crews (with about 35 workers each) if an 18-month construction period were planned, and worker commute trips would total (for the two crews) up to about 140 one-way trips per day (i.e., 70 trips to the site in the morning and 70 trips away from the site in the evening). Excavation would generate about 1,800,000 cy of material that would be hauled to one of the local aggregate mines within the Santa Ana River Wash, for use as construction aggregate. Trucks would transport excavated material to the aggregate mines within the Wash via one of the alternative truck routes described on page F-1. Using an average haul load of 20 cy per truck, there would be up to about 230 haul trucks per day (460 daily one-way trips) over an 18-month period. About 1,500 cy of concrete, 27,000 tons of asphalt concrete or other material, and 120,000 cy of soil would be imported for the reservoir construction. As shown in Table 2, a total of approximately 15,400 one-way truck trips would be needed to deliver the needed material, which would generate an average of up to about 40 one-way truck trips per day over an 18-month construction period.

Construction traffic generated by the proposed new reservoir (i.e., 140 one-way worker trips per day, and up to about 500 one-way truck trips per day) would affect roadway capacities (e.g., San Bernardino Avenue and Orange Street), and intersection operations (e.g., San Bernardino Avenue / Church Street, San Bernardino Avenue / Orange Street, and Orange Street / Pioneer Avenue) due to the increased traffic volumes, and the slower movements and larger turning radii of the trucks compared to passenger vehicles. Construction-related traffic occurring on weekdays during the hours of 7:00 to 9:00 AM and 4:00 to 6:00 PM would coincide with peak-period traffic volumes on area roadways, and therefore,

would have the greatest potential to impede traffic flow. The haul truck traffic would not use state highways and freeways.

Citrus Pump Station. Traffic-generating construction activities would occur over a 36-month period. The construction crew would number approximately 20 workers, and worker commute trips would total about 40 one-way trips per day (i.e., 20 trips to the site in the morning and 20 trips away from the site in the evening). Excavation would generate about 50,000 cy of material, of which approximately 25,000 cy would be retained at the site (the other 25,000 cy would be exported). Using an average haul load of 20 cy per truck, there would be about eight haul trucks per day (16 daily one-way trips) over an eight-month period. About 2,000 cy of concrete would be imported for construction of the pump station. As shown in Table 2, a total of about 500 one-way truck trips would be needed to deliver the needed material, which would generate up to an average of up to about two one-way truck trips per day.

Crafton Hills Pump Station Expansion. Traffic-generating construction activities would occur over a 24-month period. The construction crew would number approximately 20 workers, and worker commute trips would total about 40 one-way trips per day (i.e., 20 trips to the site in the morning and 20 trips away from the site in the evening). Excavation would generate about 12,000 cy of material, of which approximately 6,000 cy would be retained at the site (the other 6,000 cy would be exported). Using an average haul load of 20 cy per truck, there would be about four haul trucks per day (eight daily one-way trips) over an four-month period. About 1,400 cy of concrete would be imported to the site over the 24-month construction period. As shown in Table 2, a total of about 320 one-way truck trips would be needed to deliver the needed material, which would generate up to an average of up to about two one-way truck trips per day.

Cherry Valley Pump Station. Traffic generated during the three- to six-month construction period for this project component would be negligible (limited to the delivery of the pump and commute trips by the five workers needed to install the pump).

### **Worst-Case Scenario (simultaneous construction of all project components)**

In order to provide a conservative analysis of whether simultaneous construction of all project components would cause an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in congestion at intersections<sup>5</sup>), and whether the project would exceed, either individually or cumulatively, a level of service standard established by the San Bernardino County congestion management agency, the following assumptions were made:

- Project-generated truck traffic volumes used for LOS calculations were adjusted to reflect a passenger car equivalent (PCE) of 3.0 for haul trucks, and 2.0 for delivery trucks (i.e., a heavy haul truck would be equivalent to three passenger cars, and a medium-size delivery truck would be equivalent to two passenger cars).

---

<sup>5</sup> The focus of analysis is on traffic LOS at intersections because traffic conditions in urban areas are affected more by the operations at the intersections than by the capacities of the local streets because traffic control devices (signals and stop signs) at intersections control the capacity of the street segments.

- Worker commute trips to and from the work sites would occur during the AM and PM peak traffic hours (even though the proposed work hours of 7:00 AM to 6:00 PM would mean that the inbound commute would primarily end before 7:00 AM, and the outbound commute would primarily start after 6:00 PM).
- All project-generated peak-hour trips by workers and delivery trucks would travel on San Bernardino Avenue and Orange Street (to and from I-210 and I-10), ignoring that some of those trips could be made to/from I-10 via Crafton Avenue (to/from areas southeast of the project sites).

As stated above, intersections along the alternative haul routes all currently operate at an acceptable LOS C or better, except at the Caltrans-controlled intersection of San Bernardino Avenue / I-210 Southbound Ramps, where acceptable LOS D conditions prevail during the p.m. peak hour (City of Redlands, 2008).<sup>6</sup>

The overlap of highest traffic-generating construction activities would occur during a four-month period (the duration of excavation for the Crafton Pump Station Expansion). Other periods during the overall approximate three-year project construction would have lower trip generation than during that four-month period. As shown in Table 2, a total of up to about 858 one-way vehicle trips per day would be generated during those four months (320 one-way trips by construction workers, up to 486 one-way trips by excavation haul trucks, and up to 52 one-way trips by delivery trucks). Using the above-cited conservative assumptions, the construction worker commute trips would total 160 inbound vehicle trips during the AM peak hour, and 160 outbound vehicle trips during the PM peak hour. As opposed to those worker commute trips, truck trips would be spread throughout the 11-hour work day, and the estimated up to 486 daily one-way haul truck trips (1,458 one-way PCE trips) would average up to about 132 one-way PCE trips per hour (66 full PCE to the Santa Ana Wash, and 66 returning empty PCE). Similarly, the estimated up to 52 daily one-way delivery truck trips (104 one-way PCE trips) would average up to about ten one-way PCE trips per hour (five PCE to the work site, and five PCE away from the work site) over the course of an 11-hour work day.<sup>7</sup>

All of the haul truck trips were assigned to travel the alternative truck routes to/from the aggregate mines within the Wash described on page F-1. Construction worker commute trips and delivery truck trips were assigned 60 percent to I-210 (a straight path on San Bernardino Avenue between the work sites and the freeway interchange), and 40 percent to I-10 (inbound trips on northbound Orange Street, a right turn onto San Bernardino Avenue, and proceed to the work site; outbound trips to reverse that route). See Attachment B for a table of project-generated vehicle trips on the affected intersection movements.

As shown in **Table 3**, levels of service at each of the key intersections affected by the project would remain acceptable (unchanged from existing conditions) with the addition of project-generated traffic under either alternative haul route, although the average delay would increase in some cases (see

---

<sup>6</sup> The City of Redlands (General Plan Goal 5.20) has identified a minimum LOS standard of LOS C for City intersections. The minimum acceptable LOS established by Caltrans for freeway ramp intersections is LOS D.

<sup>7</sup> Another way to judge the effect of the project-generated increases in trucks on local roadways is that the up to 269 trucks per day (538 one-way trips) would result in one truck leaving the construction site(s) approximately every 2 to 3 minutes, and similarly one truck returning to the construction site(s) approximately every 2 to 3 minutes.

Attachment C for the LOS calculation sheets). The impact of simultaneous construction of all project components on traffic LOS conditions would be less than significant. The secondary analysis of traffic impacts during construction of the proposed Citrus Reservoir (if simultaneous construction would cause a significant impact), mentioned at the start of this memo is therefore unnecessary.

LOS standards for roadways that are part of the San Bernardino Congestion Management Program (CMP) network, as well as desired operation levels on City of Redlands streets, are intended to regulate long-term traffic increases from operation of new development, and do not apply to construction projects, including projects with a duration of three years. As such, the proposed project would not exceed level-of-service standards established by San Bernardino County for designated CMP roadways, or established in the Redlands General Plan for City intersections.

### **Summary of Impacts for Individual Project Components.**

The impact on traffic flow conditions on area roads from construction traffic generated by construction of the Citrus Reservoir (the highest trip-generating component) would be less than significant because its trip generation would be less than the total (simultaneous construction) project. The impact of each of the other individual project components would be less than significant because the estimated number of daily truck trips (spread over the course of the 11-hour work day) would be minimal, and the commute trips by construction workers would occur outside of the peak traffic hours (i.e., the inbound commute trips would primarily end before 7:00 AM, and the outbound commute trips would primarily start after 6:00 PM).

### **Mitigation Measures**

Although the impact of simultaneous construction of all project components (and of construction of individual project components) on traffic LOS conditions would be less than significant, the following mitigation measures are recommended to minimize project effects (primarily, but not only, for pipeline installation):

- TR-1:** DWR shall provide staging areas for excavated material generated during pipeline installation within the construction zone or at locations accessible by construction roads to minimize use of local roadways for hauling of excavated materials.
- TR-2:** DWR shall obtain the necessary road encroachment permits prior to construction and would comply with the applicable conditions of approval. Road encroachment permits may be necessary for construction within the following roadways: Crafton Avenue, Madeira Avenue, Garnet Street, Cone Camp Road, and Opal Avenue.
- TR-3:** DWR shall require the contractor to prepare a Traffic Control Plan in accordance with professional engineering standards prior to construction within roadways. The Traffic Control Plan could include the following requirements:
  - DWR shall maintain access for local land uses including residential driveways, commercial properties, and agricultural lands during construction activities.

**TABLE 3**  
**AM AND PM PEAK-HOUR INTERSECTION LEVELS OF SERVICE (LOS) AND AVERAGE STOPPED DELAY**  
**IN SECONDS PER VEHICLE – EXISTING AND EXISTING PLUS PROJECT CONDITIONS <sup>a</sup>**

Intersection	Traffic Control	Existing (2007)		Existing + Project (Haul Route 1) <sup>b</sup>		Existing + Project (Haul Route 2) <sup>c</sup>	
		LOS	Delay	LOS	Delay	LOS	Delay
<b>AM PEAK HOUR</b>							
1. San Bernardino Avenue / Church Street	All-Way Stop Control	B	10.6	B	12.3	B	14.8
2. San Bernardino Avenue / Orange Street	Traffic Signal	B	17.2	B	17.3	B	17.4
3. Orange Street / Pioneer Street	All-Way Stop Control	C	19.0	C	20.3	C	21.5
4. Lugonia Avenue / Church Street <sup>d</sup>	Traffic Signal	B	14.8	B	14.8	B	14.8
5. Lugonia Avenue / Orange Street	Traffic Signal	B	17.6	B	19.6	B	18.7
6. Lugonia Avenue / Tennessee Street <sup>d</sup>	Traffic Signal	C	24.2	C	25.2	C	24.2
7. San Bernardino Avenue / Tennessee Street	Traffic Signal	C	25.2	C	25.7	C	25.2
8. San Bernardino Avenue / Citrus Plaza Drive	Traffic Signal	C	23.8	C	23.8	C	23.8
9. 5th Street / Boulder Avenue <sup>d</sup>	Traffic Signal	B	12.9	B	12.9	B	12.9
<b>PM PEAK HOUR</b>							
1. San Bernardino Avenue / Church Street	All-Way Stop Control	B	11.7	B	13.6	C	17.0
2. San Bernardino Avenue / Orange Street	Traffic Signal	B	17.2	B	17.4	B	17.9
3. Orange Street / Pioneer Street	All-Way Stop Control	C	19.0	C	20.2	C	22.1
4. Lugonia Avenue / Church Street <sup>d</sup>	Traffic Signal	B	15.7	B	15.7	B	15.7
5. Lugonia Avenue / Orange Street	Traffic Signal	B	16.1	B	17.3	B	16.7
6. Lugonia Avenue / Tennessee Street <sup>d</sup>	Traffic Signal	C	27.6	C	28.0	C	27.6
7. San Bernardino Avenue / Tennessee Street	Traffic Signal	C	31.5	C	33.0	C	31.6
8. San Bernardino Avenue / Citrus Plaza Drive	Traffic Signal	D	36.0	D	36.3	D	36.3
9. 5th Street / Boulder Avenue <sup>d</sup>	Traffic Signal	B	15.8	B	15.8	B	15.8

<sup>a</sup> The LOS and delay represent conditions for the overall intersection. LOS descriptions and corresponding ranges of average control delay are shown in Table A-1 (Attachment A). Levels of service (LOS) were determined using the analysis methodologies presented in the 2000 *Highway Capacity Manual* (using the TRAFFIX computer analysis software).

<sup>b</sup> Alternate Haul Route 1: The outbound (full truck load) path would be southbound on Opal Avenue to Lugonia Avenue (or westbound on San Bernardino Avenue to Wabash Avenue, and southbound on Wabash Avenue to Lugonia Avenue); westbound on Lugonia Avenue (designated truck route) to Tennessee Street, northbound on Tennessee Street to San Bernardino Avenue / Northbound On-Ramp to Interstate 210 (I-210), northbound on I-210 to 5th Street, eastbound on 5th Street (designated truck route) to Boulder Avenue, and southbound on Boulder Avenue – Orange Street to signalized intersection with access road to the existing gravel quarry on the north side of the Santa Ana River Wash. Empty trucks returning to the reservoir site would exit (left turn) onto Orange Street; southbound on Orange Street to Lugonia Avenue; and return to the reservoir site via roads used on the outbound trip.

<sup>c</sup> Alternate Haul Route 2: The outbound (full truck load) path would be westbound on San Bernardino Avenue to Orange Street, northbound on Orange Street, crossing the Santa Ana River, to signalized intersection with access road to the existing gravel quarry on the north side of the Santa Ana River Wash. Empty trucks returning to the reservoir site would reverse that route.

<sup>d</sup> Project-generated trips would not travel through this intersection under the Alternate Haul Route 2 scenario.

SOURCES: City of Redlands Draft Joint Program/Project EIR for *Concept Plan No. 7 (Redlands Commons / Trojan Groves) and the Redlands Commons Development Plan* (2008), and ESA

- Emergency services access to local land uses would be maintained at all times for the duration of construction activities. Local emergency service providers would be informed of road closures and detours.
- DWR shall post advanced warning of construction activities to allow motorists to select alternative routes in advance.
- DWR shall arrange for a telephone resource to address public questions and complaints during project construction.
- DWR shall establish methods for accommodating the construction-generated parking demand.
- DWR shall comply with roadside safety protocols, so as to reduce the risk of accident.
- For roadways requiring full closures, DWR (and the construction contractor) shall develop circulation and detour plans to minimize impacts to local street circulation. This would include the use of signing to guide vehicles onto alternative roads around the construction zone.
- DWR shall ensure that the contractor does not allow trucks hauling excavated material to leave the project site at an interval faster than one truck every two minutes. This required spacing will reduce the anticipated less-than-significant project-generated roadway and intersection congestion.

**TR-4:** DWR shall require the contractor to prepare a Haul Route Plan that will include roadway safety measures, roadway maintenance, and signage requirements along roads used as haul routes. The safety measures shall include, but not be limited to, crossing guard funding for schools and recreational parks along the haul route. If Alternative Haul Route No. 2 (San Bernardino Avenue) were selected, the safety measures shall include prohibition of on-street parking on the northeast corner of the San Bernardino Avenue / Orange Street intersection (to facilitate right turns by haul trucks from westbound San Bernardino Avenue to northbound Orange Street). The Plan shall be submitted to the County of San Bernardino and the City of Redlands (and the City of Highlands, as appropriate) for review.

**ATTACHMENT A**  
**LEVEL OF SERVICE DEFINITIONS**

### **Level of Service Analysis Methodologies**

As described in the body of this memo, the operation of a local roadway network is commonly measured and described using the LOS grading system, which qualitatively characterizes traffic conditions associated with varying levels of vehicle traffic, ranging from LOS A (indicating free-flow traffic conditions with little or no delay experienced by motorists) to LOS F (indicating congested conditions where traffic flows exceed design capacity and result in long queues and delays). This LOS grading system applies to both signalized and unsignalized intersections.

#### **Signalized Intersections**

At the signalized study intersections, traffic conditions were evaluated using the 2000 *Highway Capacity Manual* (HCM) operations methodology. The operation analysis uses various intersection characteristics to estimate the average control delay experienced by motorists traveling through an intersection. The reported control delay and the resulting LOS are based on total intersection operations. Individual movements through the intersection will have varying levels of delay due to unique conditions affecting each movement. **Table A-1** summarizes the relationship between control delay and LOS.

#### **Unsignalized Intersections (All-Way Stop-Controlled)**

For the all-way stop-controlled unsignalized study intersections, traffic conditions were also evaluated using the 2000 HCM methods. With this methodology, the LOS is related to the total delay per vehicle for the intersection as a whole. Total delay is defined as the total elapsed time from when a vehicle stops at the end of the queue until the vehicle departs from the stop line. This time includes the time required for a vehicle to travel from the last-in-queue position to the first-in-queue position. **Table A-1** summarizes the relationship between delay and LOS. The range of delays are lower than the delay ranges for signalized intersections because drivers will tolerate more delay at signals.

**TABLE A-1  
DEFINITIONS FOR INTERSECTION LEVEL OF SERVICE**

Unsignalized Intersections		Level of Service Grade	Signalized Intersections	
Description	Average Total Vehicle Delay (Seconds)		Average Control Vehicle Delay (Seconds)	Description
No delay for stop-controlled approaches.	≤10.0	A	≤10.0	Free Flow or Insignificant Delays: Operations with very low delay, when signal progression is extremely favorable and most vehicles arrive during the green light phase. Most vehicles do not stop at all.
Operations with minor delay.	>10.0 and ≤15.0	B	>10.0 and ≤20.0	Stable Operation or Minimal Delays: Generally occurs with good signal progression and/or short cycle lengths. More vehicles stop than with LOS A, causing higher levels of average delay. An occasional approach phase is fully utilized.
Operations with moderate delays.	>15.0 and ≤25.0	C	>20.0 and ≤35.0	Stable Operation or Acceptable Delays: Higher delays resulting from fair signal progression and/or longer cycle lengths. Drivers begin having to wait through more than one red light. Most drivers feel somewhat restricted.
Operations with increasingly unacceptable delays.	>25.0 and ≤35.0	D	>35.0 and ≤55.0	Approaching Unstable or Tolerable Delays: Influence of congestion becomes more noticeable. Longer delays result from unfavorable signal progression, long cycle lengths, or high volume to capacity ratios. Many vehicles stop. Drivers may have to wait through more than one red light. Queues may develop, but dissipate rapidly, without excessive delays.
Operations with high delays, and long queues.	>35.0 and ≤50.0	E	>55.0 and ≤80.0	Unstable Operation or Significant Delays: Considered to be the limit of acceptable delay. High delays indicate poor signal progression, long cycle lengths and high volume to capacity ratios. Individual cycle failures are frequent occurrences. Vehicles may wait through several signal cycles. Long queues form upstream from intersection.
Operations with extreme congestion, and with very high delays and long queues unacceptable to most drivers.	>50.0	F	>80.0	Forced Flow or Excessive Delays: Occurs with oversaturation when flows exceed the intersection capacity. Represents jammed conditions. Many cycle failures. Queues may block upstream intersections.

SOURCE: Transportation Research Board, Special Report 209, *Highway Capacity Manual*, updated 2000.

## **ATTACHMENT B**

### **DISTRIBUTION/ASSIGNMENT OF PROJECT-GENERATED VEHICLE TRIPS TO TRAFFIC TURNING MOVEMENTS AT STUDY INTERSECTIONS**

#### **INPUT VALUES TO LEVEL OF SERVICE CALCULATIONS**

**Attachment B - Alternate Haul Route 1**

Intersection Number	Intersection	Affected Movement *	AM Peak-Hour		Explanation about Project Volumes
			Existing Volume **	Project Volume ***	
1	San Bernardino Ave./Church St.	Eastbound Thru	64	165	Inbound Worker Vehicles (160) + Delivery Trucks (5)
		Westbound Thru	162	5	Outbound Delivery Trucks
2	San Bernardino Ave./Orange St.	Northbound RT	23	66	Inbound Worker Vehicles (64) + Delivery Trucks (2)
		Southbound Thru	423	66	Inbound Haul Trucks
		Southbound LT	111	0	n/a
		Eastbound Thru	194	99	Inbound Worker Vehicles (96) + Delivery Trucks (3)
		Westbound LT	31	2	Outbound Delivery Trucks
		Westbound Thru	544	3	Outbound Delivery Trucks
		Westbound RT	92	0	n/a
3	Orange St./Pioneer Ave.	Northbound Thru	205	0	n/a
		Southbound Thru	440	66	Inbound Haul Trucks
4	Lugonia Ave./Church St.	Eastbound Thru	249	66	Outbound Haul Trucks
		Westbound Thru	832	66	Inbound Haul Trucks
5	Lugonia Ave./Orange St.	Northbound Thru	180	66	Inbound Worker Vehicles (64) + Delivery Trucks (2)
		Southbound LT	47	66	Inbound Haul Trucks
		Southbound Thru	246	2	Outbound Delivery Trucks
		Westbound Thru	724	66	Outbound Haul Trucks
6	Lugonia Ave./Tennessee St.	Westbound RT	141	66	Outbound Haul Trucks
7	San Bernardino Ave./Tennessee St.- SR 210 Northbound Ramps	Northbound Thru	406	66	Outbound Haul Trucks
		Eastbound Thru	171	99	Inbound Worker Vehicles (96) + Delivery Trucks (3)
		Westbound RT	385	3	Outbound Delivery Trucks
8	San Bernardino Ave./Citrus Plaza Dr. - SR 210 Southbound Ramps	Southbound LT	182	99	Inbound Worker Vehicles (96) + Delivery Trucks (3)
9	5th St./Boulder Ave.	Eastbound RT	151	66	Outbound Haul Trucks

\* Thru = Through; RT = Right Turn; LT = Left Turn

\*\* Existing traffic volumes were taken from the Draft Joint Program/Project EIR for *Concept Plan No. 7 (Redlands Commons / Trojan Groves) and the Redlands Commons Development Plan* (City of Redlands, 2008), except the traffic volumes for the 5th St./Boulder Ave. intersection, which were provided by the City of Highland.

\*\*\* Project Volumes represent Passenger Car Equivalents (PCE), with Haul Trucks = 3.0 PCE, and Delivery Trucks = 2.0 PCE.

**Attachment B - Alternate Haul Route 1**

Intersection Number	Intersection	Affected Movement *	PM Peak-Hour		Explanation about Project Volumes
			Existing Volume **	Project Volume ***	
1	San Bernardino Ave./Church St.	Eastbound Thru	208	5	Inbound Delivery Trucks
		Westbound Thru	73	165	Outbound Worker Vehicles (160) + Delivery Trucks (5)
2	San Bernardino Ave./Orange St.	Northbound RT	82	2	Inbound Delivery Trucks
		Southbound Thru	323	66	Inbound Haul Trucks
		Southbound LT	82	0	n/a
		Eastbound Thru	628	3	Inbound Delivery Trucks
		Westbound LT	48	66	Outbound Worker Vehicles (64) + Delivery Trucks (2)
		Westbound Thru	191	99	Outbound Worker Vehicles (96) + Delivery Trucks (3)
		Westbound RT	68	0	n/a
3	Orange St./Pioneer Ave.	Northbound Thru	490	0	n/a
		Southbound Thru	390	66	Inbound Haul Trucks
4	Lugonia Ave./Church St.	Eastbound Thru	1175	66	Outbound Haul Trucks
		Westbound Thru	516	66	Inbound Haul Trucks
5	Lugonia Ave./Orange St.	Northbound Thru	283	2	Inbound Delivery Trucks
		Southbound LT	50	66	Inbound Haul Trucks
		Southbound Thru	206	66	Outbound Worker Vehicles (64) + Delivery Trucks (2)
		Westbound Thru	469	66	Outbound Haul Trucks
6	Lugonia Ave./Tennessee St.	Westbound RT	169	66	Outbound Haul Trucks
7	San Bernardino Ave./Tennessee St.- SR 210 Northbound Ramps	Northbound Thru	521	66	Outbound Haul Trucks
		Eastbound Thru	585	3	Inbound Delivery Trucks
		Westbound RT	128	99	Outbound Worker Vehicles (96) + Delivery Trucks (3)
8	San Bernardino Ave./Citrus Plaza Dr. - SR 210 Southbound Ramps	Southbound LT	308	3	Inbound Delivery Trucks
9	5th St./Boulder Ave.	Eastbound RT	204	66	Outbound Haul Trucks

\* Thru = Through; RT = Right Turn; LT = Left Turn

\*\* Existing traffic volumes were taken from the Draft Joint Program/Project EIR for *Concept Plan No. 7 (Redlands Commons / Trojan Groves) and the Redlands Commons Development Plan* (City of Redlands, 2008), except the traffic volumes for the 5th St./Boulder Ave. intersection, which were provided by the City of Highland.

\*\*\* Project Volumes represent Passenger Car Equivalents (PCE), with Haul Trucks = 3.0 PCE, and Delivery Trucks = 2.0 PCE.

**Attachment B - Alternate Haul Route 2**

Intersection Number	Intersection	Affected Movement *	AM Peak-Hour		Explanation about Project Volumes
			Existing Volume **	Project Volume ***	
1	San Bernardino Ave./Church St.	Eastbound Thru	64	231	All Inbound Project Vehicles
		Westbound Thru	162	71	All Outbound Project Vehicles
2	San Bernardino Ave./Orange St.	Northbound RT	23	66	Inbound Worker Vehicles (64) + Delivery Trucks (2)
		Southbound Thru	423	0	n/a
		Southbound LT	111	66	Inbound Haul Trucks
		Eastbound Thru	194	99	Inbound Worker Vehicles (96) + Delivery Trucks (3)
		Westbound LT	31	2	Outbound Delivery Trucks
		Westbound Thru	544	3	Outbound Delivery Trucks
		Westbound RT	92	66	Outbound Haul Trucks
3	Orange St./Pioneer Ave.	Northbound Thru	205	66	Outbound Haul Trucks
		Southbound Thru	440	66	Inbound Haul Trucks
4	Lugonia Ave./Church St.	Eastbound Thru	249	0	n/a
		Westbound Thru	832	0	n/a
5	Lugonia Ave./Orange St.	Northbound Thru	180	66	Inbound Worker Vehicles (64) + Delivery Trucks (2)
		Southbound LT	47	0	n/a
		Southbound Thru	246	2	Outbound Delivery Trucks
		Westbound Thru	724	0	n/a
6	Lugonia Ave./Tennessee St.	Westbound RT	141	0	n/a
7	San Bernardino Ave./Tennessee St.- SR 210 Northbound Ramps	Northbound Thru	406	0	n/a
		Eastbound Thru	171	99	Inbound Worker Vehicles (96) + Delivery Trucks (3)
		Westbound RT	385	3	Outbound Delivery Trucks
8	San Bernardino Ave./Citrus Plaza Dr. - SR 210 Southbound Ramps	Southbound LT	182	99	Inbound Worker Vehicles (96) + Delivery Trucks (3)
9	5th St./Boulder Ave.	Eastbound RT	151	0	n/a

\* Thru = Through; RT = Right Turn; LT = Left Turn

\*\* Existing traffic volumes were taken from the Draft Joint Program/Project EIR for *Concept Plan No. 7 (Redlands Commons / Trojan Groves) and the Redlands Commons Development Plan* (City of Redlands, 2008), except the traffic volumes for the 5th St./Boulder Ave. intersection, which were provided by the City of Highland.

\*\*\* Project Volumes represent Passenger Car Equivalents (PCE), with Haul Trucks = 3.0 PCE, and Delivery Trucks = 2.0 PCE.

**Attachment B - Alternate Haul Route 2**

Intersection Number	Intersection	Affected Movement *	PM Peak-Hour		Explanation about Project Volumes
			Existing Volume **	Project Volume ***	
1	San Bernardino Ave./Church St.	Eastbound Thru	208	71	All Inbound Project Vehicles
		Westbound Thru	73	231	All Outbound Project Vehicles
2	San Bernardino Ave./Orange St.	Northbound RT	82	2	Inbound Delivery Trucks
		Southbound Thru	323	0	n/a
		Southbound LT	82	66	Inbound Haul Trucks
		Eastbound Thru	628	3	Inbound Delivery Trucks
		Westbound LT	48	66	Outbound Worker Vehicles (64) + Delivery Trucks (2)
		Westbound Thru	191	99	Outbound Worker Vehicles (96) + Delivery Trucks (3)
		Westbound RT	68	66	Outbound Haul Trucks
3	Orange St./Pioneer Ave.	Northbound Thru	490	66	Outbound Haul Trucks
		Southbound Thru	390	66	Inbound Haul Trucks
4	Lugonia Ave./Church St.	Eastbound Thru	1175	0	n/a
		Westbound Thru	516	0	n/a
5	Lugonia Ave./Orange St.	Northbound Thru	283	2	Inbound Delivery Trucks
		Southbound LT	50	0	n/a
		Southbound Thru	206	66	Outbound Worker Vehicles (64) + Delivery Trucks (2)
		Westbound Thru	469	0	n/a
6	Lugonia Ave./Tennessee St.	Westbound RT	169	0	n/a
7	San Bernardino Ave./Tennessee St.- SR 210 Northbound Ramps	Northbound Thru	521	0	n/a
		Eastbound Thru	585	3	Inbound Delivery Trucks
		Westbound RT	128	99	Outbound Worker Vehicles (96) + Delivery Trucks (3)
8	San Bernardino Ave./Citrus Plaza Dr. - SR 210 Southbound Ramps	Southbound LT	308	3	Inbound Delivery Trucks
9	5th St./Boulder Ave.	Eastbound RT	204	0	n/a

\* Thru = Through; RT = Right Turn; LT = Left Turn

\*\* Existing traffic volumes were taken from the Draft Joint Program/Project EIR for *Concept Plan No. 7 (Redlands Commons / Trojan Groves) and the Redlands Commons Development Plan* (City of Redlands, 2008), except the traffic volumes for the 5th St./Boulder Ave. intersection, which were provided by the City of Highland.

\*\*\* Project Volumes represent Passenger Car Equivalents (PCE), with Haul Trucks = 3.0 PCE, and Delivery Trucks = 2.0 PCE.

## Attachment B - LOS Calculations - Input Fields

### SOURCES OF INPUT VALUES USED FOR LEVEL OF SERVICE CALCULATIONS (see Attachment C) (Default values, except for Input Fields listed below)

Input Fields	Explanation	Source
Cycle (sec.)	Traffic Signal Cycle length in seconds	City of Redlands, Draft EIR for Redlands Commons Project, 2008
Loss Time (sec.)	Yellow + All Red Light time in seconds	City of Redlands, Draft EIR for Redlands Commons Project, 2008
Control	Traffic Control Device	City of Redlands, Draft EIR for Redlands Commons Project, 2008
Rights	Do right turns occur with other movements?	City of Redlands, Draft EIR for Redlands Commons Project, 2008
Min. Green	Minimum Green Light time in seconds	City of Redlands, Draft EIR for Redlands Commons Project, 2008
Lanes	Number & type of lanes on approach	City of Redlands, Draft EIR for Redlands Commons Project, 2008
<u>Volume Module</u>		
Base Vol.	Existing turning movement volumes	City of Redlands, Draft EIR for Redlands Commons Project, 2008
PHF Adj.	Peak Hour Factor	City of Redlands, Draft EIR for Redlands Commons Project, 2008
PHF Volume	Peak 15-minute volume, using PHF Adj.	Calculated value

Saturation Flow Module: all values are calculated by software program.

Capacity Analysis Module: all values are calculated by software program.

# ATTACHMENT C

## LEVEL OF SERVICE CALCULATION SHEETS

## **#1 – San Bernardino Avenue / Church Street**

DWR East Branch Extension Phase II

Level of Service Computation Report

2000 HCM 4-Way Stop Method (Base Volume Alternative)

\*\*\*\*\*

Intersection #1 San Bernardino Ave and Church St

\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.363  
 Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 10.6  
 Optimal Cycle: 0 Level Of Service: B

\*\*\*\*\*

Street Name:	Church Street						San Bernardino Avenue					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0	1	0	0	1	0	0	1	0	0	1	0

Volume Module:AM Peak Hour

Base Vol:	119	78	16	6	126	51	30	64	57	21	162	9
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	119	78	16	6	126	51	30	64	57	21	162	9
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	125	82	17	6	133	54	32	67	60	22	171	9
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	125	82	17	6	133	54	32	67	60	22	171	9
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	125	82	17	6	133	54	32	67	60	22	171	9

Saturation Flow Module:

Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.60	0.40	1.00	0.05	0.95	1.00	0.32	0.68	1.00	0.11	0.89	1.00
Final Sat.:	345	226	674	27	561	663	178	380	643	67	513	656

Capacity Analysis Module:

Vol/Sat:	0.36	0.36	0.02	0.24	0.24	0.08	0.18	0.18	0.09	0.33	0.33	0.01
Crit Moves:	****			****			****			****		
Delay/Veh:	11.9	11.9	7.9	10.2	10.2	8.2	10.0	10.0	8.4	11.3	11.3	7.9
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	11.9	11.9	7.9	10.2	10.2	8.2	10.0	10.0	8.4	11.3	11.3	7.9
LOS by Move:	B	B	A	B	B	A	A	A	A	B	B	A
ApproachDel:	11.6			9.7			9.4			11.2		
Delay Adj:	1.00			1.00			1.00			1.00		
ApprAdjDel:	11.6			9.7			9.4			11.2		
LOS by Appr:	B			A			A			B		
AllWayAvgQ:	0.5	0.5	0.0	0.3	0.3	0.1	0.2	0.2	0.1	0.4	0.4	0.0

\*\*\*\*\*

Note: Queue reported is the number of cars per lane.

\*\*\*\*\*

Level Of Service Computation Report  
 2000 HCM 4-Way Stop Method (Base Volume Alternative)

\*\*\*\*\*  
 Intersection #101 San Bernardino Ave and Church St  
 \*\*\*\*\*

Cycle (sec): 0 Critical Vol./Cap. (X): 0.482  
 Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 12.3  
 Optimal Cycle: 0 Level Of Service: B  
 \*\*\*\*\*

Street Name:		Church Street						San Bernardino Avenue					
Approach:	North Bound			South Bound			East Bound			West Bound			
Movement:	L	T	R	L	T	R	L	T	R	L	T	R	
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign			
Rights:	Include			Include			Include			Include			
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0	
Lanes:	0	1	0	0	1	0	0	1	0	0	1	0	

Volume Module:

Base Vol:	119	78	16	6	126	51	30	229	57	21	167	9
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	119	78	16	6	126	51	30	229	57	21	167	9
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	125	82	17	6	133	54	32	241	60	22	176	9
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	125	82	17	6	133	54	32	241	60	22	176	9
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	125	82	17	6	133	54	32	241	60	22	176	9

Saturation Flow Module:

Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.60	0.40	1.00	0.05	0.95	1.00	0.12	0.88	1.00	0.11	0.89	1.00
Final Sat.:	312	204	598	24	501	586	66	500	638	61	483	610

Capacity Analysis Module:

Vol/Sat:	0.40	0.40	0.03	0.26	0.26	0.09	0.48	0.48	0.09	0.36	0.36	0.02
Crit Moves:	****			****			****			****		
Delay/Veh:	13.3	13.3	8.5	11.2	11.2	8.9	14.0	14.0	8.6	12.3	12.3	8.3
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	13.3	13.3	8.5	11.2	11.2	8.9	14.0	14.0	8.6	12.3	12.3	8.3
LOS by Move:	B	B	A	B	B	A	B	B	A	B	B	A
ApproachDel:	13.0			10.6			13.0			12.1		
Delay Adj:	1.00			1.00			1.00			1.00		
ApprAdjDel:	13.0			10.6			13.0			12.1		
LOS by Appr:	B			B			B			B		
AllWayAvgQ:	0.6	0.6	0.0	0.3	0.3	0.1	0.8	0.8	0.1	0.5	0.5	0.0

Note: Queue reported is the number of cars per lane.  
 \*\*\*\*\*

Level of Service Computation Report  
 2000 HCM 4-Way Stop Method (Base Volume Alternative)

\*\*\*\*\*  
 Intersection #101 San Bernardino Ave and Church St  
 \*\*\*\*\*

Cycle (sec): 0 Critical Vol./Cap. (X): 0.619  
 Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 14.8  
 Optimal Cycle: 0 Level Of Service: B  
 \*\*\*\*\*

Street Name:	Church Street						San Bernardino Avenue					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0	1	0	0	1	0	0	1	0	0	1	0

Volume Module:

Base Vol:	119	78	16	6	126	51	30	295	57	21	233	9
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	119	78	16	6	126	51	30	295	57	21	233	9
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	125	82	17	6	133	54	32	311	60	22	245	9
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	125	82	17	6	133	54	32	311	60	22	245	9
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	125	82	17	6	133	54	32	311	60	22	245	9

Saturation Flow Module:

Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.60	0.40	1.00	0.05	0.95	1.00	0.09	0.91	1.00	0.08	0.92	1.00
Final Sat.:	289	190	548	22	461	534	51	502	616	44	488	590

Capacity Analysis Module:

Vol/Sat:	0.43	0.43	0.03	0.29	0.29	0.10	0.62	0.62	0.10	0.50	0.50	0.02
Crit Moves:	****			****			****			****		
Delay/Veh:	14.6	14.6	9.0	12.1	12.1	9.5	18.1	18.1	8.9	15.1	15.1	8.5
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	14.6	14.6	9.0	12.1	12.1	9.5	18.1	18.1	8.9	15.1	15.1	8.5
LOS by Move:	B	B	A	B	B	A	C	C	A	C	C	A
ApproachDel:	14.2			11.4			16.7			14.9		
Delay Adj:	1.00			1.00			1.00			1.00		
ApprAdjDel:	14.2			11.4			16.7			14.9		
LOS by Appr:	B			B			C			B		
AllWayAvgQ:	0.6	0.6	0.0	0.3	0.3	0.1	1.4	1.4	0.1	0.9	0.9	0.0

Note: Queue reported is the number of cars per lane.  
 \*\*\*\*\*

18c

DWR East Branch Extension Phase II

Level of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

\*\*\*\*\*
Intersection #1 San Bernardino Ave and Church St
\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.491
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 11.7
Optimal Cycle: 0 Level Of Service: B
\*\*\*\*\*

Table with columns for Street Name, Approach, Movement, Control, Rights, Min. Green, and Lanes. Rows include Church Street and San Bernardino Avenue with North, South, East, and West bounds.

Volume Module: PM Peak Hour. Table with columns for Base Vol, Growth Adj, Initial Bse, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, and Final Volume.

Saturation Flow Module. Table with columns for Adjustment, Lanes, and Final Sat.

Capacity Analysis Module. Table with columns for Vol/Sat, Crit Moves, Delay/Veh, Delay Adj, AdjDel/Veh, LOS by Move, ApproachDel, Delay Adj, ApprAdjDel, LOS by Appr, and AllWayAvgQ.

Note: Queue reported is the number of cars per lane.

186

Level Of Service Computation Report  
 2000 HCM 4-Way Stop Method (Base Volume Alternative)

\*\*\*\*\*  
 Intersection #101 San Bernardino Ave and Church St  
 \*\*\*\*\*

Cycle (sec): 0 Critical Vol./Cap.(X): 0.534  
 Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 13.6  
 Optimal Cycle: 0 Level Of Service: B  
 \*\*\*\*\*

Street Name:	Church Street						San Bernardino Avenue					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0	1	0	0	1	0	0	1	0	0	1	0

Volume Module:	Church Street NB			Church Street SB			San Bernardino Ave EB			San Bernardino Ave WB		
Base Vol:	73	127	37	14	115	41	64	213	138	11	238	7
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	73	127	37	14	115	41	64	213	138	11	238	7
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	77	134	39	15	121	43	67	224	145	12	251	7
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	77	134	39	15	121	43	67	224	145	12	251	7
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	77	134	39	15	121	43	67	224	145	12	251	7

Saturation Flow Module:	Church Street NB			Church Street SB			San Bernardino Ave EB			San Bernardino Ave WB		
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.37	0.63	1.00	0.11	0.89	1.00	0.23	0.77	1.00	0.04	0.96	1.00
Final Sat.:	179	312	556	52	430	535	126	420	618	23	508	587

Capacity Analysis Module:	Church Street NB			Church Street SB			San Bernardino Ave EB			San Bernardino Ave WB		
Vol/Sat:	0.43	0.43	0.07	0.28	0.28	0.08	0.53	0.53	0.24	0.49	0.49	0.01
Crit Moves:	****			****			****			****		
Delay/Veh:	14.3	14.3	9.2	12.1	12.1	9.4	15.8	15.8	9.9	14.9	14.9	8.6
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	14.3	14.3	9.2	12.1	12.1	9.4	15.8	15.8	9.9	14.9	14.9	8.6
LOS by Move:	B	B	A	B	B	A	C	C	A	B	B	A
ApproachDel:	13.5			11.5			13.8			14.8		
Delay Adj:	1.00			1.00			1.00			1.00		
ApprAdjDel:	13.5			11.5			13.8			14.8		
LOS by Appr:	B			B			B			B		
AllWayAvgQ:	0.6	0.6	0.1	0.3	0.3	0.1	1.0	1.0	0.3	0.8	0.8	0.0

Note: Queue reported is the number of cars per lane.  
 \*\*\*\*\*

Level of Service Computation Report  
 2000 HCM 4-Way Stop Method (Base Volume Alternative)

\*\*\*\*\*  
 Intersection #101 San Bernardino Ave and Church St  
 \*\*\*\*\*

Cycle (sec): 0 Critical Vol./Cap.(X): 0.677  
 Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 17.0  
 Optimal Cycle: 0 Level Of Service: C  
 \*\*\*\*\*

Street Name:	Church Street						San Bernardino Avenue					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0	1	0	0	1	0	0	1	0	0	1	0

Volume Module:

Base Vol:	73	127	37	14	115	41	64	279	138	11	304	7
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	73	127	37	14	115	41	64	279	138	11	304	7
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	77	134	39	15	121	43	67	294	145	12	320	7
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	77	134	39	15	121	43	67	294	145	12	320	7
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	77	134	39	15	121	43	67	294	145	12	320	7

Saturation Flow Module:

Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.37	0.63	1.00	0.11	0.89	1.00	0.19	0.81	1.00	0.03	0.97	1.00
Final Sat.:	168	293	516	49	400	494	99	434	598	18	502	570

Capacity Analysis Module:

Vol/Sat:	0.46	0.46	0.08	0.30	0.30	0.09	0.68	0.68	0.24	0.64	0.64	0.01
Crit Moves:	****			****			****			****		
Delay/Veh:	15.6	15.6	9.7	13.0	13.0	10.0	21.4	21.4	10.3	19.8	19.8	8.8
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	15.6	15.6	9.7	13.0	13.0	10.0	21.4	21.4	10.3	19.8	19.8	8.8
LOS by Move:	C	C	A	B	B	A	C	C	B	C	C	A
ApproachDel:	14.6			12.3			18.2			19.5		
Delay Adj:	1.00			1.00			1.00			1.00		
ApprAdjDel:	14.6			12.3			18.2			19.5		
LOS by Appr:	B			B			C			C		
AllWayAvgQ:	0.7	0.7	0.1	0.4	0.4	0.1	1.8	1.8	0.3	1.5	1.5	0.0

Note: Queue reported is the number of cars per lane.

## **#2 – San Bernardino Avenue / Orange Street**

DWR East Branch Extension Phase II

Level of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

\*\*\*\*\*
Intersection #2 San Bernardino Ave and Orange St
\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.373
Loss Time (sec): 8 (Y+R=4.0 sec) Average Delay (sec/veh): 17.2
Optimal Cycle: 26 Level Of Service: B
\*\*\*\*\*

Table with columns for Street Name (Orange Street, San Bernardino Avenue), Approach (North Bound, South Bound, East Bound, West Bound), Movement (L, T, R), Control, Rights, Min. Green, and Lanes.

Volume Module: AM Peak Hour
Table with columns for Base Vol, Growth Adj, Initial Bse, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, and Final Volume.

Saturation Flow Module:
Table with columns for Sat/Lane, Adjustment, Lanes, and Final Sat.

Capacity Analysis Module:
Table with columns for Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, and HCM2kAvgQ.

Note: Queue reported is the number of cars per lane.
\*\*\*\*\*

Level Of Service Computation Report  
 2000 HCM Operations Method (Base Volume Alternative)

\*\*\*\*\*

Intersection #102 San Bernardino Ave and Orange St

\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap. (X): 0.395  
 Loss Time (sec): 8 (Y+R=4.0 sec) Average Delay (sec/veh): 17.3  
 Optimal Cycle: 27 Level Of Service: B

\*\*\*\*\*

Street Name:	Orange Street						San Bernardino Avenue													
Approach:	North Bound			South Bound			East Bound			West Bound										
Movement:	L	T	R	L	T	R	L	T	R	L	T	R								
Control:	Permitted			Permitted			Permitted			Permitted										
Rights:	Include			Include			Include			Include										
Min. Green:	7	7	7	7	7	7	7	7	7	7	7	7								
Lanes:	1	0	1	1	0	1	0	1	1	0	1	0	2	0	1	1	0	1	1	0

Volume Module:

Base Vol:	93	165	89	111	489	90	14	293	46	33	547	92
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	93	165	89	111	489	90	14	293	46	33	547	92
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	98	174	94	117	515	95	15	308	48	35	576	97
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	98	174	94	117	515	95	15	308	48	35	576	97
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	98	174	94	117	515	95	15	308	48	35	576	97

Saturation Flow Module:

Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.34	0.90	0.90	0.57	0.93	0.93	0.32	0.95	0.85	0.55	0.93	0.93
Lanes:	1.00	1.30	0.70	1.00	1.69	0.31	1.00	2.00	1.00	1.00	1.71	0.29
Final Sat.:	642	2223	1199	1085	2979	548	606	3610	1615	1039	3022	508

Capacity Analysis Module:

Vol/Sat:	0.15	0.08	0.08	0.11	0.17	0.17	0.02	0.09	0.03	0.03	0.19	0.19
Crit Moves:				****						****		
Green Time:	43.8	43.8	43.8	43.8	43.8	43.8	48.2	48.2	48.2	48.2	48.2	48.2
Volume/Cap:	0.35	0.18	0.18	0.25	0.39	0.39	0.05	0.18	0.06	0.07	0.39	0.39
Uniform Del:	18.7	17.2	17.2	17.7	19.1	19.1	13.7	14.6	13.8	13.9	16.5	16.5
IncrementDel:	0.8	0.1	0.1	0.3	0.2	0.2	0.1	0.0	0.0	0.1	0.2	0.2
InitQueueDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	19.4	17.2	17.2	18.0	19.3	19.3	13.8	14.7	13.8	13.9	16.7	16.7
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	19.4	17.2	17.2	18.0	19.3	19.3	13.8	14.7	13.8	13.9	16.7	16.7
LOS by Move:	B	B	B	B	B	B	B	B	B	B	B	B
HCM2kAvgQ:	2	3	3	2	7	7	0	3	1	1	7	7

Note: Queue reported is the number of cars per lane.  
 \*\*\*\*\*

Level of Service Computation Report  
 2000 HCM Operations Method (Base Volume Alternative)

\*\*\*\*\*  
 Intersection #102 San Bernardino Ave and Orange St  
 \*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap. (X): 0.419  
 Loss Time (sec): 8 (Y+R=4.0 sec) Average Delay (sec/veh): 17.4  
 Optimal Cycle: 28 Level Of Service: B  
 \*\*\*\*\*

Street Name:		Orange Street						San Bernardino Avenue												
Approach:	North Bound			South Bound			East Bound			West Bound										
Movement:	L	T	R	L	T	R	L	T	R	L	T	R								
Control:	Permitted			Permitted			Permitted			Permitted										
Rights:	Include			Include			Include			Include										
Min. Green:	7	7	7	7	7	7	7	7	7	7	7	7								
Lanes:	1	0	1	1	0	1	0	1	1	0	1	0	2	0	1	1	0	1	1	0

Volume Module:

Base Vol:	93	165	89	177	423	90	14	293	46	33	547	158
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	93	165	89	177	423	90	14	293	46	33	547	158
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	98	174	94	186	445	95	15	308	48	35	576	166
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	98	174	94	186	445	95	15	308	48	35	576	166
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	98	174	94	186	445	95	15	308	48	35	576	166

Saturation Flow Module:

Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.37	0.90	0.90	0.57	0.93	0.93	0.29	0.95	0.85	0.55	0.92	0.92
Lanes:	1.00	1.30	0.70	1.00	1.65	0.35	1.00	2.00	1.00	1.00	1.55	0.45
Final Sat.:	705	2223	1199	1077	2899	617	559	3610	1615	1045	2706	782

Capacity Analysis Module:

Vol/Sat:	0.14	0.08	0.08	0.17	0.15	0.15	0.03	0.09	0.03	0.03	0.21	0.21	
Crit Moves:				****							****		
Green Time:	41.2	41.2	41.2	41.2	41.2	41.2	50.8	50.8	50.8	50.8	50.8	50.8	
Volume/Cap:	0.34	0.19	0.19	0.42	0.37	0.37	0.05	0.17	0.06	0.07	0.42	0.42	
Uniform Del:	20.0	18.7	18.7	20.9	20.4	20.4	12.5	13.3	12.5	12.5	15.4	15.4	
IncrementDel:	0.7	0.1	0.1	0.6	0.2	0.2	0.1	0.0	0.0	0.1	0.2	0.2	
InitQueueDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Delay/Veh:	20.7	18.8	18.8	21.5	20.6	20.6	12.5	13.3	12.5	12.6	15.6	15.6	
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
AdjDel/Veh:	20.7	18.8	18.8	21.5	20.6	20.6	12.5	13.3	12.5	12.6	15.6	15.6	
LOS by Move:	C	B	B	C	C	C	B	B	B	B	B	B	
HCM2kAvgQ:	2	3	3	4	6	6	0	3	1	1	8	8	

\*\*\*\*\*  
 Note: Queue reported is the number of cars per lane.  
 \*\*\*\*\*

DWR East Branch Extension Phase II

Level of Service Computation Report

2000 HCM Operations Method (Base Volume Alternative)

\*\*\*\*\*

Intersection #2 San Bernardino Ave and Orange St

\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap. (X): 0.393  
 Loss Time (sec): 8 (Y+R=4.0 sec) Average Delay (sec/veh): 17.2  
 Optimal Cycle: 27 Level of Service: B

\*\*\*\*\*

Street Name:	Orange Street						San Bernardino Avenue					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	7	7	7	7	7	7	7	7	7	7	7	7
Lanes:	1	0	1	1	1	0	1	0	2	0	1	1

-----|-----|-----|-----|

Volume Module: PM Peak Hour

Base Vol:	58	517	82	82	323	38	133	628	87	48	191	68
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	58	517	82	82	323	38	133	628	87	48	191	68
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	61	544	86	86	340	40	140	661	92	51	201	72
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	61	544	86	86	340	40	140	661	92	51	201	72
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	61	544	86	86	340	40	140	661	92	51	201	72

-----|-----|-----|-----|

Saturation Flow Module:

Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.49	0.93	0.93	0.33	0.93	0.93	0.57	0.95	0.85	0.32	0.91	0.91
Lanes:	1.00	1.73	0.27	1.00	1.79	0.21	1.00	2.00	1.00	1.00	1.47	0.53
Final Sat.:	939	3050	484	631	3178	374	1083	3610	1615	606	2558	911

-----|-----|-----|-----|

Capacity Analysis Module:

Vol/Sat:	0.07	0.18	0.18	0.14	0.11	0.11	0.13	0.18	0.06	0.08	0.08	0.08
Crit Moves:	****			****								
Green/Cycle:	0.45	0.45	0.45	0.45	0.45	0.45	0.47	0.47	0.47	0.47	0.47	0.47
Volume/Cap:	0.14	0.39	0.39	0.30	0.24	0.24	0.28	0.39	0.12	0.18	0.17	0.17
Delay/Veh:	16.1	18.3	18.3	17.9	16.8	16.8	16.7	17.6	15.2	15.9	15.5	15.5
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	16.1	18.3	18.3	17.9	16.8	16.8	16.7	17.6	15.2	15.9	15.5	15.5
LOS by Move:	B	B	B	B	B	B	B	B	B	B	B	B
HCM2kAvgQ:	1	7	7	2	4	4	3	7	2	1	3	3

\*\*\*\*\*

Note: Queue reported is the number of cars per lane.

\*\*\*\*\*

Level of Service Computation Report  
 2000 HCM Operations Method (Base Volume Alternative)

\*\*\*\*\*  
 Intersection #102 San Bernardino Ave and Orange St  
 \*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap. (X): 0.407  
 Loss Time (sec): 8 (Y+R=4.0 sec) Average Delay (sec/veh): 17.4  
 Optimal Cycle: 27 Level of Service: B  
 \*\*\*\*\*

Street Name:	Orange Street						San Bernardino Avenue					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	7	7	7	7	7	7	7	7	7	7	7	7
Lanes:	1	0	1	1	0	1	1	0	2	1	0	1

Volume Module:

Base Vol:	58	517	84	82	389	38	133	631	87	114	290	68
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	58	517	84	82	389	38	133	631	87	114	290	68
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	61	544	88	86	409	40	140	664	92	120	305	72
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	61	544	88	86	409	40	140	664	92	120	305	72
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	61	544	88	86	409	40	140	664	92	120	305	72

Saturation Flow Module:

Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.44	0.93	0.93	0.33	0.94	0.94	0.50	0.95	0.85	0.32	0.92	0.92
Lanes:	1.00	1.72	0.28	1.00	1.82	0.18	1.00	2.00	1.00	1.00	1.62	0.38
Final Sat.:	834	3040	494	618	3246	317	952	3610	1615	614	2842	666

Capacity Analysis Module:

Vol/Sat:	0.07	0.18	0.18	0.14	0.13	0.13	0.15	0.18	0.06	0.20	0.11	0.11
Crit Moves:	****									****		
Green Time:	44.0	44.0	44.0	44.0	44.0	44.0	48.0	48.0	48.0	48.0	48.0	48.0
Volume/Cap:	0.17	0.41	0.41	0.32	0.29	0.29	0.31	0.38	0.12	0.41	0.22	0.22
Uniform Del:	16.9	19.1	19.1	18.2	18.0	18.0	15.8	16.5	14.3	16.8	15.1	15.1
IncrcmntDel:	0.2	0.2	0.2	0.7	0.1	0.1	0.4	0.1	0.1	0.9	0.1	0.1
InitQueueDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	17.2	19.3	19.3	18.9	18.1	18.1	16.2	16.7	14.4	17.7	15.2	15.2
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	17.2	19.3	19.3	18.9	18.1	18.1	16.2	16.7	14.4	17.7	15.2	15.2
LOS by Move:	B	B	B	B	B	B	B	B	B	B	B	B
HCM2kAvgQ:	1	7	7	2	5	5	3	7	2	3	3	3

Note: Queue reported is the number of cars per lane.  
 \*\*\*\*\*

19e

Level of Service Computation Report  
 2000 HCM Operations Method (Base Volume Alternative)

\*\*\*\*\*  
 Intersection #102 San Bernardino Ave and Orange St  
 \*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.486  
 Loss Time (sec): 8 (Y+R=4.0 sec) Average Delay (sec/veh): 17.9  
 Optimal Cycle: 31 Level of Service: B  
 \*\*\*\*\*

Street Name:	Orange Street						San Bernardino Avenue					
	North Bound			South Bound			East Bound			West Bound		
Approach:	L	T	R	L	T	R	L	T	R	L	T	R
Movement:												
Control:	Permitted			Permitted			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	7	7	7	7	7	7	7	7	7	7	7	7
Lanes:	1	0	1	1	0	1	1	0	2	1	0	1

Volume Module:

Base Vol:	58	517	84	148	323	38	133	631	87	114	290	134
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	58	517	84	148	323	38	133	631	87	114	290	134
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	61	544	88	156	340	40	140	664	92	120	305	141
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	61	544	88	156	340	40	140	664	92	120	305	141
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	61	544	88	156	340	40	140	664	92	120	305	141

Saturation Flow Module:

Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.50	0.93	0.93	0.34	0.93	0.93	0.44	0.95	0.85	0.30	0.91	0.91
Lanes:	1.00	1.72	0.28	1.00	1.79	0.21	1.00	2.00	1.00	1.00	1.37	0.63
Final Sat.:	952	3040	494	652	3178	374	832	3610	1615	576	2353	1087

Capacity Analysis Module:

Vol/Sat:	0.06	0.18	0.18	0.24	0.11	0.11	0.17	0.18	0.06	0.21	0.13	0.13
Crit Moves:				****						****		
Green Time:	49.1	49.1	49.1	49.1	49.1	49.1	42.9	42.9	42.9	42.9	42.9	42.9
Volume/Cap:	0.13	0.36	0.36	0.49	0.22	0.22	0.39	0.43	0.13	0.49	0.30	0.30
Uniform Del:	13.8	15.7	15.7	17.0	14.5	14.5	19.6	20.0	17.3	20.6	18.8	18.8
IncrementDel:	0.1	0.1	0.1	1.2	0.1	0.1	0.7	0.2	0.1	1.5	0.1	0.1
InitQueueDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	13.9	15.9	15.9	18.2	14.5	14.5	20.3	20.2	17.4	22.1	18.9	18.9
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	13.9	15.9	15.9	18.2	14.5	14.5	20.3	20.2	17.4	22.1	18.9	18.9
LOS by Move:	B	B	B	B	B	B	C	C	B	C	B	B
HCM2kAvgQ:	1	6	6	4	3	3	3	8	2	3	5	5

Note: Queue reported is the number of cars per lane.  
 \*\*\*\*\*

## #3 – Orange Street / Pioneer Street

DWR East Branch Extension Phase II

Level of Service Computation Report

2000 HCM 4-Way Stop Method (Base Volume Alternative)

\*\*\*\*\*

Intersection #3 Orange St and Pioneer Ave

\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.810
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 19.0
Optimal Cycle: 0 Level of Service: C

\*\*\*\*\*

Table with columns for Street Name (Orange Street, Pioneer Avenue), Approach (North Bound, South Bound, East Bound, West Bound), Movement (L, T, R), Control (Stop Sign), Rights (Include), Min. Green, and Lanes.

Volume Module:AM Peak Hour

Table with columns for various volume and adjustment factors: Base Vol, Growth Adj, Initial Bse, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, Final Volume.

Saturation Flow Module:

Table with columns for Adjustment, Lanes, and Final Sat. values.

Capacity Analysis Module:

Table with columns for Vol/Sat, Crit Moves, Delay/Veh, Delay Adj, AdjDel/Veh, LOS by Move, ApproachDel, Delay Adj, ApprAdjDel, LOS by Appr, and AllWayAvgQ.

\*\*\*\*\*

Note: Queue reported is the number of cars per lane.

\*\*\*\*\*

Level of Service Computation Report  
 2000 HCM 4-Way Stop Method (Base Volume Alternative)

\*\*\*\*\*  
 Intersection #103 Orange St and Pioneer Ave  
 \*\*\*\*\*

Cycle (sec): 0 Critical Vol./Cap.(X): 0.824  
 Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 20.3  
 Optimal Cycle: 0 Level Of Service: C  
 \*\*\*\*\*

Street Name:	Orange Street						Pioneer Avenue					
	North Bound			South Bound			East Bound			West Bound		
Approach:	L	T	R	L	T	R	L	T	R	L	T	R
Movement:												
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1	0	1	1	0	1	0	0	1	0	0	1

Volume Module:

Base Vol:	46	205	22	55	506	45	20	73	50	125	271	30
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	46	205	22	55	506	45	20	73	50	125	271	30
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	48	216	23	58	533	47	21	77	53	132	285	32
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	48	216	23	58	533	47	21	77	53	132	285	32
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	48	216	23	58	533	47	21	77	53	132	285	32

Saturation Flow Module:

Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.81	0.19	1.00	1.84	0.16	0.14	0.51	0.35	0.29	0.64	0.07
Final Sat.:	426	826	89	470	933	84	65	237	162	160	346	38

Capacity Analysis Module:

Vol/Sat:	0.11	0.26	0.26	0.12	0.57	0.57	0.32	0.32	0.32	0.82	0.82	0.82
Crit Moves:	****			****			****			****		
Delay/Veh:	11.7	12.5	12.4	11.2	18.1	17.8	13.1	13.1	13.1	31.7	31.7	31.7
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	11.7	12.5	12.4	11.2	18.1	17.8	13.1	13.1	13.1	31.7	31.7	31.7
LOS by Move:	B	B	B	B	C	C	B	B	B	D	D	D
ApproachDel:	12.4			17.4			13.1			31.7		
Delay Adj:	1.00			1.00			1.00			1.00		
ApprAdjDel:	12.4			17.4			13.1			31.7		
LOS by Appr:	B			C			B			D		
AllWayAvgQ:	0.1	0.3	0.3	0.1	1.2	1.2	0.4	0.4	0.4	3.4	3.4	3.4

\*\*\*\*\*  
 Note: Queue reported is the number of cars per lane.  
 \*\*\*\*\*

Level of Service Computation Report  
 2000 HCM 4-Way Stop Method (Base Volume Alternative)

\*\*\*\*\*  
 Intersection #103 Orange St and Pioneer Ave  
 \*\*\*\*\*

Cycle (sec): 0 Critical Vol./Cap. (X): 0.847  
 Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 21.5  
 Optimal Cycle: 0 Level of Service: C  
 \*\*\*\*\*

Street Name:	Orange Street						Pioneer Avenue					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1	0	1	1	0	1	0	0	1	0	0	1

Volume Module:

Base Vol:	46	271	22	55	506	45	20	73	50	125	271	30
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	46	271	22	55	506	45	20	73	50	125	271	30
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	48	285	23	58	533	47	21	77	53	132	285	32
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	48	285	23	58	533	47	21	77	53	132	285	32
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	48	285	23	58	533	47	21	77	53	132	285	32

Saturation Flow Module:

Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.85	0.15	1.00	1.84	0.16	0.14	0.51	0.35	0.29	0.64	0.07
Final Sat.:	426	844	69	458	908	81	63	229	157	155	337	37

Capacity Analysis Module:

Vol/Sat:	0.11	0.34	0.34	0.13	0.59	0.58	0.34	0.34	0.34	0.85	0.85	0.85
Crit Moves:	****			****			****			****		
Delay/Veh:	11.8	13.8	13.6	11.5	19.0	18.7	13.6	13.6	13.6	35.0	35.0	35.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	11.8	13.8	13.6	11.5	19.0	18.7	13.6	13.6	13.6	35.0	35.0	35.0
LOS by Move:	B	B	B	B	C	C	B	B	B	E	E	E
ApproachDel:	13.5			18.3			13.6			35.0		
Delay Adj:	1.00			1.00			1.00			1.00		
ApprAdjDel:	13.5			18.3			13.6			35.0		
LOS by Appr:	B			C			B			E		
AllWayAvgQ:	0.1	0.5	0.4	0.1	1.3	1.2	0.4	0.4	0.4	3.7	3.7	3.7

\*\*\*\*\*  
 Note: Queue reported is the number of cars per lane.  
 \*\*\*\*\*

20c

DWR East Branch Extension Phase II

Level Of Service Computation Report

2000 HCM 4-Way Stop Method (Base Volume Alternative)

\*\*\*\*\*

Intersection #3 Orange St and Pioneer Ave

\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.698
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 19.0
Optimal Cycle: 0 Level Of Service: C

\*\*\*\*\*

Table with columns for Street Name (Orange Street, Pioneer Avenue), Approach (North Bound, South Bound, East Bound, West Bound), Movement (L, T, R), Control (Stop Sign), Rights (Include), Min. Green, and Lanes.

Volume Module: PM Peak Hour

Table with columns for Base Vol, Growth Adj, Initial Bse, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, and Final Volume.

Saturation Flow Module:

Table with columns for Adjustment, Lanes, and Final Sat.

Capacity Analysis Module:

Table with columns for Vol/Sat, Crit Moves, Delay/Veh, Delay Adj, AdjDel/Veh, LOS by Move, ApproachDel, Delay Adj, ApprAdjDel, LOS by Appr, and AllWayAvgQ.

\*\*\*\*\*

Note: Queue reported is the number of cars per lane.

\*\*\*\*\*

208

Level Of Service Computation Report  
 2000 HCM 4-Way Stop Method (Base Volume Alternative)

\*\*\*\*\*  
 Intersection #103 Orange St and Pioneer Ave  
 \*\*\*\*\*

Cycle (sec): 0 Critical Vol./Cap.(X): 0.711  
 Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 20.2  
 Optimal Cycle: 0 Level Of Service: C  
 \*\*\*\*\*

Street Name:	Orange Street						Pioneer Avenue					
	North Bound			South Bound			East Bound			West Bound		
Approach:	L	T	R	L	T	R	L	T	R	L	T	R
Movement:												
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1	0	1	1	0	1	0	0	1	0	0	1

Volume Module:	Orange Street			Orange Street			Pioneer Avenue			Pioneer Avenue		
Base Vol:	50	490	95	40	456	30	20	267	40	68	92	25
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	50	490	95	40	456	30	20	267	40	68	92	25
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	53	516	100	42	480	32	21	281	42	72	97	26
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	53	516	100	42	480	32	21	281	42	72	97	26
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	53	516	100	42	480	32	21	281	42	72	97	26

Saturation Flow Module:	Orange Street			Orange Street			Pioneer Avenue			Pioneer Avenue		
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.68	0.32	1.00	1.88	0.12	0.06	0.82	0.12	0.37	0.50	0.13
Final Sat.:	446	810	160	435	879	58	30	395	59	158	214	58

Capacity Analysis Module:	Orange Street			Orange Street			Pioneer Avenue			Pioneer Avenue		
Vol/Sat:	0.12	0.64	0.63	0.10	0.55	0.54	0.71	0.71	0.71	0.45	0.45	0.45
Crit Moves:	****			****			****			****		
Delay/Veh:	11.7	21.6	20.7	11.6	18.5	18.3	24.8	24.8	24.8	16.4	16.4	16.4
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	11.7	21.6	20.7	11.6	18.5	18.3	24.8	24.8	24.8	16.4	16.4	16.4
LOS by Move:	B	C	C	B	C	C	C	C	C	C	C	C
ApproachDel:	20.7			18.0			24.8			16.4		
Delay Adj:	1.00			1.00			1.00			1.00		
ApprAdjDel:	20.7			18.0			24.8			16.4		
LOS by Appr:	C			C			C			C		
AllWayAvgQ:	0.1	1.6	1.5	0.1	1.1	1.1	2.0	2.0	2.0	0.7	0.7	0.7

Note: Queue reported is the number of cars per lane.  
 \*\*\*\*\*

20e

Level of Service Computation Report  
 2000 HCM 4-Way Stop Method (Base Volume Alternative)

\*\*\*\*\*  
 Intersection #103 Orange St and Pioneer Ave  
 \*\*\*\*\*

Cycle (sec): 0 Critical Vol./Cap.(X): 0.719  
 Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 22.1  
 Optimal Cycle: 0 Level of Service: C  
 \*\*\*\*\*

Street Name: Orange Street					Pioneer Avenue								
Approach:		North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R	
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign			
Rights:	Include			Include			Include			Include			
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0	
Lanes:	1	0	1	1	0	1	1	0	0	0	1	0	0

Volume Module:

Base Vol:	50	556	95	40	456	30	20	267	40	68	92	25
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	50	556	95	40	456	30	20	267	40	68	92	25
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	53	585	100	42	480	32	21	281	42	72	97	26
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	53	585	100	42	480	32	21	281	42	72	97	26
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	53	585	100	42	480	32	21	281	42	72	97	26

Saturation Flow Module:

Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.71	0.29	1.00	1.88	0.12	0.06	0.82	0.12	0.37	0.50	0.13
Final Sat.:	445	825	143	430	865	57	29	391	59	157	212	58

Capacity Analysis Module:

Vol/Sat:	0.12	0.71	0.70	0.10	0.55	0.55	0.72	0.72	0.72	0.46	0.46	0.46
Crit Moves:	****			****			****			****		
Delay/Veh:	11.7	25.7	24.7	11.7	19.1	18.9	25.7	25.7	25.7	16.7	16.7	16.7
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	11.7	25.7	24.7	11.7	19.1	18.9	25.7	25.7	25.7	16.7	16.7	16.7
LOS by Move:	B	D	C	B	C	C	D	D	D	C	C	C
ApproachDel:	24.6			18.5			25.7			16.7		
Delay Adj:	1.00			1.00			1.00			1.00		
ApprAdjDel:	24.6			18.5			25.7			16.7		
LOS by Appr:	C			C			D			C		
AllWayAvgQ:	0.1	2.2	2.0	0.1	1.1	1.1	2.0	2.0	2.0	0.7	0.7	0.7

Note: Queue reported is the number of cars per lane.  
 \*\*\*\*\*

ZDF

## **#4 – Lugonia Avenue / Church Street**

Level of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

\*\*\*\*\*
Intersection #104 Lugonia Ave and Church St
\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap. (X): 0.461
Loss Time (sec): 8 (Y+R=4.0 sec) Average Delay (sec/veh): 14.8
Optimal Cycle: 30 Level Of Service: B
\*\*\*\*\*

Table with columns for Street Name (Church Street, Lugonia Avenue), Approach (North Bound, South Bound, East Bound, West Bound), Movement (L, T, R), Control, Rights, Min. Green, and Lanes.

Volume Module: Table with columns for Base Vol, Growth Adj, Initial Bse, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, Final Volume.

Saturation Flow Module: Table with columns for Sat/Lane, Adjustment, Lanes, Final Sat.

Capacity Analysis Module: Table with columns for Vol/Sat, Crit Moves, Green Time, Volume/Cap, Uniform Del, IncremntDel, InitQueueDel, Delay Adj, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, HCM2kAvgQ.

Note: Queue reported is the number of cars per lane.
\*\*\*\*\*

Level of Service Computation Report  
 2000 HCM Operations Method (Base Volume Alternative)

\*\*\*\*\*  
 Intersection #104 Lugonia Ave and Church St  
 \*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap. (X): 0.482  
 Loss Time (sec): 8 (Y+R=4.0 sec) Average Delay (sec/veh): 14.5  
 Optimal Cycle: 31 Level Of Service: B  
 \*\*\*\*\*

Street Name:	Church Street						Lugonia Avenue								
Approach:	North Bound		South Bound		East Bound		West Bound								
Movement:	L	T	R	L	T	R	L	T	R	L	T	R			
Control:	Permitted		Permitted		Permitted		Permitted		Permitted		Permitted				
Rights:	Include		Include		Include		Include		Include		Include				
Min. Green:	7	7	7	7	7	7	7	7	7	7	7	7			
Lanes:	0	1	0	0	1	1	0	0	1	0	1	0	1	1	0

Volume Module:

Base Vol:	34	130	51	72	205	43	20	315	23	123	898	119
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	34	130	51	72	205	43	20	315	23	123	898	119
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	36	137	54	76	216	45	21	332	24	129	945	125
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	36	137	54	76	216	45	21	332	24	129	945	125
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	36	137	54	76	216	45	21	332	24	129	945	125

Saturation Flow Module:

Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.89	0.89	0.85	0.56	0.97	0.97	0.21	0.94	0.94	0.53	0.93	0.93
Lanes:	0.21	0.79	1.00	1.00	0.83	0.17	1.00	1.86	0.14	1.00	1.77	0.23
Final Sat.:	352	1346	1615	1072	1530	321	403	3331	243	1015	3130	415

Capacity Analysis Module:

Vol/Sat:	0.10	0.10	0.03	0.07	0.14	0.14	0.05	0.10	0.10	0.13	0.30	0.30	
Crit Moves:							****						
Green Time:	29.3	29.3	29.3	29.3	29.3	29.3	62.7	62.7	62.7	62.7	62.7	62.7	
Volume/Cap:	0.35	0.35	0.11	0.24	0.48	0.48	0.08	0.16	0.16	0.20	0.48	0.48	
Uniform Del:	27.8	27.8	25.9	26.9	29.1	29.1	7.3	7.7	7.7	8.0	10.0	10.0	
IncrementDel:	0.4	0.4	0.1	0.4	0.7	0.7	0.1	0.0	0.0	0.2	0.2	0.2	
InitQueueDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Delay/Veh:	28.2	28.2	26.0	27.3	29.8	29.8	7.5	7.8	7.8	8.1	10.1	10.1	
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
AdjDel/Veh:	28.2	28.2	26.0	27.3	29.8	29.8	7.5	7.8	7.8	8.1	10.1	10.1	
LOS by Move:	C	C	C	C	C	C	A	A	A	A	B	B	
HCM2kAvgQ:	4	4	1	2	7	7	0	2	2	2	9	9	

\*\*\*\*\*  
 Note: Queue reported is the number of cars per lane.  
 \*\*\*\*\*

Level of Service Computation Report  
 2000 HCM Operations Method (Base Volume Alternative)

\*\*\*\*\*  
 Intersection #104 Lugonia Ave and Church St  
 \*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap. (X): 0.461  
 Loss Time (sec): 8 (Y+R=4.0 sec) Average Delay (sec/veh): 14.8  
 Optimal Cycle: 30 Level Of Service: B  
 \*\*\*\*\*

Street Name:	Church Street						Lugonia Avenue								
	North Bound			South Bound			East Bound			West Bound					
Approach:	L - T - R		L - T - R		L - T - R		L - T - R		L - T - R		L - T - R				
Movement:	L	T	R	L	T	R	L	T	R	L	T	R			
Control:	Permitted			Permitted			Permitted			Permitted					
Rights:	Include			Include			Include			Include					
Min. Green:	7	7	7	7	7	7	7	7	7	7	7	7			
Lanes:	0	1	0	0	1	1	0	0	1	0	1	0	1	1	0

Volume Module:

Base Vol:	34	130	51	72	205	43	20	249	23	123	832	119
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	34	130	51	72	205	43	20	249	23	123	832	119
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	36	137	54	76	216	45	21	262	24	129	876	125
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	36	137	54	76	216	45	21	262	24	129	876	125
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	36	137	54	76	216	45	21	262	24	129	876	125

Saturation Flow Module:

Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.90	0.90	0.85	0.57	0.97	0.97	0.23	0.94	0.94	0.57	0.93	0.93
Lanes:	0.21	0.79	1.00	1.00	0.83	0.17	1.00	1.83	0.17	1.00	1.75	0.25
Final Sat.:	353	1348	1615	1083	1530	321	439	3262	301	1085	3098	443

Capacity Analysis Module:

Vol/Sat:	0.10	0.10	0.03	0.07	0.14	0.14	0.05	0.08	0.08	0.12	0.28	0.28
Crit Moves:				****						****		
Green Time:	30.6	30.6	30.6	30.6	30.6	30.6	61.4	61.4	61.4	61.4	61.4	61.4
Volume/Cap:	0.33	0.33	0.11	0.23	0.46	0.46	0.08	0.13	0.13	0.19	0.46	0.46
Uniform Del:	26.8	26.8	24.9	25.9	28.0	28.0	7.8	8.1	8.1	8.5	10.4	10.4
IncrcmntDel:	0.4	0.4	0.1	0.4	0.6	0.6	0.1	0.0	0.0	0.1	0.2	0.2
InitQueueDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	27.2	27.2	25.0	26.2	28.6	28.6	8.0	8.1	8.1	8.6	10.6	10.6
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	27.2	27.2	25.0	26.2	28.6	28.6	8.0	8.1	8.1	8.6	10.6	10.6
LOS by Move:	C	C	C	C	C	C	A	A	A	A	B	B
HCM2kAvgQ:	4	4	1	2	7	7	0	2	2	2	9	9

Note: Queue reported is the number of cars per lane.  
 \*\*\*\*\*

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

\*\*\*\*\*
Intersection #104 Lugonia Ave and Church St
\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap. (X): 0.575
Loss Time (sec): 8 (Y+R=4.0 sec) Average Delay (sec/veh): 15.7
Optimal Cycle: 37 Level Of Service: B
\*\*\*\*\*

Table with columns for Street Name (Church Street, Lugonia Avenue), Approach (North Bound, South Bound, East Bound, West Bound), Movement (L, T, R), Control, Rights, Min. Green, and Lanes.

Volume Module: Table with columns for Base Vol, Growth Adj, Initial Bse, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, and Final Volume.

Saturation Flow Module: Table with columns for Sat/Lane, Adjustment, Lanes, and Final Sat.

Capacity Analysis Module: Table with columns for Vol/Sat, Crit Moves, Green Time, Volume/Cap, Uniform Del, IncremntDel, InitQueueDel, Delay Adj, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, and HCM2kAvgQ.

Note: Queue reported is the number of cars per lane.
\*\*\*\*\*

216

Level of Service Computation Report  
 2000 HCM Operations Method (Base Volume Alternative)

\*\*\*\*\*  
 Intersection #104 Lugonia Ave and Church St  
 \*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.599  
 Loss Time (sec): 8 (Y+R=4.0 sec) Average Delay (sec/veh): 15.7  
 Optimal Cycle: 38 Level Of Service: B  
 \*\*\*\*\*

Street Name:	Church Street						Lugonia Avenue					
	North Bound			South Bound			East Bound			West Bound		
Approach:	L	T	R	L	T	R	L	T	R	L	T	R
Movement:												
Control:	Permitted			Permitted			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	7	7	7	7	7	7	7	7	7	7	7	7
Lanes:	0	1	0	0	1	0	1	0	0	1	0	0

Volume Module:

Base Vol:	23	245	151	122	184	36	84	1241	52	78	582	139
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	23	245	151	122	184	36	84	1241	52	78	582	139
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	24	258	159	128	194	38	88	1306	55	82	613	146
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	24	258	159	128	194	38	88	1306	55	82	613	146
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	24	258	159	128	194	38	88	1306	55	82	613	146

Saturation Flow Module:

Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.96	0.96	0.85	0.39	0.98	0.98	0.32	0.94	0.94	0.14	0.92	0.92
Lanes:	0.09	0.91	1.00	1.00	0.84	0.16	1.00	1.92	0.08	1.00	1.61	0.39
Final Sat.:	157	1667	1615	747	1549	303	610	3444	144	258	2830	676

Capacity Analysis Module:

Vol/Sat:	0.15	0.15	0.10	0.17	0.13	0.13	0.14	0.38	0.38	0.32	0.22	0.22	
Crit Moves:				****				****					
Green Time:	28.7	28.7	28.7	28.7	28.7	28.7	63.3	63.3	63.3	63.3	63.3	63.3	
Volume/Cap:	0.54	0.54	0.34	0.60	0.44	0.44	0.23	0.60	0.60	0.50	0.34	0.34	
Uniform Del:	30.1	30.1	28.2	30.7	29.0	29.0	7.9	10.9	10.9	9.9	8.6	8.6	
IncrementDel:	1.1	1.1	0.4	4.6	0.6	0.6	0.3	0.4	0.4	2.4	0.1	0.1	
InitQueueDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Delay/Veh:	31.2	31.2	28.6	35.3	29.6	29.6	8.2	11.3	11.3	12.3	8.7	8.7	
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
AdjDel/Veh:	31.2	31.2	28.6	35.3	29.6	29.6	8.2	11.3	11.3	12.3	8.7	8.7	
LOS by Move:	C	C	C	D	C	C	A	B	B	B	A	A	
HCM2kAvgQ:	8	8	4	4	6	6	1	13	13	2	6	6	

Note: Queue reported is the number of cars per lane.  
 \*\*\*\*\*

Level of Service Computation Report  
 2000 HCM Operations Method (Base Volume Alternative)

\*\*\*\*\*  
 Intersection #104 Lugonia Ave and Church St  
 \*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap. (X): 0.575  
 Loss Time (sec): 8 (Y+R=4.0 sec) Average Delay (sec/veh): 15.7  
 Optimal Cycle: 37 Level of Service: B  
 \*\*\*\*\*

Street Name:	Church Street						Lugonia Avenue								
Approach:	North Bound			South Bound			East Bound			West Bound					
Movement:	L	T	R	L	T	R	L	T	R	L	T	R			
Control:	Permitted			Permitted			Permitted			Permitted					
Rights:	Include			Include			Include			Include					
Min. Green:	7	7	7	7	7	7	7	7	7	7	7	7			
Lanes:	0	1	0	0	1	1	0	0	1	0	1	0	1	1	0

Volume Module:

Base Vol:	23	245	151	122	184	36	84	1175	52	78	516	139
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	23	245	151	122	184	36	84	1175	52	78	516	139
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	24	258	159	128	194	38	88	1237	55	82	543	146
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	24	258	159	128	194	38	88	1237	55	82	543	146
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	24	258	159	128	194	38	88	1237	55	82	543	146

Saturation Flow Module:

Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.96	0.96	0.85	0.40	0.98	0.98	0.35	0.94	0.94	0.15	0.92	0.92
Lanes:	0.09	0.91	1.00	1.00	0.84	0.16	1.00	1.92	0.08	1.00	1.58	0.42
Final Sat.:	157	1667	1615	760	1549	303	665	3436	152	285	2753	742

Capacity Analysis Module:

Vol/Sat:	0.15	0.15	0.10	0.17	0.13	0.13	0.13	0.36	0.36	0.29	0.20	0.20	
Crit Moves:				****				****					
Green Time:	29.4	29.4	29.4	29.4	29.4	29.4	62.6	62.6	62.6	62.6	62.6	62.6	
Volume/Cap:	0.53	0.53	0.33	0.57	0.43	0.43	0.21	0.57	0.57	0.46	0.32	0.32	
Uniform Del:	29.5	29.5	27.6	30.0	28.5	28.5	8.1	10.9	10.9	9.8	8.7	8.7	
IncrementDel:	1.0	1.0	0.4	3.6	0.5	0.5	0.3	0.4	0.4	1.9	0.1	0.1	
InitQueueDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Delay/Veh:	30.5	30.5	28.1	33.6	29.0	29.0	8.3	11.3	11.3	11.7	8.8	8.8	
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
AdjDel/Veh:	30.5	30.5	28.1	33.6	29.0	29.0	8.3	11.3	11.3	11.7	8.8	8.8	
LOS by Move:	C	C	C	C	C	C	A	B	B	B	A	A	
HCM2kAvgQ:	8	8	4	4	6	6	1	12	12	2	5	5	

Note: Queue reported is the number of cars per lane.  
 \*\*\*\*\*

218

## **#5 – Lugonia Avenue / Orange Street**

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #105 Lugonia Ave and Orange St

Cycle (sec): 100 Critical Vol./Cap. (X): 0.624
Loss Time (sec): 8 (Y+R=4.0 sec) Average Delay (sec/veh): 17.6
Optimal Cycle: 40 Level Of Service: B

Table with columns for Street Name (Orange Street, Lugonia Avenue), Approach (North Bound, South Bound, East Bound, West Bound), Movement (L, T, R), Control, Rights, Min. Green, and Lanes.

Table for Volume Module showing Base Vol, Growth Adj, Initial Bse, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, and Final Volume across various movements.

Table for Saturation Flow Module showing Sat/Lane, Adjustment, Lanes, and Final Sat. values.

Table for Capacity Analysis Module showing Vol/Sat, Crit Moves, Green Time, Volume/Cap, Uniform Del, IncrementDel, InitQueueDel, Delay Adj, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, and HCM2kAvgQ.

Note: Queue reported is the number of cars per lane.

22a

Level of Service Computation Report  
 2000 HCM Operations Method (Base Volume Alternative)

\*\*\*\*\*  
 Intersection #105 Lugonia Ave and Orange St  
 \*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.697  
 Loss Time (sec): 8 (Y+R=4.0 sec) Average Delay (sec/veh): 19.6  
 Optimal Cycle: 48 Level Of Service: B  
 \*\*\*\*\*

Street Name:	Orange Street						Lugonia Avenue					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	7	7	7	7	7	7	7	7	7	7	7	7
Lanes:	1	0	1	0	1	0	1	0	1	1	0	0

Volume Module:

Base Vol:	85	246	66	113	248	37	32	267	45	108	790	57
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	85	246	66	113	248	37	32	267	45	108	790	57
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	89	259	69	119	261	39	34	281	47	114	832	60
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	89	259	69	119	261	39	34	281	47	114	832	60
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	89	259	69	119	261	39	34	281	47	114	832	60

Saturation Flow Module:

Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.37	1.00	0.85	0.38	1.00	0.85	0.17	0.93	0.93	0.56	0.99	0.99
Lanes:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.71	0.29	1.00	0.93	0.07
Final Sat.:	707	1900	1615	713	1900	1615	331	3021	509	1060	1754	127

Capacity Analysis Module:

Vol/Sat:	0.13	0.14	0.04	0.17	0.14	0.02	0.10	0.09	0.09	0.11	0.47	0.47	
Crit Moves:				****							****		
Green Time:	24.0	24.0	24.0	24.0	24.0	24.0	68.0	68.0	68.0	68.0	68.0	68.0	
Volume/Cap:	0.53	0.57	0.18	0.70	0.57	0.10	0.15	0.14	0.14	0.16	0.70	0.70	
Uniform Del:	33.1	33.5	30.2	34.7	33.5	29.6	5.7	5.6	5.6	5.7	9.7	9.7	
IncrementDel:	3.1	1.7	0.2	11.9	1.8	0.1	0.3	0.0	0.0	0.1	1.7	1.7	
InitQueueDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Delay/Veh:	36.2	35.2	30.4	46.6	35.3	29.7	6.0	5.7	5.7	5.8	11.4	11.4	
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
AdjDel/Veh:	36.2	35.2	30.4	46.6	35.3	29.7	6.0	5.7	5.7	5.8	11.4	11.4	
LOS by Move:	D	D	C	D	D	C	A	A	A	A	B	B	
HCM2kAvgQ:	3	8	2	5	8	1	1	2	2	1	17	17	

Note: Queue reported is the number of cars per lane.  
 \*\*\*\*\*

226

Level of Service Computation Report  
 2000 HCM Operations Method (Base Volume Alternative)

\*\*\*\*\*  
 Intersection #105 Lugonia Ave and Orange St  
 \*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.625  
 Loss Time (sec): 8 (Y+R=4.0 sec) Average Delay (sec/veh): 18.7  
 Optimal Cycle: 40 Level Of Service: B  
 \*\*\*\*\*

Street Name:	Orange Street						Lugonia Avenue					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	7	7	7	7	7	7	7	7	7	7	7	7
Lanes:	1	0	1	0	1	0	1	0	1	1	0	0

Volume Module:	Orange Street			Lugonia Avenue			Lugonia Avenue			Lugonia Avenue		
Base Vol:	85	246	66	47	248	37	32	267	45	108	724	57
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	85	246	66	47	248	37	32	267	45	108	724	57
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	89	259	69	49	261	39	34	281	47	114	762	60
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	89	259	69	49	261	39	34	281	47	114	762	60
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	89	259	69	49	261	39	34	281	47	114	762	60

Saturation Flow Module:	Orange Street			Lugonia Avenue			Lugonia Avenue			Lugonia Avenue		
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.34	1.00	0.85	0.35	1.00	0.85	0.22	0.93	0.93	0.56	0.99	0.99
Lanes:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.71	0.29	1.00	0.93	0.07
Final Sat.:	652	1900	1615	659	1900	1615	424	3021	509	1060	1742	137

Capacity Analysis Module:	Orange Street			Lugonia Avenue			Lugonia Avenue			Lugonia Avenue		
Vol/Sat:	0.14	0.14	0.04	0.08	0.14	0.02	0.08	0.09	0.09	0.11	0.44	0.44
Crit Moves:				****						****		
Green Time:	22.0	22.0	22.0	22.0	22.0	22.0	70.0	70.0	70.0	70.0	70.0	70.0
Volume/Cap:	0.62	0.62	0.20	0.34	0.62	0.11	0.11	0.13	0.13	0.15	0.62	0.62
Uniform Del:	35.3	35.2	31.8	32.9	35.3	31.2	4.9	5.0	5.0	5.0	8.0	8.0
IncrementDel:	8.3	2.8	0.3	1.4	3.0	0.1	0.2	0.0	0.0	0.1	1.0	1.0
InitQueueDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	43.6	38.1	32.1	34.3	38.2	31.3	5.1	5.0	5.0	5.1	8.9	8.9
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	43.6	38.1	32.1	34.3	38.2	31.3	5.1	5.0	5.0	5.1	8.9	8.9
LOS by Move:	D	D	C	C	D	C	A	A	A	A	A	A
HCM2kAvgQ:	4	8	2	2	8	1	0	2	2	1	14	14

Note: Queue reported is the number of cars per lane.  
 \*\*\*\*\*

220

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

\*\*\*\*\*
Intersection #105 Lugonia Ave and Orange St
\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap. (X): 0.543
Loss Time (sec): 8 (Y+R=4.0 sec) Average Delay (sec/veh): 16.1
Optimal Cycle: 34 Level Of Service: B
\*\*\*\*\*

Table with columns for Street Name (Orange Street, Lugonia Avenue), Approach (North Bound, South Bound, East Bound, West Bound), Movement (L, T, R), Control, Rights, Min. Green, and Lanes.

Volume Module table with columns for Base Vol, Growth Adj, Initial Bse, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, and Final Volume.

Saturation Flow Module table with columns for Sat/Lane, Adjustment, Lanes, and Final Sat.

Capacity Analysis Module table with columns for Vol/Sat, Crit Moves, Green Time, Volume/Cap, Uniform Del, IncremntDel, InitQueuDel, Delay Adj, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, and HCM2kAvgQ.

Note: Queue reported is the number of cars per lane.
\*\*\*\*\*

226

Level of Service Computation Report  
 2000 HCM Operations Method (Base Volume Alternative)

\*\*\*\*\*

Intersection #105 Lugonia Ave and Orange St

\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap. (X): 0.555  
 Loss Time (sec): 8 (Y+R=4.0 sec) Average Delay (sec/veh): 17.3  
 Optimal Cycle: 35 Level Of Service: B

\*\*\*\*\*

Street Name:	Orange Street						Lugonia Avenue					
	North Bound			South Bound			East Bound			West Bound		
Approach:	L	T	R	L	T	R	L	T	R	L	T	R
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	7	7	7	7	7	7	7	7	7	7	7	7
Lanes:	1	0	1	0	1	0	1	0	1	1	0	0

Volume Module:

Base Vol:	87	285	122	116	272	35	34	1001	152	84	535	33
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	87	285	122	116	272	35	34	1001	152	84	535	33
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	92	300	128	122	286	37	36	1054	160	88	563	35
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	92	300	128	122	286	37	36	1054	160	88	563	35
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	92	300	128	122	286	37	36	1054	160	88	563	35

Saturation Flow Module:

Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.40	1.00	0.85	0.38	1.00	0.85	0.31	0.93	0.93	0.18	0.99	0.99
Lanes:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.74	0.26	1.00	0.94	0.06
Final Sat.:	766	1900	1615	728	1900	1615	587	3071	466	350	1774	109

Capacity Analysis Module:

Vol/Sat:	0.12	0.16	0.08	0.17	0.15	0.02	0.06	0.34	0.34	0.25	0.32	0.32	
Crit Moves:				****				****					
Green Time:	30.2	30.2	30.2	30.2	30.2	30.2	61.8	61.8	61.8	61.8	61.8	61.8	
Volume/Cap:	0.40	0.52	0.26	0.56	0.50	0.08	0.10	0.56	0.56	0.41	0.51	0.51	
Uniform Del:	27.7	28.9	26.5	29.3	28.7	24.9	7.8	11.1	11.1	9.8	10.7	10.7	
IncrementDel:	1.1	0.9	0.3	3.1	0.7	0.1	0.1	0.3	0.3	1.3	0.4	0.4	
InitQueueDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Delay/Veh:	28.8	29.8	26.7	32.4	29.4	25.0	7.9	11.4	11.4	11.0	11.1	11.1	
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
AdjDel/Veh:	28.8	29.8	26.7	32.4	29.4	25.0	7.9	11.4	11.4	11.0	11.1	11.1	
LOS by Move:	C	C	C	C	C	C	A	B	B	B	B	B	
HCM2kAvgQ:	3	8	3	4	8	1	1	12	12	2	10	10	

Note: Queue reported is the number of cars per lane.

\*\*\*\*\*

27e

Level of Service Computation Report  
 2000 HCM Operations Method (Base Volume Alternative)

\*\*\*\*\*  
 Intersection #105 Lugonia Ave and Orange St  
 \*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap. (X): 0.545  
 Loss Time (sec): 8 (Y+R=4.0 sec) Average Delay (sec/veh): 16.7  
 Optimal Cycle: 34 Level Of Service: B  
 \*\*\*\*\*

Street Name:	Orange Street						Lugonia Avenue					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	7	7	7	7	7	7	7	7	7	7	7	7
Lanes:	1	0	1	0	1	0	1	0	1	1	0	0

Volume Module:

Base Vol:	87	285	122	50	272	35	34	1001	152	84	469	33
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	87	285	122	50	272	35	34	1001	152	84	469	33
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	92	300	128	53	286	37	36	1054	160	88	494	35
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	92	300	128	53	286	37	36	1054	160	88	494	35
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	92	300	128	53	286	37	36	1054	160	88	494	35

Saturation Flow Module:

Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.39	1.00	0.85	0.37	1.00	0.85	0.36	0.93	0.93	0.19	0.99	0.99
Lanes:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.74	0.26	1.00	0.93	0.07
Final Sat.:	743	1900	1615	703	1900	1615	688	3071	466	357	1757	124

Capacity Analysis Module:

Vol/Sat:	0.12	0.16	0.08	0.07	0.15	0.02	0.05	0.34	0.34	0.25	0.28	0.28
Crit Moves:	****						****					
Green Time:	29.0	29.0	29.0	29.0	29.0	29.0	63.0	63.0	63.0	63.0	63.0	63.0
Volume/Cap:	0.43	0.54	0.27	0.26	0.52	0.08	0.08	0.54	0.54	0.39	0.45	0.45
Uniform Del:	28.8	29.9	27.4	27.2	29.7	25.8	7.2	10.4	10.4	9.1	9.5	9.5
IncrementDel:	1.4	1.1	0.3	0.7	0.9	0.1	0.1	0.3	0.3	1.1	0.3	0.3
InitQueueDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	30.1	31.1	27.7	27.9	30.6	25.9	7.3	10.7	10.7	10.2	9.8	9.8
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	30.1	31.1	27.7	27.9	30.6	25.9	7.3	10.7	10.7	10.2	9.8	9.8
LOS by Move:	C	C	C	C	C	C	A	B	B	B	A	A
HCM2kAvgQ:	3	8	3	1	8	1	0	11	11	2	8	8

Note: Queue reported is the number of cars per lane.  
 \*\*\*\*\*

225

## **#6 – Lugonia Avenue / Tennessee Street**

Level of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

\*\*\*\*\*
Intersection #106 Lugonia Ave and Tennessee St
\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.753
Loss Time (sec): 12 (Y+R=4.0 sec) Average Delay (sec/veh): 24.2
Optimal Cycle: 52 Level Of Service: C
\*\*\*\*\*

Table with columns for Street Name (Tennessee Street, Lugonia Avenue), Approach (North Bound, South Bound, East Bound, West Bound), Movement (L, T, R), Control, Rights, Min. Green, and Lanes.

Table for Volume Module showing Base Vol, Growth Adj, Initial Bse, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, and Final Volume across various movements.

Table for Saturation Flow Module showing Sat/Lane, Adjustment, Lanes, and Final Sat. values.

Table for Capacity Analysis Module showing Vol/Sat, Crit Moves, Green Time, Volume/Cap, Uniform Del, IncremntDel, InitQueueDel, Delay Adj, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, and HCM2kAvgQ.

Note: Queue reported is the number of cars per lane.
\*\*\*\*\*

23a

Level of Service Computation Report  
 2000 HCM Operations Method (Base Volume Alternative)

\*\*\*\*\*  
 Intersection #106 Lugonia Ave and Tennessee St  
 \*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.802  
 Loss Time (sec): 12 (Y+R=4.0 sec) Average Delay (sec/veh): 25.2  
 Optimal Cycle: 57 Level Of Service: C  
 \*\*\*\*\*

Street Name:	Tennessee Street						Lugonia Avenue					
	North Bound			South Bound			East Bound			West Bound		
Approach:	L	T	R	L	T	R	L	T	R	L	T	R
Movement:												
Control:	Prot+Permit			Prot+Permit			Prot+Permit			Prot+Permit		
Rights:	Include			Include			Include			Include		
Min. Green:	7	7	7	7	7	7	7	7	7	7	7	7
Lanes:	1	0	1	0	1	0	1	0	2	0	1	0

Volume Module:

Base Vol:	93	265	72	45	89	1	19	252	259	133	516	207
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	93	265	72	45	89	1	19	252	259	133	516	207
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	98	279	76	47	94	1	20	265	273	140	543	218
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	98	279	76	47	94	1	20	265	273	140	543	218
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	98	279	76	47	94	1	20	265	273	140	543	218

Saturation Flow Module:

Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.95	0.85	0.95	0.96	0.96
Lanes:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	1.00	1.00	0.71	0.29
Final Sat.:	1805	1900	1615	1805	1900	1615	1805	3610	1615	1805	1298	521

Capacity Analysis Module:

Vol/Sat:	0.05	0.15	0.05	0.03	0.05	0.00	0.01	0.07	0.17	0.08	0.42	0.42
Crit Moves:	****			****			****			****		
Green Time:	29.2	19.2	19.2	20.1	13.1	13.1	49.3	42.3	42.3	64.8	54.8	54.8
Volume/Cap:	0.25	0.76	0.24	0.23	0.38	0.00	0.07	0.17	0.40	0.17	0.76	0.76
Uniform Del:	26.6	38.2	34.2	32.9	39.7	37.8	15.2	17.9	20.0	6.8	17.6	17.6
IncrementDel:	0.3	9.2	0.4	0.6	1.0	0.0	0.1	0.1	0.4	0.1	3.6	3.6
InitQueueDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	27.0	47.5	34.6	33.5	40.7	37.8	15.3	18.0	20.4	6.9	21.1	21.1
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	27.0	47.5	34.6	33.5	40.7	37.8	15.3	18.0	20.4	6.9	21.1	21.1
LOS by Move:	C	D	C	C	D	D	B	B	C	A	C	C
HCM2kAvgQ:	2	10	2	1	3	0	0	3	6	2	19	19

\*\*\*\*\*  
 Note: Queue reported is the number of cars per lane.  
 \*\*\*\*\*

236

Level of Service Computation Report  
 2000 HCM Operations Method (Base Volume Alternative)

\*\*\*\*\*  
 Intersection #106 Lugonia Ave and Tennessee St  
 \*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap. (X): 0.753  
 Loss Time (sec): 12 (Y+R=4.0 sec) Average Delay (sec/veh): 24.2  
 Optimal Cycle: 52 Level Of Service: C  
 \*\*\*\*\*

Street Name:	Tennessee Street						Lugonia Avenue					
	North Bound			South Bound			East Bound			West Bound		
Approach:	L	T	R	L	T	R	L	T	R	L	T	R
Movement:												
Control:	Prot+Permit			Prot+Permit			Prot+Permit			Prot+Permit		
Rights:	Include			Include			Include			Include		
Min. Green:	7	7	7	7	7	7	7	7	7	7	7	7
Lanes:	1	0	1	0	1	0	1	0	2	0	1	0

Volume Module:												
Base Vol:	93	265	72	45	89	1	19	252	259	133	516	141
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	93	265	72	45	89	1	19	252	259	133	516	141
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	98	279	76	47	94	1	20	265	273	140	543	148
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	98	279	76	47	94	1	20	265	273	140	543	148
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	98	279	76	47	94	1	20	265	273	140	543	148

Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.95	0.85	0.95	0.97	0.97
Lanes:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	1.00	1.00	0.79	0.21
Final Sat.:	1805	1900	1615	1805	1900	1615	1805	3610	1615	1805	1444	395

Capacity Analysis Module:												
Vol/Sat:	0.05	0.15	0.05	0.03	0.05	0.00	0.01	0.07	0.17	0.08	0.38	0.38
Crit Moves:	****			****			****			****		
Green Time:	30.8	20.8	20.8	20.9	13.9	13.9	48.3	41.3	41.3	63.2	53.2	53.2
Volume/Cap:	0.24	0.71	0.23	0.21	0.35	0.00	0.07	0.18	0.41	0.18	0.71	0.71
Uniform Del:	25.5	36.8	32.9	32.2	39.0	37.1	15.0	18.6	20.8	7.5	17.5	17.5
IncrementDel:	0.3	5.8	0.3	0.5	0.8	0.0	0.1	0.1	0.4	0.1	2.4	2.4
InitQueueDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	25.8	42.6	33.3	32.7	39.8	37.1	15.1	18.7	21.2	7.6	19.9	19.9
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	25.8	42.6	33.3	32.7	39.8	37.1	15.1	18.7	21.2	7.6	19.9	19.9
LOS by Move:	C	D	C	C	D	D	B	B	C	A	B	B
HCM2kAvgQ:	2	9	2	1	3	0	0	3	6	2	17	17

Note: Queue reported is the number of cars per lane.  
 \*\*\*\*\*

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

\*\*\*\*\*
Intersection #106 Lugonia Ave and Tennessee St
\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.758
Loss Time (sec): 12 (Y+R=4.0 sec) Average Delay (sec/veh): 27.6
Optimal Cycle: 58 Level Of Service: C
\*\*\*\*\*

Table with columns for Street Name (Tennessee Street, Lugonia Avenue), Approach (North Bound, South Bound, East Bound, West Bound), Movement (L, T, R), Control (Prot+Permit), Rights (Include), Min. Green (7), and Lanes (1 0 1 0 1).

Volume Module: Table with columns for Base Vol, Growth Adj, Initial Bse, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, and Final Volume across 12 lanes.

Saturation Flow Module: Table with columns for Sat/Lane, Adjustment, Lanes, and Final Sat. across 12 lanes.

Capacity Analysis Module: Table with columns for Vol/Sat, Crit Moves, Green Time, Volume/Cap, Uniform Del, IncremntDel, InitQueuDel, Delay Adj, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, and HCM2kAvgQ across 12 lanes.

Note: Queue reported is the number of cars per lane.
\*\*\*\*\*

230

Level Of Service Computation Report  
 2000 HCM Operations Method (Base Volume Alternative)

\*\*\*\*\*  
 Intersection #106 Lugonia Ave and Tennessee St  
 \*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap. (X): 0.806  
 Loss Time (sec): 12 (Y+R=4.0 sec) Average Delay (sec/veh): 28.0  
 Optimal Cycle: 65 Level Of Service: C  
 \*\*\*\*\*

Street Name:	Tennessee Street						Lugonia Avenue					
	North Bound			South Bound			East Bound			West Bound		
Approach:	L	T	R	L	T	R	L	T	R	L	T	R
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Prot+Permit			Prot+Permit			Prot+Permit			Prot+Permit		
Rights:	Include			Include			Include			Include		
Min. Green:	7	7	7	7	7	7	7	7	7	7	7	7
Lanes:	1	0	1	0	1	0	1	0	2	0	1	0

Volume Module:

Base Vol:	249	387	306	70	82	6	71	939	445	103	369	235
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	249	387	306	70	82	6	71	939	445	103	369	235
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	262	407	322	74	86	6	75	988	468	108	388	247
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	262	407	322	74	86	6	75	988	468	108	388	247
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	262	407	322	74	86	6	75	988	468	108	388	247

Saturation Flow Module:

Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.95	0.85	0.95	0.94	0.94
Lanes:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	1.00	1.00	0.61	0.39
Final Sat.:	1805	1900	1615	1805	1900	1615	1805	3610	1615	1805	1093	696

Capacity Analysis Module:

Vol/Sat:	0.15	0.21	0.20	0.04	0.05	0.00	0.04	0.27	0.29	0.06	0.36	0.36
Crit Moves:	****			****			****			****		
Green Time:	37.9	27.9	27.9	18.3	11.3	11.3	49.8	42.8	42.8	56.1	46.1	46.1
Volume/Cap:	0.47	0.77	0.72	0.33	0.40	0.03	0.29	0.64	0.68	0.33	0.77	0.77
Uniform Del:	22.7	33.1	32.5	34.8	41.2	39.5	16.8	22.5	23.0	13.1	22.5	22.5
IncrementDel:	0.6	6.8	5.4	0.9	1.2	0.1	0.6	0.9	2.7	0.6	4.5	4.5
InitQueueDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	23.3	39.9	38.0	35.6	42.4	39.5	17.4	23.4	25.7	13.7	26.9	26.9
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	23.3	39.9	38.0	35.6	42.4	39.5	17.4	23.4	25.7	13.7	26.9	26.9
LOS by Move:	C	D	D	D	D	D	B	C	C	B	C	C
HCM2kAvgQ:	6	13	10	2	3	0	2	13	12	2	18	18

Note: Queue reported is the number of cars per lane.  
 \*\*\*\*\*

Level Of Service Computation Report  
 2000 HCM Operations Method (Base Volume Alternative)

\*\*\*\*\*  
 Intersection #106 Lugonia Ave and Tennessee St  
 \*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap. (X): 0.758  
 Loss Time (sec): 12 (Y+R=4.0 sec) Average Delay (sec/veh): 27.6  
 Optimal Cycle: 58 Level Of Service: C  
 \*\*\*\*\*

Street Name:	Tennessee Street						Lugonia Avenue					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Prot+Permit			Prot+Permit			Prot+Permit			Prot+Permit		
Rights:	Include			Include			Include			Include		
Min. Green:	7	7	7	7	7	7	7	7	7	7	7	7
Lanes:	1	0	1	0	1	0	1	0	2	0	1	0

Volume Module:

Base Vol:	249	387	306	70	82	6	71	939	445	103	369	169
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	249	387	306	70	82	6	71	939	445	103	369	169
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	262	407	322	74	86	6	75	988	468	108	388	178
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	262	407	322	74	86	6	75	988	468	108	388	178
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	262	407	322	74	86	6	75	988	468	108	388	178

Saturation Flow Module:

Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.95	0.85	0.95	0.95	0.95
Lanes:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	1.00	1.00	0.69	0.31
Final Sat.:	1805	1900	1615	1805	1900	1615	1805	3610	1615	1805	1242	569

Capacity Analysis Module:

Vol/Sat:	0.15	0.21	0.20	0.04	0.05	0.00	0.04	0.27	0.29	0.06	0.31	0.31
Crit Moves:	****			****			****			****		
Green Time:	40.1	30.1	30.1	19.1	12.1	12.1	48.0	41.0	41.0	53.9	43.9	43.9
Volume/Cap:	0.44	0.71	0.66	0.30	0.38	0.03	0.26	0.67	0.71	0.36	0.71	0.71
Uniform Del:	21.1	31.1	30.5	34.1	40.5	38.8	16.7	24.0	24.5	14.4	22.9	22.9
IncramntDel:	0.5	4.2	3.4	0.7	1.0	0.1	0.5	1.2	3.5	0.7	3.1	3.1
InitQueueDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	21.6	35.3	33.9	34.8	41.5	38.9	17.2	25.1	28.0	15.1	25.9	25.9
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	21.6	35.3	33.9	34.8	41.5	38.9	17.2	25.1	28.0	15.1	25.9	25.9
LOS by Move:	C	D	C	C	D	D	B	C	C	B	C	C
HCM2kAvgQ:	6	12	10	2	3	0	2	14	13	2	15	15

Note: Queue reported is the number of cars per lane.  
 \*\*\*\*\*

## **#7 – San Bernardino Ave. / Tennessee St. – I-210 Northbound Ramps**

Level of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

\*\*\*\*\*
Intersection #107 San Bernardino Ave and Tennessee St
\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.681
Loss Time (sec): 12 (Y+R=4.0 sec) Average Delay (sec/veh): 25.2
Optimal Cycle: 52 Level Of Service: C
\*\*\*\*\*

Table with columns for Street Name (Tennessee Street, San Bernardino Avenue), Approach (North Bound, South Bound, East Bound, West Bound), Movement (L, T, R), Control (Prot+Permit), Rights (Include), Min. Green (10), and Lanes (1 0 1 1 0).

Volume Module table with columns for Base Vol, Growth Adj, Initial Bse, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, and Final Volume across 12 lanes.

Saturation Flow Module table with columns for Sat/Lane, Adjustment, Lanes, and Final Sat. across 12 lanes.

Capacity Analysis Module table with columns for Vol/Sat, Crit Moves, Green Time, Volume/Cap, Uniform Del, IncremntDel, InitQueueDel, Delay Adj, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, and HCM2kAvgQ across 12 lanes.

Note: Queue reported is the number of cars per lane.

24a

Level Of Service Computation Report  
 2000 HCM Operations Method (Base Volume Alternative)

\*\*\*\*\*  
 Intersection #107 San Bernardino Ave and Tennessee St  
 \*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.703  
 Loss Time (sec): 12 (Y+R=4.0 sec) Average Delay (sec/veh): 25.7  
 Optimal Cycle: 52 Level Of Service: C  
 \*\*\*\*\*

Street Name:	Tennessee Street						San Bernardino Avenue					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Prot+Permit			Prot+Permit			Prot+Permit			Prot+Permit		
Rights:	Include			Include			Include			Include		
Min. Green:	10	10	10	10	10	10	10	10	10	10	10	10
Lanes:	1	0	1	1	0	1	2	0	1	1	0	1

Volume Module:

Base Vol:	25	472	5	74	12	29	165	270	90	34	504	388
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	25	472	5	74	12	29	165	270	90	34	504	388
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	26	497	5	78	13	31	174	284	95	36	531	408
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	26	497	5	78	13	31	174	284	95	36	531	408
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	26	497	5	78	13	31	174	284	95	36	531	408

Saturation Flow Module:

Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.95	0.95	0.95	0.89	0.89	0.92	1.00	0.85	0.95	1.00	0.85
Lanes:	1.00	1.98	0.02	1.00	0.29	0.71	2.00	1.00	1.00	1.00	1.00	1.00
Final Sat.:	1805	3569	38	1805	497	1201	3502	1900	1615	1805	1900	1615

Capacity Analysis Module:

Vol/Sat:	0.01	0.14	0.14	0.04	0.03	0.03	0.05	0.15	0.06	0.02	0.28	0.25
Crit Moves:	****			****			****			****		
Green Time:	35.6	22.6	22.6	26.3	16.3	16.3	43.2	33.2	33.2	58.4	45.4	45.4
Volume/Cap:	0.05	0.62	0.62	0.26	0.16	0.16	0.27	0.45	0.18	0.05	0.62	0.56
Uniform Del:	21.1	34.8	34.8	28.4	35.9	35.9	17.3	26.2	23.7	9.6	20.7	20.0
IncramntDel:	0.0	1.4	1.4	0.5	0.3	0.3	0.2	0.5	0.2	0.0	1.3	1.0
InitQueueDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	21.1	36.2	36.2	28.9	36.2	36.2	17.5	26.8	23.9	9.7	22.0	20.9
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	21.1	36.2	36.2	28.9	36.2	36.2	17.5	26.8	23.9	9.7	22.0	20.9
LOS by Move:	C	D	D	C	D	D	B	C	C	A	C	C
HCM2kAvgQ:	1	8	8	2	1	1	2	7	2	0	13	10

Note: Queue reported is the number of cars per lane.  
 \*\*\*\*\*

246

Level of Service Computation Report  
 2000 HCM Operations Method (Base Volume Alternative)

\*\*\*\*\*  
 Intersection #107 San Bernardino Ave and Tennessee St  
 \*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.681  
 Loss Time (sec): 12 (Y+R=4.0 sec) Average Delay (sec/veh): 24.6  
 Optimal Cycle: 52 Level Of Service: C  
 \*\*\*\*\*

Street Name:	Tennessee Street						San Bernardino Avenue					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Prot+Permit			Prot+Permit			Prot+Permit			Prot+Permit		
Rights:	Include			Include			Include			Include		
Min. Green:	10	10	10	10	10	10	10	10	10	10	10	10
Lanes:	1	0	1	1	0	1	2	0	1	1	0	1

Volume Module:

Base Vol:	25	406	5	74	12	29	165	270	90	34	504	388
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	25	406	5	74	12	29	165	270	90	34	504	388
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	26	427	5	78	13	31	174	284	95	36	531	408
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	26	427	5	78	13	31	174	284	95	36	531	408
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	26	427	5	78	13	31	174	284	95	36	531	408

Saturation Flow Module:

Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.95	0.95	0.95	0.89	0.89	0.92	1.00	0.85	0.95	1.00	0.85
Lanes:	1.00	1.98	0.02	1.00	0.29	0.71	2.00	1.00	1.00	1.00	1.00	1.00
Final Sat.:	1805	3559	44	1805	497	1201	3502	1900	1615	1805	1900	1615

Capacity Analysis Module:

Vol/Sat:	0.01	0.12	0.12	0.04	0.03	0.03	0.05	0.15	0.06	0.02	0.28	0.25
Crit Moves:	****			****			****			****		
Green Time:	33.4	20.4	20.4	25.2	15.2	15.2	44.5	34.5	34.5	60.6	47.6	47.6
Volume/Cap:	0.05	0.59	0.59	0.26	0.17	0.17	0.27	0.43	0.17	0.05	0.59	0.53
Uniform Del:	22.5	36.0	36.0	29.3	36.9	36.9	16.4	25.2	22.8	8.7	19.1	18.4
IncrementDel:	0.0	1.2	1.2	0.5	0.3	0.3	0.2	0.5	0.1	0.0	1.0	0.7
InitQueueDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	22.5	37.2	37.2	29.7	37.2	37.2	16.6	25.7	22.9	8.7	20.1	19.1
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	22.5	37.2	37.2	29.7	37.2	37.2	16.6	25.7	22.9	8.7	20.1	19.1
LOS by Move:	C	D	D	C	D	D	B	C	C	A	C	B
HCM2kAvgQ:	1	7	7	2	1	1	2	7	2	0	12	9

Note: Queue reported is the number of cars per lane.  
 \*\*\*\*\*

24c

Level of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

\*\*\*\*\*
Intersection #107 San Bernardino Ave and Tennessee St
\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.843
Loss Time (sec): 12 (Y+R=4.0 sec) Average Delay (sec/veh): 31.5
Optimal Cycle: 67 Level Of Service: C
\*\*\*\*\*

Table with columns for Street Name (Tennessee Street, San Bernardino Avenue), Approach (North Bound, South Bound, East Bound, West Bound), Movement (L, T, R), Control (Prot+Permit), Rights (Include), Min. Green (10, 10, 10), and Lanes (1 0 1 1 0).

Volume Module: Table with columns for Base Vol, Growth Adj, Initial Bse, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, and Final Volume across 12 lanes.

Saturation Flow Module: Table with columns for Sat/Lane, Adjustment, Lanes, and Final Sat. across 12 lanes.

Capacity Analysis Module: Table with columns for Vol/Sat, Crit Moves, Green Time, Volume/Cap, Uniform Del, IncremntDel, InitQueueDel, Delay Adj, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, and HCM2kAvgQ across 12 lanes.

Note: Queue reported is the number of cars per lane.
\*\*\*\*\*

24d

Level Of Service Computation Report  
 2000 HCM Operations Method (Base Volume Alternative)

\*\*\*\*\*  
 Intersection #107 San Bernardino Ave and Tennessee St  
 \*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap. (X): 0.867  
 Loss Time (sec): 12 (Y+R=4.0 sec) Average Delay (sec/veh): 33.0  
 Optimal Cycle: 71 Level Of Service: C  
 \*\*\*\*\*

Street Name:	Tennessee Street						San Bernardino Avenue					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Prot+Permit			Prot+Permit			Prot+Permit			Prot+Permit		
Rights:	Include			Include			Include			Include		
Min. Green:	10	10	10	10	10	10	10	10	10	10	10	10
Lanes:	1	0	1	1	0	1	2	0	1	1	0	1

Volume Module:

Base Vol:	24	587	46	258	23	59	479	588	130	30	227	227
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	24	587	46	258	23	59	479	588	130	30	227	227
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	25	618	48	272	24	62	504	619	137	32	239	239
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	25	618	48	272	24	62	504	619	137	32	239	239
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	25	618	48	272	24	62	504	619	137	32	239	239

Saturation Flow Module:

Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.94	0.94	0.95	0.89	0.89	0.92	1.00	0.85	0.95	1.00	0.85
Lanes:	1.00	1.85	0.15	1.00	0.28	0.72	2.00	1.00	1.00	1.00	1.00	1.00
Final Sat.:	1805	3311	259	1805	475	1219	3502	1900	1615	1805	1900	1615

Capacity Analysis Module:

Vol/Sat:	0.01	0.19	0.19	0.15	0.05	0.05	0.14	0.33	0.08	0.02	0.13	0.15
Crit Moves:	****			****			****			****		
Green Time:	42.7	22.0	22.0	37.5	19.8	19.8	51.3	38.3	38.3	34.5	24.5	24.5
Volume/Cap:	0.04	0.85	0.85	0.69	0.26	0.26	0.45	0.85	0.22	0.12	0.51	0.60
Uniform Del:	16.8	37.4	37.4	24.0	33.9	33.9	14.8	28.2	20.8	23.1	32.6	33.5
IncrementDel:	0.0	8.7	8.7	5.0	0.4	0.4	0.3	9.3	0.2	0.2	1.0	2.6
InitQueueDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	16.8	46.2	46.2	29.0	34.3	34.3	15.0	37.5	21.0	23.3	33.6	36.1
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	16.8	46.2	46.2	29.0	34.3	34.3	15.0	37.5	21.0	23.3	33.6	36.1
LOS by Move:	B	D	D	C	C	C	B	D	C	C	C	D
HCM2kAvgQ:	0	13	13	8	2	2	5	20	3	1	7	7

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report  
 2000 HCM Operations Method (Base Volume Alternative)

\*\*\*\*\*  
 Intersection #107 San Bernardino Ave and Tennessee St  
 \*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap. (X): 0.845  
 Loss Time (sec): 12 (Y+R=4.0 sec) Average Delay (sec/veh): 31.6  
 Optimal Cycle: 67 Level Of Service: C  
 \*\*\*\*\*

Street Name:	Tennessee Street						San Bernardino Avenue					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Prot+Permit			Prot+Permit			Prot+Permit			Prot+Permit		
Rights:	Include			Include			Include			Include		
Min. Green:	10	10	10	10	10	10	10	10	10	10	10	10
Lanes:	1	0	1	1	0	1	2	0	1	1	0	1

Volume Module:

Base Vol:	24	521	46	258	23	59	479	588	130	30	227	227
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	24	521	46	258	23	59	479	588	130	30	227	227
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	25	548	48	272	24	62	504	619	137	32	239	239
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	25	548	48	272	24	62	504	619	137	32	239	239
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	25	548	48	272	24	62	504	619	137	32	239	239

Saturation Flow Module:

Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.94	0.94	0.95	0.89	0.89	0.92	1.00	0.85	0.95	1.00	0.85
Lanes:	1.00	1.84	0.16	1.00	0.28	0.72	2.00	1.00	1.00	1.00	1.00	1.00
Final Sat.:	1805	3277	289	1805	475	1219	3502	1900	1615	1805	1900	1615

Capacity Analysis Module:

Vol/Sat:	0.01	0.17	0.17	0.15	0.05	0.05	0.14	0.33	0.08	0.02	0.13	0.15
Crit Moves:	****			****			****			****		
Green Time:	41.5	20.3	20.3	37.5	19.3	19.3	52.5	39.5	39.5	35.1	25.1	25.1
Volume/Cap:	0.04	0.83	0.83	0.67	0.26	0.26	0.44	0.83	0.21	0.12	0.50	0.59
Uniform Del:	17.4	38.2	38.2	23.9	34.3	34.3	14.1	27.2	20.0	22.5	32.1	32.9
IncramntDel:	0.0	7.7	7.7	4.3	0.4	0.4	0.3	7.4	0.2	0.2	0.8	2.3
InitQueueDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	17.5	45.9	45.9	28.3	34.8	34.8	14.4	34.6	20.2	22.7	32.9	35.2
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	17.5	45.9	45.9	28.3	34.8	34.8	14.4	34.6	20.2	22.7	32.9	35.2
LOS by Move:	B	D	D	C	C	C	B	C	C	C	C	D
HCM2kAvgQ:	0	12	12	8	2	2	5	19	3	1	7	7

Note: Queue reported is the number of cars per lane.  
 \*\*\*\*\*

## **#8 – San Bernardino Ave. / Citrus Plaza Dr. – I-210 Southbound Ramps**

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #108 San Bernardino Ave and Citrus Plaza Dr

Cycle (sec): 100 Critical Vol./Cap. (X): 0.594
Loss Time (sec): 12 (Y+R=4.0 sec) Average Delay (sec/veh): 23.8
Optimal Cycle: 42 Level Of Service: C

Table with columns for Street Name (Citrus Plaza Drive, San Bernardino Avenue), Approach (North Bound, South Bound, East Bound, West Bound), Movement (L, T, R), Control, Rights, Min. Green, and Lanes.

Table for Volume Module showing Base Vol, Growth Adj, Initial Bse, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, and Final Volume across various approaches.

Table for Saturation Flow Module showing Sat/Lane, Adjustment, Lanes, and Final Sat. values.

Table for Capacity Analysis Module showing Vol/Sat, Crit Moves, Green Time, Volume/Cap, Uniform Del, IncremntDel, InitQueueDel, Delay Adj, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, and HCM2kAvgQ.

Note: Queue reported is the number of cars per lane.

25a

Level Of Service Computation Report  
 2000 HCM Operations Method (Base Volume Alternative)

\*\*\*\*\*  
 Intersection #108 San Bernardino Ave and Citrus Plaza Dr  
 \*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.594  
 Loss Time (sec): 12 (Y+R=4.0 sec) Average Delay (sec/veh): 23.6  
 Optimal Cycle: 42 Level Of Service: C  
 \*\*\*\*\*

Street Name:	Citrus Plaza Drive						San Bernardino Avenue					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Prot+Permit			Prot+Permit		
Rights:	Include			Include			Include			Include		
Min. Green:	10	10	10	10	10	10	10	10	10	10	10	10
Lanes:	1	0	0	1	0	0	1	0	1	1	0	1

Volume Module:	Citrus Plaza Drive			Citrus Plaza Drive			San Bernardino Avenue			San Bernardino Avenue		
Base Vol:	3	7	36	281	376	406	17	241	2	17	300	217
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	3	7	36	281	376	406	17	241	2	17	300	217
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	3	7	38	296	396	427	18	254	2	18	316	228
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	3	7	38	296	396	427	18	254	2	18	316	228
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	3	7	38	296	396	427	18	254	2	18	316	228

Saturation Flow Module:	Citrus Plaza Drive			Citrus Plaza Drive			San Bernardino Avenue			San Bernardino Avenue		
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.26	0.87	0.87	0.73	0.88	0.88	0.95	1.00	0.85	0.95	1.00	0.85
Lanes:	1.00	0.16	0.84	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Sat.:	502	270	1390	1387	1664	1664	1805	1900	1615	1805	1900	1615

Capacity Analysis Module:	Citrus Plaza Drive			Citrus Plaza Drive			San Bernardino Avenue			San Bernardino Avenue		
Vol/Sat:	0.01	0.03	0.03	0.21	0.24	0.26	0.01	0.13	0.00	0.01	0.17	0.14
Crit Moves:						****	****			****		
Green Time:	47.4	47.4	47.4	47.4	47.4	47.4	33.2	23.2	23.2	44.6	30.6	30.6
Volume/Cap:	0.01	0.06	0.06	0.45	0.50	0.54	0.05	0.57	0.01	0.04	0.54	0.46
Uniform Del:	13.9	14.2	14.2	17.6	18.2	18.6	22.6	34.0	29.5	16.3	28.8	28.0
IncrementDel:	0.0	0.0	0.0	0.5	0.2	0.4	0.0	1.8	0.0	0.0	1.0	0.7
InitQueueDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	14.0	14.3	14.3	18.1	18.4	19.1	22.6	35.8	29.5	16.3	29.9	28.7
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	14.0	14.3	14.3	18.1	18.4	19.1	22.6	35.8	29.5	16.3	29.9	28.7
LOS by Move:	B	B	B	B	B	B	C	D	C	B	C	C
HCM2kAvgQ:	0	1	1	6	9	10	0	8	0	0	8	6

\*\*\*\*\*  
 Note: Queue reported is the number of cars per lane.  
 \*\*\*\*\*

Level of Service Computation Report  
 2000 HCM Operations Method (Base Volume Alternative)

\*\*\*\*\*  
 Intersection #108 San Bernardino Ave and Citrus Plaza Dr  
 \*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.594  
 Loss Time (sec): 12 (Y+R=4.0 sec) Average Delay (sec/veh): 23.6  
 Optimal Cycle: 42 Level Of Service: C  
 \*\*\*\*\*

Street Name:	Citrus Plaza Drive						San Bernardino Avenue					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Prot+Permit			Prot+Permit		
Rights:	Include			Include			Include			Include		
Min. Green:	10	10	10	10	10	10	10	10	10	10	10	10
Lanes:	1	0	0	1	0	0	1	0	1	1	0	1

Volume Module:	Citrus Plaza Drive			Citrus Plaza Drive			San Bernardino Avenue			San Bernardino Avenue		
Base Vol:	3	7	36	281	376	406	17	241	2	17	300	217
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	3	7	36	281	376	406	17	241	2	17	300	217
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	3	7	38	296	396	427	18	254	2	18	316	228
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	3	7	38	296	396	427	18	254	2	18	316	228
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	3	7	38	296	396	427	18	254	2	18	316	228

Saturation Flow Module:	Citrus Plaza Drive			Citrus Plaza Drive			San Bernardino Avenue			San Bernardino Avenue		
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.26	0.87	0.87	0.73	0.88	0.88	0.95	1.00	0.85	0.95	1.00	0.85
Lanes:	1.00	0.16	0.84	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Sat.:	502	270	1390	1387	1664	1664	1805	1900	1615	1805	1900	1615

Capacity Analysis Module:	Citrus Plaza Drive			Citrus Plaza Drive			San Bernardino Avenue			San Bernardino Avenue		
Vol/Sat:	0.01	0.03	0.03	0.21	0.24	0.26	0.01	0.13	0.00	0.01	0.17	0.14
Crit Moves:						****	****				****	
Green Time:	47.4	47.4	47.4	47.4	47.4	47.4	33.2	23.2	23.2	44.6	30.6	30.6
Volume/Cap:	0.01	0.06	0.06	0.45	0.50	0.54	0.05	0.57	0.01	0.04	0.54	0.46
Uniform Del:	13.9	14.2	14.2	17.6	18.2	18.6	22.6	34.0	29.5	16.3	28.8	28.0
IncrementDel:	0.0	0.0	0.0	0.5	0.2	0.4	0.0	1.8	0.0	0.0	1.0	0.7
InitQueueDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	14.0	14.3	14.3	18.1	18.4	19.1	22.6	35.8	29.5	16.3	29.9	28.7
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	14.0	14.3	14.3	18.1	18.4	19.1	22.6	35.8	29.5	16.3	29.9	28.7
LOS by Move:	B	B	B	B	B	B	C	D	C	B	C	C
HCM2kAvgQ:	0	1	1	6	9	10	0	8	0	0	8	6

Note: Queue reported is the number of cars per lane.

Level of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #108 San Bernardino Ave and Citrus Plaza Dr

Cycle (sec): 100 Critical Vol./Cap.(X): 0.940
Loss Time (sec): 12 (Y+R=4.0 sec) Average Delay (sec/veh): 36.0
Optimal Cycle: 93 Level Of Service: D

Table with columns for Street Name, Approach, Movement, Control, Rights, Min. Green, and Lanes for Citrus Plaza Drive and San Bernardino Avenue.

Volume Module table showing Base Vol, Growth Adj, Initial Bse, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, and Final Volume.

Saturation Flow Module table showing Sat/Lane, Adjustment, Lanes, and Final Sat.

Capacity Analysis Module table showing Vol/Sat, Crit Moves, Green Time, Volume/Cap, Uniform Del, IncrementDel, InitQueueDel, Delay Adj, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, and HCM2kAvgQ.

Note: Queue reported is the number of cars per lane.

256

Level of Service Computation Report  
 2000 HCM Operations Method (Base Volume Alternative)

\*\*\*\*\*  
 Intersection #108 San Bernardino Ave and Citrus Plaza Dr  
 \*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap. (X): 0.943  
 Loss Time (sec): 12 (Y+R=4.0 sec) Average Delay (sec/veh): 36.3  
 Optimal Cycle: 94 Level Of Service: D  
 \*\*\*\*\*

Street Name:	Citrus Plaza Drive						San Bernardino Avenue					
	North Bound			South Bound			East Bound			West Bound		
Approach:	L	T	R	L	T	R	L	T	R	L	T	R
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Prot+Permit			Prot+Permit		
Rights:	Include			Include			Include			Include		
Min. Green:	10	10	10	10	10	10	10	10	10	10	10	10
Lanes:	1	0	0	1	0	1	1	0	1	1	0	1

Volume Module:	Citrus Plaza Drive			Citrus Plaza Drive			San Bernardino Avenue			San Bernardino Avenue		
Base Vol:	10	14	232	311	458	208	51	668	54	48	178	83
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	10	14	232	311	458	208	51	668	54	48	178	83
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	11	15	244	327	482	219	54	703	57	51	187	87
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	11	15	244	327	482	219	54	703	57	51	187	87
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	11	15	244	327	482	219	54	703	57	51	187	87

Saturation Flow Module:	Citrus Plaza Drive			Citrus Plaza Drive			San Bernardino Avenue			San Bernardino Avenue		
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.28	0.86	0.86	0.48	0.91	0.91	0.95	1.00	0.85	0.95	1.00	0.85
Lanes:	1.00	0.06	0.94	1.00	1.38	0.62	1.00	1.00	1.00	1.00	1.00	1.00
Final Sat.:	534	93	1539	910	2366	1074	1805	1900	1615	1805	1900	1615

Capacity Analysis Module:	Citrus Plaza Drive			Citrus Plaza Drive			San Bernardino Avenue			San Bernardino Avenue		
Vol/Sat:	0.02	0.16	0.16	0.36	0.20	0.20	0.03	0.37	0.04	0.03	0.10	0.05
Crit Moves:				****				****				
Green Time:	38.4	38.4	38.4	38.4	38.4	38.4	53.6	39.6	39.6	34.8	24.8	24.8
Volume/Cap:	0.05	0.41	0.41	0.94	0.53	0.53	0.08	0.94	0.09	0.20	0.40	0.22
Uniform Del:	19.3	22.5	22.5	29.6	23.8	23.8	11.5	29.0	18.9	23.9	31.4	29.9
IncramntDel:	0.1	0.4	0.4	31.9	0.4	0.4	0.0	18.9	0.1	0.4	0.6	0.3
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	19.4	23.0	23.0	61.5	24.2	24.2	11.6	47.9	19.0	24.3	31.9	30.2
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	19.4	23.0	23.0	61.5	24.2	24.2	11.6	47.9	19.0	24.3	31.9	30.2
LOS by Move:	B	C	C	E	C	C	B	D	B	C	C	C
HCM2kAvgQ:	0	6	6	14	9	9	1	26	1	1	5	2

\*\*\*\*\*  
 Note: Queue reported is the number of cars per lane.  
 \*\*\*\*\*

25e

Level Of Service Computation Report  
 2000 HCM Operations Method (Base Volume Alternative)

\*\*\*\*\*  
 Intersection #108 San Bernardino Ave and Citrus Plaza Dr  
 \*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.943  
 Loss Time (sec): 12 (Y+R=4.0 sec) Average Delay (sec/veh): 36.3  
 Optimal Cycle: 94 Level Of Service: D  
 \*\*\*\*\*

Street Name:	Citrus Plaza Drive						San Bernardino Avenue					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Prot+Permit			Prot+Permit		
Rights:	Include			Include			Include			Include		
Min. Green:	10	10	10	10	10	10	10	10	10	10	10	10
Lanes:	1	0	0	1	0	1	1	0	1	1	0	1

Volume Module:

Base Vol:	10	14	232	311	458	208	51	668	54	48	178	83
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	10	14	232	311	458	208	51	668	54	48	178	83
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	11	15	244	327	482	219	54	703	57	51	187	87
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	11	15	244	327	482	219	54	703	57	51	187	87
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	11	15	244	327	482	219	54	703	57	51	187	87

Saturation Flow Module:

Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.28	0.86	0.86	0.48	0.91	0.91	0.95	1.00	0.85	0.95	1.00	0.85
Lanes:	1.00	0.06	0.94	1.00	1.38	0.62	1.00	1.00	1.00	1.00	1.00	1.00
Final Sat.:	534	93	1539	910	2366	1074	1805	1900	1615	1805	1900	1615

Capacity Analysis Module:

Vol/Sat:	0.02	0.16	0.16	0.36	0.20	0.20	0.03	0.37	0.04	0.03	0.10	0.05
Crit Moves:	****			****			****			****		
Green Time:	38.4	38.4	38.4	38.4	38.4	38.4	53.6	39.6	39.6	34.8	24.8	24.8
Volume/Cap:	0.05	0.41	0.41	0.94	0.53	0.53	0.08	0.94	0.09	0.20	0.40	0.22
Uniform Del:	19.3	22.5	22.5	29.6	23.8	23.8	11.5	29.0	18.9	23.9	31.4	29.9
IncrementDel:	0.1	0.4	0.4	31.9	0.4	0.4	0.0	18.9	0.1	0.4	0.6	0.3
InitQueueDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	19.4	23.0	23.0	61.5	24.2	24.2	11.6	47.9	19.0	24.3	31.9	30.2
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	19.4	23.0	23.0	61.5	24.2	24.2	11.6	47.9	19.0	24.3	31.9	30.2
LOS by Move:	B	C	C	E	C	C	B	D	B	C	C	C
HCM2kAvgQ:	0	6	6	14	9	9	1	26	1	1	5	2

Note: Queue reported is the number of cars per lane.  
 \*\*\*\*\*

258

## #9 – 5th Street / Boulder Avenue

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

\*\*\*\*\*
Intersection #109 5th St and Boulder Ave
\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap. (X): 0.460
Loss Time (sec): 8 (Y+R=4.0 sec) Average Delay (sec/veh): 12.9
Optimal Cycle: 30 Level Of Service: B
\*\*\*\*\*

Table with columns for Street Name (Boulder Avenue, 5th Street), Approach (North Bound, South Bound, East Bound, West Bound), Movement (L, T, R), Control, Rights, Min. Green, and Lanes.

Table for Volume Module showing Base Vol, Growth Adj, Initial Bse, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, and Final Volume across various movements.

Table for Saturation Flow Module showing Sat/Lane, Adjustment, Lanes, and Final Sat. values.

Table for Capacity Analysis Module showing Vol/Sat, Crit Moves, Green Time, Volume/Cap, Uniform Del, IncrementDel, InitQueueDel, Delay Adj, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, and HCM2kAvgQ.

Note: Queue reported is the number of cars per lane.
\*\*\*\*\*

260

Level Of Service Computation Report  
 2000 HCM Operations Method (Base Volume Alternative)

\*\*\*\*\*  
 Intersection #109 5th St and Boulder Ave  
 \*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.460  
 Loss Time (sec): 8 (Y+R=4.0 sec) Average Delay (sec/veh): 12.7  
 Optimal Cycle: 30 Level Of Service: B  
 \*\*\*\*\*

Street Name:	Boulder Avenue						5th Street					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	7	7	7	7	7	7	7	7	7	7	7	7
Lanes:	1	0	1	1	0	1	1	0	2	1	0	2

Volume Module:

Base Vol:	85	145	3	38	216	3	4	227	217	141	1040	102
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	85	145	3	38	216	3	4	227	217	141	1040	102
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	89	153	3	40	227	3	4	239	228	148	1095	107
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	89	153	3	40	227	3	4	239	228	148	1095	107
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	89	153	3	40	227	3	4	239	228	148	1095	107

Saturation Flow Module:

Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.43	0.95	0.95	0.65	1.00	0.85	0.21	0.95	0.85	0.60	0.95	0.85
Lanes:	1.00	1.96	0.04	1.00	1.00	1.00	1.00	2.00	1.00	1.00	2.00	1.00
Final Sat.:	823	3526	73	1239	1900	1615	405	3610	1615	1132	3610	1615

Capacity Analysis Module:

Vol/Sat:	0.11	0.04	0.04	0.03	0.12	0.00	0.01	0.07	0.14	0.13	0.30	0.07
Crit Moves:				****						****		
Green Time:	26.0	26.0	26.0	26.0	26.0	26.0	66.0	66.0	66.0	66.0	66.0	66.0
Volume/Cap:	0.42	0.17	0.17	0.12	0.46	0.01	0.02	0.10	0.21	0.20	0.46	0.10
Uniform Del:	30.7	28.6	28.6	28.3	31.1	27.4	5.9	6.2	6.7	6.7	8.3	6.2
IncramntDel:	1.3	0.1	0.1	0.2	0.7	0.0	0.0	0.0	0.1	0.1	0.1	0.0
InitQueueDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	32.0	28.7	28.7	28.4	31.8	27.4	5.9	6.2	6.8	6.8	8.5	6.2
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	32.0	28.7	28.7	28.4	31.8	27.4	5.9	6.2	6.8	6.8	8.5	6.2
LOS by Move:	C	C	C	C	C	C	A	A	A	A	A	A
HCM2kAvgQ:	3	2	2	1	6	0	0	1	3	2	9	1

Note: Queue reported is the number of cars per lane.  
 \*\*\*\*\*

Level of Service Computation Report  
 2000 HCM Operations Method (Base Volume Alternative)

\*\*\*\*\*  
 Intersection #109 5th St and Boulder Ave  
 \*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap. (X): 0.460  
 Loss Time (sec): 8 (Y+R=4.0 sec) Average Delay (sec/veh): 12.9  
 Optimal Cycle: 30 Level Of Service: B  
 \*\*\*\*\*

Street Name:	Boulder Avenue						5th Street					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	7	7	7	7	7	7	7	7	7	7	7	7
Lanes:	1	0	1	1	0	1	1	0	2	1	0	2

Volume Module:	North Bound			South Bound			East Bound			West Bound		
Base Vol:	85	145	3	38	216	3	4	227	151	141	1040	102
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	85	145	3	38	216	3	4	227	151	141	1040	102
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	89	153	3	40	227	3	4	239	159	148	1095	107
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	89	153	3	40	227	3	4	239	159	148	1095	107
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	89	153	3	40	227	3	4	239	159	148	1095	107

Saturation Flow Module:	North Bound			South Bound			East Bound			West Bound		
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.43	0.95	0.95	0.65	1.00	0.85	0.21	0.95	0.85	0.60	0.95	0.85
Lanes:	1.00	1.96	0.04	1.00	1.00	1.00	1.00	2.00	1.00	1.00	2.00	1.00
Final Sat.:	823	3526	73	1239	1900	1615	405	3610	1615	1132	3610	1615

Capacity Analysis Module:	North Bound			South Bound			East Bound			West Bound		
Vol/Sat:	0.11	0.04	0.04	0.03	0.12	0.00	0.01	0.07	0.10	0.13	0.30	0.07
Crit Moves:					****						****	
Green Time:	26.0	26.0	26.0	26.0	26.0	26.0	66.0	66.0	66.0	66.0	66.0	66.0
Volume/Cap:	0.42	0.17	0.17	0.12	0.46	0.01	0.02	0.10	0.15	0.20	0.46	0.10
Uniform Del:	30.7	28.6	28.6	28.3	31.1	27.4	5.9	6.2	6.4	6.7	8.3	6.2
IncrementDel:	1.3	0.1	0.1	0.2	0.7	0.0	0.0	0.0	0.1	0.1	0.1	0.0
InitQueueDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	32.0	28.7	28.7	28.4	31.8	27.4	5.9	6.2	6.5	6.8	8.5	6.2
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	32.0	28.7	28.7	28.4	31.8	27.4	5.9	6.2	6.5	6.8	8.5	6.2
LOS by Move:	C	C	C	C	C	C	A	A	A	A	A	A
HCM2kAvgQ:	3	2	2	1	6	0	0	1	2	2	9	1

Note: Queue reported is the number of cars per lane.  
 \*\*\*\*\*

26c

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #109 5th St and Boulder Ave

Cycle (sec): 100 Critical Vol./Cap. (X): 0.439
Loss Time (sec): 8 (Y+R=4.0 sec) Average Delay (sec/veh): 15.8
Optimal Cycle: 29 Level Of Service: B

Table with columns for Street Name (Boulder Avenue, 5th Street), Approach (North Bound, South Bound, East Bound, West Bound), Movement (L, T, R), Control, Rights, Min. Green, and Lanes.

Table for Volume Module showing Base Vol, Growth Adj, Initial Bse, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, and Final Volume across various movements.

Table for Saturation Flow Module showing Sat/Lane, Adjustment, Lanes, and Final Sat. values.

Table for Capacity Analysis Module showing Vol/Sat, Crit Moves, Green Time, Volume/Cap, Uniform Del, IncrementDel, InitQueueDel, Delay Adj, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, and HCM2kAvgQ.

Note: Queue reported is the number of cars per lane.

Handwritten mark '26'

Level Of Service Computation Report  
 2000 HCM Operations Method (Base Volume Alternative)

\*\*\*\*\*  
 Intersection #109 5th St and Boulder Ave  
 \*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.439  
 Loss Time (sec): 8 (Y+R=4.0 sec) Average Delay (sec/veh): 15.7  
 Optimal Cycle: 29 Level Of Service: B  
 \*\*\*\*\*

Street Name:	Boulder Avenue						5th Street					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	7	7	7	7	7	7	7	7	7	7	7	7
Lanes:	1	0	1	1	0	1	1	0	1	0	1	1

Volume Module:

Base Vol:	150	320	3	78	205	7	28	840	270	44	417	56
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	150	320	3	78	205	7	28	840	270	44	417	56
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	158	337	3	82	216	7	29	884	284	46	439	59
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	158	337	3	82	216	7	29	884	284	46	439	59
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	158	337	3	82	216	7	29	884	284	46	439	59

Saturation Flow Module:

Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.52	0.95	0.95	0.51	1.00	0.85	0.47	0.95	0.85	0.25	0.95	0.85
Lanes:	1.00	1.98	0.02	1.00	1.00	1.00	1.00	2.00	1.00	1.00	2.00	1.00
Final Sat.:	992	3573	33	973	1900	1615	897	3610	1615	483	3610	1615

Capacity Analysis Module:

Vol/Sat:	0.16	0.09	0.09	0.08	0.11	0.00	0.03	0.24	0.18	0.10	0.12	0.04
Crit Moves:	****						****					
Green Time:	36.2	36.2	36.2	36.2	36.2	36.2	55.8	55.8	55.8	55.8	55.8	55.8
Volume/Cap:	0.44	0.26	0.26	0.23	0.31	0.01	0.06	0.44	0.32	0.17	0.22	0.07
Uniform Del:	24.2	22.4	22.4	22.2	22.9	20.4	10.1	13.0	11.9	10.8	11.1	10.2
IncrementDel:	0.9	0.1	0.1	0.3	0.3	0.0	0.0	0.2	0.2	0.3	0.1	0.0
InitQueueDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	25.0	22.5	22.5	22.5	23.2	20.4	10.2	13.1	12.1	11.1	11.2	10.2
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	25.0	22.5	22.5	22.5	23.2	20.4	10.2	13.1	12.1	11.1	11.2	10.2
LOS by Move:	C	C	C	C	C	C	B	B	B	B	B	B
HCM2kAvgQ:	4	4	4	2	5	0	0	8	5	1	4	1

Note: Queue reported is the number of cars per lane.  
 \*\*\*\*\*

26e

Level Of Service Computation Report  
 2000 HCM Operations Method (Base Volume Alternative)

\*\*\*\*\*  
 Intersection #109 5th St and Boulder Ave  
 \*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.439  
 Loss Time (sec): 8 (Y+R=4.0 sec) Average Delay (sec/veh): 15.8  
 Optimal Cycle: 29 Level Of Service: B  
 \*\*\*\*\*

Street Name:		Boulder Avenue						5th Street								
Approach:	North Bound			South Bound			East Bound			West Bound						
Movement:	L	T	R	L	T	R	L	T	R	L	T	R				
Control:	Permitted			Permitted			Permitted			Permitted						
Rights:	Include			Include			Include			Include						
Min. Green:	7	7	7	7	7	7	7	7	7	7	7	7				
Lanes:	1	0	1	1	0	1	1	0	1	0	1	1	0	2	0	1

Volume Module:

Base Vol:	150	320	3	78	205	7	28	840	204	44	417	56
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	150	320	3	78	205	7	28	840	204	44	417	56
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	158	337	3	82	216	7	29	884	215	46	439	59
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	158	337	3	82	216	7	29	884	215	46	439	59
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	158	337	3	82	216	7	29	884	215	46	439	59

Saturation Flow Module:

Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.52	0.95	0.95	0.51	1.00	0.85	0.47	0.95	0.85	0.25	0.95	0.85
Lanes:	1.00	1.98	0.02	1.00	1.00	1.00	1.00	2.00	1.00	1.00	2.00	1.00
Final Sat.:	992	3573	33	973	1900	1615	897	3610	1615	483	3610	1615

Capacity Analysis Module:

Vol/Sat:	0.16	0.09	0.09	0.08	0.11	0.00	0.03	0.24	0.13	0.10	0.12	0.04
Crit Moves:	****						****					
Green Time:	36.2	36.2	36.2	36.2	36.2	36.2	55.8	55.8	55.8	55.8	55.8	55.8
Volume/Cap:	0.44	0.26	0.26	0.23	0.31	0.01	0.06	0.44	0.24	0.17	0.22	0.07
Uniform Del:	24.2	22.4	22.4	22.2	22.9	20.4	10.1	13.0	11.3	10.8	11.1	10.2
IncrementDel:	0.9	0.1	0.1	0.3	0.3	0.0	0.0	0.2	0.1	0.3	0.1	0.0
InitQueueDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	25.0	22.5	22.5	22.5	23.2	20.4	10.2	13.1	11.4	11.1	11.2	10.2
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	25.0	22.5	22.5	22.5	23.2	20.4	10.2	13.1	11.4	11.1	11.2	10.2
LOS by Move:	C	C	C	C	C	C	B	B	B	B	B	B
HCM2kAvgQ:	4	4	4	2	5	0	0	8	3	1	4	1

Note: Queue reported is the number of cars per lane.  
 \*\*\*\*\*

269