



- Board of Directors
Water Planning and Stewardship Committee

2/9/2021 Board Meeting

7-2

Subject

Review and consider the Western Municipal Water District of Riverside County's approved and adopted Final Mitigated Negative Declaration and Addendum and take related CEQA actions, and authorize the General Manager to enter into a Stormwater for Recharge Pilot Agreement with Western Municipal Water District of Riverside County for the Enhanced Monitoring of the Victoria Recharge Basin Project

Executive Summary

This letter requests authorization for Metropolitan to enter into a Stormwater for Recharge Pilot Program (Pilot Program) Agreement with Western Municipal Water District of Riverside County (Western MWD) with a maximum amount of up to \$500,000 for the Enhanced Monitoring of the Victoria Recharge Basin Project (Project). The proposed Project, if approved, would include installing monitoring equipment, constructing a groundwater monitoring well, developing modeling tools, and performing a minimum of three years of stormwater recharge monitoring and reporting at the existing Victoria Recharge Basin located in the Arlington groundwater basin. The Project would quantify stormwater capture and the relationship to water supply yield, which will contribute towards Metropolitan's evaluation and understanding of the potential water supply benefits delivered by stormwater capture projects throughout the service area.

Details

Background

Metropolitan's 2015 Integrated Water Resources Plan Update calls for the development of a diverse resource portfolio through local supply projects—including recycled water, groundwater recovery, seawater desalination, and stormwater capture. Metropolitan has played an active role in the development of those local supplies through different approaches and programs developed over the years. Since 1982, Metropolitan has provided incentives to its member agencies to develop local projects through the Local Resources Program (LRP). Local stormwater capture projects are currently not funded through the LRP in part because of the lack of data between captured stormwater and yield. To clarify this connection, Metropolitan developed the Recharge Pilot. Participants of the Recharge Pilot will measure the quantity of stormwater runoff capture and for the new usable groundwater yield.

The Board approved the Pilot Program on November 5, 2019 (Board Letter 8-3). The Pilot Program two-year rolling application process launched on March 27, 2020. Agencies may submit applications to install monitoring equipment on existing projects or construct new projects. To date, the Pilot Program has received six applications, two for monitoring equipment installation and four new construction projects. Western MWD submitted an application for the proposed Project on April 1, 2020. Staff reviewed the application for completeness and confirmed that project criteria approved by the Board were met.

Proposed Project

Existing Facilities

The existing Victoria Recharge Basin was constructed in January 2020 in the City of Riverside. It is part of Western MWD's plan to increase local, reliable groundwater supplies for its service area. The Victoria Recharge Basin has a design capture of up to 3,500 acre-feet per year of stormwater runoff to recharge the Arlington

groundwater basin. The proposed Project will expand groundwater monitoring in the Victoria Recharge Basin to better understand how recharged stormwater translates into water supply yield.

Project Description

The proposed Project, if approved, would include installing monitoring equipment, constructing a new groundwater monitoring well, developing modeling tools, and performing a minimum of three years of stormwater recharge monitoring and reporting at the existing Victoria Recharge Basin. The monitoring and reporting would include:

- Monitoring stormwater capture and groundwater levels.
- Reporting on modeling results.
- Evaluating increases in storage and groundwater production.
- Preparing three annual monitoring reports to summarize data collection and analysis.

A detailed project description can be found in **Attachment 1**. Key terms of the proposed Recharge Pilot Agreement are stated in **Attachment 2**.

Funding Structure

The funding includes two components: installation/construction of monitoring equipment and ongoing monitoring/reporting. This project has requested the maximum funding for monitoring installation and reporting for a total of \$500,000.

Project Type	Enhanced Monitoring of the Victoria Recharge Basin Project – Requested Reimbursement	
	Installation/Construction	Monitoring and Reporting
Monitoring Equipment Installation	\$350,000	\$150,000 (\$50,000/report)
Total Metropolitan Contribution \$500,000		

Staff recommends approval of the funding agreements as this project is consistent with the objectives of the Board-approved Pilot Program.

Policy

By Minute Item 50358, dated January 12, 2016, the Board adopted the 2015 Integrated Water Resources Plan Update.

By Minute Item 50883 and as set forth in Board Letter 8-2, dated July 11, 2017, the Board adopted revised Policy Principles guiding Metropolitan's role in regional implementation of Integrated Water Resources Plan targets for local resources and conservation.

By Minute Item 51793, dated November 5, 2019, the Board authorized \$7.5 million for the Stormwater for Recharge Pilot Program.

California Environmental Quality Act (CEQA)

CEQA determination for Option #1:

Pursuant to the provisions of CEQA and the State CEQA Guidelines, the Western Municipal Water District of Riverside County, acting as the Lead Agency, approved and adopted a Mitigated Negative Declaration (MND) for the Arlington Desalter Expansion Project Phase 2 on February 15, 2012, and filed a Notice of Determination with the State Clearinghouse. Subsequent to that time, the Western Municipal Water District of Riverside County proposed to commence negotiations with Metropolitan as related to the stormwater project agreement. This new information constituted a minor modification to the originally approved project. As the Lead Agency, the Western Municipal Water District of Riverside County prepared an Addendum to the MND (Addendum) and

approved the proposed project modification on November 20, 2020. Metropolitan, as a Responsible Agency under CEQA, is required to certify that it has reviewed and considered the information in the MND and Addendum and adopt the Lead Agency's findings prior to approval of the formal terms and conditions for the proposed agreement. The environmental documentation is included as **Attachment 3**.

CEQA determination for Options #2 and #3:

None required

Board Options

Option #1

Review and consider the Lead Agency's approved and adopted Final MND and Addendum and take related CEQA actions and authorize the General Manager to enter into a Stormwater for Recharge Pilot Program Agreement with Western Municipal Water District of Riverside County for the Enhanced Monitoring of the Victoria Basin Recharge Project.

Fiscal Impact: Metropolitan's maximum financial obligation would total \$500,000 for eligible Project expenses and a three-year monitoring and reporting period. These payments will be taken from the approved \$7.5 million Recharge Pilot Program budget (Minute Item 51793, dated November 5, 2019; Water Stewardship Fund).

Business Analysis: This project would help Metropolitan achieve the Recharge Pilot goal of understanding the relationship between stormwater capture and the water supply benefit of stormwater.

Option #2

Defer consideration of agreement until completion of the 2020 Integrated Resources Plan.

Fiscal Impact: None

Business Analysis: Deferring agreement consideration would slow Metropolitan's efforts to achieve the goals of the Recharge Pilot and better understand the potential water supply benefits delivered by stormwater capture projects.

Option #3

Do not authorize execution of an agreement for the Project.

Fiscal Impact: None

Business Analysis: Metropolitan would pursue other projects, and it may take longer to meet the goals of the Recharge Pilot.

Staff Recommendation

Option #1



Brad Coffey
Water Resource Management Manager

1/26/2021
Date



Jeffrey Kightlinger
General Manager

1/27/2021
Date

Attachment 1 – Western Municipal Water District of Riverside County – Enhanced Monitoring of the Victoria Recharge Basin Project Description

Attachment 2 – Term Sheet for Western Municipal Water District of Riverside County Enhanced Monitoring of the Victoria Basin Stormwater Recharge Project Stormwater for Recharge Pilot Program

Attachment 3 – Environmental Documentation

Ref# wrm12674721

**Western Municipal Water District of Riverside County – Enhanced Monitoring of the
Victoria Recharge Basin Project
Project Description**

Stormwater Recharge Pilot Program Overview

The purpose of the Stormwater Recharge Pilot Program (Pilot Program) is to collect data from several stormwater projects from across the service area to gain a better understanding of the relationship between stormwater capture and the water supply benefit (yield). The Pilot Program has two project types: monitoring equipment installation projects (intended for existing projects) and new construction projects. Projects must have a minimum design capture of 40 acre-feet per year to be eligible for funding. To gather data from several region-wide stormwater projects, there will be a limit of five projects per Regional Board area and two projects per groundwater basin. To date, the Pilot Program has received six applications, two for monitoring equipment installation and four new construction projects.

Project Description

Background

The existing Victoria Recharge Basin was constructed in January 2020 in the City of Riverside. It has a design capture of up to 3,500 acre-feet per year of stormwater runoff, which recharges the Arlington groundwater basin. The Victoria Recharge Basin is part of Western MWD's Arlington Basin Sustainability Project that will eventually include additional production wells and a transmission pipeline.

The goal of the proposed Enhanced Monitoring of the Victoria Recharge Basin Project (Project) is to increase the monitoring capabilities in the vicinity of the recharge basin and to demonstrate how recharged stormwater impacts the groundwater levels and storage in the Arlington Basin. The proposed Project will help Western MWD operate the Victoria Recharge Basin more efficiently.

Proposed Project:

The proposed Project, if approved, would include installing monitoring equipment, constructing a new groundwater monitoring well, developing modeling tools, and performing a minimum of three years of stormwater recharge monitoring and reporting at the existing Victoria Recharge Basin.

The installation and groundwater modeling tasks include:

- Collecting baseline data from existing wells and basins
- Installing onsite and offsite improvements, including meters, pressure transducers, sensors, and constructing a new monitoring well
- Creating and calibrating an operation and maintenance (O&M) model
- Performing groundwater modeling

The volume of captured and recharged stormwater in Victoria Basin will be accurately measured by the physical improvements (flow meters and pressure transducers) and additional monitoring efforts (field data collection, observations, analysis, and reporting) provided by the proposed Project. The movement of the captured and recharged stormwater will be measured by data collection at existing monitoring wells and by the strategic placement/construction (and monitoring) of a new monitoring well. The addition of a monitoring well will provide important data to calibrate/refine the groundwater model and demonstrate how the captured and recharged stormwater translates into groundwater yield. Historical and newly

collected data will inform the calibration and refinement of the project-specific operation and maintenance (O&M) model and groundwater model.

The proposed Project also includes performing a minimum of three years of stormwater recharge monitoring and reporting at the existing Victoria Recharge Basin. The monitoring and reporting tasks include:

- Monitor groundwater levels in existing and new monitoring wells
- Monitor stormwater flow and amount captured in Victoria Recharge Basin
- Evaluate increases in groundwater storage and groundwater production to evaluate yield
- Prepare three annual monitoring reports to summarize data collection and analysis

The additional monitoring will allow Western MWD to increase groundwater levels in the Basin while avoiding negative effects such as increased liquefaction potential, excessive groundwater mounding, and shallow groundwater.

**Term Sheet for Western Municipal Water District of Riverside County Enhanced Monitoring of the
Victoria Basin Stormwater Recharge Project
Stormwater for Recharge Pilot Program**

Project Overview

- Member Agency: Western Municipal Water District of Riverside County
- Regional Board Area: Santa Ana
- Groundwater Basin: Arlington
- Project Type: Monitoring Equipment Installation
- Estimated Stormwater Capture: 3,500 acre-feet per year

Agreement Term

- Agreement Term: 4 years
- Monitoring Equipment Installation: within one year of agreement execution
- Monitoring Period: 3 years

Project Costs

- Estimated Member Agency Cost: \$4,500,000
- Maximum Metropolitan Contribution: \$500,000
 - Installation of Monitoring Equipment: \$350,000
 - Monitoring and Reporting: \$150,000 (\$50,000 per report, total of three reports)
- Metropolitan will reimburse for eligible monitoring equipment installation costs upon completion of deliverables, along with verification and approval of invoices.
- Metropolitan will make the monitoring and reporting payments upon approval of submitted monitoring report and database collection.
- Metropolitan will make all payments directly to Western Municipal Water District of Riverside County.

**Final Mitigated Negative Declaration
and Initial Study
for the
Western Municipal Water District's
Arlington Desalter Expansion Phase 2 Project**

Prepared by:

**WESTERN MUNICIPAL WATER DISTRICT
14205 Meridian Parkway
Riverside, California 92518**

and

**WILDERMUTH ENVIRONMENTAL, INC.
23692 Birtcher Drive
Lake Forest, California 92630-1790**

Preparation assistance by:

**TOM DODSON & ASSOCIATES
2150 North Arrowhead Avenue
San Bernardino, California 92405**

February 2012

CONFORMED NOTICE OF
DETERMINATION

NOTICE OF DETERMINATION

FEB 17 2012

LARRY W. WARD, CLERK

To: Office of Planning and Research
1400 Tenth Street, Room 121
Sacramento, CA 95814

From: Western Municipal Water District
14205 Meridian Parkway
Riverside, CA 92518

B. Reese
Deputy

and

Riverside County, County Clerk
2724 Gateway Drive
Riverside, CA 92507

Subject: Filing of Notice of Determination in compliance with Section 21108 or 21152 of the Public Resources Code.

**WESTERN MUNICIPAL WATER DISTRICT'S
ARLINGTON DESALTER EXPANSION PHASE 2 PROJECT**

Project Title

SCH #2010091090	Mr. Jack Safely	(951) 571-7100
State Clearinghouse Number	Lead Agency Contact Person	Area Code/Telephone/Extension

Project Location:

The Project area is located in the City of Riverside, south of Arlington Avenue, west of Adams Street, north of Cleveland Avenue, and east of Buchanan Avenue. The project area can be found within Sections 5,6,7,8,9,16,17,18,19,20 & 21 of Township 3 South, Range 5 West, and Sections 22, 23 and 24 of Township 3 South, Range 6 West on the USGS – Riverside West Quadrangle, 7.5 Minute Series topographic map.

Project Description:

In its ongoing efforts to improve the quality of groundwater in the Arlington Basin, increase the availability of potable water to the WMWD, and to better manage groundwater levels in the Arlington Basin, the WMWD is proposing two basic project approaches (construction of extraction wells only or construction of extraction wells and recharge basins).

The Arlington Desalter is undergoing expansion of its treatment capacity to accommodate the increased demand for treatment capacity at the plant. The expansion includes an upgrade in the treatment process which will allow the Arlington Desalter to treat additional raw water while reducing the amount of brine wastes generated. Currently, the WMWD has adequate brine capacity in the SARI pipeline and discharges brine wastes to the SARI pipeline for treatment at the OCSD. The WMWD is in the process of improving the treatment efficiency of the Desalter facility. The WMWD forecasts that after the improvements are made to the Desalter facilities and the wells proposed by this project are operational, the Desalter will remain within its allotted discharge capacity in the SARI pipeline and treatment capacity in the OCSD.

This is to advise that the Western Municipal Water District has approved the above described project on Lead Agency Responsible Agency

2/15/2012 and has made the following determination regarding the above described project:
(Date)

COUNTY CLERK
Neg. Declaration/Ntc Determination
Filed per P.R.C. 21152
POSTED

FEB 17 2012

Removed: _____

By: _____ Dept.
County of Riverside, State of California

STATE OF CALIFORNIA - THE RESOURCES AGENCY
DEPARTMENT OF FISH AND GAME
ENVIRONMENTAL FILING FEE CASH RECEIPT

Receipt #: 201200123

State Clearinghouse # (if applicable): 2010091090

Lead Agency: WESTERN MUNICIPAL WATER DISTRICT Date: 02/17/2012

County Agency of Filing: Riverside Document No: 201200123

Project Title: ARLINGTON DESALTER EXPANSION PHASE 2 PROJECT

Project Applicant Name: WESTERN MUNICIPAL WATER DISTRICT Phone Number: 951 571-7100

Project Applicant Address: 14205 MERIDIAN PARKWAY RIVERSIDE, CA 92518

Project Applicant: Local Public Agency

CHECK APPLICABLE FEES:

- Environmental Impact Report
 - Negative Declaration 2101.50
 - Application Fee Water Diversion (State Water Resources Control Board Only)
 - Project Subject to Certified Regulatory Programs
 - County Administration Fee \$64.00
 - Project that is exempt from fees (DFG No Effect Determination (Form Attached))
 - Project that is exempt from fees (Notice of Exemption)
- Total Received** 2165.50

Signature and title of person receiving payment:

Brenda Greese

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02/17/2012
=====
RECEIPT # 3448642
LARRY W. WARD
Riverside County
Clerk and Recorder
2724 Gateway Drive
Riverside, CA 92507
(951) 486-7000
www.RiversideALR.com

FROM : F/G 201200123
BY : GREESE

FISH FISH & GAME 2165.50
TOTAL FEE -----> 2165.50
AMOUNT (Check) RECEIVED -----> ( 2165.50)
CHANGE -----> 0.00

1 Check Received
Check #7012
*** RECEIPT ***
=====

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WESTERN MUNICIPAL WATER DISTRICT MITIGATED NEGATIVE DECLARATION

Lead Agency: Western Municipal Water District (WMWD) **Contact:** Mr. Jack Safely
14205 Meridian Parkway **Phone:** (951) 571-7100
Riverside, CA 92518

Project Title: WESTERN MUNICIPAL WATER DISTRICT'S
ARLINGTON DESALTER EXPANSION PHASE 2 PROJECT

State Clearinghouse Number: SCH#2010091090

Project Location: The Project area is located in the City of Riverside, south of Arlington Avenue, west of Adams Street, north of Cleveland Avenue, and east of Buchanan Avenue. The project area can be found within Sections 5,6,7,8,9,16,17,18, 19,20 & 21 of Township 3 South, Range 5 West, and Sections 22, 23 and 24 of Township 3 South, Range 6 West on the USGS – Riverside West Quadrangle, 7.5 Minute Series topographic map.

Project Description: In its ongoing efforts to improve the quality of groundwater in the Arlington Basin, increase the availability of potable water to the WMWD, and to better manage groundwater levels in the Arlington Basin, the WMWD is proposing two basic project approaches (construction of extraction wells only or construction of extraction wells and recharge basins).

The Arlington Desalter is undergoing expansion of its treatment capacity to accommodate the increased demand for treatment capacity at the plant. The expansion includes an upgrade in the treatment process which will allow the Arlington Desalter to treat additional raw water while reducing the amount of brine wastes generated. Currently, the WMWD has adequate brine capacity in the SARI pipeline and discharges brine wastes to the SARI pipeline for treatment at the OCSD. The WMWD is in the process of improving the treatment efficiency of the Desalter facility. The WMWD forecasts that after the improvements are made to the Desalter facilities and the wells proposed by this project are operational, the Desalter will remain within its allotted discharge capacity in the SARI pipeline and treatment capacity in the OCSD.

Finding: WMWD's decision to implement this proposed expansion project is a discretionary decision or "project" that requires evaluation under the California Environmental Quality Act (CEQA). Based on the information in the project Initial Study, the Western Municipal Water District has determined that a Mitigated Negative Declaration is the appropriate environmental determination to comply with CEQA.

Mitigated Negative Declaration, page 2 of 2

Initial Study: Copies of the Initial Study are available for public review at the Western Municipal Water District office at 14205 Meridian Parkway, Riverside, CA 92518. The public review period for the Initial Study closed on November 1, 2010 but was extended to January 10, 2011.

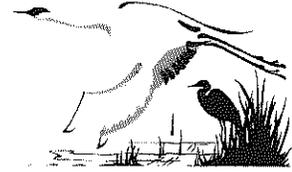
Mitigation Measures: All mitigation measures identified in the Initial Study are prepared for adoption as conditions of the project and will be implemented through a mitigation monitoring and reporting program adopted with the Negative Declaration.

Jack A. Safely *Director of Water Resources* *2/15/2012*

Signature Title Date

RESPONSES TO COMMENTS

TOM DODSON & ASSOCIATES
2150 N. ARROWHEAD AVENUE
SAN BERNARDINO, CA 92405
TEL (909) 882-3612 • FAX (909) 882-7015
E-MAIL tda@tdaenv.com



MEMORANDUM

January 23, 2012

From: Tom Dodson

To: Mr. Jack Safely

Subj: Completion of the Mitigated Negative Declaration for the **Western Municipal Water District Arlington Desalter Expansion Phase 2 Project (SCH# 2010091090)**

The Western Municipal Water District (WMWD or District) received six comment letters on the proposed Mitigated Negative Declaration for the Districts Arlington Desalter Expansion Phase 2 Project (SCH#2010091090). CEQA requires a Mitigated Negative Declaration (MND) to consist of the Initial Study, copies of comments on the proposed MND, any responses to comments (as compiled below); and any other project related material prepared to address issues raised in the Initial Study or comment letters.

In this case, the original Initial Study will be utilized as one component of the Final MND package. These responses to comments, combined with the Initial Study and the Mitigation Monitoring and Reporting Program, constitute the Final MND package that can be used by the District to consider the environmental effects of implementing the proposed project. Public comments submitted on the proposed project consist of:

1. Office of Planning and Research, State Clearinghouse and Planning Unit
2. California Department of Public Health
3. State Water Resources Control Board
4. Orange County Water District
5. Riverside County Flood Control and Water Conservation District
6. City of Riverside

A copy of each comment letter is provided as an attachment to this memorandum. A response to the comments is provided behind each page of the comments. Because mitigation measures are required for this project, the Mitigation Monitoring and Reporting Program (MMRP) attached to this package is required as part of this Final MND package. The MMRP is provided as a separate document in this package for approval and implementation. The

District will consider adopting the Final MND package at its February 15, 2012 Board meeting. If the Board adopts the MND, it can then consider approval of the Arlington Desalter Expansion Phase 2 Project. I will be at the Board meet to address any questions or concerns raised by the Board or public during the meeting. Do not hesitate to give me a call if you have any questions regarding the contents of this package.

A handwritten signature in black ink, appearing to read "Tom Dodson". The signature is written in a cursive, flowing style.

Tom Dodson
Attachments



Arnold Schwarzenegger
Governor

STATE OF CALIFORNIA
Governor's Office of Planning and Research
State Clearinghouse and Planning Unit



Cathleen Cox
Acting Director

November 2, 2010

Jack Safely
Western Municipal Water District
450 East Alessandro Boulevard
Riverside, CA 92506

Subject: Western Municipal Water District Arlington Desalter Expansion Phase 2 Project
SCH#: 2010091090

Dear Jack Safely:

The State Clearinghouse submitted the above named Mitigated Negative Declaration to selected state agencies for review. On the enclosed Document Details Report please note that the Clearinghouse has listed the state agencies that reviewed your document. The review period closed on November 1, 2010, and the comments from the responding agency (ies) is (are) enclosed. If this comment package is not in order, please notify the State Clearinghouse immediately. Please refer to the project's ten-digit State Clearinghouse number in future correspondence so that we may respond promptly.

Please note that Section 21104(c) of the California Public Resources Code states that:

"A responsible or other public agency shall only make substantive comments regarding those activities involved in a project which are within an area of expertise of the agency or which are required to be carried out or approved by the agency. Those comments shall be supported by specific documentation."

These comments are forwarded for use in preparing your final environmental document. Should you need more information or clarification of the enclosed comments, we recommend that you contact the commenting agency directly.

This letter acknowledges that you have complied with the State Clearinghouse review requirements for draft environmental documents, pursuant to the California Environmental Quality Act. Please contact the State Clearinghouse at (916) 445-0613 if you have any questions regarding the environmental review process.

Sincerely,

Scott Morgan
Director, State Clearinghouse

Enclosures
cc: Resources Agency

1-1

**RESPONSES TO COMMENTS
LETTER #1
OFFICE OF PLANNING AND RESEARCH
STATE CLEARINGHOUSE AND PLANNING UNIT**

- 1-1 This is an acknowledgment letter verifying that the State Clearinghouse submitted the Initial Study and proposed Mitigated Negative Declaration (MND) to selected state agencies for review, and that several state agencies submitted comments through the Clearinghouse by the close of the review period, which occurred on November 1, 2010. The State Clearinghouse assigned this project the following tracking number, SCH #2010091090. Responses to each of the comment letters received from the State Clearinghouse is provided below. This letter is for information only and does not require a substantive response.

Document Details Report
State Clearinghouse Data Base

SCH# 2010091090
Project Title Western Municipal Water District Arlington Desalter Expansion Phase 2 Project
Lead Agency Western Municipal Water District

Type MND Mitigated Negative Declaration
Description NOTE: Review Per Lead

In its ongoing efforts to improve the quality of groundwater in the Arlington Basin, increase the availability of potable water to the WMWD and to better manage groundwater levels in the Arlington Basin, the WMWD is proposing two basic project approaches (construction of extraction wells only or construction of extraction wells and recharge basins).

The Arlington Desalter is undergoing expansion of its treatment capacity to accommodate the increased demand for treatment capacity at the plant. The expansion includes an upgrade in the treatment process which will allow the Arlington Desalter to treat additional raw water while reducing the amount of brine wastes generated. Currently, the WMWD has adequate brine capacity in the SARI pipeline and discharges brine wastes to the SARI pipeline for treatment at the OCSD. The WMWD is in the process of improving the treatment efficiency of the Desalter facility. The WMWD forecasts that after the improvements are made to the Desalter facilities and the wells proposed by this project are operational, the Desalter will remain within its allotted discharge capacity in the SARI pipeline and treatment capacity in the OCSD.

Lead Agency Contact

Name Jack Safely
Agency Western Municipal Water District
Phone 951-789-5041
email
Address 450 East Alessandro Boulevard
City Riverside
State CA **Zip** 92506
Fax

Project Location

County Riverside
City Riverside
Region
Lat / Long 33° 35' 57" N / 117° 27' 30" W
Cross Streets Arlington Ave, Adams St, Cleveland Ave, Buchanan Ave
Parcel No.
Township 3S **Range** 5,6W **Section** 5,6,7 **Base**

Proximity to:

Highways Hwy 91
Airports Riverside Municipal
Railways BNSF
Waterways Santa Ana River
Schools
Land Use

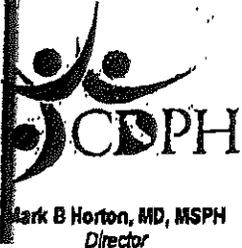
Project Issues Air Quality; Archaeologic-Historic; Biological Resources; Cumulative Effects; Geologic/Seismic; Noise; Soil Erosion/Compaction/Grading; Toxic/Hazardous; Traffic/Circulation; Vegetation; Water Quality; Water Supply; Wetland/Riparian

Reviewing Agencies Resources Agency; Department of Fish and Game, Region 6; Office of Historic Preservation; Department of Parks and Recreation; Department of Water Resources; California Highway Patrol; Caltrans, District 8; Regional Water Quality Control Board, Region 8; Department of Toxic Substances Control; Native American Heritage Commission; CA Department of Public Health; State Water

Document Details Report
State Clearinghouse Data Base

Resources Control Board, Divison of Financial Assistance

Date Received 09/30/2010 *Start of Review* 09/30/2010 *End of Review* 11/01/2010



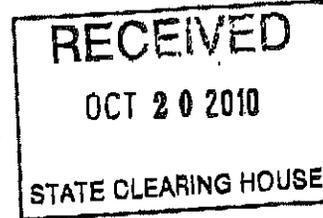
State of California—Health and Human Services Agency
Department of Public Health



ARNOLD SCHWARZENEGGER
Governor

October 20, 2010

Clear
11/01/10
2



Western Municipal Water District
Attn: Jack Safely
450 E. Alessandro Blvd
Riverside, CA 92508

RE: Western Municipal Water District's Arlington Desalter Expansion Phase 2 Project, CEQA Notice of Completion; SCH # 2010091090

Dear Mr. Safely:

2-1 The California Department of Public Health (CDPH), Division of Drinking Water and Environmental Management has received a Notice of Completion (NOC) for the above referenced project. According to the limited information contained on the NOC, the CDPH appears to have "discretion" over the project and will be a "responsible agency" pursuant to the California Environmental Quality Act (CEQA). CDPH is responsible for issuing water supply permits administered under the Safe Drinking Water Act and will need to issue a new or amended Water Supply Permit for the above referenced project.

2-2 Western Municipal Water District proposes to expand its treatment capacity to at the Arlington Desalter. The expansion includes an upgrade in the treatment process which will allow the Arlington Desalter to treat additional raw water. The project also appears to include the construction of extraction wells only or construction of extraction wells and recharge basins.

2-3 When the review process has ended, please forward the following items with your permit application to the CDPH Riverside District Office:

- Copy of the Final Mitigated Negative Declaration;
- Copy of the Board Resolution or Board Minutes adopting the Mitigated Negative Declaration and approving the project;
- Copy of the stamped Notice of Determination (NOD) filed at the Riverside County Clerk's Office (Note: The NOD must also be submitted to the State Clearinghouse);
- Copy of the California Department of Fish and Game receipt issued by the Riverside County Clerk's Office;
- Copies of any comment letters received locally or through the State Clearinghouse.

**RESPONSES TO COMMENTS
COMMENT LETTER #2
CALIFORNIA DEPARTMENT OF PUBLIC HEALTH**

- 2-1 Your comment is noted and the information will be provided to the District's Board prior to making a final decision on the project.
- 2-2 The project consists of expanding treatment capacity; installing new wells to produce additional groundwater from the Arlington Basin; and installing recharge basins to maintain an overall balance of water within the Arlington Basin.
- 2-3 Your comment is noted and the information will be provided to the District's Board prior to making a final decision on the project. Copies of all the requested procedural documentation related to adoption of the MND will be provided assuming approval of the project by the District Board.

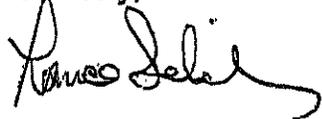
2-4

Please be aware that CDPH is the state regulatory agency responsible for issuing public water supply operating permits. Additionally, the California Health and Safety Code and the recently adopted changes to the California Waterworks Standards (California Code of Regulations, Title 22, Section 64556), requires water systems apply to CDPH for an amended domestic water supply permit prior to making any additions or changes in water treatment, including design capacity or process.

2-5

If you have any questions regarding permit applications, permits, or permit amendments please contact Steve Williams, District Engineer, Riverside District Office, at (619) 525-4159. If you have any questions about this letter or the CDPH CEQA process, please call me at (916) 324-6894 or email to lance.salisbury@cdph.ca.gov.

Sincerely,



Lance Salisbury
CDPH Environmental Review Unit

Cc: Governor's Office of Planning and Research, State Clearinghouse

CDPH Riverside District Office
Drinking Water Field Operations
1350 Front Street, Room 2050
San Diego, CA 92101

- 2-4 The District understands the guidance in this comment and will ensure that applications are submitted in a timely manner, i.e., prior to making any additions or changes in water treatment, including design capacity or process.

- 2-5 Your comment is noted and the information will be provided to the District's Board prior to making a final decision on the project. If deemed necessary, the District will contact Mr. Williams at the CDPH Riverside District Office.



State Water Resources Control Board



Linda S. Adams
Secretary for
Environmental Protection

Division of Financial Assistance
1001 I Street • Sacramento, California 95814 • (916) 341-5700 FAX (916) 341-5707
Mailing Address: P.O. Box 944212 • Sacramento, California • 94244-2120
Internet Address: <http://www.waterboards.ca.gov>

Arnold Schwarzenegger
Governor

OCT 27 2010

clear
11/01/10
e.

RECEIVED
OCT 28 2010
STATE CLEARING HOUSE

Mr. Jack Safely
Western Municipal Water District
450 East Alessandro Blvd.
Riverside, CA 92508

Dear Mr. Safely:

INITIAL STUDY AND MITIGATED NEGATIVE DECLARATION (IS/MND) FOR WESTERN MUNICIPAL WATER DISTRICT (DISTRICT); ARLINGTON DESALTER EXPANSION PHASE 2 PROJECT (PROJECT); STATE CLEARINGHOUSE NO. 2010091090

3-1

We understand the District is pursuing Clean Water State Revolving Fund (CWSRF) financing for this Project (CWSRF No. C-06-6315-110; C-06-6422-110). As a funding agency and a state agency with jurisdiction by law to preserve, enhance, and restore the quality of California's water resources, the State Water Resources Control Board (State Water Board) is providing the following information and comments for the California Environmental Quality Act (CEQA) document prepared for the Project.

3-2

We would appreciate notice of any hearings or meetings held regarding environmental review of any projects to be funded by the State Water Board, and look forward to receiving the final IS/MND. Once the final IS/MND is adopted, please provide the following documents applicable to the Project: (1) Two copies of the draft and final IS/MND, (2) the resolution adopting the IS/MND, adopting a Mitigation Monitoring and Reporting Program (MMRP), and making California Environmental Quality Act (CEQA) findings, (3) all comments received during the review period and the District response to those comments, (4) the final MMRP, and (5) a date stamped copy of the Notice of Determination filed with the County Clerk and with the Governor's Office of Planning and Research.

3-3

The CWSRF Program is partially funded by the United States Environmental Protection Agency (USEPA) and requires additional "CEQA-Plus" environmental documentation and review. Three information sheets are included that further explain the environmental review process and additional federal requirements in the CWSRF Program. In addition, an environmental evaluation form is included for the District to submit should it pursue CWSRF financing. The State Water Board can consult directly with agencies responsible for implementing federal environmental laws and regulations. Any environmental issues raised by federal agencies or their representatives will need to be resolved prior to State Water Board approval of a CWSRF financing commitment. For further information on the CWSRF Program environmental review requirements please contact Ms. Michelle Lobo at (916) 341-6983.

3-4

It is important to note that prior to a CWSRF financing commitment, projects are subject to the provisions of the Federal Endangered Species Act and must obtain approval from the United States Fish and Wildlife Service (USFWS), and/or National Marine Fisheries Service (NMFS) for any potential effects to special status species. Please be advised that the State Water Board can consult with the USFWS, and/or NMFS on behalf of the District regarding all federal special status species the Project has the potential to impact if the Project is to be funded under the CWSRF Program.

**RESPONSES TO COMMENTS
COMMENT LETTER #3
STATE WATER RESOURCES CONTROL BOARD**

- 3-1 Your comment is noted and the information will be provided to the District Board prior to making a final decision on the project.
- 3-2 When the District selects a date to consider the proposed project (with all components outlined in the Initial Study) for approval, the State Water Resources Control Board (SWRCB) will be notified, and if approved and the MND adopted, the completed Final MND package will be forwarded to the SWRCB for use in processing any future applications.
- 3-3 The District is aware that participation in the SRF program involves the State Board's CEQA-Plus process. The data base compiled for the proposed project is designed to meet the NEPA-CEQA cross-cutter issues. Assuming the District Board approves the Arlington Desalter Expansion Phase 2 Project, the District will submit an SRF data package along with the CEQA documentation to comply with the requirements outlined in this comment.
- 3-4 Based on the biological resources evaluation provided in support of the proposed MND, the project area is located in a mixed urban-agricultural area with little or no remaining native habitat. No federally listed species were identified within the project area of potential effect (APE). To address migratory bird concerns, mitigation is included in the MND to ensure that the no native nesting birds will be adversely impacted by construction activities. If listed species are discovered in follow-on surveys, the District will work with the State Board Staff to carry out required consultation.

Mr. Jack Safely

- 2 -

OCT 27 2010

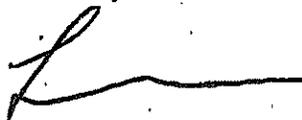
In addition, CWSRF projects must comply with federal laws pertaining to cultural resources, specifically Section 106 of the National Historic Preservation Act. The State Water Board has been delegated responsibility for carrying out the requirements of Section 106 under a Nationwide Programmatic Agreement executed for the CWSRF Program by the USEPA, the Advisory Council on Historic Preservation, and the National Conference of State Historic Preservation Officers.

3-5 As stated above, the State Water Board has responsibility for ensuring compliance with Section 106 and the State Water Board Cultural Resources Officer (CRO) consults directly with the California State Historic Preservation Officer (SHPO). SHPO consultation is initiated when sufficient information is provided by the CWSRF applicant for projects having potential impacts to cultural resources. Please contact the State Water Board CRO Ms. Cookie Hirm at 916-341-5690, to find out more about the requirements and questions on how to begin the Section 106 compliance process.

3-6 Please provide the CRO with a copy of the current Records Search for the Project area, and include maps that show all recorded sites and surveys in relation to the APE for the Project. The APE is three-dimensional and includes all areas that may be affected by the Project. The APE includes the surface area and extends below ground to the depth of any Project excavations. The Records Search request should be made for an area larger than the APE. The appropriate area varies for different projects, but should be drawn large enough to provide information on what types of sites may exist in the vicinity.

3-7 The State Water Board has no further comments on the draft IS/MND at this time. Thank you for the opportunity to review the District's environmental document. If you have any questions or concerns, please contact me at (916) 327-9401, or Ms. Justine Herrig at (916) 327-9117.

Sincerely,



Lisa Lee
Environmental Scientist

Enclosures (4)

cc: State Clearinghouse w/o enclosures
(Re: SCH# 2010091090)
P. O. Box 3044
Sacramento, CA 95812-3044

- 3-5 Please refer to response to comment 3-4. As in the case of special consultation requirements for biological resources, the District will work with the State Board Staff to consult with the SHPO if required. Cultural resources documentation has been prepared to meet the NEPA, SRF and SHPO requirements. No major cultural resource effects have been identified.
- 3-6 Assuming the proposed project is approved, the cultural resources data requested will be provided when the SRF application is submitted to the State Board.
- 3-7 Your comment is noted and the information will be provided to the District Board prior to making a final decision on the project.

**RESPONSES TO COMMENTS
COMMENT LETTER #4
ORANGE COUNTY WATER DISTRICT**

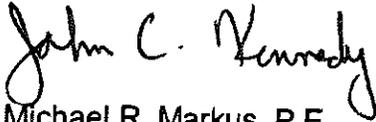
- 4-1 Your comment is noted and the information will be provided to the District Board prior to making a final decision on the project.
- 4-2 In response to this comment, WMWD requested that Wildermuth Environmental Inc. (WEI) conduct additional modeling to evaluate the broader implications of the Arlington Desalter Expansion 2 Project. The report of WEI findings is provided in Attachment 1 to this document. The conclusions are presented on page 5 of the report and indicate that the proposed Arlington Desalter Expansion 2 Project will contribute less than 0.1 foot of groundwater level decline within the Prado Basin area and less than one foot of groundwater level decline beneath Temescal Wash. The cumulative effect of all currently defined activities on maximum groundwater levels is less than 10 feet for Prado and up to about 30 feet in the Temescal Basin. Based on these data, it was concluded that the project specific effect is a less than significant impact on the riparian resources in both basins and the Arlington Desalter Expansion 2 Project contributes a less than cumulatively considerable adverse effects to both Prado Basin and Temescal Basin. Based on the model projections, those agencies that rely upon the Temescal Basin for water production should initiate a monitoring program of existing riparian habitat that is supported by groundwater in this Basin and actual groundwater levels. This information can be used to adaptively manage these two resources and ensure that they remain in balance into the future.

Jack Safely
November 1, 2010
Page 2 of 2

4-3 The Initial Study/MND estimates changes in groundwater discharge from the Arlington Basin to the Temescal Basin. A reduction in groundwater discharge into the Temescal Basin may impact flows in Temescal Creek. The Initial Study/MND should also include an evaluation of potential impacts to riparian habitat in Temescal Creek and Prado Basin due to changes in groundwater flows to Temescal Basin.

4-4 OCWD appreciates the opportunity to participate in the environmental review process for the Arlington Desalter Expansion Phase 2 and requests that we receive all documents and notices for this project.

Sincerely,



for Michael R. Markus, P.E.
General Manager

- 4-3 Please refer to response to comment 4-2 and Attachment 1 to these responses to comments.
- 4-4 Your comment is noted and the information will be provided to the District Board prior to making a final decision on the project. The District will provide OCWD with all of the proposed project final documents and notices for this project.

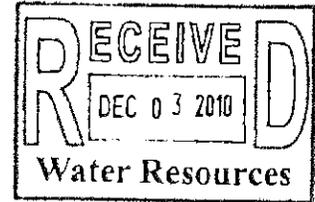
WARREN D. WILLIAMS
General Manager-Chief Engineer



1995 MARKET STREET
RIVERSIDE, CA 92501
951.955.1200
FAX 951.788.9965
www.rcflood.org

RIVERSIDE COUNTY FLOOD CONTROL
AND WATER CONSERVATION DISTRICT

November 29, 2010



Mr. Jack Safely
Western Municipal Water District
14205 Meridian Parkway
Riverside, CA 92518

Dear Mr. Safely:

Re: Notice of Intent to Adopt a Mitigated
Negative Declaration for the Western
Municipal Water District Arlington
Desalter Expansion Phase 2 Project

5-1

This letter is written in response to the Notice of Intent to adopt a Mitigated Negative Declaration (MND) for the Western Municipal Water District (WMWD) Arlington Desalter Expansion Phase 2 project. The proposed project is an expansion of the Arlington Desalter to accommodate the anticipated increased demand for treatment capacity at the plant. The expansion includes an upgrade in the treatment process which will allow the Desalter to treat additional raw water while reducing the amount of brine wastes generated. WMWD proposes two basic approaches: construction of extraction wells and recharge basins (six alternative combinations) or construction of extraction wells only (one alternative).

As noted in the Initial Study (IS), the Riverside County Flood Control and Water Conservation District (District) would need to issue approval for the construction, operation and maintenance of any project improvements within our existing right-of-way or easements.

The District has the following comments that should be addressed in the IS:

5-2

1. The IS identifies the District's Monroe Basin as a potential recharge basin in Alternatives 1 through 6. Additionally, the IS mentions pumping surface runoff from flood control channels to the recharge basins. Flood control facility functions are sporadic in nature. As such, utilizing these facilities may be accommodated to the extent that such use does not unreasonably interfere with the flood control facilities' principal function, does not impede or affect the water quality, and/or does not affect the District's ability to operate and maintain the facilities. The use of the Monroe Basin as a recharge basin should not interfere with the City of Riverside's recreation use in the basin.

5-3

2. Existing District facilities are located within the proposed project area and may be impacted. The construction of any project improvements within road right-of-way that may impact District's facilities should be coordinated with us. Work that involves District right-of-way, easements, or facilities will require an encroachment permit or license agreement from the District. To obtain further information on existing facilities, contact Ed Lotz of the District's Encroachment Permit Section at 951.955.1266.

**RESPONSES TO COMMENTS
COMMENT LETTER #5
RIVERSIDE COUNTY FLOOD CONTROL
AND WATER CONSERVATION DISTRICT**

- 5-1 Your comment is noted and the information will be provided to the District Board prior to making a final decision on the project.
- 5-2 The Inland Empire Utilities Agency (IEUA) is conducting recharge operations (imported water, recycled water and stormwater) in 10+ flood control basins in San Bernardino County within the Chino Basin. These operations are conducted in accordance with well defined principles that protect the flood control functions of the basins as well as facilitate the recharge function assigned to each basin. WMWD will coordinate development of an operational memorandum of understanding (MOU) with the County Flood Control and Water Conservation District to establish mutually acceptable operational parameters. This will ensure protection of flood control functions at the Monroe Basin, while expanding the Basin's capability to accept surface water for recharge during much of the year when flooding does not occur.
- 5-3 WMWD will obtain encroachment permits for entry into the right-of-way of any County Flood Control and Water Conservation District facilities. This will be done through the District's Encroachment Permit Section as necessary.

Mr. Jack Safely
Re: Notice of Intent to Adopt a Mitigated
Negative Declaration for the Western
Municipal Water District Arlington
Desalter Expansion Phase 2 Project

-2-

November 29, 2010

5-4

3. The District is a signatory to the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP). For purposes of procuring an encroachment permit from the District, the project proponent will need to demonstrate that all portions of the project within the District's right-of-way or easement are consistent with the MSHCP. The IS should include a MSIICP consistency assessment with all of its supporting documents and provide any mitigation, if necessary, in accordance with all applicable provisions of the MSHCP. The assessment should address, at a minimum, Sections 3.2.1, 6.1.2, 6.1.3, 6.1.4, 6.3.2, 7.5.3 and Appendix C of the MSHCP. It should be noted that Monroe Basin is currently designated as P/QP lands in the MSHCP.

5-5

Thank you for the opportunity to review the MND/IS. Please forward any subsequent environmental documents regarding the project to my attention at this office. Any questions concerning this letter may be referred to Tom Rheiner at 951.955.4643 or me at 951.955.8581.

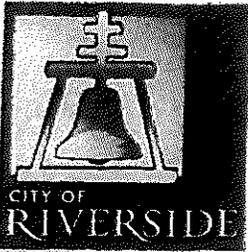
Very truly yours,


KRIS FLANIGAN
Senior Civil Engineer

ec: TLMA
Attn: Kristi Lovclady
Stuart McKibbin
Ed Lotz

TMR:mcv
P8\134319

- 5-4 Based on the WMWD facility locations, no conflicts with the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP) have yet been identified. In accordance with this comment, we will submit data to the District documenting consistency with the MSHCP for any facility encroachment within District right-of-way. A MSHCP analysis was completed in the Initial Study and the sections identified in this comment have been addressed. Please refer to Appendix B of the Initial Study which contains the detailed biology and MSHCP evaluations for all project locations.
- 5-5 Your comment is noted and the information will be provided to the District Board prior to making a final decision on the project. The District will provide the County Flood Control and Water Conservation District with all of the proposed project final documents and notices for this project.



Community Development
Department
Planning Division

January 10, 2011

Jack Safely, Director of Water Resources
Western Municipal Water District
450 East Alessandro Boulevard
Riverside, CA 92508-2449

**SUBJECT: WESTERN MUNICIPAL WATER DISTRICT: ARLINGTON DESALTER
EXPANSION 2 PROJECT – NOTICE OF INTENT TO ADOPT A MITIGATED
NEGATIVE DECLARATION**

Dear Mr. Safely:

Thank you for the opportunity to review and comment on the Notice of Intent to Adopt a Mitigated Negative Declaration (MND) for the Arlington Desalter Expansion 2 Project. As indicated in the project description, the project would expand Western Municipal Water District's (WMWD) treatment capacity at the Arlington Desalter to treat additional raw groundwater from the Arlington Basin for potable water use. The project would entail construction of up to four new groundwater extraction wells and up to four new water recharge basins within the project area. The project area is located in the central portion of the City, south of Arlington Avenue, west of Adams Street, north of Cleveland Avenue, and east of Buchanan Avenue.

6-1

Seven Alternatives are currently under consideration by the MND. Given the central location of the project area within the City, City staff has carefully reviewed the MND and offers the following comments:

In short, the MND is inadequate and does not comply with the California Environmental Quality Act (CEQA). This is because the MND fails to fully analyze environmental impacts to determine level of significance and where impacts are potentially significant, the MND fails to identify appropriate mitigation measures to reduce impacts to a less than significant level. Absent the required analysis of project impacts and identification of appropriate and specific mitigation, an Environmental Impact Report (EIR) is needed for the proposed project. CEQA provides that when a fair and reasonable argument can be made that a project's environmental impacts will be significant, an EIR is required. In this instance, a fair and reasonable argument can be made that the project will have significant environmental impacts as discussed below.

6-2

The project involves major improvements at multiple locations within the City but lacks specific details on how each location will be developed. Among these locations, recharge basins are proposed for large vacant sites within the City including vacant parcels fronting Magnolia Avenue, designated a Scenic Boulevard in the Circulation Element of the City's General Plan 2025, fronting Indiana Avenue at the

6-3

Outside Agency Review
WMWD – Arlington Desalter Expansion
Page 1 of 8

**RESPONSES TO COMMENTS
COMMENT LETTER #6
CITY OF RIVERSIDE**

- 6-1 Your comment is noted and the information will be provided to the District Board prior to making a final decision on the project.
- 6-2 Your comment is noted and the information will be provided to the District Board prior to making a final decision on the project. The following responses address the specific issues raised in the comment letter. However, in the broad scope Western Municipal Water District (WMWD) does not concur with this conclusion and based the whole of the record, including these responses, finds that the Final Mitigated Negative Declaration (MND) package supports the adoption of the MND.
- 6-3 This statement is only partially correct because it ignores the project description components included throughout the Initial Study that define the location and character of the recharge basins. The basins either exist and will be augmented, or they will be excavated at the locations shown and the scenarios describing the creation of the basins is provided in the Air Quality Evaluation that indicates the four basins will include the excavation of 220,000 cubic yards over the life of the project, with a maximum of 1,000 cubic yards of excavation per day. Specific designs for the four basins have not been finalized but the general dimensions provided by the WMWD allowed the estimates of the amount of material to be excavated from each basin.

6-3
cont. La Sierra Metrolink Station and along Victoria Avenue, a designated National Register Landmark in the Arlington Greenbelt.

Hydrology and Water Quality - Comments from the Riverside Public Utilities

6-4 First and foremost, the project has the potential to substantially deplete groundwater supplies and interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level. As such, the MND fails to adequately analyze and mitigate groundwater impacts which are significant. This is because the MND does not state the safe yield of the Arlington groundwater basin, and does not quantify the current state of overdraft. As a result, the CEQA baseline is incomplete and inadequate to support the analysis. Even though the MND refers to a "water balance report," the assumptions and facts underlying that report are not presented.

6-5 In addition to the inadequate baseline, the areal overdraft has not been analyzed. Not only is the Arlington basin in overdraft, but the adjacent Riverside South basin is in or near overdraft. Given that the Riverside South basin feeds the Arlington basin, increased overdraft in the Arlington basin will increase the flow from the Riverside South basin, having a significant adverse impact on the groundwater levels. The critical importance of dwindling groundwater in the Project area deserves better facts and analysis, mitigation of impacts and where it cannot be shown that impacts can be mitigated to a less than significant level, preparation of an EIR.

6-6 Based on information provided by WMWD, all project scenarios will substantially increase the current level of overdraft in the Arlington basin even with the proposed recharge basins. The project, under alternative 1 (with two recharge basins) will increase production/removal of water from the basin by as much as 4,400 acre-feet per year by 2017 but will only recharge 2,050 acre feet per year by 2017 resulting in a net deficit of 2,350 acre feet of water per year to a basin already in overdraft.

6-6 The project, under alternative 2 (with three recharge basins) will increase production/removal of water from the basin by approximately 5,450 acre-feet per year by 2017 but will only recharge 2,420 acre feet per year by 2017 resulting in a net deficit of 3,030 acre feet of water per year to a basin already in overdraft.

Under alternatives 3 through 7 (with four recharge basins), the project will increase production/removal of water from the basin by approximately 5,200 acre-feet per year by 2017 but will only recharge 3,920 acre feet per year by 2017 resulting in a net deficit of 1,280 acre feet of water per year to a basin already in overdraft.

6-7 A recently completed Technical Memorandum dated November 17, 2010 prepared by Water Resources & Information Management Engineering, Inc. calculated the safe yield of the Arlington Basin to vary from 4,300 to 7,700 acre-feet per year (AFY) with an average of 6,000 AFY based on long-term hydrologic conditions (1965 through 2007). However, in 2008, approximately 8,700 acre-feet of groundwater was produced from the Arlington Basin. Based on the jointly-funded studies, the Arlington Basin is currently in overdraft by approximately 3,000 AFY. This information must be considered.

- 6-4 There is no factual basis for the conclusion presented in the comment. The Phase 1 Modeling report by Wildermuth Environmental Inc. (WEI), "Feasibility Study for the Expansion of the Arlington Desalter System, Task 1 Report: Arlington Basin Groundwater Flow Model, April 2008," provided the data requested. Average annual recharge to the Arlington Basin over the calibration period (1966-2004) was 9,547 acre-feet/year (afy). Minimum and maximum annual recharge over the calibration period was estimated to be 7,841 af and 12,346 af, respectively, by WEI. Specifically, the amount of groundwater production from proposed new wells are clearly identified on page 69 of the Initial Study. Over a period of 30 years the cumulative change of groundwater in storage based on the balance of groundwater extraction and groundwater recharge (natural and artificial) is estimated to be a positive 1,845 acre-feet.

At the request of the City, WMWD agreed to exercise the Riverside-Arlington Groundwater Flow Model (RAGFM, June 2011). This model estimated long-term basin yield at 6,000 afy for the Basin. In response to City comments, the District created Scenario 4 for evaluation by the RAGFM. This Scenario is comparable to the District preferred alternative in the Initial Study, Alternative 5. Scenario 4 achieves a comparable overall positive balance in future water recharge and extractions in the Arlington Basin. This is because the project is balanced by recharge of stormwater, recycled water and imported water into the basin in the proposed project recharge basins. Further, Scenario 4 did not include recharge at the Metrolink site, which is being retained, but on a reduced scale basis. Based on the RAGFM and WEI model evaluations of both scenarios, the proposed project will not cause any reduction in groundwater stored within the Arlington Basin over the planning period.

- 6-5 The subsurface outflow from the Riverside South Basin into the Arlington Basin was evaluated by both models and the volume of flow was found to be minimal at the end of the model simulation. Please refer to the supporting technical study provide in conjunction with the Initial Study. This study, "Phase 2 Feasibility Study for the Expansion of the Arlington Desalter System, June 2009" and the subsequent RAGFM modeling effort address all of the basic groundwater management issues identified in this comment. The referenced study does not approach the basin with a specific concept of "safe yield." Instead, it looks at the project as a whole, which includes the baseline volume of water in storage (about 76,000 acre-feet); the natural inflow into the basin over the planning period; and the artificial recharge envisioned by the proposed project. This conceptual approach resulted

in a net gain in groundwater in storage in the basin of approximately 1,845 acre-feet over a 30 year period.

- 6-6 Your comment is noted and the information will be provided to the District Board prior to making a final decision on the project. The preferred alternative (RAGFM Scenario 4/WEI Alternative 5) would have less effect on the groundwater basin and is considered to be a less than significant impact. Implementation of this alternative will not create a 1,280 afy loss in the Arlington Basin. As noted in the previous two comments, the implementation of the preferred alternative is forecast to generate a net overall balance in groundwater storage through the planning period.
- 6-7 Scenario 4 evaluated the information and data assumptions contained in Alternative 5 within the Riverside-Arlington Groundwater Flow Model (RAGFM). This evaluation demonstrated the balance suggested in this comment and the District will move forward to implement the preferred alternative, Alternative 5. As noted above, Scenario 4 did not include recharge from the Metrolink site, so inclusion of this facility (at a reduced scale) will ensure adequate recharge capacity as part of Alternative 5. Following discussion with the City of Riverside, WMWD has committed to installing the recharge basin component of the proposed project prior to initiating the additional groundwater extractions identified for this project. Accordingly, the following mitigation measure will be implemented by WMWD.

The District will install at least one recharge basin prior to initiating additional groundwater extraction from the Arlington Basin. All of the recharge basins will be installed prior to increasing groundwater extractions to the maximum authorized under this environmental document. The District will manage groundwater extractions and recharge to achieve an overall balance over this period. The specific objective of this measure is to require that the Arlington Basin be managed in overall balance over the 30-year life of the program.

In addition, the following two measures will be added to address the issues of developing a recharge basin at the La Sierra Metrolink site and further coordination with the City regarding future annual consultations on groundwater management within the Basin.

In response to City of Riverside input during the public review process, the District has agreed to proceed with the La Sierra Metrolink basin as a temporary recharge facility. As part of the implementation phase of this project, Western will be required to obtain a site use agreement with the current property owner of the site (lease or license). Western will include termination clause in the site use agreement that indicates Western will terminate use of the site within 1 year upon the City of Riverside's written notification to Western and the current property owner of a proposed commercial development application for that property. Western will provide the City with an opportunity to review the future use agreement for administrative review and comment prior to entering the final use agreement

with the property owner to insure consistency with the intent of this mitigation measure.

Prior to the construction of new extraction facilities, the WMWD shall enter into an Engineering and Operation Agreement with City of Riverside that will facilitate annual consultation on volumes to be recharged, stored and/or extracted. The Agreement will work within the framework of the proposed Groundwater Management Plan for the Arlington Basin, and the parties agree to cooperatively manage the Arlington Basin to meet the long-term objectives of the basin stakeholders.

6-8 In late 2008, Riverside Public Utilities (RPU) and Western Municipal Water District jointly funded preparation of two Groundwater Management Plans (GWMPs) for the Riverside Basin and the Arlington Basin, and development of the Riverside-Arlington Groundwater Flow Model (RAGFM) to estimate the safe yield of each basin. The RAGFM was completed in the summer of 2010 after extensive review and input from RPU and Western staff, and the RAGFM Technical Advisory Committee members. The GWMPs are expected to be completed by mid-2011 after review and input by the basin stakeholders. Adoption of the MND for the proposed project before the Arlington Basin GWMP is reviewed by the stakeholders and is completed is premature and inappropriate demonstrating total disregard for the more comprehensive GWMP process.

6-9 In summary, the IS/MND fails to include its underlying data and assumptions, fails to accurately and completely define the baseline conditions, and fails to consider the impacts to the Arlington and the Riverside South basins, and their regional impacts to other resources such as the Santa Ana River.

Aesthetics

6-10 The MND concludes that impacts to aesthetics are less than significant yet it lacks the detail and information necessary to support the conclusion that impacts to aesthetics will be less than significant. The MND does not include any designs or plans for the proposed extraction wells or for the recharge basins that would provide any level of understanding of the visual impact these improvements will have to the surrounding area. Absent designs, design examples or descriptions, the MND has failed to demonstrate that the aesthetic impacts of this proposal are less than significant. In fact, evidence to the contrary suggests that a huge recharge basin located in the Arlington greenbelt adjacent to Victoria Avenue could have visual effect and impact of placing a huge 10-acre open pit immediately adjacent to a National Register listed street and the City's most treasured and scenic tree-lined corridors substantially degrading visual character of Victoria Avenue and its surrounding citrus groves thus resulting in a significant impact to aesthetics. While it may be possible to mitigate the visual impact of a basin within visually scenic areas such as Victoria Avenue, the MND is so deficient that it is not even possible to determine the appropriate mitigation needed, given the lack of detail and analysis and therefore instead of making any attempt to mitigate aesthetic impacts, the MND erroneously concludes that impacts are less than significant.

6-11 On page 10, the MND (Substantiation A & C) states that based on the locations, size, and type of facilities proposed as part of the project, none of the alternatives proposed have the potential to cause an adverse effect on a scenic vista or degrade the existing visual character of the project sites or their surroundings. Again, given the lack of detail provided, the MND, fails to demonstrate that no impacts will result from the project. Further analysis is needed to assess the aesthetic impact of the proposed facilities – the extraction wells and recharge basins considered by all of the alternatives under study – in the context of the surrounding land uses. Moreover, adequate mitigation needs to be developed to address any potential aesthetic impact resulting from the project.

6-12 On Page 10, the MND (Substantiation A & C and B) notes that the City's vistas are primarily associated with views of the hillsides and mountains of the area and no other significant visual or scenic resources are identified in the General Plan 2025. Figure CCM-4 (Master Plan of Roadways) of the Circulation and Community Mobility Element of the General Plan 2025 designates La Sierra Avenue, Magnolia

- 6-8 Your comment is noted and the information will be provided to the District Board prior to making a final decision on the project. WMWD has continued to work with the City to develop the GWMP and to utilize the RAGFM, and the most current version (June 2011) includes Scenario 4 in the GWMP. Thus, the GWMP referenced in this comment has been updated to incorporate the operational parameters from WMWD's preferred alternative, Alternative 5. Therefore, WMWD does not concur that proceeding forward with this project is premature or inappropriate.
- 6-9 Your comment is noted and the information will be provided to the District Board prior to making a final decision on the project. After review of the additional modeling and other information referenced in this comment, WMWD concludes that the data base and information used to make the impact forecast in the Initial Study accurately reflects the actual impacts to the basin over the planning period. Based on this information, the District concludes that the findings of a less than significant impact on the Arlington Basin groundwater aquifer presented in the Initial Study are substantiated by the data in the administrative record.
- 6-10 The proposed extraction wells will be comparable to the existing wells that already exist within the Arlington Basin and that have not caused any negative consequences over the past 30 years. Where required (due to the specific setting), small structures that will be consistent with the surrounding neighborhood visual character will be installed. These structures will blend into the local neighborhoods, and will serve to reduce noise from any surface pumps (as compared to below ground surface pumps) to a less than significant impact level. Recharge basins do not intrude into the existing visual setting because they are at or below the natural topography. However based on this comment, the District will submit perimeter landscaping plans, such as plantings of rows of orange trees, to serve as a buffer between any roadways (locations with visual access) and the basins. Regarding the comment of being deficient, the existing locations where basins are proposed are essentially areas that are currently overgrown with weeds because they are not being used for any specific purpose at this time. These locations are not currently being

managed for their visual quality, and the ongoing maintenance by the District, particularly after installing edge-effect landscaping as desired by the City will result in an improved visual setting relative to the existing visual settings. To ensure the future landscaping and building designs are consistent with City design guidelines, the following additional mitigation measure will be implemented by WMWD.

The District shall complete designs for new structures and new facility landscaping prior to awarding contracts for their construction. These designs shall be submitted to the City of Riverside staff for administrative review at the 50% design stage. The District shall incorporate those design recommendations that are consistent with City design guidelines.

- 6-11 All of the alternatives propose to use existing undeveloped areas to create basins or to take existing basins and enhance the visual setting at each recharge location. Where existing wells are proposed the District will ensure that any exterior structures blend in with the surrounding community. The fact that no complaints regarding existing well aesthetics have been registered with WMWD or the City is reflective of the degree to which such systems are an expected part of the urban setting, not only in the Arlington Basin but throughout the region. The District is willing to work on mitigation with the City, but standard design measures to fit facilities into neighborhood will be incorporated into future site specific facilities. These design measures will be coordinated with the City to ensure that City objectives are given full consideration as individual facilities are installed that are located at locations of high visibility to the public.
- 6-12 All of the referenced "scenic boulevards" are urban settings, except for portions of Victoria Avenue. Wells, pump stations, reservoirs and other water facilities are an integral part of the visual setting within these urban settings. Further, recharge basins with their open space and water features are also consistent with the existing open space along Victoria Avenue. The District did not have any substantial evidence that the type of facilities proposed (wells, recharge basins, or pump stations) would conflict with the existing urban/suburban setting in which the District's facilities are proposed. Further, by agreeing with the City to coordinate the exterior designs of basins

and facilities with the local neighborhoods, all potential conflicts with the various visual settings would be avoided.

6-12 cont. Avenue, Van Buren Boulevard, and Victoria Avenue as scenic boulevards, all of which are adjacent to various components of the project. The MND does not provide an assessment of the aesthetic impacts the project would have on these scenic boulevards. As such, the MND fails to acknowledge, analyze and mitigate the potentially significant aesthetic impacts of the project on these scenic resources.

6-13 On Page 10, the MND (Substantiation B) indicates that implementation of any alternative currently under consideration would not affect any resources, including trees, rock outcroppings, and historic buildings. Various alternatives under consideration include construction of underground transmission pipelines along City streets as well as the construction of water recharge basins. Two designated resources on the National Register (and City landmarks) – Victoria Avenue and the Sherman Indian Institute – would be directly impacted by the project, however no discussion is provided identifying these two resources, nor is there an assessment of any potential aesthetic impacts on them. Additional analysis is needed to determine the aesthetic impacts of the project on these two resources as well as to develop adequate mitigation to offset any potential impact.

Agriculture

6-14 On page 11, the MND (Substantiation A) states that according to Figure OS-2 – Agricultural Suitability of the General Plan 2025 the ten-acre parcel proposed for the Victoria Recharge Basin is designated “Water.” After a more careful review of Figure OS-2, City staff notes that the ten acre parcel proposed for the Victoria Recharge Basin is designated as “Farmland of Local Importance.” Given this inaccuracy, the analysis provided in the MND is inadequate and fails to demonstrate that the project would have a less than significant impact on agricultural resources given the conversion of land to a non-agricultural use. Moreover, the agricultural character of this area needs to be correctly represented in the analysis, given its importance to the City and the restrictions placed on it by Proposition R and Measure C (two voter initiatives which protect the Greenbelt).

On page 11, of the MND (Substantiation B) erroneously refers to Figure OS-2 of the General Plan 2025, indicating that no Williamson Contract Preserve land exists in the project area. Instead, the appropriate reference needs to be Figure OS-3 – Williamson Act Preserves of the General Plan 2025.

Cultural Resources

6-15 In general, the MND lacks the research and analysis necessary to adequately assess the impacts the project would have on cultural resources within the City. As a result, the MND fails to show that impacts to cultural resources will be less than significant. Given its inadequacy, the following comments provided by the City’s Historic Preservation Officer (CHPO) are general in nature yet attempt to identify the deficiencies of the Cultural Resources analysis of the MND and its failure to adequately analyze and mitigate impacts to cultural resources; they include:

6-16 - The MND fails to provide an analysis of all impacts of the actual project and each of its points of impact. The MND fails to provide a better description of each impacted site, provide elevations/manufacture cut sheets for the proposed well equipment, provide detailed maps, and provide a site plan for each impacted site.

- 6-13 All of the facilities referenced in this comment consist of a mix of uses, including existing utilities that have been installed underground. It is disingenuous to imply that the type of facilities proposed do not already exist within each of the referenced locations. Each of these locations includes structures, existing underground utilities, and other uses. Installing another underground pipeline, replacing an existing weed choked open space parcel with a recharge basin, or installing a protective structure consistent with the existing designs at each of the proposed locations would not have any noticeable adverse effect on any of the resources mentioned in this comment, because these facilities already exist as part of the existing visual setting.
- 6-14 We appreciate the additional interpretation of the type of open space that occurs at the Victoria Basin recharge location. The properties proposed for recharge basins are not being used for any agricultural purposes at this time. The proposed recharge basins all function as open space with varying degrees of disturbance. Installing a recharge basin does not eliminate the potential for future agricultural use if this land use is assigned a higher value than water recharge in the future. The key issue here is that the land is not being used for agriculture at this time because it is not commercially viable. Use of the land in a manner consistent with the future use of the land for agricultural purposes (the amount of investment for a recharge basin does not preclude this use in the future) is not a negative impact, and it is probably a better use than allowing the land to remain fallow and grow weeds, which is clearly a negative visual setting.
- 6-15 Your comment is noted and the information will be provided to the District Board prior to making a final decision on the project. Because final locations for specific facilities have not yet been selected, only general locations, the level of cultural resources evaluation is appropriate and consistent. Please refer to the detailed discussion of cultural resources in the report prepared by CRM TECH. It is provided as Appendix C to the MND.
- 6-16 As the final sites for all facilities are selected, a final site review by a qualified cultural resources firm will be conducted to verify the

findings and conclusions reached in the Initial Study. Because most of the facilities are not too site sensitive, avoidance of any known significant cultural resources can be achieved. If avoidance cannot be achieved for each of the proposed facilities, then one of two scenarios will play out. First, site specific mitigation that is sufficient to reduce impacts to cultural resources will be implemented, such as recordation and curation. If a particular cultural resource is so significant that no adequate mitigation is feasible and an unavoidable adverse impact will result to a cultural resource, then a second tier environmental document must be prepared and the District will prepare such a document. We must note that such a scenario is highly unlikely given the ability to avoid most cultural resource impacts.

6-17 - The MND fails to address all cultural resource sites impacted by this project, including the Sherman Indian Institute, Victoria Avenue, and Magnolia Avenue.

6-18 - The MND fails to discuss or consider archeological monitoring for wells either located in or adjacent to cultural resources. If archeological monitoring is not necessary the reasoning as to why it is not necessary needed to be addressed in the report.

6-19 - The MND fails to fully evaluate the impact of locating water recharge basins adjacent to designated cultural resources or eligible cultural resources and lacking such analysis fails to develop mitigation to fully offset any potentially significant impacts.

6-20 - A Section 106 analysis is required if the project anticipates any type of federal funding. As a consequence, cultural resources such as Magnolia Avenue and Victoria Avenue may need to be evaluated further.

6-21 - The historian for the Sherman Indian Institute (Lorene Sisquoc at 951-276-6719) needs to be consulted to determine if the proposed wells will impact any significant archeological resources onsite. The MND failed to include research on aerial maps and original building location. If federal funds are proposed to be used for the project, additional significance evaluation will be required for the Sherman Indian Institute.

6-22 - The MND does not indicate whether drilling will affect neighboring designated cultural resources or eligible cultural resources or whether drilling will affect neighboring archeological resources.

6-23 The MND fails to fully assess the project's impact on Victoria Avenue, particularly components of the project proposed to be located adjacent to Victoria Avenue. Victoria Avenue is an identified scenic corridor of National significance and any project in its immediate vicinity must adequately assess its impact and develop the mitigation necessary to ensure that no adverse impact is caused on Victoria Avenue. To state in the MND that the project's boundaries lie beyond Victoria Avenue is insufficient, as the project could have an indirect impact (e.g., aesthetic). It appears no evaluation was conducted for Victoria Avenue and that the MND fails to provide any justification that supports that the adjacent parcel where project facilities are proposed does not meet the significance criteria given Victoria Avenue's historicity.

6-24 According to the Records Search section of the MND, it appears that the City files or records were not researched, Downtown Library files or records were not researched, that the Sherman Indian Institute was not contacted, nor was information sought from the Victoria Avenue Forever group to evaluate the historic significance of Victoria Avenue. It is the responsibility of the consultant in a Section 106 compliance-related project to, in addition to identifying stakeholders; solicit input and comments from these stakeholders on the project. Section 106 requires this level of involvement beyond the basic CEQA requirements and this analysis is absent from this report.

6-25 The MND notes that Historical Background Research was conducted using maps but does not show the results of that research with respect to areas in proximity to the Sherman Indian Institute developed or

6-17 All three of the locations listed in this comment consist of expansive areas, i.e., these are not specific locations. The other characteristic shared by all three locations is that they are areas that are actively used by the public, either as transportation corridors or as an education facility. All of the locations examined for facilities (wells, pipelines, and basins) were concluded to not contain any site specific cultural resources and the type of facilities would not conflict with the continue use of these areas for their fundamental purpose, regardless of any broad scope cultural resources designations. It was based on this analysis that a finding was made that no significant impact to significant cultural resources would result from project implementation. The following specific information is provided.

Regarding Victoria Avenue, the research results clearly indicate that the segment of Victoria Avenue near the APE has been designated a City Landmark and listed in the National Register of Historic Places. Thus, Victoria Avenue meets the definition of a "historical resource" under CEQA and a "historic property" under Section 106. Further evaluation of its historic significance in consultation with the Victoria Avenue Forever group, therefore, is not necessary in the District's opinion.

In the Discussion section and in the Management Summary of the CRM TECH report, the following analysis and recommendations regarding the project's potential to impact Victoria Avenue indirectly is provided:

Since it is located outside the project boundaries, Victoria Avenue will not receive any direct impact from the proposed undertaking. However, it is important that project plans take into account the presence of this "historic property"/"historical resources" in close proximity to the APE and be crafted carefully to avoid, minimize, or mitigate visual, atmospheric, or other indirect effect on the historic character of the parkway, primarily its mature landscaping and rustic feel. As currently proposed, the undertaking does not involve major construction above the ground or large-scale alteration of current

land use at that location, and thus is not likely to have any indirect effect on the historic integrity of Victoria Avenue.

Regarding Magnolia Avenue, the segment of Magnolia Avenue between Arlington Avenue and San Rafael Way, some 1.5 miles to the northeast of the APE, has been designated a City Landmark because it maintains the spirit of the original, landscaped parkway, a characteristic that is now better preserved in Victoria Avenue, but largely lost along most of Magnolia Avenue. CRM TECH concluded that most of Magnolia Avenue, as a working component of the modern transportation infrastructure, does not retain sufficient characteristics that are distinctively historical to be considered a potential "historic property" or "historical resource."

Regarding the Sherman Institute, the former Administration Building of the Sherman Institute, now housing the Sherman Indian Museum is also listed in the National Register of Historic Places, but it is the only surviving feature of the original 1901-1902 campus. All other buildings and structures on the Sherman Indian High School campus today are of modern origin, and they do not contribute to the historic significance of the National Register-listed property.

Only a small portion of the APE on the Sherman Indian High School campus is located in the vicinity of the former Administration building. The proposed project entails the installation of a well on some part of the campus and, as in the vicinity of Victoria Avenue, does not involve major construction above the ground or large-scale alteration of current land use even if the well site is eventually placed near the historic building. Therefore, the project is unlikely to have an indirect effect on this "historic property"/"historical resource."

- 6-18 WMWD is willing to implement archaeological monitoring, but the general locations identified in the Initial Study were selected because they do not have any surface resources. They were either landscaped areas, such as lawns, or are paved areas that have historically been engineered and constructed as roadways. The cultural integrity of the roadways is based on the linear feature itself, not the paved asphalt which has been graded, paved and repaved many times in the past. It was based on this rationale and the shallow depth of the pipelines that resulted in a conclusion that no

- active monitoring, only *ad hoc* response to accidental discovery of subsurface resources would be required for cultural resources.
- 6-19 It is not clear what type of indirect impact the conversion of engineered or weed dominated sites adjacent to a designated cultural resource would have if were converted to a recharge basin. There would be no direct impact to such resources from the recharge basin installation or operation. The prospective basin sites would remain as open areas and would often have water in the basin for recharge that would enhance the visual character of the site. There would be minimal noise after construction is completed and the long-term maintenance activities would not conflict with the existence of an adjacent cultural resources. WMWD could not identify any potential conflicts with or indirect impacts to the referenced cultural resources.
- 6-20 Your comment is noted and the information will be provided to the District Board prior to making a final decision on the project. No direct federal funding is anticipated for the implementation of this project and WMWD does not anticipate any Section 106 consultation. Regardless, the CRM TECH study was conducted pursuant to both CEQA and Section 106 requirements due to the potential involvement of the State Water Resources Control Board, which oversees loans or grants of federal funds to local water management agencies. The identification and evaluation of cultural resources within and adjacent to the APE were completed in compliance with the requirements of both federal and state regulations.
- 6-21 Your comment is noted and the information will be provided to the District Board prior to making a final decision on the project. The District will consult with the Sherman Indian Institute historian prior to making a site selection for a specific facility on the Institute's property. A decision on the proposed project to ensure that no cultural resources will be adversely impacted by installing a well in the vicinity of the Institute will be discussed with the historian.
- 6-22 Drilling does create some minimal vibration but such vibration typically does not extend beyond the boundary of the drill site, which is about 50' x 50'. WMWD would clear the whole area within the area of potential effect from drilling vibration, as indicated, to ensure that

no adverse effect to any cultural resources would result from drilling the well.

- 6-23 Please refer to response to comment 6-17. This comment ignores the existing land uses at the locations selected for possible recharge basins. Victoria Avenue may be a scenic corridor but not all of the adjacent uses are consistent with this designation. The proposed basin site adjacent to Victoria Avenue is an open area that is presently dominated by non-native weed species. It is not maintained and it does not contribute an visual quality to a "scenic corridor." The District's proposal to create a recharge basin at this location can enhance the visual character of this site. A maintained open area with open water and some riparian vegetation would appear to be a positive visual asset to the scenic corridor. Further, the City has suggested that a landscape buffer between the basin and Victoria Avenue be installed. The District is willing to consider such a buffer and to work with the City to create a further enhancement relative to the existing condition of the proposed basin site.
- 6-24 Your comment is noted and the information will be provided to the District Board prior to making a final decision on the project. CRM TECH concluded it had adequate resources to make the findings in its report.
- 6-25 Please refer to response to comment 6-17. There are no structures adjacent to the open area where the proposed basin would be located. There are obviously buildings adjacent to Victoria Avenue where pipelines would be installed in the roadway, but no adverse impact to the buildings would result from installing the pipelines and then delivering recycled water through the pipelines to the recharge basins. This is because there is no mechanism or means for these activities to adversely impact buildings adjacent to Victoria.

6-25
cont. undeveloped. It does not indicate if there are any buildings located near Victoria Avenue where project facilities (i.e. water recharge basin) are now proposed.

6-26 None of the above items were adequately addressed in the MND and if any of the above comments are determined to be not applicable, the reasoning as to why it is not applicable needed to be addressed and discussed in the report. The MND failed to follow industry best practices for this type of document as well as comply with the City's requirements pursuant to Title 20 (Cultural Resources) of the Riverside Municipal Code. The MND fails to provide the necessary research, and analysis to clearly show that all impacts to cultural resources have been adequately mitigated to a less than significant level.

Land Use and Planning

6-27 In general, the Land Use and Planning Section of the MND is inadequate and lacks the detail necessary to adequately conclude a less than significant impact on Land Use and Planning. Independent of California Government Code Section 53091, which exempts water supply facilities from local zoning provisions, the MND fails to analyze the project in the context of the City of Riverside General Plan 2025, the Zoning Code, the Magnolia Avenue Specific Plan, or Proposition R and Measure C (two voter approved initiatives which protect the greenbelt). Such an analysis needs to be provided to determine how all components of the project and their locations are consistent with these land use plans and identify the level of impact to land use planning.

6-28 Two of the four proposed locations for water recharge basins would occupy prime vacant land that could best be utilized for development which embodies the smart growth principals outlined in the General Plan 2025 Program. These include the La Sierra Metrolink Station and the Magnolia Avenue locations which are prime catalyst for urban development including mixed use/transit-oriented development at the La Sierra Metrolink site. The remaining recharge basin locations include a site within the City's agricultural greenbelt along Victoria Avenue and a site that immediately abuts an established residential neighborhood where an existing detention basin would be replaced by a proposed recharge basin.

6-29 The analysis provided in the MND is inadequate as it does not discuss or assess the impact of the proposed water recharge basins on the surrounding areas and it fails to discuss or consider alternative sites. Additional analysis is required to identify more appropriate locations to be used as water recharge basins and to develop adequate mitigation to offset any potential negative impacts.

- ***Magnolia Recharge Basin*** - The Magnolia recharge basin is proposed on a vacant lot (located on the southeast corner of Magnolia Avenue and Buchanan Avenue) close to the City's westernmost limits. This site is a prominent gateway location to the City and within the Magnolia Avenue Specific Plan. Over the last couple of years, the City has made significant investments at its gateway locations to improve the physical appearance of the City. The MND has not shown that a large recharge basin proposed at such a location would serve to enhance this gateway to the City. In addition, a large recharge basin at this location does not serve to promote the smart growth principals of the General Plan 2025 and the Magnolia Avenue Specific Plan and is inconsistent with these plans including the following Magnolia Avenue Specific Plan Objectives and Policies:

- 6-26 Your comment is noted and the information will be provided to the District Board prior to making a final decision on the project. Water facilities are not subject to local jurisdiction and control (California Government Code Section 53091) as they represent an essential public health and safety facility. The District has reviewed the requirements of Title 20 and will abide by them as a courtesy.
- 6-27 This comment raises several issues related to land use and planning effects of the proposed project. First, the type of facilities proposed by this project is designed to enhance water supplies to meet the need of the City's residents. There can be no more basic or fundamental objective of the City than to ensure that public health and safety of the water supply to its residents is adequate to meet the needs of the residents that will be served by the proposed project. There are limited issues related to the proposed facilities. Wells will be installed, extract water and deliver the water to a treatment system that will subsequently make it available for potable water supply to the residents of the City and the District. The wells will cause a short-term noise and air quality impact, but these noise levels can be controlled to meet the City's noise requirements. Once installed the well will be placed within a structure to protect it, and the structure will be designed to meet local design and noise attenuation guidelines. The structure will attenuate noise so it will not conflict with any adjacent sensitive noise receptors or the pump can be placed at the bottom of the well. In either case, there will not be any adverse direct or indirect conflicts with adjacent land uses. For example, these facilities will not divide a community; conflict with existing land use activities, or induce growth. Pipelines will be installed below ground, either on property acquired by the District or where easements are obtained from other agencies, such as the City or the County. The pipelines will not conflict with any adjacent land uses once installed. Finally, the basins will maintain open space into the future which is generally considered a positive benefit to a community. These are facts that appeared obvious and did not need explanation beyond that identified in the Initial Study.
- 6-28 This comment appears to imply that there may be higher and better uses for some parcels and for others. For the other locations one

existing basin will be have its functions expanded (it will continue to serve as a detention basin) to include recharge along with flood control, and the other location would contribute to retention of agriculture by making more water available locally to meet agricultural as well as residential water demands. CEQA does not require an evaluation of "possible" future uses, only a comparison to the existing environment. The use of the identified sites for water recharge is proposed because it will enhance management of the groundwater resources of the Arlington Basin. It would retain open space uses for all four sites and would not be detrimental to adjacent uses. The proposed land uses support the ultimate development of the City's General Plan 2025 Program because it will support an adequate water supply to meet the City's future vision, with the exception of three of the four parcels identified. Because the proposed uses as basins will not foreclose future conversion of the property to other uses, the District concluded that there is no significant conflict with either existing or future land uses within the project area as a whole.

- 6-29 The District may consider alternative sites in the future, but there is no need to consider alternative sites, assuming such are available, unless a significant impact is identified. Part of smart growth is to first ensure that a community has adequate infrastructure, such as water supply, to meet future development. It also includes the concept of using land for a suitable use without making substantial demands on energy resources or other public utilities and services. WMWD has agreed to eliminate the Magnolia site as a proposed basin. However, please note that there is no requirement that this property be used to promote smart growth. As stated above the proposed use would not conflict with smart growth within the General Plan and it would facilitate the ability to use other parcels for smart growth by contributing to enhanced future water supplies to sustain the existing as well as future population within this portion of the City.

- 6-30 • Corridor Wide Objective 1: Restore the Magnolia/Market Corridor to its historical role as a scenic, “showcase roadway” that spans the City of Riverside while updating its function as a key transit corridor to support future growth.
- 6-31 • Corridor Wide Objective 2: Design the Magnolia Avenue Corridor as a transit- and pedestrian oriented Mixed Use boulevard.
- 6-32 • La Sierra District Objective 1: Enhance the role of the La Sierra District as a major employment center in the City with complementary retail, residential and mixed-use development.
- 6-33 • La Sierra District Policy 1.1: Recognize the potential of La Sierra’s industrial lands, located in the southwestern end of the District, to grow into a significant business park and promote and market it to create a signature gateway employment center.

6-34 Therefore, the MND is inadequate and fails to demonstrate how a large water recharge basin on Magnolia Avenue is consistent with the Objectives and Policies of the General Plan 2025 and the Magnolia Avenue Specific Plan. Instead, a proposed recharge basin at this location would serve to undermine the goals and objectives of these plans resulting in significant impacts to land use as well as hamper the urban development of prime vacant land.

6-35 - **Metrolink Recharge Basin** - The Metrolink recharge basin (located on the northeast corner of La Sierra Avenue and Indiana Avenue) is proposed on three vacant portions of two lots – totaling approximately 9.7 acres – adjacent to the La Sierra Metrolink Station. The sites in question are currently designated Mixed Use – Urban in the General Plan 2025 and are intended for the development of transit-oriented development. The use of this land for a recharge basin would eliminate the availability of prime vacant land that could have a superior alternative use, with potentially significant environmental benefits. In addition, the City is currently in the process of completing an update to the Housing Element of the General Plan. As part of the update, the City is required to conduct a land inventory of sites that could accommodate future housing to meet its housing production requirements/regional housing needs assessment (RHNA). The City’s is considering including the two lots proposed for detention basins as part of the land inventory for the Housing Element update since they are part of an important site intended for mixed-use/transit-oriented development where future production of housing units could occur. Detention basins at this location would preclude this opportunity for housing. This needs to be evaluated or mitigated as part the land use analysis.

6-36 - **Victoria Avenue** - The Victoria Avenue recharge basin (located on the southwest corner of Jackson Street and Victoria Avenue) is in an area of the City protected by two voter initiatives (Proposition R and Measure C) that restrict the land uses permitted in the greenbelt and establish policies intended to preserve and promote agricultural uses. Construction of a recharge basin on this ten-acre lot would permanently remove available agricultural land. Further, the MND fails to demonstrate a less than significant impact on land use at this location. In addition, the proposed recharge basin would front on a portion of Victoria Avenue, currently designated on the National Register given its historical significance.

6-37 - **Monroe** - The Monroe recharge basin is located in the northeast corner of the Don Derr Park property, adjacent to several residential properties, at the site of an existing detention basin. The

- 6-30 The proposed project does not conflict with the objective referenced in this comment. The proposed project will not constrain or prevent the Corridor from its historical role as a scenic "showcase roadway" or its function as a key transit corridor. Further, by making additional water supplies available from recycled water as well as captured surface runoff, this project will support landscaping that will in turn support the scenic character of the Corridor. No conflict with this objective has been identified if the proposed project is implemented.
- 6-31 No facilities or activities related to the proposed project will conflict with the design of the Magnolia Avenue Corridor as a transit- and pedestrian oriented Mixed Use boulevard. Both of the referenced functions can be maintained concurrent with implementation of the proposed project.
- 6-32 Again, no facilities or activities related to the proposed project will conflict with the role of the La Sierra District functioning as a major employment center. By enhancing the water supply for the La Sierra District, the potential to attract major employers will also be enhanced. Without water, future development itself can be constrained. The use of a portion of this general area in support of water supply enhancement should be viewed as support for attracting future new businesses in a smart growth manner, i.e., not relying upon outside inputs to meet future water demand, not as a conflict to such uses.
- 6-33 The proposed basin does not conflict with the assembly of other property for industrial development. As noted above, by enhancing the water supply of the Arlington Basin as proposed, this project will support smart growth (reliance on locally sustainable resources) and can support attraction of industrial development. It is speculative to assume that properties can be assembled for development when there is no demand for such property. If such demand existed, then the property would already have been acquired for such development.

- 6-34 Your comment is noted and the information will be provided to the District Board prior to making a final decision on the project. For the reasons outlined in the previous responses, the District does not concur with the conclusion in this comment and no substantial basis has been established that implementation of the Magnolia Recharge basin would conflict with implementation of the objectives referenced in this comment.
- 6-35 This comment contains several assumptions that relate to future uses desired by the City that do not relate to the environmental evaluation at hand. The impact evaluation is not based on a comparison of what future uses may be "best" for this site, as this is totally speculative. From the City's standpoint a certain type of use may be preferred, but such uses might not be feasible without an adequate water supply, which the proposed project will support. Again the parcel in question is not developed and remains an unmaintained parcel of land that primarily contains weeds that are cleared annually. However, in response to the City's comments, WMWD will focus its recharge efforts solely on the existing retention basin and not expand onto the adjacent parcels. Even with this revision, the proposed project will create a beneficial use of the Metrolink Recharge Basin with minimal adverse impacts, regardless of what the City would prefer for this site in the future. If the City wishes to control the land use on this parcel, it can acquire it and conduct its own environmental evaluation of using this site for residential or commercial uses. The District's evaluation is not based on possible future speculative uses, but it does conclude that the proposed recharge basin can be implemented without significant adverse impacts on the existing environment.
- 6-36 What land use could be more consistent with a greenbelt use than continued open space with periods when the basin will contain water for purposes of recharge. These functions are wholly consistent with a "greenbelt" designation. Further, by making additional water resources available to the water users of the Arlington Basin, the project is supportive of continued agricultural use on the property adjacent to Victoria Avenue and enhanced landscaping that supports the greenbelt concept. At the present time this site consists of a ruderal open space area with very little potential that agriculture will be reinstated on the property. Because the use of the site for a

recharge basin is consistent with both greenbelt and agricultural functions continuing into the future, the proposed project has not identifiable conflict with the National Register designation of the roadway which does not occur adjacent to the site.

- 6-37 This comment implies that there is some contradiction between or conflict with use of the existing Monroe Basin for both detention and recharge. Inland Empire Utilities Agency is presently using 10+ such basins in the Chino Basin for dual purposes in close coordination with the San Bernardino County Flood Control District. Some modifications would be required in the basin configuration, but they would be minimal and would not conflict with continued use of this basin for detention and flood control purposes. There would be no reduction in the basin's detention capacity and possibly some increase based on the basin modifications. There is no potential for adverse impact on the detention functions of the basin with mutually agreed upon management of recharge activities with County Flood Control and Water Conservation District.

6-37
cont.

detention basin is designed to hold water for a temporary period of time and is not suitable for use as a recharge basin absent a reconfiguration of the site. Converting the use of the site would reduce the City's existing water detention basin capacity in the area. This is of particular concern given the surrounding residential neighborhood and the need for this type of facility in the area.

Transportation/Traffic

6-38 A traffic impact analysis is needed to fully analyze and mitigate all impacts resulting from construction activities on City streets and intersections to a less than significant level.

6-39 ***Summary*** - Given the above comments, the MND fails to clearly demonstrate that the project impacts will be less than significant and does not comply with the requirements of CEQA. Due to the lack of analysis to address or mitigate potentially significant impacts related to substantial depletion of groundwater supplies including groundwater in the Arlington and Riverside basins and the Santa Ana River, as well as aesthetics, cultural resources, and land use, an EIR is needed for the project.

City staff appreciates your cooperation and consideration of these comments. Should you have any questions regarding this letter, please feel free to contact Doug Darnell, Senior Planner at (951) 826-5219 or by email at ddarnell@riversideca.gov.

Sincerely,

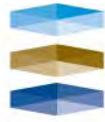


Ken Gutierrez, AICP
Planning Director

cc: Ronald Loveridge, Mayor
Riverside City Council Members
Brad Hudson, City Manager
Belinda Graham, Assistant City Manager
Kristi Smith, Supervising Deputy City Attorney
Siobhan Foster, Public Works Director
Tom Boyd, Deputy Public Works Director/City Engineer
Steve Libring, Traffic Engineer
David H. Wright, Public Utilities General Manager
Kevin Milligan, Utilities Assistant General Manager/Water
Gary Nolf, Utilities Assistant General Manager/Resources
Max Rasouli, Water Resources Manager

- 6-38 There are two types of construction effects: some minimal traffic, possibly 30 vehicle trips per day (or about 6-8 in a peak hour) and disturbance of traffic flow during installation of pipeline in roadways that will require a traffic management plan. It is doubtful that when the City repairs a pipeline in a roadway that it prepares an EIR because the type of impacts from construction in roadways is short term and subject implementation of traffic management in accordance with the City's guidelines and standards. Based on these assumptions, which are outlined in the Initial Study, there is no potential for a significant adverse impact to traffic flow on the City's roadways.
- 6-39 Your comment is noted and the information will be provided to the District Board prior to making a final decision on the project. For the reasons outlined in the responses to comments provided above, the District continues to find that the implementing the proposed project, with mitigation measures outlined in the Initial Study and a commitment to landscape facilities and install structures consistent with City and/or neighborhood design standards, does not have a potential to cause significant adverse impacts on the environment.

ATTACHMENT 1



WILDERMUTH™
ENVIRONMENTAL INC.

August 11, 2011

Western Municipal Water District
Attention: Jack Safely
14205 Meridian Parkway
Riverside, CA 92518

Re: Response to Comments by OCWD on the Initial Study/Mitigated Negative Declaration for the Arlington Desalter Expansion Phase 2 Project

Dear Mr. Safely,

Wildermuth Environmental, Inc. (WEI) is assisting Tom Dodson & Associates (TDA) in responding to comments by the Orange County Water District (OCWD) on the Initial Study/Mitigated Negative Declaration for the Western Municipal Water District's *Arlington Desalter Expansion Phase 2 Project*. OCWD's comments pertain to the projected decrease in groundwater and surface water outflow from the Arlington Basin due to the desalter expansion project, and how those decreased flows will impact riparian vegetation located downstream of the Arlington Basin in the Santa Ana River, Temescal Creek, and the Prado Basin.

Specifically, the increased pumping associated with the expansion of the Arlington Desalter will cause drawdown and reduced groundwater outflow from the Arlington Basin. The planned capture of storm water at recharge basins associated with the expansion of the Arlington Desalter will reduce surface water outflow from the Arlington Basin. The potential hydrologic impacts include (i) decreased flow in the Santa Ana River and Temescal Creek and (ii) lower groundwater levels in the Temescal and Chino basins. Figure 1 is a map of the study area and shows the Arlington Basin, the wells and recharge basins that would be part of the expansion of the Arlington Desalter, and the downstream areas that potentially would be affected by the expansion.

There also are other factors, separate and apart from the Arlington Desalter expansion, that will impact surface water flow, groundwater levels, and potentially riparian vegetation in the study area. These other factors include (i) future changes in wastewater discharge from publically-owned treatment works (POTWs) and (ii) future changes in groundwater levels due to basin management practices in the Chino and Temescal basins.

In our analysis presented herein, we characterize both (i) the potential impacts of the Arlington Desalter expansion and (ii) the potential cumulative impacts of anticipated water-management activities. This information will be used by TDA to provide a response to OCWD's comments, and can be used by Western Municipal Water District (WMWD) in the future if it receives additional comments on the cumulative impacts of the desalter expansion.

Methods

We used three existing computer-simulation models of groundwater and surface-water flow in the upper Santa Ana River watershed to simulate (i) the flow in the Santa Ana River and its tributaries and (ii) groundwater levels in the Chino and Temescal basins for the period 2010-2035. These models, and how we used them, are described below:

- ***Riverside-Arlington Groundwater Flow Model (RAGFM)***. WMWD owns and maintains the RAGFM—a computer-simulation groundwater-flow model of the Riverside and Arlington basins. Figure 1 shows the model domain of the RAGFM, the location of the existing and proposed Arlington Desalter wells, and the locations of the proposed Victoria and Monroe recharge basins. WMWD’s preferred alternative for desalter expansion includes increased pumping at new and existing wells and artificial recharge (including storm-water capture) at the Victoria and Monroe basins. WMWD used the RAGFM to simulate the preferred alternative for desalter expansion, and provided WEI with the model results of groundwater and surface water outflow from the Arlington Basin. The RAGFM and the preferred alternative for desalter expansion are described in *Riverside-Arlington Groundwater Flow Model (RAGFM), Model Development and Scenarios* (WRIME, 2011).

Table 1 describes the time-series of reduced outflow from the Arlington Basin. The reduced groundwater outflow, as predicted by the RAGFM simulation, occurs as reduced subsurface outflow through the Arlington Narrows and as reduced outflow of rising groundwater upstream of Hole Lake. The reduced surface-water outflow comes from WMWD’s estimate of average annual storm water that will be captured and recharged at the Monroe and Victoria basins as reported in the draft *Phase 2 Feasibility Study for the Expansion of the Arlington Desalter System* (WEI, 2009a). [Note: the estimates of storm-water capture and recharge were used as input to the RAGFM simulation].

- ***Wasteload Allocation Model (WLAM)***. The WLAM is a surface-water model that simulates the “expected value” for discharge in the Santa Ana River and its tributaries on a daily time-step as waters commingle from rainfall/runoff, POTW discharge, and rising groundwater. The WLAM and its calibration are described in the *2008 Santa Ana River Wasteload Allocation Model Report* (WEI, 2009b). We used the WLAM, with updated POTW planning information, to simulate daily surface-water discharge in the Santa Ana River and its tributaries for 2010, 2015, 2020, and 2035.¹ The model results were used to create input files for the Stream Package of the groundwater-flow model of the Chino/Temescal basins (see below).

¹ Expected values for daily discharge for 2010, 2015, 2020, and 2035 were computed by the WLAM using the POTW planning information for the given year, 2000 land use data, and a 50-year record of daily precipitation data for the period 1949/50 to 1998/99 (water year). The expected values for daily discharge were then summed by quarter, interpolated between 2010, 2015, 2020, and 2035, and used as input data for the groundwater-flow model, which runs on a quarterly time step (see below).

POTW discharges are an important component of total discharge in the Santa Ana River. Future changes in POTW discharge will influence both the total discharge in the Santa Ana River and groundwater levels in the Chino/Temescal basins. Table 2 shows our assumptions for POTW discharge used in the WLAM. To develop estimates of POTW discharges, we first referenced the most recently published watershed-wide planning document with future projections of POTW discharge—*Addendum to the 2008 Santa Ana River Wasteload Allocation Model Report, Scenario 7* (WEI, 2010a). Since the *Addendum* was published, certain agencies are now considering additional wastewater reuse projects—specifically two indirect potable reuse projects planned by the Eastern Municipal Water District in the San Jacinto Basin and the City of San Bernardino in the Bunker Hill Basin (WEI, 2010b). We modified the assumptions for POTW discharge in the *Addendum* to reflect the implementation of these reuse projects and, in our professional opinion, Table 2 represents the most realistic estimate of future POTW discharges.

- **Chino Basin Watermaster Groundwater Model (CBGWM).** Pumping and recharge plans by the producers in the Chino and Temescal basins will be an important influence on groundwater levels beneath the riparian areas along the Santa Ana River and in Prado Basin. The CBGWM is a predictive computer-simulation model of the Chino and Temescal Basins that is capable of simulating groundwater flow and groundwater levels under future conditions of pumping, artificial recharge, and flow in the Santa Ana River and its tributaries. This model is described in the *2007 CBWM Groundwater Model Documentation and Evaluation of the Peace II Project Description* (WEI, 2007). The Peace II Project Description (Peace II) is a management program that includes regional recharge and pumping plans in the Chino Basin. The most recent predictive model results for the Peace II alternative were published in the *2009 Production Optimization and Evaluation of the Peace II Project Description* (WEI, 2009c). This modeling analysis included the City of Corona's pumping plans in the Temescal Basin.

We ran two simulations with the CBGWM for the period 2010-2035:

Baseline Scenario: This scenario assumed the implementation of anticipated water-management activities exclusive of the Arlington Desalter expansion. The anticipated water-management activities include changes in POTW discharge and pumping/recharge plans in the Chino and Temescal basins.

Desalter Expansion Scenario: This scenario is identical to the Baseline Scenario except that it includes the Arlington Desalter expansion.

Analysis and comparison of the model results from these two scenarios characterizes (i) the potential cumulative impacts of all anticipated water-management activities and (ii) the potential impacts of the Arlington Desalter expansion by itself.

Results

Figure 2 is a time-series chart of the projected annual discharge of the Santa Ana River at Hole Lake, with and without the expansion of the Arlington Desalter. These projections were derived from the results of the WLAM, but were modified by the results of the RAGFM for the Desalter Expansion Scenario. The expected annual discharge of the Santa Ana River at Hole Lake is predicted to decrease from about 130,000 acre-ft/yr in 2010 to about 119,000 acre-ft/yr in 2015, and then increase to about 125,000 acre-ft/yr in 2020 and beyond. These projected changes are mainly due to changes in POTW discharge from the City of San Bernardino at the Rapid Infiltration and Extraction (RIX) facility, City of Rialto, and City of Riverside. The decrease in total discharge in the Santa Ana River at Hole Lake due to the expansion of the Arlington Desalter is small compared to total discharge, is always less than about 350 acre-ft/yr, and ranges from about 0.17 to 0.28 percent of the total discharge.

Figure 3 is a time-series chart of the projected annual discharge of the Santa Ana River at Prado Dam, with and without the expansion of the Arlington Desalter. These projections were derived from the output files of the Stream Package of the CBGFM. The expected annual discharge of the Santa Ana River at Prado Dam is predicted to decrease from about 256,000 acre-ft/yr in 2010 to about 234,000 acre-ft/yr in 2015, and gradually continue to decrease to about 226,000 acre-ft/yr by the end of the simulation in 2035. These projected changes are mainly due to decreases in POTW discharge and lower groundwater levels in the Chino/Temescal basins. Decreased groundwater levels result in decreased rising groundwater and increased recharge within the Santa Ana River. The decrease in total discharge in the Santa Ana River at Prado Dam due to the expansion of the Arlington Desalter is small compared to total discharge, is always less than about 560 acre-ft/yr, and ranges from about 0.13 to 0.24 percent of the total discharge.

Figure 4 is a map of depth to groundwater as simulated by the CBGFM for 2010. Note that depth to groundwater beneath the riparian vegetation is generally less than about 30 feet below the ground surface (ft-bgs), which indicates that groundwater is being used by the riparian vegetation.

Figure 5 is a map of projected depth to groundwater as simulated by the CBGFM for the Baseline Scenario (*without* the desalter expansion) in 2035. Figure 6 is a map of projected depth to groundwater as simulated by the CBGFM for the Desalter Expansion Scenario in 2035. Figure 6 represents the cumulative affect of all anticipated water-management activities that will impact the study area.

Figure 7 is a map that shows how groundwater levels are projected to change from 2010 to 2035 due to the cumulative affect of all anticipated water-management activities. Throughout most of the riparian area in Prado Basin area the groundwater levels are projected to change by about +/- 1 ft. Maximum declines in groundwater levels beneath the riparian area are generally less than about 10 ft. A notable exception is within the Temescal Basin along Temescal Wash where groundwater levels are predicted to decline by up to about 30 ft.

Figure 8 is a map that shows how groundwater levels are projected to change from 2010 to 2035 due to the expansion of the Arlington Desalter. This map was constructed by subtracting the projected depth to groundwater for the Desalter Expansion Scenario in 2035 (see Figure 6) from

the projected depth to groundwater for the Baseline Scenario in 2035 (see Figure 5). Throughout most of the riparian area in Prado Basin area, groundwater levels are predicted to decline by less than about 0.2 ft due to the desalter expansion. Maximum declines in groundwater levels due to the desalter expansion are predicted to be less than about 1 ft along Temescal Wash.

The CBGFM includes the Evapotranspiration Package which simulates the uptake of groundwater by the riparian vegetation within the model domain. This package does not simulate the uptake of surface water by the riparian vegetation. The package includes a linear decay function for riparian uptake from 0 to 30 ft-bgs, and assumes that the extinction depth for the riparian vegetation is 30 ft-bgs. Figure 9 is a time-series chart of the projected annual riparian uptake of groundwater within the study area, with and without the expansion of the Arlington Desalter. In the Baseline Scenario the riparian uptake of groundwater is projected to decrease gradually from about 17,300 acre-ft/yr in 2010 to about 15,000 acre-ft/yr in 2035. These projected changes are due to lower groundwater levels in the Chino/Temescal basins in the Baseline Scenario. The reduction in riparian uptake of groundwater due to the expansion of the Arlington Desalter is small compared to total uptake, and is always less than about 30 acre-ft/yr.

Conclusions

This analysis indicates that groundwater-level declines beneath the riparian area due to the expansion of the Arlington Desalter will be small—less than -0.1 ft in the Prado Basin area and always less than about 1 ft underlying Temescal Wash.

The cumulative affect of all anticipated water-management activities on groundwater levels is most significant in the Temescal Basin. In this area, groundwater levels are expected to decline to levels deeper than 30 ft-bgs beneath a portion of the riparian area along Temescal Wash. These predicted changes are mainly due to pumping in the Temescal Basin and decreases in POTW discharge to the Temescal Wash.

This letter report provides technical information to TDA to assist in their evaluation of the impacts to the riparian vegetation due to the desalter expansion and due to the cumulative effects from other projected changes to surface water and groundwater (e.g. changes in POTW discharge; groundwater-level changes due to management practices in the Chino and Temescal basins). In our professional opinion, the model results indicate that the hydrologic impacts in the riparian areas due to the desalter expansion are *de minimis*. We defer to TDA with regard to the cumulative impacts.

Sincerely,

Wildermuth Environmental, Inc.



Andrew E. Malone, PG
Principal Scientist



Wenbin Wang, PG, CHg
Principal Scientist



Mark J. Wildermuth, PE
President

Encl.

DRAFT

References

- Wildermuth Environmental, Inc. (2007). *2007 CBWM Groundwater Model Documentation and Evaluation of the Peace II Project Description*. Prepared for the Chino Basin Watermaster.
- Wildermuth Environmental, Inc. (2009a). *Phase 2 Feasibility Study for the Expansion of the Arlington Desalter System (Draft)*. Prepared for the Western Municipal Water District. October 2009.
- Wildermuth Environmental, Inc. (2009b). *2008 Santa Ana River Wasteload Allocation Model Report*. Prepared for the Basin Monitoring Program Task Force. May 2009.
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- Wildermuth Environmental, Inc. (2010a). *Addendum to the 2008 Santa Ana River Wasteload Allocation Model Report, Scenario 7*. Prepared for the Basin Monitoring Program Task Force. July, 2010.
- Wildermuth Environmental, Inc. (2010b). *Recycled Water Planning Investigation Report—Draft Final*. Prepared for the San Bernardino Municipal Water Department. November, 2010.
- WRIME (2011). *Riverside-Arlington Groundwater Flow Model (RAGFM), Model Development and Scenarios*. Prepared for Riverside Public Utilities and Western Municipal Water District. June, 2011.

Table 1
Estimated Outflow from the Arlington Basin
as Impacted by Expansion of the Arlington Desalter
(acre-ft)

Year	Subsurface Outflow thru the Arlington Narrows ¹	Surface Outflow from Rising Groundwater to Hole Lake ¹	Storm Water Outflow to Hole Lake ²	Storm Water Outflow to Arlington Narrows ²
2010	27	186	1915	1656
2011	0	186	1748	1481
2012	0	126	1748	1481
2013	0	109	1748	1481
2014	0	71	1748	1481
2015	0	41	1748	1481
2016	0	18	1748	1481
2017	0	2	1748	1481
2018	0	0	1748	1481
2019	0	0	1748	1481
2020	0	0	1748	1481
2021	0	0	1748	1481
2022	0	0	1748	1481
2023	0	0	1748	1481
2024	0	0	1748	1481
2025	0	0	1748	1481
2026	0	0	1748	1481
2027	0	0	1748	1481
2028	0	0	1748	1481
2029	0	0	1748	1481
2030	0	0	1748	1481
2031	0	0	1748	1481
2032	0	0	1748	1481
2033	0	0	1748	1481
2034	0	0	1748	1481
2035	0	0	1748	1481

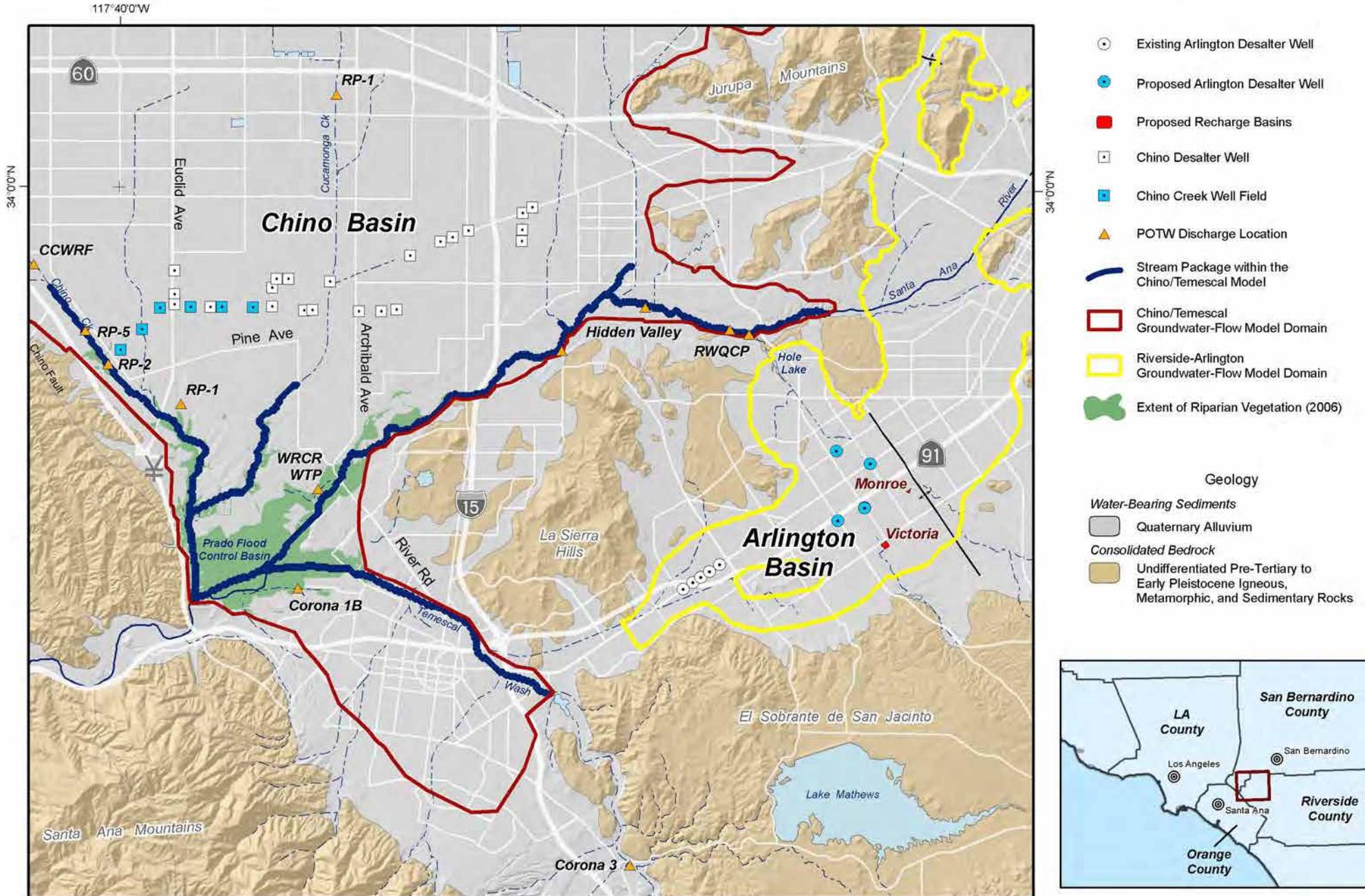
1 -- RAGMF estimates of preferred alternative for expansion of the Arlington Desalter (WRIME, 2011)

2 -- WLAM estimates of stormwater runoff (WEI, 2009).

Table 2

**Annual Wastewater Discharge Assumed in the
Wasteload Allocation Model Simulations**
(acre-ft)

Year	Beaumont	YVWD	Rialto	RIX	Riverside	March	RP1 001	RP1 002	RP5	CCWRF	WRCR	Corona 1	Corona 3	LLWD	EVMWD	EMWD
2010	2,016	3,024	9,632	39,984	33,600	0	5,600	11,200	10,080	5,600	6,944	4,032	560	504	560	4,653
2015	2,016	2,408	10,192	21,280	36,960	2,408	5,600	7,840	8,400	4,480	10,192	1,680	224	532	560	4,653
2020	2,016	1,792	10,752	21,280	40,320	4,816	5,600	4,480	6,720	3,360	13,440	1,680	224	560	560	0
2035	2,016	1,792	10,752	21,280	40,320	4,816	5,600	4,480	6,720	3,360	13,440	1,680	224	560	560	0



- Existing Arlington Desalter Well
- Proposed Arlington Desalter Well
- Proposed Recharge Basins
- Chino Desalter Well
- Chino Creek Well Field
- POTW Discharge Location
- Stream Package within the Chino/Temescal Model
- Chino/Temescal Groundwater-Flow Model Domain
- Riverside-Arlington Groundwater-Flow Model Domain
- Extent of Riparian Vegetation (2006)

- Geology**
- Water-Bearing Sediments**
 - Quaternary Alluvium
 - Consolidated Bedrock**
 - Undifferentiated Pre-Tertiary to Early Pleistocene Igneous, Metamorphic, and Sedimentary Rocks

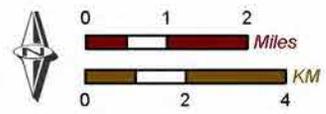


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Study Area

Figure 1

Figure 2
Projected Annual Discharge of the Santa Ana River at Hole Lake

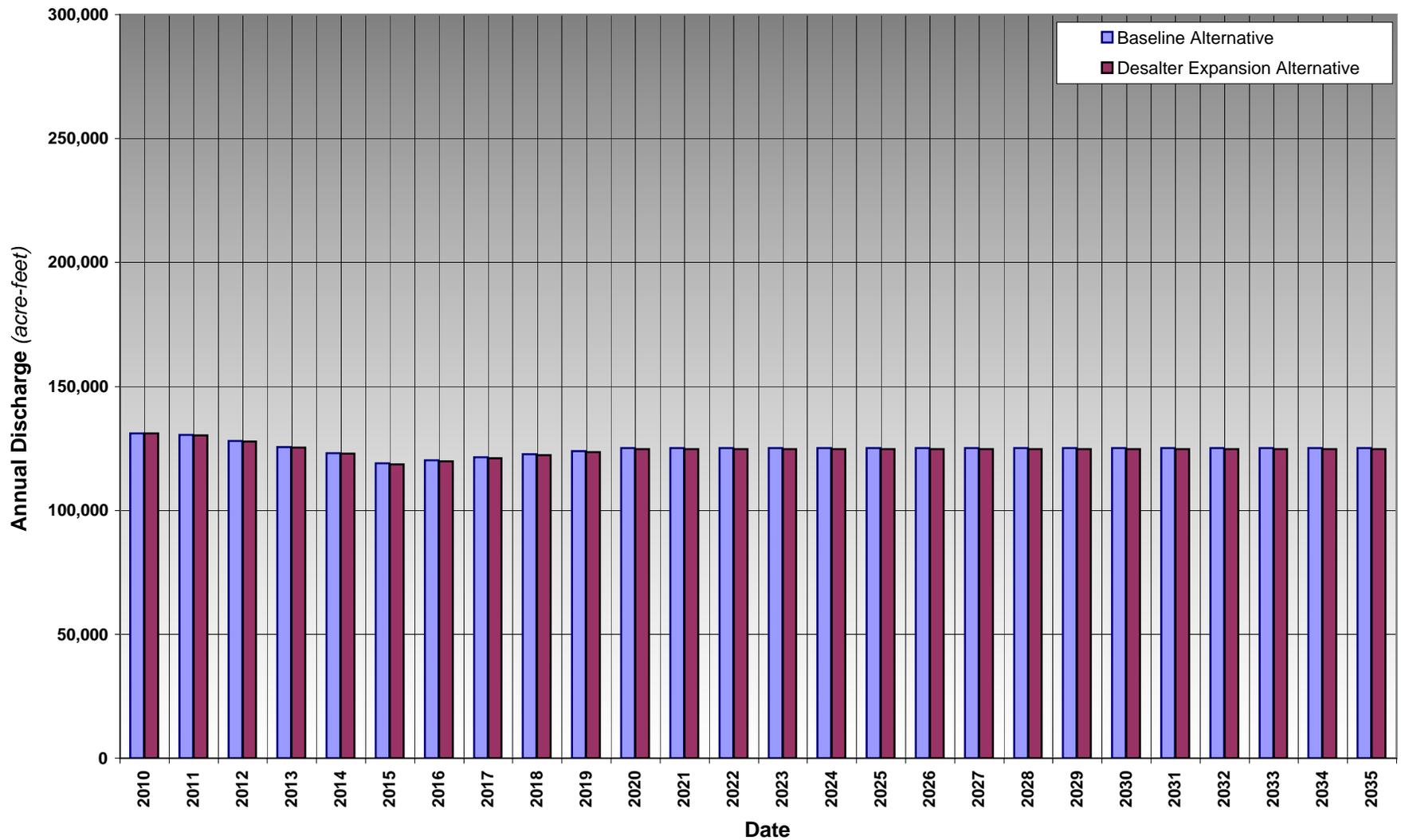
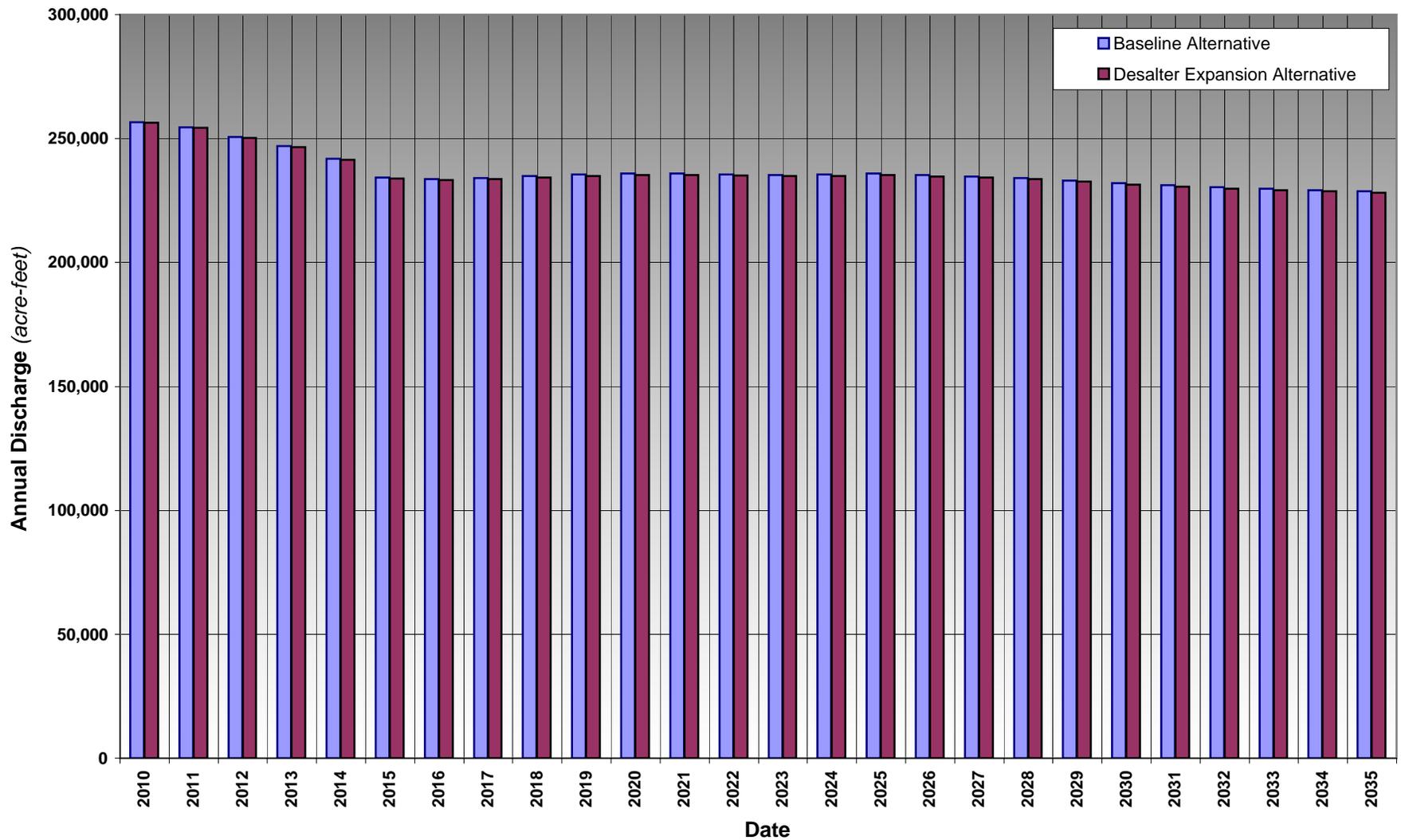
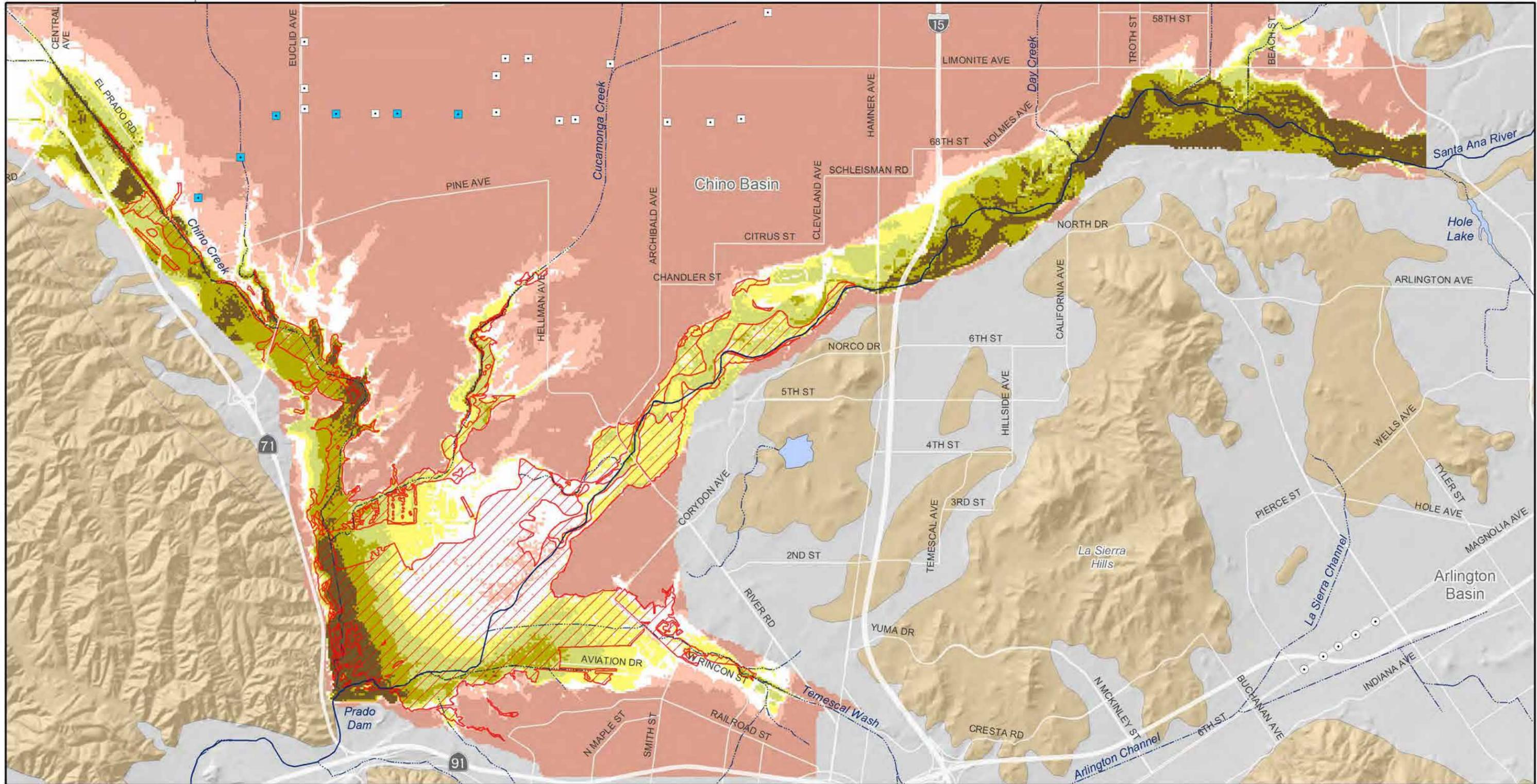


Figure 3
Projected Annual Discharge of the Santa Ana River at Prado Dam





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- Chino Desalter Well
- Chino Creek Well Field
- Existing Arlington Desalter Well
- ▨ Riparian Habitat (2006)
- Lake

- Depth to Groundwater**
(feet below ground surface)
- <5
 - 5 - 10
 - 10 - 15
 - 15 - 20
 - 20 - 30
 - 30 - 40
 - >40

Geology

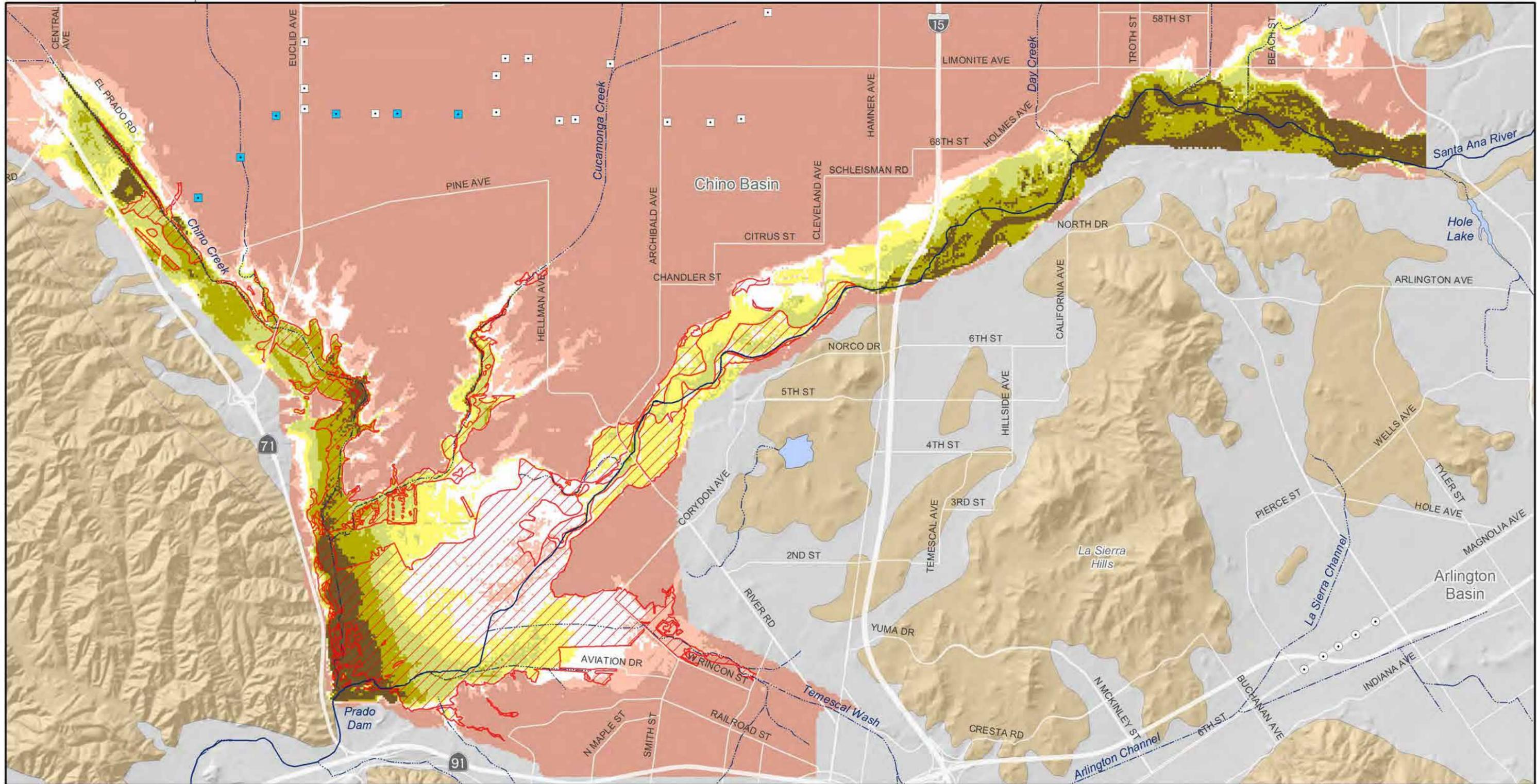
- Quaternary Alluvium
- Consolidated Bedrock

0 0.25 0.5 0.75 1 Miles
 0 0.5 1 KM



Depth to Groundwater
Beneath the Riparian Areas
in Chino and Temescal Basins
 Baseline Scenario in 2011

Figure 4



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- Chino Desalter Well
- Chino Creek Well Field
- Existing Arlington Desalter Well
- Riparian Habitat (2006)
- Lake

Depth to Groundwater
(feet below ground surface)

	<5
	5 - 10
	10 - 15
	15 - 20
	20 - 30
	30 - 40
	>40

Geology

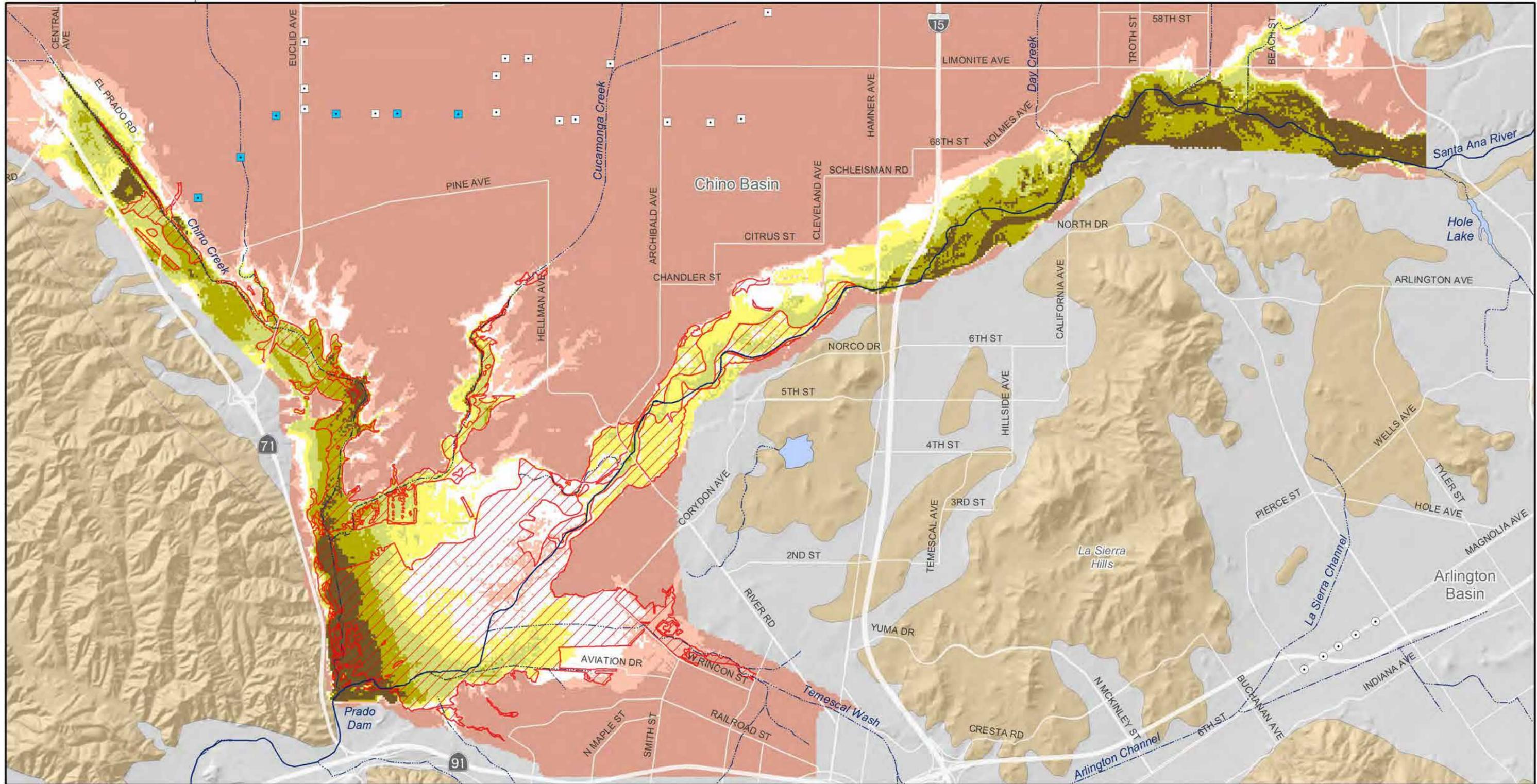
- Quaternary Alluvium
- Consolidated Bedrock

0 0.25 0.5 0.75 1 Miles
 0 0.5 1 KM



Depth to Groundwater
Beneath the Riparian Areas
in Chino and Temescal Basins
 Baseline Scenario in 2035

Figure 5



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- Chino Desalter Well
- Chino Creek Well Field
- Existing Arlington Desalter Well
- Riparian Habitat (2006)
- Lake

Depth to Groundwater
(feet below ground surface)

	<5
	5 - 10
	10 - 15
	15 - 20
	20 - 30
	30 - 40
	>40

Geology

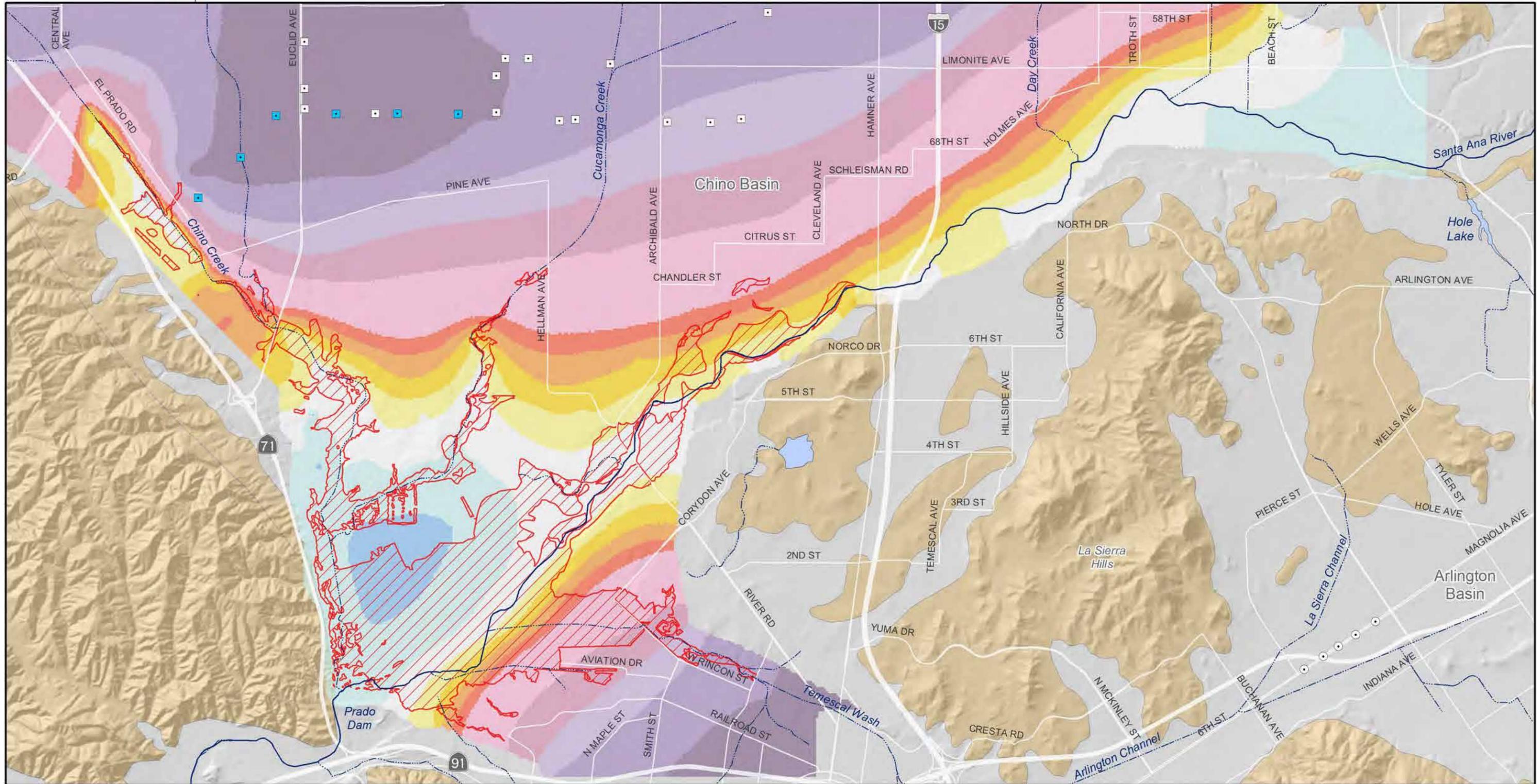
- Quaternary Alluvium
- Consolidated Bedrock

0 0.25 0.5 0.75 1 Miles
 0 0.5 1 KM



Depth to Groundwater
Beneath the Riparian Areas
in Chino and Temescal Basins
 Desalter Expansion Scenario in 2035

Figure 6



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- Chino Desalter Well
- Chino Creek Well Field
- Existing Arlington Desalter Well
- Riparian Habitat (2006)
- Lake

Piezometric Change (feet)

> +1	-5 to -10
+1 to 0	-10 to -15
0 to -1	-15 to -20
-1 to -2	-20 to -30
-2 to -3	-30 to -40
-3 to -4	
-4 to -5	

Geology

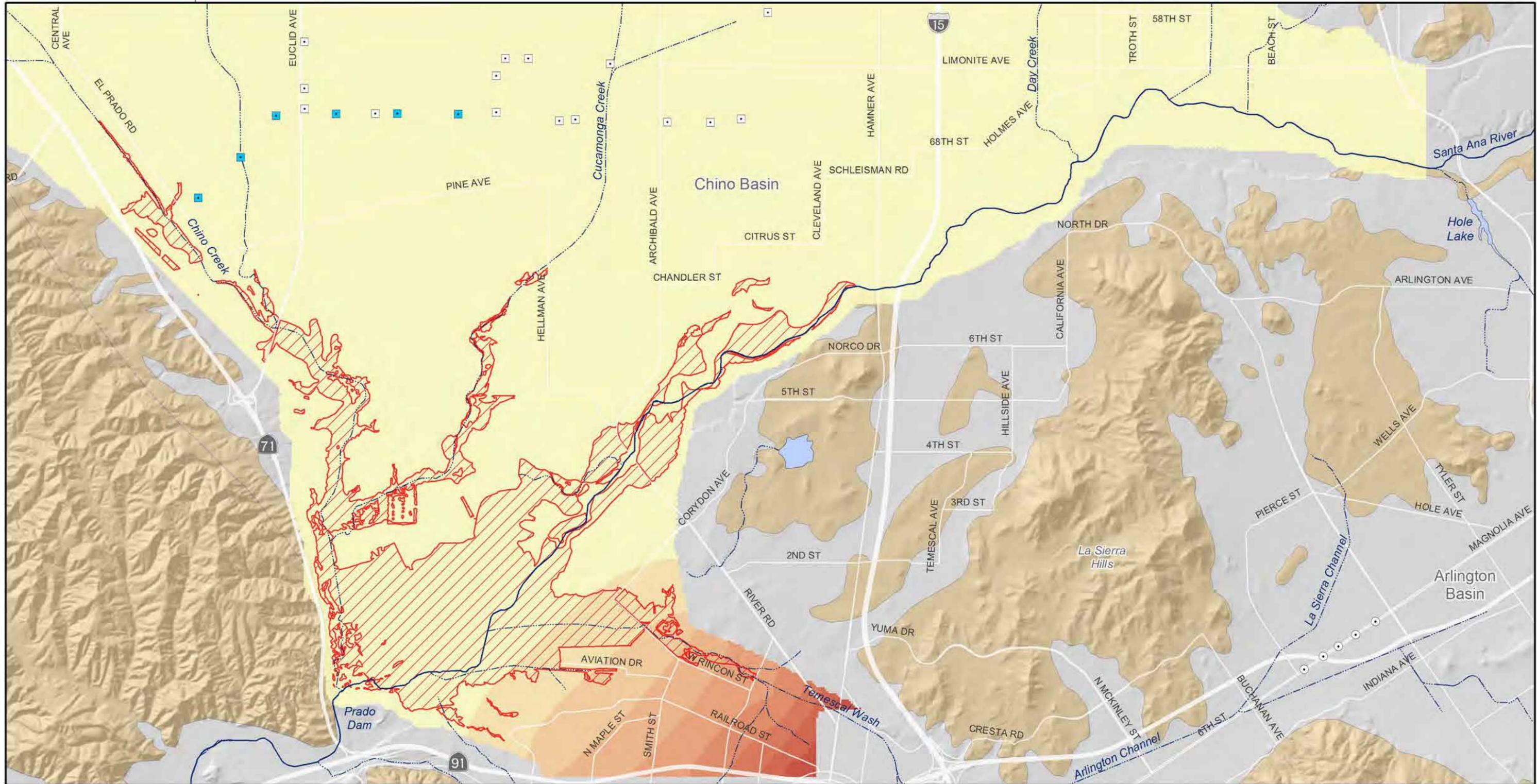
- Quaternary Alluvium
- Consolidated Bedrock

Scale: 0 0.25 0.5 0.75 1 Miles
 0 0.5 1 KM



Difference in Depth to Groundwater
 Baseline Scenario (2011) minus
 Desalter Expansion Scenario (2035)

Figure 7



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- Chino Desalter Well
- Chino Creek Well Field
- Existing Arlington Desalter Well
- Riparian Habitat (2006)
- Lake

Piezometric Change (feet)

	0 to -0.2		-1.2 to -1.4
	-0.2 to -0.4		-1.4 to -1.6
	-0.4 to -0.6		<math>< -1.6</math>
	-0.6 to -0.8		
	-0.8 to -1		
	-1 to -1.2		

Geology

- Quaternary Alluvium
- Consolidated Bedrock

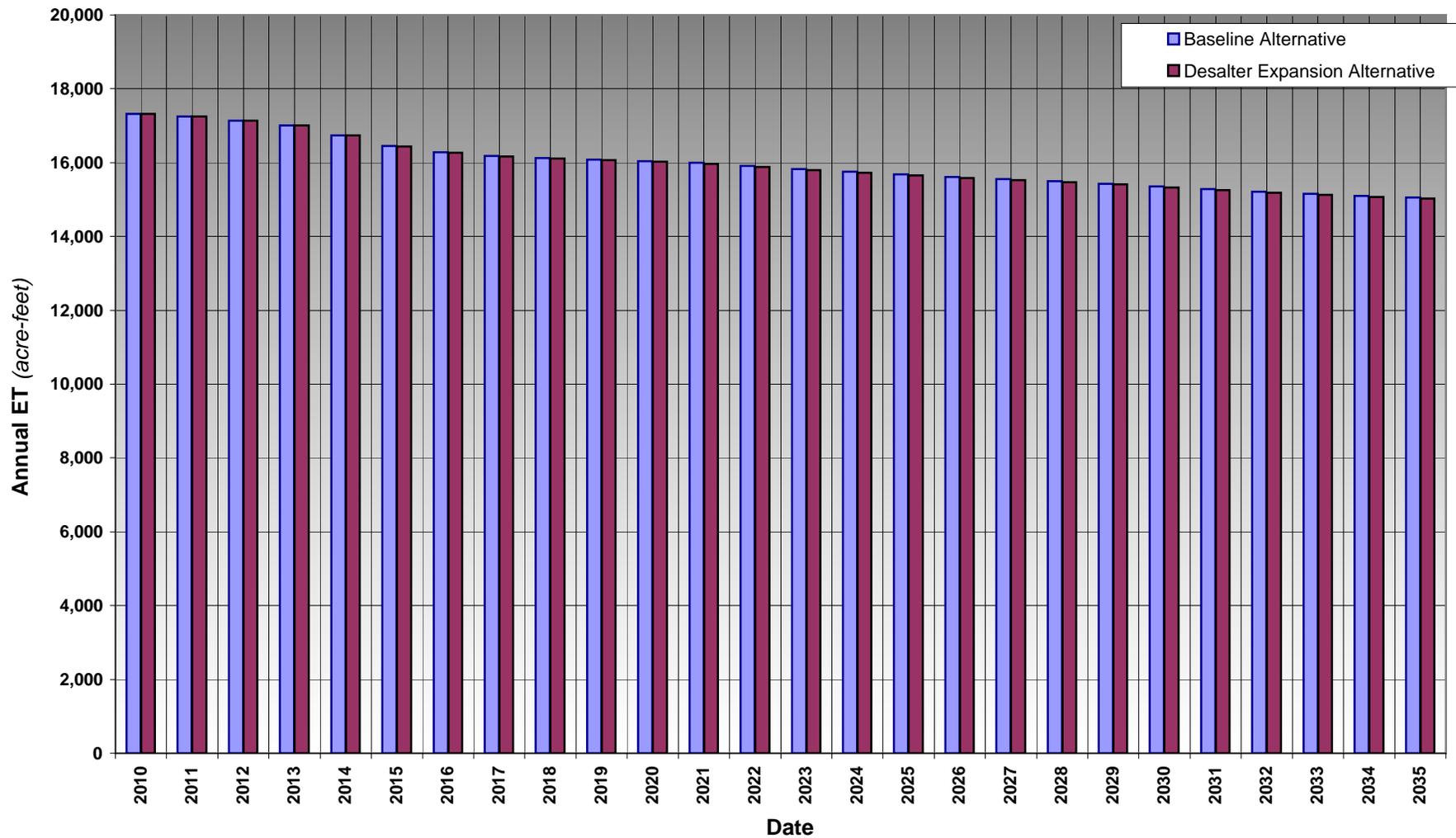
Scale: 0 0.25 0.5 0.75 1 Miles
 0 0.5 1 KM



Difference in Depth to Groundwater
 Baseline Scenario (2035) minus
 Desalter Expansion Scenario (2035)

Figure 8

Figure 9
Projected Annual Uptake of Groundwater by Riparian Vegetation
along the Santa Ana River and within Prado Basin



MITIGATION MONITORING AND REPORTING PROGRAM

**WESTERN MUNICIPAL WATER DISTRICT
ARLINGTON DESALTER EXPANSION PHASE 2 PROJECT
MITIGATION MONITORING AND REPORTING PROGRAM**

Mitigation Measure	Source	Implementation Schedule	Responsible Party	Verification	Status / Date / Initials
Air Quality					
III-1 Using best available control measures during soil disturbance. The menu of enhanced dust control measures includes the following: <ul style="list-style-type: none"> • Limit the disturbance “footprint” to as small an area as practical. • Water all active construction areas at least twice daily. • Cover all off-site haul trucks or maintain at least 2 feet of freeboard. • Pave or apply water four times daily to all unpaved parking or staging areas. • Sweep or wash any site access points within 30 minutes of any visible dirt deposition on any public roadway. • Cover or water twice daily any on-site stockpiles of debris, dirt or other dusty material. • Suspend all operations on any unpaved surface if winds exceed 25 mph. • Stockpile excess dirt from levee reconstruction as far from homes as reasonable. 	Initial Study	This measure shall be incorporated into the construction contract and implemented during construction.	Western Municipal Water District (WMWD)	A copy of the construction contract shall be retained in the project file. Field inspections by District Staff shall verify that the fugitive dust control measures are implemented. A copy of inspection notes shall be retained in the project file.	
III-2 Limit allowable idling to 5 minutes for trucks and heavy equipment before shutting the equipment down.	Initial Study	This measure shall be incorporated into the construction contract and implemented during construction.	WMWD	A copy of the construction contract shall be retained in the project file. Field inspections by District Staff shall verify that the fugitive dust control measures are implemented. A copy of inspection notes shall be retained in the project file.	

**WESTERN MUNICIPAL WATER DISTRICT
ARLINGTON DESALTER EXPANSION PHASE 2 PROJECT
MITIGATION MONITORING AND REPORTING PROGRAM**

Mitigation Measure	Source	Implementation Schedule	Responsible Party	Verification	Status / Date / Initials
Air Quality (continued)					
III-3 Utilize equipment whose engines are equipped with diesel oxidation catalysts if available.	Initial Study	This measure shall be incorporated into the construction contract and implemented during construction.	WMWD	A copy of the construction contract shall be retained in the project file. Field inspections by District Staff shall verify that the fugitive dust control measures are implemented. A copy of inspection notes shall be retained in the project file.	
III-4 Utilize diesel particulate filter on heavy equipment where feasible.	Initial Study	This measure shall be incorporated into the construction contract and implemented during construction.	WMWD	A copy of the construction contract shall be retained in the project file. Field inspections by District Staff shall verify that the fugitive dust control measures are implemented. A copy of inspection notes shall be retained in the project file.	
III-5 Utilize Tier 3 rated diesel engines where possible.	Initial Study	This measure shall be incorporated into the construction contract and implemented during construction.	WMWD	A copy of the construction contract shall be retained in the project file. Field inspections by District Staff shall verify that the fugitive dust control measures are implemented. A copy of inspection notes shall be retained in the project file.	

**WESTERN MUNICIPAL WATER DISTRICT
ARLINGTON DESALTER EXPANSION PHASE 2 PROJECT
MITIGATION MONITORING AND REPORTING PROGRAM**

Mitigation Measure	Source	Implementation Schedule	Responsible Party	Verification	Status / Date / Initials
Cultural Resources					
V-1 In the unlikely event that unknown or buried cultural resources are encountered during construction activities, all work in the vicinity of the find shall be halted or redirected to avoid the area of the find. A qualified archaeologist shall be brought to the site to evaluate the find and make recommendations on the proper disposition of the find in accordance with State law and CEQA requirements. It shall be the responsibility of WMWD to ensure that the archaeologists recommendations are implemented.	Initial Study	This measure shall be implemented during construction.	WMWD	A report by a qualified professional shall be compiled on the nature of the discovery and its disposition in accordance with the requirements of this measure. A copy of the report shall be retained in the project file.	
V-2 In the unlikely event that unknown or buried paleontologic resources are encountered during construction activities, all work in the vicinity of the find shall be halted or redirected to avoid the area of the find. A qualified paleontologist shall be brought to the site to evaluate the find and make recommendations on the proper disposition of the find in accordance with State law and CEQA requirements. It shall be the responsibility of WMWD to ensure that the paleontologists recommendations are implemented.	Initial Study	This measure shall be implemented during construction.	WMWD	A report by a qualified professional shall be compiled on the nature of the discovery and its disposition in accordance with the requirements of this measure. A copy of the report shall be retained in the project file.	

**WESTERN MUNICIPAL WATER DISTRICT
ARLINGTON DESALTER EXPANSION PHASE 2 PROJECT
MITIGATION MONITORING AND REPORTING PROGRAM**

Mitigation Measure	Source	Implementation Schedule	Responsible Party	Verification	Status / Date / Initials
Geology and Soils					
VI-1 The WMWD shall implement an investigation of the type and density of soils within the areas that could be susceptible to an increase in groundwater levels to within 30 feet of the ground surface. Data obtained by these investigations shall be used to determine the appropriate depth to groundwater allowed by the recharge program.	Initial Study	The investigation shall be implemented prior to initiating recharge and the management of depth shall occur during future recharge operations.	WMWD	A copy of the soils investigation shall be retained in the project file. Annual documentation shall be placed in the project file verifying that the depth to groundwater allowed at each recharge site is being observed. This documentation shall be retained in the project file.	
VI-2 The WMWD shall implement a groundwater monitoring program at and adjacent to the proposed recharge basins to determine the depths to groundwater that occur with implementation of the recharge program. The WMWD shall utilize the data obtained from the groundwater monitoring program to control the amount and timing of water recharged to the Arlington Basin so as to not increase the potential for liquefaction to occur at offsite property. This water management program could also include the installation and operation of water extraction wells to control the depth to groundwater and the potential for liquefaction to result from the water recharge program.	Initial Study	The monitoring program shall be designed prior to implementing recharge. Ongoing management of recharge shall occur during future recharge operations.	WMWD	A copy of the monitoring program shall be retained in the project file. Annual documentation shall be placed in the project file verifying that the monitored data are being used to actively manage the amount and timing of recharge to ensure that liquefaction potential is not being increased by the proposed project. This documentation shall be retained in the project file.	

**WESTERN MUNICIPAL WATER DISTRICT
ARLINGTON DESALTER EXPANSION PHASE 2 PROJECT
MITIGATION MONITORING AND REPORTING PROGRAM**

Mitigation Measure	Source	Implementation Schedule	Responsible Party	Verification	Status / Date / Initials
Hazards and Hazardous Materials					
VII-1 The District shall review and approve a construction traffic management plan for work in public roads that complies with the Work Area Traffic Control Handbook or other applicable City of Riverside standards and requirements to provide adequate traffic control and safety during construction. This plan shall include methods of diverting, controlling or rerouting traffic around construction activity in public roads and adequately controlling surface water drainage and erosion in the project area. It is anticipated that measures to be implemented will include but not be limited to the use of flag persons, signage and lane control to ensure the safe control of traffic through construction areas that affect public roads.	Initial Study	This measure shall be incorporated into the construction contract and implemented during construction.	WMWD	A copy of the approved traffic management plan shall be retained in the project file. Field inspections by WMWD Staff shall verify that the required traffic management measures are being implemented. A copy of inspection notes shall be retained in the project file.	
VII-2 The District shall require that all disturbances to public roads be repaired in a manner that complies with the Standard Specifications for Public Works Construction (green book) or other applicable City standards and requirements. It is anticipated that measures which will be implemented will be the proper backfilling and compaction of excavated trenches, adequate control of surface water drainage and the proper resurfacing of roads.	Initial Study	This measure shall be incorporated into the construction contract and implemented during construction.	WMWD	A copy of the construction contract shall be retained in the project file. Field inspections by District Staff shall verify that this measure is implemented. A copy of inspection notes shall be retained in the project file.	

**WESTERN MUNICIPAL WATER DISTRICT
ARLINGTON DESALTER EXPANSION PHASE 2 PROJECT
MITIGATION MONITORING AND REPORTING PROGRAM**

Mitigation Measure	Source	Implementation Schedule	Responsible Party	Verification	Status / Date / Initials
Hydrology and Water Quality					
VIII-1 The WMWD shall require that the construction contractor prepare and implement a Storm Water Pollution Prevention Plan (SWPPP) which specifies Best Management Practices (BMPs) that will prevent all construction pollutants from contacting stormwater and with the intent of keeping all products of erosion from moving offsite into receiving waters. The SWPPP shall include a Spill Prevention and Cleanup Plan that identifies the methods of containing, cleanup, transport and proper disposal of hazardous chemicals or materials released during construction activities that are compatible with applicable laws and regulations. BMPs to be implemented in the SWPPP may include but not be limited to: <ul style="list-style-type: none"> • The use of silt fences; • The use of temporary stormwater desilting or retention basins; • The use of water bars to reduce the velocity of stormwater runoff; • The use of wheel washers on construction equipment leaving the site • The washing of silt from public roads at the access point to the site to prevent the tracking of silt and other pollutants from site onto public roads. 	Initial Study	The SWPPP shall be compiled prior to initiating ground disturbance and implemented during construction	WMWD	A copy of the SWPPP shall be retained in the project file. Field inspections by District Staff shall verify that the best management practices are implemented. A copy of inspection notes shall be retained in the project file.	

**WESTERN MUNICIPAL WATER DISTRICT
ARLINGTON DESALTER EXPANSION PHASE 2 PROJECT
MITIGATION MONITORING AND REPORTING PROGRAM**

Mitigation Measure	Source	Implementation Schedule	Responsible Party	Verification	Status / Date / Initials
Noise					
XI-1 The WMWD shall require that all construction vehicles and fixed or mobile mechanical equipment be equipped with properly operating and maintained sound attenuating devices, such as mufflers.	Initial Study	This measure shall be incorporated into the construction contract and implemented during construction.	WMWD	A copy of the construction contract shall be retained in the project file. Field inspections by District Staff shall verify that this noise measure is being implemented. A copy of inspection notes shall be retained in the project file.	
XI-2 The WMWD shall require that sound attenuation curtains or other noise attenuation devices be utilized during well drilling activities that occur outside the normal construction times identified by the City of Riverside Municipal Code.	Initial Study	This measure shall be incorporated into the construction contract and implemented during construction.	WMWD	A copy of the construction contract shall be retained in the project file. Field inspections by District Staff shall verify that this noise measure is being implemented. A copy of inspection notes shall be retained in the project file.	
Utilities and Service Systems					
XVI-1 The WMWD's contract with the construction contractor(s) and recharge basins maintenance contractor(s) shall include the requirement that all materials that can feasibly be recycled be salvaged and recycled. This includes, but is not limited to wood, metals, concrete, vegetation and asphalt. The contractors shall submit a recycling plan that is consistent with the County's waste reduction programs to the District for review and approval prior to the start of construction/maintenance activities.	Initial Study	This measure shall be incorporated into the construction contract and implemented during construction.	WMWD	A copy of the construction contract shall be retained in the project file. Field inspections by District Staff shall verify that this solid waste management measure is being implemented. A copy of inspection notes shall be retained in the project file.	

**WESTERN MUNICIPAL WATER DISTRICT
ARLINGTON DESALTER EXPANSION PHASE 2 PROJECT
MITIGATION MONITORING AND REPORTING PROGRAM**

Mitigation Measure	Source	Implementation Schedule	Responsible Party	Verification	Status / Date / Initials
<i>Additional Mitigation Measures in Response to Comments</i>					
<p>The District will install at least one recharge basin prior to initiating additional groundwater extraction from the Arlington Basin. All of the recharge basins will be installed prior to increasing groundwater extractions to the maximum authorized under this environmental document. The District will manage groundwater extractions and recharge to achieve an overall balance for long-term operations of the Basin.</p>	<p>Responses to Comments</p>	<p>This measure shall be implemented following the installation of the first recharge basin. The City shall be notified that the basin is installed prior to initiating groundwater extractions. The Basin groundwater management shall occur over the life of the project.</p>	<p>WMWD</p>	<p>The District shall document the date of recharge basin installation and date of first groundwater extractions and place the documentation in the project file with a copy to the City of Riverside. Every three years until 2030, the District shall compile a summary of management actions carried out in the Arlington Basin. A copy of this tri-annual document shall be retained in the project file and a copy provided to the City of Riverside.</p>	

**WESTERN MUNICIPAL WATER DISTRICT
ARLINGTON DESALTER EXPANSION PHASE 2 PROJECT
MITIGATION MONITORING AND REPORTING PROGRAM**

Mitigation Measure	Source	Implementation Schedule	Responsible Party	Verification	Status / Date / Initials
<p>In response to City of Riverside input during the public review process, the District has agreed to proceed with the La Sierra Metrolink basin as a temporary recharge facility. As part of the implementation phase of this project, Western will be required to obtain a site use agreement with the current property owner of the site (lease or license). Western will include termination clause in the site use agreement that indicates Western will terminate use of the site within 1 year upon the City of Riverside's written notification to Western and the current property owner of a proposed commercial development application for that property. Western will provide the City with an opportunity to review the future use agreement for administrative review and comment prior to entering the final use agreement with the property owner to insure consistency with the intent of this mitigation measure.</p>	<p>Responses to Comments</p>	<p>The District shall notify the City following installation of the Basin. The City shall provide the District with notification of development applications and any entitlements for the La Sierra Metrolink basin as they are submitted or granted.</p>	<p>WMWD</p>	<p>A copy of the City notification shall be retained in the project file when it is forwarded to the City. The District shall retain copies of the development applications and entitlement documents when processed or granted by the City.</p>	
<p>The District shall complete designs for new structures and new facility landscaping prior to awarding contracts for their construction. These designs shall be submitted to the City of Riverside staff for administrative review at the 50% design stage. The District shall incorporate those design recommendations that are consistent with City design guidelines.</p>	<p>Responses to Comments</p>	<p>The District shall notify the City following installation of the Basin. The City shall provide the District with notification of development applications and any entitlements for the La Sierra Metrolink basin as they are submitted or granted.</p>	<p>WMWD</p>	<p>A copy of the City notification shall be retained in the project file when it is forwarded to the City. The District shall retain copies of the development applications and entitlement documents when processed or granted by the City.</p>	

**WESTERN MUNICIPAL WATER DISTRICT
ARLINGTON DESALTER EXPANSION PHASE 2 PROJECT
MITIGATION MONITORING AND REPORTING PROGRAM**

Mitigation Measure	Source	Implementation Schedule	Responsible Party	Verification	Status / Date / Initials
<p>Prior to the construction of new extraction facilities, the WMWD shall enter into an Engineering and Operation Agreement with City of Riverside that will facilitate annual consultation on volumes to be recharged, stored and/or extracted. The Agreement will work within the framework of the proposed Groundwater Management Plan for the Arlington Basin to meet the long-term objectives of the basin stakeholders.</p>	<p>Responses to Comments</p>	<p>The Agreement shall be completed prior to construction of new extraction facilities and implemented over the life of the project.</p>	<p>WMWD and City of Riverside</p>	<p>A copy of the Agreement shall be placed in the project file prior to installation of new extraction facilities. A record of annual consultations shall be retained in the project file.</p>	

DRAFT MND / INITIAL STUDY

**NOTICE OF INTENT
TO ADOPT A MITIGATED NEGATIVE DECLARATION**

TO: County of Riverside and Office of Planning & Research
 County Clerk-Recorder State Clearinghouse
 2724 Gateway Drive 1400 Tenth Street
 Riverside, CA 92507 Sacramento, CA 95814

Subject: Notice of Intent to Adopt a Mitigated Negative Declaration

Lead Agency: Western Municipal Water District Contact: Mr. Jack Safely
 450 East Alessandro Blvd. Phone: (951) 789-5041
 Riverside, CA 92508-2449
 Email: jsafely@wmwd.com

Western Municipal Water District (WMWD) is the Lead Agency preparing an Initial Study for the project described below. The Initial Study makes the proposed findings that, with implementation of the mitigation measures provided, the project will not have a significant effect on the environment. We need to know the comments and concerns of interested and responsible agencies and the public regarding the content of the Initial Study. Please send any comments to Mr. Jack Safely at Western Municipal Water District at the address listed above. We will need the name, address, and telephone number of a contact person if comments are submitted.

Project Title: WESTERN MUNICIPAL WATER DISTRICT'S
 ARLINGTON DESALTER EXPANSION 2 PROJECT

State Clearinghouse Number: Not Yet Assigned

Project Location: The Project area is located in the City of Riverside, south of Arlington Avenue, west of Adams Street, north of Cleveland Avenue, and east of Buchanan Avenue. The project area can be found within Sections 5,6,7,8,9,16,17,18,19,20 & 21 of Township 3 South, Range 5 West, and Sections 22, 23 and 24 of Township 3 South, Range 6 West on the USGS – Riverside West Quadrangle, 7.5 Minute Series topographic map.

Project Description: In 1990, the WMWD in conjunction with the Santa Ana River Watershed Project Authority (SAWPA) constructed and began operation of the Arlington Desalter facility. Groundwater extracted from the Arlington Basin is transported to the desalter facility where it is treated to a level that allows its use in the area's potable water systems. One of the goals of the desalter facility is to extract and treat groundwater from the Arlington Basin; thus, lowering the groundwater table and reducing subsurface flow to down gradient groundwater basins. The brine wastes from the treatment process are discharged to the Santa Ana Regional Interceptor (SARI) pipeline which convey the wastes for further treatment at plants operated by the Orange County Sanitation District (OCSD). Treated effluent from the OCSD facility is ultimately discharged to the Pacific Ocean.

In its ongoing efforts to improve the quality of groundwater in the Arlington Basin, increase the availability of potable water to the WMWD, and to better manage groundwater levels in the Arlington Basin, the WMWD is proposing two basic project approaches (construction of extraction wells only or construction of extraction wells and recharge basins).

The Arlington Desalter is undergoing expansion of its treatment capacity to accommodate the increased demand for treatment capacity at the plant. The expansion includes an upgrade in the treatment process which will allow the Arlington Desalter to treat additional raw water while reducing the amount of brine wastes generated. Currently, the WMWD has adequate brine capacity in the SARI pipeline and discharges brine wastes to the SARI pipeline for treatment at the OCSD. The WMWD is in the process of improving the treatment efficiency of the Desalter facility. The WMWD forecasts that after the improvements are made to the Desalter facilities and the wells proposed by this project are operational, the Desalter will remain within its allotted discharge capacity in the SARI pipeline and treatment capacity in the OCSD.

Notice of Completion & Environmental Document Transmittal

Mail to: State Clearinghouse, P.O. Box 3044, Sacramento, CA 95812-3044 (916) 445-0613
For Hand Delivery/Street Address: 1400 Tenth Street, Sacramento, CA 95814 — 916/445-0613

SCH #

Project Title: Western Municipal Water District's Arlington Desalter Expansion Phase 2 Project
Lead Agency: Western Municipal Water District
Contact Person: Jack Safely
Mailing Address: 450 East Alessandro Blvd
Phone: (951) 789-5041
City: Riverside Zip: 92508 County: Riverside County

Project Location: County: Riverside City/Nearest Community: Riverside
Cross Streets: Arlington Avenue / Adams Street / Cleveland Avenue / Buchanan Avenue Zip Code: N/A
Lat. / Long.: N 33° 55' 57" / W 117° 27' 30" (general area) Total Acres: 2 to 10 acres (basin size)
Assessor's Parcel No.: N/A Sections: 5, 6, 7, 8, 9, 16, 17, 18, 19, 20 & 21 Township: 3 South Range: 5 West
Sections: 22, 23 and 24 Township: 3 South Range: 6 West
Within 2 miles: State Hwy #: 91 Waterways: Santa Ana River
Airports: Riverside Municipal Railways: BNSF Railway Schools: N/A

Document Type:
CEQA: [] NOP [] Draft EIR NEPA: [] NOI Other: [] Joint Document
[] Early Cons [] Supplement/Subsequent EIR [] EA [] Final Document
[] Neg Dec (Prior SCH No.) [] Draft EIS [] Other
[] Mit Neg Dec Other

Local Action Type:
[] General Plan Update [] Specific Plan [] Rezone [] Annexation
[] General Plan Amendment [] Master Plan [] Prezone [] Redevelopment
[] General Plan Element [] Planned Unit Development [] Use Permit [] Coastal Permit
[] Community Plan [] Site Plan [] Land Division (Subdivision, etc.) [] Other: Water Production and Treatment Facilities

Development Type:
[] Residential: Units Acres
[] Office: Sq.ft. Acres Employees
[] Commercial: Sq.ft. Acres Employees
[] Industrial: Sq.ft. Acres Employees
[] Education
[] Recreational
[] Water Facilities: Type Production MGD up to 10.6
[] Transportation: Type
[] Mining: Mineral
[] Power: Type Watts
[] Waste Treatment: Type MGD
[] Hazardous Waste: Type
[] Other:

Project Issues Discussed in Document:
[] Aesthetics / Visual [] Fiscal [] Recreation / Parks [] Vegetation
[] Agricultural Land [] Floodplain / Flooding [] Schools / Universities [] Water Quality
[] Air Quality [] Forest Land / Fire Hazard [] Septic Systems [] Water Supply / Groundwater
[] Archaeological / Historical [] Geologic / Seismic [] Sewer Capacity [] Wetland/Riparian
[] Biological Resources [] Minerals [] Soil Erosion / Compaction / Grading [] Wildlife
[] Coastal Zone [] Noise [] Solid Waste [] Growth Inducing
[] Drainage / Absorption [] Population / Housing Balance [] Toxic / Hazards [] Land Use
[] Economic / Jobs [] Public Services / Facilities [] Traffic / Circulation [] Cumulative Effects
[] Other

Present Land Use / Zoning / General Plan Designation: N/A

Project Description: In its ongoing efforts to improve the quality of groundwater in the Arlington Basin, increase the availability of potable water to the WMWD, and to better manage groundwater levels in the Arlington Basin, the WMWD is proposing two basic project approaches (construction of extraction wells only or construction of extraction wells and recharge basins).

The Arlington Desalter is undergoing expansion of its treatment capacity to accommodate the increased demand for treatment capacity at the plant. The expansion includes an upgrade in the treatment process which will allow the Arlington Desalter to treat additional raw water while reducing the amount of brine wastes generated. Currently, the WMWD has adequate brine capacity in the SARI pipeline and discharges brine wastes to the SARI pipeline for treatment at the OCSD. The WMWD is in the process of improving the treatment efficiency of the Desalter facility. The WMWD forecasts that after the improvements are made to the

Desalter facilities and the wells proposed by this project are operational, the Desalter will remain within its allotted discharge capacity in the SARI pipeline and treatment capacity in the OCSD.

Reviewing Agencies Checklist

Lead Agencies may recommend State Clearinghouse distribution by marking agencies below with an "X". If you have already sent your document to the agency please denote that with an "S".

- | | |
|---|---|
| <input type="checkbox"/> Air Resources Board | <input type="checkbox"/> Office of Historic Preservation |
| <input type="checkbox"/> Boating / Waterways, Department of | <input type="checkbox"/> Office of Public School Construction |
| <input type="checkbox"/> California Highway Patrol | <input type="checkbox"/> Parks & Recreation |
| <input checked="" type="checkbox"/> Caltrans District # <u>8</u> | <input type="checkbox"/> Pesticide Regulation, Department of |
| <input type="checkbox"/> Caltrans Division of Aeronautics | <input type="checkbox"/> Public Utilities Commission |
| <input type="checkbox"/> Caltrans Planning (Headquarters) | <input type="checkbox"/> Reclamation Board |
| <input type="checkbox"/> Coachella Valley Mountain Conservancy | <input checked="" type="checkbox"/> Regional WOCB, # <u>8</u> |
| <input type="checkbox"/> Coastal Commission | <input type="checkbox"/> Resources Agency |
| <input type="checkbox"/> Colorado River Board | <input type="checkbox"/> S.F. Bay Conservation & Development Commission |
| <input type="checkbox"/> Conservation, Department of | <input type="checkbox"/> San Gabriel & Lower L.A. Rivers & Mtns Conservancy |
| <input type="checkbox"/> Corrections, Department of | <input type="checkbox"/> San Joaquin River Conservancy |
| <input type="checkbox"/> Delta Protection Commission | <input type="checkbox"/> Santa Monica Mountains Conservancy |
| <input type="checkbox"/> Education, Department of | <input type="checkbox"/> State Lands Commission |
| <input type="checkbox"/> Energy Commission | <input type="checkbox"/> SWRCB: Clean Water Grants |
| <input checked="" type="checkbox"/> Fish & Game, Region # <u>6</u> | <input checked="" type="checkbox"/> SWRCB: Water Quality |
| <input type="checkbox"/> Food & Agriculture, Department of | <input type="checkbox"/> SWRCB: Water Rights |
| <input type="checkbox"/> Forestry & Fire Protection | <input type="checkbox"/> Tahoe Regional Planning Agency |
| <input type="checkbox"/> General Services, Department of | <input checked="" type="checkbox"/> Toxic Substances Control, Department of |
| <input checked="" type="checkbox"/> Health Services, Department of | <input checked="" type="checkbox"/> Water Resources, Department of |
| <input type="checkbox"/> Housing & Community Development | |
| <input type="checkbox"/> Integrated Waste Management Board | <input checked="" type="checkbox"/> Other <u>Calif. Department of Public Health</u> |
| <input checked="" type="checkbox"/> Native American Heritage Commission | <input type="checkbox"/> Other _____ |
| <input type="checkbox"/> Office of Emergency Services | |

Local Public Review Period (to be filled in by lead agency)

Starting Date September 30, 2010 Ending Date November 1, 2010

Lead Agency (complete if applicable)

Consulting Firm: <u>Tom Dodson & Associates</u>	Applicant: <u>Western Municipal Water District</u>
Address: <u>2150 N. Arrowhead Avenue</u>	Address: <u>450 E. Alessandro Blvd.</u>
City/State/Zip: <u>San Bernardino, CA 92405</u>	City/State/Zip: <u>Riverside, CA 92508</u>
Contact: <u>Tom Dodson</u>	Contact: <u>Jack Safely</u>
Phone: <u>(909) 882-3612</u>	Phone: <u>(951) 789-5041</u>

Signature of Lead Agency Representative:

Jack S. Safely Date: 9/27/2010

Authority cited: Section 21083, Public Resources Code. Reference: Section 21161, Public Resources Code.

WESTERN MUNICIPAL WATER DISTRICT (Draft) MITIGATED NEGATIVE DECLARATION

Lead Agency: Western Municipal Water District (WMWD) **Contact:** Mr. Jack Safely
450 East Alessandro Blvd. **Phone:** (951) 789-5041
Riverside, CA 92508

Project Title: WESTERN MUNICIPAL WATER DISTRICT'S
ARLINGTON DESALTER EXPANSION PHASE 2 PROJECT

State Clearinghouse Number: Not yet assigned

Project Location: The Project area is located in the City of Riverside, south of Arlington Avenue, west of Adams Street, north of Cleveland Avenue, and east of Buchanan Avenue. The project area can be found within Sections 5,6,7,8,9,16,17,18,19,20 & 21 of Township 3 South, Range 5 West, and Sections 22, 23 and 24 of Township 3 South, Range 6 West on the USGS – Riverside West Quadrangle, 7.5 Minute Series topographic map.

Project Description: In its ongoing efforts to improve the quality of groundwater in the Arlington Basin, increase the availability of potable water to the WMWD, and to better manage groundwater levels in the Arlington Basin, the WMWD is proposing two basic project approaches (construction of extraction wells only or construction of extraction wells and recharge basins).

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Finding: WMWD's decision to implement this proposed expansion project is a discretionary decision or "project" that requires evaluation under the California Environmental Quality Act (CEQA). Based on the information in the project Initial Study, the Western Municipal Water District has determined that a Mitigated Negative Declaration is the appropriate environmental determination to comply with CEQA.

Initial Study: Copies of the Initial Study are available for public review at the Western Municipal Water District office at 450 East Alessandro Blvd., Riverside, CA 92508. The public review period for the Initial Study closes on November 1, 2010.

Draft Mitigated Negative Declaration, page 2 of 2

Mitigation Measures: All mitigation measures identified in the Initial Study are prepared for adoption as conditions of the project and will be implemented through a mitigation monitoring and reporting program adopted with the Negative Declaration.

 DRAFT
Signature *Title* *Date*

**Draft Mitigated Negative Declaration
and Initial Study
for the
Western Municipal Water District's
Arlington Desalter Expansion Phase 2 Project**

Prepared by:

**WESTERN MUNICIPAL WATER DISTRICT
450 East Alessandro Boulevard
Riverside, California 92508-2449**

and

**WILDERMUTH ENVIRONMENTAL, INC.
23692 Birtcher Drive
Lake Forest, California 92630-1790**

Preparation assistance by:

**TOM DODSON & ASSOCIATES
2150 North Arrowhead Avenue
San Bernardino, California 92405**

September 2010

TABLE OF CONTENTS

PROJECT DESCRIPTION.....	1
Introduction	1
Existing Environmental Setting	2
Project Characteristics	3
Regulatory Requirements	6
ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED.....	8
DETERMINATION	9
ENVIRONMENTAL CHECKLIST	
I. Aesthetics.....	10
II. Agricultural Resources	11
III. Air Quality.....	12
IV. Biological Resources.....	29
V. Cultural Resources.....	33
VI. Geology and Soils	49
VII. Hazards and Hazardous Materials	55
VIII. Hydrology and Water Quality	62
IX. Land Use and Planning	74
X. Mineral Resources	75
XI. Noise	76
XII. Population and Housing	81
XIII. Public Services.....	82
XIV. Recreation	83
XV. Transportation/Traffic	84
XVI. Utilities and Service Systems	86
XVII. Mandatory Findings of Significance	89
MITIGATION MEASURES	91
REFERENCES	93

APPENDICES

- Appendix A – Air Quality Analysis
- Appendix B – Biological Resources
- Appendix C – Cultural Resources
- Appendix D – Geology Analysis

TABLE OF CONTENTS (continued)

LIST OF TABLES

Table III-1	Ambient Air Quality Standards	15
Table III-2	Health Effects of Major Criteria Pollutants.....	17
Table III-3	SCAQMD Emissions Significance Thresholds	20
Table III-4	2010 Construction Activity Emissions	22
Table III-5	2010 On-road Emissions from Crew Commuting and Truck Haul.....	23
Table III-6	Construction, Truck Haul and Employee Commuting.....	23
Table III-7	Annual Construction Emissions.....	24
Table III-8	Project Emissions Relative to De Minimis Thresholds	24
Table III-9	Localized Emissions.....	25
Table IV-1	Summary of Hole Lake Area Discharges	32
Table V-1	Proposed Components of the Arlington Desalter Expansion Project	34
Table V-2	Previously Recorded Cultural Resources in the Scope of the Records Search.....	40
Table XI-1	City of Riverside Noise Compatibility Standards	78

FIGURES

Figure 1	Regional Location
Figure 2	Vicinity Map
Figure 3	Map of Alternative 1 Facilities
Figure 4	Map of Alternative 2 Facilities
Figure 5	Map of Alternative 3 Facilities
Figure 6	Map of Alternative 4 Facilities
Figure 7	Map of Alternative 5 Facilities
Figure 8	Map of Alternative 6 Facilities
Figure 9	Map of Alternative 7 Facilities
Figure VI-1	Liquefaction Potential Map
Figure VIII-1	Map of Model Simulation Results (Alternative 1 -2034)
Figure VIII-2	Map of Model Simulation Results (Alternative 2 - 2034)
Figure VIII-3	Map of Model Simulation Results (Alternative 3 - 2034)
Figure VIII-4	Map of Model Simulation Results (Alternative 4 -2034)
Figure VIII-5	Map of Model Simulation Results (Alternative 5 - 2034)
Figure VIII-6	Map of Model Simulation Results (Alternative 6 -2034)
Figure VIII-7	Map of Model Simulation Results (Alternative 7 - 2034)

ABBREVIATIONS AND ACRONYMS

AAQS	Ambient Air Quality Standards
APE	area of potential effect
AQMD	Air Quality Management District
AQMP	Air Quality Management Plan
ARB	Air Resources Board
BACT	best available control technologies
BMP	Best Management Practices
CAA	Clean Air Act
CAAA	Clear Air Act Amendment
Cal-EPA	California Environmental Protection Agency
Cal-OSHA	California Occupational Safety and Health Administration
Caltrans	California Department of Transportation
CARB	California Air Resources Control Board
CCR	California Code of Regulation
CDFG	California Department of Fish and Game
CEQA	California Environmental Quality Act
CERCLIS	U.S. EPA Superfund
CGS	California Geological Survey
CHP	California Highway Patrol
CHPH	California Department of Public Health
CNDDB	California National Diversity Data Base
CNEL	Community Noise Equivalent Level
dB	decibel
dba	A-weighting decibel
DOT	U.S. Department of Transportation
DPM	diesel particulate matter
DTSC	Department of Toxic Substances Control
EIC	Eastern Information Center
EPA	Environmental Protection Agency
ESA	Endangered Species Act
ESDSJ	El Sobrante de San Jacinto
Fed/OSHA	Federal Occupational Safety and Health Administration
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map

ABBREVIATIONS AND ACRONYMS (continued)

GHG	greenhouse gases
Giroux	Giroux & Associates
GLO	General Land Office
Greenbelt	Arlington Heights Greenbelt
GSRA	Gary S. Rasmussen & Associates
HMM	Hazardous Materials Management Division
HWCL	Hazardous Waste Control Law
LOS	Level of Service
LST	Local Significance Thresholds
LUSTIS	Leaking Underground Storage Tank Information System
MCL	maximum concentration levels
MGD	million gallons per day
mg/l	milligrams per liter
MSHCP	Multiple Species Habitat Conservation Plan
MWD	Metropolitan Water District of Southern California
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NIH	National Institute of Health
NOI	Notice of Intent
NPDES	National Pollutant Discharge Elimination System
NRC	Nuclear Regulatory Commission
OCSD	Orange County Sanitation District
OSHA	Occupational Safety and Health Administration
PCE	passenger car equivalent
RCFC&WCD	Riverside County Flood Control and Water Conservation District
RCRA	Resource Conservation and Recovery Act
RWQCB	Regional Water Quality Control Board, Santa Ana Region
SARI	Santa Ana Regional Interceptor
SAWPA	Santa Ana Watershed Project Authority
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SFR	State Resolving Fund
SIP	State Implementation Plan
SoCAB	South Coast Air Basin

ABBREVIATIONS AND ACRONYMS (continued)

SSAB	Salton Sea Air Basin
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TATTN	Tongva Ancestral Territorial Tribal Nation
TDA	Tom Dodson & Associates
TDS	total dissolved solids
UFC	Uniform Fire Code
USGS	U.S. Geological Survey
WEI	Wildermuth Environmental, Inc.
WMWD	Western Municipal Water District
WRCMSHCP	Western Riverside County Multiple Species Habitat Conservation Plan

PROJECT DESCRIPTION

Introduction

The Western Municipal Water District (WMWD or District) was formed in 1954 to secure supplemental water to western Riverside County. WMWD is a member of the Metropolitan Water District of Southern California (MWD) and provides supplemental water obtained from a variety of sources including the Colorado River and the State Water Project. The primary source of water for WMWD is from MWD. Water delivered to WMWD customers consistently meets or exceeds both State and Federal drinking water standards.

One of the groundwater basins within the WMWD service area is the Arlington Groundwater Basin (Arlington Basin). The Arlington Basin is a shallow basin that underlies an alluvial-filled valley located in western Riverside County. Most of the Arlington Basin is within the corporate limits of the City of Riverside. The quality of Arlington Basin groundwater is generally poor with total dissolved solids (TDS) concentrations on the order of 1,000 milligrams per liter (mg/l) and nitrate-nitrogen concentrations on the order of 20 mg/l. These high concentrations of TDS and nitrates have been attributed to past agricultural and livestock activities in the area. These concentrations are at or exceed the State secondary maximum concentration levels (MCL) for drinking water of 500 mg/l for TDS and the State primary MCL for nitrates-nitrogen of 10 mg/l. This condition restricts the use of water from the Arlington Basin for potable water uses without treatment to reduce the concentrations of these constituents to acceptable levels.

Due to the poor quality of the groundwater, the municipal use of groundwater from the Arlington Basin was discontinued and groundwater levels rose contributing to the poor quality of water in the Basin.

In 1990, the WMWD in conjunction with the Santa Ana River Watershed Project Authority (SAWPA) constructed and began operation of the Arlington Desalter facility. Water extracted from the Arlington Basin is transported to the desalter facility where it is treated to a level that allows its use in the potable water system. One of the goals of the desalter facility is to extract and treat groundwater from the Arlington Basin; thus, lowering the groundwater table and reducing subsurface flow to down gradient groundwater basins. The brine wastes from the treatment process is discharged to the Santa Ana Regional Interceptor (SARI) pipeline which convey the wastes for further treatment at plants operated by the Orange County Sanitation District (OCSD). Treated effluent from the OCSD facility is ultimately discharged to the Pacific Ocean.

In its ongoing efforts to improve the quality of groundwater in the Arlington Basin, increase the availability of potable water to the WMWD, and to better manage groundwater levels in the Arlington Basin, the WMWD is proposing two basic project approaches (construction of extraction wells only or construction of extraction wells and recharge basins). While only one of the proposed approaches will be implemented, all the alternatives of each approach will be evaluated in this document.

Both project approaches propose the installation and operation of groundwater extraction wells. Groundwater produced by the new wells will be transported by new underground pipelines to the Arlington Desalter for treatment. The primary difference in the project approaches being considered is that one approach (Alternative 7) only proposes the extraction of groundwater and does not include any water recharge programs. Alternatives 1 through 6 not only propose the

extraction of groundwater but also include the construction and operation of water recharge basins. The purpose of the recharge program is to partially offset the amount of water extracted from the Arlington Basin by percolating surface water that is available within the project area. Two pump stations will be installed adjacent to existing flood control channels to capture and transport, by way of new pipelines, surface water to the new percolation basins. The primary differences in the options proposed under Alternatives 1 through 6 are the locations of the proposed wells, pipelines and possible modes of operation of the new facilities.

The recharge basins will be constructed as part of this project under Alternatives 1 through 6. Operation and maintenance of the recharge basins will be the responsibility of the WMWD.

Groundwater extracted by the proposed wells will be transported by way of the pipelines to the Arlington Desalter for treatment and eventual use in the area's municipal water system. Waste from the treatment process consists of brine wastes which will be conveyed to the SARI line for transport to the OCSD treatment facility and eventual discharge to the Ocean via the existing OCSD discharge pipeline.

Presently, the Arlington Desalter is undergoing expansion of its treatment capacity to accommodate the increased demand for treatment capacity at the plant. The expansion includes an upgrade in the treatment process which will allow the Arlington Desalter to treat additional raw water while reducing the amount of brine wastes generated. Currently, the WMWD has adequate brine capacity in the SARI pipeline and discharges brine wastes to the SARI pipeline for treatment at the OCSD. The WMWD is in the process of improving the treatment efficiency of the Desalter facility. The WMWD forecasts that after the improvements are made to the Desalter facilities and the wells proposed by this project are operational, the Desalter will remain within its allotted discharge capacity in the SARI pipeline and treatment capacity in the OCSD.

To implement this project, the WMWD retained the consulting firm of Wildermuth Environmental, Inc. (WEI) to prepare the Arlington Desalter Phase II Expansion Feasibility Study and associated Task Reports (WEI Study). Data contained in the WEI Study is used in this document to describe and evaluate the potential environmental effects of implementing this project. In addition to the WEI Study, data contained in the City of Riverside General Plan adopted November 2007 (City General Plan) is used in this document to evaluate the potential impacts associated with construction and operation of this project.

Existing Environmental Setting

The proposed project is primarily located within an urbanized area of the City of Riverside. Figure OS-2 of the City General Plan designates the project area as Urban and Built-Up Land. Figure LU-2 designates most of the project area as Neighborhoods. Commercial uses occur along the 91 Freeway which bisects the project study area. A small portion of the project area is within an area designated Arlington Heights Greenbelt (Greenbelt). The Greenbelt designation provides for residential development that is sensitive to existing agricultural activities. Some open space undeveloped areas exist in the study area that are generally remnants of past agricultural activities. These areas generally contain non-native plant species. Some agricultural activities also occur within the project area. However, such activities are minimal and appear to be decreasing as urbanization of the area continues.

According to Figures OS-4 through OS-8 of the City General Plan, no areas containing sensitive biological plant or animal species exist in the area affected by this project. The project is not within any known local native habitat or natural community conservation plans or within designated critical habitat for any sensitive biological species.

The project study area is within the Western Riverside County Multiple Species Habitat Conservation Plan (WRCMSHCP) area. However, project area is not within a WRCMSHCP area plan or within or adjacent to any criteria cells and is independent of a critical cell group.

The regional location of the project area is shown on Figure 1. Figure 2 is a vicinity map and Figures 3 through 9 (Figures 6-2a through 6-8a of the WEI Study) are aerial photographs showing the locations of facilities proposed by this project.

Project Characteristic

Alternatives 1 through 6 – These alternatives propose the construction of up to 4 new ground-water extraction wells at 9 potential locations within the project area. It is forecast that the wells will be drilled to depths of about 100-300 feet. These alternatives will include about 5.5 miles of underground pipelines to transport the raw groundwater to the Arlington Desalter for treatment. A second component of this project is the construction of up to 4 water recharge basins. These basins will vary in size from about 2 to 10 acres and will percolate stormwater and urban surface water runoff from the project area for recharge to the Arlington Basin. Two water pump stations will be installed adjacent to existing drainage channels to pump surface runoff via new pipelines to the proposed Metrolink and Magnolia recharge basins.

The purpose of the artificial recharge efforts is to partially offset the volume of water extracted by the wells with stormwater and urban surface water runoff that generally contains lower concentrations of TDS and nitrates-nitrogen. A second goal of the planned recharge is to reduce the amount of surface water discharged from the project area to the Santa Ana River by capturing urban runoff for percolation into the Basin.

These recharge basins will be constructed as part of Alternatives 1 through 6. Operation and maintenance of the recharge basins will be under the responsibility of the WMWD. No recharge facilities are proposed under Alternative 7.

The primary differences in the alternatives are the locations and methods of operating the proposed facilities. The following is a brief description of the proposed Alternatives 1 through 7. Please refer to Figures 3 through 9 which show the facilities proposed under each alternative.

Alternative 1 proposes a two phased approach. Phase 1 commences in 2012 with the objective of maximizing production (10,080 acre-ft/yr) at the existing desalter wells with localized recharge at the Magnolia and Metrolink Recharge sites. In 2017, three new desalter wells (AD-6, 7, 8) and one recharge site (Monroe) will be brought online as part of Phase 2. The new wellfield will increase water production from about 7,800 acre-ft/yr to 11,830 acre-ft/yr (10.6 MGD) including a shift of 2,290 acre-ft/yr from the existing well field to the eastern portion of the basin. Figure 3 (Figure 6-2a of the WEI Study) shows the facilities associated with Alternative 1. The operations at buildout (2034) are assumed to be 2,421 acre-ft/yr of artificial recharge, 11,830 acre-ft/yr (10.6 MGD) of groundwater production which yields approximately 11,120 acre-ft/yr (10.0 MGD) of product water.

Alternative 2 proposes a two phased approach. Phase 1 commences in 2012 with the production at the existing desalter wells and one additional desalter well (AD-6) producing 10,080 acre-ft/yr with localized recharge at the Magnolia and Metrolink Recharge sites. In 2017, two new desalter wells (AD-7 and 8) and one recharge site (Monroe) will be brought online as part of Phase 2. The new wellfield will increase water production from about 7,800 to 11,830 acre-ft/yr (10.6 MGD) including a shift of 2,290 acre-ft/yr from the existing wellfield to the eastern portion of the basin. Figure 4 (Figure 6-3a of the WEI Study) shows the facilities associated with Alternative 2. The operations at buildout (2034) are 2,421 acre-ft/yr of artificial recharge, 11,830 acre-ft/yr (10.6 MGD) of groundwater production which yields approximately 11,120 acre-ft/yr (10.0 MGD) of product water.

Alternative 3 proposes a two phased approach. Phase 1 commences in 2012 with the objective of sustaining water levels at the existing desalter wells (20 feet above the screens) with localized recharge at the Magnolia and Metrolink Recharge sites. In 2017, three new desalter wells (AD-9, 10, 11) and two recharge sites (Victoria and Monroe) will be brought online as part of Phase 2. The new wellfield in the eastern portion of the Arlington Basin will increase production to 11,830 acre-ft/yr (10.6 MGD) from 8,000 acre-ft/yr (7.1 MGD) in Phase 1. Figure 5 (Figure 6-4a of the WEI Study) shows the facilities associated with Alternative 3. A raw water pipeline of approximately 3.7 miles in length would need to be installed to convey the groundwater from the new wells to the desalter facility. The operations at buildout (2034) are 3,921 acre-ft/yr of artificial recharge, 11,830 acre-ft/yr (10.6 MGD) of groundwater production which yields approximately 11,120 acre-ft/yr (10.0 MGD) of product water.

Alternative 4 proposes a two phased approach. Phase 1 commences in 2012 with the objective of sustaining water levels at the existing desalter wells (20 feet above the screens) with localized recharge at the Magnolia and Metrolink Recharge sites. In 2017, three new desalter wells (AD-11, 12, 13) and two recharge sites (Victoria and Monroe) will be brought online as part of Phase 2. The new wellfield in the northeastern portion of the basin will increase production to 11,830 acre-ft/yr (10.6 MGD) from 8,246 acre-ft/yr (7.3 MGD) in Phase 1 and attempt to reduce outflow from rising groundwater in the Hole Lake area. Figure 6 (Figure 6-5a of the WEI Study) shows the facilities associated with Alternative 4. A raw water pipeline of approximately 4.6 miles in length will be installed to convey the groundwater from the new wells to the desalter facility. The operations at buildout (2034) are 3,921 acre-ft/yr of artificial recharge, 11,830 acre-ft/yr (10.6 MGD) of groundwater production which yields approximately 11,120 acre-ft/yr (10.0 MGD) of product water.

Alternative 5 proposes a two phased approach. Phase 1 commences in 2012 with the objective of sustaining water levels at the existing desalter wells (20 feet above the screens) with localized recharge at the Magnolia and Metrolink Recharge sites. In 2017, three new desalter wells (AD-8, 11, 13) and two recharge sites (Victoria and Monroe) will be brought online as part of Phase 2. The new wellfield in the northeastern portion of the basin will increase production to 11,830 acre-ft/yr (10.6 MGD) from 8,246 acre-ft/yr (7.3 MGD) in Phase 1 and attempt to reduce outflow from rising groundwater in the Hole Lake area. Figure 7 (Figure 6-6a of the WEI Study) shows the facilities associated with Alternative 5. A raw water pipeline of approximately 5.5 miles in length will be installed to convey the groundwater from the new wells to the desalter facility. The operations at buildout (2034) are 3,921 acre-ft/yr of artificial recharge, 11,830 acre-ft/yr (10.6 MGD) of groundwater production which yields approximately 11,120 acre-ft/yr (10.0 MGD) of product water.

Alternative 6 proposes a two phased approach. Phase 1 commences in 2012 with the objective of sustaining water levels at the existing desalter wells (20 feet above the screens) with localized recharge at the Magnolia and Metrolink Recharge sites. In 2017, two new desalter wells (AD-8 and 14) and two recharge sites (Victoria and Monroe) will be brought online as part of Phase 2. The new wellfield in the northeastern portion of the basin will increase production to 11,400 acre-ft/yr (10.1 MGD) from 8,246 acre-ft/yr (7.3 MGD) in Phase 1 and attempt to reduce outflow from rising groundwater in the Hole Lake area. Figure 8 (Figure 6-7a of the WEI Study) shows the facilities associated with Alternative 6. The operations at buildout (2034) are 3,921 acre-ft/yr of artificial recharge, 11,400 acre-ft/yr (10.1 MGD) of groundwater production which yields approximately 10,716 acre-ft/yr (9.5 MGD) of product water.

Alternative 7 proposes the construction of four new wells (three active wells and one standby well) in the eastern portion of the basin near the boundary with the Riverside Basin. These wells are designated AD-14,15,16 and 17. The new desalter wells were assumed to begin pumping in 2011 and supply the desalter facility with about 6,000 acre-ft/yr — about 4,000 acre-ft/yr necessary for the current desalter facility expansion to 10 MGD of product water; and a shift of about 2,000 acre-ft/yr that is currently produced from the existing desalter wells. Figure 9 (Figure 6-8a of the WEI Study) shows the location of the existing and proposed new desalter wells. A raw water pipeline of approximately 4.5 miles in length would need to be installed to convey the groundwater from the new wells to the desalter facility. The operations at buildout (2034) are 11,870 acre-ft/yr (10.6 MGD) of groundwater production which yields approximately 11,120 acre-ft/yr (10.0 MGD) of product water.

All the Alternatives propose to use the Arlington Desalter facility to treat the raw groundwater. The wastes generated from the treatment process will be transported by existing facilities to the existing SARI pipeline for transport to and treatment at the existing OCSD's waste treatment facility.

This document will evaluate the potential impacts to the environment associated with implementation of the seven alternatives identified above. As such, this document will provide the WMWD with a CEQA compliance document that is adequate for implementation of any future alternative selected. All the alternatives include development of groundwater production wells to extract raw water for treatment at the Desalter facility. All of the potential well sites will be evaluated in this document so that any combination of the sites (wells) can be utilized by the District.

Alternatives 1 through 6 include the development of water recharge basins and pump stations to convey surface water from the existing flood control channels to the proposed recharge basins. The water percolated in the recharge basins will partially replenish groundwater extracted by the production wells. This document will evaluate the potential impacts to the environment from developing and operating the recharge basins.

Alternative 7 only proposes the extraction of groundwater and does not include any water recharge activities. Therefore, the potential impacts associated with construction and operation of the recharge basins, while included in this document, will not occur if Alternative 7 is selected by WMWD for implementation. This document will include an evaluation of the potential impacts associated with extraction of groundwater without replenishment or recharge if Alternative 7 is implemented.

The Arlington Desalter operates under the terms and requirements of waste discharge orders issued by the California Regional Water Quality Control Board, Santa Ana Region (RWQCB). The discharge of effluent from the Desalter to the SARI pipeline is subject to the amount of capacity WMWD has in the SARI line. SARI line capacity is contracted with SAWPA and capacity can be purchased, sold or transferred through SAWPA. Currently, the WMWD has adequate contracted capacity in the SARI line and contracted treatment capacity at the OCSD's facility to accommodate the wastes that will be generated by implementation of this project.

Figure PS-2 of the City General Plan identifies portions of the project area northeasterly of Van Buren Avenue as being within areas with Low to Moderate potential for liquefaction. Areas southwesterly Van Buren Avenue are designated on Figure PS-2 as having a High to Very High liquefaction potential. Liquefaction generally occurs when water saturated, loosely compacted, near surface soils are subjected to strong seismic groundshaking. A key element for liquefaction to occur is the presents of groundwater within about 50 feet of the ground surface. The purpose of this project is to extract water from the groundwater basin thus resulting in the potential to lower groundwater. However, the percolation of water in the proposed recharge basins has the potential to increase the amount of groundwater in storage and the elevation of groundwater around or near the recharge basins. The potential effects on groundwater and liquefaction are a topics evaluated in this environmental document.

Implementation of certain alternatives also has the potential to reduce the amount of water in storage in the Arlington Basin. This condition could alter the current inflow and outflow of groundwater into and out of the Arlington Basin and affect the amount of water in storage in the Arlington Basin and adjacent basins. This issue will also be evaluated in this document.

Regulatory Requirements

Prior to construction and/or operation of the facilities proposed in any of the alternatives, WMWD may be required to secure new permits or make amendments to its current regulatory permits. These permits and approvals may include the following:

- Approval from the California Department of Public Health (CDPH) for operation of the water recharge program.
- Approval from the Riverside County Flood Control and Water Conservation District (RCFC&WCD) to divert stormwater to the recharge basins.
- General construction stormwater National Pollutant Discharge Elimination System (NPDES) and implementation of a Storm Water Pollution Prevention Plan (SWPPP).
- Land use or construction permits or entitlements from the City of Riverside for construction and operation of the recharge basins.

Implementation of this project will require the Board of Directors (Board) of the WMWD to approve the expenditure of the funds to design, construct and operate the proposed facilities. While this approval will not result in any direct effects on the physical environment, it will provide the mechanism for the construction and operations activities that will cause physical changes to the environment. Such a decision by the Board is discretionary and considered a "project" under the California Environmental Quality Act (CEQA) (CEQA Guidelines Section 15378). As such, the Board must consider the potential adverse environmental impacts to the environment

from implementing this project and comply with the requirements of CEQA to make a determination on the significance of the potential impacts. The WMWD is the agency that will approve and implement this project. Therefore, the WMWD will act as the CEQA lead agency for this project. The first step in this evaluation is the preparation of an Initial Study. This document will focus on those activities and components of the project that can cause physical change to the existing environment if the WMWD Board approves the project and provides the necessary funding to construct and operate the facilities summarized above.

The potential effects of this project will be evaluated by comparing the current operation of the existing Arlington Desalter facilities to the potential effects associated with operation of the facilities proposed. The current Desalter operations represent the existing baseline environmental conditions. The potential changes to the existing environment from implementing the proposed project will be the subject evaluated in this Initial Study.

At this time, WMWD is considering seeking outside funding for this project. It is possible that WMWD will apply for State Revolving Fund (SRF) funds from the State Water Resources Control Board (SWRCB) to implement this project. The SRF program is partially funded by the U.S. Environmental Protection Agency (EPA) and is subject to federal environmental regulations including the Endangered Species Act (ESA), the National Historic Preservation Act (NHPA), and the General Conformity Rule for the Clean Air Act (CAA), among others. Federal agencies have their own policies regarding compliance with federal environmental laws. Instead of the National Environmental Policy Act (NEPA), the EPA allows the SWRCB to use CEQA as the compliance base for the SRF Loan Program in addition to compliance with ESA, NHPA, and CAA. Collectively, the SWRCB calls these requirements CEQA-Plus. The primary difference between a standard CEQA evaluation and a CEQA-Plus evaluation is the extent of analysis for the issues of air quality, biological resources, cultural resources, and Federal Emergency Management Agency (FEMA) flood hazard issue. This document will be prepared in such a manner that it will comply with the requirements of CEQA-Plus in the event that SRF funds are sought for this project.

Other agencies which may have permitting authority include but are not limited to the City of Riverside, Riverside County Flood Control and Water Conservation District (RCFC&WCD), the California Regional Water Quality Control Board, Santa Ana Region (RWQCB), California Department of Public Health (CDPH), South Coast Air Quality Management District (SCAQMD), and the Santa Ana Watershed Project Authority (SAWPA). Actions taken by these agencies to permit, fund or participate in the proposed project will allow or facilitate the project to be implemented and contribute to the potential changes to the environment that could result. As such these agencies are considered responsible agencies under CEQA. These actions will not result in physical changes or impacts that exceed those that will result from implementing the project as proposed. Therefore, the evaluation contained in this document is considered adequate for use by these other agencies for any CEQA compliance requirements needed to implement their actions as CEQA responsible agencies.

This concludes the project description. If the WMWD Board makes the above approvals, the project will be implemented as outlined above. The remainder of this Initial Study consists of the most recent CEQA Environmental Checklist Form, CEQA-Plus requirements and the substantiation required to support the conclusions presented in this document. Based on the findings and conclusions of this Initial Study, the WMWD has made a preliminary determination that a Mitigated Negative Declaration is the appropriate CEQA determination for this project. A final environmental determination will be made following the close of a 30-day comment period.

Any comments received on the Initial Study will be reviewed and considered in making the final environmental determination. The Board will make a final decision regarding the appropriate environmental determination for this proposed project according to CEQA and the State CEQA Guidelines prior to making a decision on the proposed project. The Environmental Checklist follows.

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

- | | | |
|---|---|---|
| <input type="checkbox"/> Aesthetics | <input type="checkbox"/> Agriculture Resources | <input checked="" type="checkbox"/> Air Quality |
| <input type="checkbox"/> Biological Resources | <input checked="" type="checkbox"/> Cultural Resources | <input checked="" type="checkbox"/> Geology / Soils |
| <input checked="" type="checkbox"/> Hazards & Hazardous Materials | <input checked="" type="checkbox"/> Hydrology / Water Quality | <input type="checkbox"/> Land Use / Planning |
| <input type="checkbox"/> Mineral Resources | <input checked="" type="checkbox"/> Noise | <input type="checkbox"/> Population / Housing |
| <input type="checkbox"/> Public Services | <input type="checkbox"/> Recreation | <input type="checkbox"/> Transportation / Traffic |
| <input type="checkbox"/> Utilities / Service Systems | <input type="checkbox"/> Mandatory Findings of Significance | |

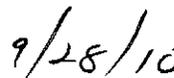
DETERMINATION (To be completed by the Lead Agency)

On the basis of this initial evaluation, the following finding is made:

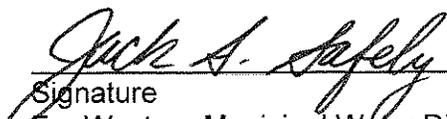
- The proposed project **COULD NOT** have a significant effect on the environment, and a **NEGATIVE DECLARATION** will be prepared.
- Although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent or adequate mitigation has been provided to reduce potential impacts below a level of significance. A **MITIGATED NEGATIVE DECLARATION** will be prepared.
- The proposed project **MAY** have a significant effect on the environment, and an **ENVIRONMENTAL IMPACT REPORT** is required.
- The proposed project **MAY** have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect (1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and (2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An **ENVIRONMENTAL IMPACT REPORT** is required, but it may analyze only the effects that remain to be addressed.
- Although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or **NEGATIVE DECLARATION** pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or **NEGATIVE DECLARATION**, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.



Prepared by
Tom Dodson & Associates



Date



Signature
For Western Municipal Water District



Date

ENVIRONMENTAL CHECKLIST

	Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Impact	No Impact
I. AESTHETICS – Would the project:				
a. Have a substantial adverse effect on a scenic vista?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c. Substantially degrade the existing visual character or quality of the site and its surroundings?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d. Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

SUBSTANTIATION:

a&c. *Less Than Significant Impact* – According to data provided in the Open Space element of the City General Plan, vista points can be found throughout the City. These vistas are primarily associated with views of the hillsides and mountains in the area. The City has implemented grading ordinances to reduce the visual impact of development on hillsides. The City also acknowledges the visual and scenic values of citrus groves. Due to ongoing development over the years, the only substantial citrus groves in the City are located within the Arlington Heights Greenbelt. The purpose of the Greenbelt is to protect and maintain the citrus grove character of that area by establishing standards for residential development that provides protection of existing agricultural activities and their aesthetic value. No other significant visual or scenic resources are specifically identified in the General Plan.

The only above ground facilities proposed by both alternatives for this project are the proposed wells. The pipelines will be located underground and the recharge basins will be situated at or below the existing ground surface. None of the proposed facilities will be located on hillsides. The above ground structures will be located within areas designated urban development. The Victoria Recharge Basin is located within the Arlington Heights Greenbelt on the southeasterly side of Victoria Avenue near the northeasterly boundary of the Greenbelt. This parcel does not contain any citrus groves and, therefore, will not affect the citrus grove preservation goals of the Greenbelt.

Based on the location, size and type of facilities proposed, it is concluded that none of the alternatives proposed by this project have the potential to cause a substantial adverse effect on a scenic vista or substantially degrade the existing visual character or quality of the project sites or their surroundings. Potential impacts are considered less than significant. No mitigation is required.

- b. *No Impact* – The sites are vacant parcels or parcels that contain existing urban development. No significant or sensitive vegetation, rock outcroppings or historic structures exist on these sites. No scenic highways exist within the project area. Implementation of either alternative proposed by this project will not adversely affect any such resources. No impact can be identified and no mitigation is required.
- d. *No Impact* – The project is located within an area which is developed with a variety of urban uses. Existing lighting in the project area is associated with residences, business and street lighting. None of the alternatives propose new lighting nor will the project affect the existing light environ-

ment of the area. The only above ground structures associated with this project are the above ground wells. Wells are relatively small, low structures. The wells and any housing structures will be finished in neutral non-reflective finishes. No impacts associated with new substantial sources of light or glare will result and no mitigation is required.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Impact	No Impact
II. AGRICULTURE RESOURCES – Would the project:				
a. Convert Prime Farmland, Unique Farmland or Farmland of Statewide Importance (Farmland) to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Conflict with existing zoning for agricultural use, or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

SUBSTANTIATION:

- a. *Less Than Significant Impact* – According to data on Figure OS-2 of the City General Plan, most of the project area is designated Urban and Built-Up Land. Due to the developed, urbanized nature of this area, Figure OS-2 only designates lands within the Arlington Heights Greenbelt as containing any potentially prime, important, unique or any other agricultural soils. The Greenbelt was established for the preservation of agriculture through the application of a Residential Agriculture Zone (RA-5). The only facility proposed by this project within the Arlington Heights Greenbelt is the proposed Victoria Recharge Basin. This facility will occupy about 10 acres of land and will be located on a parcel designated Water on Figure OS-2 of the City’s General Plan.

Based on the small size of the facilities proposed and the lack of any substantial amount of soils designated for agricultural uses in the project area, the potential for this project to adversely affect agricultural soils or uses is considered less than significant. No mitigation is required.

- b. *No Impact* – According to data shown on Figure OS-2 of the City General Plan, no Williamson Contract Preserve land exists in the project area and none will be affected by this project. No impact to any such preserve will result from implementing this project and no mitigation is required.
- c. *No Impact* – The purpose of the project is to improve the quality of both groundwater and surface water in the Arlington Basin. No substantial amount of land designated for agricultural use will be affected by this project. WMWD is mandated to provide an adequate supply of high quality water to customers within its service area. This project is being implemented in response to that mandate. The goals of this project are to improve the quality of groundwater in the Arlington Basin and to capture and percolated surface water runoff. This will serve to reduce the amount of runoff containing urban pollutants from the project area and recharge the Arlington Basin.

The proposed facilities are not of sufficient size or of a nature that could result in changes to the existing environment that could result in adverse effects to agriculture or result in the conversion of a substantial amount of agriculturally designated land to non-agricultural uses. No impact can be identified and no mitigation is required.

INITIAL STUDY

	Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Impact	No Impact
III. AIR QUALITY – Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:				
a. Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d. Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e. Create objectionable odors affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

SUBSTANTIATION:

a&b. *Less Than Significant Impact, Beneficial Mitigation Incorporated* – The proposed project is located within the South Coast Air Basin (SoCAB). The South Coast Air Quality Management District (SCAQMD) has jurisdiction over air quality issues and regulations within the SoCAB. The SCAQMD has published its “CEQA Air Quality Handbook” (Handbook) that identifies threshold values for emissions to assist local agencies in determining if a project’s emissions could pose a significant threat to air quality and air quality standards.

The SCAQMD includes the SoCAB and the Salton Sea Air Basin (SSAB). The SoCAB includes Orange County and the non-desert portions of Los Angeles, Riverside and San Bernardino counties as well as the SSAB. The SoCAB has an area of 6,800 square miles.

This project has the potential to result in both short and long-term air quality impacts. Short-term impacts would be associated with construction activities while long-term impacts would be associated with the emissions from operation of the of the proposed facilities. Construction activities include the drilling and equipping of wells, the installation of pipelines and pump stations and the excavation and construction of recharge basins. Potential operations impacts are those associated with the emissions generated by the pumps and motors needed to operate the wells and pump stations. Some minimal long term emissions will result from maintenance of the proposed facilities. However, these activities will be random and not considered to have the potential to result in substantial air emissions.

Alternatives 1 through 6 provide the potentially worst case air emissions scenario in that they include the greatest potential construction and operations emissions for similar facilities. All the alternatives include the development of wells and pipelines while only Alternatives 1 through 6 include development and use of recharge basins and pump stations. This document will evaluate

the potential emissions associated with construction and operation of all the potential facilities to provide the worst case potential air emissions impacts.

To evaluate the potential air emissions associated with construction and operation of this project, the consulting firm of Giroux and Associates prepared "Air Quality Impact Analysis Arlington Desalter Project" dated June 9, 2009 (Giroux Air Quality Report) provided as Appendix A. Data contained in that report is provided in this section of this document.

Meteorological Setting

The climate of the Riverside area, technically called an interior valley sub-climate of Southern California's Mediterranean-type climate, is characterized by warm summers, mild winters, infrequent rainfall, moderate afternoon breezes, and generally fair weather. The clouds and fog that form along the area's coastline extend as far inland as project area. The most important weather pattern is associated with the warm season airflow across the populated area of the Los Angeles Basin that brings polluted air into western Riverside County late in the afternoon. This transport pattern creates unhealthy air quality when the fringes of this "urban smog cloud" extend to the project site during the summer months.

Temperatures in the project area are comfortable with daily summer temperatures from 95+ degrees in the afternoon to 64 degrees in the evenings. Winter temperatures generally range from about 68 degrees in the afternoons to about 34 degrees at night. Rainfall in the project area varies considerably in both time and space. Almost all the annual rainfall comes from the fringes of mid-latitude storms from late November to early April with summers often completely dry. Rainfall in Riverside averages 11 inches per year, but varies markedly from one year to the next.

Winds are an important parameter in characterizing the air quality environment of a project site because they both determine the regional pattern of air pollution transport and control the local rate of pollution dispersion near a source. Daytime winds are from the west at 6-8 mph as air moves regionally onshore from the cool Pacific Ocean to the warm Mojave Desert interior of Southern California. These winds allow for good local mixing, but also bring air pollutants from urbanized coastal areas into interior valleys. Some thermal convection in the summer serves to dilute the smog created from urbanized development, but the project area is too close to Los Angeles/Orange County Basins emissions sources to completely escape the regional air quality degradation resulting from the photochemical airborne reactions that create the summer smog and haze throughout the air basin.

Light nocturnal winds result mainly from drainage of cool air off mountains east and north of Riverside flow toward the project area. The origin of these winds in unpopulated mountain areas and they do not generally impair air quality. Despite light wind conditions, especially at night and in the early morning, winter is generally a period of good air quality in the project area.

In addition to winds that control the rate and direction of pollution dispersal, Southern California is notorious for strong temperature inversions that limit the vertical depth through which pollution can be mixed. In summer, coastal areas are characterized by a sharp discontinuity between the cool marine air at the surface and the warm, sinking air aloft within the high-pressure cell over the ocean to the west. This marine/subsidence inversion allows for good local mixing, but acts like a giant lid over the basin.

A second inversion type forms on clear winter nights when cold air off the mountains sinks to the valley floor while the air aloft over the valley remains warm. This forms radiation inversions. These inversions, in conjunction with calm winds, trap pollutants such as automobile exhaust near their source. While these inversions may lead to air pollution "hot spots" in heavily developed coastal areas of the basin, there is generally not enough traffic in inland valleys to cause substantial winter

air pollution problems. Thus, while summers are periods of hazy visibility and occasionally unhealthy air, winter is often a period of high visibility and excellent air quality in the project area.

Air Quality Setting

Ambient Air Quality Standards (AAQS)

To gauge the significance of the air quality impacts of the proposed project, project impacts, together with existing background air quality levels, must be compared to the applicable ambient air quality standards. These standards are the levels of air quality considered safe, with an adequate margin of safety, to protect the public health and welfare. They are designed to protect those people most susceptible to further respiratory distress such as asthmatics, the elderly, very young children, people already weakened by other disease or illness, and persons engaged in strenuous work or exercise, called "sensitive receptors." Healthy adults can tolerate occasional exposure to air pollutant concentrations considerably above these minimum standards before adverse effects are observed. Recent research has shown, however, that chronic exposure to ozone (the primary ingredient in photochemical smog) may lead to adverse respiratory health even at concentrations close to the ambient standard.

National AAQS were established in 1971 for six pollution species with states retaining the option to add other pollutants, require more stringent compliance, or to include different exposure periods. The initial attainment deadline of 1977 was extended several times in air quality problem areas like Southern California. In 2003, the Environmental Protection Agency (EPA) adopted a rule which extended and established a new attainment deadline for ozone for the year 2021. Because the State of California had established AAQS several years before the federal action and because of unique air quality problems introduced by the restrictive dispersion meteorology, there is considerable difference between state and national clean air standards. Those standards currently in effect in California are shown in Table III-1. Sources and health effects of various pollutants are shown in Table III-2.

The Federal Clean Air Act Amendments (CAAA) of 1990 required that the U.S. Environmental Protection Agency (EPA) review all national AAQS in light of currently known health effects. EPA was charged with modifying existing standards or promulgating new ones where appropriate. EPA subsequently developed standards for chronic ozone exposure (8+ hours per day) and for very small diameter particulate matter (called "PM_{2.5}"). New national AAQS were adopted in 1997 for these pollutants.

Planning and enforcement of the federal standards for PM_{2.5} and for ozone (8-hour) were challenged by trucking and manufacturing organizations. In a unanimous decision, the U.S. Supreme Court ruled that EPA did not require specific congressional authorization to adopt national clean air standards. The Court also ruled that health-based standards did not require preparation of a cost-benefit analysis. The Court did find, however, that there was some inconsistency between existing and "new" standards in their required attainment schedules. Such attainment-planning schedule inconsistencies centered mainly on the 8-hour ozone standard. EPA subsequently agreed to downgrade the attainment designation for a large number of communities to "non-attainment" for the 8-hour ozone standard.

Because the South Coast Air Basin was far from attaining the 1-hour federal standard, the 8-hour ozone non-attainment designation did not substantially alter the attainment planning process. As noted above, the compliance deadline for meeting the 8-hour ozone standard has been extended to 2021.

**Table III-1
 AMBIENT AIR QUALITY STANDARDS**

Pollutant	Average Time	California Standards		National Standards		
		Concentration	Method	Primary	Secondary	Method
Ozone (O3)	1 Hour	0.09 ppm (180 µg/m3)	Ultraviolet Photometry	–	Same as Primary Standard	Ultraviolet Photometry
	8 Hour	0.070 ppm (137 µg/m3)		0.075 ppm (147 µg/m3)		
Respirable Particulate Matter (PM10)	24 Hour	50 µg/m3	Gravimetric or Beta Attenuation	150 µg/m3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m3		Revoked (2006)		
Fine Particulate Matter (PM2.5)	24 Hour	No Separate State Standard		35 µg/m3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m3	Gravimetric or Beta Attenuation	15 µg/m3		
Carbon Monoxide (CO)	8 Hour	9.0 ppm (10 mg/m3)	Non-Dispersive Infrared Photometry (NDIR)	9 ppm (10 mg/m3)	None	Non-Dispersive Infrared Photometry (NDIR)
	1 Hour	20 ppm (23 mg/m3)		35 ppm (40 mg/m3)		
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m3)		–	–	–
Nitrogen Dioxide (NO2) *	Annual Arithmetic Mean	0.030 ppm (56 µg/m3)	Gas Phase Chemiluminescence	0.053 ppm (100 µg/m3)	Same as Primary Standard	Gas Phase Chemiluminescence
	1 Hour	0.18 ppm (338 µg/m3)		–		
Lead	30-Day Average	1.5 µg/m3	Atomic Absorption	–	–	–
	Calendar Quarter	–		1.5 µg/m3	Same as Primary Standard	High Volume Sampler and Atomic Absorption
Sulfur Dioxide (SO2)	Annual Arithmetic Mean	–	Ultraviolet Fluorescence	0.030 ppm (80 µg/m3)	–	Spectrophotometry (Paraosaniline Method)
	24 Hour	0.04 ppm (105 µg/m3)		0.14 ppm (365 µg/m3)	–	
	3 Hour	–		–	0.5 ppm (1300 µg/m3)	
	1 Hour	0.25 ppm (655 µg/m3)		–	–	–

Pollutant	Average Time	California Standards		National Standards		
		Concentration	Method	Primary	Secondary	Method
Visibility Reducing Particles	8 Hour	Extinction coefficient of 0.23 per kilometer – visibility of 10 miles or more (0.07-30 miles or more for Lake Tahoe) due to particles when relative humidity is less than 70 percent. Method: Beta Attenuation and Transmittance through Filter Tape.		No Federal Standards		
Sulfates	24 Hour	25 µg/m ³	Ion Chromatography			
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m ³)	Ultraviolet Fluorescence			
Vinyl Chloride 8	24 Hour	0.01 ppm (26 µg/m ³)	Gas Chromatography			

Source: California Air Resources Board (06/26/08)

**Table III-2
 HEALTH EFFECTS OF MAJOR CRITERIA POLLUTANTS**

Pollutants	Sources	Primary Effects
Carbon Monoxide	Incomplete combustion of fuels and other carbon-containing substances, such as motor vehicle exhaust. Natural events, such as decomposition of organic matter.	Reduced tolerance for exercise. Impairment of mental function. Impairment of fetal development. Death at high levels of exposure. Aggravation of some heart disease (angina).
Nitrogen Dioxide	Motor vehicle exhaust. High temperature. Stationary combustion. Atmospheric reactions.	Aggravation of respiratory illness. Reduced visibility. Reduced plant growth. Formation of acid rain.
Ozone	Atmospheric reaction of organic gases with nitrogen oxides in sunlight.	Aggravation of respiratory and cardiovascular diseases. Irritation of eyes. Impairment of cardiopulmonary function. Plant leaf injury.
Lead	Contaminated soil.	Impairment of blood function and nerve construction. Behavioral and hearing problems in children.
Fine Particulate Matter (PM ₁₀)	Stationary combustion of solid fuels. Construction activities. Industrial processes. Atmospheric chemical reactions.	Reduced lung function. Aggravation of the effects of gaseous pollutants. Aggravation of respiratory and cardiorespiratory diseases. Increased cough and chest discomfort. Soiling. Reduced visibility.
Fine Particulate Matter (PM _{2.5})	Fuel combustion in motor vehicles, equipment, and industrial sources. Residential and agricultural burning. Industrial processes. Also, formed from photochemical reactions of other pollutants, including NO _x , sulfur oxides, and organics.	Increases respiratory disease. Lung damage. Cancer and premature death. Reduces visibility and results in surface soiling.
Sulfur Dioxide	Combustion of sulfur-containing fossil fuels. Smelting of sulfur-bearing metal ores. Industrial processes.	Aggravation of respiratory diseases (asthma, emphysema). Reduced lung function. Irritation of eyes. Reduced visibility. Plant injury. Deterioration of metals, textiles, leather, finishes, coating, etc.

Source: California Air Resources Board, 2002

Evaluation of the most current data on the health effects of inhalation of fine particulate matter prompted the California Air Resources Board (ARB) to recommend adoption of the statewide PM_{2.5} standard that is more stringent than the federal standard. This standard was adopted on June 20, 2002. The State PM_{2.5} standard is more of a goal in that it does not have specific attainment planning requirements like a federal clean air standard, but only requires continued progress towards attainment.

Similarly, the ARB extensively evaluated health effects of ozone exposure. A new state standard for an 8-hour ozone exposure was adopted in April 2005, which mirrors the federal standard. The California 8-hour ozone standard of 0.07 ppm is more stringent than the federal 8-hour standard of 0.08 ppm. The state standard, however, does not have a specific attainment deadline. California air quality jurisdictions are required to make steady progress towards attaining state standards, but there are no hard deadlines or any consequences of non-attainment. As part of the same re-evaluation process, the ARB adopted an annual state standard for nitrogen dioxide (NO₂) that is more stringent than the corresponding federal standard, and strengthened the state one-hour NO₂ standard.

As part of EPA's 2002 consent decree on clean air standards, a further review of airborne particulate matter (PM) and human health was initiated. A substantial modification of federal clean air standards for PM was promulgated in 2006. Standards for PM_{2.5} were strengthened, a new class of PM in the 2.5 to 10 micron size was created, some PM₁₀ standards were revoked, and a distinction between rural and urban air quality was adopted.

Of the standards shown in Table III-1, those for ozone (O₃), and particulate matter (PM₁₀ and PM_{2.5}) are exceeded at times in the South Coast Air Basin. They are called "non-attainment pollutants." Because of the variations in both the regional meteorology and in area-wide differences in levels of air pollution emissions, patterns of non-attainment have strong spatial and temporal differences.

Baseline Air Quality

Long-term air quality monitoring is carried out by the SCAQMD at various monitoring stations. The nearest monitoring station to the project which monitors all criteria pollutants is the Metropolitan Riverside County 1 Station located in Rubidoux. Data from this station reveals that the 8-hour state and federal standards for ozone are exceeded annually as is the state standard for PM₁₀ and the state and federal standard for PM_{2.5} at the Rubidoux station. All other pollutants measured are below both the state and federal standards.

While the severity and frequency of violations is expected to continue to slowly decline, the attainment of all clean air standards in the project area is not expected to occur soon.

Air Quality Planning

The Federal Clean Air Act (1977 Amendments) required that designated agencies in any area of the nation not meeting national clean air standards must prepare a plan demonstrating the steps that would bring the area into compliance with all national standards. The South Coast Air Basin (SoCAB) could not meet the deadlines for ozone, nitrogen dioxide, carbon monoxide, or PM₁₀. In the SoCAB, the agencies designated by the governor to develop regional air quality plans are the SCAQMD and the Southern California Association of Governments (SCAG). The two agencies first adopted an Air Quality Management Plan (AQMP) in 1979 and revised it several times as earlier attainment forecasts were shown to be overly optimistic.

The 1990 Federal Clean Air Act Amendment (CAAA) required that all states with air-sheds with "serious" or worse ozone problems submit a revision to the State Implementation Plan (SIP). Amendments to the SIP have been proposed, revised and approved over the past decade.

Substantial reductions in emissions of ROG, NO_x and CO are forecast to continue throughout the next several decades. Unless new particulate control programs are implemented, PM₁₀ and PM_{2.5} are forecast to slightly increase.

The Air Quality Management District (AQMD) adopted an updated clean air “blueprint” in August 2003. The 2003 AQMP was approved by the EPA in 2004. The Air Quality Management Plan (AQMP) outlined the air pollution measures needed to meet federal health-based standards for ozone by 2010 and for particulates (PM₁₀) by 2006. Components of the 2003 air plan included:

- How the federal standard for CO will be maintained.
- Control measures to further reduce emissions from business, industry and paints.
- Measures to be adopted by CARB and EPA to further reduce pollution from:
 - Cars
 - Trucks
 - Construction equipment
 - Aircraft
 - Ships
 - Consumer products

With re-designation of the air basin as severe non-attainment for the 8-hour ozone standard, a new attainment plan has been developed. This plan shifts most of the one-hour ozone standard attainment strategies to the 8-hour standard. As previously noted, the attainment date will “slip” from 2010 to 2021. The updated attainment plan also includes strategies for ultimately meeting the federal PM_{2.5} standard.

The 2007 AQMP was adopted on June 1, 2007 after extensive public review. The 2007 AQMP recognizes the interaction between photochemical processes that create both ozone and the smallest airborne particulates (PM_{2.5}). The 2007 AQMP is therefore a coordinated plan for both pollutants. Key emissions reductions strategies in the updated air quality plan include:

- Ultra-low emissions standards for both new and existing sources (including on-and-off-road heavy trucks, industrial and service equipment, locomotives, ships and aircraft).
- Accelerated fleet turnover to achieve benefits of cleaner engines.
- Reformulation of consumer products.
- Modernization and technology advancements from stationary sources (refineries, power plants, etc.).

Water facility projects relate to the AQMP through the growth assumptions associated with the provision of potable water and the potential air pollution aspects of growth. The provision of additional potable water could be considered growth-inducing. However, the proposed project has two aspects: improve the quality of groundwater in the Arlington Basin; and provide a more reliable source of adequate quality water in the service area. Population growth in the project area, and the increased demand for water created by growth, is controlled by the land uses and development densities allowed by the local agencies with jurisdictions over land uses in the project area. This project is intended to contribute to the WMWD’s ability to provide an adequate supply of water to its service area based on growth projections and development allowed by the local land use documents such as the City of Riverside General Plan. Air quality attainment projections provided in the AQMP are based on growth projections using growth allowed and envisioned by local planning documents such as General Plans. Therefore, projects that are considered consistent with the local land use planning documents are considered compatible with the AQMP and clean air attainment goals. As such, this project is considered growth accommodating, not growth inducing and compatible with the AQMP. Some mechanical equipment may require SCAQMD

authority to construct and permits to operate. The rules and regulations of the SCAQMD are an integral portion of the AQMP. Stationary source control measures in the AQMP are propagated throughout the basin via SCAQMD rules and regulations. They insure that required best available control technologies (BACT) are applied to any new permitted equipment that may require permitting as part of this project.

Air Quality Impacts

Standards of Significance

Air quality impacts are considered “significant” if they cause clean air standards to be violated where they are currently met, or if they “substantially” contribute to an existing violation of standards. Any substantial emissions of air contaminants for which there is no safe exposure, or nuisance emissions such as dust or odors, would also be considered a significant impact.

Many pollutants require additional chemical transformation to reach their most unhealthful state. This process occurs over many hours and many miles of transport. The individual impact from any project is diluted to imperceptible concentrations during this process. The SCAQMD has therefore designated significant emissions levels for evaluating impact significance independent of chemical transformation processes. Projects with daily construction emissions that exceed any of the following emission thresholds are recommended by the SCAQMD to be considered significant.

**Table III-3
SCAQMD EMISSIONS SIGNIFICANCE THRESHOLDS (pounds/day)**

Pollutant	Emissions (Construction)
ROG	75
NOx	100
CO	550
PM ₁₀	150
PM _{2.5}	55
SOx	150
Lead	3

Source: SCAQMD CEQA Air Quality Handbook, November, 1993 Rev.

The U.S. Clean Air Act Amendments of 1990, at Section 176c, prohibit any federal participation in any program that is not in conformity with the applicable state implementation plan (SIP). For Southern California, this is the 2007 AQMP. Participation includes project funding through the state revolving fund (SRF). It is anticipated that the proposed project may seek funding through the SRF. Project approval therefore requires a Clean Air Act Conformity finding.

Conformity analysis under EPA guidelines can be undertaken to demonstrate that the combined emissions from direct and indirect (transportation, etc) project-related emissions have been accurately incorporated into the applicable SIP. A simpler test, as outlined in 40 CFR Part 93.153, is to demonstrate that these emissions are less than the *de minimis* thresholds which depend upon the seriousness of the current level of non-attainment for federal clean air standards. The SCAB is designated as “severe” non-attainment for the 8-hour ozone standard and the annual PM_{2.5} standard. The basin is a maintenance area for CO. The annual emissions significance thresholds

for projects in severe ozone or PM_{2.5} non-attainment areas (and CO maintenance areas) are as follows:

- Reactive Organic Gases – 25 tons/year
- Nitrogen Oxides – 25 tons/year
- Carbon Monoxide – 100 tons/year
- Particulate Matter – 70 tons/year
- Fine Particulate Matter – 100 tons/year

Projects with annual direct and indirect emissions below these thresholds are considered to be in conformance with the applicable SIP. A conformity finding also requires that project-related emissions do not exceed 10 percent of the air basin emissions inventory. The above thresholds are much, much less than 10 percent of the South Coast Air Basin emissions inventory. If emissions are demonstrated to be *de minimis*, the 10 percent requirement is automatically met.

Equipment Exhaust Impacts

Onsite construction activities emissions for the Arlington Desalter project were calculated utilizing the URBEMIS2007 computer model. Diesel truck deliveries and employee commuting emissions were calculated utilizing EMFAC2007 roadway emissions factors.

The URBEMIS2007 computer model was used to calculate emissions for the following construction equipment fleet for the indicated construction activity:

Pipeline Installation	1 Excavator
	1 Backhoe
	1 Paver
	1 Roller
	1 Water Truck
	Dump/delivery trucks (80 miles/day)
	Employees (10 members per team)
Basin Excavation	1 Dozer
	2 Scrapers
	1 Grader
	1 Compacter
	1 Water Truck
	Dump/delivery trucks (80 miles/day)
	Employees (10 members per team)

Wells and Pump Station	1 Bore/Drill Rig
	1 Backhoe
	1 Rough Terrain Forklift
	1 Mortar Mixer
	1 Welder
	Dump/delivery trucks (80 miles/day)
	Employees (10 members per team)

Utilizing the above equipment fleet daily emissions were calculated by the URBEMIS2007 computer model using the following assumptions. The wells and pump stations have a footprint of less than one acre each. Pipelines will extend for about 6 miles and have a progress rate of 150 feet per day, or 500 cubic yards of earth work per day with an 8-foot excavation depth. Basins will have a total of about a 17-acre footprint with 220,000 cubic yards of earthworks all onsite with a rate of progress of 1,000 cubic yards per day.

**Table III-4
 2010 CONSTRUCTION ACTIVITY EMISSIONS (pounds/day)**

Activity	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
<u>Pipeline Installation</u>							
No Mitigation	3.3	23.0	13.0	0.0	71.5	16.1	2212.9
With Mitigation	3.3	19.6	13.0	0.0	6.7	1.6	2212.9
<u>Basins</u>							
No Mitigation	6.3	56.7	27.4	0.0	162.9	35.7	5414.9
With Mitigation	6.3	48.2	27.4	0.0	15.3	3.5	5414.9
<u>Wells and Pump Station</u>							
No Mitigation	2.4	17.4	9.9	0.0	3.6	1.5	2541.0
With Mitigation	2.4	14.8	9.9	0.0	0.4	0.2	2541.0
<u>Total All Activities</u>							
No Mitigation	12.0	97.1	50.3	0.0	238.0	53.3	10,168.8
With Mitigation	12.0	82.6	50.3	0.0	22.4	5.3	10,168.8
SCAQMD Threshold	75	100	550	150	150	55	--

Source: URBEMIS2007 Model, Output in Appendix

In addition to the above construction equipment, a construction crew of 10 persons per project was assumed. A roundtrip commute distance of 50 miles per employee was assumed. Utilizing EMFAC2007 roadway emissions factors, the following emissions were calculated for the year 2010 (pounds/day):

**Table III-5
 2010 ON-ROAD EMISSIONS FROM CREW COMMUTING AND TRUCK HAUL (pounds/day)**

Activity	ROG	NOx	CO	PM10	PM2.5
Employees (10 members per team, 50 miles/day)	0.5	0.5	4.1	<0.1	<0.1
Dump/delivery trucks (80 miles/day)	0.2	3.1	1.0	0.3	0.1
Total On-Road	0.7	3.6	5.1	0.3	0.1

The combined total emissions from mitigated construction equipment, employee commuting and truck haul assuming all construction phases overlap and occur simultaneously are seen below:

**Table III-6
 CONSTRUCTION, TRUCK HAUL AND EMPLOYEE COMMUTING (pounds/day)**

Activity	ROG	NOx	CO	PM10	PM2.5
Pipeline Installation	4.0	23.2	18.1	7.0	1.7
Basins	7.0	51.8	32.5	15.6	3.6
Wells and Pump Station	3.1	18.4	15.0	0.7	0.3
TOTAL	14.1	93.4	65.6	23.3	5.6
AQMD Threshold	75	100	550	150	55

The regional air quality impacts associated with construction equipment activity during typical activities are shown to be less-than-significant for every air pollutant even if all construction phases were to occur simultaneously. The mobile nature of the onsite construction equipment and offsite trucks will likely prevent any localized violation of the NOx or other standards. There may be isolated instances when the characteristic diesel exhaust odor is noticeable from passing trucks or nearby heavy equipment, but such odors are transitory. Also, the project sites are located within an urban area which already has odors associated with the combustion of petroleum products. Implementation of this project will not result in the creation of new odors or will it contribute to the generation of a substantial amount of new odors in the area.

State Implementation Plan Consistency

Federal actions may be exempt from conformity determinations if they do not exceed designated *de minimis* levels. As discussed, the 40 CFR Part 51.853(b) establishes these *de minimis* levels for criteria pollutants. The South Coast Air Basin is a designated extreme non-attainment area for the federal 8-hour standard for ozone and non-attainment for PM₁₀ and PM_{2.5}.

If the *de minimis* thresholds are not exceeded, and the proposed action does not create emissions that constitute more than 10 percent of the air basin's emission budget, a formal conformity analysis is not required. Project-related annual emissions relative to these thresholds were calculated by utilizing daily construction emissions provided by the URBEMIS2007 annual emissions output file (provided in the appendix) and from EMFAC2007 and then multiplying by the project duration and adjusting from pounds per day to tons per year as follows:

**Table III-7
 ANNUAL CONSTRUCTION EMISSIONS**

Activity	ROG	NOx	CO	PM10	PM2.5
Pipeline Installation					
URBEMIS Annual	0.4	2.5	1.4	0.7	0.2
EMFAC2007 x 220	0.1	0.4	0.6	<0.1	<0.1
days	0.5	2.9	2.0	0.7	0.2
Total					
Basin Excavation					
URBEMIS Annual	0.7	6.3	3.0	1.7	4.0
EMFAC2007 x 220	0.1	0.4	0.6	<0.1	<0.1
days	0.8	6.7	3.6	1.7	4.0
Total					
Wells and Pump Station					
URBEMIS Annual	0.1	0.7	0.5	0.0	0.0
EMFAC2007 x 90 days	<0.1	0.2	0.2	<0.1	<0.1
Total	0.1	0.9	0.7	0.0	0.0
All Project Total	1.4	10.5	6.3	2.4	4.2

Calculated annual emissions from the proposed action, assuming all activities occur within the same calendar year (worst-case) are as follows relative to the above *de minimis* thresholds (tons/year).

**Table III-8
 PROJECT EMISSIONS RELATIVE TO DE MINIMIS THRESHOLDS**

Pollutant	Status (Attainment, Nonattainment or Unclassified)	Threshold of Significance (tons/yr)	Construction Emissions (tons/yr)
Carbon Monoxide	Attainment	100	6.3
Ozone	Nonattainment	N/A*	N/A*
Oxides of Nitrogen	Attainment	25	10.5
Particulate Matter	Nonattainment	70	2.4
Reactive Organic Gases	N/A	25	1.4
Sulfur Dioxide	Attainment	100	0.0
Volatile Organic Compounds	N/A	25	1.4

* threshold is applied to VOC/ROG and NOx as precursors
 Operational emissions are negligible as all systems are electric

None of the annual construction activity emissions will exceed the applicable threshold. There are no operational emissions to be considered. A formal SIP consistency analysis is not required.

Local Significance Thresholds

The SCAQMD has developed analysis parameters to evaluate ambient air quality on a local level in addition to the more regional emissions-based thresholds of significance. These analysis

elements are called Local Significance Thresholds (LSTs). LSTs were developed in response to Governing Board's Environmental Justice Enhancement Initiative 1-4 and the LST methodology was adopted 2005.

Use of an LST analysis for a project is optional because they were derived for economically or socially disadvantaged communities. For this project LSTs are only applicable to construction activities. LSTs are only applicable to the following criteria pollutants: oxides of nitrogen (NOx), carbon monoxide (CO), and particulate matter (PM₁₀ and PM_{2.5}). LSTs represent the maximum emissions from a project that are not expected to cause or contribute to an exceedance of the most stringent applicable federal or state ambient air quality standard, and are developed based on the ambient concentrations of that pollutant for each source receptor area and distance to the nearest sensitive receptor.

In this case, emissions at the project sites will be short term, being almost exclusively produced during construction activities.

For project recharge basins, the smallest site is approximately 2 acres and has residential receptors within 200 feet (61 meters). Larger recharge basin sites are approximately 5 acres and have residential receptors that are approximately same distance from the boundaries of the project sites. However, the area of daily disturbance will be similar at all the recharge basins and the nearest receptors to daily emissions will be similar at each site. LST pollutant concentration data is currently only published for 1-acre, 2-acre and 5-acre sites for varying receptor distances. If the project construction emissions meet LST thresholds for a 200 foot receptor distance then the threshold for larger receptor distances will be met with a larger margin of safety and no additional analysis is required. Pollutant concentrations for a 2-acre disturbance area and for a source-receptor distance of 50 meters are as follows (pounds per day):

**Table III-9
 LOCALIZED EMISSIONS**

Riverside County 2 acres - 50 meters	ROG	NOx	PM10	PM2.5
LST Threshold	1,096	400	20	6
Project Construction Emissions Unmitigated	33	52	16	4

It should be noted that these emissions are temporary, short term emissions associated with construction. No long-term localized emissions will be associated with operation of the proposed facilities.

Greenhouse Gases

Construction equipment and on-road traffic will generate greenhouse gas (GHG) emissions possibly associated with currently observed global warming. California has adopted several initiatives to reduce GHG emissions from combustion sources. Obviously, no single project or jurisdiction generates enough GHG to impact global climate. However, the cumulative impact of all combustion of fossil fuels may have global implications. Use of modern diesel engines, required to mitigate NOx impacts, will have a small GHG emissions reduction benefit from increased combustion efficiency. In the absence of any GHG thresholds of emissions significance or methodology to analyze such impacts, the use of maximally efficient diesel-fueled equipment is believed to mitigate any cumulative GHG impacts as much as is practical.

Project-related GHG emissions were calculated by assuming that every work day is a maximum activity work day. Onsite equipment exhaust CO₂ emissions were calculated from the annual URBEMIS2007 output as follows:

Pipeline	245 tons/year
Basin	598 tons/year
Wells	116 tons/year

The EMFAC2007 model output at the SCAQMD website does not contain CO₂ emissions factors. However, for on-road internal combustion engines, CO₂ emissions are equal to approximately 110 times the CO fraction. Use of this ratio predicts the following on-road CO₂ contribution:

Pipeline Employee Commuting/Haul
5.1 lb/day x 220 days x 110 = 123,420 pounds = 62 tons/year
Basins Employee Commuting/Haul
5.1 lb/day x 220 days x 110 = 123,420 pounds = 62 tons/year
Wells Employee Commuting/Haul
5.1 lb/day x 90 days x 110 = 50,490 pounds = 25 tons/year

Adding the project construction and employee commute and truck haul emissions provide the total annual emissions:

Pipeline Total Commuting, Haul and Construction
62 tons/year + 245 tons/year = 307 tons/year
Basins Total Commuting, Haul and Construction
62 tons/year + 598 tons/year = 660 tons/year
Wells Total Commuting, Haul and Construction
25 tons/year + 116 tons/year = 141 tons/year
Total All Phases = 307 + 660 + 141 = 1,108 tons/year

Maximum plausible CO₂ emissions from on-and off-road activities would total 1,108 tons. In 2004, the statewide annual GHG inventory in CO₂-equivalent levels (including all non-CO₂ gases weighted by their thermal absorption potential) was 492,000,000 metric tons (541,000,000 short tons). The worst-case project construction impact of 1,108 tons/year represents less than 0.0002 percent of the statewide burden.

Operations Emissions

Operational consumption of electricity will similarly create GHG emissions. Project-related operational GHG emissions were calculated by estimating energy consumption while the CO₂-equivalents are shown in the California Climate Action Registry (CCAR) reporting protocol (2007). A possible range of emissions is provided depending on the alternative range of tonnage as follows:

$$2170-3154 \text{ MWH} \times 0.45 \text{ tons CO}_2\text{(e)/MWH} = 998-1,451 \text{ tons/year}$$

Possible operational GHG emissions are similar to the construction emissions (1,108 tons/year) and similarly represent a very small percentage of the statewide burden.

There are no adopted thresholds of GHG emissions significance. However, GHG emissions are implicated in the acceleration of global warming experienced in the last several decades. Climatic

impacts are global in scale. Any project-specific contribution to the global issue is minuscule. In the absence of any definitive thresholds of significance, the GHG emphasis on a project-specific level is to incorporate project design features that reduce energy consumption and reduce vehicular travel as much as is reasonably feasible. Unless there is a greater shift to clean energy such as solar, hydroelectric, wind, nuclear, etc., no substantial reduction in GHG is likely attainable by conventional methods except through energy conservation.

Diesel Exhaust Exposure Risk

Diesel-powered construction equipment releases exhaust particulates (soot) that have been identified as carcinogenic in a number of health studies. Diesel particulate matter (DPM) emissions will be generated both at any individual construction site, as well as along any haul routes for moving earth and the import materials. No specific methodology exists to convert the toxic fraction of diesel equipment exhaust into a corresponding health risk when emissions are scattered over a wide area by the sources themselves. Initial construction activities will generate a maximum of 0.8 pounds per day of combustion PM_{2.5} per day. The progressive nature of the activity is such that it will occur in close proximity to any individual residence for only a few days before progressing further along the alignment.

The cancer risk factor for diesel exhaust is expressed in terms of outdoor exposure for 24 hours per day, 365 days per year, for the next 70 years. These are not conditions that will occur around various project elements because the construction activity will not last 70 years, nor will anybody sit on their front porch for the next 70 years without leaving. The equipment exhaust will be released for a very limited time during daytime hours of moderate winds and turbulence by mobile sources that will not expose any individual receptor for any extended period. Receptors will not be outside their residences for the duration of the construction activity. Diesel exposure health risk impacts from construction equipment diesel exhaust particulates will therefore be minimal.

Mitigation

Neither construction nor operations activity emissions for any of the project alternatives will exceed SCAQMD significance thresholds with implementation of the following mitigation measures.

Nuisance minimization requires use of all feasible best management practices for dust control. To reduce potential impacts to the greatest extent feasible, WMWD shall implement the following mitigation measures where feasible for dust control and emissions reduction.

III-1 Using best available control measures during soil disturbance. The menu of enhanced dust control measures includes the following:

- **Limit the disturbance “footprint” to as small an area as practical.**
- **Water all active construction areas at least twice daily.**
- **Cover all off-site haul trucks or maintain at least 2 feet of freeboard.**
- **Pave or apply water four times daily to all unpaved parking or staging areas.**
- **Sweep or wash any site access points within 30 minutes of any visible dirt deposition on any public roadway.**
- **Cover or water twice daily any on-site stockpiles of debris, dirt or other dusty material.**
- **Suspend all operations on any unpaved surface if winds exceed 25 mph.**
- **Stockpile excess dirt from levee reconstruction as far from homes as reasonable.**

III-2 Limit allowable idling to 5 minutes for trucks and heavy equipment before shutting the equipment down.

III-3 Utilize equipment whose engines are equipped with diesel oxidation catalysts if available.

III-4 Utilize diesel particulate filter on heavy equipment where feasible.

III-5 Utilize Tier 3 rated diesel engines where possible.

A formal SIP consistency analysis is not required because total project emissions are less than EPA *de minimis* thresholds and are less than ten percent of the air basin's emission budget.

- c. *Less Than Significant Impact* – The project will not cause a cumulative considerable net increase of any non-attainment criteria pollutants. As shown on Tables III-4 and III-5 above, most project-related emissions are associated with short-term construction emissions and are well below significance thresholds. As discussed in issues (a) and (b) above, the project is compatible with the goals and strategies of the AQMP's adopted for the SoCAB to attain both state and federal ambient air quality standards and the SIP. As such, this project will not result in any cumulatively considerable net increase in criteria pollutants for which the region is designated non-attainment.
- d. *Less Than Significant Impact* – The majority of new emissions associated with this project are short-term construction emissions. Data provided in Tables III-4 and III-5 above indicates that all emissions are well below thresholds of significance for criteria pollutants both regionally and locally. SCAQMD also considers the potential effect of project-related emissions in "local" sensitive receptors. The LST's shown in Table III-9 are for receptors located 50 meters from the project sites. These receptors are residences located near the proposed recharge basins (Alternatives 1-6). Sensitive receptors are considered to be children, the elderly and the sick. Schools, day care centers, hospitals and clinics, and retirement or nursing homes are facilities of concern if they are near a proposed project that produces air pollution. Other than the residences, there are no sensitive human receptors near the project sites that have a potential to generate substantial emissions. Due to the lack of sensitive receptors and the short term nature of the potential emissions, potential impacts are considered less than significant under any of the proposed development scenarios. Implementation of Mitigation Measures III-1 through III-5 will further reduce these potentially less than significant impacts. No further mitigation is required.
- e. *Less Than Significant Impact* – Use of construction equipment may result in some temporary and localized odors from the combustion and use of petroleum products. This project is located within an urbanized area that contains one of the most heavily traveled freeways in southern California (91 Freeway). Odors generated by the combustion of petroleum products by construction equipment will not create a new odor in the area nor result in any additional long term odors. Operation of the wells and pump stations will utilize electricity to power the pumps and motors and no long term odors are forecast to result from operation of this project. Thus, potential odor impacts associated with this project are forecast to be less than significant under any of the alternatives. Implementation of mitigation Measures III-1 through III-5 will further reduce the less than significant impacts associated with odors.

INITIAL STUDY

	Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Impact	No Impact
IV. BIOLOGICAL RESOURCES – Would the project:				
a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

SUBSTANTIATION:

a-f. *Less Than Significant Impact* – The proposed project is located within an area designated Urban and Built-Up Land on Figure OS-2 of the City General Plan. Such land is considered urbanized and contains a variety of fragmented native and non-native habitat and some agricultural uses and is not considered an area which contains any significant native habitat or sensitive biological resources. One proposed facility, the Victoria Recharge Basin is located within and adjacent to the northeasterly boundary of the Arlington Heights Greenbelt. The Arlington Heights Greenbelt was established by the City to preserve agriculture through the application of the RA-5, Residential Agricultural Zone. Therefore, the site is designated for residential development, not for natural community or biological resources preservation. No known local policies or ordinances protecting biological resources exist within the project boundaries. No conflict with any such policies or ordinances is forecast to occur.

The project area is included within the area covered by the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP) and the area shown on the USGS – Riverside West Quadrangle, 7.5 minute topographic. The project sites are not within a MSHCP Area Plan or within

or adjacent to any criteria cells and is independent of a critical cell group. According to Section 6.3 of the MSHCP, none of the project sites are identified for surveys for special status species.

The California National Diversity Data Base (CNDDDB) and literature references including the Western Riverside County MSHCP were examined to obtain information on species occurrences in the project vicinity. According to the CNDB, 28 sensitive species have been recorded within the USGS – Riverside West Quadrangle. The suitability of the habitat onsite for the species listed in the CNDDDB and MSHCP was evaluated in the field on June 12, 13 and 15, 2009. Tom Dodson & Associates' (TDA) biologist, Shay Lawrey, conducted pedestrian surveys on the subject parcels per the requirements of the MSHCP. The focus of the field survey was to document the presence or absence of special status species identified in the MSHCP and CNDDDB. The results of the TDA investigation and surveys are presented in the TDA Biological Analysis. Data contained in the TDA Biological Analysis is used in this section of the document to evaluate this project's potential effects on biological resources. A copy of the TDA Biological Analysis is available for review as Appendix B.1 to this document.

The subject parcels are best classified as Holland community type Urban or Built-up Land (11100). With no undisturbed areas on the properties, the parcels appear to have been subjected to long-term disturbance. The properties consist of a combination of bare packed dirt, landscaping, maintained grass fields, structures, and paving.

There is no natural habitat on any of the parcels and no potential for sensitive occurring could be identified. Only maintained landscape or hardy weed species are found on the sites. The ground-cover on the parcels includes one or a combination of ornamental landscaping, non-native ruderal vegetation, hardscape, and bare compacted dirt. No species of concern were found to occur on any of the parcels and there is no appropriate habitat present for any species found in the MSHCP or CNDDDB search. Ms. Lawrey determined that locally sensitive species do not have a tolerance for the type and intensity of disturbance present on the subject parcels. No evidence of recent or historical use by any of the locally sensitive species on any of the subject parcels was identified. As such no further focused surveys are warranted.

The proposed Project will not preclude the conservation goals and criteria listed in the MSHCP because the sites are completely developed or disturbed and outside of the areas identified for conservation in the MSHCP. A detailed examination of the four proposed recharge basin sites was conducted to determine whether they contained any waters of the United States or State of California. There are no sensitive biological resources at any of the proposed basin sites; no natural habitat at the sites; and no features within the proposed basins that would make these basins subject to the Clean Water Act, California Department of Fish and game or the MSHCP Riverine/Riparian/Vernal Pool policies. Refer to Appendix B.2 to review the detailed analysis of the recharge basin sites. This analysis was prepared by TDA biologist Ms. Lisa Tollstrup.

Although, no native habitat exists on the sites, the MSHCP still requires compliance with the plan policies identified in Section 6 of the MSHCP. This project must comply with the following policies: (1) Riparian/Riverine Areas/ Vernal Pools; (2) Narrow Endemic Plant Species; (3) Urban/Wildlands Interface; and (4) Surveys for Special Status Species.

Riparian/Riverine Areas and Vernal Pools: Pursuant to Section 6.1.2 of the MSHCP, Riparian/Riverine areas are lands which contain habitat dominated by trees, shrubs, persistent emergent vegetation, or emergent mosses and lichens, which occur close to or which depend upon soil moisture from nearby freshwater sources, or areas with freshwater flow during all or a portion of the year. Vernal Pools are seasonal wetlands that occur in depression areas that have wetlands indicators of all three parameters (soils, vegetation, and hydrology) during the wetter portion of the growing season. The project has been reviewed and assessed and it has been determined that the project site does not contain riverine riparian or vernal pool habitat as defined in the

Riparian/Riverine Areas/Vernal Pools Plan Policy. Therefore, no impacts to riverine riparian or vernal pool habitat will result as part of this project. The project is consistent with the conservation goals of the plan.

Narrow Endemic Plant Species: Pursuant to Section 6.1.3 of the MSHCP, focused surveys for narrow endemic plant species are required for properties within the mapped areas if appropriate habitat is present. The survey area maps have been reviewed and assessed and the sites are within an area mapped for narrow endemic plant surveys as defined in the Narrow Endemic Plant Species Plan Policy. Based on the site surveys, no suitable habitat exists on the sites that is capable of supporting narrow endemic plant species identified by the Plan. Furthermore, narrow endemic plant species are not adapted to endure the level of ongoing disturbances that occurs on the subject parcels. Since no narrow endemic plants are on site and have no potential of occurrence, no further surveys or conservation measures are required. The project is consistent with the conservation goals of the plan.

Urban/Wildlands Interface: Section 6.1.4 of the MSHCP presents guidelines to minimize indirect effects of projects in proximity to the MSHCP Conservation areas. This section provides mitigation measures for impacts associated with: Drainage, Toxics, Lighting, Noise, Invasives, Barriers, and Grading/Land Development. The project site is southeast of an area defined as an Urban/Wildlands Interface. Best Management practices such as light shielding, drainage control, and water quality protection from toxics will need to be identified for this area should any impacts be proposed. However, no such impacts are associated with the project as current proposed. This project does not propose any identifiable direct or indirect impacts. The subject parcels associated with this project are developed and disturbed at this time. The project is consistent with the conservation goals of the plan.

Special Species Survey Areas: Pursuant to Section 6.3 of the MSHCP, none of the parcels associated with this project are identified for surveys for special status species. The project sites are not within a MSHCP overlay that requires additional surveys for burrowing owl or other species. TDA biologist, Shay Lawrey conducted a habitat assessment and found no suitable habitat on site for any sensitive species. Further survey was not warranted.

There are no significant biological resources issues related to this project. The project is consistent with all of the policies outlined in the MSHCP.

No jurisdictional wetlands, "waters of the United States", streams or lakes will be affected by this project. No significant impact to such resources is forecast to result and no mitigation is required. See Riparian/Riverine and Vernal Pools evaluation above.

Implementation of any of the proposed project alternatives will result in alterations to the inflow and outflow of ground water into and out of the Arlington Basin (see Figures 3 through 9). However, these changes in groundwater flow are not forecast to affect any known sensitive biological resources because they do not affect any known water sensitive biological resources. The areas affected by the flow of groundwater are primarily urbanized and do not support any known wetlands or riparian habitat. The only area with some potential to be affected by this project is the Hole Lake area and the Santa Ana River which receives some inflow from rising groundwater from the Arlington Basin. Other than Hole Lake and the Santa Ana River floodplain, the area which receives rising groundwater has been urbanized, is designated for urban development and contains no sensitive biological resources or habitat.

Due to the urbanized nature of the area contributing water to Hole Lake and the Santa Ana River, much of the water flow to these areas is associated with the additional runoff from the existing development. Stormwater flows and urban runoff are conveyed to this area in paved roads and storm drains. No identifiable impact to water dependant biological resources in the Hole Lake area

and the Santa Ana River are forecast to result from implementing any of the possible project alternatives.

This finding is based on a more detailed study of Hole Lake that was initiated by the District to determine what the impact to the riparian resources would be at this location. A memorandum from Ms. Tollstrup (provided as Appendix B.3) identified the character of the habitat at Hole Lake, which is no longer a lake since it has little or no aquatic habitat. Using the data regarding the existing habitat at the 11.43 acre Hole Lake area, Wildermuth Environmental, Inc. (WEI) conducted an evaluation to determine whether the groundwater extractions under any of the Alternatives could cause the Hole Lake riparian habitat to be adversely impacted. Using long-term data on discharges from Hole Lake to the Santa Ana River, WEI compiled the data in Table IV-1. Based on these data, no adverse impact will occur to the Hole Lake habitat, and substantial outflow will continue to be discharged into the Santa Ana River (estimated to range from 1.87 cfs to 3.34 cfs, post project implementation). See also Section VIII, Hydrology and Water Quality for further evaluation.

Table IV-1
SUMMARY OF HOLE LAKE AREA DISCHARGES
 (cubic-feet/second)

Simulation	Riparian Demand at Hole Lake¹	Measured Outflow from Hole Lake to Santa Ana River (Dry Weather Flow)²	Reduction in Raising Groundwater Outflow to Hole Lake³	Estimated Outflow from Hole Lake to Santa Ana River (Post Project)⁴
Baseline	0.08	3.46	(0.12)	3.34
Alternative 1	0.08	3.46	(1.56)	1.90
Alternative 2	0.08	3.46	(1.57)	1.89
Alternative 3	0.08	3.46	(0.44)	3.02
Alternative 4	0.08	3.46	(0.61)	2.85
Alternative 5	0.08	3.46	(1.16)	2.30
Alternative 6	0.08	3.46	(1.16)	2.30
Alternative 7	0.08	3.46	(1.59)	1.87

Notes:

- 1 TDA determined that the Hole Lake area has about 11.4 acres of riparian habitat. The riparian habitat is comprised of Willow and Sycamore trees, tree of heaven, Aurndo donax, mulefat, cattails, and wild grapes. The value presented for riparian demand is based on historical data for riparian woodlands.
- 2 Monthly flow measurements are made at the outlet structure at Hole Lake. The value presented is the average annual dry weather flow for the period of June 2007 to January 2010. The total annual discharge from Hole Lake to the Santa Ana River is greater than shown, as it also includes stormwater.
- 3 Based on results from the Arlington groundwater flow model simulations.
- 4 For all of the proposed project alternatives, surplus water to the Hole Lake area will continue to discharge to the Santa Ana River.

No significant adverse effects to biological resources can be identified and no mitigation is required.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Impact	No Impact
V. CULTURAL RESOURCES – Would the project:				
a. Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Disturb any human remains, including those interred outside of formal cemeteries?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

SUBSTANTIATION:

a&b. *Less Than Significant Impact With Mitigation Incorporated* – According to data provided in the Historic Preservation Element of the City of Riverside General Plan, the City and the adjoining areas have rich history of human occupation. The availability of water from the Santa Ana River and tributary water courses provided the essentials needed for Native Americans and the early European explorers and settlers of the region. Probably the most significant growth and development of area is associated with the “citrus-culture” development of the region. The citrus-culture operations generated a substantial income to the area which attracted investment capital from the east coast of the United States, Canada and Great Britain. The completion of the intercontinental railroad system further spurred the rapid development of the region and all of southern California. Cultural resources in the City of Riverside and adjacent area are primarily associated with the development in the “downtown” section of Riverside. Other significant cultural features include canals, bridges, railroad features and houses. The Arlington area, as with much of the Riverside areas was developed with citrus-culture activities.

To evaluate this projects potential to affect cultural resources, the consulting firm of CRM TECH was retained to perform a study of the area of potential effect (APE) of this project in a manner that complies with the requirements of the California Environmental Quality Act (CEQA) and the State Water Resources Control Board (SWRCB) under federal mandate in compliance with Section 106 of the National Historic Preservation Act (NHPA). The purpose of the study is to provide the information necessary for the WMWD and the SWRCB to determine if the proposed project could have an effect on any “historic properties”, as defined by 36 CFR 800.16(1) or “historical resources” as defined by Title 14 CCR 15064.5 (a)(1)-(3) that may exist within or near the APE. To accomplish this objective, CRM TECH conducted a historical/archaeological resources records search, pursued historical and geomorphologic research, contacted Native American representatives and carried out a systematic field survey of each component of the APE.

The findings of the CRM TECH investigation is provided in Identification and Evaluation of Historic Properties Arlington Desalter System Expansion Project (CRM TECH Report) is provided as Appendix C. Data contained in the CRM TECH Report is provided in this section of this document to evaluate the potential effects on cultural resources from implementing the proposed project.

The results of the records search indicate that five historical/archaeological sites, designated 33-4495, 33-4791, 33-10974, 33-11361, and 33-11579, were previously identified within or adjacent to various portions of the APE. As a result of further research, including the field survey, it was ascertained that two of these five sites no longer exist in the vicinity of the APE, and two

others have been found ineligible for national, state, or local historical designation. The fifth site, 33-11361, is a segment of Victoria Avenue lying adjacent to a portion of the APE. As one of the most popular legacies from Riverside's citrus-growing past, Victoria Avenue has been designated by the City of Riverside as a Cultural Heritage Landmark (No. 8) and listed in the National Register of Historic Places (No. 00001267). As such, it clearly meets the definitions of a "historic property" and a "historical resource."

Since it is located outside the project boundaries, Victoria Avenue will not receive any direct impact from the proposed undertaking. As currently proposed, this undertaking does not involve major construction above the ground or large-scale alteration of current land use at that location, and thus is not likely to have any indirect effect on the historic integrity of Victoria Avenue.

No other potential "historic properties" or "historical resources" were encountered during the course of the study. In addition, the subsurface sediments within the APE appear to be relatively low in sensitivity for potentially significant archaeological deposits. Based on these findings, and pursuant to 36 CFR 800.4(d)(1) and Calif. PRC §21084.1, CRM TECH recommends to the WMWD and the SWRCB a conclusion that no "historic properties" or "historical resources" will be affected by the proposed undertaking. No further cultural resources investigation is recommended for the undertaking unless project plans undergo such changes as to include areas not covered by this study. However, if buried cultural materials are encountered during earth-moving operations, all work in that area should be halted or diverted until a qualified archaeologist can evaluate the nature and significance of the finds.

AREA OF POTENTIAL EFFECT

According to 36 CFR 800.2(d), the Area of Potential Effect is "the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist." For the proposed undertaking, the APE is delineated to encompass the maximum extent of ground disturbance required to complete the proposed project. As stated previously, it consists of a number of non-contiguous tracts of land at 19 different locations in the La Sierra, Arlington, and Arlington Heights neighborhoods of the City of Riverside. The various components of the undertaking and their locations are listed below in Table V-1.

Current project plans indicate that the anticipated maximum depth of ground disturbances—i.e., the vertical APE—at the recharge basin sites will not exceed 15 feet below the current ground surface, while the wells will require subsurface drilling to a maximum of 300 feet. At a maximum diameter of 18 inches, however, the well excavations as proposed are essentially borings.

**Table V-1
 PROPOSED COMPONENTS OF THE ARLINGTON DESALTER EXPANSION PROJECT**

Assessor's Parcel No.	Proposed Feature	Approx. Acreage*	Description/Location	Desalter Number
145-232-044	Well site	0.21	"Hole Wells," Hole Avenue near Magnolia Avenue	6
191-302-011	Well site	0.95	Hawthorne Avenue near Jackson Street	7
193-074-012	Well site	0.29	"Army Well Site," California Avenue east of Jackson Street	8
234-250-026	Well site	4.72	Indiana Avenue at Van Buren Boulevard	9
233-170-003	Well site	1.05	Indiana Avenue at Van Buren Boulevard	10

Assessor's Parcel No.	Proposed Feature	Approx. Acreage*	Description/Location	Desalter Number
233-170-009	Well site	0.30	Riverside Water Company Canal near Jackson Street	11
233-100-001	Well site	40.07	Sherman High School, Magnolia Avenue at Jackson Street	12
231-020-006	Well site	0.28	Magnolia Avenue at Monroe Street	13
233-120-005	Well site	43.12	Sherman High School, Magnolia Avenue at Jackson Street	14
233-062-024	Well site	0.61	Van Buren Boulevard at State Route 91	15
233-120-004	Well site	1.02	Adjacent to Sherman High School	16
231-050-005	Well site	16.12	California Baptist University	17
138-030-026	Recharge site	13.5	"Metrolink 1," Indiana Avenue at La Sierra Avenue	
138-030-024	Recharge site	N/A	"Metrolink 2," Indiana Avenue at La Sierra Avenue	
135-220-035	Recharge site	5.7	"Magnolia West," Magnolia Avenue at Buchanan Street	
239-170-007	Recharge site	9.5	"Victoria South," Victoria Avenue at Jackson Street	
231-210-002	Recharge site	11.8	"Monroe Street," between Monroe Street and Adams Street, northwest of Limestone Drive	
N/A	Pump station	N/A	Arlington Channel	
N/A	Pump station	N/A	Arizona Channel	

Note: * Size of entire parcel, not the APE.

SETTING

Current Natural Setting

As mentioned above, each component of the APE is located within one mile of an approximately 5-mile-long corridor of State Route 91. The area reflects a development pattern typical of urban/suburban landscapes, with the main thoroughfares lined with commercial properties and less-traveled side streets reserved mostly for single- and multi-family residences.

The APE components vary in size, but generally consist of vacant portions of larger parcels containing or near homes, schools, civic or commercial properties, existing well sites, parks, and small open fields. As a result, vegetation in the APE consists mostly of introduced ornamental trees and plants along the various streets and in landscaped areas, but native vegetation such as wild mustard, foxtails, tumbleweeds, and other small grasses and shrubs is often observed on undeveloped lots. Elevations at various parts of the APE range between 690 to 880 feet above mean sea level. Soils in the area consist of fine to medium-grained silty sands.

Geological Setting

The APE is located in the northern portion of the Peninsular Ranges province, which adjoins the Transverse Ranges province on the north, the Colorado Desert province on the northeast, and the Pacific Ocean on the west (Jenkins 1980:40-41; Harms 1996:150). The Peninsular Ranges province extends southward to the southern tip of Baja California (Jahns 1954).

Morton and Cox (2001) mapped the geological formation underneath a large portion of the APE as Qof, or old alluvial fan deposits of late to middle Pleistocene age, while the central area is mapped as Qyf, or young alluvial fan deposits of Holocene and late Pleistocene age. The Qof is described as follows (ibid.):

Indurated, to slightly indurated, sandy, alluvial fan deposits. Covers extensive areas north and south of Santa Ana River. Most of unit is slightly to moderately dissected and reddish brown. Locally includes thin, discontinuous surface layers of Holocene alluvial fan materials.

The Qyf is described by Morton and Cox (2001) as follows:

Gray-hued, unconsolidated sand and pebble-to gravel-sized deposits derived from lithically diverse sedimentary units. Arkosic sand derived from varied metamorphic and granitic lithologies of Peninsular Ranges. All deposits are located south of the Santa Ana River.

In the southwestern portion of the APE, Morton and Cox mapped some Kgh, or outcrops of igneous basement rocks of Cretaceous age, described as mostly hornblende gabbro surrounded by QTc, or nonmarine conglomeratic sediments of early Pleistocene to late Pliocene age (ibid.). They also mapped QTs in this area, or unnamed sedimentary rocks of early Pleistocene to late Pliocene age, which is described as "sandstone and conglomerate containing clasts derived from San Bernardino Mountains, nonmarine" (ibid.). In the southeastern portion they mapped a few outcrops of Qvofa, or very old alluvium of early Pleistocene age, described as "mostly well-dissected, well indurated, reddish-brown sand deposits [that] commonly contains duripans and local silcretes" (ibid.).

In another soil survey, Dibblee (2004) mapped part of the surface geology in the APE as Qoa, or older alluvium of Pleistocene age, described as "alluvial fan deposits of sand, minor gravel, tan to light reddish brown, top surfaces slope slightly from source areas and dissected by stream channels from source areas." In the southwestern portion of the APE he mapped some small outcrops of igneous basement rocks as hdg, or "hornblende diorite-gabbro, amphibiotic gabbro of Morton and Cox 2001; medium grained, black, of mostly hornblende, minor calcic plagioclase feldspar; as small lenticular masses in tonalite plutonic rocks, commonly contains veinlets of secondary epidote" (ibid.).

Dibblee mapped the vicinity of these basement rock outcrops as QTc, described as "conglomerate, upper part with boulders of local rocks, lower part with cobbles similar to those in QTs," which in turn is described as "sandstone and conglomerate, arkosic, with clasts of plutonic and gneissic rocks from San Bernardino Mountains" (ibid.). He also mapped a minor amount of Qg, or alluvial sand and gravel, within the presently active stream channels.

Cultural Setting

Prehistoric Context

In the history of the Americas, the term "prehistoric period" refers to the time prior to the arrival of non-Indians, when native lifeways and traditions remained intact and viable. In the case of Alta and Baja California, it is widely acknowledged that human occupation began 8,000-12,000 years ago. In order to describe and understand the cultural processes that occurred in the ensuing

years, archaeologists have developed a number of chronological frameworks that endeavor to correlate technological and cultural changes observable in the archaeological record to distinct archaeological horizons, traditions, complexes, and phases. Unfortunately, none of these chronological frameworks has been widely accepted, and none has been developed specifically for the San Bernardino Valley area, the nearest ones being for the Colorado Desert and Peninsular Ranges region (Warren 1984) and for the Mojave Desert (Warren and Crabtree 1986).

The development of an all-inclusive chronological framework for the area is hindered by the relative dearth of archaeological sites containing distinct stratigraphic layers and successive sequence of chronological time markers—i.e., artifacts such as projectile points, ceramics, and shell beads—and/or absolute radiocarbon dates. Since results from archaeological investigations in this area have yet to be synthesized into an overall archaeological framework, most archaeologists tend to follow a chronology adapted from a scheme developed by William J. Wallace in 1955 and modified by others (Wallace 1955; 1978; Warren 1968; Chartkoff and Chartkoff 1984; Moratto 1984). Although the beginning and ending dates may vary, the general framework of prehistory in the area consists of the following four periods:

- Early Hunting Stage (ca. 10000 B.C.-6000 B.C.), which was characterized by highly mobile foraging strategies and a reliance on big game animals, as evidenced by large, archaic-style projectile points, spear and atlatl weapons systems, and the relative absence of artifacts associated with plant-processing activities;
- Millingstone Horizon (ca. 6000 B.C.-A.D. 1000), during which mobile hunter-gatherers became more sedentary and plant foods and small game animals came to the forefront of subsistence strategies. This horizon is often characterized by a large number of millingstones, especially well-made, deep-basin metates and manos, an abundance of scrapping tools, and a decreasing number of projectile points;
- Late Prehistoric Period (ca. A.D. 1000-1500), during which a more complex social organization, a more diversified subsistence base—as evidenced by smaller projectile points, expedient millingstones and, later, pottery—and regional cultures and tribal territories developed;
- Protohistoric Period (ca. A.D. 1500-1700s), which ushered in long-distance contact with Europeans, and thereby led to the Historic Period.

Ethnohistoric Context

According to current ethnohistorical scholarship, what is now the City of Riverside lies on the border between the traditional territories of three Native American groups: the Serrano of the San Bernardino Mountains, the Luiseño of the Perris-Elsinore region, and the Gabrielino of the San Gabriel Valley. Kroeber (1925:Plate 57) suggests that the Native Americans of the Riverside area were probably Luiseño, Reid (1968:8-9) states that they were Serrano, and Strong (1929:7-9, 275) claims that they were Gabrielino. In any case, there also occurred a late influx of Cahuilla during the 19th century (Bean 1978).

Whatever the linguistic affiliation, Native Americans along the Santa Ana River exhibited similar social organization and resource procurement strategies. Villages were based on clan or lineage groups. Their home/base sites are marked by midden deposits, often with bedrock mortar features. During their seasonal rounds to exploit plant resources, small groups often ranged some distances in search of specific plants and animals. Their gathering strategies often left behind signs of special use sites, usually grinding slicks on bedrock boulders, at the locations of the resources.

Historic Context¹

The present-day Riverside area received its first European visitors during the early and mid-1770s, shortly after the beginning of Spanish colonization of Alta California in 1769. After the establishment of Mission San Gabriel in 1771, the area became one of the mission's principal *rancherías*, known at the time as Jurupa. Despite these early contacts, no Europeans are known to have settled in the area until after the creation of the Rancho Jurupa land grant in 1838, which encompassed what is now the northern portion of the City of Riverside.

During the 1840s, a number of other ranchos were established in the vicinity, including La Sierra (Sepulveda) and El Sobrante de San Jacinto in the western and southwestern portions of the city. Most of the APE, however, was not included in any of these land grants, and remained unclaimed when California became a part of the United States in 1848. In 1871, the town of Riverside was founded in today's downtown area, followed in the next few years by two other colonies in the Arlington-La Sierra area. The three separate enterprises eventually merged in 1875, and the City of Riverside was incorporated in 1883.

During the 1870s and 1880s, amid a land boom that swept through southern California, the young community of Riverside grew rapidly. The most important boost to Riverside's early prosperity came with the introduction of the naval orange in the mid-1870s. Its instant success in Riverside led to the spread of citrus cultivation throughout southern California, and propelled Riverside to the forefront of the citrus industry. In 1893, after a bitter local political dispute, Riverside split itself from San Bernardino County, and became the county seat and the dominant urban center of the newly created Riverside County. Since the mid-20th century, with the increasing diversification of its economic livelihood, much of Riverside's once extensive citrus acreage has given way to urban expansion. Nevertheless, the "citrus culture" that developed from the city's orange-dominated past continues to be an integral part of the community identity to the present time.

The community of Arlington traces its roots to the New England Colony, which was founded in 1874, one of the three colonies that formed the City of Riverside. By the early 1880s, the intersection of Magnolia Avenue and Van Buren Boulevard had established itself as the nucleus of the village of Arlington, a name adopted in 1877 by popular vote. The community experienced the most notable growth spurt during the first half of the 20th century, with its development as a commercial center culminating between the 1920s and the 1940s. Beginning in the 1950s, like essentially all other historic downtown areas across the U.S., Arlington gradually fell victim to the emerging automobile culture, which increasingly brought commercial activities toward the outskirts of established cities and towns. In recent years, the economic revitalization of the Arlington area has ranked among the priorities in the City of Riverside's redevelopment efforts.

The Arlington Heights tract was subdivided in 1890 by Matthew Gage, who had orchestrated the construction of the Gage Canal in the 1880s to bring irrigation water to the eastern highlands of Riverside. Gage carried out the subdivision on behalf of the London-based Riverside Trust Company, which had purchased the tract from him in 1889. Although organized originally for the purpose of selling land, for the next 40 years the company was actively engaged in citrus fruit production on the Arlington Heights property through its subsidiary, the Riverside Orange Company. The main thoroughfare of the subdivision, the divided and tree-lined Victoria Avenue that traversed through vast expanses of orange groves, soon became the showcase of Riverside's "citrus culture." Today, the Arlington Heights area, as an officially designated "greenbelt," is the last stronghold of the city's citrus-growing heritage.

To the west of the village of Arlington and the north of the Arlington Heights tract, Willitts J. Hole, a Los Angeles-based land developer, purchased some 20,000 acres of land between Riverside and

¹ For further information on the history of the Riverside area, see Patterson (1996) and Gunther (1984).

Norco in 1909 and spent the next 27 years developing it into a thriving agricultural enterprise. In its heyday, the Hole Ranch covered almost the entire area known today as La Sierra, and constituted an important chapter in local history. In the meantime, Hole sold various portions of his ranch for residential subdivisions, and encouraged the settlement and development of La Sierra, which he considered a labor reserve for his ranch. In the early 1920s, he made further contributions to the development of the area by virtually donating a parcel of land for the establishment of a Seventh-Day Adventist secondary school, predecessor of today's La Sierra University, around which the community of La Sierra gradually formed. The area was eventually annexed by the City of Riverside in 1961-1964.

In summary, the three communities near the APE, Arlington, Arlington Heights, and La Sierra, took somewhat different paths of development and growth during the historic period. The oldest among the three, Arlington has long been a part of Riverside's urban core, featuring one of the city's traditional commercial centers and a suburbanized, residential-dominant land use pattern since the early days of the city's history. Arlington Heights has always been, and continues to be, a showcase for citrus cultivation, once Riverside's principal industry, despite the gradual infiltration of urban development over the years. The La Sierra area was formerly the site of a large agribusiness, which during the early 20th century spurred the growth of a residential community catering to farm workers. Since the end of WWII, however, both Arlington and La Sierra have seen rapid urban growth as residential subdivisions increasingly became the dominant land use in the Riverside area. Today, both neighborhoods have been fully urbanized.

RESEARCH METHODS

Records Search

On May 15, 2009, CRM TECH conducted the historical/archaeological resources records search at the Eastern Information Center (EIC), University of California, Riverside. During the records search, CRM TECH examined maps and records on file at the EIC for previously identified cultural resources in or near the project area and existing cultural resources reports pertaining to the vicinity. Previously identified cultural resources include properties designated as California Historical Landmarks, Points of Historical Interest, Riverside County Landmarks, as well as those listed in the National Register of Historic Places, the California Register of Historical Resources, or the California Historical Resource Information System.

For the current study, the scope of the records search included the standard half-mile radius from the perimeters of the APE and an expanded 5-mile radius to identify cultural resources in similar geomorphologic contexts as the APE. The purpose of the expanded records search is to assess the sensitivity of the APE for cultural resources and help determine the potential of encountering significant subsurface cultural deposits during earth-moving activities associated with the undertaking.

Geomorphologic Analysis

As part of the research procedures, CRM TECH pursued geomorphologic analysis to assess the APE's potential for the deposition and preservation of subsurface cultural deposits from the prehistoric period, which cannot be detected through standard surface archaeological survey. Sources consulted for this purpose included topographic and geologic maps published by the U.S. Geological Survey (USGS). Findings from these sources were used to develop a geomorphologic history of the APE and address geoarchaeological sensitivity of the vertical APE.

Historical Background Research

CRM TECH conducted the historical background research on the basis of published literature in local history and historic maps of the Riverside area. Among the maps consulted for this study were U.S. General Land Office's (GLO) land survey plat maps dated 1855 and the USGS' topographic maps dated 1901-1902, 1942-1947, 1953-1954, and 1967. These maps are collected at the Science Library of the University of California, Riverside, and the California Desert District of the U.S. Bureau of Land Management, located in Moreno Valley.

Native American Participation

On June 18, 2009, CRM TECH submitted a written request to the State of California's Native American Heritage Commission for a records search in the commission's sacred lands file. Following the commission's recommendations, CRM TECH further contacted a total of 16 Native American representatives in the region both in writing and by telephone between June 25 and July 10 to solicit local Native American input regarding cultural resources concerns associated with the proposed undertaking. The correspondences between CRM TECH and the Native American representatives are attached as Appendix 2 of the CRM TECH Report.

Field Survey

On June 23-24 and July 28, 2009, CRM TECH carried out the on-foot field survey of the various components of the APE. In most cases, the designated areas on each parcel were inspected by walking parallel transects spaced 15 meters (approx. 50 feet) apart. For two of the proposed well sites, Desalters 8 and 13, a visual inspection of the ground surface was conducted from the perimeters due to the lack of proper access. The two pump station sites, located in existing concrete lined channels, were also surveyed from the perimeters. Using these methods, the ground surface of the APE was systematically and carefully examined for any evidence of human activities dating to the prehistoric or historic periods (i.e., 50 years or older). Ground visibility ranged from poor to excellent (0-90%) depending on the density of vegetative growth and whether the native ground surface was obscured by asphalt, gravel, or landscaping.

RESULTS AND FINDINGS

Records Search

According to records on file at the EIC, at least 10 previous cultural resources surveys have covered various portions of the APE. Outside the APE but within a half-mile radius, nearly 30 other cultural resources studies have been reported on various tracts of land and linear features. As a result of these and other similar studies in the vicinity, EIC records revealed 36 historical/archaeological sites that were previously recorded within the scope of the records search, as listed in Table V-2. Among these are 3 prehistoric—i.e., Native American— sites, 32 historic-period sites and built-environment features, and one site with both prehistoric and historic components (see App. 3 of the CRM TECH Report for prehistoric site locations).

**Table V-2
PREVIOUSLY RECORDED CULTURAL RESOURCES IN THE SCOPE OF THE RECORDS SEARCH**

Site No.	Recorded by/Date	Description
33-107	Eberhart 1951	Prehistoric archaeological site (no further information available)
33-2242	McCarthy 1981	Bedrock milling features
33-2243	McCarthy 1981	Bedrock milling features

Site No.	Recorded by/Date	Description
33-4495*	Jertberg 1991	Riverside Upper Canal, built in 1870s
33-4791*	Wlodarski 1992	Riverside Lower Canal, built in 1870s
33-6005	Love 1995	Concrete-lined irrigation flume
33-6723	Gavin 1983	Single-story bungalow, ca. 1926
33-9007	Curl 1980	Colonia Revival-style bungalow, ca. 1900
33-9046	Scheid 1998	Pene-Giachetti House, a Ranch-style residence, ca. 1941
33-9049	Scheid 1998	Ranch-style duplex, ca. 1949
33-9050	Scheid 1998	Single-story Ranch-style residence 1936
33-9051	Scheid 1998	Ormsby House, a Colonia Revival-style residence, ca. 1908
33-9052	Scheid 1998	Colonial Revival-style residence, ca. 1900-1910
33-9518	Curl 1980	Arlington Branch Library and Fire Hall (NRHP** No. 93000668)
33-9528	Michael and Wingate 1973	Heritage House / Bettner House, ca. 1891 (NHRP No. 73000423)
33-10974*	Tang 2000	Three wood-framed residential buildings, 1930s-1940s
33-11361*	Bricker et al. 2000	Victoria Avenue, 1890s (NRHP No. 00001267; City of Riverside Cultural Heritage Landmark No. 8)
33-11251	Van Horn 2002	Brick commercial building, ca. 1912
33-11579*	Smith and Marvin 2002	WMWD well buildings, ca. 1925
33-11632	Tang 2002	Single-story Craftsman-style residence, ca. 1912
33-12172	Tibbet 1999	Single-story Ranch-style residence, ca. 1948
33-12183	Lewis 1999	Single-story Ranch-style residence, ca. 1949
33-12901	Tank 2002	Single-story concrete-block residence, ca. 1949
33-13080	Marvin and Younger 2003	Single-story wood-frame residence, ca. 1956
33-13081	Marvin and Younger 2003	Single-story Ranch-style residence, ca. 1953
33-13082	Marvin and Younger 2003	Single-story Ranch-style residence, ca. 1953
33-13083	Marvin and Younger 2003	Single-story Ranch-style residence, ca. 1954
33-13084	Marvin 2003	Single-story Ranch-style residence, ca. 1954
33-15012	Tibbet 2006	Monterey-style grove house, ca. 1931
33-15962	Smallwood 2007	Arlington line of the Temescal Water Company Canal
33-17219	McCarthy 2003	Irrigation features associated with Gage Canal
33-17523	Sanka 2009	Bedrock milling features and historic-period refuse
33-17537	Herman and Sowles 2008	Water tank and concrete pipe
33-17541	Cannon and Chapman 2008	Irrigation system

Site No.	Recorded by/Date	Description
33-17543	Cannon and Gregory 2008	Concrete-lined canal
N/A	N/A	Administration building at Sherman High School (NHRP No. 80000831)

Notes: * Located within or adjacent to the APE
** National Register of Historic Places

As Table V-1 shows, four of the historic-period sites or built-environment features are currently listed in the National Register of Historic Places. Among them, a segment of Victoria Avenue lies just outside the boundary of one of the proposed recharge basin sites and the administration building at Sherman High School is located on the campus of the school which also contains three of the proposed well sites. The administration building is well outside the APE boundaries.

One of the recorded historic-period sites, the Riverside Lower Canal, is known to have traversed portions of the APE. Together with the Riverside Upper Canal, which runs adjacent to the boundary of a proposed recharge basin, the two irrigation lines were constructed between 1870 and 1876. As the main water supply lines for the burgeoning town of Riverside, they were instrumental in the early development of the city, including the Arlington-Arlington Heights area. Due to the loss of their overall historical integrity, however, a systematic historic significance evaluation of the two canals in 2001 concluded that they were not eligible for listing in the National Register of Historic Places, but might become eligible once their integrity was restored (Gustafson 2001:9, 12). The same study also concluded that the segments of the canals running through the Arlington-Arlington Heights area were not eligible for historical designation by the City of Riverside under provisions of the City's Cultural Resources Ordinance (Hansen 2003).

Two other historic-period sites, 33-10974 and 33-11579, were previously recorded as lying within or partially within the current APE. Site 33-10974 consisted of a group of pre-WWII buildings that stood partially on a parcel of land designated as a possible well site, including two single-family residences, a duplex, a garage/laundry room, and a small storage shed (Tang 2000). Site 33-11579 represented two structures built around 1925 to shelter WMWD wells that were already in place (Smith and Marvin 2002). These buildings and structures were previously evaluated, and all of them were deemed ineligible for listing in any national, state, or local register of historical resources (Tang 2000:3; Smith and Marvin 2002:3).

As discussed above, the expanded records search covered the Riverside area within a five-mile radius of the APE for the purpose of identifying any prehistoric archaeological sites situated in the same or a similar geomorphologic context as the APE. The results indicate that one prehistoric archaeological site consisting of bedrock milling features was identified north of the APE, and five isolates, all located southwest of the APE, were previously recorded on the valley floor, in similar geographical settings to that of the APE. In contrast, numerous prehistoric sites have been recorded on foothills and elevated terraces, such as the rugged terrains of the Jurupa Mountains to the north and the rolling hills to the southeast.

Overall, the locations and types of prehistoric sites identified in the expanded records search appear to support existing prehistoric hunter-gatherer settlement-subsistence models for Inland southern California, which suggest longer-term residential settlement was more likely to occur on elevated terraces, hills, and finger ridges near permanent or reliable sources of water, while the valley floor was more mostly utilized in resource procurement efforts, travel, and opportunistic camping.

Geomorphologic Analysis

The results of the geomorphologic research reveal that most of the sediments in the project vicinity are older than the accepted age at which man was present in North America, thereby limiting the possibility of subsurface archaeological materials within the native soils. Coupled with its urbanized location, the impacts of past development, and distance from natural water sources, the APE appears to have a low potential for important prehistoric archaeological remains in subsurface deposits, although outcroppings of igneous intrusive rock are usually assigned a high sensitivity for Native American food-processing sites, such as bedrock milling features. This older alluvium, however, does not preclude the presence of later cultural materials being present in the few areas in and around the APE that have younger, Holocene-age surface deposits, such as the campuses of Sherman High School and the California Baptist University and the proposed well sites at Indiana and Van Buren Avenues.

Historical Background Research

Historical sources consulted for this study indicate that the area around the APE experienced two notable growth spurts during the historic period (GLO 1855; USGS 1901; 1902; 1942; 1947; 1953; 1954; 1967a; 1967b). The first took place in the 1870s-1890s, in the wake of the creation of the Arlington colony and the other two nearby colonies that eventually merged into the City of Riverside, and transformed the area from unsettled virgin land to a burgeoning rural town. The second began during the post-WWII boom period in American history, characterized by rapid urban expansion that transformed much of the former agricultural land in the vicinity into residential tracts and strip malls.

By 1897, all of the main thoroughfares in the vicinity had been laid out, and were lined by a number of buildings, most of them presumably rural residences (USGS 1901; 1902). The Riverside Upper and Lower Canals, identified as Riverside Canals No. 1 and No. 2, were mapped traversing portions of the APE (ibid.). During the first half of the 20th century, the Arlington-La Sierra areas underwent steady growth along with the rest of the City of Riverside, but still retained more of a rural or semi-rural character, while the Arlington Heights area had developed a countrified, genteel atmosphere amidst a blanket of citrus groves (USGS 1942; 1947).

By far the most dramatic change in the landscape of the Riverside region in general, and the project vicinity in particular, occurred during the 1950s and the early 1960s, when America's post-WWII suburbanization movement swept across what had been the rural sectors of southern California. Between 1953 and 1966, residential and commercial developments filled the area between the historic town centers of Riverside and Arlington, effectively merging the two communities into one large, continuous urban core (USGS 1953; 1954; 1967a; 1967b).

Native American Participation

In response to CRM TECH's inquiry, the Native American Heritage Commission reports that the sacred lands record search failed to identify any Native American cultural resources within one-half mile of the APE, but recommends that local Native American groups be contacted for further information, and provided a list of potential contacts in the region (see App. 2 of the CRM TECH Report).

Upon receiving the commission's response, CRM TECH initiated correspondence with all 12 individuals on the referral list and the organizations they represent. In addition, John Gomez, Jr., Cultural Resources Coordinator for the Ramona Band of Cahuilla Indians, Anna Hoover, Cultural Analyst for the Temecula (Pechanga) Band of Luiseño Mission Indians, and John Tommy Rosas, Tribal Administrator of the Tongva Ancestral Territorial Tribal Nation (TATTN), were also contacted in writing. Andrea Candelaria, Tribal Secretary for the Santa Rosa Band of Mission Indians, was

added to the list once telephone contact was initiated. Ms. Hoover and Mr. Rosas have since replied in writing, while Ms. Candelaria, Goldie Walker of the Serrano Nation of Indians, Joseph Ontiveros of the Soboba Band of Luiseño Indians, and Anthony Morales of the Gabrielino/Tongva San Gabriel Band of Mission Indians have provided verbal responses (see App. 2 of the CRM TECH Report).

In their comments, Ms. Candelaria and Ms. Walker requested notification of the discovery of any Native American cultural resources within the APE. Mr. Ontiveros recommended that a Native American monitor be present during ground-disturbing activities, and requested that the project proponent/lead agency keep the Soboba Band informed of project developments. Mr. Morales requested that both a qualified archaeologist and a Native American monitor from his group be present during all ground-disturbing activities.

In a letter dated July 13, 2009, Ms. Hoover states that the Temecula Band considers the APE to be part of its ancestral lands, but has no comment at this time. The tribe requests copies of all archaeological documentations pertaining to the undertaking and further consultation with the project proponents/lead agency if Native American artifacts are discovered in the APE.

In an e-mail dated July 14, Mr. Rosas states that the proposed undertaking will negatively impact TATTN cultural and water resources rights. On behalf of the TATTN, Mr. Rosas requests a meeting and direct consultation with the WMWD and the SWRCB, along with copies of all archaeological documentation. He further requests that CRM TECH forward to the lead agency a copy of a letter regarding this issue from the Native American Heritage Commission to the SWRCB, dated August 18, 2008 (see App. 2 of the CRM TECH Report). The WMWD has been notified of TATTN's concerns and provided a copy of the correspondence.

Field Survey

During the field survey, three of the five previously recorded sites lying partially within or adjacent to the APE, 33-4495 (Riverside Upper Canal), 33-10974 (historic-period residences and other buildings), and 33-11361 (Victoria Avenue), were noted at their reported locations. As mentioned above, both the Riverside Upper Canal and Victoria Avenue lie adjacent to portions of the APE, the canal along the southeastern boundary of the Monroe Street recharge site, and Victoria Avenue along the northwestern boundary of the Victoria South recharge site (see Table V-1). The buildings recorded as 33-10974 are still extent near the intersection of Indiana Avenue and Van Buren Boulevard. Among them, a garage and part of a residence stand within the APE boundaries at the proposed well site designated Desalter 9 (see Table V-1).

No remnants of the long-abandoned Riverside Lower Canal (Site 33-4791) were observed within or adjacent to the APE, and the two WMWD well shelters recorded as 33-11579, at the proposed well site designated Desalter 6, are no longer in existence. Much of the APE has been extensively disturbed in the past by agricultural or construction activities. Consequently, it is unlikely for any substantial archaeological remains to survive in shallow deposits.

DISCUSSION

The purpose of this study is to identify and evaluate any "historic properties" or "historical resources" that may exist within or adjacent to the APE. "Historic properties," as defined by the Advisory Council on Historic Preservation, include "prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register of Historic Places maintained by the Secretary of the Interior" (36 CFR 800.16(l)). The eligibility for inclusion in the National Register is determined by applying the following criteria, developed by the National Park Service as per provision of the National Historic Preservation Act:

The quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association and

- (a) that are associated with events that have made a significant contribution to the broad patterns of our history; or
- (b) that are associated with the lives of persons significant in our past; or
- (c) that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
- (d) that have yielded, or may be likely to yield, information important in prehistory or history. (36 CFR 60.4)

For CEQA-compliance considerations, the State of California's Public Resources Code (PRC) establishes the definitions and criteria for "historical resources," which require similar protection to what NHPA Section 106 mandates for historic properties. "Historical resources," according to PRC §5020.1(j), "includes, but is not limited to, any object, building, site, area, place, record, or manuscript which is historically or archaeologically significant, or is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California." More specifically, CEQA guidelines state that the term "historical resources" applies to any such resources listed in or determined to be eligible for listing in the California Register of Historical Resources, included in a local register of historical resources, or determined to be historically significant by the Lead Agency (Title 14 CCR §15064.5(a)(1)-(3)).

Regarding the proper criteria of historical significance, CEQA guidelines mandate that "a resource shall be considered by the lead agency to be 'historically significant' if the resource meets the criteria for listing on the California Register of Historical Resources" (Title 14 CCR §15064.5(a)(3)). A resource may be listed in the California Register if it meets any of the following criteria:

- (1) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.
- (2) Is associated with the lives of persons important in our past.
- (3) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values.
- (4) Has yielded, or may be likely to yield, information important in prehistory or history. (PRC §5024.1(c))

In summary of the research results discussed above, five historical/archaeological sites were previously identified within or adjacent to various portions of the APE, but only three, 33-4495 (Riverside Upper Canal), 33-10974 (historic-period residences and other buildings), and 33-11361 (Victoria Avenue), are still present in or near the APE boundaries today. Among these three sites, 33-4495 and 33-10974 were previously determined not to be eligible for listing in the National Register of Historic Places or the California Register of Historical Resources (Tang 2000:3; Gustafson 2001:9, 12). Therefore, they do not constitute "historic properties"/"historical resources," as defined above, and require no further consideration.

Victoria Avenue, one of the most popular legacies from Riverside's citrus-growing past, has been designated by the City of Riverside as a Cultural Heritage Landmark (No. 8) and listed in the National Register of Historic Places (No. 00001267). As such, it clearly meets the definitions of a "historic property" and a "historical resource." Since it is located outside the project boundaries, Victoria Avenue will not receive any direct impact from the proposed undertaking. However, it is important that project plans take into account the presence of this "historic property"/"historical resource" in close proximity to the APE and be crafted carefully to avoid, minimize, or mitigate visual, atmospheric, or other indirect effect on the historic character of the parkway, primarily its mature landscaping and rustic feel. As currently proposed, the undertaking does not involve major

construction above the ground or large-scale alteration of current land use at that location, and thus is not likely to have any indirect effect on the historic integrity of Victoria Avenue.

Based on the results of the geomorphologic analysis and the expanded records search, the subsurface sediments within the APE appear to be relatively low in sensitivity for potentially significant archaeological deposits. The geomorphologic analysis suggests that the APE is covered by sediments that are Holocene or older in age, limiting the possibility for deeply buried archaeological remains. Despite a relative lack of archaeological evidence, the valley floor evidently served many functions: a travel corridor, a special use area, or opportunistic locations for temporary camps. Compared to diverse artifact assemblages and the variety of features commonly associated with longer-term habitation sites such as those often found on ridges and terraces near water sources, the material residue of special use and opportunistic sites in the topographical and geomorphologic context of the APE offer much less archaeological data potential.

Past archaeological studies indicate that sites representing temporary camps or small-scale special-use areas are less likely to qualify as "historic properties" or "historical resources" even when they are found intact. In addition, extensive ground disturbances associated with urban development have greatly reduced the probability of subsurface archaeological deposits surviving intact within the APE. Therefore, it is highly unlikely for potentially significant subsurface archaeological remains to be impacted within the horizontal and vertical extents of the APE.

CONCLUSION AND RECOMMENDATIONS

Section 106 of the National Historic Preservation Act mandates that federal agencies take into account the effects of their undertakings on historic properties and seek ways to avoid, minimize, or mitigate any adverse effects on such properties (36 CFR 800.1(a)). Similarly, CEQA establishes that "a project that may cause a substantial adverse change in the significance of a historical resource is a project that may have a significant effect on the environment" (PRC §21084.1). "Substantial adverse change," according to PRC §5020.1(q), "means demolition, destruction, relocation, or alteration such that the significance of an historical resource would be impaired."

As discussed above, of the three historical/archaeological sites encountered within or adjacent to the APE, two have been previously determined not to qualify as "historic properties" or "historical resources" under Section or CEQA provisions. The third site, representing a segment of Victoria Avenue, meets the definitions of a "historic property" and a "historical resource," but will not be affected by the proposed undertaking. In light of these findings, and pursuant to 36 CFR 800.4(d)(1) and Calif. PRC §21084.1, CRM TECH provided the following recommendations regarding this undertaking:

- No "historic properties" or "historical resources" will be affected by the undertaking as currently proposed.
- The subsurface sediments within the APE appear to be relatively in low sensitivity for potentially significant archaeological deposits.
- No further cultural resources investigation is necessary for the proposed undertaking unless project plans undergo such changes as to include areas not covered by this study.
- If buried cultural materials are discovered during earth-moving operations associated with the undertaking, all work in that area should be halted or diverted until a qualified archaeologist can evaluate the nature and significance of the finds.

While the potential for adverse effects to historic and prehistoric resources is considered very low for the proposed project, the following measure shall be implemented to reduce the potential for impact to the greatest extent feasible.

V-1 In the unlikely event that unknown or buried cultural resources are encountered during construction activities, all work in the vicinity of the find shall be halted or redirected to avoid the area of the find. A qualified archaeologist shall be brought to the site to evaluate the find and make recommendations on the proper disposition of the find in accordance with State law and CEQA requirements. It shall be the responsibility of WMWD to ensure that the archaeologists recommendations are implemented.

- c. *Less Than Significant Impact With Mitigation Incorporated* –Paleontological resources represent the remains of prehistoric life, exclusive of any human remains, and include the localities where fossils were collected as well as the sedimentary rock formations in which they were found. The defining character of fossils or fossil deposits is their geologic age, which is typically regarded as older than 10,000 years, the generally accepted temporal boundary marking the end of the last late Pleistocene glaciation and the beginning of the current Holocene epoch.

Common fossil remains include marine shells; the bones and teeth of fish, reptiles, and mammals; leaf assemblages; and petrified wood. Fossil traces, another type of paleontological resources, include internal and external molds (impressions) and casts created by these organisms. These items can serve as important guides to the age of the rocks and sediments in which they are contained, and may prove useful in determining the temporal relationships between rock deposits from one area and those from another as well as the timing of geologic events.

Fossil resources generally occur only in areas of sedimentary rock (e.g., sandstone, siltstone, mudstone, claystone, or shale). Because of the infrequency of fossil preservation, fossils, particularly vertebrate fossils, are considered to be nonrenewable paleontological resources. Occasionally fossils may be exposed at the surface through the process of natural erosion or as a result of human disturbances; however, they generally lay buried beneath the surficial soils. Thus, the absence of surface fossils does not preclude the possibility of their being present within subsurface deposits, while the presence of fossils at the surface is often a good indication that more remains may be found in the subsurface.

Paleontological Sensitivity

The fossil record is unpredictable, and the preservation of organic remains is rare, requiring a particular sequence of events involving physical and biological factors. Skeletal tissue with a high percentage of mineral matter is the most readily preserved within the fossil record; soft tissues not intimately connected with the skeletal parts, however, are the least likely to be preserved (Raup and Stanley 1978). For this reason, the fossil record contains a biased selection not only of the types of organisms preserved but also of certain parts of the organisms themselves. As a consequence, paleontologists are unable to know with certainty, the quantity of fossils or the quality of their preservation that might be present within any given geologic unit.

Sedimentary units, which are paleontologically sensitive, are those geologic units (mappable rock formations) with a high potential to contain significant nonrenewable paleontological resources. More specifically, these are geologic units within which vertebrate fossils or significant invertebrate fossils have been determined by previous studies to be present or are likely to be present. These units include, but are not limited to, sedimentary formations that contain significant paleontological resources anywhere within their geographical extent as well as sedimentary rock units temporally or lithologically amenable to the preservation of fossils.

A geologic formation is defined as a stratigraphic unit identified by its lithic characteristics (e.g., grain size, texture, color, and mineral content) and stratigraphic position. There is a direct relationship between fossils and the geologic formations within which they are enclosed, and with sufficient knowledge of the geology and stratigraphy of a particular area, it is possible for

paleontologists to reasonably determine its potential to contain significant nonrenewable vertebrate, invertebrate, marine, or plant fossil remains.

The paleontological sensitivity for a geologic formation is determined by the potential for that formation to produce significant nonrenewable fossils. This determination is based on what fossil resources the particular geologic formation has produced in the past at other nearby locations. Determinations of paleontologic sensitivity must consider not only the potential for yielding vertebrate fossils but also the potential for a few significant fossils that may provide new and significant taxonomic, phylogenetic, and/or stratigraphic data.

The APE is within an urbanized area that has transitioned over the years from rural agricultural activities to more urbanized uses. These activities have occurred over the past 100 plus years and resulted in disturbance of the surface and near surface soils. The project proposed at this time will result in minimal disturbances to install water wells and pipelines. The recharge basins could result in excavations of up to about 15 feet. The City of Riverside General Plan does not identify any sensitive paleontological resource areas within the City.

The APE contains older alluvium and nonmarine conglomeratic sediments of early to late Pleistocene age. Some potential exists for unknown paleontologic resources to be encountered during construction of the proposed recharge basins and possibly excavations for the pipelines. To mitigate the potential for impact to such resources to a less than significant level, the following measure shall be implemented.

V-2 *In the unlikely event that unknown or buried paleontologic resources are encountered during construction activities, all work in the vicinity of the find shall be halted or redirected to avoid the area of the find. A qualified paleontologist shall be brought to the site to evaluate the find and make recommendations on the proper disposition of the find in accordance with State law and CEQA requirements. It shall be the responsibility of WMWD to ensure that the paleontologists recommendations are implemented.*

- d. *Less Than Significant Impact* – Due to the urbanized nature of the project area, it is highly unlikely that human remains will be encountered within the APE. State and local laws require that if human remains are encountered, the local law enforcement agency be notified. Compliance with these laws is mandatory and considered adequate mitigation should human remains be encountered.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Impact	No Impact
VI. GEOLOGY AND SOILS – Would the project:				
a. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
• Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
• Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
• Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in onsite or offsite landslide, lateral spreading, subsidence, liquefaction or collapse?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d. Be located on expansive soil creating substantial risks to life or property?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e. Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

SUBSTANTIATION:

Alternatives 1 through 6 of the proposed project cover the installation and operation of groundwater extraction wells, underground water transmission pipelines, surface water pump stations and water recharge/percolation basins. Alternative 7 proposes to install wells and pipelines, but not the recharge basins or the pumps in the existing channels to supply surface water to the recharge basins. Other than the well facilities, no above ground structures or habitable structures will be associated with the alternatives proposed by this project. The Arlington Basin contains areas known to have an historically high potential for liquefaction. Implementation of Alternatives 1 through 6 has the potential to raise the level of groundwater in portions of the Arlington Basin and possibly increase the potential for liquefaction. To evaluate this project’s potential to affect liquefaction concerns in the project area, the consulting firm of Gary S. Rasmussen & Associates (GSRA) was retained to perform an engineering geology analysis of the affected area. The results of that analysis are contained in a report prepared by GSRA (GSRA Report). The GSRA Report is provided as Appendix D of this document. Data contained in that report are provided in this document to evaluate this project’s potential to affect liquefaction concerns in the project area. This environmental document also contains data provided in the City of Riverside’s 2007 General Plan.

a&c. Ground Rupture

No Impact – According to data provided on Figure PS-2 of the City of Riverside 2007 General Plan, the project area is not within any known earthquake fault zone. The nearest known Alquist-Priolo Earthquake Fault Zone is the Elsinore Fault Zone which is located over 5 miles westerly of the project area. Based on the type of facilities proposed and the distance to any known active fault zone, it is concluded that none of the project sites are considered to have a potential for seismically induced ground rupture. No impact can be identified and no mitigation is required.

Seismic Groundshaking

Less Than Significant Impact – As with all of southern California, the project area can expect strong seismic ground shaking associated with significant earth quake activity in the region. However, this project does not propose any human occupancy structures or other structures or facilities which could be adversely affected by strong groundshaking. It is possible that facilities such as wells or underground pipelines could receive some damage during a large seismic event. Generally, such facilities which are located within seismically active areas are designed and constructed to withstand anticipated groundshaking. Any such damage to these facilities, should it occur, would not pose a significant risk to people or property and repair to such facilities would be easily accomplished. No identifiable impact to the proposed water recharge basins is forecast to occur as a result of strong seismic groundshaking.

Based on the type and location of facilities proposed, potential impacts to project facilities associated with seismically induced groundshaking are considered less than significant.

Seismic Ground Failure, Including Liquefaction

Unstable Soil Conditions

Less Than Significant Impact – According to data shown on Figure PS-3 of the City's 2007 General Plan, soils in the project area do not exhibit high shrink-swell potential and are generally considered adequate for most development activities with implementation of proper engineering and construction techniques. This project does not propose any human occupancy facilities or structures that are considered susceptible to unstable soil conditions or require unusual or non-standard construction techniques. Potential impacts associated with unstable soil conditions are considered less than significant.

Liquefaction

Alternatives 1 through 6

Less Than Significant Impact With Mitigation Incorporated – Liquefaction is the transformation of soil from a solid to liquid state as a result of increased pore pressure and reduced effective stress in cohesionless soil. Cohesionless soil is generally considered to be sand sized grains, but liquefaction can also occur in silt-sized particles. In order for liquefaction to occur, four parameters are necessary to exist. Youd and Perkins (1978) and Youd *et al.* (1978) listed the parameters for increased liquefaction susceptibility as (1) high groundwater (less than 33 feet [10 meters] below the surface); (2) sandy sedimentary deposits; (3) recent age of material; and (4) close proximity to an active fault. Additional discussion of soils susceptible to liquefaction can be found in California Geological Survey Special Publication 117 (2008). There are areas within the Arlington Basin that fall into all categories susceptible to liquefaction.

According to Enclosure 2 of the GSRA Report (Figure VI-1 of this document) and Figure PS-2 of the City of Riverside General Plan, the liquefaction potential in the project area transitions from Very Low to High. The primary reasons for the difference in liquefaction potential in these areas is the type of soil material, the presence of rock at shallow depths and the depth to groundwater.

The only liquefaction parameter in this Basin that is subject to change by the proposed facilities is the depth to groundwater. All of the other parameters are fixed and will not change. Although the Arlington Basin does not have any active faults passing through it, it is fairly close to active faults that are capable of generating strong groundshaking in the Basin from large earthquakes along regional faults. Based on data by the California Geological Survey, the alluvium in the basin may be subject to groundshaking of 0.45g (CGS, 2009). This is sufficiently severe to result in liquefaction in soils that also have the other three liquefaction parameters.

Sandy sedimentary deposits are usually considered to be Alluvium on geologic maps. For purposes of the GSRA analysis, the geologic units in the Arlington Basin are broken out into three categories based on their susceptibility to liquefaction; Holocene-age alluvium (sandy sedimentary deposits of recent age), old alluvial fan deposits of middle Pleistocene age (dense silty, clayey, sandy deposits), and bedrock. These geologic units are broken out and identified on Figure VI-1 based on mapping by the U.S. Geological Survey (Morton and Cox 2001, Morton and Gray 2002, and Morton 2004). The younger alluvium comprises the area considered to have a high potential for liquefaction where the groundwater table is less than 30 feet below the surface. The older alluvial fan deposits are considered to have a moderate potential for liquefaction when the groundwater table is less than 20 feet below the surface. Bedrock is not considered to be susceptible to liquefaction.

The State of California has not conducted seismic hazards mapping for the Riverside West or Corona North 7.5 minute quadrangles, therefore the Arlington Basin is not included within a Seismic Hazard Liquefaction Zone as defined by the Seismic Hazards Mapping Act (California Geological Survey, 2005). However, Riverside County has mapped liquefaction susceptibility (Figure PS-2 of the General Plan) and shows the same areas underlain by alluvium on Figure VI-1 as having a very high or high potential for liquefaction.

The area shown on Figure VI-1 that includes old alluvial fan deposits (moderate susceptibility to liquefaction where the groundwater table is less than 20 feet below ground surface) does not generally have a high potential for liquefaction due to the higher density of the older sediments (Pleistocene age).

The actual parameters necessary for liquefaction to occur can only be precisely determined by drilling and testing of soils at any given location. Once these parameters are known, each specific site's susceptibility to liquefaction can be determine. If a site is susceptible to liquefaction, new construction can be designed to withstand liquefaction, should it occur. The City of Riverside would require such a site-specific investigation prior to issuing a building permit in those areas identified as being in a potential liquefaction zone. Therefore, new construction can mitigate for the effects of liquefaction through proper engineering and construction techniques.

Most of the Arlington Basin has already been developed and contains many residential and commercial structures that may not been designed to withstand liquefaction. The most economical solution to protecting those existing structures is to manage the depth to groundwater. No other viable method is likely to mitigate the liquefaction potential for existing structures to be exposed to liquefaction within the younger alluvium. Figure VI-1 shows the areas having the highest potential for liquefaction to occur should the groundwater table rise to within 30 feet of the ground surface (alluvium).

The second category identified on Figure VI-1 (older alluvium) is much less susceptible to liquefaction. Maintaining the depth to groundwater at 20 feet or more below the ground surface is forecast to be adequate to mitigate the potential for liquefaction in those areas underlain by older alluvium. Historically, portions of the Arlington Basin have had groundwater within 7 feet of the ground surface (California Department of Water Resources, 1975). Liquefaction analysis considers the groundwater table to occur at historic levels. Groundwater levels have lowered (deepened) significantly during the last three decades and many of the areas that had shallow

groundwater now have groundwater levels of 20 feet or deeper. This has reduced the areas susceptibility to liquefaction based on current groundwater conditions.

Figure 6-6b of the Wildermuth Phase 2 Feasibility Study indicates that groundwater would rise to within 15 feet of the ground surface at the Victoria Basin and within 20 feet at the Metrolink Basins. The Victoria Basin is located within younger alluvium and has residential development located to the northwest that is within the area that groundwater is forecast to rise to within 30 feet of the ground surface with implementation of this project.

The Metrolink Basin has existing residential and commercial development located within both liquefaction zones due to the presence of both younger and older alluvium. This includes existing development along the 91 Freeway corridor. Figure 6-6b of the Wildermuth Study does not indicate any substantial increase in groundwater levels associated with operation of the Monroe and Magnolia recharge basins.

The above data indicates that implementation of the recharge program proposed under Alternatives 1 through 6 could result in a significant effect on existing and future development by increasing the areas that have a high potential for susceptibility to liquefaction. The only component of this alternative that can be controlled by this project is the depth to groundwater. The liquefaction potential could be controlled by altering the amount of water recharged to maintain an appropriate depth of water below the ground surface. Because the most substantial mounding of groundwater occurs at and adjacent to the recharge basins, it may be appropriate to begin recharge with a small amount of water and gradually adjust the amount recharged based on groundwater monitoring data to maintain a safe depth to groundwater.

Additionally, the WMWD could install wells adjacent to the recharge basins to extract groundwater should it rise to levels that could result in a high liquefaction potential in areas containing existing development. This water extraction option could be combined with controlling the amount of water recharged into the Basin to reduce the potential for liquefaction in areas containing existing development.

Based on the above data, it appears that the areas with the greatest potential for liquefaction concerns under Alternatives 1 through 6 occur at the Victoria Basin. A moderate potential will exist at the Monroe and Metrolink basins and a very low potential will result at the Magnolia basin. However, the actual susceptibility of soils to liquefaction can only be determined by site specific investigations that include drilling and testing of the soils.

It is recommended that groundwater levels in the Arlington Basin be carefully managed and any recharge or redistribution of groundwater in the basin should consider the affects of raising the groundwater table in those areas susceptible to liquefaction. Especially areas that contain existing development. It should be noted that the most significant increase in groundwater levels will occur near the recharge basins. The WVWD should prepare and implement a water management plan for the Arlington Basin which includes but may not be limited to the following.

VI-1 The WVWD shall implement an investigation of the type and density of soils within the areas that could be susceptible to an increase in groundwater levels to within 30 feet of the ground surface. Data obtained by these investigations shall be used to determine the appropriate depth to groundwater allowed by the recharge program.

VI-2 The WVWD shall implement a groundwater monitoring program at and adjacent to the proposed recharge basins to determine the depths to groundwater that occur with implementation of the recharge program. The WVWD shall utilize the data obtained from the groundwater monitoring

program to control the amount and timing of water recharged to the Arlington Basin so as to not increase the potential for liquefaction to occur at offsite property. This water management program could also include the installation and operation of water extraction wells to control the depth to groundwater and the potential for liquefaction to result from the water recharge program.

Alternative 7

Less Than Significant Impact – This alternative only proposes the extraction of additional groundwater from the Arlington Basin with no artificial recharge of the Basin included. The new wells will result in a general decline in the depth to groundwater in the vicinity of the new wells. This alternative also proposes to shift about 2,000 AFY of water production from the existing desalter wells to the new wells. This reduction in pumping at the existing wells will result in a small increase in groundwater levels at the existing wells due to the reduced pumping. However, data provided on Tables 6-9a through 6-9e of the Task 3 WEI Study indicates that groundwater levels at the existing wells will remain in excess of 40 feet below ground surface. Therefore, implementation of Alternative 7, which will increase groundwater production without additional recharge, is not forecast to result in an increased potential for liquefaction to occur within the affected area.

Subsidence and Shrink-Swell Potential

Less Than Significant Impact – According to Figure PS-3 of the City of Riverside General Plan, the project is located within an area with soils that have a Low Shrink-Swell potential. Subsidence is the shrinking of earth material caused by natural or artificial removal of underlying support. This process occurs in poor, unconsolidated soils, and poorly compacted fills. Seismically induced groundshaking, both local and regional, and heavy rainfall are naturally induced causes of subsidence.

This project does not include the construction of any new facilities that could be affected by subsidence or the shrinking or swelling of soil. Other than the wells, no above ground structures are proposed by this project.

Under Alternatives 1 through 6, the recharge of water into the groundwater basin is not forecast to result in the potential for subsidence to occur. As stated, the soils in the project area have a low shrink-swell potential and the recharge activities will not result in groundwater levels that could pose a significant potential for the swelling of soils. No significant impact can be identified and no mitigation is required.

Alternative 7 proposes the extraction of groundwater and generally the lowering of groundwater levels in the Basin. The extraction of groundwater does have the potential to cause subsidence in areas where shallow groundwater is lowered. However, the soils in the affected area are not considered to be generally susceptible to compaction and related subsidence. The depth to groundwater in the project area has generally undergone substantial lowering over the years as a result of the extraction of water from the Basin. Past water extraction activities have not resulted in any substantial subsidence of soils and it is forecast that implementation of Alternative 7 will not result in new or greater subsidence potential in the project area.

Landslides

No Impact – Landslides are another geologic process that can be induced by seismic activity. This process involves the downslope movement of geologic materials. The stability of slopes is related to a variety of factors including, the slope's steepness; the strength of geologic materials in terms of resistance to the downslope stress of gravity; the characteristics of bedding planes, joints and

faults; surface water and groundwater conditions; and other factors. Potential landslide conditions occur in hillside areas.

The proposed facilities are located within relatively flat terrain and are not the type of facilities that house or attract people to the sites. No hillsides or steep slopes exist on or adjacent to the project sites and potential landslide-related impacts are considered to be less than significant. No mitigation is required.

- b. *Less Than Significant Impact With Mitigation Incorporated* – The project area is relatively flat terrain (less than 5% slope). Such terrain does not generate surface water flows with adequate velocities to generate erosive surface water flows. The proposed pipelines will be placed underground. Once installed, the pipe alignments will be returned to their pre-project condition including re-paving alignments within paved roads (see Mitigation Measures VII-1 and VII-2). No change in the direction, volume or velocity of stormwater flow from these alignments will result. The proposed recharge basins will not create drainage but rather capture and retain surface water for percolation and recharge of the groundwater basin. Therefore no increase in the quantity or velocity of stormwater flow from the sites will result. The well sites currently drain as sheet flow. Installation of the wells will require minimal site leveling and hard surfacing. These sites are relatively small (about one-half acre). No substantial increase or alteration in the direction, volume or velocity of drainage flows from the affected sites will result.

Over the long term, the proposed project will not substantially alter the existing drainage system nor substantially increase the amount or velocity of surface water flows from the site. The recharge basins will be designed to store surface water and will actually have the potential to reduce surface water runoff in the project area.

Construction activities with the associated soil disturbances do have the potential result in short-term soil erosion impacts. This issue is evaluated in Section VIII, Hydrology and Water Quality of this document. The evaluation provided in Section VIII, Hydrology and Water Quality concluded that potential short-term impacts to soils, including the erosion of soils, could be mitigated to a less than significant level with implementation of Mitigation Measure VIII-1. No further mitigation is required.

- d. *Less Than Significant Impact* – See substantiation for issue “a” above. The soils onsite are alluvial materials that have a low shrink-swell potential. These soils are generally considered good construction with proper preparation. The facilities proposed by this project do not include habitable structures or other structures that could be susceptible to or be affected by unstable earth conditions. Adequate standard engineering design and construction techniques are available to reduce the potential substantial risks to people or property from expansive soil conditions to a less than significant level. Potential impacts are considered less than significant and no mitigation other than that proposed by the project design is required.
- e. *No Impact* – This project does not proposed any waste water disposal facilities. No impact associated with soils not capable of supporting wastewater disposal systems will result and no mitigation is required.

INITIAL STUDY

	Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Impact	No Impact
VII. HAZARDS AND HAZARDOUS MATERIALS – Would the project:				
a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d. Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f. For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h. Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

SUBSTANTIATION:

The following is a discussion of the Policies, Regulations and responsible agencies for enforcing the policies and regulations regarding the transport, handling, storage and use of hazardous materials and sites which contain hazardous materials and wastes. While this project does not propose these activities nor is it anticipated that hazardous conditions will be encountered, it is appropriate that the regulations applicable to hazards be discussed in this section of the Initial Study to evaluate why this project does not pose a substantial risk of hazard or hazardous conditions.

Existing Policies and Regulations

The principal agency for managing contamination from illegal or accidental releases of hazardous materials and wastes in the State of California is the Department of Toxic Substances Control (DTSC). In addition to enforcing state regulations (California Code of Regulations (CCR) Titles 17, 19, and 22), the DTSC was granted authorization from the federal EPA in 1992 to be the agency responsible for regulating the generation, transport, and disposal of hazardous waste under the authority of the Resource Conservation and Recovery Act (RCRA) in California. Other agencies that may periodically coordinate with DTSC or with the enforcement of regulations that address site activities include: Riverside County Department of Environmental Health, the Riverside County Fire Department, the Regional Water Quality Control Board (RWQCB), the State Water Resources Control Board, the South Coast Air Quality Management District (SCAQMD), the State Department of Transportation, and the California Highway Patrol.

Risk Associated with the Use of Hazardous Materials

Hazard vs. Risk

Worker and public health are potentially at risk whenever hazardous materials are present or will be used. It is important to differentiate between the "hazard" of these materials and the acceptability of the "risk" they pose to human health and the environment. A hazard is any situation that has the potential to cause damage to human health and the environment. The risk to human health and the environment is determined by the probability of exposure to the hazardous substance and the severity of harm such exposure would pose. The likelihood and means of exposure, in addition to the inherent toxicity of a substance, determine the degree of risk to human health. When the risk of an activity is judged acceptable by society in relation to perceived benefits, the activity is judged to be safe, or a non-significant risk.

Means of Exposure

Exposure to hazardous materials could occur in the following manner: (1) improper handling or use of hazardous materials during the course of business, particularly by untrained personnel; (2) failure of storage containment systems; (3) environmentally unsound treatment/disposal methods; (4) transportation accidents; (5) fire, explosion or other emergencies; or (6) release of small quantities of hazardous or toxic substances permitted by regulatory agencies. The following factors influence the health effects of exposure to hazardous materials: the dose to which the person is exposed, the frequency of exposure, the duration of exposure, the exposure pathway (route by which a chemical enters a person's body), and the individual's unique biological susceptibility.

The means of exposure as outlined above would determine the way in which toxic materials are absorbed into the body and, therefore, the bodily organs or systems affected. The major ways in which toxic materials may enter and be absorbed by the body are through the mouth (ingestion), the skin (penetration), or the lungs (inhalation). How a hazardous substance gets into the body and what damage it causes depends on the form or physical properties of the substance (i.e., liquid, solid, gas, dust, fibers, fumes or mist). A chemical may be toxic by one route but not by another.

Health effects from exposure to toxic materials may be acute or chronic. Acute effects, usually resulting from a single exposure to a toxic material, may include significant immediate damage to organs and systems in the body, and possibly death. Chronic effects, usually resulting from long term exposure to a toxic or hazardous substance, may also include systemic and organ damage, as well as birth defects, genetic damage and cancer.

Hazardous Material Handling

Federal

Federal agencies that regulate hazardous and toxic materials include the EPA, the Occupational Safety and Health Administration (OSHA), the Nuclear Regulatory Commission (NRC), the U.S. Department of Transportation (DOT), and the National Institutes of Health (NIH). The following federal laws and guidelines govern hazardous materials. Hazardous materials handling and management associated with the proposed project must comply with applicable regulations as follows:

- Federal Water Pollution Control Act
- Clean Air Act
- Occupational Safety and Health Act
- Federal Insecticide, Fungicide, and Rodenticide Act
- Comprehensive Environmental Response, Compensation, and Liability Act
- Guidelines for Carcinogens and Biohazards
- Superfund Amendments and Reauthorization Act Title III
- Resource Conservation and Recovery Act (RCRA)
- Safe Drinking Water Act
- Toxic Substances Control Act

Until August 1992, the principal agency at the federal level regulating the generation, transport and disposal of hazardous waste was the EPA under the authority of the RCRA. However, effective August 1, 1992, the California Environmental Protection Agency (Cal-EPA) and the DTSC were authorized to implement the State's hazardous waste management program in lieu of the EPA.

State

The Cal-EPA and the State Water Resources Control Board generally govern the use of hazardous materials and the management of hazardous waste. The California Highway Patrol (CHP) and the California Department of Transportation (Caltrans) enforce hazardous substance transportation regulations. Chemical suppliers must comply with all applicable packaging, labeling and shipping regulations.

Applicable state and local laws include the following:

- Public Safety/Fire Regulations/Building Codes
- Hazardous Waste Control Law
- Hazardous Substances Information and Training Act
- Hazardous Materials Release Response Plans and Inventory Act
- Porter-Cologne Water Quality Control Act
- Tanner Toxics Act

DTSC has primary regulatory responsibility for the management of hazardous materials/substances and the generation, transport and disposal of hazardous waste under the authority of the Hazardous Waste Control Law (HWCL). DTSC can delegate enforcement to local jurisdictions that enter into agreements with the State agency. State regulations applicable to hazardous materials are indexed agreements in Title 26 of the California Code of Regulation (CCR).

Regional

The South Coast Air Quality Management District (SCAQMD) works with the California Air Resources Control Board (CARB) and is responsible for developing and implementing rules and regulations to control the emission of air toxics on a local level. The SCAQMD establishes permitting requirements, inspects emission sources, and enforces measures through educational programs and/or fines. The

Santa Ana RWQCB controls the discharge of toxic materials in wastewater and from disposal facilities through the issuance of waste discharge requirements and NPDES permits under authority from the State Water Resources Control Board and the federal EPA.

Local

The Riverside County Department of Environmental Health, Hazardous Materials Management Division (HMM) and the City of Riverside Fire Department/California Department of Forestry are responsible, on both the city and county level, for enforcing the State regulations governing hazardous waste generators, hazardous waste storage, and underground storage tanks, including inspections and enforcement. These agencies also regulate the use, storage, and disposal of hazardous materials in the City of Riverside and Riverside County. The Riverside County Fire Department also administers the local Fire Code which incorporates articles of the Uniform Fire Code (UFC). The UFC is a model code setting construction standards for buildings and associated fixtures to prevent or mitigate hazards resulting from fire or explosion. The HMM reviews technical aspects of hazardous waste site cleanups, and oversees remediation of certain contaminated sites resulting from leaking releases of hazardous materials. These agencies are also responsible for providing technical assistance to public and private entities which seek to minimize the generation of hazardous waste.

Hazardous Materials Transportation

Federal

The DOT has the regulatory responsibility for the safe transportation of hazardous materials between states and to foreign countries. DOT regulations govern all means of hazardous materials transportation (except for those packages shipped by mail, which are covered by the U.S. Postal Service regulations), including transportation by rail. DOT regulations are contained in the Code of Federal Regulations Title 49.

Under RCRA, the EPA sets standards for transporters of hazardous waste. In turn, the federal government authorized the State of California to carry out EPA regulations concerning transportation of hazardous wastes originating in, or passing through, the State.

State

The State of California has adopted regulations for the intrastate movement of hazardous materials. State regulations are indexed in the CCR Title 26.

The California Highway Patrol (CHP) has primary responsibility for enforcing federal and State regulations related to the transport of hazardous materials over streets and highways, including hazardous materials labeling and packaging regulations. The CHP also responds to hazardous materials transportation emergencies. The goal of these regulations is to prevent leakage and spills of material in transit and to provide detailed information to clean-up crews in the event of an accident. Vehicle and equipment inspection, shipment preparation, container identification, and shipping documentation are all part of the responsibility of the CHP, which conducts regular inspections of licensed transporters to assure regulatory compliance.

Common carriers which transport hazardous materials on roadways are licensed by the CHP under conditions specified in CCR Title 26, Division 14.1 Transportation of Hazardous Material, Section 32000.5, License to Transport Hazardous Materials. This section requires licensing of every motor (common) carrier who transports, for a fee, in excess of 500 pounds of hazardous materials at one time, and every carrier, if not for hire, who carries more than 1,000 pounds of hazardous materials of the type requiring placards. If the supplier or distributor carries fewer than 1,000 pounds of material, a license is not required.

Interstates 10, 15 and 215 are designated explosives transport routes according to the CHP manual *Explosive Routes and Stopping Places*.

Hazardous Materials Worker Safety Requirements

Federal

The Federal Occupational Safety and Health Administration (Fed/OSHA) is the agency responsible for ensuring worker safety. Fed/OSHA sets federal standards for implementation of training in the work place, exposure limits, and safety procedures in the handling of hazardous materials (as well as other hazards). Fed/OSHA also establishes criteria by which each state can implement its own health and safety program.

The proposed project does not propose the transport, storage or use of hazardous materials. The raw water extracted by the proposed wells will be transported by underground pipeline to the existing Arlington Desalter facility. The Arlington Desalter operates under the terms and conditions of the applicable rules, regulations and permits issued for its operation. This project does not propose any revisions to the Arlington Desalter or its permits.

a&b *Less Than Significant Impact With Mitigation Incorporated* – In the short term, the only hazardous materials associated with either alternative for this project are petroleum products used by construction equipment during well drilling, pipeline installation and, in the case of Alternatives 1 through 6, the excavation of recharge basins. Unmanaged releases of hazardous materials during construction are readily controlled to a less than significant level of hazard through control or remediation of accidental releases of petroleum or other hazardous products. Mitigation Measure VIII-1 in Section VIII, Hydrology and Water Quality of this document requires that the Stormwater Pollution Prevention Plan (SWPPP) prepared for this project include a Spill Prevention and Cleanup Plan that identifies the measures that must be implemented should hazardous materials be released during construction activities. These measures must be consistent with applicable regulations and laws governing the proper containment, cleanup, transport and disposal of any such materials released on the site.

In the long term, operation of the facilities proposed by this project will not result in the use or storage of hazardous materials. No water treatment facilities or chemicals are associated with this project. Groundwater will be extracted by the wells and the water delivered by underground pipelines to the existing Arlington Desalter plant for treatment. No water treatment activities will occur until after the raw water enters the existing Desalter facility which is an existing, permitted facility. This project does not include any revisions or alterations to the Desalter facility, its operation or its existing permits.

Operation of the proposed facilities will not result in the transport, storage or use of hazardous materials. No new water treatment facilities or the use of chemicals are associated with this project. The proposed wells will extract groundwater from the Arlington Basin and the water delivered by the proposed underground pipelines to the existing Arlington Desalter facility. No water treatment activities will occur prior to the raw water entering the existing Desalter.

The proposed recharge basins will accept raw surface water runoff for percolation into the Arlington Basin. No treatment facilities or the storage or use of chemicals will be associated with the recharge basins or the water percolated.

No long term potential for impact associated with the release of hazardous materials or the creation of a hazardous condition can be identified for this project and no mitigation is required.

- c. *No Impact* – Implementation of this project does not include the use, storage and transport of hazardous materials. Therefore, this project has no potential to pose a potential threat of hazard or hazardous conditions to an existing or proposed school, students or the public. No impact can be identified and no mitigation is required.
- d. *Less Than Significant Impact* – According to data provided on Figure PS- 5 of the City General Plan, no known hazardous waste sites exists within the project area. According to the General Plan, data provided on Figure PS-5 was developed using data provided in the California Department of Toxic Substances Control's Hazardous Waste and Substances Site List (Cortese List), Envirostor Database, U.S. EPA Superfund (CERCLIS). A review of data provided on the Leaking Underground Storage Tank Information System (LUSTIS), and the U.S. Environmental Protection Agency (EPA) Environmapper indicates that no known hazardous materials sites exist on or near the project site.

While no hazardous waste sites are known or suspected to occur on or near proposed project sites, it is possible that any site being acquired by the District to implement the facilities proposed could contain unknown hazardous materials. It is the policy of the WMWD to perform "due diligence" activities on parcels prior to it purchasing the land. The due diligence activities include an evaluation of possible site contamination to verify that no contamination or hazardous conditions exist on the site. No further mitigation is required.

- e&f. *No Impact* – According to Figure PS-6 of the City's General Plan, the project site is not located within or near an airport, private airstrip or an Airport Safety Zone or Influence Area. No such land uses exist within this portion of the City and this project has no potential to create a safety hazard for people, aircraft or aircraft operations. No impact can be identified and mitigation is required.
- g. *Less Than Significant Impact With Mitigation Incorporated* – The proposed wells and recharge basins will located on parcels outside existing public roads. As such, these facilities have no potential to interfere with an emergency response plan or emergency evacuation plan. The proposed underground pipelines will be located within existing public roads and do pose some potential to interfere with such plans. In the short term construction activities could result in lane closures, detours and the obstruction of the normal flow of traffic and the possibly creating congestion on the roads. In the long term, the improper repair of roads affected by the pipeline installation has some potential to interfere with the flow of traffic or create an unsafe road condition. To reduce this potential to a less than significant level, the following measures shall be implemented.

VII-1 The District shall review and approve a construction traffic management plan for work in public roads that complies with the Work Area Traffic Control Handbook or other applicable City of Riverside standards and requirements to provide adequate traffic control and safety during construction. This plan shall include methods of diverting, controlling or rerouting traffic around construction activity in public roads and adequately controlling surface water drainage and erosion in the project area. It is anticipated that measures to be implemented will include but not be limited to the use of flag persons, signage and lane control to ensure the safe control of traffic through construction areas that affect public roads.

VII-2 The District shall require that all disturbances to public roads be repaired in a manner that complies with the Standard Specifications for Public Works Construction (green book) or other applicable City standards and requirements. It is anticipated that measures which will be implemented will be the proper backfilling and compaction of excavated trenches, adequate control of surface water drainage and the proper resurfacing of roads.

- h. *No Impact* – The project site is located within an urbanized area. No wildlands exist on or near the site. According to Figure PS-7 of the City General Plan, the project area is not within a Fire Hazard Area.

No residential or other human occupancy development is proposed by this project. The project includes groundwater extraction wells, underground pipelines and water recharge basins. No flammable or explosive materials are associated with this project. Therefore, this project has no potential to expose people or structures to wildland fires. No mitigation is required.

INITIAL STUDY

	Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Impact	No Impact
VIII. HYDROLOGY AND WATER QUALITY – Would the project:				
a. Violate any water quality standards or waste discharge requirements?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on or offsite?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding onsite or offsite?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f. Otherwise substantially degrade water quality?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g. Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h. Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
i. Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
j. Inundation by seiche, tsunami, or mudflow?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

SUBSTANTIATION:

a&f. *Less Than Significant Impact With Mitigation Incorporated* – This project proposes the installation and operation of groundwater extraction wells. Water pumped from the Basin will be transported to the existing Arlington Desalter facility for treatment. Alternatives 1 through 6 add the potential for

recharge of water into the Basin by the construction and use of surface water recharge basins. The purpose of this project is to improve the quality of groundwater in the Arlington Basin by extracting and treating the water at the Desalter facility.

The Arlington Desalter operates under the terms and requirements of waste discharge orders issued by the California Regional Water Quality Control Board, Santa Ana Region (RWQCB). Compliance with these waste discharge requirements is mandatory and ensures that effluent produced at the Desalter complies with established water quality standards. Wastes generated at the Desalter are discharged to the Santa Ana River Watershed Project Authority's (SAWPA) Santa Ana River Interceptor (SARI) pipeline. This pipeline conveys these wastes for additional treatment at Orange County Sanitation District (OCSD) treatment facilities. Treated effluent from the OCSD's facilities is ultimately discharged to the Pacific Ocean.

The discharge of effluent from the Desalter to the SARI pipeline is subject to the amount of capacity WMWD has in the SARI line and the treatment capacity at the OCSD facilities. The SARI line capacity is contracted with SAWPA and capacity can be purchased, sold or transferred through SAWPA. Currently, the WMWD has adequate capacity in the SARI pipeline and at the OCSD facility and operates within its contracted capacity in the SARI line and contracted treatment capacity at the OCSD's facilities.

Presently, the Arlington Desalter is undergoing expansion of its treatment capacity to accommodate the anticipated increased demand for treatment capacity at the plant. The expansion includes an upgrade and efficiency improvements to the treatment process which will allow the Arlington Desalter to treat raw water and reduce the volume of brine wastes generated. The WMWD forecasts that after the improvements are made to the Desalter facilities and the wells proposed by this project are operational, the Desalter will continue to operate within its allotted capacity in the SARI pipeline and its contracted treatment capacity at the OCSD.

Based on the above, implementation of this project is not forecast to result in the violation of any waste discharge requirements or substantially degrade the quality of water. The purpose of this project is to improve the quality of groundwater in the Arlington Basin and no significant adverse effects to water quality are forecast to result from operating the facilities proposed by this project.

In the short term, construction activities will have some potential to affect the quality of stormwater discharged from the project sites. Land disturbance activities could result in erosion and sedimentation downstream. Spills or leaks of petroleum products used by construction equipment could also adversely affect the quality of surface water. If the area of land disturbance by this project is one acre or greater, WMWD must file a Notice of Intent (NOI) with the State Water Resources Control Board and obtain a general construction NPDES stormwater discharge permit prior to the start of construction. Issuance of the NPDES requires the preparation and implementation of a Storm Water Pollution Prevention Plan (SWPPP) which specifies Best Management Practices (BMPs) that must be implemented during construction. Compliance with the terms and conditions of the NPDES and the SWPPP is mandatory and is judged adequate mitigation by the regulatory agencies for potential impacts to stormwater during construction activities.

For individual construction projects involving less than one acre, permitting under the NPDES is not required, however, it is necessary that a SWPPP be developed and implemented. The following mitigation measure shall be implemented to reduce the potential for degradation of stormwater quality to a less than significant level during construction activities.

VIII-1 The WMWD shall require that the construction contractor prepare and implement a Storm Water Pollution Prevention Plan (SWPPP) which specifies Best Management Practices (BMPs) that will prevent all construction

pollutants from contacting stormwater and with the intent of keeping all products of erosion from moving offsite into receiving waters. The SWPPP shall include a Spill Prevention and Cleanup Plan that identifies the methods of containing, cleanup, transport and proper disposal of hazardous chemicals or materials released during construction activities that are compatible with applicable laws and regulations. BMPs to be implemented in the SWPPP may include but not be limited to:

- ***The use of silt fences;***
- ***The use of temporary stormwater desilting or retention basins;***
- ***The use of water bars to reduce the velocity of stormwater runoff;***
- ***The use of wheel washers on construction equipment leaving the site***
- ***The washing of silt from public roads at the access point to the site to prevent the tracking of silt and other pollutants from site onto public roads.***

Installation and development of the groundwater extraction wells may include some well test pumping. The WMWD maintains a general *de minimis* discharge permit for such activities that is issued or renewed annually by the RWQCB. Compliance with the terms and conditions of the annual permit is mandatory and considered adequate to reduce potential impacts to water quality associated with discharge of water from the wells.

- b. ***Less Than Significant Impact*** – As previously stated, the WMWD is considering implementing one of seven possible alternatives for this project. Implementation of any of the proposed alternatives will result in changes to the volume of water in storage in the Arlington Basin and in the amount of inflow and outflow of water into and out of the adjacent basins and surface water flows toward the north and Hole Lake and the Santa Ana River system. According to data provided in the WEI Task 3 Report, the groundwater basins that will experience changes in inflow and outflow of subsurface water as a result of this project are the Riverside Basin, the Temescal Basin and other basins located southerly of the Arlington Basin within the adjacent El Sobrante de San Jacinto (ESDSJ) foothills. Surface water flows associated with rising groundwater from the Arlington Basin toward the north and the Santa Ana River will also be affected by this project. The extent of the alterations to the current flow of water will be dependant on the project alternative selected.

The volume of groundwater in the Riverside-South Basin is estimated at about 402,000 acre-feet (AF) (WEI Recomputation of Ambient Water Quality in the Santa Ana Watershed for the Period 1987 to 2006, Final Technical Memorandum 2008). According to WEI, groundwater in the portion of the Riverside Basin adjacent to the Arlington Basin is of poor quality and used for agricultural purposes. The nearest municipal wells are located several miles from the boundary between the Arlington and Riverside Basins. According to data shown provided on Figures VIII-1 through VIII-7 (Figures 6-2b through 6-8b of the WEI Water Balance Report), the only proposed alternative that will result in a decline in groundwater levels at the existing wells in the Riverside Basin is Alternative 7. This decline is forecast to range from zero to 10 feet at the nearest non-potable water wells. No drawdown is forecast to occur at any municipal wells under Alternative 7 or any other possible alternatives.

Due to the poor quality of groundwater in the Arlington Basin, the quality of groundwater that outflow to the Temescal Basin is generally of poor quality and may serve to degrade the quality of groundwater in the Temescal Basin. This project will reduce or eliminate the groundwater outflows to the Temescal Basin and is considered a potential benefit to the overall quality of groundwater in that basin.

Groundwater in the northerly portion of the Arlington Basin rises to the surface and flows as surface flow toward the Hole Lake area and the Santa Ana River. This area has been highly

urbanized and surface flows are primarily conveyed in hard surfaced drainage channels and roads. Surface water in Hole Lake and in the Santa Ana River is comprised of both surface and subsurface flows. The surface flows are comprised of both rising groundwater and urban runoff. The water in the Hole Lake area discharges to the Santa Ana River. This water is of poor quality and generally exceeds the Maximum Contaminate Level (MCL) for nitrogen, perchlorate and TDS. Currently, Hole Lake discharges about 3,000 AFY of water to the Santa Ana River. This is a relatively minor amount of water compared to the total average annual flows in the Santa Ana River which is estimated by WEI at about 1 million AFY at this location.

Implementation of any of the proposed alternatives will result in a reduction in the outflow of rising groundwater from the Arlington Basin to the Hole Lake area and the Santa Ana River system. The estimated reductions are summarized in Table IV-1. These reductions are identified in more detail below for each of the possible alternative. These reductions in outflow are considered minimal in relation to the estimated flows of the Santa Ana River. However, any reduction in flows of poor quality water to the Santa Ana River is considered a benefit to the water quality goals for the Santa Ana River.

The following is a description of each of the possible alternatives proposed by this project. As previously stated only one of the possible alternatives will be implemented. However, each alternative and its potential effects will be evaluated in this document.

Alternative 1

Less Than Significant Impact— Alternative 1 proposes a two phased approach. Phase 1 commences in 2012 with the objective of maximizing production (10,080 AFY) at the existing Desalter wells and one additional well (AD-6) along with localized recharge at the Magnolia and Metrolink Recharge sites. In 2017, three new desalter wells (AD-6, 7, 8) and one recharge site (Monroe) will be brought online as part of Phase 2. The new wellfield will increase production to 11,830 AFY (10.6 MGD) including a shift of 2,290 AFY from the existing wellfield to the eastern portion of the basin. Figure 3 (Figure 6-2a of the WEI Study) shows the facilities associated with Alternative 1. The operations at buildout (2034) are 2,421 AFY of artificial recharge, 11,830 AFY (10.6 MGD) of groundwater production which yields approximately 11,120 AFY (10.0 MGD) of product water.

Figure VIII-1 (Figure 6-2b of the WEI Study) is a map of basinwide drawdown at the end of the simulation of Alternative 1. The simulation terminated in 2034 because of excessive drawdown at the desalter well (i.e., model cells become “dry” near the desalter wells). Maximum drawdown of about 30 feet occurred within the cone-of-depression caused by the constant pumping at the desalter wellfield. The development of this cone-of-depression eliminated groundwater outflow to Temescal Basin by 2009. According to WEI, increased urbanization accompanied by outdoor irrigation caused a progressive increase in subsurface inflow from the hills of El Sobrante de San Jacinto (El Sobrante). As a result, groundwater levels rose by about 10 feet in the southeastern portion of Arlington Basin.

Groundwater was persistently lost from storage from Alternative 1—rapidly during the early years, but at a declining rate thereafter. Cumulative losses from storage were about 2,600 AF—approximately 79,000 AF in storage within the model domain in 2004 was reduced to about 76,400 AF by 2034.

The simulation results of Alternative 1 indicate that pumping during Phase 1, 10,150 AFY (9 MGD), at the Arlington Desalter wells is not sustainable. Storage losses from the Arlington Basin would be persistent, and maximum drawdown would be focused around the existing Desalter wellfield. This drawdown may necessitate significant modifications at the Desalter wells (e.g., lowering the

pump bowl assemblies and sealing the upper portions of well screens) which could result in reduced production capacity at the wells and the Desalter facility.

According to data shown on Figure VIII-1, by 2034, implementation of Alternative 1 will result in a 603 AFY increase in the inflow of groundwater from the Riverside Basin and an increase of about 1,436 AFY from El Sobrante. Alternative 1 is forecast to eliminate outflow to the Temescal Basin (350 AFY loss) and reduce the outflow of rising water toward Hole Lake by about 1,728 AFY.

Alternative 2

Less Than Significant Impact – Alternative 2 assumes a two phased approach. Phase 1 commences in 2012 with the production at the existing desalter wells and one additional desalter well (AD-6) producing 10,080 AFY with localized recharge at the Magnolia and Metrolink Recharge Basins. In 2017, two new desalter wells (AD-7 and 8) and one recharge site (Monroe) will be brought online as part of Phase 2. The new wellfield will increase production to 11,830 AFY (10.6 MGD) including a shift of 2,290 AFY from the existing wellfield to the eastern portion of the Basin. Figure 4 (Figure 6-3a of the WEI Study) shows the facilities associated with Alternative 2. The operations at buildout (2034) are 2,421 AFY of artificial recharge, 11,830 AFY (10.6 MGD) of groundwater production which yields approximately 11,120 AFY (10.0 MGD) of product water.

Figure VIII-2 (6-3b of the WEI Study) is a map of basinwide drawdown at the end of the simulation of Alternative 2. The simulation terminated in 2034 because of excessive drawdown at the desalter well (i.e., model cells become “dry” near the desalter wells). Maximum drawdown of about 35 feet occurred within the cone-of-depression caused by the constant pumping at the desalter wellfield. The development of this cone-of-depression eliminated groundwater outflow to Temescal Basin by 2012. According to WEI, increased urbanization accompanied by outdoor irrigation caused a progressive increase in subsurface inflow from the hills of El Sobrante de San Jacinto. As a result, groundwater levels rose by about 10 feet in the southeastern portion of Arlington Basin.

Groundwater was persistently lost from storage from Alternative 2—rapidly during the early years, but at a declining rate thereafter. Cumulative losses from storage in the Arlington Basin from Alternative 2 is forecast to be about 11,700 AF—approximately 79,000 AF in storage within the model domain in 2004 was reduced to about 67,300 AF by the end of the basin simulation (2034).

The simulation results of Alternative 2 indicate that pumping during Phase 1 (9 MGD) at the Arlington Desalter wells is not sustainable. The location of AD-6 negatively influences the existing desalter wells. Storage losses from the Arlington Basin would be persistent, and maximum drawdown would be focused around the existing desalter wellfield. This drawdown may necessitate significant modifications at the desalter wells (e.g., lowering the pump bowl assemblies and sealing the upper portions of well screens) which could result in reduced production capacity at the wells and the desalter facility.

According to data shown on Figure VIII-2, by 2034, implementation of Alternative 2 will result in a 703 AFY increase in the inflow of groundwater from the Riverside Basin and an increase of about 934 AFY from El Sobrante. Alternative 2 is forecast to eliminate outflow to the Temescal Basin (307 AFY loss) and reduce the outflow of rising water toward Hole Lake by about 991 AFY.

Alternative 3

Less Than Significant Impact – Alternative 3 assumes a two phased approach. Phase 1 commences in 2012 with the objective of sustaining water levels at the existing desalter wells (20 feet above the screens) with localized recharge at the Magnolia and Metrolink Recharge sites. In 2017, three new desalter wells (AD-9, 10, 11) and two recharge sites (Victoria and Monroe) will

be brought online as part of Phase 2. The new wellfield in the eastern portion of the basin will increase production to 11,830 AFY (10.6 MGD) from 8,000 AFY (7.1 MGD) in Phase 1. Figure 5 (Figure 6-4a of the WEI Study) shows the facilities associated with this Alternative. A raw water pipeline approximately 3.7 miles in length would be installed to convey the groundwater from the new wells to the Desalter facility. The operations at buildout (2034) are 3,921 AFY of artificial recharge, 11,830 AFY (10.6 MGD) of groundwater production which yields approximately 11,120 AFY (10.0 MGD) of product water.

Figure VIII-3 (6-4b of the WEI Study) is a map of basinwide drawdown at the end of the simulation of Alternative 3. The simulation ran to completion. Maximum drawdown of about 15 feet occurred within the cone-of-depression caused by the constant pumping at the desalter wellfield. The maximum drawdown within the cone-of-depression at the new Desalter wellfield was about 20 feet. Groundwater levels rose in the vicinity of the proposed Metrolink and Victoria Recharge Basins by about 30 feet and 35 feet, respectively. Artificially recharged water remained underground longer than 6 months before being pumped by an existing or proposed desalter well. According to WEI Study increased urbanization accompanied by outdoor irrigation caused a progressive increase in subsurface inflow from the hills of El Sobrante de San Jacinto. As a result, groundwater levels rose by about 15 feet in the southeastern portion of Arlington Basin.

Groundwater was lost from storage from Alternative 3 simulation—rapidly during the early years, but recovered during Phase 1, and then declined until completion. Cumulative losses from storage during the Alternative 3 simulation were about 6,260 AFY—approximately 79,000 AF in storage within the model domain in 2004 was reduced to about 72,740 AFY by the end of the basin simulation (2034).

The simulation results of Alternative 3 indicate that aquifer system can support the increased pumping rates associated with the Desalter facility expanded for 10 MGD of product water by locating new wells in the eastern portion of the Basin and evenly distributing the pumping across the Basin. If groundwater production is reduced at the existing desalter wells until the recharge basins come on line in 2012, no modifications to the desalter wells will be necessary.

According to data shown on Figure VIII-3, by 2034, implementation of Alternative 3 will result in a 7 AFY decrease in the inflow of groundwater from the Riverside Basin and an increase of about 938 AFY from El Sobrante. Alternative 3 is forecast to increase the outflow of water to the Temescal Basin by about 8 AFY (298 AFY total) and reduce the outflow of rising water toward Hole Lake by about 265 AFY.

Alternative 4

Less Than Significant Impact – Alternative 4 assumes a two phased approach. Phase 1 commences in 2012 with the objective of sustaining water levels at the existing desalter wells (20 feet above the screens) with localized recharge at the Magnolia and Metrolink Recharge Basins. In 2017, three new desalter wells (AD-11, 12, 13) and two recharge basins (Victoria and Monroe) will be brought online as part of Phase 2. The new wellfield in the northeastern portion of the Basin will increase production to 11,830 AFY (10.6 MGD) from 8,246 AFY (7.3 MGD) in Phase 1 and attempt to reduce outflow from rising groundwater in the Hole Lake area. Figure 6 (Figure 6-5a of the WEI Study) shows the facilities associated with this Alternative. A raw water pipeline of approximately 4.6 miles in length would be installed to convey the groundwater from the new wells to the Desalter facility. The operations at buildout (2034) are 3,921 AFY of artificial recharge, 11,830 AFY(10.6 MGD) of groundwater production which yields approximately 11,120 AFY (10.0 MGD) of product water.

Figure VIII-4 (6-5b of the Task 3 WEI Study) is a map of basinwide drawdown at the end of the simulation of Alternative 4. The simulation ran to completion. The water levels around the existing

wells have risen to about 5 feet and about 10 to 15 feet of drawdown in the cone-of-depression around the new desalter wells. Groundwater levels rose in the vicinity of the Metrolink and Victoria Recharge Basins by about 30 feet and 40 feet, respectively. Artificially recharged water remained underground longer than 6 months before being pumped by an existing or proposed desalter well. According to WEI, increased urbanization accompanied by outdoor irrigation caused a progressive increase in subsurface inflow from the hills of El Sobrante de San Jacinto. As a result, groundwater levels rose by about 15 feet in the southeastern portion of Arlington Basin.

Groundwater was lost from storage from Alternative 4 simulation—rapidly during the early years, and recovered slowly in the out years. Cumulative losses from storage during the Alternative 4 simulation were about 561 AFY—approximately 79,000 AF in storage within the model domain in 2004 was reduced to about 78,440 AF by 2034.

The simulation results of Alternative 4 indicate that aquifer system can support the increased pumping rates associated with the desalter facility expanded for 10 MGD of product water by locating new wells in the eastern portion of the basin and evenly distributing the pumping across the basin. If groundwater production is reduced at the existing desalter wells until the recharge basins come on line in 2012, no modifications to the desalter wells (e.g., lowering of pump bowl assemblies and sealing of upper portions of well screens) will be necessary.

According to data shown on Figure VIII-4, by 2034, implementation of Alternative 4 will result in a 307 AFY increase in the inflow of groundwater from the Riverside Basin and an increase of about 938 AFY from El Sobrante. Alternative 4 is forecast to reduce outflow to the Temescal Basin by about 63 AFY and reduce the outflow of rising water toward Hole Lake by about 267 AFY.

Alternative 5

Less Than Significant Impact – Alternative 5 assumes a two phased approach. Phase 1 commences in 2012 with the objective of sustaining water levels at the existing desalter wells (20 feet above the screens) with localized recharge at the Magnolia and Metrolink Recharge Basins. In 2017, three new desalter wells (AD-8,11, 13) and two recharge basins (Victoria and Monroe) will be brought online as part of Phase 2. The new wellfield in the northeastern portion of the Basin will increase production to 11,830 FY (10.6 MGD) from 8,246 AFY (7.3 MGD) in Phase 1 and attempt to reduce outflow from rising groundwater in the Hole Lake area. Figure 7 (Figure 6-6a of the WEI Study) shows the facilities associated with this Alternative. A raw water pipeline approximately 5.5 miles in length would be installed to convey the groundwater from the new wells to the desalter facility. The operations at buildout (2034) are 3,921 AFY of artificial recharge, 11,870 AFY (10.6 MGD) of groundwater production which yields approximately 11,120 AFY (10.0 MGD) of product water.

Figure VIII-5 (6-6b of the Task 3 WEI Study) is a map of basinwide drawdown at the end of the simulation of Alternative 5. The water levels around the existing wells have risen about 5 feet with about 10 to 15 feet of drawdown in the cone-of-depression around the new desalter wellfield. Groundwater levels rose in the vicinity of the Metrolink and Victoria Recharge basins by about 30 feet and 35 feet, respectively. Artificially recharged water remained underground longer than 6 months before being pumped by an existing or proposed desalter well. According to WEI, increased urbanization accompanied by outdoor irrigation caused a progressive increase in subsurface inflow from the hills of El Sobrante de San Jacinto. As a result, groundwater levels rose by about 15 feet in the southeastern portion of Arlington Basin.

Groundwater was added to storage during the Alternative 5 simulation. Groundwater was lost during the early years, and recovered slowly in the out years. Cumulative losses from storage during the Alternative 5 simulation were about 1,845 AF—approximately 79,000 AF in storage

within the model domain in 2004 was reduced to about 80,845 AF by the end of the baseline simulation (2034).

The simulation results of Alternative 5 indicate that the aquifer system can support the increased pumping rates associated with the desalter facility expanded for 10MGD of product water by locating new wells in the eastern portion of the Basin and evenly distributing the pumping across the Basin. If groundwater production is reduced at the existing desalter wells until the recharge basins come on line in 2012, no modifications to the desalter wells (e.g., lowering of pump bowl assemblies and sealing of upper portions of well screens) will be necessary.

According to data shown on Figure VIII-5 (Figure 6-6b of the WEI Study), by 2034, implementation of Alternative 5 will result in a 102 AFY increase in the inflow of groundwater from the Riverside Basin and an increase of about 938 AFY from El Sobrante. Alternative 5 is forecast to increase outflow to the Temescal Basin by about 164 AFY and reduce the outflow of rising water toward Hole Lake by about 635 AFY.

Alternative 6

Less Than Significant Impact – Alternative 6 assumes a two phased approach. Phase 1 commences in 2012 with the objective of sustaining water levels at the existing desalter wells (20 feet above the screens) with localized recharge at the Magnolia and Metrolink Recharge Basins. In 2017, two new desalter wells (AD-8 and 14) and two recharge basins (Victoria and Monroe) will be brought online as part of Phase 2. The new wellfield in the northeastern portion of the basin will increase production to 11,400 AFY (10.1 MGD) from 8,246 AFY (7.3 MGD) in Phase 1 and attempt to reduce outflow from rising groundwater in the Hole Lake area. Figure 8 (Figure 6-7a of the WEI Study) the facilities associated with this Alternative. The operation at buildout (2034) are 3,921 AFY of artificial recharge, 10,716 AFY (9.5MGD) of groundwater production which yields approximately 10,716 AFY (9.5 MGD) of product water.

Figure VIII-6 (6-7b of the WEI Study) is a map of basinwide drawdown at the end of the simulation of Alternative 6. The simulation ran to completion. The water levels rose about 5 feet around the existing wells with about 10 to 15 feet of drawdown in the cone-of-depression around the new desalter wellfield. Groundwater levels rose in the vicinity of the Metrolink and Victoria Recharge Basins by about 30 feet and 40 feet, respectively. Artificially recharged water remained underground longer than 6 months before being pumped by an existing or proposed desalter well. According to WEI, increased urbanization accompanied by outdoor irrigation caused a progressive increase in subsurface inflow from the hills of El Sobrante de San Jacinto. As a result, groundwater levels rose by about 15 feet in the southeastern portion of Arlington Basin.

Groundwater was added to storage under the Alternative 6 simulation. Groundwater was lost during the early years, and recovered slowly in the out years. Cumulative storage gain during the Alternative 6 simulation were about 1,795 AF—approximately 79,000 AF in storage within the model domain in 2004 was increased to about 80,795 AF by the end of the simulation (2034).

The simulation results of Alternative 6 indicate that aquifer system can support the increased pumping rates associated with the desalter facility expanded for 9.5MGD of product water by locating new wells in the eastern portion of the Basin and evenly distributing the pumping across the Basin. If groundwater production is reduced at the existing desalter wells until the recharge basins come on line in 2012, no modifications to the desalter wells (e.g., lowering of pump bowl assemblies and sealing of upper portions of well screens) will be necessary.

According to data shown on Figure VIII-6, by 2034, implementation of Alternative 6 will result in a 13 AFY increase in the inflow of groundwater from the Riverside Basin and an increase of about

938 AFY from El Sobrante. Alternative 6 is forecast to reduce outflow to the Temescal Basin by about 25 AFY and reduce the outflow of rising water toward Hole Lake by about 635 AFY.

Summary

Alternatives 1 through 6 propose groundwater recharge activities that result in the lowering of groundwater at the extraction wells (cone of depression) but result in an increase in the level of groundwater (mounding) at and near the recharge basins.

Implementation of Alternatives 1 through 4 results in the loss of water in storage in the Arlington Basin. These losses vary from about 561 AF under Alternative 4 to about 11,700 AF under Alternative 2. These losses represent between a less than 1% to about a 15% loss in the estimated 79,000 AF of water in storage in the Arlington Basin. Because groundwater in the Arlington Basin is not potable and cannot be used for domestic purposes without treatment, these overall losses in storage are not considered a substantial depletion of the groundwater resources in the Arlington Basin. Implementation of the project alternatives will allow for the treatment of groundwater so that it can be used for domestic purposes and is considered a potential benefit to existing land uses or planned uses in the project area.

Alternatives 5 and 6 result in increases in the water in storage in the Arlington Basin of about 1,845 AF under Alternative 5 to about 1,795 AF of groundwater in storage under Alternative 6. This increase in storage results in generally higher groundwater levels within the Basin but also results in localized cones of depression at the extraction wells. As with Alternatives 1-4, these alternatives will result in the potential use of groundwater from the Arlington Basin for domestic uses and is considered a potential benefit to existing land uses and planned uses in the area.

As previously stated, the Riverside Basin is estimated to contain about 402,000 AF of water in storage. The maximum forecast increase in inflow from the Riverside basin is about 703 AFY by the year 2034. This represents about 0.2% of the estimated storage of the basin. The portion of the Riverside Basin affected by this project contains poor quality water that is similar in quality to that in the Arlington Basin. The potential effects of this project on the volume and quality of water stored in the Riverside Basin, under any of the alternatives proposed, are considered less than significant. Due to the generally poor quality of water in the affected portion of the Riverside Basin, an increase in the inflow of water and the potential for this water to be treated at the Desalter facility is considered a potential benefit to groundwater quality in the Riverside Basin.

The effects of Alternatives 1 through 6 will result in a range of effects on the outflow of water from the Arlington Basin. These effects range from the elimination of outflow to the Temescal Basin to an increase in outflow of about 164 AFY. Because of the poor quality of the groundwater in the Arlington Basin, reductions in the outflow are considered a potential benefit to the quality of groundwater in the Temescal Basin. It is forecast that the potential increase in outflow is associated with the recharge program in the southwesterly portion of the Basin. The water recharged is considered to be of better quality than the existing groundwater in the Arlington Basin and may serve to improve the quality of the outflow water by the effects of dilution.

The increase in the inflow of groundwater from the El Sobrante Hills is not considered a significant effect on that groundwater source. WEI estimates the increase in inflow is primarily attributable to the increased urban development in the El Sobrante Hills and the runoff generated by development. These hills, which are comprised of bedrock, are not known or suspected to contain a significant groundwater resource which does or could support existing or planned for development or other water dependent resources.

As previously discussed, the reduction in the outflow of water to the Hole Lake area and the Santa Ana River is not considered a significant reduction due to the estimated amount of water in the Santa Ana River system. The project area and Hole Lake area has been developed with urban uses. It is forecast that a substantial amount of water that arrives at Hole Lake is associated with

urban runoff and any reduction in the amount of outflow from rising groundwater is not considered a significant loss to surface water in the Hole Lake area or the Santa Ana River. The reduction in outflow of the poor quality water from the Arlington Basin to the Santa Ana River is considered a potential benefit to water quality in general in the Santa Ana River system.

Alternative 7

Less Than Significant Impact – Under this alternative, about 4,000 AFY of additional groundwater extractions would occur beginning in 2011 from the new production wells which are designated AD-14,15,16 and 17. This would increase the total groundwater extractions from the Basin from about 7,800 AFY to about 11,800 AFY. Alternative 7 does not propose any artificial groundwater recharge of the Basin. Alternative 7 assumes the construction of four new wells (three active wells and one standby well) in the eastern portion of the basin near the boundary with the Riverside Basin. The new desalter wells were assumed to begin pumping in 2011 and supply the Desalter facility with about 6,000 AFY of water. This includes a shift of about 2,000 AFY of water that is currently produced from the existing Desalter wells. Figure 9 (6-8a of the WEI Study) shows the locations of the existing and proposed new Alternative 7 wells. A raw water pipeline of approximately 4.5 miles in length would be installed to convey the groundwater from the new wells to the Desalter facility. The operations at buildout (2034) are 11,870AFY (10.6 MGD) of groundwater production which yields approximately 11,120 AFY (10.0 MGD) of product water.

Figure VIII-7 (6-8b of the WEI Study) is a map of basinwide drawdown at the end of the simulation of Alternative 7. Maximum drawdown of about 40 feet occurred within the cone-of-depression caused by the pumping at the proposed AD-14,15,16 and 17 wells. This cone-of-depression extended to the boundary with the Riverside Basin, and caused subsurface inflow from the Riverside Basin that peaked at about 3,000 AFY by 2025, and continued each year thereafter. Long-term drawdown at the existing desalter wellfield was about 10 feet from 2004 levels, which virtually eliminated groundwater outflow to Temescal Basin by 2010. Increased urbanization accompanied by outdoor irrigation caused a progressive increase in subsurface inflow from the hills of El Sobrante de San Jacinto. As a result, groundwater levels rose by about 10 feet in the southeastern portion of the Arlington Basin.

The simulation results of Alternative 7 indicate that the aquifer system can support the increased pumping rates associated with the desalter facility expanded for 10 MGD of product water by locating new wells in the eastern portion of the basin and evenly distributing the pumping across the basin. Drawdown around the desalter wellfields will increase the yield of the groundwater basin by about 4,000 AFY by increasing subsurface inflow from the Riverside Basin, by decreasing outflow of rising groundwater, and by eliminating subsurface outflow to Temescal Basin. Storage losses from the Arlington Basin will be about 11,000 AFY, but annual storage losses will taper off to zero by about 2019. This is indicative of sustainable pumping rates at the Desalter wellfields. If groundwater production is reduced at the existing desalter wells, no modifications to the existing Desalter wells (e.g., lowering a pump bowl assemblies and sealing of upper portions of well screens) will be necessary.

Groundwater was rapidly lost from storage during the early years of the simulation, but reached a relatively stable equilibrium at about 2019. Cumulative losses from basin storage during the simulation were about 11,000 AFY—approximately 79,000 AFY in storage within the model domain in 2004 was reduced to about 68,000 AFY by the end of the simulation (2034). The basin yield was increased in Alternative 7 by inducing subsurface inflow from the Riverside Basin.

According to data shown on Figure VIII-7, by 2034, implementation of Alternative 7 will result in a 2,954 AFY increase in the inflow of groundwater from the Riverside Basin and an increase of about 996 AFY from El Sobrante. Alternative 7 is forecast to decrease the outflow of water to the

Temescal Basin by about 292 AFY and reduce the outflow of rising water toward Hole Lake by about 1,026 AFY.

Summary

Data provided in Chapter 6 Water Balance of the WEI Study indicates that implementation of Alternative 7 would result in a loss of about 11,000 AFY of groundwater in storage in the Arlington Basin. This alternative will also increase the inflow of groundwater from adjoining upstream basins by about 3950 AFY while reducing the outflow of groundwater from the Arlington Basin to the Temescal Basin by about 292 AFY. Additionally, the outflow of surface water toward the Santa Ana River will be reduced by about 1,026 AFY.

The effects of this Alternative are essentially the same as those identified for Alternatives 1 through 6. The primary difference in the effects of Alternative 7 from those forecast for Alternatives 1 through 6 is the loss in the volume to water in storage in the Arlington Basin. However, the water in storage in the Arlington Basin is not usable for domestic purposes without treatment. While the amount of water in storage in the Basin would be reduced, that reduction is associated with the provision of an adequate supply of water for existing and planned uses in the project area. Therefore, the reduction in the amount of water in storage in the affected basins is not forecast to adversely affect existing or planned land uses. This project will actually make usable for domestic purposes water that is currently not of adequate quality for such use. Therefore, this project is considered an benefit to water supplies in the project area by reducing the flow of poor quality surface water.

- c&d. *Less Than Significant Impact With Mitigation Incorporated* – The proposed groundwater extraction wells will result in the disturbance of about one-half acre of land. Drainage from these sites generally occurs as sheet flow to the adjacent roads. The development of these sites will not alter the current drainage patterns, substantially increase drainage flows or velocities or require the development of new or altered drainage structures or facilities. No streams or rivers will be affected by this project. No significant impact to the current drainage system or patterns will result from development of the well sites will result. Implementation of Mitigation Measure VIII-1 above will reduce potential short-term impacts to the local drainage system during construction to a less than significant level.

The underground pipelines will be placed within existing roads. No new or substantially altered drainage structures or facilities will be required. Implementation of Mitigation Measures VII-1 and VII-2 and VIII-1 will reduce any potential for impact to existing drainage patterns of facilities to a less than significant level. No further mitigation is required.

The proposed recharge basins, if that alternative is selected, will alter the existing drainage patterns both on the proposed sites and areas around of the sites. The sites will be excavated to capture surface water runoff for percolation. Additionally, the recharge basins will capture surface water from upstream of the basins and from existing drainage channels in the area for percolation. This will be accomplished by utilizing the proposed pump stations to extract water from the existing channels and convey the water to the recharge basins. This activity will result in a reduction of drainage flows in these channels and, therefore, will not result in the need for new or expanded drainage facilities in the project area. This is considered a benefit to the current stormwater system by reducing the volume of surface water flow that currently exists. Sediments contained in the surface water flows will be captured in the basins and, since, water will not be discharged from the basins, no erosion of soil either onsite or downstream of the site will result. No streams or rivers will be affected by these basins.

In the short-term, the potential for erosion and the discharge of sediments during construction will be reduced to a less than significant level through implementation of Mitigation Measures VII-1, V-II-2 and VIII-1 above.

The purpose of the recharge basins is to capture and percolate surface water at the sites. This will result in the potential for flooding at the proposed recharge basins, however, no housing or other human occupancy structures will be affected. Implementation of the recharge basin alternative is considered a potential benefit to the local drainage system

No mitigation beyond that provided in Mitigation Measure VIII-1 above is required to construct and operate the proposed recharge basin.

e. *Less Than Significant Impact* – This project will not result in the hardsurfacing of a substantial amount of land. The only new hardsurfacing will be the above ground well structures. No new hardsurfacing will result from installing the proposed underground pipelines. The proposed recharge basins, if implemented, will result in the reduction of stormwater runoff, including pollutants in the stormwater from the project area by capturing and percolating surface water runoff over the long term. Implementation of Mitigation Measures V-II-1, V-II-2 and VIII-1 above will reduce the potential for pollutants in stormwater during construction activities. No further mitigation is required.

g&h. *No Impact* – According to data shown on Flood Insurance Rate Map (FIRM) #06065C0715G and Map #06065C0720G the only facility proposed by this project that is located within an area subject to flooding associated with a 100-year storm event is the Victoria Recharge Basin. This potential for flooding is associated with the sites location within the drainage area of the Mockingbird Canyon reservoir located upstream of the site. This site is also shown on Figure PS-4 of the City's General Plan as being within the potential dam inundate area of the Mockingbird Canyon Dam. The Victoria site is designated Water on Figure OS-2 of the City General Plan and is proposed to be developed as a water recharge basin. Surface water will be stored in the basin for percolation into the groundwater basin which is considered an appropriate use of the site. No housing or other above ground structures will be constructed within this or other proposed recharge basins.

A portion of the project area southerly of the 91 Freeway is designated as Zone X. These areas are considered to be potentially subject to the effects of a 500-year storm event, a 100-year storm event with flooding less than one foot or an area that is protected by levees from a 100-year storm event. None of the proposed facilities are located within the Zone X area.

Based on data shown on the FIRM maps, this project will not result in the placement of housing or other aboveground structures within an area subject to the effects of a 100-year storm event nor will this project impede or divert the flow of stormwater within an area subject to the effects of a 100-year storm event. No impact can be identified and no mitigation is required.

i. *Less Than Significant Impact* – According to data on Figure PS-4 of the City's General Plan, two potential dam inundation areas affect portions of the project area that are proposed for new facilities. These dam inundation areas are associated with the Woodcrest Dam and the Mockingbird Canyon Dam. However, this project does not propose any human occupancy structures or other structures that would attract people. The only above ground structures are the proposed wells. The proposed wells are not considered susceptible to substantial damage associated with water inundation and none of the proposed wells are within an identified dam inundation area. The only facility proposed by this project that is within a dam inundation area is the proposed Victoria Recharge Basin. This facility is intended to store surface water flows for percolation into the groundwater basin. As such, this is considered an appropriate use of the this site. The potential for this project to expose people or structures to a significant risk of loss, injury or death involving flooding as a result of dam or levee failure is considered less than significant. No mitigation is required.

It should be noted that the proposed Victoria basin may be considered a benefit to flood protection in that it will provide additional water storage capacity at the site in the event of a dam failure.

- j. *No Impact* – The project site is located about 40 miles from the Pacific Ocean at an elevation of over 500 feet above mean seal level. Due to the site’s elevation and distance from the ocean, no potential for inundation by a tsunami can be identified. The only site proposed for development by this project which is directly downstream of a substantial water storage facility is the Victoria Recharge Basin. This project does not propose any housing or other above ground structures that could place people or property at risk to water related hazards such as seiche or mudflow. As a water storage facility, it is considered a benefit to the local area should flooding or dam failure occur. No impact can be identified and no mitigation required.

IX. LAND USE AND PLANNING – Would the project:

	Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Impact	No Impact
a. Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c. Conflict with any applicable habitat conservation plan or natural community conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

SUBSTANTIATION:

- a&b. *No Impact* – The facilities proposed by this project will occur within an area that has undergone urbanization over the years. The project area was originally developed with agricultural uses that were primarily associated with citrus growing operations. Presently, the project area is primarily developed with mixed urban development. Current uses include residential, commercial and industrial type uses. The 91 Freeway bisects the Arlington Basin and land uses include those associated with the freeway corridor. Some small, scattered citrus growing and other agricultural activities exist in the project area.

The facilities proposed by this project include groundwater extraction wells, underground pipelines and, in the case of Alternatives 1 through 6, water recharge basins. The water extraction wells will occupy about one-quarter to one-half acre of land each. The recharge basins will occupy between about 2.5 and 10 acres. These facilities will be located at various locations within the project area. These facilities are not considered of an adequate size, location or type of use to physically divide an existing community.

No impact is forecast to result and no mitigation is required.

California Government Code Section 53091 exempts water supply facilities from local zoning restrictions. Such facilities are considered compatible with all land use designations. Therefore, implementation of the water development facilities has no potential to conflict with any applicable land use plans, policies or regulations. No impact can be identified and no mitigation is required.

The purpose of the proposed project is to improve the quality of groundwater in the Arlington Basin. No environmentally sensitive areas or resources will be affected by this project. As such, no conflict with any land use plan or policy adopted for the purpose of avoiding or mitigating an environmental effect will result. No mitigation is required.

- c. *No Impact* – The City General Plan and accompanying figures identify the habitat areas within the project area. The project area is primarily designated Urban and Built-Up on Figure OS-2 with a portion of the project lying within an Residential Agriculture Zone. These designations are not associated with any natural habitat or natural community conservation plans. Figure OS-5 indicates that most of the site contains disturbed habitat associated with urban development and non-native grasslands. Figures OS-4 through OS-6 indicate the project is not within areas designated Arroyos, native habitat or vegetation nor within Stephen’s Kangaroo Rat core reserves or other habitat conservation plan areas.

According to data provided in Section III, Biological Resources of this document, the project is located within the boundaries of the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP). However, the area is not within a MSHCP Area Plan and is not mapped within and/or adjacent to any criteria cells. Based on the evaluation provided in Section III, this project is consistent with the policies of the MSHCP and no conflict with the plan will result from implementing this project. No impact to any known habitat or natural community conservation plans will result and no mitigation is required.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Impact	No Impact
X. MINERAL RESOURCES – Would the project:				
a. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

SUBSTANTIATION:

- a&b. *No Impact* – According to data provided on page OS-1 of the 2007 City General Plan, the project is within a MRZ-4 mineral resources zone. MRZ-4 zones are defined as areas that have geologic information that indicates that mineral deposits exist or are likely to exist, however, the significance of the deposits are undetermined. Scattered areas harbor marginally economic deposits of feldspar, silica, limestone and other rock products. The only mining activities in the project area are associated with rock production. The rock deposits in the area are generally located within the adjacent hillsides which have historically been mined. However, the facilities proposed by this project are located within the flat alluvium adjacent to the hillsides. None of the proposed alternatives will affect such resources or mining operations. No known mining activities are known to have occurred in the areas affected by this project and no available information indicates that a known valuable mineral resource will be affected. Based on available data, this project will not result in the loss of a known mineral resource.

No impact to any known mineral resource or the availability of any such resource is forecast to occur and no mitigation is required.

It should be noted that implementation of this project will not preclude the development of a mineral resource should such a resource be identified in the future. Should a mineral resource be identified on sites developed by this project whose value exceeds the use of the site for facilities proposed, these facilities could potentially be relocated and the mineral resource developed.

INITIAL STUDY

	Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Impact	No Impact
XI. NOISE – Would the project result in:				
a. Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c. A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f. For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

SUBSTANTIATION:

a,c
&d

Less Than Significant Impact With Mitigation Incorporated – Sound is mechanical energy transmitted by pressure waves in a compressible medium such as air. Noise is generally defined as unwanted sound. Sound is characterized by various parameters that describe the physical properties of sound waves. These properties include the rate of oscillation (frequency), the distance between successive troughs or crests, the speed of propagation, and the pressure level or energy content of a given sound wave. In particular, the sound pressure level has become the most common descriptor used to characterize the loudness of an ambient sound level.

The unit of sound pressure ratio to the faintest sound detectable to a person with normal hearing is called a decibel (dB). Sound or noise can vary in intensity by over one million times within the range of human hearing. A logarithmic loudness scale similar to the Richter Scale for earthquake magnitude is therefore used to keep sound intensity numbers at a convenient and manageable level. The human ear is not equally sensitive to all sound frequencies within the entire spectrum. Noise levels at maximum human sensitivity from around 500 to 2,000 cycles per second are factored more heavily into sound descriptions in a process called “A-weighting,” written as “dBA.”

Leq is a time-averaged sound level; a single-number value that expresses the time-varying sound level for the specified period as though it were a constant sound level with the same total sound energy as the time-varying level. Its unit is the decibel (dB). The most common averaging period for Leq is hourly.

Because community receptors are more sensitive to unwanted noise intrusion during more sensitive evening and nighttime hours, state law requires that an artificial dBA increment be added to quiet time noise levels. The 24-hour noise descriptor with a specified evening and nocturnal penalty is called the Community Noise Equivalent Level (CNEL). CNEL is the average of Leq levels over a 24-hour period with a weighting factor applied to noises occurring during evening hours from 7:00 p.m. to 10:00 p.m. (relaxation hours) and at night from 10:00 p.m. to 7:00 a.m. (sleeping hours) of 5 dBA and 10 dBA, respectively. A similar noise metric called Ldn is almost equivalent to CNEL except for the application of the 5 dBA evening hour weighting.

Noise Standards

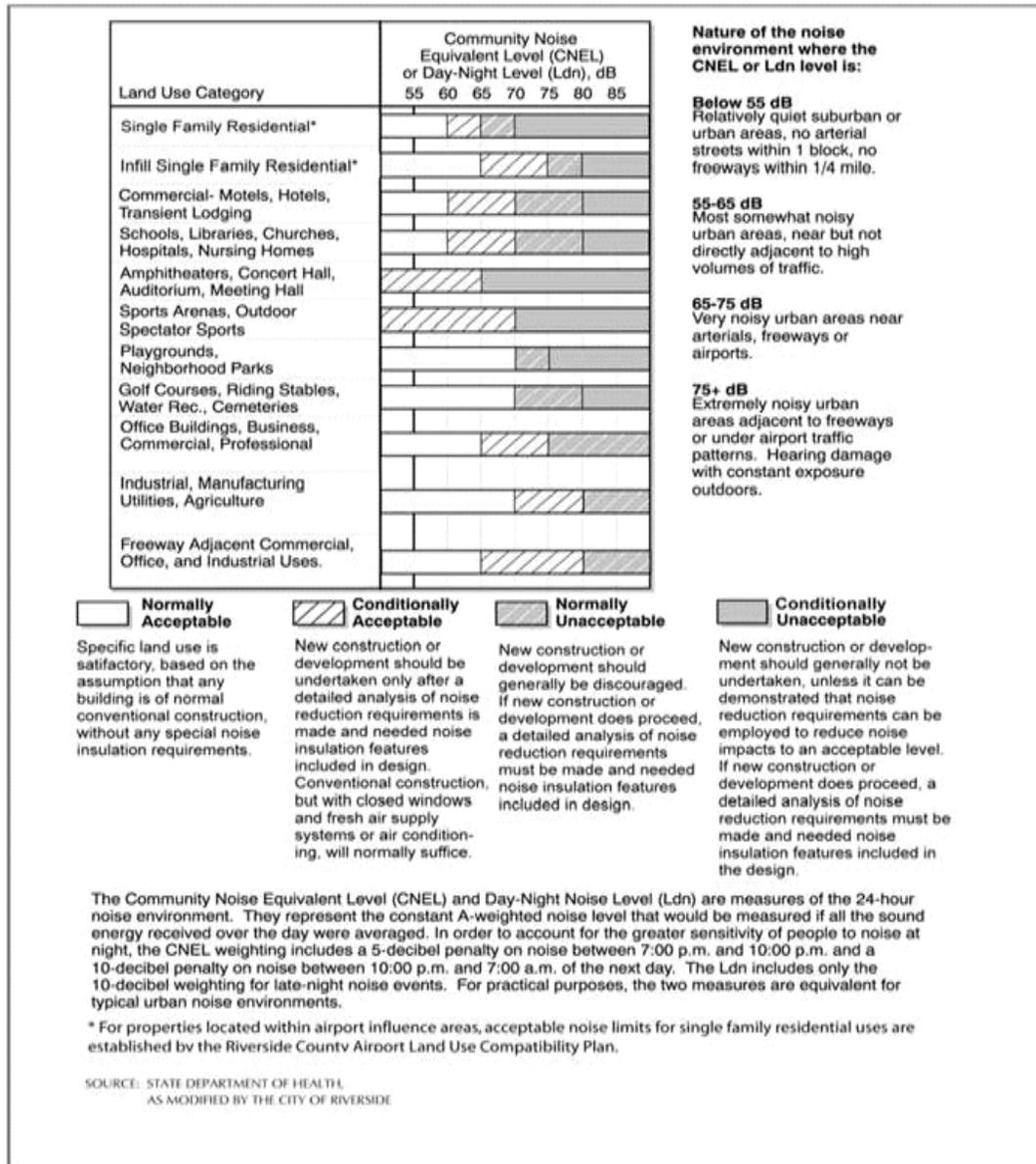
The Noise Element of the City of Riverside General Plan establishes noise quality standards for land use categories based on the State of California Office of Noise Control land use compatibility recommendations. The Noise Element was adopted following the Guidelines of California Government Code Section 65302(f) and Health and Safety Code Section 56050.1. Table XI-1 shows the community noise exposure recommended as normally acceptable, conditionally acceptable, normally unacceptable, and clearly unacceptable for various classes of land use sensitivity.

CNEL-based standards apply to noise sources whose noise generation is preempted from local control (such as from on-road vehicles, trains, airplanes, etc.). Since local jurisdictions cannot regulate the noise generator, they exercise land use planning authority on the receiving property. Uses that are amenable to local control are generally considered "stationary sources." Local jurisdictions typically regulate the level of noise that one use may impose upon another. These noise standards are generally contained in the Municipal Code. The applicable Municipal Code noise standards are provided in the Noise Element of the City General Plan.

Noise standards typically apply to permanent activities. The recommended noise exposure levels shown on Table XI-1 are established for permanent noise sources and receptors where noise can be generated over a 24-hour period with penalties applied for noise generated during the night time hours.

Construction related noise is short term and is controlled by City by Municipal Code. City of Riverside Municipal Code Section 7.35.010(B)(50) regulates the allowable hours of construction activity to the hours of 7:00 a.m. to 7:00 p.m. Monday through Friday and 8:00 a.m. to 5:00 p.m. on Saturday. No construction activities are allowed on Sundays or Federal Holidays. As such, no construction is allowed during the more noise sensitive night time hours.

**Table XI-1
 CITY OF RIVERSIDE NOISE COMPATIBILITY STANDARDS**



**FIGURE N-10
 NOISE/LAND USE NOISE COMPATIBILITY CRITERIA**

Standards of Significance

For the purposes of this evaluation, the following standards of significance are used to forecast permanent changes in noise levels from implementing this project.

- Results in long term or permanent noise levels that exceed City of Riverside noise land use compatible standards; and
- Expose people to severe noise levels.

Generally, in community noise assessments, changes in noise levels greater than 3 dBA are often identified as significant, while changes less than 1 dBA will not be discernible to the human ear. In the range of 1 dBA to 3 dBA people who are very sensitive to noise may perceive a slight change in noise level. No scientific evidence is available to support the use of 3 dBA as the significance threshold. In laboratory testing situations, humans are able to detect noise level changes of slightly less than 1 dBA. However, in a community situation the noise exposure is extended over a long time period, and changes in noise levels occur over years, rather than the immediate comparison made in a laboratory situation. Therefore, the level at which changes in community noise levels become discernible is likely to be some value greater than 1 dBA, and 3 dBA appears to be appropriate for most people.

For purposes of this evaluation, long term, permanent noise impacts are considered significant if the project is forecast to increase noise levels by 3 dBA (CNEL) where:

- (1) the existing noise levels already exceed the 65 dBA (CNEL) residential standard, or
- (2) the project increases noise levels from below the 65 dBA (CNEL) standard to above 65 dBA (CNEL).

Additionally, if the project increases noise level by 5 dBA (CNEL) and the noise levels remain below the 65 dBA (CNEL) residential standard with the project, this would also be considered a significant impact due to the intrusiveness of such a change, even though the City's standards would not be exceeded.

Noise Impacts

Construction Noise

As discussed above, noise levels are measured in decibels (dB). The louder the noise the higher the decibels; the range of noise that is described below is for the anticipated types of equipment that may be used to construct the proposed facilities. These noise levels were taken from Environmental Protection Agency data. Compactors, front loaders, backhoes, scrapers, graders and pavers produce noise levels of 72-95 dB at a distance of 50 feet from the operating equipment. The higher noise levels are generated when the equipment is under full operating load.

Noise diminishes at a rate of about 6 dB for each doubling of the distance from the source without attenuation by structure such as buildings, land form, etc. Therefore a noise level of 80 dB at 5 feet from the source diminishes to about 74 dB at 100 feet and about 68 dB at 200 feet. It is forecast that construction of the basins and pipelines will produce substantial noise levels at receptors within 300 feet of the operating equipment. However, these noise level increases will be short term at any given receptor and occur only when the equipment is under full operating load.

As discussed above, noise standards are based on a 24-hour average of noise levels with penalties established for noise generated during the noise sensitive night time hours. Construction activity noise is generally exempt from City noise standards and is considered a nuisance and a less than significant impact if the activities occur within allowed times established by the City's

Municipal Code. Therefore, noise impacts associated with grading, pipeline installation and other non-well drilling activities are considered less than significant with compliance with mandatory Municipal Code requirements for time of operation.

Well drilling generally requires that drilling activities be continuous, 24-hours per day until the full depth of the well is reached. In alluvial soil such as that which exists in the project site, about 100 feet of well can be drilled per day. This project proposes wells that are from about 200-300 feet in depth. Therefore, it is anticipated that it will require about 2-4 days to drill each well.

These wells will be located throughout the project area and in some cases be located within 100 feet of residences. It is forecast that unattenuated noise levels at these receptors could be in the 75-80 dB range for between 2-4 days during the well drilling activities. Due to the short-term nature of well development activities, the potential noise level increases are also considered a nuisance and not health threatening. To reduce potential noise levels during well drilling to the greatest extent feasible, the WMWD shall implement Mitigation Measures XI-1 and XI-2 below.

Construction noise levels have some potential to effect people onsite. The California Occupational Safety and Health Administration (Cal OSHA) has established noise exposure limits for people near loud equipment. Compliance with required OSHA regulations is considered adequate mitigation for onsite receptors.

Based on the above, it is concluded this project will not result in significant temporary short-term noise impacts with implementation of the mandatory Riverside Municipal Code requirements. CEQA requires that all available feasible mitigation be implemented to reduce potential impacts to the greatest extent feasible. To accomplish this, the following measures shall also be implemented.

XI-1 The WMWD shall require that all construction vehicles and fixed or mobile mechanical equipment be equipped with properly operating and maintained sound attenuating devices, such as mufflers.

XI-2 The WMWD shall require that sound attenuation curtains or other noise attenuation devices be utilized during well drilling activities that occur outside the normal construction times identified by the City of Riverside Municipal Code.

Long-Term Onsite Noise Impacts

Operation of the proposed facilities includes the use of additional pumps, motors and other mechanical equipment. This new equipment has some potential to increase noise levels in the project vicinity. City of Riverside Zoning and Municipal codes establish standards for permanent noise levels. Compliance with these standards is mandatory and considered adequate to reduce the potential for noise impacts to nearby receptors to a less than significant level. Mitigation for potential impacts to nearby receptors may include shielding equipment from receptors or housing mechanical equipment in structures to attenuate noise generated by operation of the equipment. Compliance with City of Riverside Municipal Code requirements regarding acceptable noise levels generated on the project sites is considered adequate to reduce potential operations noise impacts to a less than significant level. No further mitigation is required.

Some potential for adverse noise conditions will exist within the structures housing mechanical equipment. However, current noise regulations, including CalOSHA, for the protection of workers exist and compliance with these regulations is mandatory. These regulations include the requirement for hearing protection devices, limited exposure to loud noise levels and other measures to protect employee hearing. Compliance with these regulations is mandatory and considered

adequate to reduce the potential for adverse effects from noise to employees to a less than significant level. No further mitigation.

- b. *No Impact* – This project does not propose the use of explosives or other activities that could generate substantial ground vibration or noise. Standard construction equipment will be used to construct the proposed facilities and the permanent equipment is not of the type or size that could cause any noticeable ground vibration. No potential for impact can be identified and no mitigation is required.
- e&f. *No Impact* – The project site is not within an airport land use plan area nor within 2 miles of an airport. Personnel will not be present onsite on a full time basis. As such, this project has no potential to expose people to aircraft-related noise. No mitigation is required.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Impact	No Impact
XII. POPULATION AND HOUSING – Would the project:				
a. Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c. Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

SUBSTANTIATION:

- a. *Less Than Significant Impact* – As discussed above in Section II, Agricultural Resources, population growth is determined by land use designations established by the agencies which have jurisdiction over such issues. In this case, the City of Riverside has established the land use designations and approved existing land uses and the plan for future development in the project area. Water agencies such as the WMWD are mandated to provide an adequate supply of potable water to customers within its service area. Water agencies do not have the ability to establish land uses and densities, but rather, must respond to the demand created by agencies with jurisdiction over land use issues. Therefore, the provision of an adequate supply of water to meet the demand created by other agencies is viewed as being growth accommodating, not growth inducing.

The basic goals of the project alternatives are to improve the quality of groundwater in the Arlington Basin and increase the availability of potable water. No new development which could increase or induce population growth is proposed by any of the project alternatives. No new improvements which could extend infrastructure into undeveloped areas and, consequently, induce additional growth beyond that currently allowed is proposed. Therefore, it is concluded that none of the alternatives proposed by this project has the potential to either directly or indirectly induce growth beyond that already envisioned or allowed by current land use documents.

Implementation of this project will not generate new permanent job opportunities that could attract people to the project area. The project will create some short term employment opportunities during construction, however, these jobs will not be of sufficient number or duration to attract people for permanent residence in the area.

Based on the above, it is concluded this project will not either directly or indirectly induce substantial growth in the area. Potential impacts are considered less than significant and no mitigation is required.

b&c. *No Impact* – This project does not propose the construction of new housing nor does it propose to “take” any existing housing. This project will not displace any people or their residences. No impact to existing housing or the existing population will result and no mitigation is required.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Impact	No Impact
XIII. PUBLIC SERVICES – Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
Fire protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

SUBSTANTIATION:

- Fire Protection
Less Than Significant Impact – The project area is provided fire protection services by the City of Riverside Fire Department. The City maintains mutual aid agreements with the County of Riverside Fire Department and the California Department of Forestry. According to Figure PS-7 of the City General Plan, the project area is not within a High or Moderate Fire Hazard Area. The proposed facilities are not particularly susceptible to fire. The recharge basins proposed will contain water much of the time and will be maintained to minimize the presence of vegetation. No potential for fire hazard will exist at the proposed underground pipelines and only some minimal potential will exist at the proposed wells which will be primarily constructed with non-flammable materials

Potential impacts to fire protection associated with implementation of this project are considered less than significant. No mitigation is required.

It should be noted that the provision of an adequate supply of water is considered a benefit to fire protection services.

- Police Protection
Less Than Significant Impact – The project area is provided police protection by the City of Riverside Police Department. The facilities proposed by this project are not generally considered susceptible to crime. The most common criminal activity associated with such facilities is vandalism. The only facilities with a potential to attract criminal activity are the proposed well sites

and possibly the recharge basins. The well sites will be fenced, gated and locked as will the recharge basins. The well facilities will be enclosed within protective structures and not exposed to public access. The potential for this project to result in an increased demand for police protection services is considered less than significant. No mitigation is required.

- Schools and Parks

No Impact – The proposed facilities will not generate any new permanent jobs that could attract people to the area and generate new students at local schools or people to utilize park facilities. The project’s potential effects on population growth are evaluated in Section XII, Population and Housing of this Initial Study. The evaluation in Section XII determined this project will not induce population growth in the service area beyond that currently allowed or planned for by the agencies with jurisdiction over land use issues in the WMWD’s service area. Therefore, this project will not result in any substantial increase in the demand for parks and schools. No impact can be identified and no mitigation is required.

- Other Public Facilities

No Impact – No other public facilities are forecast to be adversely affected by implementation of this project. Other than water facilities this project does not include the expansion of any existing public facilities or the construction of new public facilities. This project is itself a public facility improvement and is viewed as a benefit to the areas water quality and water supply system. No impact to other public facilities can be identified and no mitigation is required.

Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Impact	No Impact
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XIV. RECREATION –

- | | | | | |
|--|--------------------------|--------------------------|--------------------------|-------------------------------------|
| a. Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b. Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

SUBSTANTIATION:

a&b. *No Impact* – The purpose of the proposed project is to treat groundwater that does not meet current water quality standards for domestic uses and to utilize surface water runoff in the project area to recharge the groundwater basin. The treated groundwater will be made available for use in the existing domestic water supply system. Urban surface water runoff will be captured and percolated at the proposed basins. No new development or new employment opportunities that could increase the area population and the demand for recreational opportunities are proposed by this project.

No existing recreational facilities or opportunities will be affected by construction and operation of the proposed wells and recharge basins. No increase in the demand for recreational facilities or opportunities will result. No impact to any recreational facilities or opportunities is forecast to result and no mitigation is required.

It should be noted that the provision of additional water supplies could indirectly benefit recreational uses and opportunities by providing irrigation water to recreational facilities.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Impact	No Impact
XV. TRANSPORTATION/TRAFFIC – Would the project:				
a. Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at inter-sections)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d. Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e. Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f. Result in inadequate parking capacity?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g. Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

SUBSTANTIATION:

a&b. *Less Than Significant Impact* – The capacity of a transportation facility reflects its ability to accommodate a moving stream of vehicles. It is a measure of the supply side of transportation facilities. Level of Service (LOS) is a measure of the quality of traffic flow.

The concept of levels of service uses qualitative measures that characterize operational conditions within a traffic stream and their perception by motorists and passengers. The descriptions of individual levels of service characterize these conditions in terms of such factors as speed and travel time, freedom to maneuver, traffic interruptions, and comfort and convenience.

Six levels of service are defined for each type of facility for which analysis procedures are available. They are given letter designations, from A to F, with LOS “A” representing the best operating conditions and LOS “F” the worst. Each level of service represents a range of operating conditions.

The volume of traffic that can be served under the stop-and-go conditions of LOS “F” is generally accepted as being lower than possible at LOS “E”; consequently, service flow rate or LOS “A” is the value that corresponds to the maximum flow rate, or capacity, of a roadway.

The above ground facilities and the recharge basins will not be located within public roads. Underground pipelines will be located within existing public roads. Construction of the proposed facilities

will require the use of public roads to deliver equipment and materials to the sites and to install the pipelines.

In the short term, construction activities will result in an increase in traffic due to construction worker commutes and equipment and materials deliveries. It is anticipated that up to 20 construction workers may be involved on any given day at individual sites. Additionally, it is anticipated that up to about 15 truck trips delivering materials and equipment could occur on a given day to construct proposed facilities. The worker commutes will occur during the morning and the afternoon, while the truck delivery trips will occur throughout the day. Because trucks are less maneuverable, larger and accelerate slower, they occupy more space on a roadway and displace automobiles. To account for this, passenger car equivalents (PCE) have been adopted for trucks. Generally, the delivery trucks on roads such as those in the project area have a PCE of 2 or 3 or each truck is the equivalent of 2 or 3 passenger cars.

The about 20 vehicle trips per day associated with worker commuting and the about 15 truck trips result in a total of about 65 trips on a peak construction activity day when the PCE factor of 3 for trucks is applied. These 65 trips will be short term during construction, will not be daily, will be scattered throughout the work day and will not create a substantial increase in the volume of traffic on affected roads.

In the long term, operation and maintenance of the wells and basins will require some minimal trips by District personnel. It is anticipated that one trip per day to the wells could result and that visits to the basins will be sporadic. No substantial increase in traffic will result from implementing this project. Implementation of this project will not either individually or cumulatively result in a level of service standard being exceeded on any public roadway. No impact can be identified and no mitigation is required.

- c. *No impact* – The project area is not located near an airport or is it within an airport land use area or district. The project will utilize aircraft nor affect air operations at any airport. The maximum height of the facilities proposed by this project (wells) will not exceed a height of about 15 feet. No impact to air traffic will result nor will air operations be affected by this project. No mitigation is required.
- d. *No Impact* – The project does not propose any new roads or the modifications of existing roads. The project does propose the installation of new underground pipelines in existing roads. Installation of the pipelines does have the potential to result in some temporary hazards to traffic on affected roads during construction. This hazard will be temporary during construction and will not result in any long term hazards to traffic with implementation of Mitigation Measure VII-1. Potential long term effects on roads and traffic associated the repair of existing roads affected by this project will be reduced to a less than significant level with implementation of Mitigation Measure VII-2.
- e. *No Impact* – The new project sites will contain groundwater extraction wells and water recharge basins. These facilities will not result in people being present onsite on a full time basis. These facilities will located outside existing public roads. Adequate access will be provided to the new well sites and recharge basins to accommodate any emergency access requirements.

The pipelines will be placed in public roads, however, implementation of mitigation measures VII-1 and VII-2 above will reduce potential short-term and long-term impacts to emergency access to a less than significant level. No further mitigation is required.

- f. *No Impact* – The well and recharge basin sites will not be open to the public. Access to the sites will be restricted to people and equipment and vehicles needed to operate the facilities. In the short-term, construction workers will be present on the site. However, adequate parking will be provide onsite to accommodate both the short-term and long-term parking requirements associated with this project. No impact associated with parking can be identified and no mitigation is required.

- g. *No Impact* – The project does not propose any permanent alterations to existing public roads or trails. The project will result in some short term disturbances to public roads during the installation of pipelines. However, implementation of Mitigation Measures VII-1 and VII-2 above are considered adequate to reduce the potential for impact to a less than significant level. As such, this project has no identifiable potential to conflict with any adopted policies, plans or programs supporting alternative transportation. No further mitigation is required.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Impact	No Impact
XVI. UTILITIES AND SERVICE SYSTEMS – Would the project:				
a. Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c. Require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d. Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e. Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f. Be served by a landfill(s) with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
g. Comply with federal, state, and local statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

SUBSTANTIATION:

- a,b
&e *No Impact* – The purpose of this project is to improve both the quality of groundwater in the Arlington Groundwater Basin (Arlington Basin) and surface water flow from the area. Groundwater in the Arlington Basin contains high concentrations of TDS and nitrate-nitrogen. These high concentrations render groundwater from the Arlington Basin unusable for domestic water supply use without treatment. For this reason, the District constructed the Arlington Desalter facility to treat groundwater for domestic water use. The Arlington Desalter has been in operation for about 19 years. The quality of surface water flow from the project area is typical of urbanized areas and contains pollutants associated with urban uses.

The purpose of this project is to extract poor quality groundwater from the Basin, treat the water at the Arlington Desalter and deliver the water to the local domestic water system. The proposed extractions of groundwater, when combined with existing extractions, has the potential to lower groundwater levels in the Arlington Basin and adjoining groundwater basins. To reduce the potential for the lowering of groundwater, the District is considering implementation of Alternatives 1 through 6. In co-operation with the Riverside County Flood Control and Water Conservation District (RCFC&WCD), the WMWD is proposing to divert surface water in existing drainage channels to the proposed recharge basins. The use of surface water flow will not only reduce contaminants discharged to the Santa Ana River system but will provide water to recharge the Arlington Basin. The reduction in urban contaminant loadings to surface water discharged to the Santa Ana River is consistent with the goals and policies of the Regional Water Quality Control Board, Santa Ana River Region's Basin Plan for the Santa Ana River.

If Alternative 7 is implemented and surface water is not captured and recharged, then the current surface water flow regime will be maintained.

The by-product of water treatment at the Arlington Desalter is a brine that is discharged to the Santa Ana Regional Interceptor (SARI) pipeline. Waste water in the SARI is conveyed to an industrial waste water treatment facility operated by the Orange County Sanitation District (OCSD). As previously discussed, the Desalter facility is undergoing expansion under a separate project and will have adequate capacity to treat the water generated by this project. MSWD currently has adequate capacity in the SARI line and at the OCSD's treatment facilities to accommodate wastes produced at the Desalter facility (see project description and Section VIII, Hydrology and Water Quality). No exceedences of any waste discharge requirements or violation of any waste discharge orders will result from implementation of this project.

Based on the above, implementation of the alternatives proposed by this project will not result in the exceedance of any existing waste discharge requirements or require the development of new waste water treatment facilities. Potential impacts are considered less than significant. No mitigation is required.

- c. *No Impact* – No noticeable additional stormwater discharges from the project sites will result from implementing this project. Under Alternative 7, surface water flow will remain the same as currently occurs in the project area. Under Alternatives 1 through 6, surface water flow in the project area will be reduced by the diversion of flows to the recharge basins. Neither of the alternatives have the potential to cause noticeable amount of additional stormwater. The proposed surface water recharge basins will actually reduce the current amount of stormwater discharged from the sites by retaining and percolating surface water. No new or expanded stormwater facilities will be required to implement this project. No impact to such facilities can be identified and no mitigation is required.
- d. *Less Than Significant Impact* – The purpose of the proposed project is to improve the quality of groundwater in the Arlington Basin to allow its use for domestic water purposes. Water rights to the Arlington Basin have not been adjudicated and no significant adverse effects to the Arlington Basin or any other groundwater basins are forecast to occur. See Section VIII, Hydrology and Water Quality above for further substantiation. These water extractions are not intended to serve any specific projects and the extractions can be reduced or eliminated or additional sources of recharge water can be secured if needed. No adverse effects to the Arlington Basin or any other groundwater basins are forecast to result. Therefore, this project will not result in the exceedance of any existing water entitlements or require the securing of additional water entitlements beyond that already available.
- f&g. *Less Than Significant Impact* – The proposed project involves the construction of new facilities that will not generate any substantial volumes of solid waste. Some minimal construction wastes will be generated during the clearing and grubbing of land to construct the percolation basins and well

sites. Excavations of trenches in paved roads will generate some minimal amount of asphalt or possibly concrete. In the long term the operation of the wells and pipelines will not generate solid wastes but maintenance of the percolation basins does have the potential to generate green wastes associated with cleaning the basins.

Solid wastes generated in the project area is collected and tipped at an existing Riverside County transfer station. Wastes from the transfer station are taken to one of three existing Riverside County landfills. The El Sobrante landfill has a remaining capacity of about 15 years. The Badlands Landfill has a remaining capacity of about 7 years. However, the Badlands Landfill area has sufficient area to accommodate further expansion of the facility. The Lamb Canyon Landfill has a remaining capacity to accommodate the projected waste disposal demand for about the next 9 years. The Lamb Canyon site has adequate area to accommodate expansion of the current facility.

Based on the nature and size of the proposed project, no conflicts with any federal, state and local regulations relative to solid waste disposal is forecast to occur. No significant impact can be identified and no mitigation is required.

To reduce the less than significant impacts to the solid waste disposal system to the greatest extent feasible, the following measure shall be implemented when feasible.

XVI-1 The WMWD's contract with the construction contractor(s) and recharge basins maintenance contractor(s) shall include the requirement that all materials that can feasibly be recycled be salvaged and recycled. This includes, but is not limited to wood, metals, concrete, vegetation and asphalt. The contractors shall submit a recycling plan that is consistent with the County's waste reduction programs to the District for review and approval prior to the start of construction/maintenance activities.

INITIAL STUDY

XVII. MANDATORY FINDINGS OF SIGNIFICANCE –

Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Impact	No Impact
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- | | | | | |
|---|--------------------------|-------------------------------------|-------------------------------------|--------------------------|
| <p>a. Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?</p> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <p>b. Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?</p> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <p>c. Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?</p> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

SUBSTANTIATION:

- a. *Less Than Significant With Mitigation Incorporated* – The proposed project involves the potential use of several sites. Data provided in this document reveals that none of the proposed sites contain sensitive biological resources. The sites are located within an urban area that has been developed and exposed to human uses over the past 100 years. No sensitive plant or animal species or the habitat for such species exists in the project area and no such resources will be affected by this project.

No wetlands or riparian areas will be affected by this project. Implementation of this project could reduce the amount of surface water flow toward the Hole Lake area and ultimately the Santa Ana River. However, due to the amount of surface water in the affected area and the Santa Ana River system, this potential reduction in surface water flow will not result in significant adverse effects to any water dependant species or their habitat.

Potential project sites were investigated to determine if any significant cultural resources could be affected by this project. The determination of that investigation is that no such resources will be affected by this project. No major examples of California history or prehistory are forecast to be affected by this project.

The purpose of this project is to improve the quality of groundwater in the Arlington Basin. This is considered to be a general benefit to the environment. Implementation of this project will not result in any identifiable adverse effects to the environment. Therefore, this project does not have any identifiable potential to significantly degrade the quality of the environment.

- b. *Less Than Significant With Mitigation Incorporated* – All impacts associated with this project have been found to either be less than significant or less than significant with mitigation. This is a stand alone project that is not reliant or connected to any other projects or activities. This project will only improve the quality of groundwater in the Arlington Basin and provide additional source of potable water. Therefore, the potentially less than significant individual impacts associated with this project have no potential to be cumulatively considerable.

- c. *Less Than Significant Impact* – The improvement of water quality is viewed as a benefit to humans. No direct or indirect adverse effects on human resources are forecast to result.

Therefore, based on the findings in this Initial Study, WMWD will process a Mitigated Negative Declaration as the appropriate CEQA environmental determination for the proposed project. The District will issue a Notice of Intent to Adopt a Negative Declaration and circulate the Negative Declaration package for review for the required 30-day period. Following receipt of comments, the District will compile responses to any comments and prepare a final Mitigated Negative Declaration package for consideration by the District Board. Based on the final Mitigated Negative Declaration package the District Board will consider whether to proceed with implementation of the Arlington Desalter Expansion Phase 2 Project as defined in this document and as presented to the Board at the time of the meeting, which has yet to be scheduled. If you or your agency comment on this proposed Mitigated Negative Declaration, you or your agency will be provided responses to comments and notified of the date of the meeting. A decision by the District to approve the Arlington Desalter Expansion Phase 2 Project would be based on all of the information available in the whole of the record before the District Board at the conclusion of the CEQA environmental review process for this proposed project.

MITIGATION MEASURES

(Any mitigation measures which are not "self-monitoring" shall have a Mitigation Monitoring and Reporting Program prepared and adopted at time of project approval.)

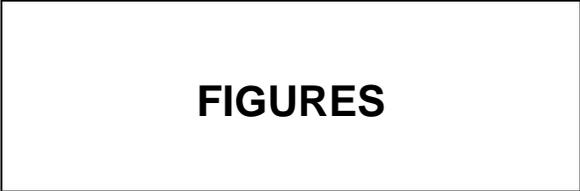
- III-1 Using best available control measures during soil disturbance. The menu of enhanced dust control measures includes the following:
- Limit the disturbance "footprint" to as small an area as practical.
 - Water all active construction areas at least twice daily.
 - Cover all off-site haul trucks or maintain at least 2 feet of freeboard.
 - Pave or apply water four times daily to all unpaved parking or staging areas.
 - Sweep or wash any site access points within 30 minutes of any visible dirt deposition on any public roadway.
 - Cover or water twice daily any on-site stockpiles of debris, dirt or other dusty material.
 - Suspend all operations on any unpaved surface if winds exceed 25 mph.
 - Stockpile excess dirt from levee reconstruction as far from homes as reasonable.
- III-2 Limit allowable idling to 5 minutes for trucks and heavy equipment before shutting the equipment down.
- III-3 Utilize equipment whose engines are equipped with diesel oxidation catalysts if available.
- III-4 Utilize diesel particulate filter on heavy equipment where feasible.
- III-5 Utilize Tier 3 rated diesel engines where possible.
- V-1 In the unlikely event that unknown or buried cultural resources are encountered during construction activities, all work in the vicinity of the find shall be halted or redirected to avoid the area of the find. A qualified archaeologist shall be brought to the site to evaluate the find and make recommendations on the proper disposition of the find in accordance with State law and CEQA requirements. It shall be the responsibility of WMWD to ensure that the archaeologists recommendations are implemented.
- V-2 In the unlikely event that unknown or buried paleontologic resources are encountered during construction activities, all work in the vicinity of the find shall be halted or redirected to avoid the area of the find. A qualified paleontologist shall be brought to the site to evaluate the find and make recommendations on the proper disposition of the find in accordance with State law and CEQA requirements. It shall be the responsibility of WMWD to ensure that the paleontologists recommendations are implemented.
- VI-1 The WVWD shall implement an investigation of the type and density of soils within the areas that could be susceptible to an increase in groundwater levels to within 30 feet of the ground surface. Data obtained by these investigations shall be used to determine the appropriate depth to groundwater allowed by the recharge program.
- VI-2 The WVWD shall implement a groundwater monitoring program at and adjacent to the proposed recharge basins to determine the depths to groundwater that occur with implementation of the recharge program. The WVWD shall utilize the data obtained from the groundwater monitoring program to control the amount and timing of water recharged to the Arlington Basin so as to not increase the potential for liquefaction to occur at offsite property. This water management program could also include the installation and operation of water extraction wells to control the depth to groundwater and the potential for liquefaction to result from the water recharge program.
- VII-1 The District shall review and approve a construction traffic management plan for work in public roads that complies with the Work Area Traffic Control Handbook or other applicable City of Riverside standards and requirements to provide adequate traffic control and safety during

construction. This plan shall include methods of diverting, controlling or rerouting traffic around construction activity in public roads and adequately controlling surface water drainage and erosion in the project area. It is anticipated that measures to be implemented will include but not be limited to the use of flag persons, signage and lane control to ensure the safe control of traffic through construction areas that affect public roads.

- VII-2 The District shall require that all disturbances to public roads be repaired in a manner that complies with the Standard Specifications for Public Works Construction (green book) or other applicable City standards and requirements. It is anticipated that measures which will be implemented will be the proper backfilling and compaction of excavated trenches, adequate control of surface water drainage and the proper resurfacing of roads.
- VIII-1 The WMWD shall require that the construction contractor prepare and implement a Storm Water Pollution Prevention Plan (SWPPP) which specifies Best Management Practices (BMPs) that will prevent all construction pollutants from contacting stormwater and with the intent of keeping all products of erosion from moving offsite into receiving waters. The SWPPP shall include a Spill Prevention and Cleanup Plan that identifies the methods of containing, cleanup, transport and proper disposal of hazardous chemicals or materials released during construction activities that are compatible with applicable laws and regulations. BMPs to be implemented in the SWPPP may include but not be limited to:
- The use of silt fences;
 - The use of temporary stormwater desilting or retention basins;
 - The use of water bars to reduce the velocity of stormwater runoff;
 - The use of wheel washers on construction equipment leaving the site
 - The washing of silt from public roads at the access point to the site to prevent the tracking of silt and other pollutants from site onto public roads.
- XI-1 The WMWD shall require that all construction vehicles and fixed or mobile mechanical equipment be equipped with properly operating and maintained sound attenuating devices, such as mufflers.
- XI-2 The WMWD shall require that sound attenuation curtains or other noise attenuation devices be utilized during well drilling activities that occur outside the normal construction times identified by the City of Riverside Municipal Code.
- XVI-1 The WMWD's contract with the construction contractor(s) and recharge basins maintenance contractor(s) shall include the requirement that all materials that can feasibly be recycled be salvaged and recycled. This includes, but is not limited to wood, metals, concrete, vegetation and asphalt. The contractors shall submit a recycling plan that is consistent with the County's waste reduction programs to the District for review and approval prior to the start of construction/maintenance activities.

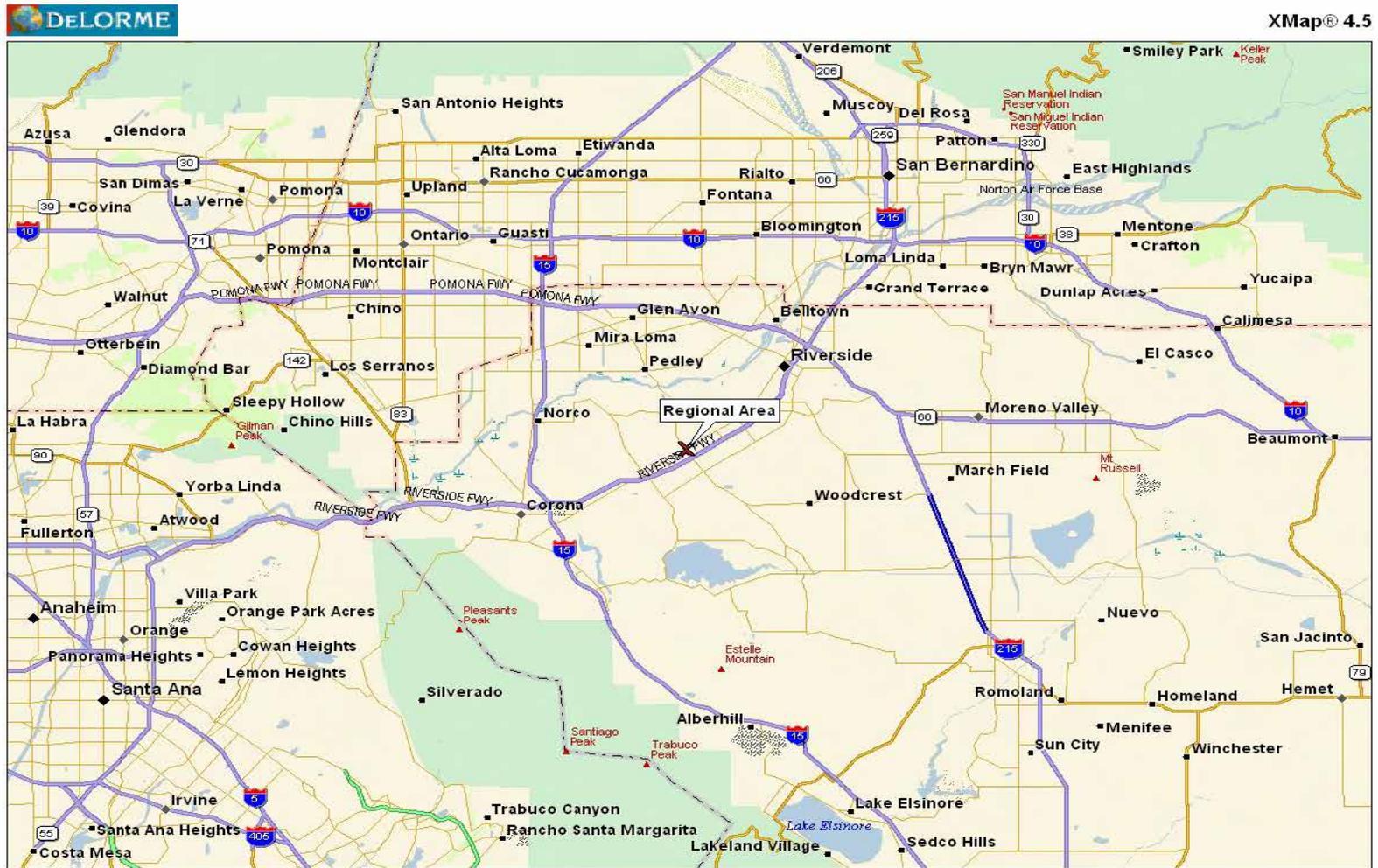
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- WEI Recomputation of Ambient Water Quality in the Santa Ana Watershed for the Period 1987 to 2006, Final Technical Memorandum 2008



FIGURES

FIGURE 1 Regional Location



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 MN (12.6° E)

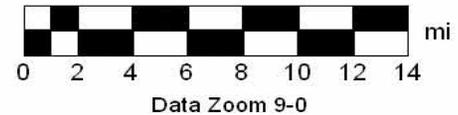


FIGURE 2
Vicinity Map

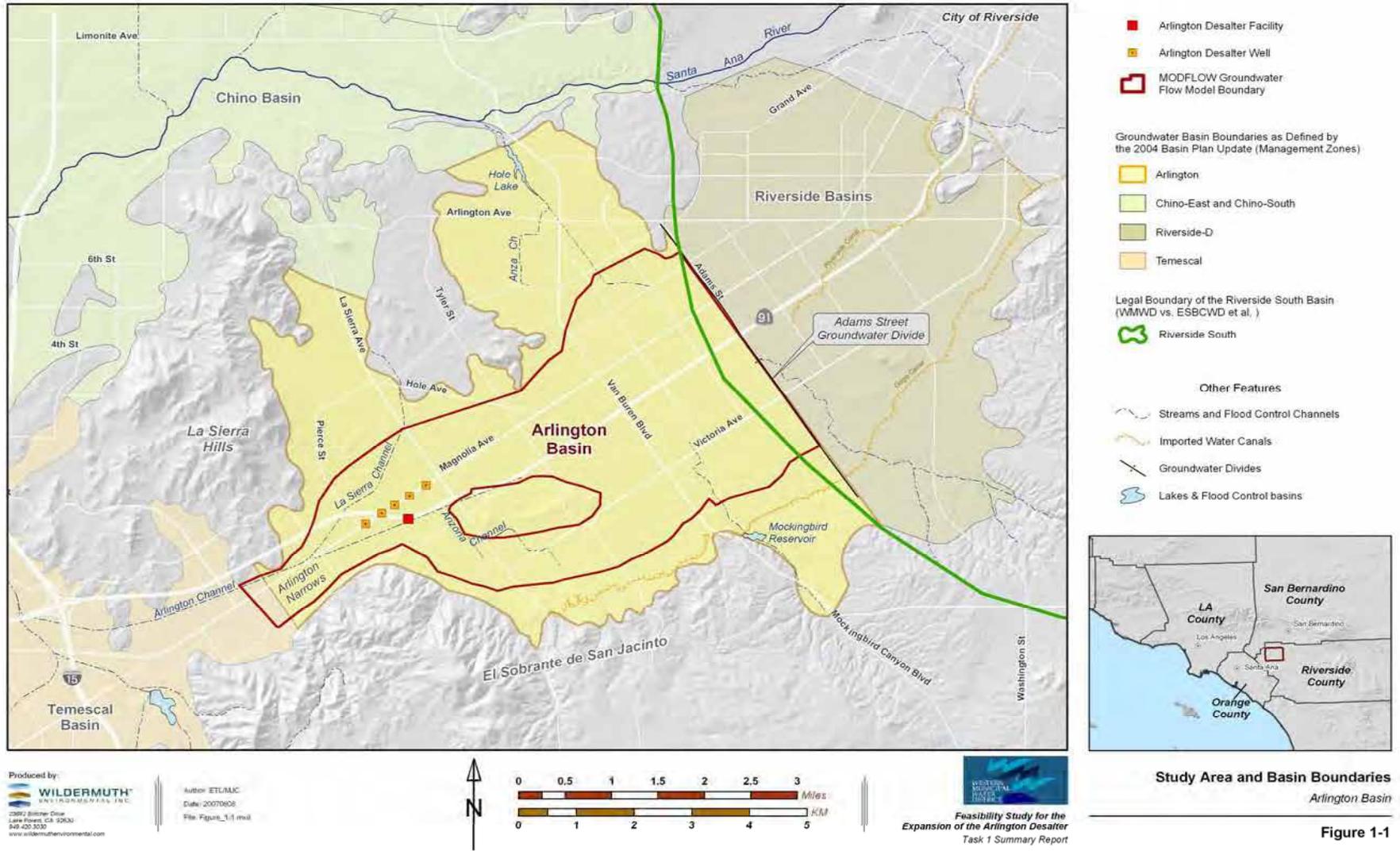


FIGURE 3



- Desalter Infrastructure**
 - Existing Desalter Well
 - Existing Desalter Facility
 - Phase 2 Desalter Well**
 - Well Site Parcel

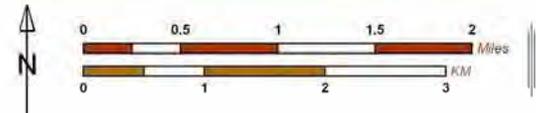
- Artificial Recharge Infrastructure**
 - Phase 1 Recharge Basin*
 - Phase 2 Recharge Basin**

- Other Features**
 - WMWD Recycled Water Pipeline
 - RCFC Infrastructure
 - Streams and Flood Control Channels
 - Imported Water Canals
 - Groundwater Divides



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Feasibility Study for the Expansion of the Arlington Desalter Phase II

Map of Alternative 1 Facilities

Figure 6-2a

FIGURE 4



- Desalter Infrastructure**
 - Existing Desalter Well
 - Existing Desalter Facility
 - Phase 1 Desalter Well*
 - Phase 2 Desalter Well**
 - Well Site Parcel

- Artificial Recharge Infrastructure**
 - Phase 1 Recharge Basin*
 - Phase 2 Recharge Basin**

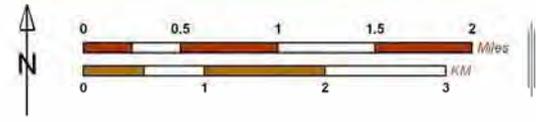
- Other Features**
 - WMWD Recycled Water Pipeline
 - RCFC Infrastructure
 - ~ Streams and Flood Control Channels
 - ~ Imported Water Canals
 - Groundwater Divides

*Phase I begins in 2012. **Phase II begins in 2017.



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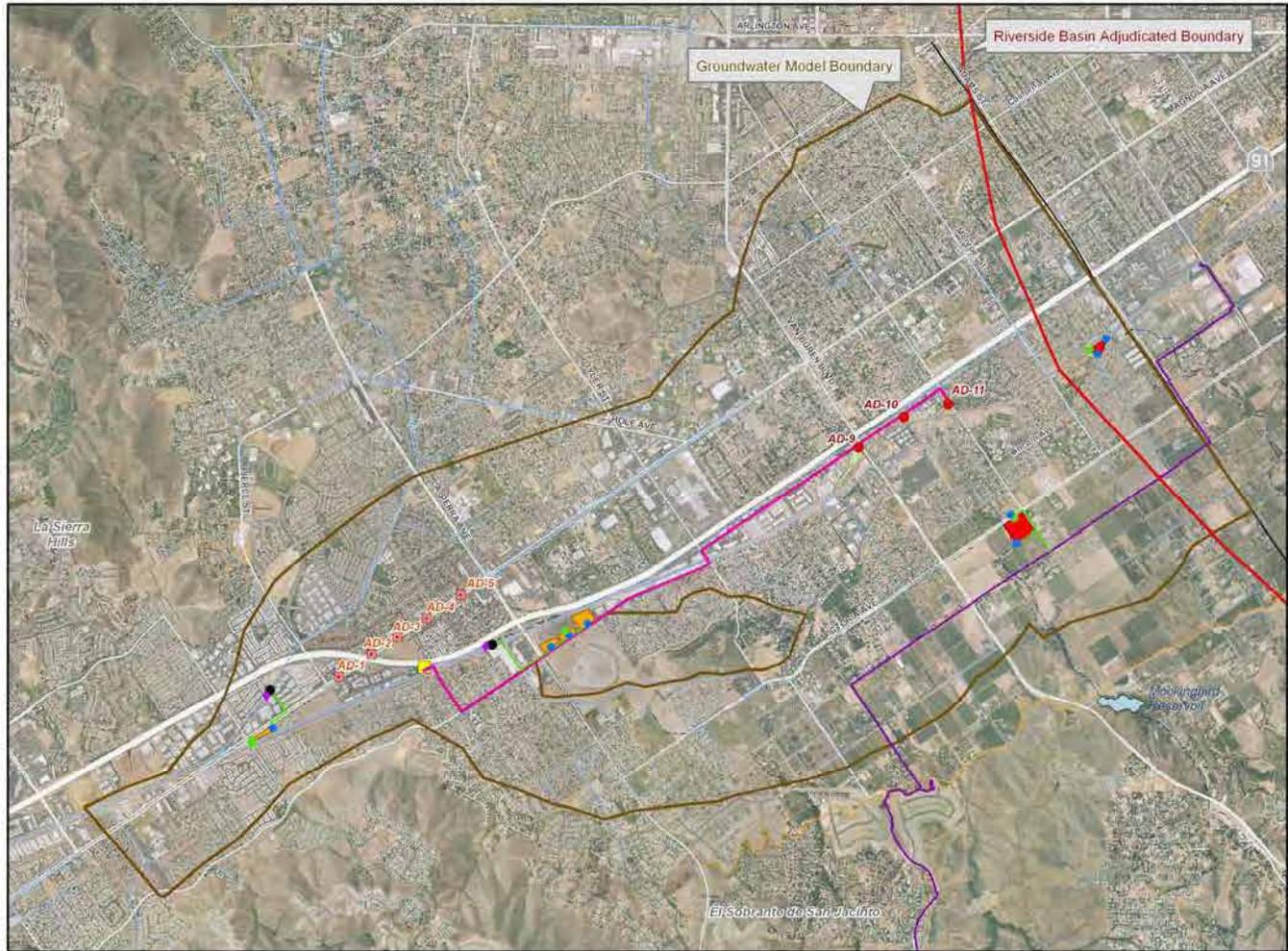


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Map of Alternative 2 Facilities

Figure 6-3a

FIGURE 5



- Desalter Infrastructure**
 - Existing Desalter Well
 - Existing Desalter Facility
 - Phase 2 Desalter Well**
 - Proposed Transmission Pipeline
 - Well Site Parcel

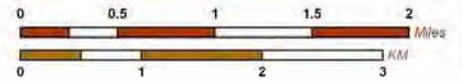
- Artificial Recharge Infrastructure**
 - Phase 1 Recharge Basin*
 - Phase 2 Recharge Basin**
 - Transmissions Pipelines
 - ◆ Rubber Dam
 - Lift Station
 - Inlet Structure
 - Outlet Structure

- Other Features**
 - WMWD Recycled Water Pipeline
 - RCFC Infrastructure
 - Streams and Flood Control Channels
 - Imported Water Canals
 - Groundwater Divides



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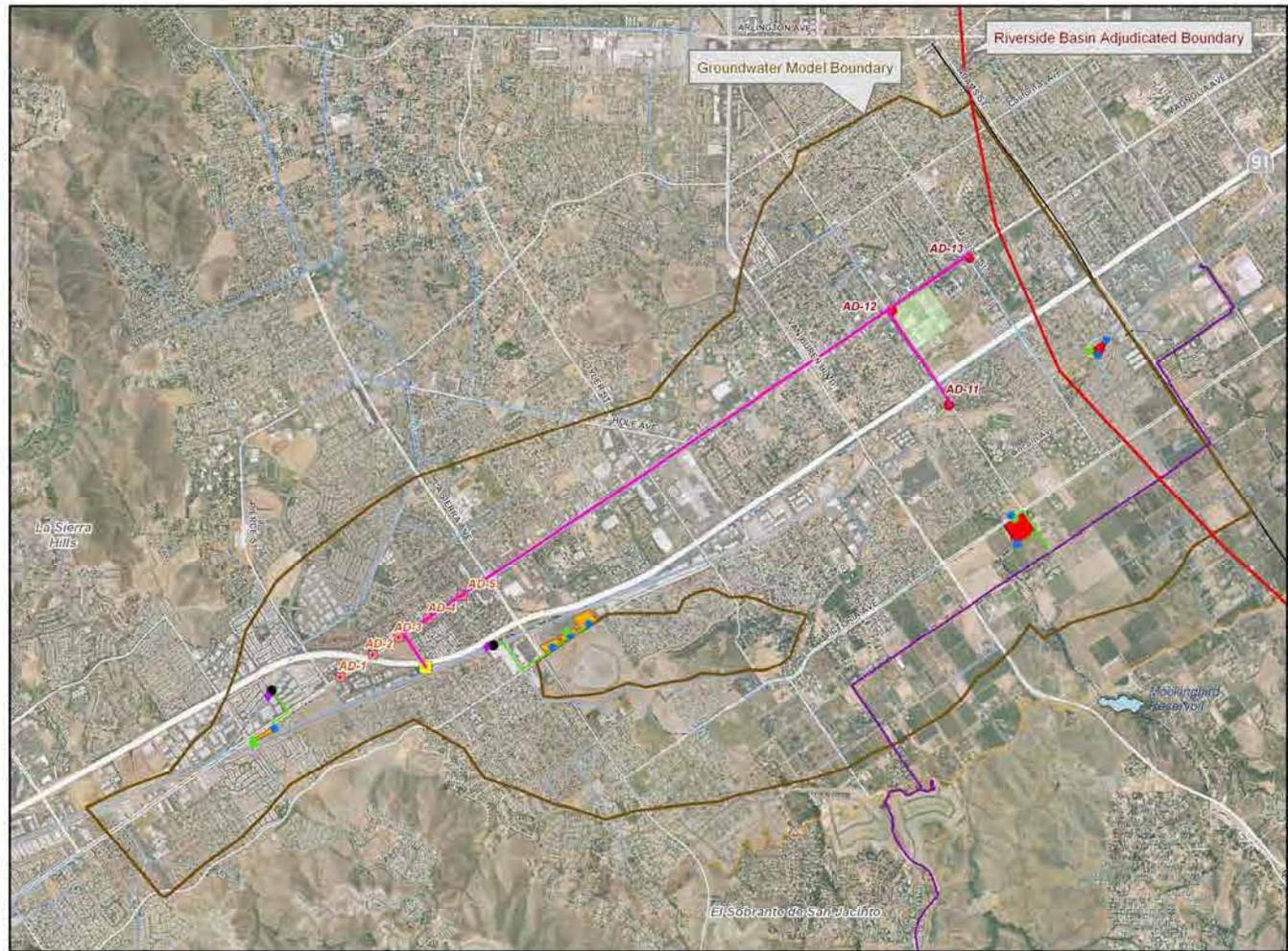


Feasibility Study for the Expansion of the Arlington Desalter Phase II

Map of Alternative 3 Facilities

Figure 6-4a

FIGURE 6



- Desalter Infrastructure**
- Existing Desalter Well
 - Existing Desalter Facility
 - Phase 2 Desalter Well**
 - Proposed Transmission Pipeline
 - Well Site Parcel
- Artificial Recharge Infrastructure**
- Phase 1 Recharge Basin*
 - Phase 2 Recharge Basin**
 - Transmissions Pipelines
 - Rubber Dam
 - Lift Station
 - Inlet Structure
 - Outlet Structure
- Other Features**
- WMWD Recycled Water Pipeline
 - RCFC Infrastructure
 - Streams and Flood Control Channels
 - Imported Water Canals
 - Groundwater Divides

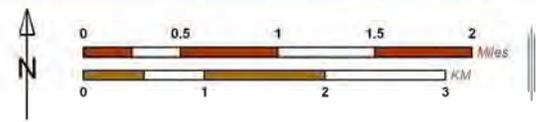
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Map of Alternative 4 Facilities

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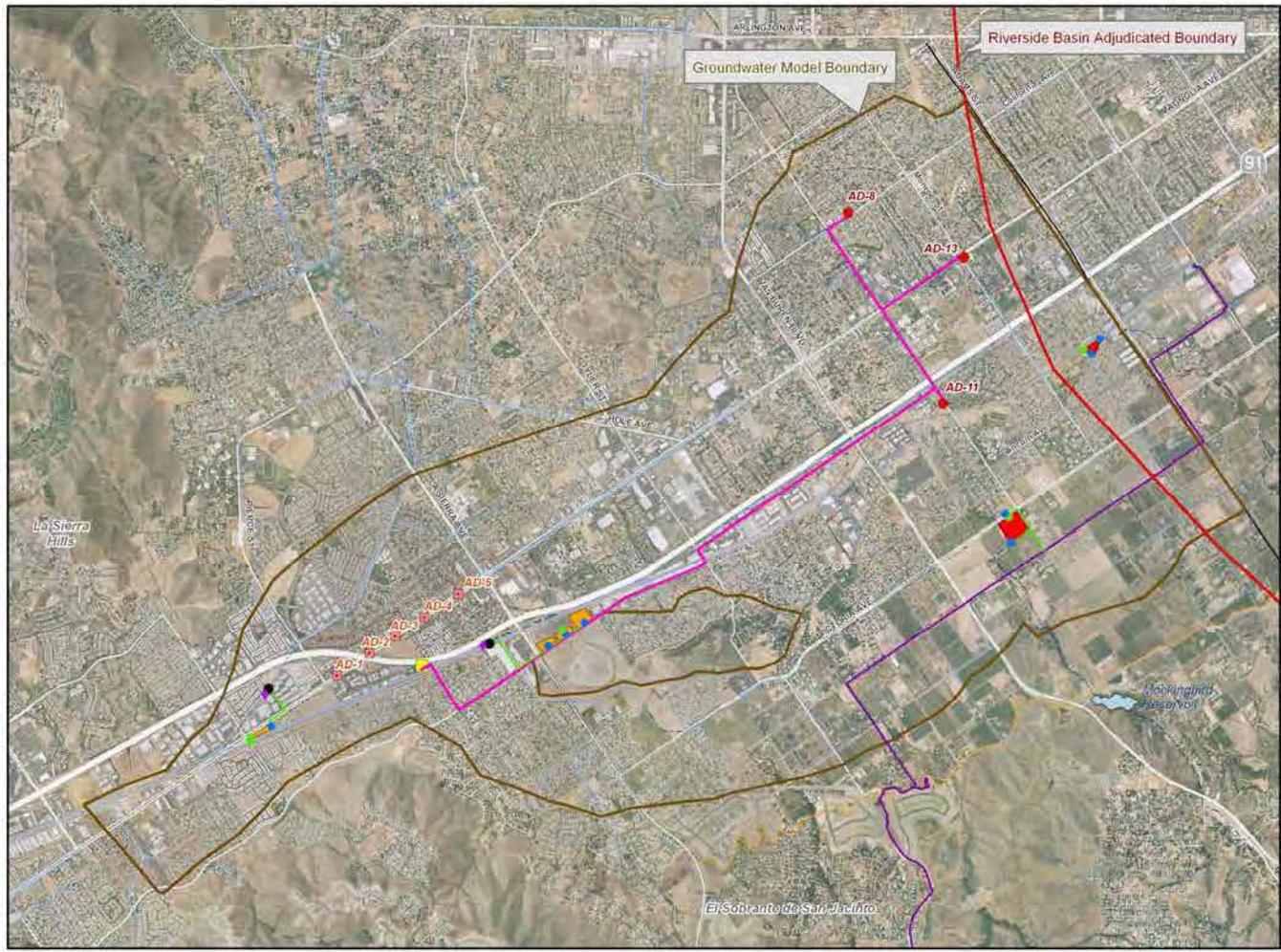
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FEASIBILITY STUDY FOR THE
 EXPANSION OF THE ARLINGTON DESALTER
 Phase II

Figure 6-5a

FIGURE 7



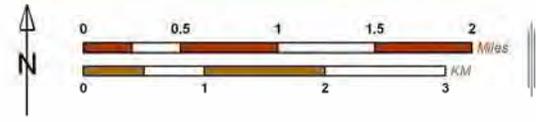
- Desalter Infrastructure**
 - Existing Desalter Well
 - Existing Desalter Facility
 - Phase 2 Desalter Well**
 - Proposed Transmission Pipeline
 - Well Site Parcel
- Artificial Recharge Infrastructure**
 - Phase 1 Recharge Basin*
 - Phase 2 Recharge Basin**
 - Transmissions Pipelines
 - Rubber Dam
 - Lift Station
 - Inlet Structure
 - Outlet Structure
- Other Features**
 - WMWD Recycled Water Pipeline
 - RCFC Infrastructure
 - Streams and Flood Control Channels
 - Imported Water Canals
 - Groundwater Divides



*Phase I begins in 2012. **Phase II begins in 2017.

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Map of Alternative 5 Facilities

Figure 6-6a

FIGURE 8



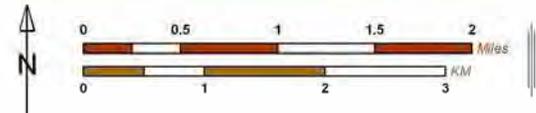
- Desaliner Infrastructure**
 - Existing Desaliner Well
 - Existing Desaliner Facility
 - Phase 2 Desaliner Well**
 - Proposed Transmission Pipeline
 - Well Site Parcel
- Artificial Recharge Infrastructure**
 - Phase 1 Recharge Basin*
 - Phase 2 Recharge Basin**
 - Transmissions Pipelines
 - Rubber Dam
 - Lift Station
 - Inlet Structure
 - Outlet Structure
- Other Features**
 - WMIWD Recycled Water Pipeline
 - RCFC Infrastructure
 - Streams and Flood Control Channels
 - Imported Water Canals
 - Groundwater Divides



*Phase I begins in 2012. **Phase II begins in 2017.

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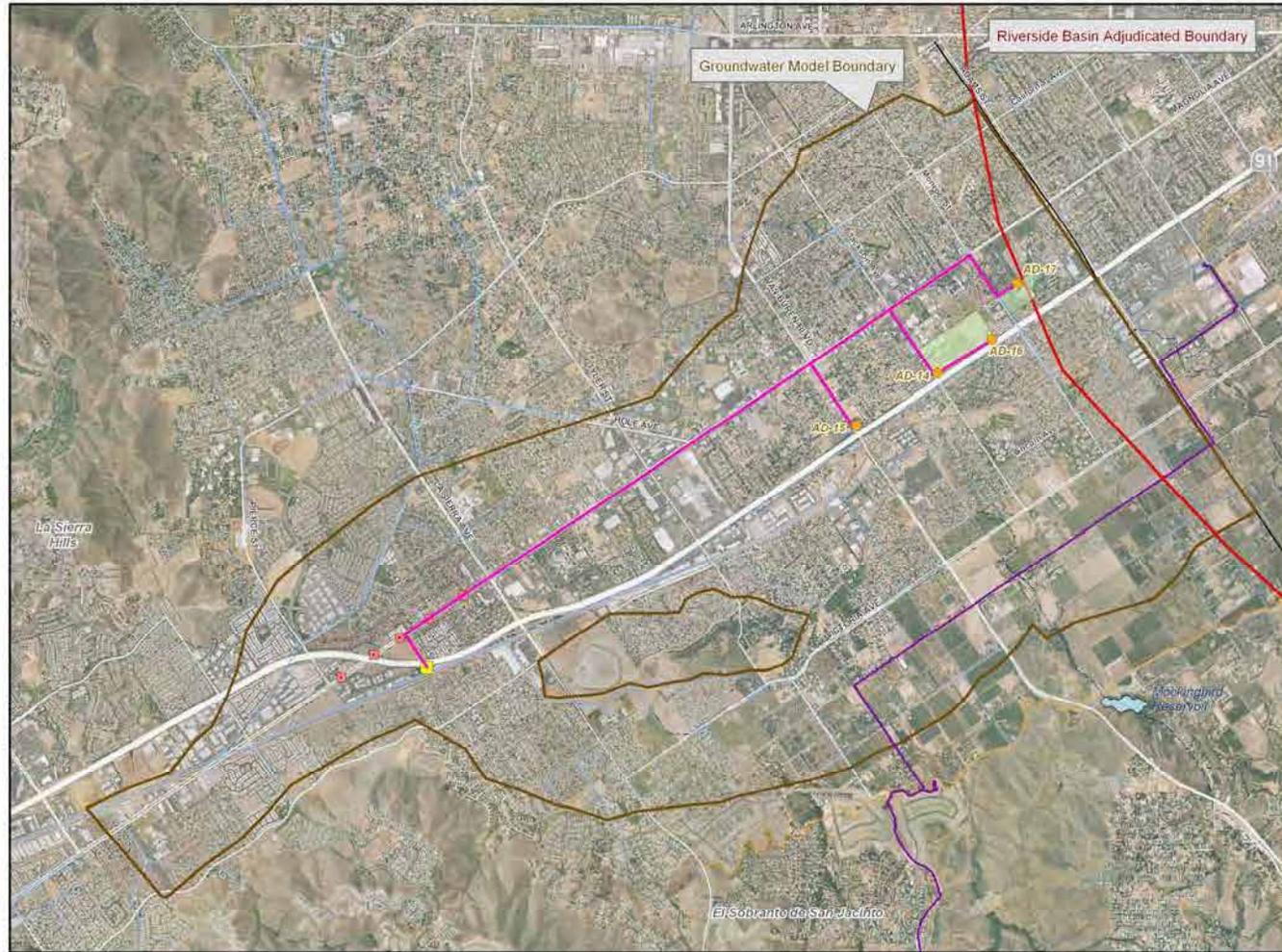


Feasibility Study for the Expansion of the Arlington Desalter Phase II

Map of Alternative 6 Facilities

Figure 6-7a

FIGURE 9



Desalter Infrastructure

- Existing Desalter Well
- Existing Desalter Facility
- Phase 1 Desalter Well*
- Proposed Transmission Pipeline
- Well Site Parcel

Other Features

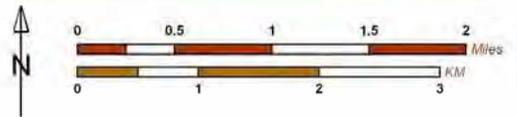
- WMWD Recycled Water Pipeline
- RCFC Infrastructure
- Streams and Flood Control Channels
- Imported Water Canals
- Groundwater Divides

*Phase I begins in 2012.

Map of Alternative 7 Facilities

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Figure 6-8a

FIGURE VI-1

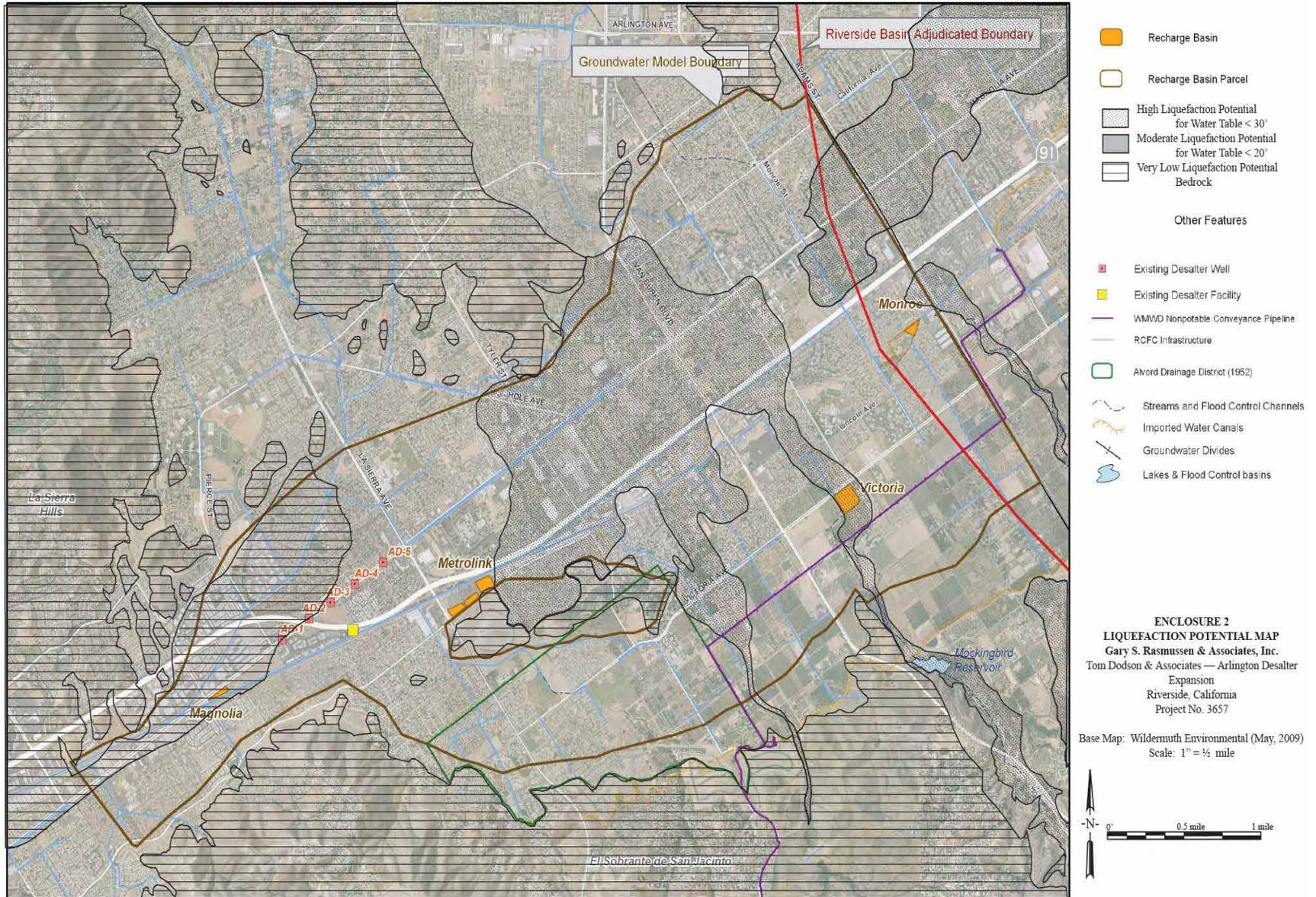
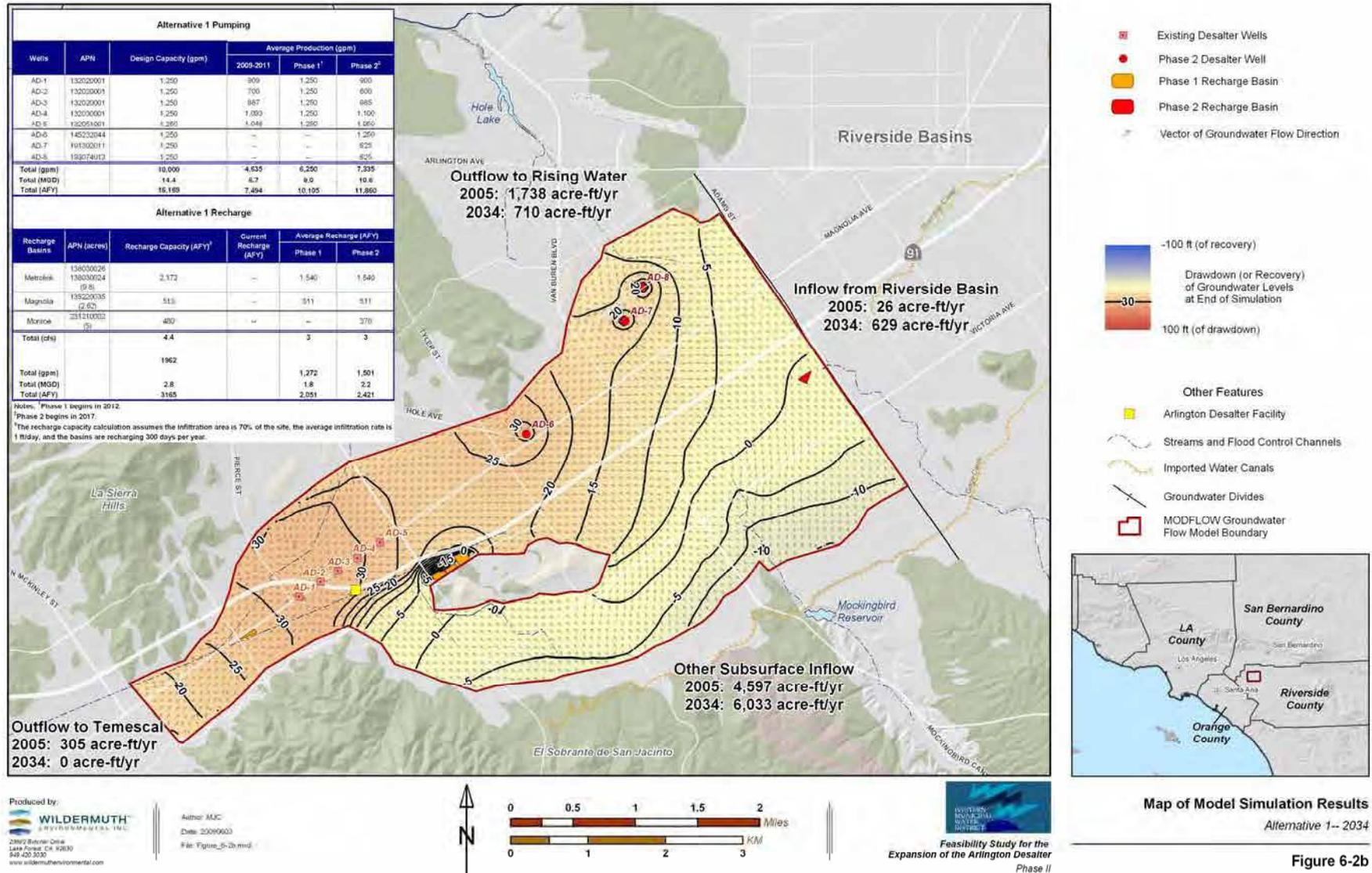
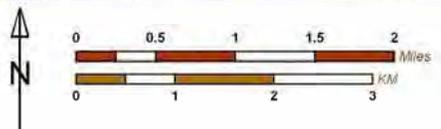


FIGURE VIII-1



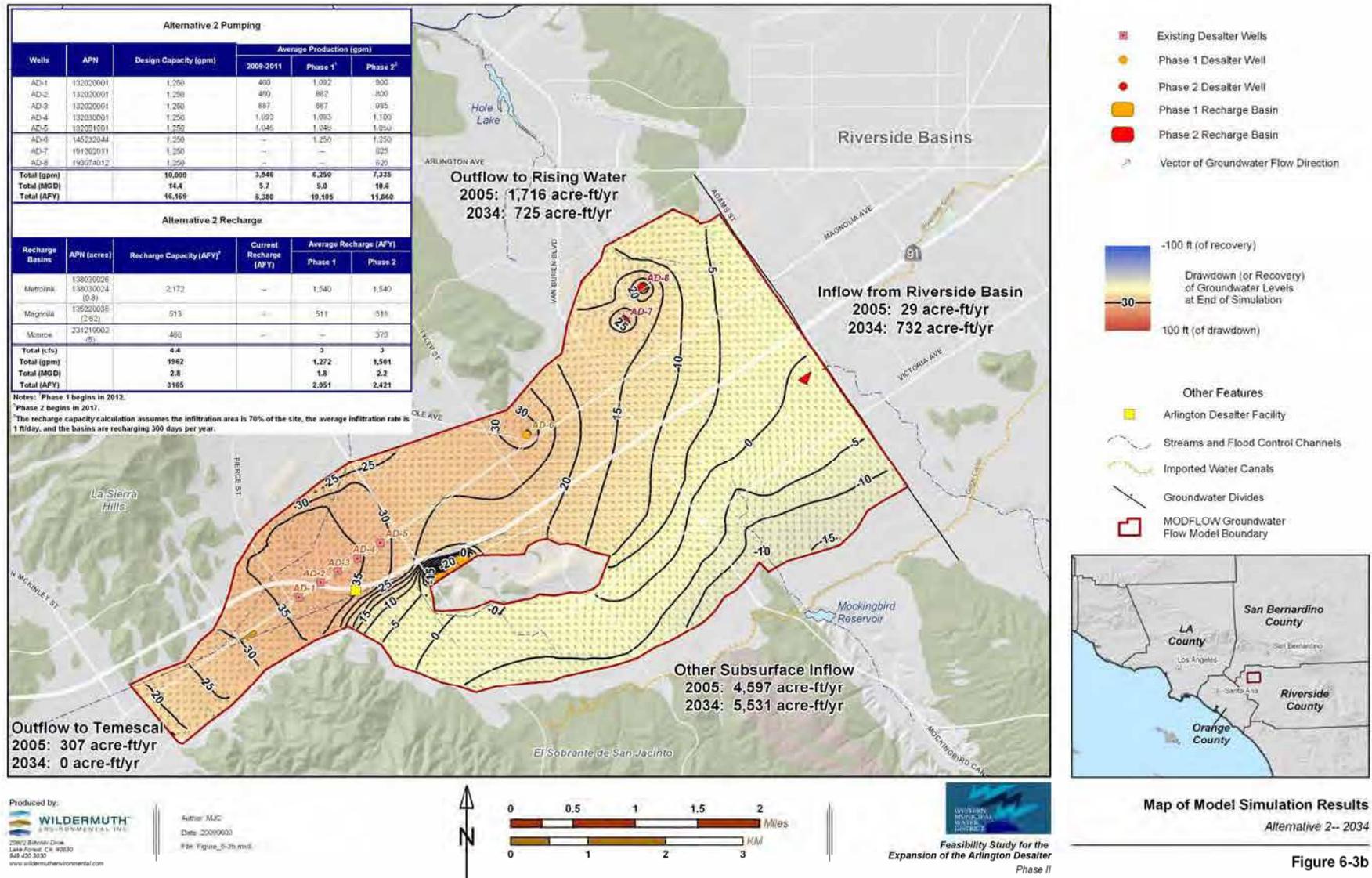
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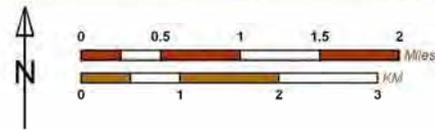
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FIGURE VIII-2



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FIGURE VIII-3

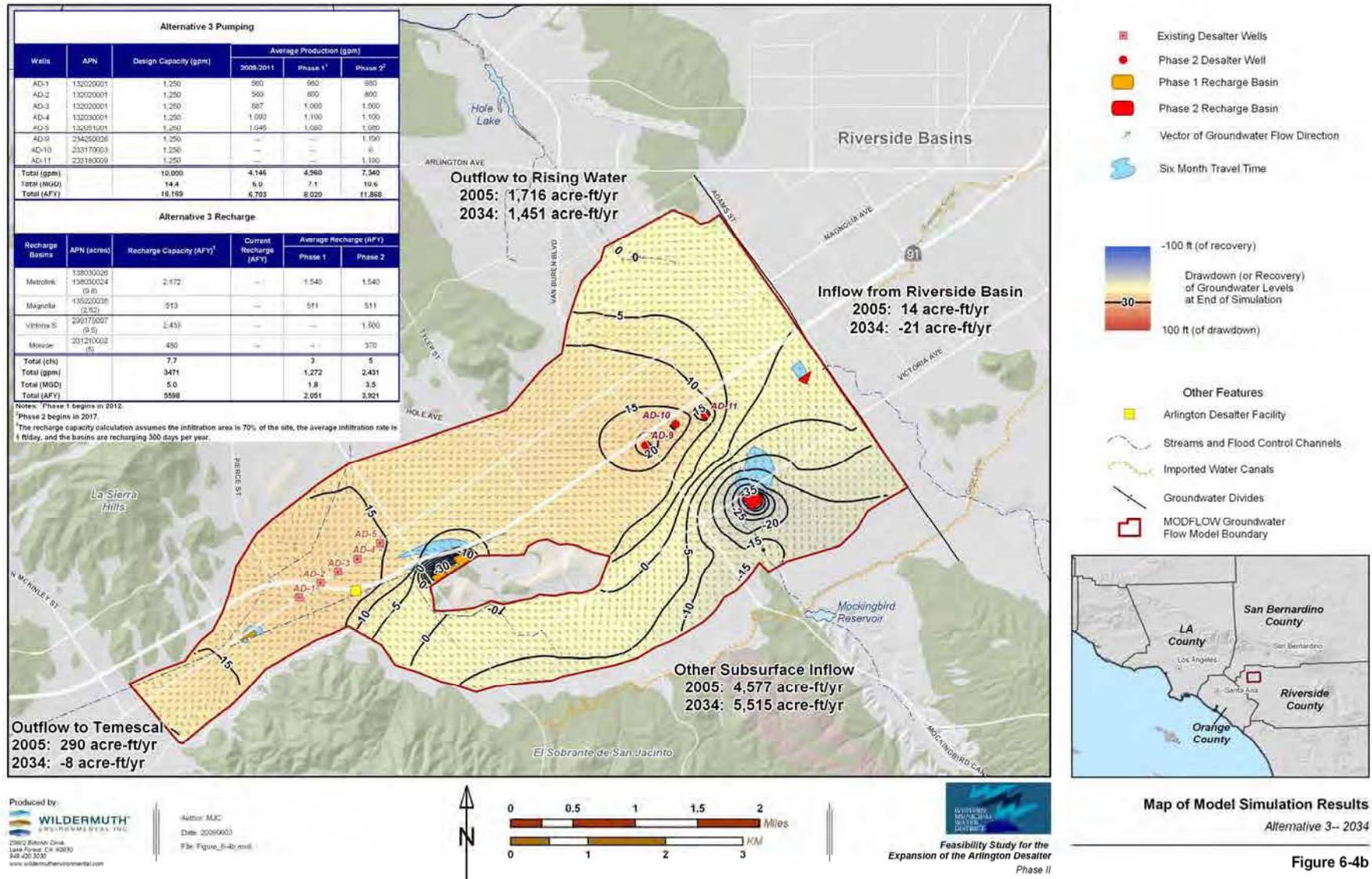
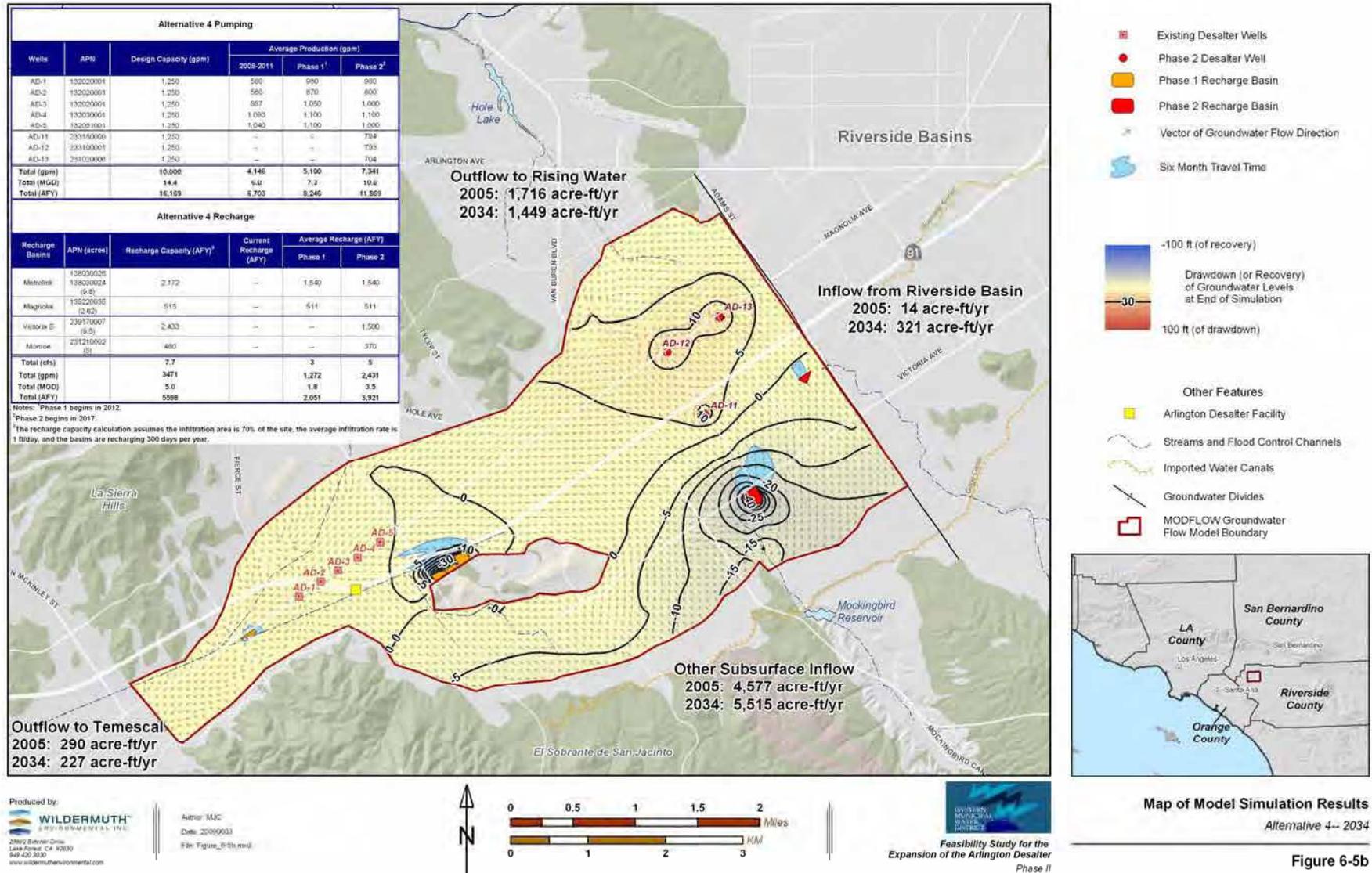
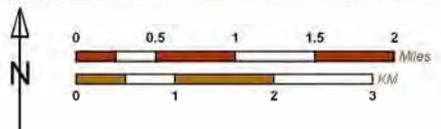


FIGURE VIII-4



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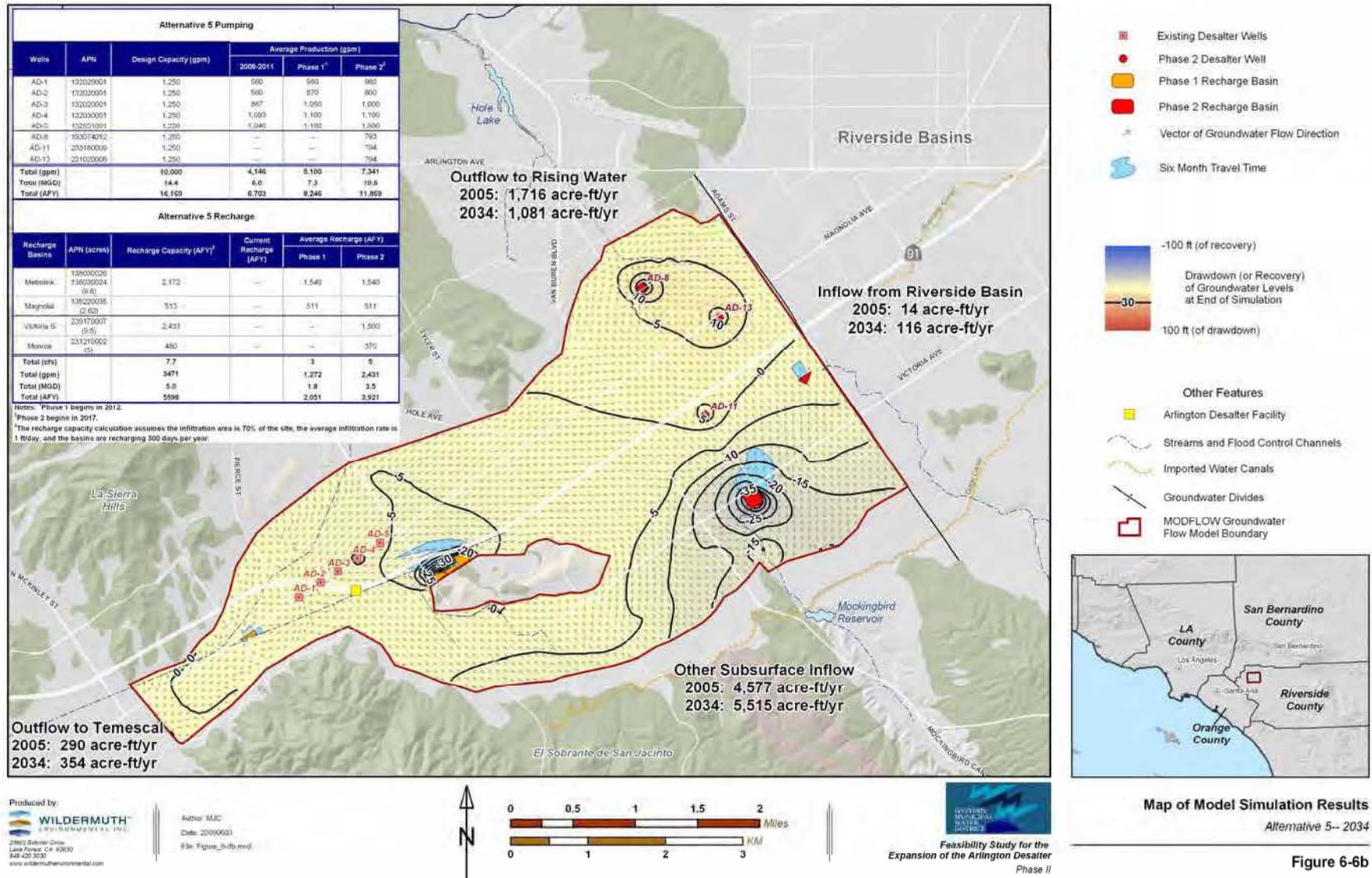
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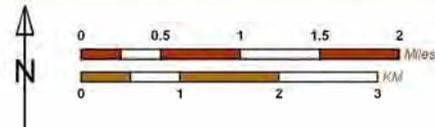


FIGURE VIII-5



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FIGURE VIII-6

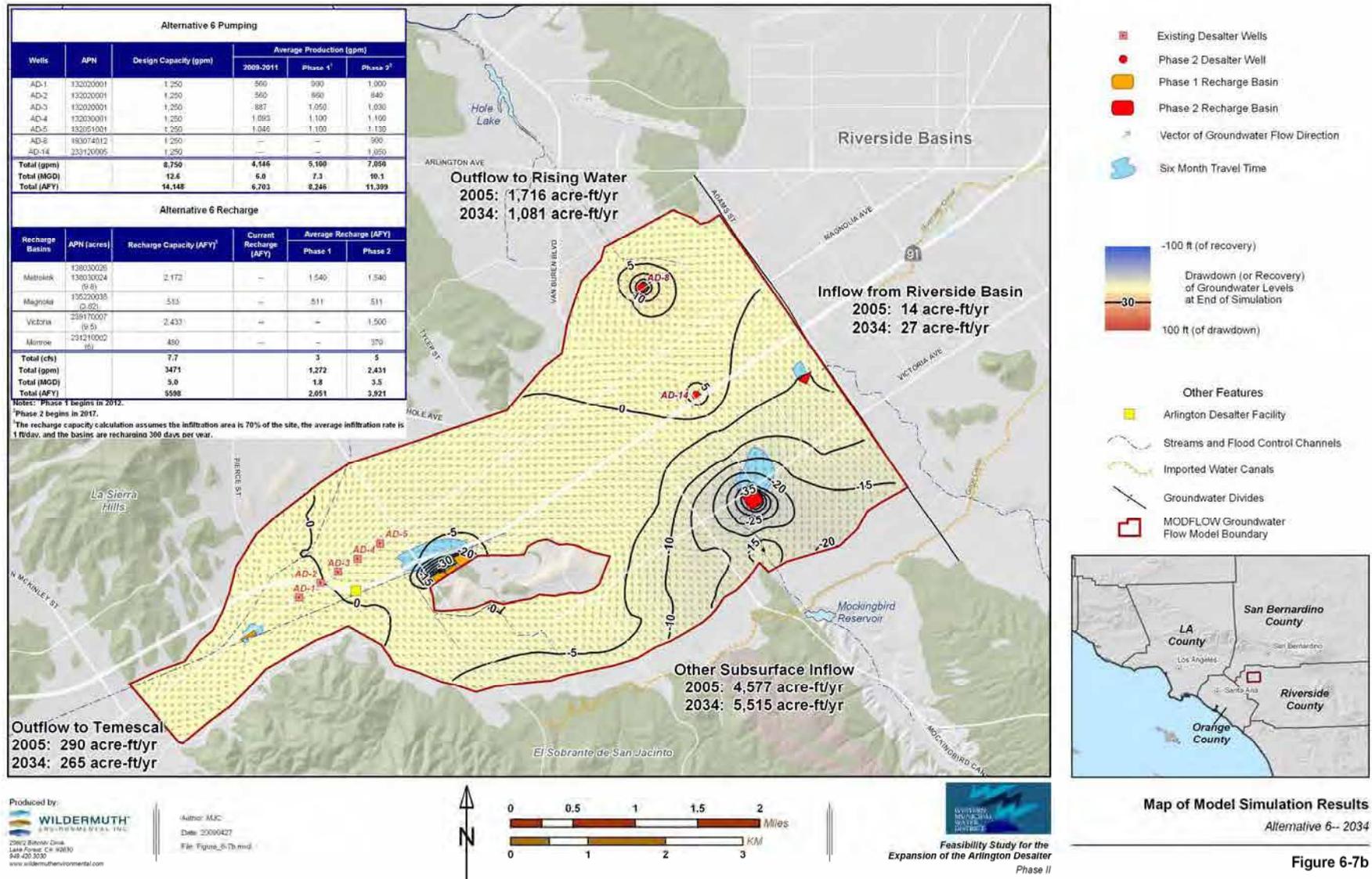
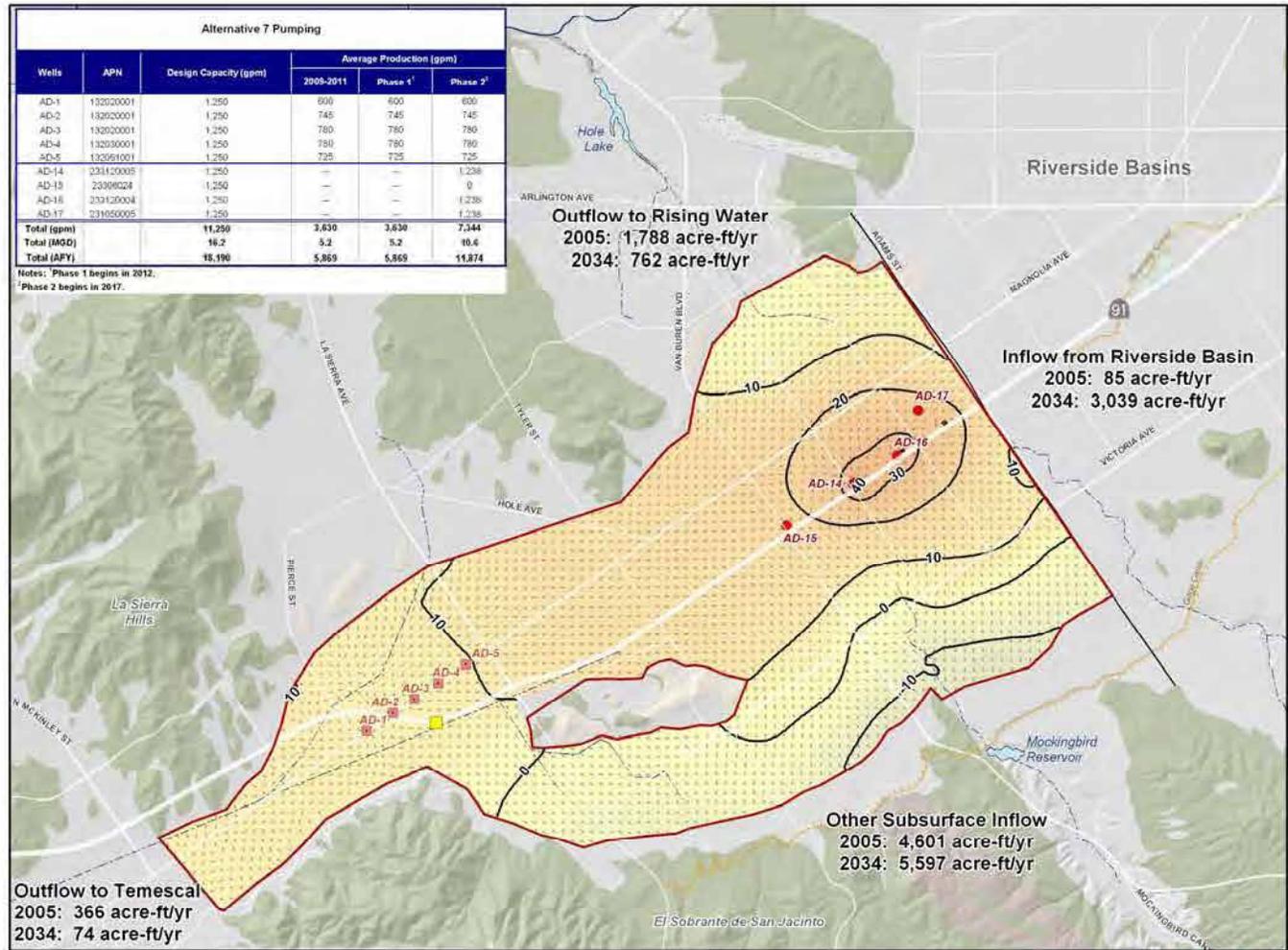


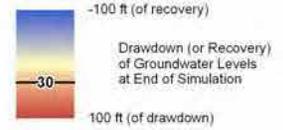
FIGURE VIII-7

Alternative 7 Pumping					
Wells	APN	Design Capacity (gpm)	Average Production (gpm)		
			2008-2011	Phase 1	Phase 2
AD-1	132020001	1,250	600	600	600
AD-2	132020001	1,250	745	745	745
AD-3	132020001	1,250	780	780	780
AD-4	132030001	1,250	780	780	780
AD-5	132091001	1,250	725	725	725
AD-14	230120005	1,250	—	—	1,238
AD-15	230090024	1,250	—	—	0
AD-16	230120004	1,250	—	—	1,238
AD-17	230105005	1,250	—	—	1,238
Total (gpm)		11,250	3,630	3,630	7,344
Total (MGD)		16.2	5.2	5.2	10.6
Total (AFY)		18,190	5,869	5,869	11,874

Notes: Phase 1 begins in 2012.
Phase 2 begins in 2017.



- Existing Desalter Wells
- Phase 2 Desalter Well
- Vector of Groundwater Flow Direction



- Other Features**
- Arlington Desalter Facility
 - Streams and Flood Control Channels
 - Imported Water Canals
 - Groundwater Divides
 - MODFLOW Groundwater Flow Model Boundary

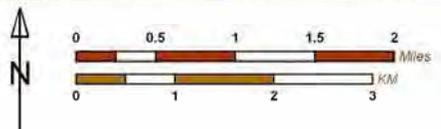


Map of Model Simulation Results
Alternative 7-- 2034

Figure 8-8b

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Date: 20090603
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Feasibility Study for the Expansion of the Arlington Desalter
Phase II

APPENDIX A

AIR QUALITY IMPACT ANALYSIS
ARLINGTON DESALTER PROJECT
RIVERSIDE COUNTY, CALIFORNIA

Hans D. Giroux
Senior Analyst
Giroux & Associates

Prepared for:
Tom Dodson & Associates
Attn: Bill Gaitlin
2150 N. Arrowhead Avenue
San Bernardino, California 92405

Date:

June 9, 2009

Project No.: P09-023 A

CONSTRUCTION ACTIVITY IMPACTS

Standards of Significance

Air quality impacts are considered “significant” if they cause clean air standards to be violated where they are currently met, or if they “substantially” contribute to an existing violation of standards. Any substantial emissions of air contaminants for which there is no safe exposure, or nuisance emissions such as dust or odors, would also be considered a significant impact.

Many pollutants require additional chemical transformation to reach their most unhealthful state. This process occurs over many hours and many miles of transport. The individual impact from any project is diluted to imperceptible concentrations during this process. The South Coast Air Quality Management District (SCAQMD) has therefore designated significant emissions levels for evaluating impact significance independent of chemical transformation processes. Projects with daily construction emissions that exceed any of the following emission thresholds are recommended by the SCAQMD to be considered significant:

SCAQMD Emissions Significance Thresholds (pounds/day)

Pollutant	Emissions (Construction)
ROG	75
NO_x	100
CO	550
PM-10	150
PM-2.5	55
SO_x	150
Lead	3

Source: SCAQMD CEQA Air Quality Handbook, November, 1993 Rev.

The U.S. Clean Air Act Amendments of 1990, at Section 176c, prohibit any federal participation in any program that is not in conformity with the applicable state implementation plan (SIP). For Southern California, this is the 2007 AQMP. Participation includes project funding through the state revolving fund (SRF). It is anticipated that the proposed project may seek funding through the SRF. Project approval therefore requires a Clean Air Act Conformity finding.

Conformity analysis under EPA guidelines can be undertaken to demonstrate that the combined emissions from direct and indirect (transportation, etc) project-related emissions have been

accurately incorporated into the applicable SIP. A simpler test, as outlined in 40 CFR Part 93.153, is to demonstrate that these emissions are less than the *de minimis* thresholds which depend upon the seriousness of the current level of non-attainment for federal clean air standards. The SCAB is designated as “severe” non-attainment for the 8-hour ozone standard and the annual PM-2.5 standard. The basin is a maintenance area for CO. The annual emissions significance thresholds for projects in severe ozone or PM-2.5 non-attainment areas (and CO maintenance areas) are as follows:

Reactive Organic Gases – 25 tons/year

Nitrogen Oxides – 25 tons/year

Carbon Monoxide – 100 tons/year

Particulate Matter – 70 tons/year

Fine Particulate Matter – 100 tons/year

Projects with annual direct and indirect emissions below these thresholds are considered to be in conformance with the applicable SIP. A conformity finding also requires that project-related emissions do not exceed ten percent of the air basin emissions inventory. The above thresholds are much, much less than ten percent of the South Coast Air Basin emissions inventory. If emissions are demonstrated to be *de minimis*, the ten percent requirement is automatically met.

Equipment Exhaust Impacts

On-site construction activities emissions for the Arlington Desalter project were calculated utilizing the URBEMIS2007 computer model. Diesel truck deliveries and employee commuting emissions were calculated utilizing EMFAC2007 roadway emissions factors.

The URBEMIS2007 computer model was used to calculate emissions for the following construction equipment fleet for the indicated construction activity:

Pipeline Installation	1 Excavator
	1 Backhoe
	1 Paver
	1 Roller
	1 Water Truck
	Dump/delivery trucks (80 miles/day)
	Employees (10 members per team)

Basin Excavation	1 Dozer
	2 Scrapers
	1 Grader
	1 Compacter
	1 Water Truck
	Dump/delivery trucks (80 miles/day)
	Employees (10 members per team)

Wells and Pump Station	1 Bore/Drill Rig.
	1 Backhoe
	1 Rough Terrain Forklift
	1 Morter Mixer
	1 Welder
	Dump/delivery trucks (80 miles/day)
	Employees (10 members per team)

Utilizing the above equipment fleet daily emissions were calculated by the URBEMIS2007 computer model using the following assumptions. Wells and Pump Station have a footprint of 1 acre. Pipeline will extend for 6 miles and have a progress rate of 150 feet per day, or 500 cubic yards of earth work per day with an 8 foot excavation depth. Basins will have a 17 acre footprint with 220,000 cubic yards of earthworks all on-site with a rate of progress of 1,000 cubic yards per day.

2010 Construction Activity Emissions (pounds/day)

Activity	ROG	NOx	CO	SO ₂	PM-10	PM-2.5	CO ₂
Pipeline Installation							
No Mitigation	3.3	23.0	13.0	0.0	71.5	16.1	2,212.9
With Mitigation	3.3	19.6	13.0	0.0	6.7	1.6	2,212.9
Basins							
No Mitigation	6.3	56.7	27.4	0.0	162.9	35.7	5,414.9
With Mitigation	6.3	48.2	27.4	0.0	15.3	3.5	5,414.9
Wells and Pump Station							
No Mitigation	2.4	17.4	9.9	0.0	3.6	1.5	2,541.0
With Mitigation	2.4	14.8	9.9	0.0	0.4	0.2	2,541.0
Total All Activities							
No Mitigation	12.0	97.1	50.3	0.0	238.0	53.3	10,168.8
With Mitigation	12.0	82.6	50.3	0.0	22.4	5.3	10,168.8
SCAQMD Threshold	75	100	550	150	150	55	-

Source: URBEMIS2007 Model, Output in Appendix

In addition to the above construction equipment, a construction crew of 10 persons per project was assumed. A round trip commute distance of 50 miles per employee was assumed. Utilizing EMFAC2007 roadway emissions factors, the following emissions were calculated for the year 2010 (pounds/day):

2010 On-Road Emissions from Crew Commuting and Truck Haul (pounds/day)

Activity	ROG	NOx	CO	PM-10	PM-2.5
Employees (10 members per team 50 miles/day)	0.5	0.5	4.1	<0.1	<0.1
Dump/delivery trucks (80 miles/day)	0.2	3.1	1.0	0.3	0.1
Total On-Road	0.7	3.6	5.1	0.3	0.1

The combined total emissions from mitigated construction equipment, employee commuting and truck haul assuming all construction phases overlap and occur simultaneously are seen below:

Construction, Truck Haul and Employee Commuting (pounds/day)

Activity	ROG	NOx	CO	PM-10	PM-2.5
Pipeline Installation	4.0	23.2	18.1	7.0	1.7
Basins	7.0	51.8	32.5	15.6	3.6
Wells and Pump Station	3.1	18.4	15.0	0.7	0.3
TOTAL	14.1	93.4	65.6	23.3	5.6
AQMD Threshold	75.	100.	550.	150.	55

The regional air quality impacts associated with construction equipment activity during typical activities are shown to be less-than-significant for every air pollutant even if all construction phases were to occur simultaneously. The mobile nature of the on-site construction equipment and off-site trucks will likely prevent any localized violation of the NOx or other standards. There may be isolated instances when the characteristic diesel exhaust odor is noticeable from passing trucks or nearby heavy equipment, but such odors are transitory.

State Implementation Plan Consistency

Federal actions may be exempt from conformity determinations if they do not exceed designated *de minimis* levels. As discussed, the 40 CFR Part 51.853(b) establishes these *de minimis* levels for criteria pollutants. The South Coast Air Basin is a designated extreme non-attainment area for the federal 8-hour standard for ozone and non-attainment for PM-10 and PM-2.5.

If the *de minimis* thresholds are not exceeded, and the proposed action does not create emissions that constitute more than ten (10) percent of the air basin's emission budget, a formal conformity analysis is not required. Project-related annual emissions relative to these thresholds were calculated by utilizing daily construction emissions provided by the URBEMIS2007 annual emissions output file (provided in the appendix) and from EMFAC2007 and then multiplying by the project duration and adjusting from pounds per day to tons per year as follows:

<i>Activity</i>	<i>ROG</i>	<i>NOx</i>	<i>CO</i>	<i>PM-10</i>	<i>PM-2.5</i>
Pipeline Installation					
<i>URBEMIS Annual</i>	0.4	2.5	1.4	0.7	0.2
<i>EMFAC2007 x 220 days</i>	0.1	0.4	0.6	<0.1	<0.1
<i>Total</i>	0.5	2.9	2.0	0.7	0.2
Basin Excavation					
<i>URBEMIS Annual</i>	0.7	6.3	3.0	1.7	4.0
<i>EMFAC2007 x 220 days</i>	0.1	0.4	0.6	<0.1	<0.1
<i>Total</i>	0.8	6.7	3.6	1.7	4.0
Wells and Pump Station					
<i>URBEMIS Annual</i>	0.1	0.7	0.5	0.0	0.0
<i>EMFAC2007 x 90 days</i>	<0.1	0.2	0.2	<0.1	<0.1
<i>Total</i>	0.1	0.9	0.7	0.0	0.0
<i>All Project Total</i>	1.4	10.5	6.3	2.4	4.2

Calculated annual emissions from the proposed action, assuming all activities occur within the same calendar year (worst-case) are as follows relative to the above *de minimis* thresholds (tons/year):

<i>Pollutant</i>	<i>Status (Attainment, Nonattainment or Unclassified)</i>	<i>Threshold of Significance</i>	<i>Construction Emissions (tons/year)</i>
Carbon Monoxide (CO)	Attainment	100 tons/yr	6.3
Ozone (O ₃)	Nonattainment	NA*	NA*
Oxides of Nitrogen (NO _x)	Attainment	25 tons/yr	10.5
Particulate Matter (PM10)	Nonattainment	70 tons/yr	2.4
Reactive Organic Gases (ROG)	NA	25 tons/yr	1.4
Sulfur Dioxide (SO ₂)	Attainment	100 tons/yr	0.0
Volatile Organic Compounds (VOC)	NA	25 tons/yr	1.4

*threshold is applied to VOC/ROG and NO_x as precursors

Operational emissions are negligible as all systems are electric

None of the annual construction activity emissions will exceed the applicable threshold. There are no operational emissions to be considered. A formal SIP consistency analysis is not required.

Greenhouse Gases

Construction equipment and on-road traffic will generate greenhouse gas (GHG) emissions possibly associated with currently observed global warming. California has adopted several initiatives to reduce GHG emissions from combustion sources. Obviously, no single project or jurisdiction generates enough GHG to impact global climate. However, the cumulative impact of all combustion of fossil fuels may have global implications. Use of modern diesel engines, required to mitigate NO_x impacts, will have a small GHG emissions reduction benefit from increased combustion efficiency. In the absence of any GHG thresholds of emissions significance or methodology to analyze such impacts, the use of maximally efficient diesel-fueled equipment is believed to mitigate any cumulative GHG impacts as much as is practical.

Project related GHG emissions were calculated by assuming that every work day is a maximum activity work day. On-site equipment exhaust CO₂ emissions were calculated from the annual URBEMIS2007 output as follows:

<i>Pipeline</i>	<i>245 tons/year</i>
<i>Basin</i>	<i>598 tons/year</i>
<i>Wells</i>	<i>116 tons/year</i>

The EMFAC2007 model output at the SCAQMD website does not contain CO₂ emissions factors. However, for on-road internal combustion engines, CO₂ emissions are equal to approximately 110 times the CO fraction. Use of this ratio predicts the following on-road CO₂ contribution:

Pipeline Employee Commuting/Haul

$$5.1 \text{ lb/day} \times 220 \text{ days} \times 110 = 123,420 \text{ pounds} = 62 \text{ tons/year}$$

Basins Employee Commuting/Haul

$$5.1 \text{ lb/day} \times 220 \text{ days} \times 110 = 123,420 \text{ pounds} = 62 \text{ tons/year}$$

Wells Employee Commuting/Haul

$$5.1 \text{ lb/day} \times 90 \text{ days} \times 110 = 50,490 \text{ pounds} = 25 \text{ tons/year}$$

Adding the project construction and employee commute and truck haul emissions provide the total annual emissions:

Pipeline Total Commuting, Haul and Construction

$$62 \text{ tons/year} + 245 \text{ tons/year} = 307 \text{ tons/year}$$

Basins Total Commuting, Haul and Construction

$$62 \text{ tons/year} + 598 \text{ tons/year} = 660 \text{ tons/year}$$

Wells Total Commuting, Haul and Construction

$$25 \text{ tons/year} + 116 \text{ tons/year} = 141 \text{ tons/year}$$

$$\textbf{Total All Phases} = 307 + 660 + 141 = 1,108 \text{ tons/year}$$

Maximum plausible CO₂ emissions from on-and off-road activities would total 1,108 tons. In 2004, the statewide annual GHG inventory in CO₂-equivalent levels (including all non-CO₂ gases weighted by their thermal absorption potential) was 492,000,000 metric tons (541,000,000 short tons). The worst-case project construction impact of 1,108 tons/year represents less than 0.0002 percent of the statewide burden.

There are no adopted thresholds of GHG emissions significance. However, GHG emissions are implicated in the acceleration of global warming experienced in the last several decades. Climatic impacts are global in scale. Any project-specific contribution to the global issue is miniscule. In the absence of any definitive thresholds of significance, the GHG emphasis on a project-specific level is to incorporate project design features that reduce energy consumption and reduce vehicular travel as much as is reasonably feasible. Unless there is a greater shift to clean energy such as solar, hydroelectric, wind, nuclear, etc., no substantial reduction in GHG is likely attainable by conventional methods except through energy conservation

Diesel Exhaust Exposure Risk

Diesel-powered construction equipment releases exhaust particulates (soot) that have been identified as carcinogenic in a number of health studies. Diesel particulate matter (DPM) emissions will be generated both at any individual construction site, as well as along any haul routes for moving earth and the import materials. No specific methodology exists to convert the toxic fraction of diesel equipment exhaust into a corresponding health risk when emissions are scattered over a wide area by the sources themselves. Initial construction activities will generate a maximum of 0.8 pounds per day of combustion PM-2.5 per day. The progressive nature of the activity is such that it will occur in close proximity to any individual residence for only a few days before progressing further along the alignment.

The cancer risk factor for diesel exhaust is expressed in terms of outdoor exposure for 24 hours per day, 365 days per year, for the next 70 years. These are not conditions that will occur around various project elements because the construction activity will not last 70 years, nor will anybody sit on their front porch for the next 70 years without leaving. The equipment exhaust will be released for a very limited time during daytime hours of moderate winds and turbulence by mobile sources that will not expose any individual receptor for any extended period. Receptors will not be outside their residences for the duration of the construction activity. Diesel exposure health risk impacts from construction equipment diesel exhaust particulates will therefore be minimal.

MITIGATION

Construction activity emissions will not exceed SCAQMD significance thresholds. There will be no operational impacts associated with the project.

Nuisance minimization requires use of all available best management practices for dust control. A number of measures are suggested for dust control and emissions reduction are as follows:

- Using best available control measures during soil disturbance. The menu of enhanced dust control measures includes the following:
 - ❖ Limit the disturbance “footprint” to as small an area as practical.
 - ❖ Water all active construction areas at least twice daily.
 - ❖ Cover all off-site haul trucks or maintain at least 2 feet of freeboard.
 - ❖ Pave or apply water four times daily to all unpaved parking or staging areas.
 - ❖ Sweep or wash any site access points within 30 minutes of any visible dirt deposition on any public roadway.
 - ❖ Cover or water twice daily any on-site stockpiles of debris, dirt or other dusty material.
 - ❖ Suspend all operations on any unpaved surface if winds exceed 25 mph.
 - ❖ Stockpile excess dirt from levee reconstruction as far from homes as reasonable.
- Limit allowable idling to 5 minutes for trucks and heavy equipment before shutting the equipment down.
- Utilize equipment whose engines are equipped with diesel oxidation catalysts if available.
- Utilize diesel particulate filter on heavy equipment where feasible.
- Utilize Tier 3 rated diesel engines for where possible.

A formal SIP consistency analysis is not required because total project emissions are less than EPA *de minimis* thresholds and are less than ten percent of the air basin’s emission budget.

APPENDIX

URBEMIS2007 Computer Model Output

Page: 1

6/8/2009 12:33:33 PM

Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: C:\Documents and Settings\Sara Gerrick\Application Data\Urbemis\Version9a\Projects\Arlington Desalter Basin.urb924

Project Name: Arlington Desalter Basins

Project Location: Riverside 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>
2010 TOTALS (tons/year unmitigated)	0.70	6.26	3.03	0.00	17.74	0.27	18.00	3.70	0.24	3.95	598.34
2010 TOTALS (tons/year mitigated)	0.70	5.32	3.03	0.00	1.64	0.04	1.69	0.34	0.04	0.38	598.34
Percent Reduction	0.00	14.98	0.00	0.00	90.73	84.80	90.64	90.72	84.82	90.36	0.00

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>
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Page: 2

6/8/2009 12:33:33 PM

2010	0.70	6.26	3.03	0.00	17.74	0.27	18.00	3.70	0.24	3.95	598.34
Mass Grading 01/01/2010-11/05/2010	0.70	6.26	3.03	0.00	17.74	0.27	18.00	3.70	0.24	3.95	598.34
Mass Grading Dust	0.00	0.00	0.00	0.00	17.74	0.00	17.74	3.70	0.00	3.70	0.00
Mass Grading Off Road Diesel	0.69	6.25	2.86	0.00	0.00	0.27	0.27	0.00	0.24	0.24	577.72
Mass 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
Mass Grading Worker Trips	0.01	0.01	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	20.62

Phase Assumptions

Phase: Mass Grading 1/1/2010 - 11/5/2010 - Default Mass Site Grading/Excavation Description

Total Acres Disturbed: 17

Maximum Daily Acreage Disturbed: 4.25

Fugitive Dust Level of Detail: Low

Onsite Cut/Fill: 1000 cubic yards/day; Offsite Cut/Fill: 0 cubic yards/day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

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

1 Plate Compactors (8 hp) operating at a 0.43 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

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

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

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Mitigated

<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>
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Page: 3

6/8/2009 12:33:33 PM

2010	0.70	5.32	3.03	0.00	1.64	0.04	1.69	0.34	0.04	0.38	598.34
Mass Grading 01/01/2010-11/05/2010	0.70	5.32	3.03	0.00	1.64	0.04	1.69	0.34	0.04	0.38	598.34
Mass Grading Dust	0.00	0.00	0.00	0.00	1.64	0.00	1.64	0.34	0.00	0.34	0.00
Mass Grading Off Road Diesel	0.69	5.31	2.86	0.00	0.00	0.04	0.04	0.00	0.04	0.04	577.72
Mass 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
Mass Grading Worker Trips	0.01	0.01	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	20.62

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Mass Grading 1/1/2010 - 11/5/2010 - 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 3x daily watering mitigation reduces emissions by:

PM10: 61% PM25: 61%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

For Unpaved Roads Measures, the Manage haul road dust 3x daily watering mitigation reduces emissions by:

PM10: 61% PM25: 61%

For Rubber Tired Dozers, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Rubber Tired Dozers, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

For Water Trucks, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Water Trucks, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

For Scrapers, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

Page: 4

6/8/2009 12:33:33 PM

PM10: 85% PM25: 85%

For Scrapers, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

For Graders, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Graders, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

For Plate Compactors, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Plate Compactors, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

Page: 1

6/5/2009 1:14:29 PM

Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: C:\Documents and Settings\Sara Gerrick\Application Data\Urbemis\Version9a\Projects\Arlington Desalter Pipeline.urb924

Project Name: Arlington Desalter Pipeline

Project Location: Riverside 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>
2010 TOTALS (tons/year unmitigated)	0.36	2.54	1.44	0.00	7.72	0.18	7.90	1.61	0.16	1.77	244.52
2010 TOTALS (tons/year mitigated)	0.36	2.16	1.44	0.00	0.72	0.03	0.74	0.15	0.02	0.17	244.52
Percent Reduction	0.00	14.95	0.00	0.00	90.72	84.75	90.59	90.71	84.77	90.17	0.00

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>
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Page: 2

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2010	0.36	2.54	1.44	0.00	7.72	0.18	7.90	1.61	0.16	1.77	244.52
Mass Grading 01/01/2010-11/05/2010	0.36	2.54	1.44	0.00	7.72	0.18	7.90	1.61	0.16	1.77	244.52
Mass Grading Dust	0.00	0.00	0.00	0.00	7.72	0.00	7.72	1.61	0.00	1.61	0.00
Mass Grading Off Road Diesel	0.36	2.53	1.29	0.00	0.00	0.18	0.18	0.00	0.16	0.16	227.34
Mass 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
Mass Grading Worker Trips	0.00	0.01	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	17.18

Phase Assumptions

Phase: Mass Grading 1/1/2010 - 11/5/2010 - Default Mass Site Grading/Excavation Description

Total Acres Disturbed: 7

Maximum Daily Acreage Disturbed: 1.75

Fugitive Dust Level of Detail: Low

Onsite Cut/Fill: 444 cubic yards/day; Offsite Cut/Fill: 0 cubic yards/day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Excavators (168 hp) operating at a 0.57 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 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

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Mitigated

<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>
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Page: 3

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2010	0.36	2.16	1.44	0.00	0.72	0.03	0.74	0.15	0.02	0.17	244.52
Mass Grading 01/01/2010-11/05/2010	0.36	2.16	1.44	0.00	0.72	0.03	0.74	0.15	0.02	0.17	244.52
Mass Grading Dust	0.00	0.00	0.00	0.00	0.72	0.00	0.72	0.15	0.00	0.15	0.00
Mass Grading Off Road Diesel	0.36	2.15	1.29	0.00	0.00	0.03	0.03	0.00	0.02	0.02	227.34
Mass 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
Mass Grading Worker Trips	0.00	0.01	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	17.18

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Mass Grading 1/1/2010 - 11/5/2010 - 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 3x daily watering mitigation reduces emissions by:

PM10: 61% PM25: 61%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

For Unpaved Roads Measures, the Manage haul road dust 3x daily watering mitigation reduces emissions by:

PM10: 61% PM25: 61%

For Water Trucks, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Water Trucks, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

For Excavators, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Excavators, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

For Tractors/Loaders/Backhoes, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

Page: 4

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PM10: 85% PM25: 85%

For Tractors/Loaders/Backhoes, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

For Pavers, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Pavers, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

For Rollers, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Rollers, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

Page: 1

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Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: C:\Documents and Settings\Sara Gerrick\Application Data\Urbemis\Version9a\Projects\Arlington Desalter Wells and Pump Station.urb924

Project Name: Arlington Desalter Wells and Pump Station

Project Location: Riverside 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>
2010 TOTALS (tons/year unmitigated)	0.11	0.79	0.45	0.00	0.11	0.05	0.16	0.02	0.04	0.07	115.62
2010 TOTALS (tons/year mitigated)	0.11	0.67	0.45	0.00	0.01	0.01	0.02	0.00	0.01	0.01	115.62
Percent Reduction	0.00	14.93	0.00	0.00	90.46	84.63	88.71	90.27	84.67	86.61	0.00

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>
------------	------------	-----------	------------	------------------	---------------------	-------------	-------------------	----------------------	--------------	------------

Page: 2

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2010	0.11	0.79	0.45	0.00	0.11	0.05	0.16	0.02	0.04	0.07	115.62
Mass Grading 01/01/2010-05/07/2010	0.11	0.79	0.45	0.00	0.11	0.05	0.16	0.02	0.04	0.07	115.62
Mass Grading Dust	0.00	0.00	0.00	0.00	0.11	0.00	0.11	0.02	0.00	0.02	0.00
Mass Grading Off Road Diesel	0.11	0.79	0.39	0.00	0.00	0.05	0.05	0.00	0.04	0.04	108.54
Mass 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
Mass Grading Worker Trips	0.00	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.07

Phase Assumptions

Phase: Mass Grading 1/1/2010 - 5/7/2010 - Default Mass Site Grading/Excavation Description

Total Acres Disturbed: 1

Maximum Daily Acreage Disturbed: 0.25

Fugitive Dust Level of Detail: Low

Onsite Cut/Fill: 0 cubic yards/day; Offsite Cut/Fill: 0 cubic yards/day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Bore/Drill Rigs (291 hp) operating at a 0.75 load factor for 8 hours per day

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

1 Rough Terrain Forklifts (93 hp) operating at a 0.6 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 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Mitigated

<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>
------------	------------	-----------	------------	------------------	---------------------	-------------	-------------------	----------------------	--------------	------------

Page: 3

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2010	0.11	0.67	0.45	0.00	0.01	0.01	0.02	0.00	0.01	0.01	115.62
Mass Grading 01/01/2010-05/07/2010	0.11	0.67	0.45	0.00	0.01	0.01	0.02	0.00	0.01	0.01	115.62
Mass Grading Dust	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00
Mass Grading Off Road Diesel	0.11	0.67	0.39	0.00	0.00	0.01	0.01	0.00	0.01	0.01	108.54
Mass 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
Mass Grading Worker Trips	0.00	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.07

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Mass Grading 1/1/2010 - 5/7/2010 - 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 3x daily watering mitigation reduces emissions by:

PM10: 61% PM25: 61%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

For Unpaved Roads Measures, the Manage haul road dust 3x daily watering mitigation reduces emissions by:

PM10: 61% PM25: 61%

For Tractors/Loaders/Backhoes, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Tractors/Loaders/Backhoes, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

For Bore/Drill Rigs, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Bore/Drill Rigs, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

For Rough Terrain Forklifts, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

Page: 4

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PM10: 85% PM25: 85%

For Rough Terrain Forklifts, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

For Welders, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Welders, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

For Cement and Mortar Mixers, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Cement and Mortar Mixers, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

APPENDIX B.1

TOM DODSON & ASSOCIATES
2150 N. ARROWHEAD AVENUE
SAN BERNARDINO, CA 92405
TEL (909) 882-3612 • FAX (909) 882-7015
E-MAIL Shay@tdaenv.com



MEMORANDUM

TO: Bill Gatlin
FROM: Shay Lawrey
DATE: June 19, 2009
SUBJECT: Arlington Desalter Project Biological Resource Issues and Western Riverside County Multiple Species Habitat Conservation Plan Consistency

Tom Dodson & Associates (TDA) has prepared this memorandum to demonstrate compliance with the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP) and requirements of the U.S. Fish and Wildlife Service (USFWS) Biological Opinion (BO) for the MSHCP. Pursuant to the final, MSHCP and USFWS BO, TDA evaluated the potential biological resources issues related to the proposed Arlington Desalter Project (Project). The Assessor's Parcel Numbers (APNs) associated with the Project are 135-220-035, 138-030-024, 138-030-026, 145-232-044, 191-302-011, 193-074-012, 231-020-006, 231-050-005, 231-210-002, 233-062-024, 233-100-001, 233-120-004, 233-120-005, 233-170-003, 233-180-009, 234-250-026, 239-170-007.

The Project area is located in the City of Riverside, south of Arlington Avenue, west of Adams Street, north of the 91 Freeway, and east of Buchanan Avenue. The project area can be found within Sections 5,6,7,8,9,16,17,18,19,20 & 21 of Township 3 South, Range 5 West, and Sections 22, 23 and 24 of Township 3 South, Range 6 West on the USGS – Riverside West Quadrangle, 7.5 Minute Series topographic map (Figure 1). The project site is **not** located in a MSHCP Area Plan and is **not** mapped within and/or adjacent to any criteria cells and is independent of a cell group. Pursuant to Section 6.3 of the MSHCP, none of the APNs associated with this Project are identified for surveys for special status species.

The California Natural Diversity Data Base (CNDDDB) and literature references including the Western Riverside County MSHCP were examined to obtain information on species occurrences in the project vicinity. According to the CNDDDB 28 sensitive species have been recorded within the USGS – Riverside West Quadrangle. The suitability of the habitat onsite for the species listed in the CNDDDB and MSHCP was evaluated in the field on June 12, 13 and 15, 2009. TDA biologist, Shay Lawrey conducted pedestrian surveys on the subject parcels per the requirements of the MSCHP. The focus of the field survey was to document the presence or absence of special status species identified in the MSHCP and CNDDB.

The subject parcels are best classified as Holland community type Urban or Built-up Land (11100). With no undisturbed areas on the properties, the parcels appear to have been subjected to long term disturbance. The properties consist of a combination of bare packed dirt, landscaping, maintained grass fields, structures and paving.

There is no natural habitat on any of the parcels and no chance of anything sensitive occurring. Only maintained landscape or hardy weed species are found on site. The ground cover on the parcels includes one or a combination of ornamental landscaping, non-native ruderal vegetation, hardscape, and bare compacted dirt. No species of concern were found to occur on any of

the parcels and there is no appropriate habitat present for any species found in the MSHCP or CNDDDB search. Ms. Lawrey determined that locally sensitive species do not have a tolerance for the type and intensity of disturbance present on the subject parcels. Ms. Lawrey did not find any evidence of recent or historical use by any of the locally sensitive species on any of the subject parcels. As such, no further focused surveys was/is warranted.

The proposed Project (APNs 135-220-035, 138-030-204, 138-030-026, 145-232-044, 191-302-011, 193-074-012, 231-020-006, 231-050-005, 231-210-002, 233-062-024, 233-100-001, 233-120-004, 233-120-005, 233-170-003, 233-180-009, 234-250-026, 239-170-007) will not preclude the conservation goals and criteria listed in the MSHCP because the site is completely developed and outside of the areas identified for conservation in the MSHCP.

Although, no native habitat exists on site, the MSHCP still requires compliance with the plan policies identified in Section 6 of the Plan. This project must comply with the following policies: (1) Riparian/Riverine Areas/Vernal Pools; (2) Narrow Endemic Plant Species; (3) Urban/Wildlands Interface; and (4) Surveys for Special Status Species.

Riparian/Riverine Areas and Vernal Pools: Pursuant to Section 6.1.2 of the MSHCP, Riparian/Riverine areas are lands which contain habitat dominated by trees, shrubs, persistent emergent vegetation, or emergent mosses and lichens, which occur close to or which depend upon soil moisture from nearby fresh water sources, or areas with freshwater flow during all or a portion of the year. Vernal Pools are seasonal wetlands that occur in depression areas that have wetlands indicators of all three parameters (soils, vegetation, and hydrology) during the wetter portion of the growing season. The project has been reviewed and assessed and it has been determined that the project site does not contain riverine riparian or vernal pool habitat as defined in the Riparian/Riverine Areas/Vernal Pools Plan Policy. Therefore, no impacts to riverine riparian or vernal pool habitat will result as part of this project. The project is consistent with the conservation goals of the plan.

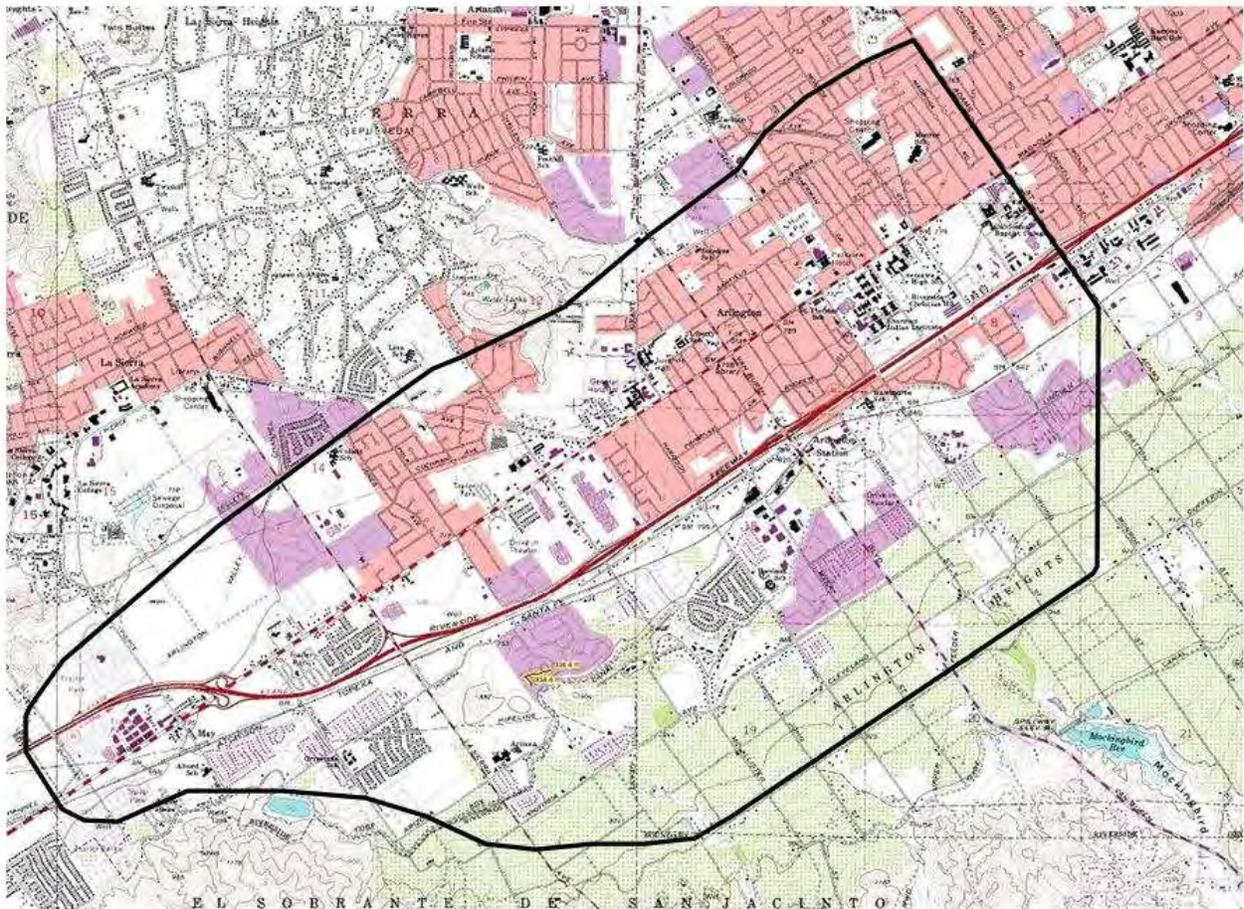
Narrow Endemic Plant Species: Pursuant to Section 6.1.3 of the MSHCP, focused surveys for narrow endemic plant species are required for properties within the mapped areas if appropriate habitat is present. The survey area maps have been reviewed and assessed and the site is mapped within an area identified for narrow endemic plant surveys as defined in the Narrow Endemic Plant Species Plan Policy. Based on the site survey, no suitable habitat exists on site that is capable of supporting narrow endemic plant species identified by the Plan. Furthermore, narrow endemic plant species are not adapted to endure the level of ongoing disturbances on the subject parcels. Since no narrow endemic plants are on site and have no potential of occurrence, no further surveys or conservation measures are required. The project is consistent with the conservation goals of the plan.

Urban/ Wildlands Interface: Pursuant to Section 6.1.4 of the MSHCP presents guidelines to minimize indirect effects of projects in proximity to the MSCHP Conservation areas. This section provides mitigation measures for impacts associated with: Drainage, Toxics, Lighting, Noise, Invasives, Barriers, and Grading/Land Development. The project site is southeast of an area defined as an Urban/Wildlands Interface. Best Management practices such as light shielding, drainage control, and water quality protection from toxics will need to be identified for this area should any impacts be proposed. This project does not propose direct or indirect impacts. The subject parcels associated with this project are developed and operational at this time. The project is consistent with the conservation goals of the plan.

Special Species Survey Areas: Pursuant to Section 6.3 of the MSHCP, none of the APNs associated with this project are identified for surveys for special status species. The project site does not exist in a MSHCP overlay that requires additional surveys for burrowing owl or other species. TDA biologist, Shay Lawrey, conducted a habitat assessment and found no suitable habitat onsite for any sensitive species. Further survey was not warranted.

There are no biological resources issues related to this project. The project is consistent with all of the policies outlined in the MSHCP.

Figure 1. Project Area and Study Location



APPENDIX B.2

GENERAL BIOLOGICAL SURVEY FOR ARLINGTON DESALTER PROJECT

Prepared by:

Lisa Tollstrup
Tom Dodson & Associates
2150 N. Arrowhead Avenue
San Bernardino, California 92405
(909) 882-3612
lisa@tdaenv.com

August 10, 2010
(WE-048 Bio 2010)

Report Summary: A protocol Habitat Assessment and 100% cover survey for burrowing owl was conducted. No sign of burrowing owl was encountered. Breeding season surveys are not recommended.

Certification: I hereby certify that the statements furnished herein and in the attached exhibits present data and information required for this Biological Survey to the best of my ability, and the facts, statements and information presented are true and correct to the best of my knowledge and belief.



LISA M. TOLLSTRUP

TABLE OF CONTENTS

INTRODUCTION AND SUMMARY OF FINDINGS	1
MSHCP	3
Riparian/Riverine/Vernal Pool.....	3
Narrow Endemic Plant Species	3
Urban/Wildlands Interface	4
Special Status Species	4
METHODOLOGIES AND SURVEY LIMITATIONS	10
General Biological Methodologies	10
Jurisdictional Delineation Methodology	10
Survey Limitations	11
RESULTS	12
Plant Communities.....	12
Magnolia Basin.....	12
Metrolink Basin.....	13
Monroe Basin	13
Victoria Basin	14
CNDDB Results of the USGS – Riverside West Quadrangle	14
Jurisdictional Determination of Waters of the United States and State Streambeds.....	16
CONCLUSIONS.....	17
REFERENCES	18
APPENDICES	
Appendix A – Species List	

TABLE OF CONTENTS (continued)

TABLES

Table 1	MSHCP Consistency Summary	3
Table 2	CNDDDB Occurrence	14

FIGURES

Figure 1	Regional Location Map	5
Figure 2A	Site Location Map Magnolia Basin.....	6
Figure 2B	Site Location Map Metrolink Basin.....	7
Figure 2C	Site Location Map Monroe Basin	8
Figure 2D	Site Location Map Victoria Basin	9

INTRODUCTION AND SUMMARY OF FINDINGS

In ongoing efforts to improve the quality of groundwater, increase the availability of potable water, and to better manage groundwater levels in the Arlington Basin, the Western Municipal Water District (WMWD), is proposing the construction of extraction wells and recharge basins within the Arlington Basin. Tom Dodson & Associates (TDA) has prepared this Biological Survey Report and Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP) Consistency Analysis to identify biological resources within the project area and to demonstrate compliance with the MSHCP for the project.

The proposed four basin sites are Magnolia, Metrolink, Victoria, and Monroe which are located in the City of Riverside, south of Arlington Avenue, west of Adams Street, north of the 91 Freeway, and east of Buchanan Avenue. The project area is mapped within Sections 5,6,7,8,9,16, 17,18,19,20 & 21 of Township 3 South, Range 5 West, and Sections 22, 23 and 24 of Township 3 South, Range 6 West on the USGS – Riverside West Quadrangle, 7.5 Minute Series topographic map. The Assessor's Parcel Numbers (APNs) associated with the recharge basins are 135-220-035, 138-030-024, 138-030-026, 145-232-044, 191-302-011, 193-074-012, 231-020-006, 231-050-005, 231-210-002, 233-062-024, 233-100-001, 233-120-004, 233-120-005, 233-170-003, 233-180-009, 234-250-026, 239-170-007. (Refer to Figure 1 for Regional Location Map and Figures 2a-2e for Site Location Maps).

The project study area is within the Western Riverside County Multiple Species Habitat Conservation Plan (WRCMSHCP) Jurupa and Riverside/Norco Plan Areas. However, the entire project area is not located within a Plan Subunit, adjacent to any Criteria Cells, Core Areas, or Linkages. Pursuant to Section 6.3 of the MSHCP, none of the APN's associated with this Project are identified for conservation or surveys for special status species.

The California Natural Diversity Data Base (CNDDDB) and literature references including the Western Riverside County MSHCP were examined to obtain information on species occurrences in the project vicinity. According to the CNDDDB 28 sensitive species have been recorded within the USGS – Riverside West Quadrangle. The suitability of the habitat onsite for the species listed in the CNDDDB and MSHCP was evaluated by conducting pedestrian surveys in the field on June 12, 13 and 15, 2009 by TDA biologist, Shay Lawrey, and on May 13, June 14 and July 7, 2010 by TDA biologist Lisa Tollstrup. The focus of the field survey was to document the presence or absence of special status species identified in the MSHCP and CNDDDB.

The four proposed recharge basin sites, Magnolia, Metrolink, Victoria, and Monroe, are all mowed fallow fields surrounded by development. There are no sensitive biological resources associated with these proposed basins. There is no natural habitat on any of the parcels, and it is exceedingly unlikely that any sensitive species occur within these proposed basin areas as they are surrounded by man-made urban, ??, or agricultural development. Only maintained landscape or hardy weed species are found on site. The ground cover on the parcels includes one or a combination of ornamental landscaping, non-native ruderal vegetation, hardscape, and bare compacted dirt. No species of concern were found to occur on any of the parcels and there is no appropriate habitat present for any species found in the MSHCP or CNDDDB search. Ms. Tollstrup determined that locally sensitive species do not have a tolerance for the type and intensity of disturbance present on the subject parcels. There is no evidence of recent or

historical use by any of the locally sensitive species on any of the subject parcels. As such, no further focused surveys are warranted.

A preliminary jurisdictional delineation was prepared using the Rapanos Guideline in order to determine what areas on the sites will likely be subject to jurisdiction under Sections 404 and 401 of the Clean Water Act. The U.S. Army Corps of Engineers has authority in conjunction with EPA to determine jurisdiction. Additionally, a Section 1600 of the Fish and Game Code jurisdictional determination was made. The result of this preliminary determination there are no features within the proposed basins that would be subject to the Clean water Act, California Department of Fish and Game, or would be subject to the MSHCP policies under Section 6.1.2 for Riverine/Riparian/Vernal Pools habitat.

A habitat assessment for burrowing owl was conducted on the sites. Since suitable burrowing owl habitat occurred along the proposed sites, a 100% cover survey was conducted. The sites occur in an area that is rapidly developing. The adjacent parcels were viewed from the subject parcel using Bushnell 10X40 binoculars. The result of this protocol survey is that no burrowing owl or evidence thereof was encountered within the project area of potential effect. No owl burrows were encountered on the site. The finding of this survey is that burrowing owls are not present on these sites. Further, there is no evidence to suggest historical use of the property by burrowing owls.

While no bird nests were encountered during the surveys, the State of California prohibits the take of active bird nests. Thus, any grubbing or brushing to occur on the property should be conducted outside of the State identified breeding season of February 15 through September 1. Alternatively, the site would need to be evaluated by a qualified biologist to determine if birds were nesting in the shrubs or trees to be removed prior to initiation of ground disturbance.

MSHCP

Riverside County adopted the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP) on June 17, 2003. The MSHCP permit was issued in June 2004. The site is not mapped within a criteria cell, and therefore not targeted for conservation. However, the plan requires that a project comply with the plan policies identified in Section 6 of the MSHCP. This project must comply with the following policy: Riparian/Riverine Areas/ Vernal Pools

Table 1. MSHCP Consistency Summary

This is a summary of the MSHCP Conservation Goals and Policies as they relate to this parcel.

City of Riverside and Norco Conservation Goals	Within / Adjacent	Not Within / Adjacent
Proposed Constrained Linkages: 9,10,11,12,13,14, 15,16, 17, 18		X
Proposed Core Areas: 2, 7,		X
Linkages: 8, 9, 10, 13, 14, 17, 18		X
Constrained Linkage: E		X
Habitat Block: Proposed Noncontiguous Block 1,2, 3		X
Core: 5,6,7, and J		X
Criteria Cell		X
Pre-existing conservation Area		X
Riparian/Riverine or Vernal Pool Habitat		X
Narrow Endemic Plant Survey Area		X
Urban/Wildlife Interface (adjacent to Riparian/Riverine Areas)		X
Mammal Survey Area		X
Amphibian Survey Area		X
Burrowing Owl Survey Area		X

Riparian/Riverine Areas/Vernal Pools: Pursuant to Section 6.1.2 of the MSHCP, Riparian/Riverine areas are lands which contain habitat dominated by trees, shrubs, persistent emergent vegetation, or emergent mosses and lichens, which occur close to or which depend upon soil moisture from nearby fresh water sources, or areas with freshwater flow during all or a portion of the year. Vernal Pools are seasonal wetlands that occur in depression areas that have wetlands indicators of all three parameters (soils, vegetation, and hydrology) during the wetter portion of the growing season. The project has been reviewed and assessed and it has been determined that the project site does not contain riverine riparian or vernal pool habitat as defined in the Riparian/Riverine Areas/Vernal Pools Plan Policy. Therefore, no impacts to riverine riparian or vernal pool habitat will result as part of this project. The project is consistent with the conservation goals of the plan. Further, a Determination of Biological Equivalent or Superior Preservation (DBESP) will not be required because no impacts are proposed to Riparian/Riverine habitat.

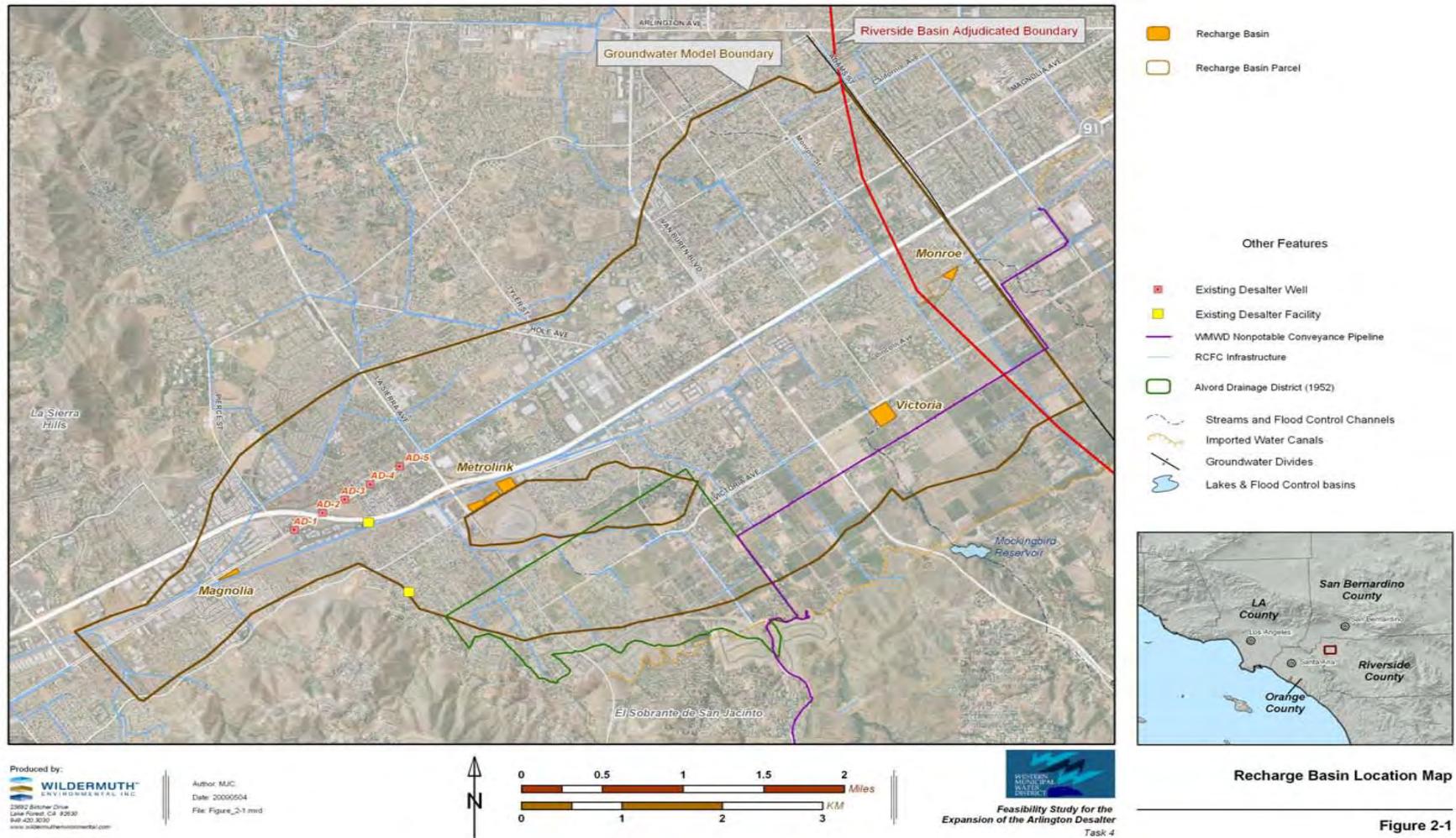
Narrow Endemic Plant Species: Pursuant to Section 6.1.3 of the MSHCP, focused surveys for narrow endemic plant species are required for properties within the mapped areas if appropriate habitat is present. The survey area maps have been reviewed and assessed and the site is not mapped within an area identified for narrow endemic plant surveys as defined in the Narrow Endemic Plant Species Plan Policy. Since no narrow endemic plants are on site and have no potential of occurrence, no further surveys or conservation measures are required. The project is consistent with the conservation goals of the plan.

Urban/Wildlands Interface: Pursuant to Section 6.1.4 of the MSHCP presents guidelines to minimize indirect effects of projects in proximity to the MSCHP Conservation areas. This section provides mitigation measures for impacts associated with: Drainage, Toxics, Lighting, Noise, Invasives, Barriers, and Grading/Land Development. The project site is southeast of an area defined as an Urban/Wildlands Interface. Best Management practices such as light shielding, drainage control, and water quality protection from toxics will need to be identified for this area should any impacts be proposed. Urban/Wildland interface best management practices will not be required because there no areas identified for conservation in the vicinity of the project areas. The project is consistent with the conservation goals of the plan.

Special Species Survey Areas: Pursuant to Section 6.3 of the MSHCP, none of the APNs associated with this project are identified for surveys for special status species. The project site does not exist in a MSHCP overlay that requires additional surveys for burrowing owl or other species. TDA biologist, Shay Lawrey, conducted a habitat assessment and found no suitable habitat onsite for any sensitive species. Further survey was not warranted. Surveys for Special Status Species; No special status species are identified within the project area.

There are no biological resources issues related to this project. The project is consistent with all of the policies outlined in the MSHCP.

FIGURE 1: REGIONAL LOCATION MAP



Recharge Basin Location Map

Figure 2-1

FIGURE 2A: SITE LOCATION MAP MAGNOLIA BASIN

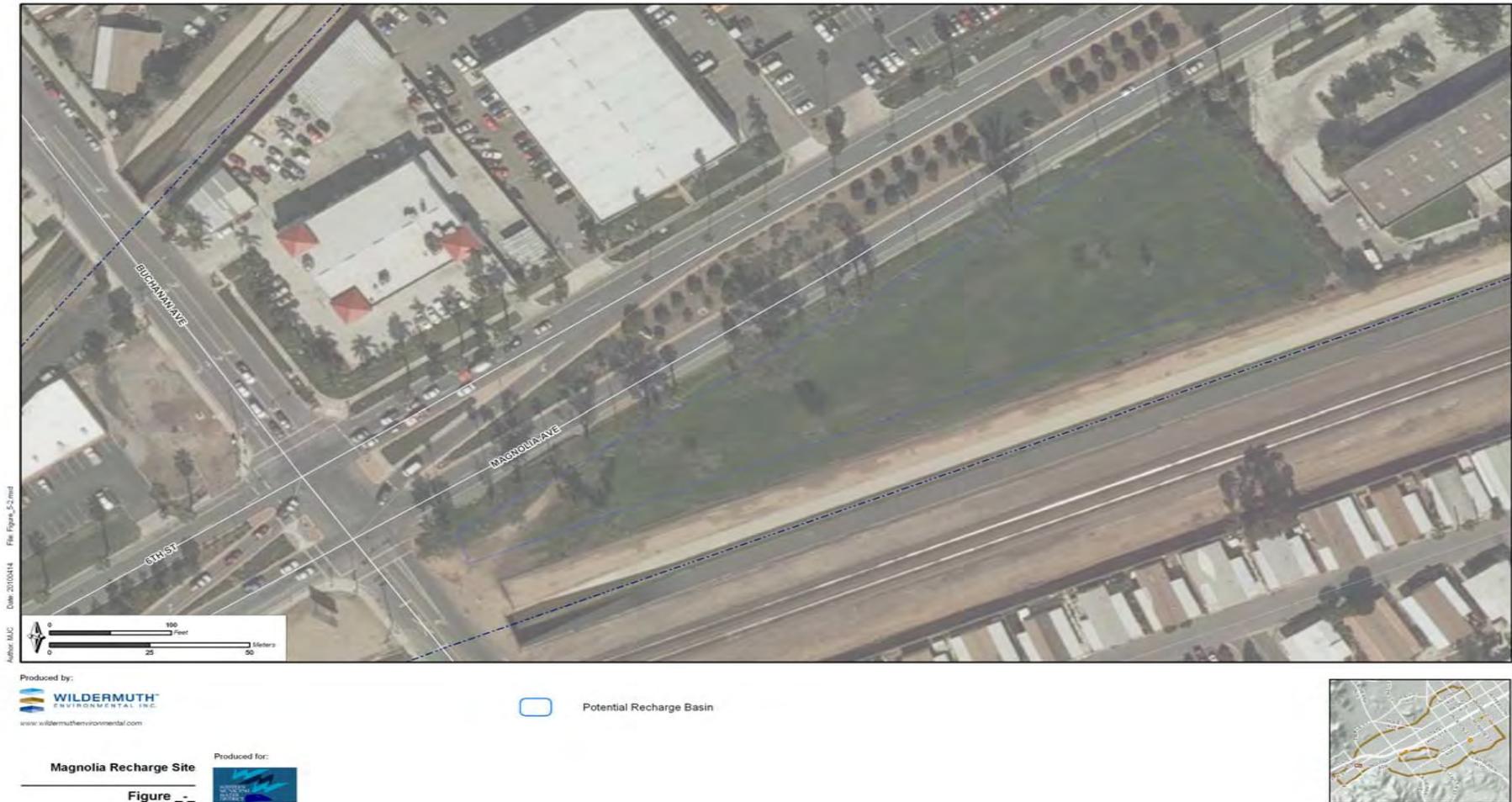


FIGURE 2B: SITE LOCATION MAP METROLINK BASIN

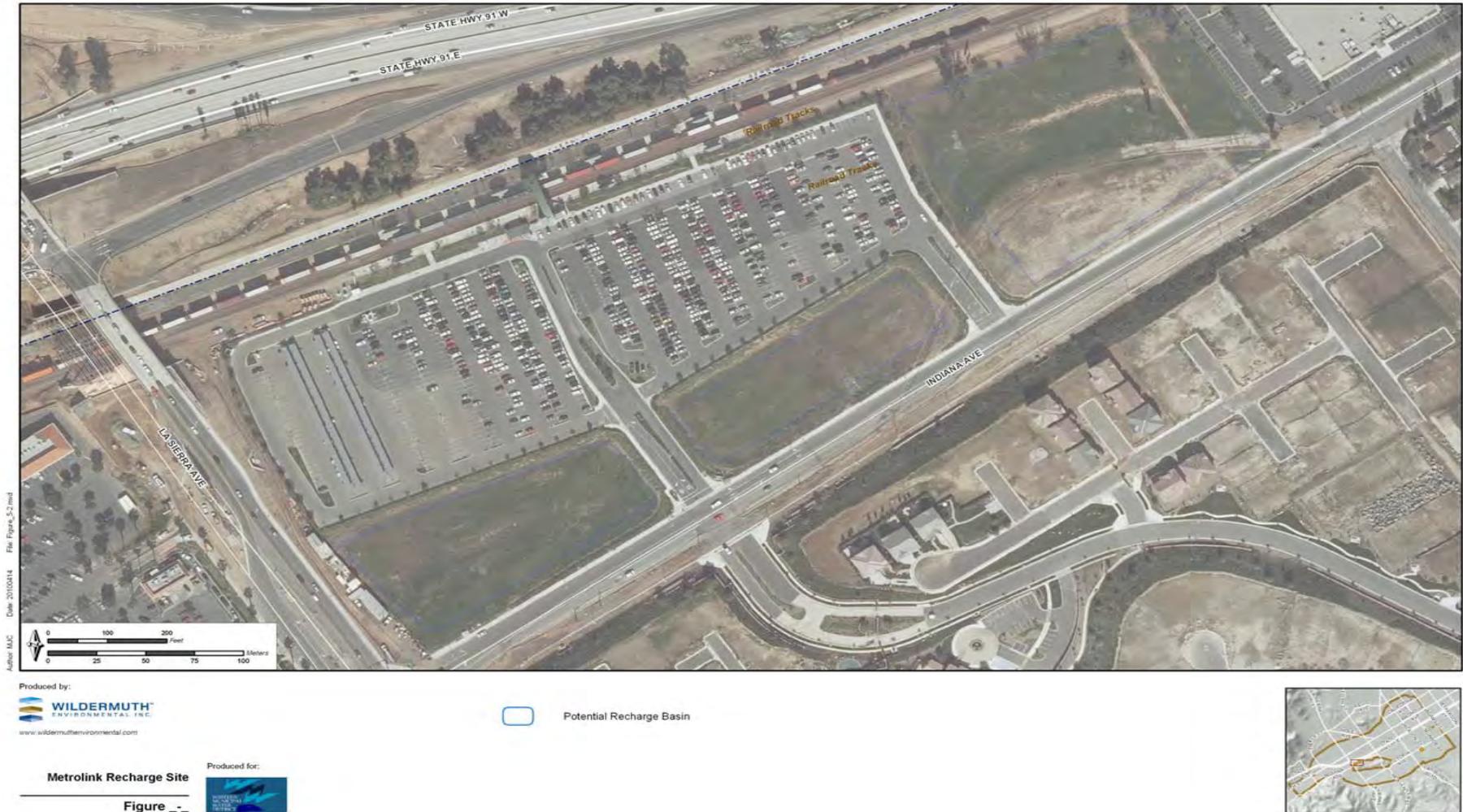


FIGURE 2C: SITE LOCATION MAP MONROE BASIN

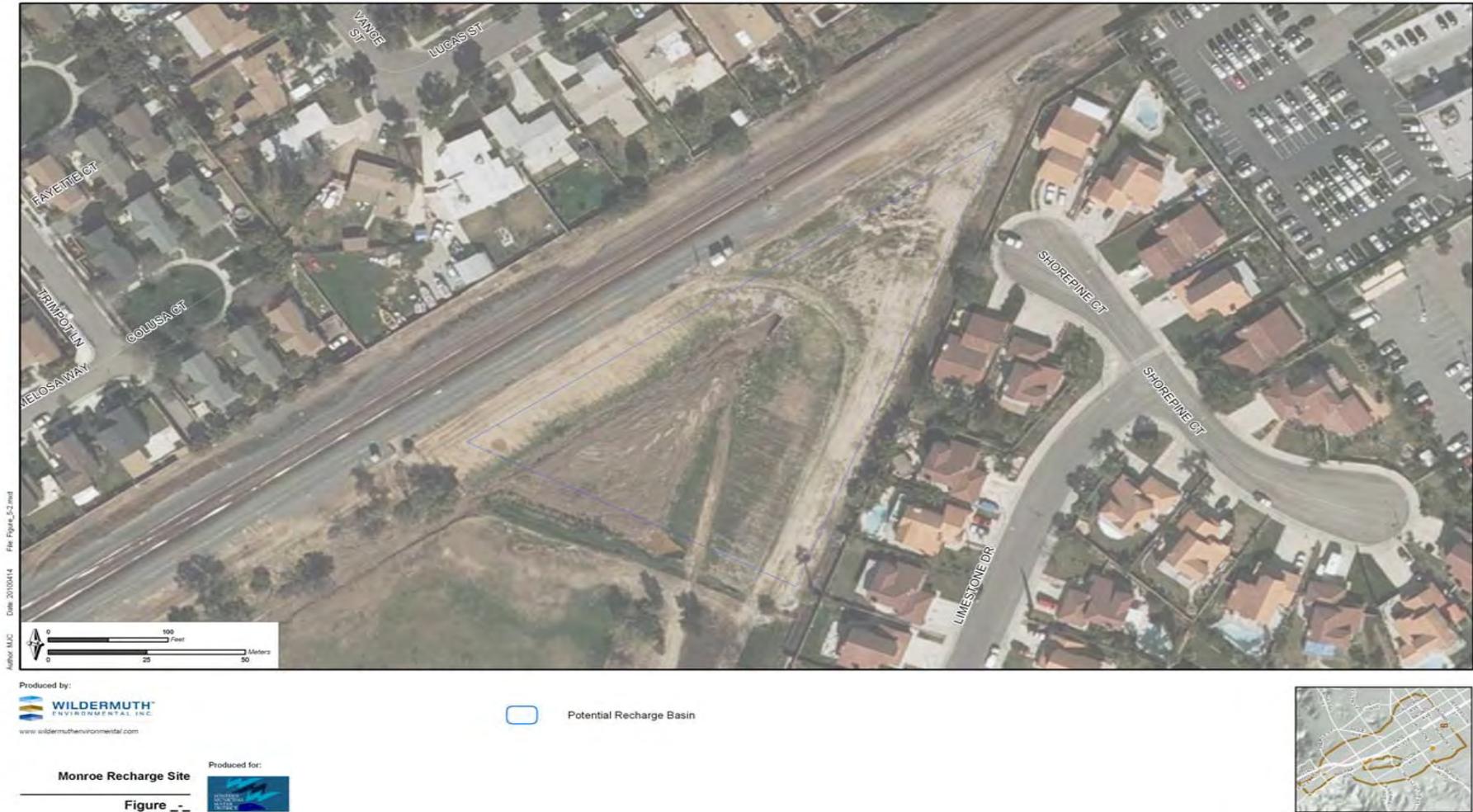
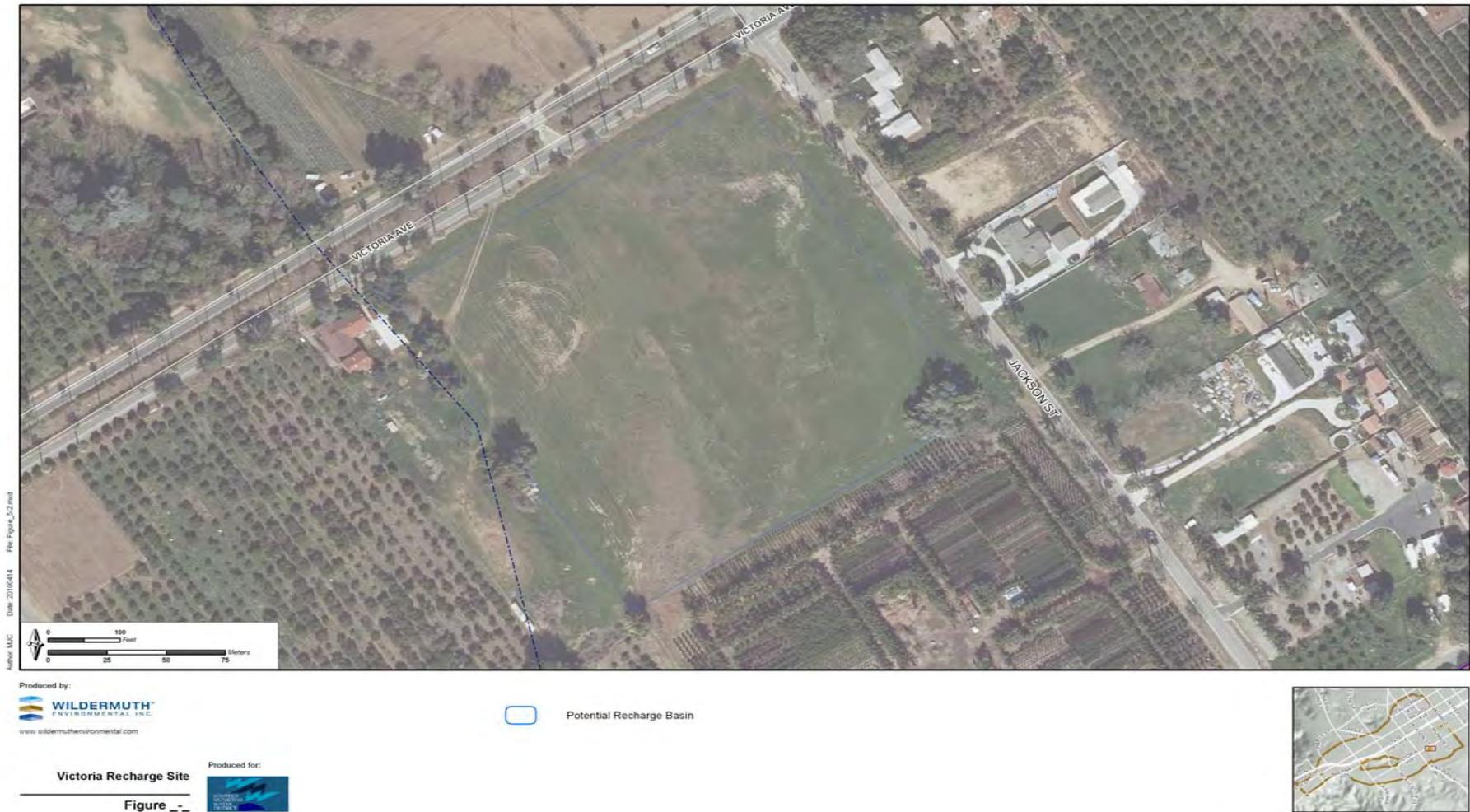


FIGURE 2D: SITE LOCATION MAP VICTORIA



METHODOLOGIES AND SURVEY LIMITATIONS

General Biological Methodology

The California Natural Diversity Data Base (CNDDDB) and literature references including the Western Riverside County MSHCP were examined to obtain information on species occurrences in the project vicinity. According to the CNDDDB 28 sensitive species have been recorded within the USGS – Riverside West Quadrangle. The suitability of the habitat onsite for the species listed in the CNDDDB and MSHCP was evaluated by conducting pedestrian surveys in the field on June 12, 13 and 15, 2009 by TDA biologist, Shay Lawrey, and on May 13, June 14 and July 7, 2010 by TDA biologist Lisa Tollstrup. The focus of the field survey was to document the presence or absence of special status species identified in the MSHCP and CNDDDB. Photos were taken to characterize habitat conditions. Disturbance characteristics, plant, and animal species were recorded.

General vegetation communities were identified in the field on a map of the site. These data were then transferred to the document figures.

Jurisdictional Delineation Methodology

California Department of Fish and Game Section 1602

The California Department of Fish and Game takes jurisdiction over water flow areas, i.e., streams. These water flow areas are identified in the code as:

“...natural flow or bed, channel or bank of any river stream or lake designated by the department in which there is at any time an existing fish or wildlife resource or from which these resources derive benefit or will use material from the streambeds...”

There are no areas within the proposed basins that exhibit indicators of an “Ordinary High Water Mark”. Therefore, no Streambeds were delineated.

U.S. Army Corps of Engineers “Waters of the United States”, excluding wetlands

The limits of “waters of the United States”, excluding wetland, are defined in 33 CFR 328.3(a) as those areas within the “ordinary high water mark” (OHWM). The OHWM is defined as:

“...that line on the shore established by the fluctuations of the 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.”

There are no areas within the proposed basins that exhibit indicators of an “Ordinary High Water Mark”. Therefore, no Waters of the US were delineated.

U.S. Army Corps of Engineers “Wetlands”

The conclusions of the Jurisdictional Delineation conducted in 2000 are based upon The U.S. Army Corps of Engineers' Wetland Delineation Manual, January 1987, Technical Report Y-87-1 (Manual). This Manual outlines a comprehensive approach based upon the presence of the following three parameters: wetland hydrology, hydrophytic vegetation, and hydric soils.

Wetland hydrology is present if the "sum total of wetness characteristics in areas that are inundated or have saturated soils for a sufficient duration to support hydrophytic vegetation" (Manual). Hydrophytic vegetation is "the sum total of macrophytic plant life growing in water or on a substrate that is at least periodically deficient in oxygen as a result of excessive water content" (Manual). A positive hydrophytic vegetation indicator is present if the prevalence, characterized by the dominant species of a plant community or communities, of the vegetation is classified as hydrophytic vegetation. Dominant plant species are those that contribute more to the character of a plant community than other species present, as estimated or measured in terms of some ecological parameter (i.e., %cover, %density, etc.). Hydric soil is "soil that is saturated, flooded or ponded long enough during the growing season to develop anaerobic conditions that favor the growth and regeneration of hydrophytic vegetation."

Using this Manual, a wetland determination is made when, under "normal circumstances," an area has all three parameters present. An area is not functioning under normal circumstances if a positive indicator for one of the three parameters could not be found due to effects of recent human activities. If a particular site has been recently disturbed by natural or human activities, it may not meet the criteria of "normal circumstances". If this occurs, it would be classified as an "Atypical Situation" meaning one or more parameters are not reliable indicators.

To complete this Jurisdictional Wetland Delineation, all three parameters were investigated: soils, hydrology, and vegetation. The Manual describes inundation greater than one month to be a "very long duration", therefore areas that were ponded or were saturated at the surface or within the root zone (usually 1-12 inches). The hydrophytic vegetation is characterized by plant species that have "demonstrated an ability to achieve maturity and reproduce in an environment where all or portions of the soil within the root zone become, periodically or continuously, saturated or inundated during the growing season." (Reed) The National List of Plant Species That Occur in Wetlands was used to determine the indicator status of the dominant species of a community. There are not areas within the proposed basins with indicators of wetlands plant species, soils, or hydrology. Therefore no wetlands were delineated within the project area.

Survey Limitations

The site was surveyed thoroughly for botanical and faunal species. Surveys were conducted between 0800 and 1600 during the spring season. Surveys during this season give reliable botanical and faunal accounts.

RESULTS

The subject parcels are best classified as Holland community type Urban or Built-up Land (11100). With no undisturbed areas on the properties, the parcels appear to have been subjected to long term disturbance. The properties consist of a combination of bare packed dirt, landscaping, maintained grass fields, structures and paving.

There is no natural habitat on any of the parcels and no chance of anything sensitive occurring. Only maintained landscape or hardy weed species are found on site. The ground cover on the parcels includes one or a combination of ornamental landscaping, non-native ruderal vegetation, hardscape, and bare compacted dirt. No species of concern were found to occur on any of the parcels and there is no appropriate habitat present for any species found in the MSHCP or CNDDB search. TDA biologist determined that locally sensitive species do not have a tolerance for the type and intensity of disturbance present on the subject parcels, nor did they find any evidence of recent or historical use by any of the locally sensitive species on any of the subject parcels. As such, no further focused surveys was/is warranted.

Plant Communities

There were three plant communities distinguishable on the site. In order of abundance these were bare, paved ground, or disced ground; ruderal weedy species, remnant tree areas, non-native landscaped areas. Below is a characterization of the biological resources observed at each basin.

Magnolia Basin:

Bare Ground / Paved Ground / Disced Ground

These areas are characterized by paved road, or graded roads, diced fields, or graded slope areas. They do not support native biological resources.

Ruderal Weedy Species

Remnant weedy areas occur in areas where the discing was missed. These areas are characterized by non-native weedy herbaceous species including brome grasses (*Bromus sp.*), foxtails (*Hordium sp.*), and mustard (*Brassica sp.*)

Remnant Tree Species

Some of the proposed basins areas have Eucalyptus trees, Pepper Trees, or Palm trees. None of these species are native; however, they may support nesting bird species including raptors. These trees should not be removed during the nesting season (February 15 – September 1) unless an 8-week CDFG protocol nesting bird survey is conducted and results indicate there are no nesting birds.

Faunal Species

Wildlife on the site are species commonly found in disturbed habitat. Birds species common to disturbed habitats identified onsite include house finch (*Carpodacus mexicanus*), common raven (*Corvus corax*), and northern mockingbird (*Mimus polyglottos*). Common mammal species found onsite include California ground squirrel (*Spermophilus beechyi*), cotton-tail rabbit (*Sylvilagus audubonii*), and dogs (*Canis lupus familiaris*).

Metrolink Basin:

Bare Ground / Paved Ground / Disced Ground

These areas are characterized by paved road, or graded roads, diced fields, or graded slope areas. They do not support native biological resources.

Ruderal Weedy Species

Remnant weedy areas occur in areas where the discing was missed. These areas are characterized by non-native weedy herbaceous species including brome grasses (*Bromus sp.*), foxtails (*Hordium sp.*), and mustard (*Brassica sp.*)

Remnant Tree Species

Some of the proposed basins areas have Eucalyptus trees, Pepper Trees, or Palm trees. None of these species are native; however, they may support nesting bird species including raptors. These trees should not be removed during the nesting season (February 15 – September 1) unless an 8-week CDFG protocol nesting bird survey is conducted and results indicate there are no nesting birds.

Faunal Species

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Monroe Basin:

Bare Ground / Paved Ground/ Disced Ground

These areas are characterized by paved road, or graded roads, diced fields, or graded slope areas. They do not support native biological resources.

Ruderal Weedy Species

Remnant weedy areas occur in areas where the discing was missed. These areas are characterized by non-native weedy herbaceous species including brome grasses (*Bromus sp.*), foxtails (*Hordium sp.*), and mustard (*Brassica sp.*)

Remnant Tree Species

Some of the proposed basins areas have Eucalyptus trees, Pepper Trees, or Palm trees. None of these species are native; however, they may support nesting bird species including raptors. These trees should not be removed during the nesting season (February 15 – September 1) unless an 8-week CDFG protocol nesting bird survey is conducted and results indicate there are no nesting birds.

Faunal Species

Wildlife on the site are species commonly found in disturbed habitat. Birds species common to disturbed habitats identified onsite include house finch (*Carpodacus mexicanus*), common raven (*Corvus corax*), and northern mockingbird (*Mimus polyglottos*). Common mammal species found onsite include California ground squirrel (*Spermophilus beechyi*), cotton-tail rabbit (*Sylvilagus audubonii*), and dogs (*Canis lupus familiaris*).

Victoria Basin:

Bare Ground / Paved Ground / Disced Ground

These areas are characterized by paved road, or graded roads, diced fields, or graded slope areas. They do not support native biological resources.

Ruderal Weedy Species

Remnant weedy areas occur in areas where the discing was missed. These areas are characterized by non-native weedy herbaceous species including brome grasses (*Bromus sp.*), foxtails (*Hordium sp.*), and mustard (*Brassica sp.*).

Remnant Tree Species

Some of the proposed basins areas have Eucalyptus trees, Pepper Trees, or Palm trees. None of these species are native; however, they may support nesting bird species including raptors. These trees should not be removed during the nesting season (February 15 – September 1) unless an 8-week CDFG protocol nesting bird survey is conducted and results indicate there are no nesting birds.

Faunal Species

Wildlife on the site are species commonly found in disturbed habitat. Birds species common to disturbed habitats identified onsite include house finch (*Carpodacus mexicanus*), common raven (*Corvus corax*), and northern mockingbird (*Mimus polyglottos*). Common mammal species found onsite include California ground squirrel (*Spermophilus beechyi*), cotton-tail rabbit (*Sylvilagus audubonii*), and dogs (*Canis lupus familiaris*).

CNDDDB Results of the USGS – Riverside West Quadrangle, 7.5 Minute Series

The table below represents the results and the findings of the California Natural Diversity Database search for the USGS – Riverside West Quadrangle, 7.5 Minute Series topographic.

Table 2. CNDDDB Occurrence Overlay for USGS – Riverside West Quadrangles Topographic

Scientific Name	Common Name	Status Federal/ State	Typical Habitat	Occurrence Potential
<i>Arenaria paludicola</i>	Marsh sandwort	endangered/ endangered	Grows through dense mats of typha, juncus, scirpus, etc. in freshwater marshes and swamps between 10 and 170m. Historically occurred In California and Washington, but is now known from one site in San Luis Obispo & Mexico.	No suitable habitat occurs on the site. There is no potential for this species to occur on the site.
<i>Athene cunicularia</i>	burrowing owl	none/ species of concern	Nests in open fields and along berms where ground squirrel burrows occur.	No suitable burrows were found on the site. Unlikely on the site due to severe disturbance.

Scientific Name	Common Name	Status Federal/ State	Typical Habitat	Occurrence Potential
<i>Catostomus santaanae</i>	Santa Ana sucker	threatened/ species of concern	This species is a habitat generalist that prefers sand-rubble-boulder bottoms, cool, clear water, & algae. It is endemic to Los Angeles basin south coastal streams.	No suitable habitat occurs on the site. There is no potential for this species to occur on the site.
<i>Cordylanthus maritimus</i> ssp. <i>maritimus</i>	salt marsh bird's beak	endangered/ endangered	Grown in coastal salt marshes and coastal dunes.	Historic collection location is atypical and probably represents individuals intermediate with ssp. <i>canescens</i> (CNDDDB 2001). No suitable habitat occurs on the site. There is no potential for this species to occur on the site.
<i>Dodecahema leptoceras</i>	slender-horned spineflower	endangered/ endangered	Grows in flood deposited terraces and washes of chaparral and alluvial fan sage scrub.	No suitable habitat occurs on the site. There is no potential for this species to occur on the site.
<i>Eriastrum densifolium</i> ssp. <i>sanctorum</i>	Santa Ana River woolly-star	endangered/ endangered	Grows on sandy soils on riparian floodplains and terraced fluvial deposits.	No suitable habitat occurs on the site. There is no potential for this species to occur on the site.
<i>Gila orcutti</i>	Arroyo chub	none/ species of concern	Inhabits slow-moving streams with mud or sand bottoms. Feed on aquatic vegetation and associated invertebrates.	No suitable habitat occurs on the site. There is no potential for this species to occur on the site.
<i>Lycium parishii</i>	Parish's desert-thorn	none/ S2S3	Found in coastal scrub and Sonoran desert scrub.	Historic collections of this species came from the foothills and benches of San Bernardino in 1885. The species is believed extirpated from the area. There is no suitable habitat on this site, therefore, there is no potential for this species to occur on site.
<i>Monardella pringlei</i>	Pringle's Monardella	none/ SX	Historically known only from sandy hills between 300 and 400 meters in coastal scrub habitat in Riverside and San Bernardino Counties. Believed to have been associated with Delhi Sands formations.	This species is presumed extinct. No sand formation occur on the project alignment. Therefore, there is no potential
<i>Navarretia prostrata</i>	prostrate navarretia	none/ S2.1	Grows on alkaline soils in grassland or vernal pools between 15 and 700 meters.	No suitable habitat occurs on the site. There is no potential for this species to occur on the site.
<i>Phrynosoma coronatum blainvillei</i>	San Diego horned lizard	none/ species of concern	Inhabits friable, rocky, or shallow sandy soils in coastal sage scrub and chaparral. Requires open areas for sunning and is most frequent in sparsely vegetated washes.	The site is heavily disturbed, and no suitable habitat for this species occurs on the project site. Therefore, it is unlikely that this species occurs on the site.
<i>Polioptila californica californica</i>	coastal California gnatcatcher	threatened/ species of concern	washes, mesas and slopes in coastal sage scrub	No suitable habitat occurs on the site. There is no potential for this species to occur on the site.

Scientific Name	Common Name	Status Federal/ State	Typical Habitat	Occurrence Potential
<i>Rhaphiomidas terminatus abdominalis</i>	Delhi Sands flower-loving fly	endangered/ none	This species only occurs in areas of the Delhi Sands formation in southwestern San Bernardino & northwestern Riverside Counties. It requires fine, sandy soils on wholly or partly consolidated dunes and sparse vegetation.	According to the Ontario Recovery Unit of the USFWS Final Recovery Plan for the Delhi Sands Flower-loving Fly, no Delhi Sands formation occurs east of Etiwanda Avenue north of Interstate 10. No suitable habitat occurs on the site. There is no potential for this species to occur on the site.
Riversidian alluvial fan sage scrub		none/ S1.1		Disturbed remnants of this habitat is found on the site.

Jurisdictional Determination for Waters of the United State, State Streambeds, or Riverine/Riparian/Vernal Pool

There are not areas within the proposed basins with indicators of wetlands plant species, soils, or hydrology. Therefore, no wetlands were delineated within the project area.

The result of this preliminary determination is that there are no features within the proposed basins that would be subject to Section 404 of the Clean Water Act, Section 1600 of the California Department of Fish and Game Code, or would be subject to the MSHCP policies under Section 6.1.2 for Riverine/Riparian/Vernal Pools.

CONCLUSION

The four basin sites, Magnolia, Metrolink, Victoria, and Monroe, are all mowed fallow fields surrounded by development. There are no sensitive biological resources associated with these proposed basins. There is no natural habitat on any of the parcels, and it is exceedingly unlikely that any sensitive species occur within these proposed basin areas. Only maintained landscape or hardy weed species are found on the sites. The ground cover on the parcels includes one or a combination of ornamental landscaping, non-native ruderal vegetation, hardscape, and bare compacted dirt. No species of concern were found to occur on any of the parcels and there is no appropriate habitat present for any species found in the MSHCP or CNDDB search. Ms. Tollstrup determined that locally sensitive species do not have a tolerance for the type and intensity of disturbance present on the subject parcels. There is no evidence of recent or historical use by any of the locally sensitive species on any of the subject parcels. As such, no further focused surveys are warranted.

A preliminary jurisdictional delineation was prepared using the Rapanos Guideline in order to determine what areas on the sites will likely be subject to jurisdiction under Sections 404 and 401 of the Clean Water Act. The U.S. Army Corps of Engineers has authority in conjunction with EPA to determine jurisdiction. Additionally, a Section 1600 of the Fish and Game Code jurisdictional determination was made. The result of this preliminary determination there are no features within the proposed basins that would be subject to the Clean Water Act, California Department of Fish and Game, or would be subject to the MSHCP policies under Section 6.1.2 for Riverine/Riparian/Vernal Pools habitat.

The result of the protocol survey for burrowing owl is that no burrowing owl or evidence thereof was encountered within the project areas of potential effect. No owl burrows were encountered on the sites. Therefore no further surveys are recommended.

Riverside County adopted the Western Riverside County Multi-Species Habitat Conservation Plan (MSHCP) on June 17, 2003. The MSHCP permit was issued in June 2004. The sites are not mapped within a criteria cell, and therefore not targeted for conservation. There are no areas within the proposed basins that would be considered riparian/riverine or vernal pool as described in Section 6.1.2 of the plan. Therefore no DEBESP will be required. Therefore, the proposed project is consistent with all the provision of the Plan.

While no bird nests were encountered during the surveys, the State of California prohibits the take of active bird nests. Thus, any grubbing or brushing to occur on the property should be conducted outside of the State identified breeding season of February 15 through September 1. Alternatively, the site would need to be evaluated by a qualified biologist to determine if birds were nesting in the shrubs or trees to be removed prior to initiation of ground disturbance.

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APPENDIX A
SPECIES LIST

APPENDIX A SPECIES LIST

ANIMAL SPECIES LIST

Mammalia

Leporidae
Sylvalegus audubonii

Sciuridae
Otospermophilus beecheyi

Mammals

Rabbits, Hares
Cotton-tail rabbit

Squirrels
Beechey ground squirrel

Aves

Accipitridae
Buteo jamaicensis

Alandidae
Eremophila alpestris

Columbidae
Columba fasciata
Zenaida macroura

Corvidae
Corvus brachyrhynchos

Emberizidae
Melospiza melodia

Fringillidae
Carpodacus mexicanus

Birds

Hawks, Falcons, Eagles
Red-tail Hawk

Larks
Horned lark

Pigeon
Mourning Dove

Crow

Sparrow, Warblers, Tanangers
Song sparrow

House Finch

PLANT SPECIES LIST

Angiosperms

Asteraceae

Artemisia californica
Baccharis salicifolia
Centaurea melitensis
Heterotheca grandiflora

Boraginaceae

Amsinckia intermedia

Brassicaceae

Brassica geniculata

Caprifoliaceae

Sambucus Mexicana

Chenopodiaceae

Salsola iberica

Fabaceae

Lotus scoparius

Geraneaceae

Erodium cicutarium

Myrtaceae

Eucalyptus sp

Polygonaceae

Eriogonum fasciculatum

Solanaceae

Nicotiana glauca

Monocots

Poaceae

Avena barbata
Bromus diandris
Bromus rubins
Hordium vulgare

Flowering Plants

Composites

California Sage
Mulefat
Star thistle
Telegraph weed

Borage Family

Fiddleneck

Mustard Family

Short-pod Mustard

Honeysuckle Family

Elderberry

Pig Weed Family

Russian Thistle

Pea Family

Deerweed

Geranium Family

Filaree

Eucalyptus Family

Eucalyptus tree

Buckwheat Family

California Buckwheat

Night Shade Family

Tobacco Tree

Grass Family

Oats
Ripgut
Red Brome Grass
Barley

APPENDIX B.3

TOM DODSON & ASSOCIATES
2150 N. ARROWHEAD AVENUE
SAN BERNARDINO, CA 92405
TEL (909) 882-3612 • FAX (909) 882-7015
E-MAIL lisa@tdaenv.com



MEMORANDUM

TO: Wildermuth Environmental, Inc.

FROM: Lisa Kegarice
Ecologist, Tom Dodson & Associates

DATE: August 4, 2010

SUBJECT: Hole Lake Resources

Hole Lake is characterized by riparian vegetation with some areas of wetland understory. Characteristics in the field reveal it to be a remnant channel with impoundments, rather than a lake. The Hole Lake area has 11.43 acres of riparian habitat. Most of this habitat appears to be old with little recruitment observed. Portions of the area burned in 2009, and re-sprouting of trees as well as seedling development is minimal. The Western Municipal Water District (WMWD) is proposing an expansion of the Arlington Desalter System. Part of this expansion will result in the extraction of groundwater at a fracture site located above Hole Lake, Riverside County, CA. This memorandum provides Wildermuth Environmental, Inc. (WEI) with data to complete their water needs analysis for Hole Lake.

The dominant riparian tree species is Willow (*Salix goodingii*), other tree species include Sycamore (*Platanus racemosa*) and tree of heaven (*Ailanthus altissima*). The second and third most dominant riparian plant species are the invasive *Arundo donax* and the native riparian species Mulefat (*baccharis salisifolia*). Understory has areas of open ponding and emergent vegetation, including cattails (*Typha latifolia*), *polypogon sp*, and wild grape (*vitis sp*).

WMWD is proposing the construction of extraction wells and recharge basins within the Arlington Basin. These activities are being analyzed to determine if they may have an adverse affect the outflow of water from the Arlington Basin through Hole Lake in to the Santa Ana River. The above habitat information will be used by WEI to determine if the water needs of the riparian resources in Hole Lake will be effected by the proposed extraction of groundwater in the Arlington Groundwater Basin.

Figure 2 – Hole Lake Area



Site Photographs

Photograph #1



Photograph #2



Photograph # 3



Photograph #4



APPENDIX C

**IDENTIFICATION AND EVALUATION OF HISTORIC PROPERTIES
ARLINGTON DESALTER SYSTEM EXPANSION PROJECT**

**City of Riverside
Riverside County, California**

For Submittal to:

Western Municipal Water District
450 Alessandro Boulevard
Riverside, CA 92508

and

State Water Resources Control Board
1001 I Street/P.O. Box 944212
Sacramento, CA 94244

Prepared for:

Bill Gatlin, Vice President
Tom Dodson and Associates
2150 North Arrowhead Avenue
San Bernardino, CA 92405

Prepared by:

CRM TECH
1016 E. Cooley Drive, Suite A/B
Colton, CA 92324

Bai "Tom" Tang, Principal Investigator
Michael Hogan, Principal Investigator

August 18, 2009
CRM TECH Contract No. 2346

NATIONAL ARCHAEOLOGICAL DATABASE INFORMATION

Author(s): Bai "Tom" Tang, Principal Investigator
Terri Jacquemain, Report Writer/Historian
Harry M. Quinn, Archaeologist/Geologist
Daniel Ballester, Archaeologist
Laura H. Shaker, Native American Liaison

Consulting Firm: CRM TECH
1016 E. Cooley Drive, Suite A/B
Colton, CA 92324
(909) 824-6400

Date: August 18, 2009

Title: Identification and Evaluation of Historic Properties: Arlington
Desalter Expansion Project, City of Riverside, Riverside County,
California

For Submittal to: Western Municipal Water District
450 Alessandro Boulevard
Riverside, CA 92508
(951) 789-5000
and
State Water Resources Control Board
1001 I Street/P.O. Box 944212
Sacramento, CA 94244
(916) 341-5690

Prepared for: Bill Gatlin, Vice President
Tom Dodson and Associates
2150 North Arrowhead Avenue
San Bernardino, CA 92405
(909) 882-3612

USGS Quadrangle: Riverside West, Calif., 7.5' quadrangle (Sections 6, 7, 8, 13, 17, and 18,
T3S R5W, San Bernardino Base Meridian, and portions of the El
Sobrante de San Jacinto land grant within T3S R6W)

Keywords: City of Riverside, Riverside County; Phase I historical/
archaeological resources survey; APNs 145-232-044, 191-302-011, 234-
250-026, 233-170-003, 233-100-001, 231-020-006, 193-074-012, 231-050-
005, 233-120-004, 233-062-024, 233-120-005, 233-180-009, 138-030-026,
138-030-024, 135-220-035, 239-170-007, 231-210-002; no "historic
property" or "historical resource" affected

MANAGEMENT SUMMARY

Between May and August 2009, at the request of Tom Dodson and Associates, CRM TECH performed a cultural resources survey on the Area of Potential Effects (APE) for the proposed Arlington Desalter Expansion Project in the City of Riverside, Riverside County, California. The undertaking involves sinking wells at three of 12 possible locations, creating five new recharge basins, and installing two pump stations for the purpose of increasing the capacity of the Arlington Desalter system. The APE is delineated to encompass the maximum extent of ground disturbance required for the undertaking. It consists of a number of non-contiguous tracts of land located in the fully developed urban/suburban setting of the La Sierra, Arlington, and Arlington Heights neighborhoods of the city, generally within one mile of State Route 91 and between Adams Street and Buchanan Avenue. The APE lies in Sections 6, 7, 8, 13, 17, and 18, T3S R5W, San Bernardino Base Meridian, and portions of the El Sobrante de San Jacinto land grant lying in T3S R6W.

The study is a part of the environmental review process for the proposed undertaking, as required by the Western Municipal Water District (WMWD) in compliance with the California Environmental Quality Act (CEQA) and by the State Water Resources Control Board (SWRCB), under federal mandate, in compliance with Section 106 of the National Historic Preservation Act. The purpose of the study is to provide the WMWD and the SWRCB with the necessary information and analysis to determine whether the proposed undertaking would have an effect on any "historic properties," as defined by 36 CFR 800.16(l), or "historical resources," as defined by Title 14 CCR §15064.5(a)(1)-(3), that may exist in or near the APE. In order to accomplish this objective, CRM TECH conducted a historical/archaeological resources records search, pursued historical and geomorphologic research, contacted Native American representatives, and carried out a systematic field survey of each component of the APE.

The results of the records search indicate that five historical/archaeological sites, designated 33-4495, 33-4791, 33-10974, 33-11361, and 33-11579, were previously identified within or adjacent to various portions of the APE. As a result of further research, including the field survey, it was ascertained that two of these five sites no longer exist in the vicinity of the APE, and two others have been found ineligible for national, state, or local historical designation. The fifth site, 33-11361, is a segment of Victoria Avenue lying adjacent to a portion of the APE. As one of the most popular legacies from Riverside's citrus-growing past, Victoria Avenue has been designated by the City of Riverside as a Cultural Heritage Landmark (No. 8) and listed in the National Register of Historic Places (No. 00001267). As such, it clearly meets the definitions of a "historic property" and a "historical resource."

Since it is located outside the project boundaries, Victoria Avenue will not receive any direct impact from the proposed undertaking. However, it is important that project plans take into account the presence of this "historic property"/"historical resource" in close proximity to the APE and be crafted carefully to avoid, minimize, or mitigate visual, atmospheric, or other indirect effect on the historic character of the parkway, primarily its mature landscaping and rustic feel. As currently proposed, the undertaking does not involve major construction above the ground or large-scale alteration of current land use at that location, and thus is not likely to have any indirect effect on the historic integrity of Victoria Avenue.

No other potential "historic properties" or "historical resources" were encountered during the course of the study. In addition, the subsurface sediments within the APE appear to be relatively low in sensitivity for potentially significant archaeological deposits. Based on these findings, and pursuant to 36 CFR 800.4(d)(1) and Calif. PRC §21084.1, CRM TECH recommends to the WMWD and the SWRCB a conclusion that no "historic properties" or "historical resources" will be affected by the proposed undertaking. No further cultural resources investigation is recommended for the undertaking unless project plans undergo such changes as to include areas not covered by this study. However, if buried cultural materials are encountered during earth-moving operations, all work in that area should be halted or diverted until a qualified archaeologist can evaluate the nature and significance of the finds.

TABLE OF CONTENTS

MANAGEMENT SUMMARY i

INTRODUCTION 1

AREA OF POTENTIAL EFFECTS 5

SETTING..... 6

 Current Natural Setting 6

 Geological Setting..... 7

 Cultural Setting 8

 Prehistoric Context..... 8

 Ethnohistoric Context 9

 Historic Context..... 9

RESEARCH METHODS11

 Records Search.....11

 Geomorphologic Analysis.....11

 Historical Background Research.....12

 Native American Participation12

 Field Survey12

RESULTS AND FINDINGS.....12

 Records Search.....12

 Geomorphologic Analysis.....17

 Historical Background Research.....18

 Native American Participation18

 Field Survey19

DISCUSSION.....20

CONCLUSION AND RECOMMENDATIONS21

REFERENCES.....23

APPENDIX 1: Personnel Qualifications.....25

APPENDIX 2: Correspondence with Native American Representatives.....31

APPENDIX 3. Prehistoric Site Locations (Confidential).....43

LIST OF FIGURES

Figure 1. Project vicinity 1

Figure 2a. Eastern portion of the APE 2

Figure 2b. Central portion of the APE..... 3

Figure 2c. Western portion of the APE..... 4

Figure 3. Typical well sites in the APE..... 6

Figure 4. Recharge basin sites in the APE 7

Figure 5a. Previous cultural resources studies, eastern portion of the APE13

Figure 5b. Previous cultural resources studies, central portion of the APE.....14

Figure 5c. Previous cultural resources studies, western portion of the APE15

LIST OF TABLES

Table 1. Proposed Components of the Arlington Desalter Expansion Project 5

Table 2. Previously Recorded Cultural Resources in the Vicinity of the APE.....16

INTRODUCTION

Between May and August 2009, at the request of Tom Dodson and Associates, CRM TECH performed a cultural resources survey on the Area of Potential Effects (APE) for the proposed Arlington Desalter Expansion Project in the City of Riverside, Riverside County, California (Fig. 1). The undertaking involves sinking wells at three of 12 possible locations, creating five new recharge basins, and installing two pump stations for the purpose of increasing the capacity of the Arlington Desalter system. The APE is delineated to encompass the maximum extent of ground disturbance required for the undertaking. It consists of a number of non-contiguous tracts of land located in the fully developed urban/suburban setting of the La Sierra, Arlington, and Arlington Heights neighborhoods of the city, generally within one mile of State Route 91 and between Adams Street and Buchanan Avenue. The APE lies in Sections 6, 7, 8, 13, 17, and 18, T3S R5W, San Bernardino Base Meridian, and portions of the El Sobrante de San Jacinto land grant lying in T3S R6W (Figs. 2a-2c).

The study is a part of the environmental review process for the proposed undertaking, as required by the Western Municipal Water District (WMWD) in compliance with the California Environmental Quality Act (CEQA) and by the State Water Resources Control Board (SWRCB), under federal mandate, in compliance with Section 106 of the National Historic Preservation Act. The purpose of the study is to provide the WMWD and the SWRCB with the necessary information and analysis to determine whether the proposed undertaking would have an effect on any "historic properties," as defined by 36 CFR 800.16(l), or "historical resources," as defined by Title 14 CCR §15064.5(a)(1)-(3), that may exist in or near the APE. In order to accomplish this objective, CRM TECH conducted a historical/archaeological resources records search, pursued historical and geomorphologic research, contacted Native American representatives, and carried out a systematic field survey. The following report is a complete account of the methods and results of the various avenues of research, and the final conclusion of the study.

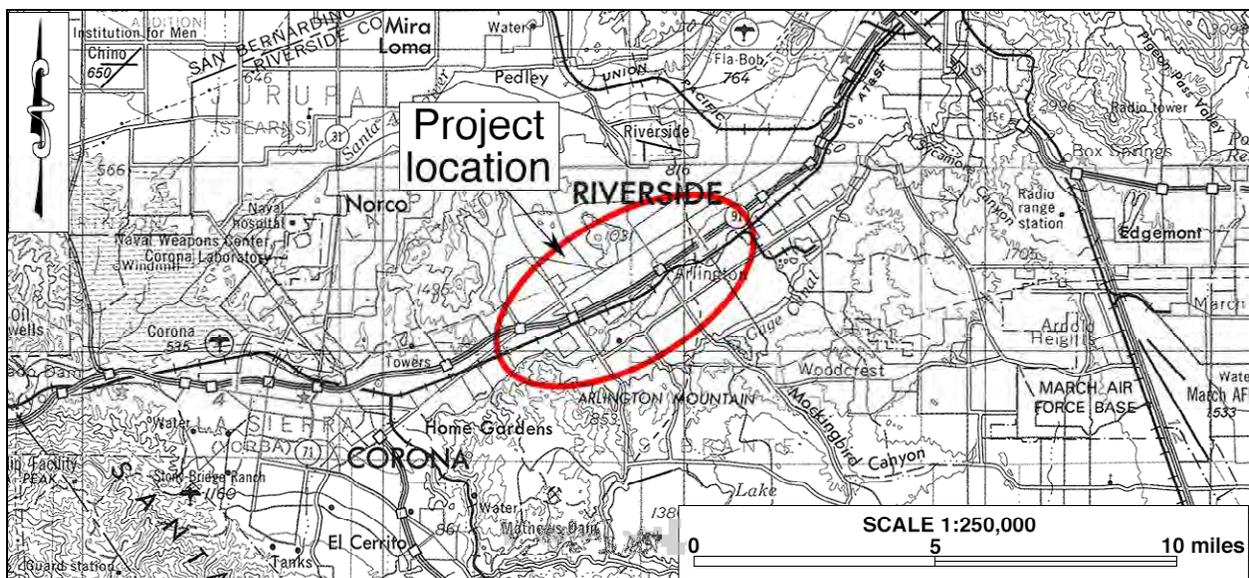


Figure 1. Project vicinity. (Based on USGS San Bernardino and Santa Ana, Calif., 1:250,000 quadrangles [USGS 1969; 1979])

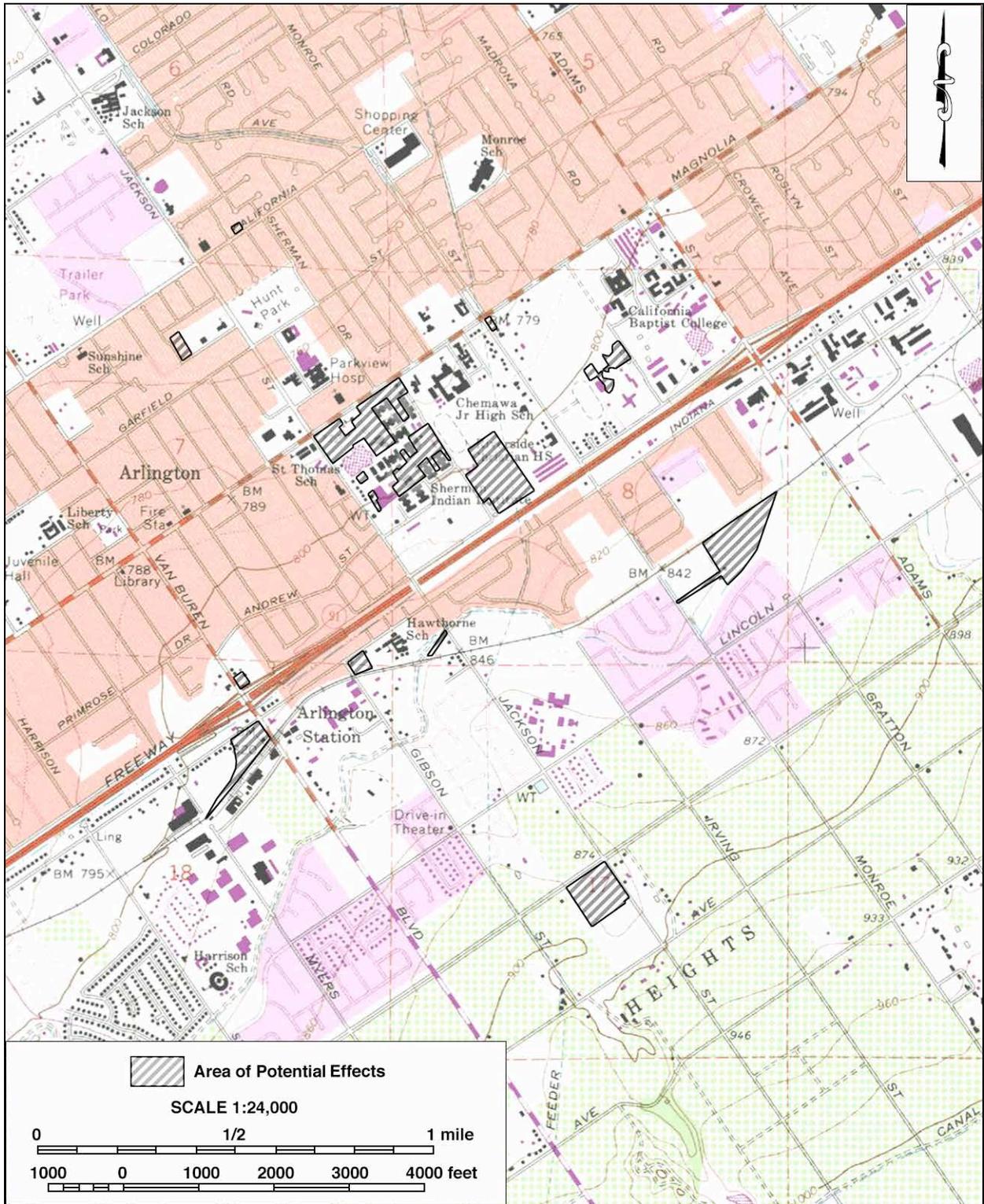


Figure 2a. Eastern portion of the APE. (Based on USGS Riverside West, Calif., 1:24,000 quadrangle [USGS 1980])

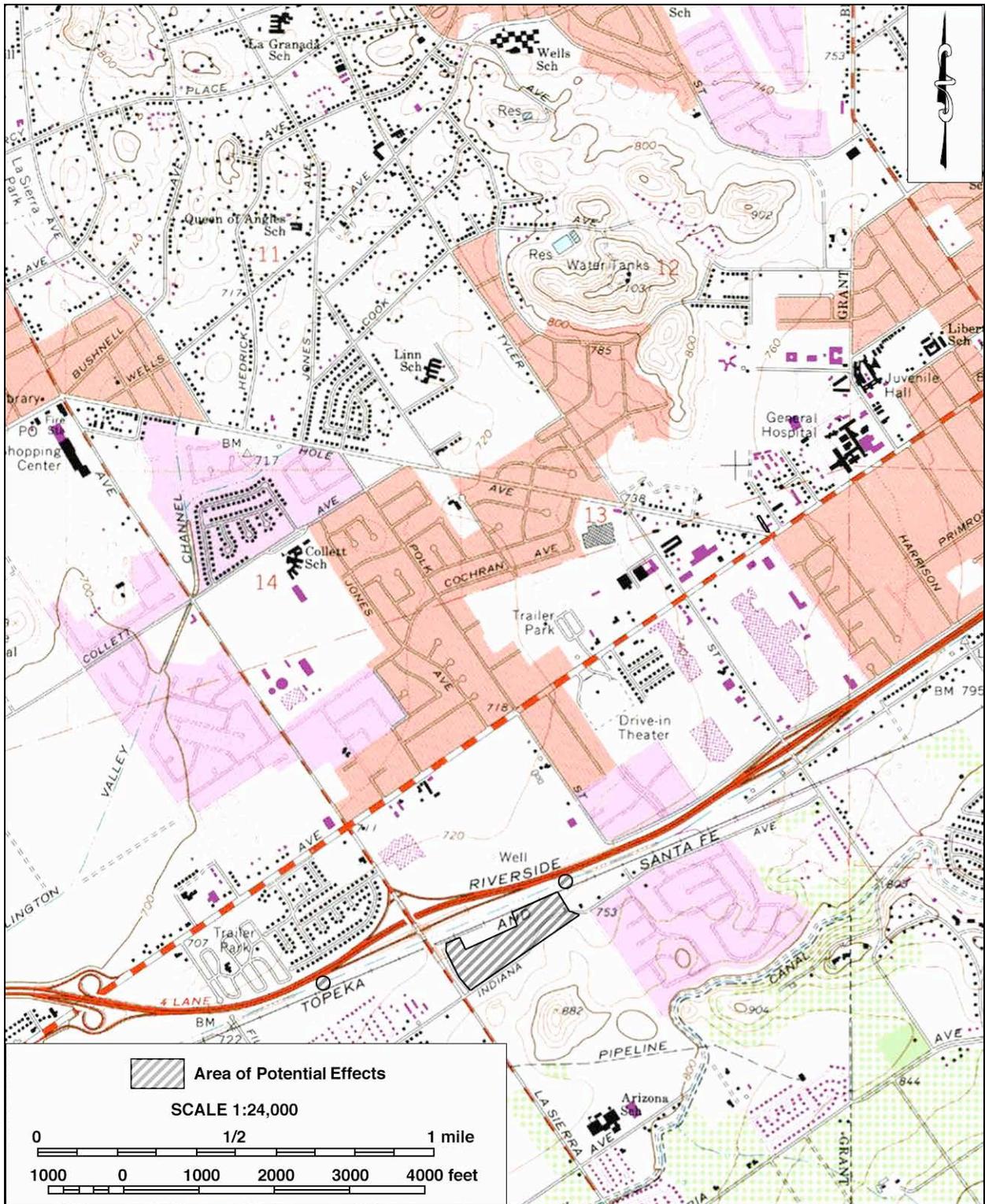


Figure 2b. Central portion of the APE. (Based on USGS Riverside West, Calif., 1:24,000 quadrangle [USGS 1980])

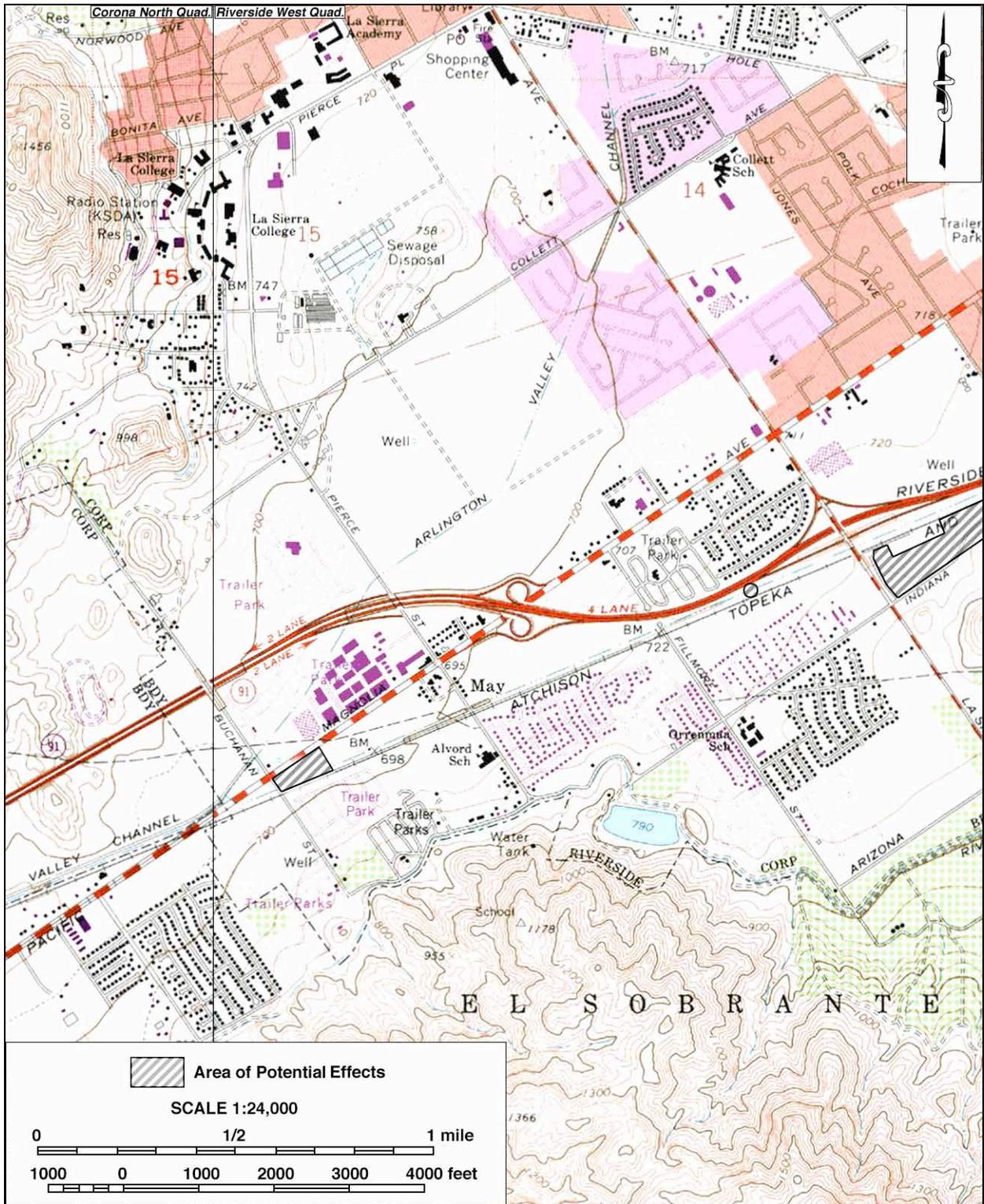


Figure 2c. Western portion of the APE. (Based on USGS Riverside West and Corona North, Calif, 1:24,000 quadrangles [USGS 1980; 1981])

AREA OF POTENTIAL EFFECTS

According to 36 CFR 800.2(d), the Area of Potential Effects is "the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist." For the current undertaking, the APE is delineated to encompass the maximum extent of ground disturbance required to complete the Arlington Desalter Expansion Project. As stated previously, it consists of a number of non-contiguous tracts of land at 19 different locations in the La Sierra, Arlington, and Arlington Heights neighborhoods of the City of Riverside. The various components of the undertaking and their locations are listed below in Table 1 (cf. Figs. 2a-2c).

The 12 possible well sites and the 5 recharge basin sites encompass all or parts of a total of 17 parcels, which total more than 150 acres, while the two pump stations will be established in existing channels (Table 1). Preliminary project plans indicate that the anticipated maximum depth of ground disturbances—i.e., the vertical APE—at the recharge basin sites will not exceed 15 feet below the current ground surface, while the wells will require subsurface drilling to a maximum of 300 feet. At a maximum diameter of 18 inches, however, the well excavations as proposed are essentially borings.

Assessor's Parcel No.	Proposed Feature	Approx. Acreage*	Description/Location	Desalter Number
145-232-044	Well site	0.21	"Hole Wells," Hole Avenue near Magnolia Avenue	6
191-302-011	Well site	0.95	Hawthorne Avenue near Jackson Street	7
193-074-012	Well site	0.29	"Army Well Site," California Avenue east of Jackson Street	8
234-250-026	Well site	4.72	Indiana Avenue at Van Buren Boulevard	9
233-170-003	Well site	1.05	Indiana Avenue at Van Buren Boulevard	10
233-170-009	Well site	0.30	Riverside Water Company Canal near Jackson Street	11
233-100-001	Well site	40.07	Sherman High School, Magnolia Avenue at Jackson Street	12
231-020-006	Well site	0.28	Magnolia Avenue at Monroe Street	13
233-120-005	Well site	43.12	Sherman High School, Magnolia Avenue at Jackson Street	14
233-062-024	Well site	0.61	Van Buren Boulevard at State Route 91	15
233-120-004	Well site	1.02	Adjacent to Sherman High School	16
231-050-005	Well site	16.12	California Baptist University	17
138-030-026	Recharge site	13.5	"Metrolink 1," Indiana Avenue at La Sierra Avenue	
138-030-024	Recharge site	N/A	"Metrolink 2," Indiana Avenue at La Sierra Avenue	
135-220-035	Recharge site	5.7	"Magnolia West," Magnolia Avenue at Buchanan Street	
239-170-007	Recharge site	9.5	"Victoria South," Victoria Avenue at Jackson Street	
231-210-002	Recharge site	11.8	"Monroe Street," between Monroe Street and Adams Street, northwest of Limestone Drive	
N/A	Pump station	N/A	Arlington Channel	
N/A	Pump station	N/A	Arizona Channel	

* Size of entire parcel, not the APE.

SETTING

CURRENT NATURAL SETTING

As mentioned above, each component of the APE is located within one mile of an approximately five-mile-long corridor of State Route 91. The area reflects a development pattern typical of urban/suburban landscapes, with the main thoroughfares lined with commercial properties and less-traveled side streets reserved mostly for single- and multi-family residences.

The APE components vary in size, but generally consist of vacant portions of larger parcels containing or near homes, schools, civic or commercial properties, existing well sites, parks, and small open fields (Figs. 3-4). As a result, vegetation in the APE consists mostly of introduced ornamental trees and plants along the various streets and in landscaped areas, but native vegetation such as wild mustard, foxtails, tumbleweeds, and other small grasses and shrubs is often observed on undeveloped lots. Elevations at various parts of the APE range between 690 to 880 feet above mean sea level. Soils in the area consist of fine to medium-grained silty sands.



Figure 3. Typical well sites in the APE. *Clockwise from upper left:* Desalter 6 (Hole Avenue near Magnolia Avenue); Desalter 9 (Indiana Avenue near Van Buren Boulevard); Desalter 11 (Riverside Water Company Canal near Jackson Street); and Desalter 15 (Van Buren Boulevard at State Route 91).



Figure 4. Recharge basin sites in the APE. *Clockwise from upper left*: Metrolink 1 (Indiana Avenue and La Sierra Avenue); Monroe Street (Monroe Street northwest of Limestone Drive); Victoria South (Victoria Avenue at Jackson Street); and Magnolia West (Magnolia Avenue at Buchanan Street).

GEOLOGICAL SETTING

The APE is located in the northern portion of the Peninsular Ranges province, which adjoins the Transverse Ranges province on the north, the Colorado Desert province on the northeast, and the Pacific Ocean on the west (Jenkins 1980:40-41; Harms 1996:150). The Peninsular Ranges province extends southward to the southern tip of Baja California (Jahns 1954).

Morton and Cox (2001) mapped the geological formation underneath a large portion of the APE as **Qof**, or old alluvial fan deposits of late to middle Pleistocene age, while the central area is mapped as **Qyf**, or young alluvial fan deposits of Holocene and late Pleistocene age. The **Qof** is described as follows (*ibid.*):

Indurated, to slightly indurated, sandy, alluvial fan deposits. Covers extensive areas north and south of Santa Ana River. Most of unit is slightly to moderately dissected and reddish brown. Locally includes thin, discontinuous surface layers of Holocene alluvial fan materials.

The **Qyf** is described by Morton and Cox (2001) as follows:

Gray-hued, unconsolidated sand and pebble-to gravel-sized deposits derived from lithically diverse sedimentary units. Arkosic sand derived from varied metamorphic and granitic lithologies of Peninsular Ranges. All deposits are located south of the Santa Ana River.

In the southwestern portion of the APE, Morton and Cox mapped some **Kgh**, or outcrops of igneous basement rocks of Cretaceous age, described as mostly hornblende gabbro surrounded by **QTc**, or nonmarine conglomeratic sediments of early Pleistocene to late Pliocene age (*ibid.*). They also mapped **QTs** in this area, or unnamed sedimentary rocks of early Pleistocene to late Pliocene age, which is described as "sandstone and conglomerate containing clasts derived from San Bernardino Mountains, nonmarine" (*ibid.*). In the southeastern portion they mapped a few outcrops of **Qvofa**, or very old alluvium of early Pleistocene age, described as "mostly well-dissected, well indurated, reddish-brown sand deposits [that] commonly contains duripans and local silcretes" (*ibid.*).

In another soil survey, Dibblee (2004) mapped part of the surface geology in the APE as **Qoa**, or older alluvium of Pleistocene age, described as "alluvial fan deposits of sand, minor gravel, tan to light reddish brown, top surfaces slope slightly from source areas and dissected by stream channels from source areas." In the southwestern portion of the APE he mapped some small outcrops of igneous basement rocks as **hdg**, or "hornblende diorite-gabbro, amphibiotic gabbro of Morton and Cox 2001; medium grained, black, of mostly hornblende, minor calcic plagioclase feldspar; as small lenticular masses in tonalite plutonic rocks, commonly contains veinlets of secondary epidote" (*ibid.*).

Dibblee mapped the vicinity of these basement rock outcrops as **QTc**, described as "conglomerate, upper part with boulders of local rocks, lower part with cobbles similar to those in **QTs**," which in turn is described as "sandstone and conglomerate, arkosic, with clasts of plutonic and gneissic rocks from San Bernardino Mountains" (*ibid.*). He also mapped a minor amount of **Qg**, or alluvial sand and gravel, within the presently active stream channels.

CULTURAL SETTING

Prehistoric Context

In the history of the Americas, the term "prehistoric period" refers to the time prior to the arrival of non-Indians, when native lifeways and traditions remained intact and viable. In the case of Alta and Baja California, it is widely acknowledged that human occupation began 8,000-12,000 years ago. In order to describe and understand the cultural processes that occurred in the ensuing years, archaeologists have developed a number of chronological frameworks that endeavor to correlate technological and cultural changes observable in the archaeological record to distinct archaeological horizons, traditions, complexes, and phases. Unfortunately, none of these chronological frameworks has been widely accepted, and none has been developed specifically for the San Bernardino Valley area, the nearest ones being for the Colorado Desert and Peninsular Ranges region (Warren 1984) and for the Mojave Desert (Warren and Crabtree 1986).

The development of an all-inclusive chronological framework for the area is hindered by the relative dearth of archaeological sites containing distinct stratigraphic layers and successive sequence of chronological time markers—i.e., artifacts such as projectile points, ceramics, and shell beads—and/or absolute radiocarbon dates. Since results from archaeological investigations in this area have yet to be synthesized into an overall archaeological framework, most archaeologists tend to follow a chronology adapted from a scheme developed by William J. Wallace in 1955 and modified by others (Wallace 1955;

1978; Warren 1968; Chartkoff and Chartkoff 1984; Moratto 1984). Although the beginning and ending dates may vary, the general framework of prehistory in the area consists of the following four periods:

- Early Hunting Stage (ca. 10000 B.C.-6000 B.C.), which was characterized by highly mobile foraging strategies and a reliance on big game animals, as evidenced by large, archaic-style projectile points, spear and atlatl weapons systems, and the relative absence of artifacts associated with plant-processing activities;
- Millingstone Horizon (ca. 6000 B.C.-A.D. 1000), during which mobile hunter-gatherers became more sedentary and plant foods and small game animals came to the forefront of subsistence strategies. This horizon is often characterized by a large number of millingstones, especially well-made, deep-basin metates and manos, an abundance of scrapping tools, and a decreasing number of projectile points;
- Late Prehistoric Period (ca. A.D. 1000-1500), during which a more complex social organization, a more diversified subsistence base—as evidenced by smaller projectile points, expedient millingstones and, later, pottery—and regional cultures and tribal territories developed;
- Protohistoric Period (ca. A.D. 1500-1700s), which ushered in long-distance contact with Europeans, and thereby led to the Historic Period.

Ethnohistoric Context

According to current ethnohistorical scholarship, what is now the City of Riverside lies on the border between the traditional territories of three Native American groups: the Serrano of the San Bernardino Mountains, the Luiseño of the Perris-Elsinore region, and the Gabrielino of the San Gabriel Valley. Kroeber (1925:Plate 57) suggests that the Native Americans of the Riverside area were probably Luiseño, Reid (1968:8-9) states that they were Serrano, and Strong (1929:7-9, 275) claims that they were Gabrielino. In any case, there also occurred a late influx of Cahuilla during the 19th century (Bean 1978).

Whatever the linguistic affiliation, Native Americans along the Santa Ana River exhibited similar social organization and resource procurement strategies. Villages were based on clan or lineage groups. Their home/base sites are marked by midden deposits, often with bedrock mortar features. During their seasonal rounds to exploit plant resources, small groups often ranged some distances in search of specific plants and animals. Their gathering strategies often left behind signs of special use sites, usually grinding slicks on bedrock boulders, at the locations of the resources.

Historic Context¹

The present-day Riverside area received its first European visitors during the early and mid-1770s, shortly after the beginning of Spanish colonization of Alta California in 1769. After the establishment of Mission San Gabriel in 1771, the area became one of the mission's principal *rancherías*, known at the time as Jurupa. Despite these early contacts, no Europeans are known to have settled in the area until after the creation of the Rancho Jurupa land grant in 1838, which encompassed what is now the northern portion of the City of Riverside.

¹ For further information on the history of the Riverside area, see Patterson (1996) and Gunther (1984).

During the 1840s, a number of other ranchos were established in the vicinity, including La Sierra (Sepulveda) and El Sobrante de San Jacinto in the western and southwestern portions of the city. Most of the APE, however, was not included in any of these land grants, and remained unclaimed when California became a part of the United States in 1848. In 1871, the town of Riverside was founded in today's downtown area, followed in the next few years by two other colonies in the Arlington-La Sierra area. The three separate enterprises eventually merged in 1875, and the City of Riverside was incorporated in 1883.

During the 1870s and 1880s, amid a land boom that swept through southern California, the young community of Riverside grew rapidly. The most important boost to Riverside's early prosperity came with the introduction of the naval orange in the mid-1870s. Its instant success in Riverside led to the spread of citrus cultivation throughout southern California, and propelled Riverside to the forefront of the citrus industry. In 1893, after a bitter local political dispute, Riverside split itself from San Bernardino County, and became the county seat and the dominant urban center of the newly created Riverside County. Since the mid-20th century, with the increasing diversification of its economic livelihood, much of Riverside's once extensive citrus acreage has given way to urban expansion. Nevertheless, the "citrus culture" that developed from the city's orange-dominated past continues to be an integral part of the community identity to the present time.

The community of Arlington traces its roots to the New England Colony, which was founded in 1874, one of the three colonies that formed the City of Riverside. By the early 1880s, the intersection of Magnolia Avenue and Van Buren Boulevard had established itself as the nucleus of the village of Arlington, a name adopted in 1877 by popular vote. The community experienced the most notable growth spurt during the first half of the 20th century, with its development as a commercial center culminating between the 1920s and the 1940s. Beginning in the 1950s, like essentially all other historic downtown areas across the U.S., Arlington gradually fell victim to the emerging automobile culture, which increasingly brought commercial activities toward the outskirts of established cities and towns. In recent years, the economic revitalization of the Arlington area has ranked among the priorities in the City of Riverside's redevelopment efforts.

The Arlington Heights tract was subdivided in 1890 by Matthew Gage, who had orchestrated the construction of the Gage Canal in the 1880s to bring irrigation water to the eastern highlands of Riverside. Gage carried out the subdivision on behalf of the London-based Riverside Trust Company, which had purchased the tract from him in 1889. Although organized originally for the purpose of selling land, for the next 40 years the company was actively engaged in citrus fruit production on the Arlington Heights property through its subsidiary, the Riverside Orange Company. The main thoroughfare of the subdivision, the divided and tree-lined Victoria Avenue that traversed through vast expanses of orange groves, soon became the showcase of Riverside's "citrus culture." Today, the Arlington Heights area, as an officially designated "greenbelt," is the last stronghold of the city's citrus-growing heritage.

To the west of the village of Arlington and the north of the Arlington Heights tract, Willitts J. Hole, a Los Angeles-based land developer, purchased some 20,000 acres of land between Riverside and Norco in 1909 and spent the next 27 years developing it into a thriving agricultural enterprise. In its heyday, the Hole Ranch covered almost the entire area known today as La Sierra, and constituted an important chapter in local history. In the

meantime, Hole sold various portions of his ranch for residential subdivisions, and encouraged the settlement and development of La Sierra, which he considered a labor reserve for his ranch. In the early 1920s, he made further contributions to the development of the area by virtually donating a parcel of land for the establishment of a Seventh-Day Adventist secondary school, predecessor of today's La Sierra University, around which the community of La Sierra gradually formed. The area was eventually annexed by the City of Riverside in 1961-1964.

In summary, the three communities near the APE, Arlington, Arlington Heights, and La Sierra, took somewhat different paths of development and growth during the historic period. The oldest among the three, Arlington has long been a part of Riverside's urban core, featuring one of the city's traditional commercial centers and a suburbanized, residential-dominant land use pattern since the early days of the city's history. Arlington Heights has always been, and continues to be, a showcase for citrus cultivation, once Riverside's principal industry, despite the gradual infiltration of urban development over the years. The La Sierra area was formerly the site of a large agribusiness, which during the early 20th century spurred the growth of a residential community catering to farm workers. Since the end of WWII, however, both Arlington and La Sierra have seen rapid urban growth as residential subdivisions increasingly became the dominant land use in the Riverside area. Today, both neighborhoods have been fully urbanized.

RESEARCH METHODS

RECORDS SEARCH

On May 15, 2009, CRM TECH archaeologist Daniel Ballester (see App. 1 for qualifications) conducted the historical/archaeological resources records search at the Eastern Information Center (EIC), University of California, Riverside. During the records search, Ballester examined maps and records on file at the EIC for previously identified cultural resources in or near the project area and existing cultural resources reports pertaining to the vicinity. Previously identified cultural resources include properties designated as California Historical Landmarks, Points of Historical Interest, Riverside County Landmarks, as well as those listed in the National Register of Historic Places, the California Register of Historical Resources, or the California Historical Resource Information System.

For the current study, the scope of the records search included the standard half-mile radius from the perimeters of the APE and an expanded five-mile radius to identify cultural resources in similar geomorphologic contexts as the APE. The purpose of the expanded records search is to assess the sensitivity of the APE for cultural resources and help determine the potential of encountering significant subsurface cultural deposits during earth-moving activities associated with the undertaking.

GEOMORPHOLOGIC ANALYSIS

As part of the research procedures, CRM TECH geologist Harry M. Quinn (see App. 1 for qualifications) pursued geomorphologic analysis to assess the APE's potential for the deposition and preservation of subsurface cultural deposits from the prehistoric period, which cannot be detected through standard surface archaeological survey. Sources

consulted for this purpose included topographic and geologic maps published by the U.S. Geological Survey (USGS). Findings from these sources were used to develop a geomorphologic history of the APE and address geoarchaeological sensitivity of the vertical APE.

HISTORICAL BACKGROUND RESEARCH

CRM TECH historian Terri Jacquemain (see App. 1 for qualifications) conducted the historical background research on the basis of published literature in local history and historic maps of the Riverside area. Among the maps consulted for this study were U.S. General Land Office's (GLO) land survey plat maps dated 1855 and the USGS' topographic maps dated 1901-1902, 1942-1947, 1953-1954, and 1967. These maps are collected at the Science Library of the University of California, Riverside, and the California Desert District of the U.S. Bureau of Land Management, located in Moreno Valley.

NATIVE AMERICAN PARTICIPATION

On June 18, 2009, CRM TECH submitted a written request to the State of California's Native American Heritage Commission for a records search in the commission's sacred lands file. Following the commission's recommendations, CRM TECH further contacted a total of 16 Native American representatives in the region both in writing and by telephone between June 25 and July 10 to solicit local Native American input regarding cultural resources concerns associated with the proposed undertaking. The correspondences between CRM TECH and the Native American representatives are attached to this report as Appendix 2.

FIELD SURVEY

On June 23-24 and July 28, 2009, CRM TECH archaeologist Daniel Ballester (see App. 1 for qualification) carried out the on-foot field survey of the various components of the APE. In most cases, the designated areas on each parcel (Figs. 2a-2c) were inspected by walking parallel transects spaced 15 meters (approx. 50 feet) apart. For two of the proposed well sites, Desalters 8 and 13, a visual inspection of the ground surface was conducted from the perimeters due to the lack of proper access. The two pump station sites, located in existing channels, were also surveyed from the perimeters. Using these methods, the ground surface of the APE was systematically and carefully examined for any evidence of human activities dating to the prehistoric or historic periods (i.e., 50 years or older). Ground visibility ranged from poor to excellent (0-90%) depending on the density of vegetative growth and whether the native ground surface was obscured by asphalt, gravel, or landscaping.

RESULTS AND FINDINGS

RECORDS SEARCH

According to records on file at the EIC, at least 10 previous cultural resources surveys have covered various portions of the APE (Figs. 5a-5c). Outside the APE but within a half-mile radius, nearly 30 other cultural resources studies have been reported on various tracts of

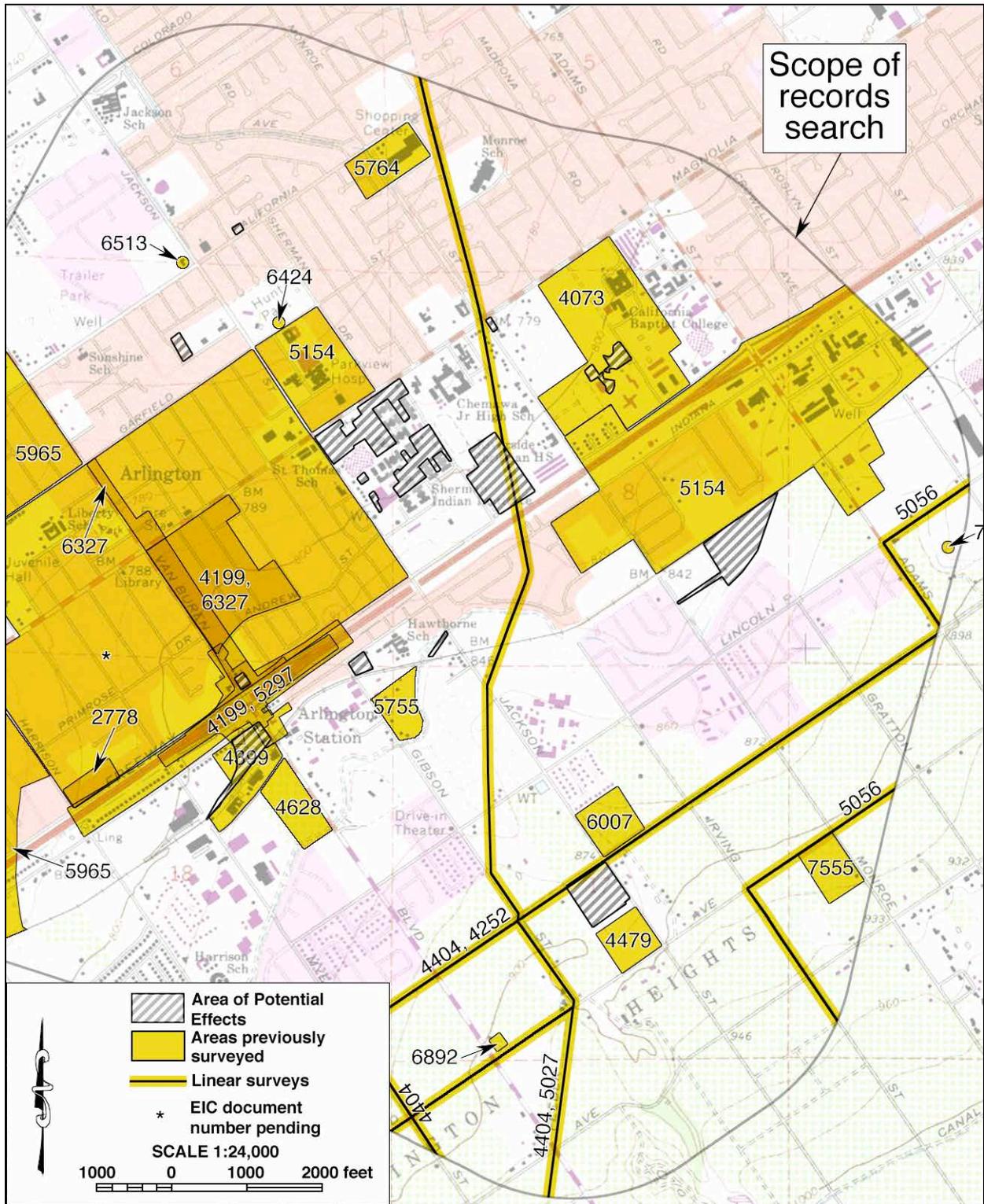


Figure 5a. Previous cultural resources studies in and near the eastern portion of the APE, listed by EIC file number. Locations of historical/archaeological sites are not shown as a protective measure.

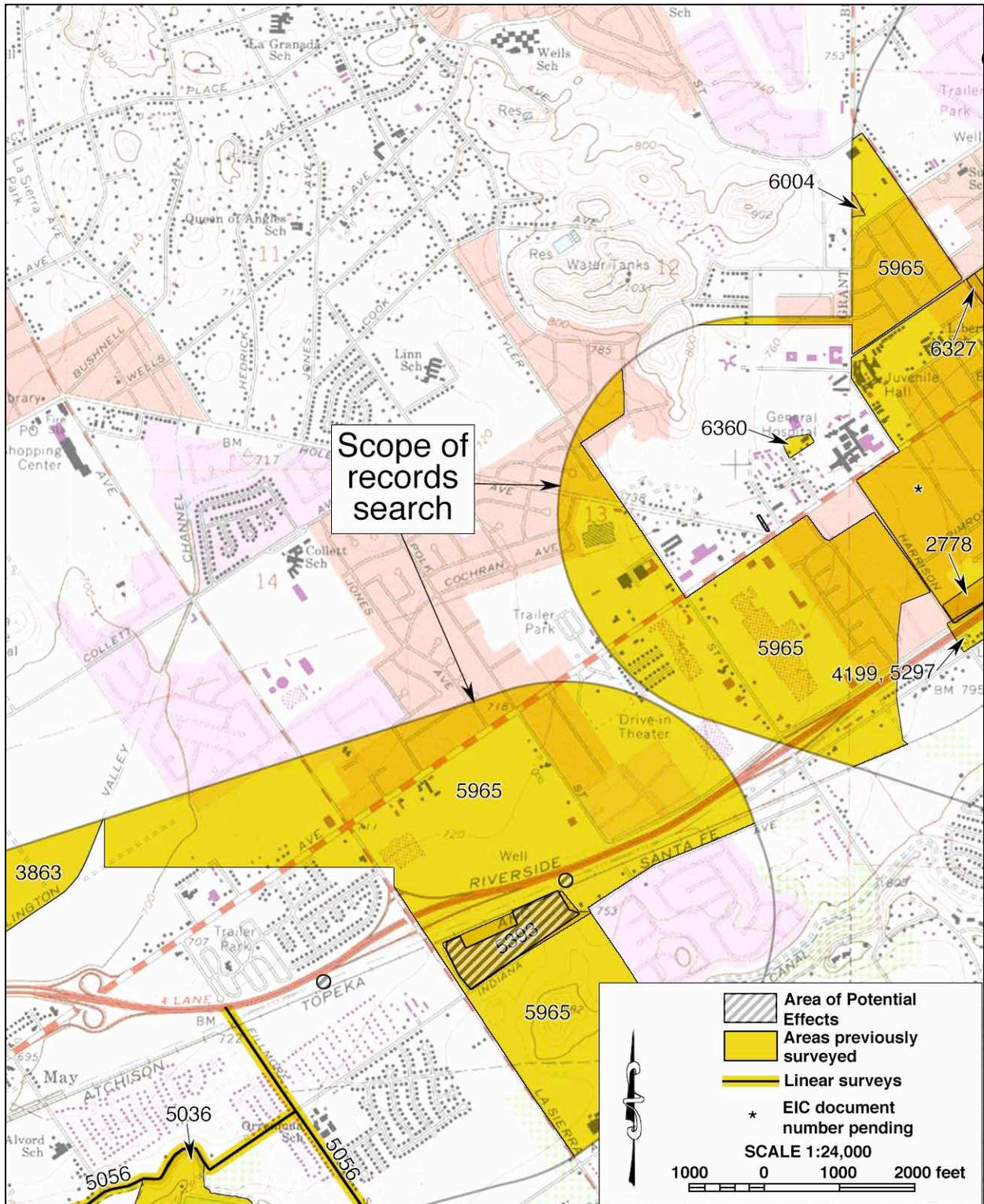


Figure 5b. Previous cultural resources studies in and near the central portion of the APE.

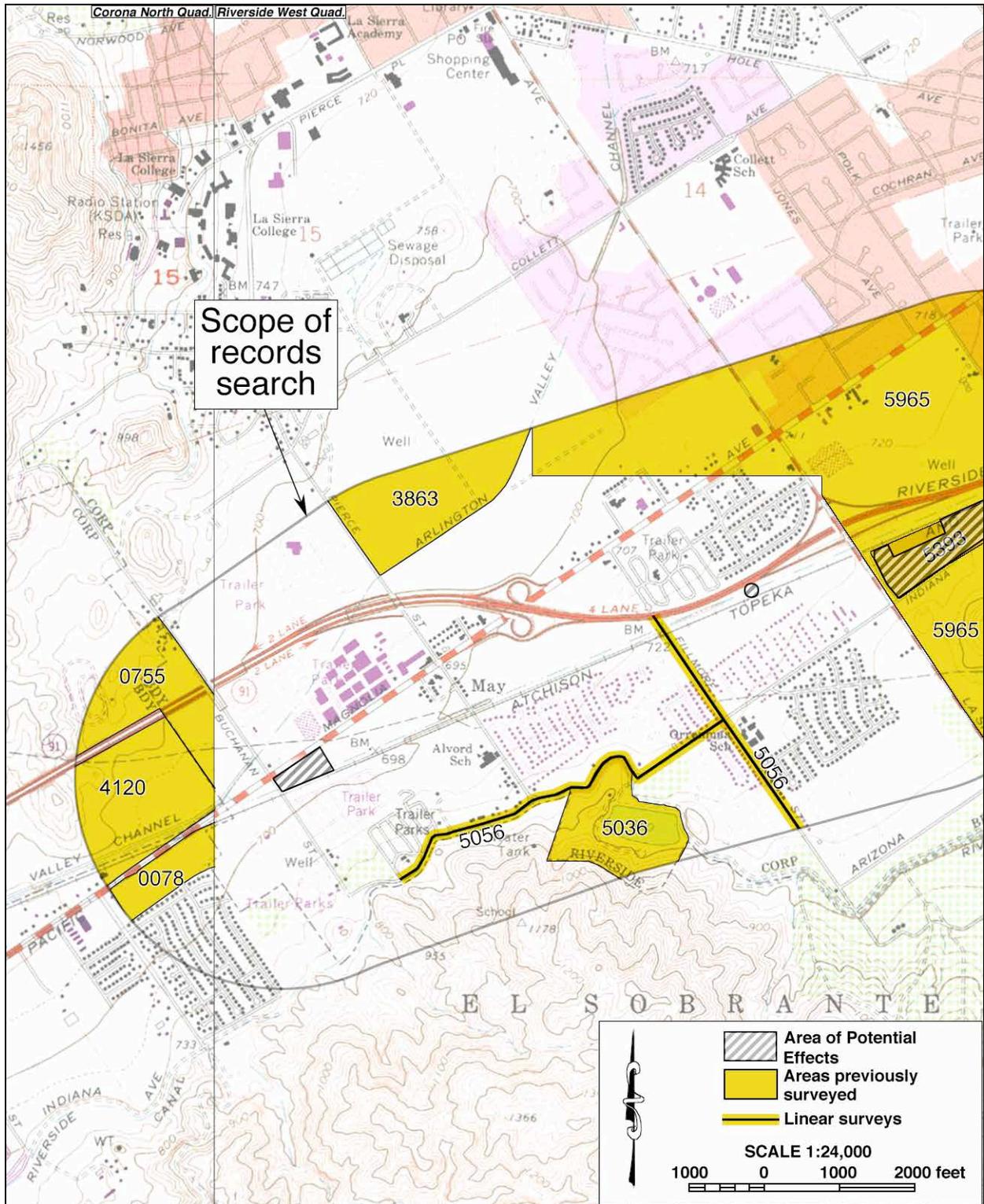


Figure 5c. Previous cultural resources studies in and near the western portion of the APE.

land and linear features (Figs. 5a-5c). As a result of these and other similar studies in the vicinity, EIC records revealed 36 historical/archaeological sites that were previously recorded within the scope of the records search, as listed in Table 1. Among these are 3 prehistoric—i.e., Native American—sites, 32 historic-period sites and built-environment features, and one site with both prehistoric and historic components (see App. 3 for prehistoric site locations).

Site No.	Recorded by/Date	Description
33-107	Eberhart 1951	Prehistoric archaeological site (no further information available)
33-2242	McCarthy 1981	Bedrock milling features
33-2243	McCarthy 1981	Bedrock milling features
33-4495*	Jertberg 1991	Riverside Upper Canal, built in the 1870s
33-4791*	Wlodarski 1992	Riverside Lower Canal, built in the 1870s
33-6005	Love 1995	Concrete-lined irrigation flume
33-6723	Gavin 1983	Single-story bungalow, ca. 1926
33-9007	Curl 1980	Colonial Revival-style bungalow, ca. 1900
33-9046	Scheid 1998	Pene-Giachetti House, a Ranch-style residence, ca. 1941
33-9049	Scheid 1998	Ranch-style duplex, ca. 1949
33-9050	Scheid 1998	Single-story Ranch-style residence, ca. 1936
33-9051	Scheid 1998	Ormsby House, a Colonial Revival-style residence, ca. 1908
33-9052	Scheid 1998	Colonial Revival-style residence, ca. 1900-1910
33-9518	Curl 1980	Arlington Branch Library and Fire Hall (NRHP** No. 93000668)
33-9528	Michael and Wingate 1973	Heritage House/Bettner House, ca. 1891 (NHRP No. 73000423)
33-10974*	Tang 2000	Three wood-framed residential buildings, 1930s-1940s
33-11361*	Bricker et al. 2000	Victoria Avenue, 1890s (NRHP No. 00001267; City of Riverside Cultural Heritage Landmark No. 8)
33-11251	Van Horn 2002	Brick commercial building, ca. 1912
33-11579*	Smith and Marvin 2002	WMWD well buildings, ca. 1925
33-11632	Tang 2002	Single-story Craftsman-style residence, ca. 1912
33-12172	Tibbet 1999	Single-story Ranch-style residence, ca. 1948
33-12183	Lewis 1999	Single-story Ranch-style residence, ca. 1949
33-12901	Tang 2002	Single-story concrete block residence, ca. 1949
33-13080	Marvin and Younger 2003	Single-story wood-frame residence, ca. 1956
33-13081	Marvin and Younger 2003	Single-story Ranch-style residence, ca. 1953
33-13082	Marvin and Younger 2003	Single-story Ranch-style residence, ca. 1953
33-13083	Marvin and Younger 2003	Single-story Ranch-style residence, ca. 1954
33-13084	Marvin 2003	Single-story Ranch-style residence, ca. 1954
33-15012	Tibbet 2006	Monterey-style grove house, ca. 1931
33-15962	Smallwood 2007	Arlington line of the Temescal Water Company canal
33-17219	McCarthy 2003	Irrigation features associated with Gage Canal
33-17523	Sanka 2009	Bedrock milling features and historic-period refuse
33-17537	Herman and Sowles 2008	Water tank and concrete pipe
33-17541	Cannon and Chapman 2008	Irrigation system
33-17543	Cannon and Gregory 2008	Concrete-lined canal
N/A	N/A	Administration building at Sherman High School (NHRP No. 80000831)

* Located within or adjacent to the APE

** National Register of Historic Places

As Table 1 shows, four of the historic-period sites or built-environment features are currently listed in the National Register of Historic Places. Among them, a segment of Victoria Avenue lies just outside the boundary of one of the proposed recharge basin sites,

and the administration building at Sherman High School is located on the campus of the school, which contains three of the proposed well sites, but is well outside the APE boundaries.

One of the recorded historic-period sites, the Riverside Lower Canal, is known to have traversed portions of the APE. Together with the Riverside Upper Canal, which runs adjacent to the boundary of a proposed recharge basin, the two irrigation lines were constructed between 1870 and 1876. As the main water supply lines for the burgeoning town of Riverside, they were instrumental in the early development of the city, including the Arlington-Arlington Heights area. Due to the loss of their overall historical integrity, however, a systematic historic significance evaluation of the two canals in 2001 concluded that they were not eligible for listing in the National Register of Historic Places, but might become eligible once their integrity was restored (Gustafson 2001:9, 12). The same study also concluded that the segments of the canals running through the Arlington-Arlington Heights area were not eligible for historical designation by the City of Riverside under provisions of the City's Cultural Resources Ordinance (Hansen 2003).

Two other historic-period sites, 33-10974 and 33-11579, were previously recorded as lying within or partially within the current APE. Site 33-10974 consisted of a group of pre-WWII buildings that stood partially on a parcel of land designated as a possible well site, including two single-family residences, a duplex, a garage/laundry room, and a small storage shed (Tang 2000). Site 33-11579 represented two structures built around 1925 to shelter WMWD wells that were already in place (Smith and Marvin 2002). These buildings and structures were previously evaluated, and all of them were deemed ineligible for listing in any national, state, or local register of historical resources (Tang 2000:3; Smith and Marvin 2002:3).

As discussed above, the expanded records search covered the Riverside area within a five-mile radius of the APE for the purpose of identifying any prehistoric archaeological sites situated in the same or a similar geomorphologic context as the APE. The results indicate that one prehistoric archaeological site consisting of bedrock milling features was identified north of the APE, and five isolates, all located southwest of the APE, were previously recorded on the valley floor, in similar geographical settings to that of the APE. In contrast, numerous prehistoric sites have been recorded on foothills and elevated terraces, such as the rugged terrains of the Jurupa Mountains to the north and the rolling hills to the southeast.

Overall, the locations and types of prehistoric sites identified in the expanded records search appear to support existing prehistoric hunter-gatherer settlement-subsistence models for Inland southern California, which suggest longer-term residential settlement was more likely to occur on elevated terraces, hills, and finger ridges near permanent or reliable sources of water, while the valley floor was more mostly utilized in resource procurement efforts, travel, and opportunistic camping.

GEOMORPHOLOGIC ANALYSIS

The results of the geomorphologic research reveal that most of the sediments in the project vicinity are older than the accepted age at which man was present in North America, thereby limiting the possibility of subsurface archaeological materials within the native

soils. Coupled with its urbanized location, the impacts of past development, and distance from natural water sources, the APE appears to have a low potential for important prehistoric archaeological remains in subsurface deposits, although outcroppings of igneous intrusive rock are usually assigned a high sensitivity for Native American food-processing sites, such as bedrock milling features. This older alluvium, however, does not preclude the presence of later cultural materials being present in the few areas in and around the APE that have younger, Holocene-age surface deposits, such as the campuses of Sherman High School and the California Baptist University and the proposed well sites at Indiana and Van Buren Avenues.

HISTORICAL BACKGROUND RESEARCH

Historical sources consulted for this study indicate that the area around the APE experienced two notable growth spurts during the historic period (GLO 1855; USGS 1901; 1902; 1942; 1947; 1953; 1954; 1967a; 1967b). The first took place in the 1870s-1890s, in the wake of the creation of the Arlington colony and the other two nearby colonies that eventually merged into the City of Riverside, and transformed the area from unsettled virgin land to a burgeoning rural town. The second began during the post-WWII boom period in American history, characterized by rapid urban expansion that transformed much of the former agricultural land in the vicinity into residential tracts and strip malls.

By 1897, all of the main thoroughfares in the vicinity had been laid out, and were lined by a number of buildings, most of them presumably rural residences (USGS 1901; 1902). The Riverside Upper and Lower Canals, identified as Riverside Canals No. 1 and No. 2, were mapped traversing portions of the APE (*ibid.*). During the first half of the 20th century, the Arlington-La Sierra areas underwent steady growth along with the rest of the City of Riverside, but still retained more of a rural or semi-rural character, while the Arlington Heights area had developed a countrified, genteel atmosphere amidst a blanket of citrus groves (USGS 1942; 1947).

By far the most dramatic change in the landscape of the Riverside region in general, and the project vicinity in particular, occurred during the 1950s and the early 1960s, when America's post-WWII suburbanization movement swept across what had been the rural sectors of southern California. Between 1953 and 1966, residential and commercial developments filled the area between the historic town centers of Riverside and Arlington, effectively merging the two communities into one large, continuous urban core (USGS 1953; 1954; 1967a; 1967b).

NATIVE AMERICAN PARTICIPATION

In response to CRM TECH's inquiry, the Native American Heritage Commission reports that the sacred lands record search failed to identify any Native American cultural resources within one-half mile of the APE, but recommends that local Native American groups be contacted for further information, and provided a list of potential contacts in the region (see App. 2).

Upon receiving the commission's response, CRM TECH initiated correspondence with all 12 individuals on the referral list and the organizations they represent. In addition, John Gomez, Jr., Cultural Resources Coordinator for the Ramona Band of Cahuilla Indians,

Anna Hoover, Cultural Analyst for the Temecula (Pechanga) Band of Luiseño Mission Indians, and John Tommy Rosas, Tribal Administrator of the Tongva Ancestral Territorial Tribal Nation (TATTN), were also contacted in writing. Andrea Candelaria, Tribal Secretary for the Santa Rosa Band of Mission Indians, was added to the list once telephone contact was initiated. Ms. Hoover and Mr. Rosas have since replied in writing, while Ms. Candelaria, Goldie Walker of the Serrano Nation of Indians, Joseph Ontiveros of the Soboba Band of Luiseño Indians, and Anthony Morales of the Gabrielino/Tongva San Gabriel Band of Mission Indians have provided verbal responses (see App. 2).

In their comments, Ms. Candelaria and Ms. Walker requested notification of the discovery of any Native American cultural resources within the APE. Mr. Ontiveros recommended that a Native American monitor be present during ground-disturbing activities, and requested that the project proponent/lead agency keep the Soboba Band informed of project developments. Mr. Morales requested that both a qualified archaeologist and a Native American monitor from his group be present during all ground-disturbing activities.

In a letter dated July 13, 2009, Ms. Hoover states that the Temecula Band considers the APE to be part of its ancestral lands, but has no comment at this time. The tribe requests copies of all archaeological documentations pertaining to the undertaking and further consultation with the project proponents/lead agency if Native American artifacts are discovered in the APE.

In an e-mail dated July 14, Mr. Rosas states that the proposed undertaking will negatively impact TATTN cultural and water resources rights. On behalf of the TATTN, Mr. Rosas requests a meeting and direct consultation with the WMWD and the SWRCB, along with copies of all archaeological documentation. He further requests that CRM TECH forward to the lead agency a copy of a letter regarding this issue from the Native American Heritage Commission to the SWRCB, dated August 18, 2008 (see App. 2).

FIELD SURVEY

During the field survey, three of the five previously recorded sites lying partially within or adjacent to the APE, 33-4495 (Riverside Upper Canal), 33-10974 (historic-period residences and other buildings), and 33-11361 (Victoria Avenue), were noted at their reported locations. As mentioned above, both the Riverside Upper Canal and Victoria Avenue lie adjacent to portions of the APE, the canal along the southeastern boundary of the Monroe Street recharge site, and Victoria Avenue along the northwestern boundary of the Victoria South recharge site (see Table 1; cf. Fig. 2a). The buildings recorded as 33-10974 are still extent near the intersection of Indiana Avenue and Van Buren Boulevard. Among them, a garage and part of a residence stand within the APE boundaries at the proposed well site designated Desalter 9 (see Table 1; cf. Fig. 2a).

No remnants of the long-abandoned Riverside Lower Canal (Site 33-4791) were observed within or adjacent to the APE, and the two WMWD well shelters recorded as 33-11579, at the proposed well site designated Desalter 6, are no longer in existence. Much of the APE has been extensively disturbed in the past by agricultural or construction activities. Consequently, it is unlikely for any substantial archaeological remains to survive in shallow deposits.

DISCUSSION

The purpose of this study is to identify and evaluate any "historic properties" or "historical resources" that may exist within or adjacent to the APE. "Historic properties," as defined by the Advisory Council on Historic Preservation, include "prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register of Historic Places maintained by the Secretary of the Interior" (36 CFR 800.16(l)). The eligibility for inclusion in the National Register is determined by applying the following criteria, developed by the National Park Service as per provision of the National Historic Preservation Act:

- The quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association and
- (a) that are associated with events that have made a significant contribution to the broad patterns of our history; or
 - (b) that are associated with the lives of persons significant in our past; or
 - (c) that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
 - (d) that have yielded, or may be likely to yield, information important in prehistory or history. (36 CFR 60.4)

For CEQA-compliance considerations, the State of California's Public Resources Code (PRC) establishes the definitions and criteria for "historical resources," which require similar protection to what NHPA Section 106 mandates for historic properties. "Historical resources," according to PRC §5020.1(j), "includes, but is not limited to, any object, building, site, area, place, record, or manuscript which is historically or archaeologically significant, or is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California." More specifically, CEQA guidelines state that the term "historical resources" applies to any such resources listed in or determined to be eligible for listing in the California Register of Historical Resources, included in a local register of historical resources, or determined to be historically significant by the Lead Agency (Title 14 CCR §15064.5(a)(1)-(3)).

Regarding the proper criteria of historical significance, CEQA guidelines mandate that "a resource shall be considered by the lead agency to be 'historically significant' if the resource meets the criteria for listing on the California Register of Historical Resources" (Title 14 CCR §15064.5(a)(3)). A resource may be listed in the California Register if it meets any of the following criteria:

- (1) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.
- (2) Is associated with the lives of persons important in our past.
- (3) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values.
- (4) Has yielded, or may be likely to yield, information important in prehistory or history. (PRC §5024.1(c))

In summary of the research results discussed above, five historical/archaeological sites were previously identified within or adjacent to various portions of the APE, but only three, 33-4495 (Riverside Upper Canal), 33-10974 (historic-period residences and other buildings), and 33-11361 (Victoria Avenue), are still present in or near the APE boundaries today. Among these three sites, 33-4495 and 33-10974 were previously determined not to be eligible for listing in the National Register of Historic Places or the California Register of Historical Resources (Tang 2000:3; Gustafson 2001:9, 12). Therefore, they do not constitute "historic properties" / "historical resources," as defined above, and require no further consideration.

Victoria Avenue, one of the most popular legacies from Riverside's citrus-growing past, has been designated by the City of Riverside as a Cultural Heritage Landmark (No. 8) and listed in the National Register of Historic Places (No. 00001267). As such, it clearly meets the definitions of a "historic property" and a "historical resource." Since it is located outside the project boundaries, Victoria Avenue will not receive any direct impact from the proposed undertaking. However, it is important that project plans take into account the presence of this "historic property" / "historical resource" in close proximity to the APE and be crafted carefully to avoid, minimize, or mitigate visual, atmospheric, or other indirect effect on the historic character of the parkway, primarily its mature landscaping and rustic feel. As currently proposed, the undertaking does not involve major construction above the ground or large-scale alteration of current land use at that location, and thus is not likely to have any indirect effect on the historic integrity of Victoria Avenue.

Based on the results of the geomorphologic analysis and the expanded records search, the subsurface sediments within the APE appear to be relatively low in sensitivity for potentially significant archaeological deposits. The geomorphologic analysis suggests that the APE is covered by sediments that are Holocene or older in age, limiting the possibility for deeply buried archaeological remains. Despite a relative lack of archaeological evidence, the valley floor evidently served many functions: a travel corridor, a special use area, or opportunistic locations for temporary camps. Compared to diverse artifact assemblages and the variety of features commonly associated with longer-term habitation sites such as those often found on ridges and terraces near water sources, the material residue of special use and opportunistic sites in the topographical and geomorphologic context of the APE offer much less archaeological data potential.

Past archaeological studies indicate that sites representing temporary camps or small-scale special-use areas are less likely to qualify as "historic properties" or "historical resources" even when they are found intact. In addition, extensive ground disturbances associated with urban development have greatly reduced the probability of subsurface archaeological deposits surviving intact within the APE. Therefore, it is highly unlikely for potentially significant subsurface archaeological remains to be impacted within the horizontal and vertical extents of the APE.

CONCLUSION AND RECOMMENDATIONS

Section 106 of the National Historic Preservation Act mandates that federal agencies take into account the effects of their undertakings on historic properties and seek ways to avoid, minimize, or mitigate any adverse effects on such properties (36 CFR 800.1(a)). Similarly,

CEQA establishes that "a project that may cause a substantial adverse change in the significance of a historical resource is a project that may have a significant effect on the environment" (PRC §21084.1). "Substantial adverse change," according to PRC §5020.1(q), "means demolition, destruction, relocation, or alteration such that the significance of an historical resource would be impaired."

As discussed above, of the three historical / archaeological sites encountered within or adjacent to the APE, two have been previously determined not to qualify as "historic properties" or "historical resources" under Section or CEQA provisions. The third site, representing a segment of Victoria Avenue, meets the definitions of a "historic property" and a "historical resource," but will not be affected by the proposed undertaking. In light of these findings, and pursuant to 36 CFR 800.4(d)(1) and Calif. PRC §21084.1, CRM TECH presents the following recommendations to the WMWD and the SWRCB regarding this undertaking:

- No "historic properties" or "historical resources" will be affected by the undertaking as currently proposed.
- The subsurface sediments within the APE appear to be relatively in low sensitivity for potentially significant archaeological deposits.
- No further cultural resources investigation is necessary for the proposed undertaking unless project plans undergo such changes as to include areas not covered by this study.
- If buried cultural materials are discovered during earth-moving operations associated with the undertaking, all work in that area should be halted or diverted until a qualified archaeologist can evaluate the nature and significance of the finds.

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Tang, Bai "Tom"

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USGS (United States Geological Survey, U.S. Department of the Interior)

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1902 Map: Corona, Calif. (30', 1:125,000); surveyed in 1894 and 1899.
1942 Map: Riverside, Calif. (15', 1:62,500); aerial photographs taken in 1939.
1947 Map: Corona, Calif. (15', 1:62,500); aerial photographs taken in 1939.
1953 Map: Riverside West, Calif. (7.5', 1:24,000); aerial photographs taken in 1948-1951, field-checked in 1953.
1954 Map: Corona North, Calif. (7.5', 1:24,000); aerial photos taken in 1952, field-checked in 1954.
1967a Map: Corona North, Calif. (7.5', 1:24,000); aerial photos taken in 1966, field-checked in 1967.
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1969 Map: San Bernardino, Calif. (1:250,000); 1958 edition revised.
1979 Map: Santa Ana, Calif. (1:250,000); 1959 edition revised.
1980 Map: Riverside West, Calif. (7.5', 1:24,000); 1967 edition photorevised in 1978.
1981 Map: Corona North, Calif. (7.5', 1:24,000); 1967 edition photorevised in 1978.

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APPENDIX 1
PERSONNEL QUALIFICATIONS

PRINCIPAL INVESTIGATOR
Bai "Tom" Tang, M.A.

Education

- 1988-1993 Graduate Program in Public History / Historic Preservation, UC Riverside.
 1987 M.A., American History, Yale University, New Haven, Connecticut.
 1982 B.A., History, Northwestern University, Xi'an, China.
- 2000 "Introduction to Section 106 Review," presented by the Advisory Council on Historic Preservation and the University of Nevada, Reno.
 1994 "Assessing the Significance of Historic Archaeological Sites," presented by the Historic Preservation Program, University of Nevada, Reno.

Professional Experience

- 2002- Principal Investigator, CRM TECH, Riverside/Colton, California.
 1993-2002 Project Historian/ Architectural Historian, CRM TECH, Riverside, California.
 1993-1997 Project Historian, Greenwood and Associates, Pacific Palisades, California.
 1991-1993 Project Historian, Archaeological Research Unit, UC Riverside.
 1990 Intern Researcher, California State Office of Historic Preservation, Sacramento.
 1990-1992 Teaching Assistant, History of Modern World, UC Riverside.
 1988-1993 Research Assistant, American Social History, UC Riverside.
 1985-1988 Research Assistant, Modern Chinese History, Yale University.
 1985-1986 Teaching Assistant, Modern Chinese History, Yale University.
 1982-1985 Lecturer, History, Xi'an Foreign Languages Institute, Xi'an, China.

Honors and Awards

- 1988-1990 University of California Graduate Fellowship, UC Riverside.
 1985-1987 Yale University Fellowship, Yale University Graduate School.
 1980, 1981 President's Honor List, Northwestern University, Xi'an, China.

Cultural Resources Management Reports

Preliminary Analyses and Recommendations Regarding California's Cultural Resources Inventory System (With Special Reference to Condition 14 of NPS 1990 Program Review Report). California State Office of Historic Preservation working paper, Sacramento, September 1990.

Numerous cultural resources management reports with the Archaeological Research Unit, Greenwood and Associates, and CRM TECH, since October 1991.

Membership

California Preservation Foundation.

PRINCIPAL INVESTIGATOR/ARCHAEOLOGIST

Michael Hogan, Ph.D., RPA*

Education

- 1991 Ph.D., Anthropology, University of California, Riverside.
 1981 B.S., Anthropology, University of California, Riverside; with honors.
 1980-1981 Education Abroad Program, Lima, Peru.
- 2002 Section 106—National Historic Preservation Act: Federal Law at the Local Level. UCLA Extension Course #888.
 2002 "Recognizing Historic Artifacts," workshop presented by Richard Norwood, Historical Archaeologist.
 2002 "Wending Your Way through the Regulatory Maze," symposium presented by the Association of Environmental Professionals.
 1992 "Southern California Ceramics Workshop," presented by Jerry Schaefer.
 1992 "Historic Artifact Workshop," presented by Anne Duffield-Stoll.

Professional Experience

- 2002- Principal Investigator, CRM TECH, Riverside/Colton, California.
 1999-2002 Project Archaeologist/Field Director, CRM TECH, Riverside.
 1996-1998 Project Director and Ethnographer, Statistical Research, Inc., Redlands.
 1992-1998 Assistant Research Anthropologist, University of California, Riverside
 1992-1995 Project Director, Archaeological Research Unit, U. C. Riverside.
 1993-1994 Adjunct Professor, Riverside Community College, Mt. San Jacinto College, U.C. Riverside, Chapman University, and San Bernardino Valley College.
 1991-1992 Crew Chief, Archaeological Research Unit, U. C. Riverside.
 1984-1998 Archaeological Technician, Field Director, and Project Director for various southern California cultural resources management firms.

Research Interests

Cultural Resource Management, Southern Californian Archaeology, Settlement and Exchange Patterns, Specialization and Stratification, Culture Change, Native American Culture, Cultural Diversity.

Cultural Resources Management Reports

Author and co-author of, contributor to, and principal investigator for numerous cultural resources management study reports since 1986.

Memberships

- * Register of Professional Archaeologists.
- Society for American Archaeology.
- Society for California Archaeology.
- Pacific Coast Archaeological Society.
- Coachella Valley Archaeological Society.

PROJECT ARCHAEOLOGIST/GEOLOGIST
Harry M. Quinn, M.S.

Education

1978 Certificate in Archaeology, University of California, Los Angeles.
1968 M.S., Geology, University of Southern California, Los Angeles.
1964 B.S., Geology, Long Beach State College, Long Beach.
1962 A.A., Los Angeles Harbor College, Wilmington.

- Graduate work oriented toward invertebrate paleontology; M.S. thesis completed as a stratigraphic paleontology project on the Precambrian and Lower Cambrian rocks of Eastern California.

Professional Experience

1998- Project Archaeologist/Geologist/Paleontologist, CRM TECH, Riverside/Colton, California.
1992-1998 Independent Geological/Archaeological/Environmental Consultant, Pinyon Pines, California.
1994-1996 Environmental Geologist, E.C E.S., Inc, Redlands, California.
1988-1992 Project Geologist/Director of Environmental Services, STE, San Bernardino, California.
1966-1988 Geologist/Senior Geologist, Texaco, Inc., Los Angeles; Tenneco Oil Exploration and Production, Englewood, Colorado; Loco Exploration, Inc., Aurora, Colorado; Jirsa Environmental Services, Norco, California.

Memberships

Society of Vertebrate Paleontology; American Association of Petroleum Geologists; Canadian Society of Petroleum Geologists; Rocky Mountain Association of Geologists, Pacific Section; Society of Economic Paleontologists and Mineralogists; San Bernardino County Museum; Society for American Archaeology; Society for California Archaeology; Archaeological Survey Association of Southern California; Coachella Valley Archaeological Society (President, 1993-1994, 2000; Vice President, 1992, 1995-1999, 2001; Basic Archaeology Training Course Instructor, 1996-2000; Environmental Assessment Committee Chair, 1997-1999); Coachella Valley Historical Society; Malki Museum; Southwest Museum; El Paso Archaeological Society; Ohio Archaeological Society; West Virginia Archaeological Society; Museum of the Fur Trade; Cahokia Mounds Association.

Publications

Five publications in Geology concerning an oil field study, a ground water and earthquake study, a report on the geology of the Santa Rosa Mountain area, and papers on vertebrate and invertebrate Holocene Lake Cahuilla faunas. Approximately 55 articles in archaeology and history in various journals. Co-author of more than 100 cultural resources reports.

**PROJECT ARCHAEOLOGIST/FIELD DIRECTOR
Daniel Ballester, B.A.**

Education

- 1998 B.A., Anthropology, California State University, San Bernardino.
1997 Archaeological Field School, University of Las Vegas and University of California, Riverside.
1994 University of Puerto Rico, Rio Piedras, Puerto Rico.
- 2007 Certificate in Geographic Information Systems (GIS), California State University, San Bernardino.
2002 "Historic Archaeology Workshop," presented by Richard Norwood, Base Archaeologist, Edwards Air Force Base; presented at CRM TECH, Riverside, California.

Professional Experience

- 2002- Field Director, CRM TECH, Riverside/Colton, California.
1999-2002 Project Archaeologist, CRM TECH, Riverside, California.
1998-1999 Field Crew, K.E.A. Environmental, San Diego, California.
1998 Field Crew, A.S.M. Affiliates, Encinitas, California.
1998 Field Crew, Archaeological Research Unit, University of California, Riverside.

**PROJECT ARCHAEOLOGIST/NATIVE AMERICAN LIAISON
Laura Hensley Shaker, B.S.**

Education

- 1998 B.S., Anthropology (with emphasis in Archaeology), University of California, Riverside.
1997 Archaeological Field School, University of California, Riverside.

Professional Experience

- 1999- Project Archaeologist, Native American Liaison, CRM TECH, Riverside/Colton, California.
1999 Archaeological survey and excavation at Vandenburg Air Force Base; Applied Earthworks, Lompoc, California.
1999 Archaeological survey at Fort Irwin Army Training Facility, Barstow; A.S.M. Affiliates, Encinitas, California.
1998-1999 Paleontological fieldwork and laboratory procedures, Eastside Reservoir Project; San Bernardino County Museum, Redlands, California.
1998 Archaeological survey at the Anza-Borrego State Park; Archaeological Research Unit, University of California, Riverside.
1997-1998 Archaeological survey and excavation at the Twentynine Palms Marine Corps Air and Ground Combat Center; Archaeological Research Unit, University of California, Riverside.

PROJECT HISTORIAN/REPORT WRITER
Terri Jacquemain, M.A.

Education

2004 M.A., Public History and Historic Resource Management, University of California, Riverside.

2002 B.S., Anthropology, University of California, Riverside.

- M.A. Graduate thesis completed on Cultural Outreach, Public Affairs and Tribal Policy of the Cabazon Band of Mission Indians, Indio, California. Internship served as interim Public Information Officer, Cabazon Band of Mission Indians, June-October 2002.

Professional Experience

2003- Historian/ Architectural Historian/Report Writer,
 CRM TECH, Riverside/Colton, California.

- Writer/co-author of cultural resources reports for CEQA and NHPA Section 106 compliance;
- Historic context development, historical/archival research, oral historical interviews, consultation with local historical societies;
- Historic building surveys and recordation, research in architectural history.

2002-2003 Teaching Assistant, Religious Studies Department, University of California, Riverside.

1997-2000 Reporter, *Inland Valley Daily Bulletin*, Ontario, California.

1991-1997 Reporter, *The Press-Enterprise*, Riverside, California.

Memberships

California Council for the Promotion of History.

Friends of Public History, University of California, Riverside.

APPENDIX 2

**CORRESPONDENCE WITH
NATIVE AMERICAN REPRESENTATIVES***

* A total of 15 local Native American representatives were contacted in writing. A sample letter is included in this report.



CRM TECH
FAX COVER
SHEET

1016 E. Cooley Drive
Suite B
Colton, CA 92324
909·824·6400·Tel
909·824·6405·Fax

To: Native American
Heritage Commission

Fax: (916) 657-5390

From: Nina Gallardo

Date: June 18, 2009

Number of pages (including this cover sheet):
3

HARDCOPY:

will follow by mail

will not follow unless requested

RE: Sacred Land records search

This is to request a Sacred Lands records search

Name of project:

Arlington Water Improvements
APNs: 145-232-044, 191-302-011, 234-250-026,
233-170-003, 233-100-001, 231-020-006, 193-074-012,
231-050-005, 233-120-004, 233-062-024, 233-120-005,
233-180-009, 138-030-026, 138-030-024, 135-220-035,
239-170-007, 231-210-002
CRM TECH #2346 (Arlington Wells)

Project size:

150+ acres

Location:

Riverside, Riverside County

USGS 7.5' quad sheet data:

Riverside West, Calif.
Sections 6-8, 13, 17-18, T3S R5W, and Rancho El
Sobrante de San Jacinto, T3S R6W, SBBM

Please call if you need more information or have any questions.

Results may be faxed to the number above.

I appreciate your assistance in this matter.

Map included

June 25, 2009

Ann Brierty, Cultural Resource Coordinator
San Manuel Band of Mission Indians
101 Pure Water Lane
Highland, CA 92346

RE: Arlington Water Improvements Project
150 Plus Acres in Assessor's Parcel Nos. 145-232-044, 191-302-011, 234-250-026,
233-170-003, 233-100-001, 231-020-006, 193-074-012, 231-050-005, 233-120-004,
233-62-024, 233-120-005, 233-180-009, 138-030-026, 138-030-024, 135-220-035,
239-170-007, and 231-210-002
In the City of Riverside, Riverside County
CRM TECH Contract #2346

Dear Ms. Brierty:

The lead agency for the project referenced above is the Western Municipal Water District for both CEQA and Section 106-compliance purposes. As part of the a cultural resources study for the proposed project, I am writing to request your input on potential Native American cultural resources in or near the Area of Potential Effects (APE). The Native American Heritage Commission reports that a sacred lands record search for the APE did not indicate the presence of Native American cultural resources in a half-mile radius of the APE, but recommends consulting with tribes that may have knowledge of cultural resources in the project vicinity. Please respond at your earliest convenience if you have any specific knowledge of sacred / religious sites or other sites of Native American traditional cultural value within or near the APE.

The proposed undertaking involves the construction of two pump stations in the existing Arlington Channel, several recharge basins, and well sites in both undeveloped and developed areas in the Arlington area, in the City of Riverside, Riverside County. The accompanying map, based on the USGS Riverside West, Calif., 7.5' quadrangle, depicts the location of the project area in Sections 6, 7, 8, 13, 17, and 18, T3S R5W, and a portion of the Rancho El Sobrante de San Jacinto land grant in T3S R6W, SBBM.

Any information, concerns or recommendations regarding cultural resources in the vicinity of the APE may be forwarded to CRM TECH by telephone, e-mail, facsimile or standard mail. Requests for documentation or information we cannot provide will be forwarded to our client and/or the lead agency. We would also like to clarify that CRM TECH, acting on behalf of Tom Dodson and Associates, is not the appropriate entity to initiate government-to-government consultations. Thank you for the time and effort in addressing this important matter.

Respectfully,

Laura Hensley Shaker
CRM TECH

Encl.: APE map

From: Johntommy Rosas <tattnlaw@gmail.com>
Date: Tue, 14 Jul 2009 04:30:23 -0400
To: Laura Shaker <lshaker@crmtech.us>
Conversation: CRM TECH #2346
Subject: Re: CRM TECH #2346

OK THIS IS I FOUND IT

1. I / TATTN HAVE SENIOR WATER RIGHTS IN WHICH IS NOW CALLED CALIFORNIA AND AFTER IT IS CALLED THAT-WE ARE NOW AGAIN DECLARING THOSE WATER RIGHT [S] AND WE OBJECT TO THE ILLEGAL CLAIMS OF WATER RIGHTS OVER OUR CLAIMS-DOCUMENTED WITH THE CA STATE WATER BOARD . WE OBJECT TO THIS PROJECT.
2. THOSE WATER RIGHT ARE TIED DIRECTLY TO OUR NOW ESTABLISHED TRIBAL CONSULTATIONS-
3. WE HAVE ALSO PROTESTED THE -Western Municipal Water District-AND ITS CLAIMED DISTRICTS AUTHORITY DIRECT TO WATER BOARD.
4. WE CULTURAL RIGHTS AND RESOURCES ASSOCIATED DIRECTLY TO THESE PROJECT WATERS - THOSE TATTN RIGHTS AND RESOURCES WILL BE NEGATIVELY IMPACTED BY THE CONTINUED WATER RIGHTS VIOLATIONS BY-Western Municipal Water District -
5. WE WANT A MEETING WITH Western Municipal Water District AND THE WATER BOARD TO RESOLVE THESE ISSUES , ASAP.
6. TATTN IS WILLING TO HAVE LAURA SHAKER BE THE CONSULTANT TO SEE THIS PROCESS THRU ITS LEGAL STEPS.
7. TATTN ALSO RESPECTFUL DEMAND TO RECEIVE ALL OR ANY APPROVALS OVER OUR OBJECTIONS AND ANY / ALL PROJECT DOCUMENTS SO WE CAN CONTINUE TO BE IN THE PROCESS.
8. SEE ATTACHED NAHC LETTER TO WATER BOARD-

/S/ JOHNTOMMY ROSAS

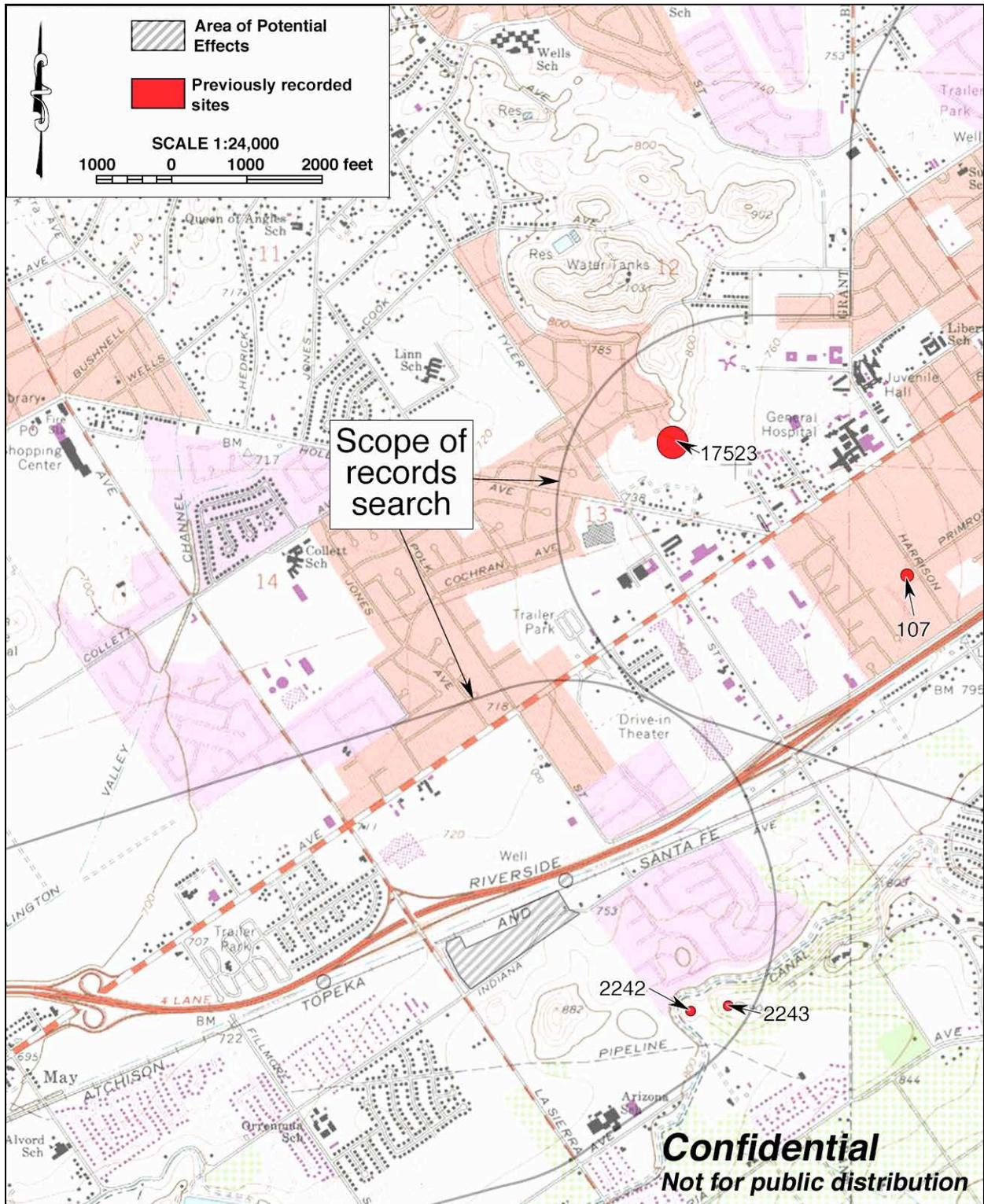
TELEPHONE LOG

Name	Tribe/Affiliation	Time/Date	Comments
Alvino Siva	Cahuilla elder	2:58 pm, July 6	Mr. Siva is deceased.
Luther Salgado, Sr.	Cahuilla	9:33 am, July 3	Left messages; no response to date.
Sam Dunlap, Tribal Secretary	Gabrielino Tongva Nation	9:24 am, July 3, 2:48 pm, July 6	Left messages; no response to date.
Anthony Morales, Chairperson	Gabrielino / Tongva San Gabriel Band of Mission Indians	9:24 am, July 3 2:50 pm, July 9 4:25 pm, July 10,	Mr. Morales requested monitoring by a qualified archaeologist and a member of the Gabrielino / Tongva San Gabriel Band during all ground-disturbing activities.
Mike Contreras, Jr., Cultural Historic Program Coordinator	Morongongo Band of Mission Indians	9:33 am, July 3 2:52 pm, July 6	Left messages; no response to date.
Joseph Hamilton, Chairman	Ramona Band of Mission Indians	9:26 am, July 3,	John Gomez, Jr., is the designated spokesman for the tribe (see below).
John Gomez, Jr., Cultural Resources Coordinator	Ramona Band of Mission Indians	9:26 am, July 3 1:58 pm, July 6, 4:20 pm, July 10,	Left messages; no response to date.
James Ramos, Chairperson	San Manuel Band of Mission Indians	None	Ann Brierty is the designated spokesperson for the tribe (see below).
Ann Brierty, Cultural Resources Field Manager	San Manuel Band of Mission Indians	9:28 am, July 3 2:57 pm, July 6 4:15 pm, July 10	Left messages; no response to date.
John Marcus, Chairperson	Santa Rosa Band of Mission Indians	9:23 am, July 3,	Andrea Candelaria replied on behalf of the tribe (see below).
Andrea Candelaria, Tribal Receptionist	Santa Rosa Band of Mission Indians	1:30 pm, July 6	Ms. Candelaria stated the tribe did not have any specific concerns, but requested to be notified of any archaeological discoveries in the APE.
Josesh Ontiveros, Monitoring Coordinator	Soboba Band of Luiseño Indians	4:30 pm, July 6	Mr. Ontiveros recommended that a Native American monitor be present during all ground-disturbing activities, and requested to be informed of project progress by the project proponent / lead agency.
Goldie Walker	Serrano Band of Mission Indians	9:29 am, July 3	Ms. Walker requested to be notified of any archaeological findings in the APE.
Paul Macarro, Cultural Resources Center	Temecula (Pechanga) Band of Luiseño Indians	None	Anna Hoover responded on behalf of the tribe (see below).
Anna Hoover, Cultural Analyst	Temecula (Pechanga) Band of Luiseño Indians	1:45 pm, July 6, 5:15 pm, July 10	Ms. Hoover responded in a letter dated July 13, 2009 (copy attached).
John Tommy Rosas, Tribal Administrator	Tongva Ancestral Territorial Tribal Nation	None	Mr. Rosas responded in an e-mail dated July 14, 2009 (copy attached).

APPENDIX 3

**LOCATIONS OF RECORDED PREHISTORIC
ARCHAEOLOGICAL SITES NEAR THE APE**

(Confidential)



APPENDIX D

GARY S. RASMUSSEN & ASSOCIATES, INC. /ENGINEERING GEOLOGY
490 ALABAMA ST. SUITE 103 • REDLANDS, CALIFORNIA 92373 • (909) 798-5410 • FAX (909) 798-5406

June 10, 2009

Tom Dodson & Associates
2150 N. Arrowhead
San Bernardino, California 92405

Project No. 3657

Attention: Bill Gatlin

Subject: Engineering Geology Analysis for Estimating the Potential for Liquefaction, Arlington Desalter Expansion, Riverside, California.

We have prepared this report to provide geologic services associated with estimating the potential for liquefaction for the Arlington Desalter Expansion, Riverside, California. The purpose of our services will be to evaluate the geologic parameters necessary for liquefaction to occur within the limits of the proposed expansion of the Arlington Desalter and its potential for raising the groundwater table. We have evaluated the geologic constraints that might exist at the site that are pertinent to the occurrence of liquefaction in the future based on existing data from published sources and well logs.

Our services included geologic research of existing groundwater data in the immediate vicinity of the site, including data from reports by Wildermuth Environmental, Inc., published geologic information including recent data by the USGS, analysis of the shallow soil conditions at the site as published in Soil Surveys, an evaluation of any faulting or other conditions likely to affect the groundwater at the site, and a geologic reconnaissance of the site to visually evaluate the near-surface soils. A list of pertinent references is included as Enclosure 1.

The proposed Arlington Desalter has the potential to alter groundwater levels in the Arlington Basin as importing water and recharging it into the basin is anticipated. In addition, pumping from the lower parts of the basin and recharging it into the upper parts of the basin has the potential to alter groundwater levels. Shallow groundwater levels have been identified in the basin as well as young, sandy sediments.

LIQUEFACTION

Liquefaction is the transformation from a solid to a liquid state as a result of increased pore pressure and reduced effective stress in cohesionless soil. Cohesionless soil is generally

Tom Dodson & Associates
June 10, 2009

Arlington Desalter Liquefaction

Project No. 3657

considered to be sand sized grains, but liquefaction can also occur in silt sized particles. In order for liquefaction to occur, four parameters are necessary to exist. Youd and Perkins (1978) and Youd *et al.* (1978) listed the parameters for increased liquefaction susceptibility as: 1) high ground water (less than 33 feet [10 meters] below the surface); 2) sandy sedimentary deposits; 3) recent age of material; and 4) close proximity to an active fault. Additional discussion of soils susceptible to liquefaction can be found in California Geological Survey Special Publication 117 (2008). There are many areas within the Arlington basin that fall into all categories susceptible to liquefaction.

The only liquefaction parameter in the basin that is subject to change by the Arlington Desalter is the depth to groundwater. All of the other parameters are fixed and will not change. Although the basin does not have any active faults passing through it, it is fairly close to active faults that are capable of generating strong shaking in the basin from large earthquakes on them. Based on data by the California Geological Survey, the alluvium in the basin may be subject to ground shaking of 0.45g (CGS, 2009). This is sufficiently severe to result in liquefaction in soils that also have the other three liquefaction parameters.

Sandy sedimentary deposits are usually considered to be Alluvium on geologic maps. For purposes of this analysis the geologic units in the Arlington basin are broken out into three categories, based on their susceptibility to liquefaction; Holocene-age alluvium (sandy sedimentary deposits of recent age), old alluvial fan deposits of middle Pleistocene age (dense silty, clayey, sandy deposits) and bedrock. These geologic units are broken out and identified on Enclosure 2 based on mapping by the United States Geological Survey (Morton and Cox, 2001, Morton and Gray, 2002, and Morton, 2004). Alluvium is the area considered to have a high potential for liquefaction where the groundwater table is less than 30 feet below the surface. The old alluvial fan deposits are considered to have a moderate potential for liquefaction when the groundwater table is less than 20 feet below the surface. Bedrock is not considered to be susceptible to liquefaction.

The State of California has not conducted seismic hazards mapping for the Riverside West or Corona North 7½ minute quadrangles, therefore the Arlington basin is not included within a Seismic Hazard Liquefaction Zone as defined by the Seismic Hazards Mapping Act (California Geological Survey, 2005). However, Riverside County has mapped liquefaction susceptibility and shows the same areas underlain by alluvium on Enclosure 2 as having a very high or high potential for liquefaction (Riverside County General Plan, 2003).

Tom Dodson & Associates
June 10, 2009

Arlington Desalter Liquefaction

Project No. 3657

The area shown on Enclosure 2 that includes old alluvial fan deposits (moderate susceptibility to liquefaction where the groundwater table is less than 20 feet below ground surface) does not generally have a high potential for liquefaction due to the higher density of the older sediments (Pleistocene age).

The actual parameters necessary for liquefaction to occur can only be precisely determined by drilling and testing of soils at any given location. Once these parameters are known, calculations can be made to determine each specific site's susceptibility to liquefaction. If a site is susceptible to liquefaction, new construction can be designed to withstand liquefaction, should it occur. Riverside County would require such a site specific investigation prior to issuing a building permit in those areas identified as being in a potential liquefaction zone. Therefore, new construction can mitigate for the effects of liquefaction.

Most of the Arlington basin has already been developed and contains many residential and commercial structures that probably have not been designed to withstand liquefaction. The most economical solution to protecting those existing structures is to manage the depth to groundwater. No other viable method is likely to mitigate the liquefaction potential for existing structures within the young alluvium. Therefore, Enclosure 2 shows the areas having the highest potential for liquefaction to occur should the groundwater table rise to within 30 feet of the ground surface (alluvium).

The second category identified on Enclosure 2 (older alluvium) is much less susceptible to liquefaction. Keeping the ground water table depth to 20 feet or more below the ground surface should mitigate the potential for liquefaction in those areas underlain by older alluvium.

Historically, portions of the Arlington basin have had groundwater within 7 feet of the surface (California Department of Water Resources, 1975). Liquefaction analyses consider the groundwater table to rise to within historic levels. The basin has had the groundwater table lowered (deepened) significantly during the last three decades and many of the same areas that had shallow groundwater now have groundwater levels of 20 feet or deeper. This has lowered those areas susceptibility to liquefaction.

Groundwater levels in the Arlington basin should be carefully managed and any recharge or redistribution of groundwater in the basin should consider the affects of raising the groundwater table in those areas susceptible to liquefaction. The actual susceptibility of soils subject to liquefaction can only be determined by drilling and testing.

Tom Dodson & Associates
June 10, 2009

Arlington Desalter Liquefaction

Project No. 3657

Please contact us if you have any questions.

Respectfully submitted,
GARY S. RASMUSSEN & ASSOCIATES, INC.

A handwritten signature in black ink, appearing to read "Gary S. Rasmussen".

Gary S. Rasmussen
Engineering Geologist, CEG 925

Enclosure 1: References

Enclosure 2: Liquefaction Potential Map

GSR/gr

**ENCLOSURE 1
REFERENCES**

Gary S. Rasmussen & Associates, Inc.

Tom Dodson & Associates–Arlington Desalter Expansion
Riverside, California
Project No. 3657

REFERENCES

California Department of Water Resources, 1971, Meeting water demands in the Chino-Riverside area: Department of Water Resources Bulletin 104-3.

California Department of Water Resources, 1977, Hydrologic data: 1975, Volume V, Southern California: Department of Water Resources Bulletin 130-75.

California Division of Mines and Geology, 2008, Guidelines for evaluating and mitigating seismic hazards in California, Special Publication 117.

California Geological Survey, 2005b, Probabilistic Seismic Hazards Assessment based on the USGS/CGS Probabilistic Seismic Hazards Assessment (PSHA) Model, 2002 (revised April, 2003) for 10 percent probability of being exceeded in 50 years;
<<http://www.consrv.ca.gov/cgs/rghm/pshamap/pshamap.asp>> -117.4286, 33.9279, [June 9, 2009].

California Geological Survey, 2005c, Seismic Hazard Zones Map, Riverside West and Corona North 7½ minute quadrangle, downloaded from <<http://gmw.consrv.ca.gov/shmp/download/pdf>> [June 9, 2009].

Morton, D.M., 2004, Digital geologic map of the Santa Ana 30' × 60' quadrangle, Version 2.0, southern California: U.S. Geological Survey Open-File Report 99-172, Scale 1:100,000

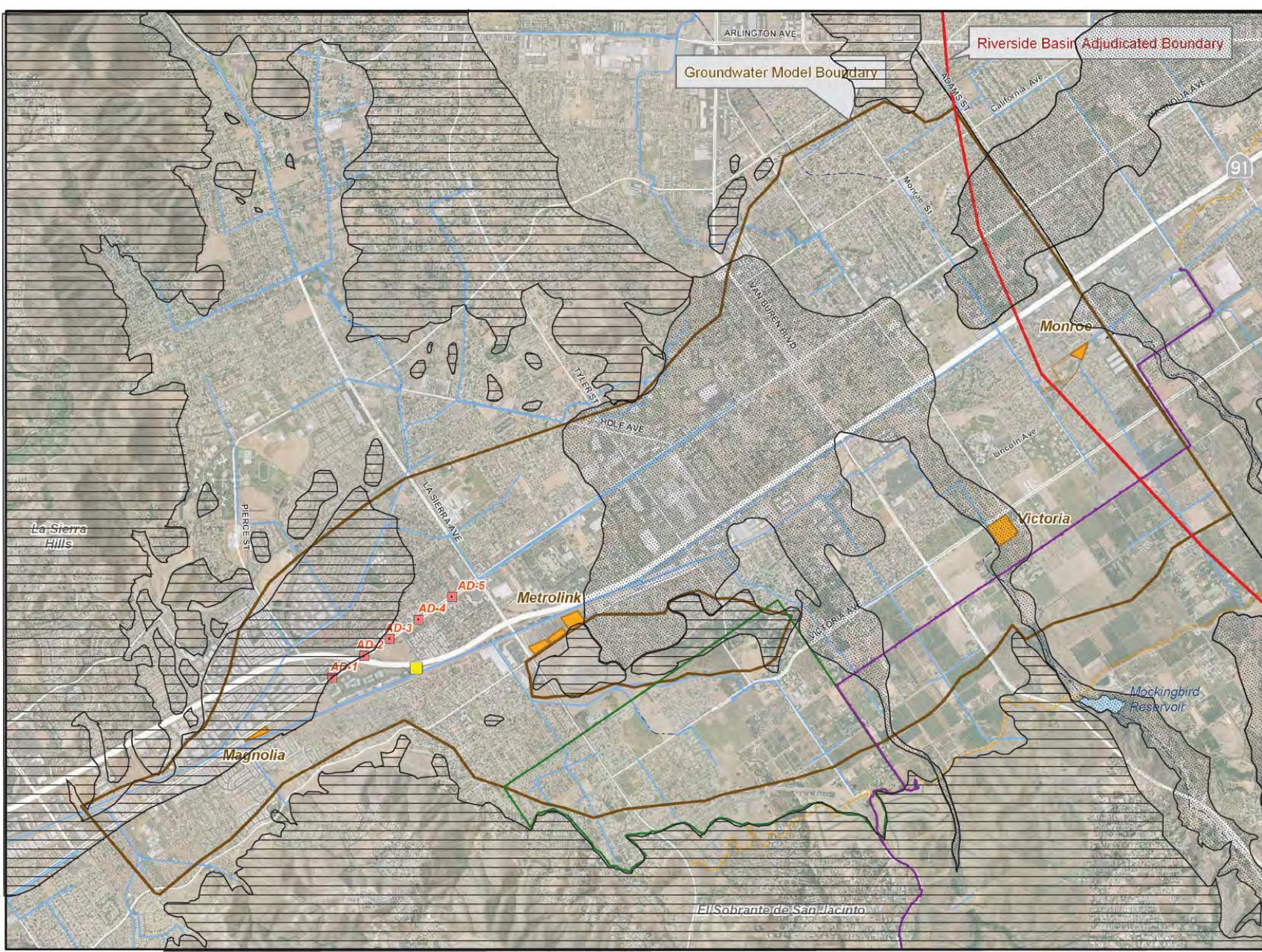
Morton, D.M., and Cox, B.F., 2001, Geologic map of the Riverside West 7.5' quadrangle, Riverside County, California: U.S. Geological Survey Open-File Report 01-451, Scale: 1" = 2,000'.

Morton, D.M., and Gray, Jr., C.H., 2002, Geologic map of the Corona North 7.5' quadrangle, Riverside County, California: U.S. Geological Survey Open File Report 02-22, Scale: 1"=2000'.

Riverside County, 2003, Riverside County Integrated Project General Plan.

Youd, T.L., and Perkins, D.M., 1978, Mapping liquefaction-induced ground failure potential: Journal of the Geotechnical Engineering Division, p. 433-446.

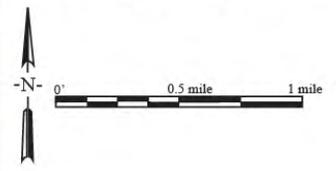
Youd, T.L., Tinsley, J.C., Perkins, D.M., King, E.J., and Preston, R.F., 1978, Liquefaction potential map of San Fernando Valley, California: Proceedings 2nd International Conference on Microzonation, San Francisco, p. 267-278.



- Recharge Basin
 - Recharge Basin Parcel
 - High Liquefaction Potential for Water Table < 30"
 - Moderate Liquefaction Potential for Water Table < 20"
 - Very Low Liquefaction Potential Bedrock
- Other Features**
- Existing Desalter Well
 - Existing Desalter Facility
 - WMWD Nonpotable Conveyance Pipeline
 - RCFC Infrastructure
 - Alford Drainage District (1952)
 - Streams and Flood Control Channels
 - Imported Water Canals
 - Groundwater Divides
 - Lakes & Flood Control basins

ENCLOSURE 2
LIQUEFACTION POTENTIAL MAP
 Gary S. Rasmussen & Associates, Inc.
 Tom Dodson & Associates — Arlington Desalter
 Expansion
 Riverside, California
 Project No. 3657

Base Map: Wildermuth Environmental (May, 2009)
 Scale: 1" = 1/2 mile



**ADDENDUM NO. 2 TO THE ADOPTED MITIGATED NEGATIVE DECLARATION FOR THE
WESTERN MUNICIPAL WATER DISTRICT'S ARLINGTON DESALTER EXPANSION PHASE 2
PROJECT**

**Prepared by
WESTERN MUNICIPAL
WATER DISTRICT**

**14205 MERIDIAN
PARKWAY**

RIVERSIDE, CA 92518

1. Introduction:

[The Arlington Desalter Expansion Phase 2 Project included the construction of recharge basins to improve water quality of the Arlington Basin through capture and recharge of unused high quality storm water, non-potable water, and/or recycled water. These basins will recharge up to 2,500 acre-feet of water per year. This will result in more available water in the Arlington Basin for extraction and treatment by the Arlington Desalter. An Initial Study/Mitigated Negative Declaration was completed and adopted by Western's Board for the Arlington Desalter Expansion Phase 2 Project in 2012. One of the basins developed under the Arlington Desalter Expansion Phase 2 Project is the Victoria Recharge Basin.]

2. Project Modification Description:

Since the approval of the original project (as described in Section 1 of this addendum), a minor project modification has occurred that needs to be addressed within the context of CEQA and the State CEQA Guidelines. *Western Municipal Water District* is proposing to obtain financial assistance for the approved project through the Stormwater for Recharge Pilot Program (Recharge Pilot) that is administered by The Metropolitan Water District of Southern California (Metropolitan). The Recharge Pilot encourages development and monitoring of new and existing stormwater recharge projects by providing financial incentives for construction and/or monitoring equipment installation of projects and supplemental reporting costs.

Metropolitan offers different incentive amounts for the Recharge Pilot based on project type (New Construction or Monitoring Equipment Installation):

PROJECT TYPE	FUNDING COMPONENTS	
	Construction/Installation	Monitoring & Reporting
Monitoring Equipment Installation	Up to \$350,000 reimbursement for eligible costs	\$50,000/report
	Maximum of \$500,000	
New Construction	Up to 50% reimbursement of	\$50,000/report

	eligible costs, max of \$850,000	
Maximum of \$1 million		

Western Municipal Water District has chosen the Monitoring Equipment Installation Project Type.

As the Lead Agency, *Western Municipal Water District* has prepared this addendum to the previously *A D O P T E D M I T I G A T E D N E G A T I V E D E C A L A R A T I O N* in support of its discretionary action to comply with CEQA and the State CEQA Guidelines. For this proposed project modification, Metropolitan will act as a Responsible Agency.

3. Minor Technical Additions:

This addendum has been prepared since partnering in the original project would require a discretionary action by the Lead Agency’s decision-making body.

On *April 2, 2020* the *Western Municipal Water District* submitted the proposal on the *VICTORIA RECHARGE BASIN* to Metropolitan. As the Responsible Agency, Metropolitan’s Board of Directors will review and consider the proposal and environmental documentation prepared by *Western Municipal Water District* in determining whether or not to approve financial assistance for the project within the Recharge Pilot administrative process.

The proposed project modification (i.e., a partnership with Metropolitan in the Recharge Pilot for the *ENHANCED MONITORING OF THE VICTORIA RECHARGE BASIN PROJECT*) would be consistent with Metropolitan's commitment to develop Recharge Pilot activities that would provide a better understanding of the connection between captured stormwater and water supply yield.

Therefore, this minor technical change and further clarification to the original project has no impact on water supplies or water quality within the Lead Agency's service area. Instead, the proposed project modification is an administrative and fiscal action.

4. Basis for Preparation of Addendum:

Section 15164(b) of the State CEQA Guidelines states “An addendum to an adopted negative declaration may be prepared if only minor technical changes or additions are necessary or none of the conditions described in Section 15162 calling for the preparation of a subsequent EIR or negative declaration have occurred.”

The proposed modification to the original project would not result in a tangible change in the physical environment. As the Lead Agency for the proposed project modification, *Western Municipal Water District* is issuing this addendum in accordance with the State CEQA Guidelines (Section 15164). The minor textual additions provided herein are not considered to 1) constitute a substantial change in the project as originally proposed by the *Western Municipal Water District*, 2) lead to substantial changes in

the circumstances under which the project is undertaken, or 3) constitute new information of substantial importance. Accordingly, an addendum was prepared as opposed to a negative declaration or a subsequent environmental impact report.

Ryan Shaw

Ryan Shaw (Nov 20, 2020 07:38 PST)
Signature

Nov 20, 2020

Date

Ryan Shaw
Printed Name

Director of Water Resources
Title