The Metropolitan Water District of Southern California

Agenda

The mission of the Metropolitan Water District of Southern California is to provide its service area with adequate and reliable supplies of high-quality water to meet present and future needs in an environmentally and economically responsible way.

Board of Directors - Final - Revised 1

September 10, 2024

12:00 PM

Tuesday, September 10, 2024 Meeting Schedule
08:30 a.m. EOP 11:30 a.m. Break 12:00 p.m. BOD

Agendas, live streaming, meeting schedules, and other board materials are available here: https://mwdh2o.legistar.com/Calendar.aspx. Written public comments received by 5:00 p.m. the business days before the meeting is scheduled will be posted under the Submitted Items and Responses tab available here: https://mwdh2o.legistar.com/Legislation.aspx.

If you have technical difficulties with the live streaming page, a listen-only phone line is available at 1-877-853-5257; enter meeting ID: 891 1613 4145.

Members of the public may present their comments to the Board on matters within their jurisdiction as listed on the agenda via in-person or teleconference. To participate via teleconference 1-833-548-0276 and enter meeting ID: 815 2066 4276 or to join by computer click here.

MWD Headquarters Building • 700 N. Alameda Street • Los Angeles, CA 90012
Teleconference Locations:
525 Via La Selva • Redondo Beach, CA 90277
City Hall • 303 W. Commonwealth Avenue • Fullerton, CA 92832
Marriott Desert Springs Villa II • 1091 Pinehurst Lane • Palm Desert, CA 92260
Flat 1 • 16 Clifton Road • London, United Kingdom W91SS
Alandale Insurance Agency • 337 W. Foothill Blvd • Glendora CA 91740
2680 W. Segerstrom Avenue, Unit 1 • Santa Ana, CA 92704
La Fonda on the Plaza • 100 E San Francisco Street • Santa Fe, NM 87501
Conference Room • 1545 Victory Boulevard, 2nd Floor • Glendale, CA 91201
5481 Lago Vista Lane • Frisco, TX 75034

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1. Call to Order

a. Invocation: Director Anthony Fellow, Upper San Gabriel Valley Municipal Water District

b. Pledge of Allegiance: Director Karl Seckel, Municipal Water District of Orange County

2. Roll Call

Boardroom

3. Determination of a Quorum

4. Opportunity for members of the public to address the Board on matters within the Board's jurisdiction. (As required by Gov. Code §54954.3(a))

5. OTHER MATTERS AND REPORTS

A. Report on Directors' Events Attended at Metropolitan's Expense **21-3713**

Attachments: 09102024 BOD 5A Report

B. Chair's Monthly Activity Report **21-3714**

Attachments: 09102024 BOD 5B Report
09102024 BOD Western Water Presentation

C. Interim General Manager's summary of activities **21-3715**

Attachments: 09102024 BOD 5C Report

D. General Counsel's summary of activities **21-3716**

Attachments: 09102024 BOD 5D Report

E. General Auditor's summary of activities **21-3717**

Attachments: 09102024 BOD 5E Report

F. Ethics Officer's summary of activities **21-3718**

Attachments: 09102024 BOD 5F Report

G. Presentation of 5-year Service Pin to Director Tana McCoy, City of Compton **21-3813**

H. Presentation of 5-year Service Pin to Director Tracy Quinn, City of Los Angeles **21-3771**

I. Presentation of Commendatory Resolution for Director Judy Abdo representing City of Santa Monica **21-3786**

**** CONSENT CALENDAR ITEMS -- ACTION ****

6. CONSENT CALENDAR OTHER ITEMS - ACTION

A. Approval of the Minutes of the Board of Directors Meeting for August 20, 2024 (Copies have been submitted to each Director, any additions, corrections, or omissions) **21-3719**

Attachments: 09102024 BOD 6A (08202024) Minutes

B. Approve Committee Assignments

7. CONSENT CALENDAR ITEMS - ACTION

7-1 Authorize an agreement with IDS Group Inc. in an amount not to exceed $400,000 for design services to rehabilitate the heating, ventilation, and air conditioning system at Metropolitan Headquarters Building; the General Manager has determined that the proposed action is exempt or otherwise not subject to CEQA (EOT) **21-3721**

Attachments: 09102024 EOT 7-1 B-L
09092024 EOT 7-1 Presentation

7-2 Adopt the Mitigated Negative Declaration for the West Valley Feeder No. 1 Stage 3 Improvements Project and take related CEQA actions (EOT) **21-3724**

Attachments: 09102024 EOT 7-2 B-L
09092024 EOT 7-2 Presentation

7-3 Award a $1,285,000 contract to Resource Environmental Incorporated for abatement and roof replacement of houses at four Colorado River Aqueduct Pumping Plant villages; the General Manager has determined that the proposed action is exempt or otherwise not subject to CEQA (EOT) **21-3725**

Attachments: 09102024 EOT 7-3 B-L
09092024 EOT 7-3 Presentation

7-4 Authorize the General Manager to enter into agreements with the Plumas Community Protection I Forest Resilience Bond LLC, North Feather I Forest Resilience Bond LLC, and Upper Butte Creek I Forest Resilience Bond LLC to establish watershed partnerships and forest health pilot investigations in the Northern Sierra Nevada; each agreement is not to exceed $200,000 per year for a maximum of two years; the General Manager has determined that the proposed action is exempt or otherwise not subject to CEQA (OWS) **21-3732**

Attachments: 09102024 OWS 7-4 B-L
09092024 OWS 7-4 Presentation

7-5 Approve the Metropolitan Water District of Southern California's salary schedules pursuant to CalPERS regulations; the General Manager has determined that the proposed action is exempt or otherwise not subject to CEQA (EOP) **21-3748**

Attachments: 09102024 EOP 7-5 B-L
09102024 EOP 7-5 Presentations

7-6 Express support for Proposition 4, The Safe Drinking Water,Wildfire Prevention, Drought Preparedness, and Clean Air Bond Act of 2024; the General Manager has determined that the proposed action is exempt or otherwise not subject to CEQA (Leg) **21-3760**

Attachments: 09102024 LC 7-6 B-L
09092024 LEG 7-6 Presentation

**** END OF CONSENT CALENDAR ITEMS ****

8. OTHER BOARD ITEMS - ACTION

8-1 Authorize a $40 million increase to an existing agreement with J.F. Shea Construction Inc. to purchase long-lead equipment for the Sepulveda Feeder Pump Stations Project, for a new not-to-exceed amount of $50.4 million; the General Manager has determined that the proposed action is exempt or otherwise not subject to CEQA (This action is part of a series of projects that are being undertaken to improve the supply reliability for State Water Project dependent areas.) (EOT) **21-3722**

Attachments: 09102024 EOT 8-1 B-L
09092024 EOT 8-1 Presentation

8-2 Authorize an amended and restated agreement with the Los Angeles County Sanitation District for shared implementation of the advanced water purification facility for Pure Water Southern California; the General Manager has determined that the proposed actions are exempt or otherwise not subject to CEQA (EOT) **21-3723**

Attachments: 09102024 EOT 8-2 B-L
09092024 EOT 8-2 Presentation

8-3 ITEM 8-3 MOVED FROM ACTION ITEM TO COMMITTEE ITEM 7b. (LC) **21-3787**

9. BOARD INFORMATION ITEMS

9-1 Conservation Report **21-3720**

Attachments: 09102024 BOD 9-1 B-L

9-2 Proposed Modifications to the Reverse-Cyclic Program (OWS) **21-3734**

Attachments: 09102024 OWS 9-2 B-L
09092024 OWS 9-2 Presentation

9-3 Update on proposed agreements with Western Canal Water District and Richvale Irrigation District for water transfer options and first rights of refusal during 2025 through 2027 (OWS) **21-3780**

Attachments: 09102024 OWS 9-3 B-L
09092024 OWS 9-3 Presentation

10. OTHER MATTERS

NONE

11. FOLLOW-UP ITEMS

NONE

12. FUTURE AGENDA ITEMS

13. ADJOURNMENT

NOTE: Each agenda item with a committee designation will be considered and a recommendation may be made by one or more committees prior to consideration and final action by the full Board of Directors. The committee designation appears in parenthesis at the end of the description of the agenda item, e.g. (EOT). Board agendas may be obtained on Metropolitan's Web site https://mwdh2o.legistar.com/Calendar.aspx

Writings relating to open session agenda items distributed to Directors less than 72 hours prior to a regular meeting are available for public inspection at Metropolitan's Headquarters Building and on Metropolitan's Web site https://mwdh2o.legistar.com/Calendar.aspx.

Requests for a disability-related modification or accommodation, including auxiliary aids or services, in order to attend or participate in a meeting should be made to the Board Executive Secretary in advance of the meeting to ensure availability of the requested service or accommodation.

September 10, 2024 Board Meeting

Item 5A

Metropolitan Water District of Southern California
Summary of Events
Attended by Directors at Metropolitan's Expense in August 2024

Date(s)	Location	Meeting Hosted by:	Participating Director(s)
August 14-16	Sacramento, CA	DCA Oversight Meeting	Miguel Luna
August 21	San Diego, CA	Urban Water Institute – 2024 Annual Conference	Brenda Dennstedt
August 28-29	Sacramento, CA	DCA Oversight Meeting	Miguel Luna

• Chair of the Board Adán Ortega Jr.'s Monthly Activity Report – August 2024

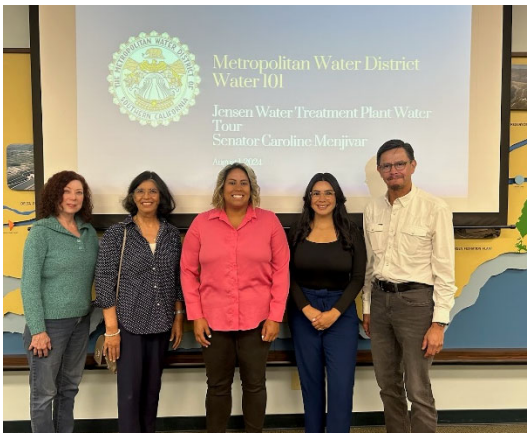
Summary

This report highlights my activities as Chair of the Board during the month of August 2024 on matters relating to The Metropolitan Water District of Southern California's business.

Monthly Activities

Key Activities

- I participated in the Water Tour for Senator Caroline Menjivar at Metropolitan's Jensen drinking water treatment plant, where I had the opportunity to deliver the opening remarks. I emphasized the Metropolitan Board's commitment to enhancing Southern California's water supply resilience through key initiatives, such as the High Desert Water Bank, which will store 280,000 acre-feet of water for use during dry years. Additionally, we launched the Climate Adaptation Master Plan for Water (CAMP4W) to address climate change impacts, ensuring resiliency and equitable access during severe droughts. Partnerships, like the one with Senator Menjivar, are crucial to securing a reliable long-term water supply for Southern California. In attendance were Mayor Celeste Rodriguez, City of San Fernando and Metropolitan Directors Marsha Ramos and Jacque Mcmillan.



- Interim General Manager Deven Upadhyay and I have been conducting Metropolitan site meetings to meet with the employees, provide district updates, and listen to and address their concerns. So far, we have attended three meetings in August: Jensen, Diemer, and Weymouth Water Quality Lab, where we participated in a robust question-and-answer session addressing various topics, including Metropolitan's local and regional planning investments, workforce initiatives, and CAMP4W. We emphasized our commitment to upholding high service standards and transparency. I communicated the Board's strong unity in recent tough decisions and our united concern for their well-being. I was encouraged by the focus the workforce is demonstrating on our mission of providing safe and reliable drinking water to the community. Interim General Manager Deven Upadhyay's comments and answers to questions were received with candor, appreciation, good humor, and with sincere thanks.
- Participated in the Latinos in Heritage Conservation "Congreso 2024" panel discussion on Health, Environmental, and Social Justice. Joined water experts to discuss the ongoing climate crisis and its urgent impact on cultural landscapes, public land, and historic Latinx communities. Congreso is the only conference dedicated to the Latinx preservation movement and offers a unique opportunity to learn, share, and connect with fellow preservationists.

- Joined the swearing-in of Dr. Mark Gold who was appointed to the Metropolitan Board to represent the City of Santa Monica. With over three decades of expertise in California water issues, Mark is a trusted expert in the field. His return brings a wealth of knowledge that will greatly enhance our discussions on climate adaptation planning for water supply resiliency. He succeeds our cherished Board Vice Chair Judy Abdo who is retiring from our board after a 30+ year tenure.



- Addressed the San Diego County Water Authority (SDCWA) Board Meeting with Interim General Manager Deven Upadhyay. We addressed the interrelation between CAMP4Water, the Biennial Budget Process, Bay-Delta Issues, and the Colorado River, as well as our collective resiliency in addressing the State Water Project Exclusive Areas challenges. We also addressed collaboration between two of the largest wholesale water agencies in Southern California in light of MWD's major long-term planning effort. We thanked the Board and SDCWA's delegates on the Metropolitan Board, Directors Gail Goldberg; Lois Fong-Sakai; Tim Smith; and Marty Miller, for their leadership and continued collaboration.

- I helped to celebrate 40 years of innovation and growth with Metropolitan's education team, both past and present, and member agency education coordinators. We reminisced about signature programs including Solar Cup, the annual student art calendar, and field trips at Diamond Valley Lake and the Grace F. Napolitano Pure Water Southern California Innovation Center in Carson. These educators have helped shape public attitudes about drinking water that are adding up to millions of acre-feet of water in our storage facilities.


- I provided opening remarks at Eastern Municipal Water District and Metropolitan's Agricultural Listening session where I disussed Metropolitan's water supply/resilience plan and an overview on the Climate Adaptation Master Plan for Water. Key topics discussed included Agricultural efficiency, MWD water supply/resilience, and CAMP4Water. In addition, local stakeholders presented on agriculture water use efficiency programs.

Issues and Operations Briefings for Directors

- A new series of Briefings for Directors kicked-off in August with sessions focused on Metropolitan's Financials and Overview of Metropolitan's Water Supplies. Such briefings have in the past focused on new directors. The new series of briefings is welcoming to new directors but are a hit with long-standing directors who have used them as "refresher courses." The briefing on Climate Change Mitigation and Adaptation was held on September 4. Participating Directors noted that the sessions were very valuable and provide a unique learning opportunity focused on foundational information to better understand Metropolitan's diverse challenges and programs. The initial sessions include:
    - Treatment and Distribution System
    - Water Supplies
    - Financials
    - Climate Change Mitigation and Adaptation
    - External Affairs/Outreach
    - Workforce
    - Emergency Management

  Staff is taking input on refining and expanding the sessions offered and will continue scheduling sessions based on the interest of Directors.

Special Activities

- The Board Executive Officer and I hosted an ice cream social to recognize the efforts of our board committee coordinators. Interim General Manager Deven Upadhyay , General Auditor Scott Suzuki, and Assistant Ethics Officer Kelli Shope joined me in expressing appreciation for the staff's dedication, hard work, and commitment. The 50+ committee coordinators track board letters, follow-up items, and handle preparation for monthly committee meetings. We would not be able to operate without their dedication and hard work.

Regularly Scheduled/Ongoing Meetings

I continue to meet regularly to review the Board's organizational issues and coordinate activities with the Board Vice Chairs and Department Heads.

WESTERN WATER

Powered by water.
Driven by service.

Update to The Metropolitan Water District of Southern California

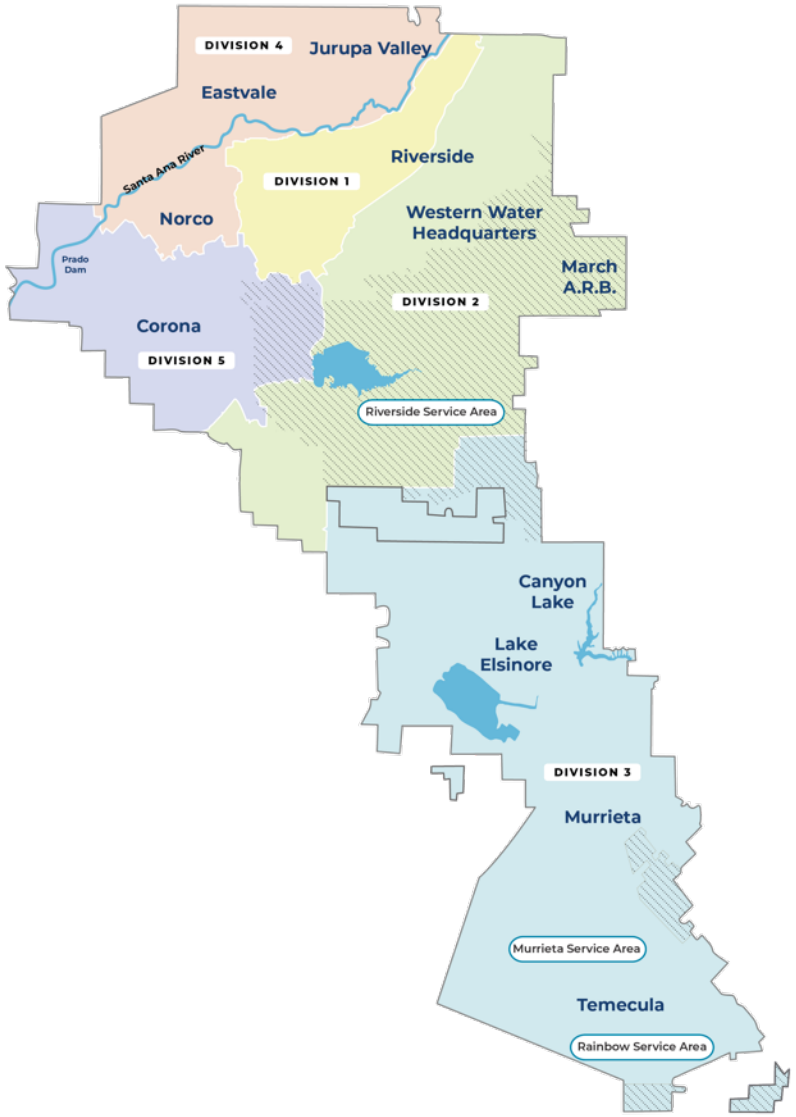
ABOUT WESTERN WATER

1. Providing drinking water, recycled water, and wastewater services to nearly 1 million people

2. Partnerships with 14 agencies

3. Serving nearly 25,000 direct connections (100,000+ people)

4. Member agency of the Metropolitan Water District of Southern California



OUR SERVICE AREA

- **Established in 1954 to deliver imported water**
  - 527 square mile service area
- **Located in western Riverside County**
  - 60,000 to 85,000 acre-feet of water served annually
- **Our Western Water Portfolio**
  - 38% local supply + 62% imported water

ACHIEVEMENTS IN WATER MANAGEMENT

- **One of the fastest-growing** regions
- Reduced retail water use **by 50%**
- Transitioned supply reliance - **moved 100% to 60% and sold out on recycled water**
- Santa Ana Watershed is **one of the most sophisticated** water systems in the state
- Participant in the **Santa Ana River Conservation and Conjunctive Use Program**
- Serves as **4 different watermasters**

GROWTH AND WATER USAGE PROJECTIONS

POPULATION/GROWTH PROJECTION

Resident Population

980K

Based on 2020 Census

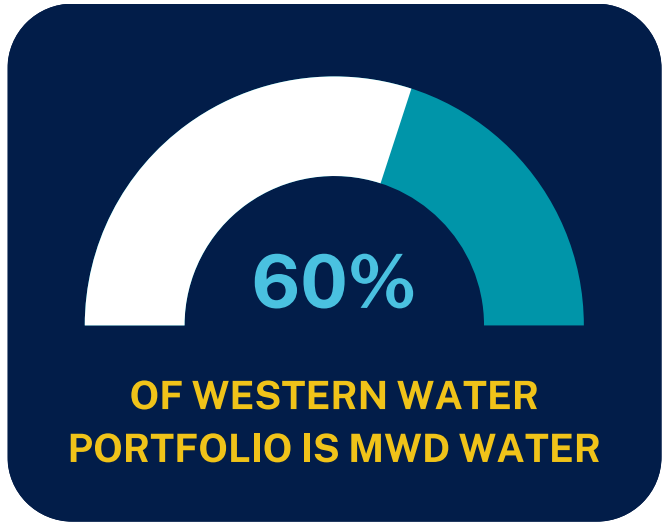
Projected Growth:
25% Increase by 2045

2020 – 979,634
2025 – 1,079,334
2030 – 1,077,603
2035 – 1,131,288
2040 – 1,177,721
2045 – 1,225,915

WATER USAGE – **26,091 (AF)** RETAIL AVG. OVER 10 YRS

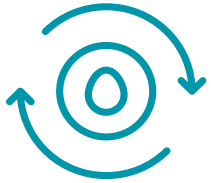
2013	2014	2015	2016	2017	2018	2019	2020
29,741	29,900	23,512	23,429	25,750	26,458	24,801	25,134

MWD WATER PURCHASE



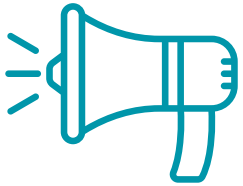
2020 – 67,968 acre-feet
2025 – 91,816 acre-feet
2030 – 95,908 acre-feet
2035 – 101,261 acre-feet
2040 – 107,664 acre-feet
2045 – 116,443 acre-feet

OUR COMMITMENT TO WATER EFFICIENCY



Demand Reduction Actions

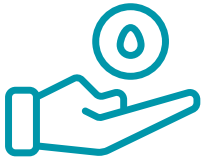
Budget based rate structure



Compliance & Enforcement

AMI – Advanced Metering Infrastructure (Smart Meters & Customer Portal)

Water efficient landscape transformations



Regional support programs

OUR TOP PRIORITIES

Advocating for regional priorities and needs

Collaborating on statewide and regional efforts

Developing water resilience

WESTERN WATER
Powered by water.
Driven by service.

Questions?

Presented by Craig Miller

General Manager's Monthly Report

Activities for the Month of August 2024

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Message from the General Manager

In August, Metropolitan's Education Program marked a major milestone: 40 years of acclaimed water education in Southern California.

Since its inception in 1984, Metropolitan's Education Program has pioneered experiential learning opportunities, engaging 20,000 students and teachers a year across the region. It has evolved to meet the needs of the District, from the early days of curriculum supplements like *Water Ways* and *Admiral Splash* to the creation of lasting resources like bewaterwise.com to the recent unveiling of a place-based curriculum focused on climate change.

The celebration, set against a lively luau-themed backdrop, brought together past and present staff, including the program's first manager, Sue Meltzer, other former managers Russ Donnelly and Adrian Hightower, current manager Benita Horn and other team members who continue to champion water education.

While we celebrate and take pride in four decades of success, we also recommit ourselves further innovation to promote water use efficiency and raise awareness of the need for investment to ensure water security into the future.

The Education Program is on the frontlines of Metropolitan's mission today while inspiring the next generation of engineers, scientists, and policymakers.

Deven Upadhyay
Interim General Manager

Right and Bottom Photos

40th Anniversary of Metropolitan's Education Programs

Strategic Priorities Update

The General Manager's Strategic Priorities guide actions in key areas of change and opportunity that will strengthen Metropolitan and its ability to fulfill its mission. Review the General Manager's Business Plan for FY24-25 and the "SMART Tracker" dashboard of specific actions that advance the Strategic Priorities.

Empower the workforce and promote diversity, equity, and inclusion

Goal Dashboard

8 Outcomes in progress at the start of the fiscal year

Build a safe, inclusive, and accountable workplace where all employees feel valued, respected, and able to meaningfully contribute to decisions about their work to fulfill Metropolitan's Mission.

Senior Executives previewed the Civil and Inclusive Workplace training, which incorporates aspects of safety and our vision and values to further advance one holistic effort around cultural transformation for Metropolitan.

To streamline employee access of summary reports of injury, illness, and near-miss incidents each month, a report link is now available through the Safety and Environment webpage on the Intramet.

At the inaugural Executive Safety Committee meeting, the National Safety Council (NSC) introduced the executives to an overview of Safety Leadership. The Human Organizational and Performance (HOP) training is scheduled to be delivered by NSC to all Safety, Regulatory, and Training staff for professional development and possible inclusion in the safety leadership training.

Prepare and support the workforce by expanding training and skill development and updating strategies to recruit and retain diverse talent, to meet the evolving needs and expectations of the workplace.

Diversity, Equity & Inclusion staff met with Calleguas Municipal Water District to co-create solutions around workforce development and to discuss Metropolitan's Apprenticeship Program.

The Engineering Services Group will begin the next cohort of its Career Launch program in October 2024.

Sustain Metropolitan's mission with a strengthened business model

Goal Dashboard

5 Outcomes in process at the start of the fiscal year

Develop revenue and business model options that support the needs of the member agencies as well as Metropolitan's financial sustainability and climate adaptation needs.

At the Climate Adaptation Master Plan for Water (CAMP4W) Task Force in August, Dave Pedersen of Las Virgenes Municipal Water District presented the proposed process for business model review, which was also outlined in a letter signed by all 26 member agencies. The Task Force found the process agreeable, and members voiced their continuing interest in being involved as it moves forward.

Another Treated Water Cost Recovery Workshop was also held in August.

Identify and secure programmatic cost savings, organizational efficiencies and external funding.

Proposed budget reductions have been reviewed and established across all Groups. Finance continues to monitor expenditures and will keep the Board informed through regularly scheduled financial reporting.

Metropolitan, the San Diego County Water Authority, and the Imperial Irrigation District signed an agreement to leave 50,000 AF of water in Lake Mead in 2024, providing revenue for Metropolitan while benefitting the Colorado River system. This agreement enables USBR "Bucket 1" funding to support conservation, which also benefits Metropolitan at approximately $16M. While the agreement will also cover similar action in 2025 and 2026, the volume and value of the conservation in those years is still TBD.

Colorado River

Agreement with San Diego and Imperial Irrigation District enables Inflation Reduction Act funding for 50 TAF of conservation in 2024

Adapt to changing climate and water resources

Goal Dashboard

10 Outcomes in process at the start of the fiscal year

Provide each member agency access to an equivalent level of water supply reliability.

The CAMP4W Task Force met in August and reviewed the evolution of evaluative criteria and the feedback received from member agencies. The input from the member agencies and Task Force is being used to refine and update the evaluative criteria, shifing from an approach focused on a universal scoring system to one that provides a more comprehensive evaluation using both quantitatvie and qualitative measures; this is expected to be next presented to the Board Task Force in September.

Among the projects underway to enhance the long-term supply reliability for State Water Project dependent areas, one item came to the Board for approval in August: the installation of a large isolation valve for the Wadsworth Pump Plant Bypass. This installation work, through a change order to the existing contract, advances future work into the current phase and thereby eliminates an additional shutdown and the costs for preparing, advertising, and administering a second contract, as well as additional contractor mobilization. The valve would be installed during the planned February 2025 shutdown for the Inland Feeder/Rialto Pipeline Intertie.

Advance the long-term reliability and resilience of the region's water sources through a One Water approach that recognizes the interconnected nature of imported and local supplies, meets both community and ecosystem needs and adapts to a climate change.

The State Water Resources Control Board issued a notice of public hearing regarding the Delta Conveyance Project on July 31, 2024. The public hearing is set to begin on January 16, 2025, and will address the water right change petition filed by the Department of Water Resources to add two new points of diversion and rediversion to the water rights associated with the State Water Project.

Staff held a pre-bid inspection for the installation of flow meters and telemetry equipment on diversion siphons on Metropolitan's Delta Islands. This project is the fifth and final phase of a project related to SB 88 compliance. Staff continued design activities for the Webb Tract Wetland Restoration Project. Design of a new levee improvement project on Bouldin Island started in August.

A wide range of predevelopment work to advance the Pure Water Southern California (PWSC) program has progressed this month:

- Discussions with member agencies continue toward developing term sheets by the end of 2024. Follow-up meetings with each member agency have been held, and a third Workshop was convened in August. Member Agency responsibilities and schedule are being discussed.
- Value Engineering (VE) was performed for Reach 1 and the conveyance team is evaluating what suggestions will be incorporated into the design. Additional tunneling is a major topic of discussion. Geotech and potholing for Reach 1 is nearly complete, while similar work on Reach 2 is just beginning.
- Technical analysis and Environmental Impact Report (EIR) preparation are ongoing. The draft EIR is scheduled to be available by mid 2025. The final EIR schedule has been moved up to January 2026 to meet budget/rate calendars for the next Metropolitan biennium and LA County Sanitation Districts (LACSD) 5-year budget cycle.
- As staff and USBR discuss the $99M Large Scale Water Recycling grant, the Board was provided an informational update in August. A board action for acceptance of the grant is scheduled for October 2024.
- Also provided to the Board in August was information on agreement modifications that increase the responsibilities of the LACSD for treatment at PWSC. An action item for the LACSD agreement modifications is scheduled for the September.
- Direct Potable Reuse (DPR) regulations were officially approved in August, and a summary document was prepared by Water Quality staff; results of our DPR analysis will be provided at the September subcommittee meeting.

Application activity has increased in Metropolitan's commercial, industrial, and institutional turf replacement program to remove non-functional turf and replace it with climate appropriate landscapes. Staff is currently ramping up inspections to accommodate the increase in activity due to the release of the grant funding.

A meeting of member agency Water Use Efficiency coordinators was held in August, with a presentation by a member agency on turf replacement design services.

Protect public health, the regional economy, and Metropolitan's assets

Goal Dashboard

9 Outcomes in process at the start of the fiscal year

Proactively identify, assess, and reduce potential vulnerabilities to Metropolitan's system, operations, and infrastructure.

Important risk assessments are underway, including for Lake Mathews and Lake Skinner. The "Potential Failure Modes Analysis" was completed for Lake Mathews, and the Lake Skinner assessment is on target for completion by June 2025.

A system-wide criticality assessment has been completed to support the prioritization operations facilities related to potential vulnerabilities and emergency readiness investments.

The recently expanded Duty Officer cadre, consisting of Emergency Management and Security Management personnel, last month responded to or monitored over 20 incidents, including earthquakes, wildfires, a worldwide IT outage, and a potential water leak. The Duty Officers tracked all incidents in Metropolitan's WebEOC system.

Dam Safety

Risk Assessment for Lake Mathews completed

Planning has begun for the 2024 ShakeOut EOC exercise, in collaboration with Southern California Edison and some of our member agencies. The Metropolitan Emergency Response Plan will be assessed during this exercise in October.

Apply innovation, technology, and sustainable practices across project lifecycles.

Two electric vehicle charging stations to be used exclusively by district vehicles were installed at the Weymouth plant this month. Staff has issued a Request for Proposals and received and prequalified four consultants to perform preliminary design for Zero Emission Vehicle (ZEV) charging infrastructure. Staff began preparing an October board action to award on-call agreements to support preliminary design.

Staff completed an analysis to balance the risks associated with the age and condition of critical fleet vehicles with regulations to transition to ZEVs and available funding for purchasing replacement vehicles. This analysis was summarized and presented to the Engineering, Operations, and Technology Committee to allow future consideration by the Board for possible financing of additional vehicle purchases above the existing approved budget.

Partner with interested parties and the communities we serve

Goal Dashboard

6 Outcomes in progress at the start of the fiscal year

Grow and deepen collaboration and relationships among member agencies, interested parties and leaders on the issues most important to them and toward mutual and/or regional benefits.

Staff presented CAMP4W to the San Gabriel Valley Council of Governments Water Working Group, and an Environmental Listening Session was held to seek input on the attributes and metrics for Community Equity and Environmental Co-Benefits in the CAMP4W evaluative criteria. Staff participated in a panel discussion on Investing in our Water Future at the Building Industry Association of Southern California's Water Conference. An Agricutlrual Listening Session was organized by Eastern Municipal Water District, where agricultural water users shared innovative efficiency measures and Metropolitan discussed CAMP4W and water reliability.

We issued a monthly newsletter to 16,000 subscribers including all Metropolitan employees. A slide show of the Employee Appreciation event is posted and running in the lobby at Metropolitan Headquarters. We are creating content on Water Quality lab and employees for social media as part of the 50th anniversary of the lab. And we celebrated another anniversary, 40 years of the Education Program, convening employees at a "Learning Luau" and looking ahead to future opportunties for water education.

Reach disadvantaged communities and non-traditional interested parties to better understand their needs and ensure their inclusion in decision making.

Tribal outreach and engagement focused on the apprenticeship program and included speaking to a welding class at an area high school.

Metropolitan is collaborating with other California-based governmental entities to envision a one-stop-shop for procurement opportunities for small businesses and historically underutilized businesses, possibly modeled on or building off of the City of LA's Regional Alliance Marketplace for Procurement (RAMP), an online tool for accessing contracting opportunities from regional partners.

Executive Summary

This executive summary is added to this report to provide a high-level snapshot of a key accomplishment from each area of the organization. Detailed information is reported in the pages following this summary.

Bay-Delta Resources

The State Water Resources Control Board issued a notice of public hearing regarding the Delta Conveyance Project on July 31, 2024. The public hearing is set to begin on January 16, 2025, and will address the water right change petition filed by the Department of Water Resources to add two new points of diversion and rediversion to the water rights associated with the State Water Project.

Staff provided a tour of the Delta to students and researchers from COEQWAL, the Collaboratory for Equity in Water Allocation. Twenty graduate students and postdocs from several University of California campuses toured the Delta, the Freshwater Pathway, Bouldin Island, and Webb Tract in August.

Chief Financial Officer

Contracting Services Unit was named as a recipient of the Achievement of Excellence in Procurement award by the National Procurement Institute. The Achievement of Excellence in Procurement® recognizes organizational excellence in public and non-profit procurement nationwide. The Contracting Services Unit was evaluated based on operations across all its functional areas of Procurement, Inventory Management, and Warehousing. The evaluation also included an assessment of the education and experience of staff. The award criteria are designed to measure innovation, professionalism, e-procurement, productivity, and leadership attributes of the procurement function.

Colorado River Resources

In August, the Bureau of Reclamation determined the water supply available from the Colorado River for 2025. As Lake Mead is forecast to end the year between elevation 1,050' and 1,075', a level one shortage has been declared for 2025. A level-one shortage results in cutbacks to Arizona, Nevada, and the Country of Mexico. California will not be subject to any curtailments next year. Metropolitan may be able to access its Intentionally Created Surplus water in Lake Mead, if needed, to fill the Colorado River Aqueduct next year.

Diversity, Equity & Inclusion

Members of the Diversity, Equity & Inclusion (DEI) Team had a busy August advancing work across Tribal Outreach & Engagement, Workforce Development, Business Outreach, and on our employee/cultural initiatives. Given the recent recruitment for the newest Apprenticeship class, we pursued broad outreach efforts to our Tribal Communities and our many community-based partners in anticipation of casting a wide net for talent into this life-changing opportunity. In addition, our DEI Workforce Development Manager and Chief DEI Officer engaged with Calleguas MWD to discuss workforce development and Metropolitan's apprenticeship program. The Business Outreach Team had a busy month, engaging in a variety of events ranging from the Building Industry Association of Southern California to the Orange County Black Chamber of Commerce. Last, but certainly not least, we continue to advance our Military/Veteran recruitment efforts with partnership conversations related to the Skillbridge program and our continuing efforts around 29 Palms Marine Base with a trip planned there in late September.

Engineering Services

In August 2024, micro tunneling was completed on the third and last tunnel for the Perris Valley Pipeline Tunnel Project. This project constructs three tunnels roughly 3,000 feet long and 120 inches in diameter. The last tunnel was the shortest at 600 linear feet but was the most sensitive since it crossed a Metrolink railway and the 215 freeway. The tunnel hole was a significant milestone in completing the Perris Valley Pipeline and enhancing water reliability in Metropolitan's eastern region. The contractor will continue to install the 97-inch diameter steel pipe that will carry water through the tunnel and perform site restoration. The project is expected to be complete in early 2025.

Equal Employment Opportunity Office

On August 20, 2024, the Equal Employment Opportunity Office (EEO) conducted a refresher training on the EEO Investigative Procedures for the Board and its direct reports during the EOP committee meeting. The training included a high-level overview of EEO's investigative procedures, including the complaint intake process, complaint outcomes, interim measures, and investigative steps and findings. The presentation generated a fruitful discussion and provided an opportunity for the Board to ask clarifying questions. Also, EEO is scheduled to attend the Business Management Team's quarterly meeting on August 29 to introduce upcoming changes to recruitment as they relate to EEO's Concurrence Process. In this meeting, EEO will answer questions, address concerns and incorporate feedback that would support Metropolitan's commitment to equal employment opportunity.

External Affairs

On August 1, 2024, Metropolitan hosted Senator Menjivar (D-Van Nuys) and her staff for a water tour at Jensen Water Treatment Plant. Chair Ortega, Directors McMillan and Ramos, and San Fernando Mayor Rodriguez were in attendance.

Human Resources

Employee Relations conducted four Desert visits in the month of August and are having frequent office hours with staff. These visits have been incredibly rewarding, providing valuable insights and strengthening our relationships with our colleagues in the Desert. We are confident that these visits will lead to improved collaboration and better outcomes for our organization.

Information Technology

To safeguard Metropolitan's operations, the Information Technology Group completed the migration of Proofpoint to Microsoft Defender for Office 365. Microsoft G5 Defender for Security encompasses a range of advanced security solutions and features designed to protect our organization from cyber threats, ensure data security, and maintain compliance.

Safety, Security and Protection

Security is initiating a new pilot program to deploy advanced security technology, including robot and drone patrollers, to enhance our detection and deterrence capabilities. This initiative aims to integrate cutting-edge autonomous systems into our security framework, providing real-time surveillance, improved response times, and comprehensive coverage of our facilities. By leveraging these technologies, we expect to reduce human resource strain, increase situational awareness, and bolster overall security effectiveness. The pilot will focus on evaluating the operational efficiency, cost-effectiveness, and potential for broader implementation across Metropolitan.

The Emergency Management Program continues to focus on improving employee safety by expanding its response role to an increasing number of real-time emergencies. Staff responded to multiple wildfires and earthquakes that affected some Metropolitan facilities and partner agencies. Staff also conducted official State Emergency Management training courses for EOC staff and is preparing for the upcoming Great California ShakeOut exercise in October.

Health and Safety (H&S) facilitated the inaugural Executive Safety Committee (ESC) meeting. This ESC will be providing executive-level decisions on safety priorities, resource allocation, and initiatives affecting Metropolitan business operations. Also, H&S updated the existing heat illness prevention program and is currently training employees on the new indoor heat illness prevention regulation.

Environmental responded to an unplanned release of raw Colorado River Aqueduct water from the Corona Power Plant and completed inspection and confirmed readiness of the Intake temporary bleach system to receive delivery. Additionally, Environmental continued to monitor South Coast Air Quality Management District's (SCAQMD) proposed new rule that may affect the Plasma Arc Cutting (PAC) system being installed at La Verne.

The Apprenticeship Program's electrical classroom was relocated to the new Apprenticeship Training Center, and the Water Education Team recognized Apprenticeship for supporting their outreach efforts to workforce development by conducting field trips and workshops.

Technical Training conducted a 64-hour initial training on Systems Operating Orders Manual (SOOM): High-Voltage Switching class for In-Town and two 16-hour refresher training on SOOM: High-Voltage Switching for Desert.

Sustainability, Resiliency and Innovation

Metropolitan staff applied for an unprecedented $212 million in grant funds during FY 2023/2024. As of August 2024, we have been awarded $127 million, and $29 million in applications is still pending award notifications.

Water Resource Management

Water Resource Management made strides in furthering regional conservation efforts by securing two grants through the U.S. Bureau of Reclamation's (USBR) WaterSMART Water and Energy Efficiency Grant Program. Staff also held a landscape conservation webinar and attended an annual AWE conference. Staff attended and presented at the 9th Annual California Water Data Summit. On the Colorado River, staff met with USBR and provided a technical overview of the Antelope Valley-East Kern Water Agency High Desert Water Bank, which was approved to receive grant funding from the federal government under the Inflation Reduction Act.

Water System Operations

This month, staff in the Asset Management Unit completed an analysis balancing the risks associated with the age and condition of critical fleet vehicles with Zero Emission Vehicles (ZEV) regulations and available funding for purchasing replacement vehicles. This analysis was summarized and presented to the Engineering, Operations, and Technology Committee to allow the Board to consider additional financing for additional purchases above the existing approved budget. Also, two more Electric Vehicle (EV) charging stations to be used exclusively by district EVs were installed at the Weymouth plant this month. These highlights mark the district's progress toward the expansion of its ZEV fleet.

"From transitioning to zero-emissions and pushing to reduce air toxics, to the emergence of Quaggas on the State Water Project, staff are embracing new challenges and striving to provide regulatory solutions that focus on practical and achievable work practices."

Kiersten Melville, Interim Environmental Program Support Team Manager
Air Quality/ Wastewater and Tanks

"*The proper handling of hazardous materials and wastes is not only critical for complying with regulatory requirements, but for the safety of all Metropolitan employees and the public.*"

Dave LeDuff, Interim Environmental Program Support Team Manager
Hazardous Materials

PROGRAM DESCRIPTION

Metropolitan's Environmental Program Support Team (EPST) supports Metropolitan's overall mission to provide adequate and reliable supplies of high-quality water to meet present and future needs in an environmentally and economically responsible way. The team has three primary programs:

Wastewater and Tanks – Manages wastewater permits for sewer discharges and supports critical distribution system maintenance work by obtaining dewatering permits and submitting Quagga Mussel Control Plans. It also supports equipment custodians to comply with the regulatory requirements for underground storage tanks (USTs), and develops and maintains Spill Prevention, Control, and Countermeasure (SPCC) plans for facilities that store oil-containing products.

Air Quality – Manages Metropolitan's air quality permits and emissions reporting for a wide variety of critical support equipment. They track and advocate on Metropolitan's behalf on the many proposed air quality regulations. They have been actively collaborating with interdisciplinary groups in the District on Metropolitan's Climate Action Plan and the zero-emission fleet transition required by the Advanced Clean Fleet regulation.

Hazardous Materials – Supports the safe handling, management, and shipment of hazardous materials critical to water treatment and conveyance operations. This also includes supporting spill response efforts and coordinating emergency response exercises. They also provide expertise and support for the abatement of hazardous materials (lead, asbestos, PCBs) and the complex regulations governing their removal.

IMPORTANCE TO METROPOLITAN

Metropolitan must comply with some of the most complex and stringent environmental regulations in the country, if not the world. The team uses its technical expertise to create and manage Metropolitan's environmental policies and procedures and provides subject matter expert guidance and training.

MEMORABLE MOMENT

EPST is part of the Safety, Regulatory, and Training Section (SRT) that is now under the Office of Safety, Security and Protection (OSSP) as part of Metropolitan's strategic reorganization. This positions the team to enhance their support Metroplitan-wide. This includes supporting engineering projects, partnering with Emergency Management, and working closely with Security on illegal hazardous material dumping issues.

Water Supply Conditions Report

Water Year 2023-2024

As of 08/31/2024

Extended Report: https://www.mwdh2o.com/WSCR

State Water Project Resources

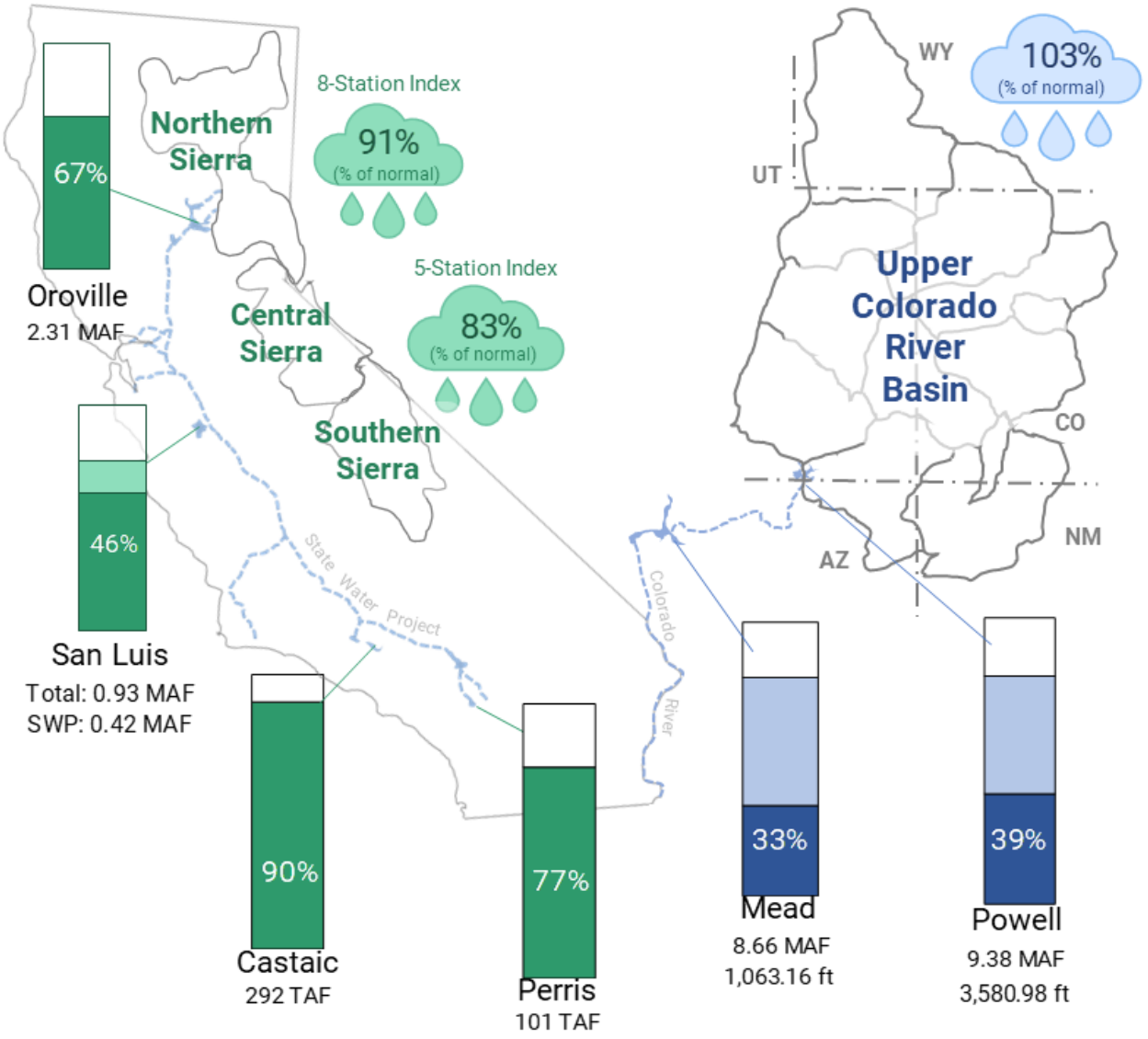
SWP Allocation

40% Table A: 764,600 acre-feet

Colorado River Resources

Projected CRA Diversions

931,000 acre-feet

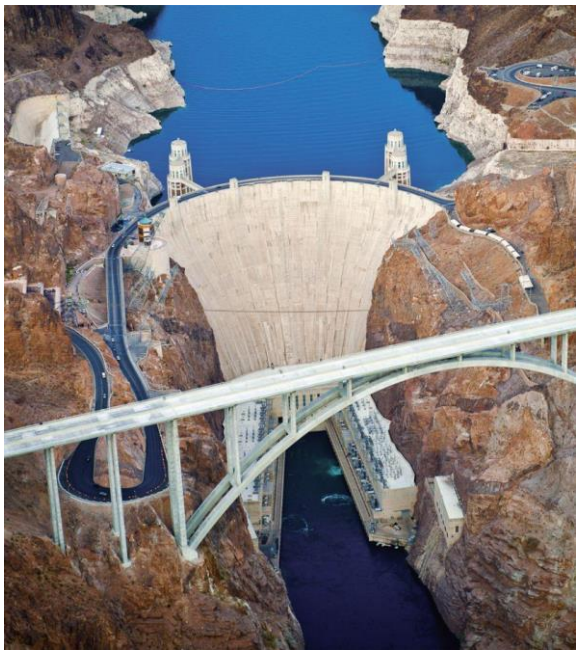


Reservoir Report

End of Month Reservoir Report

Monthly Update as of: **8/31/2024**

Reservoir	Current Storage	Percent of Capacity
Colorado River Basin		
Lake Powell	9,372,753	39%
Lake Mead	8,671,000	34%
DWR		
Lake Oroville	2,292,862	67%
Shasta Lake	2,997,780	66%
San Luis Total	936,402	46%
San Luis CDWR	519,103	49%
Castaic Lake	291,123	90%
Silverwood Lake	72,169	96%
Lake Perris	100,949	77%
MWD		
DVL	773,774	96%
Lake Mathews	102,642	56%
Lake Skinner	38,296	87%



Hoover Dam

One Water

Metropolitan's Mission is to provide its service area with adequate and reliable supplies of high-quality water to meet present and future needs in an environmentally and economically responsible way.

700 N. Alameda Street, Los Angeles, CA 90012
General Information (213) 217-6000
www.mwdh2o.com www.bewaterwise.com

Interim General Manager: Deven Upadhyay
Office of the GM (213) 217-6139
OfficeoftheGeneralManager@mwdh2o.com

Metropolitan Cases

Darren Reese v. Metropolitan
(Riverside County Superior Court)

On September 3, 2024, the parties filed with the Riverside County Superior Court a Joint Stipulation Regarding Settlement, notifying the court that the parties have agreed to settle this case and requesting that the court cancel the scheduled October 2024 trial and pre-trial hearings. The parties are currently completing the settlement.

Matters Received

Category	Received	Description	
Action in which MWD is a party	2	Complaint for Subrogation Recovery, filed in Orange County Superior Court, in the case *State Farm Mutual Automobile Insurance Company v. MWD*, Case No. 30-2024-01416289-CL-IC-CJC, relating to an accident involving an MWD vehicle and a State Farm insured	
		Complaint for Motor Vehicle Property Damage and Personal Injury, filed in Orange County Superior Court, in the case *Homer Paul Castille v. MWD*, Case No. 30-2024-01412241-CU-PA-CJC, relating to a motor vehicle accident involving an MWD vehicle	
Government Code Claims	1	Claim relating to an accident involving an MWD vehicle	
Requests Pursuant to the Public Records Act	14	Requestor	Documents Requested
		BuzzClan	Winning bid submitted in response to the Request for Proposal for Enterprise Data Analytics Consulting and Implementation Services
		Center for Contract Compliance	Subcontractor list, bid advertisement, and DIR project ID for the Diamond Valley Lake Floating Wave Attenuator Replacement
		Correia-Xavier	Information on whether MWD delivers water to certain properties in Riverside County
		Deltek	List of vendors who responded to the Request for information for Website Development Services for Metropolitan's Intranet

Date of Report: September 5, 2024

Requestor	Documents Requested
Flatiron Construction Corp.	Example of a progressive design build contract
GHD Advisory	Documents relating to any environmental issues, release notifications, notices of violations, enforcement actions, citations, permits, inspection records impacting the property occupied by Limerick Elementary School in the city of Winnetka
Los Angeles County Metropolitan Transportation Authority	Right-of-way agreements for the Orange County Feeder and Yorba Linda Pipeline
Los Angeles Times	Water quality data that Cadiz provided to MWD in May 2023 and correspondence between MWD and Cadiz during 2023 and 2024
MWD Supervisors Association	Transcript of the public comments portion of the MWD Board Meeting held on August 20, 2024
Partner Engineering and Science	Maps of MWD pipeline near project in the city of Fontana
Private Citizens (2 requests)	(1) Emails between Chair Ortega and Adel Hagekhalil since 2021; and (2) Shaw Law Group investigation documents and documents relating to the email communication from a former MWD employee sent to the State Auditor around December 28, 2022
SmartProcure	Purchase order data including purchase order number, purchase order date, line item details, line item quantity, line item price, vendor information from May 14, 2024 to current

Requestor	Documents Requested
Wendelstein Law Group	Records relating to ownership, installation, maintenance, repair, inspection, and transfer of ownership, of the vault, vault cover, water meter, backflow device, valves, and related facilities adjacent to the real property at or near 23242 Valencia Boulevard in the city of Santa Clarita

PLEASE NOTE

- ADDITIONS ONLY IN THE FOLLOWING TWO TABLES WILL BE SHOWN IN RED.
- ANY CHANGE TO THE *OUTSIDE COUNSEL AGREEMENTS* TABLE WILL BE SHOWN IN REDLINE FORM (I.E., ADDITIONS, REVISIONS, DELETIONS).

Bay-Delta and SWP Litigation

Subject	Status
Delta Conveyance Project CEQA Cases *City of Stockton v. California Department of Water Resources* *County of Butte v. California Department of Water Resources* *County of Sacramento v. California Department of Water Resources* *County of San Joaquin et al. v. California Department of Water Resources* *Sacramento Area Sewer District v. California Department of Water Resources* *San Francisco Baykeeper, et al. v. California Department of Water Resources* *Sierra Club, et al. v. California Department of Water Resources* *South Delta Water Agency and Rudy Mussi Investment L.P. v. California Department of Water Resources* *Tulare Lake Basin Water Storage District v. California Department of Water Resources* Sacramento County Superior Ct. (Judge Acquisto)	• DWR is the only named respondent/defendant • All alleged CEQA violations • Most allege violations of the Delta Reform Act, Public Trust Doctrine and Delta and Watershed Protection Acts • Two allege violations of the fully protected bird statute • One alleges violations of Proposition 9 (1982) and the Central Valley Project Act • Deadline for DWR to prepare the administrative record extended to Sept. 30, 2024 • Next case management conference Oct. 18, 2024 • June 20, 2024 trial court issued a preliminary injunction halting pre-construction geotechnical soil testing until DWR certifies that the DCP is consistent with the Delta Plan • Aug. 19, 2024 DWR appealed the injunction • Aug. 23, 2024 ~~hearing on~~ trial court denied DWR's motion to modify or stay the preliminary injunction • Aug. 29, 2024 DWR filed a petition in the court of appeal seeking to stay the preliminary injunction pending a ruling on the merits of its appeal • Sept. 13, 2024 deadline to file oppositions to DWR's stay petition
Delta Conveyance Project Water Right Permit Litigation *Central Delta Water Agency et al. v. State Water Resources Control Board* Fresno County Superior Court (Judge Hamilton)	• Complaint filed April 16, 2024, alleges that the State Water Board must rule on DWR's 2009 petition to extend the time to perfect its State Water Project rights before the State Water Board may begin to adjudicate DWR's petition to change its water rights to add new points of diversion for the Delta Conveyance Project • Sept. 19 hearing date for State Water Resources Control Board demurrer (motion to dismiss) and motion to strike and DWR's demurrer (motion to dismiss)

Subject	Status
Consolidated DCP Revenue Bond Validation Action and CEQA Case *Sierra Club, et al. v. California Department of Water Resources* (CEQA, designated as lead case) *DWR v. All Persons Interested* (Validation) Sacramento County Superior Ct. (Judge Kenneth C. Mennemeier) 3d District Court of Appeal Case No. C100552	• **Validation Action** • Final Judgment and Final Statement of Decision issued January 16, 2024 ruling the bonds are not valid • DWR, Metropolitan and other supporting public water agencies filed Notices of Appeal on or before the February 16, 2024 deadline • Eight opposing groups filed Notices of Cross Appeals by March 27, 2024 • April 16, 2024 DWR moved to dismiss the cross appeals as untimely • Oct. 25, 2024 deadline for DWR's and Supporting Public Water Agencies' Opening Brief and Appellants' Appendix~~Motion to dismiss cross appeals denied without prejudice to renewing the motion in merits briefing Parties meeting and conferring on briefing schedule~~
SWP-CVP 2019 BiOp Cases *Pacific Coast Fed'n of Fishermen's Ass'ns, et al. v. Raimondo, et al.* (*PCFFA*) *Calif. Natural Resources Agency, et al. v. Raimondo, et al.* (*CNRA*) Federal District Court, Eastern Dist. of California, Fresno Division (Judge Thurston)	• SWC intervened in both *PCFFA and CNRA* cases • Federal defendants reinitiated consultation on Oct 1, 2021 • March 28, 2024 order extending the Interim Operations Plan and the stay of the cases through the issuance of a new Record of Decision or December 20, 2024, whichever is first
CESA Incidental Take Permit Cases **Coordinated Case Name *CDWR Water Operations Cases*, JCCP 5117 (Coordination Trial Judge Gevercer)** *Metropolitan & Mojave Water Agency v. Calif. Dept. of Fish & Wildlife, et al*. (CESA/CEQA/Breach of Contract) *State Water Contractors & Kern County Water Agency v. Calif. Dept. of Fish & Wildlife, et al*. (CESA/CEQA) *Tehama-Colusa Canal Auth., et al. v. Calif. Dept. of Water Resources* (CEQA) *San Bernardino Valley Municipal Water Dist. v. Calif. Dept. of Water Resources, et al.* (CEQA/CESA/ Breach of Contract/Takings)	• Administrative records certified in October 2023 • Order entered to delay setting a merits briefing schedule by 90 days and extending the time to bring the action to trial by six months • Deadline to bring all the coordinated cases to trial is now December 5, 2025

Date of Report: September 5, 2024

Subject	Status
Sierra Club, et al. v. Calif. Dept. of Water Resources (CEQA/Delta Reform Act/Public Trust) *North Coast Rivers Alliance, et al. v. Calif. Dept. of Water Resources* (CEQA/Delta Reform Act/Public Trust) *Central Delta Water Agency, et. al. v. Calif. Dept. of Water Resources* (CEQA/Delta Reform Act/Public Trust/ Delta Protection Acts/Area of Origin) *San Francisco Baykeeper, et al. v. Calif. Dept. of Water Resources, et al*. (CEQA/CESA)	
CDWR Environmental Impact Cases **Sacramento Superior Ct. Case No. JCCP 4942, 3d DCA Case No. C100302** **(20 Coordinated Cases)** Validation Action *DWR v. All Persons Interested* CEQA 17 cases CESA/Incidental Take Permit 2 cases (Judge Arguelles)	• Cases dismissed after DWR rescinded project approval, bond resolutions, decertified the EIR, and CDFW rescinded the CESA incidental take permit • January 10, 2020 – Nine motions for attorneys' fees and costs denied in their entirety • May 11, 2022, court of appeal reversed the trial court's denial of attorney fees and costs • Coordinated cases remitted to trial court for re-hearing of fee motions consistent with the court of appeal's opinion • Dec. 26, 2023 order denying fee motions • Six notices of appeal filed • Oct. 9, 2024 deadline for appellants' opening briefs and appendices
COA Addendum/ **No-Harm Agreement** *North Coast Rivers Alliance v. DWR* Sacramento County Superior Ct. (Judge Rockwell)	• Plaintiffs allege violations of CEQA, Delta Reform Act & public trust doctrine • Westlands Water District and North Delta Water Agency granted leave to intervene • Metropolitan & SWC monitoring • Deadline to prepare administrative record last extended to Nov. 18, 2022
Water Management Tools Contract Amendment *California Water Impact Network et al. v. DWR* Sacramento County Superior Ct. (Judge Acquisto) *North Coast Rivers Alliance, et al. v. DWR* Sacramento County Super. Ct. (Judge Acquisto)	• Filed September 28, 2020 • CWIN and Aqualliance allege one cause of action for violation of CEQA • NCRA et al. allege four causes of action for violations of CEQA, the Delta Reform Act, Public Trust Doctrine and seeking declaratory relief

Subject	Status
	• SWC motion to intervene in both cases granted • Dec. 20, 2022 DWR filed notice of certification of the administrative record and filed answers in both cases

San Diego County Water Authority v. Metropolitan, et al.		
Cases	**Date**	**Status**
2014, 2016	Sept. 30	Based on the Court of Appeal's Sept. 21 opinion (described above), and the Board's Sept. 28 authorization, Metropolitan paid $35,871,153.70 to SDCWA for 2015-2017 Water Stewardship Rate charges under the Exchange Agreement and statutory interest.
2017	July 23, 2020	Dismissal without prejudice entered.
2018	April 11, 2022	Court entered order of voluntary dismissal of parties' WaterFix claims and cross-claims.
2014, 2016, 2018	June 11, 2021	Deposition of non-party witness.
	Aug. 25	Hearing on Metropolitan's motion for further protective order regarding deposition of non-party witness.
	Aug. 25	Court issued order consolidating the 2014, 2016, and 2018 cases for all purposes, including trial.
	Aug. 30	Court issued order granting Metropolitan's motion for a further protective order regarding deposition of non-party witness.
	Aug. 31	SDCWA filed consolidated answer to Metropolitan's cross-complaints in the 2014, 2016, and 2018 cases.
	Feb. 22	Metropolitan and SDCWA each filed motions for summary adjudication.
	April 13	Hearing on Metropolitan's and SDCWA's motions for summary adjudication.
	May 4	Court issued order granting Metropolitan's motion for summary adjudication on cross-claim for declaratory relief that the conveyance facility owner, Metropolitan, determines fair compensation, including any offsetting benefits; and denying its motion on certain other cross-claims and an affirmative defense.
	May 11	Court issued order granting SDCWA's motion for summary adjudication on cross-claim for declaratory relief in the 2018 case regarding lawfulness of the Water Stewardship Rate's inclusion in the wheeling rate and transportation rates in 2019-2020; certain cross-claims and affirmative defenses on the ground that Metropolitan has a duty to charge no more than fair compensation, which includes reasonable credit for any offsetting benefits, with the court also stating that whether that duty arose and whether Metropolitan breached that duty are issues to be resolved at trial; affirmative defenses that SDCWA's claims are untimely and SDCWA has not satisfied claims presentation requirements; affirmative defense in the 2018 case that SDCWA has not satisfied contract dispute resolution requirements; claim, cross-claims, and affirmative defenses regarding applicability of

Cases	Date	Status
2014, 2016, 2018 (cont.)		Proposition 26, finding that Proposition 26 applies to Metropolitan's rates and charges, with the court also stating that whether Metropolitan violated Proposition 26 is a separate issue; and cross-claims and affirmative defenses regarding applicability of Government Code section 54999.7, finding that section 54999.7 applies to Metropolitan's rates. Court denied SDCWA's motion on certain other cross-claims and affirmative defenses.
	May 16-27	Trial occurred but did not conclude.
	June 3, June 24, July 1	Trial continued, concluding on July 1.
	June 24	SDCWA filed motion for partial judgment.
	July 15	Metropolitan filed opposition to motion for partial judgment.
	Aug. 19	Post-trial briefs filed.
	Sept. 14	Court issued order granting in part and denying in part SDCWA's motion for partial judgment (granting motion as to Metropolitan's dispute resolution, waiver, and consent defenses; denying motion as to Metropolitan's reformation cross-claims and mistake of fact and law defenses; and deferring ruling on Metropolitan's cost causation cross-claim).
	Sept. 21	Metropolitan filed response to order granting in part and denying in part SDCWA's motion for partial judgment (requesting deletion of Background section portion relying on pleading allegations).
	Sept. 22	SDCWA filed objection to Metropolitan's response to order granting in part and denying in part SDCWA's motion for partial judgment.
	Sept. 27	Post-trial closing arguments.
	Oct. 20	Court issued order that it will rule on SDCWA's motion for partial judgment as to Metropolitan's cost causation cross-claim simultaneously with the trial statement of decision.
	Dec. 16	Parties filed proposed trial statements of decision.
	Dec. 21	SDCWA filed the parties' stipulation and proposed order for judgment on Water Stewardship Rate claims for 2015-2020.
	Dec. 27	Court entered order for judgment on Water Stewardship Rate claims for 2015-2020 as proposed by the parties.
	March 14, 2023	Court issued tentative statement of decision (tentatively ruling in Metropolitan's favor on all claims litigated at trial, except for those ruled to be moot based on the rulings in Metropolitan's favor)

Cases	Date	Status
2014, 2016, 2018 (cont.)	March 14	Court issued amended order granting in part and denying in part SDCWA's motion for partial judgment (ruling that Metropolitan's claims for declaratory relief regarding cost causation are not subject to court review).
	March 29	SDCWA filed objections to tentative statement of decision
	April 3	Metropolitan filed response to amended order granting in part and denying in part SDCWA's motion for partial judgment (requesting deletion of Background section portion relying on pleading allegations).
	April 25	Court issued statement of decision (ruling in Metropolitan's favor on all claims litigated at trial, except for those ruled to be moot based on the rulings in Metropolitan's favor)
	Jan. 10, 2024	Parties filed joint status report and stipulated proposal on form of judgment
	Jan. 17	Court issued order approving stipulated proposal on form of judgment (setting briefing and hearing)
	April 3	Court entered final judgment
	April 3	Court issued writ of mandate regarding demand management costs
	April 3	SDCWA filed notice of appeal
	April 17	Metropolitan filed notice of cross-appeal
	May 3	Participating member agencies filed notice of appeal
	May 31	Parties filed opening briefs on prevailing party
	June 28	Parties filed response briefs on prevailing party
	July 17	Court issued tentative ruling that there is no prevailing party due to mixed results
	July 18	Hearing on prevailing party; court took matter under submission, stating it expects to rule in mid-Aug.
All Cases	April 15, 2021	Case Management Conference on 2010-2018 cases. Court set trial in 2014, 2016, and 2018 cases on May 16-27, 2022.
	April 27	SDCWA served notice of deposition of non-party witness.
	May 13-14	Metropolitan filed motions to quash and for protective order regarding deposition of non-party witness.
	June 4	Ruling on motions to quash and for protective order.

Outside Counsel Agreements				
Firm Name	**Matter Name**	**Agreement No.**	**Effective Date**	**Contract Maximum**
Albright, Yee & Schmit, APC	~~Employment Matter~~	~~211923~~	~~05/23~~	~~$60,000~~
	Employment Matter	216064	06/24	$100,000
Andrade Gonzalez LLP	MWD v. DWR, CDFW and CDNR Incidental Take Permit (ITP) CESA/CEQA/Contract Litigation	185894	07/20	$250,000
Aleshire & Wynder	Oil, Mineral and Gas Leasing	174613	08/18	$50,000
Anzel Galvan LLP	Bond Issues	220411	07/24	N/A
Atkinson Andelson Loya Ruud & Romo	Employee Relations	59302	04/04	$1,316,937
	Delta Conveyance Project Bond Validation-CEQA Litigation	185899	09/21	$250,000
	MWD Drone and Airspace Issues	193452	08/20	$50,000
	AFSCME Local 1902 in Grievance No. 1906G020 (CSU Meal Period)	201883	07/12/21	$30,000
	AFSCME Local 1902 v. MWD, PERB Case No. LA-CE-1438-M	201889	09/15/21	$20,000
	MWD MOU Negotiations**	201893	10/05/21	$100,000
BDG Law Group, APLC	Gutierrez v. MWD	216054	03/24	$250,000 ~~$100,000~~
Best, Best & Krieger	Bay-Delta Conservation Plan/Delta Conveyance Project (with SWCs)	170697	08/17	$500,000
	Environmental Compliance Issues	185888	05/20	$100,000
	Grant Compliance Issues	211921	05/23	$150,000
	Pure Water Southern California	207966	11/22	$100,000
	Progressive Design Build	216053	04/24	$250,000
Blooston, Mordkofsky, Dickens, Duffy & Prendergast, LLP	FCC and Communications Matters	110227	11/10	$100,000
Buchalter, a Professional Corp.	Union Pacific Industry Track Agreement	193464	12/07/20	$50,000

Date of Report: September 5, 2024

Firm Name	Matter Name	Agreement No.	Effective Date	Contract Maximum
Burke, Williams & Sorensen, LLP	Real Property – General	180192	01/19	$100,000
	Labor and Employment Matters	180207	04/19	$75,000
	General Real Estate Matters	180209	08/19	$200,000
	Rancho Cucamonga Condemnation Actions (Grade Separation Project)	207970	05/22	$100,000
Law Office of Alexis S.M. Chiu*	Bond Counsel	200468	07/21	N/A
	Bond Counsel	220409	07/24	N/A
Castañeda + Heidelman LLP	Employment Matter	216055	04/24	$100,000
Cislo & Thomas LLP	Intellectual Property	170703	08/17	$100,000
Curls Bartling P.C.*	Bond Counsel	200470	07/21	N/A
Drooz Legal, LLP	Employment Matter	220402	08/24	$100,000
Duane Morris LLP	SWRCB Curtailment Process	138005	09/14	$615,422
Duncan, Weinberg, Genzer & Pembroke	Power Issues	6255	09/95	$3,175,000
Ellison, Schneider, Harris & Donlan	Colorado River Issues	69374	09/05	$175,000
	Issues re SWRCB	84457	06/07	$200,000
Erin Joyce Law, PC	Employment Matter	216039	11/23	$100,000
Glaser Weil Fink Howard Jordan & Shapiro	Employment Matter	220395	7/24	$150,000
Greines, Martin, Stein & Richland LLP	SDCWA v. MWD	207958	10/22	$100,000
	Colorado River Matters	207965	11/22	$100,000
Hackler Flynn & Associates	Government Code Claim Advice	216059	5/24	$150,000
Haden Law Office	Real Property Matters re Agricultural Land	180194	01/19	$50,000

Hanna, Brophy, MacLean, McAleer & Jensen, LLP	Workers' Compensation	211926	06/23	$200,000
Hanson Bridgett LLP	SDCWA v. MWD	124103	03/12	$1,100,000
	Finance Advice	158024	12/16	$100,000
	Deferred Compensation/HR	170706	10/17	$500,000
	Tax Issues	180200	04/19	$50,000
	Alternative Project Delivery (ADP)	207961	10/22	$250,000
	Ad Valorem Property Taxes	216042	11/23	$100,000
Harris & Associates	Employment Matter	220397	7/24	$100,000
Hausman & Sosa, LLP	Jones v. MWD	216056	05/24	$100,000
Hawkins Delafield & Wood LLP*	Bond Counsel	193469	07/21	N/A
Hemming Morse, LLP	Baker Electric v. MWD	211933	08/23	$175,000 ~~$100,000~~
Hogan Lovells US LLP	Employment Matter	220400	07/24	$100,000
Horvitz & Levy	SDCWA v. MWD	124100	02/12	$1,250,000
	General Appellate Advice	146616	12/15	$200,000
	Colorado River	203464	04/22	$100,000
	Delta Conveyance Bond Validation Appeal	216047	03/24	$25,000
	PFAS Multi-District Litigation – Appeal	216050	03/24	$200,000
Innovative Legal Services, P.C.	Employment Matter	211915	01/19/23	$125,000
Internet Law Center	Cybersecurity and Privacy Advice and Representation	200478	04/13/21	$100,000
	Systems Integrated, LLC v. MWD	201875	05/17/21	$100,000
Amira Jackmon, Attorney at Law*	Bond Counsel	200464	07/21	N/A

Jackson Lewis P.C.	Employment: Department of Labor Office of Contract Compliance	137992	02/14	$45,000
Jones Hall, A Professional Law Corp*	Bond Counsel	200465	07/21	N/A
Kronenberger Rosenfeld, LLP	Systems Integrated, LLC v. MWD	211920	04/23	$250,000
Kutak Rock LLP	Delta Islands Land Management	207959	10/22	$10,000
Liebert Cassidy Whitmore	Labor and Employment	158032	02/17	$240,821
	FLSA Audit	180199	02/19	$50,000
	EEO Advice	216041	12/23	$100,000
Lieff Cabraser Heimann & Bernstein, LLP	PFAS Multi-District Litigation	216048	03/24	$200,000
Manatt, Phelps & Phillips	SDCWA v. MWD rate litigation	146627	06/16	$4,400,000
	Raftelis-Subcontractor of Manatt, Agr. #146627: Per 5/2/22 Engagement Letter between Manatt and Raftelis, MWD paid Raftelis Financial Consultants, Inc.	Invoice No. 23949		$56,376.64 for expert services & reimbursable expenses in *SDCWA v. MWD*
Marten Law LLP	PFAS Multi-District Litigation	216034	09/23	$550,000
Meyers Nave Riback Silver & Wilson	Pure Water Southern California	207967	11/22	$100,000
Miller Barondess, LLP	SDCWA v. MWD	138006	12/14	$600,000
Morgan, Lewis & Bockius	SDCWA v. MWD	110226	07/10	$8,750,000
	Project Labor Agreements	200476	04/21	$100,000
Musick, Peeler & Garrett LLP	Colorado River Aqueduct Electric Cables Repair/Contractor Claims	193461	11/20	$3,250,000
	Arvin-Edison v. Dow Chemical	203452	01/22	$150,000 ~~$100,000~~
	Semitropic TCP Litigation	207954	09/22	$75,000
	Employment Matter	216063	06/24	$100,000
	Employment Matter	220417	08/24	$100,000

Date of Report: September 5, 2024

Nixon Peabody LLP*	Bond Counsel [re-opened]	193473	07/21	N/A
	Special Finance Project	207960	10/22	$50,000
	Bond Counsel	220404	07/24	N/A
Norton Rose Fulbright US LLP*	Bond Counsel	200466	07/21	N/A
	Bond Counsel	220407	7/24	N/A
Olson Remcho LLP	Government Law	131968	07/14	$400,000
	Executive Committee/Ad Hoc Committees Advice	207947	08/22	$60,000
	Advice/Assistance re Proposition 26/Election Issues	211922	05/23	$100,000
Pearlman, Brown & Wax, L.L.P.	Workers' Compensation	216037	10/23	$100,000
Procopio, Cory, Hargreaves & Savitch, LLP	CityWatch Los Angeles Public Records Act Request	216046	02/24	$75,000
	Public Records Act Requests	220399	7/24	$75,000
~~Rains Lucia Stern St. Phalle & Silver, PC~~	~~Employment Matter~~	~~211919~~	~~4/23~~	~~$60,000~~
Renne Public Law Group, LLP	ACE v. MWD (PERB Case No. LA-CE-1574-M)	203466	05/22	$100,000
	ACE v. MWD (PERB Case No. LA-CE-1611-M)	207962	10/22	$50,000
	Employee Relations and Personnel Matters	216045	01/24	$50,000
Ryan & Associates	Leasing Issues	43714	06/01	$200,000
	Oswalt v. MWD	211925	05/23	$100,000
	Unlawful Encroachment on Metropolitan Rights-of-Way	216065	06/24	$100,000
Sanders Roberts LLP	Employment Matter	220401	7/24	$100,000
Seyfarth Shaw LLP	Claim (Contract #201897)	201897	11/04/21	$350,000
	Claim (Contract #203436)	203436	11/15/21	$350,000
	Claim (Contract #203454)	203454	01/22	$210,000

	Reese v. MWD	207952	11/22	$750,000
	General Labor/Employment Advice	211917	3/23	$100,000
	Civil Rights Department Complaint	211931	07/23	$100,000
	Crawford v. MWD	216035	09/23	$100,000
	Tiegs v. MWD	216043	12/23	$250,000
	Zarate v. MWD	216044	01/24	$250,000
	Lorentzen v. MWD	216036	09/23	$100,000
Stradling Yocca Carlson & Rauth*	Bond Counsel	200471	07/21	N/A
	Bond Counsel	220408	7/24	N/A
Theodora Oringher PC	Construction Contracts - General Conditions Update	185896	07/20	$100,000
Thompson Coburn LLP	NERC Energy Reliability Standards	193451	08/20	$300,000
Van Ness Feldman, LLP	General Litigation	170704	07/18	$50,000
	Colorado River MSHCP	180191	01/19	$50,000
	Bay-Delta and State Water Project Environmental Compliance	193457	10/15/20	$50,000
	Colorado River Issues	211924	05/23	$100,000

*Expenditures paid by Bond Proceeds/Finance
**Expenditures paid by another group

THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

Board Report

Office of the General Auditor

- **General Auditor's Report for August 2024**

Summary

This report highlights significant activities of the Office of the General Auditor for the month ended August 31, 2024.

Purpose

Informational

Attachments

1. Final Report on Contract Audit: IBI Group, Agreement No. 178689

Detailed Report

Audit & Advisory Projects

Twenty-seven projects are in progress:

- Ten audit projects are in the report preparation phase, including:
  - One draft report pending management response (Surplus Personal Property, originally due 8/19/2024)
  - One preliminary draft report issued (Employee Tuition Reimbursement)
- Seventeen projects are in the execution phase, including nine audits and eight advisories; entrance letters were issued this period for:
  - Oracle Services Procurement Advisory
  - Grants Management Advisory

Work priority is being given to the ten (down one from last month) carryforward audits.

Follow-Up Reviews

Nine audits from prior fiscal years are in the follow-up phase:

- Six follow-up reviews are in progress
- One final report is in progress (Stores Inventory), expected release September 2024
- Two follow-up reviews are pending return of the follow-up review form from management:
  - Fleet Management & Maintenance (10 recommendations, originally due 3/27/2024)
  - Fuel Management (32 recommendations, originally due 4/19/2024)

Final Report

1. **Contract Audit: IBI Group, Agreement No. 178689** (project number 22-2102-01) issued August 20, 2024
   - Audit scope included reviewing internal controls over the administration and accounting of the contract from February 13, 2018 to October 31, 2021.
   - One recommendation with the following rating: Priority 2.

Date of Report: September 10, 2024

Other General Auditor Activities

1. **Continuing Professional Education**
   Department attended Auditing for Fraud in Government Procurement & Contracting training seminar.

2. **Weymouth Site Visit**
   Department personnel met with Fleet management to gain an understanding of their role in the zero emissions initiative.

3. **Civil & Inclusive Workplace Training**
   Department head attended executive session.

4. **Internal Quality Assessment**
   Preparation for the annual internal quality assessment required by professional internal auditing standards is in progress; surveys were distributed to department staff, the Board, and management.

5. **Senior Audit Manager Recruitment**
   Collaboration with Human Resources to fill this position is in progress.

6. **External Auditor Support**
   Assistance to external auditor Macias Gini & O'Connell LLP continues in accordance with their work plan.

Office of the General Auditor

Contract Audit: IBI Group Agreement No. 178689

Project Number: 22-2102-01
August 20, 2024

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Recommendation 1

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Scope & Objectives · Exclusions · Prior Audit Coverage · Authority · Professional Internal Audit Standards · Follow-up Audits · Internal Control System · Metropolitan's Responsibility for Internal Control

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Executive Summary

BACKGROUND

Metropolitan safeguards personnel at the Headquarters Building through a multi-layered approach. Based on a comprehensive assessment and in line with the Department of Homeland Security and the General Services Administration guidelines for public buildings, several enhancements and physical security features were sought.

In February 2018, Metropolitan's Board authorized the final design of the physical security improvements to the headquarters building and for management to enter into an agreement with IBI Group (IBI), a California Partnership, to provide specialized security design and architectural services. Due to their extensive experience in security design and retrofit of high-rise buildings, IBI was selected from a pool of prequalified consultants (Request for Qualifications No. 1040) for on-call and project-specific architectural services.

In April 2018, Metropolitan signed a three-year, $890,000 agreement with IBI, effective April 2018 through March 2021, for the final design of the physical security improvements. The scope of the IBI agreement included field investigations, detailed architectural and engineering design, preparation of drawings and specifications, and technical assistance during the bidding process. Metropolitan staff provided technical oversight and overall project management and obtained required permits.

In January 2019 and November 2019, the agreement was amended to increase the scope of work and extend the agreement until March 2023, with a maximum amount payable of $2,445,000. Additional work included the design of upgrades of the audio-visual systems in the Board and committee rooms at headquarters and the Building Automation System (BAS), and technical support during the construction phase of each element. As of the report date, the contract not-to-exceed amount is $3,350,000, with total payments to IBI under this agreement totaling $2,522,237. The increase is for design activities for additional scope and technical support during construction.

WHAT WE DID

Our audit scope included reviewing the internal controls over the administration and accounting of the IBI agreement (No. 178689) from the Board approval date of February 13, 2018 to October 31, 2021.

Our audit objectives were to:

(1) Determine if the procurement of the consultant contract was properly authorized, processed, and managed.

(2) Determine if the contract administration (including task orders and deliverables) and reporting processes adhered to Metropolitan's policies and procedures.

(3) Determine if charges paid to the consultant were submitted timely, and were authorized, complete, and accurate.

(4) Determine if tasks were delivered by the consultant in a timely manner.

(5) Determine if consultant expenditures were correctly recorded, posted, and reported in Metropolitan's accounting system.

WHAT WE CONCLUDED

(1) The procurement of the consultant contract was properly authorized, processed, and managed.

(2) Contract administration and reporting processes generally adhered to Metropolitan policies and procedures.

(3) Charges paid to the consultant were authorized and accurate; however, contractual compliance monitoring should be enhanced.

(4) Tasks were delivered by the consultant in a timely manner.

(5) Consultant expenditures were correctly recorded, posted, and reported in Metropolitan's accounting system.

WHAT WE RECOMMEND

We recommend management ensure that contract terms and conditions for invoicing are complied with.

Management agreed with our observation and recommendation.

NUMBER OF RECOMMENDATIONS

PRIORITY 1
Response time:
Immediate

PRIORITY 2
Response time:
Within 90 days

PRIORITY 3
Response time:
Within 180 days

THE METROPOLITAN WATER DISTRICT
OF SOUTHERN CALIFORNIA

Date: August 20, 2024

To: Executive Committee

From: Scott Suzuki, CPA, CIA, CISA, CFE, General Auditor

Subject: Contract Audit: IBI Group, Agreement No. 178689
(Project Number 22-2102-01)

This report presents the results of our contract audit of the IBI Group, Agreement No. 178689.

Results, including our observations and recommendations, follow this letter. Supplemental information, including our scope and objectives, is included in Appendix A. Appendix B includes a description of our new recommendation priority rating system. Finally, management's response to our audit is now included in Appendix C.

We appreciate the cooperation and courtesies provided by the Office of the General Manager and the Engineering Services Group.

The results in this report will be summarized for inclusion in a status report to the Board. If you have any questions regarding our audit, please do not hesitate to contact me directly at 213.217.6528 or Deputy General Auditor Kathryn Andrus at 213.217.7213.

Attachments

cc: Board of Directors
General Manager
General Counsel
Ethics Officer
Office of the General Manager Distribution
Assistant General Managers
Engineering Services Group Distribution
External Auditor

RESULTS

RECOGNITION

Positive aspects observed during our audit include:

- Procurement procedures, which include solicitation, selection, and awarding of the consultant contract (agreement), were properly followed.
- The contract was properly authorized.
- Insurance certificates for the consultant were kept current and in Oracle.
- Tasks were delivered timely.
- Payments were properly approved and within the approved funding limit.
- Consultant expenditures were charged to the appropriate project, subaccount, and appropriation.
- The small vendor/disabled veteran business enterprise participation level of 18% was on track to be met.

RESULTS OVERVIEW

	OBSERVATION	RISK	RECOMMENDATION	MANAGEMENT AGREEMENT
PRIORITY 1				
	None			
PRIORITY 2				
1	Certain contractual terms for invoices were not complied with.	Over-payments Unauthorized charges Interest charges from late payments	Ensure contract terms and conditions for invoicing are complied with. Conduct periodic reviews.	Agree
PRIORITY 3				
	None			

OBSERVATIONS & RECOMMENDATIONS

1 Contractual Compliance

Certain contractual terms for invoices were not complied with.

Review and approval controls are designed to verify the accuracy of billings for services, provide assurance as to the propriety of transactions, confirm compliance with contractual terms and conditions, and ensure that follow-up procedures for exceptions exist. Further, compliance with contractual requirements is necessary to ensure accurate accounting records, proper supporting details, and adequate control over the administration of the agreement.

We selected 41 invoices (totaling $778,906) submitted against the original agreement and subsequent amendments for detailed testing.

(1) Sixteen of 41 (39%) invoices, totaling $345,424, were submitted between 90 days and 303 days after the work invoiced had been completed. Metropolitan's agreement (section 9c) with the consultant states, "invoices submitted 90 days after completion of work, may be delayed or not paid."

(2) One of 41 (2%) invoices included sub-consultant charges of $637.50 incurred 18 months prior to the invoice date.

(3) One of the 41 (2%) invoices tested did not itemize sub-consultant labor charges of $4,895 by date, rate, and title. Metropolitan's agreement (section 9(b)(ii)) with the consultant states, "those invoices with consultant and sub-consultant labor charges shall be itemized by date of service, employee name, title/classification, corresponding labor rate…"

Priority 2

Failure to comply with agreement terms and conditions could result in overpayment, unauthorized charges, or interest charges for late payments.

Recommendation 1

We recommend the Engineering Services Group Agreement Administrator and Project Manager:

(1) Ensure the consultant complies with the terms and conditions of the agreement.

(2) Conduct periodic reviews to ensure compliance.

Management Response

The Engineering Services Group concurs that compliance with contractual requirements is necessary to ensure accurate accounting records, proper supporting details, and adequate control over the administration of the consultant agreements. Engineering Services Group has established procedures for review, control, and verification of compliance of the invoices submitted by consultants.

Agreement Administrators and Project Managers are aware of these procedures and the contractual requirements. They hold regular meetings with the consultants to discuss work progress and pending invoices for the work completed. As noted, the consultant did not submit several invoices to Metropolitan within the contractual timeframe.

We will remind Agreement Administrators of the importance of holding regular meetings and documenting communication with consultants to ensure compliance with the agreement, including submitting invoices and subconsultant charges within the required time frame and itemizing subconsultant charges in the required manner. We will reinforce this message during scheduled training and staff meetings as appropriate.

EVALUATION OF MANAGEMENT'S RESPONSE

Internal Audit considers management's response appropriate to our recommendations, and their planned actions should resolve the condition identified in the report.

AUDIT TEAM

Kathryn Andrus, CPA, Deputy General Auditor
Chris Gutierrez, CPA, CIA, Audit Program Manager
Neena Mehta, Senior Deputy Auditor

APPENDIX A: SUPPLEMENTAL INFORMATION

SCOPE & OBJECTIVES

Our audit scope included reviewing the internal controls over the administration and accounting of the IBI Group agreement (No. 178689) from the Board approval date of February 13, 2018 through October 31, 2021.

Our audit objectives were to:

(1) Determine if the procurement of the consultant contract was properly authorized, processed, and managed.

(2) Determine if the contract administration (including task orders and deliverables) and reporting processes adhered to Metropolitan's policies and procedures.

(3) Determine if charges paid to the consultant were submitted timely, and were authorized, complete, and accurate.

(4) Determine if tasks were delivered by the consultant in a timely manner.

(5) Determine if consultant expenditures were correctly recorded, posted, and reported in Metropolitan's accounting system.

EXCLUSIONS

Our audit scope did not include (1) project costs incurred under the Security System Enhancements appropriation (No. 15499), nor (2) other costs charged to the project, including internal costs incurred in the administration of the agreement.

PRIOR AUDIT COVERAGE

We have completed three audit reports with a similar scope during the past five years:

(1) Consulting Agreements – IBI Group (139755), Cooper & Associates (161856), Atkins North America, Inc. (168020), Project Number 19-2100 issued on February 8, 2019.

(2) Consulting Agreements – Project Partners (177915), Carollo Engineers (180287), HDR Engineering (178378), Project Number 20-2102 issued on August 31, 2020.

(3) Contract Audit: Kennedy/Jenks Consultants Inc. Agreement No. 184581, Project Number 22-2102-02 issued on May 31, 2024.

AUTHORITY

We performed this audit in accordance with the FY 2021/22 Audit Plan presented to the former Audit & Ethics Committee and our FY 2023/24 Audit Plan approved by the Board.

PROFESSIONAL INTERNAL AUDIT STANDARDS

Our audit was conducted in conformance with the International Standards for the Professional Practice of Internal Auditing issued by the International Internal Audit Standards Board.

FOLLOW-UP AUDITS

The Office of the General Auditor has implemented a new follow-up process to ensure management has effectively implemented corrective action related to our recommendations. Management is required to report recommendation implementation status to our office within six months following the issuance of this report and a first follow-up audit will occur shortly thereafter. All audit recommendations are expected to be implemented within a year of this report and if necessary, a second follow-up audit will occur approximately six months after issuance of the first follow-up audit report. Any audit recommendations not implemented after the second follow-up audit will be shared with the Board/Audit Subcommittee of the Executive Committee at its next scheduled meeting.

INTERNAL CONTROL SYSTEM

An internal control system is a continuously operating and integrated component of Metropolitan's operations. Internal controls are implemented by Metropolitan management and seek to provide reasonable (not absolute) assurance that the district's business objectives will be achieved. However, limitations are inherent in any internal control system no matter how well designed, implemented, or operated. Because of these limitations, errors or irregularities may occur and may not be detected. Specific examples of limitations include but are not limited to, poor judgment, carelessness, management override, or collusion. Accordingly, our audit would not necessarily identify all internal control weaknesses or resultant conditions affecting operations, reporting, or compliance. Additionally, our audit covers a point in time and may not be representative of a future period due to changes within Metropolitan and/or external changes impacting the district.

METROPOLITAN'S RESPONSIBILITY FOR INTERNAL CONTROL

It is important to note that Metropolitan management is responsible for designing, implementing, and operating a system of internal control. The objectives of internal controls are to provide reasonable assurance as to the reliability and integrity of information; compliance with policies, plans, procedures, laws, and regulations; the safeguarding of assets; the economic and efficient use of resources; and the accomplishment of established goals and objectives. In fulfilling this responsibility, management judgment is required to assess the expected benefits and related costs of internal control policy and procedures and to assess whether those policies and procedures can be expected to achieve Metropolitan's operational, reporting, and compliance objectives.

APPENDIX B: PRIORITY RATING DEFINITIONS

The Office of the General Auditor utilizes a priority rating system to provide management a measure of urgency in addressing the identified conditions and associated risks. We assess the significance of each observation identified during the audit using professional judgment and assign priority ratings to each recommendation using the criteria listed below. Factors taken into consideration in assessing the priority include the likelihood of a negative impact if not addressed, the significance of the potential impact, and how quickly a negative impact could occur.

PRIORITY			
Definition	Observation is *serious* enough to warrant *immediate* corrective action. The condition may represent a serious financial, operational, or compliance risk. A priority 1 recommendation may result from a key control(s) being absent, not adequately designed, or not operating effectively.	Observation is of a *significant* nature and warrants *prompt* corrective action. It may represent a moderate financial, operational, or compliance risk. A priority 2 recommendation may result from a process or less critical control(s) not being adequate in design and/or not operating effectively on a consistent basis.	Observation involves an internal control issue or compliance lapse that can be corrected in the *timely* course of normal business. A priority 3 recommendation may result from a process or control that requires enhancement to better support Metropolitan's objectives and manage risk.
Response Time	Immediate	Within 90 Days of report issuance	Within 180 Days of report issuance

APPENDIX C: MANAGEMENT'S RESPONSE

THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

Date: July 26, 2024

To: Scott Suzuki, General Auditor

From: Deven Upadhyay, Interim General Manager

cc: Mai Hattar, Interim Chief Engineer
John Bednarski, Interim Assistant General Manager of Water Resources and Technical Services

Subject: Management Response to Audit Number 22-2102-01

Please find below the management response to Audit #22-2102-01, the Contract Audit of IBI Group Agreement #178689. This Management Response was prepared by the subject area lead(s) under the coordination of Interim Chief Engineer Mai Hattar, who also will be responsible for overseeing its implementation. I am confident that the recommendations will be effectively implemented and look forward to working with you to ensure they are.

Please do not hesitate to contact me or my chief of staff Mohsen Mortada if you would like to discuss our response or any other matters. Thank you for your continued partnership to strengthen Metropolitan's systems, controls, and capacity.

Contract Audit: Contract Audit: IBI Group Agreement No. 178689
Project Number 22-2102-01
Management Response

OBSERVATION 1		Contractual Compliance
		Certain contractual terms for invoices were not complied with.
	RECOMMENDATION 1 PRIORITY 2	We recommend the Engineering Services Group Agreement Administrator and Project Manager: (1) Ensure the consultant complies with the terms and conditions of the agreement. (2) Conduct periodic reviews to ensure compliance.
X	AGREE	The Engineering Services Group concurs that compliance with contractual requirements is necessary to ensure accurate accounting records, proper supporting details, and adequate control over the administration of the consultant agreements. Engineering Services Group has established procedures for review, control, and verification of compliance of the invoices submitted by consultants. Agreement Administrators and Project Managers are aware of these procedures and the contractual requirements. They hold regular meetings with the consultants to discuss work progress and pending invoices for the work completed. As noted, the consultant did not submit several invoices to Metropolitan within the contractual timeframe. We will remind Agreement Administrators of the importance of holding regular meetings and documenting communication with consultants to ensure compliance with the agreement, including submitting invoices and subconsultant charges within the required time frame and itemizing subconsultant charges in the required manner. We will reinforce this message during scheduled training and staff meetings as appropriate.
	MANAGEMENT ACTION PLAN	
	ESTIMATED IMPLEMENTATION	September 2024
	PARTIALLY AGREE	
	DO NOT AGREE	
	EXPLANATION	

FORM MANAGEMENT RESPONSE FORM PAGE 2 OF 2
NOVEMBER 2023 (Rv. N/A)

Ethics Office Monthly Report

AUGUST 2024

EDUCATION AND OUTREACH

The Ethics Office hosted its first "Board Mondays with Ethics" on August 19th. Staff answered directors' ethics-related questions and received input on the upcoming AB 1234 state ethics training. The Ethics Office staff will continue its efforts to encourage director engagement. Directors can also contact the Ethics Office to schedule a meeting.

Staff presented an Ethics Office overview for new hires at new employee orientations hosted by Human Resources.

COMPLIANCE

Assisted directors and employees with their Annual, Assuming Office, and Leaving Office Form 700 filings. Assistance included filing for multiple positions, troubleshooting the electronic filing system, and notifications of deadlines.

ADVICE

Addressed 14 advice matters related to the following: conflicts of interest, financial disclosure, gifts, and other ethics-related topics.

INVESTIGATIONS

Received 11 complaints involving the following allegations:

- Misuse of authority for personal gain by an official. (2 complaints)
- Misuse of authority for personal gain and retaliation by a manager.
- Conflict of interest and improper receipt of gifts by a manager.
- Conflict of interest by an official. (2 complaints)
- Inappropriate behavior in the workplace by officials.
- Discrimination by an official.
- Discrimination by a manager.
- Discrimination, retaliation, and unsafe work directives by a manager.
- Retaliation by a manager in response to a discrimination complaint.

Referred EEO-related matters, as applicable.

ETHICS OFFICER FINDINGS

The Ethics Officer determined that a manager misused their authority by disadvantaging an employee during a termination process. The finding was referred for consideration of appropriate action.

The Ethics Officer determined that a manager did not misuse their authority in connection with a hiring process.

ADVICE AND INVESTIGATIVE DATA

Advice Matters	14
Compliance Assistance	34
Complaints Received	11
Investigations Opened	0
Pending Investigations	1

MINUTES

REGULAR MEETING OF THE

BOARD OF DIRECTORS

THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

August 20, 2024

53726 The Board of Directors of The Metropolitan Water District of Southern California met in a regular session on Tuesday, August 20, 2024.

Chair Ortega called the meeting to order at 12:30 p.m.

53727 The Meeting was opened with an invocation by Director Stephen J. Faessel, City of Anaheim.

53728 The Pledge of Allegiance was given by Director Tracy M. Quinn, City of Los Angeles.

53729 Board Secretary Fong-Sakai administered the roll call. Those responding present were: Directors Ackerman, Alvarez, Armstrong, Bryant, Camacho, Cordero (teleconference posted location available for the public), Crawford, De Jesus, Dennstedt, Dick, Douglas (teleconference posted location available for the public), Erdman, Faessel, Fellow, Fong-Sakai, Garza, Gold, Goldberg, Gray (teleconference posted location available for the public), Jung (teleconference posted location available for the public), Kassakhian, Kurtz, Lefevre (teleconference posted location available for the public), Lewitt, Luna, , McMillan, Miller, Morris, Ortega, Petersen, Pressman, Quinn, Ramos (teleconference posted location available for the public), Seckel, Smith, and Sutley.

Those not responding were: Directors McCoy and Phan.

Board Secretary Fong-Sakai declared a quorum present.

Director(s) entered the meeting after the roll call: Director Phan (teleconference posted location available for the public).

Chair Ortega called on Director Armstrong to introduce Member Agency Manager Guest President Philip Paule and General Manager Joe Mouawad, Eastern Municipal Water District. Chair Ortega, Director Armstrong, Mr. Paule, and Mr. Mouaward made remarks.

Chair Ortega welcomed and thanked Misters Paule and Mouaward for joining the board and encouraged them to comment on matters important to the Eastern Municipal Water District.

53730 Chair Ortega invited members of the public to address the Board on matters within the Board's jurisdiction (in-person and via teleconference).

	Name	Affiliation	Comment
1.	Maura Monagan	LA Waterkeeper	Items 5K, 8-3, and wastewater recycling
2.	Gonzalo Pantoja	MWD Employee	Employee misconduct
3.	Marc Miranda	MWD Employee	Employee misconduct
4.	Michael Diaz	MWD Employee	Employee misconduct
5.	Karla Mercado	MWD Employee	Employee misconduct
6.	Daniel Rodriquez	MWD Employee	Employee misconduct
7.	Conrad Villa	MWD Employee	Employee misconduct
8.	Amparo Munoz	MWD Employee	Employee misconduct
9.	Melissa Thrane	MWD Employee	Employee misconduct
10.	Javier Sanchez	MWD Employee	Employee misconduct
11.	Christian Zuniga	MWD Employee	Employee misconduct
12.	Jolene Fuentes	MWD Employee	Employee misconduct
13.	Zoltan Nagy	MWD Employee	Employee misconduct
14.	Alan Shanahan	MWD Employee	Employee misconduct

Director Phan entered the meeting.

The following Director(s) asked questions or made comments:

Director(s)

1. Seckel
2. McMillan
3. Cordero

Staff responded to the Directors' comments and questions.

Chair Ortega addressed the following: Other Matters and Reports.

53731 Chair Ortega asked if there were any corrections to the report of events attended by Directors at Metropolitan's expense during the month of July, as previously posted and distributed to the Board. None were made.

53732 Chair Ortega referred to the Chair's monthly report, which was previously posted and distributed to the Board. In addition, Chair Ortega called on Howard Holcomb, Construction Services Eastern Team Manager, to say a few words regarding the late Daniel Conover, O&M Supervisor, who passed away. Chair Ortega called on Sue Sims, Assistant Group Manager of External Affairs, to say a few words regarding the late Nathan Purkiss, Community Relations Program Manager, who passed away.

53733 Interim General Manager Upadhyay reported on the visit from John Watts, Senior Advisor for the Commissioner of the Bureau of Reclamation. Update on the annual Metropolitan Blood Drive, Potable Reuse regulations, celebration of the fifty-year anniversary of the Metropolitan Water Quality Lab scheduled on Thursday, October 24, 2024, and acknowledge the public comment speakers and referenced the formal nonretaliation policy.

53734 General Counsel Scully reported on the upcoming outside counsel Brown Act webinar on September 16th, and Henry Torres will be handling the meetings on August 27th.

53735 General Auditor Suzuki, in addition to his written report announced a reminder of the quality improvement survey distributed to the board and management and to please respond before the deadline.

53736 Ethics Officer Salinas stated he had nothing to add to the written report.

53737 Report on list of certified assessed valuations for fiscal year 2024/25 and tabulation of assessed valuations, percentage participation, and vote entitlement of member agencies as of August 20, 2024 (Agenda Item 5H). There were no questions.

53738 Presentation of commendatory resolution honoring The Rancho California Water District for 2024 recipient of the Outstanding Public Service Announcement Emmy Awards "Be a Water Hero" Campaign (Agenda Item 5I).

53739 Presentation of commendatory resolution honoring Elsinore Valley Municipal Water District recipient of the American Water Works Association National 2024 Hydrant Hysteria Competition (Agenda Item 5J).

53740 Induction of new Director Mark Gold from City of Santa Monica (Agenda Item 5K). General Counsel Scully reported that the credentials have been reviewed and are in order.

53741 Chair Ortega asked the Directors if there were any comments or discussions on the Approval of the Minutes of the Board of Directors Meeting for July 9, 2024 (Copies have been submitted to each Director any additions, corrections, or omissions) (Agenda Item 6A). No amendments were made.

53742 Approve Commendatory Resolution for Director Judy Abdo representing City of Santa Monica (Agenda Item 6B).

53743 Approval of Committee Assignments (Agenda Item 6C).

Appoint Director Morris to the Legislation and Communications Committee.

Appoint Director Gold to the One Water and Stewardship Committee and the Finance and Asset Committee.

Appoint Director Crawford to the Engineering, Operations, and Technology Committee and the Ad Hoc Committee on Bay-Delta.

Director Smith appointed Director Gold to the Subcommittee on Long-Term Regional Planning Processes and Business Modeling.

Director Erdman appointed Director Crawford to the Subcommittee on Pure Water Southern California and Regional Conveyance.

Chair Ortega called on Directors who are requesting that any items be pulled from the Consent Calendar Action Items and to state any recusals, abstentions, and disclosures.

Director Fong-Sakai disclosed Item 7-1 involves authorizing an agreement with AECOM, she currently owns stock and will recuse herself from all participation.

53744 a. Authorize on-call agreements with AECOM, RHA LLC, Strategic Value Solutions Inc., and Value Management Strategies Inc., in amounts not to exceed $1.5 million each, for a maximum period of three years for value engineering and related technical service, as set forth in Agenda Item 7-1 board letter.

53745 Authorize an agreement with Carollo Engineers Inc. for a not-to-exceed amount of $1.3 million to perform owner's advisor services for progressive design-build delivery of the Lake Mathews Pressure Control Structure and Electrical System Upgrades, as set forth in Agenda Item 7-2 board letter.

53746 Authorize an increase of $840,000 in change order authority for a new maximum change order authority of $1,581,025 to an existing contract with Steve P. Rados for the installation of an isolation valve at the Wadsworth Pumping Plant Bypass Pipeline, as set forth in Agenda Item 7-3 board letter.

53747 a. Adopt the Mitigated Negative Declaration for the Inland Feeder-Foothill Pump Station Intertie Project and take related CEQA actions; b. Adopt a resolution to accept $5 million in funding from the U.S. Bureau of Reclamation to support the Inland Feeder/San Bernardino Valley Municipal Water District Foothill Pump Station Intertie Project; c. Designate the Group Manager of Engineering Services to be the signatory to execute actions related to the funds; d. Appropriate $5 million in funding from the U.S. Bureau of Reclamation for use on the Inland Feeder/San Bernardino Valley Municipal Water District Foothill Pump Station Intertie Project, as set forth in Agenda Item 7-4 board letter.

53748 Amend an existing agreement with Procure America Inc. for a new annual maximum amount of $340,000 per year for a new not-to-exceed amount of $1.7 million over the term of the agreement for the audit of Metropolitan's telecommunications circuits, as set forth in Agenda Item 7-5 board letter.

53749 Authorize a $875,000 increase to an existing agreement with Computer Aid Incorporated to a new not-to-exceed amount of $2,625,000 for staff augmentation support services for the operation and maintenance of the Metropolitan Cybersecurity Operations Center for an additional six months, as set forth in Agenda Item 7-6 board letter.

53750 a. Approve the draft of Appendix A (Attachment 1) attached to this board letter; b. Authorize the General Manager or other designee of the Ad Hoc Committee to finalize, with changes approved by the General Manager and General Counsel, Appendix A; c. Authorize distribution of Appendix A, finalized by the General Manager or other designee of the Ad Hoc Committee, in connection with the sale and/or remarketing of bonds, as set forth in Agenda Item 7-7 board letter.

53751 Review and consider the Lead Agency's adopted Mitigation Negative Declaration and take related CEQA actions; and adopt resolution for the 115th Fringe Area Annexation to Eastern Municipal Water District and Metropolitan, as set forth in Agenda Item 7-8 board letter.

Director Fellow moved, seconded by Director Morris that the Board approve the Consent Calendar Items 6A, 6B, 6C, and 7-1 through 7-8 as follows:

Chair Ortega called for a vote to approve the Consent Calendar Items 6A, 6B, 6C, and 7-1 through 7-8.

Director De Jesus left the meeting.

The following is a record of the vote:

Record of Vote on Consent Item(s):	6A, 6B, 6C and 7-1 through 7-8								
Member Agency	Total Votes	Director	Present	Yes	Yes Vote	No	No Vote	Abstain	Abstain Vote
Anaheim	6306	Faessel	x	x	6306				
Beverly Hills	4677	Pressman	x	x	4677				
Burbank	3330	Ramos	x	x	3330				
Calleguas Municipal Water District	13627	McMillan	x	x	13627				
Central Basin Municipal Water District	20265	Garza	x	x	10133				
		Crawford	x	x	10133				
			Subtotal:		20265				
Compton	678	McCoy							
Eastern Municipal Water District	12919	Armstrong	x	x	12919				
Foothill Municipal Water District	2543	Bryant	x	x	2543				
Fullerton	2766	Jung	x	x	2766				
Glendale	4165	Kassakhian	x	x	4165				
Inland Empire Utilities Agency	17103	Camacho	x	x	17103				
Las Virgenes	3224	Lewitt	x	x	3224				
Long Beach	6805	Cordero	x	x	6805				
Los Angeles	83835	Sutley	x	x	16767				
		Petersen	x	x	16767				
		Quinn	x	x	16767				
		Luna	x	x	16767				
		Douglas	x	x	16767				
			Subtotal:		83835				
Municipal Water Dist. of Orange County	68102	Ackerman	x	x	17026				
		Seckel	x	x	17026				
		Dick	x	x	17026				
		Erdman	x	x	17026				
			Subtotal:		68102				
Pasadena	4042	Kurtz	x	x	4042				
San Diego County Water Authority	70862	Fong-Sakai	x	x	17716				
		Goldberg	x	x	17716				
		Miller	x	x	17716				
		Smith	x	x	17716				
			Subtotal:		70862				
San Fernando	274	Ortega	x	x	274				
San Marino	836	Morris	x	x	836				
Santa Ana	3569	Phan	x	x	3569				
Santa Monica	5055	Gold	x	x	5055				
Three Valleys Municipal Water District	9019	De Jesus							
Torrance	3781	Lefevre	x	x	3781				
Upper San Gabriel Valley Mun. Wat. Dist.	14079	Fellow	x	x	14079				
West Basin Municipal Water District	28764	Alvarez	x	x	14382				
		Gray	x	x	14382				
			Subtotal:		28764				
Western Municipal Water District	15689	Dennstedt	x	x	15689				
Total	**406315**				**396618**				
Present and not voting									
Absent	**9697**								

The motion to approve the Consent Calendar Items 6A, 6B, 6C, and 7-1 through 7-9 (**M.I. No. 53741 through 53751**)* passed by a vote of 396,618 ayes; 0 noes; 0 abstain; 0 not voting; and 9,697 absent.

Individual vote tally* for item 7-1: Fong-Sakai stated a recusal. The motion to approve the Consent Calendar Item 7-1 passed by a vote of 396,618 ayes; 0 noes; 0 abstain; 0 not voting; and 9,697 absent.

Directors Fong-Sakai, Smith, and Miller disclosed they receive per diem and reimbursement benefits from the San Diego County Water Authority for their service on the Board. Additionally, based on MWD Act Section 56, they will not vote, including abstaining, on Item 8-1, which is an agreement between Metropolitan and the Authority.

Director Goldberg disclosed Item 8-1 involves an agreement with San Diego County Water Authority, she is required to disclose for the record that she receive per diem and reimbursement benefits from the Authority for her service on the Board. However, she has been advised that she may participate in the item.

53752 Authorize the General Manager to enter into: (1) a forbearance agreement with Coachella Valley Water District, Imperial Irrigation District, Palo Verde Irrigation District, and the City of Needles to allow water conserved under the U.S. Bureau of Reclamation's conservation program to be added to Lake Mead; and (2) agreements with Imperial Irrigation District and San Diego County Water Authority under Reclamation's conservation program to add water conserved by Imperial Irrigation District to Lake Mead that would otherwise accrue to San Diego County Water Authority (Agenda Item 8-1).

Director Quinn moved, seconded by Director Sutley, that the Board approve the Board Item 8-1 as follows:

Chair Ortega called for a vote on the motion for Agenda Item 8-1 Option 1.

Director Gray left the meeting.

The following is a record of the vote:

Record of Vote on Item:	8-1								
Member Agency	Total Votes	Director	Present	Yes	Yes Vote	No	No Vote	Abstain	Abstain Vote
Anaheim	6306	Faessel	x	x	6306				
Beverly Hills	4677	Pressman	x	x	4677				
Burbank	3330	Ramos	x	x	3330				
Calleguas Municipal Water District	13627	McMillan	x	x	13627				
Central Basin Municipal Water District	20265	Garza	x	x	10133				
		Crawford	x	x	10133				
			Subtotal:		20265				
Compton	678	McCoy							
Eastern Municipal Water District	12919	Armstrong	x	x	12919				
Foothill Municipal Water District	2543	Bryant	x	x	2543				
Fullerton	2766	Jung	x	x	2766				
Glendale	4165	Kassakhian	x	x	4165				
Inland Empire Utilities Agency	17103	Camacho	x	x	17103				
Las Virgenes	3224	Lewitt	x	x	3224				
Long Beach	6805	Cordero	x	x	6805				
Los Angeles	83835	Sutley	x	x	16767				
		Petersen	x	x	16767				
		Quinn	x	x	16767				
		Luna	x	x	16767				
		Douglas	x	x	16767				
			Subtotal:		83835				
Municipal Water Dist. of Orange County	68102	Ackerman	x	x	17026				
		Seckel	x	x	17026				
		Dick	x	x	17026				
		Erdman	x	x	17026				
			Subtotal:		68102				
Pasadena	4042	Kurtz	x	x	4042				
San Diego County Water Authority	70862	Fong-Sakai	x						
		Goldberg	x	x	70862				
		Miller	x						
		Smith	x						
			Subtotal:		70862				
San Fernando	274	Ortega	x	x	274				
San Marino	836	Morris	x	x	836				
Santa Ana	3569	Phan	x	x	3569				
Santa Monica	5055	Gold	x	x	5055				
Three Valleys Municipal Water District	9019	De Jesus							
Torrance	3781	Lefevre	x	x	3781				
Upper San Gabriel Valley Mun. Wat. Dist.	14079	Fellow	x	x	14079				
West Basin Municipal Water District	28764	Alvarez	x	x	28764				
		Gray							
			Subtotal:		28764				
Western Municipal Water District	15689	Dennstedt	x	x	15689				
Total	**406315**				**396618**				
Present and not voting									
Absent	**9697**								

The motion to approve the Board Item 8-1 (**M.I. No. 53752**) passed by a vote of 396,618 ayes; 0 noes; 0 abstain; 0 not voting; and 9,697 absent.

53753 a. Adopt the Twenty-Sixth Supplemental Resolution to the Master Bond Resolution authorizing the issuance of up to $425 million of Water Revenue and Refunding Bonds, 2024 Series, and providing the terms and conditions for the sale and issuance of the Bonds; and
b. Approve approximately $1.2 million for the payment of the costs of issuance of the Water Revenue Bonds to be paid from bond proceeds or Metropolitan funds (Agenda Item 8-2).

Director Smith moved, seconded by Director Morris, that the Board approve the Board Item 8-2 as follows:

Chair Ortega called for a vote on the motion for Agenda Item 8-2 Option 1.

Directors Pressman and Quinn left the meeting.

The following is a record of the vote:

Record of Vote on Item:	8-2								
Member Agency	Total Votes	Director	Present	Yes	Yes Vote	No	No Vote	Abstain	Abstain Vote
Anaheim	6306	Faessel	x	x	6306				
Beverly Hills	4677	Pressman							
Burbank	3330	Ramos	x	x	3330				
Calleguas Municipal Water District	13627	McMillan	x	x	13627				
Central Basin Municipal Water District	20265	Garza	x	x	10133				
		Crawford	x	x	10133				
			Subtotal:		20265				
Compton	678	McCoy							
Eastern Municipal Water District	12919	Armstrong	x	x	12919				
Foothill Municipal Water District	2543	Bryant	x	x	2543				
Fullerton	2766	Jung	x	x	2766				
Glendale	4165	Kassakhian	x	x	4165				
Inland Empire Utilities Agency	17103	Camacho	x	x	17103				
Las Virgenes	3224	Lewitt	x	x	3224				
Long Beach	6805	Cordero	x	x	6805				
Los Angeles	83835	Sutley	x	x	20959				
		Petersen	x	x	20959				
		Quinn							
		Luna	x	x	20959				
		Douglas	x	x	20959				
			Subtotal:		83835				
Municipal Water Dist. of Orange County	68102	Ackerman	x	x	17026				
		Seckel	x	x	17026				
		Dick	x	x	17026				
		Erdman	x	x	17026				
			Subtotal:		68102				
Pasadena	4042	Kurtz	x	x	4042				
San Diego County Water Authority	70862	Fong-Sakai	x	x	17716				
		Goldberg	x	x	17716				
		Miller	x	x	17716				
		Smith	x	x	17716				
			Subtotal:		70862				
San Fernando	274	Ortega	x	x	274				
San Marino	836	Morris	x	x	836				
Santa Ana	3569	Phan	x	x	3569				
Santa Monica	5055	Gold	x	x	5055				
Three Valleys Municipal Water District	9019	De Jesus							
Torrance	3781	Lefevre	x	x	3781				
Upper San Gabriel Valley Mun. Wat. Dist.	14079	Fellow	x	x	14079				
West Basin Municipal Water District	28764	Alvarez	x	x	28764				
		Gray							
			Subtotal:		28764				
Western Municipal Water District	15689	Dennstedt	x	x	15689				
Total	**406315**				**391941**				
Present and not voting									
Absent	**14374**								

The motion to approve the Board Item 8-2 (**M.I. No. 53753**) passed by a vote of 391,941 ayes; 0 noes; 0 abstain; 0 not voting; and 14,374 absent.

53754 a. Adopt the resolution establishing the ad valorem property tax rate for fiscal year 2024/25 at 0.007 percent; and b. Direct staff to transmit that resolution to the county auditor-controllers, or equivalent, for the levy and collection of the ad valorem property tax. (Agenda Item 8-3).

Director Smith moved, seconded by Director Armstrong, that the Board approve the Board Item 8-3 as follows:

Chair Ortega called for a vote on the motion for Agenda Item 8-3 Option 1.

Director Pressman returned to the meeting.

The following is a record of the vote:

Record of Vote on Item:	8-3								
Member Agency	Total Votes	Director	Present	Yes	Yes Vote	No	No Vote	Abstain	Abstain Vote
Anaheim	6306	Faessel	x	x	6306				
Beverly Hills	4677	Pressman	x	x	4677				
Burbank	3330	Ramos	x	x	3330				
Calleguas Municipal Water District	13627	McMillan	x	x	13627				
Central Basin Municipal Water District	20265	Garza	x	x	10133				
		Crawford	x	x	10133				
			Subtotal:		20265				
Compton	678	McCoy							
Eastern Municipal Water District	12919	Armstrong	x	x	12919				
Foothill Municipal Water District	2543	Bryant	x	x	2543				
Fullerton	2766	Jung	x	x	2766				
Glendale	4165	Kassakhian	x	x	4165				
Inland Empire Utilities Agency	17103	Camacho	x	x	17103				
Las Virgenes	3224	Lewitt	x	x	3224				
Long Beach	6805	Cordero	x	x	6805				
Los Angeles	83835	Sutley	x	x	20959				
		Petersen	x	x	20959				
		Quinn							
		Luna	x	x	20959				
		Douglas	x	x	20959				
			Subtotal:		83835				
Municipal Water Dist. of Orange County	68102	Ackerman	x	x	17026				
		Seckel	x	x	17026				
		Dick	x	x	17026				
		Erdman	x	x	17026				
			Subtotal:		68102				
Pasadena	4042	Kurtz	x	x	4042				
San Diego County Water Authority	70862	Fong-Sakai	x	x	17716				
		Goldberg	x	x	17716				
		Miller	x	x	17716				
		Smith	x	x	17716				
			Subtotal:		70862				
San Fernando	274	Ortega	x	x	274				
San Marino	836	Morris	x	x	836				
Santa Ana	3569	Phan	x	x	3569				
Santa Monica	5055	Gold	x	x	5055				
Three Valleys Municipal Water District	9019	De Jesus							
Torrance	3781	Lefevre	x	x	3781				
Upper San Gabriel Valley Mun. Wat. Dist.	14079	Fellow	x	x	14079				
West Basin Municipal Water District	28764	Alvarez	x	x	28764				
		Gray							
			Subtotal:		28764				
Western Municipal Water District	15689	Dennstedt	x	x	15689				
Total	**406315**				**396618**				
Present and not voting									
Absent	**9697**								

The motion to approve the Board Item 8-3 (**M.I. No. 53754**) passed by a vote of 396,618 ayes; 0 noes; 0 abstain; 0 not voting; and 9,697 absent.

53755 Approval of a salary increase of 8.25 percent effective June 13, 2024, for Deven Upadhyay as Interim General Manager to reflect the added responsibilities and duties (Agenda Item 8-4).

Director Luna moved, seconded by Director Pressman, that the Board approve the Board Item 8-4 as follows:

Chair Ortega called for a vote on the motion for Agenda Item 8-4 Option 1.

Director Quinn returned to the meeting.

The following is a record of the vote:

Record of Vote on Item:	8-4								
Member Agency	Total Votes	Director	Present	Yes	Yes Vote	No	No Vote	Abstain	Abstain Vote
Anaheim	6306	Faessel	x	x	6306				
Beverly Hills	4677	Pressman	x	x	4677				
Burbank	3330	Ramos	x	x	3330				
Calleguas Municipal Water District	13627	McMillan	x	x	13627				
Central Basin Municipal Water District	20265	Garza	x	x	10133				
		Crawford	x	x	10133				
			Subtotal:		20265				
Compton	678	McCoy							
Eastern Municipal Water District	12919	Armstrong	x	x	12919				
Foothill Municipal Water District	2543	Bryant	x	x	2543				
Fullerton	2766	Jung	x	x	2766				
Glendale	4165	Kassakhian	x	x	4165				
Inland Empire Utilities Agency	17103	Camacho	x	x	17103				
Las Virgenes	3224	Lewitt	x	x	3224				
Long Beach	6805	Cordero	x	x	6805				
Los Angeles	83835	Sutley	x	x	16767				
		Petersen	x	x	16767				
		Quinn	x	x	16767				
		Luna	x	x	16767				
		Douglas	x	x	16767				
			Subtotal:		83835				
Municipal Water Dist. of Orange County	68102	Ackerman	x	x	17026				
		Seckel	x	x	17026				
		Dick	x	x	17026				
		Erdman	x	x	17026				
			Subtotal:		68102				
Pasadena	4042	Kurtz	x	x	4042				
San Diego County Water Authority	70862	Fong-Sakai	x	x	17716				
		Goldberg	x	x	17716				
		Miller	x	x	17716				
		Smith	x	x	17716				
			Subtotal:		70862				
San Fernando	274	Ortega	x	x	274				
San Marino	836	Morris	x	x	836				
Santa Ana	3569	Phan	x	x	3569				
Santa Monica	5055	Gold	x	x	5055				
Three Valleys Municipal Water District	9019	De Jesus							
Torrance	3781	Lefevre	x	x	3781				
Upper San Gabriel Valley Mun. Wat. Dist.	14079	Fellow	x	x	14079				
West Basin Municipal Water District	28764	Alvarez	x	x	28764				
		Gray							
			Subtotal:		28764				
Western Municipal Water District	15689	Dennstedt	x	x	15689				
Total	**406315**				**396618**				
Present and not voting									
Absent	**9697**								

The motion to approve the Board Item 8-4 (**M.I. No. 53755**) passed by a vote of 396,618 ayes; 0 noes; 0 abstain; 0 not voting; and 9,697 absent.

53756 Discussion of Department Head Performance Evaluations [Public Employees' performance evaluations; General Counsel, General Auditor, and Ethics Officer; to be heard in closed session pursuant to Gov. Code 54957] (Agenda Item 10-2).

Chair Ortega called the meeting into closed session to discuss Agenda Item 10-2

The Board returned to open session; in closed session, the Board discussed Item 10-2. No action was taken in closed session.

Directors Camacho, Cordero, Faessel, Fong-Sakai, Gold, Goldberg, Kassakhian, McMillan, Petersen, Phan, Pressman, Quinn, Ramos left the meeting.

53757 Defer discussion and approve compensation recommendations for General Counsel, General Auditor, and Ethics Officer for one month (Agenda Item 10-3).

The following Director(s) asked questions or made comments:

Director(s)

1. Kurtz
2. Dick
3. Alvarez

Director Kurtz moved, seconded by Director Garza, that the Board approve the motion to defer Item 10-3 as follows:

Chair Ortega called for a vote on the motion for Agenda Item 10-3.

The following is a record of the vote:

Record of Vote on Item:	10-3 Motion: Motion to defer Item for one month								
Member Agency	Total Votes	Director	Present	Yes	Yes Vote	No	No Vote	Abstain	Abstain Vote
Anaheim	6306	Faessel							
Beverly Hills	4677	Pressman							
Burbank	3330	Ramos							
Calleguas Municipal Water District	13627	McMillan							
Central Basin Municipal Water District	20265	Garza	x	x	10133				
		Crawford	x	x	10133				
			Subtotal:		20265				
Compton	678	McCoy							
Eastern Municipal Water District	12919	Armstrong	x	x	12919				
Foothill Municipal Water District	2543	Bryant	x	x	2543				
Fullerton	2766	Jung	x	x	2766				
Glendale	4165	Kassakhian							
Inland Empire Utilities Agency	17103	Camacho							
Las Virgenes	3224	Lewitt	x	x	3224				
Long Beach	6805	Cordero							
Los Angeles	83835	Sutley	x	x	27945				
		Petersen							
		Quinn							
		Luna	x	x	27945				
		Douglas	x	x	27945				
			Subtotal:		83835				
Municipal Water Dist. of Orange County	68102	Ackerman	x	x	17026				
		Seckel	x	x	17026				
		Dick	x	x	17026				
		Erdman	x	x	17026				
			Subtotal:		68102				
Pasadena	4042	Kurtz	x	x	4042				
San Diego County Water Authority	70862	Fong-Sakai							
		Goldberg							
		Miller	x	x	35431				
		Smith	x	x	35431				
			Subtotal:		70862				
San Fernando	274	Ortega	x	x	274				
San Marino	836	Morris	x	x	836				
Santa Ana	3569	Phan							
Santa Monica	5055	Gold							
Three Valleys Municipal Water District	9019	De Jesus							
Torrance	3781	Lefevre	x	x	3781				
Upper San Gabriel Valley Mun. Wat. Dist.	14079	Fellow	x	x	14079				
West Basin Municipal Water District	28764	Alvarez	x	x	28764				
		Gray							
			Subtotal:		28764				
Western Municipal Water District	15689	Dennstedt	x	x	15689				
Total	**406315**				**331981**				
Present and not voting									
Absent	**74334**								

The motion to approve the Board Item 10-3 (**M.I. No. 53757**) passed by a vote of 331,981 ayes; 0 noes; 0 abstain; 0 not voting; and 74,334 absent.

53758 Chair Ortega asked if there were questions or need for discussion on Board Information Items 9-1 or 9-2. No requests were made.

53759 Chair Ortega asked if there were any Follow-Up Items. Director Fellow requested that meeting also be adjourned in honor of the State Assemblyman Richard Alatorre who recently passed away.

53760 Chair Ortega asked if there were any Future Agenda Items. Directors Seckel, Smith, Sutley, and Douglas requested that a plan of action regarding public comment personnel and safety issues be brought to the appropriate Committee. Director Garza requested an update on the Desert Housing situation and a tour. Director Smith

53761 There being no objection the meeting was adjourned in honor of the late Daniel Conover, O&M Supervisor, Nathan Purkiss, Community Relations Program Manager, and State Assemblyman Richard Alatorre at 3:40 p.m.

LOIS FONG-SAKAI
BOARD SECRETARY

ADÁN ORTEGA, JR.
CHAIR OF THE BOARD

- **Board of Directors**
  Engineering, Operations, and Technology Committee

9/10/2024 Board Meeting

7-1

Subject

Authorize an agreement with IDS Group Inc. in an amount not to exceed $400,000 for design services to rehabilitate the heating, ventilation, and air conditioning system at Metropolitan Headquarters Building; the General Manager has determined that the proposed action is exempt or otherwise not subject to CEQA

Executive Summary

The heating, ventilating, and air conditioning (HVAC) system at Metropolitan Headquarters Building includes a centralized cooling system which provides cool air through a system that includes chillers, air-handling units, cooling towers, air disinfection system, and associated mechanical, electrical, and control systems. After 26 years of continuous operation, the three existing chillers and other HVAC system components throughout the building have reached the end of their useful life and require replacement.

This action authorizes an agreement with IDS Group Inc. in an amount not to exceed $400,000 to provide design services for the rehabilitation of the HVAC system at Metropolitan Headquarters Building. See **Attachment 1** for the Allocation of Funds and **Attachment 2** for the Location Map.

Proposed Action(s)/Recommendation(s) and Options

Staff Recommendation: Option #1

Option #1

Authorize an agreement with IDS Group Inc. in an amount not to exceed $400,000 for preliminary design to rehabilitate the HVAC system at Metropolitan Headquarters Building.

Fiscal Impact: Expenditure of $790,000 in capital funds will be incurred in the current biennium and have been previously authorized.
Business Analysis: This option will enhance reliability and efficiency of the HVAC system at the Headquarters Building and will provide greater system flexibility, resiliency, energy, and water savings.

Option #2

Do not proceed with the project at this time.
Fiscal Impact: None
Business Analysis: Under this option, staff would continue to operate the Headquarters Building's HVAC system in its current condition and inspect and perform localized equipment repairs as required. This approach would lead to further deterioration of critical components of the system and potentially building-wide outages of the cooling system.

Alternatives Considered

Alternatives considered to complete the preliminary design of the HVAC system rehabilitation at the Metropolitan Headquarters Building included assessing the availability and capability of in-house Metropolitan staff to complete this work. Metropolitan's staffing strategy for utilizing consultants and in-house Metropolitan

staff has been: (1) to assess current work assignments for in-house staff to determine the potential availability of staff to conduct this work; and (2) utilize consultants for long-term rehabilitation projects when resource needs exceed available in-house staffing or require specialized technical expertise.

Staff has determined that specialized technical expertise is required to complete the preliminary design for the rehabilitation of the Headquarters HVAC system at Metropolitan Headquarters. Metropolitan staff does not routinely perform detailed design of this equipment. After assessing the current workload for in-house staff, the relative priority of this project, and the specialized technical expertise required, staff recommends the use of a professional services agreement to complete the subject project. This approach will allow for the completion of not only this project, but also other budgeted capital projects within their current schedules and ensure that the work is conducted in the most efficient manner possible.

Applicable Policy

Metropolitan Water District Administrative Code Section 8121: General Authority of the General Manager to Enter Contracts

Metropolitan Water District Administrative Code Section 11104: Delegation of Responsibilities

Related Board Action(s)/Future Action(s)

By Minute Item 53318, dated July 11, 2023, the Board awarded a contract for the repair of the HVAC Chiller #2 at Metropolitan Headquarters Building.

By Minute Item 53598, dated April 9, 2024, the Board appropriated a total of $636.5 million for projects identified in the CIP for Fiscal Years 2024/2025 and 2025/2026.

California Environmental Quality Act (CEQA)

CEQA determination for Option #1:

The proposed action is exempt from CEQA because it involves only feasibility or planning studies for possible future actions which the Board has not approved, adopted, or funded. (Public Resources Code Section 21080.21; State CEQA Guidelines Section 15262.)

CEQA determination for Option #2:

None required

Details and Background

Background

Metropolitan Headquarters Building is a 522,682 square-foot, concrete-frame structure with a 12-story high-rise tower attached to a five-story wing. The building houses up to 850 Metropolitan staff and provides meeting space for the Board of Directors and members of the public. The business functions located in this building are critical for maintaining the continuity of Metropolitan's day-to-day operations.

The building has an HVAC system that uses a chiller plant to circulate chilled water to cool the building. The HVAC equipment and the chiller plant were installed during the original building construction and have been in operation for over 26 years. The central chiller plant is in a dedicated chiller room on the building's top floor. Three 450-ton water-cooled, centrifugal chillers with variable frequency drives provide cooling for the building.

Cool air is distributed through 29 custom air-handling units distributed within the 12 stories of the building. Air-handling units feature return and supply air connections, a single supply air fan, chilled water-cooling coil, and chilled water control valves. The units are also equipped with a UV-C light filtration system downstream of the cooling coils, which was installed in 2022.

After 26 years of continuous operation, the system has become increasingly difficult to maintain due to obsolete equipment components which require frequent repairs. Chillers and associated equipment typically have a lifespan of approximately 25 years. The central plant's efficiency and reliability decrease yearly due to equipment

age and proprietary electronic components, which are no longer supported or available. An assessment of the condition of the HVAC system performed by staff in early 2023 concluded that the chillers and critical support equipment associated with the HVAC system have reached the end of their useful life and require replacement. In addition, the refrigerant used by the building's existing cooling equipment is being phased out by the U. S. Environmental Protection Agency and will soon become cost-prohibitive and impractical to obtain.

In recent years, Metropolitan staff conducted a comprehensive study evaluation of the Headquarters HVAC system based on the current building layout, intended usage, review of original historical contract documents, and cooling load analyses while also considering energy efficiency, maintenance requirements, reliability, and integration with existing infrastructure. The study determined that upgrading the chiller plant and total refurbishment of the air-handling units, fluid coolers, and associated mechanical, electrical, and control systems will provide a reliable and energy-efficient HVAC system for the next 25 years. Staff also investigated the availability of rebates from the energy provider and found that there are currently no rebates available; however, as part of preliminary design, staff will investigate whether rebates are available for selected equipment. Staff recommends proceeding with preliminary design to rehabilitate the Headquarters HVAC system, including upgrades to the chiller plant and total refurbishment of the air-handling units, fluid coolers, and associated mechanical, electrical, and control systems. Staff recommends that the preliminary design be conducted by a specialized consultant under a new professional services agreement, which is the subject of this action.

Headquarters HVAC System Rehabilitation – Preliminary Design

Planned improvements to the HVAC system include replacing the three chillers and air-handling units. Field investigations will also be conducted to confirm whether other HVAC components, including the control system, need to be replaced.

Planned activities to complete preliminary design include: (1) detailed field inspections of existing equipment; (2) evaluation of industry standards and characteristics of recommended assemblies and replacement equipment; (3) preparation of an installation sequencing plan to maintain the headquarters in operation during replacement of the equipment; (4) preparation of preliminary design drawings and three-dimensional models; (5) initiation of permitting activities; (6) development of construction cost estimates and schedules; and (7) preparation of a preliminary design report. These activities will be performed by IDS Group Inc. as discussed below. Metropolitan staff will perform overall project management, conduct surveys, provide technical oversight, and review the consultant's work.

A total of $790,000 is required for this work. Allocated funds include $400,000 for preliminary design activities by IDS Group Inc. under a new agreement as described below. Other allocated funds for professional services include $60,000 for value engineering and environmental services, which specialty firms will perform under contracts planned to be executed under the General Manager's Administrative Code authority. Allocated funds for Metropolitan staff activities include $147,000 for design services described above; $113,000 for project management, environmental support, and project controls; and $70,000 for remaining budget. **Attachment 1** provides the allocation of the required funds. The total estimated cost to complete this project, including the amount appropriated to date, funds allocated for the work described in this action, and future construction costs, is anticipated to range from $17 million to $19 million.

Engineering Services (IDS Group Inc.) – New Agreement

IDS Group Inc. is recommended to complete preliminary design for the rehabilitation of the HVAC system equipment at Metropolitan Headquarters, as described above. IDS Group Inc. was selected through a competitive process under Request for Proposals No. 1361. IDS Group Inc. was selected for this project based on its staff qualifications, experience in the design of similar projects, and technical approach and methodology.

This action authorizes an agreement with IDS Group Inc for a not-to-exceed amount of $400,000 to provide engineering services to complete preliminary design for the rehabilitation of the Headquarters HVAC system, including upgrades to the chiller plant and total refurbishment of the air-handling units, fluid coolers, and associated mechanical, electrical and control systems. For this agreement, Metropolitan has established a

Small Business Enterprise (SBE) participation level of 25 percent. IDS Group is a certified SBE firm and thus achieves 100 percent SBE participation.

Project Milestone

August 2025 – Completion of preliminary design for the HVAC system rehabilitation

8/19/2024
Mai M. Hattar *Date*
Interim Manager/Chief Engineer
Engineering Services

8/27/20224
Deven Upadhyay *Date*
Interim General Manager

Attachment 1 – Allocation of Funds

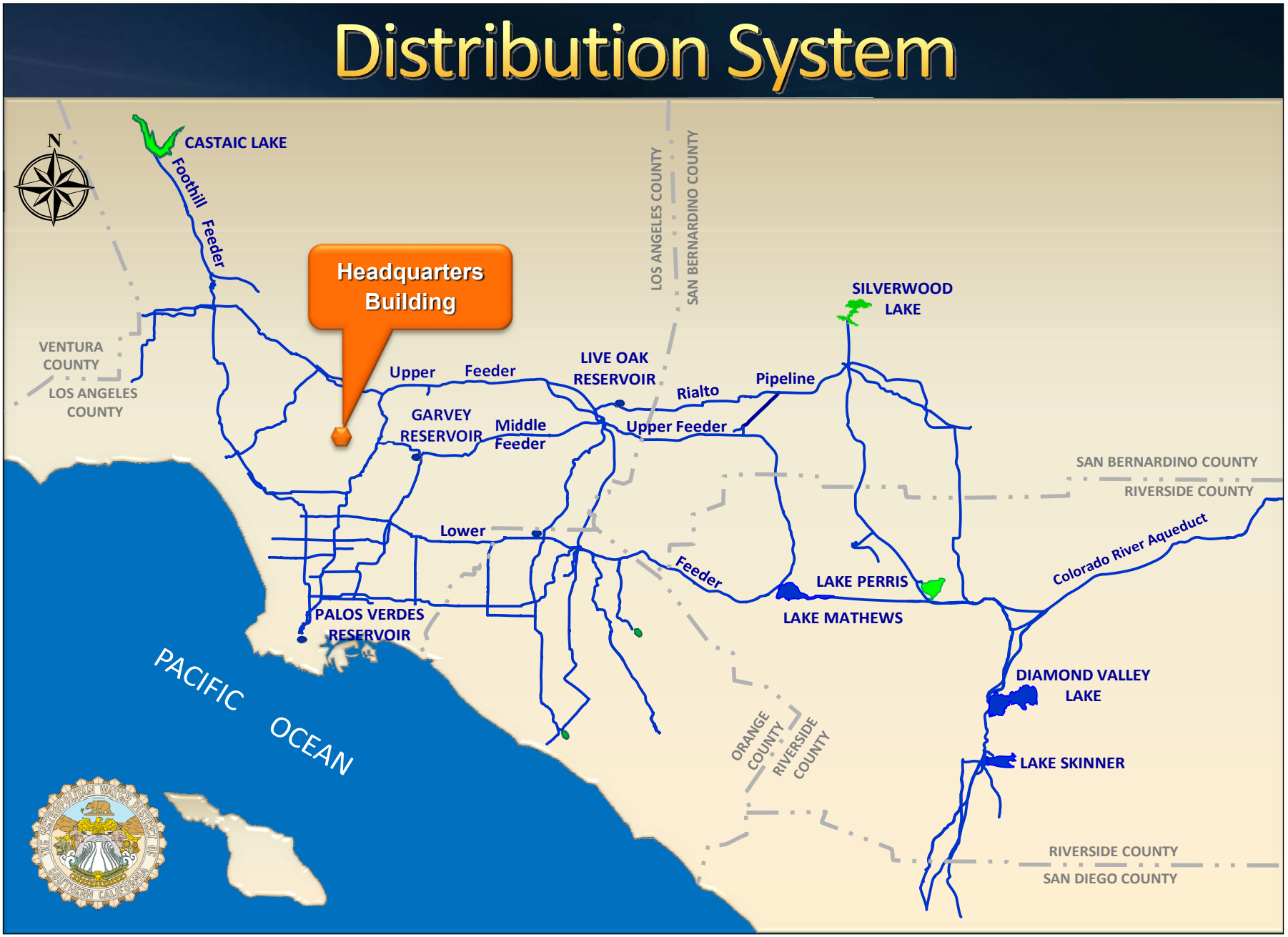
Attachment 2 – Location Map

Ref# es12695931

Allocation of Funds for Headquarters HVAC System Rehabilitation

	Current Board Action (Sep. 2024)
Labor	
Studies & Investigations	$ 147,000
Final Design	-
Owner Costs (Program mgmt., envir. support)	113,000
Submittals Review & Record Drwgs.	-
Construction Inspection & Support	-
Metropolitan Force Construction	-
Materials & Supplies	-
Incidental Expenses	-
Professional/Technical Services	-
IDS Group Inc.	400,000
Value Engineering	40,000
Environmental Services	20,000
Right-of-Way	-
Equipment Use	-
Contracts	-
Remaining Budget	70,000
Total	**$ 790,000**

The total amount expended to date to rehabilitate the Headquarters HVAC system is approximately $286,000. The total estimated cost to complete this project, including the amount appropriated to date, funds allocated for the work described in this action, and future construction costs, is anticipated to range from $17 million to $19 million.


Distribution System
N
CASTAIC LAKE
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LOS ANGELES COUNTY
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PACIFIC OCEAN
DIAMOND VALLEY LAKE
ORANGE COUNTY
RIVERSIDE COUNTY
LAKE SKINNER
RIVERSIDE COUNTY
SAN DIEGO COUNTY

Engineering, Operations, & Technology Committee

Metropolitan Headquarters HVAC System Upgrades

Item 7-1

September 9, 2024

Item 7-1
Metropolitan Headquarters HVAC System Upgrades

Subject

Authorize an agreement with IDS Group Inc. in an amount not to exceed $400,000, for design services to rehabilitate the heating, ventilation, and air conditioning system at Metropolitan Headquarters Building

Purpose

Rehabilitation of the heating, ventilation, and air conditioning system to improve operational functionality and reliability

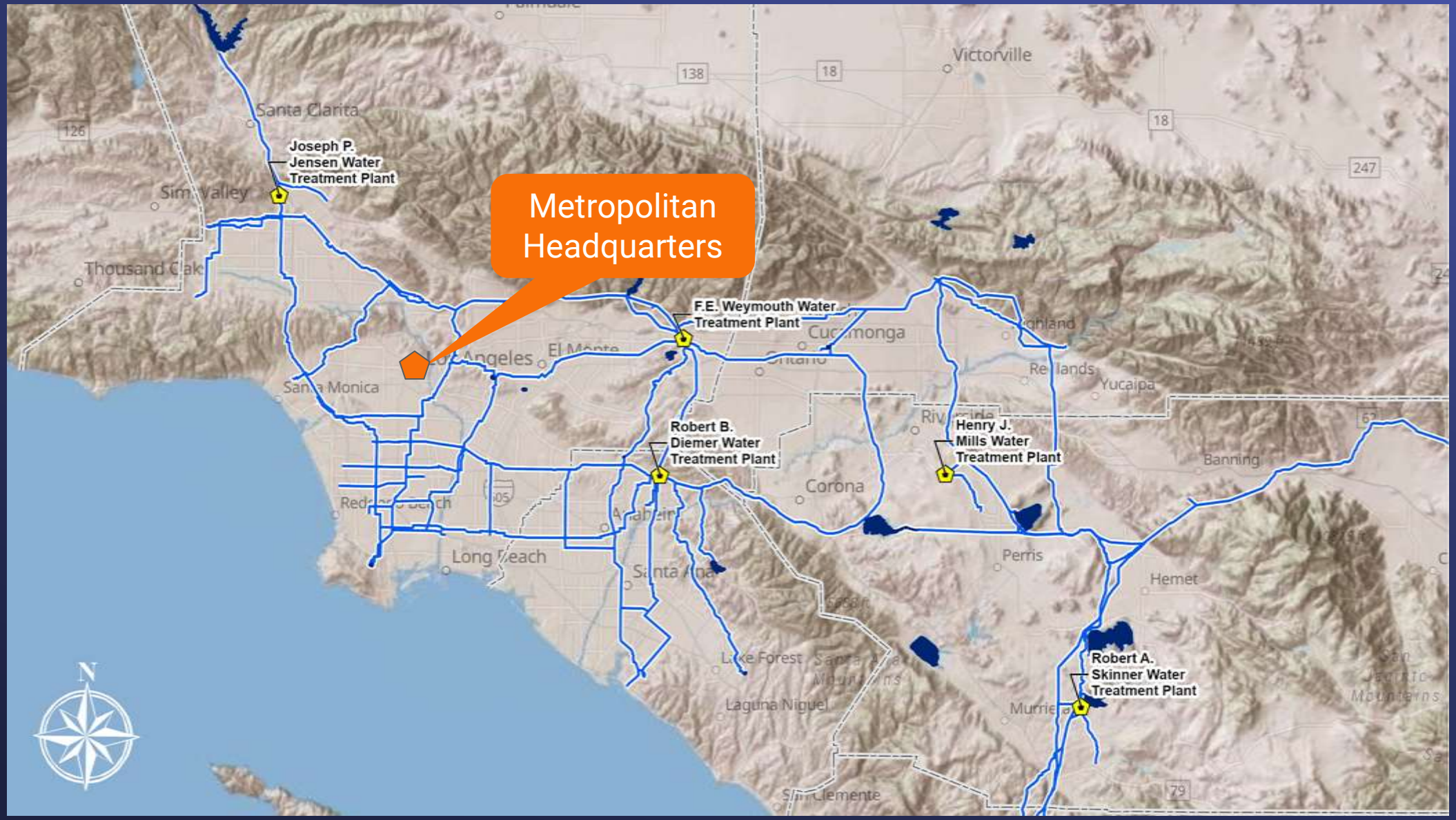
Recommendation and Fiscal Impact

Authorize an agreement for design services

Fiscal Impact of $790,000

Budgeted

Location Map



Background – Metropolitan Headquarters HVAC System

- Building HVAC System
  - Original building infrastructure
  - Provides cooling for critical systems & climate safety standards
  - Uses three 450-ton chillers to cool building
  - 29 custom air handling units distribute cool air

Chillers

Air Handler

Background

- Building HVAC System deteriorating after 26 years of service
  - Efficiency & reliability of HVAC system decreasing
  - Frequent repairs are now needed
    - July 23 board action to repair a chiller
- Refrigerant is being phased out by the U. S. Environmental Protection Agency
- Staff recommends preliminary design to rehabilitate the HVAC system

Metropolitan Headquarters HVAC System Upgrades

Alternatives Considered

- Metropolitan staff to complete all preliminary design activities
  - Resource needs exceed staff availability
  - Specialized technical expertise required
- Selected Alternative – Use consultant services with specialized expertise

Metropolitan Headquarters HVAC System Upgrades

Project Scope

- Replace key equipment
  - Fluid coolers & associated mechanical, electrical & control system
  - Upgrade existing chillers
  - Refurbish existing air handling units
- Provide a more energy-efficient system

Metropolitan Headquarters HVAC System Upgrades

Metropolitan Scope of Work

- Perform surveys
- Provide technical oversight & review consultant's work
- Provide project management, project controls, & environmental documentation
- Oversee field inspections
- Obtain permits

Metropolitan Headquarters HVAC System Upgrades

New Agreement – IDS Group Inc.

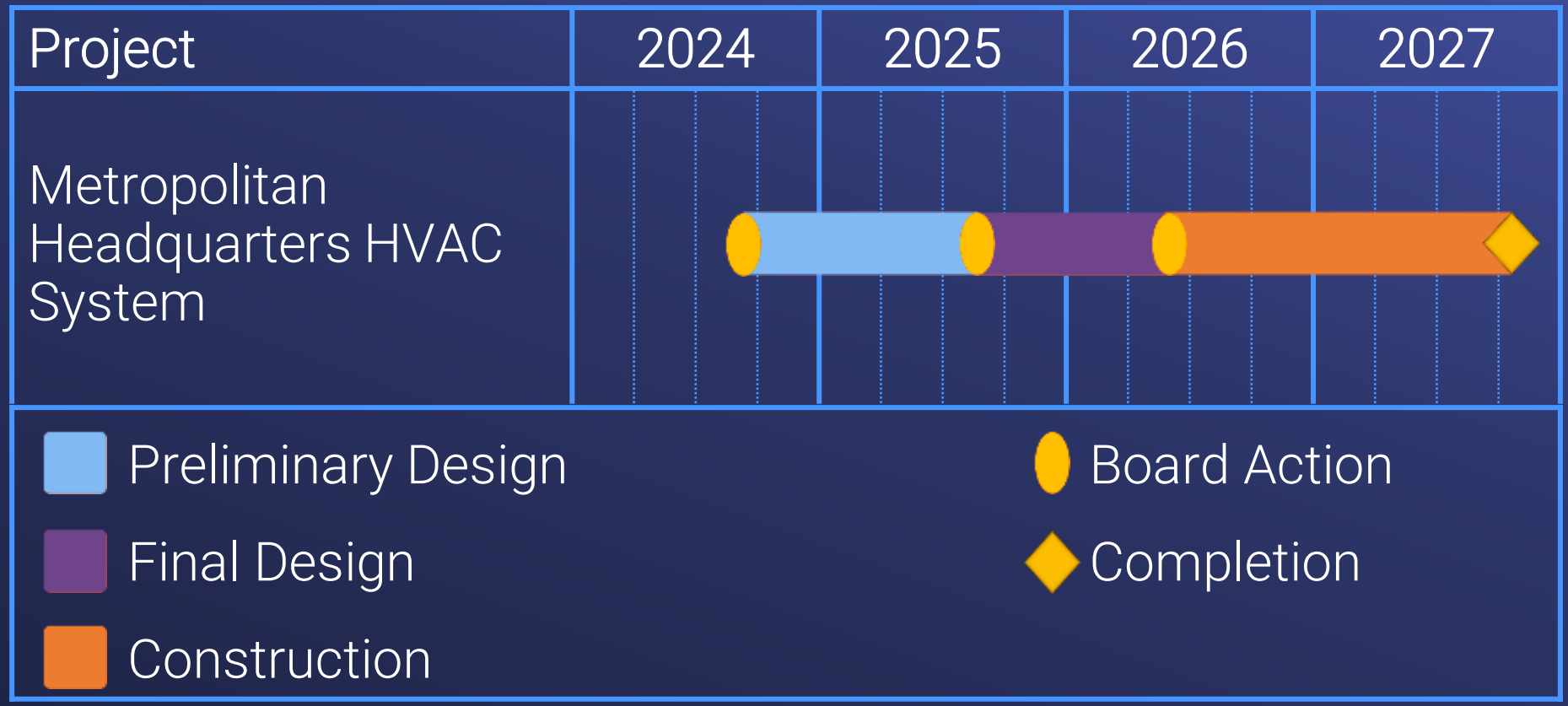
- Selected through RFP No. 1361
- Scope of Work
  - Preliminary design services for HVAC system rehabilitation
    - Evaluation of industry standards for replacement equipment
    - Design criteria & cost estimates
    - Preliminary design
- NTE amount: $400,000
- SBE participation level: 100%

Allocation of Funds

HVAC System Rehabilitation

Metropolitan Labor	
Studies & Investigations	$ 147,000
Owner Costs (Proj. Mgmt., Envir. Support)	113,000
Professional/Technical Services	
IDS Group Inc.	400,000
Value Engineering	40,000
Environmental Services	20,000
Remaining Budget	70,000
Total	$ 790,000

Project Schedule



Board Options

- Option #1

  Authorize an agreement with IDS Group Inc. in an amount not to exceed $400,000 for preliminary design to rehabilitate the HVAC system at Metropolitan Headquarters Building.

- Option #2

  Do not proceed with the project at this time.

Staff Recommendation

- Option #1


THE METROPOLITAN WATER DISTRICT OF
SOUTHERN CALIFORNIA
1928

- Board of Directors
  Engineering, Operations, and Technology Committee

9/10/2024 Board Meeting

7-2

Subject

Adopt the Mitigated Negative Declaration for the West Valley Feeder No. 1 Stage 3 Improvements Project and take related CEQA actions

Executive Summary

The West Valley Feeder No. 1 Stage 3 Improvements Project involves replacing deteriorated valves, adding valve structures, and improving access for maintenance and repairs. The existing valves were installed when the line was constructed in 1962 and no longer seal properly. Further, many valves were directly buried and cannot be accessed without excavating the pipeline. Work was implemented in three stages. Stages 1 and 2 have been completed, while final design for Stage 3 is ongoing. Stage 3 work includes: (1) the addition of new vaults to house valves that at present are directly buried at three locations: near a streambed, adjacent to a patrol road, and at the top of the hill; (2) replacement of existing deteriorated valves; (3) installation of enclosures for air release/vacuum valves; and (4) grading of an all-weather access road to support patrol and maintenance activities at the structures.

This action proposes the adoption of a Mitigated Negative Declaration (MND) for Stage 3 of the West Valley Feeder No. 1 Improvements Project in accordance with the California Environmental Quality Act (CEQA). See **Attachment 1** for the Location Map, **Attachment 2** for the Initial Study (IS) and MND, **Attachment 3** for the comment letters received during the public review period and Metropolitan's responses to those comments, and **Attachment 4** for the Mitigation Monitoring and Reporting Program (MMRP).

Proposed Action(s)/Recommendation(s) and Options

Staff Recommendation: Option #1

Option #1

Adopt the Mitigated Negative Declaration for the West Valley Feeder No. 1 Stage 3 Improvements Project and take related CEQA actions.

Fiscal Impact: None
Business Analysis: Adoption of the Mitigated Negative Declaration allows Metropolitan to proceed with obtaining additional project clearances and approvals.

Option #2

Do not adopt the Mitigated Negative Declaration at this time.
Fiscal Impact: None
Business Analysis: This option would forego the opportunity to obtain additional project clearances and approvals.

Alternatives Considered

Not applicable

Applicable Policy

Metropolitan Water District Administrative Code Section 11100: Environmental Matters

Related Board Action(s)/Future Action(s)

By Minute Item 50987, dated October 10, 2017, the Board authorized preliminary design of Stage 3 improvements for West Valley Feeder No. 1.

By Minute Item 51283, dated August 21, 2018, the Board authorized final design of Stage 3 improvements for West Valley Feeder No. 1.

California Environmental Quality Act (CEQA)

CEQA determination for Option #1:

Acting as the Lead Agency, Metropolitan conducted an IS for the proposed action. The IS indicated that, with the incorporation of appropriate mitigation measures, the proposed action would not have a significant impact on the environment. Accordingly, Metropolitan prepared an MND, which together with the IS was circulated for public review beginning on June 13, 2024. Metropolitan also prepared a program for reporting on and monitoring the changes that are required to mitigate or avoid significant environmental effects (MMRP).

Attachment 2 includes the IS and MND. **Attachment 3** includes comment letters received during the public review period and Metropolitan's responses to those comments, and **Attachment 4** includes the MMRP. These documents, as well as any other materials that constitute the record of proceedings upon which the Lead Agency decision is based, are on file at Metropolitan's headquarters located at 700 North Alameda Street, Los Angeles, CA 90012.

The Board has reviewed and considered all the materials described above. Based on the whole record before it, the Board finds that there is no substantial evidence that the proposed action will have a significant impact on the environment and that the MND reflects the Lead Agency's independent judgment and analysis. Therefore, the Board adopts the MND and MMRP for the proposed action. (State CEQA Guidelines Sections 15070-15075.)

CEQA determination for Option #2:

None required

Details and Background

The West Valley Feeder No. 1 delivers treated water from the Joseph Jensen Water Treatment Plant in Granada Hills to Calleguas Municipal Water District (Calleguas), Las Virgenes Municipal Water District, and the Los Angeles Department of Water and Power. This 8.3-mile-long feeder was constructed in 1962 by Calleguas and was acquired by Metropolitan in 1970. The line is comprised of prestressed concrete cylinder pipe with a diameter varying from 48 inches to 57 inches. The feeder has a capacity of 100 cubic feet per second and serves five-member agency service connections.

In 2001, a condition assessment of West Valley Feeder No. 1 identified that most of the blowoff valves, air release/vacuum valves, and sectionalizing valves were deteriorating and needed to be replaced. Work was prioritized and divided into three stages over multiple shutdown seasons to minimize the duration of pipeline outages. The first stage, which addressed the valves within 42 structures over four shutdown seasons, was completed in 2006. The second stage, which addressed 14 structures over two shutdown seasons, was completed in 2012.

The Stage 3 portion of the work is located within Chatsworth Park South. In 2008, the park was closed to the public for remediation of hazardous materials that were discovered within the park boundaries. Due to the resulting restrictions that impeded access and pipeline construction activities by a contractor, the final stage of improvements to West Valley Feeder No. 1 was deferred. In August 2017, the remediation work within the park was completed, allowing Metropolitan to proceed with the final improvements to the feeder.

Stage 3 work includes: (1) the addition of new vaults to house valves that at present are directly buried at three locations: near a streambed, adjacent to a patrol road, and at the top of the hill; (2) replacement of existing deteriorated valves; (3) installation of enclosures for air release/vacuum valves; and (4) grading of an all-weather access road to support patrol and maintenance activities at the structures.

Adoption of the MND and MMRP will allow Metropolitan to proceed with obtaining necessary easements, project clearances, and other approvals.

Project Milestone

June 2025 – Completion of design and right-of-way acquisition

8/20/2024
Elizabeth Crosson *Date*
Chief Sustainability, Resilience & Innovation Officer

8/21/2024
Deven Upadhyay *Date*
Interim General Manager

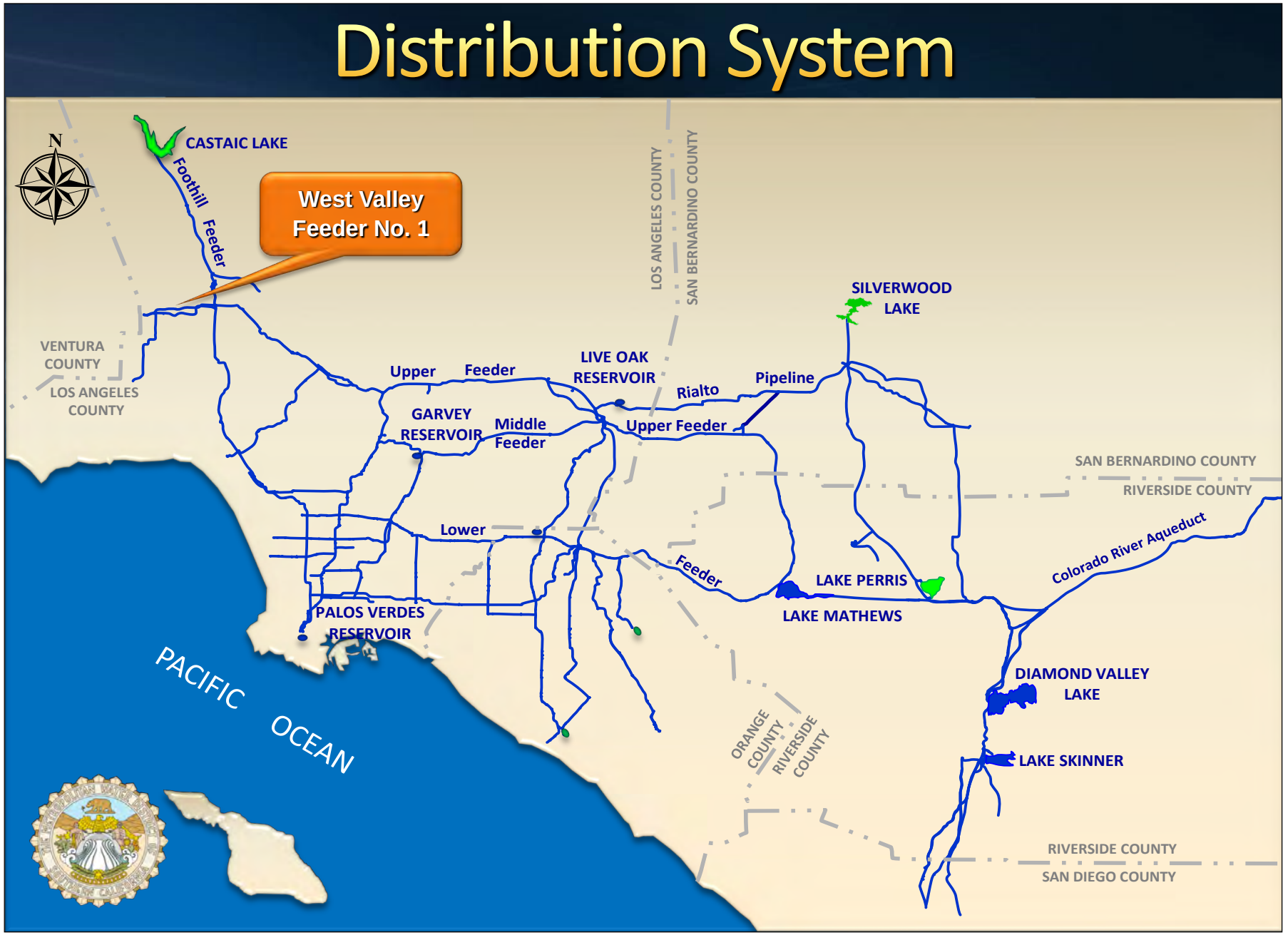
Attachment 1 – Location Map

Attachment 2 – Initial Study and Mitigated Negative Declaration

Attachment 3 – Comment Letters and Responses to Comments

Attachment 4 – Mitigation Monitoring and Reporting Program

Ref# sri12700637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PALOS VERDES RESERVOIR
PACIFIC OCEAN
DIAMOND VALLEY LAKE
ORANGE COUNTY
RIVERSIDE COUNTY
LAKE SKINNER
RIVERSIDE COUNTY
SAN DIEGO COUNTY

West Valley Feeder No. 1
Stage 3 Improvements Project

Proposed
Initial Study-Mitigated Negative Declaration

Metropolitan Report No. 1582

June 2024

West Valley Feeder No. 1 Stage 3 Improvements Project

Proposed Initial Study-Mitigated Negative Declaration

The Metropolitan Water District of Southern California
700 North Alameda Street
Los Angeles, California 90012

Report No. 1582

June 2024

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LIST OF ACRONYMS

µg/m3	Micrograms per cubic meter
AAM	Annual Arithmetic Mean
AAQS	Ambient Air Quality Standards
AB	Assembly Bill
ALUC	Airport Land Use Commission
APEFZ	Alquist-Priolo Earthquake Fault Zone
APN	Assessor Parcel Number
AQMP	Air Quality Management Plan
BMPs	Best Management Practices
CalEEMod	California Emissions Estimator Model
Caltrans	California Department of Transportation
CAP	Climate Action Plan
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CDFW	California Department of Fish and Wildlife
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CGS	California Geological Survey
CMWD	Calleguas Municipal Water District
CNDDB	California Natural Diversity Database
CNEL	Community noise equivalent level
CNPS	California Native Plant Society
CO	Carbon Monoxide
CO_2e	Carbon dioxide equivalents
CRHR	California Register of Historical Resources
CRPR	California Rare Plant Rank
cy	Cubic yards
CYA	C. Young Associates
dB	Decibel
dBA	A-weighted decibel
DTSC	Department of Toxic Substances Control
EMD	Emergency Management Department
EMFAC	EMissions FACtor model
ESA	Endangered Species Act
Farmland	Farmland of Statewide Importance
FESA	Federal Endangered Species Act
GHG	Greenhouse gas
HCP	Habitat Conservation Plan
ID	Inside diameter

Km	Kilometer
LA100	Los Angeles 100% Renewable Energy Study
LACDPW	Los Angeles County Department of Public Works
LACM	Natural History Museum of Los Angeles County
LADRAP	Los Angeles Department of Recreation and Parks
LAFD	Los Angeles Fire Department
LAPD	Los Angeles Police Department
LAUSD	Los Angeles Unified School District
Lbs/day	Pounds per day
LCA	Land Conservation Act
Leq	Equivalent sound level
LST	Localized significance threshold
MEI	Maximally exposed individual
Metropolitan	The Metropolitan Water District of Southern California
Mg/m^3	Milligrams per cubic meter
MM	Mitigation Measure
MND	Mitigated Negative Declaration
MS4	Municipal separate storm sewer system
MT	Metric tons
MT/yr	Metric tons per year
NAHC	Native American Heritage Commission
NCCP	Natural Community Conservation Plan
NO_2	Nitrogen Dioxide
NO_x	Nitrogen oxides
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NWI	National Wetlands Inventory
O_3	Ozone
OHWM	Ordinary High Water Mark
OPR	Office of Planning and Research
OS	Open Space
PCCP	Prestressed concrete cylinder pipe
PEIR	Program Environmental Impact Report
PI	Plasticity index
PM10	Particulate Matter with a diameter of 10 microns or less
PM2.5	Particulate Matter with a diameter of 2.5 micros or less
Ppm	Parts per million
ppv	Peak particle velocity
PRC	Public Resources Code
RAP	Remedial Action Plan
ROG	Reactive organic gas

ROW	Right-of-way
RTP/SCS	Regional Transportation Plan/Sustainable Communities Strategy
RWQCB	Regional Water Quality Control Board
SB	Senate Bill
SCAB	South Coast Air Basin
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SCCIC	South Central Coastal Information Center
SMARA	Surface Mining and Reclamation Act
SO_2	Sulfur Dioxide
SO_x	Sulfur oxides
SR	State Route
STA	Station
SWPPP	Storm Water Pollution Prevention Plan
TAC	Toxic air contaminants
TNW	Traditional Navigable Water
USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
USEPA	United States Environmental Protection Agency
USFS	United States Forest Service
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
VCP	Voluntary Cleanup Program
VDB	Velocity decibels
VMT	Vehicle miles travelled
VOC	Volatile organic compound
WPCP	Water Pollution Control Plan
WVF1	West Valley Feeder No. 1

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SECTION 1.0 PROJECT DESCRIPTION

1.1 PROJECT BACKGROUND AND PURPOSE

The Metropolitan Water District of Southern California (Metropolitan) is a regional wholesaler that provides water for 26 public member agencies that, in turn, provide drinking water to approximately 19 million people in Southern California in parts of Los Angeles, Orange, Riverside, San Bernardino, San Diego, and Ventura counties. The mission of Metropolitan is to provide its service area with an adequate and reliable supply of high-quality water to meet present and future needs in an environmentally and economically responsible way.

The West Valley Feeder No. 1 (WVF1) was constructed in 1962 by Calleguas Municipal Water District (CMWD) and acquired by Metropolitan in 1970. WVF1 is a 54-inch inside diameter (ID) prestressed concrete cylinder pipe (PCCP) that conveys treated water to two member agencies, the Las Virgenes Municipal Water District and the CMWD.

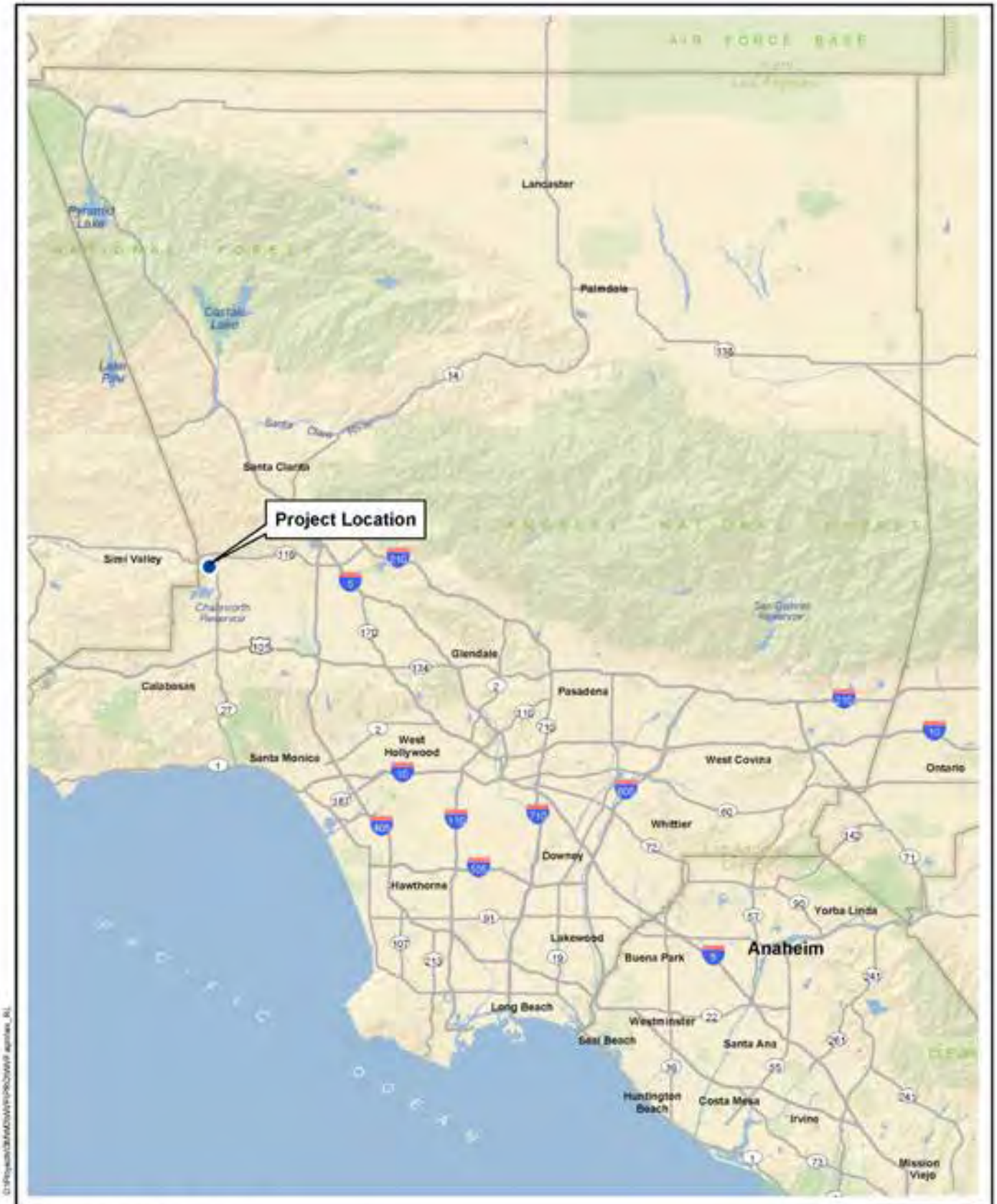
Improvements to the WVF1 have been divided into three stages. Stages 1 and 2 were completed outside of Chatsworth Park South as part of pipeline maintenance work; however, access to Chatsworth Park South was restricted for many years due to lead remediation conducted by the City of Los Angeles. The lead remediation efforts were completed in 2017. The purpose of the proposed Project is to complete Stage 3 of the pipeline maintenance work within Chatsworth Park South by completing pipeline valve modifications, including replacing valves, relocating valves, and modifying structures at four locations along the WVF1, making improvements to the existing access road, and constructing a new access road where no vehicular access currently exists.

1.2 PROJECT LOCATION

The WVF1 begins at the intersection of Hayvenhurst Avenue and Rinaldi Street in Granada Hills and travels westerly, terminating at the CMWD's Santa Susana Tunnel – East Portal in Chatsworth Park South. Exhibit 1 depicts the Regional Location and Exhibit 2 depicts the Local Vicinity. The Project Area includes four locations along the WVF1, improvements to the existing WVF1 access road, and construction of a new access road where no vehicular access currently exists. Exhibit 3 depicts existing Metropolitan facilities in the Project Area. The combined Project Area totals approximately 1.98 acre within the north/northwestern portion of Chatsworth Park South in the community of Chatsworth, in the city of Los Angeles, county of Los Angeles, California (refer to Exhibit 3, Existing Metropolitan Facilities). The Project is located on Assessor Parcel Numbers (APNs) 2723010904, 2723010270, and 2723010902. Exhibits 4a through 4c provide a visual overview of the Project Area, including temporary and permanent easements.

1.3 SURROUNDING LAND USE

The Project Area is surrounded by Chatsworth Park South to the south and southeast, single-family residences to the east, and undeveloped hillside terrain within the Santa Susana Pass State Historic Park to the north and west (refer to Exhibit 2, Local Vicinity). Railroad right-of-way (ROW) is located north of the Project Area, and informal multi-use trails are located throughout the Project Area that serve pedestrian, bicycling, and equestrian uses.



Regional Location

Exhibit 1

WVF No.1 Stage 3 Improvements Project

10 5 0 10 Miles

Local Vicinity

Exhibit 2

WVF No.1 Stage 3 Improvements Project

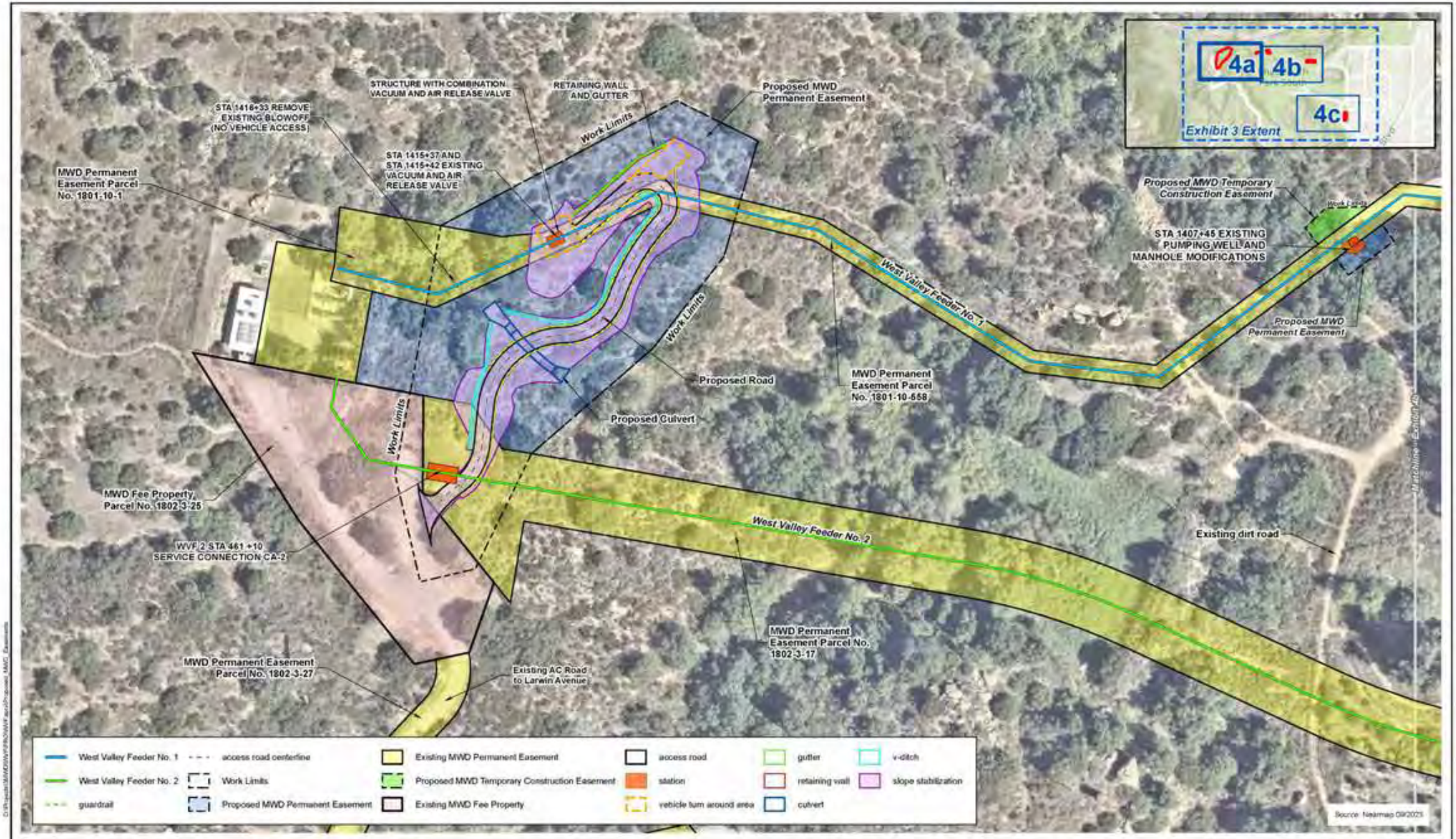
PSOMAS

Existing Metropolitan Facilities

WVF No. 1 Stage 3 Improvements Project

Exhibit 3

250 125 0 250 Feet



Proposed Project Area and Easements

WVF No. 1 Stage 3 Improvements Project

Exhibit 4a

PSOMAS

Proposed Project Area and Easements

WVF No. 1 Stage 3 Improvements Project

Exhibit 4b

PSOMAS

Proposed Project Area and Easements

Exhibit 4c

WVF No. 1 Stage 3 Improvements Project

80 40 0 80 Feet

1.4 PROJECT DESCRIPTION

The Project proposes modifications to WVF1 structures at four locations along the pipeline alignment, improvements to the existing access road, and construction of a new access road and vehicle turn around areas within Chatsworth Park South. A detailed project description is below in Sections 1.4.1 and 1.4.2. Photographs of existing facilities are included in Exhibits 5a-5d.

1.4.1 STRUCTURE MODIFICATIONS

(1) **WVF1 Station 1405+23.** WVF1 Station 1405+23 is an existing valve enclosure surrounded by four concrete posts. This structure is located on a paved roadway area and includes an air valve, isolation valve, and buried gate valve with a valve stem protruding at ground surface as shown in Exhibit 5a.

The Project proposes to relocate and replace the valve enclosure and associated piping, located within the paved roadway, approximately seven feet south of its current location, also within the paved roadway. The new air valve would be installed within a cabinet on a concrete pad with protective guard posts (bollards) placed around it. Additionally, a new manhole structure with seven-foot interior diameter and a street type lid/cover would be constructed directly over the top of the WVF1 to house a new isolation valve plug valve, check valve, and associated piping. All construction activities would occur within the existing paved roadway. Bollards would be placed around the new manhole structure to protect it from vehicular traffic.

(2) **WVF1 Station 1407+45.** WVF1 Station 1407+45 is an existing manhole structure and below ground vault which houses a blow-off valve and pump well structure. The manhole interior is visible in Exhibit 5b. The manhole is located on the edge of an eroded asphalt pad and access road, adjacent to an ephemeral drainage with a loose riprap bank.

The Project proposes to replace the existing manhole structure by raising the access point of the structure and expanding the interior diameter of the manhole from six to seven feet. The Project would also replace the existing pump well valve and valve stem within the structure in kind and replace associated piping and fittings. The drainage side slope would be cleared of any vegetation within the riprap, and regraded and re-armored with riprap to protect the structure from direct water flow. Bollards would be placed around the existing manhole structure along the asphalt side of the structure, as needed, to protect the structure from vehicular traffic.

(3) **WVF1 Station 1415+37 and Station 1415+42.** WVF1 Station 1415+37 is an existing, enclosed air release and vacuum valve located next to a buried gate valve with a valve stem protruding at the surface. The valve enclosure is weathered and made of thin, metal sheeting as shown in Exhibit 5c. This structure is located on an unpaved, undeveloped hillside, and is only accessible by foot with no formal trails or access paths. The site is immediately adjacent to a chain-link fence and surrounded by ruderal shrubs and grasses.

The Project proposes to construct a new manhole and underground concrete vault structure to provide access to a buried 20-inch flanged outlet at Station 1415+37 and a buried 10-inch air release and vacuum valve at Station 1415+42. The flanged outlet and air release and vacuum valve are located approximately five feet apart, and the new vault structure would house both. The inside dimensions of the underground concrete vault structure would be approximately 13-feet-long by 9-feet-wide by 7-feet-high with the manhole structure extending at least 2 feet above the finish grade. An existing retaining wall would be protected in place. The flanged outlet would be converted to a pump well.

WVF1 Station 1405+23, facing south.

WVF1 Station 1405+23, Air Release and Vacuum Valve enclosure, facing north.

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Existing Facilities – WVF1 Station 1405+23 Exhibit 5a

WVF No.1 Stage 3 Improvements Project

PSOMAS

(04/17/2023 JVR) R:\Projects\MWD\WVD0104030\Graphics\MXDs_Existing_Facilities.pdf

WVF1 Station 1407+45, facing south/west.

WVF1 Station 1407+45, manhole interior.

Existing Facilities – WVF1 Station 1407+45 Exhibit 5b

WVF No.1 Stage 3 Improvements Project

PSOMAS

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WVF1 Station 1415+37 and 1415+42, exposed valve, facing north/west.

WVF1 Station 1415+37 and 1415+42, Air Release and Vacuum Valve enclosure, facing south.

Existing Facilities – WVF1 Station 1415+37 and Station 1415+42 Exhibit 5c

WVF No.1 Stage 3 Improvements Project

PSOMAS

WVF1 Station 1416+33, exposed valve, facing west.

WVF1 Station 1416+33, exposed valve, facing north.

Existing Facilities – WVF1 Station 1416+33 Exhibit 5d

WVF No.1 Stage 3 Improvements Project

PSOMAS

(4) **WVF1 Station 1416+33.** WVF1 Station 1416+33 is an existing blow-off valve structure located on a concrete pedestal at ground level within a streambed, as shown in Exhibit 5d. The site is located at the base of a ravine and is accessible only by foot via a series of wooden stairs that descend along the southwestern wall of the ravine. The site is densely vegetated and surrounded by leaf litter and debris; the blow-off valve structure is exposed and periodically covered by debris.

The Project proposes to abandon the existing blow-off valve structure by removing or permanently capping the various valve components and converting the piping to a flange. Once the flange in installed, the area would be backfilled, and the finish grade restored to its present elevation. Conversion of the blow-off structure to a blind flange would require an approximate 10-foot by 10-foot construction work area. An existing 40-foot by 5-foot stairway would be used as a temporary route to access this site.

1.4.2 ACCESS ROAD IMPROVEMENTS, NEW ACCESS ROAD AND VEHICLE TURNAROUND

The proposed Project would repave portions of the existing access road and construct a new paved access road including two vehicle turnaround areas and access gates to accommodate a full-size maintenance truck (for continued operations, maintenance, and security). The new paved access road would be approximately 14 feet wide, 600 feet in length, and provide for one-way vehicle traffic. The new paved access road would start at a turn off from the existing paved access road (located along the west side of Chatsworth Park South), cross a stream, and end at the WVF1 proposed vault structure at Station 1415+37 and Station 1415+42 (see description in Section 1.4.1 and Exhibit 4a). The two vehicle turnaround areas would be located immediately adjacent to the Station 1415+37 and Station 1415+42 vault structure.

Construction of the new access road would require clearing and grubbing of the access road path, removal of rocks and debris, and grading the access road alignment. The new road would be constructed from a combination of asphalt and concrete with a cement treated base. Concrete-lined v-ditches would be installed along the shoulder of the road, as required, to direct runoff away from the access road. The construction would also include a 100-foot long by 6-foot-high retaining wall along the northwest section of the road and guard rails along the eastern portion of the road.

To construct the stream crossing, the drainage area would be cleared and grubbed of vegetation, and existing rocks or boulders would be removed. A 72-inch concrete pipe culvert with headwall would be installed within the streambed, and the drainage side slopes stabilized with compacted soil placed within a geogrid system. The areas adjacent to the culvert inlet and outlet would contain armored riprap to protect the pipe and roadway from erosion. As shown on Exhibit 4a, the constructed culvert would replace a 90-foot long section of the natural drainage, while vegetation removal and slope stabilization to support the new road would result in an additional disturbance of approximately 90 feet in length of the drainage. The total length of stream disturbance at the crossing would be approximately 229 feet.

Two vehicle turnaround areas are proposed. One turnaround area is an existing 15-foot by 15-foot dirt pad that would be expanded to approximately 30-foot by 30-foot and located directly adjacent to the new vault structure proposed for Station 1415+37 and 1415+42. A second, new vehicle turnaround area would be located approximately 60 feet directly east of the vault structure at Station 1415+37 and 1415+42 and would be approximately 20-foot by 30-foot with a concrete down drain and riprap apron along the eastern edge.

1.5 PROJECT CONSTRUCTION

1.5.1 TIMING AND DURATION

Construction of the proposed Project is anticipated to start in 2027 and would last approximately 9 months. During construction, a portion of the informal, multi-use trails within Chatsworth Park South may be closed to pedestrians and bicyclists to allow for construction activities within the Project Area. The closure would be temporary and coordinated with the City of Los Angeles and the park manager. Signage would be posted prior to start of construction to alert park users of impending closure of the area and include a detour map.

1.5.2 STAGING

Construction staging areas are shown on Exhibits 4b and 4c and would be used for storage of construction equipment and vehicles. Construction worker parking would be on Germaine Street northeast of the Chatsworth Park South entrance.

1.5.3 EQUIPMENT

Project construction would require a variety of equipment types typical for a construction project. The following is a list of equipment assumed as part of this analysis:

- Tractors
- Loaders
- Backhoes
- Excavators
- Crane
- Motor Grader
- Paver
- Paving equipment
- Rubber Tire Dozer

1.5.4 OPERATIONS

Operations and maintenance activities, including the frequency of staff visits, maintenance, and shutdowns, would be similar to existing conditions once construction activities are completed. The WVF1 and all pipelines and structures within the proposed Project Area are unmanned. Any operations and maintenance activities to the WVF1 or associated infrastructure would be performed by existing Metropolitan employees.

1.6 METROPOLITAN STANDARD PRACTICES

Metropolitan implements standard practices, in addition to stormwater Best Management Practices (BMPs), as part of its standard design and contractor specifications. Standard practices are implemented where applicable, regardless of project size. Metropolitan standard practices are described for each environmental impact category in Section 3, when applicable. Appendix A contains the complete list and description of Metropolitan standard practices.

SECTION 2.0 INITIAL STUDY

2.1 LEGAL AUTHORITY AND FINDINGS

Pursuant to Section 15367 of the State California Environmental Quality Act (CEQA) Guidelines, Metropolitan is the lead agency for the Project. The lead agency is the public agency that has the principal responsibility for carrying out or approving a project that may have a significant effect on the environment. Metropolitan, as the lead agency, has the authority for Project approval and adoption of the accompanying environmental documentation.

This proposed Mitigated Negative Declaration (MND) complies with Section 15071 of the *CEQA Guidelines*. The Initial Study, Environmental Checklist, and evaluation of the potential environmental effects were completed in accordance with Section 15063(d)(3) of the *CEQA Guidelines* to determine if the project would have a significant effect on the physical environment.

An MND may be used to satisfy the requirements of CEQA when a proposed project would have no significant, unmitigable effects on the environment. As discussed further in subsequent sections of this document, implementation of the proposed Project would not result in any significant effects on the environment that cannot be reduced to below a level of significance with the mitigation measures (MMs) included herein.

2.2 IMPACT ANALYSIS AND SIGNIFICANT CLASSIFICATION

The following sections of this document provide discussions of the possible environmental effects of the proposed Project for specific environmental factors as identified on the CEQA Environmental Checklist Form in Appendix G of the *CEQA Guidelines*. For each environmental factor, potential effects are discussed and evaluated.

A “significant effect on the environment” is defined by Section 15382 of the *CEQA Guidelines* as “a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by a project, including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance.” According to the *CEQA Guidelines*, “an economic or social change by itself shall not be considered a significant effect on the environment but may be considered in determining whether the physical change is significant.”

Following the evaluation of each environmental effect determined to be potentially significant is a discussion of mitigation measures and the residual effects or level of significance remaining after the implementation of the measures.

2.3 INITIAL STUDY AND ENVIRONMENTAL CHECKLIST FORM

1. Project Title:	West Valley Feeder No. 1 Stage 3 Project
2. Lead Agency Name and Address:	The Metropolitan Water District of Southern California 700 North Alameda Street, Los Angeles, California 90012
3. Contact Person and Phone Number:	Michelle Morrison, Environmental Planning Section Metropolitan Water District of Southern California 213.217.7906
4. Project Location:	The proposed Project Area is 1.98-acres, non-contiguous, and located in the community of Chatsworth, in the city of Los Angeles, within APNs 2723010904, 2723010270, and 2723010902.
5. Project Proponent's Name and Address:	The Metropolitan Water District of Southern California 700 North Alameda Street, Los Angeles, California 90012
6. General Plan Designation:	The General Plan and Community Plan land use designation is Open Space.
7. Zoning:	The Project Area is currently zoned Open Space (OS-1XL).
8. Description of Project:	Modifications to the existing infrastructure and new access road. Refer to Section 1.4 (Project Description).
9. Surrounding Land Uses and Setting:	Section 1.2 (Project Location) and Section 1.3 (Surrounding Land Use) describe the surrounding land uses and setting of the proposed Project.
10. Other Public Agencies Whose Approval May Be Required:	California Department of Fish and Wildlife (CDFW) Section 1602 Streambed Alteration Agreement California Regional Water Quality Control Board (RWQCB) Clean Water Act Section 401 Certification City of Los Angeles Temporary and Permanent Easements Unites States Army Corps of Engineers (USACE) Clean Water Act Section 404 Permit
11. Have California Native American Tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resources Code section 21080.3.1? If so, has consultation begun?	Yes, Metropolitan has conducted consultation pursuant to *California Public Resources Code* (PRC) section 21080.3.1 and has made an impact determination. See Section 3.18 (Tribal Cultural Resources).

2.4 ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental factors checked below would be potentially affected by the proposed Project, requiring implementation of mitigation as indicated by the checklist on the following pages that is "Less Than Significant With Mitigation Incorporated."

☐ Aesthetics	☐ Agriculture and Forestry Resources	☐ Air Quality
☒ Biological Resources	☒ Cultural Resources	☐ Energy
☒ Geology /Soils	☐ Greenhouse Gas Emissions	☐ Hazards & Hazardous Materials
☐ Hydrology / Water Quality	☐ Land Use / Planning	☐ Mineral Resources
☐ Noise	☐ Population / Housing	☐ Public Services
☐ Recreation	☐ Transportation	☐ Tribal Cultural Resources
☐ Utilities / Service Systems	☐ Wildfire	☒ Mandatory Findings of Significance

2.5 DETERMINATION:

On the basis of this initial evaluation:

☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☒ I find that 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. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that 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 must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because al 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.

Jennifer Harriger

Jennifer Harriger
Manager, Environmental Planning Section

06-05-2024

Date

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SECTION 3.0 EVALUATION OF ENVIRONMENTAL IMPACTS

This section includes the completed Environmental Checklist Form. The checklist form is used to assist in evaluating the potential environmental impacts of the proposed Project. The Environmental Checklist Form identifies potential Project effects as follows: (1) Potentially Significant Impact, (2) Less Than Significant With Mitigation Incorporated, (3) Less Than Significant Impact, and (4) No Impact. Substantiation and clarification for each checklist response is provided immediately following the checklist questions. Included in each discussion are mitigation measures, as appropriate, that are recommended for implementation as part of the proposed Project.

	ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
I.	**AESTHETICS.** Except as provided in Public Resources Code Section 21099, would the project:				
	a) Have a substantial adverse effect on a scenic vista?	☐	☐	☒	☐
	b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒
	c) In non-urbanized areas, substantially degrade the existing visual character or quality of public view of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point.) If the project is in an urbanized area, would the project conflict with applicable zoning or other regulations governing scenic quality?	☐	☐	☒	☐
	d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☐	☒

IMPACT ANALYSIS

Would the Project:

a) Have a substantial adverse effect on a scenic vista?

Less Than Significant Impact. No, the proposed Project would not have a substantial adverse effect on a scenic vista. A scenic vista is defined as a viewpoint that provides panoramic or focused views of a highly valued landscape or scenic resource for the benefit of the general public. The Project is located within Chatsworth Park South and near the foothills of the Santa Susana Mountains. The Chatsworth-Porter Ranch Community Plan includes objectives directed at the preservation of views, natural character, and topography of mountainous parts of the Chatsworth-Porter Ranch Plan area (City of Los Angeles 1993), including the views of Chatsworth Peak ridgeline which are visible from the Project Area and surrounding vicinity. The proposed Project includes modification to existing valve structures, replacement of valves, access road improvements, and construction of a new access road and vehicle turnaround areas. There is existing Metropolitan aboveground infrastructure in the vicinity and improvements made as part of the proposed Project would look similar to what is currently existing. No new buildings would be constructed as part of the proposed Project. Although Project construction activities would be

temporarily visible in foreground views of the ridgeline, views of the ridgeline would not be obstructed. Therefore, impacts to scenic vistas would be less than significant.

b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway?

No Impact. No, the proposed Project would not substantially damage scenic resources within a State scenic highway. According to the California Department of Transportation (Caltrans), there are no officially designated or eligible State scenic highways within or in proximity to the Project (Caltrans 2024). The nearest Caltrans designated State Scenic Highway is State Route (SR) 27 Topanga Canyon Boulevard, located approximately 7.5 miles southwest of the Project Area. Therefore, there would be no impact to scenic resources within a State scenic highway.

c) In non-urbanized areas, substantially degrade the existing visual character or quality of public view of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point.) If the project is in an urbanized area, would the project conflict with applicable zoning or other regulations governing scenic quality?

Less Than Significant Impact. No, the proposed Project would not conflict with applicable zoning or other regulations governing scenic quality. The proposed Project is located in an urbanized area. Exhibits 6a and 6b include photographs that show the existing site conditions at the proposed Project Area. The proposed project includes modification to existing valve structures, replacement of valves, access road improvements, and construction of a new access road and vehicle turnaround areas. No new buildings would be constructed as part of the proposed Project. The proposed access road would be constructed at grade or with a minor change in grade at the proposed 30-foot-wide turnaround area, and only be used when pipeline maintenance is required. As noted in I(a), the Project is located within Chatsworth Park South and near the foothills of the Santa Susana Mountains. The Chatsworth-Porter Ranch Community Plan includes objectives directed at the preservation of views, natural character, and topography of mountainous parts of the Chatsworth-Porter Ranch Plan area (City of Los Angeles 1993), including the views of Chatsworth Peak ridgeline which is visible from the Project Area and surrounding vicinity. However, no zoning changes are proposed as part of the Project, and the scenic quality will remain largely similar to existing conditions following Project construction because there is already pipeline infrastructure present and visible. Therefore, the Project would not substantially degrade the visual character of the site and its surroundings, and impacts would be less than significant.

d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

No Impact. No, the proposed Project would not create new sources of substantial light or glare which would adversely affect day or nighttime views in the area. The Project would only involve periodic daytime work. Additionally, the Project does not propose to add any new lighting sources within the Project Area. No impacts related to new sources of lighting or glare would occur.

View 1 - View of project area looking west from Chatsworth Park South.

View 2 - View of project area looking west from parking lot at Chatsworth Park South.

Aerial Source: LAR-IAC 2014

Site Photographs

Exhibit 6a

WVF No.1 Stage 3 Improvements Project

PSOMAS

View 3 - View of gate and access road to project area looking west from Larwin Avenue.

View 4 - View of project area looking southwest from Germain Street/Boulder Ridge Terrace.

Aerial Source: LAR-IAC 2014

Site Photographs

Exhibit 6b

WVF No.1 Stage 3 Improvements Project

PSOMAS

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
II. AGRICULTURE AND FOREST RESOURCES. In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the State's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220[g]), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104[g])?	☐	☐	☐	☒
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to nonagricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

IMPACT ANALYSIS

Would the Project:

a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?

No Impact. No, the proposed Project would not convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to non-agricultural use. The Project Area is located within Chatsworth Park South in Los Angeles County. No Prime Farmland, Unique Farmland, or Farmland of Statewide Importance are mapped within the Project Area (California Department of

Conservation 2018). As such, no impact to Prime Farmland, Unique Farmland, or Farmland of Statewide Importance would occur as a result of the proposed Project.

b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?

No Impact. No, the proposed Project would not conflict with existing zoning for agricultural use, or a Williamson Act contract. The Project Area is located in Chatsworth Park South in Los Angeles County. According to the City of Los Angeles General Plan and Chatsworth-Porter Ranch Community Plan, the Project Area is zoned OS (Open Space) and the areas immediately surrounding the Project Area are zoned Open Space and low density residential (City of Los Angeles 1993). Additionally, based on a review of the Department of Conservation Land Conservation Act (LCA) maps for Los Angeles County, the Project Area is designated as non-enrolled land and is not covered under a Williamson Act Contract (California Department of Conservation 2022). The Project Area is neither zoned for agricultural use nor under a Williamson Act contract, and no zoning changes are proposed. No impact would occur.

c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))? and

d) Result in the loss of forest land or conversion of forest land to non-forest use?

No Impact. No, the proposed Project would not conflict with existing zoning for, or cause rezoning of, forest land, timberland, or timberland zoned as Timberland Production. The Project Area is located within Chatsworth Park South in Los Angeles County and is zoned as Open Space. The Project Area is not located within a designated National Forest under the U.S. Forest Service (USFS 2024) nor is it zoned as forest land as defined by Section 1220(g) of the *California Public Resources Code* (PRC)*,* as timberland as defined by Section 4526 of the PRC*,* or as timberland zoned for timberland production as defined by Section 51104(g) of the PRC*.* The Project Area is not zoned for forest land or timberland, and no zoning changes are proposed. Therefore, no impact pertaining to zoning for forest land or timberland would occur.

e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?

No Impact. No, the proposed Project does not involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use. The Project Area is located in Chatsworth Park South. The Project Area and its surroundings do not contain farmland or forest land (California Department of Conservation 2018); therefore, the proposed Project would not result in the conversion or loss of agriculture or forest land, and no impact would occur.

	ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	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?	☐	☐	☐	☒
	b) 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?	☐	☐	☒	☐
	c) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
	d) Result in other emissions (such as those leading odors) adversely affecting a substantial number of people?	☐	☐	☐	☒

OVERVIEW OF AIR POLLUTION, AIR QUALITY STANDARDS, ATTAINMENT STATUS, AND AIR QUALITY MANAGEMENT

The following discussion is based on CalEEMod calculations prepared for the Project and included in Appendix B.

The proposed Project is located within the South Coast Air Basin (SCAB) and is under the jurisdiction of the South Coast Air Quality Management District (SCAQMD). Regional air quality is defined by whether the area has attained or not attained State and federal air quality standards, as determined by air quality data from various monitoring stations. Areas that are considered in "nonattainment" are required to prepare plans and implement measures that will bring the region into "attainment." When an area has been reclassified from nonattainment to attainment for a federal standard, the status is identified as "maintenance," and a plan and measures must be established that will keep the region in attainment for the following ten years.

The effects from air pollution can be significant, both in the short-term during smog alerts, but also from long-term exposure to pollutants. Both the State of California and the United States Environmental Protection Agency (USEPA) have established health-based Ambient Air Quality Standards (AAQS) for air pollutants, which are known as "criteria pollutants" emitted directly from a source (e.g., vehicle tailpipe, an exhaust stack of a factory, etc.) into the atmosphere, including carbon monoxide (CO), volatile organic compounds (VOC)/reactive organic gases (ROG), nitrogen oxides, particulate matter with diameters of 10 microns or less (PM10) and 2.5 microns or less (PM2.5), sulfur dioxide, and lead. Other pollutants are created indirectly through chemical reactions in the atmosphere, such as ozone, which is created by atmospheric chemical and photochemical reactions primarily between VOC and nitrogen oxides. Secondary pollutants include oxidants, ozone, and sulfate and nitrate particulates (smog). The local air quality management agency, SCAQMD, is required to monitor air pollutant levels to ensure that the National AAQS and California AAQS are met and, if they are not met, to develop strategies to meet the standards. Depending on whether the standards are met or exceeded, the SCAB is classified as being in "attainment" or "nonattainment." The AAQS are designed to protect the health and welfare of the populace within a reasonable margin of safety. The State and federal ambient air quality standards for various pollutants are shown in Table 1.

Table 2 summarizes the attainment status of the SCAB for the criteria pollutants.

TABLE 1
CALIFORNIA AND FEDERAL AMBIENT AIR QUALITY STANDARDS

Pollutant	Averaging Time	California Standards	Federal Standards Primary[a]	Federal Standards Secondary[b]
O_3	1 Hour	0.09 ppm (180 µg/m^3)	–	–
O_3	8 Hour	0.070 ppm (137 µg/m^3)	0.070 ppm (137 µg/m^3)	Same as Primary
PM10	24 Hour	50 µg/m^3	150 µg/m^3	Same as Primary
PM10	AAM	20 µg/m^3	–	Same as Primary
PM2.5	24 Hour	–	35 µg/m^3	Same as Primary
PM2.5	AAM	12 µg/m^3	12.0 µg/m^3	15.0 µg/m^3
CO	1 Hour	20 ppm (23 mg/m^3)	35 ppm (40 mg/m^3)	–
CO	8 Hour	9.0 ppm (10 mg/m^3)	9 ppm (10 mg/m^3)	–
CO	8 Hour (Lake Tahoe)	6 ppm (7 mg/m^3)	–	–
NO_2	AAM	0.030 ppm (57 µg/m^3)	0.053 ppm (100 µg/m^3)	Same as Primary
NO_2	1 Hour	0.18 ppm (339 µg/m^3)	0.100 ppm (188 µg/m^3)	–
SO_2	24 Hour	0.04 ppm (105 µg/m^3)	0.14 ppm (for certain areas)	–
SO_2	3 Hour	–	–	0.5 ppm (1,300 µg/m^3)
SO_2	1 Hour	0.25 ppm (655 µg/m^3)	0.075 ppm (196 µg/m^3)	–
Lead	30-day Avg.	1.5 µg/m^3	–	–
Lead	Calendar Quarter	–	1.5 µg/m^3	Same as Primary
Lead	Rolling 3-month Avg.	–	0.15 µg/m^3	Same as Primary
Visibility Reducing Particles	8 Hour	Extinction coefficient of 0.23 per km – visibility ≥ 10 miles (0.07 per km – ≥30 miles for Lake Tahoe)	**No Federal Standards**	**No Federal Standards**
Sulfates	24 Hour	25 µg/m^3	**No Federal Standards**	**No Federal Standards**
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m^3)	**No Federal Standards**	**No Federal Standards**
Vinyl Chloride	24 Hour	0.01 ppm (26 µg/m^3)	**No Federal Standards**	**No Federal Standards**

O_3: ozone; ppm: parts per million; µg/m^3: micrograms per cubic meter; PM10: respirable particulate matter; AAM: Annual Arithmetic Mean; –: No Standard; PM2.5: fine particulate matter; CO: carbon monoxide; mg/m^3: milligrams per cubic meter; NO_2: nitrogen dioxide; SO_2: sulfur dioxide; km: kilometer.

[a] *National Primary Standards:* The levels of air quality necessary, within an adequate margin of safety, to protect the public health.

[b] *National Secondary Standards:* The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

Note: More detailed information in the data presented in this table can be found at the CARB website (www.arb.ca.gov).

Source: CARB 2024a.

TABLE 2
CRITERIA POLLUTANT DESIGNATIONS
IN THE SOUTH COAST AIR BASIN

Pollutant	State	Federal
O_3 (1-hour)	Nonattainment	Nonattainment
O_3 (8-hour)	Nonattainment	Nonattainment
PM10	Nonattainment	Attainment/Maintenance
PM2.5	Nonattainment	Nonattainment
CO	Attainment	Attainment/Maintenance
NO_2	Attainment	Attainment/Maintenance
SO_2	Attainment	Attainment
Lead	Attainment	Nonattainment/Attainment[a]
All others	Attainment/Unclassified[b]	No Standards

O_3: ozone; PM10: respirable particulate matter with a diameter of 10 microns or less; PM2.5: fine particulate matter with a diameter of 2.5 microns or less; CO: carbon monoxide; NO_2: nitrogen dioxide; SO_2: sulfur dioxide.

[a] Los Angeles County is classified as nonattainment for lead; the remainder of the SCAB is in attainment of State and federal standards.

[b] "Unclassified" designation indicates that the air quality data for the area are incomplete and do not support a designation of attainment or nonattainment.

Source: SCAQMD 2016.

On March 3, 2017, the SCAQMD adopted the 2016 Air Quality Management Plan (AQMP), which is a regional and multi-agency effort (SCAQMD, California Air Resources Board [CARB], Southern California Association of Governments [SCAG], and the USEPA). The 2016 AQMP incorporates the latest scientific and technical information and planning assumptions, including the 2016–2040 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS), updated emission inventory methodologies for various source categories, and SCAG's latest growth forecasts. The main purpose of an AQMP is to bring an area into compliance with the requirements of federal and State air quality standards.

AIR POLLUTANT EMISSION THRESHOLDS

The proposed Project has been evaluated under the current air quality standards and air pollutant emission thresholds. As noted above, air quality in Los Angeles County is regulated by the SCAQMD, which is the agency principally responsible for comprehensive air pollution control in the SCAB. The SCAQMD has recommended quantitative regional significance thresholds for temporary Project construction activities and long-term Project operation within its jurisdictional boundaries. The SCAQMD develops rules and regulations; establishes permitting requirements for stationary sources; inspects emissions sources; and enforces such measures through educational programs or fines, when necessary. The SCAQMD is directly responsible for reducing emissions from stationary (area and point), mobile, and indirect sources. It has responded to this requirement by preparing a chronological sequence of AQMPs; the latest being the 2016 AQMP, as noted above. Table 3 presents the current SCAQMD air quality significance thresholds.

TABLE 3
SCAQMD AIR QUALITY SIGNIFICANCE THRESHOLDS

Mass Daily Thresholds[a]	**-**	**-**
Pollutant	**Construction**	**Operation**
NOx	100 lbs/day	55 lbs/day
VOC	75 lbs/day	55 lbs/day
PM10	150 lbs/day	150 lbs/day
PM2.5	55 lbs/day	55 lbs/day
SOx	150 lbs/day	150 lbs/day
CO	550 lbs/day	550 lbs/day
Lead	3 lbs/day	3 lbs/day
TACs, Odor, and GHG Thresholds	-	-
TACs (including carcinogens and non-carcinogens)	Maximum Incremental Cancer Risk ≥ 10 in 1 million Cancer Burden > 0.5 excess cancer cases (in areas ≥ 1 in 1 million) Chronic & Acute Hazard Index ≥ 1.0 (project increment)	Maximum Incremental Cancer Risk ≥ 10 in 1 million Cancer Burden > 0.5 excess cancer cases (in areas ≥ 1 in 1 million) Chronic & Acute Hazard Index ≥ 1.0 (project increment)
Odor	Project creates an odor nuisance pursuant to SCAQMD Rule 402	Project creates an odor nuisance pursuant to SCAQMD Rule 402
GHG	10,000 MT/yr CO_2e for industrial facilities	10,000 MT/yr CO_2e for industrial facilities
Ambient Air Quality Standards for Criteria Pollutants[b, c]	-	-
NO_2 1-hour average annual arithmetic mean	The SCAQMD is in attainment; the Project is significant if it causes or contributes to an exceedance of the following attainment standards: 0.18 ppm (State) 0.03 ppm (State) and 0.0534 ppm (federal)	The SCAQMD is in attainment; the Project is significant if it causes or contributes to an exceedance of the following attainment standards: 0.18 ppm (State) 0.03 ppm (State) and 0.0534 ppm (federal)
PM10 24-hour average annual average	10.4 µg/m^3 (construction)[c] & 2.5 µg/m^3 (operation) 1.0 µg/m^3	10.4 µg/m^3 (construction)[c] & 2.5 µg/m^3 (operation) 1.0 µg/m^3
PM2.5 24-hour average	10.4 µg/m^3 (construction)[c] & 2.5 µg/m^3 (operation)	10.4 µg/m^3 (construction)[c] & 2.5 µg/m^3 (operation)
SO_2 1-hour average 24-hour average	0.25 ppm (State) & 0.075 ppm (federal – 99th percentile) 0.04 ppm (State)	0.25 ppm (State) & 0.075 ppm (federal – 99th percentile) 0.04 ppm (State)
Sulfate 24-hour average	25 µg/m^3 (State)	25 µg/m^3 (State)
CO 1-hour average 8-hour average	SCAQMD is in attainment; project is significant if it causes or contributes to an exceedance of the following attainment standards: 20.0 ppm (State) and 35 ppm (federal) 9.0 ppm (State/federal)	SCAQMD is in attainment; project is significant if it causes or contributes to an exceedance of the following attainment standards: 20.0 ppm (State) and 35 ppm (federal) 9.0 ppm (State/federal)
Lead 30-day average Rolling 3-month average	1.5 µg/m^3 (State) 0.15 µg/m^3 (federal)	1.5 µg/m^3 (State) 0.15 µg/m^3 (federal)

NOx: nitrogen oxides; lbs/day: pounds per day; VOC: volatile organic compound; PM10: respirable particulate matter with a diameter of 10 microns or less; PM2.5: fine particulate matter with a diameter of 2.5 microns or less; SOx: sulfur oxides; CO: carbon monoxide; TACs: toxic air contaminants; SCAQMD: South Coast Air Quality Management District; GHG: greenhouse gases; MT/yr CO_2e: metric tons per year of carbon dioxide equivalents; NO_2: nitrogen dioxide; ppm: parts per million; $\mu g/m^3$: micrograms per cubic meter; SO_2: sulfur dioxide.

[a] Source: SCAQMD CEQA Handbook (SCAQMD 1993)
[b] Ambient air quality thresholds for criteria pollutants based on SCAQMD Rule 1303, Table A-2 unless otherwise stated
[c] Ambient air quality threshold is based on SCAQMD Rule 403

Source: SCAQMD 2023

METHODOLOGY

Air pollutant emissions associated with the proposed Project were estimated using the California Emissions Estimator Model (CalEEMod) version 2016.3.2 computer program (CAPCOA 2016). CalEEMod uses Project-specific information, including the Project's land uses and location, to estimate a Project's emissions. CalEEMod is designed to model construction and operational emissions for land development projects and allows for the input of project- and County-specific information. CalEEMod has separate databases for specific counties and air districts. The Los Angeles County database was used for the proposed Project.

For the purposes of estimating emissions associated with construction activities, a nine-month time frame was used for the analysis. Dust control by watering was assumed, consistent with the requirements of SCAQMD Rule 403, which requires that fugitive dust be controlled with the best available control measures so that the presence of such dust does not remain visible in the atmosphere beyond the property line of the emission source. Project-specific inputs can be found in the CalEEMod output data, located in Appendix B.

The quantity, duration, and the intensity of construction activity influence the amount of construction emissions and their related pollutant concentrations that occur at any one time. As such, the emission forecasts provided herein reflect a specific set of conservative assumptions based on the expected construction scenario wherein a large amount of construction is occurring in an intensive manner. Because of this conservative assumption, actual emissions could be less than those forecasted. If construction is delayed or occurs over a longer period, emissions could be reduced because of (1) a more modern and cleaner-burning construction equipment fleet mix than incorporated in the CalEEMod, and/or (2) a less intensive buildout schedule (i.e., fewer daily emissions occurring over a longer time interval).

Air quality data for the Project Area is represented by the Reseda Monitoring Station located at 18330 Gault Street, Reseda. The monitoring station is located approximately 7 miles southeast of the proposed Project Area. Pollutants measured at the Reseda Monitoring Station include ozone (O_3), PM2.5, and nitrogen dioxide (NO_2). The monitoring data presented in Table 4, Air Quality Levels Measured at the Reseda Monitoring Station, were obtained from CARB (CARB 2024b). The Reseda monitoring data shows that O_3 is the air pollutant of primary concern in the Project Area. Federal and State air quality standards are presented with the frequency that may be exceeded.

TABLE 4
AIR QUALITY LEVELS MEASURED AT THE
RESEDA MONITORING STATION

Pollutant	California Standard	National Standard	Year	Max. Level[a]	Days State Standard Exceeded	Days National Standard Exceeded
O_3 (1 hour)	0.09 ppm	None	2015	0.119	11	0
O_3 (1 hour)	0.09 ppm	None	2016	0.122	9	0
O_3 (1 hour)	0.09 ppm	None	2017	0.140	26	4
O_3 (8 hour)	0.070 ppm	0.070 ppm	2015	0.095	34	32
O_3 (8 hour)	0.070 ppm	0.070 ppm	2016	0.099	23	23
O_3 (8 hour)	0.070 ppm	0.070 ppm	2017	0.115	67	64
PM2.5 (24 Hour)	None	35 µg/m^3	2015	65.1	N/A	1
PM2.5 (24 Hour)	None	35 µg/m^3	2016	41.5	N/A	0
PM2.5 (24 Hour)	None	35 µg/m^3	2017	61.3	N/A	0
NO_2 (1 hour)	0.18 ppm	0.10 ppm	2015	0.072	0	0
NO_2 (1 hour)	0.18 ppm	0.10 ppm	2016	0.055	0	0
NO_2 (1 hour)	0.18 ppm	0.10 ppm	2017	0.062	0	0

O_3: ozone; ppm: parts per million; PM2.5: fine particulate matter with a diameter of 2.5 microns or less; µg/m^3: micrograms per cubic meter; N/A: no applicable standard; NO_2: nitrogen dioxide.

[a] California maximum levels were used.

Source: CARB 2024b.

IMPACT ANALYSIS

Would the Project:

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

No Impact. No, the proposed Project would not conflict with or obstruct implementation of the applicable air quality plan. The Project is subject to the SCAQMD AQMP and would be consistent with the AQMP if it complies with all applicable air district rules and regulations, complies with all proposed control measures not yet adopted from the AQMP, and is consistent with the growth forecasts used in development of the AQMP.

The proposed Project includes modification to existing valve structures, replacement of valves, and construction of a new access road and vehicle turnaround. The proposed Project does not include permanent stationary emissions sources and would not generate long-term emissions of VOCs, oxides of nitrogen (NOx), or fine particulate matter that could potentially cause an increase in the frequency or severity of existing air quality violations. Therefore, no SCAQMD regulations pertaining to permanent emission sources apply to the Project. With respect to regulations that

apply to temporary emission sources, such as SCAQMD Rule 403 (Fugitive Dust), the proposed Project would comply with those applicable rules and regulations. During construction, short-term emissions would occur from operation of construction equipment; grading and earth-moving activities, which would generate fugitive dust; export of excavated soil; import of construction materials; and operation of vehicles driven to and from the site by construction workers. As indicated below in Table 5, Estimated Maximum Daily Construction Emissions, short term emissions resulting from Project construction would be below their respective thresholds. No new facilities are proposed, and the proposed Project would not increase water supply to the area or otherwise directly or indirectly induce population growth. Therefore, the proposed Project would not conflict with or obstruct the applicable air quality plan, and no impact would occur.

TABLE 5
ESTIMATED MAXIMUM DAILY CONSTRUCTION EMISSIONS
(LBS/DAY)

	VoC	NOx	CO	SOx	PM10	PM2.5
Maximum daily emissions in 2019	2	20	11	<1	1	1
Maximum daily emissions in 2020	2	21	14	<1	1	1
Maximum of All Construction Years	2	21	14	<1	1	1
SCAQMD Daily Thresholds *(Table 3)*	***75***	***100***	***550***	***150***	***150***	***55***
Exceeds SCAQMD Thresholds?	**No**	**No**	**No**	**No**	**No**	**No**

lbs/day: pounds per day; VOC: volatile organic compound(s); NOx: nitrogen oxides; CO: carbon monoxide; SOx: sulfur oxides; PM10: inhalable particulate matter with a diameter of 10 microns or less; PM2.5: fine particulate matter with a diameter of 2.5 microns or less; SCAQMD: South Coast Air Quality Management District.

Source: CalEEMod data in Appendix B.

b) 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?

Less than Significant Impact. No, the proposed Project would not 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.

The SCAQMD has developed significance thresholds to determine whether State and federal air quality standards would be violated or whether a substantial contribution to a violation would occur. These significance thresholds have been developed for the construction and operation phases of the Project and examine the potential impacts of the Project's emissions on both a regional and local context. Cumulative air quality impacts are assessed based on the use of the SCAQMD's project-level thresholds. Consequently, if a project's emissions are below the project-level thresholds, it would likewise be considered not to result in a cumulative air quality impact. This approach is based on the SCAQMD's 2003 White Paper "Potential Control Strategies to Address Cumulative Impacts from Air Pollution" which states, "Projects that exceed the project-specific significance thresholds are considered by the SCAQMD to be cumulatively considerable. This is the reason project-specific and cumulative significance thresholds are the same. Conversely, projects that do not exceed the project-specific thresholds are generally not considered to be cumulatively significant."

Construction Emissions – Regional

The proposed Project includes modification to existing valve structures, replacement of valves, and construction of a new access road and vehicle turnaround. No new facilities are proposed,

and the proposed Project would not increase water supply to the area or otherwise directly or indirectly induce population growth. Criteria pollutant emissions would occur during construction from operation of construction equipment; grading, and earth-moving activities, which would generate fugitive dust; export of excavated soil; import of construction materials; and operation of vehicles driven to and from the site by construction workers. Emissions would vary from day to day, depending on the level of activity; the specific type of construction activity occurring; and prevailing weather conditions for fugitive dust.

A construction-period emissions inventory was compiled based on an estimate of construction equipment as well as scheduling and Project phasing assumptions. More specifically, the emissions analysis considers the following:

- Combustion emissions from operating mobile construction equipment
- Fugitive dust emissions from demolition, site preparation, and grading phases
- Mobile-source combustion emissions and fugitive dust from worker commute and truck travel

The emissions thresholds (see Table 3) are based on the rate of emissions (i.e., pounds of pollutants emitted per day). Therefore, the quantity, duration, and intensity of construction activity are important in ensuring the analysis of worst case (i.e., maximum daily emissions) scenarios. The Project activities (e.g., grading, construction) are identified by start date and duration. Each activity has associated off-road equipment (e.g., dozers, backhoes, cranes) and on-road vehicles (e.g., haul trucks, concrete trucks, worker commute vehicles). Maximum daily emissions for the peak workday are shown above in Table 5, Estimated Maximum Daily Construction Emissions. The Project construction has been delayed due to changes in Project staging locations and easement acquisition, thus the construction emissions modeling is for 2019 and 2020. If construction is delayed or occurs over a longer period, emissions could be reduced because of (1) a more modern and cleaner-burning construction equipment fleet mix and/or (2) a less intensive buildout schedule (i.e., fewer daily emissions occurring over a longer time interval). As shown, all criteria pollutant emissions during construction would be less than their respective SCAQMD daily thresholds. Thus, regional construction impacts would be less than significant.

Construction Emissions – Local/Ambient Air Quality

The localized effects from the on-site portion of daily emissions (emissions generated on-site through the operation of construction equipment as opposed to emissions related to off-site delivery/haul truck activity and employee trips, which are not considered in the evaluation of localized impacts consistent with the SCAQMD's localized significance threshold (LST) method guidelines) were evaluated at receptor locations potentially impacted by the proposed Project according to the SCAQMD's LST method, which utilizes LST mass emissions rate look up tables for on-site emissions and project-specific modeling, where appropriate. LSTs are applicable to the following criteria pollutants: NO_2, CO, PM10, and PM2.5. 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 receptor. For the LST CO and NO_2 exposure analysis, receptors that could be exposed for one hour or more are considered, including park and trail users. For PM10 and PM2.5 exposure analysis, receptors who could be exposed for 24 hours or more are considered. The SCAQMD mass rate look-up tables were developed for each source receptor area and can be used to determine whether a project may generate significant adverse localized air quality impacts. The SCAQMD provides LST mass rate look-up tables for projects that are less than or

equal to 5 acres, which is applicable for the proposed Project. When quantifying mass emissions for localized analysis, only emissions that occur on site are considered.

As shown in Table 6, localized emissions for all criteria pollutants would be less than their respective SCAQMD LSTs for all pollutants. Thus, local construction emissions impacts would be less than significant.

TABLE 6
LOCALIZED CONSTRUCTION POLLUTANT EMISSIONS
(LBS/DAY)

	NOx	CO	PM10	PM2.5
Maximum Daily Emissions	20	11	1	1
SCAQMD LSTs*	**153**	**1,897**	**38**	**13**
Exceeds SCAQMD Thresholds?	**No**	**No**	**No**	**No**

lbs/day: pounds per day; NOx: nitrogen oxides; CO: carbon monoxide; PM10: respirable particulate matter with a diameter of 10 microns or less; PM2.5: fine particulate matter with a diameter of 2.5 microns or less; SCAQMD: South Coast Air Quality Management District; LST: Localized Significance Threshold.

* Thresholds for Source Receptor Area 13, Santa Clarita Valley, 1-acre site, 150-meter receptor distance

Source: SCAQMD 2008b.

Operational Emissions

For analysis purposes, and as a conservative estimate, it is anticipated that Metropolitan staff would visit the WVF1 facilities for routine inspection and maintenance activities daily. This routine inspection would occur concurrent with the existing inspection schedule, and no additional trips would occur. Therefore, new pollutant emissions would be negligible, and impacts would be less than significant.

c) Expose sensitive receptors to substantial pollutant concentrations?

Less Than Significant Impact. No, the proposed Project would not expose sensitive receptors to substantial pollutant concentrations. Sensitive receptors include schools, playgrounds, childcare centers, long-term health care facilities, rehabilitation centers, convalescent homes, hospitals, retirement homes, and residences. The Project Area is located Chatsworth Park South in Los Angeles County, and the closest residences are approximately 0.43-mile from the Project Area. Exposure of sensitive receptors is addressed for the following situations: CO hotspots; criteria pollutants from on-site construction; and Toxic Air Contaminants (TACs) from on-site construction.

Carbon Monoxide Hotspot

A CO hotspot is an area of localized CO pollution caused by severe vehicle congestion on major roadways, typically near intersections. The proposed Project would result in minor increases in vehicle traffic during construction, but largely be relegated to within Chatsworth Park South, not public roads. Project operations would be consistent with existing conditions and not generate any new vehicle trips; therefore, traffic and traffic congestion from the proposed Project would be negligible. Thus, it may be inferred that the Project would neither cause new severe congestion nor significantly worsen existing congestion. There would be no potential for a CO hotspot or exposure of sensitive receptors to substantial, Project-generated local CO emissions, and impacts would be less than significant.

Criteria Pollutants from On-Site Construction

Exposure of persons to NO_2, CO, PM10, and PM2.5 emissions is discussed in the construction LST analysis under Response III.b above. As discussed, there would be a less than significant impact.

Toxic Air Contaminant (Diesel PM) Emissions from On-Site Construction

TACs are a diverse group of air pollutants that may cause or contribute to an increase in deaths or serious illness, or that may pose a present or potential hazard to human health. TACs generally consist of four types: organic chemicals, such as benzene, dioxins, toluene, and perchloroethylene; inorganic chemicals such as chlorine and arsenic; fibers such as asbestos; and metals such as mercury, cadmium, chromium, and nickel. Construction activities would result in short-term, Project-generated emissions of diesel PM from the exhaust of off-road, heavy-duty diesel equipment used for site preparation (e.g., demolition, excavation, and grading); paving; and construction. The dose to which receptors are exposed is the primary factor used to determine health risk. Dose is a function of the concentration of a substance or substances in the environment and the duration of exposure to the substance. Thus, the risks estimated for a maximally exposed individual (MEI) are higher if a fixed exposure occurs over a longer period. According to the Office of Environmental Health Hazard Assessment, health risk assessments—which determine the exposure of sensitive receptors to TAC emissions—should be based on a 30- to 70-year exposure period; however, such assessments should be limited to the period/duration of activities associated with a project.

For the Project, off-road, heavy-duty diesel equipment would be operated during Project construction, and the construction period would be short (approximately nine months) when compared to a 30- to 70-year exposure period. When considering these facts combined with the highly dispersive properties of diesel PM and additional reductions in particulate emissions from newer construction equipment, as required by USEPA and CARB regulations, it can be concluded that TAC emissions during construction of the Project would not expose sensitive receptors to substantial emissions of TACs. Therefore, impacts would be less than significant.

d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

No Impact. No, the proposed Project would not result in other emissions adversely affecting a substantial number of people. The Project Area is located within Chatsworth Park South in Los Angeles County. Objectionable odors are generally associated with agricultural activities, landfills, and transfer stations; the generation or treatment of sewage; the use or generation of chemicals; food processing; or other activities that generate unpleasant odors (SCAQMD 1993). The proposed Project would involve modifications and upgrades to existing infrastructure and construction of a new access road. None of the proposed Project elements would generate objectionable odors, and no impact would occur.

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	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 Wildlife or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
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 Wildlife or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
c) Have a substantial adverse effect on state or 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?	☐	☒	☐	☐
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?	☐	☐	☒	☐
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinances?	☐	☐	☒	☐
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?	☐	☐	☐	☒

OVERVIEW OF BIOLOGICAL RESOURCES

Regulated or sensitive biological resources studied and analyzed herein include special status plant and wildlife species, nesting birds and raptors, sensitive plant communities, jurisdictional waters and wetlands, wildlife movement, and locally protected resources, such as protected trees. The Project analysis is based on the Updated Biological and Jurisdictional Waters Resources Assessment for the Metropolitan Water District West Valley Feeder No. 1 Stage 3 Improvements Project in the City of Los Angeles, California, prepared in May 2024 (included in Appendix C). The following Focused Protocol Survey Reports are included as appendices to the Updated Biological and Jurisdictional Water Resources Assessment:

- Results of Least Bell's Vireo Focused Protocol Surveys for the Metropolitan Water District West Valley Feeder No. 1 Stage 3 Improvements Project in the City of Los Angeles, California, prepared in October 2022;
- Results of 2022 Focused Protocol Surveys for the California red-legged frog (*Rana draytonii*) for the Metropolitan Water District West Valley Feeder No. 1 Project, Los Angeles, California, prepared in October 2022; and

- Results of Focused Protocol Presence/Absence Surveys for the Coastal California Gnatcatcher for the Metropolitan Water District West Valley Feeder No. 1 Stage 3 Improvements Project in the City of Los Angeles, California, prepared in August 2022.

REGULATORY FRAMEWORK

The following is a summary of the regulatory context under which biological resources are managed at the federal, State, and local levels. Many federal and state statutes provide a regulatory structure that guides the protection of biological resources. Agencies with the responsibility for protection of biological resources within the Project Area include:

- USACE (wetlands and other waters of the United States);
- RWQCB (waters of the State);
- United States Fish and Wildlife Service (USFWS) (federally listed species and migratory birds); and
- CDFW (Trustee Agency over the State's fish, wildlife, and plant resources; riparian areas and other waters of the State; State listed species).

California Species of Special Concern is an informal designation used by the CDFW for some declining wildlife species that are not State Candidates for listing. This designation does not provide legal protection but signifies that these species are recognized as special status by the CDFW. Special status habitats are vegetation types, associations, or sub-associations that support concentrations of special status plant or wildlife species, are of relatively limited distribution, or are of particular value to wildlife and are similarly recognized by the CDFW.

Listed species are those taxa that are formally listed as endangered or threatened by the federal government, pursuant to the Federal Endangered Species Act (FESA) or as endangered, threatened, or rare (for plants only) by the State of California pursuant to the California Endangered Species Act (CESA) or the California Native Plant Protection Act. Species are also considered rare under CEQA if they are not formally listed but exist in such small numbers throughout a significant portion of their range that they may become endangered if their environment worsens or is likely to become endangered throughout all or a significant portion of their range.

METHODOLOGY

Biological resource conditions were evaluated by confirming applicable regulations, policies, and standards; reviewing biological literature and databases pertinent to the Project Area; and conducting a vegetation mapping survey, a general biological survey, focused protocol surveys for special status species, and a jurisdictional delineation of the Project Area. The survey area consisted of the work limits of the construction areas, staging areas, and a 100-foot survey buffer.

Literature Review

A literature review was conducted to identify special status plants, wildlife, and habitats that have been reported to occur in the vicinity of the survey area. The Project vicinity for evaluating impacts to biological resources is comprised of the Project Area centered within nine surrounding United States Geological Survey (USGS) 7-minute topographic quadrangles including: Simi Valley West, Simi Valley East, Oat Mountain, Thousand Oaks, Calabasas, Canoga Park, Van Nuys, San Fernando, and Val Verde. The California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants (CNPS 2023) and the CDFW California Natural Diversity Database (CDFW

2023a) were reviewed within these nine quadrangles. Resources reviewed to assist in the delineation of jurisdictional features included the U.S. Department of Agriculture, Natural Resources Conservation Service's (USDA NRCS) Web Soil Survey, the USDA NRCS Hydric Soils List (USDA NRCS 2024), and the USFWS National Wetlands Inventory (NWI) Wetland Mapper (USFWS 2024).

Vegetation Mapping and Biological Survey

Psomas Biologist Allison Rudalevige conducted an initial general plant and wildlife survey, mapped vegetation, and performed a jurisdictional delineation for the project on June 4, 2018. The general survey was repeated in 2022 and a number of focused protocol surveys were conducted in 2022 including a rare plant focused protocol survey, least Bell's vireo focused protocol survey, California gnatcatcher focused protocol survey, and a California red-legged frog focused protocol survey. A general survey and updated vegetation mapping survey were conducted in October 2023 due to the addition of previously unsurveyed project staging areas. The survey area included a 100-foot buffer around all project impact areas.

All wildlife species detected during the course of the surveys were documented in field notes. Active searches for reptiles and amphibians included lifting, overturning, and carefully replacing rocks and debris. Birds were identified by visual and auditory recognition. Surveys for mammals were conducted during the day and included searching for and identifying diagnostic signs, including scat, footprints, scratch-outs, dust bowls, burrows, and trails. Taxonomy and nomenclature for wildlife generally follows the Special Animals List (CDFW 2023b) for special status species and, for other species, Center for North American Herpetology (2015) for amphibians and reptiles, the American Ornithological Society (2023) for birds, and the Smithsonian National Museum of Natural History (2011) for mammals.

Jurisdictional Delineation

Resources reviewed to assist in the delineation of jurisdictional features included the U.S. Department of Agriculture, USDA NRCS Web Soil Survey, the USDA NRCS Hydric Soils List (USDA NRCS 2024), and the USFWS NWI Wetland Mapper (USFWS 2024).

A delineation of jurisdictional water resource boundaries was conducted concurrently with vegetation mapping and general biological surveys in order to describe the type and extent of waters regulated by the USACE, the RWQCB, and CDFW. Jurisdictional features were mapped on an aerial map. Non-wetland waters of the United States under the jurisdiction of the USACE were assessed based on the presence of an Ordinary High Water Mark (OHWM). The presence of wetland waters of the United States was assessed using the relatively permanent standard rule and the three-parameter approach for wetland hydrology, hydrophytic vegetation, and hydric soils, as described in the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (USACE 2008).

EXISTING CONDITIONS

This assessment provides the existing biological conditions of the Project Area and survey area at the time of the literature reviews and surveys.

Vegetation Types and Other Areas

Thirteen vegetation types and other areas (non-natural modified areas) occur within the survey area. Naturally occurring vegetation types include California sagebrush–deerweed scrub, California sagebrush–bush mallow scrub, semi-natural herbaceous stand, wild oats grassland,

bush mallow scrub, laurel sumac scrub, red willow/arroyo willow thicket, coast live oak woodland, coast live oak–California sycamore woodland, and eucalyptus grove. Other areas identified included disturbed, developed, and ornamental non-natural modified land cover. Red willow/arroyo willow thicket, is classified as a sensitive natural community by CDFW. A vegetation map is included as Exhibit 7, Vegetation Map.

Jurisdictional Resources

Jurisdictional resources in the survey area include two main drainage channels (Drainage 1 and 2) with one tributary channel (Drainage 1A). The NWI maps Drainage 1 as a Riverine, intermittent streambed that is temporarily flooded and Drainage 2 as a Palustrine, forested wetland that is temporarily flooded. Soils in the survey area are not listed as hydric (USDA NRCS 2024). A map depicting jurisdictional drainages on the site is included as Exhibit 8. The presence of surface water observed during the dry season indicates that Drainage 1 may be considered to be relatively permanent, non-navigable tributaries to a Traditional Navigable Water (TNW). Therefore, Drainage 1 would be considered waters of the United States. Drainage 1A exhibits the features of an ephemeral body. Ephemeral waters are no longer jurisdictional under Section 404 of the Clean Water Act. However, Drainage 1A remains under the jurisdiction of the RWQCB, an isolated water of the State, and CDFW. Drainage 2 similarly carries flow to the Los Angeles River and is considered jurisdictional waters of the United States because the Los Angeles River discharges into the Pacific Ocean, a TNW.

Special Status Plant Species and Sensitive Natural Communities

Suitable habitat for special status plant species has been reported in the vicinity (nine USGS quadrangle area) of the survey area based on the CNPS Inventory (CNPS 2023). Of the 25 species reported, potentially suitable or marginally suitable habitat for 17 species occur within the survey area based on review of vegetation types and habitat conditions observed during biological surveys of the site, as described above, and documented species requirements. Species name and California Rare Plant Rank (CRPR) are listed below:

- Braunton's milk-vetch (*Astragalus brauntonii;* CRPR 1B.1)
- Brewer's clandrinia (*Calandrinia breweri*; CRPR 4.2)
- Catalina mariposa lily (*Calochortus catalinae;* CRPR 4.2)
- slender mariposa lily (*Calochortus clavatus var. gracilis;* CRPR 1B.2)
- late-flowered mariposa lily (*Calochortus fimbriatus;* CRPR 1B.2)
- Plummer's mariposa lily (*Calochortus plummerae;* CRPR 4.2)
- San Fernando Valley spineflower (*Chorizanthe parryi var. Fernandina;* CRPR 1B.1)
- Small-flowered morning-glory (*Convolvulus simulans;* CRPR 4.2)
- Santa Susana tarplant (*Deinandra minthornii;* CRPR 1B.2)
- slender-horned spineflower (*Dodecahema leptoceras;* CRPR 1B.1)
- many-stemmed dudleya *(Dudleya multicaulis;* CRPR 1B.2)
- Palmer's grappling hook (*Harpagonella palmeri;* CRPR 4.2)
- mesa horkelia (*Horkelia cuneata var.puberula;* CRPR 1B.1)
- ocellated Humboldt lily (*Lilium humboldtii ssp.Ocellatum;* CRPR 4.2),
- Payne's bush lupine (*Lupinus paynei;* CRPR 1B.1)

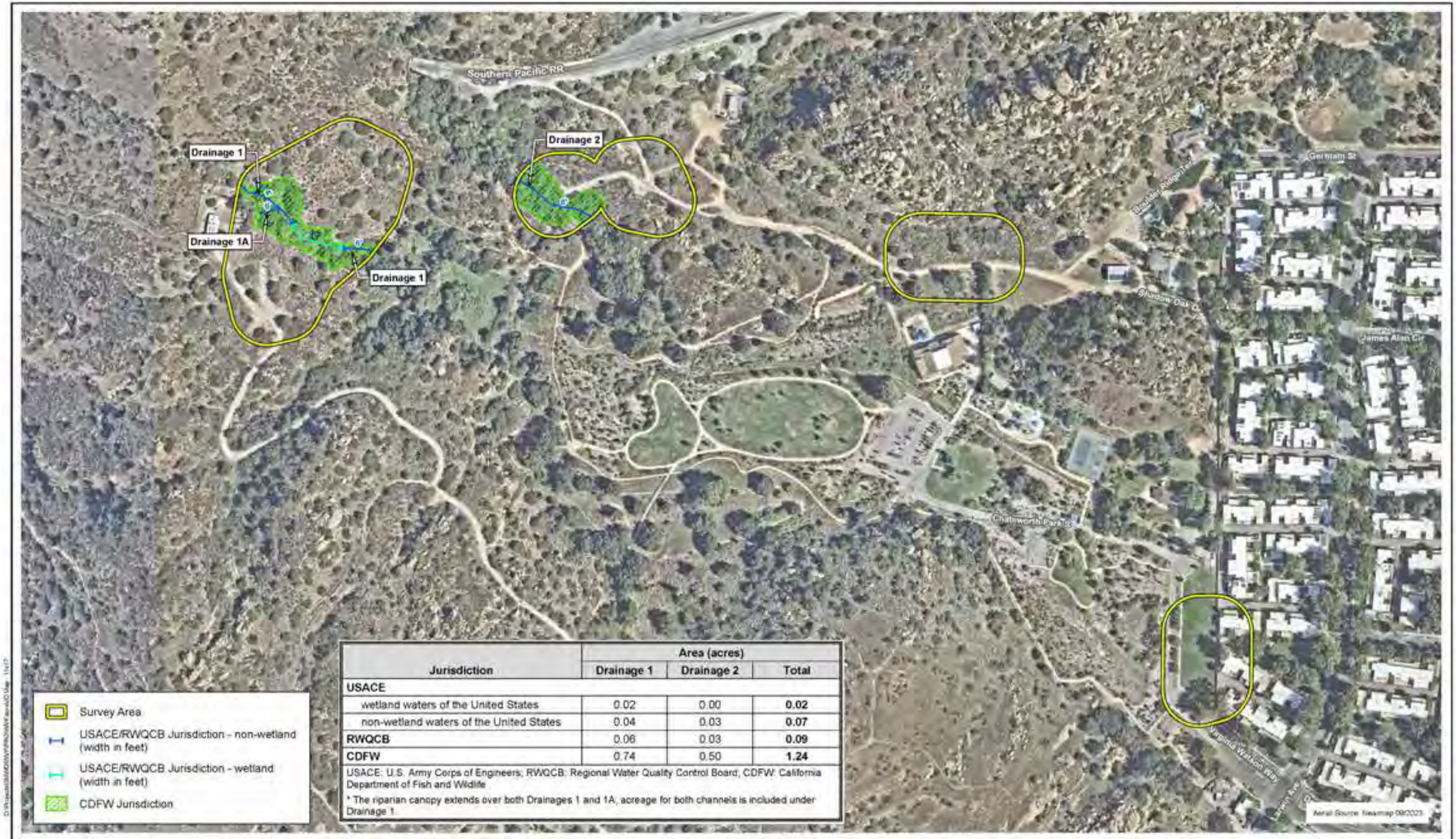
Vegetation Map

WVF No. 1 Stage 3 Improvements Project

250 125 0 250 Feet

Exhibit 7

PSOMAS



Jurisdiction	Area (acres)		
	Drainage 1	Drainage 2	Total
USACE			
wetland waters of the United States	0.02	0.00	**0.02**
non-wetland waters of the United States	0.04	0.03	**0.07**
RWQCB	0.06	0.03	**0.09**
CDFW	0.74	0.50	**1.24**

USACE: U.S. Army Corps of Engineers; RWQCB: Regional Water Quality Control Board; CDFW: California Department of Fish and Wildlife

* The riparian canopy extends over both Drainages 1 and 1A; acreage for both channels is included under Drainage 1.

Aerial Source: Nearmap 09/2023

Jurisdictional Resources

Exhibit 8

WVF No. 1 Stage 3 Improvements Project

250 125 0 250 Feet

PSOMAS

- California Orcutt grass (*Orcuttia californica var. californica;* CRPR 1B.1)
- chaparral nolina (*Nolina cismontane;* CRPR 1B.2)

Four of these species are federally- and/or State-listed Endangered or Threatened:

- Braunton's milk-vetch (Federally Endangered)
- San Fernando Valley spineflower (Federal Candidate and State Endangered)
- slender-horned spineflower (Federally and State Endangered)
- California Orcutt grass (Federally and State Endangered)

None of the species were observed during the rare plant field surveys conducted in 2022. Additionally, one vegetation type within the survey area, red willow/arroyo willow thicket, is classified as a sensitive natural community by CDFW.

Special Status Wildlife Species

Twenty-five special status wildlife species have been reported within the California Natural Diversity Data Base (CNDDB) (CDFW 2023a) as occurring in the vicinity of the survey area and an additional four species may occur in the region based on the biologist's knowledge of the species distributions and preferred habitat resulting from observations made during numerous field surveys conducted throughout the Project region. Of these species, nine are federally- and/or State-listed Endangered or Threatened or are candidates for listing:

- Crotch bumble bee (*Bombus crotchii; State Candidate Endangered)*
- monarch (California overwintering population) (*Danaus plexippus* pop. 1; Federal Candidate Endangered)
- arroyo toad (*Anaxyrus californicus; Federally Endangered and State Species of Special Concern*)
- California red-legged frog (*Rana draytonii; Federally Threatened and State Species of Special Concern*)
- tricolored blackbird (*Agelaius tricolor; State Threatened and Species of Special Concern*)
- Swainson's hawk (*Buteo swainsoni; State Threatened*)
- coastal California gnatcatcher (*Polioptila californica californica; Federally Threatened and State Species of Special Concern*)
- bank swallow (*Riparia riparia; State Threatened*)
- least Bell's vireo (*Vireo bellii pusillus; Federally and State Endangered*)

The golden eagle (*Aquila chrysaetos*), a State Fully Protected species, has been reported from the vicinity of the survey area and has potential to forage in the survey area (CDFW 2023a).

In addition to species listed under the State and federal Endangered Species Acts (ESAs), 13 species of special concern (designated by CDFW) have been reported in the vicinity (nine USGS quadrangle area) (CDFW 2023a) and have potential to occur due to potentially suitable or marginally suitable habitat presence as determined through review of vegetation types and habitat conditions observed during biological surveys, as described above, and documented species requirements.

- coast range newt (*Taricha torosa*)
- western spadefoot (*Spea hammondii*)
- California legless lizard (*Anniella* sp.)
- coast horned lizard (*Phrynosoma blainvillii*)
- coastal whiptail (*Aspidoscelis tigris stejnegeri*)
- two-striped garter snake (*Thamnophis hammondii*)
- spotted bat (*Euderma maculatum*)
- pallid bat (*Antrozous pallidus*)
- Townsend's big-eared bat (*Corynorhinus townsendii*)
- western mastiff bat (*Eumops perotis californicus*)
- western red bat (*Lasiurus blossevillii*)
- western yellow bat (*Lasiurus xanthinus*)
- San Diego desert woodrat (*Neotoma lepida intermedia*)

IMPACT ANALYSIS

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 Wildlife or U.S. Fish and Wildlife Service?

Less Than Significant with Mitigation Incorporated. The proposed Project may have a substantial adverse effect, either directly or through habitat modifications, on a species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS. Results of rare plant focused protocol surveys conducted simultaneously with least Bell's vireo protocol surveys, were negative for all special status plant species including federally and State listed species—Braunton's milk-vetch, San Fernando Valley spineflower, California Orcutt grass, and slender-horned spineflower. Due to their absence from the Project Area, these plant species are not expected to be impacted. Results of focused protocol surveys were negative for all special status wildlife species including federally and State listed species—California red-legged frog, least Bell's vireo, and coastal California gnatcatcher (see Appendix C). Due to their absence from the Project Area, these wildlife species are not expected to be impacted by the proposed Project.

The Project may impact the following other non-listed special status species or their habitat: coast range newt, western spadefoot, California legless lizard, coast horned lizard, coastal whiptail, two-striped garter snake, and San Diego desert woodrat. Impacts would be permanent within portions of the work limits being converted from vegetated, undeveloped areas to new access road, culvert, and other structures (approximately 0.55 acres). Additional impacts would be temporary in nature such as in work areas surrounding the proposed permanent features as well as the construction staging areas (approximately 0.43 acres). As shown on Exhibit 9, the combined permanent and temporary loss of habitat for these non-listed special status species, encompasses 1.98 acres. Due to the designation of these species as special status, project impacts would be considered significant, and mitigation would be required. Mitigation measures

BIO-1 through **BIO-4,** which require additional surveys and avoidance measures, would be incorporated into the project to reduce impacts on non-listed special status species to less than significant levels.

Although no candidate or listed species were observed within the survey area during focused surveys, project construction is not anticipated to begin until 2027 due to the acquisition of permanent and temporary easements from the City of Los Angeles. Should candidate or listed species, including the least Bell's vireo or the California gnatcatcher, be present at the time of construction, impacts would be significant. Mitigation measures **BIO-1 through BIO-5** would be incorporated into the project to reduce impacts to less than significant levels.

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 Wildlife or U.S. Fish and Wildlife Services?

Less Than Significant with Mitigation Incorporated. The proposed Project may have a substantial adverse effect on riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by CDFW or USFWS. Approximately 11 acres of vegetation and other land cover types, including riparian habitat, occur in the survey area. The Project would result in a permanent impact of 0.17 acre (7,405 square feet; associated with the access road and culvert construction) to red willow/arroyo willow thicket. This vegetation type constitutes riparian habitat and is considered a sensitive natural community by CDFW and is also within limits of CDFW jurisdictional waters. Mitigation Measure **BIO-6**, requiring purchase of credits through an agency-approved mitigation bank, in-lieu fee program, or other agreement, would be incorporated into the Project to reduce impacts to less than significant levels.

c) Have a substantial adverse effect on state or 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?

Less Than Significant with Mitigation Incorporated. The proposed Project may have a substantial adverse effect on State or federally protected wetlands as defined by Section 404 of the Clean Water Act through direct removal, filling, hydrological interruption, or other means. Jurisdictional waters regulated by State and federal agencies occur in the survey area including one main drainage channel (Drainage 1) with one tributary channel (Drainage 1A), as shown in Exhibit 8, Jurisdictional Resources. The National Wetlands Inventory identifies Drainage 1 as Riverine, an intermittent streambed that is temporarily flooded. Soils in the survey area are not listed as hydric (USDA NRCS 2024). As shown on Exhibit 10 and Table 7, approximately 0.09 acre of waters of the United States (0.02-acre wetland and 0.07-acre non-wetland) occur in the survey area, and approximately 0.02 acre wetland of the United States and State, and 0.01 acre of non-wetland waters of the United States and State would be impacted by the proposed Project. Additionally, 0.41-acre of waters considered jurisdictional by CDFW would be impacted by the proposed Project. Both permanent and temporary impacts are predominantly associated with construction of the access road and culvert.

Vegetation Type or Other Landcover	Temporary impact area (Acres)*	Permanent impact area (Acres)*	Total impact area (Acres)*
California sagebrush–deerweed scrub	0.02	0.83	0.85
California sagebrush–bush mallow scrub	0.00	0.00	0.00
semi-natural herbaceous stand	0.01	0.07	0.08
wild oats grassland	0.00	0.05	0.05
bush mallow scrub	0.00	0.02	0.02
laurel sumac scrub	0.15	0.15	0.29
red willow/arroyo willow thicket	0.00	0.17	0.17
coast live oak woodland	0.01	0.00	0.01
coast live oak–California sycamore woodland	0.00	0.22	0.22
eucalyptus grove	0.00	0.00	0.00
disturbed	0.03	0.00	0.03
developed	0.06	0.04	0.10
ornamental	0.14	0.00	0.14
Total	**0.43**	**1.55**	**1.98**

* Values based on total work limit footprints.
Note: Totals may not appear to add correctly due to rounding error.

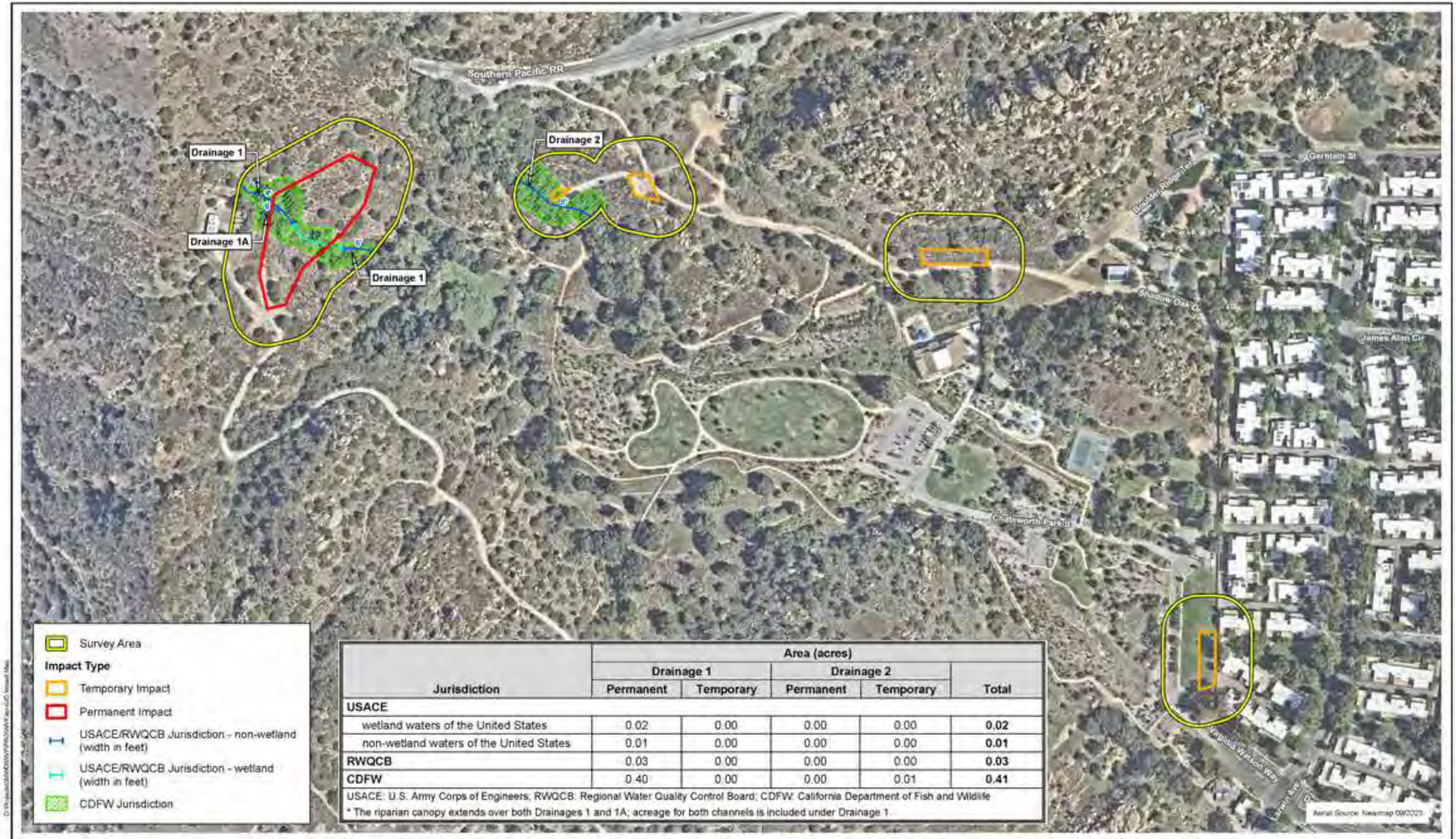
Vegetation Impacts

WVF No. 1 Stage 3 Improvements Project

250 125 0 250 Feet

Exhibit 9

PSOMAS



Jurisdiction	Area (acres)				
	Drainage 1		Drainage 2		
	Permanent	Temporary	Permanent	Temporary	Total
USACE					
wetland waters of the United States	0.02	0.00	0.00	0.00	**0.02**
non-wetland waters of the United States	0.01	0.00	0.00	0.00	**0.01**
RWQCB	0.03	0.00	0.00	0.00	**0.03**
CDFW	0.40	0.00	0.00	0.01	**0.41**

USACE: U.S. Army Corps of Engineers; RWQCB: Regional Water Quality Control Board; CDFW: California Department of Fish and Wildlife

* The riparian canopy extends over both Drainages 1 and 1A; acreage for both channels is included under Drainage 1.

Aerial Source: Nearmap 09/2023

Jurisdictional Resources Impacts

Exhibit 10

WVF No. 1 Stage 3 Improvements Project

250 125 0 250 Feet

PSOMAS

TABLE 7
JURISDICTIONAL WATER RESOURCES IMPACTS IN THE SURVEY AREA

Jurisdiction	Drainage 1 Permanent (acres)	Drainage 1 Temporary (acres)	Drainage 2 Permanent (acres)	Drainage 2 Temporary (acres)	Total
USACE	-	-	-	-	**-**
wetland waters of the United States	0.02	0.00	0.00	0.00	**0.02**
non-wetland waters of the United States	0.01	0.00	0.00	0.00	**0.01**
RWQCB	0.03	0.00	0.00	0.00	**0.03**
CDFW	0.40	0.00	0.00	0.01	**0.41**

USACE: U.S. Army Corps of Engineers; RWQCB: Regional Water Quality Control Board; CDFW: California Department of Fish and Wildlife.

* The riparian canopy extends over both Drainages 1 and 1A; acreage for both channels is included under Drainage 1.

The proposed Project would include consultation with the applicable resource agencies for impacts to jurisdictional resources (CDFW, USACE, and RWQCB), subsequent issuance of the appropriate regulatory permits, and adherence with associated permit conditions. Additionally, to reduce impacts to jurisdictional resources from the Project, Mitigation Measure **BIO-6** would be incorporated into the Project to reduce impacts to less than significant levels.

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?

Less Than Significant Impact. The proposed Project would not interfere substantially with the movement of any native resident or migratory fish or wildlife species or disrupt native nursery sites. With regards to wildlife movement, the proposed Project is located at an urban-wildland interface, with urban development to the east, large tracts of undeveloped open space to the west, and the developed portion of Chatsworth Park South as a buffer between the two. Due to its limited size and relatively short construction duration of nine months, wildlife is expected to move freely throughout the Project Area and surroundings. Additionally, the Project does not propose new buildings or surface structures that would prevent or deter wildlife from the area or disrupt native wildlife nursery sites.

In-stream structures and Project construction activities have very low potential to disrupt fish passage permanently or temporarily in areas containing fish habitat. Fish habitat in the Project Area was determined to be relatively poor due to the limited amount of surface water present and the isolated nature of the identified natural drainages. Although surface water is present, depths were observed during surveys to be less than one half inch consistently and water movement was negligible. Natural aboveground flow is present in the drainages but is limited to a distance of less than 1,000 contiguous feet. The drainages are also isolated from downstream fish populations because they connect with the City of Los Angeles' subsurface municipal separate storm sewer system (MS4). In addition, no special status fish species have been reported from the drainages on the Project Area or in the region, and no fish species were observed in the drainages during the plant and wildlife surveys in 2022 and 2023. Therefore, implementation of the Project would not interfere substantially with the movement of any native resident, migratory fish, or wildlife species, and impacts would be less than significant.

e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

Less Than Significant Impact. No, the Project will not conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance. The City of Los Angeles Municipal Code (Article 6 Preservation of Protected Trees Sections 46.00 to 46.06) provides for the protection of certain "protected trees," defined as certain Southern California native tree species (i.e., all indigenous oak trees except scrub oak [*Quercus dumosa*], Southern California black walnut [*Juglans californica var. californica*], Western sycamore [*Platanus racemosa*], and California bay [*Umbellularia californica*]) which measure four inches or more in cumulative diameter at 4.5 feet above the ground level from the base of the tree. Protected trees are known to occur within the Project Area. If removal of a protected species was required as a result of the proposed Project, Metropolitan would comply with the existing City of Los Angeles Municipal Code ordinance regarding procedures and permits for removal. Thus, impacts would be less than significant.

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?

No Impact. No, the proposed Project would not conflict with the provisions of an adopted Habitat Conservation Plan (HCP), Natural Community Conservation Plan (NCCP), or other approved local, regional, or State HCP. The Project is not located within or near the boundaries of any designated HCP or NCCP and would not conflict with the provisions of any adopted HCP or NCCP. Therefore, no impact would occur.

MITIGATION MEASURES

BIO-1 If more than three years have elapsed since the Project rare plant survey was conducted, Metropolitan shall conduct a rare plant survey to confirm presence or absence of rare plant species. Surveys would be conducted to confirm presence or absence within the proposed Project's disturbance areas previously determined to have the potential to support special status plant species. Surveys will be conducted in accordance with Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities (CDFW 2018) and will occur during the appropriate time of year.

BIO-2 If more than three years have elapsed since the Project focused protocol wildlife surveys for potentially occurring listed species, the least Bell's vireo and California gnatcatcher, Metropolitan shall conduct focused protocol surveys to ensure that the Project avoids impacts to these species. All surveys would be conducted to confirm absence within proposed Project disturbance areas that may support these species. Surveys would be conducted in accordance with the approved CDFW or USFWS protocol guidelines for each species. Additional surveys for the California red-legged frog would be unwarranted based on the determination of lack of potentially suitable habitat within the Project Area following initial focused protocol surveys.

BIO-3 Should special-status plants or wildlife be identified during BIO-1 or BIO-2, Metropolitan shall develop and implement appropriate monitoring and avoidance measures. Measures may include but are not limited to:

- Installation of Environmentally Sensitive Area/avoidance fencing.

- Flagging or fencing of any special-status species burrows or nests by a monitoring biologist to ensure avoidance.
- Monitoring by a biologist during all initial ground disturbing activities and vegetation removal. Once initial ground disturbing activities and vegetation removal activities have been completed, the biologist shall conduct daily pre-activity clearance surveys, as necessary.
- If at any time during Project activities a special-status species enters the Project Area or otherwise may be impacted by the Project, all activities at the site where the find occurred shall cease. At that point, a monitoring biologist shall recommend an appropriate course of action to avoid, relocate or otherwise protect the species such that construction may proceed without harming the species.

BIO-4 To avoid impacts on biological resources adjacent to the Project Area, the designated Project disturbance limits shall be visibly marked in the field to ensure that no inadvertent impacts occur outside the approved disturbance limits.

BIO-5 Compensation for Impacts to Special-Status Species. If the Project Area is determined to be occupied by a special-status species prior to start of construction, and cannot be avoided, direct temporary and/or permanent impacts to suitable habitat for federally or State-listed species within the proposed Project Area shall be mitigated through on-site or off-site measures. Mitigation for temporary and permanent impacts to listed species habitat shall consider, and may overlap with, mitigation for impacts to jurisdictional waters and wetlands (BIO-6).

Temporary Impacts. Mitigation for direct temporary impacts to suitable habitat for federally or State-listed species shall be implemented through on-site rehabilitation at a 1:1 mitigation ratio. Areas temporarily impacted shall be returned to similar conditions to those that existed prior to grading and/or ground-disturbing activities. Proposed rehabilitation of impact areas may include, at a minimum, a feasible implementation structure, salvage/seeding details, invasive species eradication methods, a monitoring schedule, performance standards of success, estimated costs, and identification of responsible entities.

Permanent Impacts. Metropolitan shall fund a mitigation bank or in-lieu fee program to compensate for all permanent loss of suitable habitat for federally or State-listed species, if available, at a 1:1 ratio. Direct impacts to federally listed species' occupied habitat shall be addressed through either the Section 7 or Section 10(a)(1)(B) process under the federal Endangered Species Act (ESA) of 1973, as amended. Direct impacts to state-listed species shall be addressed through the California Fish and Game Code Section 2081(b) incidental take permit process. Metropolitan would comply with any additional measures (e.g. avoidance, conservation, etc.) incorporated into any permits or authorizations issued by the regulatory agencies with jurisdiction over these resources beyond what is being proposed under this CEQA analysis to reduce the impact to less than significant.

BIO-6 Compensation for Impacts to Jurisdictional Wetlands and Waters, inclusive of jurisdictional riparian habitat. Mitigation for temporary and permanent impacts to jurisdictional wetlands and waters shall consider and overlap with mitigation for impacts to special-status species habitat (BIO-5) where feasible. Metropolitan would comply with any additional measures (e.g. avoidance, conservation, etc.)

incorporated into any permits or authorizations issued by the regulatory agencies with jurisdiction over these resources.

Temporary Impacts. Mitigation for direct temporary impacts to jurisdictional wetlands and waters resulting from the Project shall be implemented through on-site restoration. Areas temporarily impacted shall be returned to conditions similar to those that existed prior to grading and/or ground-disturbing activities. For impacted vegetated jurisdictional wetlands and waters, the proposed rehabilitation of impact areas may include, at a minimum, a feasible implementation structure, salvage/seeding details, invasive species eradication methods, a monitoring schedule, performance standards of success, estimated costs, and identification of responsible entities.

Permanent Impacts. Mitigation for permanent impacts to jurisdictional wetlands and waters resulting from the Project shall be implemented at a minimum 1:1 mitigation ratio through purchase of credits through an agency-approved mitigation bank, in-lieu fee program, or other agreement.

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	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?	☐	☐	☐	☒
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☒	☐	☐
c) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☐	☒	☐

CULTURAL RESOURCES OVERVIEW

This section provides an analysis of proposed Project impacts on cultural resources, including historical and archaeological resources as well as human remains, and is based on the Archaeological Inventory for the Metropolitan Water District West Valley Feeder No. 1 Stage 3 Improvements Project (Archaeological Inventory Report) prepared by Greenwood and Associates dated July 31, 2018, attached as Appendix D.

REGULATORY FRAMEWORK

CEQA requires a Lead Agency to determine whether a project may have a significant effect on historical resources (PRC Section 21084.1), archaeological resources, or human remains. A historical resource is a resource listed in, or determined to be eligible for listing, in the California Register of Historical Resources (CRHR); a resource included in a local register of historical resources; or any object, building, structure, site, area, place, record, or manuscript that a Lead Agency determines to be historically significant (*CEQA Guidelines* Section 15064.5[a][1-3]). Resources listed on the National Register of Historic Places (NRHP) are automatically listed on the CRHR, along with State Landmarks and Points of Interest. The CRHR can also include properties designated under local ordinances or identified through local historical resource surveys. In addition, pursuant to PRC Section 5024.I), a resource shall be considered historically significant if it:

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; or
4. Has yielded, or may be likely to yield, information important in prehistory or history.

If it can be demonstrated that a project would cause damage to a unique archaeological resource, the CEQA Lead Agency may require reasonable efforts be made to permit any or all of these resources to be preserved in place or left in an undisturbed state. To the extent that resources cannot be left undisturbed, mitigation measures are required (PRC Section 21083.2[a-b]). PRC Section 21083.2(g) defines a unique archaeological resource as an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it:

1. Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information;
2. Has a special and particular quality such as being the oldest of its type or the best available example of its type; or
3. Is directly associated with a scientifically recognized important prehistoric or historic event or person.

METHODOLOGY

Preparation of the Archaeological Inventory Report included a review of available archaeological site records, archaeological survey reports and historical maps available at the South Central Coastal Information Center (SCCIC), and review of the Project description. The results of the SCCIC record search identified three archaeological sites in the vicinity of the Project Area.

A pedestrian survey of the Project Area was conducted by a qualified archaeologist on June 5 and 6, 2018. The pedestrian survey did not identify archaeological resources within the Project Area.

Additionally, a Sacred Lands File search was conducted by the Native American Heritage Commission (NAHC), and information gathering and coordination with members of the Native American community through the NAHC's List of Contacts was conducted.

IMPACT ANALYSIS

Would the Project:

a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?

No Impact. No, the proposed Project would not cause a substantial adverse change in the significance of a historical resource. No historical resources were identified by the cultural resources record searches conducted at the SCCIC. In addition, the intensive pedestrian surveys of the Project Area were negative for historical resources. Therefore, the Project Area does not contain any historical resources, as defined in Section 15064.5 of the State *CEQA Guidelines*, and no impact would occur.

b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?

Less Than Significant With Mitigation Incorporated. The proposed Project may cause a substantial adverse change in the significance of an archaeological resource. Though the pedestrian field survey results did not find evidence of archaeological resources, the SCCIC record search did identify three archaeological sites in the vicinity of the Project Area. Additionally, coordination with the Gabrieleño Band of Mission Indians-Kizh Nation has indicated that there is a potential for buried archaeological resources in the area. However, implementation of MMs **CULT-1, CULT-2, CULT-3, and CULT-4** would reduce potential impacts to less than significant levels.

c) Disturb any human remains, including those interred outside of formal cemeteries?

Less Than Significant Impact. No, the proposed Project would not disturb any human remains, including those interred outside of dedicated cemeteries. Background archival research and the

intensive pedestrian field survey failed to find any potential for human remains (e.g., the existence of formal cemeteries), and no known formal cemeteries are present in the Project Area. Although it is highly unlikely, there is the possibility that previously undiscovered remains could be uncovered during ground-disturbing activities. Should human remains be encountered, it is a Metropolitan Standard Practice to comply with the State of California's Health and Safety Code Section 7050.5, which states that no further disturbance would occur until the appropriate county coroner has made a determination of origin and disposition of the remains pursuant to PRC Section 5097.98. Adherence to State of California's Health and Safety Code Section 7050.5 would result in the proper handling and treatment of unexpected human remains Therefore, impacts on human remains from the proposed Project would be less than significant.

MITIGATION PROGRAM

CULT-1 Prior to the initiation of construction, a qualified archaeologist who meets the Secretary of the Interior's Professional Qualifications Standards for Archaeology (National Park Service 1983) shall be retained.

CULT- 2 Metropolitan will coordinate with the Gabrieleño Band of Mission Indians-Kizh Nation to retain a Native American monitor with ancestral ties to the Project Area (Native American Tribal Monitor), as needed to protect cultural resources.

CULT- 3 The archaeologist and Native American Tribal Monitor shall monitor construction-related ground-disturbing activities associated with valve relocation areas and new access road construction. Monitoring for excavation work associated with valve relocations will be on a spot-check basis (as these areas have been previously disturbed), and full-time for excavation activities associated with the proposed new access road construction. The archaeological monitor and Native American Tribal Monitor shall complete monitoring logs that describe the work and details regarding resources encountered during the ground-disturbing activities.

CULT-4 If archaeological resources are identified during Project-related activities, Metropolitan and/or its contractors shall cease all activity within 50 feet of the find until the archaeologist and Native American Tribal Monitor can evaluate the find. If necessary, the evaluation may require preparation of a treatment plan and determination of California Register of Historical Resources eligibility. If the discovery proves to be significant under CEQA and cannot be avoided by the Project, additional work, such as data recovery excavation, reporting, curation, or reburial, may be warranted, thereby reducing the impact to a less than significant level. Any data recovery plans will be developed in consultation with the Gabrieleño Band of Mission Indians-Kizh Nation.

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
VI. ENERGY. Would the project:				
a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	☐	☐	☐	☒
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	☐	☒

IMPACT ANALYSIS

Would the Project:

a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?

No Impact. No, the proposed Project would not result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources during Project construction activities. Project construction would require the use of construction equipment for excavation, building, and paving activities. Construction would also include the use of vehicles by construction workers and delivery or haul trucks traveling to and from the proposed Project Area. The proposed Project's construction air pollutant emissions were estimated using the CalEEMod 2016.3.2. CalEEMod uses Project-specific information, including the Project's land uses and location, to estimate a Project's emissions. Off-road construction equipment use was calculated from the equipment data (i.e., vehicle types, hours per day, horsepower, load factor) provided in the CalEEMod 2016.3.2 construction output files included in Appendix B. The total horsepower hours for the proposed Project was then multiplied by fuel usage estimates for construction activities included in the OFFROAD Model. The OFFROAD Model provides equipment-specific emission factors. Energy data can be found in Appendix E.

Fuel consumption from construction worker and delivery or haul trucks was calculated using the trip rates and distances provided in the CalEEMod construction output files. Total vehicle miles traveled (VMT) was then calculated for each type of construction-related trip and divided by the miles per gallon factor using CARB's EMissions FACtor 2021 (EMFAC 2021) model. EMFAC provides the total annual VMT and fuel consumed for each vehicle type. Construction delivery and haul trucks were assumed to be heavy-duty diesel trucks. As shown in Table 8, Energy Use During Construction, a total of 666 gallons of gasoline and 5,225 gallons of diesel fuel is estimated to be consumed during construction.

TABLE 8
ENERGY USE DURING CONSTRUCTION

Source	Gasoline Fuel (gallons)	Diesel Fuel (gallons)
Off-road Construction Equipment	0	5,148
Worker commute trips	611	2
Vendor trips	55	1
On-road haul trips	0	74
Total	666	5,225

See Appendix F for Energy data. Data based on CalEEMod 2016.3.2, OFFROAD, and EMFAC 2021 programs.

Fuel energy consumed during construction would be temporary in nature and would not occur after completion of construction activities. Furthermore, only construction equipment necessary to complete the construction activities would be used, and future inspection and maintenance activities would involve vehicle trips similar to current operations. Therefore, the proposed construction activities would not result in inefficient, wasteful, or unnecessary fuel consumption. There would be no impact.

b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

No Impact. No, the proposed Project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency. Although there is no specific state or local plan for renewable energy that is applicable to the proposed Project, the California Energy Commission (CEC) is the State's primary energy policy and planning agency. The CEC has adopted Building Energy Efficiency Standards and Appliance Energy Efficiency Standards, and developed energy efficiency goals for existing buildings, and developed zero-emission vehicle policies. The City of Los Angeles City Council adopted a renewable energy study, the Los Angeles 100% Renewable Energy Study (LA100; 2021), with a goal to achieve 100% renewable electricity by 2045. The LA100 addresses pathways and costs to achieve 100% renewable electricity supply while maintaining Los Angeles Department of Water and Power's reliability, analyzes greenhouse gas reductions and public health, examines economic changes with renewable electric power, and environmental justice.

The proposed Project includes modification to existing valve structures, replacement of valves, and construction of a new access road and vehicle turnaround. No buildings or transportation facilities with zero-emission vehicles are proposed. Additionally, Metropolitan is not a signatory of the LA100 study, and the Project's nine-month construction timeframe would occur before the LA100 goal of 100% renewable energy by 2045. Therefore, the proposed Project would not conflict with or obstruct a State or local plan for renewable energy or energy efficiency, and no impact would occur.

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
VII. GEOLOGY AND SOILS. Would the project:				
a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) 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? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☐	☒
ii) Strong seismic ground shaking?	☐	☐	☐	☒
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
iv) Landslides?	☐	☐	☒	☐
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
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 on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☒	☐
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	☐	☐	☒	☐
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☐	☒
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☒	☐	☐

IMPACT ANALYSIS

The following analysis is based on Geotechnical Study West Valley Feeder 1 Access Roads and Valve Improvements Widening Project Chatsworth, California (Geotechnical Study) prepared by Kleinfelder and dated May 15, 2018 (Kleinfelder 2018) (included as Appendix F) and the paleontological resources records search and literature review conducted by Psomas from the Vertebrate Paleontology Department at the Natural History Museum of Los Angeles County (LACM) on July 16, 2018 (included as Appendix G).

Would the Project

a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:

i) 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? Refer to Division of Mines and Geology Special Publication 42.

ii) Strong seismic ground shaking?

No Impact. No, the proposed Project would not significantly cause a substantial adverse impact, either directly or indirectly, involving the rupture of an earthquake fault mapped as part of an Alquist-Priolo Earthquake Fault Zone (APEFZ) or cause a substantial adverse impact either directly or indirectly, from strong seismic ground shaking. According to the Geotechnical Study, the Project Area is not located within a State of California Earthquake Fault Rupture Hazard Zone, and no mapped active or potentially active fault traces are known to transect the Project Area. The closest active faults to the site are in the Sierra Madre fault zone, with the Santa Susana and San Fernando sections faults located approximately 7.0 miles and 7.5 miles, respectively, from the site. The proposed Project includes modification to existing valve structures, replacement of valves, and construction of a new access road and vehicle turnaround. No new buildings would be constructed as part of the proposed Project. Additionally, the proposed Project is located in a park, which is not occupied by people, and no permanent or temporary structures that would be occupied by people would be constructed and/or operated as part of the proposed Project. Therefore, the Project would not directly or indirectly cause adverse effects, including the risk of loss, injury or death, as a result of fault rupture or strong seismic ground shaking, and no impact would occur.

iii) Seismic-related ground failure, including liquefaction?

Less Than Significant Impact. No, the proposed Project would not cause a substantial adverse impact, directly or indirectly, from seismic-related ground failure, including liquefaction. Soil liquefaction occurs when saturated, cohesionless soils lose their strength due to the buildup of excess pore water pressure during cycling loading, such as that induced by earthquakes, causing it to behave as a liquid. The types of soils that are most susceptible to liquefaction are loose, saturated sands and some silt. Based on the Geotechnical Study, the characteristics of the soil, bedrock, and depth to groundwater at the Project Area indicate that the site soils have a remote potential for liquefaction during a design-level earthquake. Moreover, the Project Area is not currently occupied by people, and no permanent or temporary structures that would be occupied by people would be constructed and/or operated are proposed. Accordingly, there would be no significant risk of loss, injury of death from ground failure, and impacts would be less than significant.

iv) Landslides?

Less Than Significant Impact. No, the proposed Project would not directly or indirectly cause a potential substantial adverse impact involving landslides. Landslides are ground failures in which large sections of slope consisting of earth material, including debris, detach, and slide downhill. The Project Area is located within Chatsworth Park South, in the Santa Susana Mountains and is located within a designated Landslide Area, characterized by soils which can be prone to clusters of small, shallow, surficial landslides. The Project Area is not identified as a landslide hazard zone; however, some risk factors associated with landslides do exist at the Project Area and include sloping terrain, the presence of nearby active faults, and historic seismic shaking (Kleinfelder 2018). The proposed Project includes modification to existing valve structures, replacement of valves, and construction of a new access road and vehicle turnaround. No new buildings would be constructed as part of the proposed Project. Additionally, the Project Area is not currently occupied by people, and no permanent or temporary structures that would be occupied by people would be constructed and/or operated are proposed. Therefore, impacts related to exposure of people or structures to landslides would be less than significant.

b) Result in substantial soil erosion or the loss of topsoil?

Less Than Significant Impact. No, the proposed Project would not result in substantial soil erosion or the loss of topsoil due to the relatively small disturbance acreage. The proposed Project would involve construction activities within areas in both paved and unpaved areas, and within areas of sloped terrain covered with vegetation. All hauling of equipment would be conducted within the footprint of previously disturbed, existing roads and trail segments leading to the Project Area. During construction, soils could be exposed to potential short-term wind and water erosion. The Project would include implementation of standard BMPs and the Project's Storm Water Pollution Prevention Plan (SWPPP) to reduce potential erosion and loss of topsoil due to surface water runoff during construction. BMPs for fugitive dust control would also be implemented in order to control wind-related erosion and loss of topsoil. The construction of the access road, turn around areas, and access road retaining wall would create more stable slopes and surface areas and reduce potential for substantial soil erosion or loss of topsoil to occur. Additionally, temporary disturbances to soil would be restored. Therefore, the proposed Project would not result in substantial soil erosion, or the loss of topsoil and impacts would be less than significant.

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 on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?

Less Than Significant Impact. No, the proposed Project would not be located on or result in unstable geologic deposits or soils such that on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse would potentially occur. According to the Geotechnical Study, there is low potential for liquefaction at the Project Area and thus a low potential for lateral spreading. Additionally, as discussed above, the Project Area is not identified as a landslide hazard zone. The proposed Project includes replacement of equipment and modifications to existing facilities, as well as the construction of a new access road for maintenance and operation vehicles. Therefore, impacts would be less than significant.

d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?

Less Than Significant Impact. No, the proposed Project would not be located on expansive soil as defined in Section 1803.5.3 of the California Building Code (2022), creating substantial direct or indirect risks to life or property. According to Section 1803.5.3 of the California Building Code, soils are considered expansive if exhibiting the following characteristics:

1. Plasticity index (PI) of 15 or greater;
2. More than 10 percent of the soil particles pass a No. 200 sieve (75 micrometers);
3. More than 10 percent of the soil particles are less than 5 micrometers in size; and
4. Expansion index greater than 20.

Expansive soils are characterized by their ability to undergo significant volume change due to variations in moisture content. According to the Geotechnical Study, the soils encountered at the Project Area are granular and have a low to medium expansion potential. Therefore, the Project would have a less than significant impact related to expansive soils.

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?

No Impact. No, the proposed Project does not require the use or installation of septic tanks or alternative wastewater disposal systems. The proposed Project includes modification to existing valve structures, replacement of valves, and construction of a new access road and vehicle turnaround. No new buildings would be constructed as part of the proposed Project. Therefore, no impacts related to septic tanks or alternative wastewater disposal systems would occur.

f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

Less Than Significant With Mitigation Incorporated. The proposed Project could directly or indirectly destroy a unique paleontological resource or site or unique geologic feature. According to the Paleontological Record Search, the underlying geology of the Project Area consists of a thick-bedded, late Cretaceous sandstone known as the Chatsworth Formation. This formation has produced numerous localities of vertebrate and invertebrate fossils, including sharks and a wide range of molluscan fauna. Microfossils, such as foraminifera, indicate an oceanic environment. Turbidity flow sedimentary deposits, such as the Chatsworth Formation, are likely to preserve fossils that have been reworked from nearby shallow environments and are usually concentrated in lenses of fossil-rich sediments. According to the records search, nearby localities of shark taxa including *Cretolamna appendiculata*, *Squalicorax kaupi, Squalus* sp., and *Squatina hassei* have been reported from Dayton Canyon, approximately three miles south of the Project area; and an online records search using the Paleobiology Database (paleobiodb.org) of the invertebrate fossils of the Chatsworth Formation indicated the presence of shallow water echinoderm and molluscan taxa, including the paratype of the gastropod, *Anchura phaba* (Elder and Saul 1996).

Excavation into the Chatsworth Formation in the Project Area may expose unique vertebrate and invertebrate fossils. In addition, the potential for recovery of small fossils, such as teeth, from bulk sediment samples is possible. Metropolitan considers identifiable vertebrate, invertebrate, and plant fossils to be unique under the CEQA. Therefore, implementation of MMs **GEO-1, GEO-2, GEO-3, and GEO-4,** which includes monitoring related to exposures of the Chatsworth Formation, would be required to reduce potential direct or indirect impacts to unique paleontological resources or unique geologic features to less than significant levels.

MITIGATION PROGRAM

GEO-1 Prior to the initiation of construction-related ground disturbing activities, Metropolitan shall retain the services of a qualified paleontologist to monitor excavation activities within the Chatsworth Formation.

GEO-2 The qualified paleontologist shall prepare a Paleontological Resources Mitigation Plan. The mitigation plan will specify the level of monitoring to be implemented, if any, when earthmoving activities are occurring in the Chatsworth Formation. The mitigation plan will also provide criteria for determining when and to what extent monitoring will be reduced if too few or no fossil remains are recovered as a result of monitoring. The mitigation plan will also include procedures for fossil recovery and curation, and identify potential museum repositories.

GEO-3 As soon as practicable and if necessary, the paleontological monitor will recover all larger vertebrate fossil specimens, a representative sample of any invertebrate

or plant specimens, and any fine-grained rock or sediment sample that can be recovered easily. If unique paleontological resources are recovered as a result of monitoring, the paleontologist will assist Metropolitan in developing a formal curation agreement with a recognized museum repository. Paleontological monitoring and fossil/sample recovery shall follow the procedures outlined in the Paleontological Resources Mitigation Plan.

GEO-4 All unique fossil remains recovered from the Project Area as a result of the mitigation program will be treated (prepared, identified, curated, cataloged) in accordance with designated museum repository requirements.

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
VIII. GREENHOUSE GAS EMISSIONS. Would the project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☐	☒

OVERVIEW OF GREENHOUSE GAS EMISSIONS

Climate change refers to any significant change in climate, such as the average temperature, precipitation, or wind patterns over a period of time. Climate change may result from natural factors, natural processes, and human activities that change the composition of the atmosphere and alter the surface and features of the land. Significant changes in global climate patterns have been associated with global warming, which is a gradual increase in the overall temperature of the earth's atmosphere generally attributed to an accumulation of greenhouse gas (GHG) emissions in the atmosphere. GHGs trap heat in the atmosphere, which in turn increases the Earth's surface temperature. Some GHGs occur naturally and are emitted into the atmosphere through natural processes, while others are created and emitted solely through human activities. The emission of GHGs through fossil fuel combustion, in conjunction with human activities, appears to be closely associated with global warming (OPR 2008).

REGULATORY FRAMEWORK

In response to climate change, California implemented Assembly Bill (AB) 32, the "California Global Warming Solutions Act of 2006." AB 32 required the reduction of statewide GHG emissions to 1990 emissions levels (essentially a 15 percent reduction below 2005 emission levels) by 2020 and the adoption of rules and regulations to achieve the maximum technologically feasible and cost-effective GHG emissions reductions. On September 8, 2016, the Governor signed Senate Bill (SB) 32 into law, extending AB 32 by requiring the State to further reduce GHG emissions to 40 percent below 1990 levels by 2030 (the other provisions of AB 32 remain unchanged).

On December 14, 2017, CARB adopted the 2017 Scoping Plan, which provides a framework for achieving the 2030 target. The 2017 Scoping Plan relies on the continuation and expansion of existing policies and regulations, such as the Cap-and-Trade Program and the Low Carbon Fuel Standard, and implementation of recently adopted policies and legislation, such as SB 1383 (aimed at reducing short-lived climate pollutants including methane, hydrofluorocarbon gases,

and anthropogenic black carbon) and SB 100 (accelerated the Renewables Portfolio Standard to increase procurement from eligible renewable energy resources to 33 percent of total retail sales by 2020, 60 percent by 2030, and 100 percent by 2045). The 2017 Scoping Plan recommends local governments adopt policies and locally-appropriate quantitative thresholds consistent with a statewide per capita goal of six metric tons (MT) of metric tons per year of carbon dioxide equivalents (CO_2e) by 2030 and two MT of CO_2e by 2050 (CARB 2017).

In May 2022, Metropolitan adopted a Climate Action Plan (CAP) and certified the associated Program Environmental Impact Report (PEIR). Metropolitan's CAP complies with the requirements of *CEQA Guidelines* Section 15183.5(b)(1) for a qualified GHG reduction plan, and as such, can be used to streamline and tier CEQA GHG analysis and mitigate for GHG impacts associated with construction and operational activities (Metropolitan 2022). The CAP includes a baseline GHG emissions inventory of Metropolitan's operations from 1990 through 2020 and a GHG emissions forecast through 2045. The CAP established Metropolitan's GHG emissions reduction targets to be consistent with SB 32 (40 percent reduction below 1990 levels by 2030) and the recently signed AB 1279, which codifies the State's goal of achieving carbon neutrality by 2045. The CAP includes a suite of GHG emissions reduction measures to be implemented that would reduce Metropolitan's GHG emissions to achieve the adopted emissions reduction targets established in the CAP. By following these emissions reduction measures, Metropolitan would exceed the State's target of 40 percent below 1990 levels by 2030 and make significant progress toward ultimately achieving carbon neutrality by 2045 (Metropolitan 2022).

METHODOLOGY

Construction GHG emissions are generated by vehicle engine exhaust from construction equipment, on-road hauling trucks, vendor trips, and worker commuting trips. Construction GHG emissions were calculated concurrently with air quality criteria pollutant emissions by using CalEEMod Version 2016.3.2 and the Project information as described in Section III, Air Quality.

The results are output in metric tons of carbon dioxide equivalent ($MTCO_2e$) for each year of construction. The estimated construction GHG emissions for the Project are shown in Table 9.

TABLE 9
ESTIMATED ANNUAL GREENHOUSE GAS EMISSIONS FROM CONSTRUCTION

Year	Emissions ($MTCO_2e$)
2019	71
2020	83
Total	**154**
Annual Emissions*	**5**
SCAQMD Interim Significance Threshold	**3,000**
Exceeds Threshold	**No**

$MTCO_2e$: metric tons of carbon dioxide equivalent; SCAQMD: South Coast Air Quality Management District.

* Total amortized over 30 years

Source: CalEEMod data in Appendix B.

GHG emissions generated from construction activities are finite and occur for a relatively short period of time. Unlike the numerous opportunities available to reduce a project's long-term GHG emissions through design features, operational restrictions, and other methods, GHG emissions -reduction measures for construction equipment are relatively limited. Therefore,

SCAQMD staff recommends that construction emissions be amortized over a 30-year project lifetime so that GHG reduction measures address construction GHG emissions as part of the operational GHG reduction strategies (SCAQMD 2008a). As shown in Table 9, Estimated Annual Greenhouse Gas Emissions from Construction, the 30-year amortized construction emissions would be 5 $MTCO_2e$/yr.

GHG EMISSION THRESHOLDS

Individual projects do not generate sufficient GHG emissions to influence climate change directly. However, physical changes caused by a project can contribute incrementally to significant cumulative effects, even if individual changes resulting from a project are limited. The issue of climate change typically involves an analysis of whether a project's contribution towards an impact would be cumulatively considerable. "Cumulatively considerable" means the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, other current projects, and probable future projects (*CEQA Guidelines* Section 15064[h][1]).

To evaluate whether a project may generate a quantity of GHG emissions with the potential to have a significant impact on the environment, local air districts developed a number of bright-line significance thresholds. Bright-line significance thresholds are numeric mass emissions thresholds that identify the level at which additional analysis of project GHG emissions is necessary. If project emissions are equal to or below the significance threshold, with or without mitigation, the project's GHG emissions would be less than significant.

As mentioned in the Regulatory Framework section above, in May 2022, Metropolitan adopted a CAP and certified an associated Program EIR to analyze and mitigate GHG emissions associated with its activities. However, the CAP was not yet completed at the time this Project's GHG emissions analysis was conducted in 2018. Therefore, this Project continues the practice of referring to guidance from other agencies, in this case, the SCAQMD, when evaluating the significance of GHG emissions.

SCAQMD considered a tiered approach to determine the significance of projects based on guidance provided by the SCAQMD's GHG CEQA Significance Threshold Working Group in September 2010. The draft tiered approach is outlined in meeting minutes dated September 29, 2010 (SCAQMD 2010):

- **Tier 1.** If the project is exempt from further environmental analysis under existing statutory or categorical exemptions, there is a presumption of less than significant impacts with respect to climate change. If not, then the Tier 2 threshold should be considered.
- **Tier 2.** Consists of determining whether or not the project is consistent with a GHG reduction plan that may be part of a local general plan, for example. The concept embodied in this tier is equivalent to the existing concept of consistency in *CEQA Guidelines* Section 15064(h)(3), 15125(d) or 15152(a). Under this tier, if the project is consistent with the qualifying local GHG reduction plan, it is not significant for GHG emissions. If there is not an adopted plan, then a Tier 3 approach would be appropriate.
- **Tier 3.** Establishes a screening significance threshold level to determine significance. The Working Group has provided a recommendation of 10,000 MT of CO_2e per year for industrial projects where SCAQMD is the CEQA Lead Agency and 3,000 MT of CO_2e per year for non-industrial projects.
- **Tier 4.** Establishes a service population threshold to determine significance. The Working Group has provided a recommendation of 4.8 MT of CO_2e per person per year for land use projects.

The Project would not be statutory or categorically exempt; therefore, Tier 1 would not apply. Metropolitan has adopted a local, qualified GHG reduction plan; however, the GHG reduction plan was not adopted at the time of this Project analysis; thus, Tier 2 would not apply. Tier 4 would also not apply because the Project would not generate a service population (defined as residents or employees). Accordingly, the Tier 3 threshold is considered by Metropolitan to be the most appropriate threshold to determine the significance of GHG emission impacts for the Project pursuant to *CEQA Guidelines* Section 15064.

IMPACT ANALYSIS

Would the Project:

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

Less Than Significant Impact. No, the proposed Project would not directly or indirectly generate GHG emissions that may have a significant impact on the environment. The proposed Project includes modification to existing valve structures, replacement of valves, and construction of a new access road and vehicle turnaround. No new buildings would be constructed as part of the proposed Project. The Project would not require additional employees for operations and maintenance or generate regular vehicle trips, nor would it use natural gas. Water consumption and solid waste generation would not change from existing conditions and would be negligible with respect to the generation of GHGs. Therefore, Project operation would not increase GHG emissions, and the estimated amortized annual GHG emissions would be 5 $MTCO_2e$/yr, which is substantially below the SCAQMD's threshold of 3,000 $MTCO_2e$/yr; and, consequently, there would be a less than significant impact.

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

No Impact. No, the proposed Project would not conflict with an applicable plan, policy, or regulation of an agency adopted for the purposes of reducing GHG emissions. The principal State plans and policies adopted for the purpose of reducing GHG emissions are AB 32 and SB 32. The quantitative goal of AB 32 and SB 32 is to reduce GHG emissions throughout the State to 40 percent below 1990 levels by 2030 and 80 percent below 1990 emissions levels by 2050. As shown in Table 9, the Project would result in an increase of 5 $MTCO_2e$ of emissions on a yearly basis (when amortized over 30 years). This is substantially below the SCAQMD's annual threshold of 3,000 MT CO_2e. Additionally, the Project would not conflict with the recommendations outlined in Metropolitan's CAP. The Project would not substantially increase GHG emissions. Thus, the Project does not conflict with applicable plans, policies, or regulations adopted for the purpose of reducing the emissions of greenhouse gases, and no impact would occur.

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
IX. 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?	☐	☐	☒	☐
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?	☐	☐	☒	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒
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?	☐	☐	☐	☒
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?	☐	☐	☐	☒
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	☐	☐	☒	☐

OVERVIEW OF HAZARDS AND HAZARDOUS MATERIALS

The following analysis is based on the Phase I Environmental Site Assessment Metropolitan Water District of Southern California West Valley Feeder No. 1 Stage 3 Improvements Project (Phase I ESA) prepared by C. Young Associates and dated July 26, 2018 (CYA 2018) (included as Appendix H).

IMPACT ANALYSIS

Would the Project:

a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

Less than Significant Impact. No, the proposed Project would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials. The proposed Project includes modification to existing valve structures, replacement of valves, and construction of a new access road and vehicle turnaround. No new buildings would be constructed as part of the proposed Project and the public would not have access to the valve

structures or WVF1 pipeline in the Project Area. Project construction activities would require the transport and use of standard construction equipment and materials, some of which may include a hazardous component such as transport and storage of fuels. These activities would be conducted in compliance with existing federal, State, and local regulations. Project operations would be the same as existing operations, which do not involve the routine transport or disposal of hazardous materials. Therefore, the Project would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials and impacts would be less than significant.

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?

Less than Significant Impact. No, the proposed Project would not create a significant hazard to the public through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment. The proposed Project includes modification to existing valve structures, replacement of valves, and construction of a new access road and vehicle turnaround. No new buildings would be constructed as part of the proposed Project and the public would not have access to the valve structures or WVF1 pipeline in the Project Area. Project construction activities would require the transport and use of standard construction equipment and materials, some of which may include a hazardous component such as transport and storage of fuels. These activities would be conducted in compliance with existing federal, State, and local regulations. Project operations would be the same as existing operations, which do not involve the routine transport or disposal of hazardous materials. Thus, only minimal amounts of hazardous materials, primarily in the form of fuels, would be used and the potential for an accidental release of significant quantities of hazardous materials that could affect the surrounding environment is low. Therefore, impacts would be less than significant.

c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

No Impact. No, the proposed Project would not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school such that a significant environmental impact would occur. No existing or proposed schools are within 0.25 mile of the Project Area. The closest school to the Project is Chatsworth Park Elementary School, located approximately 0.47 mile to the east of the site. Therefore, no impact would occur.

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?

No Impact. No, the proposed Project would not be located on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5. The Department of Toxic Substances Control (DTSC) (2024) EnviroStor database was reviewed, and it was determined that the Project Area is not located on or near sites identified on a list compiled pursuant to Government Code Section 65962.5.

Results from the Phase I ESA found that Chatsworth Park South property (which includes the WVF1 Project Area) is listed on the Envirostor and Voluntary Cleanup Program (VCP) regulatory databases and is referenced as an active voluntary cleanup facility with a past use of a small arms firing range. The Chatsworth South Park property is under regulatory oversight of the DTSC. A Remedial Action Plan (RAP) for the park property was approved by DTSC and implemented from

the period of April 5, 2016, through December 30, 2016. The WVF1 Project Area is not mapped within any of the Remedial Areas of the RAP, meaning that significant environmental impacts did not extend from the former firing range activities at Chatsworth Park South to the WVF1 Project Area. Therefore, the Project would not be located on a site included on a list of hazardous material sites, and no impact would occur.

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?

No Impact. No, the proposed Project would not result in a safety hazard or excessive noise for people residing or working in the Project Area due to proximity to a public airport or public use airport. The Project Area is not located within an adopted Airport Land Use Plan or in the vicinity of a private airstrip, heliport, or helistop. The nearest airport is the Van Nuys Airport, located approximately 7.5 miles southeast of the Project. The Project would be located outside the Van Nuys Airport influence area and would not expose additional people to safety hazards related to airport operations (LA County ALUC 2003). Therefore, no impact would occ

f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

No Impact. No, the proposed Project would not impair implementation of or physically interfere with an adopted emergency plan or evacuation plan. The Emergency Management Department (EMD) heads the efforts within the City of Los Angeles in the development of Citywide emergency plans, revises—at regular intervals—and then distributes the Emergency Operations Master Plan and Master Procedures and Annexes. The EMD also updates the City's guidelines for the emergency response and recovery plans (City of Los Angeles 2018). State Route 118 and Topanga Canyon Boulevard are identified by the City of Los Angeles as Primary Disaster Routes, defined as freeway, highway, or arterial routes pre-identified for use during a disaster event and are utilized to bring in emergency personnel, equipment, and supplies to impacted areas in order to save lives, protect property and minimize impact to the environment. Valley Circle Boulevard and Devonshire Street are identified as Secondary Disaster Routes (LACDPW 2018).

The proposed Project includes modification to existing valve structures, replacement of valves, and construction of a new access road and vehicle turnaround. Vehicular access along any and all transport haul routes would be maintained during construction via a Traffic Control Plan which will maintain full function of roadways and allow unimpeded two-way traffic flow. The Project would not alter traffic conditions or modify any street within the local or regional circulation system or remove or add any emergency access points to or from the Project Area. No impacts related to adopted emergency response or evacuation plans would occur, and no mitigation is require

g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?

Less Than Significant Impact. No, the proposed Project would not expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires. The Project Area is classified as a Very High Fire Hazard Severity Zone by the City of Los Angeles Fire Department (LAFD), based on criteria including fuel loading, slope, fire weather, and other related factors (LAFD 2024a). The Project Area is located within a wildland area which is adjacent to urbanized development. The boundaries of the Project Area are adjacent to undeveloped areas with brush, and the eastern boundary borders the Chatsworth Park South, while access from Larwin Avenue and Germain Street border an urbanized residential area. The proposed Project includes modification to existing valve structures, replacement of valves, and construction of a

new access road and vehicle turnaround. No new buildings or structures occupied by people would be constructed as part of the proposed Project, all construction vehicles would contain fire extinguishers, and staff are trained in fire suppression Therefore, impacts related to exposure of people or structures to a significant risk of loss, injury, or death involving wildland fires would be less than significant.

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
X. HYDROLOGY AND WATER QUALITY. Would the project:				
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?	☐	☐	☒	☐
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☐	☐	☐	☒
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:				
i) result in substantial erosion or siltation on- or off-site;	☐	☐	☒	☐
ii) substantially increase the rate or amount of surface runoff in a manner in which would result in flooding on- or off-site;	☐	☐	☒	☐
iii) 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; or	☐	☐	☒	☐
iv) impede or redirect flood flows?	☐	☐	☐	☒
d) In flood hazards, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☐	☐	☐	☒
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☐	☒

OVERVIEW OF HYDROLOGY AND WATER QUALITY

The analysis in this section is based on the Hydrology and Hydraulic Analyses for West Valley Feeder No 1 Valve Structures Improvements (Stage 3) (Metropolitan 2018) (included as Appendix I).

IMPACT ANALYSIS

Would the Project:

a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?

Less Than Significant Impact. No, the proposed Project would not violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality. The Project would construct approximately 8,000 square feet of impervious surface through construction of the access road and runoff from this area would be directed to the existing drainage via a series of v-ditches along the roadway perimeter. Although runoff volumes would increase slightly, the Project would not introduce substantial amounts of urban pollutants to the storm water runoff due to the infrequent use of the access road. The quality of water runoff from the Project Area would be similar to the existing conditions. Therefore, the Project would not introduce substantial amounts of urban pollutants to the storm water runoff beyond existing conditions, and the slight increase in runoff would be accommodated by the existing drainage.

Potential construction-related impacts on water quality focus on sediments, turbidity, and pollutants associated with sediments. Construction-related activities that are primarily responsible for sediment releases are related to exposing soils to potential mobilization by rainfall, runoff, and wind. These activities include grading and other earth disturbance activities. Non-sediment-related pollutants that are also of concern during construction include waste construction materials, liquid products, and petroleum products used in construction or the maintenance of heavy equipment. The Project would incorporate various BMPs to control storm flow during construction activities, including use of sandbags, straw wattles, and silt fencing to control erosion. Further, Metropolitan would implement a Water Pollution Control Plan (WPCP) or SWPPP as is standard practice, to ensure the Project maintain water quality standards. Due to the Project's limited size of less than two acres, and because the Project would incorporate BMPs and WPCP or SWPPP to minimize the potential for erosion, potential construction-related water quality impacts would be less than significant.

b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?

No Impact. No, the proposed Project would not substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the Project may impede sustainable groundwater management of the basin. Project construction activities include valve modifications, construction of an access road, and vehicle turnaround areas. Construction activities would generally consist of surface grading and would not impact or affect the groundwater table. Thus, impacts related to substantial depletion of groundwater supplies would not occur**.** As groundwater will not be used and excavation will primarily be on surface levels where groundwater would not occur, no impact would occur.

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:

i) result in substantial erosion or siltation on- or off-site;

ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;

iii) 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; or

Less Than Significant Impact. No, the proposed Project would not substantially alter the existing drainage pattern of the area, including through alteration of the course of a stream or river which would result in substantial erosion or siltation on- or off-site; substantially increase the rate or amount of surface runoff in a matter which would result in flooding; nor create or contribute to runoff water which would exceed the capacity of an existing or planned stormwater drainage; or impede or redirect flood flows. Based on the Hydrology and Hydraulic Analyses for West Valley Feeder No 1 Valve Structures Improvements (Stage 3) (Metropolitan 2018), the existing drainage pattern mimics the historic predevelopment drainage conditions. The main drainage is along the alluvial canyon bottom with surface flow generally to the east and south toward park detention basins. The drainage path is shown as a blueline stream on the USGS topographic quadrangle (Metropolitan 2018). Several drainage culverts, pipes, and detention basins were installed within the park to facilitate storm water runoff. Development of the proposed Project would involve modifications to WVF1 valve structures, construction of a new (paved) access road for maintenance vehicles, including construction of small retaining walls which would increase the impervious surface area on the proposed Project Area by approximately 8,000 square feet. Because the proposed Project would introduce impervious surfaces to a previously natural area, the post-development runoff that would be generated on site would be slightly higher than the pre-development runoff.

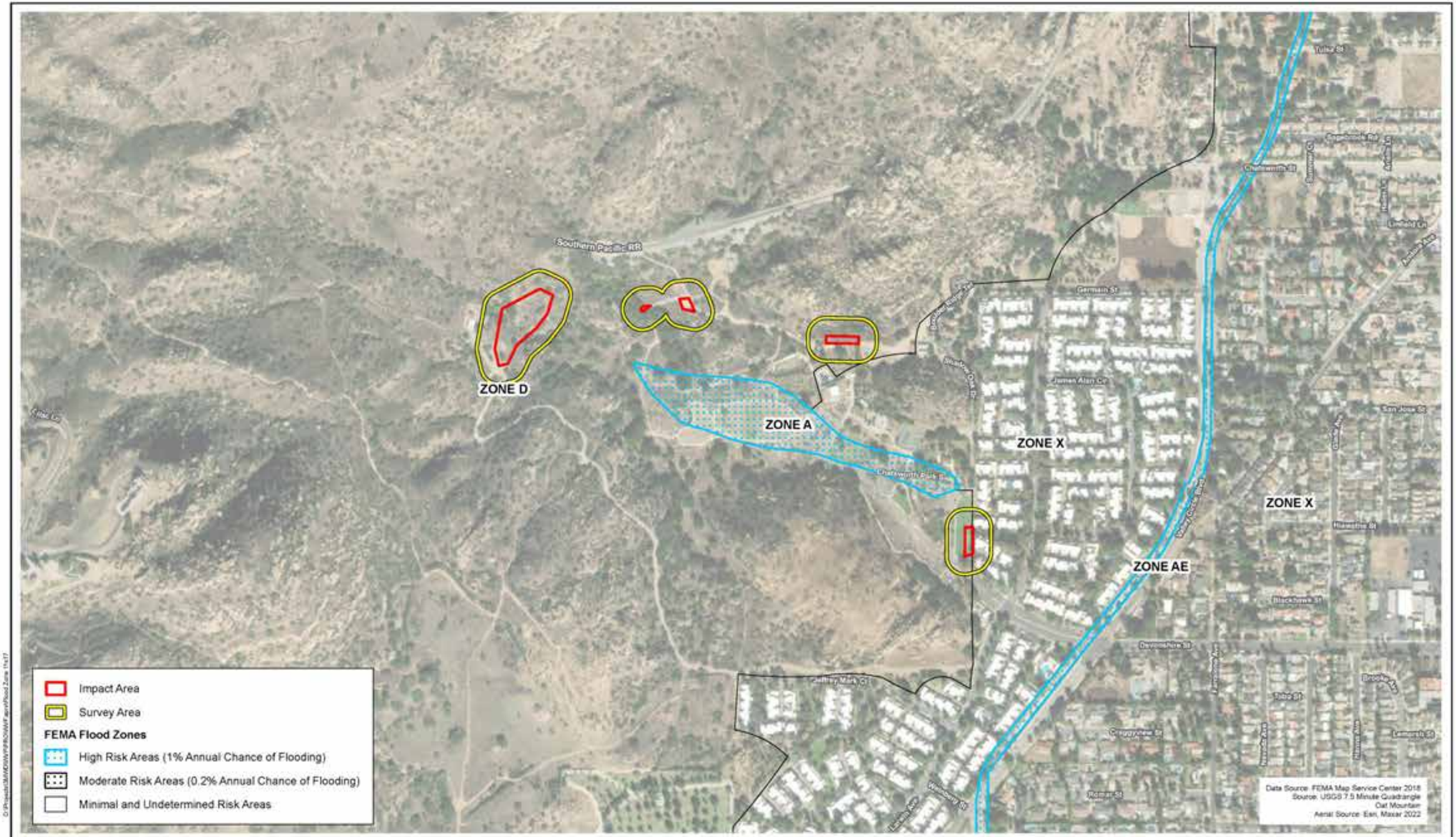
According to the Hydrology and Hydraulic Analyses, the drainage boundaries within the proposed Project would, for the most part, remain similar to existing conditions. The proposed access road alignment would consist of concrete pavement at steep slopes with v-ditches to convey runoff away from the road. A culvert crossing would be constructed where the access road crosses a stream. Runoff flow velocities and subsequent erosion would be minimized through the placement of riprap/grouted stone where pipeline structures are exposed to stream erosion. Additionally, the existing drainage patterns would be retained (Metropolitan 2018). Runoff volumes and velocities would be similar to existing conditions and would follow the same general drainage pattern; therefore, a less than significant impact would occur related to changes in the drainage pattern.

iv) impede or redirect flood flows?

No Impact. No, the proposed Project would not substantially alter the existing drainage pattern of the area or impede or redirect flood flows within Chatsworth Park South. The Project Area is located within a 100-year flood boundary (See Exhibit 11, Flood Zone); however, the Project would not construct any habitable structures or structures that would impede or redirect flood flows. As discussed previously, the existing drainage pattern of the Project Area would be largely maintained following Project implementation, such that storm water runoff would enter the same drainage system as under existing conditions. No impact would occur.

d) In flood hazards, tsunami, or seiche zones, risk release of pollutants due to project inundation?

No Impact. No, the proposed Project would not be located in a designated flood hazard, tsunami, or seiche zones, and would not result in the potential for pollutants to be released to the environment by inundation. The Project Area is located approximately 15 miles east of the Pacific Ocean, the nearest potential source of a tsunami. The Project is not susceptible to tsunami-related damage; and, therefore, impacts related to inundation by a tsunami would not occur. The body of water nearest the Project Area is the Van Norman Lake Reservoir in Sylmar, which is located approximately 8 miles northeast of the site. Based on the review of the inundation area for the



Flood Zone

WVF No. 1 Stage 3 Improvements Project

Exhibit 11

PSOMAS

Van Norman Lake Reservoir, the Project Area is located approximately 7 miles west of the nearest inundation area and is not located within the inundation zone of any other body of water (City of Los Angeles 2021). Therefore, no impacts related to inundation due to a seiche would occur.

e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

No Impact. No, the proposed Project would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan. There is no applicable water quality control plan or sustainable ground water management plan for the Project Area. Refer to responses to Questions X(a) and X(b). As discussed above, the Project would not result in any significant impacts related to implementation of a water quality control plan sustainable groundwater management plan, and no impact would occur.

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
XI. LAND USE AND PLANNING. Would the project:				
a) Physically divide an established community?	☐	☐	☐	☒
b) Cause a significant environmental impact due to a conflict with any applicable land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒

IMPACT ANALYSIS

Would the Project:

a) Physically divide an established community?

No Impact. No, the proposed Project would not physically divide an established community. The Project Area is located within Chatsworth Park South, on the edge of the community of Chatsworth and is bounded by the Santa Susana Mountains. The Project Area does not serve as a means of moving through or connecting a community or neighborhood. Furthermore, construction of the Project would not extend into the adjacent residential areas and would not impede pedestrian or vehicular routes of travel within the community. Thus, the proposed Project would not divide an established community, and no impact would occur.

b) Cause a significant environmental impact due to a conflict with any applicable land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?

No Impact. No, the proposed Project would not conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect. The proposed Project is located within Chatsworth Park South, which is currently zoned Open Space (OS-1XL); the General Plan and Community Plan land use designation is Open Space (City of Los Angeles 2014). The proposed Project would not change the existing land use of the Project Area or its designated land use or zoning. Therefore, the proposed Project would not conflict with applicable plans, policies, and regulations adopted for the purpose of avoiding or mitigating an environmental effect, and no impacts would occur.

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
XII. 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?	☐	☐	☐	☒
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?	☐	☐	☐	☒

IMPACT ANALYSIS

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? and

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?

No Impact. No, the proposed Project would not 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 or 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. The proposed Project includes modification to existing valve structures, replacement of valves, and construction of a new access road and vehicle turnaround within Chatsworth Park South. Based on the California Department of Conservation (CGS) Mineral Land Classification, the proposed Project Area is located within Mineral Resource Zone-3 (MRZ-3), which is an area of undetermined mineral resource significance (CGS 2022). The Project Area is located within the Simi Production-Consumption Region Study Area as classified under the Surface Mining and Reclamation Act (SMARA) (CGS 2022). However, based on a review of CGS, no mineral resources of statewide importance are designated in the Project Area, and no designated active or abandoned mine sites are within the Project Area (CGS 2022). No active or abandoned oil fields or extraction facilities are located on the Project Area (DOGGR 2024). No areas in the vicinity of the Project Area are designated as MRZ-2, which indicates the presence of significant mineral resources; the nearest MRZ-2 designation is approximately 12 miles southeast of the Project Area and located in the San Fernando Valley Production-Consumption Region (CGS 2022). Therefore, no impact to known mineral resources of statewide or regional importance or the availability of a locally important mineral resource recovery site would occur.

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
XIII. NOISE. Would the project result in:				
a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☒	☐
b) Generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
c) For a project located within the vicinity of a private airstrip or 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?	☐	☐	☐	☒

The following analysis is based on, Project Noise Calculations, prepared for the proposed Project by Psomas (2018) (included as Appendix J).

OVERVIEW OF NOISE AND VIBRATION

Noise

Noise is typically defined as unwanted sound and is described in terms of a sound's intensity or loudness, pitch, and duration. The ambient noise environment is composed of stationary and mobile noise sources. Stationary noise sources occur in a single location and may be constant or short-term in nature; mobile noise sources are typically transportation-related and are generally not considered a constant noise source.

The physical measure of sound, or sound level, is measured in decibels (dB), which are based on a logarithmic scale. Therefore, a doubling of the energy of a noise source, such as doubling of traffic volume, would increase the noise level by 3 dB; a halving of the energy would result in a 3-dB decrease. Everyday sounds normally range from 30 dB (very quiet) to 100 dB (very loud). The A-weighted decibel scale relates noise to human sensitivity. Common noise levels are measured in terms of the "A-weighted decibel", abbreviated dBA. Table 10, Typical Noise Levels, provides examples of various noises and their typical A-weighted noise level.

TABLE 10
TYPICAL NOISE LEVELS

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
	110	Rock Band
Jet fly-over at 300 m (1,000 ft)	100	-
Gas Lawn Mower at 1 m (3 ft)	90	-
Diesel Truck at 15 m (50 ft), at 80 km/hr (50 mph)	80	Food Blender at 1 m (3 ft)
Noisy Urban Area, Daytime Gas Lawn Mower at 30 m (100 ft)	70	Vacuum Cleaner at 3 m (10 ft)
Commercial Area Heavy Traffic at 90 m (300 ft)	60	Normal speech at 1 m (3 ft)
Quiet Urban Daytime	50	Large Business Office, Dishwasher in Next Room
Quiet Urban Nighttime	40	Theater, Large Conference Room
Quiet Suburban Nighttime	30	Library
Quiet Rural Nighttime	20	Bedroom at Night
	10	Broadcast/Recording Studio
Lowest Threshold of Human Hearing	0	Lowest Threshold of Human Hearing

dBA: A-weighted decibels; m: meter; ft: feet; km/hr: kilometers per hour; mph: miles per hour.
Source: Caltrans 2013.

Although human perception of sound is somewhat subjective, it is widely accepted that the average healthy ear (1) can perceive an increase or decrease of 1 dBA in controlled laboratory environments, (2) can perceive a change of 3 dBA in outdoor environments with background noise, and (3) can notice that an increase of 10 dBA sounds twice as loud.

Noise, or sound over a period of time, can be measured using a number of methods. The two most common methods are the community noise equivalent (CNEL) and the equivalent sound level (L_{eq}). The equivalent sound level was used for this analysis. The average noise levels over a period of minutes or hours is expressed as dBA L_{eq}. L_{eq} can be measured for any time period. The CNEL scale represents the average of 24 hourly noise measurements and adjusts or penalizes the dBA during certain sensitive time periods to account for increased noise sensitivity during the evening and nighttime periods. The evening time period (7:00 PM to 10:00 PM) penalizes noises by 5 dBA, while nighttime (10:00 PM to 7:00 AM) noises are penalized by 10 dBA.

Vibration

Groundborne vibration, expressed as peak particle velocity (ppv), consists of oscillatory waves that propagate from the source through the ground to adjacent structures. Vibration of building components can also take the form of an audible, low-frequency rumbling noise, which is referred to as groundborne noise. Vibration energy spreads out as it travels through the ground, causing the vibration level to decrease with the distance from the source.

REGULATORY FRAMEWORK

Noise generated by the Project is regulated by limits established by the City of Los Angeles General Plan Noise Element and municipal code. The City's Noise Element applies to the City as a whole, and it addresses noise mitigation regulations, strategies, and programs that delineate

federal, State, and local jurisdiction relative to rail, automotive, aircraft, and nuisance noise. The following objectives from the Noise Element of the General Plan are applicable to the Project:

Objective 2 (Nonairport) – Reduce or eliminate nonairport-related intrusive noise, especially relative to noise-sensitive uses.

Objective 3 (Land Use Development) – Reduce or eliminate noise impacts associated with proposed development of land and changes in land use.

The City's Noise Regulations are provided in Chapter XI of the Los Angeles Municipal Code (LAMC). For cases where ambient noise levels are not known, Section 111.03 of the LAMC provides minimum ambient noise levels for the City's presumed daytime (7:00 AM to 10:00 PM) and nighttime (10:00 PM to 7:00 AM) hours. The LAMC presumed ambient noise levels are shown in Table 11, below.

TABLE 11
CITY OF LOS ANGELES PRESUMED AMBIENT NOISE LEVELS

Zone	Daytime Hours (7:00 AM to 10:00 PM dBA L_{eq}	Nighttime Hours (10:00 PM to 7:00 AM) dBA L_{eq}
Residential	50	40
Commercial	60	55
Manufacturing (M1, MR1, and MR2)	60	55
Manufacturing (M2 and M3)	65	65

dBA L_{eq}: Average noise energy level.
Source: LAMC Section 111.03.

For construction, the LAMC indicates that no construction or repair work shall be performed between the hours of 9:00 PM and 7:00 AM since such activities would generate loud noises and disturb persons occupying sleeping quarters in any adjacent dwelling, hotel, apartment, or other place of residence.

The LAMC also specifies that any powered equipment that produces a maximum noise level exceeding 75 dBA at a distance of 50 feet is prohibited. However, this noise limitation does not apply where compliance is technically infeasible or cannot be met despite the use of mufflers, shields, sound barriers, and/or any other noise reduction device or techniques during the operation of equipment.

Groundborne vibration and noise can be generated during construction activities. The City of Los Angeles does not have regulatory standards for construction or operational vibration sources. Therefore, thresholds for potential structural damage and human annoyance associated with vibration are based on the Caltrans' vibration limits. For purposes of this analysis, a threshold of 78 velocity decibels (VdB) is used as the threshold of significance related to human perception because this level of vibration represents a level that is distinctly perceptible.

Table 12, Anticipated Vibration Levels Per Construction Equipment Types, presents anticipated vibration levels according to the expected construction equipment types at a distance of 25 feet as presented by the Federal Transit Administration and also used by Caltrans. A vibration level of 0.2 ppv is used as the threshold of significance for structural damage, as this is the point at which continuous or frequent vibrations would begin to damage non-engineered timber and masonry buildings (Caltrans 2020).

TABLE 12
ANTICIPATED VIBRATION LEVELS PER CONSTRUCTION EQUIPMENT TYPES

Equipment	Velocity at 25 ft (VdB)
Large bulldozer	87
Small bulldozer	58
Jackhammer	79
Loaded trucks	86

ft: feet; VdB: velocity decibels velocity decibels.
Source: FTA 2006.

IMPACT ANALYSIS

Would the Project result in:

a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Less Than Significant Impact. No, the proposed Project would not generate a substantial temporary or permanent increase in ambient noise levels in excess of applicable standards.

Construction Impacts

Construction noise would be generated on site by construction equipment during demolition, excavation, site preparation, and construction activities. Estimated noise levels attributable to the proposed Project are shown in Table 13, Construction Noise Levels at Noise-Sensitive Uses, and calculations are included in Appendix J, Project Noise Calculations.

TABLE 13
CONSTRUCTION NOISE LEVELS AT NOISE-SENSITIVE USES

Construction Phase and Equipment	Noise Levels (L_{eq} dBA) Religious Uses[a] to the North (3,580 feet away)	Noise Levels (L_{eq} dBA) Residential Uses to the West (1,982 feet away)	Noise Levels (L_{eq} dBA) Park Uses to the South (502 feet away)	Noise Levels (L_{eq} dBA) Residences to the East (1,415 feet away)
Ground Clearing/Demolition (Tractor/Loader/Backhoe, Excavator)	47	52	64	55
Excavation (Crane, Excavator, Grader, Tractor/Loader/Backhoe)	41	46	58	49
Foundation Construction (Crane, Excavator, Tractor/Loader/Backhoe)	51	56	68	59
Structure Construction (Crane, Excavator, Tractor/Loader/Backhoe, Rubber Tired Dozer)	41	46	58	49
Paving and Site Cleanup (Paver)	47	52	64	55

L_{eq} dBA: Average noise energy level.

[a] The Church at Rock Peak, 22601 Santa Susana Pass Road, Chatsworth

Note: Noise levels from construction activities do not take into account attenuation provided by intervening structures.

Source: FTA 2018.

The nearest noise-sensitive receptors would be visitors to Chatsworth Park South, as well as residences to the east and south. Table 13 shows that the noise levels from on-site construction activities from the proposed Project would range from 41 to 64 dBA L_{eq} for construction activities located at the closest point to nearby receptors and that construction activities would not exceed the maximum noise level of 75 dBA at a distance of 50 feet in compliance with the LAMC. Because construction would be within the time periods allowed by the City, would occur only during the daytime hours, and would be temporary, the impact would be less than significant.

Operational Impacts

Operation of the proposed Project would not involve any increase in ambient noise levels in the vicinity of the Project Area in excess of standards established in the local general plan or noise ordinance. Upon completion of the proposed Project, the WVF1 will be subject to routine maintenance, patrols, and inspection, in the same manner it is currently operated. The proposed Project would not cause an increase the number of vehicle trips or inspections. Because the proposed Project would not involve any increase in ambient noise levels due to operation of the pipeline, impacts would be less than significant.

b) Generation of excessive ground borne vibration or ground borne noise levels?

No Impact. No, the proposed Project would not generate excessive groundborne vibration or noise levels. Table 14 depicts the vibration annoyance criteria for sensitive receptors. As shown, the closest sensitive receptors to the proposed Project are visitors to Chatsworth Park South, approximately 500 away. At a distance of 500 feet, vibration decibel levels would not exceed the criteria threshold of 78 VdB. As such, vibration generated by the proposed Project's construction

equipment would generally not be perceived and would result in no impact related to vibration induced annoyance.

TABLE 14
VIBRATION ANNOYANCE CRITERIA AT SENSITIVE USES

Equipment	Vibration Levels (VdB) Residential Uses to the West (1,982 feet away)	Vibration Levels (VdB) Park Uses to the South (502 feet away)	Vibration Levels (VdB) Residences to the East (1,415 feet away)
Large bulldozer	49	61	52
Small bulldozer	20	32	23
Jackhammer	41	53	44
Loaded trucks	48	60	51
Criteria	**78**	**78**	**78**
Exceeds Criteria?	**No**	**No**	**No**

L_{eq} dBA: Average noise energy level. Source: FTA 2018.

Table 15, Vibration Levels at Sensitive Uses, shows the ppv levels relative to structural damage to sensitive uses from vibration activities. Vibration induced annoyance may occur for people, especially people in buildings or structures. Examples of sensitive land uses include residences, hospitals, schools, retirement facilities, older or fragile buildings that are susceptible to cosmetic damage, and those industries that require precision during manufacturing processes. As shown in Table 15, the closest sensitive receptors to the proposed Project are visitors to Chatsworth Park South, located approximately 500 feet away. At a distance of 500 feet, all ppv levels during construction activities would be below the threshold of 0.2 ppv, and park users would generally be outside of structures. As such, generation of excessive ground borne vibration or ground borne is not anticipated during construction activities. Daily operational activities would remain similar to current operations of the pipeline, and therefore would not create excessive ground borne vibration or ground borne noise.

TABLE 15
VIBRATION LEVELS AT SENSITIVE USES

Equipment	Vibration Levels (ppv) Religious Uses to the North (3,580 feet away)	Vibration Levels (ppv) Residential Uses to the West (1,982 feet away)	Vibration Levels (ppv) Park Uses to the South (502 feet away)	Vibration Levels (ppv) Residences to the East (1,415 feet away)
Large bulldozer	0.000	0.000	0.001	0.000
Small bulldozer	0.000	0.000	0.000	0.000
Jackhammer	0.000	0.000	0.000	0.000
Loaded trucks	0.000	0.000	0.001	0.000
Criteria	**0.200**	**0.200**	**0.200**	**0.200**
Exceeds Criteria?	**No**	**No**	**No**	**No**

ppv: peak particle velocity.
Source: FTA 2018.

Both Project construction and operation activities to the closest sensitive receptors would be under the thresholds for ground borne vibrations and ground borne noise, therefore no impact would occur.

c) For a project located within the vicinity of a private airstrip or 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?

No Impact. No, the proposed Project is not within the vicinity of an airport land use plan. The nearest public use airport to the Project Area is the Van Nuys Airport, located over 7.5 miles from the proposed Project. The Project Area is not located within an adopted Airport Land Use Plan or in the vicinity of a private airstrip, heliport, or helistop, and would not expose people to excessive noise levels. Therefore, no impact would occur.

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
XIV. 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)?	☐	☐	☐	☒
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

IMPACT ANALYSIS

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)? and

b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?

No Impact. No, the proposed Project would not induce substantial unplanned growth in an area or displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere. The Project is located within an undeveloped portion of Chatsworth Park South, and no residential uses occur within the Project Area, nor are there existing plans that would redevelop the Project Area for residential uses. The Project would not expand Metropolitan's service capacity, nor would it extend service into an area that is not currently developed or approved for future development. As such, the proposed Project would not displace a substantial number of existing people or housing, and no impact would occur. The proposed Project would not induce substantial unplanned population growth in an area, either directly or indirectly, nor result in either direct or indirect population growth, and no impact would occur.

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
XV. PUBLIC SERVICES.				
a) 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?	☐	☐	☐	☒
Police Protection?	☐	☐	☐	☒
Schools?	☐	☐	☐	☒
Parks?	☐	☐	☐	☒
Other Public Facilities?	☐	☐	☐	☒

IMPACT ANALYSIS

a) 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, police protection, schools, parks, and other public facilities?

1. Fire Protection

No Impact. No, the proposed Project would not result in substantial adverse physical impacts to any fire protection services. The LAFD provides fire protection and emergency medical services to the City of Los Angeles, including fire suppression, paramedic/emergency medical, fire prevention, emergency, and hazardous materials management/environmental safety services. The Project Area is served by LAFD Division 3, Battalion 15, Station 96, located at 21800 Marilla Street, Chatsworth, California 91311-4127, approximately 1.3 miles southeast of the Project Area (LAFD 2024c). The proposed Project does not include new housing and would not require employees beyond those already employed by Metropolitan. In addition, the Project would not increase water supply to the area or otherwise directly or indirectly induce population growth in the area that would increase demand for fire protection services. Therefore, the proposed Project would not have an effect upon or result in a need for new or physically altered fire protection services to maintain acceptable service ratios, response times, or other performance objectives, and no impact would occur.

2. Police Protection

No Impact. No, the proposed Project would not result in substantial adverse physical impacts to any police protection services. The Los Angeles Police Department (LAPD) provides police protection services to the Project Area. The Devonshire Community Police Station of the Valley Bureau serves Chatsworth, including the Project Area, which is in Reporting District 1721 (LAPD 2024). The proposed Project does not include new housing and would not require employees beyond those already employed by Metropolitan. In addition, the Project would not increase water

supply to the area or otherwise directly or indirectly induce population growth in the area that would increase demand for police protection services. Therefore, the proposed Project would not have an effect upon or result in a need for new or physically altered police protection services to maintain acceptable service ratios, response times, or other performance objectives, and no impact would occur.

3. Schools

No Impact. No, the proposed Project would not result in substantial adverse physical impacts to any schools. The Project Area is located within an area served by the Los Angeles Unified School District (LAUSD) (City of Los Angeles 1993). Impacts on schools are generally associated with increased population in an area and the need for additional schools to serve that population. The Project would not increase water supply to the area or otherwise directly or indirectly induce population growth in the area that would increase demand for schools. Therefore, the proposed Project would not have an effect upon or result in a need for new or physically altered schools to maintain acceptable service ratios or other performance objectives, and no impact would occur.

4. Parks

No Impact. No, the proposed Project would not result in substantial adverse physical impacts to any parks. The Project Area is located within an area designated as open space and located within Chatsworth Park South, which is operated by the Los Angeles Department of Recreation and Parks (LADRAP) (City of Los Angeles 1993). The proposed Project would not change the use of the use of Chatsworth Park South and thus would not change the amount of open space or parkland designated within the surrounding community. In addition, the Project would not increase water supply to the area or otherwise directly or indirectly induce population growth in the area that would increase demand for parks. Therefore, the proposed Project would not have an effect upon or result in a need for new or physically altered parks to maintain acceptable service ratios or other performance objectives, and no impact would occur.

5. Other Public Facilities

No Impact. No, the proposed Project would not result in substantial adverse physical impacts to any other public facilities. The Project Area is located within an area designated as open space (City of Los Angeles 1993). Furthermore, the Project would not include a residential element such as housing that would directly induce growth and potentially increase demand on other public facilities such as libraries, childcare centers, senior centers, hospitals, or other related facilities. Therefore, the proposed Project would not have an effect upon or result in a need for other new or physically altered public facilities, and no impact would occur.

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
XVI. 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?	☐	☐	☐	☒
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?	☐	☐	☐	☒

IMPACT ANALYSIS

Would the Project:

a) 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?

No Impact. No, the proposed Project would not 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. Increases in demand for recreational facilities are typically associated with substantial increases in population. The proposed Project includes modification to existing valve structures, replacement of valves, and construction of a new access road and vehicle turnaround within Chatsworth Park South. The proposed Project would not create new or expanded facilities or services that would induce development and increase population within the Project vicinity. Therefore, there would be no impact related to demand or use of recreational facilities.

b) Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?

No Impact. No, the proposed Project does not include recreational facilities or require the construction or expansion of recreational facilities. As discussed above, the proposed Project does not include a residential element such as housing, nor does it include an increase in water supply or capacity that would induce growth and potentially increase demand on or the expansion of recreational facilities. Therefore, no impact would occur.

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
XVII. TRANSPORTATION/TRAFFIC. Would the project:				
a) Conflict with program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	☐	☐	☒	☐
b) Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?	☐	☐	☐	☒
c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g. farm equipment)?	☐	☐	☐	☒
d) Result in inadequate emergency access?	☐	☐	☐	☒

IMPACT ANALYSIS

Would the Project:

a) Conflict with program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?

Less Than Significant Impact. No, the proposed Project would not conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities. The Chatsworth-Porter Ranch Community Plan incorporates the Mobility Plan, an element of the General Plan. The proposed Project would not conflict with the public improvement programs related to circulation established for guiding development of the Chatsworth-Power Ranch Community Plan. Implementation of the proposed Project is expected to generate short-term traffic impacts during the construction period. Vehicle trips would include trucks hauling materials and supplies to the Project Area and workers commuting to and from the Project Area. It is anticipated that these trips would occur throughout the day and would not be concentrated during traffic peak hours. Therefore, short-term construction-related impacts would be less than significant. Following completion of construction activities, operation of the WVF1 would continue, including vehicle trips occur for routine inspection and maintenance, consistent with current operation of the pipeline. Therefore, the proposed Project would not conflict with a program, plan, ordinance or policy addressing the circulation system, and no impact would occur.

b) Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?

No Impact. No, the proposed Project would not conflict with or be inconsistent with *CEQA Guidelines* Section 15064.3(b). *CEQA Guidelines* Section 15064.3(b) pertains to the use of VMT as a method of determining the significance of transportation impacts. Project operation is not expected to change either the number or length of operational trips to the Project Area, and thus would have no impact on VMT. Additionally, VMT analysis is inapplicable to construction traffic because trip generation to and from each construction Project Area is temporary. Therefore, the Project would not conflict with *CEQA Guidelines* Section 15064.3(b), and no impact would occur.

c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses?

No Impact. No, the proposed Project would not substantially increase hazards due to a geometric design feature or incompatible uses. During Project construction activities, vehicles and equipment would use the existing access roads, including the road accessing the Calleguas Hydropower Generating Facility. The construction of the vehicle access road and turn around areas will not have geometric design features such as sharp curves or intersection and are intended for improved ingress and egress to the Project Area by Metropolitan utility vehicles. Therefore, no impacts related to a design feature or incompatible uses would occur.

d) Result in inadequate emergency access?

No Impact. No, the proposed Project would not result in inadequate emergency access. The Project Area, including all surrounding arterials and public rights-of-way, and access off Larwin Avenue and Germaine Street, would remain unchanged. Traffic patterns as well as types of vehicles traveling along the roads in proximity to the Project Area would not be affected during construction. Further, construction of the proposed Project would be in accordance with applicable emergency access requirements set forth in the 2020 Los Angeles Fire Code and California Fire Code (LAFD 2020) and would not increase hazards on site. Implementation of the proposed Project would not alter existing emergency access routes in place at Chatsworth Park South. Therefore, no impacts related to emergency access would occur.

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
XVIII. TRIBAL CULTURAL RESOURCES. Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or	☐	☐	☐	☒
b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	☐	☐	☒	☐

IMPACT ANALYSIS

Would the project:

a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or

No Impact. No, the proposed Project would not cause a substantial adverse change in the significance of a tribal cultural resource. Metropolitan sent letters via certified mail to four Native American tribes that had previously requested to be informed through formal notification of proposed projects in the geographic area that is traditionally and culturally affiliated with the tribe, pursuant to PRC Section 21080.3.1. One tribe, the Gabrieleño Band of Mission Indians-Kizh Nation (Gabrieleño-Kizh Nation) responded and requested consultation. A consultation meeting took place on September 13, 2018. Tribal Chairperson, Mr. Anthony Salas and Tribal Biologist, Mr. Matthew Teutimez, described the history of the Project Area and features of the Project that may be sensitive for unidentified tribal cultural resources, but no tribal cultural resources were identified. Metropolitan's cultural resource and archaeological resource identification efforts did not identify the presence of a resource eligible for or listed on the CRHR or local register within the Project Area. As no tribal cultural resource was identified and no resource eligible for the CRHR or local register was identified, no impact would occur.

b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

Less Than Significant. As described under XVII. (a)(i), Metropolitan conducted tribal cultural resource consultation with the Gabrieleño-Kizh Nation. No CRHR or local register of historic resources are known within the Project Area. The Gabrieleño-Kizh Nation noted during the consultation process that they have not previously been granted access to the Project Area in order to adequately identify the presence of tribal cultural resources and that features of the Project Area are considered sensitive by the tribe. Additionally, general vicinity of the Project Area, particularly the Santa Susana mountains are known to be sensitive for prehistoric archaeological resources. Metropolitan, as lead agency, has not identified any specific tribal or prehistoric resources in the Project Area. The Gabrieleño-Kizh Nation recommend the use of a Native American monitor to assist in the identification of any previously undiscovered archaeological resources for excavation work associated with valve relocations on a spot-check basis (as these areas have been previously disturbed), and full-time for excavation activities associated with the proposed new access road construction (refer to **MM CULT-3**, as stated in Section V).

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
XIX. UTILITIES AND SERVICE SYSTEMS. Would the project:				
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	☐	☐	☐	☒
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	☐	☐	☐	☒
c) 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?	☐	☐	☐	☒
d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	☐	☐	☒	☐
e) Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☐	☒

IMPACT ANALYSIS

Would the Project:

a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction of which could cause significant environmental effects?

No Impact. No, the proposed Project would not require or result in the relocation or construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunication facilities. The proposed Project includes valve modifications, construction of an access road, and vehicle turnaround area. The Project does not include existing or proposed structures which generate wastewater, water treatment, electrical power, natural gas, or telecommunications facilities, and no storm water drainage systems would be affected. Therefore, no impact would occur.

b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?

No Impact. Yes, there would be sufficient water supplies available to serve the proposed Project. Water used during Project construction would primarily be utilized for controlling dust and would not include expansion of use requiring additional water supply over what is currently serving the Project Area. Additionally, the Project construction activities are expected to be completed in nine months and are not anticipated to occur over multiple years. The WVF1 is currently in operation

and no additional water supply will be required following the proposed improvements. Therefore, the proposed Project would have sufficient water supplies, and no impact could occur.

c) 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?

No Impact. No, the proposed Project would not require a determination by a wastewater treatment provider which serves or may serve the Project that it has inadequate capacity to serve the Project. The proposed Project will not result in any additional demands for wastewater treatment. No new buildings or structures occupied by people would be constructed as part of the proposed Project. The proposed Project includes valve modifications, construction of an access road, and vehicle turnaround area. During construction activities, portable toilets would be placed at the Project Area, and no wastewater would be generated by the proposed Project or for operations. Therefore, no impacts related to exceeding wastewater treatment requirements would occur.

d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?

Less Than Significant Impact. No, the proposed Project would not generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals. The proposed Project entails valve modifications to the existing WVF1 pipeline, construction of an access road, and vehicle turnaround area. During construction, the Project is expected to generate solid waste associated with grading and valve replacement, and general construction activities. Non-hazardous solid waste generated by construction of the proposed Project is anticipated to be transported to a Class III waste facility serving the Project Area. Waste Management – Simi Valley Landfill & Recycling Center in Simi Valley, California, is located approximately 10.2 miles west of the Project Area and has a remaining capacity of 88,300,000 cy; Sunshine Canyon Landfill in Sylmar, California, is located 7.9 miles northeast of the Project Area and has a remaining capacity of 98,800,000 cubic yards (cy); and Chiquita Canyon Landfill in Castaic, California, is located 11.35 miles northwest of the Project Area with a remaining capacity of 8,617,126 cy.

Additionally, contractor specifications for the proposed Project would include requirements for construction and demolition waste management to divert the minimum requirement of 65 percent of debris from landfill disposal and redirect reusable materials to appropriate sites, and consideration for the utilization of recycled materials in the new construction portion of this Project. Operation following construction would not generate solid waste. Therefore, impacts related to service by a landfill with sufficient permitted capacity to accommodate the Project’s solid waste disposal needs would be less than significant.

e) Comply with Federal, State, and local statutes and regulations related to solid waste?

No Impact. Yes, the proposed Project would comply with federal, State, and local management and reduction statutes and regulations related to solid waste. Project construction would be approximately nine months and is not expected to produce waste uncommon to standard demolition and construction activities. As previously discussed in Threshold XIX.d, all solid waste produced by the Project during construction and maintenance would be disposed of at the appropriate land disposal facility and landfill in accordance with the applicable regulations and

guidelines. Solid waste would not be generated by Project operation. Therefore, no impacts related to compliance with federal, State, or local statutes and regulations would occur.

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
XX. WILDFIRE. If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:				
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	☐	☐	☒	☐
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	☐	☐	☒	☐
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☐	☐	☒	☐

a) Substantially impair an adopted emergency response plan or emergency evacuation plan?

No Impact. No, the proposed Project would not substantially impair an adopted emergency response plan or emergency evacuation plan. The Project is not located in or near a State Responsibility Area (BOF 2024); however, Chatsworth Park South, including the Project Area, is classified as a Very High Fire Hazard Severity Zone by the LAFD. As previously discussed, the EMD heads the efforts within the City of Los Angeles in the development of citywide emergency plans and annexes and updates the City's guidelines for the emergency response and recovery plans (City of Los Angeles 2024). The Project would not alter traffic conditions or modify any street within the local or regional circulation system. The proposed Project would not remove or add any emergency access points to or from the Project Area. Existing access for emergency vehicles is considered adequate and available through two access entrances off public rights of way at Larwin Avenue and Germain Street and from Chatsworth Park South. These emergency access points will remain in place during Project construction. Therefore, the Project would not interfere with the implementation of the Los Angeles Hazards Mitigation Plan, other adopted emergency response plan, and no impact would occur.

b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?

Less Than Significant Impact. No, the proposed Project would not expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of wildfire due to slope, prevailing winds, or other factors. The Project is not located in or near a State Responsibility Area; however, Chatsworth Park South, including the Project Area, is classified as a Very High Fire

Hazard Severity Zone by the LAFD (LAFD 2024a). The Project includes valve modifications, construction of an access road, and vehicle turnaround areas to the WVF1. No new buildings or structures occupied by people would be constructed as part of the proposed Project. Thus, the Project would not permanently expose people to the potential for wildfires, and impacts would be less than significant.

c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?

Less Than Significant Impact. No, the proposed Project would not require the installation of or maintenance of infrastructure that may exacerbate fire risk or that may result in impacts to the environment. The proposed Project does not include the installation or maintenance of emergency water sources, power lines, or other utilities. The proposed Project would construct an asphalt and concrete access road and vehicle turnaround to replace a current dirt access road and construct new road where no access currently exists. Construction of the permanent access road would help limit maintenance vehicle exposure to dry vegetation that currently grows in and along the edges of the dirt access road. During Project construction, a water truck would be operating on site for dust suppression. Additionally, the Project must comply with the Brush Clearance Requirements of the LAFD Fire Code (LAFD 2024b). Therefore, impacts would be less than significant.

d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?

Less Than Significant Impact. No, the proposed Project would not expose people or structures to significant risks, including downslope or downstream flooding or landslides. The proposed Project is not located in or near a State Responsibility Area; however, Chatsworth Park South, including the Project Area, is classified as a Very High Fire Hazard Severity Zone by the LAFD. The proposed Project includes valve modifications, construction of an access road, and vehicle turnaround areas to the WVF1 and will require workers only during the construction period. No new buildings or structures occupied by people would be constructed as part of the proposed Project. Once the proposed Project is completed, periodic maintenance and inspections by staff will continue. Thus, the proposed Project would not permanently expose people or structures to downstream flooding or landslides as a result of runoff, post-fire slope instability, or drainage changes, impacts would be less than significant.

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
XXI. MANDATORY FINDINGS OF SIGNIFICANCE.				
a) Does the project have the potential to substantially 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 rare or endangered plants or animals, or eliminate important examples of the major periods of California history or prehistory?	☐	☒	☐	☐
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)?	☐	☐	☒	☐
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☒	☐

IMPACT ANALYSIS

Does the Project:

a) 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?

Less Than Significant with Mitigation Incorporated. The proposed Project entails the continued maintenance of existing water pipeline infrastructure including valve modifications, construction of an access road, and vehicle turnaround areas to the WVF1. No new buildings or structures occupied by people would be constructed as part of the proposed Project. As described throughout the analysis in Section 3.0, with the incorporation of the identified MMs, implementation of the proposed Project would not degrade the quality of the environment, would not substantially reduce the habitats of fish or wildlife species, would not cause a fish or wildlife population to drop below self-sustaining levels, would not threaten to eliminate a plant or animal, and would not eliminate important examples of major periods of California history or prehistory.

b) Have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental efforts 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 probably future projects)?

Less Than Significant Impact. The proposed Project entails the continued maintenance of existing water pipeline infrastructure including valve modifications, construction of an access road,

and vehicle turnaround areas to the WVF1. Based on the analysis contained in this Initial Study, the proposed Project would not result in any significant and unmitigable impacts in any environmental categories. No Metropolitan additional current or future projects are planned by Metropolitan within the Project Area. Past Metropolitan projects within the Project Area have been routine operation, inspection, and patrolling of the WVF pipeline. For these reasons, the incremental effects of the proposed Project would not be considerable when viewed in connection with the effects of past projects, current projects, or probable future projects, and the proposed Project's cumulative impacts would not be significant.

c) Have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?

Less Than Significant Impact. The proposed Project entails the continued maintenance of existing water pipeline infrastructure including valve modifications, construction of an access road, and vehicle turnaround areas to the WVF1. Based on the analysis contained in this Initial Study, with the implementation of Metropolitan's standard construction practices as described in Section 1.6, Metropolitan Standard Practices, the proposed Project does not exceed any significance thresholds or result in significant impacts in the environmental categories typically associated with indirect or direct effects to human beings, such as aesthetics, air quality, hazards and hazardous materials, noise, public services, or transportation. As discussed in this document, the proposed Project would not expose persons to the hazards of toxic air emissions, chemical or explosive materials, ground-shaking, flooding, noise, or transportation hazards. For these reasons, the proposed Project would not have substantial adverse effects on human beings, either directly or indirectly and therefore, impacts would not be significant.

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West Valley Feeder No. 1 Stage 3 Improvements Project

Proposed
Initial Study-Mitigated Negative Declaration

Appendices A through J

Metropolitan Report No. 1582

June 2024

West Valley Feeder No. 1 Stage 3 Improvements Project

Proposed Initial Study-Mitigated Negative Declaration

Appendices A through J

The Metropolitan Water District of Southern California
700 North Alameda Street
Los Angeles, California 90012

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June 2024

APPENDICES

Appendix

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APPENDIX A

METROPOLITAN STANDARD PRACTICES

METROPOLITAN STANDARD PRACTICES

The following are Metropolitan standard practices that are carried out by Metropolitan Environmental Planning or as part of Section 01065 (Environmental Requirements) and Section 01565 (Noise Control) of the construction contractor specifications for all projects (Metropolitan 2021).

General

- The Contractor shall obtain necessary local, state and federal environmental permits and shall comply with the requirements of all such permits and laws, regulations, acts, codes and ordinances.

- The Contractor shall perform all construction activities only within the construction boundaries shown on the drawings. The construction boundaries shall be fenced, unless otherwise directed by the Engineer. Any request to use any area outside the construction boundaries for any activity will require review and approval by the Engineer.

- **Worker Environmental Awareness Protections Training.** Metropolitan routinely conducts pre-construction Worker Environmental Awareness Protections Training (WEAP) for both capital projects and operations and maintenance activities. WEAP trainings are project-specific and cover potential environmental concerns or considerations including, but not limited to, awareness of biological resources, special status species near project sites, jurisdictional waters, cultural resources, paleontological resources, environmentally sensitive areas, and/or avoidance areas.

- **Environmental Assessment.** As an internal practice, Metropolitan conducts Environmental Assessments or similar studies prior to project commencement to determine if any sensitive resources have the potential to be present at a project site. Resources assessed typically include biological, cultural paleontological resources, noise sensitivity, and sensitive receptors in the vicinity of the project area.

Air Quality

- The Contractor shall not discharge smoke, dust, or other air contaminants into the atmosphere in a quantity that exceeds the legal limit.

- The Contractor shall use low sulfur fuels (0.5 percent by weight) for all construction vehicles and equipment.

- The Contractor shall shut-off all idling vehicles when not in use.

- Construction equipment shall be maintained, and properly tuned and operated in a manner so as to reduce peak emission levels.

- Construction methods shall include dust reduction activities, including the use of water trucks in construction areas. The Contractor shall spray water on all unpaved roads as often as required to minimize dust and particulates, and as determined by Engineer. Paved streets shall be swept if silt is carried over to these roads from construction activities.

- The Contractor shall use low emission mobile construction equipment during site preparation, grading, excavation, and construction of the project.

- The Contractor shall use existing on-site power sources (e.g., power poles) rather than portable generators when feasible and as directed by the Engineer; or clean fuel generators shall be used rather than temporary power generators when feasible.

- All off-road diesel-fueled construction equipment greater than 25 horsepower (hp) shall be compliant with federally mandated clean diesel engines (USEPA Tier 4), where available, in accordance with the California Air Resources Board's (CARB) In-use Off-road Diesel-fueled Fleet Regulation (Title 13 California Code of Regulations, Division 3, Chapter 9, Article 4.8). The Contractor shall provide a current copy of each unit's certified tier specifications, best available control technology documentation, and CARB Registrations or SCAQMD operating permit, or the CARB Certificate of Reported Compliance Validation, at the time of mobilization of each unit of equipment.

- The Contractor shall cover all trucks transporting earthen material or maintain at least two feet of freeboard.

- The Contractor shall implement the Best Available Control Measures listed in Table 1 of the SCAQMD Rule 403 (Fugitive Dust).

- When wind speeds, including instantaneous gusts, exceed 25 miles per hour, the Contractor shall implement and record Contingency Control Measures listed in Table 3 in SCAQMD Rule 403.

Biological Resources

- **Trees.** As part of the project, the following procedures will be implemented to avoid adverse impacts to trees located within the project work limits:

    - Impacts to any trees located within the project work limits shall be avoided, when possible.

    - No trees within project work limits shall be removed, cut, or trimmed unless identified for removal on project drawings.

        - If trees must be removed, cut or trimmed, this activity shall be conducted per any applicable local tree ordinances and any required permits must be obtained prior to any tree removal, cutting or trimming.

    - The Contractor shall avoid stockpiling of materials, and driving or parking vehicles and equipment under the canopy of existing trees to protect tree root systems and avoid damage to the trees.

- **Nesting Bird Surveys.** No physical disturbance of vegetation, operational structures, buildings, or other potential habitat (e.g., open ground, gravel, construction equipment or vehicles, etc.) that may support nesting birds protected by the federal Migratory Bird Treaty Act and California Fish and Game Code shall occur in the breeding season, except as necessary to respond to public health and safety concerns, or otherwise authorized by the Engineer. The breeding season extends from February 15 through August 31 (edit as required) for passerines and general nesting and from January 1 through August 31 for raptors.

    - If nesting habitat must be cleared or project activities must occur in the vicinity of nesting habitat within the breeding season as defined above, a qualified biologist shall perform a nesting bird survey no more than three days prior to clearing or removal of nesting habitat or start of project activities.

    - If active nests for sensitive species, raptors and/or migratory birds are observed, an adequate buffer zone or other avoidance and minimization measures, as appropriate, shall be established, as identified by a qualified biologist and approved by the Engineer. The buffer shall be clearly marked in the field by the Contractor, as directed by the Engineer, and construction or clearing shall not be conducted within this zone until the young have fledged and are no longer reliant on the nest.

    - A qualified biologist shall monitor active nests or nesting bird habitat within or immediately adjacent to project construction areas, and the Engineer shall provide necessary recommendations to the Contractor to minimize or avoid impacts to protected nesting birds.

- **Desert Tortoise Awareness Training.** Metropolitan conducts Desert Tortoise Awareness Training for all Metropolitan staff and contractors working at Metropolitan's desert facilities or on the CRA. Desert Tortoise Awareness Training consists of a presentation and handout discussing the protected status of the desert tortoise and its habitat, predators, and avoidance measures. Avoidance measures include, but are not limited to the following:

    - Work areas shall be delineated with flagging if determined necessary by the qualified staff person.

    - Access to project sites shall be restricted to designated existing routes of travel.

- Workers shall inspect for tortoises under vehicles and equipment prior to use. If a tortoise is present, workers would only move the vehicle when the tortoise would not be injured by the vehicle or would wait for the tortoise to move out from under the vehicle.

Cultural Resources, Paleontological Resources, and Human Remains

- If archaeological or paleontological resources are encountered at the project site, the Contractor shall not disturb the resources and shall immediately cease all work within 50 feet of the discovery, notify the Engineer, and protect the discovery area, as directed by the Engineer. The Engineer, with the qualified architectural historian, archaeologist and/or paleontologist, shall make a decision of validity of the discovery and designate an area surrounding the discovery as a restricted area. The Contractor shall not enter or work in the restricted area until the Engineer provides written authorization.

- In the event that human remains are discovered during excavation/construction activity, Health and Safety Code Section 7050.5, CEQA Guidelines Section 15064.5(e), and Public Resources Code (PRC) Section 5097.98 will apply. The Contractor shall notify the Engineer at once and not enter or work in the restricted area until the Engineer provides written authorization.

Hazardous Materials

- The Contractor shall clean up all spills in accordance with all applicable environmental laws and regulations and notify the Engineer immediately in the event of a spill.

- Stationary equipment such as motors, pumps, and generators, shall be equipped with drip pans.

- The Contractor shall handle, store, apply, and dispose of chemicals and/or herbicides consistent with all applicable federal, state and local regulations.

- The Contractor shall dispose of all contaminated materials in a manner consistent with all applicable local, state and federal environmental laws and regulations.

- Hazardous materials shall be stored in covered, leak-proof containers when not in use, away from storm drains and heavy traffic areas, and shall be protected from rainfall infiltration. Hazardous materials shall be stored separately from non-hazardous materials on a surface that prevents spills from permeating the ground surface, and in an area secure from unauthorized entry at all times. Incompatible materials shall be stored separately from each other.

Hydrology and Water Quality

- The Contractor shall not allow any equipment or vehicle storage within any drainage course or channels.
- Any material placed in areas where it could be washed into a drainage course or channel shall be removed prior to the rainy season.
- The Contractor shall not create a nuisance or pollution as defined in the California Water Code. The Contractor shall not cause a violation of any applicable water quality standards for receiving waters adopted by the Regional Water Quality Control Board or the SWRCB, as required by the Clean Water Act (CWA).
- Dewatering activities shall not affect any vegetation outside of the construction limits. The Contractor shall submit proposed dewatering plans to the Engineer for approval prior to any dewatering activities.

Lighting

- The Contractor shall exercise special care to direct floodlights to shine downward. These floodlights shall also be shielded to avoid a nuisance to the surrounding areas. No lighting shall include a residence or native area in its direct beam. The Contractor shall correct lighting nuisance whenever it occurs.

Noise

- The Contractor shall locate all noise-generating and stationary construction equipment as far as feasible from near-site residential and sensitive receivers and situated so that emitted noise is directed away from the sensitive receivers.
- To the extent feasible, noise-generating equipment shall be oriented such that the source of noise is facing away from the nearest sensitive receivers.
- Equipment idling time shall be reduced to five minutes on cranes and construction equipment.
- Areas where workers gather (e.g., break areas, shift-change areas, meeting areas, and sanitary stations) will be located a minimum of 100 feet away from any residence, if feasible.
- Parking areas shall be located a minimum of 150 feet from sensitive receivers. Parking areas within 500 feet of sensitive receivers will be posted with signs to prohibit workers from gathering during nighttime hours and to prohibit radios and music at any time.

- Fuel deliveries shall be a minimum of 500 feet from residences or to the greatest extent feasible.

- The Contractor shall perform all work without undue noise and shall make every effort to alleviate or prevent noise nuisances.

- The Contractor's construction vehicles and equipment shall have mufflers. The Contractor shall equip all construction equipment, fixed and mobile, with properly operating and maintained noise mufflers and intake silencers, consistent with the manufacturer standards. Equipment shall be maintained to a minimum standard that includes engine noise baffles and mufflers that meet or exceed the original manufacturer requirements.

- The Contractor shall utilize the following types of equipment whenever possible: electrical instead of diesel-powered equipment, hydraulic tools instead of pneumatic tools, and use of electric welders powered by remote generators.

Traffic

- The Contractor shall prepare a traffic control plan. This plan shall address temporary traffic control for each construction site in public roadways. The requirements and procedures described in the California Department of Transportation (Caltrans) “Manual of Traffic Controls for Construction and Maintenance Work Zones” or local requirements and procedures that meet or exceed the Caltrans’ Manual shall be used in the plan. If required, the Contractor shall submit the plan for review and approval by local and State traffic authorities, as appropriate.

- As appropriate, the Contractor shall provide flagmen at intersections to assist trucks entering/exiting the work limits.

- The Contractor shall provide appropriate advance warning signage to alert motorists or pedestrians to the potential for cross construction vehicle traffic from work limits in accordance with Caltrans standards.

Wildfire

- Gasoline-powered or diesel-powered machinery used during construction shall be equipped with standard exhaust controls and muffling devices that shall also act as spark arrestors.

- Fire containment and extinguishing equipment shall be located on site and shall be accessible during construction activities. Construction workers shall be trained in use of the fire suppression equipment.

APPENDIX B

CALEEMOD CALCULATIONS

MWD West Valley Feeder - Los Angeles-South Coast County, Winter

MWD West Valley Feeder

Los Angeles-South Coast County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	7.00	1000sqft	0.16	7,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	8			**Operational Year**	2020
Utility Company	Los Angeles Department of Water & Power				
CO2 Intensity (lb/MWhr)	1227.89	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Asphalt Access Roads,

Construction Phase - .

Off-road Equipment - 1 excavator, 1 tractor, 1 crane

Off-road Equipment - 1 loader

Off-road Equipment - 1 tractor, 1 excavator, 1 grader, 1 crane

Off-road Equipment - 1 paver

Off-road Equipment - 1 excavator

Trips and VMT - .

Demolition - Tons based on truckload (1 truckload), 20 ton truck

Grading - Cubic yards based on truckloads, assuming 16 cy truck

Construction Off-road Equipment Mitigation - Rule 403

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	10.00	22.00
tblConstructionPhase	NumDays	1.00	21.00
tblConstructionPhase	NumDays	2.00	44.00
tblConstructionPhase	NumDays	100.00	109.00
tblConstructionPhase	NumDays	5.00	22.00
tblGrading	MaterialExported	0.00	32.00
tblGrading	MaterialExported	0.00	144.00
tblOffRoadEquipment	LoadFactor	0.40	0.40
tblOffRoadEquipment	OffRoadEquipmentType		Rubber Tired Dozers
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	1.8878	20.0834	11.1128	0.0211	0.6437	0.9956	1.3569	0.0874	0.9159	0.9267	0.0000	2,092.5587	2,092.5587	0.6280	0.0000	2,108.2580
2020	2.0387	21.2124	13.5571	0.0251	0.0863	1.0312	1.1175	0.0233	0.9488	0.9721	0.0000	2,443.5460	2,443.5460	0.7502	0.0000	2,462.3000
Maximum	**2.0387**	**21.2124**	**13.5571**	**0.0251**	**0.6437**	**1.0312**	**1.3569**	**0.0874**	**0.9488**	**0.9721**	**0.0000**	**2,443.5460**	**2,443.5460**	**0.7502**	**0.0000**	**2,462.3000**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	1.8878	20.0834	11.1128	0.0211	0.3520	0.9956	1.0652	0.0559	0.9159	0.9267	0.0000	2,092.5587	2,092.5587	0.6280	0.0000	2,108.2580
2020	2.0387	21.2124	13.5571	0.0251	0.0863	1.0312	1.1175	0.0233	0.9488	0.9721	0.0000	2,443.5460	2,443.5460	0.7502	0.0000	2,462.3000
Maximum	**2.0387**	**21.2124**	**13.5571**	**0.0251**	**0.3520**	**1.0312**	**1.1175**	**0.0559**	**0.9488**	**0.9721**	**0.0000**	**2,443.5460**	**2,443.5460**	**0.7502**	**0.0000**	**2,462.3000**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**39.96**	**0.00**	**11.79**	**28.47**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	3.0800e-003	1.0000e-005	7.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.5300e-003	1.5300e-003	0.0000		1.6300e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**3.0800e-003**	**1.0000e-005**	**7.2000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**1.5300e-003**	**1.5300e-003**	**0.0000**	**0.0000**	**1.6300e-003**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	3.0800e-003	1.0000e-005	7.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.5300e-003	1.5300e-003	0.0000		1.6300e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**3.0800e-003**	**1.0000e-005**	**7.2000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**1.5300e-003**	**1.5300e-003**	**0.0000**	**0.0000**	**1.6300e-003**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	8/1/2019	8/30/2019	5	22	
2	Site Preparation	Site Preparation	9/1/2019	9/30/2019	5	21	
3	Grading	Grading	10/1/2019	11/30/2019	5	44	
4	Building Construction	Building Construction	12/1/2019	4/30/2020	5	109	
5	Paving	Paving	4/1/2020	4/30/2020	5	22	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 22

Acres of Paving: 0.16

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	0	8.00	81	0.73
Demolition	Rubber Tired Dozers	0	1.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Site Preparation	Excavators	1	8.00	158	0.38
Site Preparation	Graders	0	8.00	187	0.41
Site Preparation	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Grading	Concrete/Industrial Saws	0	8.00	81	0.73
Grading	Cranes	1	8.00	231	0.29
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	0	1.00	247	0.40
Grading	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Cranes	1	4.00	231	0.29
Building Construction	Excavators	1	8.00	158	0.38
Building Construction	Forklifts	0	6.00	89	0.20
Building Construction	Tractors/Loaders/Backhoes	1	8.00	97	0.37

Paving	Cement and Mortar Mixers	0	6.00	9	0.56
Paving	Pavers	1	7.00	130	0.42
Paving	Rollers	0	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	0	7.00	97	0.37
Building Construction	Rubber Tired Dozers	1	8.00	247	0.40

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	1	3.00	0.00	2.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	1	3.00	0.00	18.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	4.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	4	3.00	1.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	1	3.00	2.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Demolition - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0195	0.0000	0.0195	2.9500e-003	0.0000	2.9500e-003			0.0000			0.0000
Off-Road	0.1746	1.7530	1.7270	2.3300e-003		0.1170	0.1170		0.1077	0.1077		230.6564	230.6564	0.0730		232.4808
Total	**0.1746**	**1.7530**	**1.7270**	**2.3300e-003**	**0.0195**	**0.1170**	**0.1365**	**2.9500e-003**	**0.1077**	**0.1106**		**230.6564**	**230.6564**	**0.0730**		**232.4808**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	8.8000e-004	0.0282	6.3400e-003	7.0000e-005	1.5900e-003	1.0000e-004	1.6900e-003	4.4000e-004	1.0000e-004	5.4000e-004		7.7259	7.7259	5.6000e-004		7.7400
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0166	0.0122	0.1327	3.4000e-004	0.0335	2.9000e-004	0.0338	8.8900e-003	2.7000e-004	9.1600e-003		34.2639	34.2639	1.1800e-003		34.2934
Total	**0.0175**	**0.0404**	**0.1391**	**4.1000e-004**	**0.0351**	**3.9000e-004**	**0.0355**	**9.3300e-003**	**3.7000e-004**	**9.7000e-003**		**41.9898**	**41.9898**	**1.7400e-003**		**42.0333**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.7500e-003	0.0000	8.7500e-003	1.3300e-003	0.0000	1.3300e-003			0.0000			0.0000
Off-Road	0.1746	1.7530	1.7270	2.3300e-003		0.1170	0.1170		0.1077	0.1077	0.0000	230.6564	230.6564	0.0730		232.4808
Total	**0.1746**	**1.7530**	**1.7270**	**2.3300e-003**	**8.7500e-003**	**0.1170**	**0.1258**	**1.3300e-003**	**0.1077**	**0.1090**	**0.0000**	**230.6564**	**230.6564**	**0.0730**		**232.4808**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Category	lb/day										lb/day					
Hauling	8.8000e-004	0.0282	6.3400e-003	7.0000e-005	1.5900e-003	1.0000e-004	1.6900e-003	4.4000e-004	1.0000e-004	5.4000e-004		7.7259	7.7259	5.6000e-004		7.7400
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0166	0.0122	0.1327	3.4000e-004	0.0335	2.9000e-004	0.0338	8.8900e-003	2.7000e-004	9.1600e-003		34.2639	34.2639	1.1800e-003		34.2934
Total	**0.0175**	**0.0404**	**0.1391**	**4.1000e-004**	**0.0351**	**3.9000e-004**	**0.0355**	**9.3300e-003**	**3.7000e-004**	**9.7000e-003**		**41.9898**	**41.9898**	**1.7400e-003**		**42.0333**

3.3 Site Preparation - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.8000e-004	0.0000	7.8000e-004	1.2000e-004	0.0000	1.2000e-004			0.0000			0.0000
Off-Road	0.2607	2.6819	3.2632	5.1600e-003		0.1293	0.1293		0.1190	0.1190		511.1256	511.1256	0.1617		515.1684
Total	**0.2607**	**2.6819**	**3.2632**	**5.1600e-003**	**7.8000e-004**	**0.1293**	**0.1301**	**1.2000e-004**	**0.1190**	**0.1191**		**511.1256**	**511.1256**	**0.1617**		**515.1684**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	8.2600e-003	0.2660	0.0598	6.7000e-004	0.0150	9.8000e-004	0.0160	4.1100e-003	9.4000e-004	5.0500e-003		72.8443	72.8443	5.3000e-003		72.9767
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0166	0.0122	0.1327	3.4000e-004	0.0335	2.9000e-004	0.0338	8.8900e-003	2.7000e-004	9.1600e-003		34.2639	34.2639	1.1800e-003		34.2934

Total	**0.0249**	**0.2782**	**0.1925**	**1.0100e-003**	**0.0485**	**1.2700e-003**	**0.0498**	**0.0130**	**1.2100e-003**	**0.0142**		**107.1082**	**107.1082**	**6.4800e-003**		**107.2701**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.5000e-004	0.0000	3.5000e-004	5.0000e-005	0.0000	5.0000e-005			0.0000			0.0000
Off-Road	0.2607	2.6819	3.2632	5.1600e-003		0.1293	0.1293		0.1190	0.1190	0.0000	511.1256	511.1256	0.1617		515.1684
Total	**0.2607**	**2.6819**	**3.2632**	**5.1600e-003**	**3.5000e-004**	**0.1293**	**0.1297**	**5.0000e-005**	**0.1190**	**0.1190**	**0.0000**	**511.1256**	**511.1256**	**0.1617**		**515.1684**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	8.2600e-003	0.2660	0.0598	6.7000e-004	0.0150	9.8000e-004	0.0160	4.1100e-003	9.4000e-004	5.0500e-003		72.8443	72.8443	5.3000e-003		72.9767
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0166	0.0122	0.1327	3.4000e-004	0.0335	2.9000e-004	0.0338	8.8900e-003	2.7000e-004	9.1600e-003		34.2639	34.2639	1.1800e-003		34.2934
Total	**0.0249**	**0.2782**	**0.1925**	**1.0100e-003**	**0.0485**	**1.2700e-003**	**0.0498**	**0.0130**	**1.2100e-003**	**0.0142**		**107.1082**	**107.1082**	**6.4800e-003**		**107.2701**

3.4 Grading - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.5303	0.0000	0.5303	0.0573	0.0000	0.0573			0.0000			0.0000
Off-Road	1.4261	17.0215	9.1213	0.0199		0.7122	0.7122		0.6552	0.6552		1,970.6197	1,970.6197	0.6235		1,986.2068
Total	**1.4261**	**17.0215**	**9.1213**	**0.0199**	**0.5303**	**0.7122**	**1.2425**	**0.0573**	**0.6552**	**0.7125**		**1,970.6197**	**1,970.6197**	**0.6235**		**1,986.2068**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	8.8000e-004	0.0282	6.3400e-003	7.0000e-005	1.5900e-003	1.0000e-004	1.6900e-003	4.4000e-004	1.0000e-004	5.4000e-004		7.7259	7.7259	5.6000e-004		7.7400
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0554	0.0407	0.4425	1.1500e-003	0.1118	9.6000e-004	0.1127	0.0296	8.9000e-004	0.0305		114.2131	114.2131	3.9300e-003		114.3113
Total	**0.0563**	**0.0689**	**0.4488**	**1.2200e-003**	**0.1134**	**1.0600e-003**	**0.1144**	**0.0301**	**9.9000e-004**	**0.0311**		**121.9390**	**121.9390**	**4.4900e-003**		**122.0513**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					

Fugitive Dust					0.2387	0.0000	0.2387	0.0258	0.0000	0.0258			0.0000			0.0000
Off-Road	1.4261	17.0215	9.1213	0.0199		0.7122	0.7122		0.6552	0.6552	0.0000	1,970.6197	1,970.6197	0.6235		1,986.2068
Total	**1.4261**	**17.0215**	**9.1213**	**0.0199**	**0.2387**	**0.7122**	**0.9508**	**0.0258**	**0.6552**	**0.6810**	**0.0000**	**1,970.6197**	**1,970.6197**	**0.6235**		**1,986.2068**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	8.8000e-004	0.0282	6.3400e-003	7.0000e-005	1.5900e-003	1.0000e-004	1.6900e-003	4.4000e-004	1.0000e-004	5.4000e-004		7.7259	7.7259	5.6000e-004		7.7400
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0554	0.0407	0.4425	1.1500e-003	0.1118	9.6000e-004	0.1127	0.0296	8.9000e-004	0.0305		114.2131	114.2131	3.9300e-003		114.3113
Total	**0.0563**	**0.0689**	**0.4488**	**1.2200e-003**	**0.1134**	**1.0600e-003**	**0.1144**	**0.0301**	**9.9000e-004**	**0.0311**		**121.9390**	**121.9390**	**4.4900e-003**		**122.0513**

3.5 Building Construction - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.8668	19.9553	10.9462	0.0196		0.9945	0.9945		0.9150	0.9150		1,939.7674	1,939.7674	0.6137		1,955.1105
Total	**1.8668**	**19.9553**	**10.9462**	**0.0196**		**0.9945**	**0.9945**		**0.9150**	**0.9150**		**1,939.7674**	**1,939.7674**	**0.6137**		**1,955.1105**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	4.3300e-003	0.1159	0.0339	2.5000e-004	6.4000e-003	7.5000e-004	7.1500e-003	1.8400e-003	7.2000e-004	2.5600e-003		27.1277	27.1277	1.9100e-003		27.1754
Worker	0.0166	0.0122	0.1327	3.4000e-004	0.0335	2.9000e-004	0.0338	8.8900e-003	2.7000e-004	9.1600e-003		34.2639	34.2639	1.1800e-003		34.2934
Total	**0.0209**	**0.1281**	**0.1666**	**5.9000e-004**	**0.0399**	**1.0400e-003**	**0.0410**	**0.0107**	**9.9000e-004**	**0.0117**		**61.3916**	**61.3916**	**3.0900e-003**		**61.4687**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.8668	19.9553	10.9462	0.0196		0.9945	0.9945		0.9150	0.9150	0.0000	1,939.7674	1,939.7674	0.6137		1,955.1105
Total	**1.8668**	**19.9553**	**10.9462**	**0.0196**		**0.9945**	**0.9945**		**0.9150**	**0.9150**	**0.0000**	**1,939.7674**	**1,939.7674**	**0.6137**		**1,955.1105**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Category	lb/day											lb/day				
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	4.3300e-003	0.1159	0.0339	2.5000e-004	6.4000e-003	7.5000e-004	7.1500e-003	1.8400e-003	7.2000e-004	2.5600e-003		27.1277	27.1277	1.9100e-003		27.1754
Worker	0.0166	0.0122	0.1327	3.4000e-004	0.0335	2.9000e-004	0.0338	8.8900e-003	2.7000e-004	9.1600e-003		34.2639	34.2639	1.1800e-003		34.2934
Total	**0.0209**	**0.1281**	**0.1666**	**5.9000e-004**	**0.0399**	**1.0400e-003**	**0.0410**	**0.0107**	**9.9000e-004**	**0.0117**		**61.3916**	**61.3916**	**3.0900e-003**		**61.4687**

3.5 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day											lb/day				
Off-Road	1.7480	18.4126	10.6883	0.0196		0.9096	0.9096		0.8368	0.8368		1,897.9030	1,897.9030	0.6138		1,913.2485
Total	**1.7480**	**18.4126**	**10.6883**	**0.0196**		**0.9096**	**0.9096**		**0.8368**	**0.8368**		**1,897.9030**	**1,897.9030**	**0.6138**		**1,913.2485**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day											lb/day				
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	3.7200e-003	0.1064	0.0307	2.5000e-004	6.4000e-003	5.1000e-004	6.9100e-003	1.8400e-003	4.9000e-004	2.3300e-003		26.9449	26.9449	1.8000e-003		26.9900
Worker	0.0153	0.0109	0.1203	3.3000e-004	0.0335	2.8000e-004	0.0338	8.8900e-003	2.6000e-004	9.1500e-003		33.2226	33.2226	1.0500e-003		33.2488

Total	**0.0191**	**0.1172**	**0.1510**	**5.8000e-004**	**0.0399**	**7.9000e-004**	**0.0407**	**0.0107**	**7.5000e-004**	**0.0115**		**60.1675**	**60.1675**	**2.8500e-003**		**60.2387**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7480	18.4126	10.6883	0.0196		0.9096	0.9096		0.8368	0.8368	0.0000	1,897.9030	1,897.9030	0.6138		1,913.2485
Total	**1.7480**	**18.4126**	**10.6883**	**0.0196**		**0.9096**	**0.9096**		**0.8368**	**0.8368**	**0.0000**	**1,897.9030**	**1,897.9030**	**0.6138**		**1,913.2485**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	3.7200e-003	0.1064	0.0307	2.5000e-004	6.4000e-003	5.1000e-004	6.9100e-003	1.8400e-003	4.9000e-004	2.3300e-003		26.9449	26.9449	1.8000e-003		26.9900
Worker	0.0153	0.0109	0.1203	3.3000e-004	0.0335	2.8000e-004	0.0338	8.8900e-003	2.6000e-004	9.1500e-003		33.2226	33.2226	1.0500e-003		33.2488
Total	**0.0191**	**0.1172**	**0.1510**	**5.8000e-004**	**0.0399**	**7.9000e-004**	**0.0407**	**0.0107**	**7.5000e-004**	**0.0115**		**60.1675**	**60.1675**	**2.8500e-003**		**60.2387**

3.6 Paving - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.2298	2.4590	2.5360	4.1100e-003		0.1195	0.1195		0.1100	0.1100		398.3631	398.3631	0.1288		401.5841
Paving	0.0191					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.2489**	**2.4590**	**2.5360**	**4.1100e-003**		**0.1195**	**0.1195**		**0.1100**	**0.1100**		**398.3631**	**398.3631**	**0.1288**		**401.5841**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	7.4400e-003	0.2127	0.0615	5.0000e-004	0.0128	1.0200e-003	0.0138	3.6900e-003	9.7000e-004	4.6600e-003		53.8898	53.8898	3.6000e-003		53.9799
Worker	0.0153	0.0109	0.1203	3.3000e-004	0.0335	2.8000e-004	0.0338	8.8900e-003	2.6000e-004	9.1500e-003		33.2226	33.2226	1.0500e-003		33.2488
Total	**0.0228**	**0.2236**	**0.1818**	**8.3000e-004**	**0.0463**	**1.3000e-003**	**0.0476**	**0.0126**	**1.2300e-003**	**0.0138**		**87.1124**	**87.1124**	**4.6500e-003**		**87.2287**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					

Off-Road	0.2298	2.4590	2.5360	4.1100e-003		0.1195	0.1195		0.1100	0.1100	0.0000	398.3631	398.3631	0.1288		401.5841
Paving	0.0191					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.2489**	**2.4590**	**2.5360**	**4.1100e-003**		**0.1195**	**0.1195**		**0.1100**	**0.1100**	**0.0000**	**398.3631**	**398.3631**	**0.1288**		**401.5841**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	7.4400e-003	0.2127	0.0615	5.0000e-004	0.0128	1.0200e-003	0.0138	3.6900e-003	9.7000e-004	4.6600e-003		53.8898	53.8898	3.6000e-003		53.9799
Worker	0.0153	0.0109	0.1203	3.3000e-004	0.0335	2.8000e-004	0.0338	8.8900e-003	2.6000e-004	9.1500e-003		33.2226	33.2226	1.0500e-003		33.2488
Total	**0.0228**	**0.2236**	**0.1818**	**8.3000e-004**	**0.0463**	**1.3000e-003**	**0.0476**	**0.0126**	**1.2300e-003**	**0.0138**		**87.1124**	**87.1124**	**4.6500e-003**		**87.2287**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Asphalt Surfaces	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Asphalt Surfaces	0.547726	0.045437	0.201480	0.122768	0.016614	0.006090	0.019326	0.029174	0.002438	0.002359	0.005005	0.000677	0.000907

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	3.0800e-003	1.0000e-005	7.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.5300e-003	1.5300e-003	0.0000		1.6300e-003
Unmitigated	3.0800e-003	1.0000e-005	7.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.5300e-003	1.5300e-003	0.0000		1.6300e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	5.3000e-004					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	2.4800e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	7.0000e-005	1.0000e-005	7.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.5300e-003	1.5300e-003	0.0000		1.6300e-003
Total	**3.0800e-003**	**1.0000e-005**	**7.2000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**1.5300e-003**	**1.5300e-003**	**0.0000**		**1.6300e-003**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

SubCategory	lb/day										lb/day					
Architectural Coating	5.3000e-004					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	2.4800e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	7.0000e-005	1.0000e-005	7.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.5300e-003	1.5300e-003	0.0000		1.6300e-003
Total	**3.0800e-003**	**1.0000e-005**	**7.2000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**1.5300e-003**	**1.5300e-003**	**0.0000**		**1.6300e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

MWD West Valley Feeder - Los Angeles-South Coast County, Summer

MWD West Valley Feeder

Los Angeles-South Coast County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	7.00	1000sqft	0.16	7,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	8			**Operational Year**	2020
Utility Company	Los Angeles Department of Water & Power				
CO2 Intensity (lb/MWhr)	1227.89	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Asphalt Access Roads,

Construction Phase - .

Off-road Equipment - 1 excavator, 1 tractor, 1 crane

Off-road Equipment - 1 loader

Off-road Equipment - 1 tractor, 1 excavator, 1 grader, 1 crane

Off-road Equipment - 1 paver

Off-road Equipment - 1 excavator

Trips and VMT - .

Demolition - Tons based on truckload (1 truckload), 20 ton truck

Grading - Cubic yards based on truckloads, assuming 16 cy truck

Construction Off-road Equipment Mitigation - Rule 403

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	10.00	22.00
tblConstructionPhase	NumDays	1.00	21.00
tblConstructionPhase	NumDays	2.00	44.00
tblConstructionPhase	NumDays	100.00	109.00
tblConstructionPhase	NumDays	5.00	22.00
tblGrading	MaterialExported	0.00	32.00
tblGrading	MaterialExported	0.00	144.00
tblOffRoadEquipment	LoadFactor	0.40	0.40
tblOffRoadEquipment	OffRoadEquipmentType		Rubber Tired Dozers
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	1.8860	20.0820	11.1215	0.0212	0.6437	0.9955	1.3569	0.0874	0.9159	0.9267	0.0000	2,099.7742	2,099.7742	0.6282	0.0000	2,115.4790
2020	2.0352	21.2104	13.5706	0.0252	0.0863	1.0312	1.1175	0.0233	0.9487	0.9720	0.0000	2,449.9403	2,449.9403	0.7500	0.0000	2,468.6891
Maximum	**2.0352**	**21.2104**	**13.5706**	**0.0252**	**0.6437**	**1.0312**	**1.3569**	**0.0874**	**0.9487**	**0.9720**	**0.0000**	**2,449.9403**	**2,449.9403**	**0.7500**	**0.0000**	**2,468.6891**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	1.8860	20.0820	11.1215	0.0212	0.3520	0.9955	1.0652	0.0559	0.9159	0.9267	0.0000	2,099.7742	2,099.7742	0.6282	0.0000	2,115.4790
2020	2.0352	21.2104	13.5706	0.0252	0.0863	1.0312	1.1175	0.0233	0.9487	0.9720	0.0000	2,449.9403	2,449.9403	0.7500	0.0000	2,468.6891
Maximum	**2.0352**	**21.2104**	**13.5706**	**0.0252**	**0.3520**	**1.0312**	**1.1175**	**0.0559**	**0.9487**	**0.9720**	**0.0000**	**2,449.9403**	**2,449.9403**	**0.7500**	**0.0000**	**2,468.6891**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**39.96**	**0.00**	**11.79**	**28.47**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	3.0800e-003	1.0000e-005	7.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.5300e-003	1.5300e-003	0.0000		1.6300e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**3.0800e-003**	**1.0000e-005**	**7.2000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**1.5300e-003**	**1.5300e-003**	**0.0000**	**0.0000**	**1.6300e-003**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	3.0800e-003	1.0000e-005	7.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.5300e-003	1.5300e-003	0.0000		1.6300e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**3.0800e-003**	**1.0000e-005**	**7.2000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**1.5300e-003**	**1.5300e-003**	**0.0000**	**0.0000**	**1.6300e-003**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	8/1/2019	8/30/2019	5	22	
2	Site Preparation	Site Preparation	9/1/2019	9/30/2019	5	21	
3	Grading	Grading	10/1/2019	11/30/2019	5	44	
4	Building Construction	Building Construction	12/1/2019	4/30/2020	5	109	
5	Paving	Paving	4/1/2020	4/30/2020	5	22	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 22

Acres of Paving: 0.16

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	0	8.00	81	0.73
Demolition	Rubber Tired Dozers	0	1.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Site Preparation	Excavators	1	8.00	158	0.38
Site Preparation	Graders	0	8.00	187	0.41
Site Preparation	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Grading	Concrete/Industrial Saws	0	8.00	81	0.73
Grading	Cranes	1	8.00	231	0.29
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	0	1.00	247	0.40
Grading	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Cranes	1	4.00	231	0.29
Building Construction	Excavators	1	8.00	158	0.38
Building Construction	Forklifts	0	6.00	89	0.20
Building Construction	Tractors/Loaders/Backhoes	1	8.00	97	0.37

Paving	Cement and Mortar Mixers	0	6.00	9	0.56
Paving	Pavers	1	7.00	130	0.42
Paving	Rollers	0	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	0	7.00	97	0.37
Building Construction	Rubber Tired Dozers	1	8.00	247	0.40

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	1	3.00	0.00	2.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	1	3.00	0.00	18.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	4.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	4	3.00	1.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	1	3.00	2.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Demolition - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0195	0.0000	0.0195	2.9500e-003	0.0000	2.9500e-003			0.0000			0.0000
Off-Road	0.1746	1.7530	1.7270	2.3300e-003		0.1170	0.1170		0.1077	0.1077		230.6564	230.6564	0.0730		232.4808
Total	**0.1746**	**1.7530**	**1.7270**	**2.3300e-003**	**0.0195**	**0.1170**	**0.1365**	**2.9500e-003**	**0.1077**	**0.1106**		**230.6564**	**230.6564**	**0.0730**		**232.4808**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	8.5000e-004	0.0278	5.9400e-003	7.0000e-005	1.5900e-003	1.0000e-004	1.6900e-003	4.4000e-004	1.0000e-004	5.3000e-004		7.8592	7.8592	5.4000e-004		7.8727
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0150	0.0110	0.1447	3.7000e-004	0.0335	2.9000e-004	0.0338	8.8900e-003	2.7000e-004	9.1600e-003		36.3886	36.3886	1.2500e-003		36.4198
Total	**0.0158**	**0.0389**	**0.1506**	**4.4000e-004**	**0.0351**	**3.9000e-004**	**0.0355**	**9.3300e-003**	**3.7000e-004**	**9.6900e-003**		**44.2478**	**44.2478**	**1.7900e-003**		**44.2926**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.7500e-003	0.0000	8.7500e-003	1.3300e-003	0.0000	1.3300e-003			0.0000			0.0000
Off-Road	0.1746	1.7530	1.7270	2.3300e-003		0.1170	0.1170		0.1077	0.1077	0.0000	230.6564	230.6564	0.0730		232.4808
Total	**0.1746**	**1.7530**	**1.7270**	**2.3300e-003**	**8.7500e-003**	**0.1170**	**0.1258**	**1.3300e-003**	**0.1077**	**0.1090**	**0.0000**	**230.6564**	**230.6564**	**0.0730**		**232.4808**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Category	lb/day										lb/day					
Hauling	8.5000e-004	0.0278	5.9400e-003	7.0000e-005	1.5900e-003	1.0000e-004	1.6900e-003	4.4000e-004	1.0000e-004	5.3000e-004		7.8592	7.8592	5.4000e-004		7.8727
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0150	0.0110	0.1447	3.7000e-004	0.0335	2.9000e-004	0.0338	8.8900e-003	2.7000e-004	9.1600e-003		36.3886	36.3886	1.2500e-003		36.4198
Total	**0.0158**	**0.0389**	**0.1506**	**4.4000e-004**	**0.0351**	**3.9000e-004**	**0.0355**	**9.3300e-003**	**3.7000e-004**	**9.6900e-003**		**44.2478**	**44.2478**	**1.7900e-003**		**44.2926**

3.3 Site Preparation - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.8000e-004	0.0000	7.8000e-004	1.2000e-004	0.0000	1.2000e-004			0.0000			0.0000
Off-Road	0.2607	2.6819	3.2632	5.1600e-003		0.1293	0.1293		0.1190	0.1190		511.1256	511.1256	0.1617		515.1684
Total	**0.2607**	**2.6819**	**3.2632**	**5.1600e-003**	**7.8000e-004**	**0.1293**	**0.1301**	**1.2000e-004**	**0.1190**	**0.1191**		**511.1256**	**511.1256**	**0.1617**		**515.1684**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	8.0500e-003	0.2625	0.0560	6.8000e-004	0.0150	9.6000e-004	0.0160	4.1100e-003	9.2000e-004	5.0300e-003		74.1010	74.1010	5.1000e-003		74.2286
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0150	0.0110	0.1447	3.7000e-004	0.0335	2.9000e-004	0.0338	8.8900e-003	2.7000e-004	9.1600e-003		36.3886	36.3886	1.2500e-003		36.4198

Total	**0.0230**	**0.2735**	**0.2006**	**1.0500e-003**	**0.0485**	**1.2500e-003**	**0.0498**	**0.0130**	**1.1900e-003**	**0.0142**		**110.4896**	**110.4896**	**6.3500e-003**		**110.6484**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.5000e-004	0.0000	3.5000e-004	5.0000e-005	0.0000	5.0000e-005			0.0000			0.0000
Off-Road	0.2607	2.6819	3.2632	5.1600e-003		0.1293	0.1293		0.1190	0.1190	0.0000	511.1256	511.1256	0.1617		515.1684
Total	**0.2607**	**2.6819**	**3.2632**	**5.1600e-003**	**3.5000e-004**	**0.1293**	**0.1297**	**5.0000e-005**	**0.1190**	**0.1190**	**0.0000**	**511.1256**	**511.1256**	**0.1617**		**515.1684**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	8.0500e-003	0.2625	0.0560	6.8000e-004	0.0150	9.6000e-004	0.0160	4.1100e-003	9.2000e-004	5.0300e-003		74.1010	74.1010	5.1000e-003		74.2286
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0150	0.0110	0.1447	3.7000e-004	0.0335	2.9000e-004	0.0338	8.8900e-003	2.7000e-004	9.1600e-003		36.3886	36.3886	1.2500e-003		36.4198
Total	**0.0230**	**0.2735**	**0.2006**	**1.0500e-003**	**0.0485**	**1.2500e-003**	**0.0498**	**0.0130**	**1.1900e-003**	**0.0142**		**110.4896**	**110.4896**	**6.3500e-003**		**110.6484**

3.4 Grading - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.5303	0.0000	0.5303	0.0573	0.0000	0.0573			0.0000			0.0000
Off-Road	1.4261	17.0215	9.1213	0.0199		0.7122	0.7122		0.6552	0.6552		1,970.6197	1,970.6197	0.6235		1,986.2068
Total	**1.4261**	**17.0215**	**9.1213**	**0.0199**	**0.5303**	**0.7122**	**1.2425**	**0.0573**	**0.6552**	**0.7125**		**1,970.6197**	**1,970.6197**	**0.6235**		**1,986.2068**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	8.5000e-004	0.0278	5.9400e-003	7.0000e-005	1.5900e-003	1.0000e-004	1.6900e-003	4.4000e-004	1.0000e-004	5.3000e-004		7.8592	7.8592	5.4000e-004		7.8727
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0500	0.0367	0.4822	1.2200e-003	0.1118	9.6000e-004	0.1127	0.0296	8.9000e-004	0.0305		121.2953	121.2953	4.1700e-003		121.3995
Total	**0.0508**	**0.0646**	**0.4881**	**1.2900e-003**	**0.1134**	**1.0600e-003**	**0.1144**	**0.0301**	**9.9000e-004**	**0.0311**		**129.1545**	**129.1545**	**4.7100e-003**		**129.2722**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					

Fugitive Dust					0.2387	0.0000	0.2387	0.0258	0.0000	0.0258			0.0000			0.0000
Off-Road	1.4261	17.0215	9.1213	0.0199		0.7122	0.7122		0.6552	0.6552	0.0000	1,970.6197	1,970.6197	0.6235		1,986.2068
Total	**1.4261**	**17.0215**	**9.1213**	**0.0199**	**0.2387**	**0.7122**	**0.9508**	**0.0258**	**0.6552**	**0.6810**	**0.0000**	**1,970.6197**	**1,970.6197**	**0.6235**		**1,986.2068**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	8.5000e-004	0.0278	5.9400e-003	7.0000e-005	1.5900e-003	1.0000e-004	1.6900e-003	4.4000e-004	1.0000e-004	5.3000e-004		7.8592	7.8592	5.4000e-004		7.8727
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0500	0.0367	0.4822	1.2200e-003	0.1118	9.6000e-004	0.1127	0.0296	8.9000e-004	0.0305		121.2953	121.2953	4.1700e-003		121.3995
Total	**0.0508**	**0.0646**	**0.4881**	**1.2900e-003**	**0.1134**	**1.0600e-003**	**0.1144**	**0.0301**	**9.9000e-004**	**0.0311**		**129.1545**	**129.1545**	**4.7100e-003**		**129.2722**

3.5 Building Construction - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.8668	19.9553	10.9462	0.0196		0.9945	0.9945		0.9150	0.9150		1,939.7674	1,939.7674	0.6137		1,955.1105
Total	**1.8668**	**19.9553**	**10.9462**	**0.0196**		**0.9945**	**0.9945**		**0.9150**	**0.9150**		**1,939.7674**	**1,939.7674**	**0.6137**		**1,955.1105**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	4.1600e-003	0.1157	0.0307	2.6000e-004	6.4000e-003	7.4000e-004	7.1400e-003	1.8400e-003	7.1000e-004	2.5500e-003		27.8815	27.8815	1.7900e-003		27.9261
Worker	0.0150	0.0110	0.1447	3.7000e-004	0.0335	2.9000e-004	0.0338	8.8900e-003	2.7000e-004	9.1600e-003		36.3886	36.3886	1.2500e-003		36.4198
Total	**0.0192**	**0.1267**	**0.1754**	**6.3000e-004**	**0.0399**	**1.0300e-003**	**0.0410**	**0.0107**	**9.8000e-004**	**0.0117**		**64.2701**	**64.2701**	**3.0400e-003**		**64.3460**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.8668	19.9553	10.9462	0.0196		0.9945	0.9945		0.9150	0.9150	0.0000	1,939.7674	1,939.7674	0.6137		1,955.1105
Total	**1.8668**	**19.9553**	**10.9462**	**0.0196**		**0.9945**	**0.9945**		**0.9150**	**0.9150**	**0.0000**	**1,939.7674**	**1,939.7674**	**0.6137**		**1,955.1105**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Category	lb/day											lb/day				
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	4.1600e-003	0.1157	0.0307	2.6000e-004	6.4000e-003	7.4000e-004	7.1400e-003	1.8400e-003	7.1000e-004	2.5500e-003		27.8815	27.8815	1.7900e-003		27.9261
Worker	0.0150	0.0110	0.1447	3.7000e-004	0.0335	2.9000e-004	0.0338	8.8900e-003	2.7000e-004	9.1600e-003		36.3886	36.3886	1.2500e-003		36.4198
Total	**0.0192**	**0.1267**	**0.1754**	**6.3000e-004**	**0.0399**	**1.0300e-003**	**0.0410**	**0.0107**	**9.8000e-004**	**0.0117**		**64.2701**	**64.2701**	**3.0400e-003**		**64.3460**

3.5 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day											lb/day				
Off-Road	1.7480	18.4126	10.6883	0.0196		0.9096	0.9096		0.8368	0.8368		1,897.9030	1,897.9030	0.6138		1,913.2485
Total	**1.7480**	**18.4126**	**10.6883**	**0.0196**		**0.9096**	**0.9096**		**0.8368**	**0.8368**		**1,897.9030**	**1,897.9030**	**0.6138**		**1,913.2485**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day											lb/day				
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	3.5600e-003	0.1064	0.0279	2.6000e-004	6.4000e-003	5.0000e-004	6.9000e-003	1.8400e-003	4.8000e-004	2.3200e-003		27.7025	27.7025	1.6900e-003		27.7447
Worker	0.0138	9.8200e-003	0.1314	3.5000e-004	0.0335	2.8000e-004	0.0338	8.8900e-003	2.6000e-004	9.1500e-003		35.2834	35.2834	1.1100e-003		35.3112

Total	**0.0174**	**0.1162**	**0.1592**	**6.1000e-004**	**0.0399**	**7.8000e-004**	**0.0407**	**0.0107**	**7.4000e-004**	**0.0115**		**62.9859**	**62.9859**	**2.8000e-003**		**63.0559**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7480	18.4126	10.6883	0.0196		0.9096	0.9096		0.8368	0.8368	0.0000	1,897.9030	1,897.9030	0.6138		1,913.2485
Total	**1.7480**	**18.4126**	**10.6883**	**0.0196**		**0.9096**	**0.9096**		**0.8368**	**0.8368**	**0.0000**	**1,897.9030**	**1,897.9030**	**0.6138**		**1,913.2485**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	3.5600e-003	0.1064	0.0279	2.6000e-004	6.4000e-003	5.0000e-004	6.9000e-003	1.8400e-003	4.8000e-004	2.3200e-003		27.7025	27.7025	1.6900e-003		27.7447
Worker	0.0138	9.8200e-003	0.1314	3.5000e-004	0.0335	2.8000e-004	0.0338	8.8900e-003	2.6000e-004	9.1500e-003		35.2834	35.2834	1.1100e-003		35.3112
Total	**0.0174**	**0.1162**	**0.1592**	**6.1000e-004**	**0.0399**	**7.8000e-004**	**0.0407**	**0.0107**	**7.4000e-004**	**0.0115**		**62.9859**	**62.9859**	**2.8000e-003**		**63.0559**

3.6 Paving - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.2298	2.4590	2.5360	4.1100e-003		0.1195	0.1195		0.1100	0.1100		398.3631	398.3631	0.1288		401.5841
Paving	0.0191					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.2489**	**2.4590**	**2.5360**	**4.1100e-003**		**0.1195**	**0.1195**		**0.1100**	**0.1100**		**398.3631**	**398.3631**	**0.1288**		**401.5841**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	7.1100e-003	0.2127	0.0557	5.2000e-004	0.0128	1.0000e-003	0.0138	3.6900e-003	9.6000e-004	4.6400e-003		55.4049	55.4049	3.3800e-003		55.4895
Worker	0.0138	9.8200e-003	0.1314	3.5000e-004	0.0335	2.8000e-004	0.0338	8.8900e-003	2.6000e-004	9.1500e-003		35.2834	35.2834	1.1100e-003		35.3112
Total	**0.0209**	**0.2226**	**0.1871**	**8.7000e-004**	**0.0463**	**1.2800e-003**	**0.0476**	**0.0126**	**1.2200e-003**	**0.0138**		**90.6883**	**90.6883**	**4.4900e-003**		**90.8007**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					

Off-Road	0.2298	2.4590	2.5360	4.1100e-003		0.1195	0.1195		0.1100	0.1100	0.0000	398.3631	398.3631	0.1288		401.5841
Paving	0.0191					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.2489**	**2.4590**	**2.5360**	**4.1100e-003**		**0.1195**	**0.1195**		**0.1100**	**0.1100**	**0.0000**	**398.3631**	**398.3631**	**0.1288**		**401.5841**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	7.1100e-003	0.2127	0.0557	5.2000e-004	0.0128	1.0000e-003	0.0138	3.6900e-003	9.6000e-004	4.6400e-003		55.4049	55.4049	3.3800e-003		55.4895
Worker	0.0138	9.8200e-003	0.1314	3.5000e-004	0.0335	2.8000e-004	0.0338	8.8900e-003	2.6000e-004	9.1500e-003		35.2834	35.2834	1.1100e-003		35.3112
Total	**0.0209**	**0.2226**	**0.1871**	**8.7000e-004**	**0.0463**	**1.2800e-003**	**0.0476**	**0.0126**	**1.2200e-003**	**0.0138**		**90.6883**	**90.6883**	**4.4900e-003**		**90.8007**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Asphalt Surfaces	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Asphalt Surfaces	0.547726	0.045437	0.201480	0.122768	0.016614	0.006090	0.019326	0.029174	0.002438	0.002359	0.005005	0.000677	0.000907

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	3.0800e-003	1.0000e-005	7.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.5300e-003	1.5300e-003	0.0000		1.6300e-003
Unmitigated	3.0800e-003	1.0000e-005	7.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.5300e-003	1.5300e-003	0.0000		1.6300e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	5.3000e-004					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	2.4800e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	7.0000e-005	1.0000e-005	7.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.5300e-003	1.5300e-003	0.0000		1.6300e-003
Total	**3.0800e-003**	**1.0000e-005**	**7.2000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**1.5300e-003**	**1.5300e-003**	**0.0000**		**1.6300e-003**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

SubCategory	lb/day										lb/day					
Architectural Coating	5.3000e-004					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	2.4800e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	7.0000e-005	1.0000e-005	7.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.5300e-003	1.5300e-003	0.0000		1.6300e-003
Total	**3.0800e-003**	**1.0000e-005**	**7.2000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**1.5300e-003**	**1.5300e-003**	**0.0000**		**1.6300e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

MWD West Valley Feeder - Los Angeles-South Coast County, Annual

MWD West Valley Feeder

Los Angeles-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	7.00	1000sqft	0.16	7,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	8			**Operational Year**	2020
Utility Company	Los Angeles Department of Water & Power				
CO2 Intensity (lb/MWhr)	1227.89	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Asphalt Access Roads,

Construction Phase - .

Off-road Equipment - 1 excavator, 1 tractor, 1 crane

Off-road Equipment - 1 loader

Off-road Equipment - 1 tractor, 1 excavator, 1 grader, 1 crane

Off-road Equipment - 1 paver

Off-road Equipment - 1 excavator

Trips and VMT - .

Demolition - Tons based on truckload (1 truckload), 20 ton truck

Grading - Cubic yards based on truckloads, assuming 16 cy truck

Construction Off-road Equipment Mitigation - Rule 403

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	10.00	22.00
tblConstructionPhase	NumDays	1.00	21.00
tblConstructionPhase	NumDays	2.00	44.00
tblConstructionPhase	NumDays	100.00	109.00
tblConstructionPhase	NumDays	5.00	22.00
tblGrading	MaterialExported	0.00	32.00
tblGrading	MaterialExported	0.00	144.00
tblOffRoadEquipment	LoadFactor	0.40	0.40
tblOffRoadEquipment	OffRoadEquipmentType		Rubber Tired Dozers
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2019	0.0583	0.6479	0.3899	7.8000e-004	0.0156	0.0293	0.0450	2.2900e-003	0.0270	0.0293	0.0000	70.4111	70.4111	0.0210	0.0000	70.9370
2020	0.0798	0.8357	0.5015	9.3000e-004	2.2000e-003	0.0409	0.0431	5.9000e-004	0.0377	0.0383	0.0000	82.1684	82.1684	0.0257	0.0000	82.8101
Maximum	**0.0798**	**0.8357**	**0.5015**	**9.3000e-004**	**0.0156**	**0.0409**	**0.0450**	**2.2900e-003**	**0.0377**	**0.0383**	**0.0000**	**82.1684**	**82.1684**	**0.0257**	**0.0000**	**82.8101**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2019	0.0583	0.6479	0.3899	7.8000e-004	9.1000e-003	0.0293	0.0384	1.5800e-003	0.0270	0.0285	0.0000	70.4110	70.4110	0.0210	0.0000	70.9369
2020	0.0798	0.8357	0.5015	9.3000e-004	2.2000e-003	0.0409	0.0431	5.9000e-004	0.0377	0.0383	0.0000	82.1684	82.1684	0.0257	0.0000	82.8100
Maximum	**0.0798**	**0.8357**	**0.5015**	**9.3000e-004**	**9.1000e-003**	**0.0409**	**0.0431**	**1.5800e-003**	**0.0377**	**0.0383**	**0.0000**	**82.1684**	**82.1684**	**0.0257**	**0.0000**	**82.8100**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**36.66**	**0.00**	**7.43**	**24.65**	**0.00**	**1.07**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	8-1-2019	10-31-2019	0.2616	0.2616
2	11-1-2019	1-31-2020	0.6670	0.6670

3	**2-1-2020**	**4-30-2020**	0.6840	0.6840
		Highest	0.6840	0.6840

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	5.6000e-004	0.0000	9.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.7000e-004	1.7000e-004	0.0000	0.0000	1.9000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**5.6000e-004**	**0.0000**	**9.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**1.7000e-004**	**1.7000e-004**	**0.0000**	**0.0000**	**1.9000e-004**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	5.6000e-004	0.0000	9.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.7000e-004	1.7000e-004	0.0000	0.0000	1.9000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**5.6000e-004**	**0.0000**	**9.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**1.7000e-004**	**1.7000e-004**	**0.0000**	**0.0000**	**1.9000e-004**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	8/1/2019	8/30/2019	5	22	
2	Site Preparation	Site Preparation	9/1/2019	9/30/2019	5	21	
3	Grading	Grading	10/1/2019	11/30/2019	5	44	
4	Building Construction	Building Construction	12/1/2019	4/30/2020	5	109	
5	Paving	Paving	4/1/2020	4/30/2020	5	22	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 22

Acres of Paving: 0.16

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	0	8.00	81	0.73
Demolition	Rubber Tired Dozers	0	1.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Site Preparation	Excavators	1	8.00	158	0.38
Site Preparation	Graders	0	8.00	187	0.41

Site Preparation	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Grading	Concrete/Industrial Saws	0	8.00	81	0.73
Grading	Cranes	1	8.00	231	0.29
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	0	1.00	247	0.40
Grading	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Cranes	1	4.00	231	0.29
Building Construction	Excavators	1	8.00	158	0.38
Building Construction	Forklifts	0	6.00	89	0.20
Building Construction	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Paving	Cement and Mortar Mixers	0	6.00	9	0.56
Paving	Pavers	1	7.00	130	0.42
Paving	Rollers	0	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	0	7.00	97	0.37
Building Construction	Rubber Tired Dozers	1	8.00	247	0.40

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	1	3.00	0.00	2.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	1	3.00	0.00	18.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	4.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	4	3.00	1.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	1	3.00	2.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Demolition - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.1000e-004	0.0000	2.1000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.9200e-003	0.0193	0.0190	3.0000e-005		1.2900e-003	1.2900e-003		1.1800e-003	1.1800e-003	0.0000	2.3017	2.3017	7.3000e-004	0.0000	2.3199
Total	**1.9200e-003**	**0.0193**	**0.0190**	**3.0000e-005**	**2.1000e-004**	**1.2900e-003**	**1.5000e-003**	**3.0000e-005**	**1.1800e-003**	**1.2100e-003**	**0.0000**	**2.3017**	**2.3017**	**7.3000e-004**	**0.0000**	**2.3199**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.0000e-005	3.2000e-004	7.0000e-005	0.0000	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0000	1.0000e-005	0.0000	0.0779	0.0779	1.0000e-005	0.0000	0.0780
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.7000e-004	1.4000e-004	1.5000e-003	0.0000	3.6000e-004	0.0000	3.6000e-004	1.0000e-004	0.0000	1.0000e-004	0.0000	0.3476	0.3476	1.0000e-005	0.0000	0.3479
Total	**1.8000e-004**	**4.6000e-004**	**1.5700e-003**	**0.0000**	**3.8000e-004**	**0.0000**	**3.8000e-004**	**1.0000e-004**	**0.0000**	**1.1000e-004**	**0.0000**	**0.4255**	**0.4255**	**2.0000e-005**	**0.0000**	**0.4259**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Category	tons/yr										MT/yr					
Fugitive Dust					1.0000e-004	0.0000	1.0000e-004	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.9200e-003	0.0193	0.0190	3.0000e-005		1.2900e-003	1.2900e-003		1.1800e-003	1.1800e-003	0.0000	2.3017	2.3017	7.3000e-004	0.0000	2.3199
Total	**1.9200e-003**	**0.0193**	**0.0190**	**3.0000e-005**	**1.0000e-004**	**1.2900e-003**	**1.3900e-003**	**1.0000e-005**	**1.1800e-003**	**1.1900e-003**	**0.0000**	**2.3017**	**2.3017**	**7.3000e-004**	**0.0000**	**2.3199**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.0000e-005	3.2000e-004	7.0000e-005	0.0000	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0000	1.0000e-005	0.0000	0.0779	0.0779	1.0000e-005	0.0000	0.0780
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.7000e-004	1.4000e-004	1.5000e-003	0.0000	3.6000e-004	0.0000	3.6000e-004	1.0000e-004	0.0000	1.0000e-004	0.0000	0.3476	0.3476	1.0000e-005	0.0000	0.3479
Total	**1.8000e-004**	**4.6000e-004**	**1.5700e-003**	**0.0000**	**3.8000e-004**	**0.0000**	**3.8000e-004**	**1.0000e-004**	**0.0000**	**1.1000e-004**	**0.0000**	**0.4255**	**0.4255**	**2.0000e-005**	**0.0000**	**0.4259**

3.3 Site Preparation - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.7400e-003	0.0282	0.0343	5.0000e-005		1.3600e-003	1.3600e-003		1.2500e-003	1.2500e-003	0.0000	4.8687	4.8687	1.5400e-003	0.0000	4.9072

Total	**2.7400e-003**	**0.0282**	**0.0343**	**5.0000e-005**	**1.0000e-005**	**1.3600e-003**	**1.3700e-003**	**0.0000**	**1.2500e-003**	**1.2500e-003**	**0.0000**	**4.8687**	**4.8687**	**1.5400e-003**	**0.0000**	**4.9072**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	9.0000e-005	2.8500e-003	6.1000e-004	1.0000e-005	1.5000e-004	1.0000e-005	1.6000e-004	4.0000e-005	1.0000e-005	5.0000e-005	0.0000	0.7008	0.7008	5.0000e-005	0.0000	0.7021
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.6000e-004	1.3000e-004	1.4300e-003	0.0000	3.5000e-004	0.0000	3.5000e-004	9.0000e-005	0.0000	9.0000e-005	0.0000	0.3318	0.3318	1.0000e-005	0.0000	0.3321
Total	**2.5000e-004**	**2.9800e-003**	**2.0400e-003**	**1.0000e-005**	**5.0000e-004**	**1.0000e-005**	**5.1000e-004**	**1.3000e-004**	**1.0000e-005**	**1.4000e-004**	**0.0000**	**1.0326**	**1.0326**	**6.0000e-005**	**0.0000**	**1.0341**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.7400e-003	0.0282	0.0343	5.0000e-005		1.3600e-003	1.3600e-003		1.2500e-003	1.2500e-003	0.0000	4.8687	4.8687	1.5400e-003	0.0000	4.9072
Total	**2.7400e-003**	**0.0282**	**0.0343**	**5.0000e-005**	**0.0000**	**1.3600e-003**	**1.3600e-003**	**0.0000**	**1.2500e-003**	**1.2500e-003**	**0.0000**	**4.8687**	**4.8687**	**1.5400e-003**	**0.0000**	**4.9072**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	9.0000e-005	2.8500e-003	6.1000e-004	1.0000e-005	1.5000e-004	1.0000e-005	1.6000e-004	4.0000e-005	1.0000e-005	5.0000e-005	0.0000	0.7008	0.7008	5.0000e-005	0.0000	0.7021
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.6000e-004	1.3000e-004	1.4300e-003	0.0000	3.5000e-004	0.0000	3.5000e-004	9.0000e-005	0.0000	9.0000e-005	0.0000	0.3318	0.3318	1.0000e-005	0.0000	0.3321
Total	**2.5000e-004**	**2.9800e-003**	**2.0400e-003**	**1.0000e-005**	**5.0000e-004**	**1.0000e-005**	**5.1000e-004**	**1.3000e-004**	**1.0000e-005**	**1.4000e-004**	**0.0000**	**1.0326**	**1.0326**	**6.0000e-005**	**0.0000**	**1.0341**

3.4 Grading - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0117	0.0000	0.0117	1.2600e-003	0.0000	1.2600e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0314	0.3745	0.2007	4.4000e-004		0.0157	0.0157		0.0144	0.0144	0.0000	39.3298	39.3298	0.0124	0.0000	39.6408
Total	**0.0314**	**0.3745**	**0.2007**	**4.4000e-004**	**0.0117**	**0.0157**	**0.0273**	**1.2600e-003**	**0.0144**	**0.0157**	**0.0000**	**39.3298**	**39.3298**	**0.0124**	**0.0000**	**39.6408**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					

Hauling	2.0000e-005	6.3000e-004	1.3000e-004	0.0000	3.0000e-005	0.0000	4.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.1557	0.1557	1.0000e-005	0.0000	0.1560
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.1000e-003	9.2000e-004	9.9900e-003	3.0000e-005	2.4100e-003	2.0000e-005	2.4300e-003	6.4000e-004	2.0000e-005	6.6000e-004	0.0000	2.3174	2.3174	8.0000e-005	0.0000	2.3194
Total	**1.1200e-003**	**1.5500e-003**	**0.0101**	**3.0000e-005**	**2.4400e-003**	**2.0000e-005**	**2.4700e-003**	**6.5000e-004**	**2.0000e-005**	**6.7000e-004**	**0.0000**	**2.4731**	**2.4731**	**9.0000e-005**	**0.0000**	**2.4754**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					5.2500e-003	0.0000	5.2500e-003	5.7000e-004	0.0000	5.7000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0314	0.3745	0.2007	4.4000e-004		0.0157	0.0157		0.0144	0.0144	0.0000	39.3297	39.3297	0.0124	0.0000	39.6408
Total	**0.0314**	**0.3745**	**0.2007**	**4.4000e-004**	**5.2500e-003**	**0.0157**	**0.0209**	**5.7000e-004**	**0.0144**	**0.0150**	**0.0000**	**39.3297**	**39.3297**	**0.0124**	**0.0000**	**39.6408**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.0000e-005	6.3000e-004	1.3000e-004	0.0000	3.0000e-005	0.0000	4.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.1557	0.1557	1.0000e-005	0.0000	0.1560
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.1000e-003	9.2000e-004	9.9900e-003	3.0000e-005	2.4100e-003	2.0000e-005	2.4300e-003	6.4000e-004	2.0000e-005	6.6000e-004	0.0000	2.3174	2.3174	8.0000e-005	0.0000	2.3194
Total	**1.1200e-003**	**1.5500e-003**	**0.0101**	**3.0000e-005**	**2.4400e-003**	**2.0000e-005**	**2.4700e-003**	**6.5000e-004**	**2.0000e-005**	**6.7000e-004**	**0.0000**	**2.4731**	**2.4731**	**9.0000e-005**	**0.0000**	**2.4754**

3.5 Building Construction - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0205	0.2195	0.1204	2.2000e-004		0.0109	0.0109		0.0101	0.0101	0.0000	19.3570	19.3570	6.1200e-003	0.0000	19.5101
Total	**0.0205**	**0.2195**	**0.1204**	**2.2000e-004**		**0.0109**	**0.0109**		**0.0101**	**0.0101**	**0.0000**	**19.3570**	**19.3570**	**6.1200e-003**	**0.0000**	**19.5101**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	5.0000e-005	1.3000e-003	3.6000e-004	0.0000	7.0000e-005	1.0000e-005	8.0000e-005	2.0000e-005	1.0000e-005	3.0000e-005	0.0000	0.2751	0.2751	2.0000e-005	0.0000	0.2755
Worker	1.7000e-004	1.4000e-004	1.5000e-003	0.0000	3.6000e-004	0.0000	3.6000e-004	1.0000e-004	0.0000	1.0000e-004	0.0000	0.3476	0.3476	1.0000e-005	0.0000	0.3479
Total	**2.2000e-004**	**1.4400e-003**	**1.8600e-003**	**0.0000**	**4.3000e-004**	**1.0000e-005**	**4.4000e-004**	**1.2000e-004**	**1.0000e-005**	**1.3000e-004**	**0.0000**	**0.6227**	**0.6227**	**3.0000e-005**	**0.0000**	**0.6234**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0205	0.2195	0.1204	2.2000e-004		0.0109	0.0109		0.0101	0.0101	0.0000	19.3570	19.3570	6.1200e-003	0.0000	19.5101
Total	**0.0205**	**0.2195**	**0.1204**	**2.2000e-004**		**0.0109**	**0.0109**		**0.0101**	**0.0101**	**0.0000**	**19.3570**	**19.3570**	**6.1200e-003**	**0.0000**	**19.5101**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	5.0000e-005	1.3000e-003	3.6000e-004	0.0000	7.0000e-005	1.0000e-005	8.0000e-005	2.0000e-005	1.0000e-005	3.0000e-005	0.0000	0.2751	0.2751	2.0000e-005	0.0000	0.2755
Worker	1.7000e-004	1.4000e-004	1.5000e-003	0.0000	3.6000e-004	0.0000	3.6000e-004	1.0000e-004	0.0000	1.0000e-004	0.0000	0.3476	0.3476	1.0000e-005	0.0000	0.3479
Total	**2.2000e-004**	**1.4400e-003**	**1.8600e-003**	**0.0000**	**4.3000e-004**	**1.0000e-005**	**4.4000e-004**	**1.2000e-004**	**1.0000e-005**	**1.3000e-004**	**0.0000**	**0.6227**	**0.6227**	**3.0000e-005**	**0.0000**	**0.6234**

3.5 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0760	0.8010	0.4649	8.5000e-004		0.0396	0.0396		0.0364	0.0364	0.0000	74.8961	74.8961	0.0242	0.0000	75.5016

Total	**0.0760**	**0.8010**	**0.4649**	**8.5000e-004**		**0.0396**	**0.0396**		**0.0364**	**0.0364**	**0.0000**	**74.8961**	**74.8961**	**0.0242**	**0.0000**	**75.5016**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.6000e-004	4.7100e-003	1.2800e-003	1.0000e-005	2.7000e-004	2.0000e-005	3.0000e-004	8.0000e-005	2.0000e-005	1.0000e-004	0.0000	1.0807	1.0807	7.0000e-005	0.0000	1.0824
Worker	6.0000e-004	4.9000e-004	5.3700e-003	1.0000e-005	1.4300e-003	1.0000e-005	1.4400e-003	3.8000e-004	1.0000e-005	3.9000e-004	0.0000	1.3329	1.3329	4.0000e-005	0.0000	1.3339
Total	**7.6000e-004**	**5.2000e-003**	**6.6500e-003**	**2.0000e-005**	**1.7000e-003**	**3.0000e-005**	**1.7400e-003**	**4.6000e-004**	**3.0000e-005**	**4.9000e-004**	**0.0000**	**2.4135**	**2.4135**	**1.1000e-004**	**0.0000**	**2.4163**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0760	0.8010	0.4649	8.5000e-004		0.0396	0.0396		0.0364	0.0364	0.0000	74.8960	74.8960	0.0242	0.0000	75.5016
Total	**0.0760**	**0.8010**	**0.4649**	**8.5000e-004**		**0.0396**	**0.0396**		**0.0364**	**0.0364**	**0.0000**	**74.8960**	**74.8960**	**0.0242**	**0.0000**	**75.5016**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.6000e-004	4.7100e-003	1.2800e-003	1.0000e-005	2.7000e-004	2.0000e-005	3.0000e-004	8.0000e-005	2.0000e-005	1.0000e-004	0.0000	1.0807	1.0807	7.0000e-005	0.0000	1.0824
Worker	6.0000e-004	4.9000e-004	5.3700e-003	1.0000e-005	1.4300e-003	1.0000e-005	1.4400e-003	3.8000e-004	1.0000e-005	3.9000e-004	0.0000	1.3329	1.3329	4.0000e-005	0.0000	1.3339
Total	**7.6000e-004**	**5.2000e-003**	**6.6500e-003**	**2.0000e-005**	**1.7000e-003**	**3.0000e-005**	**1.7400e-003**	**4.6000e-004**	**3.0000e-005**	**4.9000e-004**	**0.0000**	**2.4135**	**2.4135**	**1.1000e-004**	**0.0000**	**2.4163**

3.6 Paving - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	2.5300e-003	0.0271	0.0279	5.0000e-005		1.3100e-003	1.3100e-003		1.2100e-003	1.2100e-003	0.0000	3.9753	3.9753	1.2900e-003	0.0000	4.0074
Paving	2.1000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**2.7400e-003**	**0.0271**	**0.0279**	**5.0000e-005**		**1.3100e-003**	**1.3100e-003**		**1.2100e-003**	**1.2100e-003**	**0.0000**	**3.9753**	**3.9753**	**1.2900e-003**	**0.0000**	**4.0074**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					

Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	8.0000e-005	2.3800e-003	6.5000e-004	1.0000e-005	1.4000e-004	1.0000e-005	1.5000e-004	4.0000e-005	1.0000e-005	5.0000e-005	0.0000	0.5465	0.5465	3.0000e-005	0.0000	0.5474
Worker	1.5000e-004	1.2000e-004	1.3600e-003	0.0000	3.6000e-004	0.0000	3.6000e-004	1.0000e-004	0.0000	1.0000e-004	0.0000	0.3371	0.3371	1.0000e-005	0.0000	0.3373
Total	**2.3000e-004**	**2.5000e-003**	**2.0100e-003**	**1.0000e-005**	**5.0000e-004**	**1.0000e-005**	**5.1000e-004**	**1.4000e-004**	**1.0000e-005**	**1.5000e-004**	**0.0000**	**0.8836**	**0.8836**	**4.0000e-005**	**0.0000**	**0.8847**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	2.5300e-003	0.0271	0.0279	5.0000e-005		1.3100e-003	1.3100e-003		1.2100e-003	1.2100e-003	0.0000	3.9753	3.9753	1.2900e-003	0.0000	4.0074
Paving	2.1000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**2.7400e-003**	**0.0271**	**0.0279**	**5.0000e-005**		**1.3100e-003**	**1.3100e-003**		**1.2100e-003**	**1.2100e-003**	**0.0000**	**3.9753**	**3.9753**	**1.2900e-003**	**0.0000**	**4.0074**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	8.0000e-005	2.3800e-003	6.5000e-004	1.0000e-005	1.4000e-004	1.0000e-005	1.5000e-004	4.0000e-005	1.0000e-005	5.0000e-005	0.0000	0.5465	0.5465	3.0000e-005	0.0000	0.5474
Worker	1.5000e-004	1.2000e-004	1.3600e-003	0.0000	3.6000e-004	0.0000	3.6000e-004	1.0000e-004	0.0000	1.0000e-004	0.0000	0.3371	0.3371	1.0000e-005	0.0000	0.3373
Total	**2.3000e-004**	**2.5000e-003**	**2.0100e-003**	**1.0000e-005**	**5.0000e-004**	**1.0000e-005**	**5.1000e-004**	**1.4000e-004**	**1.0000e-005**	**1.5000e-004**	**0.0000**	**0.8836**	**0.8836**	**4.0000e-005**	**0.0000**	**0.8847**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Asphalt Surfaces	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Asphalt Surfaces	0.547726	0.045437	0.201480	0.122768	0.016614	0.006090	0.019326	0.029174	0.002438	0.002359	0.005005	0.000677	0.000907

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e

Land Use	kWh/yr	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	5.6000e-004	0.0000	9.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.7000e-004	1.7000e-004	0.0000	0.0000	1.9000e-004
Unmitigated	5.6000e-004	0.0000	9.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.7000e-004	1.7000e-004	0.0000	0.0000	1.9000e-004

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	1.0000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Consumer Products	4.5000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.0000e-005	0.0000	9.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.7000e-004	1.7000e-004	0.0000	0.0000	1.9000e-004
Total	**5.6000e-004**	**0.0000**	**9.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**1.7000e-004**	**1.7000e-004**	**0.0000**	**0.0000**	**1.9000e-004**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	1.0000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	4.5000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.0000e-005	0.0000	9.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.7000e-004	1.7000e-004	0.0000	0.0000	1.9000e-004
Total	**5.6000e-004**	**0.0000**	**9.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**1.7000e-004**	**1.7000e-004**	**0.0000**	**0.0000**	**1.9000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			

Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

APPENDIX C

UPDATED BIOLOGICAL AND JURISDICTIONAL WATERS RESOURCES

May 13, 2024

Michelle Morrison
Senior Environmental Specialist, Environmental Planning Section
The Metropolitan Water District of Southern California
700 North Alameda Street
Los Angeles, California 90012

VIA EMAIL
MMorrison@mwdh2o.com

Subject: Updated Biological and Jurisdictional Waters Resources Assessment for the Metropolitan Water District West Valley Feeder No. 1 Stage 3 Improvements Project in the City of Los Angeles, California

Dear Michelle Morrison:

This Letter Report presents the updated conclusions of a biological and jurisdictional waters resources assessment for The Metropolitan Water District of Southern California (MWD) West Valley Feeder No. 1 (WVF1) Stage 3 Improvements project (hereinafter referred to as the "project") located in the City of Los Angeles, Los Angeles County, California (Exhibit 1). The purpose of the field surveys was to evaluate the potential biological and jurisdictional constraints on the project; determine the presence or absence of special status species, identify potential impacts to biological and jurisdictional water resources that could result from implementation of the project; and provide recommendations to avoid, minimize, and/or mitigate significant impacts.

PROJECT DESCRIPTION AND LOCATION

The project involves modification of the MWD WVF1 located northwest of Chatsworth Park South. Proposed project actions include construction of an approximately 500-foot access road including a vehicle turnaround area and various modifications to existing facilities including valve relocation, equipment replacement, and reconstruction of valve structures. Additionally, the project proposes the installation of new manholes, concrete vaults, and retaining walls along the WVF1. Project impacts would include both temporary impacts in areas associated with construction access, staging, and laydown areas as well as permanent impacts associated with the proposed access road. Except for those areas where impacts would be confined to existing structures and the surrounding paved areas, all other impact areas occurring would be subject to some degree of earth disturbance.

The project site is in the western portion of the San Fernando Valley in the City of Los Angeles (Exhibit 1). Surrounding land uses include undeveloped open space in the Santa Susana Pass State Historic Park to the west and Chatsworth Park South to the east, with urban development farther to the east. A Metrolink railroad alignment is located immediately north of the site. The project site occurs on the U.S. Geological Survey's (USGS') Oat Mountain 7.5-minute quadrangle at Township 2 North, Range 17 West, Sections 13 and 14 (Exhibit 2). Topography in the survey area includes slopes and eastward-draining canyons; elevations range from approximately 1,010 feet above mean sea level (msl) in the east to 1,160 feet above msl in the

west. Soils in the survey area are mapped as rock outcrop–Gaviota complex, 30 to 75 percent slopes (Exhibit 3).

Thirteen vegetation types and other areas occur on the project site (Exhibit 4). Vegetation categories include California sagebrush–deerweed scrub, California sagebrush–bush mallow scrub, semi-natural herbaceous stand, wild oats grassland, bush mallow scrub, laurel sumac scrub, red willow/arroyo willow thicket, coast live oak woodland, coast live oak–California sycamore woodland, eucalyptus grove, disturbed, developed and ornamental.

Significant Ecological Areas

The *County of Los Angeles General Plan* originally characterized Significant Ecological Areas (SEAs) as areas that contain unique, dwindling, or other rare plant and animal resources that need to be more specifically studied for the purpose of public education, research, and other non-disruptive outdoor uses (England and Nelson 1976). Thus, the SEA designation does not prohibit development of land but signals that further study is required.

The project is located partially within the Santa Susana Mountains/Simi Hills SEA, which was adopted pursuant to the Santa Clarita Valley Area Plan Update of 2011 and the Los Angeles County General Plan Update of 2015. As noted in the 2015 Los Angeles General Plan, the main purposes for establishing the Santa Susana Mountains/Simi Hills SEA was: (a) to protect core habitats of listed species including Braunton's milk vetch (*Astragalus brauntonii*), coastal California gnatcatcher (*Polioptila californica californica*), and least Bell's vireo (*Vireo bellii pusillus*); (b) for protection of biotic communities, vegetative associates, and habitat of plant and animal species that are restricted in distribution in the County and regionally; and (c) to act as an essential habitat linkage between the Santa Monica Mountains to the south, San Gabriel Mountains to the east, and the Los Padres National Forest to the north.

SURVEY METHODS

Psomas Biologist Allison Rudalevige conducted an initial general plant and wildlife survey, mapped vegetation, and performed a jurisdictional delineation for the project on June 4, 2018. The general survey was repeated in 2022 and a number of focused protocol surveys were conducted including a rare plant focused protocol survey, least Bell's vireo focused protocol survey, California gnatcatcher focused protocol survey, and a California red-legged frog focused protocol survey. A general survey and updated vegetation mapping survey were conducted in October 2023 due to the addition of previously unsurveyed project work areas. The survey area included a 100-foot buffer around all project impact areas. Representative photographs are provided in Appendix A.

Literature Review

Prior to the survey, a literature review was conducted to identify special status plants, wildlife, and habitats that have been reported to occur in the vicinity of the survey area. The California Native Plant Society's (CNPS') Inventory of Rare and Endangered Plants (CNPS 2023) and the California Department of Fish and Wildlife's (CDFW's) California Natural Diversity Database (CDFW 2023b) were reviewed. Database searches included the USGS' Simi Valley East (also called Santa Susana), Oat Mountain, Canoga Park, and Calabasas 7.5-minute quadrangles. Resources reviewed to assist in the delineation of jurisdictional features included the U.S. Department of Agriculture, Natural Resources Conservation Service's (USDA NRCS') Web Soil Survey, the USDA NRCS' Hydric Soils List (USDA NRCS 2023), and the U.S. Fish and Wildlife Service's (USFWS') National Wetlands Inventory (NWI) Wetland Mapper (USFWS 2023).

Vegetation Mapping and General Survey

Vegetation was mapped on a 1-inch equals 100-foot (1″=100′) scale color aerial. Nomenclature for vegetation types generally follows that of *A Manual of California Vegetation* (Sawyer et al. 2009). All plant species observed were recorded in field notes. Plant species were identified in the field or collected for subsequent identification using keys in Baldwin et al. (2012). Nomenclature of plant taxa conforms to the *Special Vascular Plants, Bryophytes, and Lichens List* (CDFW 2023e) for special status species and the Jepson eFlora (Jepson Flora Project 2023) for all other taxa.

All wildlife species detected during the course of the surveys were documented in field notes. Active searches for reptiles and amphibians included lifting, overturning, and carefully replacing rocks and debris. Birds were identified by visual and auditory recognition. Surveys for mammals were conducted during the day and included searching for and identifying diagnostic signs, including scat, footprints, scratch-outs, dust bowls, burrows, and trails. Taxonomy and nomenclature for wildlife generally follows the *Special Animals List* (CDFW 2023d) for special status species and, for other species, Center for North American Herpetology (2015) for amphibians and reptiles, the American Ornithological Society (2023) for birds, and the Smithsonian National Museum of Natural History (2011) for mammals.

Jurisdictional Delineation

Section 404 of the federal Clean Water Act (CWA) and Section 1602 of the *California Fish and Game Code* regulate activities affecting resources under the jurisdiction of the U.S. Army Corps of Engineers (USACE) and the CDFW, respectively. Waters of the United States under the jurisdiction of the USACE include navigable coastal and inland waters, lakes, rivers, streams, and their tributaries; interstate waters and their tributaries; wetlands adjacent to such waters; intermittent streams; and other waters that could affect interstate commerce. The CDFW has jurisdictional authority over resources associated with rivers, streams, and lakes. Section 401 of the CWA provides the Regional Water Quality Control Board (RWQCB) with the authority to regulate, through a Water Quality Certification, any proposed federally permitted activity that may affect water quality. The RWQCB also has jurisdiction over isolated wetlands and waters of the State under the Porter-Cologne Water Quality Control Act.

A delineation of jurisdictional water resource boundaries was conducted concurrently with vegetation mapping and general biological surveys in order to describe the type and extent of waters regulated by the USACE, the RWQCB, and/or the CDFW. Jurisdictional features were mapped on the aerial. Non-wetland waters of the United States under the jurisdiction of the USACE were assessed based on the presence of an Ordinary High Water Mark (OHWM). The presence of wetland waters of the United States was assessed using a three-parameter approach for wetland hydrology, hydrophytic vegetation, and hydric soils, as described in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (USACE 2008). It should be noted that the RWQCB shares USACE jurisdiction unless isolated conditions are present. If conditions indicating isolated waters are present, the RWQCB takes jurisdiction using the USACE's OHWM. CDFW generally asserts jurisdiction over the top of the bank of a river, stream, or lake or to the outer limit of riparian vegetation located within or immediately adjacent to the river, stream, or lake.

SURVEY RESULTS

Vegetation Types and Other Landcovers

Approximately 10.98 acres of vegetation and other landcovers occur in the survey area (Exhibit 4; Table 1). This consists of California sagebrush–deerweed scrub, California sagebrush–bush mallow scrub, semi-natural herbaceous stand, wild oats grassland, bush mallow scrub, bush mallow–laurel sumac scrub,

laurel sumac scrub, red willow/arroyo willow thicket, coast live oak woodland, coast live oak–California sycamore woodland, eucalyptus grove, disturbed, developed, and ornamental. These areas are described below.

TABLE 1
VEGETATION TYPES AND OTHER LANDCOVER IN THE SURVEY AREA

Vegetation Type or Other Landcover	Area (acres)	Special Status*
California sagebrush–deerweed scrub	4.01	no
California sagebrush–bush mallow scrub	0.21	no
semi-natural herbaceous stand	0.31	no
wild oats grassland	0.35	no
bush mallow scrub	0.02	no
laurel sumac scrub	1.72	no
red willow/arroyo willow thicket	0.21	yes
coast live oak woodland	0.82	no
coast live oak–California sycamore woodland	0.65	no
eucalyptus grove	0.07	no
disturbed	0.67	no
developed	1.12	no
ornamental	0.82	no
Total	**10.98**	

* Sensitivity is based on the California Department of Fish and Wildlife's *California Natural Community List* (CDFW 2022a).

California Sagebrush–Deerweed Scrub

California sagebrush–deerweed scrub occurs on slopes throughout the survey area. This vegetation type is dominated by deerweed (*Acmispon glaber*; formerly *Lotus scoparius*) and California sagebrush (*Artemisia californica*), with the relative cover of each varying across the site. Other drought-deciduous sage scrub species such as California buckwheat (*Eriogonum fasciculatum*) and saw-toothed goldenbush (*Hazardia squarrosa*) occur at lower cover. The area between shrubs is dominated by red brome (*Bromus madritensis* ssp. *rubens*), with scattered tocalote (*Centaurea melitensis*), crimson fountain grass (*Pennisetum setaceum*), and large-bracted morning-glory (*Calystegia macrostegia*). Deerweed often occurs in areas with recent disturbance, such as through clearing, fire, or intermittent flooding (Sawyer et al. 2009). The eastern portion of the site burned most recently during the 2008 Sesnon Fire, while the western portion of the site burned in the 2005 Topanga Fire (Los Angeles County 2017). Deerweed stands represent an early successional community that is replaced by longer-lived shrubs typically between five and ten years after a fire (Sawyer et al. 2009). The vegetation in the survey area may represent a transition between a post-fire community and a more "typical" coastal sage scrub community.

This vegetation type corresponds to the *Artemisia californica–Lotus scoparius* Association in Sawyer et al. (2009), which consists of mixed stands of California sagebrush with other shrubs sub-dominant. It is not considered a sensitive natural community by the CDFW.

California Sagebrush–Bush Mallow Scrub

California sagebrush–bush mallow scrub occurs in the eastern portion of the survey area. This vegetation type is similar to the California sagebrush–deerweed scrub but is dominated by a mix of chaparral mallow (*Malacothamnus fasciculatus*) and California sagebrush. Bush mallow associations represent post-fire conditions, and individual shrubs are suppressed by longer-lived shrubs within a decade after a fire (Sawyer et al. 2009). Therefore, this area may also represent a transition between a post-fire community and a more "typical" coastal sage scrub or chaparral community.

This vegetation type does not correspond to a named alliance or association in Sawyer et al. (2009). Its composition is similar to the *Malacothamnus fasciculatus* Shrubland Alliance, though the cover of bush mallow is less than the required cover (i.e., 50 percent) for that alliance. Since neither the *Artemisia californica* Shrubland Alliance nor the *Malacothamnus fasciculatus* Shrubland Alliance are considered sensitive natural communities by the CDFW, the California sagebrush–bush mallow scrub in the survey area is not considered sensitive.

Semi-natural Herbaceous Stand

Semi-natural herbaceous stands occur adjacent to the access roads throughout the survey area. This vegetation consists of non-native, weedy species such as grayish shortpod mustard (*Hirschfeldia incana*), tocalote, red brome, and round-leaved filaree (*Erodium cicutarium*), with no single species dominant. These species are typical of disturbed areas. Scattered natives, such as deerweed, saw-toothed goldenbush, large-bracted morning-glory, fascicled tarplant (*Deinandra fasciculata*), and sapphire eriastrum (*Eriastrum sapphirinum*) are also present.

This vegetation type corresponds to various semi-natural herbaceous stands in Sawyer et al. (2009). Being dominated by non-native species, it is not considered a sensitive natural community by the CDFW.

Wild Oats Grassland

Wild oats grassland occurs in a patch in the western portion of the survey area. This vegetation type is dominated by wild oat (*Avena* sp.). Scattered coastal sage scrub species, such as wishbone bush (*Mirabilis laevis* var. *crassifolia*) also occur.

This vegetation type corresponds to the *Avena* (*barbata*, *fatua*) semi-natural herbaceous stand in Sawyer et al. (2009). Being dominated by a non-native species, it is not considered a sensitive natural community by the CDFW.

Bush Mallow Scrub

Bush mallow scrub occurs in a few discrete patches in the survey area. This vegetation type is dominated by chaparral mallow at a cover greater than 50 percent. As discussed above, these areas may represent a transition between a post-fire community and a more "typical" coastal sage scrub or chaparral community.

This vegetation type corresponds to the *Malacothamnus fasciculatus* Shrubland Alliance in Sawyer et al. (2009). It is not considered a sensitive natural community by the CDFW.

Laurel Sumac Scrub

Laurel sumac scrub occurs on slopes throughout the survey area. This vegetation type consists of large individuals or stands of laurel sumac (*Malosma laurina*).

This vegetation type corresponds to the *Malosma laurina* Shrubland Alliance in Sawyer et al. (2009). It is not considered a sensitive natural community by the CDFW.

Red Willow/Arroyo Willow Thicket

Red willow/arroyo willow thicket occurs along a portion of Drainage 1 in the western portion of the survey area. This vegetation type is dominated by a canopy of red willow (*Salix laevigata*) and arroyo willow (*Salix lasiolepis*). The understory is partly open with some areas containing western poison oak (*Toxicodendron diversilobum*) or cattail (*Typha* sp.).

This vegetation type corresponds to the *Salix laevigata–Salix lasiolepis* Association in Sawyer et al. (2009). It is considered a sensitive natural community by the CDFW. It is also associated with water resources under the jurisdiction of the USACE, the RWQCB, and/or the CDFW, as discussed below.

Coast Live Oak Woodland

Coast live oak woodland occurs on upland slopes of the survey area. This vegetation type consists of individual coast live oak (*Quercus agrifolia*) that are not associated with the on-site drainages.

This vegetation type corresponds to the *Quercus agrifolia* Woodland Alliance in Sawyer et al. (2009). It is not considered a sensitive natural community by the CDFW.

Coast Live Oak–California Sycamore Woodland

Coast live oak–California sycamore woodland occurs along the drainages in the survey area. This vegetation type consists of a closed canopy of coast live oaks with some western sycamore (*Platanus racemosa*). The lower canopy and understory contain blue elderberry (*Sambucus nigra* ssp. *caerulea*), laurel sumac, mugwort (*Artemisia douglasiana*), and western poison oak.

This vegetation type corresponds to the *Quercus agrifolia–Platanus racemosa/Toxicodendron diversilobum* Association in Sawyer et al. (2009). It is not considered a sensitive natural community by the CDFW. However, it is associated with water resources under the jurisdiction of the USACE, the RWQCB, and/or the CDFW, as discussed below.

Eucalyptus Grove

Eucalyptus grove occurs adjacent to the existing Calleguas Municipal Water District facility at the western end of the survey area. This vegetation type is dominated by non-native silver dollar gum (*Eucalyptus polyanthemos*) with pepper tree (*Schinus molle*).

This vegetation type corresponds to the *Eucalyptus* (*globulus*, *camaldulensis*) semi-natural woodland stand in Sawyer et al. (2009). Being dominated by non-native species, it is not considered a sensitive natural community by the CDFW.

Disturbed

Disturbed landcover consists of graded, dirt access roads throughout the survey area. These areas are unvegetated or contain sparse weedy vegetation.

Developed

Developed landcover consists of paved roads in the survey area and the existing Calleguas Municipal Water District facility.

Ornamental

Ornamental landcover consists of landscaped areas containing non-native ornamental vegetation. On the project site, these areas consisted predominantly of turf grass as part of a park field near the entrance to Chatsworth Park South.

Jurisdictional Resources

Jurisdictional resources in the survey area includes one main drainage channel to the west (Drainage 1) with one tributary channel (Drainage 1A) and a second large drainage (Drainage 2) towards the center of the site (Exhibit 5; Table 2). The NWI maps Drainage 1 as a Riverine, intermittent streambed that is temporarily flooded. Soils in the survey area are not listed as hydric (USDA NRCS 2023).

TABLE 2
JURISDICTIONAL WATER RESOURCES IN THE SURVEY AREA

Jurisdiction	Drainage 1 (acres)	Drainage 2 (acres)	Total
USACE	-	-	-
wetland waters of the United States	0.02	0.00	**0.02**
non-wetland waters of the United States	0.04	0.03	**0.07**
RWQCB	0.06	0.03	**0.09**
CDFW	0.74	0.50	**1.24**

USACE: U.S. Army Corps of Engineers; RWQCB: Regional Water Quality Control Board; CDFW: California Department of Fish and Wildlife

* The riparian canopy extends over both Drainages 1 and 1A; acreage for both channels is included under Drainage 1.

U.S. Army Corps of Engineers

The on-site drainage channels connect with the City of Los Angeles' subsurface municipal separate storm sewer system (MS4), which carries flow to the Los Angeles River. The Los Angeles River discharges into the Pacific Ocean, a Traditional Navigable Water (TNW). Drainage 1 had flowing water during the summer 2018 site visit and the spring and summer 2022 site visits. The presence of surface water during the dry season indicates that these drainages may be considered to be relatively permanent, non-navigable tributaries to a TNW. Therefore, Drainage 1 would be considered waters of the United States. It exhibited evidence of bed, bank, and OHWM. Indicators of an OHWM include a change in vegetation cover and composition, break in bank slope, and drift deposits.

Drainage 1A did not have flowing water at the time of the surveys or exhibit indicators of wetland hydrology. It had a bed and near vertical banks with an accumulation of leaf litter consistent with the surrounding hillsides. Drainage 1A exhibits the features of an ephemeral body. Ephemeral waters are no

longer jurisdictional under Section 404 of the Clean Water Act due to the recent Sacket decision [*Sackett v. Environmental Protection Agency, 598 U.S. ___ (2023)*]. However, Drainage 1A remains under the jurisdiction of the RWQCB, an isolated water of the State, and CDFW.

Drainage 1 exhibited evidence of wetland hydrology (e.g., surface water, drift deposits, drainage patterns). The majority of the drainage was under a coast live oak canopy (an upland species) either lacking understory vegetation or with western poison oak (a facultative upland species) (Lichvar et al. 2016) and would not meet the hydrophytic vegetation criterion for wetlands. Therefore, the portion of Drainage 1 with an oak canopy would be considered non-wetland waters of the United States. A portion of Drainage 1 had a canopy of red willow and arroyo willow, with an understory containing western poison oak or cattail in small patches. Both willow species observed on-site are considered facultative wetland species and cattail is considered an obligate wetland species. A soil test pit was not dug due to inaccessibility of the channel in this area (i.e., the presence of poison oak and dense riparian vegetation as well as the steepness of the surrounding slopes prevented safe access); therefore, the presence of hydric soils could not be confirmed. However, given the presence of flowing water during the dry season and the dominance of facultative wetland species with a small amount of obligate wetland species present in the channel, the portion of the drainage containing willows can be inferred to be wetland waters of the United States. Drainage 2 similarly carries flow to the Los Angeles River and is considered jurisdictional waters of the United States because the Los Angeles River discharges into the Pacific Ocean, a TNW.

Approximately 0.09 acre of waters of the United States (0.02-acre wetland and 0.07-acre non-wetland) occur in the survey area (Exhibit 5; Table 2).

Regional Water Quality Control Board

Regional Water Quality Control Board extends to all waters of the U.S. on-site and one isolated drainage (Drainage 1A). Approximately 0.09 acre of waters of the State, including drainage 1A, occur in the survey area (Exhibit 5; Table 2).

California Department of Fish and Wildlife

CDFW jurisdiction in the survey area extends to the outer dripline of riparian vegetation (i.e., coast live oak–California sycamore woodland and red willow/arroyo willow thicket). Approximately 1.24 acres of jurisdictional resources under the regulatory authority of the CDFW occur in the survey area (Exhibit 5; Table 2). This includes 0.21 acre of red willow/arroyo willow thicket.

Wildlife Habitat

The survey area provides moderate to high quality habitat for wildlife. The presence of human intrusion into the area on dirt access roads and trails and surrounding urban development decrease the wildlife value relative to undisturbed areas.

No fish species were observed during the 2022 focused surveys and the drainages in the survey area provide minimal habitat for fish due to the limited amount of surface water present and the isolated nature of the drainages in the survey area. Western mosquitofish (*Gambusia affinis*), a non-native species used for vector control, could potentially be present in the area if released.

During the 2022 focused surveys, the only amphibian species that was observed was the Northern Pacific treefrog (*Pseudacris regilla*). Common species that may also occur include black-bellied slender salamander (*Batrachoseps nigriventris*), western toad (*Anaxyrus boreas*), and Baja California treefrog (*Pseudacris hypochondriaca*).

Reptile species observed during the 2022 focused surveys include: western fence lizard (*Sceloporus occidentalis*) and the common side-blotched lizard (*Uta stansburiana*). Other common species that may also occur include western skink (*Plestiodon skiltonianus*), southern alligator lizard (*Elgaria multicarinata*), ring-necked snake (*Diadophis punctatus*), California kingsnake (*Lampropeltis californiae*), gopher snake (*Pituophis catenifer*), and southern Pacific rattlesnake (*Crotalus oreganus helleri*).

Bird species observed on or adjacent to the survey area during the 2022 focused surveys include: mallard (*Anas platyrhynchos*), California quail (*Callipepla californica*), rock pigeon (*Columba livia*), Eurasian collared-dove (*Streptopelia decaocto*), mourning dove (*Zenaida macroura*), common poorwill (*Phalaenoptilus nuttallii*), white-throated swift (*Aeronautes saxatalis*), Anna's hummingbird (*Calypte anna*), Allen's hummingbird (*Selasphorus sasin*), turkey vulture (*Cathartes aura*), Cooper's hawk (*Accipiter cooperii*), red-shouldered hawk (*Buteo lineatus*), red-tailed hawk (*Buteo jamaicensis*), great horned owl (*Bubo virginianus*), acorn woodpecker (*Melanerpes formicivorus*), Nuttall's woodpecker (*Picoides nuttalli*), northern flicker (*Colaptes auratus*), Pacific-slope flycatcher (*Empidonax difficilis*), black phoebe (*Sayornis nigricans*), ash-throated flycatcher (*Myiarchus cinerascens*), Cassin's kingbird (*Tyrannus vociferans*), California scrub-jay (*Aphelocoma californica*), American crow (*Corvus brachyrhynchos*), common raven (*Corvus corax*), northern rough-winged swallow (*Stelgidopteryx serripennis*), barn swallow (*Hirundo rustica*), cliff swallow (*Petrochelidon pyrrhonota*), oak titmouse *(Baeolophus inornatus*), bushtit (*Psaltriparus minimus*), white-breasted nuthatch (*Sitta carolinensis*), canyon wren (*Catherpes mexicanus*), Bewick's wren (*Thyromanes bewickii*), blue-gray gnatcatcher (*Polioptila caerulea*), wrentit (*Chamaea fasciata*), American robin (*Turdus migratorius*), western bluebird (*Sialia mexicana*), California thrasher (*Toxostoma redivivum*), northern mockingbird (*Mimus polyglottos*), European starling (*Sturnus vulgaris*), phainopepla (*Phainopepla nitens*), house finch (*Haemorhous mexicanus*), lesser goldfinch (*Spinus psaltria*), dark-eyed junco (*Junco hyemalis*), song sparrow (*Melospiza melodia*), spotted towhee (*Pipilo maculatus*), California towhee (*Melozone crissalis*), hooded oriole (*Icteris cucullatus*), brown-headed cowbird (*Molothrus ater*), red-winged blackbird (*Agelaius phoeniceus*), and yellow-rumped warbler (*Setophaga coronata*).

Mammal species observed during the 2022 focused surveys include: California ground squirrel (*Otospermophilus beecheyi),* desert cottontail (*Sylvilagus audubonii*) and coyote (*Canis latrans*). Other common species that may occur include Botta's pocket gopher (*Thomomys bottae*), common raccoon (*Procyon lotor*), striped skunk (*Mephitis mephitis*), and bobcat (*Lynx rufus*). Common bat species with potential to forage in the survey area include canyon bat (*Parastrellus hesperus*).

Wildlife Movement

Within large open space areas where few or no man-made or naturally occurring physical constraints to wildlife movement are present, wildlife corridors may not yet exist. However, once open space areas become constrained and/or fragmented as a result of urban development or the construction of physical obstacles (e.g., roads and highways), the remaining landscape features or travel routes that connect the larger open space areas become corridors as long as they provide adequate space, cover, food, and water and do not contain obstacles or distractions (e.g., man-made noise, lighting) that would generally hinder wildlife movement.

The survey area is located at the urban-wildland interface, with urban development to the east, large tracts of undeveloped open space to the west, and Chatsworth Park South as a buffer between the two. The existing dirt roads in the survey area have extremely minimal vehicular traffic and represent a minor barrier to wildlife movement with most species minimally deterred from efficiently crossing. Generally, wildlife are expected to move freely throughout the survey area and surroundings under existing conditions.

Special Status Vegetation Types

The CDFW Vegetation Classification and Mapping Program provides a list of vegetation Alliances, Associations, and Special Stands that are considered to be "Sensitive Natural Communities" based on their rarity and threat (CDFW 2023c). Information on rarity is based on the range and distribution of a given type of vegetation, and the proportion of occurrences that are of good ecological integrity. Threats and trends are considered in categories like residential and commercial development, agriculture, energy production and mining, and invasive and other problematic species. One vegetation type in the survey area, red willow/arroyo willow thicket, is considered special status by the CDFW.

Special Status Plant and Wildlife Species

Plants or wildlife may be considered "special status" due to declining populations, vulnerability to habitat change, or restricted distributions. Certain special status species have been listed as Threatened or Endangered under the State and/or Federal Endangered Species Acts.

Special Status Plants

Twenty-five special status plant species have been reported in the vicinity of the survey area (CNPS 2023; CDFW 2023b). Table 3 summarizes their status and potential to occur in the survey area inclusive of 2022 rare plant survey results.

TABLE 3
SPECIAL STATUS PLANT SPECIES REPORTED FROM THE VICINITY OF THE SURVEY AREA

Species	Common Name	Federal Status	State Status	CRPR Status	Potential to Occur in the Survey Area
Astragalus brauntonii	Braunton's milk-vetch	FE	–	1B.1	Potentially suitable habitat present. Not observed during focused surveys.
Calandrinia breweri	Brewer's clandrinia	–	–	4.2	Potentially suitable habitat present. Not observed during focused surveys.
Calochortus catalinae	Catalina mariposa lily	–	–	4.2	Potentially suitable habitat present. Not observed during focused surveys.
Calochortus clavatus var. *gracilis*	slender mariposa lily	–	–	1B.2	Potentially suitable habitat present. Not observed during focused surveys.
Calochortus fimbriatus	late-flowered mariposa lily	–	–	1B.2	Potentially suitable habitat present. Not observed during focused surveys.
Calochortus plummerae	Plummer's mariposa lily	–	–	4.2	Potentially suitable habitat present. Not observed during focused surveys.
Calystegia peirsonii	Peirson's morning-glory	–	–	4.2	Not expected to occur; outside current known range. Not observed during focused surveys.
Cercocarpus betuloides var. *blancheae*	island mountain-mahogany	–	–	4.3	Not expected to occur; outside current known range. Not observed during focused surveys.
Chorizanthe parryi var. fernandina	San Fernando Valley spineflower	FC	SE	1B.1	Potentially suitable habitat present and historic occurrence from Chatsworth Park (CCH 2022; 1901 record). Not observed during focused surveys.
Convolvulus simulans	small-flowered morning-glory	–	–	4.2	Limited potential to occur; marginally suitable habitat. Not observed during focused surveys.
Deinandra minthornii	Santa Susana tarplant	–	SR	1B.2	Potentially suitable habitat present and reported just southwest of survey area (CCH 2022). Not observed during focused surveys.
Dodecahema leptoceras	slender-horned spineflower	FE	SE	1B.1	Limited potential to occur; marginally suitable habitat and at edge of current known range. Not observed during focused surveys.
Dudleya blochmaniae ssp. *blochmaniae*	Blochman's dudleya	–	–	1B.1	Not expected to occur; outside current known range. Not observed during focused surveys.
Dudleya multicaulis	many-stemmed dudleya	–	–	1B.2	Limited potential to occur; marginally suitable habitat and at edge of current known range. Not observed during focused surveys.
Harpagonella palmeri	Palmer's grapplinghook	–	–	4.2	Limited potential to occur; suitable habitat but at edge of current known range. Not observed during focused surveys.
Horkelia cuneata var. *puberula*	mesa horkelia	–	–	1B.1	Potentially suitable habitat present. Not observed during focused surveys.

Species	Common Name	Federal Status	State Status	CRPR Status	Potential to Occur in the Survey Area
Juglans californica	Southern California black walnut	–	–	4.2	Not expected to occur; this species is visible year-round and would have been observed if present. Not observed during focused surveys.
Lasthenia glabrata ssp. *coulteri*	Coulter's goldfields	–	–	1B.1	Not expected to occur; no suitable habitat. Not observed during focused surveys.
Lilium humboldtii ssp. *ocellatum*	ocellated Humboldt lily	–	–	4.2	Potentially suitable habitat present. Not observed during focused surveys.
Lupinus paynei	Payne's bush lupine	–	–	1B.1	Potentially suitable habitat present. Not observed during focused surveys.
Monardella hypoleuca ssp. *hypoleuca*	white-veined monardella	–	–	1B.3	Not expected to occur; outside current known range. Not observed during focused.
Navarretia ojaiensis	Ojai navarretia	–	–	1B.1	Not expected to occur; no suitable habitat. Not observed during focused.
Nolina cismontana	chaparral nolina	–	–	1B.2	Potentially suitable habitat present. Not observed during focused surveys.
Orcuttia californica	California Orcutt grass	FE	SE	1B.1	Not expected to occur; no suitable habitat. Not observed during focused.

CRPR: California Rare Plant Rank

LEGEND:

Federal (USFWS)		**State (CDFW)**	
FE	Endangered	SE	Endangered
FT	Threatened	SR	Rare
FC	Candidate		

CRPR

1B	Plants Rare, Threatened, or Endangered in California and elsewhere
3	Plants about which we need more information – a review list
4	Plants of limited distribution – a watch list

CRPR Threat Code Extensions

.1	Seriously threatened in California (over 80% of occurrences threatened; high degree and immediacy of threat)
.2	Fairly threatened in California (20–80% of occurrences threatened; moderate degree and immediacy of threat)
.3	Not very threatened in California (<20% of occurrences threatened; low degree and immediacy of threat or no current threats known)

Of the species reported from the literature review, five species are federally and/or State-listed Endangered, Threatened, or Rare or are candidates for listing: Braunton's milk-vetch, San Fernando Valley spineflower (*Chorizanthe parryi* var. *fernandina*), Santa Susana tarplant (*Deinandra minthornii*), , slender-horned spineflower (*Dodecahema leptoceras*), and California Orcutt grass (*Orcuttia californica*). Suitable or marginally suitable habitat for Braunton's milk-vetch, San Fernando Valley spineflower, Santa Susana tarplant, and slender-horned spineflower occur in the survey area. Results of rare plants surveys conducted in 2022 by Psomas Biologist Sarah Thomas were negative for all five of these species. The remaining species are not expected to occur in the survey area because the survey area does not support suitable habitat or soils for these species or the survey area is outside the known range of the species.

In addition to species formally listed by the resource agencies, ten species reported in the vicinity of the survey area have a California Rare Plant Rank (CRPR) of 1B. Six of these species—slender mariposa lily (*Calochortus clavatus* var. *gracilis*), late-flowered mariposa lily (*Calochortus fimbriatus*), many-stemmed dudleya (*Dudleya multicaulis*), mesa horkelia (*Horkelia cuneata* var. *puberula*), Payne's bush lupine

(*Lupinus paynei*), and chaparral nolina (*Nolina cismontana*)—have potential to occur in the survey area due to suitable or marginally suitable habitat present. Results of rare plants surveys conducted were negative for all six of these species. The remaining four species are not expected to occur in the survey area because the survey area does not support suitable habitat or soils for these species or the survey area is outside the known range of the species.

Several plant species with a CRPR of 3 or 4 are also known from the vicinity, however, none were detected during rare plant surveys.

Special Status Wildlife

Twenty-five special status wildlife species have been reported in the vicinity of the survey area (CDFW 2023b) and an additional four species may occur in the vicinity based on the biologist's knowledge of the species. Table 4 summarizes their status and potential to occur in the survey area inclusive of 2022 focused survey results (see Appendix B).

TABLE 4
SPECIAL STATUS WILDLIFE SPECIES REPORTED FROM THE VICINITY OF THE SURVEY AREA

Species	Common Name	Federal Status	State Status	Potential to Occur in the Survey Area
Invertebrates	-	-	-	-
Bombus crotchii	Crotch bumble bee	–	CE	May occur; potentially suitable habitat.
Danaus plexippus pop. 1	monarch (California overwintering population)	CF	–	Not expected to occur as an overwintering population; no suitable roosting habitat.
Gonidea angulata	western ridged mussel	–	S2	Not expected to occur; no suitable habitat or host species present.
Socalchemmis gertschi	Gertsch's socalchemmis spider	–	S1	May occur; potentially suitable habitat.
Amphibians	-	-	-	-
Anaxyrus californicus	arroyo toad	FE	SSC	Not expected to occur; no suitable habitat.
Rana draytonii	California red-legged frog	FT	SSC	Not expected to occur; marginal potentially suitable habitat; not detected during focused surveys.
Spea hammondii	western spadefoot	–	SSC	May occur in uplands and limited potential to breed; marginally suitable habitat.

Species	Common Name	Federal Status	State Status	Potential to Occur in the Survey Area
Taricha torosa	Coast Range newt	–	SSC	Not likely to occur due to lack of observation during surveys; marginally suitable habitat.
Reptiles	-	-	-	-
Anniella sp.	California legless lizard	–	SSC	May occur; potentially suitable habitat.
Aspidoscelis tigris stejnegeri	coastal whiptail	–	SSC	May occur; potentially suitable habitat.
Emys marmorata	western pond turtle	CF	SSC	Not expected to occur; no suitable habitat.
Phrynosoma blainvillii	coast horned lizard	–	SSC	May occur; potentially suitable habitat.
Thamnophis hammondii	two-striped garter snake	–	SSC	May occur; potentially suitable habitat.
Birds				
Agelaius tricolor	tricolored blackbird	–	ST, SSC	Not expected to occur; no suitable habitat.
Aimophila ruficeps canescens	southern California rufous-crowned sparrow	–	WL	May occur; potentially suitable habitat.
Aquila chrysaetos	golden eagle	–	FP	May occur for foraging; potentially suitable foraging habitat. Not expected to occur for nesting; no suitable nesting habitat.
Athene cunicularia	burrowing owl	–	SSC	Not expected to occur; no suitable habitat.
Buteo swainsoni	Swainson's hawk	–	ST	May occur for foraging; potentially suitable foraging habitat. Not expected to occur for nesting; outside the known breeding range.
Polioptila californica californica	coastal California gnatcatcher	FT	SSC	Not expected to occur; potentially suitable habitat; not detected during focused surveys.

Species	Common Name	Federal Status	State Status	Potential to Occur in the Survey Area
Riparia riparia	bank swallow	–	ST	May occur for foraging during migration; potentially suitable foraging habitat. Not expected to occur for nesting; outside the known breeding range.
Vireo bellii pusillus	least Bell's vireo	FE	SE	Not expected to occur; marginal potentially suitable habitat; not detected during focused surveys.
Mammals				
Antrozous pallidus	pallid bat	–	SSC	May occur for foraging and roosting; potentially suitable foraging and roosting habitat.
Corynorhinus townsendii	Townsend's big-eared bat	–	SSC	Limited potential to occur for foraging; marginally suitable foraging habitat. Not expected to occur for roosting; no suitable roosting habitat.
Euderma maculatum	spotted bat	–	SSC	Limited potential to occur for foraging; marginally suitable foraging habitat. Not expected to occur for roosting; no suitable roosting habitat.
Eumops perotis californicus	western mastiff bat	–	SSC	May occur for foraging; suitable foraging habitat. Not expected to occur for roosting; no suitable roosting habitat.
Lasiurus blossevillii	western red bat	–	SSC	May occur for foraging and roosting; suitable foraging and roosting habitat.
Lasiurus xanthinus	western yellow bat	–	SSC	Limited potential to occur for foraging and roosting; marginally suitable foraging and roosting habitat.
Macrotus californicus	California leaf-nosed bat	–	SSC	Not expected to occur; outside of current known range.

Species	Common Name	Federal Status	State Status	Potential to Occur in the Survey Area
Neotoma lepida intermedia	San Diego desert woodrat	–	SSC	May occur; potentially suitable habitat.

USFWS: U.S. Fish and Wildlife Service; CDFW: California Department of Fish and Wildlife

LEGEND:

Federal (USFWS)
FE Endangered
FT Threatened
CF Federal Candidate

State (CDFW)
SE Endangered
ST Threatened
CE Candidate Endangered
FP Fully Protected
SSC Species of Special Concern
WL Watch List
S1 Critically Imperiled
S2 Imperiled

Of the species reported from the literature review, nine species are federally and/or State-listed Endangered or Threatened or are candidates for listing: Crotch bumble bee (*Bombus crotchii*), monarch (California overwintering population) (*Danaus plexippus* pop. 1), arroyo toad (*Anaxyrus californicus*), California red-legged frog (*Rana draytonii*), tricolored blackbird (*Agelaius tricolor*), Swainson's hawk (*Buteo swainsoni*), coastal California gnatcatcher, bank swallow (*Riparia riparia*), and least Bell's vireo. While marginal potentially suitable habitat for California red-legged frog, least Bell's vireo, and coastal California gnatcatcher is present, focused protocol surveys conducted in 2022 were negative for all three species. Swainson's hawk and bank swallow may forage in the survey area but are not expected to nest since their breeding range is outside the project region. Arroyo toad and tricolored blackbird are not expected to occur in the survey area due to lack of suitable habitat. Crotch bumble bee is not expected to occur due to lack of observation during repeated site surveys in 2022 and 2023 by qualified biologists throughout all habitat areas on site.

Golden eagle (*Aquila chrysaetos*), a State Fully Protected species, has been reported from the vicinity of the survey area and has potential to forage in the survey area.

In addition to species listed under the state and federal Endangered Species Acts, 16 Species of Special Concern (designated by CDFW) have been reported near the survey area. This number includes four bat species that may occur in the vicinity based on the Psomas biologist's knowledge of the species. Thirteen of these species—coast range newt (*Taricha torosa*), western spadefoot (*Spea hammondii*), California legless lizard (*Anniella sp.*), coast horned lizard (*Phrynosoma blainvillii*), coastal whiptail (*Aspidoscelis tigris stejnegeri*), two-striped garter snake (*Thamnophis hammondii*), spotted bat (*Euderma maculatum*), pallid bat (*Antrozous pallidus*), Townsend's big-eared bat (*Corynorhinus townsendii*), western mastiff bat (*Eumops perotis californicus*), western red bat (*Lasiurus blossevillii*), western yellow bat (*Lasiurus xanthinus*), and San Diego desert woodrat (*Neotoma lepida intermedia*)—have potential to occur in the survey area due to potentially suitable or marginally suitable habitat present. The remaining species are not expected to occur in the survey area because the survey area does not support suitable habitat for the species.

Critical Habitat

Critical Habitat is designated by the USFWS for the survival and recovery of species listed as Threatened or Endangered under the Federal Endangered Species Act (FESA). Areas designated as Critical Habitat include the physical or biological features that are essential to the survival and eventual recovery of that species. The survey area is not located in areas designated or proposed as Critical Habitat for any species.

PROJECT IMPACTS

In order to evaluate the entire extent of potential impacts on biological and jurisdictional water resources, it is necessary to understand the various project components and whether they are direct or indirect. All reported impact areas below represent direct impact resulting from temporary disturbance (such as construction yards) or permanent disturbance including replacement of the existing resource with engineered and developed features such as roadways, infrastructure, and adjacent cut slopes.

Vegetation Types and Other Areas

Based on the construction design plans, the project would impact a total of 1.98-acres of vegetation and other landcover in the project area (Table 5; Exhibit 6). This includes a permanent impact of 0.17 acre on special status vegetation (i.e., red willow/arroyo willow thicket). In addition to being a special status vegetation type, the red willow/arroyo willow thicket in the survey area is also within the boundaries of CDFW jurisdiction and has the potential to support federally and State listed wildlife species. However, results of focused surveys for least Bell's vireo and California red-legged frog conducted in 2022 indicate these species are absent from the project site. Impacts on red willow/arroyo willow thicket remain a potential constraint on development due to the status of the vegetation type as special status.

Impacts on vegetation within the boundaries of Chatsworth Park South are limited to the center two disturbance areas, one of which is a temporary construction yard. The impacted vegetation represents a minor percentage of the vegetation occurring within the approximately 50-acre park which encompasses nearly nine acres of oak woodland, eight acres of coastal sage scrub, six acres of chaparral, and 24 acres of landscaped/developed park areas.

TABLE 5
VEGETATION TYPES AND OTHER LANDCOVER
IMPACTED BY THE PROJECT

Vegetation Type or Other Landcover	Temporary impact area (Acres)[a]	Permanent impact area (Acres)[a]	Total impact area (Acres)[a]
California sagebrush–deerweed scrub	0.02	0.83	0.85
California sagebrush–bush mallow scrub	0.00	0.00	0.00
semi-natural herbaceous stand	0.01	0.07	0.08
wild oats grassland	0.00	0.05	0.05
bush mallow scrub	0.00	0.02	0.02
laurel sumac scrub	0.15	0.15	0.29
red willow/arroyo willow thicket	0.00	0.17	0.17
coast live oak woodland	0.01	0.00	0.01
coast live oak–California sycamore woodland	0.00	0.22	0.22
eucalyptus grove	0.00	0.00	0.00
disturbed	0.03	0.00	0.03
developed	0.06	0.04	0.10
ornamental	0.14	0.00	0.14
Total	**0.43**	**1.55**	**1.98**

[a] Values based on total work limit footprints.
Note: Totals may not appear to add correctly due to rounding error.

Jurisdictional Areas

Based on project design plans, approximately 0.02 acre of 'wetland" waters of the United States and waters of the State, 0.01 acre of 'non-wetland" waters of the United States and waters of the State, and 0.41 acre of CDFW jurisdictional waters will be impacted by the project (Table 6; Exhibit 7). Of these impacts, all 0.03 acres of State and federal waters and 0.39 acres of CDFW jurisdictional waters ae considered permanent impacts. Permanent impacts are associated with the project's conversion of natural drainage to culverted roadway. All other jurisdictional impacts are considered temporary as they would revert to pre-project conditions following short term project disturbance.

TABLE 6
JURISDICTIONAL WATER RESOURCES
IMPACTED BY THE PROJECT

Jurisdiction	Drainage 1 Permanent (acres)	Drainage 1 Temporary (acres)	Drainage 2 Permanent (acres)	Drainage 2 Temporary (acres)	Total
USACE	-	-	-	-	-
wetland waters of the United States	0.02	0.00	0.00	0.00	**0.02**
non-wetland waters of the United States	0.01	0.00	0.00	0.00	**0.01**
RWQCB	0.03	0.00	0.00	0.00	**0.03**
CDFW	0.40	0.00	0.00	0.01	**0.41**

USACE: U.S. Army Corps of Engineers; RWQCB: Regional Water Quality Control Board; CDFW: California Department of Fish and Wildlife

* The riparian canopy extends over both Drainages 1 and 1A; acreage for both channels is included under Drainage 1.

Special Status Plant Species

Results of rare plant focused surveys were negative for all special status species including federally and State listed species—Braunton's milk-vetch, San Fernando Valley spineflower, Santa Susana tarplant, and slender-horned spineflower. Due to their absence from the project site, these species would not be a constraint to the project and would not require permitting with resource agencies.

Special Status Wildlife Species

Results of special status species focused protocol surveys were negative for all special status species including federally and State listed species—California red-legged frog, least Bell's vireo, and coastal California gnatcatcher (see Appendix B). Due to their absence from the project site, these species would not be a constraint to the project and would not require permitting with resource agencies.

The project may impact the following species or their habitat: coast range newt, western spadefoot, California legless lizard, coast horned lizard, coastal whiptail, two-striped garter snake, spotted bat, pallid bat, Townsend's big-eared bat, western mastiff bat, western red bat, western yellow bat, and San Diego desert woodrat. Impacts on a small amount of habitat for these species, relative to the availability of habitat in the region, are not expected to reduce the regional population below a self-sustaining level. Therefore, impacts would be considered adverse but would not represent a constraint to the project.

OTHER CONSIDERATIONS

Protected Trees

The City of Los Angeles Municipal Code (LAMC, Article 6 Protected Tree and Shrub Regulations, Sections 46.00 to 46.06) provides for the protection of certain "protected" tree and shrubs, which include several Southern California indigenous species that measure at least four inches of cumulative trunk diameter, four and one-half feet above ground level. Species that are defined as protected species include all indigenous oak trees (*Quercus* spp., excluding scrub oak [*Quercus berberidifolia*]); southern California black walnut (*Juglans californica* var. *californica*); western sycamore (*Platanus racemosa*); California bay (*Umbellularia californica*); Mexican elderberry (*Sambucus mexicana*); and toyon (*Heteromeles arbutifolia*). No protected tree may be relocated or removed except as provided by the LAMC (Section 46.02), without a permit issued by the Board of Public Works. The term "removed" includes any act that will cause a protected tree or shrub to die, including but not limited to acts that inflict damage upon the root system or other parts of the tree by fire, application of toxic substances, operation of equipment or machinery, or by changing the natural grade of land by excavation or filling the drip line area around the trunk.

While there are trees within the project work limits that may be protected under this ordinance, they may not be impacted because work would only occur on paved areas under the canopy. Protected shrubs are also present within the work limits and may require removal if avoidance is infeasible, If the protected trees or shrubs would be impacted by project activities, a removal permit from the City would be required.

Fish Passage

In-stream structures and construction activities have the very low potential to disrupt fish passage permanently or temporarily in areas containing fish habitat. Neither special status species nor native fish species were observed in the on-site drainages during the plant and wildlife surveys in 2022. Fish habitat in the project area was seen to be relatively poor due to the limited amount of surface water present and the isolated nature of the drainages. Natural aboveground flow is limited to a distance of less than 1,000 feet. The drainages are isolated from downstream fish populations because they connect with the City of Los Angeles' subsurface municipal separate storm sewer system (MS4). In addition, no special status fish species have been reported from the drainages in the survey area or in the project region (CDFW 2023b). Therefore, the project as designed is not expected to impact fish passage and would noy likely effect fish passage even if fish were present.

Nesting Raptors

Raptor species (i.e., birds of prey) have the potential to nest within mature trees in and adjacent to the survey area and their nests may be impacted by the project. If construction activities would occur during the raptor nesting season (i.e., generally February 1 to June 30), the loss of an active nest of any raptor species, including common raptor species, would be considered a violation of Sections 3503, 3503.5, and 3513 of the *California Fish and Game Code*.

Nesting Birds

The Migratory Bird Treaty Act (MBTA) protects migratory birds and their nests and eggs, both common and special status. Bird species protected under the provisions of the MBTA are identified by the List of Migratory Birds (50 *Code of Federal Regulations* [CFR] §10.13, as amended). In addition, Section 3503 of the California Fish and Game Code makes it unlawful to take, possess, or destroy any bird's nest or

any bird's eggs. Further, any birds in the orders Falconiformes or Strigiformes (birds of prey, such as hawks, eagles, and owls) and their nests and eggs are protected under Section 3503.5 of the California Fish and Game Code. Section 3513 of the California Fish and Game Code prohibits the take and possession of any migratory nongame bird, as designated in the MBTA. Birds have the potential to nest in the project survey area, and their nests may be impacted by the project. The loss of an active bird nest, including common species, would be considered a violation of the MBTA and Fish and Game Code.

Roosting Bats

Pallid bat, western red bat, and western yellow bat may forage and roost in mature trees or rocky outcrops in the survey area. Impacts on roosting individuals can be a potential constraint on development, depending on the size of the impacted population.

Noise

During active construction, temporary noise impacts have the potential to disrupt foraging, nesting, roosting, and/or denning activities for a variety of wildlife species. Construction noise could deter wildlife from using habitat adjacent to construction. This impact would be considered adverse but would not represent a constraint on the project because a substantial amount of similar habitat is present in the vicinity where the animals may disperse. Following construction, noise levels would be the same as current conditions.

RECOMMENDATIONS

This section includes a list of recommendations designed to reduce potential Project impacts on biological resources. These recommendations are not based on a California Environmental Quality Act (CEQA) significance determination and may or may not be reflected within CEQA Mitigation Measures. Impacts on biological resources found to be potentially significant under the CEQA will require implementation of Mitigation Measures designed to avoid, minimize, restore, and or recreate impacted resources in order to offset loss in biological resource values.

Recommendations

Based on the proposed Project's biological resource impact analysis outlined above, recommendations designed to avoid or minimize these impacts are listed below. In general, reduction of the Project's disturbance area and/reduction of impacts on special status or otherwise protected biological resources to the maximum extent feasible is recommended.

Recommendation No. 1

If more than two years have elapsed since the previous rare plant survey was conducted, it is recommended that focused surveys be reconducted to ensure that the Project avoids impacts to rare plant species. Surveys should be conducted to confirm absence within the proposed Project's disturbance areas previously determined to have the potential to support special status plant species. Surveys should be conducted in accordance with current California Native Plant Society (CNPS) protocol and will occur during the appropriate time of year.

If survey results are positive, it is recommended that efforts are made to redesign the Project to avoid indirect impacts on rare plants. If not feasible, it is recommended that

efforts are made to redesign the Project to avoid direct impacts on rare plants. If not feasible, it is recommended that efforts are made to redesign the Project to minimize the number of individuals or acreage of population(s) directly impacted. If impacts on rare plants are unavoidable, it is recommended to prepare and implement a Special Status Plant Species Restoration Plan to reduce impacts on the impacted plant species. If the impacted rare plant is a State or federally listed species, consultation with applicable resources agencies (CDFW and/or USFWS) is recommended to determine if permitting will be required. Permit conditions, if applicable, would provide additional measures to avoid and and/or minimize impacts on State and federally threatened and endangered wildlife species.

Recommendation No. 2

If more than two years have elapsed since the previously conducted focused wildlife surveys for least Bell's vireo or California gnatcatcher, it is recommended that focused protocol surveys be repeated to ensure that the Project avoids impacts to these species. All surveys should be conducted to confirm absence within proposed Project disturbance areas that may support these species. Surveys should be conducted in accordance with the approved CDFW or U.S. Fish and Wildlife Species (USFWS) protocol guidelines for each species.

If survey results are positive, it is recommended that efforts are made to redesign the Project to avoid indirect impacts on the impacted species. If not feasible, it is recommended that efforts are made to redesign the Project to avoid direct impacts on the impacted species. If not feasible, it is recommended that efforts are made to redesign the Project to minimize the number of individuals or acreage of occupied habitat directly impacted. If impacts are unavoidable, consultation with applicable resources agencies (CDFW and/or USFWS) is recommended to determine if permitting will be required. Permit conditions, if applicable, would provide additional measures to avoid and and/or minimize impacts on State and federally threatened and endangered wildlife species.

Recommendation No. 3

In an effort to reduce potential impacts on non-listed special status wildlife species, it is recommended that a qualified biologist monitor all vegetation removal and grading to ensure that incidental construction impacts on non-listed special status and common wildlife species are avoided or minimized. Where feasible, the biological monitor will attempt to ensure wildlife are not directly impacted. It is recommended that the Biologist employ salvage methods and relocate wildlife species that can be moved that would otherwise be destroyed or adversely affected by construction and/or site-preparation activities. If wildlife is in harm's way and has not moved on its own, the Biologist will attempt to scatter them away from the area.

Recommendation No. 4

To avoid unanticipated impacts on biological resources in the immediate area, it is recommended that the designated disturbance limits are visibly marked in the field to ensure that no inadvertent impacts occur outside the approved disturbance limits.

Recommendation No. 5

To avoid take of nesting birds or their eggs, in compliance with applicable State and federal laws pertaining to the protection of nesting birds, it is recommended that construction activities (including, but not limited to, staging and disturbances to native and nonnative vegetation, structures, and substrates) should occur outside of the avian breeding season, if feasible, which generally runs from February 1–August 31 (as early as January 1 for some raptors. "Take" means to hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture or kill (*California Fish and Game Code,* Section 86), and includes take of eggs or young resulting from disturbances that cause abandonment of active nests. Depending on the avian species present, a qualified Biologist may determine that a change in the breeding season dates is warranted.

If avoidance of the avian breeding season is not feasible, it is recommended that a qualified Biologist with experience in conducting breeding bird surveys should conduct weekly bird surveys beginning 30 days prior to the initiation of Project activities, to detect protected native birds occurring in suitable nesting habitat that is to be disturbed and (as access to adjacent areas allows) any other such habitat within 500 feet of the disturbance area. The surveys should continue on a weekly basis with the last survey being conducted no more than three days prior to the initiation of Project activities. If a protected native bird is found, it is recommended that the Project activities are delayed within 300 feet of on- and off-site suitable nesting habitat (within 500 feet for suitable raptor nesting habitat) until August 31. Alternatively, a qualified Biologist could continue the surveys in order to locate any nests. If an active nest is located, Project activities within 300 feet of the nest (within 500 feet for raptor nests) or as determined by a qualified biologist, should be postponed until the nest is vacated; the juveniles have fledged; and there is no evidence of a second attempt at nesting. Flagging, stakes, or construction fencing should be used to demarcate the inside boundary of the buffer of 300 feet (or 500 feet) between the Project activities and the nest. Project personnel, including all contractors working on site, should be instructed on the sensitivity of the area.

If the qualified biologist determines that a narrower buffer between the Project activities and observed active nests is warranted (based on species-specific information; ambient conditions and birds' habituation to them; and the terrain, vegetation, and birds' lines of sight between the Project activities and the nest and foraging areas), the modified buffer may be used.

It is recommended that the qualified biologist be present on site during all grubbing and clearing of vegetation to ensure that these activities remain within the Project footprint to minimize the likelihood that active nests are abandoned or fail due to Project activities.

Recommendation No. 6

To avoid and or minimize impacts on bats, it is recommended that a qualified biologist conduct a field survey no earlier than 20 days prior to any grading activity that would occur during the breeding season (i.e., April 1 through August 31) of native bat species that potentially utilize the site. This should be done to determine if active maternity roosts of special status bats (such as pallid bat) are present in the applicable habitats on the site (e.g., woodlands). If active roosts are found, construction within 200 feet should be postponed or halted until the roost is vacated and juveniles are self-sufficient, as determined by the biologist.

Recommendation No. 7

In an effort to avoid or reduce impacts special status vegetation types, it is recommended that attempts are made to avoid direct impacts. If not feasible, it is recommended that efforts are made to redesign the Project to minimize the acreage of special status vegetation types directly impacted. If impacts on special status vegetation types are unavoidable, it is recommended to prepare and implement a Habitat Restoration Plan to restore impacted habitat areas or increase acreage elsewhere in the vicinity to reduce impacts on the special status vegetation types of the region. If the impacted special status vegetation types are considered jurisdictional under the Clean Water Act and/or Fish and Game Code, consultation with applicable resources agencies is recommended to determine if permitting will be required. Permit conditions, if applicable, would provide additional measures to avoid and and/or minimize impacts on impacted vegetation types within these jurisdictions.

Recommendation No. 8

To avoid or reduce impacts to protected trees (as defined by City of Los Angeles Municipal Code), it is recommended that all protected trees in the Project area are identified and direct impacts are avoided. If not feasible, it is recommended that efforts are made to redesign the Project to minimize the number of protected trees impacted. If impacts on protected trees are unavoidable, compliance with the City of Los Angeles Municipal Code requirements is recommended.

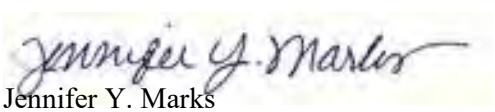
Recommendation No. 9

Prior to any fill of or alteration to jurisdictional drainages, wetlands, and/or associated riparian vegetation on the Project site, it is recommended that attempts are made to redesign the Project to avoid all direct impacts. If not feasible, it is recommended that efforts are made to minimize the acreage of impacted jurisdictional area. If impacts on jurisdictional areas are unavoidable, it is recommended to prepare and implement a Habitat Restoration Plan to create, enhance, and/or restore acreage to ensure that net habitat values are at least equal to those lost from Project implementation to reduce impacts on the jurisdictional features of the region. Consultation with applicable resources agencies is recommended to determine if permitting will be required. If required, it is recommended that the appropriate regulatory agency permits and/or agreements from the USACE, the CDFW, and the applicable RWQCB are obtained. Permit conditions, if applicable, would provide additional measures to avoid and and/or minimize impacts on impacted jurisdictional resources within these jurisdictions.

If you have any questions or comments, please contact Marc Blain at (626) 351-2000.

Sincerely,

PSOMAS



Jennifer Y. Marks
Senior Project Manager

Marc T. Blain
Senior Biologist

Enclosures: Exhibits 1–7
Appendix A – Representative Photographs
Appendix B – Focused Survey Reports

- California Gnatcatcher Protocol Survey Report
- Least Bell's Vireo Protocol Survey Report
- California Red-legged Frog Protocol Survey Report

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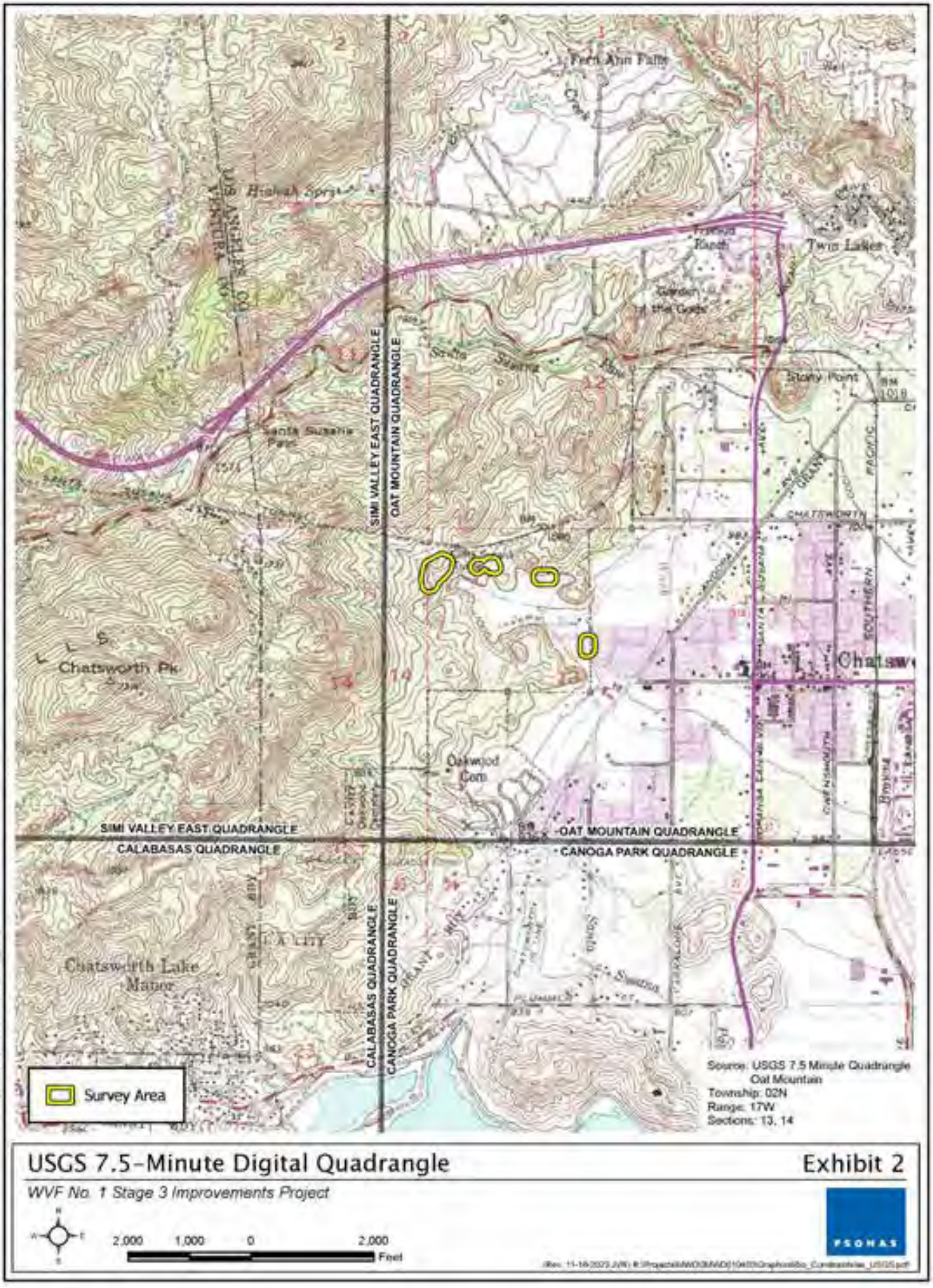
Project Location

Exhibit 1

WVF No. 1 Stage 3 Improvements Project

1,000 500 0 1,000 Feet

PSOMAS



USGS 7.5-Minute Digital Quadrangle

Exhibit 2

WVF No. 1 Stage 3 Improvements Project

2,000 1,000 0 2,000 Feet

Soil Types

Exhibit 3

WVF No. 1 Stage 3 Improvements Project

300 150 0 300 Feet

PSOMAS

Survey Area

Vegetation Types and Other Areas

- California sagebrush–deerweed scrub
- California sagebrush–bush mallow scrub
- semi-natural herbaceous stand
- wild oats grassland
- bush mallow scrub
- laurel sumac scrub
- red willow/arroyo willow thicket
- coast live oak woodland
- coast live oak–California sycamore woodland
- eucalyptus grove
- disturbed
- developed
- ornamental

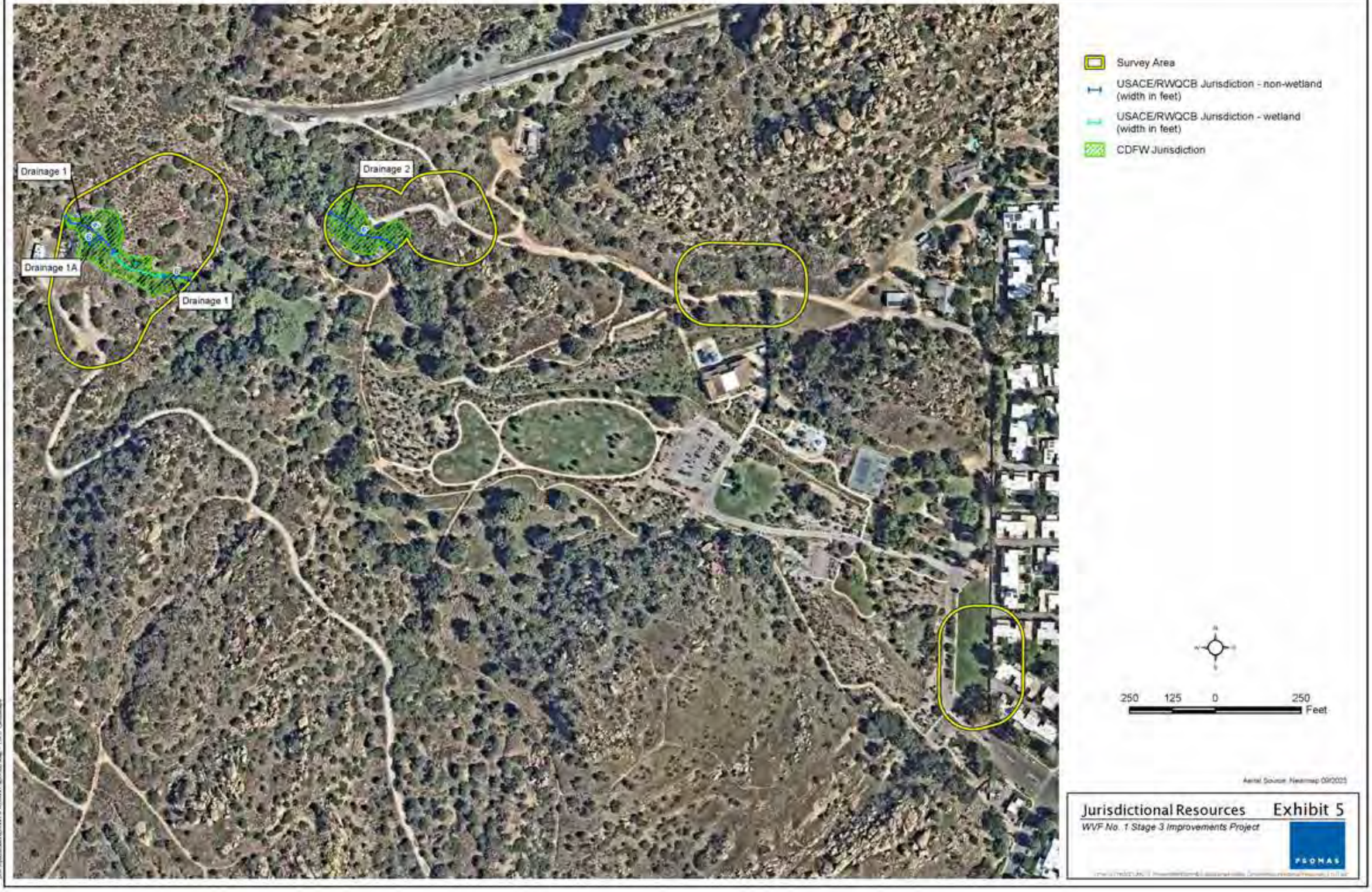
250 125 0 250
Feet

Aerial Source: Nearmap 09/2025

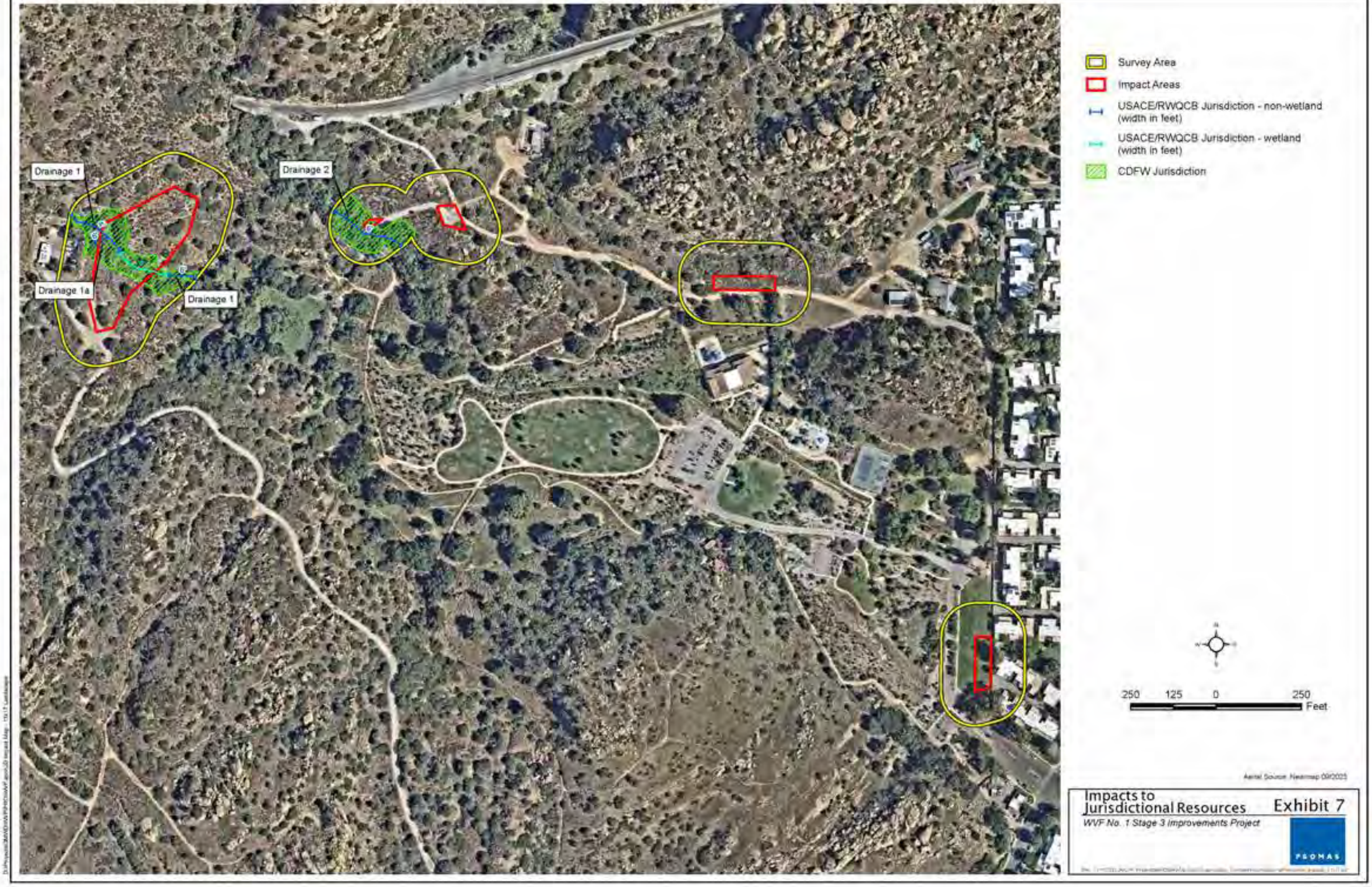
Vegetation Types and Other Areas **Exhibit 4**

WVF No. 1 Stage 3 Improvements Project

PSOMAS


Drainage 1
Drainage 2
Drainage 1A
Drainage 1
Survey Area
USACE/RWQCB Jurisdiction - non-wetland (width in feet)
USACE/RWQCB Jurisdiction - wetland (width in feet)
CDFW Jurisdiction
250 125 0 250
Feet
Aerial Source: Nearmap 09/2025
Jurisdictional Resources
Exhibit 5
WVF No. 1 Stage 3 Improvements Project
PSOMAS


Survey Area
Impact Areas
Vegetation Types and Other Areas
California sagebrush–deerweed scrub
California sagebrush–bush mallow scrub
semi-natural herbaceous stand
wild oats grassland
bush mallow scrub
laurel sumac scrub
red willow/arroyo willow thicket
coast live oak woodland
coast live oak–California sycamore woodland
eucalyptus grove
disturbed
developed
ornamental
250 125 0 250
Feet
Aerial Source: Nearmap 09/2023
Impacts to Vegetation Types and Other Areas
Exhibit 6
WVF No. 1 Stage 3 Improvements Project
PSOMAS


Drainage 1
Drainage 2
Drainage 1a
Drainage 1
Survey Area
Impact Areas
USACE/RWQCB Jurisdiction - non-wetland (width in feet)
USACE/RWQCB Jurisdiction - wetland (width in feet)
CDFW Jurisdiction
250 125 0 250
Feet
Aerial Source: Nearmap 09/2023
Impacts to Jurisdictional Resources
Exhibit 7
WVF No. 1 Stage 3 Improvements Project
PSOMAS

APPENDIX A

REPRESENTATIVE PHOTOGRAPHS

California sagebrush–deerweed scrub in the western portion of the survey area.

California sagebrush–bush mallow scrub in the eastern portion of the survey area.

Representative Photographs

Attachment A-1

WVF No. 1 Stage 3 Improvements Project

Semi-natural herbaceous stand in the western portion of the survey area.

Laurel sumac scrub in the western portion of the survey area.

Representative Photographs

Attachment A-2

WVF No. 1 Stage 3 Improvements Project

Red willow/arroyo willow thicket in the western portion of the survey area.

Coast live oak–California sycamore woodland in the western portion of the survey area.

Representative Photographs

Attachment A-3

WVF No. 1 Stage 3 Improvements Project

Eucalyptus grove in the western portion of the survey area.

Disturbed area in eastern portion of the survey area.

Representative Photographs

Attachment A-4

WVF No. 1 Stage 3 Improvements Project

WVF1 STA 1416+33 existing blowoff (to be abandoned).

WVF1 STA 1407+45 existing blowoff.

Representative Photographs Attachment A-5

WVF No. 1 Stage 3 Improvements Project

Along existing access trail to WVF1 STA 1415+42 proposed vault and pump well.

Contractor's laydown area in the western portion of the survey area.

Representative Photographs

Attachment A-6

WVF No. 1 Stage 3 Improvements Project

APPENDIX B

FOCUSED SURVEY REPORTS

August 17, 2022

Mr. Chris Kofron
Recovery Permit Coordinator
U.S. Fish and Wildlife Service
2493 Portola Road, Suite B
Ventura, California 93003

VIA EMAIL
chris_kofron@fws.gov

Subject: Results of Focused Presence/Absence Surveys for the Coastal California Gnatcatcher for the Metropolitan Water District West Valley Feeder No. 1 Stage 3 Improvements Project in the City of Los Angeles, California

Dear Mr. Kofron:

This Letter Report presents the results of focused surveys for the coastal California gnatcatcher (*Polioptila californica californica*) for the Metropolitan Water District West Valley Feeder No. 1 Stage 3 Improvements Project (hereinafter referred to as the "project site") located in the City of Los Angeles in Los Angeles County, California. The purpose of the surveys was to determine the presence or absence of the coastal California gnatcatcher on or immediately adjacent to the project site. Surveys were conducted by Psomas Biologists who hold the necessary Federal Endangered Species Act (FESA) survey permit and were completed according to the guidelines established by the U.S. Fish and Wildlife Service (USFWS). Notification of the intent to conduct protocol-level surveys was submitted to the USFWS on May 11, 2022.

PROJECT DESCRIPTION AND LOCATION

The project involves modification of the MWD WVF1 located northwest of Chatsworth Park South, in the City of Los Angeles. Proposed project actions include construction of an approximately 500-foot access road including a vehicle turnaround area and various modifications to existing facilities including valve relocation, equipment replacement, and reconstruction of valve structures. Additionally, the project proposes the installation of new manholes, concrete vaults, and retaining walls along the WVF1. Project impacts would include both temporary impacts in areas associated with construction access, staging, and laydown areas as well as permanent impacts associated with the proposed access road. Except for those areas where impacts would be confined to existing structures and the surrounding paved areas, all other impact areas occurring would be subject to some degree of earth disturbance.

The project site is in the western portion of the San Fernando Valley in the City of Los Angeles (Exhibit 1). Surrounding land uses include undeveloped open space in the Santa Susana Pass State Historic Park to the west and Chatsworth Park South to the east, with urban development farther to the east. The project site occurs on the U.S. Geological Survey's (USGS') Oat Mountain 7.5-minute quadrangle at Township 2 North, Range 17 West, Sections 13 and 14 (Exhibit 2). Topography in the survey area includes slopes and eastward-draining canyons; elevations range from approximately 1,010 feet above mean sea level (msl) in the east to 1,160 feet above msl in the west.

Thirteen vegetation types and other areas occur on the project site (Exhibit 3). Vegetation categories include California sagebrush–deerweed scrub, California sagebrush–bush mallow scrub, semi-natural herbaceous stand, wild oats grassland, bush mallow scrub, bush mallow–laurel sumac scrub, laurel sumac scrub, red willow/arroyo willow thicket, coast live oak woodland, coast live oak–California sycamore woodland, eucalyptus grove, disturbed, and developed.

SURVEY AREA

The coastal California gnatcatcher survey was conducted in all areas containing potentially suitable habitat (i.e., California sagebrush–deerweed scrub, and California sagebrush–bush mallow scrub) within the project site and within 500 feet of the project site. Photographs of representative habitat on the project site are provided in Attachment A.

BACKGROUND

Recent taxonomic studies indicate that the California gnatcatcher consists of four subspecies that extend from southwestern California to southern Baja California, Mexico. The coastal California gnatcatcher, the northernmost gnatcatcher subspecies, is restricted to lowland areas from central Ventura County through Los Angeles, San Bernardino, Riverside, Orange, and San Diego Counties to the Baja California, Mexico border (Atwood and Lerman 2006; Mellink and Rea 1994). Previously, the coastal California gnatcatcher was common from the San Fernando Valley east along the base of the San Gabriel Mountains to Claremont (Atwood 1990). It is now rare in the northern part of its range, with a handful of sightings from Santa Clarita to Tujunga Wash, though a small population persists near Moorpark in Ventura County. The coastal California gnatcatcher has been recorded from sea level to approximately 3,000 feet above msl (USFWS 2003); however, more than 90 percent of gnatcatcher records are from elevations from sea level to 820 feet above msl along the coast (Atwood and Bolsinger 1992; MBA 1991) and between sea level and 1,800 feet above msl inland. USFWS estimates regarding the population size of the coastal California gnatcatcher in Southern California have been about 3,000 pairs (Atwood and Bontrager 2001).

The coastal California gnatcatcher typically occurs within coastal and inland sage scrub vegetation types. Sage scrub often occurs in a patchy distribution pattern throughout the gnatcatcher's range. Coastal California gnatcatchers also use chaparral, grassland, and riparian habitats that are near sage scrub. These non-sage scrub habitats are used for dispersal and foraging (Atwood et al. 1998; Campbell et al. 1998; USFWS 2003). Availability of these non-sage scrub areas is essential during certain times of the year, particularly during drought conditions or during dispersal, foraging, or nesting (USFWS 2003).

The coastal California gnatcatcher was designated as a Threatened species by the USFWS on March 25, 1993. A Special Rule was issued that would allow incidental take of coastal California gnatcatcher under Section 9 of the FESA if the take results from activities conducted in accordance with California's Natural Community Conservation Plan (NCCP) Act (USFWS 1993). For those not participating in the State's NCCP, any activity that may result in the take of coastal California gnatcatcher requires formal consultation with the USFWS under Sections 7 or 10 of the FESA.

On December 19, 2007, the USFWS published a Final Rule revising critical habitat for the coastal California gnatcatcher. The revised critical habitat designates 197,303 acres of land in San Diego, Orange, Riverside, San Bernardino, Los Angeles, and Ventura Counties as critical habitat for the coastal California gnatcatcher (USFWS 2007). The survey area is not located within the designated critical habitat for the coastal California gnatcatcher.

SURVEY METHODS

The USFWS coastal California gnatcatcher survey protocol recommends six visits to all potentially occupied habitat areas for surveys conducted entirely within the breeding season, which extends from March 15 to June 30 (USFWS 1997a, 1997b). A total of six focused gnatcatcher surveys were conducted in the survey area with a team of two Biologists. The surveys followed USFWS guidelines for breeding season surveys and were conducted at least one week apart. All surveys were conducted during the morning hours, and no more than 80 acres of suitable habitat were surveyed per visit. Psomas Senior Biologist Lindsay Messett (USFWS Permit No. TE067064-5) and Psomas Senior Biologist Jonathan Aguayo (USFWS Permit No. TE96514A-3) conducted the focused survey visits. Surveys were conducted on May 25; and June 1, 9, 16, 23 and 30, 2022.

Weather conditions met the USFWS survey protocol requirements for optimal gnatcatcher detection. Weather conditions that were too cold (below 55 degrees Fahrenheit [°F]), too hot (above 95°F), or too windy (wind speed greater than 15 miles per hour) were avoided. Surveys were conducted by slowly walking through all appropriate habitats (i.e., coastal sage scrub) while listening and watching for gnatcatcher activity. A combination of taped recordings of gnatcatcher vocalizations and "pishing" sounds were used in an attempt to elicit responses from any gnatcatchers that might be present. The frequency of vocalization playback and "pishing" varied depending on conditions, such as habitat patch size and topography in each area. All bird species detected during the survey were recorded, including notable observations of special status birds or other wildlife species. All wildlife species detected during the surveys were recorded (Attachment B).

TABLE 1
SUMMARY OF COASTAL CALIFORNIA GNATCATCHER SURVEY CONDITIONS

Survey Number	Date	Time (Start/End)	Surveyor	Temperature (°F) (Start/End)	Wind (mph) (Start/End)	Cloud Cover (%) (Start/End)
1	May 26, 2022	8:30 AM–10:15 AM	Messett	73/80	0/1	Clear
2	June 2, 2022	9:25 AM–10:28 AM	Messett	72/78	3/5	25/Clear
3	June 9, 2022	6:48 AM–9:14 AM	Aguayo	64/72	2/3	Clear
4	June 16, 2022	7:28 AM–10:07 AM	Aguayo	69/77	1/2	Clear
5	June 23, 2022	6:13 AM–8:22 AM	Aguayo	71/77	4/2	40/10
6	June 30, 2022	8:08 AM–10:26 AM	Aguayo	72/81	4	Clear

°F: degrees Fahrenheit; mph: miles per hour: %: percent

SURVEY RESULTS

No coastal California gnatcatchers were observed or detected in the survey area during focused surveys. Photographs of representative habitat conditions on the project site are provided in Attachment A. All wildlife species detected during the surveys were recorded in field notes and are summarized in Attachment B.

Psomas appreciates the opportunity to assist on this Project. If you have any comments or questions, please contact Marc Blain at (626) 351-2000 or Marc.Blain@psomas.com.

Sincerely,

PSOMAS

Ann M. Johnston
Vice President
Resource Management

Marc T. Blain
Senior Project Manager/Vice President
Resource Management

I certify that the information in this survey report and enclosed exhibits fully and accurately present my work.

Lindsay A. Messett, CWB®
Senior Biologist
(TE067064-5)

Jonathan Aguayo
Senior Biologist
(TE96514A-3)

Attachments: Exhibits 1, 2, and 3
A – Site Photographs
B – Wildlife Compendium

cc: Lilia Martinez, LiMartinez@mwdh2o.com

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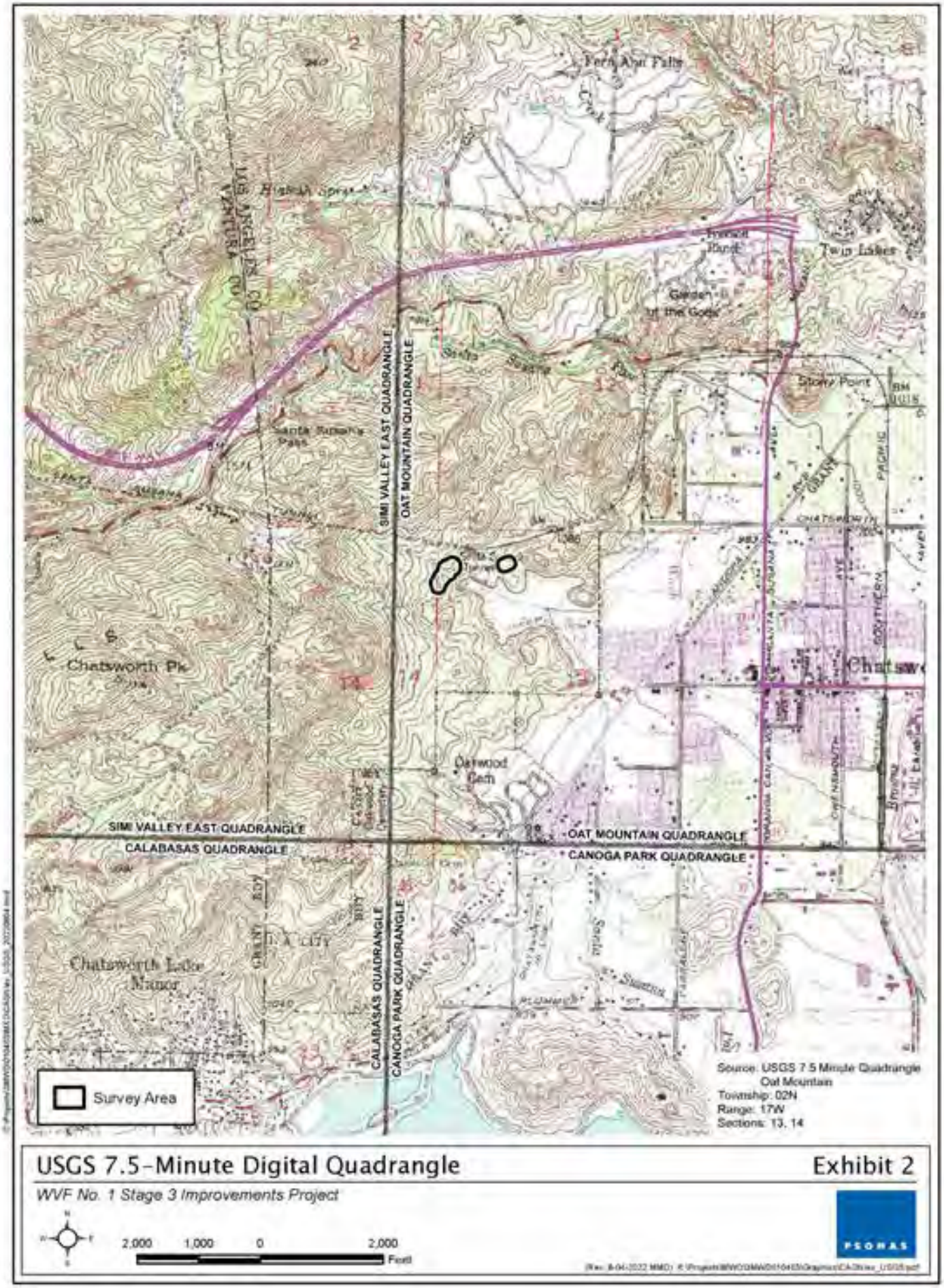
Project Location

Exhibit 1

WVF No. 1 Stage 3 Improvements Project

1,000 500 0 1,000 Feet

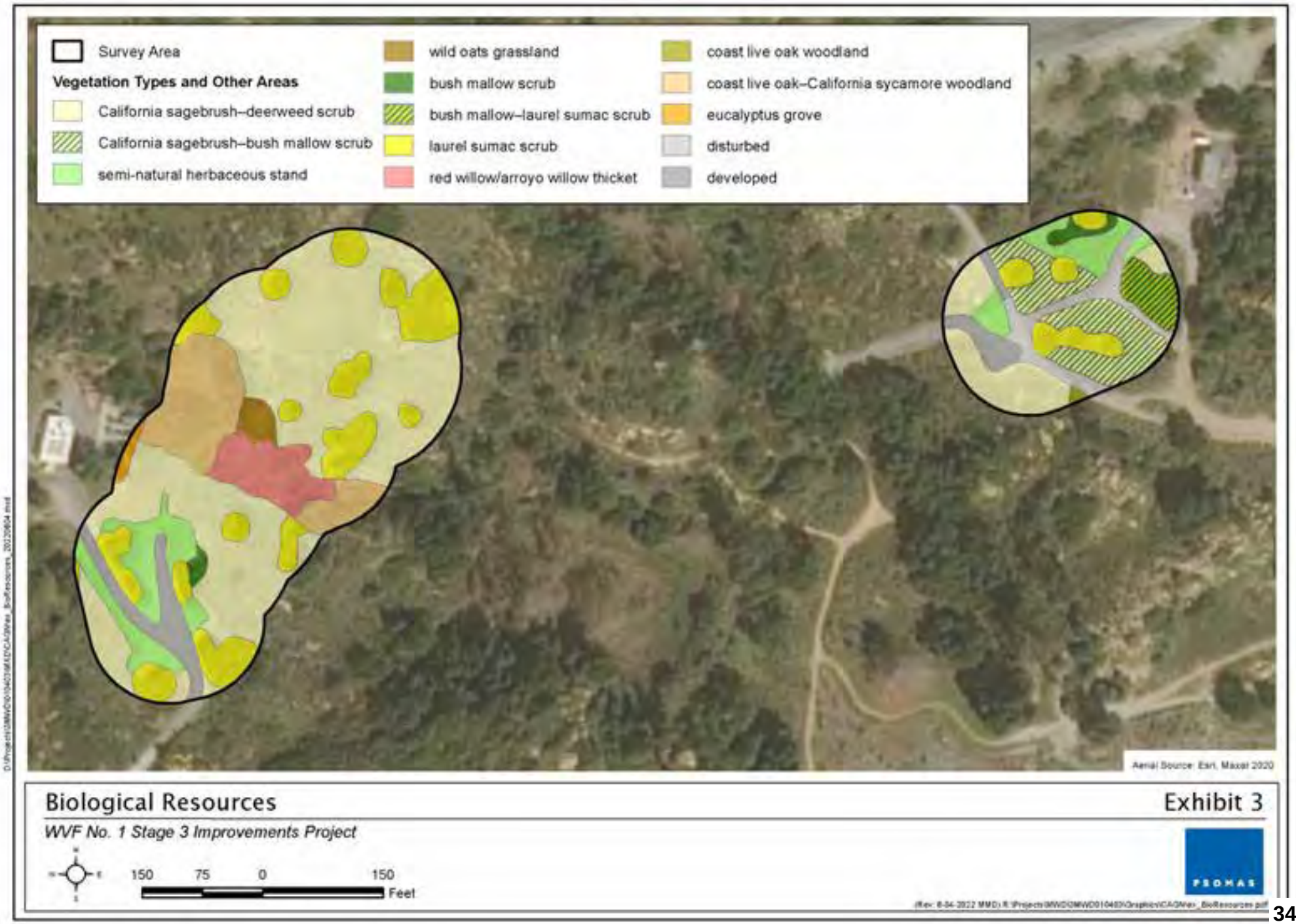
PSOMAS



USGS 7.5-Minute Digital Quadrangle

Exhibit 2

WVF No. 1 Stage 3 Improvements Project


Survey Area
Vegetation Types and Other Areas
California sagebrush–deerweed scrub
California sagebrush–bush mallow scrub
semi-natural herbaceous stand
wild oats grassland
bush mallow scrub
bush mallow–laurel sumac scrub
laurel sumac scrub
red willow/arroyo willow thicket
coast live oak woodland
coast live oak–California sycamore woodland
eucalyptus grove
disturbed
developed
Aerial Source: Esri, Maxar 2020
Biological Resources
Exhibit 3
WVF No. 1 Stage 3 Improvements Project
150 75 0 150
Feet
PSOMAS

ATTACHMENT A

SITE PHOTOGRAPHS

Photo 1 - June 9, 2022: View of potentially suitable habitat in the western portion of the project site, facing northeast. This area consists of California sagebrush–deerweed scrub and laurel sumac scrub dominated by laurel sumac, deerweed and California sagebrush.

Photo 2 - June 9, 2022: View of potentially suitable habitat in the middle portion of the project site, facing northwest. This area consists of California sagebrush–deerweed scrub dominated by deerweed and California sagebrush.

Site Photographs

Attachment A-1

WVF No. 1 Stage 3 Improvements Project

PSOMAS

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Photo 3 - June 30, 2022. View of potentially suitable habitat in the southwestern portion of the project site, facing east. This area consists of California sagebrush–deerweed scrub dominated by deerweed, California buckwheat, and California sagebrush.

Photo 4 - June 30, 2022. View of potentially suitable habitat in the southeastern portion of the project site, facing west. This area consists of California sagebrush–deerweed scrub dominated by California sagebrush.

Site Photographs

Attachment A-2

WVF No. 1 Stage 3 Improvements Project

PSOMAS

08/12/2023 JVR| R:\Projects\MWD\MWD0104C00\Graphics\CAGH\Att_SP.pdf

ATTACHMENT B

WILDLIFE COMPENDIUM

WILDLIFE COMPENDIUM

Scientific Name	Common Name
LIZARDS	**-**
PHRYNOSOMATIDAE – SPINY LIZARD FAMILY	-
Sceloporus occidentalis	western fence lizard
BIRDS	**-**
ODONTOPHORIDAE – NEW WORLD QUAIL FAMILY	-
Callipepla californica	California quail
COLUMBIDAE – PIGEON AND DOVE FAMILY	-
*Streptopelia decaocto**	Eurasian collared-dove
Zenaida macroura	mourning dove
APODIDAE – SWIFT FAMILY	-
Aeronautes saxatalis	white-throated swift
TROCHILIDAE – HUMMINGBIRD FAMILY	-
Calypte anna	Anna's hummingbird
Selasphorus sasin	Allen's hummingbird
ACCIPITRIDAE – HAWK FAMILY	-
Buteo lineatus	red-shouldered hawk
Buteo jamaicensis	red-tailed hawk
PICIDAE – WOODPECKER FAMILY	-
Melanerpes formicivorus	acorn woodpecker
TYRANNIDAE – TYRANT FLYCATCHER FAMILY	-
Empidonax difficilis	Pacific-slope flycatcher
Myiarchus cinerascens	ash-throated flycatcher
CORVIDAE – JAY AND CROW FAMILY	-
Aphelocoma californica	California scrub-jay
Corvus brachyrhynchos	American crow
Corvus corax	common raven
PARIDAE – TITMOUSE FAMILY	-
Baeolophus inornatus	oak titmouse
AEGITHALIDAE – BUSHTIT FAMILY	-
Psaltriparus minimus	bushtit
SITTIDAE – NUTHATCH FAMILY	-
Sitta carolinensis	white-breasted nuthatch
TROGLODYTIDAE – WREN FAMILY	-
Thryomanes bewickii	Bewick's wren
POLIOPTILIDAE – GNATCATCHER FAMILY	-
Polioptila caerulea	blue-gray gnatcatcher
SYLVIIDAE – SILVIID WARBLERS FAMILY	-
Chamaea fasciata	wrentit
TURDIDAE – THRUSH FAMILY	-
Turdus migratorius	American robin
MIMIDAE – MOCKINGBIRD AND THRASHER FAMILY	-
Toxostoma redivivum	California thrasher
Mimus polyglottos	northern mockingbird

Scientific Name	Common Name
FRINGILLIDAE – FINCH FAMILY	-
Haemorhous mexicanus	house finch
Spinus psaltria	lesser goldfinch
PASSERELLIDAE – NEW WORLD SPARROW FAMILY	-
Melozone crissalis	California towhee
Pipilo maculatus	spotted towhee
ICTERIDAE – BLACKBIRDS AND ORIOLES	-
Icterus cucullatus	hooded oriole
Molothrus ater	brown-headed cowbird
MAMMALS	**-**
SCIURIDAE – SQUIRREL FAMILY	-
Otospermophilus beecheyi	California ground squirrel
LEPORIDAE – HARE AND RABBIT FAMILY	-
Sylvilagus audubonii	desert cottontail

* Non-native species

October 4, 2022

Mr. Chris Kofron
Recovery Permit Coordinator
U.S. Fish and Wildlife Service
2493 Portola Road, Suite B
Ventura, California 93003

VIA EMAIL
chris_kofron@fws.gov

Subject: Results of Least Bell's Vireo Focus Surveys for the Metropolitan Water District West Valley Feeder No. 1 Stage 3 Improvements Project, Los Angeles County, California

Dear Mr. Kofron:

This Letter Report presents the results of focused surveys to determine the presence or absence of the least Bell's vireo (*Vireo bellii pusillus*) for the Metropolitan Water District West Valley Feeder No. 1 Stage 3 Improvements Project (hereinafter referred to as the "proposed Project") located in Los Angeles County, California (Exhibit 1).

PROJECT DESCRIPTION AND LOCATION

The Project involves modification of the MWD WVF1 located northwest of Chatsworth Park South, in the City of Los Angeles. Proposed Project actions include construction of an approximately 500-foot access road including a vehicle turnaround area and various modifications to existing facilities including valve relocation, equipment replacement, and reconstruction of valve structures. Additionally, the project proposes the installation of new manholes, concrete vaults, and retaining walls along the WVF1. Project impacts would include both temporary impacts in areas associated with construction access, staging, and laydown areas as well as permanent impacts associated with the proposed access road. Except for those areas where impacts would be confined to existing structures and the surrounding paved areas, all other impact areas occurring would be subject to some degree of earth disturbance.

The Project site is in the western portion of the San Fernando Valley in the City of Los Angeles (Exhibit 1). Surrounding land uses include undeveloped open space in the Santa Susana Pass State Historic Park to the west and Chatsworth Park South to the east, with urban development farther to the east. The Project site occurs on the U.S. Geological Survey's (USGS') Oat Mountain 7.5-minute quadrangle at Township 2 North, Range 17 West, Sections 13 and 14 (Exhibit 2). Topography in the survey area includes slopes and eastward-draining canyons; elevations range from approximately 1,010 feet above mean sea level (msl) in the east to 1,160 feet above msl in the west.

Thirteen vegetation types and other areas occur on the project site (Exhibit 3). Vegetation categories include California sagebrush–deerweed scrub, California sagebrush–bush mallow scrub, semi-natural herbaceous stand, wild oats grassland, bush mallow scrub, bush mallow–laurel sumac scrub, laurel sumac scrub, red willow/arroyo willow thicket, coast live oak woodland, coast live oak–California sycamore woodland, eucalyptus grove, disturbed, and developed.

SPECIES BACKGROUND

The least Bell's vireo was formerly more common and widespread but became rare and local summer resident of Southern California's lowland riparian woodlands (Grinnell and Miller 1944; Garrett and Dunn 1981). The substantial population decline over the latter half of the twentieth century is attributable to the loss and degradation of riparian habitats and brood parasitism by the brown headed cowbird (*Molothrus ater*). As a result, the least Bell's vireo was listed by the California Department of Fish and Game (CDFG) as Endangered on October 2, 1980, and by the USFWS as Endangered on May 2, 1986 (CDFG 2011)

Bell's vireo is a Neotropical migrant that breeds in central and southwestern North America from northern Mexico to Southern California, Nevada, and Utah; east to Louisiana; and north to North Dakota, Wisconsin, and Indiana in the central United States (AOU 1998). Although not well known, the winter range of the Bell's vireo is believed to be the western coast of Central America from southern Sonora south to northwestern Nicaragua, including the cape region of Baja California, Mexico (Brown 1993). Of the four Bell's vireo subspecies, only two breed in California: the least Bell's vireo and the Arizona Bell's vireo (*V. b. arizonae*), which breeds in the Colorado River Valley (Garrett and Dunn 1981; Rosenberg et al. 1991). Though the least Bell's vireo was formerly considered a common breeder in riparian habitats throughout the Central Valley and other low-elevation riverine systems in California and Baja California, Mexico (Franzreb 1989), presently, the least Bell's vireo has been eliminated from much of its historical range (Franzreb 1989; Brown 1993).

The breeding habitat of the least Bell's vireo is primarily riparian dominated by willows with dense understory vegetation; shrubs such as mule fat *(Baccharis salicifolia*) and California rose (*Rosa californica*) are often a component of the understory (Goldwasser 1981). The least Bell's vireo is often found in areas that include trees such as willow (*Salix* sp.), western sycamore (*Platanus racemosa*) or cottonwood (*Populus* sp.), particularly where the canopy is within or immediately adjacent to an understory layer of vegetation (Salata 1983). The least Bell's vireo generally nests in early successional stages of riparian habitats, with nest sites frequently located in willows that are between four and ten feet high (Franzreb 1989). The most critical factor in habitat structure is the presence of a dense understory shrub layer from approximately two to ten feet above ground (Goldwasser 1981; Salata 1983; Franzreb 1989).

The least Bell's vireo population has increased tenfold from 291 territories in the early 1980s to an estimated 2,968 territories 20 years later (USFWS 2006). After a decade or more of absence in Los Angeles County, the least Bell's vireo returned by the mid-1980s with a pair reported from Whittier Narrows in 1985 and 1986 (Long 1993). Numbers of least Bell's vireo have continued to increase since that time, and it is now known to occur at several other locations in Los Angeles County such as the San Fernando (Van Norman) Dam; the San Gabriel River at Fish Canyon and Van Tassel Canyon; the Sepulveda Basin Wildlife Area; and the Castaic Lagoon Recreation Area (CDFW 2022). The two largest populations in the county are at Hansen Dam in the northeastern corner of the San Fernando Valley where 44 least Bell's vireo territories were present in 2009 (Griffith Wildlife Biology 2009) and on the Santa Clara River from I-5 downstream to the Las Brisas Bridge where 56 least Bell's vireo territories were present in 2007 (Bloom Biological, Inc. 2007).

On February 2, 1994, the USFWS issued their final designation of Critical Habitat for the least Bell's vireo (USFWS 1994), identifying approximately 37,560 acres as Critical Habitat in Santa Barbara, Ventura, Los Angeles, San Bernardino, Riverside, and San Diego counties. The survey area is not located in the designated Critical Habitat area for this species.

SURVEY METHODS

A total of eight surveys for the least Bell's vireo were conducted on April 22; May 4, 16; June 6, 17, 28; and July 8, 18, 2022. Updated guidelines for least Bell's vireo surveys were issued on April 8, 1999, and require that at least eight surveys be conducted from April 10 to July 31 with a ten-day interval between each site visit. All surveys followed the recommended USFWS guidelines and were conducted by Psomas Biologist Sarah Thomas. The riparian habitat (approximately 0.21-acre) was systematically surveyed by walking slowly and methodically wherever feasible depending on streambed bank slope (Exhibits 3 and 4). Any observations of least Bell's vireo, including any pertinent behavior, would have been recorded and their locations mapped in the field. Surveys were conducted during the early morning hours and under optimal weather conditions for detection of birds. Survey dates, times, and weather data are shown in Table 1. Survey conditions and results were documented in field notes. An avian compendium recorded during these surveys is included in Attachment A.

TABLE 1
SUMMARY OF SURVEY DATA AND CONDITIONS FOR LEAST BELL'S VIREO SURVEYS

Survey	Survey Date	Surveying Biologists	Start/End Time	Wind (miles/ hour) Start	Wind (miles/ hour) End	Tempe (°F) Start	Tempe (°F) End	Cloud Cover
1	4/22/2022	Thomas	0805/1015	1	1	62	69	95/75
2	5/4/2022	Thomas	0830/1000	1-2	1-2	68	73	50/Clear
3	5/16/2022	Thomas	0830/1030	2-3	1-2	67	75	Clear/Clear
4	6/6/2022	Thomas	0915/1100	1-2	1-2	70	76	25/10
5	6/17/2022	Thomas	0750/0930	0	0	63	63	100/100
6	6/28/2022	Thomas	0835/1040	1-2	1-2	79	90	25/Clear
7	7/8/2022	Thomas	0725/0910	0	1-2	66	71	Clear/Clear
8	7/18/2022	Thomas	0810/1000	1-2	1-2	76	82	50/25

SURVEY RESULTS

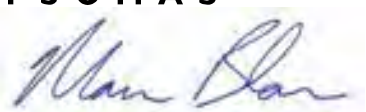
No least Bell's vireo were detected during the surveys. Brown headed cowbirds (three males, two females) were observed approximately 200 feet southwest of the survey area[1] on April 22; May 4, 16; and June 17 and 28, 2022.

[1] UTM 11S 350757.44 mE, 3792409.75 mN.

Psomas appreciates the opportunity to assist on this project. If you have any comments or questions, please call Marc Blain at (626) 351-2000.

Sincerely,

PSOMAS



Marc T. Blain
Senior Project Manager

Sarah Thomas
Biologist

Enclosures: Exhibit 1 – Regional Location and Local Vicinity
Exhibit 2 – USGS 7.5-Minute Digital Quadrangle
Exhibit 3 – Vegetation Types and Other Areas
Exhibit 4 – Survey Area
Attachment A – Avian Compendium

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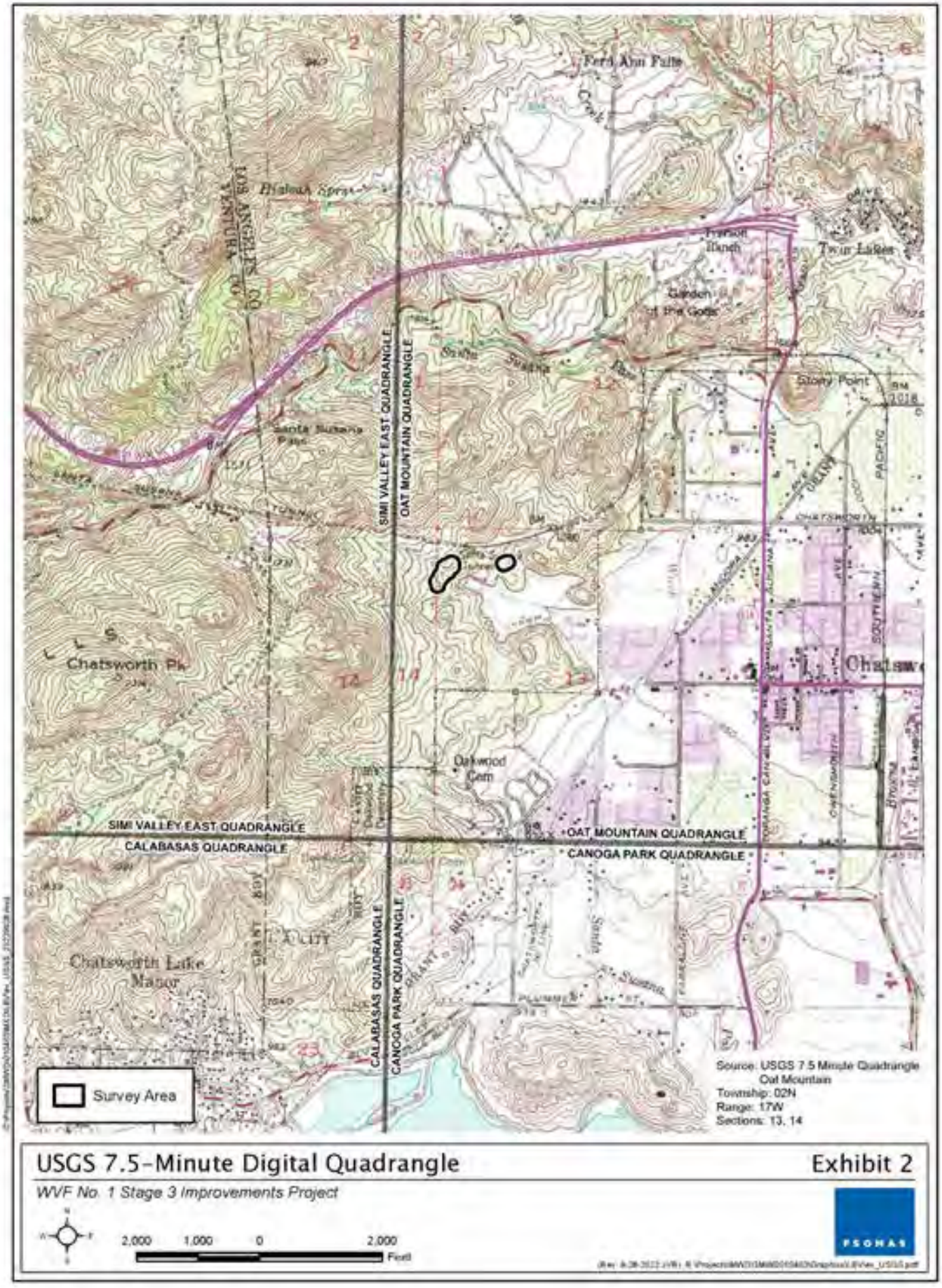
Project Location

Exhibit 1

WVF No. 1 Stage 3 Improvements Project

1,000 500 0 1,000 Feet

PSOMAS

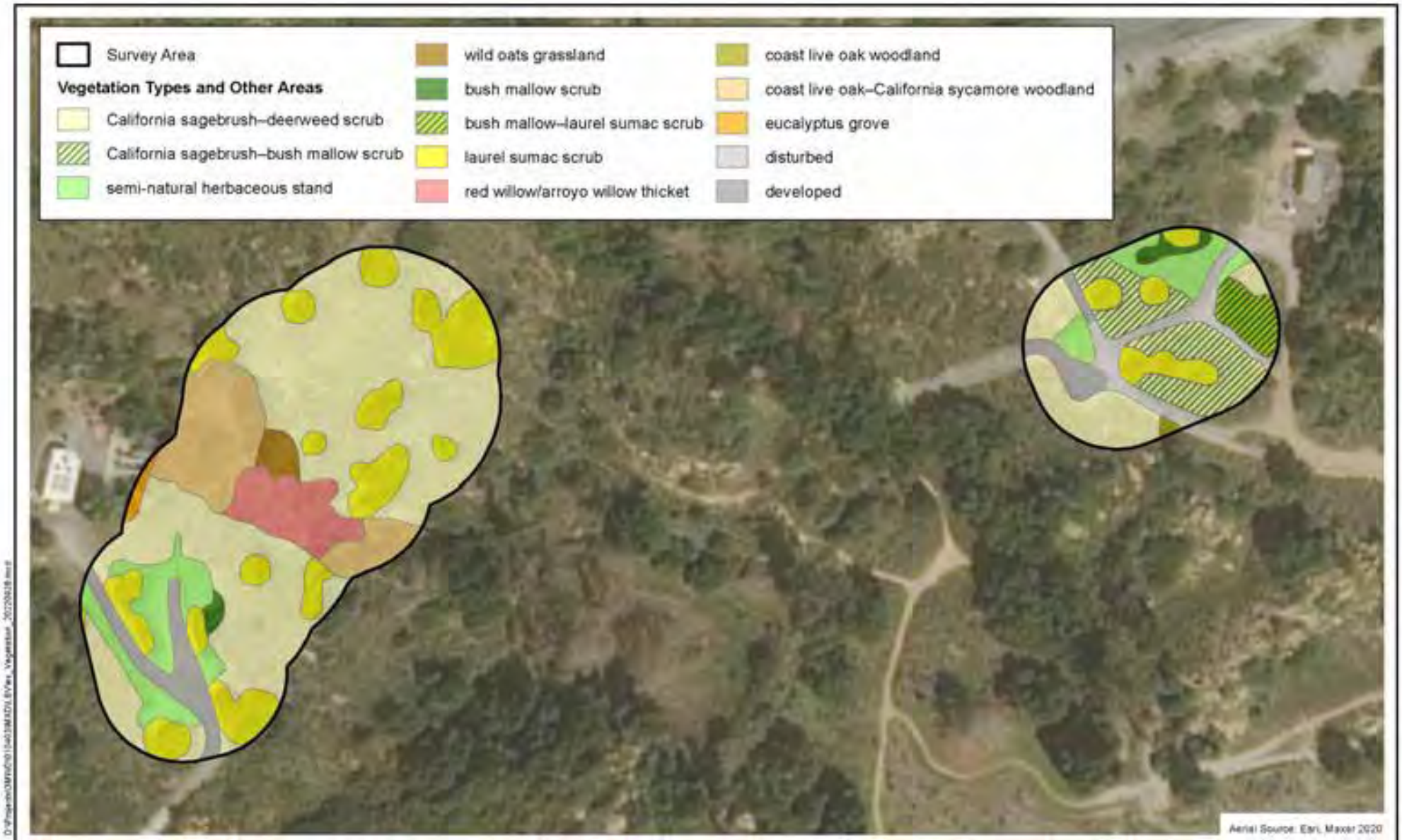


USGS 7.5-Minute Digital Quadrangle

Exhibit 2

WVF No. 1 Stage 3 Improvements Project

2,000 1,000 0 2,000
Feet



Vegetation Map and Other Areas

Exhibit 3

WVF No. 1 Stage 3 Improvements Project

150 75 0 150

Feet

PSOMAS

Survey Area

Exhibit 4

WVF No. 1 Stage 3 Improvements Project

150 75 0 150 Feet

PSOMAS

ATTACHMENT A

AVIAN COMPENDIUM

AVIAN COMPENDIUM RECORDED DURING THESE SURVEYS

Scientific Name	Common Name
BIRDS	**-**
ODONTOPHORIDAE – NEW WORLD QUAIL FAMILY	-
Callipepla californica	California quail
COLUMBIDAE – PIGEON AND DOVE FAMILY	-
*Streptopelia decaocto**	Eurasian collared-dove
Zenaida macroura	mourning dove
APODIDAE – SWIFT FAMILY	-
Aeronautes saxatalis	white-throated swift
TROCHILIDAE – HUMMINGBIRD FAMILY	-
Calypte anna	Anna's hummingbird
Selasphorus sasin	Allen's hummingbird
CATHARTIDAE – NEW WORLD VULTURE FAMILY	-
Cathartes aura	turkey vulture
ACCIPITRIDAE – HAWK FAMILY	-
Buteo jamaicensis	red-tailed hawk
PICIDAE – WOODPECKER FAMILY	-
Melanerpes formicivorus	acorn woodpecker
Picoides nuttallii	Nuttall's woodpecker
Colaptes auratus	northern flicker
TYRANNIDAE – TYRANT FLYCATCHER FAMILY	-
Empidonax difficilis	Pacific-slope flycatcher
Sayornis nigricans	black phoebe
Myiarchus cinerascens	ash-throated flycatcher
Tyrannus vociferans	Cassin's kingbird
CORVIDAE – JAY AND CROW FAMILY	-
Aphelocoma californica	California scrub-jay
Corvus corax	common raven
HIRUNDINIDAE – SWALLOW FAMILY	-
Stelgidopteryx serripennis	northern rough-winged swallow
Hirundo rustica	barn swallow
Petrochelidon pyrrhonota	cliff swallow
PARIDAE – TITMOUSE FAMILY	-
Baeolophus inornatus	oak titmouse
AEGITHALIDAE – BUSHTIT FAMILY	-
Psaltriparus minimus	Bushtit
TROGLODYTIDAE – WREN FAMILY	-
Troglodytes aedon	house wren
Thryomanes bewickii	Bewick's wren
POLIOPTILIDAE – GNATCATCHER FAMILY	-
Polioptila caerulea	blue-gray gnatcatcher
SYLVIIDAE – SILVIID WARBLERS FAMILY	-
Chamaea fasciata	Wrentit

Scientific Name	Common Name
MIMIDAE – MOCKINGBIRD AND THRASHER FAMILY	-
Toxostoma redivivum	California thrasher
Mimus polyglottos	northern mockingbird
STURNIDAE – STARLING FAMILY	-
*Sturnus vulgaris**	European starling*
PTILOGONATIDAE – SILKY-FLYCATCHER FAMILY	-
Phainopepla nitens	Phainopepla
FRINGILLIDAE – FINCH FAMILY	-
Haemorhous mexicanus	house finch
Spinus psaltria	lesser goldfinch
PASSERELLIDAE – NEW WORLD SPARROW FAMILY	-
Junco hyemalis	dark-eyed junco
Melospiza melodia	song sparrow
Melozone crissalis	California towhee
Pipilo maculatus	spotted towhee
ICTERIDAE – BLACKBIRDS AND ORIOLES	-
Icterus cucullatus	hooded oriole
Molothrus ater	brown-headed cowbird

* Non-native species

October 25, 2022

Lilia Martinez
Environmental Specialist, Environmental Planning Section
The Metropolitan Water District of Southern California
700 North Alameda Street
Los Angeles, California 90012

VIA EMAIL
LiMartinez@mwdh2o.com

Subject: Results of 2022 Focused Surveys for the California red-legged frog (*Rana draytonii*) for the Metropolitan Water District of Southern California, West Valley Feeder No 1 Project, Los Angeles, California.

Dear Ms. Martinez:

This Letter Report presents the results of focused diurnal and nocturnal surveys to determine the presence or absence of the California red-legged frog (*Rana draytonii*), for the Metropolitan Water District (MWD) of Southern California, West Valley Feeder No 1 (WVF1) Project (hereinafter referred to as the "proposed project") located in Los Angeles County, California (Exhibit 1). A qualified Biologist with the necessary experience and a California Department of Fish and Wildlife (CDFW) scientific collection permit conducted the surveys.

PROJECT DESCRIPTION AND LOCATION

The project involves modification of the MWD WVF1 located approximately 1,500 feet northwest of Chatsworth Park South, in the City of Los Angeles. Proposed project actions include construction of an approximately 500-foot access road including a vehicle turnaround area and various modifications to existing facilities including valve relocation, equipment replacement, and reconstruction of valve structures. Additionally, the project proposes the installation of new manholes, concrete vaults, and retaining walls along the WVF1. Project impacts would include both temporary impacts in areas associated with construction access, staging, and laydown areas as well as permanent impacts associated with the proposed access road. Except for those areas where impacts would be confined to existing structures and the surrounding paved areas, all other impact areas occurring would be subject to some degree of earth disturbance.

The project site is in the western portion of the San Fernando Valley in the City of Los Angeles (Exhibit 1). Surrounding land uses include undeveloped open space in the Santa Susana Pass State Historic Park to the west and Chatsworth Park South to the east, with urban development farther to the east. A Metrolink railroad alignment is located immediately north of the site. The project site occurs on the U.S. Geological Survey's (USGS') Oat Mountain 7.5-minute quadrangle at Township 2 North, Range 17 West, Sections 13 and 14 (Exhibit 2). Topography in the survey area includes slopes and eastward-draining canyons; elevations range from approximately 1,010 feet above mean sea level (msl) in the east to 1,160 feet above msl in the west.

Representative site photos are included in Attachment A.

SPECIES BACKGROUND

California Red-legged Frog

The California red-legged is federally Endangered species and a California Species of Special Concern. This frog has been extirpated from approximately 70 percent of its historic range (USFWS 2006a). At the time of listing, the red-legged frog (*Rana aurora*) comprised two subspecies, the California red-legged frog (*R. aurora draytonii*) and the northern red-legged frog (*R. aurora aurora*) until genetic studies (Shaffer et al. 2004) determined that *R. aurora* is actually two separate species, northern red-legged frog (*R. aurora*) and California red-legged frog (*R. draytonii*). The ranges of these two species overlap in Mendocino County. Only the California red-legged frog (*R. draytonii*) occurs within the project region.

The California red-legged frog ranges in size from 1.5 to 5.5 inches in length, making it the largest native frog in the western United States (Wright and Wright 1949). Adult females are significantly longer than males, with an average snout to vent length of 5.4 inches versus 4.5 inches for adult males (Hayes and Miyamoto 1984). The hind legs and lower abdomen of adult frogs are often characterized by a reddish or salmon pink color; and the back is brown, gray, olive, or reddish brown, marked with small black flecks and larger irregular dark blotches (USFWS 2002a; Stebbins 2018). Dorsal spots often have light centers and, in some individuals, form a network of black lines (Stebbins 2018). Dorsolateral folds are prominent. Tadpoles range in length from 0.6 to 3.2 inches, and are a dark brown or olive, marked with darker spots (Storer 1925).

This species is found in humid forests, woodlands, grasslands, streams, wetlands, ponds, and lakes from sea level to 8,000 feet msl (Stebbins 2018). Preferred breeding habitat includes deep ponds and slow-moving streams where emergent vegetation is found on the bank edges (Jennings and Hayes 1994a, Thomson et al. 2016). Although primarily aquatic, it has been recorded in damp terrestrial places up to 302 feet from water for up to 50 consecutive days (Tatarian 2008) using small mammal burrows and moist leaf litter as refugia during dry periods (Jennings and Hayes 1994b).

California red-legged frog adults tend to be primarily nocturnal, while juveniles can be active at any time of day (Hayes and Tennant 1985). Adults feed on a wide range of prey, having been recorded feeding on at least 42 different taxa in a single study (Hayes and Tennant 1985), the majority of which were terrestrial invertebrates but also included fish, other amphibians, and small rodents. The diet of red-legged frog tadpoles has not been studied but is expected to be similar to other ranid frogs that feed on algae, diatoms, and detritus by grazing the surface of rocks and vegetation (Kupferberg 1997).

During the breeding season, typically from November through April, males call to females from the margins of ponds and slow streams (Jennings and Hayes 1994a). Unlike northern red-legged frogs, which lack vocal sacs and call underwater, California red-legged frogs have paired vocal sacs and call above the water surface (Hayes and Krempels 1986), though vocalizations are relatively weak and difficult to detect. Actual mating most commonly occurs in March but can vary depending on seasonal climatic patterns. The female lays a jellylike mass of 2,000 to 5,000 reddish brown eggs attached to emergent vegetation, twigs, or other structures in still or slow-moving water. The resulting tadpoles typically require about 3 weeks to hatch and another 11 to 20 weeks to metamorphose into juvenile frogs. Metamorphosis typically occurs from July to September, although some tadpoles have been observed to delay metamorphosis until the following March or April (Bobzien et al. 2000; Fellers et al. 2001). Red-legged frogs typically reach sexual maturity approximately two years (for males) and three years (for females) from metamorphosis (Jennings and Hayes 1985).

On March 17, 2010, the USFWS published the Revised Critical Habitat for the California red-legged frog. The Revised Critical Habitat designated 1,636,609 acres of critical habitat for the arroyo toad in

27 counties in California; Southern California counties include Santa Barbara, Ventura, Los Angeles, and Riverside. The survey area is not located within designated or proposed Critical Habitat for this species.

The California red-legged frog occurred historically in The Santa Monica Mountains and the greater Los Angeles area in general. But since the early 1970s, this species had not been seen and in fact, this species was considered largely extirpated from these areas. In the early 2000's a population of California red-legged frog was found in Simi Hills and gave hope to a potential recovery effort. In 2014 that recovery effort was put into motion. The Santa Monica Mountains Conservancy, partnered with the National Parks Service, transferred approximately 950 eggs from the Simi Hills population to two undisclosed streams in the Santa Monica Mountains (Kuykendall 2014). In 2017 during a stream survey, researchers found 9 egg masses in the streams where the transplanted eggs were introduced in 2014 (Behrens 2017). More recently, night surveys of these reintroduction sites conducted post Woolsey fire resulted in a total of 28 adult California red-legged frog detections (Kuykendall 2014, Cholo 2019). These findings show evidence of a potentially successful reestablishment of California red-legged frogs in the Santa Monica Mountains.

SURVEY METHODS

Surveys were completed in accordance with the Revised Guidance on Site Assessments and Field Surveys for the California Red-legged Frog released in august 2005 (CDFW 2005). The protocol for California red-legged frog recommends a total of up to eight surveys conducted between January and September, with two daytime surveys and four nighttime surveys conducted during the breeding season, and one daytime and one nighttime survey conducted during the non-breeding season. Each survey must be conducted at least seven days apart, and the entire survey must be at least six weeks long. One survey should be conducted between February 25 and April 30, and at least one survey must be conducted between July 1 and September 30.

Psomas Senior Biologists Marc Blain, with the aid of Psomas Biologist Jack Underwood conducted the focused surveys in all potentially suitable habitat for California red-legged frog in the survey area. Consecutive diurnal and nocturnal surveys were conducted on April 28, June 17, and August 30, 2022, with two standalone nocturnal surveys being conducted on May 19, and June 24, 2022. Regarding the California red-legged frog protocol, the two day and four-night surveys conducted from April through June constituted the breeding season surveys; while the day and night survey on August 30, 2022, constituted the California red-legged frog non-breeding season survey.

The surveys included diurnal and nocturnal searches to determine the presence of eggs, tadpoles, and adults. Diurnal surveys were conducted from approximately 4:30 PM until dusk, and nocturnal surveys were conducted from one hour after dusk until approximately 10:00 PM. Surveys focused on detecting frogs by visual identification, listening for the advertising call of adult males, and checking potentially suitable breeding habitat for tadpoles and/or eggs. Biologists scanned pools for eggs, larvae, metamorphs, juveniles, and breeding and/or calling adults in potentially suitable breeding locations along the creek and for foraging individuals in the adjacent riparian and upland areas. Headlamps, flashlights, and binoculars were used to visually identify toads, frogs, and their larvae detected at night. Nocturnal surveys were conducted during appropriate environmental conditions conducive to the activity patterns of the California red-legged frog. Generally, these conditions are nighttime temperatures greater than 50 degrees Fahrenheit (°F) at dusk, with low winds (less than 10 miles per hour); nights with a full or nearly full moon were avoided. If any special status amphibians were found, the individual or population was documented, recorded with a Global Positioning System (GPS) unit, and mapped on an aerial photograph. Surveyor qualifications are presented in Attachment B of this Letter Report. California red-legged frog survey data sheets are provided in Attachment C. Survey dates, times, and weather data are shown in Table 1.

TABLE 1
SUMMARY OF SURVEY DATA AND CONDITIONS FOR CRLF SURVEYS

Survey	Survey Date	Survey Type	Surveying Biologists	Start/End Time	Wind (mph) Start	Wind (mph) End	Temp Start (°F)	Temp End (°F)	Cloud Cover (%)
1	4/28/2022	Diurnal	Blain; Underwood	6:20 PM–7:30 PM	3-4	1-2	63	60	0
2	4/28/2022	Nocturnal	Blain; Underwood	7:45 PM–9:04 PM	1-2	0-1	60	57	0
3	5/19/2022	Nocturnal	Blain	7:30 PM–9:45 PM	1-2	0–1	61	57	25
4	6/17/2022	Diurnal	Blain	4:25 PM–6:15 PM	5-6	5-6	75	73	50
5	6/17/2022	Nocturnal	Blain	7:25 PM–10:15 PM	4	3	66	63	0
6	6/24/2022	Nocturnal	Blain	8:00 PM–10:20 PM	2–3	1–2	83	74	0
7	8/30/2022	Diurnal	Blain	5:20 PM–6:40 PM	4-5	3–4	95	90	0
8	8/30/2022	Nocturnal	Blain	8:10 PM–9:40 PM	3	2	85	81	0

°F: degrees Fahrenheit; mph: miles per hour: %: percent

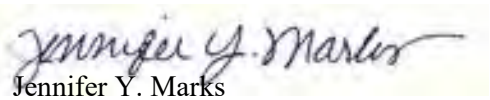
SURVEY RESULTS

No California red-legged frogs were detected during the surveys. No special status species were observed during any of the surveys.

One amphibian species was detected during surveys, the northern pacific tree frog (*Pseudacris regilla*). A complete list of all wildlife species detected during the surveys is provided in Attachment D.

Psomas appreciates the opportunity to assist on this project. If you have any comments or questions, please call Marc Blain at (626) 351-2000.

Sincerely,
PSOMAS



Jennifer Y. Marks
Senior Project Manager

Marc T. Blain
Senior Biologist

Enclosures: Exhibits 1–2
Attachment A – Site Photographs
Attachment B – Surveyor Qualifications
Attachment C – California Red-Legged Frog Survey Data Sheets
Attachment D – Wildlife Compendium

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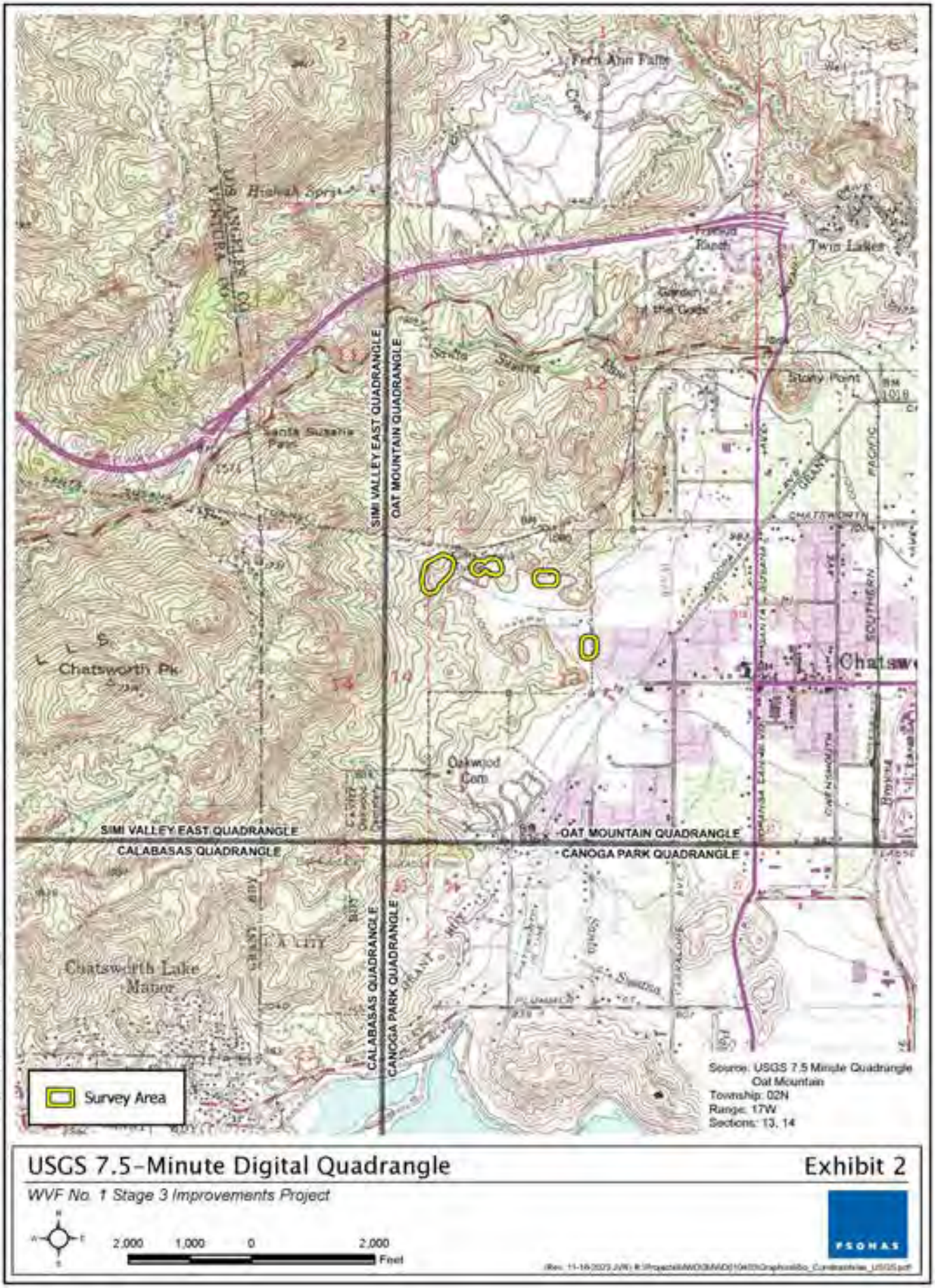
Project Location

Exhibit 1

WVF No. 1 Stage 3 Improvements Project

1,000 500 0 1,000 Feet

PSOMAS



USGS 7.5-Minute Digital Quadrangle

Exhibit 2

WVF No. 1 Stage 3 Improvements Project

2,000 1,000 0 2,000 Feet

ATTACHMENT A

SITE PHOTOGRAPHS

California sagebrush–deerweed scrub in the western portion of the survey area.

California sagebrush–bush mallow scrub in the eastern portion of the survey area.

Representative Photographs

Attachment A-1

WVF No. 1 Stage 3 Improvements Project

Semi-natural herbaceous stand in the western portion of the survey area.

Laurel sumac scrub in the western portion of the survey area.

Representative Photographs

Attachment A-2

WVF No. 1 Stage 3 Improvements Project

Red willow/arroyo willow thicket in the western portion of the survey area.

Coast live oak–California sycamore woodland in the western portion of the survey area.

Representative Photographs

Attachment A-3

WVF No. 1 Stage 3 Improvements Project

Eucalyptus grove in the western portion of the survey area.

Disturbed area in eastern portion of the survey area.

Representative Photographs

Attachment A-4

WVF No. 1 Stage 3 Improvements Project

WVF1 STA 1416+33 existing blowoff (to be abandoned).

WVF1 STA 1407+45 existing blowoff.

Representative Photographs Attachment A-5

WVF No. 1 Stage 3 Improvements Project

Along existing access trail to WVF1 STA 1415+42 proposed vault and pump well.

Contractor's laydown area in the western portion of the survey area.

Representative Photographs

Attachment A-6

WVF No. 1 Stage 3 Improvements Project

ATTACHMENT B

SURVEYOR QUALICATIONS

ATTACHMENT C

CALIFORNIA RED-LEGGED FROG SURVEY DATA SHEETS

Appendix E.
California Red-legged Frog Survey Data Sheet

Survey results reviewed by _____ _____ _____
(FWS Field Office) (date) (biologist)

Date of Survey: 04/28/2022 (mm/dd/yyyy) **Survey Biologist:** Blain, Marc (Last name) (first name)
Survey Biologist: Underwood, Jacle (Last name) (first name)

Site Location: LA County; Chatsworth; 34°15'42.3"N 118°37'21.2"W
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)**
map within report

Proposed project name: MWD West Valley Feeder (WVF)
Brief description of proposed action:
Roadway access improvements & additions for WVF stub out point.

Type of Survey (circle one): (DAY) NIGHT (BREEDING) NON-BREEDING

Survey number (circle one): (1) 2 3 4 5 6 7 8

Begin Time: 6:20 PM **End Time:** 7:30 PM

Cloud cover: 0% **Precipitation:** 0%

Air Temperature: 63°F **Water Temperature:** 66°F

Wind Speed: 2-3 MPH **Visibility Conditions:** Clear

Moon phase: Waning Crescent **Humidity:** 66%

Description of weather conditions: Weather was clear with no clouds overhead.

Brand name and model of light used to conduct surveys: Bercol - Rechargeable, Zoomable Tactical Flashlight. Adjustable to water resistant conditions.

Were binoculars used for the surveys (circle one)? (YES) NO
Brand, model, and power of binoculars: Nikon Monarch M7 8X42 8.3°

Appendix E.
California Red-legged Frog Survey Data Sheet

AMPHIBIAN OBSERVATIONS

Species	# of indiv.	Observed (O) Heard (H)	Life Stages	Size Class	Certainty of Identification

Describe potential threats to California red-legged frogs observed, including non-native and native predators such as fish, bullfrogs, and raccoons: None Observed.

Other notes, observations, comments, *etc.*

Necessary Attachments:

4. All field notes and other supporting documents
5. Site photographs
6. Maps with important habitat features and species locations

Appendix E.
California Red-legged Frog Survey Data Sheet

Survey results reviewed by _____ _____ _____
(FWS Field Office) (date) (biologist)

Date of Survey: 4/28/2022 (mm/dd/yyyy)

Survey Biologist: Blain (Last name) Marc (first name)

Survey Biologist: Underwood (Last name) Jack (first name)

Site Location: LA County; Chatsworth; 34° 15' 42.3" N 118° 37" 21.2 W
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)**

Proposed project name: MWD West Valley Feeder (WVF)
Brief description of proposed action:
Roadway access improvements & additions for WVF stub out point.

Type of Survey (circle one): **DAY** (**NIGHT**) (**BREEDING**) **NON-BREEDING**

Survey number (circle one): 1 (2) 3 4 5 6 7 8

Begin Time: 7:45 PM **End Time:** 9:04 PM

Cloud cover: 0% **Precipitation:** 0%

Air Temperature: 60°F **Water Temperature:** 66°F

Wind Speed: 1-2 MPh **Visibility Conditions:** Clear

Moon phase: Waning crescent **Humidity:** 70%

Description of weather conditions: Weather was clear with no precipitation.

Brand name and model of light used to conduct surveys: Bercot - Rechargable, zoomable, tactical flashlight. Adjustable to under 100,000 candle watts.

Were binoculars used for the surveys (circle one)? (**YES**) **NO**
Brand, model, and power of binoculars: Nikon Monarch M7 8x42 8.3°

Appendix E.
California Red-legged Frog Survey Data Sheet

AMPHIBIAN OBSERVATIONS

Species	# of indiv.	Observed (O) Heard (H)	Life Stages	Size Class	Certainty of Identification
Northern Pacific Treefrog	N/A	H	adult	N/A	100%

Describe potential threats to California red-legged frogs observed, including non-native and native predators such as fish, bullfrogs, and raccoons: None observed

Other notes, observations, comments, *etc.*

Necessary Attachments:

4. All field notes and other supporting documents
5. Site photographs
6. Maps with important habitat features and species locations

Appendix E.
California Red-legged Frog Survey Data Sheet

Survey results reviewed by _____ _____ _____
(FWS Field Office) (date) (biologist)

Date of Survey: 05/19/2022 (mm/dd/yyyy) **Survey Biologist:** Blain (Last name) MaRC (first name)
Survey Biologist: _____ (Last name) _____ (first name)

Site Location: LA County, Chatsworth, 34° 15'423" N 118° 37' 21.2 W
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)**

Proposed project name: MWD West Valley Feeder (WVF)
Brief description of proposed action:
Roadway access improvements & additions for WVF Stub out Point.

Type of Survey (circle one): **DAY** (**NIGHT**) (**BREEDING**) **NON-BREEDING**

Survey number (circle one): 1 2 (3) 4 5 6 7 8

Begin Time: 7:30 PM **End Time:** 9:45 PM

Cloud cover: 25% **Precipitation:** 0

Air Temperature: 61° F **Water Temperature:** 66° F

Wind Speed: 1-2 MPh **Visibility Conditions:** Relatively clear

Moon phase: waning Gibbous **Humidity:** 81%

Description of weather conditions: weather was relatively clear with no precipitation.

Brand name and model of light used to conduct surveys: generic- Rechargable, zoomable, tactical Flashlight, Adjustable to under 100,000 candle watts.

Were binoculars used for the surveys (circle one)? (**YES**) **NO**
Brand, model, and power of binoculars: Nikon Monarch M7 8x42 8.3°

Appendix E.
California Red-legged Frog Survey Data Sheet

AMPHIBIAN OBSERVATIONS

Species	# of indiv.	Observed (O) Heard (H)	Life Stages	Size Class	Certainty of Identification
Northern Pacific Treefrog	1	O & H	adult	N/A	100%

Describe potential threats to California red-legged frogs observed, including non-native and native predators such as fish, bullfrogs, and raccoons: NONE observed

Other notes, observations, comments, *etc.*

Necessary Attachments:

4. All field notes and other supporting documents
5. Site photographs
6. Maps with important habitat features and species locations

Appendix E.
California Red-legged Frog Survey Data Sheet

Survey results reviewed by _____ (FWS Field Office) _____ (date) _____ (biologist)

Date of Survey: 06/17/2022 (mm/dd/yyyy) **Survey Biologist:** Blain (Last name) Marc (first name)

Survey Biologist: _____ (Last name) _____ (first name)

Site Location: LA County; Chatsworth 34° 15' 42.3"N 118° 37' 21.2"W
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)**

Proposed project name: MWD West Valley Feeder (WVF)
Brief description of proposed action:
Roadway access improvements & additions for WVF stub out point.

Type of Survey (circle one): (DAY) NIGHT (BREEDING) NON-BREEDING

Survey number (circle one): 1 2 3 (4) 5 6 7 8

Begin Time: 4:25 PM **End Time:** 6:15 PM

Cloud cover: 50% **Precipitation:** 0%

Air Temperature: 75° F **Water Temperature:** 66° F

Wind Speed: 5-6 MPH **Visibility Conditions:** clear

Moon phase: Waning gibbous **Humidity:** 57%

Description of weather conditions: Weather conditions were relatively clear with no precipitation

Brand name and model of light used to conduct surveys: Bereal- Rechargable, Zoomable, Tactical Flashlight. Adjustable to under 60, or 0 candle watts.

Were binoculars used for the surveys (circle one)? (YES) NO
Brand, model, and power of binoculars: Nikon Monarch M7 8X42 8.3°

Appendix E.
California Red-legged Frog Survey Data Sheet

AMPHIBIAN OBSERVATIONS

Species	# of indiv.	Observed (O) Heard (H)	Life Stages	Size Class	Certainty of Identification

Describe potential threats to California red-legged frogs observed, including non-native and native predators such as fish, bullfrogs, and raccoons: None observed

Other notes, observations, comments, *etc.*

Necessary Attachments:

4. All field notes and other supporting documents
5. Site photographs
6. Maps with important habitat features and species locations

Appendix E.
California Red-legged Frog Survey Data Sheet

Survey results reviewed by _____ (FWS Field Office) _____ (date) _____ (biologist)

Date of Survey: 06/17/2022 (mm/dd/yyyy) **Survey Biologist:** Blain (Last name) Marc (first name)

Survey Biologist: _____ (Last name) _____ (first name)

Site Location: LA County; Chatsworth; 34° 15' 42.3" N 118° 37' 21.2" W
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)**

Proposed project name: MWD west Valley Feeder(WVF)
Brief description of proposed action:
Roadway access improvements & additions for WVF STUB out point.

Type of Survey (circle one): **DAY** (**NIGHT**) (**BREEDING**) **NON-BREEDING**

Survey number (circle one): **1** **2** **3** **4** (**5**) **6** **7** **8**

Begin Time: 7:25 PM **End Time:** 10:15 PM

Cloud cover: 0% **Precipitation:** 0%

Air Temperature: 66°F **Water Temperature:** 66°F

Wind Speed: 3-4 mph **Visibility Conditions:** Clear

Moon phase: Waning Gibbeous **Humidity:** 73%

Description of weather conditions: weather conditions were clear with no Precipitation

Brand name and model of light used to conduct surveys: Bercot- Rechargeable, zoomable, tactical Flashlight. Adjustable to under 100,000 Candle watts.

Were binoculars used for the surveys (circle one)? (**YES**) **NO**
Brand, model, and power of binoculars: Nikon Monarch M7 8X42 8.3°

Appendix E.
California Red-legged Frog Survey Data Sheet

AMPHIBIAN OBSERVATIONS

Species	# of indiv.	Observed (O) Heard (H)	Life Stages	Size Class	Certainty of Identification
Northern Pacific treefrog	N/A	H	adult	N/A	100%

Describe potential threats to California red-legged frogs observed, including non-native and native predators such as fish, bullfrogs, and raccoons: none observed

Other notes, observations, comments, *etc.*

Necessary Attachments:

4. All field notes and other supporting documents
5. Site photographs
6. Maps with important habitat features and species locations

Appendix E.
California Red-legged Frog Survey Data Sheet

Survey results reviewed by _____ _____ _____
(FWS Field Office) (date) (biologist)

Date of Survey: 06/24/2022 (mm/dd/yyyy) **Survey Biologist:** Blain (Last name) Marc (first name)

Survey Biologist: _____ (Last name) _____ (first name)

Site Location: LA County; Chatsworth; 34° 15' 42.3" N 118° 37' 21.2" W
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)**

Proposed project name: MWD West Valley Feeder (WVF)
Brief description of proposed action:
Roadway access improvements & additions for WVF stub out point.

Type of Survey (circle one): **DAY** (**NIGHT**) (**BREEDING**) **NON-BREEDING**

Survey number (circle one): **1** **2** **3** **4** **5** (**6**) **7** **8**

Begin Time: 8:00 PM **End Time:** 10:20 PM

Cloud cover: 0% **Precipitation:** 0%

Air Temperature: 83° F **Water Temperature:** 66° F

Wind Speed: 2-3 MPh **Visibility Conditions:** Clear

Moon phase: Waning Crescent **Humidity:** 84%

Description of weather conditions: weather was relatively clear with no precipitation

Brand name and model of light used to conduct surveys: Bercol - Rechargeable, 200 mAbr, Tactical Flashlight. Adjustable to under 100,000 candle watts.

Were binoculars used for the surveys (circle one)? (**YES**) **NO**
Brand, model, and power of binoculars: Nikon Monarch M7 8X42 8.3°

Appendix E.
California Red-legged Frog Survey Data Sheet

AMPHIBIAN OBSERVATIONS

Species	# of indiv.	Observed (O) Heard (H)	Life Stages	Size Class	Certainty of Identification
Northern Pacific Tree Frog	1-4	O & H	adult	N/A	100%

Describe potential threats to California red-legged frogs observed, including non-native and native predators such as fish, bullfrogs, and raccoons: None observed

Other notes, observations, comments, *etc.*

Necessary Attachments:

4. All field notes and other supporting documents
5. Site photographs
6. Maps with important habitat features and species locations

Appendix E.
California Red-legged Frog Survey Data Sheet

Survey results reviewed by _____ _____ _____
(FWS Field Office) (date) (biologist)

Date of Survey: 08/30/2022 (mm/dd/yyyy) **Survey Biologist:** Blain (Last name) Marc (first name)

Survey Biologist: _____ (Last name) _____ (first name)

Site Location: LA County, Chatsworth; 34° 15' 42.3"N 118° 37' 21.2 W
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)**

Proposed project name: MWD West Valley Feeder (WVF)
Brief description of proposed action:
Roadway access improvements & additions for WVF stub out points.

Type of Survey (circle one) (DAY) NIGHT **BREEDING** (NON-BREEDING)

Survey number (circle one): 1 2 3 4 5 6 (7) 8

Begin Time: 5:20 PM **End Time:** 6:40 PM

Cloud cover: 0% **Precipitation:** 0%

Air Temperature: 95°F **Water Temperature:** 66°F

Wind Speed: 3-4 **Visibility Conditions:** clear

Moon phase: waxing Crescent **Humidity:** 80%

Description of weather conditions: weather conditions were clear with no precipitation

Brand name and model of light used to conduct surveys: Bercol - Rechargeable, Zoomable, Tactical Flashlight. Adjustable to under 100,000 candle watts.

Were binoculars used for the surveys (circle one)? (YES) NO
Brand, model, and power of binoculars: Nikon Monarch M7 8X42 8.3°

Appendix E.
California Red-legged Frog Survey Data Sheet

AMPHIBIAN OBSERVATIONS

Species	# of indiv.	Observed (O) Heard (H)	Life Stages	Size Class	Certainty of Identification

Describe potential threats to California red-legged frogs observed, including non-native and native predators such as fish, bullfrogs, and raccoons: None observed

Other notes, observations, comments, *etc.*

Necessary Attachments:

4. All field notes and other supporting documents
5. Site photographs
6. Maps with important habitat features and species locations

Appendix E.
California Red-legged Frog Survey Data Sheet

Survey results reviewed by _____ _____ _____
(FWS Field Office) (date) (biologist)

Date of Survey: 08/30/2022 (mm/dd/yyyy) **Survey Biologist:** Blain (Last name) Marc (first name)

Survey Biologist: _____ (Last name) _____ (first name)

Site Location: LA County; Chatsworth; 34° 15' 42.3" N 118° 37' 21.2" W
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)**

Proposed project name: MWD West Valley Feeder (WVF)
Brief description of proposed action:
Roadway access improvements & additions for WVF stubout points

Type of Survey (circle one): **DAY** (NIGHT) **BREEDING** (NON-BREEDING)

Survey number (circle one): 1 2 3 4 5 6 7 (8)

Begin Time: 8:10 PM **End Time:** 9:40 PM

Cloud cover: 0 **Precipitation:** 0%

Air Temperature: 85°F **Water Temperature:** 66°F

Wind Speed: 2-3 MPH **Visibility Conditions:** clear

Moon phase: Waxing Crescent **Humidity:** 85%

Description of weather conditions: weather conditions were clear with no precipitation

Brand name and model of light used to conduct surveys: Bercol - Rechargeable, zoomable, tactical Flashlight: Adjustable to under 100,000 candle watts.

Were binoculars used for the surveys (circle one)? (YES) NO
Brand, model, and power of binoculars: NIKON Monarch M7 8x42 8.3°

Appendix E.
California Red-legged Frog Survey Data Sheet

AMPHIBIAN OBSERVATIONS

Species	# of indiv.	Observed (O) Heard (H)	Life Stages	Size Class	Certainty of Identification
Northern Pacific treefrog	3	H	adult	NA	100%

Describe potential threats to California red-legged frogs observed, including non-native and native predators such as fish, bullfrogs, and raccoons: None observed

Other notes, observations, comments, *etc.*

Necessary Attachments:

4. All field notes and other supporting documents
5. Site photographs
6. Maps with important habitat features and species locations

ATTACHMENT D

WILDLIFE COMPENDIUM

WILDLIFE SPECIES DETECTED DURING SURVEYS

Scientific Name	Common Name
AMPHIBIANS	
HYLIDAE – TREEFROG FAMILY	
Pseudacris regilla	Northern Pacific treefrog
LIZARDS	
PHRYNOSOMATIDAE – SPINY LIZARD FAMILY	
Uta stansburiana	common side-blotched lizard
BIRDS	
ANATIDAE – SWAN, GOOSE, AND DUCK FAMILY	
Anas platyrhynchos	mallard
COLUMBIDAE – PIGEON AND DOVE FAMILY	
*Columba livia**	rock pigeon
Zenaida macroura	mourning dove
CAPRIMULGIDAE – NIGHTJAR FAMILY	
Phalaenoptilus nuttallii	common poorwill
APODIDAE – SWIFT FAMILY	
Aeronautes saxatalis	white-throated swift
TROCHILIDAE – HUMMINGBIRD FAMILY	
Calypte anna	Anna's hummingbird
ACCIPITRIDAE – HAWK FAMILY	
Accipiter cooperii	Cooper's hawk
Buteo jamaicensis	red-tailed hawk
STRIGIDAE – TYPICAL OWL FAMILY	
Bubo virginianus	great horned owl
PICIDAE – WOODPECKER FAMILY	
Melanerpes formicivorus	acorn woodpecker
Picoides nuttallii	Nuttall's woodpecker
Colaptes auratus	northern flicker
CORVIDAE – JAY AND CROW FAMILY	
Aphelocoma californica	California scrub-jay
Corvus brachyrhynchos	American crow
Corvus corax	common raven
HIRUNDINIDAE – SWALLOW FAMILY	
Stelgidopteryx serripennis	northern rough-winged swallow
PARIDAE – TITMOUSE FAMILY	
Baeolophus inornatus	oak titmouse
AEGITHALIDAE – BUSHTIT FAMILY	
Psaltriparus minimus	bushtit
TROGLODYTIDAE – WREN FAMILY	
Catherpes mexicanus	canyon wren
Thryomanes bewickii	Bewick's wren
SYLVIIDAE – SILVIID WARBLERS FAMILY	
Chamaea fasciata	wrentit
TURDIDAE – THRUSH FAMILY	
Sialia mexicana	western bluebird

Scientific Name	Common Name
MIMIDAE – MOCKINGBIRD AND THRASHER FAMILY	
Mimus polyglottos	northern mockingbird
PTILOGONATIDAE – SILKY-FLYCATCHER FAMILY	
Phainopepla nitens	phainopepla
FRINGILLIDAE – FINCH FAMILY	
Haemorhous mexicanus	house finch
Spinus psaltria	lesser goldfinch
PASSERELLIDAE – NEW WORLD SPARROW FAMILY	
Junco hyemalis	dark-eyed junco
Melozone crissalis	California towhee
Pipilo maculatus	spotted towhee
ICTERIDAE – BLACKBIRDS AND ORIOLES	
Agelaius phoeniceus	red-winged blackbird
PARULIDAE – WOOD-WARBLER FAMILY	
Setophaga coronata	yellow-rumped warbler
MAMMALS	
LEPORIDAE – HARE AND RABBIT FAMILY	
Sylvilagus audubonii	desert cottontail
CANIDAE – CANID FAMILY	
Canis latrans	Coyote

* Non-native species

APPENDIX D

ARCHAEOLOGICAL INVENTORY REPORT

ARCHAEOLOGICAL INVENTORY
Metropolitan Water District (MWD)
West Valley Feeder No 1 (WVF1) Stage 3 Improvements Project

Submitted to:

Psomas
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Abstract

The Metropolitan Water District of Southern California (MWD) has requested an archaeological record search and inventory for the proposed construction of an approximately 500-foot access road including a vehicle turn-around area and various modifications to existing facilities including valve relocation, equipment replacement, and reconstruction of valve structures. The archival research indicated that the project area is sensitive for archaeological resources with multiple sites in the immediate area. The foot reconnaissance was conducted and found ground visibility to be poor and could not determine if archaeological resources were present in the access road alignment. No archaeological resources were observed in the other impact areas. The proximity of recorded archaeological resources coupled with poor ground visibility warrants a recommendation for monitoring by an archaeological and Native American monitor.

Should potentially important cultural deposits be encountered during ground disturbing activities, work should be temporarily diverted from the vicinity of the discovery until the archaeologist and Native American can identify and evaluate the importance of the find, conduct any appropriate assessment, and implement measures to mitigate impacts on significant resources.

USGS Quadrangles: Oat Mountain and Santa Susana
Acreage: Various acres
Cultural Resources: None observed
Type of Investigation: Archaeological Record Search and Inventory

Cover Picture: Aerial view of subject area.

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This report is not for public distribution

INTRODUCTION

Greenwood and Associates has conducted an archaeological record search and field inventory for the proposed Project for Metropolitan Water District (MWD) West Valley Feeder No. 1 (WVF1) Stage 3 Improvements Project in the community of Chatsworth in Los Angeles (Figure 1).

The study was prepared in order to identify any archaeological resources within the proposed impact areas. The investigation provides the necessary documentation to satisfy its obligations relative to CEQA requirements. The effort included a review of available archaeological site archives, historical maps, documents describing the proposed project area, and a survey of previously identified archaeological sites. This report describes the results of the background research, methods and results of the field investigation, and conclusions regarding the probability of impact to cultural resources due to project-related activities.

The Project involves modification of the MWD WVF1 structures, which is located northwest of Chatsworth Park South, in the City of Los Angeles. Proposed project actions include construction of an approximately 14-foot wide by 500-foot long access road including a vehicle turn-around area and various modifications to existing structures including valve relocation, equipment replacement, and reconstruction of valve structures. Additionally, the project proposes the installation of new manholes at existing structures, a concrete vault, and retaining walls along the WVF1. Project impacts would include both temporary impact areas associated with construction access, staging, and laydown areas as well as permanent impacts associated with the proposed access road. Except for those areas where impacts would be confined to existing structures and the surrounding, paved areas, all other impact areas occurring would be subject to some degree of earth disturbance (Figure 2).

CURRENT SETTING

The project area is on and within the east facing hills of the community of Chatsworth within the city of Los Angeles. The hills are covered in chaparral, sandstone cliffs, boulders, paved roads, lightly graded roads, and trails. MWD facilities including structures, pipelines, and other facilities are dispersed throughout the area. Las Virgenes and Calleguas Water Districts have pump stations and pipelines in Chatsworth Park. Lower portions of the park recently underwent extensive lead soil remediation.

The West Valley Feeder No. 1 was constructed in 1962 and has an inside diameter of 54 inches. Specific installation methods and exact excavation depths vary from pipeline to pipeline; however, the excavation methods and typical disturbance areas can be described. Generally pipelines have 5 to 10 feet of cover to the top of the pipe, although in some areas it may be substantially more due to topography or to avoid existing facilities. In undeveloped areas, such as the project area, trenching was generally open cut excavation

with 1:1 side slopes. Shoring is used in developed areas and along public streets. In the areas where open cut excavation is employed, the trench depths are generally between 15 and 20 foot deep and 30 to 50 foot wide at the existing ground surface, depending on topography.

BACKGROUND

Ethnography

This section summarizes the regional and cultural history of the project area. The discussion has been limited to that Native American group described as occupying the project area at the time of European contact and the historically documented activities following that contact. Chatsworth was inhabited by the Tongva-Fernandeño, Chumash-Venturaño, and Tataviam-Fernandeño Native American tribes.

Prehistory

The archaeological record indicates that sedentary populations occupied the coastal and inland regions of California more than 13,000 years ago. Early periods were characterized by the processing of hard seeds with the mano and milling stone and the use of the atlatl (dart thrower) to bring down large game, e.g., deer. Villages in eastern Ventura area were typically around permanent water sources that allowed exploitation of a variety of different habitats for food. In the later periods, prior to the arrival of Europeans, the bow and arrow was in use, trade and social networks evolved, and the mortar and pestle were used to process acorns in areas where they were available.

At the time of European contact, Chumash speaking peoples occupied a large area that extended south along the California coast from San Luis Obispo County into Los Angeles County and east to Kern County, and included the Santa Barbara Channel Islands of San Miguel, Santa Rosa, Santa Cruz, and Anacapa (Glassow 1980; Grant 1978). The project area lies within the territory occupied at that time by a native group speaking Ventureño, one of the six major dialects of the Chumash language.

Known as the Ventureño Chumash, this group was distinguished from their culturally similar neighbors to the west and north, the Ynezeño and Barbareño Chumash, on the basis of linguistic deviations noted by the early Spanish missionaries of the area, rather than by any apparent difference in social or economic organization. The Ventureño (so named because of their association with Mission San Buenaventura) were the southernmost of all the Chumash peoples and spoke one of six Chumashan dialects considered as forming a core group of more closely related forms (Grant 1978).

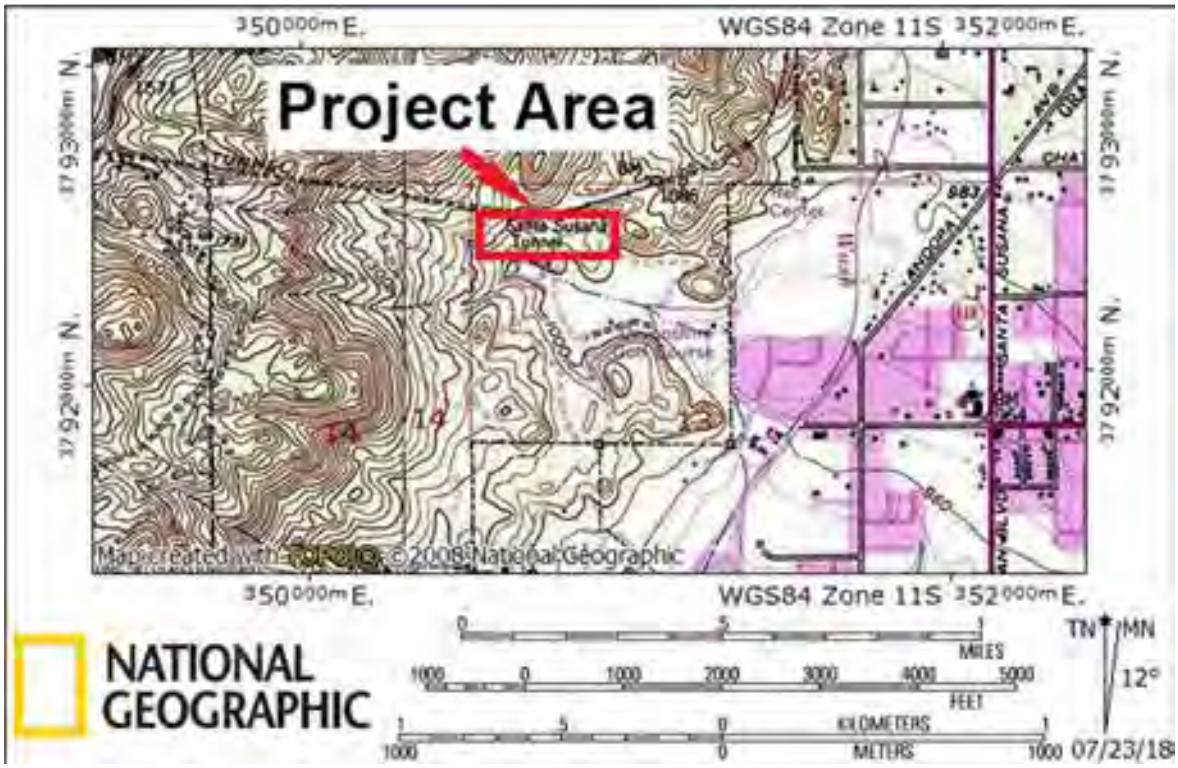

Figure 1. Vicinity Map, USGS Oat Mountain and Santa Susana, CA, 7.5 minute Quadrangles.

Native American culture in this region evolved over the course of at least 9,000 years and has been described as having achieved a level of social, political, and economic complexity not ordinarily associated with hunting and gathering groups (Greenwood and Browne 1969). Ethnographic information about the culture is most extensive for the coastal populations, and the culture and society have been well documented for groups such as the Barbareño and Ventureño Chumash. Much of what is known of the Ventureño has been provided by the journals of early Spanish explorers and by accounts of Chumash informants.

The Ventureño, like their neighbors, exploited a wide variety of marine and terrestrial resources within an ecosystem similar to that of their neighbors in Santa Barbara County. The limited area occupied by the Barbareño Chumash, a narrow coastal plain bounded on the north by the Santa Ynez Mountains, combined with a productive near shore fishery, resulted in the establishment of substantial permanent villages (Glassow and Wilcoxon 1979). These large villages provided centralized locations from which the inhabitants ventured to exploit available or seasonal resources and dispersed surplus resources and manufactured goods through intervillage exchange networks.

History

European incursions into the Ventureño area began with the arrival by sea of Juan Rodriguez Cabrillo on October 10, 1542, at the coastal Chumash village of *Shisholop*. Here, at the

present site of the City of Ventura, the Spaniards were met by "many very good canoes, each of which held 12 or 13 Indians." This prompted the visitors to name the settlement the Pueblo de las Canoas. Cabrillo and his men remained in the area until the 13th of the month, trading glass beads for items of local produce (Engelhardt 1930:4; Grant 1978:518). This first encounter was followed in December 1602 by a visitation of three ships under the command of Sebastian Vizcaino, and again in August 1769 by the land expedition by Gaspar de Portolá.

The Franciscan Padres Juan Crespi and Francisco Gomez accompanied the Portolá Expedition, and Crespi described the native "pueblo" as consisting of 30 large houses with no fewer than 400 inhabitants. The first Roman Catholic Mass was celebrated at this time, the location was renamed La Asuncion de Nuestra Senora, and the seeds of the coming Spanish mission system were planted in the local populace (Engelhardt 1930:6-10).

On Easter Sunday, March 31, 1782, Junipero Serra established the new "Mission of the Seraphic Doctor, San Buenaventura," and left as its first residents Fr. Pedro Cambon and a small company of guards (Engelhardt 1930:16). The project area was within Mission San Buenaventura had primary jurisdiction. The introduction of the Spanish mission system into Ventureño territory brought about dramatic changes in the aboriginal way of life. Between the time of the establishment of the Mission San Buenaventura and that of Mexican independence and the secularization of the mission lands in 1834, ancient lifeways gradually began to disappear. Villages were abandoned, traditional marriage patterns were inhibited, hunting and gathering activities were disrupted as newly introduced agricultural practices altered the landscape, and large portions of the native population died from European diseases to which they lacked immunities.

Mission San Buenaventura flourished for nearly 50 years until a combination of factors led to its decline. The toll which introduced European diseases took on the neophyte population of native Chumash peoples, the waning financial support from Spain, and the eventual takeover by the newly established Mexican government in 1822, all weakened the entire mission system. The final blow came in 1833, when the Mexican government secularized the mission system. This action removed most of the mission property from the hands of the church and made it part of the public domain, available for lease or sale (Drapeau 1965). Perhaps to maintain the self-sufficient lifestyle of the mission, the church was allowed to keep, in addition to the church building itself, "... an enclosed garden of an area of about five hundred varas square more or less" (Drapeau 1965). The remainder of the vast mission tract was granted to José de Arnaz in 1846 and became the Ex-Mission Rancho (Drapeau 1965; Thompson and West 1883). The City of San Buenaventura was officially organized in 1866 encompassing lots in the immediate vicinity of the mission and dominated by non-Anglo inhabitants.

After the Treaty of Guadalupe Hidalgo in 1846, the Euroamericans took over California and declared that Governor Pio Pico did not have the authority to lease and sell mission lands.

The United States Lands Commission heard petitions for claims to mission lands and voided many of the transactions concluded under Pico's hegemony.

The Rancho Period has been romanticized in literature and film as a time of easy wealth and leisure notable for dashing horsemanship and Hispanic hospitality on a grand scale. The reality was the more prosaic work of making a living in the cattle business (Greenwood 1989:451-466). The discovery of gold in northern California created a boom in the cattle industry which fed the hordes of miners searching for gold. During the 1860s, the Euroamerican population grew rapidly, partly because many of the old rancho families lost title to their land, leaving a vacuum which was promptly filled by settlers from central and eastern United States.

In the 1860s homesteaders moved into Chatsworth and one of the initial families was Nels and Ann Johnson who homesteaded 160 acres beneath the Santa Susanna Pass (Roderick 2001:32). Chatsworth Railroad History begins in 1893 when the Southern Pacific completed what is known as the Burbank branch all the way to Chatsworth with a depot near the intersection of Topanga and Marilla. In 1898 an additional mile of track was added up through what is now the Oakwood Cemetery into the Chatsworth quarry, now a part of the Santa Susana Pass State Historic Park. The quarry sent sandstone boulders to a stone mill in Los Angeles to further shape and form the stone. They also delivered sandstone to San Pedro Harbor where they were used for the breakwater. In 1898, railroad construction began on a short-cut to Burbank from Ventura in what was called the Montalvo Cutoff. The most difficult work was encountered in the pass, where three separate tunnels were blasted for the most part out of solid rock. During that time, Chatsworth became a boom town, with many of the workers living in a “tent” city near the heading of the main tunnel. Although the listed resident population in Chatsworth is 23 in 1900, the tunnel construction brought in so many workers that by 1904 the Santa Susana School (now Chatsworth Park Elementary) at Devonshire and Topanga had 120 students (Vincent 2014).

Chatsworth Park South was closed in 2008 due to lead contamination. Contamination from lead bullets used in the 1950s and 1960s at a former gun club owned by actor Roy Rogers prompted the closure. Investigators discovered toxic soil contamination left over from shotgun pellets and clay pigeons used on its 12-acre skeet-shooting range.

West Valley Feeder No 1 is a concrete cylinder that conveys water to two agencies (Las Virgenes Municipal Water District and Calleguas Municipal Water District). The pipeline was constructed in 1962. West Valley Feeder No 1 was originally constructed by Calleguas Municipal Water District and originally named Calleguas Conduit Unit 4.

LITERATURE AND ARCHIVAL REVIEW

Record Search Summary: West Valley Feeder No. 1, Stage 3, MWD (Chatsworth)

RESULTS
Resources within Project Area: One, 19-150434 (1900 structure)

Site 19-150434 is the reported location of a ca. 1900 structure. The location was identified on the basis of a 1903 15 minute USGS quadrangle (Scale = 1:62,500 feet) and was not field verified at the time of recording (Edberg 1978). A Universal Transverse Mercator grid point was provided and compared with potential impact areas. Two of the contractor laydown areas on the east side of the project area are within approximately 300 feet of the reported location of the ca. 1900 structure.

Archaeological resources within search area (0.5 mi radius): 19

CA-LAN-448	CA-LAN-3498	CA-LAN-3579
CA-LAN-449	CA-LAN-3500	CA-LAN-120078
CA- LAN-640	CA-LAN-3505	CA-LAN-120084
CA-LAN-1028	CA-LAN-3506	CA-LAN-176735
CA-LAN-1126	CA-LAN-3507	
CA-LAN-2174	CA-LAN-3509	
CA-LAN-3494	CA-LAN-3512	

Three archaeological sites, CA-LAN-3507 (Mealey and Buxton 2004), CA-LAN-3512 (Mealey, Farmer, and Brodie 2005), and CA-LAN-120084 (Mealey, Farmer, and Brodie 2005) were recorded outside of and west of the western terminus of proposed project area, i.e., laydown areas, access road, and trail. The three sites are recorded between 450 feet and 1000 feet from the nearest portion of the project area. Two of the archaeological sites, CA-LAN-3507 and CA-LAN-3512), were identified as small dispersed flake scatters. The third site, CA-LAN-120084, consists of three mortared red bricks and a scattering of white quartz rocks.

Surveys/Reports including Project Area: None

Surveys/Reports within search area: 31

LA-81	LA-2252	LA-4123
LA-160	LA-2623	LA-4125
LA-397	LA-2645	LA-6599
LA-631	LA-2874	LA-7837
LA-853	LA-3009	LA-8255
LA-1015	LA-3185	LA-9070

LA-1050	LA-3340	LA-10569
LA-1051	LA-3452	LA-10637
LA-2002	LA-3487	LA-10651
LA-2079	LA-3499	LA11164
		VN-572

Historic Resources Inventory (HRI) results (0.5 mile search radius):

Evaluated Historical Resources: 1

- Old Santa Susana Stage Road

Local Historical Resources: 1

- City of Los Angeles Historic Cultural Monument No. 92, Old Stage Coach Trail Property (Old Santa Susana Stage Road), South Chatsworth Park

County Historical Resources: 1

- Ventura County Historical Landmark #104, Old Santa Susana Stage Road

California State Points of Historical Interest: None

California State Historical Landmarks: None

National Register of Historic Places Properties: 1

- Old Santa Susana Stage Road, Chatsworth, CA. NRHP Ref. No. 74000517, listed Oct. 1974.

Historic Maps:
1903 USGS Santa Susana, California, 15' quadrangle map.
This map depicts a segment of the Santa Susana Tunnel, which carried a Southern Pacific Railroad line through the Santa Susana Pass, along with an above-ground section of the rail line, running east-west across the northern boundary of the current subject property. Also, within the study area is the western end of an unimproved (dirt) road that appears to have been a northwesterly extension of Devonshire Street. Along this road, in the immediate vicinity of the project area, were at least two dwellings, with three additional dwellings in close proximity to the southeast. Also, within 0.25 mile of the subject property, directly to the south, was a mining property with one associated dwelling. An unimproved road that provided access to the mine extended to the southeast, and this route continued to the northwest where it is depicted as a 'trail.' There were two or three additional dwellings located within 0.5 mile of the subject property, located around the western terminus of

D:\Projects\3MWD\0102\WestValleyFeeder\MXD\fieldmaps\fieldmap_11x17_20180816.mxd

Field Map

3MWD010204

N W E S

90 45 0 90

Feet

PSOMAS

(Rev: 08/22/2018 MMD) R:\Projects\MWD\3MWD010204\Graphics\fieldmaps\fieldmap_11x17_20180530.pdf

Figure 2. Project Impact Areas.

Devonshire Street. There were no additional historic features in the vicinity of the project area at this date.

1927 USGS Chatsworth, California, 6' quadrangle map.
This 1927 map only depicts the area east of the Los Angeles County line in detail. The unimproved road and dwellings that had been illustrated within and near the subject property on the 1903 map are no longer indicated. The railroad alignment remained along the north edge of the project area, and in addition to the segment of the Somis Branch of the Southern pacific Railroad and Santa Susana Tunnel, the only historic feature depicted within 0.5 mile of the project area is a single dwelling located along the south side of the tracks immediately east of the project areas.

1933 USGS Chatsworth, California, 6' quadrangle map.
Like the 1925 map, this map illustrates only a few features west of the Ventura/Los Angeles County line. The only historic feature shown in proximity to the project area is the Somis Branch of the Southern Pacific Railroad, along its northern boundary.

1940 USGS Chatsworth, California, 6' quadrangle map.
The 1940 map depicts the Southern Pacific Railroad alignment and the Santa Susana Tunnel along the northern edge of the subject property. To the south, the Oakwood Cemetery had been established, and several new unimproved roads are indicated immediately north of the cemetery, approximately 0.5 mile from the subject property. No other historic features are represented within the search area.

1943 USGS Santa Susana, California, 15' quadrangle map.
In addition to the railroad alignment and tunnel, this map illustrates a new westward extension of Devonshire Street that had been established within 0.30 mile south of the project area by this date. There were approximately eight new residences along this unimproved roadway. Additionally, a trail is depicted to the southwest of the project areas that followed the base of the hills roughly 0.25 mile away. There was no additional historic development in the vicinity of the subject property at the time.

1951 USGS Santa Susana, California, 7.5' quadrangle map.
This map illustrates the western quarter of the search area for the project. It shows no historic features within that section beyond the Southern Pacific Railroad alignment.

1952 USGS Oat Mountain, California, 7.5' quadrangle map.
This map illustrates that by 1952, Devonshire Street had been extended to the base of the foothills south of the subject property, and this street was now paved. There was an unimproved road that continued northward from the west end of Devonshire, and along this road were two new residences within 1000 feet of the project areas. Beyond the Southern Pacific rail alignment and tunnel, there are no other buildings or historic features indicated in the vicinity of the subject property.

1969 USGS Oat Mountain, California, 7.5' quadrangle map.
The 1969 quadrangle map indicates that the unimproved roadway depicted on the 1952 map extending northward from the west end of Devonshire Street has been further extended to the north, to the southern boundary of the project areas. One new dwelling had been constructed at the north end of this road, and there was a second new dwelling near the east project area boundary. This was accessed by another new unimproved road that approached from the east. Also depicted is the Devonshire Golf Club, located within 0.25 mile southeast of the project areas. There were no additional historic features located in proximity to the project areas.

1969 USGS Santa Susana, California 7.5' quadrangle map.
This map is identical to the 1951 Santa Susana quadrangle map and depicts no historic features within this section of the search area beyond the Southern Pacific Railroad alignment.

Sanborn Map Co. Insurance Maps

There are no Sanborn insurance maps that include any portion of the record search area.

SURVEY RESULTS

The field survey was conducted on June 5 and 6, 2018 by John M. Foster, RPA. Visibility within the project area was generally poor with dense vegetation and steep slopes hindering observations of the ground surface. However, most of the impact areas (Figure 2) had excellent visibility, except for the proposed access road alignment, depicted in red on Figure 2. Transects with 10 meter spacing were conducted over each impact area.

Due to limited ground visibility in the western part of the project area, proposed alignment, it could not be determined if archaeological resources were present (Figure 2). The location of the ca. 1900 (19-150434) structure was carefully transected and no evidence of a structure was found. The scale of a 15 minute map makes precise locations difficult to determine and it likely that 19-150434 (1900 structure) is in the area but not in any of the proposed impact areas for this project.

It is evident from the closest recorded archaeological sites (dispersed flake scatters) that it is likely that additional flakes can be found under ideal conditions.

IMPACTS

Due to the limited ground visibility impacts to potential archaeological resources could not be determined for the proposed alignment. No archaeological resources were observed in the other impact areas.

RECOMMENDATIONS

The proximity of recorded archaeological resources coupled with poor ground visibility in some areas warrants a recommendation for monitoring by an archaeological and Native American monitor. Excavation strategies to determine if resources are present is not recommended since the closest archaeological sites consist of dispersed flake scatters and are not likely to be identified during the testing process. It is our opinion that monitoring would be the most effective means to identify cultural resources in the project areas.

In the event of an accidental discovery of any human remains in a location other than a dedicated cemetery, the steps and procedures specified in Health and Safety Code 7050.5, State CEQA Guidelines 15064.5(d), and Public Resources Code 5097.98 shall be implemented. Specifically, in accordance with Public Resources Code (PRC) Section 5097.98, the Los Angeles County Coroner shall be notified within 24 hours of the discovery of potentially human remains. The Coroner typically would then determine within two working days of being notified if the remains are subject to his or her authority. If the Coroner recognizes the remains to be Native American, he or she would contact the Native American Heritage Commission (NAHC) by phone within 24 hours, in accordance with PRC Section 5097.98. The NAHC typically would then designate a Most Likely Descendant (MLD) with respect to the human remains within 48 hours of notification.

The MLD typically would then have the opportunity to recommend to the property owner or the project proponent means for treating or disposing of, with appropriate dignity, the human remains and associated grave goods within 24 hours of notification. Whenever the NAHC is unable to identify a MLD, or the MLD fails to make a recommendation, or the landowner or his or her authorized representative rejects the recommendation of the MLD and the mediation provided for in subdivision (k) of PRC Section 5097.94 fails to provide measures acceptable to the landowner, the landowner or his or her authorized representative would re-inter the human remains and items associated with Native American burials with appropriate dignity on the property in a location not subject to further subsurface disturbance.

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APPENDIX E

ENERGY ANALYSIS

Energy Use Summary

Construction Phase (gallons/construction perioc	Gasoline	Diesel
Construction Vehicles	0	5,148
Worker Trips	611	2
Vendor Trips	55	1
Haul Trucks	0	74
Total	666	5,226

Operations Phase (gallons/year)		Gasoline	Diesel	Natural Gas (kBTU/yr)	Electricity (kWh/yr)
Hotel		0	0	9,590,000	2,531,200
	0	0	0	0	0
	0	0	0	0	0
All Land Uses		0	0	9,590,000	2,531,200

Construction Offroad Equipment Fuel Use

PhaseName	OffRoadEquipmentType	OffRoadEq	UsageHours	HorsePower	Load Factor	Horsepower Category	Num Days	Year	Fuel Consumption Rate (gal/hour)	Fuel Type	Total Fuel Consumption (gal/construction period)
Demolition	Concrete/Industrial Saws	0	8	81	0.73	100	22	2019	4.7	Gasoline	0
Demolition	Rubber Tired Dozers	0	1	247	0.4	300	22	2019	4.5	Diesel	0
Demolition	Tractors/Loaders/Backhoes	1	6	97	0.37	100	22	2019	1.6	Diesel	78
Site Preparation	Excavators	1	8	158	0.38	175	21	2019	2.9	Diesel	184
Site Preparation	Graders	0	8	187	0.41	175	21	2019	3.1	Diesel	0
Site Preparation	Tractors/Loaders/Backhoes	0	8	97	0.37	100	21	2019	1.6	Diesel	0
Grading	Concrete/Industrial Saws	0	8	81	0.73	100	44	2019	4.7	Gasoline	0
Grading	Cranes	1	8	231	0.29	300	44	2019	3.3	Diesel	337
Grading	Excavators	1	8	158	0.38	175	44	2019	2.9	Diesel	386
Grading	Graders	1	8	187	0.41	175	44	2019	3.1	Diesel	454
Grading	Rubber Tired Dozers	0	1	247	0.4	300	44	2019	4.5	Diesel	0
Grading	Tractors/Loaders/Backhoes	1	6	97	0.37	100	44	2019	1.6	Diesel	155
Building Construction	Cranes	1	4	231	0.29	300	109	2019	3.3	Diesel	417
Building Construction	Excavators	1	8	158	0.38	175	109	2019	2.9	Diesel	956
Building Construction	Forklifts	0	6	89	0.2	100	109	2019	2.0	Diesel	0
Building Construction	Rubber Tired Dozers	1	8	247	0.4	300	109	2019	4.5	Diesel	1,555
Building Construction	Tractors/Loaders/Backhoes	1	8	97	0.37	100	109	2019	1.6	Diesel	513
Paving	Cement and Mortar Mixers	0	6	9	0.56	25	22	2019	0.4	Gasoline	0
Paving	Pavers	1	7	130	0.42	100	22	2019	1.7	Diesel	113
Paving	Rollers	0	7	80	0.38	100	22	2019	1.7	Diesel	0
Paving	Tractors/Loaders/Backhoes	0	7	97	0.37	100	22	2019	1.6	Diesel	0

Total			**5,148**
	Total	**Gasoline**	**-**
	Total	**Diesel**	**5,148**

Construction Phase - Onroad Energy Use

Year 2020

Vehicle Types	MPG by Fuel Type			Population by Fuel Type			
	GAS	DSL	ELEC	GAS	DSL	ELEC	Total
LDA	29.3	46.3		6,343,244	51,116	90,986	6,394,359
LDT1	25.2	22.1		692,885	447	2,466	693,332
LDT2	23.0	33.7		2,169,628	11,368	12,535	2,180,995
LHDT1	10.3	21.0		178,175	106,680		284,856
LHDT2	9.0	19.0		29,750	41,895		71,645
MCY	36.5			276,048			276,048
MDV	18.8	25.9		1,557,729	27,452	3,954	1,585,180
MH	5.0	10.4		36,101	12,007		48,108
MHDT	5.0	10.1		25,210	120,277		145,487
HHDT	3.9	6.4		88	103,820		103,908
OBUS	4.9	8.1		5,971	4,179		10,150
SBUS	9.0	7.4		2,328	6,543		8,871
UBUS	4.8	6.3		938	18	17	956

Input							Gasoline Consumption			Diesel Consumption		
Phase Name	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker	Vendor	Haul	Worker	Vendor	Haul
Demolition	3	0	2	14.7	6.9	20						
Site Preparation	3	0	18	14.7	6.9	20						
Grading	10	0	4	14.7	6.9	20						
Building Construction	3	1	0	14.7	6.9	20						
Paving	3	2	0	14.7	6.9	20						
Adjusted												
Demolition	66	0	2	14.7	6.9	20	42	0	0	0	0	6
Site Preparation	63	0	18	14.7	6.9	20	40	0	0	0	0	56
Grading	440	0	4	14.7	6.9	20	279	0	0	1	0	12
Building Construction	327	109	0	14.7	6.9	20	208	39	0	1	1	0
Paving	66	44	0	14.7	6.9	20	42	16	0	0	0	0
Total							**611**	**55**	**0**	**2**	**1**	**74**

APPENDIX F

REPORT OF GEOTECHNICAL STUDY

REPORT OF GEOTECHNICAL STUDY
WEST VALLEY FEEDER 1 ACCESS ROADS AND VALVE IMPROVEMENTS WIDENING PROJECT
CHATSWORTH, CALIFORNIA

MAY 15, 2018

May 15, 2018
Kleinfelder Project No. 20180213.002A

Mr. Bei Su, PE
Metropolitan Water District of Southern California
700 North Alameda Street
Los Angeles, California 90012

SUBJECT: Final Report of Geotechnical Study
West Valley Feeder 1 Access Roads and Valve Improvements
Chatsworth, California

Dear Mr. Su:

Kleinfelder is pleased to present this report summarizing our geotechnical investigation for the subject project. The purpose of our geotechnical investigation was to evaluate subsurface conditions and provide geotechnical recommendations for the design and construction of the proposed project. The conclusions and recommendations presented in this report are subject to the limitations presented in Section 6.

We appreciate the opportunity to provide geotechnical engineering services to you on this project. If you have any questions regarding this report or if we can be of further service, please do not hesitate to contact the undersigned at 951.801.3681.

Sincerely,

KLEINFELDER WEST, INC.

Jeffery D. Waller, PE, GE
Senior Geotechnical Engineer

Michael O. Cook, PG, CEG
Senior Engineering Geologist

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A Field Explorations
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1 INTRODUCTION

Kleinfelder performed a geotechnical study for Metropolitan Water District of Southern California (MWD) for the proposed project in Chatsworth, California. This report summarizes the results of our field exploration, laboratory testing, and engineering analysis and provides recommendations for design and construction for the subject project. The approximate location of the project presented in this report is shown on Figure 1, Site Vicinity Map. The purpose of our geotechnical study was to evaluate subsurface soil conditions and provide geotechnical recommendations for the design and construction of the proposed project. The scope of our services was presented in our proposal dated December 1, 2017.

Our report includes a description of the work performed, a discussion of the geotechnical conditions observed at the site, and recommendations developed from our engineering analyses of field and laboratory data.

1.1 PROJECT DESCRIPTION

We understand the proposed project includes improvements to manholes and valve structures along the West Valley Feeder No. 1, and construction of two new access roads to provide maintenance access to the pipeline and valve structures. The roads are proposed to be constructed with Portland cement concrete (PCC) and may have sections where asphaltic concrete (AC) is used. On each alignment, a concrete Arizona crossing is also proposed at the location where the access roads cross the existing seasonal creeks.

Preliminary Plan and Profile documents for the project were reviewed in preparation of this report. The location of the proposed alignment selected by MWD are shown on Figure 2, Field Exploration Location Map. The proposed alignments may have small retaining walls. In steep sections of the roadway, concrete keys are proposed beneath the pavement to reduce the potential for sliding of the pavement.

1.2 SCOPE OF SERVICES

The scope of our geotechnical study consisted of a literature review, site reconnaissance, subsurface explorations, geotechnical laboratory testing, engineering evaluation and analysis,

and preparation of this report. A description of our scope of services performed for the geotechnical portion of the project follows.

Task 1 – Background Data Review. We reviewed readily-available published and unpublished geologic literature in our files and the files of public agencies, including selected publications prepared by the California Geological Survey, California Division of Mines and Geology, and the U.S. Geological Survey. We also reviewed readily available seismic and faulting information, including data for designated earthquake fault zones as well as our in-house database of faulting in the general site vicinity.

Task 2 – Field Exploration. On June 19, 2017, representatives of Kleinfelder and MWD met at the project site to perform reconnaissance of the proposed alignments and the current conditions. Each of the proposed alignments and many of the valve structures to be reconstructed were observed as well.

Kleinfelder supervised exploration of 5 hollow stem auger borings. The approximate locations of the borings are presented on Figure 2, Field Exploration Location Map. The borings were drilled to provide general information in order to characterize subsurface materials and perform our analyses.

Prior to beginning subsurface exploration, each of the 5 boring locations were marked and Kleinfelder notified Underground Service Alert (USA) of our intent to dig in accordance with California State law.

All exploratory borings were drilled and logged on January 30, 2018. The borings were advanced to depths ranging from approximately 11½ to 21½ feet below the existing ground surface (bgs) using a limited access track-mounted drill rig operated by 2R Drilling of Chino, California. Bulk and drive samples were retrieved from the borings, sealed and transported to our laboratory for further evaluation. A staff professional of Kleinfelder supervised the sampling, logged and visually classified the excavated soil cuttings and samples retrieved. Bulk soil samples were generally collected within the upper 5 feet of each boring and drive samples were collected at approximate 5-foot intervals using split-spoon samplers. With the exception of Boring B-3, the excavated soil cuttings were used to backfill the excavations. Boring B-3 was backfilled with a cement/bentonite grout due to concerns of potential load contamination due to

being located near a previous shooting range. The Logs of Borings B-1 through B-5 are included in Appendix A, Field Explorations at the end of this report. The approximate locations of the borings are shown on Figure 2, Field Exploration Location Map.

On January 11, 2018, two Seismic Refraction Surveys were performed at the site by Advanced Geoscience Inc. (AGI) and their approximate locations are shown on Figure 2. AGI completed their field work and processed the data using the RAYFRACT program to prepare scaled, 2D elevation profiles of the seismic compressional-wave velocity layering. The Summary Report prepared by AGI is presented in Appendix C, Seismic Refraction Survey Report.

Task 3 – Laboratory Testing. Laboratory testing was performed on selected samples to provide parameters for engineering evaluation. Testing consisted of in-situ density and moisture content, sieve and hydrometer, direct shear, expansion index, maximum density and optimum moisture, R-value, and Preliminary Corrosion Potential. Descriptions of the laboratory tests performed and the results of the testing are presented in Appendix B, Laboratory Testing.

Task 4 – Geotechnical Analyses. Field and laboratory data were analyzed in conjunction with our understanding of the proposed project from the referenced MWD Civil Drawings to provide geotechnical recommendations for the design and construction of the proposed access roads and valve structure improvement. Seismic parameters presented are based on the 2016 California Building Code (CBC).

Task 5 – Report Preparation. This report summarizes the work performed, data acquired, and our findings, conclusions, and geotechnical recommendations for the design and construction of the proposed improvements. The report includes the following items:

- Site location map and site plan showing the approximate boring locations;
- Logs of borings (Appendix A);
- Results of laboratory tests (Appendix B);
- Seismic Refraction Survey Summary Report by AGI (Appendix C);
- Discussion of general site conditions;
- Discussion of general subsurface conditions as encountered during field exploration;
- Discussion of regional and local geology and site seismicity;

- Discussion of geologic and seismic hazards;
- Recommendations for site preparation, earthwork, temporary slope inclinations, fill placement, and compaction specifications, including excavation characteristics of subsurface soil deposits;
- Recommendations for retaining wall foundation design, allowable bearing pressures, and embedment depths;
- Recommendations for seismic design parameters in accordance with the 2016 CBC;
- Preliminary slope stability conclusions for Cross Section C, WVF1 Station 1415+42 access road section at Station 1+50 for Option 1, presented on the MWD Civil Drawings; and
- Preliminary slope stability conclusions for Cross Section F, WVF1 Station 1416+33 access road section at Station 2+20 for Option 2, presented on the MWD Civil Drawings.

2 SITE DESCRIPTON

2.1 SITE DESCRIPTION

The project site is located in the Chatsworth area of the City of Los Angeles, California. Chatsworth Park South bounds the site on the south and east sides. Hillside areas with local rugged rock outcrops, intervening drainage channels, and local dense vegetation bound the access road locations on the north and west sides. The southern and eastern portions of the access road locations are low-lying areas with sparse vegetation. Surface water was observed flowing within one of the drainage channels during the June 19, 2017, site visit. The channel is located at approximate Station 0+68 as shown on the referenced MWD Civil Drawings (MWD, 2018).

3 GEOLOGY

3.1 REGIONAL GEOLOGIC SETTING

The site is located within the western Transverse Ranges geomorphic province (Norris and Webb, 1990). The Transverse Ranges province is characterized by roughly east-west trending, convergent structural features in contrast to the predominant northwest-southeast structural trend of Coast Ranges and Peninsular geomorphic provinces in California (CGS, 2002). The Transverse Ranges province's east-west trending folds and faults are due to north-south tectonic compression from movement along the San Adreas fault system, resulting in one of the most seismically active regions in California. The western Transverse Ranges extends generally from the Los Angeles/San Bernardino County line on the east to Point Arguello west of Santa Barbara.

Structurally, the portion of the western Transverse Ranges where the project site is situated is bounded on the north by the Sierra Madre fault zone – San Fernando section and the Santa Monica Mountains to the south.

The primary geologic unit comprising the foothills of the project area is the Upper Cretaceous Chatsworth Formation. The Chatsworth Formation is a turbidite sequence of marine fan deposits composed primarily of arkosic sandstones (Link et al., 1984) with lesser siltstones and conglomerates interbedded with shales (Cilona et al., 2016). Young alluvial fan deposits underly the San Fernando Valley east of the project site. The geologic units are presented on Figure 3, Regional Geologic Map.

3.2 SUBSURFACE CONDITIONS

Subsurface conditions at the project site consist of young alluvial deposits overlying bedrock of the Cretaceous-age Chatsworth Formation. On January 30, 2018, Kleinfelder drilled five borings to a maximum depth of 21.5 feet below ground surface.

The following is a general description of the subsurface conditions and the bedrock characteristics that can be applied to subsurface conditions at the locations explored. Subsurface materials encountered at the locations explored generally consisted of a thin veneer

of artificial fill or native young alluvium overlying bedrock of the Chatsworth Formation. Detailed descriptions of the deposits are provided in our logs of borings presented in Appendix A.

3.2.1 Fill and Native Soils

Fill and alluvial soils encountered generally consisted of medium dense to dense silty sand to sand with gravel and some sandy clay. These soils were generally present locally within the upper 3 to approximately 5 feet except in B-3, where it extended to 16.5 feet (maximum depth explored). Laboratory testing of two bulk samples of subgrade soils collected at borings B-3 and B-5 resulted in R-values of 19 and 29, respectively. Laboratory dry density in boring B-3 of the native soil was approximately 113 pounds per cubic-foot (pcf) with a moisture content of approximately 6.7 percent.

3.2.2 Bedrock

Bedrock is predominantly comprised of a fine-grained yellow-brown sandstone of the Chatsworth Formation. The bedrock is thickly-bedded (3-10 feet thick) and uniformly dip to the northwest between approximately 10 and 15 degrees. Bedrock materials encountered below native and fill soils were consistent with Chatsworth Formation with blow counts greater than 50 for 6 inches. Laboratory dry densities of samples with bedrock materials ranged from approximately 98 to 118 pounds per cubic-foot (pcf). Laboratory moisture contents ranged from approximately 3.6 to 12.2 percent.

3.3 GROUNDWATER

Groundwater was not encountered in any of the borings performed at the site on January 30, 2018. There are no known active groundwater wells or monitoring wells on or within near proximity to the project site. Since the sites elevation is approximately 50 to 110 feet higher than the general ground surface of the San Fernando Valley located to the east, we do not anticipate encountering groundwater in areas underlain by shallow bedrock. Although not encountered in the borings, shallow perched groundwater could occur in areas underlain by alluvium.

Fluctuations of the groundwater level, localized zones of perched water, and variations in soil moisture content should be anticipated during and following the rainy season (late fall to early spring). Irrigation of landscaped areas on and adjacent to the site can also cause a fluctuation of

local groundwater levels.

3.4 FAULTING

There is a high potential for moderate to strong seismic activity to occur during the design life of the project. The site is in the highly seismic Southern California region within the influence of several fault systems that are considered to be active or potentially active. An active fault is defined by the State of California as being a “sufficiently active and well defined fault” that has exhibited surface displacement within Holocene time (about the last 11,000 years). A potentially active fault is defined by the State as a fault with a history of movement within Pleistocene time (between 11,000 and 1.6 million years ago). These active and potentially active faults are capable of producing potentially damaging seismic shaking at the site. It is anticipated that the project site will periodically experience ground acceleration as the result of earthquakes. Active faults without surface expression (blind faults) and other potentially active seismic sources, which are capable of generating earthquakes, are not currently zoned and are known to be locally present under the region.

The site is not located within a State of California Earthquake Fault Rupture Hazard Zone (Bryant and Hart, 2007, CGS, 2017). Based on our geologic literature review, no mapped active or potentially active fault traces are known to transect the project site (Treiman, 2000). The closest active fault to the site is the Sierra Madre fault Zone – Santa Susana and San Fernando sections faults located approximately 7.0 miles and 7.5 miles, respectively from the site (Barrows et al., 1975).

3.5 SEISMIC HAZARD ZONES

The project site is not located within a State of California designated area with potential liquefaction or earthquake-induced landslide zones (CGS, 2017). See Section 4.2.1 for the results of our liquefaction analysis at the site.

Landslides are ground failures (several tens to hundreds of feet deep) in which a (mass of earth material, including debris and often portions of bedrock) large section of a slope detaches and slides downhill. Landslides are not to be confused with minor surficial slope failures (slumps), which are usually limited to the topsoil zone and can occur on slopes composed of almost any geologic material. Landslides can cause damage to structures both above and below the slide mass.

Structures above the slide area are typically damaged by undermining of foundations. Areas below a slide mass can be damaged by being overridden and crushed by the failed slope material.

Several factors can increase the potential for landsliding; slope angle, rock or soil type, bedding and foliation orientation, persistence of fractures, fracture density, zones of shearing or faulting, weathering, clay content, seismicity, water content, groundwater and the presence or absence of vegetation.

Although the area of the project site is not identified as a landslide hazard zone, some of these risk factors for landslides do exist at the site including: sloping terrain, the presence of nearby active faults, and historic seismic shaking.

3.6 FLOOD HAZARD

The Federal Emergency Management Agency (FEMA) maintains a collection of Flood Insurance Rate Maps (FIRM), which cover the entire United States. These maps identify those areas which may be subjected to 100 year and 500-year cycle floods. Based on our review of FEMA map panel 1040F (FEMA, 2008) the elevated portions of the site are situated within Zone D area in which flood hazards are undetermined, but possible. The southernmost portion of the project site is located within Zone A where there is a 1% annual chance of flood (100-year flood). No Base Flood Elevations are determined. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

3.7 EXPANSIVE SOILS

Expansive soils are characterized by their ability to undergo significant volume change (shrink or swell) due to variations in moisture content. Changes in soil moisture content can result from rainfall, landscape irrigation, utility leakage, perched groundwater, drought, or other factors and may cause unacceptable settlement or heave of pavements, sidewalks, curbs, gutters and other structures supported over these materials. The soils generally encountered during our study were granular and based on the Expansion Index test performed, they have a low to medium expansion potential.

4 CONCLUSIONS AND RECOMMENDATIONS

4.1 GENERAL

Based on the results of our field exploration, laboratory testing and engineering analyses conducted during this study, it is our professional opinion that the proposed project is geotechnically feasible, provided the recommendations presented in this report are incorporated into the project design and construction. The primary geotechnical considerations for site development are the presence of bedrock, stability of proposed slope cuts, and construction of pavement on a relatively steep grade.

The following opinions, conclusions, and recommendations are based on the properties of the materials encountered in the borings, the results of the laboratory-testing program, and our engineering analyses performed. Our recommendations regarding the geotechnical aspects of the design and construction of the project are presented in the following sections.

4.2 SEISMIC DESIGN CONSIDERATIONS

It is our understanding that after January 1, 2017, jurisdictional agencies review of proposed development will be based on the 2016 California Building Code (CBC). According to the 2016 CBC, every structure, and portion thereof, including nonstructural components that are permanently attached to structures and their supports and attachments, shall be designed and constructed to resist the effects of earthquake motions in accordance with ASCE 7-10 (ASCE, 2010), excluding Chapter 14 and Appendix 11A. The seismic design category for a structure may be determined in accordance with Section 1613 of the 2016 CBC or ASCE 7-10. Based on the subsurface conditions encountered, the site can be classified as Site Class C. We have assumed that proposed structures will have a period of less than ½ second. This assumption should be verified by the project structural engineer.

The 2016 CBC seismic design parameters for the proposed access roads are summarized in Table 1.

Table 1

2016 CBC Seismic Design Parameters*

Site Class	C
Risk Category	I, II, and III
S_s (Figure 1613.3.1(1)) (g)	2.184
S_1 (Figure 1613.3.1(2)) (g)	0.695
F_a (Table 1613.3.3(1))	1.0
F_v (Table 1613.3.3(2))	1.3
S_{MS} (Equation 16-37) (g)	2.184
S_{M1} (Equation 16-38) (g)	0.904
S_{DS} (Equation 16-39) (g)	1.456
S_{D1} (Equation 16-40) (g)	0.603
PGA_M (ASCE 7-10 Equation 11.8-1) (g)	0.815

*Section references above are to the 2016 CBC unless otherwise noted.

4.2.1 Liquefaction

The term liquefaction describes a phenomenon in which saturated, cohesionless soils temporarily lose shear strength (liquefy) due to increased pore water pressures induced by strong, cyclic ground motions during an earthquake. Structures founded on or above potentially liquefiable soils may experience bearing capacity failures due to the temporary loss of foundation support, vertical settlements (both total and differential), and undergo lateral spreading. The factors known to influence liquefaction potential include soil type, relative density, grain size, confining pressure, depth to groundwater, and the intensity and duration of the seismic ground shaking. The cohesionless soils most susceptible to liquefaction are loose, saturated sands and some silt.

Based on the properties of the soils encountered in our test borings and our knowledge of geologic conditions in the area of the site, a site class of ‘C’ is considered appropriate as determined from Table 1613.5.2 of the 2016 California Building Code. The characteristics of the

soil/bedrock, and depth to groundwater indicate that the site soils have a remote potential for liquefaction during a design-level earthquake.

4.3 EARTHWORK

Site preparation and earthwork operations should be performed in accordance with applicable codes, safety regulations and other local, state or federal specifications, and the recommendations included in this report. References to maximum unit weights are established in accordance with the latest version of ASTM Standard Test Method D1557. The earthwork operations should be overseen by a professional engineer from Kleinfelder.

4.3.1 Site Preparation

Existing pavements, utilities and other abandoned improvements should be demolished and removed from the site. All debris produced by demolition operations, including wood, steel, piping, plastics, etc., should be separated and disposed off-site. Existing abandoned utility pipelines which extend beyond the limits of the proposed construction and are to be abandoned in place, should be plugged with cement grout to prevent migration of soil and/or water. Demolition, disposal and grading operations should be overseen by a professional engineer from Kleinfelder.

Prior to general site grading, existing vegetation, organic topsoil, debris, and oversized materials (greater than 6 inches in maximum dimension) should be stripped and disposed outside the construction limits. Deeper stripping or grubbing may be required where higher concentrations of vegetation are encountered during site grading. The stripping work should include the removal of existing fill embankments, undocumented fill, and topsoil that, in the judgment of the geotechnical engineer, is compressible or contains significant voids. The stripping operation must expose a firm, non-yielding subgrade, or competent bedrock that is free of large voids. Stripped topsoil (less any debris) may be stockpiled and reused for landscaping purposes; however, this material should be evaluated for suitability if it is desired to use this material for engineered fill below structures.

Grading operations during the wet season or in areas where the soils are saturated may require significant provisions for drying of soils prior to compaction. If the project necessitates fill placement and compaction in wet conditions, we can provide alternatives for drying the soil.

Conversely, additional moisture may be required during the dry months. A sufficient water source should be available to provide adequate water during compaction. During dry months, moisture conditioning of the subgrade soils may be required if left exposed for greater than a few days.

4.3.2 Overexcavation

Organic, inert and oversized materials (greater than 6 inches in maximum dimension) should be stripped and isolated prior to removal of reusable soils. Pavement should be stripped and disposed off-site. Overexcavation should remove any loose or soft earth materials until a firm, relatively unyielding subgrade or competent bedrock is exposed, free of significant voids and organics. The subgrade soils exposed at the bottom of overexcavation should be observed or overseen by a professional engineer from our office prior to the placement of any fill. Prior to the placement of engineered fill, after site preparation, the bottom of the overexcavations should be proof-rolled and compacted to at least 90 percent relative compaction to the satisfaction of the geotechnical engineer-of-record. Additional removals, scarification and drying operations, and/or subgrade reinforcement may be required to stabilize soft, yielding subgrades.

The grading contractor should anticipate that additional processing and moisture conditioning of the onsite soils will be necessary during site grading to obtain material which is acceptable to be placed as engineered fill, as described in this report. The moisture conditioning of some of the soils will require significant drying and some soils will require the addition of moisture. These conditions could hamper equipment maneuverability and efforts to compact site soils to the recommended compaction criteria. Disking to aerate, chemical treatment, replacement with drier material, stabilization with a geotextile fabric or grid, or other methods may be required to mitigate the effects of excessive soil moisture and facilitate earthwork operations.

The grading contractor should also anticipate encountering oversized material greater than 6 inches in maximum dimension during excavation. Quantifying the actual amount of oversize material that could be encountered requires additional study.

Overexcavation of Pavements and Areas to Receive Fill: Pavements and areas to receive fill should be underlain by at least 2 feet of engineered fill. We recommend that overexcavation for pavements extend at least 2 feet below the bottom of pavement section and at least 2 feet

below existing grade and proposed finished subgrade elevations. The 2 feet of overexcavation may be performed by overexcavating 18 inches of soil and scarifying, moisture conditioning, and compacting the bottom 6 inches of the excavation. Where the existing fill is deeper than 2 feet below bottom of pavement subgrades, we recommend that the overexcavation be deepened to remove existing fill soils.

We understand that reinforced concrete keys are proposed to be placed beneath the pavement in the steeper area of the proposed roadway. Due to the depth of the key, we anticipate that the excavation will extend into the competent bedrock. However, once excavated, the material at the bottom of the key should be evaluated by a representative of the Geotechnical Engineer of Record and may need to be extended deeper if unsuitable soils or unsuitable bedrock are encountered. If the excavation is extended, MWD may select to extend the key deeper with concrete or backfill the overexcavated area with engineered fill in accordance with the Engineered Fill section below.

On the downhill side, engineered fill should extend to the bottom of the key. The engineered fill should extend at least 2 feet laterally from the key and be placed as described below in the Engineered Fill section.

4.3.3 Scarification and Compaction

Following site stripping and any required grubbing and/or overexcavation, in areas to receive engineered fill that are not in competent bedrock should be scarified to a minimum depth of 8 inches, uniformly moisture-conditioned to a moisture content to near the optimum moisture content and compacted to at least 90 percent of the maximum dry density obtained using ASTM (American Society for Testing and Materials) Test Method D1557.

4.3.4 Rippability

The excavation and rippability of the existing bedrock was evaluated by performance of a seismic refraction survey. We have included the Summary Report as Appendix C of this report.

4.3.5 Engineered Fill

We anticipate that most of the on-site soils may be reusable as engineered fill once debris and oversized materials greater than 6 inches in diameter have been removed, and after any vegetation and organic debris is cleared and disposed off site. Fill should be placed in lifts no greater than 8 inches thick, loose measurement, and should be compacted to at least 90 percent of the maximum dry density. The moisture content of the soil should be within approximately 0 to 3 percent above the optimum moisture content. Any imported fill materials to be used for engineered fill should be sampled and tested for approval by the geotechnical engineer prior to being transported to the site. In general, well-graded mixtures of gravel, sand and non-plastic silt are acceptable for use as import fill.

Engineered fill should be compacted to at least 90 percent of maximum dry density obtained by the ASTM D1557 method of compaction with the upper 6 inches below pavements and structures compacted to at least 95 percent relative compaction.

In areas where the site needs to be raised in elevation per the MWD civil drawings, prior to the placement of engineered fill, the upper 24 inches below the existing site grade of the existing soils should be overexcavated and replace with engineered fill.

4.3.6 Temporary Excavations

All excavations must comply with applicable local, state, and federal safety regulations including the current OSHA Excavation and Trench Safety Standards. Construction site safety generally is the sole responsibility of the Contractor, who shall also be solely responsible for the means, methods, and sequencing of construction operations. We are providing the information below solely as a service to our client. Under no circumstances should the information provided be interpreted to mean that Kleinfelder is assuming responsibility for construction site safety or the Contractor's activities; such responsibility is not being implied and should not be inferred.

The borings were advanced using a track-mounted, hollow-stem auger drill rig. Drilling was completed with moderate effort through the existing soil deposits and moderate to difficult drilling in the bedrock. Conventional earth moving equipment, as presented in the AGI report in Appendix C, should be capable of performing the excavations required for site development.

Near-surface soils encountered during our field investigation consisted predominantly of silty sand, clayey sand, and sand with silt. In our opinion, the soil encountered in our borings would be considered a Type 'C' soil with regard to the OSHA regulations. For this soil type, OSHA requires a maximum slope inclination of 1.5:1 (H:V) or flatter for excavations 20 feet or less in depth. Bedrock, due to its weathered condition, may be considered as a Type ‘B’ soil type with respects to OSHA regulations. Steeper cut slopes may be utilized for excavations less than 5 feet deep, depending on the strength, moisture content, and homogeneity of the soil/bedrock as observed during construction.

4.3.7 Pipe Bedding and Trench Backfill

If required, pipe bedding and pipe zone material should consist of sand or similar granular material having a minimum sand equivalent value of 30. The sand should be placed in a zone that extends a minimum of 6 inches below and 6 inches above the pipe for the full trench width. The bedding material should be compacted to a minimum of 90 percent of the maximum dry density or to the satisfaction of the geotechnical engineer's representative observing the compaction of the bedding material. Bedding material should consist of sand, gravel, crushed aggregate, or native free-draining granular material with a maximum particle size of 3/4 inch. Bedding materials should also conform to the pipe manufacturer's specifications, if available. Trench backfill above bedding and pipe zone materials may consist of approved, on-site or import soils placed in lifts no greater than 8 inches loose thickness and compacted to 90 percent of the maximum dry density based on ASTM Test Method D1557. Jetting of backfill is not recommended.

4.3.8 Stockpiling Excess Material

All stockpiles of excess soil materials should be kept away from the top of the excavations a minimum distance equal to the depth of the excavation. We recommend that stockpiles be constructed with a slope ratio of at least 2:1 (horizontal to vertical) and compacted to at least 85 percent relative compaction. The height of stockpiles should not exceed 10 feet. Compaction requirements and slope ratios are provided only for temporary stockpiling considerations, such as erosion control and temporary influences on excavations. We have not considered any long-term or structural support usage of stockpiles.

TEMPORARY SHORING

General

Temporary shoring may be required in areas adjacent to existing structures or improvements where excavations cannot be adequately sloped. Temporary shoring may consist of a turn-key shoring system, soldier piles and lagging, or other system. Recommendations for design of temporary shoring are presented below.

The shoring design should be provided by a civil engineer registered in the State of California and experienced in the design and construction of shoring under similar conditions. Once the final excavation and shoring plans are complete, the plans and design should be reviewed by Kleinfelder for conformance with the design intent and geotechnical recommendations provided herein.

Lateral Pressures

For the design of cantilevered shoring, an equivalent fluid pressure of 35 pounds per cubic foot (pcf) may be used for level backfill. Where the surface of the retained earth slopes up away from the shoring, a greater pressure should be used. Design data can be developed for additional cases when the design conditions are established.

In addition to the recommended earth pressure, any surcharge (live, including traffic, or dead load) located within a 1:1 plane drawn upward from the base of the shored excavation should be added to the lateral earth pressures. The lateral contribution of a uniform surcharge load located immediately behind the wall may be calculated by multiplying the surcharge by 0.5 for the level backfill condition. Lateral load contributions of surcharges located at a distance behind the shored wall may be provided once the load configurations and layouts are known. As a minimum, a 2-foot equivalent soil surcharge (250 psf) is recommended to account for nominal construction loads. It should be noted that the above pressures do not include hydrostatic pressure and assume groundwater will not be encountered in the excavation, or dewatering will be used to lower the ground water table below the bottom of the excavation.

Design of Soldier Piles

All soldier piles should extend to a sufficient depth below the excavation bottom to provide the required lateral resistance. We recommend the required embedment depths be calculated based on the principles of force and moment equilibrium. For this method, the allowable passive pressure against soldier piles that extend below the level of excavation may be assumed to be equivalent to a fluid pressure of 250 pcf. The maximum lateral resistance value should not exceed 3,000 psf. To account for arching, the passive resistance may be assumed to act over a width 3.0 times the width of the embedded portion of the pile, provided adjacent piles are spaced at least 2.5 pile diameters, center-to-center.

Drilling of the soldier pile shafts can be accomplished using heavy-duty drilling equipment. Temporary steel casing may be required to stabilize the sides of the pile shaft. Concrete for piles should be placed immediately after the drilling of the hole is complete. The concrete should be pumped to the bottom of the drilled shaft using a tremie. Once concrete pumping is initiated, a minimum head of 5 feet of concrete above the bottom of the tremie should be established and maintained throughout the concrete placement to prevent contamination of the concrete by soil inclusions. If steel casing is used, the casing should be removed as the concrete is placed.

To develop full lateral resistance, provisions should be taken to assure firm contact between the soldier piles and undisturbed materials. The concrete placed in the soldier pile excavations may be a lean-mix concrete. However, the concrete used in that portion of the soldier pile that is below the planned excavated level should provide sufficient strength to adequately transfer the imposed loads to the surrounding materials.

Lagging

Continuous treated timber lagging should be used between the soldier piles. The lagging should be installed as the excavation proceeds. If treated timber is used, the lagging may remain in place after backfilling. The lagging should be designed for the recommended earth pressure but limited to a maximum value of 400 psf.

Deflection

Shoring adjacent to existing structures or improvements should be designed and constructed to reduce potential movement. The shoring system designer should evaluate potential deflections in their design.

Monitoring

Some deflection of the shored excavation should be anticipated during the planned excavation. We recommend the project civil engineer perform a survey of all existing utilities and structures adjacent to the shored excavation. The purpose of this survey would be to evaluate the ability of existing utility lines or improvements to withstand horizontal movements associated with a shored excavation and to establish the baseline condition in case of unfounded claims of damage. If existing improvements are not capable of withstanding anticipated lateral movements, alternative shoring systems may be required.

Horizontal and vertical movements of the shoring system should be monitored by a licensed surveyor. The construction monitoring and performance of the shoring system are ultimately the contractor's responsibility. However, at a minimum, we recommend that the top of shoring be surveyed prior to excavation and that the top and bottom of the soldier beams be surveyed on a weekly basis until the shoring is not needed. Surveying should consist of measuring movements in vertical and two perpendicular horizontal directions.

4.4 FOUNDATIONS

4.4.1 General

Based on the results of our field exploration, laboratory testing and geotechnical analyses, the proposed retaining walls or culvert (if needed) may be supported on conventional spread foundations placed entirely on engineered fill or competent bedrock. If founded on engineered fill, spread foundations should be underlain by a minimum 2 feet of engineered fill constructed as recommended above. Recommendations for the design lateral earth pressures and design of spread foundations are presented below. Transitions from bedrock to engineered fill beneath a single footing should be avoided. If this condition exists, the bedrock portion should be overexcavated to provide the minimum fill thickness recommended above.

The recommended lateral earth pressures assume that drainage is provided behind the walls to prevent the buildup of hydrostatic pressures. Walls should be provided with drains to reduce the potential for the buildup of hydrostatic pressure. Drains may consist of a 2-foot-wide zone of ¾-inch rock wrapped in filter fabric located immediately behind the wall extending to within 1 foot of the ground surface. Perforated Schedule 40 PVC pipe should be installed within the rock at the base of the drain and sloped to discharge to a suitable collection facility. Commercially available drainage panels could be used as an alternative. The product manufacturer's recommendations should be followed in the installation of a drainage panel. Expansive soils should not be used as wall backfill material.

Where slope extend at inclinations greater than horizontal behind retaining walls, a minimum of a 2-foot width drainage swale should be constructed at the top of the wall to limit the amount of surface water infiltrating behind the wall

4.4.2 Shallow Foundations

Shallow foundation constructed on engineered fill, or entirely on competent bedrock, may be designed for a net allowable bearing pressure of 2,500 pounds per square foot (psf) for dead plus sustained live loads. The foundations should be established at a depth of at least 18 inches below the lowest adjacent exterior grade if founded on soils or at least 12 inches if founded into competent bedrock. A one-third increase in the above bearing pressures can be used for wind or seismic loads.

The structural engineer should design the footing dimension and reinforcement; however shallow foundations should have a minimum width 24 inches. Structurally continuous foundations should not be directly founded on both engineered fill and bedrock. If the proposed foundations are anticipated to directly bear on both engineered fill and bedrock, a structural break should be constructed in the foundation to limit the distress caused by differential settlement. Compaction requirements should follow section 4.3.5 Engineered Fill.

4.4.3 Estimated Settlements

We estimate total static settlement for foundations designed in accordance with the recommendations presented above and supported entirely on engineered fill or bedrock to be less than 1 inch.

4.4.4 Lateral Resistance

Lateral load resistance may be derived from passive resistance along the vertical sides of the foundations, friction acting at the base of the foundation, or a combination of the two. An allowable passive resistance of 250 psf per foot of depth may be used for design. Allowable passive resistance values should not exceed 2,500 psf. An allowable coefficient of friction value of 0.35 between the base of the foundations and the engineered fill soils and competent bedrock can be used for sliding resistance using the dead load forces. An allowable coefficient of friction value of 0.35 between the base of the level concrete pavement and the aggregate base can also be used for sliding resistance using the dead load forces. The pavement sliding friction should be reduced for sloping pavements based on the percentage slope. Friction and passive resistance may be combined without reduction. We recommend that the first foot of soil cover be neglected in the passive resistance calculations.

4.4.5 Lateral Earth Pressures

Design earth pressures for retaining walls depend primarily on the allowable wall movement, wall inclination, type of backfill materials, backfill slopes, surcharges, and drainage. The earth pressures provided assume that that a non-expansive backfill will be used and a drainage system will be installed behind the walls, so that external water pressure will not develop. If a drainage system will not be installed, the wall should be designed to resist hydrostatic pressure in addition to the earth pressure.

The recommended active lateral earth pressures for horizontal backfills using granular relatively non-expansive soils on walls that are free to rotate at least 0.1 percent of the wall height is 35 pcf. The recommended active lateral earth pressures for wall backfills sloping not steeper than 2:1 using granular relatively non-expansive soils on walls that are free to rotate at least 0.1 percent of the wall height is 70 pcf.

The above lateral earth pressures do not include the effects of surcharges (e.g., traffic, footings), compaction, or truck-induced wall pressures. Any surcharge (live, including traffic, or dead load) located within a 1:1 plane drawn upward from the base of the excavation should be added to the lateral earth pressures. The lateral contribution of a uniform surcharge load located immediately behind walls may be calculated by multiplying the surcharge by 0.33 for cantilevered walls. Walls adjacent to areas subject to vehicular traffic should be designed for a

2-foot equivalent soil surcharge (240 psf). Lateral load contributions from other surcharges located behind walls may be provided once the load configurations and layouts are known.

4.5 SLOPE STABILITY

In order to reach the grades presented in the MWD Civil Drawings, bedrock cut slopes and engineered fill slopes are designed to be constructed. The proposed bedrock cut slopes up to approximately 25 feet are designed to be excavated to an inclination of 1.5:1 Horizontal:Vertical (H:V) and the fill slopes are designed at 2:1 H:V. We have performed preliminary analysis of the cut and fill slopes to evaluation the feasibility of the proposed slope inclinations. We recommend reevaluating, as needed, the proposed slopes once final plans are prepared.

4.5.1 Methodology

To evaluate the preliminary cut slopes, Kleinfelder completed limit-equilibrium slope stability analyses for the proposed cut slopes using the Slide software by RocScience Inc. (2016). Factors of safety (FOS) for the static and seismic screening analysis were established using Spencer's method. For the screening analysis, the horizontal seismic coefficient was developed using the procedure outlined in SP117A, Guidelines for Evaluating and Mitigating Seismic Hazards in California. We performed a deaggragation based on a recurrence interval of 10 percent in 50 years to develop a design peak ground acceleration of 0.54g. Using the earthquake parameters above, the corresponding seismic coefficient (k_{eq}) is 0.18 for 6 inches (15 cm) of slope displacement.

4.5.2 Cut Slope Stability

We performed analysis on the bedrock cut slopes presented in Cross-Section F as shown on Sheet SK-5 of the MWD Civil Drawings dated February 2018 as well as Cross-Section C as shown on Sheet SK-15 of the MWD Civil Drawings dated April 2018. The parameters selected for the cut slope stability analysis are based on results of direct shear laboratory testing. The results of the laboratory testing are presented below in Table 2.

Table 2

Direct Shear Results and Slope Stability Parameters

Sample Number	Friction Angle (degrees)	Cohesion (psf)
B - 1 at 5 feet	30	150
B – 4 at 5 feet	30	250
B – 5 at 5 feet	41	350
Bedrock Strength Used in Stability Analysis	34	250

Based on the analyses completed, the FOS satisfy the City of Los Angeles minimum required FOS of 1.5 and 1.0 for the static and screening analysis, respectively as shown in Table 3.

Table 3

Bedrock Cut-Slope Stability Analysis Results

Maintenance Road	Analysis	Minimum Required FOS	Calculated FOS
Option 1	Static	1.50	1.54
	Screening	1.00	1.13
Option 2	Static	1.50	1.54
	Screening	1.00	1.18

Note: [1]The screening analysis was performed in accordance with SP117A, Guidelines for Evaluating and Mitigating Seismic Hazards in California.

The direct shear testing presented in Table 2 was performed on Modified California-Type ring samples. Due to the sampling method and the brittle nature of the bedrock, the strength of the bedrock samples recovered is less than undisturbed intact samples. Although we performed the analysis using the parameters above, we also performed research of CGS Seismic Hazard Zone Report 05 to provide Mean Values for the Chatsworth Formation in the Oat Mountain 7.5-Minute Quadrangle. The Chatsworth Formation shear strength values are shown in Table 4 below and are significantly greater than the parameters included in our analysis.

Table 4

CDMG Published Strength Properties

Bedrock Unit	Mean Friction Angle (degrees)	Mean Cohesion (psf)
Chatsworth Formation	39.3	654

* CGS is formerly California Division of Mines and Geology (CDMG), Seismic Hazard Zone Report 05

4.5.3 Fill Slope Stability

The fill slopes are designed to be constructed at a gradient of 2:1 H:V or greater and do not require slope stability analysis per the current grading code. We anticipate that fill slopes constructed using engineered fill comprised of local materials and sloped at a maximum inclination of 2:1 will be stable

4.5.4 Construction of Permanent Fill Slopes

Fill slopes may be inclined up to 2:1 (horizontal:vertical) or flatter. Where the toe of a fill slope terminates on a natural or cut slope, a keyway is required at the toe of the fill slope. In general, fill slope keyways should be a minimum width of 15 feet, with a minimum depth of 3 feet into competent natural material, and should extend a distance equal to the depth of the keyway beyond the toe of the fill. Benching should be cut into the existing slope to bind the fill to the slope (see Figure 4).

Due to the limited height and configuration of the proposed fill slopes within the portion of the project, slope drains are not anticipated to be needed for this portion of the project. However, depending on fill slope construction and actual site conditions encountered in the field, back drains may be required within the compacted fill to prevent the buildup of hydrostatic pressures behind the fill slope. Field conditions, such as observed seepage from bedrock, or the presence of water within the slope may require the use of subdrains to adequately prevent buildup of hydrostatic pressures behind the fill slope. In general, fill slopes with design heights less than 10 feet will likely not require subdrains. Figures 4 presents standard slope drain details for fill slopes. Benches should be step-like in profile, with each bench not less than four feet in height and established in competent material. Compressible or other unsuitable soils should be removed from the slope prior to benching. Competent material is defined as being essentially free of loose soil, heavy fracturing or erosion prone material and is established by the

Geotechnical Consultant during grading. Following completion of the excavation for the keyway, the project Geotechnical Consultant shall observe the keyway prior to backfilling with certified engineered fill.

When constructing fill slopes the contractor shall avoid spillage of loose material down the face of the slope during dumping and rolling conditions. We recommend that the incoming load be dumped behind the face of the slope and bladed into place. We recommend that fill slopes greater than 10 feet in height should be over-built a minimum of 2 feet in thickness and then trimmed back to expose a compacted core, as shown in Figure 4. The over-built thickness may need to be increased to achieve the specified minimum compaction depending on the site conditions and geometry of the slope. For fill slopes less than 10 feet in height, after 4 feet of vertical height has been obtained, the contractor should compact the outer face of the slope by backing the tamping roller over the top of the slope and thoroughly covering the entire slope surface with overlapping passes of the roller. The foregoing should be repeated after the placement of each 4 foot thickness of fill. Fill slope surface should be compacted to a minimum of 90 percent relative compaction per ASTM D1557.

4.5.5 Construction of Permanent Cut Slopes

In general, cut slopes planned should have a maximum inclination of 1.5:1 (horizontal:vertical). We recommend that a qualified geologist be on site during grading of the cut slopes to map the exposed geology for consistency with the conditions presented in this report. If out-of-slope conditions or other geologic conditions differ from that anticipated then additional analysis and recommendations may be required including trimming the slope to the angle of bedding where practical. If site conditions do not allow trimming the slope to a flatter angle then the slope may need to be over-excavated and replaced with a buttress fill.

4.6 PAVEMENT SECTIONS

4.6.1 Asphalt-Concrete Pavement Sections

The required pavement structural sections will depend on the expected wheel loads, volume of traffic, and subgrade soils. The Traffic Indexes (TI’s) assumed should be reviewed by the project Owner, Architect, and/or Civil Engineer to evaluate their suitability for this project. Changes in the TI's will affect the corresponding pavement section. The pavement subgrade should be prepared just prior to placement of the base course. Positive drainage of the paved areas should be provided since moisture infiltration into the subgrade may decrease the life of

pavements. The recommended asphalt pavement concrete recommendations are presented below in Table 5.

Table 5
Asphalt Concrete Pavement Sections
(Design R-value = 24)

Traffic Use	Assumed Traffic Index (TI)	Asphalt Concrete (inches)	Class 2 Aggregate Base (inches)
General Roadway Minimum	--	3.0	4.0
Light Access Roadway Traffic	5.0	3.0	7.0

-- denotes minimum pavement thicknesses for flexible pavement design.

The R-value test result evaluated above was 24. We anticipate the final subgrade soils will consist of a blend of the upper and lower fill materials. Since the characteristics of the near-surface soils can change as a result of grading, we recommend that the subgrade soils be retested for pavement support characteristics, to confirm the parameters used in design and allow for a possible reduction in structural section thickness. Pavement sections provided above are contingent on the following recommendations being implemented during construction.

- The pavement sections recommended above should be placed on at least 24 inches of engineered fill compacted to at least 90 percent of maximum dry density with the upper 6 inches compacted to at least 95 percent relative compaction. The overexcavation of the pavement areas should be conducted as recommended in the earthwork section of this report. Prior to fill placement, the exposed subgrade should be scarified to a depth of 8 inches, uniformly moisture conditioned to near optimum moisture content.
- Subgrade soils should be in a stable, non-pumping condition at the time aggregate base materials are placed and compacted.
- Aggregate base materials should be compacted to at least 95 percent relative compaction.
- Adequate drainage (both surface and subsurface) should be provided such that the subgrade soils and aggregate base materials are not allowed to become wet.
- Aggregate base materials should meet current Caltrans specifications for Class 2 aggregate baserock (Class 2), or crushed miscellaneous base (CMB) as specified in "Standard Specifications for Public Work Construction" ("Greenbook").

- The asphalt pavement should be placed in accordance with “Green Book” specifications.
- All concrete curbs separating pavement and landscaped areas should extend into the subgrade and below the bottom of adjacent, aggregate base materials.

Pavement sections provided above are based on the soil conditions encountered during our field investigation, our understanding of the final site grades, and limited laboratory testing. Since the actual pavement subgrade materials exposed during grading may be significantly different than those tested for this study, we recommend that representative subgrade samples be obtained and additional R-value tests performed. Should the results of these tests indicate a significant difference, the design pavement section(s) provided above may need to be revised.

4.6.2 Portland Cement Concrete Pavement

Concrete pavements may be desirable along the alignment. The concrete pavement should have a minimum 28-day compressive strength of 3,000 psi or 4,000 psi as presented below. Control joints should be spaced at every 15 feet or as designed by the Civil Engineer. The concrete pavement section should be placed on at least 24 inches of engineered fill compacted to at least 90 percent of the maximum dry density. Prior to fill placement, the exposed subgrade should be prepared as recommended in Section 4.4 of this report. Table 6 below presents our recommendations of Portland Cement Concrete (PCC) pavement sections.

Table 6
Preliminary Recommended PCC Pavement Sections

Design R-value	Assumed Traffic Index	Concrete Thickness (inches; using a 28-day compressive strength of 3,000 psi)	Concrete Thickness (inches; using a 28-day compressive strength of 4,000 psi)
24	5	7.5	7.0

The PCC sections presented above may be decreased by 0.5 inches provided that they are constructed on 4 inches of Class 2 aggregate base or CMB compacted to 95% relative compaction. We recommend that the additional 4 inches of aggregate base described above should also underlain 24 inches of engineered fill compacted to at least 90 percent relative compaction. Our review of the MWD Civil Drawings presents details including a 9-inch PCC thickness, which is also acceptable for our understanding of the traffic loading conditions.

5 RECOMMENDED ADDITIONAL SERVICES

5.1 ADDITIONAL GEOTECHNICAL INVESTIGATION

Our authorized scope included limited geotechnical investigation. Conditions could vary between the locations explored. We do not anticipate encountering adverse bedding conditions during grading. However, if adverse bedding conditions are encountered, redesign of proposed slopes may be necessary resulting in delays during construction. To reduce the risk of construction delays, confirmation borings could be excavated through the top of each proposed cut slope prior to construction. Kleinfelder can provide a proposal for additional scope and fee if this option is desired. A geotechnical representative should be retained to provide full-time observation and geologic mapping during construction of all slopes constructed for this project.

5.2 PLANS AND SPECIFICATIONS REVIEW

We recommend that Kleinfelder perform a general review of the project plans and specifications before they are finalized to verify that our geotechnical recommendations have been properly interpreted and implemented during design. If we are not accorded the privilege of performing this review, we can assume no responsibility for misinterpretation of our recommendations.

5.3 CONSTRUCTION OBSERVATION AND TESTING

The construction process is an integral design component with respect to the geotechnical aspects of a project. Because geotechnical engineering is an inexact science due to the variability of natural processes, and because we sample only a limited portion of the soils affecting the performance of the proposed structure, unanticipated or changed conditions can be encountered during grading. Proper geotechnical observation and testing during construction are imperative to allow the geotechnical engineer the opportunity to verify assumptions made during the design process. Therefore, we recommend that Kleinfelder be retained during the construction of the proposed improvements to observe compliance with the design concepts and geotechnical recommendations, and to allow design changes in the event that subsurface conditions or methods of construction differ from those assumed while completing this study.

Our services are typically needed at the following stages of grading.

- after demolition;
- during grading;
- after the overexcavation, but prior to scarification;
- during utility trench backfill;
- during base placement and site paving; and
- after excavation for foundations.

6 LIMITATIONS

This geotechnical study has been prepared for the exclusive use by Metropolitan Water District (Client) and their agents for specific application to the project in Chatsworth, California. The findings, conclusions and recommendations presented in this report were prepared in accordance with generally accepted geotechnical engineering practice. No other warranty, express or implied, is made.

The scope of services was limited to a background data review and the field exploration described in the Scope of Services section. It should be recognized that definition and evaluation of subsurface conditions are difficult. Judgments leading to conclusions and recommendations are generally made with incomplete knowledge of the subsurface conditions present due to the limitations of data from field studies. The conclusions of this assessment are based on our field exploration and laboratory testing programs, and engineering analyses.

Kleinfelder offers various levels of investigative and engineering services to suit the varying needs of different clients. Although risk can never be eliminated, more detailed and extensive studies yield more information, which may help understand and manage the level of risk. Since detailed study and analysis involves greater expense, our clients participate in determining levels of service, which provide information for their purposes at acceptable levels of risk. The client and key members of the design team should discuss the issues covered in this report with Kleinfelder, so that the issues are understood and applied in a manner consistent with the owner's budget, tolerance of risk and expectations for future performance and maintenance.

Recommendations contained in this report are based on our field observations and subsurface explorations, limited laboratory tests, and our present knowledge of the proposed construction. It is possible that soil or groundwater conditions could vary between or beyond the points explored. If soil or groundwater conditions are encountered during construction that differ from those described herein, the client is responsible for ensuring that Kleinfelder is notified immediately so that we may reevaluate the recommendations of this report. If the scope of the proposed construction, including the locations of the improvements, changes from that described in this report, the conclusions and recommendations contained in this report are not considered valid until the changes are reviewed, and the conclusions of this report are modified or approved in writing, by Kleinfelder.

The scope of services for this subsurface exploration and geotechnical report did not include environmental assessments or evaluations regarding the presence or absence of wetlands or hazardous substances in the soil, surface water, or groundwater at this site.

Kleinfelder cannot be responsible for interpretation by others of this report or the conditions encountered in the field. Kleinfelder must be retained so that all geotechnical aspects of construction will be monitored on a full-time basis by a representative from Kleinfelder, including site preparation, preparation of foundations, and placement of engineered fill and trench backfill. These services provide Kleinfelder the opportunity to observe the actual soil and groundwater conditions encountered during construction and to evaluate the applicability of the recommendations presented in this report to the site conditions. If Kleinfelder is not retained to provide these services, we will cease to be the engineer of record for this project and will assume no responsibility for any potential claim during or after construction on this project. If changed site conditions affect the recommendations presented herein, Kleinfelder must also be retained to perform a supplemental evaluation and to issue a revision to our original report.

This report, and any future addenda or reports regarding this site, may be made available to bidders to supply them with only the data contained in the report regarding subsurface conditions and laboratory test results at the point and time noted. Bidders may not rely on interpretations, opinion, recommendations, or conclusions contained in the report. Because of the limited nature of any subsurface study, the contractor may encounter conditions during construction which differ from those presented in this report. In such event, the contractor should promptly notify the owner so that Kleinfelder's geotechnical engineer can be contacted to confirm those conditions. We recommend the contractor describe the nature and extent of the differing conditions in writing and that the construction contract include provisions for dealing with differing conditions. Contingency funds should be reserved for potential problems during earthwork and foundation construction.

This report may be used only by the client and only for the purposes stated, within a reasonable time from its issuance, but in no event later than one year from the date of the report. Land use, site conditions (both on site and off site) or other factors may change over time, and additional work may be required with the passage of time. Any party, other than the client who wishes to use this report shall notify Kleinfelder of such intended use. Based on the intended use of this report and the nature of the new project, Kleinfelder may require that additional work be performed and that an updated report be issued. Non-compliance with any of these requirements by the client or anyone else will release Kleinfelder from any liability resulting from the use of this report by any unauthorized party and the client agrees to defend, indemnify, and hold harmless Kleinfelder from any claims or liability associated with such unauthorized use or non-compliance.

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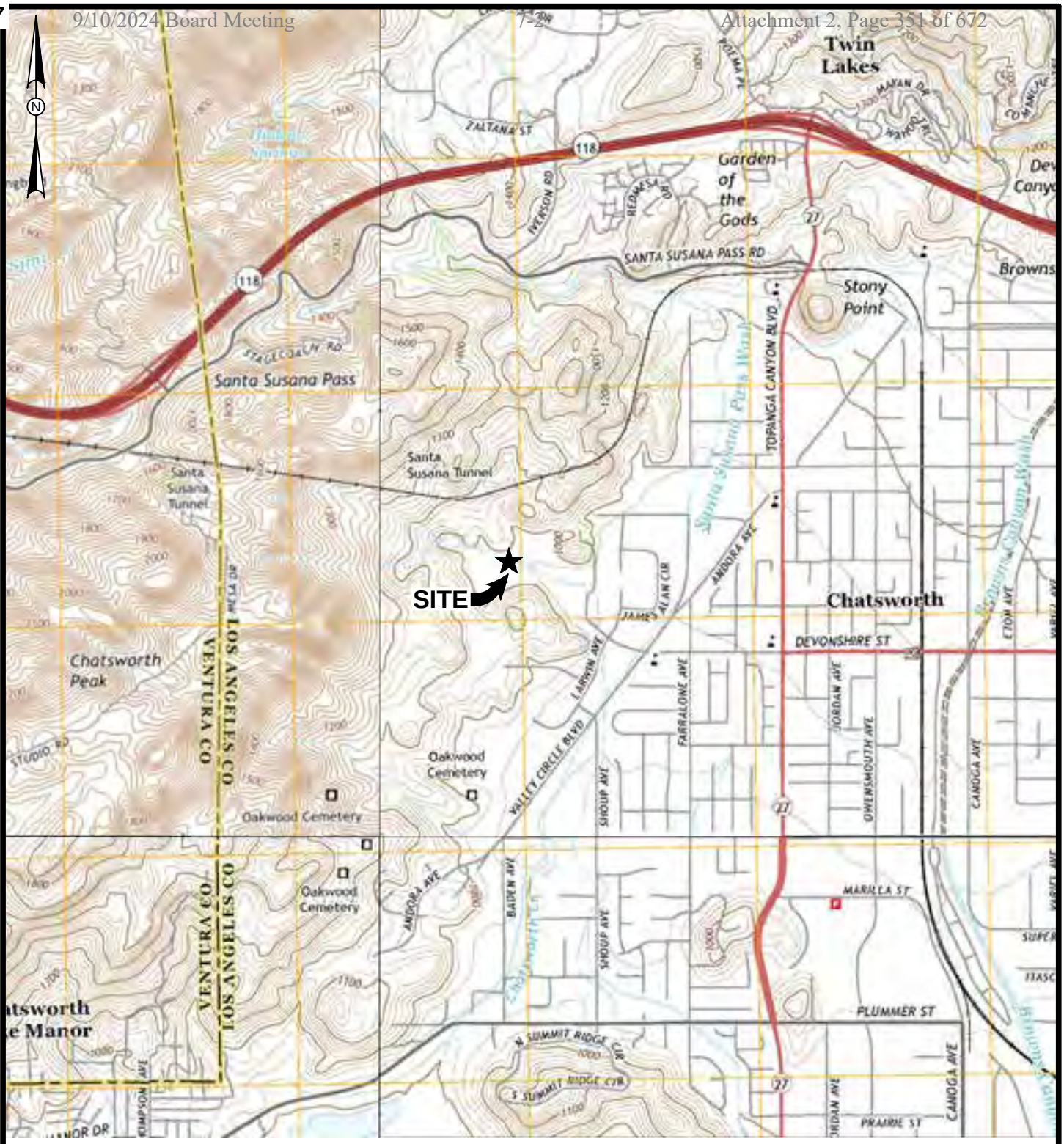
Yerkes, R.F. and Campbell, R.H., 1997, Preliminary Geologic map of the Oat Mountain 7.5' Quadrangle, Southern California: A Digital Database: U.S. Geological Survey, compiled by R.F. Yerkes and R. H. Campbell, Open-File Report 95-089, https://pubs.usgs.gov/of/1995/of95-089/.

FIGURES



SOURCE: U.S.G.S. 7.5' Topographic series, Oat Mountain, California Quadrangle 2015.

2,000 1,000 0 2,000

APPROXIMATE SCALE (feet)

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DATE:	02/2018
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SITE VICINITY MAP

WEST VALLEY FEEDER 1 VALVE IMPROVEMENTS
CHATSWORTH, CALIFORNIA

FIGURE
1

EXPLANATION

B-5 APPROXIMATE BORING LOCATION

LINE 2 APPROXIMATE SEISMIC REFRACTION LINE LOCATION

APPROXIMATE LOCATION OF ACCESS ROAD ALIGNMENT OPTION 1

APPROXIMATE LOCATION OF ACCESS ROAD ALIGNMENT OPTION 2

N

200 100 0 200

APPROXIMATE SCALE (feet)

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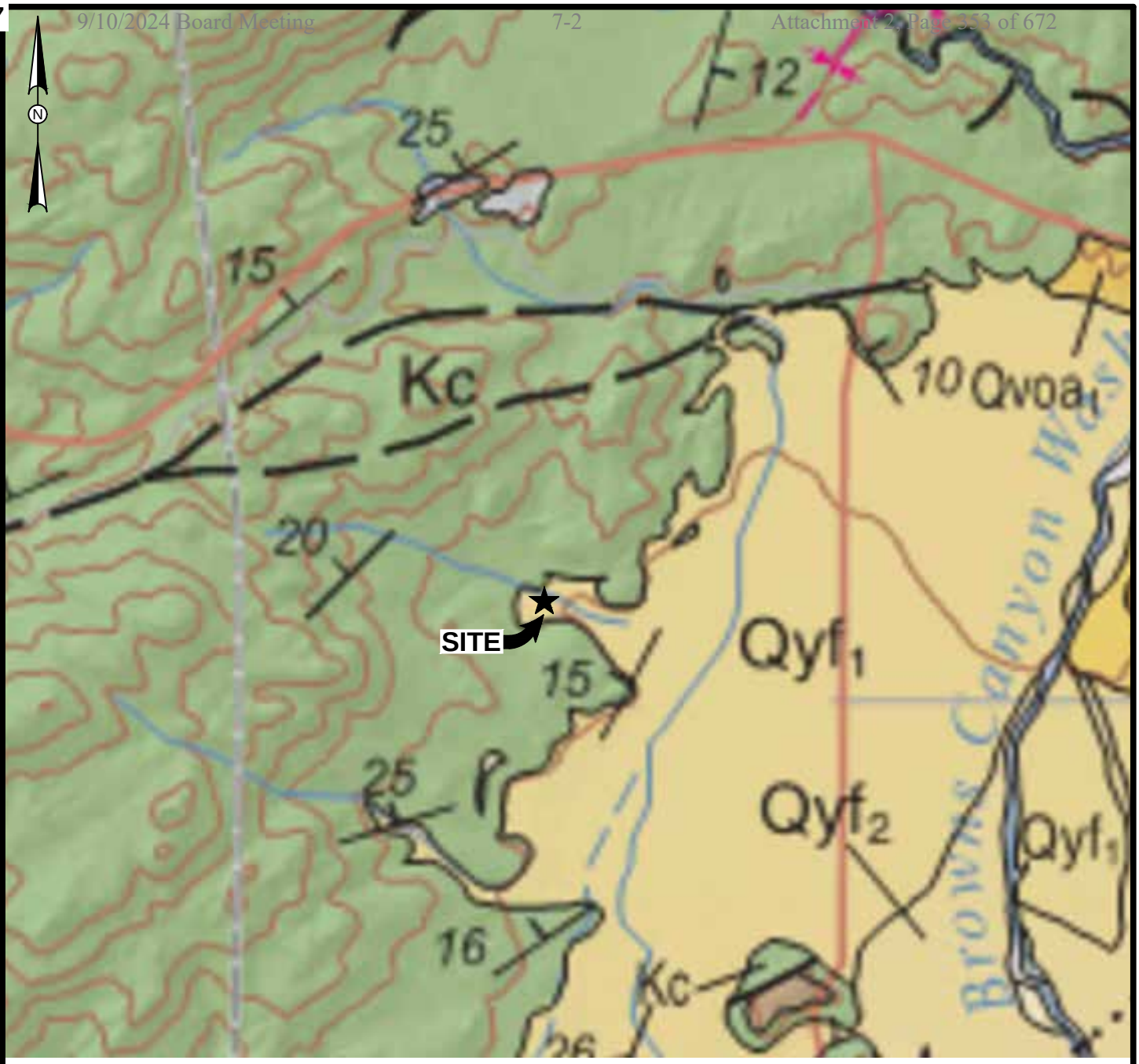
FIELD EXPLORATION LOCATION MAP

WEST VALLEY FEEDER 1 VALVE IMPROVEMENTS
CHATSWORTH, CALIFORNIA

FIGURE 2



SOURCE: PRELIMINARY GEOLOGIC MAP OF THE LOS ANGELES 30'x60' QUADRANGLE, CALIFORNIA VERSION 2.1 COMPILED BY RUSSELL H. CAMPBELL, CHRIS J. WILLIS, PAMELA J. IRVINE, AND BRIAN J. SWANSON, 2014

EXPLANATION

Qyf2	YOUNG ALLUVIAL FAN DEPOSITS, UNIT 2
Qyf1	YOUNG ALLUVIAL FAN DEPOSITS, UNIT 1
Qvoa	VERY OLD ALLUVIUM, UNDIVIDED
Tm	RINCON FORMATION, MARINE SHALE AND MUDSTONE
Kc	CHATSWORTH FORMATION

2,000 1,000 0 2,000

APPROXIMATE SCALE (feet)

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REGIONAL GEOLOGIC MAP

WEST VALLEY FEEDER 1 VALVE IMPROVEMENTS
CHATSWORTH, CALIFORNIA

FIGURE
3

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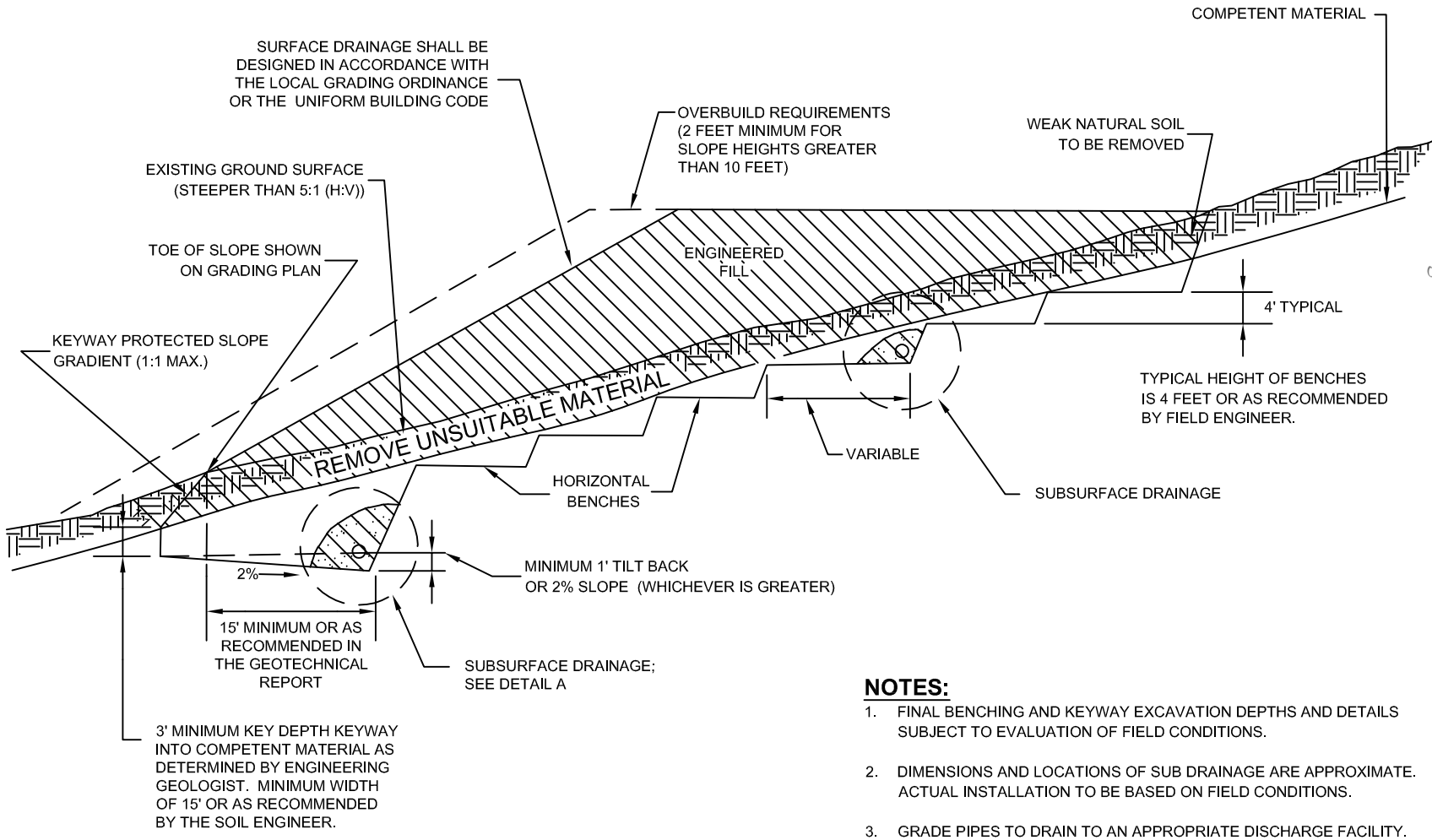
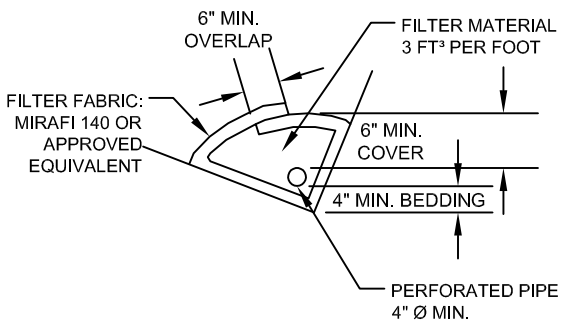


DETAIL A:

PERFORATED PIPE SURROUNDED BY FILTER MATERIAL



FILTER MATERIAL:
3/4" Gravel or an approved alternate.

NOTES:

1. FINAL BENCHING AND KEYWAY EXCAVATION DEPTHS AND DETAILS SUBJECT TO EVALUATION OF FIELD CONDITIONS.
2. DIMENSIONS AND LOCATIONS OF SUB DRAINAGE ARE APPROXIMATE. ACTUAL INSTALLATION TO BE BASED ON FIELD CONDITIONS.
3. GRADE PIPES TO DRAIN TO AN APPROPRIATE DISCHARGE FACILITY.
4. INSTALL CLEANOUTS AT ENDS, ANGLES, AND JUNCTIONS OF PIPE.
5. BENCH SHALL BE REQUIRED WHEN NATURAL SLOPES ARE EQUAL TO OR STEEPER THAN 5:1 OR WHEN RECOMMENDED BY THE SOIL ENGINEER.
6. SUBDRAINAGE: BACK DRAIN REQUIRED AS RECOMMENDED IN THE GEOTECHNICAL REPORT AND VERIFIED IN THE FIELD BY THE GEOTECHNICAL CONSULTANT

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CHECKED BY:	JW
FILE NAME:	20180213_F4.dwg

TYPICAL ENGINEERED FILL SLOPE/BENCHING DETAIL

WEST VALLEY FEEDER 1 VALVE IMPROVEMENTS
CHATSWORTH, CALIFORNIA

FIGURE 4

APPENDIX A
Field Explorations

APPENDIX A

FIELD EXPLORATIONS

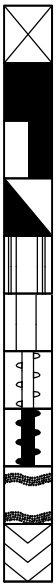
The subsurface exploration program for the proposed project consisted of advancing and logging a total of 5 hollow-stem auger borings. The borings were drilled with a limited access track drill rig equipped with 8-inch diameter hollow-stem augers, provided by 2R Drilling of Chino, California. The approximate locations of the borings are shown on Figure 2, Field Exploration Location Map.

The logs of the borings are presented on Figures A-3 through A-7. An explanation to the logs is presented on Figures A-1 and A-2, Soil Description Key and Graphics Key, respectively. The logs of borings present a description of the earth materials encountered, samples obtained, and show field and laboratory tests performed. The logs also show the boring number, drilling date, boring elevation and the name of the logger and drilling subcontractor. A Kleinfelder staff professional logged the borings utilizing the Unified Soil Classification System. The boundaries between soil types shown on the logs are approximate because the transition between different soil layers and/or bedrock may be gradual. Bulk and drive samples of representative earth materials were obtained from the borings at maximum intervals of approximately 5 feet. With the exception of Boring B-3, the excavated soil cuttings were used to backfill the excavations. In Boring B-3, the boring was backfilled with cement/bentonite grout.

A California sampler was used to obtain relatively undisturbed drive samples of the soil encountered. This sampler consists of a 3 inch O.D., 2.5 inch I.D. split barrel shaft that is driven a total of 18 inches into the soil at the bottom of the boring. The soil was retained in six 1-inch brass rings for laboratory testing. The sampler was driven using a 140-pound automatic hammer falling 30 inches. The total number of hammer blows required to drive the sampler the final 12 inches is termed the blow count and is recorded on the Logs of Borings. Where the sample was driven less than 12 inches, the number of blows to drive the sample for each 6-inch segment, or portion thereof, is shown on the logs.

Bulk samples of the sub-surface soils were directly retrieved from the soil cuttings produced by the auger blades.

SAMPLER AND DRILLING METHOD GRAPHICS



- BULK / GRAB / BAG SAMPLE
- MODIFIED CALIFORNIA SAMPLER (2 or 2-1/2 in. (50.8 or 63.5 mm.) outer diameter)
- CALIFORNIA SAMPLER (3 in. (76.2 mm.) outer diameter)
- STANDARD PENETRATION SPLIT SPOON SAMPLER (2 in. (50.8 mm.) outer diameter and 1-3/8 in. (34.9 mm.) inner diameter)
- HQ CORE SAMPLE (2.500 in. (63.5 mm.) core diameter)
- SHELBY TUBE SAMPLER
- HOLLOW STEM AUGER
- SOLID STEM AUGER
- WASH BORING
- SONIC CONTINUOUS SAMPLER

GROUND WATER GRAPHICS

- WATER LEVEL (level where first observed)
- WATER LEVEL (level after exploration completion)
- WATER LEVEL (additional levels after exploration)
- OBSERVED SEEPAGE

NOTES

- The report and graphics key are an integral part of these logs. All data and interpretations in this log are subject to the explanations and limitations stated in the report.
- Lines separating strata on the logs represent approximate boundaries only. Actual transitions may be gradual or differ from those shown.
- No warranty is provided as to the continuity of soil or rock conditions between individual sample locations.
- Logs represent general soil or rock conditions observed at the point of exploration on the date indicated.
- In general, Unified Soil Classification System designations presented on the logs were based on visual classification in the field and were modified where appropriate based on gradation and index property testing.
- Fine grained soils that plot within the hatched area on the Plasticity Chart, and coarse grained soils with between 5% and 12% passing the No. 200 sieve require dual USCS symbols, ie., GW-GM, GP-GM, GW-GC, GP-GC, GC-GM, SW-SM, SP-SM, SW-SC, SP-SC, SC-SM.
- If sampler is not able to be driven at least 6 inches then 50/X indicates number of blows required to drive the identified sampler X inches with a 140 pound hammer falling 30 inches.

ABBREVIATIONS
WOH - Weight of Hammer
WOR - Weight of Rod

UNIFIED SOIL CLASSIFICATION SYSTEM (ASTM D 2487)

COARSE GRAINED SOILS (More than half of material is larger than the #200 sieve)	**GRAVELS** (More than half of coarse fraction is larger than the #4 sieve)	CLEAN GRAVEL WITH <5% FINES	Cu≥4 and 1≤Cc≤3		**GW**	WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE OR NO FINES
			Cu<4 and/ or 1>Cc>3		**GP**	POORLY GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE OR NO FINES
		GRAVELS WITH 5% TO 12% FINES	Cu≥4 and 1≤Cc≤3		**GW-GM**	WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE FINES
					GW-GC	WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE CLAY FINES
			Cu<4 and/ or 1>Cc>3		**GP-GM**	POORLY GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE FINES
					GP-GC	POORLY GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE CLAY FINES
		GRAVELS WITH > 12% FINES			**GM**	SILTY GRAVELS, GRAVEL-SILT-SAND MIXTURES
					GC	CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES
					GC-GM	CLAYEY GRAVELS, GRAVEL-SAND-CLAY-SILT MIXTURES
	SANDS (More than half of coarse fraction is smaller than the #4 sieve)	CLEAN SANDS WITH <5% FINES	Cu≥6 and 1≤Cc≤3		**SW**	WELL-GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE OR NO FINES
			Cu<6 and/ or 1>Cc>3		**SP**	POORLY GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE OR NO FINES
		SANDS WITH 5% TO 12% FINES	Cu≥6 and 1≤Cc≤3		**SW-SM**	WELL-GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE FINES
					SW-SC	WELL-GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE CLAY FINES
			Cu<6 and/ or 1>Cc>3		**SP-SM**	POORLY GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE FINES
					SP-SC	POORLY GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE CLAY FINES
		SANDS WITH > 12% FINES			**SM**	SILTY SANDS, SAND-GRAVEL-SILT MIXTURES
					SC	CLAYEY SANDS, SAND-GRAVEL-CLAY MIXTURES
					SC-SM	CLAYEY SANDS, SAND-SILT-CLAY MIXTURES

FINE GRAINED SOILS (More than half of material is smaller than the #200 sieve)	SILTS AND CLAYS (Liquid Limit less than 50)	**ML**	INORGANIC SILTS AND VERY FINE SANDS, SILTY OR CLAYEY FINE SANDS, SILTS WITH SLIGHT PLASTICITY
		CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
		CL-ML	INORGANIC CLAYS-SILTS OF LOW PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
		OL	ORGANIC SILTS & ORGANIC SILTY CLAYS OF LOW PLASTICITY
	SILTS AND CLAYS (Liquid Limit greater than 50)	**MH**	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILT
		CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS
		OH	ORGANIC CLAYS & ORGANIC SILTS OF MEDIUM-TO-HIGH PLASTICITY

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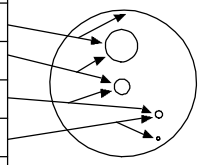
GRAPHICS KEY

West Valley Feeder 1 Valve Improvements
Chatsworth, CA

FIGURE
A-1

GRAIN SIZE

DESCRIPTION		SIEVE SIZE	GRAIN SIZE	APPROXIMATE SIZE
Boulders		>12 in. (304.8 mm.)	>12 in. (304.8 mm.)	Larger than basketball-sized
Cobbles		3 - 12 in. (76.2 - 304.8 mm.)	3 - 12 in. (76.2 - 304.8 mm.)	Fist-sized to basketball-sized
Gravel	coarse	3/4 -3 in. (19 - 76.2 mm.)	3/4 -3 in. (19 - 76.2 mm.)	Thumb-sized to fist-sized
	fine	#4 - 3/4 in. (#4 - 19 mm.)	0.19 - 0.75 in. (4.8 - 19 mm.)	Pea-sized to thumb-sized
Sand	coarse	#10 - #4	0.079 - 0.19 in. (2 - 4.9 mm.)	Rock salt-sized to pea-sized
	medium	#40 - #10	0.017 - 0.079 in. (0.43 - 2 mm.)	Sugar-sized to rock salt-sized
	fine	#200 - #40	0.0029 - 0.017 in. (0.07 - 0.43 mm.)	Flour-sized to sugar-sized
Fines		Passing #200	<0.0029 in. (<0.07 mm.)	Flour-sized and smaller



SECONDARY CONSTITUENT

	AMOUNT	
Term of Use	Secondary Constituent is Fine Grained	Secondary Constituent is Coarse Grained
Trace	<5%	<15%
With	≥5 to <15%	≥15 to <30%
Modifier	≥15%	≥30%

MOISTURE CONTENT

DESCRIPTION	FIELD TEST
Dry	Absence of moisture, dusty, dry to the touch
Moist	Damp but no visible water
Wet	Visible free water, usually soil is below water table

CEMENTATION

DESCRIPTION	FIELD TEST
Weakly	Crumbles or breaks with handling or slight finger pressure
Moderately	Crumbles or breaks with considerable finger pressure
Strongly	Will not crumble or break with finger pressure

CONSISTENCY - FINE-GRAINED SOIL

CONSISTENCY	SPT - N_{60} (# blows / ft)	Pocket Pen (tsf)	UNCONFINED COMPRESSIVE STRENGTH (Q_u)(psf)	VISUAL / MANUAL CRITERIA
Very Soft	<2	PP < 0.25	<500	Thumb will penetrate more than 1 inch (25 mm). Extrudes between fingers when squeezed.
Soft	2 - 4	0.25≤ PP <0.5	500 - 1000	Thumb will penetrate soil about 1 inch (25 mm). Remolded by light finger pressure.
Medium Stiff	4 - 8	0.5≤ PP <1	1000 - 2000	Thumb will penetrate soil about 1/4 inch (6 mm). Remolded by strong finger pressure.
Stiff	8 - 15	1≤ PP <2	2000 - 4000	Can be imprinted with considerable pressure from thumb.
Very Stiff	15 - 30	2≤ PP <4	4000 - 8000	Thumb will not indent soil but readily indented with thumbnail.
Hard	>30	4≤ PP	>8000	Thumbnail will not indent soil.

FROM TERZAGHI AND PECK, 1948; LAMBE AND WHITMAN, 1969; FHWA, 2002; AND ASTM D2488

REACTION WITH HYDROCHLORIC ACID

DESCRIPTION	FIELD TEST
None	No visible reaction
Weak	Some reaction, with bubbles forming slowly
Strong	Violent reaction, with bubbles forming immediately

APPARENT / RELATIVE DENSITY - COARSE-GRAINED SOIL

APPARENT DENSITY	SPT-N_{60} (# blows/ft)	MODIFIED CA SAMPLER (# blows/ft)	CALIFORNIA SAMPLER (# blows/ft)	RELATIVE DENSITY (%)
Very Loose	<4	<4	<5	0 - 15
Loose	4 - 10	5 - 12	5 - 15	15 - 35
Medium Dense	10 - 30	12 - 35	15 - 40	35 - 65
Dense	30 - 50	35 - 60	40 - 70	65 - 85
Very Dense	>50	>60	>70	85 - 100

FROM TERZAGHI AND PECK, 1948

PLASTICITY

DESCRIPTION	LL	FIELD TEST
Non-plastic	NP	A 1/8-in. (3 mm.) thread cannot be rolled at any water content.
Low (L)	< 30	The thread can barely be rolled and the lump or thread cannot be formed when drier than the plastic limit.
Medium (M)	30 - 50	The thread is easy to roll and not much time is required to reach the plastic limit. The thread cannot be rerolled after reaching the plastic limit. The lump or thread crumbles when drier than the plastic limit.
High (H)	> 50	It takes considerable time rolling and kneading to reach the plastic limit. The thread can be rerolled several times after reaching the plastic limit. The lump or thread can be formed without crumbling when drier than the plastic limit.

STRUCTURE

DESCRIPTION	CRITERIA
Stratified	Alternating layers of varying material or color with layers at least 1/4-in. thick, note thickness.
Laminated	Alternating layers of varying material or color with the layer less than 1/4-in. thick, note thickness.
Fissured	Breaks along definite planes of fracture with little resistance to fracturing.
Slickensided	Fracture planes appear polished or glossy, sometimes striated.
Blocky	Cohesive soil that can be broken down into small angular lumps which resist further breakdown.
Lensed	Inclusion of small pockets of different soils, such as small lenses of sand scattered through a mass of clay; note thickness.

ANGULARITY

DESCRIPTION	CRITERIA
Angular	Particles have sharp edges and relatively plane sides with unpolished surfaces.
Subangular	Particles are similar to angular description but have rounded edges.
Subrounded	Particles have nearly plane sides but have well-rounded corners and edges.
Rounded	Particles have smoothly curved sides and no edges.

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SOIL DESCRIPTION KEY

West Valley Feeder 1 Valve Improvements
Chatsworth, CA

FIGURE

A-2

BORING LOG B-1

Date Begin - End:	1/30/2018	**Drilling Company:**	2R Drilling		
Logged By:	C.Coffey	**Drill Crew:**	Jeff		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-75 Track Mounted	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Party Cloudy/Mid 80s	**Exploration Diameter:**	8 in. O.D.		

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Approximate Ground Surface Elevation (ft.): 1,034.00 Surface Condition: Gravel											
			Fill **Silty SAND (SM)**: fine-grained, pale olive brown, dry, some medium sand, subangular											hand auger to 0.5 feet, refusal at 0.5 feet due to very dense soil/bedrock
			Bedrock: Chatsworth Fm. (Kc) **SANDSTONE**: fine to medium-grained, yellowish brown (10YR-3/6), dry to moist, very dense, excavates as silty sand (SM) with gravel with fine to medium gravel (0.5 to .75 inch)		BC=50/2"			3.6	104.3					
1030	5				BC=50/5"									direct shear test
1025	10		excavates as silty sand (SM), fine grained, some fine gravel, subangular, slightly friable		BC=50/1"			4.4	104.4					hard drilling
1020	15													
1015	20													
1010														

The boring was terminated at approximately 11.5 ft. below ground surface. The boring was backfilled with soil on January 30, 2018.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.
GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Kleinfelder.

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PROJECT NO.:	20174481
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CHECKED BY:	JW
DATE:	3/1/2018
REVISED:	-

BORING LOG B-1

West Valley Feeder 1 Valve Improvements
Chatsworth, CA

FIGURE
A-3

BORING LOG B-2

Date Begin - End:	1/30/2018	**Drilling Company:**	2R Drilling		
Logged By:	C.Coffey	**Drill Crew:**	Jeff		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-75 Track Mounted	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Party Cloudy/Mid 80s	**Exploration Diameter:**	8 in. O.D.		

Approximate Ground Surface Elevation (ft.): 1,018.00
Surface Condition: Asphalt

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Asphalt: 3-inches					7.0						Hand auger to 5 feet
			Base: 8-inches											
1015			**Alluvium** **Silty SAND (SM)**: fine-grained, dark yellowish brown (10YR-3/8), dry to moist, some medium sand, subangular to angular											corrosion test
	5		**Bedrock:Chatsworth Fm. (Kc)** **SANDSTONE**: fine-grained, yellowish brown (10YR 3/4) to very dark brown (10YR-2/2), moist, very dense, excavates as well-graded sand with silt (SW-SM)		BC=7 50/5"		SP-SM	12.2	114.2	100	11			
1010														hard drilling
	10		yellowish brown (10YR-3/4), excavates as silty sand (SM)		BC=50/3"									
1005														
	15		fine to medium-grained, light brownish gray (10YR-6/4), excavates as poorly graded sand with Gravel (SP), fine to medium (up to 1.5-inch) angular gravel		BC=50/2"									
1000														
	20													
995														

The boring was terminated at approximately 16.5 ft. below ground surface. The boring was backfilled with soil on January 30, 2018.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.
GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Kleinfelder.

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DATE:	3/1/2018
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BORING LOG B-2

West Valley Feeder 1 Valve Improvements
Chatsworth, CA

FIGURE
A-4

BORING LOG B-3

Date Begin - End:	1/30/2018	**Drilling Company:**	2R Drilling		
Logged By:	C.Coffey	**Drill Crew:**	Jeff		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-75 Track Mounted	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Party Cloudy/Mid 80s	**Exploration Diameter:**	8 in. O.D.		

Approximate Ground Surface Elevation (ft.): 996.00
Surface Condition: Soil

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
995			**Alluvium** **Silty SAND (SM)**: fine-grained, yellowish brown (10YR-5/6), dry to moist, very dense, weak to medium cemented					6.3						hand auger to 5 feet R-Value test
					BC=30 50/6"			6.7	113.3	100	40			
	5		becomes yellow (2.5Y-7/6) weakly cemented		BC=22 19 32									
990														
	10		increase in fines, becomes moist, olive brown (2.5Y-4/3)		BC=12 25 32									
985			becomes medium dense											
	15				BC=10 15 15									
980														
	20													
975														

The boring was terminated at approximately 16.5 ft. below ground surface. The boring was backfilled with cement/bentonite grout on January 30, 2018.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.
GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Kleinfelder.

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PROJECT NO.:	20174481
DRAWN BY:	CC
CHECKED BY:	JW
DATE:	3/1/2018
REVISED:	-

BORING LOG B-3

West Valley Feeder 1 Valve Improvements
Chatsworth, CA

FIGURE
A-5

BORING LOG B-4

Date Begin - End:	1/30/2018	**Drilling Company:**	2R Drilling		
Logged By:	C.Coffey	**Drill Crew:**	Jeff		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-75 Track Mounted	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Party Cloudy/Mid 80s	**Exploration Diameter:**	8 in. O.D.		

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			FIELD EXPLORATION				LABORATORY RESULTS							
			Approximate Ground Surface Elevation (ft.): 1,021.00 Surface Condition: Soil											
1020			**Alluvium** **Sandy Lean CLAY (CL)**: low plasticity, dark yellowish brown (10YR-3/4), dry, fine sand					6.4		100	58			Hand auger to 5 feet, medium to hard hand augering
1015	5		**Bedrock: Chatsworth FM (Kc)** **SANDSTONE**: fine-grained, very pale brown (10YR-7/4), dry, very dense, excavates as silty sand (SM), slightly friable		BC=26 34 40									direct shear test
1010	10				BC=50/5"			6.0	111.2					
1005	15				BC=50/2"									
1000	20													

The boring was terminated at approximately 16.5 ft. below ground surface. The boring was backfilled with soil on January 30, 2018.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.
GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Kleinfelder.

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BORING LOG B-4

West Valley Feeder 1 Valve Improvements
Chatsworth, CA

FIGURE
A-6

BORING LOG B-5

Date Begin - End:	1/30/2018	**Drilling Company:**	2R Drilling		
Logged By:	C.Coffey	**Drill Crew:**	Jeff		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-75 Track Mounted	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Party Cloudy/Mid 80s	**Exploration Diameter:**	8 in. O.D.		

Approximate Ground Surface Elevation (ft.): 1,116.00
Surface Condition: Soil

Approx. Elevation (ft)	Depth (ft)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
1115			**Fill** **Poorly Graded SAND with Silt (SP-SM)**: fine-grained, dark yellowish brown (10YR-4/4), dry, dense, moderately cemented					6.4						hand auger to 0.5 feet, hand auger refusal at 0.5 feet due to dense bedrock/sandstone compaction test
			Bedrock: Chatsworth Fm. (Kc) **SANDSTONE**: dark yellowish brown (10YR-4/4), very dense, excavates as silty sand with gravel (SM)		BC=16 22 30			6.1	118.3	79	17			R-Value test
1110	5				BC=8 12 50/5"									
1105	10		weakly cemented, increase in fines		BC=50/3"			5.8	98.0					hard drilling
1100	15		excavates as silty sand (SM), moderately cemented		BC=50/2"									disturbed sample
1095	20		moderately cemented		BC=50/2"									disturbed sample

The boring was terminated at approximately 21.5 ft. below ground surface. The boring was backfilled with soil on January 30, 2018.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Kleinfelder.

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PROJECT NO.:	20174481
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REVISED:	-

BORING LOG B-5

West Valley Feeder 1 Valve Improvements
Chatsworth, CA

FIGURE
A-7

APPENDIX B

LABORATORY TESTING

GENERAL

Laboratory tests were performed on selected samples as an aid in classifying the soils and to evaluate physical properties of the soils that may affect foundation design and construction procedures. The tests were performed in general conformance with the current ASTM or California Department of Transportation (Caltrans) standards. A description of the laboratory-testing program is presented below.

Laboratory tests were performed on representative relatively undisturbed and bulk soil samples to estimate engineering characteristics of the various earth materials encountered. Testing was performed in accordance with one of the following references:

1. Lambe, T. William, Soil Testing for Engineers, Wiley, New York, 1951.
2. Laboratory Soils Testing, U.S. Army, Office of the Chief of Engineers, Engineering Manual No. 1110-2-1906, November 30, 1970.
3. ASTM Standards for Soil Testing, latest revisions.
4. State of California Department of Transportation, Standard Test Methods, latest revisions.

LABORATORY MOISTURE AND DENSITY DETERMINATIONS

Natural moisture content and dry density tests were performed on selected soil samples collected. Moisture content was evaluated in general accordance with ASTM Test Method D 2216; dry unit weight was evaluated using procedures similar to ASTM Test Method D 2937. The results are presented on the Logs of Borings and are summarized in Table B-1, Moisture Content and Unit Weight.

SIEVE AND HYDROMETER ANALYSIS

Sieve analyses were performed on four samples and Hydrometer Analysis was performed on one sample of the materials encountered at the site to evaluate the grain size distribution characteristics of the soils and to aid in their classification. The tests were performed in general

accordance with ASTM Test Method D 422. The test results are presented as Figures B-1 and B-2, Grain Size Distribution Curve.

DIRECT SHEAR

Direct shear testing was conducted on five samples to evaluate the shear strength parameters of representative on-site soils. The samples from B-1 and B-5 was taken from a bulk sample and remolded to 90% relative compaction for the test. Each sample was tested in a saturated state in general accordance with ASTM Test Method D3080-90. The test results are presented on Figure B-3 through B-7, Direct Shear Test.

EXPANSION INDEX

Expansion index testing was performed on a sample of the subsurface soils to evaluate their expansion characteristics. The test was performed in accordance with UBC Standard No. 18-2, Expansion Index Test Method. The test result is presented on Table B-2, Expansion Index Test Result and may be compared to the table presented below to qualitatively evaluate the expansion potential of the near-surface site soils.

Expansion Index	Potential Expansion
0-20	Very Low
21-50	Low
51-90	Medium
91-130	High
Above 130	Very High

MAXIMUM DENSITY/OPTIMUM MOISTURE TEST

Four maximum density/optimum moisture tests were performed on select bulk samples of the on-site soils to determine compaction characteristics. The tests were performed in accordance with ASTM Standard Test Method D-1557-91. The test results are presented in Table B-3, Maximum Density / Optimum Moisture Test Results.

R-VALUE TEST

Three resistance value (R-value) tests were performed to evaluate support characteristics of the near-surface onsite soils. R-value testing was performed in accordance with Caltrans Standard Test Method 301. The test results are presented in Table B-4, R-Value Test Results.

PRELIMINARY CORROSIVITY TESTS

A series of chemical tests were performed on two representative soil samples collected from the borings to estimate pH, sulfate content, chloride content, and electrical resistivity. The test results may be used by a qualified corrosion engineer to evaluate the general corrosion potential with respect to the construction materials. The results of the tests are presented in Table B-5, Preliminary Corrosion Test Results.

Table B-1

Moisture Content and Unit Weight

Boring	Depth (ft)	Moisture Content (%)	Dry Unit Weight (pcf)
B-1	2	3.6	104.3
B-1	10	4.4	104.4
B-2	0 – 5	7.0	--
B-2	5	12.2	114.2
B-2	10	10.1	106.3
B-3	0 – 5	6.3	--
B-3	2	6.7	113.3
B-3	5	5.0	104.9
B-4	0 – 5	6.4	--
B-4	10	6.0	111.2
B-5	0 – 5	6.4	--
B-5	2	6.1	118.3
B-5	10	5.8	98.0

– denotes dry unit weight test was not performed due to sample type

Table B-2

Expansion Index Test Result

Boring	Depth (ft)	Expansion Index	Expansion Potential
B-4	0 – 5	56	Medium

Table B-3
Maximum Density/Optimum Moisture Test Results

Boring	Depth (ft)	Maximum Density (pcf)	Optimum Moisture (%)
B – 1	0 – 5	128.6	8.2
B – 5	0 – 5	130.3	8.2

Table B-4

R-Value Test Results

Boring	Approximate Depth (ft)	R-Value
B – 3	0 – 5	19
B – 5	0 – 5	29

Table B-5

Preliminary Corrosion Test Results

Boring	Depth (ft)	pH	Sulfate (ppm)	Chloride (ppm)	Resistivity (ohm-cm)
B – 2	0 – 5	8.3	1981	55	48

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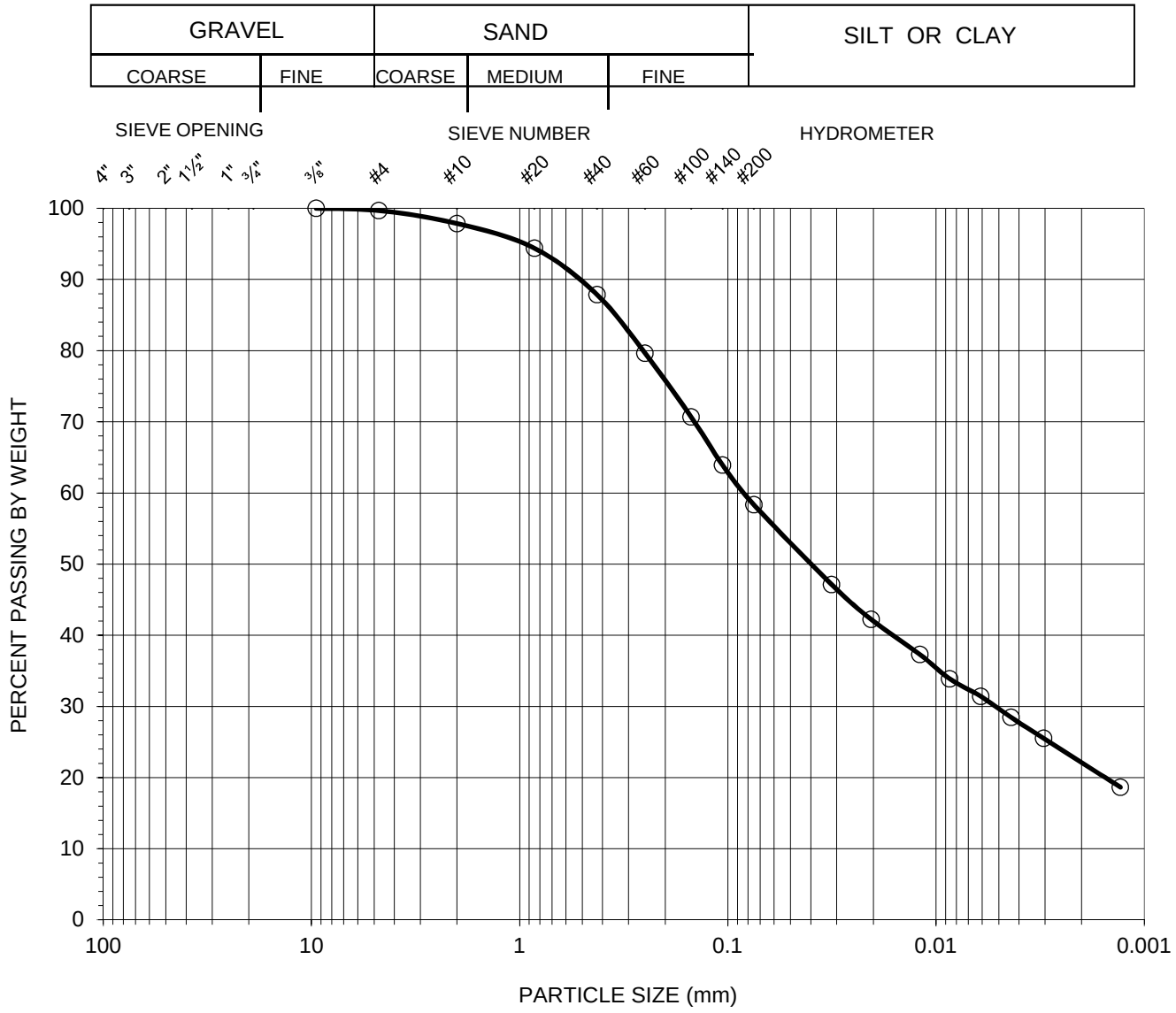
Figure B-1

GRAIN SIZE DISTRIBUTION CURVE
ASTM D 6913 & D 7928

Client Name:	Kleinfelder	Tested by:	JT	Date:	02/09/18
Project Name:	Municipal Water District - West Valley Feeder	Computed by:	JP	Date:	02/09/18
Project Number:	20180213.002A	Checked by:	AP	Date:	02/09/18



Symbol	Boring No.	Sample No.	Sample Depth (feet)	Percent			Atterberg Limits LL:PL:PI	Soil Type U.S.C.S
				Gravel	Sand	Silt & Clay		
○	B-4	1	0-5	0	42	58	N/A	CL*

**Note: Based on visual classification of sample*

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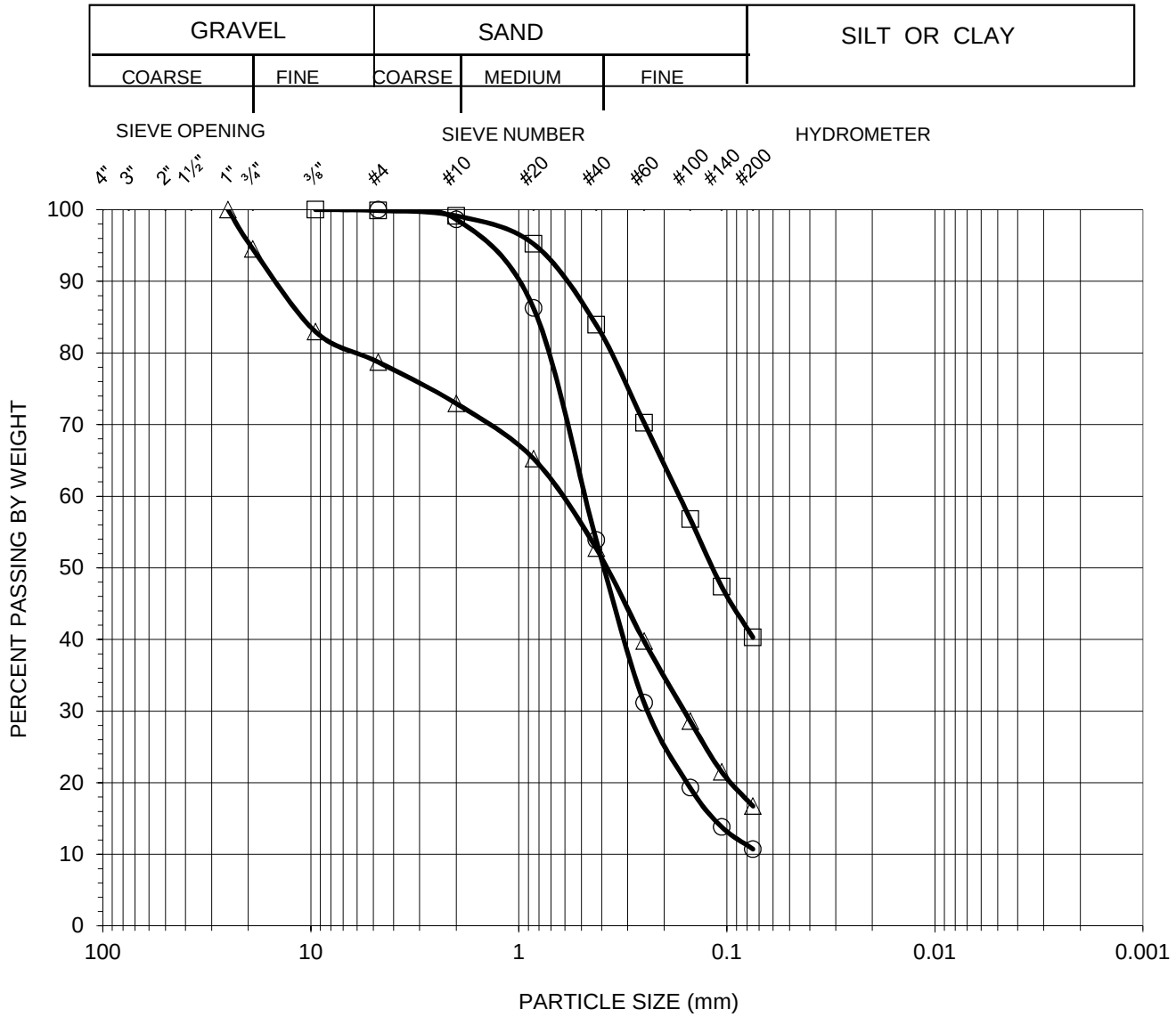
Figure B-2

GRAIN SIZE DISTRIBUTION CURVE
ASTM D 6913

Client Name:	Kleinfelder	Tested by:	JT	Date:	02/09/18
Project Name:	Municipal Water District - West Valley Feeder	Computed by:	JP	Date:	02/09/18
Project Number:	20180213.002A	Checked by:	AP	Date:	02/09/18



Symbol	Boring No.	Sample No.	Sample Depth (feet)	Percent			Atterberg Limits LL:PL:PI	Soil Type U.S.C.S
				Gravel	Sand	Silt & Clay		
○	B-2	2	5	0	89	11	N/A	SW-SM
□	B-3	2	2	0	60	40	N/A	SC*
△	B-5	2	2	21	62	17	N/A	SM

**Note: Based on visual classification of sample*

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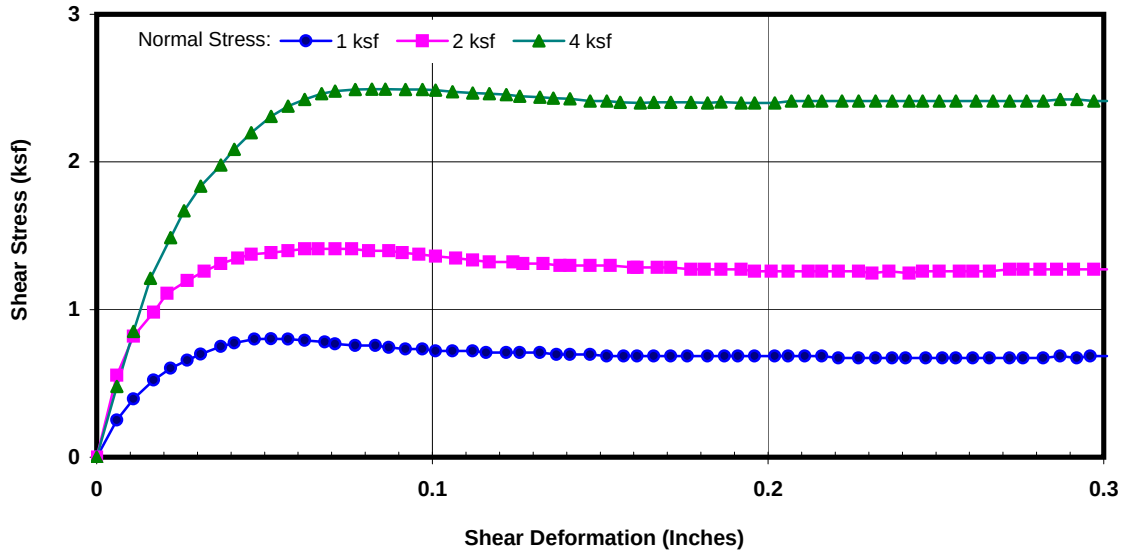
Figure B-3

DIRECT SHEAR TEST RESULTS
ASTM D 3080

Project Name:	Municipal Water District - West Valley Feeder		**Tested By:**	LS	**Date:** 02/26/18
Project No.:	20180213.002A		**Computed By:**	JP	**Date:** 02/27/18
Boring No.:	B-1		**Checked by:**	AP	**Date:** 02/27/18
Sample No.:	1	**Depth (ft):** 0-5			
Sample Type:	Remolded to 90% RC at opt. MC				
Soil Description:	Silty Sand				
Test Condition:	Inundated	**Shear Type:** Regular			

Wet Unit Weight (pcf)	Dry Unit Weight (pcf)	Initial Moisture Content (%)	Final Moisture Content (%)	Initial Degree Saturation (%)	Final Degree Saturation (%)	Normal Stress (ksf)	Peak Shear Stress (ksf)	Ultimate Shear Stress (ksf)
125.6	115.7	8.5	15.3	50	90	1	0.802	0.684
						2	1.411	1.273
						4	2.493	2.412



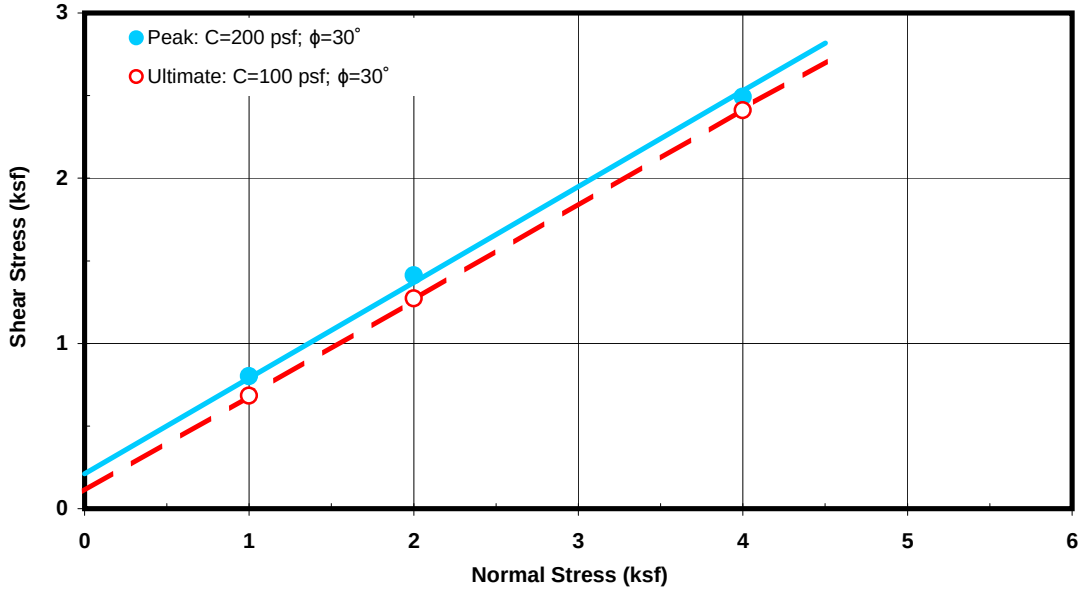


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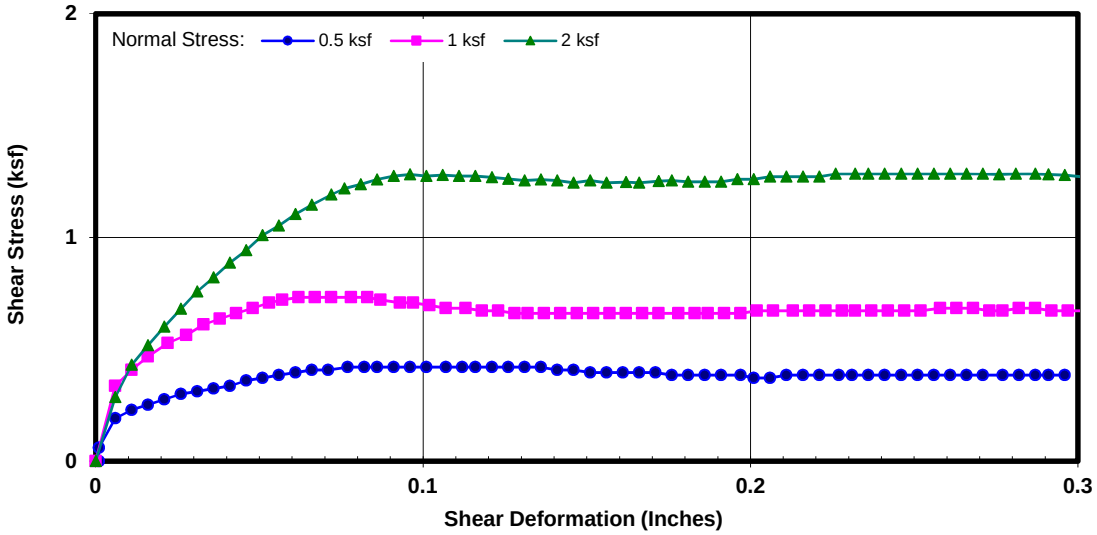
Figure B-4

DIRECT SHEAR TEST RESULTS
ASTM D 3080

Project Name:	Municipal Water District - West Valley Feeder		**Tested By:**	ST	**Date:** 02/06/18
Project No.:	20180213.002A		**Computed By:**	JP	**Date:** 02/07/18
Boring No.:	B-1		**Checked by:**	AP	**Date:** 02/09/18
Sample No.:	3	**Depth (ft):** 5			
Sample Type:	Mod. Cal.				
Soil Description:	Silty Sand				
Test Condition:	Inundated	**Shear Type:** Regular			

Wet Unit Weight (pcf)	Dry Unit Weight (pcf)	Initial Moisture Content (%)	Final Moisture Content (%)	Initial Degree Saturation (%)	Final Degree Saturation (%)	Normal Stress (ksf)	Peak Shear Stress (ksf)	Ultimate Shear Stress (ksf)
112.5	107.6	4.6	18.9	22	90	0.5	0.420	0.384
						1	0.732	0.672
						2	1.284	1.272



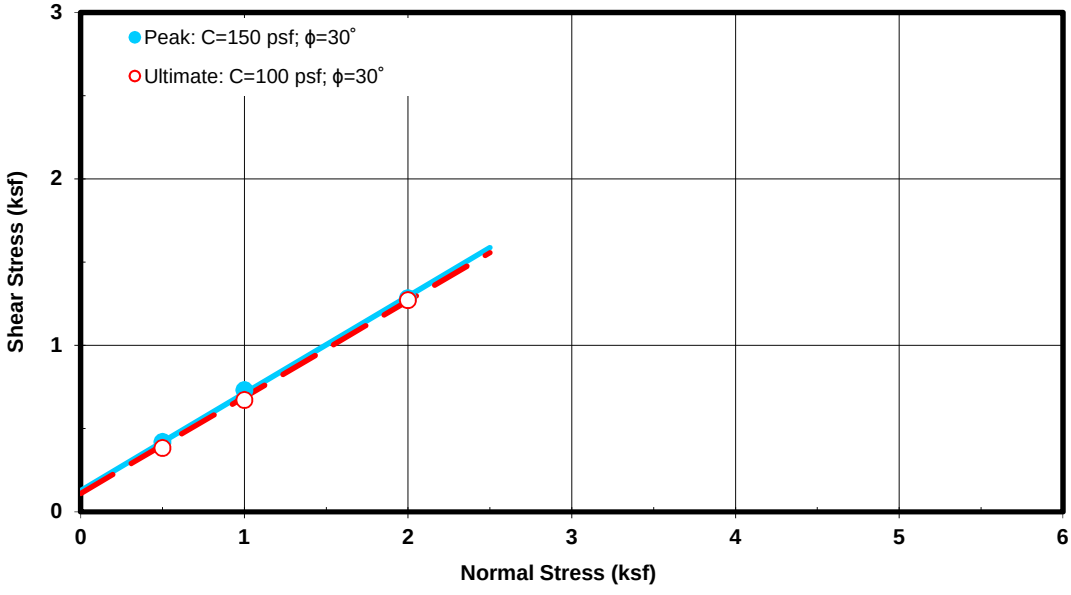


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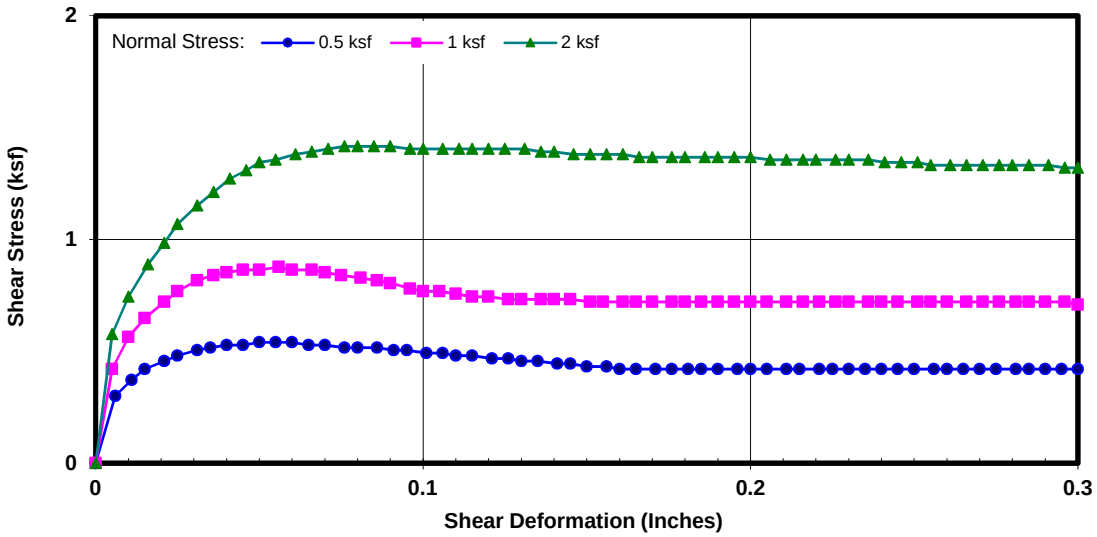
Figure B-5

DIRECT SHEAR TEST RESULTS
ASTM D 3080

Project Name:	Municipal Water District - West Valley Feeder		**Tested By:**	ST	**Date:** 02/06/18
Project No.:	20180213.002A		**Computed By:**	JP	**Date:** 02/07/18
Boring No.:	B-4		**Checked by:**	AP	**Date:** 02/09/18
Sample No.:	2	**Depth (ft):** 5			
Sample Type:	Mod. Cal.				
Soil Description:	Silty Sand, fine-grained				
Test Condition:	Inundated	**Shear Type:** Regular			

Wet Unit Weight (pcf)	Dry Unit Weight (pcf)	Initial Moisture Content (%)	Final Moisture Content (%)	Initial Degree Saturation (%)	Final Degree Saturation (%)	Normal Stress (ksf)	Peak Shear Stress (ksf)	Ultimate Shear Stress (ksf)
121.5	115.2	5.5	17.0	32	99	0.5	0.540	0.420
						1	0.876	0.708
						2	1.416	1.320



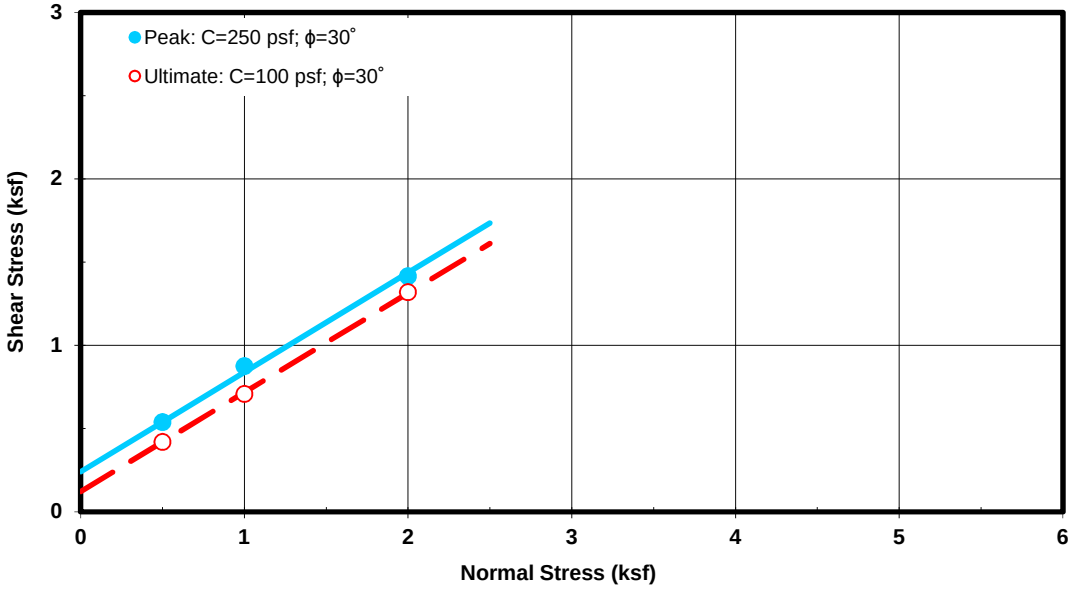


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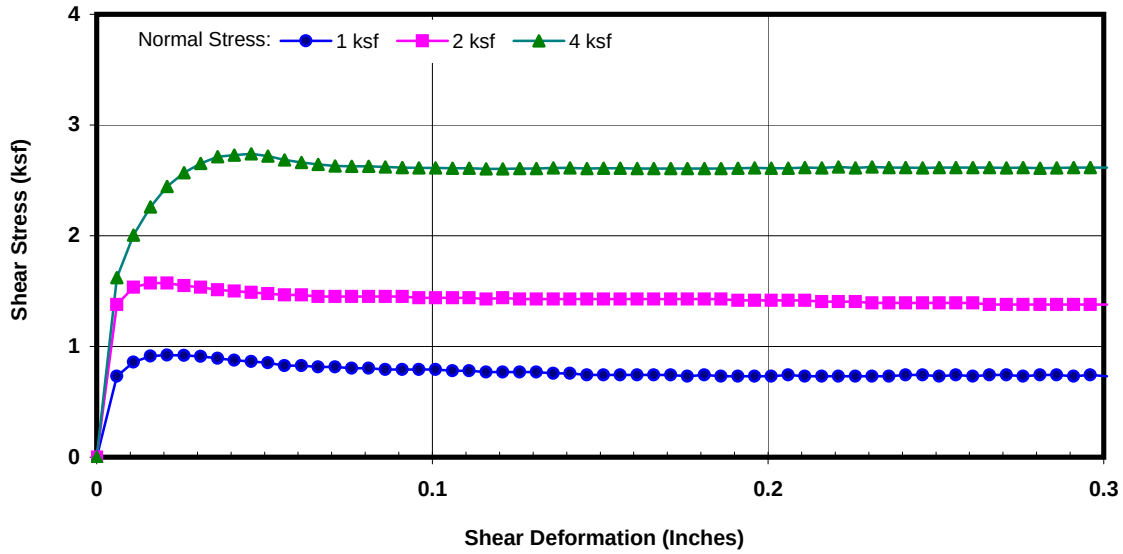
Figure B-6

DIRECT SHEAR TEST RESULTS
ASTM D 3080

Project Name:	Municipal Water District - West Valley Feeder		**Tested By:**	LS	**Date:** 02/26/18
Project No.:	20180213.002A		**Computed By:**	JP	**Date:** 02/27/18
Boring No.:	B-5		**Checked by:**	AP	**Date:** 02/27/18
Sample No.:	1	**Depth (ft):** 0-5			
Sample Type:	Remolded to 90% RC at opt. MC				
Soil Description:	Silty Sand				
Test Condition:	Inundated	**Shear Type:** Regular			

Wet Unit Weight (pcf)	Dry Unit Weight (pcf)	Initial Moisture Content (%)	Final Moisture Content (%)	Initial Degree Saturation (%)	Final Degree Saturation (%)	Normal Stress (ksf)	Peak Shear Stress (ksf)	Ultimate Shear Stress (ksf)
126.6	117.3	7.9	14.6	49	90	1	0.923	0.732
						2	1.572	1.380
						4	2.739	2.616



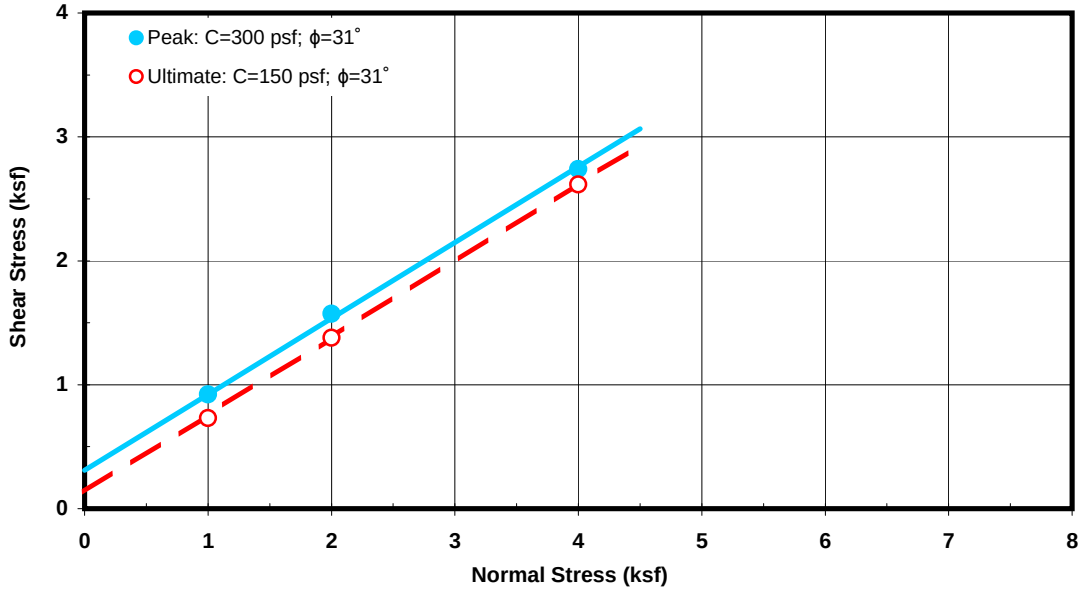


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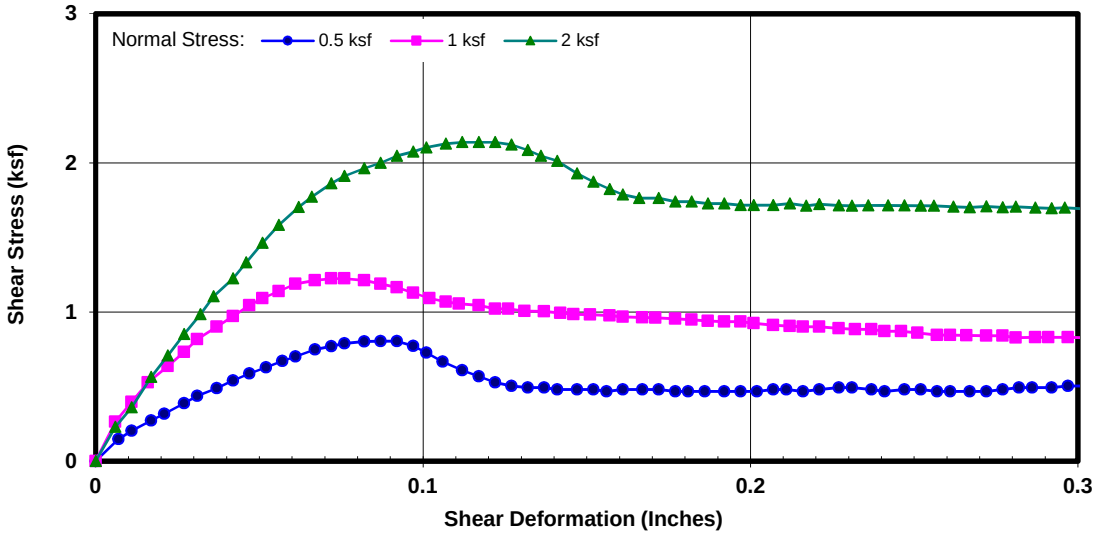
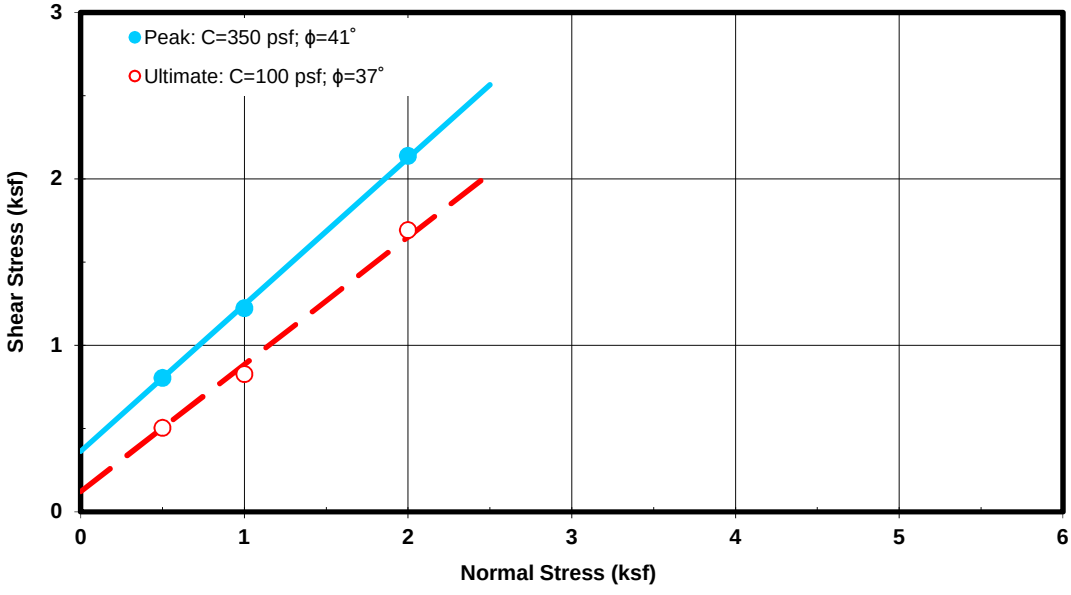
Figure B-7

DIRECT SHEAR TEST RESULTS
ASTM D 3080

Project Name:	Municipal Water District - West Valley Feeder		**Tested By:**	ST	**Date:** 02/06/18
Project No.:	20180213.002A		**Computed By:**	JP	**Date:** 02/07/18
Boring No.:	B-5		**Checked by:**	AP	**Date:** 02/09/18
Sample No.:	3	**Depth (ft):** 5			
Sample Type:	Mod. Cal.				
Soil Description:	Silty Sand				
Test Condition:	Inundated	**Shear Type:** Regular			

Wet Unit Weight (pcf)	Dry Unit Weight (pcf)	Initial Moisture Content (%)	Final Moisture Content (%)	Initial Degree Saturation (%)	Final Degree Saturation (%)	Normal Stress (ksf)	Peak Shear Stress (ksf)	Ultimate Shear Stress (ksf)
125.0	118.2	5.7	15.5	36	98	0.5	0.804	0.504
						1	1.224	0.828
						2	2.138	1.692





APPENDIX C
Seismic Refraction Survey Report

ADVANCED GEOSCIENCE, INC.
Geology and Geophysics
Subsurface Exploration Non-Destructive Evaluation

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Torrance, California
90505 USA
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Fax (310) 872-5323
www.AdvancedGeoscience.com

February 6, 2018
via. Email (4 pages + Attachments)

Kleinfelder, Inc.
2280 Market Street
Suite 300
Riverside, California 92501

Attention: Mr. Richard Escandon, PG, CEG

Re: **Summary Report**
Seismic Refraction Survey for Bedrock Investigation
At MWD West Valley Feeders
Chatsworth, California

1.0 INTRODUCTION

This report summarizes the seismic refraction survey completed by Advanced Geoscience, Inc. at referenced site. This survey recorded the arrival times of seismic waves generated at the ground surface to prepare subsurface seismic velocity profiles for investigation of bedrock structure and rippability. The survey was performed along seismic survey lines positioned across the area shown on the site map in Figure 1 where grading is proposed for a future road.

The seismic refraction tomography data were recorded by Advanced Geoscience during a one-day field program completed on January 11, 2018. The data were recorded along two survey lines designated as Lines 1 and 2 (Figure 1). The data underwent computer processing to prepare 2D subsurface profiles showing seismic compressional-wave velocity layering in the upper 40 feet.

The following sections of this report provide a summary of our field survey procedures and methods of data processing and evaluation. A concluding section discusses the results of this seismic velocity profiling and compares these estimated subsurface velocities to the range of rippabilty for various Caterpillar ripping equipment.

2.0 FIELD SURVEY

Advanced Geoscience set up two survey lines designated as Lines 1 and 2. Line 1 was positioned across the proposed grading area along a south-to-north traverse extending across a hillside (Figure 1). Line 2 was positioned along a northwest-to-southeast traverse along a trail leading to Line 1. Both survey lines were positioned along straight-line traverses set up to avoid the heavier brush.

The seismic data were recorded using a multi-channel Seistronix EX-6 data acquisition system. This recording system was connected to geophones (seismic motion detectors) positioned in the ground at 10-foot intervals along the survey lines. Lines 1 and 2 were both set up with 21 geophones to provide a total line length of 200 feet. The geophones were 4-Hertz (lower-cutoff frequency), vertically-aligned velocity transducers.

The refraction data were recorded from eleven seismic energy "source points" positioned along each survey line. The source points started 5 feet off the first geophone position and continued at 20 to 30-foot intervals between the geophone positions. The last source point was positioned 5 feet off the last geophone position.

The seismic energy was generated using a 20-pound sledge hammer. The sledge hammer was used to make three impacts on a metal plate placed on the ground surface. At each source point, the recordings from the impacts were summed together to increase the amplitude of the seismic wave arrivals.

The positions of Lines 1 and 2 were marked by stakes placed at the end points of the lines and various breaks in the topography along the lines. The Metropolitan Water District (MWD) later arranged for a survey crew to measure the coordinates and elevations of these stakes.

3.0 DATA PROCESSING AND EVALUATION

The seismic data quality was good and adequate for the purposes of this investigation. The field records showed seismic wave arrivals from subsurface refraction events at all of the geophone positions.

The field records were input into the RAYFRACT seismic refraction tomography software developed by Intelligent Resources, Inc. (www.rayfract.com). RAYFRACT was used to generate seismic compressional-wave velocity profiles. This refraction tomography modeling procedure is generally more capable of imaging sharper lateral velocity variations due to bedrock structure than other refraction data modeling methods.

RAYFRACT was first used to graphically pick first arrival times ("first breaks") for refracted waves traveling through the surface layer and into deeper higher-velocity layers. These time-distance data were used together with the geophone coordinates and elevations to conduct refraction tomography imaging of the subsurface seismic velocity layering. RAYFRACT first used the Delta TV (turning ray-based) method to generate an initial 2D velocity-depth model. This initial model was then refined to produce a closer fit to the arrival time data using the Wavepath Eikonal Traveltime (WET) tomographic inversion method with 25 iterations with a maximum velocity 3,500 m/sec. The best-fit velocity-depth models were then gridded and color contoured with SURFER (written by Golden Software, Inc.) to show estimated vertical and lateral velocity variations.

Figures 2 and 3 show the resulting seismic compressional-wave velocity profiles for Lines 1 and 2.

4.0 DISCUSION OF RESULTS

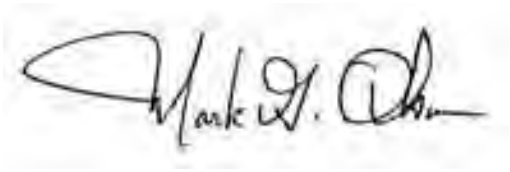
The seismic compressional-wave velocity profiles for Lines 1 and 2 show 2,000 ft/sec or lower velocity layering in the upper 5 to 10 feet below ground surface (BGS). The materials in this depth interval are mostly colluvial soils and unconsolidated, decomposed bedrock. Below this depth the 3,000+ ft/sec velocity layering probably represents the upper weathered surface of the intact bedrock, which is mapped in this area as the late Cretaceous, Chatsworth Formation sandstone (reference: Preliminary Geologic Map of Los Angeles Quadrangle, USGS Open-File Report 2005-1019). Below this depth the bedrock velocities increase. Line 1 shows bedrock velocities as high as 8,000 ft/sec at the 40-foot depth level. Line 2 shows lower velocities in the range 5,000 to 5,500 ft/sec at the 40-foot depth level.

We understand that the depth of grading for the proposed road in this area is less than 20 feet BGS. The seismic velocities estimated along Lines 1 and 2 for this 20-foot depth interval are less than 6,000 ft/sec which indicates this upper bedrock material is mostly rippable for the Caterpillar D8R through D11R grading equipment. Figures 2 and 3 display the seismic velocity ranges for the rippability of sandstone bedrock estimated based on the graphs in the Caterpillar Handbook of Ripping, 12th Edition (Caterpillar, Inc., 2000). These velocity ranges are shown superimposed on the color velocity scales for the compressional-wave velocity profiles for Lines 1 and 2.

Advanced Geoscience appreciates this opportunity to be of service to Kleinfelder and the Metropolitan Water District. If you have any questions or additional requests concerning this seismic refraction survey please contact the undersigned.

Sincerely,

Advanced Geoscience, Inc.



Mark G. Olson, PGp, PG, CHG
Advanced Geoscience, Inc.
Principal Geophysicist

Attachments:

Figure 1	Site Plan Showing Seismic Survey Lines 1 and 2
Figure 2	Line 1- Seismic Refraction Compressional-Wave Velocity Profile
Figure 3	Line 2- Seismic Refraction Compressional-Wave Velocity Profile

PointNo	Easting (X)	Northing (Y)	ELVE88	Description
102	6373419.8	1918304.85	1092.93	Line 2 0
103	6373455.29	1918386.37	1105.89	Line2 90
104	6373467.07	1918414.16	1108.08	Line 2 120
105	6373499.91	1918487.18	1109.35	Line 2 200
106	6373614.61	1918428.57	1065.13	Line 1 0
107	6373660.57	1918394.68	1046.33	Line 1 60
108	6373708.27	1918359.4	1036.87	Line 1 120

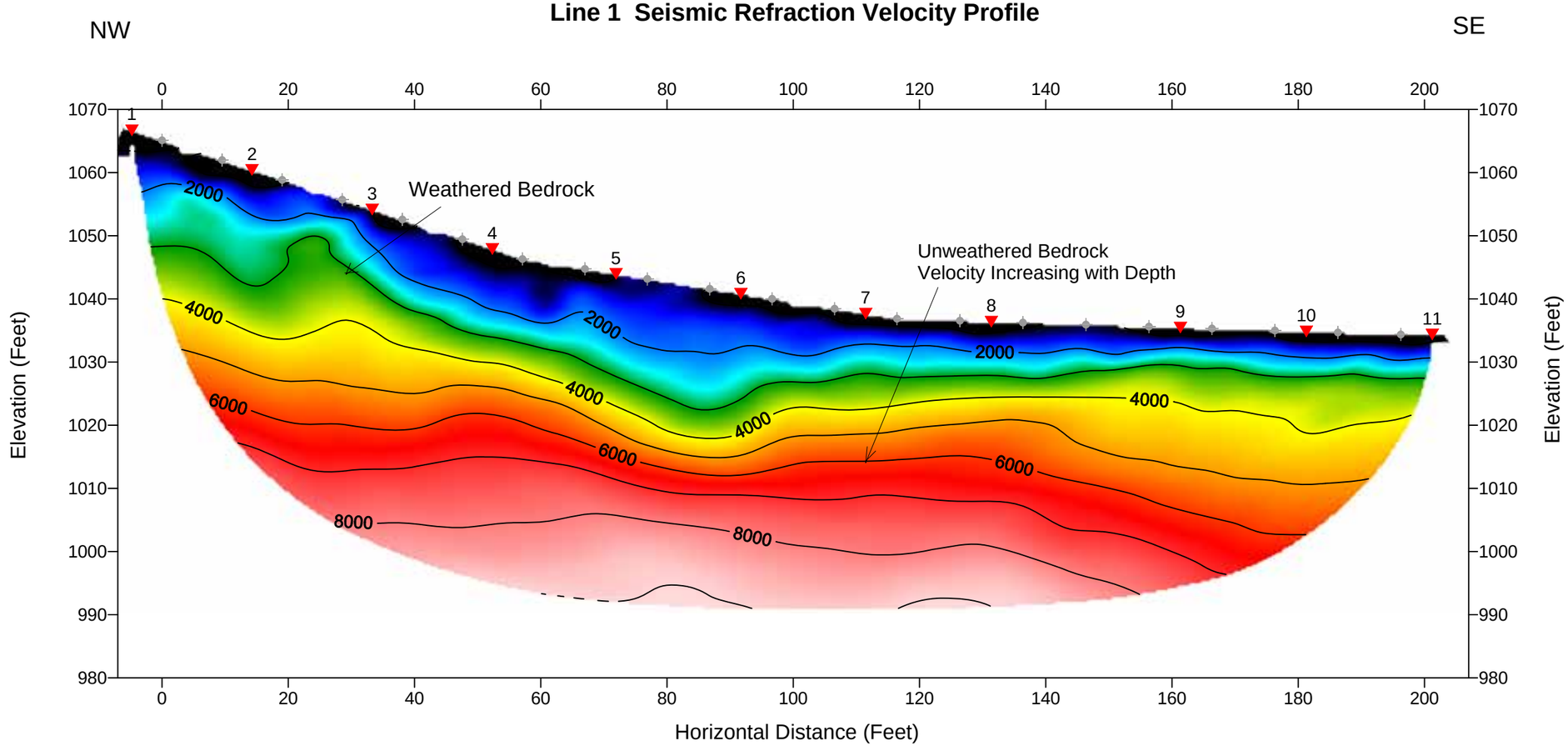
The Metropolitan Water District of Southern California
Engineering Services Group

West Valley Feeders
Survey Data - Geophysical Line

Site Map Showing Seismic Survey Lines 1 and 2
MWD West Valley Feeders Chatsworth, CA

Figure 1
Advanced Geoscience, Inc.

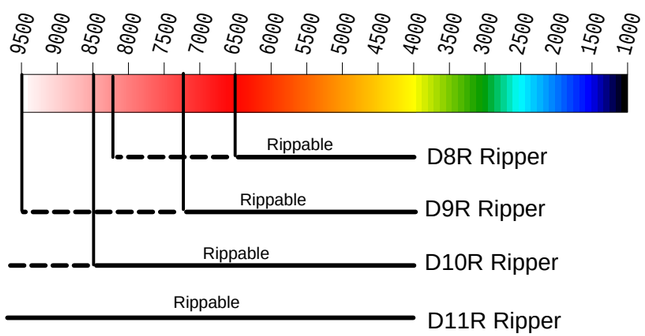
Line 1 Seismic Refraction Velocity Profile



Horizontal & Vertical Scale 1 inch= 20 Feet
Seismic Velocity Contour Interval 1,000 ft/sec

Based on RAYFRACT Refraction Tomography
Initial Delta TV Velocity Model + 25 WET Iterations w/Vmax= 3,500 m/sec

Estimated Seismic Compressional Wave Velocity (ft/sec)



Estimated Rippability for Caterpillar Equipment

Based on Caterpillar Handbook of Ripping, 12th Edition

Rippable

Marginal Rippability

Seismic Velocity Range for Rippability of
Sandstone Rock Type for
Chatsworth Formation Sandstone (Kc)

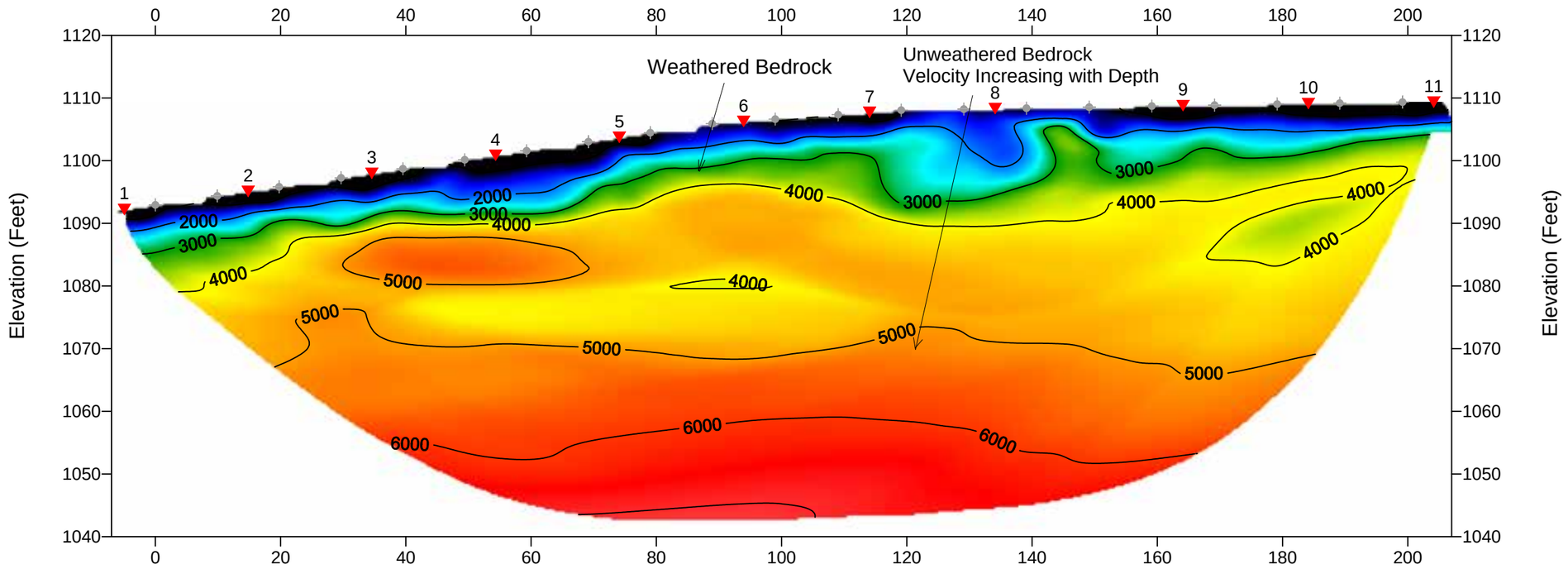
Line 1 Seismic Refraction Velocity Profile
For Bedrock Investigation at MWD West Valley Feeders
Chatsworth, California

Figure 2
Advanced Geoscience, Inc.

Line 2 Seismic Refraction Velocity Profile

South

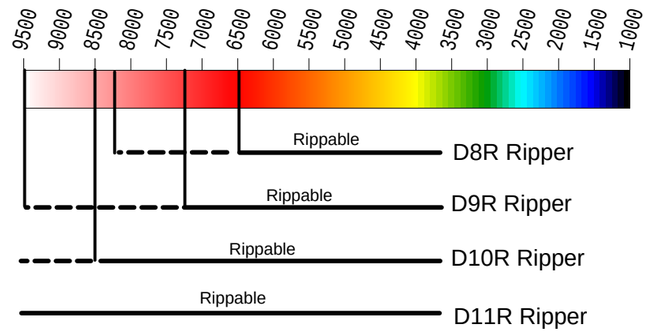
North



Horizontal & Vertical Scale 1 inch= 20 Feet
Seismic Velocity Contour Interval 1,000 ft/sec

Based on RAYFRACT Refraction Tomography
Initial Delta TV Velocity Model + 25 WET Iterations w/Vmax= 3,500 m/sec

Estimated Seismic Compressional Wave Velocity (ft/sec)



Estimated Rippability for Caterpillar Equipment

Based on Caterpillar Handbook of Ripping, 12th Edition

Rippable

Marginal Rippability

Seismic Velocity Range for Rippability of
Sandstone Rock Type for
Chatsworth Formation Sandstone (Kc)

Line 2 Seismic Refraction Velocity Profile
For Bedrock Investigation at MWD West Valley Feeders
Chatsworth, California

Figure 3
Advanced Geoscience, Inc.

APPENDIX G

PALEONTOLOGICAL RECORDS SEARCH

Natural History Museum
of Los Angeles County
900 Exposition Boulevard
Los Angeles, CA 90007

tel 213.763.DINO
www.nhm.org

Vertebrate Paleontology Section
Telephone: (213) 763-3325

e-mail: smcleod@nhm.org

12 July 2018

Psomas
3 Hutton Centre Drive, Suite 200
Santa Ana, CA 92707-8794

Attn: Melissa Macias, Paleontologist

re: Paleontological Resources for the proposed West Valley Feeder Project, Psomas Project 3MWD010204, near the Chatsworth Reservoir, Los Angeles County, project area

Dear Melissa:

I have conducted a thorough search of our Vertebrate Paleontology records for the proposed West Valley Feeder Project, Psomas Project 3MWD010204, near the Chatsworth Reservoir, Los Angeles County, project area as outlined on the portion of the Oat Mountain USGS topographic quadrangle map that you sent to me via e-mail on 9 July 2018. We have no vertebrate fossil localities that lie directly within the boundaries of the proposed project area, but we do have localities nearby from the same sedimentary deposits that occur in the proposed project area.

In the entire proposed project area there are exposures of the marine late Cretaceous Chatsworth Formation. Our closest vertebrate fossil localities from the Chatsworth Formation are LACM 4913-1914, southwest of the proposed project area on the south side of Dayton Canyon, that produced fossil shark specimens including sand sharks, Carcharhiniformes, mackerel shark, *Cretolamna appendiculata*, crow shark, *Squalicorax kaupi*, dogfish shark, *Squalus*, and angel shark, *Squatina hassei*. Specimens of all of these sharks from localities LACM 4913-4914 were figured in the scientific literature by Welton and Alderson (1981. A Preliminary Note on the Late Cretaceous Sharks of the Chatsworth Formation at Dayton Canyon, Simi Hills, Los Angeles County, California. Society of Economic Paleontologists & Mineralogists Guidebook, 1981).

Any excavations in the Chatsworth Formation exposed throughout the proposed project area may well encounter significant remains of fossil vertebrates. Any substantial excavations in the proposed project area, therefore, should be monitored closely to quickly and professionally recover any fossil remains while not impeding development. Also, sediment samples should be collected and processed to determine the small fossil potential in the proposed project area. Any fossils collected should be placed in an accredited scientific institution for the benefit of current and future generations.

This records search covers only the vertebrate paleontology records of the Natural History Museum of Los Angeles County. It is not intended to be a thorough paleontological survey of the proposed project area covering other institutional records, a literature survey, or any potential on-site survey.

Sincerely,

Samuel A. McLeod, Ph.D.
Vertebrate Paleontology

enclosure: invoice

APPENDIX H

PHASE I ENVIRONMENTAL SITE ASSESSMENT

PHASE I ENVIRONMENTAL SITE ASSESSMENT

Metropolitan Water District of Southern California
West Valley Feeder No. 1 Stage 3 Improvements Project

July 27, 2018 (Revised August 24, 2018)

Prepared for:

PSOMAS
3 Hutton Centre Drive, Ste 200
Santa Ana, CA 92807

Prepared by:

C Young Associates
1042 Skylark Drive
La Jolla, CA 92037

C YOUNG ASSOCIATES
1042 Skylark Drive
La Jolla, CA 92037
Tel.: (858) 454-8885

July 27, 2018 (Revised August 24, 2018)

Jennifer Y. Marks
PSOMAS
3 Hutton Centre Drive, Ste 200
Santa Ana, CA 92807

Subject: **Phase I Environmental Site Assessment**
Metropolitan Water District of Southern California
West Valley Feeder No. 1 Stage 3 Improvements Project
Los Angeles County, California

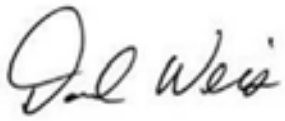
Dear Ms. Marks:

C Young Associates (CYA) has performed a Phase I Environmental Site Assessment (ESA) of the above-referenced property in conformance with the scope and limitations of American Society for Testing and Materials (ASTM) *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process*, ASTM Designation E1527-13 and Title 40 of the Code of Federal Regulations (40 CFR) Part 312, This ESA included public environmental agency and historical record reviews, interviews, site observations and this report preparation.

We appreciate the opportunity to be of service to you on this project. If you should have any questions regarding this report, or if we can be of further assistance, please contact us at (858) 945-7029.

C YOUNG ASSOCIATES

Colin P. Young, CIH
Principal



Daniel Weis, R.E.H.S.
Associate Environmental Scientist

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EXECUTIVE SUMMARY

At the request of PSOMAS, C Young Associates (CYA) conducted a Phase I Environmental Site Assessment (ESA) in conformance with the scope and limitations of American Society for Testing and Materials (ASTM) Standard Practice E1527-13 and Title 40 of the Code of Federal Regulations (40 CFR) Part 312 at the property identified as the Metropolitan Water District of Southern California (MWD) West Valley Feeder No. 1 Stage 3 Improvements Project in the Chatsworth community of Los Angeles, California (the Site). The findings of this ESA revealed the following:

- The Site is situated within Chatsworth Park South, which has a physical address of 22360 West Devonshire Street. The Site is situated in the central portion of the park generally between two water pump stations. These stations include the Twin Lakes pump station (Las Virgines Municipal Water District) to the east and a pump station operated by the Calleguas Municipal Water District to the west. The Site is further identified as portions of four legal parcels that include Assessor's Parcel Numbers (APNs) 2723-010-094, 2723-010-270, 2723-010-902 and 2723-010-903.

- The Site consists of multiple areas of varying sizes where future water infrastructure-related work is proposed. These areas are situated in the central portion of Chatsworth Park South between two water pump stations. The majority of the areas are unimproved, vacant land. Remaining areas are portions of access roads and trails or consist of existing infrastructure including air releases and blow-off valves. Portions of the Site are also underlain by the West Valley Feeder No. 1 and No. 2 water pipelines and a, reportedly abandoned, six-inch oil pipeline near the southwestern perimeter of the Site. The Site has remained predominately vacant and undeveloped over time. No significant environmental concerns were noted during our reconnaissance of the Site.

- The Chatsworth Park South property (of which the Site is a part) is listed on the Envirostor and Voluntary Cleanup Program (VCP) standard regulatory databases. The park is referenced as an active voluntary cleanup facility with a past use of a small arms firing range. The overall park property is under the regulatory agency oversight of the California Department of Toxic Substances Control (DTSC). There are no off-Site properties listed on regulatory databases that are considered to be environmental concerns to the Site.

- Section 4.2 of this report includes information pertaining to prior assessment and remedial activities completed at the Chatsworth South Park property, of which the Site is a part. The overall 72-acre park property was subject to DTSC regulatory agency oversight beginning in 2008 due to environmental impacts resulting from a former small arms firing range in the southern portion of the park. This use reportedly occurred from the early to mid-1950s until sometime in the mid-1960s. The operation of the firing range resulted in wide surficial spreading of lead shot and clay pigeon debris. Following the completion of the investigation

work, a Remedial Action Plan (RAP) for the park property was prepared in 2013. In the RAP, the overall park property was divided into 14 remedial areas identified as Areas "A" through "N." The various portions of the park property that comprise the Site (subject to our current Phase I ESA) are not mapped in any of the Remedial Areas, thus indicating that significant environmental impacts did not result at the Site from the former firing range activities that occurred to the south. However, being that the Site is situated within the overall park property that was subject to DTSC regulatory oversight and that a land use covenant (LUC) has yet to be negotiated with the City of Los Angeles, compliance with any and all DTSC directives relative to the RAP and the park will be required. The DTSC approved the RAP for the park and the RAP was implemented during the period of April 5, 2016 through December 30, 2016.

- Following completion of the RAP implementation, a Remedial Action Completion Report (RACR) was issued in December 2016. The RACR described in detail the implementation of the RAP. Because impacted soil remains beneath the engineered surface cap at depths ranging from one to four feet in the remedial areas at the park property, it was stated in the RACR that the City of Los Angeles and the DTSC will execute an LUC pertaining to the park property. The LUC would incorporate an Operations and Maintenance Plan (OMP) that will outline the requirements for future site work in order to maintain the constructed remedial components (i.e., engineered cap, fencing, etc.) and the requirements for future invasive work that could expose workers to residual contaminants. The DTSC reviewed the RACR and concurred with its findings as stated in a letter dated April 20, 2017. According to a DTSC representative, and as referenced above, the finalization and execution of the LUC and OMP is pending at this time.

In summary, this ESA has revealed no evidence of current *recognized environmental conditions* in connection with the Site. Historical impacts at the Site and its adjacent properties resulting from the former firing range activity to the south of the Site are considered to be a *controlled recognized environmental condition* that does not warrant additional assessment at this time.

As stated previously, although the subject Site was not considered to be significantly impacted and was not subject to remedial activities, the forthcoming LUC and OMP to be executed between the City and the DTSC may still apply to the Site, as it is part of the overall Chatsworth Park South property. Until such time that the Site is formally excluded from the LUC and OMP, all work performed in support of the Valley West Feeder No. 1 Access Road project shall comply with DTSCs directives relative to the RAP and the park.

In addition, while the reportedly abandoned six-inch oil pipeline in proximity to the Site limits was not deemed to be of environmental concern during prior assessment and remedial work completed under DTSC oversight, and no reports of a release of petroleum products from the pipeline have been reported, CYA cannot comment on actual subsurface conditions in the area of the pipeline. While CYA does not consider the pipeline to be a "recognized environmental condition" in connection with the Site, the client may desire a higher level of confidence regarding underlying subsurface

conditions in its vicinity. If so, it should consider additional evaluation. CYA has confirmed that the pipeline is maintained by Crimson Pipeline L.P. (Crimson), and Crimson has provided support documentation relative to the location of the pipeline. Crimson recommends that it be contacted either directly or via Underground Service Alert (USA) when Site construction activities begin in the area.

1.0 INTRODUCTION

1.1 Purpose

The purpose of this Phase I ESA is to provide a professional opinion on the presence of "recognized environmental conditions" and other suspect environmental conditions in connection with the Site, as they existed on the date of the site inspection, and to recommend whether further assessment is warranted. ASTM E1527-13*, Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process* (hereinafter referred to as the "ASTM Standard"), specifies minimum requirements for conducting a Phase I ESA of a parcel of commercial real estate with respect to the range of contaminants pertinent to the scope of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), as well as petroleum products. As such, this Phase I ESA is intended to satisfy one of the threshold criteria for satisfying the landowner liability protections to CERCLA liability assuming compliance with other elements of the defense. In other words, this Phase I ESA represents one of the practices that constitute "all appropriate inquiry" into the previous ownership and uses of the property consistent with good commercial or customary practice, as defined in Title 42 of the United States Code (42 USC) Section 9601(35)(B) and 40 CFR Part 312, *Standards and Practices for All Appropriate Inquiry: Final Rule*.

The goal of the process is to identify "recognized environmental conditions," which are defined by the ASTM Standard as "the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: 1) due to any release to the environment; 2) under conditions indicative of a release to the environment, or; 3) under conditions that pose a material threat of a future release to the environment." The term "recognized environmental condition" includes hazardous substances or petroleum products even under conditions in compliance with laws. In addition, the term also included *historical recognized environmental conditions* and "controlled recognized environmental conditions." A "historical recognized environmental condition" is defined by the ASTM Standard as "a past release of hazardous substances or petroleum products that has occurred in connection with a property and has been addressed to the satisfaction of the applicable regulatory authority or meeting unrestricted use criteria established by a regulatory authority, without subjecting the property to any required controls (for example, property use restrictions, activity and use limitations, institutional controls, or engineering controls)." A "controlled recognized environmental condition" is defined by the ASTM Standard as "a recognized environmental condition resulting from a past release of hazardous substances or petroleum products that has been addressed to the satisfaction of the applicable regulatory authority (for example, as evidenced by the issuance of a no further action letter or equivalent, or meeting risk-based criteria established by regulatory authority), with hazardous substances or petroleum products allowed to remain in place subject to the implementation of required controls (for example, property use restrictions, activity and use limitations, institutional controls, or engineering controls)." The term "recognized environmental condition" is not intended to include *de minimis* conditions that generally do not present a material risk of harm to

public health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies.

The term "environment" is defined in CERCLA 42 USC 9601(8) as "(A) the navigable waters, the water of the contiguous zone, and the ocean waters of which the natural resources are under the exclusive management authority of the United States under the Magnuson-Stevens Fishery Conservation and Management Act", and "(B) any other surface water, groundwater, drinking water supply, land surface or subsurface strata, or ambient air within the United States or under the jurisdiction of the United States."

The term “release” means any "spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing into the environment (including the abandonment or discarding of barrels, containers, and other closed receptacles containing any hazardous substance or pollutant or contaminant)", but excludes "(A) any release which results in exposure to persons solely within a workplace, with respect to a claim which such persons may assert against the employer of such persons, (B) emissions from the engine exhaust of a motor vehicle, rolling stock, aircraft, vessel, or pipeline pumping station engine, (C) release of source, byproduct, or special nuclear material from a nuclear incident, as those terms are defined in the Atomic Energy Act of 1954 [42 USC 2011 et seq.], if such release is subject to requirements with respect to financial protection established by the Nuclear Regulatory Commission under section 170 of such Act [42 USC 2210], or, for the purposes of 42 USC 9604 or any other response action, any release of source byproduct, or special nuclear material from any processing site designated under section 7912(a)(1) or 7942(a) of this title, and (D) the normal application of fertilizer."

1.2 Detailed Scope of Services

The Phase I ESA was conducted in accordance with the above-referenced ASTM Standard, 40 CFR Part 312 and CYA’s Agreement by and between CYA and the client. The following services were provided for this assessment:

- A search for environmental liens recorded against the Site.
- An evaluation of standard environmental record sources contained within Federal, State and local environmental databases within specific search distances.
- An evaluation of additional environmental record sources obtained from local regulatory departments/agencies.
- A qualitative evaluation of the physical characteristics of the Site through a review of: published topographic, geologic, and hydrogeologic maps; published groundwater data, and; area observations to characterize surface water flow in the Site area.

- An evaluation of past Site and adjacent/nearby property uses through a review of historical resources including aerial photographs, topographic maps and city directories.

- A physical inspection of the Site conducted to search for conditions indicative of potential environmental concerns including USTs, aboveground storage tanks (ASTs), associated tank piping, stained soil or pavement, equipment that may contain or have historically contained polychlorinated biphenyls (PCBs), and other potential environmental concerns as defined in the ASTM Standard.

- A physical assessment of indications of past uses and visual observations of adjacent and surrounding properties (from curbside or public spaces) to assess potential impacts to the Site.

- Interviews completed with the client, the Site owner(s) and local regulatory officials.

- The preparation of this Phase I ESA report, which includes the findings of the assessment, our opinion (i.e., conclusions) regarding their respective levels of significance, and recommendations, as appropriate.

1.3 Significant Assumptions

This Phase I ESA was conducted in accordance with the scope and terms referenced above. No other warranty, express or implied, is made by CYA. CYA's evaluations, analyses, and opinions should not be taken as representations regarding subsurface conditions or the actual value of the Site. Subsurface conditions may differ from the conditions implied by the surficial observations and the data resources reviewed, and can only be reliably evaluated through intrusive techniques.

Documentation and data provided by the client, designated representatives of the client, other interested third parties, or from the public domain, and referred to in the preparation of this assessment, are assumed to be complete and correct and have been used and referenced with the understanding that CYA assumes no responsibility or liability for their accuracy. CYA's conclusions are based upon such information and documentation and on our observations of Site conditions, as they existed on the date of the site inspection. Because Site conditions may change significantly over a short period of time and additional data may become available, data reported and conclusions drawn in this report are limited to current conditions and should be considered less reliable with passing time.

1.4 Limitations and Exceptions

Reasonable efforts have been made during this assessment to uncover evidence of USTs, ASTs, ancillary equipment associated with such tanks, and other subsurface structures. "Reasonable efforts" are limited to information gained from visual

observation of unobstructed areas, recorded database information held in public record, and available information gathered from interviews. Such methods may not identify subsurface equipment that may have been hidden from view due to paving, construction or debris pile storage, or incorrect information from sources.

This investigation was not an environmental compliance audit. While some observations and discussion in this report may address conditions and/or operations that may be regulated, the regulatory compliance of those conditions and/or operations is outside the scope of this investigation. Nothing in this report constitutes a legal opinion or legal advice. For information regarding specific individual or organizational liability, CYA recommends consultation with independent legal counsel.

According to 40 CFR Part 312, CERCLA liability rests with the owner or operator of a property and not with an environmental professional hired by the prospective landowner and who is not involved with the ownership or operation of the property. This report meets the requirements set forth in 40 CFR Part 312. However, in order to qualify for certain landowner liability protections under CERCLA, “Bona Fide Prospective Purchasers, Contiguous Property Owners, and/or Innocent Landowners” must meet additional requirements of CERCLA (42 USC 9601 (35)(B)).

This ESA does not address non-ASTM scope considerations, including asbestos-containing materials, radon, lead-based paint, lead in drinking water, wetlands, protected environments and habitat, industrial hygiene concerns, indoor air quality (unrelated to releases of hazardous substances or petroleum products into the environment) and high voltage power lines.

1.5 Special Terms and Conditions

No special terms and conditions between CYA pertinent to the findings of this Phase I ESA or methodology used to complete this assessment are noted. In addition, CYA does not have a financial interest in the Site.

1.6 User Reliance

This report was prepared for the sole and exclusive use of the client and its client, and is not for the use or benefit of, nor may it be relied upon by, any other person or entity for any purpose without the advance written consent of CYA and the client. CYA makes no representation to any third party except that it has used the degree of care and skill ordinarily exercised by a reasonably prudent qualified environmental professional in the same community and in the same time frame given the same or similar facts and circumstances. No other use or disclosure is intended or authorized by CYA. In the preparation of this Phase I ESA, CYA has used the degree of care and skill ordinarily exercised by a reasonably prudent environmental professional in the same community and in the same time frame given the same or similar facts and circumstances. No other warranties are made, express or implied.

2.0 SITE DESCRIPTION

2.1 Location and Legal Description

The Site is known as the West Valley Feeder No. 1 Stage 3 Improvements Project in the Chatsworth community of Los Angeles, California. The Site is situated within Chatsworth Park South, which has a physical address of 22360 West Devonshire Street. The Site is situated in the central portion of the park, generally between two water pump stations. These stations include the Twin Lakes pump station operated by the Las Virgines Municipal Water District to the east, and a pump station operated by the Calleguas Municipal Water District to the west. The Site is further identified as portions of four legal parcels that include APNs 2723-010-094, 2723-010-270, 2723-010-902 and 2723-010-903. A Vicinity Map and Topographic Map depicting the general location of the Site are included in Appendix A.

2.2 Site and Vicinity General Characteristics

The Site and its adjacent/nearby properties are situated within the Chatsworth community of Los Angeles, California and, more specifically, within Chatsworth Park South, which is owned and managed by the City of Los Angeles. The general Site vicinity consists of other portions of Chatsworth Park South, open space and residential development.

2.3 Current Use of the Site

The majority of the Site is vacant land situated in the central portion of Chatsworth Park south between the above-referenced two water pump stations. Limited areas of the Site consist of portions of access roads and trails or consist of existing water infrastructure.

2.4 Description of Structures, Roads, Other Improvements on the Site

The majority of the Site is unimproved. Some areas of the Site are situated between existing access roads and trails or consist of existing water infrastructure. Portions of the Site are also underlain by the West Valley Feeder No. 1 and No. 2 water pipelines and a, reportedly abandoned, six-inch oil pipeline near the southwestern perimeter of the Site. Please refer to Section 4.2 for additional information pertaining to the noted oil pipeline. Potable water and sanitary sewer services in the area are provided by the Los Angeles Department of Water and Power. Electrical service in the area is also provided by the Los Angeles Department of Water and Power and natural gas services are provided by Southern California Gas Company. Site Plans are included in Appendix B. Photographs taken of the Site are included in Appendix C.

2.5 Current Uses of the Adjoining Properties

CYA performed a visual inspection of adjoining properties from adjacent roadways and public right-of-ways. The following table identifies the adjacent property uses:

General Direction	Adjoining Property Use
North	Vacant land (Chatsworth Park South) and railroad tracks
South	Chatsworth Park South (vacant and improved portions)
West	Water pump station and vacant land (Chatsworth Park South)
East	Chatsworth Park South (vacant and improved portions) and residential development

None of the adjoining properties were observed to be a significant environmental concern to the Site based on CYA's visual inspection from public right-of-ways.

3.0 USER PROVIDED INFORMATION

3.1 Title Records

No current environmentally related liens, deed restrictions or activity and use limitations pertaining to the Site were noted during research conducted with the County of Los Angeles Tax Assessor. In addition, the client is unaware of such encumbrances recorded against the Site.

3.2 Environmental Liens or Activity and Use Limitations

The client reportedly has no knowledge of any environmental related liens or activity and use limitations (i.e. engineering or institutional controls) that are related to potential environmental issues at the Site.

3.3 Specialized Knowledge

The client reportedly has no specialized knowledge pertinent to potential “recognized environmental conditions” at the Site.

3.4 Commonly Known or Reasonably Ascertainable Information

The client has no other knowledge of commonly known or reasonably ascertainable information pertinent to potential “recognized environmental conditions” at the Site.

3.5 Valuation Reduction for Environmental Issues

As of the date of this report, the client reportedly has no information pertaining to the relationship of the appraised value of the Site to the estimated fair market value of the Site that might indicate that significant contamination exists.

3.6 Owner, Property Manager, and Occupant Information

As stated previously, the Site includes portions of Los Angeles County APNs 2723-010-094, 2723-010-270, 2723-010-902 and 2723-010-903. Ownership of these parcels is as follows:

- APN 2723-010-094 - City of Los Angeles
- APN 2723-010-270 - Calleguas Municipal Water District
- APN 2723-010-902 - Metropolitan Water District
- APN 2723-010-903 - Metropolitan Water District

The Site owners are also considered to be the Site managers. The Site has no known occupants.

3.7 Reason for Performing Phase I ESA

CYA, as an independent consultancy, has been retained to conduct this Phase I ESA to identify environmental issues that may be present and to comply with 40 CFR Part 312.

4.0 RECORDS REVIEW

4.1 Standard Environmental Record Sources

CYA reviewed Federal and State environmental databases provided by EDR of Shelton, Connecticut for information pertaining to documented and/or suspected releases of regulated hazardous substances and/or petroleum products within specified search distances. A copy of the EDR report is included in Appendix D.

CYA also reviewed unmappable sites listed in the environmental database report by cross-referencing addresses and site names. Unmappable sites are sites that cannot be plotted with confidence but can be located by zip code or city name. In general, a site cannot be mapped because of inaccurate or missing location information in the record provided by the regulatory agency. Any unmappable sites that CYA identifies within the specified search radii were evaluated as part of the preparation of this report.

The following Federal databases related to potential on-site and off-site sources of contamination were reviewed and interpreted by CYA:

Federal Databases	Search Distance From Site
National Priorities List (NPL)	One mile
Proposed NPL	One mile
NPL Liens	Target Property
Delisted NPL	One mile
Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) – FEDERAL FACILITY AND SEMS	One-half mile
CERCLIS No Further Remedial Action Planned (NFRAP) – SEMS ARCHIVE	One-half mile
Resource Conservation and Recovery Act (RCRA) CORRACTS Facilities List	One mile
RCRA NON-CORRACTS Hazardous Waste Treatment, Storage and Disposal (TSDF) Facilities	One-half mile
RCRA Hazardous Waste Generators (RCRA GEN) – Large Quantity Generators (LQG), Small Quantity Generators (SQG) and Conditionally Exempt Small Quantity Generators (CESQG)	One-eighth mile
Federal Institutional/Engineering Control Registries (IC/EC) – LUCIS, US ENG CONTROLS, and US INST CONTROLS	One-half mile
Emergency Response Notification System (ERNS)	One-eighth mile

The following State/local databases related to potential on-site and off-site sources of contamination were also searched and reviewed:

State/Local Databases	Search Distance From Site
State Equivalent NPL and CERCLIS (RESPONSE and Envirostor)	One mile
Inactive, Active, and/or Permitted Solid Waste/Landfill Facilities (SWF/LF)	One-half mile
San Diego County DEH Site Assessment and Mitigation (SAM)	One-half mile
Leaking Underground Storage Tanks (LUST)	One-half mile
Spills, Leaks, Investigations, and cleanup (SLIC)	One-half mile

State/Local Databases	Search Distance From Site
Registered Storage Tanks (UST/AST)	One-eighth mile
State Voluntary Cleanup Program (VCP)	One-half mile
State Brownfield Sites (BROWNFIELDS)	One-half mile

Descriptions/sources of each of the above-referenced regulatory databases and the dates these databases were last updated by the applicable regulatory agencies are included in the EDR report.

Site

The Chatsworth Park South property (of which the Site is a part) is listed on the Envirostor and VCP standard regulatory databases. The park is referenced as an active voluntary cleanup facility with a past use of a small arms firing range. The overall park property is under the regulatory agency oversight of the DTSC. Please refer to Section 4.2 below for information pertaining to prior assessment and remedial activities completed at the park property.

Adjoining and Nearby Properties

One property was identified in the standard regulatory databases mapped within one mile of the Site. The property is identified as Chime Charter Middle School and is mapped approximately one-half mile to the east-southeast at 22280 Devonshire Street. The property was issued a no further action status in 2007. This property is not considered to be an environmental concern to the Site.

Non-ASTM Database Reviews

Below is a list of non-ASTM databases searched by EDR and reviewed by CYA during the preparation of this assessment. The descriptions of each database and their data release frequency are included in the EDR report, included in Appendix D.

<u>Local Brownfield Lists</u>
US BROWNFIELDS - A Listing of Brownfields Sites

<u>Local Lists of Landfill / Solid Waste Disposal Sites</u>
WMUDS/SWAT - Waste Management Unit Database
SWRCY - Recycler Database
HAULERS - Registered Waste Tire Haulers Listing
INDIAN ODI - Report on the Status of Open Dumps on Indian Lands
ODI - Open Dump Inventory
DEBRIS REGION 9 - Torres Martinez Reservation Illegal Dump Site Locations
IHS OPEN DUMPS - Open Dumps on Indian Land

<u>Local Lists of Hazardous Waste / Contaminated Sites</u>
AOCONCERN - San Gabriel Valley Areas of Concern

US HIST CDL - National Clandestine Laboratory Register
HIST Cal-Sites - Historical Cal-Sites Database
SCH - School Property Evaluation Program
CDL - Clandestine Drug Labs
Toxic Pits - Toxic Pits Cleanup Act Sites
US CDL - Clandestine Drug Labs

Local Lists of Registered Storage Tanks
SWEEPS UST - SWEEPS UST Listing
HIST UST - Hazardous Substance Storage Container Database
CA FID UST - Facility Inventory Database

Local Land Records
LIENS - Environmental Liens Listing
LIENS 2 - CERCLA Lien Information
DEED - Deed Restriction Listing

Records of Emergency Release Reports
HMIRS - Hazardous Materials Information Reporting System
CHMIRS - California Hazardous Material Incident Report System
LDS - Land Disposal Sites Listing
MCS - Military Cleanup Sites Listing
SPILLS 90 - SPILLS 90 data from FirstSearch

Other Ascertainable Records
RCRA - NonGen - RCRA - Non-Generators
FUDS - Formerly Used Defense Sites
DOD - Department of Defense Sites
SCRD DRYCLEANERS - State Coalition for Remediation of Drycleaners Listing
US FIN ASSUR - Financial Assurance Information
EPA WATCH LIST - EPA WATCH LIST
2020 COR ACTION - 2020 Corrective Action Program List
TSCA - Toxic Substances Control Act
TRIS - Toxic Chemical Release Inventory System
SSTS - Section 7 Tracking Systems
ROD - Records Of Decision
RMP - Risk Management Plans
RAATS - RCRA Administrative Action Tracking System
PRP - Potentially Responsible Parties
PADS - PCB Activity Database System
ICIS - Integrated Compliance Information System
FTTS - FIFRA/TSCA Tracking System – FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
MLTS - Material Licensing Tracking System
COAL ASDH DOE - Sleam Electric Plan Operation Data Listing
COAL ASH EPA - Coal Combustion Residues Surface Impoundments List
PCB TRANSFORMER - PCB Transformer Registration Database
RADINFO - Radiation Information Database

HIST FTTS - FIFRA/TSCA Tracking System Administrative Case Listing
DOT OPS - Incident and Accident Data
CONSENT - Superfund (CERCLA) Consent Decrees
INDIAN RESERV - Indian Reservations
FUSRAP - Formerly Utilized Sites Remedial Action Program
UMTRA - Uranium Mill Tailings Sites
LEAD SMELTERS - Lead Smelter Sites
US AIRS - Aerometric Information Retrieval System Facility Subsystem
US MINES - Mines Master Index File
ABANDONED MINES - Abandoned Mines
FINDS - Facility Index System/Facility Registry System
UXO - Unexploded Ordnance Sites
DOCKET HWC - Hazardous Waste Compliance Docket Listing
ECHO - Enforcement and Compliance History Information
FUELS PROGRAM - EPA Fuels Program Registered Listing
CA BOND EXP. PLAN - Bond Expenditure Plan
Cortese - "Cortese" Hazardous Waste & Substances Sites List
CUPA Listings - CUPA Resources List
DRYCLEANERS - Cleaner Facilities
EMI - Emissions Inventory Data
ENF - Enforcement Action List
Financial Assurance - Financial Assurance Information Listing
ICE
HIST CORTESE - Hazardous Waste & Substance Site List
HAZNET - Facility and Manifest Data
LOS ANGELES CO. HMS - HMS: Street Number List
HWP - Envirostor Permitted Facilities List
HWT - Registered Hazardous Waste Transporter Database
MINES - Mines Master Index File
MWMP - Medical Waste Management Program Listing
NPDES - NPDES Permits Listing
PEST LIC - Pesticide Regulation Licenses Listing
PROC - Certified Processors Database
Notify 65 - Proposition 65 Records
LA Co. Site Mitigation - Site Mitigation List
UIC - UIC Listing
WASTEWATER PITS - Oil Wastewater Pits Listing
WDS - Waste Discharge System
WIP - Well Investigation Program Case List
NON-CASE INFO
SAMPLING POINT
PROD WATER PONDS
MILITARY PRIV SITES
OTHER OIL GAS
WELL STIM PROJ - Well Stimulation Project
UIC GEO
PROJECT
CIWQS - The California Integrated Water Quality System

The Chatsworth Park South property (of which the Site is a part) is listed on the non-ASTM Haznet, CIWQS and NPDES databases. The park property is referenced on the Haznet database for the disposal of hazardous waste generated during cleanup activities. Please refer to Section 4.2 below for information pertaining to prior assessment and recent remedial activities completed at the park property. The park property appears on the CIWQS and NPDES databases for stormwater permit and control related requirements. The permits are noted as being held by the City of Los Angeles Department of Recreation and Parks.

One property was identified in the non-ASTM regulatory databases mapped within one mile of the Site. The property is identified as Chime Charter Middle School and is located at 22280 Devonshire Street. As stated previously, this property is not considered to be an environmental concern to the Site.

4.2 Additional Environmental Record Sources

California Department of Toxic Substances Control

The overall Chatsworth Park South property was subject to DTSC regulatory agency oversight beginning in 2008 due to environmental impacts resulting from a former small arms firing range in the southern portion of the park. This use reportedly occurred from the early to mid-1950s until sometime in the mid-1960s. The operation of the firing range resulted in wide surficial spreading of lead shot and clay pigeon debris. The City of Los Angeles acquired the park property in 1973 and developed the relatively level portions of the park area with recreational improvements. The development and grading activities occurred during the 1970s and 1980s. The grading activities were associated with the leveling of the former skeet range area, planting of trees, soil removal and compaction for development of an existing recreation building, and preparation for a parking area, play areas, a basketball court, and tennis courts. Grading also occurred during placement of water/oil transmission pipelines at the property.

Multiple environmental investigations throughout the park property were conducted between 2008 and 2012. The investigations included the drilling of multiple soil borings and the collection of soil and groundwater samples. A human health risk assessment was also conducted. During the investigation work, the overall park property was divided in to seven areas of environmental concern. Of the seven areas, two appear to have been situated within portions of the Site. These areas were identified as Area Four (Visible Lead Pellet Accumulation Area) and Area 5 (Former Fish Pond). Contaminants of potential concern in these areas included lead, arsenic and polycyclic aromatic hydrocarbons (PAHs). The contaminant concentrations in such areas were noted as being relatively low and not of significant concern to human health.

Following the completion of the investigation work, a RAP for the park property was prepared in 2013. The objective of the RAP was to mitigate potential risk from contaminants in soil that may pose a threat to human health and the environment. Based on the comparative evaluation of the three alternatives considered in the RAP, Containment Through Surface Capping was selected as the remedial action alternative

for addressing the metal and PAH-impacted shallow soils at the park property. This alternative was selected because it was determined to be effective, implementable, and cost effective. In the RAP, the overall park property was divided in to 14 remedial areas identified as Areas “A” through “N.” The various portions of the park property that comprise the Site (subject to our current Phase I ESA), including the two areas referenced above, are not mapped in any of the Remedial Areas as remedial work within the limits of the Site was not deemed warranted based on the results of the investigation activities. This indicates that significant environmental impacts did not result at the Site from the former firing range activities that occurred to the south. However, being that the Site is situated within the overall park property that was subject to DTSC regulatory oversight and that an LUC has yet to be negotiated with the City of Los Angeles, compliance with any and all DTSC directives relative to the RAP and the park will be required.

The DTSC approved the RAP for the park and the RAP was implemented during the period of April 5, 2016 through December 30, 2016. The RAP implementation included the following:

- Manually removing readily visible lead pellets with vacuums, rakes, and/or shovels.
- Removing all short shrubs and seasonal vegetation to expose the underlying surface.
- Removing remaining visible lead pellets and surficial soil using manual labor equipped with vacuums, rakes, and shovels.
- Containing all recovered lead pellets and any associated soil or debris in appropriate containers.
- Profiling the waste and disposing of approximately 500 tons of hazardous waste at off-property locations.
- Hydro-seeding an impacted rocky outcrop with native grasses.
- Completion of controlled rough and fine grading (one foot surface cap construction).
- Export of non-hazardous and hazardous waste soils (approximately 6,000 tons).
- Sampling and analysis of clean import aggregate base and soil.
- Import of clean import aggregate base and soil.
- Revegetation of the surface cap area.
- Improving the stormwater drainage system.

Following completion of the RAP implementation, a RACR was issued in December 2016. The RACR described in detail the implementation of the RAP. Because impacted soil remains beneath the engineered surface cap at depths ranging from one to four feet in the remedial areas at the park property, it was stated in the RACR that the City of Los Angeles and the DTSC will execute an LUC pertaining to the park property. This institutional control will limit the potential for future exposure of receptors to contaminated soils through controlling and limiting future excavation, routine maintenance and any other disturbances to the cap in an effort to protect human health and the environment. The LUC would incorporate an OMP that will outline the requirements for future site work in order to maintain the constructed remedial

components (i.e., engineered cap, fencing, etc.) and the requirements for future invasive work that could expose workers to residual contaminants.

The DTSC reviewed the RACR and concurred with its findings as stated in a letter dated April 20, 2017. A copy of the letter is included in Appendix E. At the time of this report, finalization and execution of the LUC and OMP is pending at this time.

Although the subject Site of this Phase I ESA was not considered to be significantly impacted and was not subject to remedial activities, the forthcoming LUC and OMP between the City and the DTSC may still apply to the Site, as it is part of the overall Chatsworth Park South property. Until such time that the Site is formally excluded from the LUC and OMP, all work performed in support of the Valley West Feeder No. 1 Access Road project shall comply with DTSCs directives relative to the RAP and the park.

As stated previously and according to the URS RAP and RACR documents, a portion of a reportedly abandoned six-inch oil pipeline appears to be present near the southwestern perimeter of the Site. While the pipeline was not deemed to be of environmental concern during prior assessment and remedial work completed under DTSC oversight, and no reports of a release of petroleum products from the pipeline have been reported, CYA cannot comment on actual subsurface conditions in the area of the pipeline. While CYA does not consider the pipeline to be a “recognized environmental condition” in connection with the Site, the client may desire a higher level of confidence regarding underlying subsurface conditions in its vicinity. If so, it should consider additional evaluation.

CYA has confirmed that the pipeline is maintained by Crimson, and Crimson has provided support documentation relative to the location of the pipeline (Appendix F). In the referenced correspondence, Crimson recommends that it be contacted either directly or via Underground Service Alert (USA) when Site construction activities begin in the area

Other Agency Records

Based on DTSC involvement with the Chatsworth Park South Property and documentation of prior subsurface assessment activities and remedial work at the park property, additional public agency records searches were not deemed warranted by CYA.

4.3 Physical Setting Sources

The following physical setting sources were reviewed to provide information about the topographic, hydrologic, geologic and/or hydrogeologic characteristics of the Site.

4.3.1 Topography and Hydrology

USGS Topographic Quadrangle

According to the U.S. Geological Survey topographic map for the Los Angeles California 7.5 minute Oat Mountain quadrangle (2015), the Site is situated at elevations ranging from approximately 1,000 feet to 1,100 feet above mean sea level. Site topography trends generally downward toward the east and southeast. Streets/roadways bordering the Site are shown similar to their current configurations on the map.

Hydrology/Storm Water Management

The Site slopes downward generally to the east and southeast toward municipal storm drain systems maintained by the City of Los Angeles. The Site may receive drainage from up-gradient, off-Site properties during significant rain events.

4.3.2 Geology

The Site is located in the western portion of the Transverse Ranges Geomorphic Province at the extreme west end of the San Fernando Valley. The ranges extend from west of Point Conception eastward approximately 500 kilometers into the Mojave and Colorado Desert. The geology and topography of the ranges express three distinct segments that have contrasting elevations, rock types, and vegetation. Sedimentary rocks of the Cretaceous Chatsworth Formation are exposed in the area. There is also alluvium present in the general Site vicinity and potentially at the Site.

4.3.3 Hydrogeology

According to the Water Quality Control Plan for the Los Angeles Basin (Region 4) published by the California Regional Water Quality Control Board (RWQCB), the Site is located within the Bull Canyon Hydrologic Sub Area of the San Fernando Hydrologic Area of the Los Angeles-San Gabriel Hydrologic Unit. The basin has been classified as having existing beneficial uses for municipal, agricultural and industrial service supply. Groundwater beneath the Site is expected to be present at a depth greater than approximately 10 feet below the ground surface with an anticipated flow direction to the east.

4.4 Historical Use Information on the Subject Site

CYA reviewed historical sources (as described in the following sections) to develop a history of the previous uses of the Site, in order to help identify the likelihood of past uses having led to “recognized environmental conditions” in connection with the Site. Only historical aerial photographs, topographic maps and oil/gas records were selected as pertinent historical sources to be reviewed during the completion of this Phase I ESA. Other historical resources such as city directories and fire insurance maps would not be useful in rendering an opinion regarding environmental conditions at the Site.

4.4.1 Aerial Photographs and Topographic Maps

CYA reviewed historical aerial photographs from the years 1947, 1952, 1959, 1967, 1969, 1977, 1980, 1994, 2003, 2005, 2009, 2010, 2012, and 2014 and topographic maps from the years 1903, 1908, 1916, 1924, 1925, 1927, 1929, 1930, 1933, 1939, 1940, 1943, 1948, 1953, 1958, 1964, 1965, 1967, 1970, 1980, 1984, 1992 and 2012, provided via online resources. On all of the aerial photographs and topographic maps, the Site appears to be vacant and undeveloped with no discernable feature except for portions of a few unimproved roads and/or trails. No significant environmental concerns in connection to the Site were noted during CYA's review of the historical aerial photographs and topographic maps.

4.4.2 State of California Division of Oil and Gas Records

According to online resources provided by the California Department of Conservation, Division of Oil, Gas and Geothermal Resources, there are no oil, gas or geothermal wells located on the Site.

4.5 Historical Use Information on Adjoining Properties

CYA also reviewed historical sources (as described in the following sections) to develop a history of the previous uses of adjoining properties and the surrounding area, in order to help identify the likelihood of past uses having led to "recognized environmental conditions" in connection with the Site.

4.5.1 Aerial Photographs and Topographic Maps

As stated previously, CYA reviewed historical aerial photographs from the years 1947, 1952, 1959, 1967, 1969, 1977, 1980, 1994, 2003, 2005, 2009, 2010, 2012, and 2014 and topographic maps from the years 1903, 1908, 1916, 1924, 1925, 1927, 1929, 1930, 1933, 1939, 1940, 1943, 1948, 1953, 1958, 1964, 1965, 1967, 1970, 1980, 1984, 1992 and 2012, provided via online resources. In the aerial photographs from 1947 to 1952, the surrounding properties appear vacant and undeveloped. In the 1959 to 1969 aerial photographs, a reservoir and a shooting range appear in the near vicinity to the west and south, respectively. Two pump stations (or ground disturbance in these areas) situated adjacent to the east and west of the Site, first appear in the 1967 aerial photograph. In the 1977 to 2014 aerial photographs, the adjacent properties appear generally in their current configurations.

The adjacent and surrounding properties appear predominantly vacant and undeveloped with a small track and limited structures on the topographic maps from 1903 to 1924. Structures are depicted in the vicinity of the two current pump stations situated adjacent to the east and west of the Site on the topographic maps from 1970 to 2012. No significant environmental concerns to the Site relative to adjacent and nearby properties were noted during the historical aerial photograph and topographic map review.

4.5.2 State of California Division of Oil and Gas Records

According to online resources provided by the California Department of Conservation, Division of Oil, Gas and Geothermal Resources, there are no oil, gas or geothermal wells located on adjoining properties of the Site.

5.0 SITE RECONNAISSANCE

The objective of the Site reconnaissance was to obtain information indicating the likelihood of "recognized environmental conditions" in connection with the Site. The reconnaissance was conducted on June 5, 2018, by CYA. CYA was unescorted during the Site reconnaissance.

5.1 Methodology and Limiting Conditions

The Site reconnaissance consisted of walking the Site and along public access roads (for viewing of adjacent/nearby properties). CYA was granted full access to the Site. However, the ground surface of some areas of the Site was obstructed from view by dense vegetation. Given the existing land uses of the Site, the lack of complete visibility of the surface area of the Site is not considered to be a data gap of significance. As stated previously, Site Plans are included in Appendix B. Photographs of the Site were taken to document existing Site conditions and several are included and described in Appendix C.

5.2 General Site Setting

The Site and its adjacent/nearby properties are situated within the Chatsworth community of Los Angeles, California and more specifically within Chatsworth Park South, which is owned and managed by the City of Los Angeles. The Site consists of multiple areas of varying sizes where future water infrastructure related work is proposed. These areas are situated in the central portion of Chatsworth Park south between the two aforementioned water pump stations. The majority of the areas are unimproved, vacant land. Remaining areas are portions of access roads and trails or consist of existing plumbing infrastructure. The current uses of the Site and its adjoining properties are not ones that are indicative of the use, treatment, storage, disposal or generation of significant quantities of hazardous substances or petroleum products that are resulting in active impacts to the Site.

5.3 Site Observations

CYA examined the Site for evidence of the following potential environmental concerns:

Conditions	Observed or Noted	Significant Concern?
Hazardous Substances/Petroleum Products	No	Not Applicable
Waste Generation/Storage/Disposal	No	Not Applicable
ASTs	No	Not Applicable
USTs	No	Not Applicable
PCB-Containing Equipment	No	Not Applicable
Chemical/Petroleum Odors	No	Not Applicable
Pools of Liquid	No	Not Applicable
Floor Drains/Sumps/Wells	No	Not Applicable
Drums	No	Not Applicable
Stains or Corrosion	No	Not Applicable

Conditions	Observed or Noted	Significant Concern?
Unidentified Substance Containers	No	Not Applicable
Stained Soil or Pavement	No	Not Applicable
Stressed Vegetation	No	Not Applicable
Pits, Ponds or Lagoons	No	Not Applicable
Wastewater Discharges/Disposal Systems	No	Not Applicable
Septic Systems/Cesspools	No	Not Applicable
Non-Hazardous Solid Waste Disposal Areas	No	Not Applicable
Drinking Water Systems/Water Wells/Other Wells	No	Not Applicable

No remarkable observations relative to potential environmental concerns were noted during the Site reconnaissance.

6.0 INTERVIEW INFORMATION

6.1. Interview With Owner

As stated previously, ownership of the Site parcels is as follows:

- APN 2723-010-094 - City of Los Angeles
- APN 2723-010-270 - Calleguas Municipal Water District
- APN 2723-010-902 - Metropolitan Water District
- APN 2723-010-903 - Metropolitan Water District

During the completion of this Phase I ESA, environmental questionnaires were provided to the Site owners for completion. At the time of this report, completed questionnaires have not been returned to CYA. Given the information available pertaining to the historical assessment and remedial work completed at the overall park property, of which the Site is a part, the lack of interviews with Site owners is not anticipated to be a data gap of significance. However, in the event that the Site owners are available to be interviewed verbally or by way of environmental questionnaires in the future, CYA can and will conduct the interviews at the request of the client.

6.2 Interview With Site Manager

The Site owners are also considered to be the Site Managers. Please refer to Section 6.1 above.

6.3 Interviews With Occupants

The Site has no known long-term occupants.

6.4 Interview With Local Government Official

During the preparation of this assessment, a representative of the DTSC was contacted regarding the status of the regulatory case for the overall park property of which the Site is a part. CYA was informed that while the RACR for the property has been accepted and approved, the LUC has yet to be executed by the City of Los Angeles and the DTSC.

6.5 Interview With Others

No other interviews were conducted as a part of this assessment.

7.0 FINDINGS, OPINION AND CONCLUSIONS AND RECOMMENDATIONS

This ESA has revealed no evidence of current “recognized environmental conditions” in connection with the Site and no basis to consider non-ASTM scope issues (e.g., asbestos containing materials, lead-based paint, etc.). Historical impacts at the Site and its adjacent properties resulting from the former firing range activity to the south of the Site are considered to be a “controlled recognized environmental condition” that does not warrant additional assessment at this time.

As stated previously, although the subject Site was not considered to be significantly impacted and was not subject to remedial activities, the forthcoming LUC and OMP to be executed between the City and the DTSC may still apply to the Site as it is part of the overall Chatsworth Park South property. Until such time that the Site is formally excluded from the LUC and OMP, all work performed in support of the Valley West Feeder No. 1 Access Road project shall comply with DTSCs directives relative to the RAP and the park.

In addition, while the reportedly abandoned six-inch oil pipeline in proximity to the Site limits was not deemed to be of environmental concern during prior assessment and remedial work completed under DTSC oversight, and no reports of a release of petroleum products from the pipeline have been reported, CYA cannot comment on actual subsurface conditions in the area of the pipeline. While CYA does not consider the pipeline to be a “recognized environmental condition” in connection with the Site, the client may desire a higher level of confidence regarding underlying subsurface conditions in its vicinity. If so, it should consider additional evaluation. CYA has confirmed that the pipeline is maintained by Crimson Pipeline L.P. (Crimson), and Crimson has provided support documentation relative to the location of the pipeline Crimson recommends that it be contacted either directly or via USA when Site construction activities begin in the area.

8.0 DEVIATIONS AND DATA GAPS

No deviations or data gaps of significance as defined in the ASTM Standard are noted.

REFERENCES

"All Appropriate Inquiry" as necessary to satisfy the defenses available under 42 USC §§ 9607(b)(3), 9607(r)(1), and 9607(q), relying on definitions provided at 42 USC §§ 9601(35)(B); and as further explained in 40 CFR §§ 312.1 - 312.31.

ASTM International, *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process*, ASTM Designation E1527-13, Published November 2013.

California State Water Resources Control Board, GeoTracker online database: http://www.geotracker.swrcb.ca.gov.

EDR Radius Map Report dated June 4, 2018.

State of California Department of Conservation, Division of Oil and Gas and Geothermal Resources: http://www.consrv.ca.gov/DOG/maps/index_map.htm.

USGS Topographic Map, Los Angeles, California Oat Mountain Quadrangle (2015).

California State Water Resources Control Board, Water Quality Control Plan for the Los Angeles Basin (4), Los Angeles, California, Published 1994.

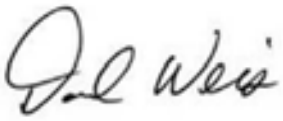
URS, Remedial Action Plan, Chatsworth Park South, Chatsworth, California, dated Feb 15, 2013 (Revised March 15, 2013).

URS, Remedial Action Completion Report, Chatsworth Park South, Chatsworth, California, dated December 20, 2016.

SIGNATURES AND QUALIFICATIONS OF ENVIRONMENTAL PROFESSIONALS

We declare that, to the best of our professional knowledge and belief, we meet the definition of “Environmental Professional” as defined in 40 CFR 312.10. We have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the subject Site. We have developed and performed the “all appropriate inquiries” in conformance with the standards and practices set forth in 40 CFR Part 312.

Colin P. Young, CIH
Principal



Daniel Weis, R.E.H.S.
Associate Environmental Scientist

Environmental professional qualifications are included in Appendix G.

APPENDICES

Appendix A
Vicinity Map and Topographic Map

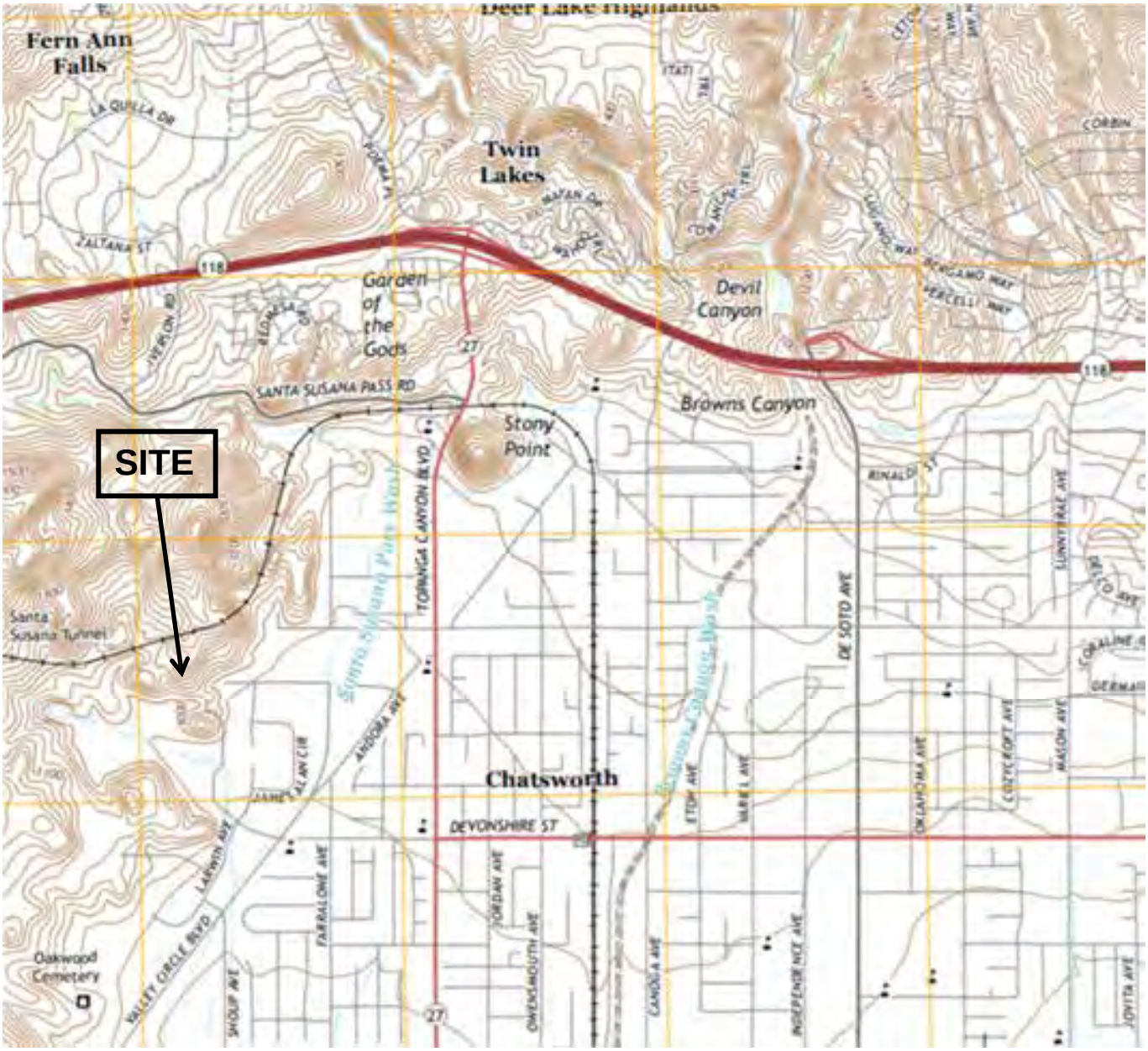
N

Not to Scale

C YOUNG ASSOCIATES

C Young Associates
1042 Skylark Drive
La Jolla, CA 92037

Vicinity Map
West Valley Feeder No. 1 Stage 3 Improvements
Los Angeles County, California



N

Not to Scale

C YOUNG ASSOCIATES

C Young Associates
1042 Skylark Drive
La Jolla, CA 92037

Topographic Map
West Valley Feeder No. 1 Stage 3 Improvements
Los Angeles County, California

Appendix B
Site Plans

N

Not to Scale

C Young Associates
1042 Skylark Drive
La Jolla, CA 92037

Site Plan #1
West Valley Feeder No. 1 Stage 3 Improvements
Los Angeles County, California

N

Not to Scale

C YOUNG ASSOCIATES

C Young Associates
1042 Skylark Drive
La Jolla, CA 92037

Site Plan #2
West Valley Feeder No. 1 Stage 3 Improvements
Los Angeles County, California

Site Plan #3 - West Valley Feeder No. 1 Stage 3 Improvements, Los Angeles County, California

▽24 **Photograph Reference**

C Young Associates
1042 Skylark Drive
La Jolla, CA 92037

C YOUNG CY A ASSOCIATES

Appendix C
Site Photographs

PHOTO 1.

View west at Contractor's Laydown Area
40' X 50' (Partially Undisturbed Area).

PHOTO 2.

View north at Contractor's Laydown Area
40' X 50' (Partially Undisturbed Area).

PHOTO 3.

View east at Contractor's Laydown Area
40' X 50' (Partially Undisturbed Area).

PHOTO 4.

View northwest along West Valley Feeder No. 1 Near WVF1 STA 1405+23.

PHOTO 5.

View west at WVF1 STA 1405+23 Existing air release.

PHOTO 6.

View northeast at the Contractor's Laydown Area 20' X 120'.

PHOTO 7.

View west along asphalt paved access to WVF1 STA 1407+45 Existing Blowoff.

PHOTO 8.

View of WVF1 STA 1407+45 Existing Blowoff

PHOTO 9.

View west along West Valley Feeder No. 1.

PHOTO 10.

Off-Site signage indicating the presence of hazardous substances in the area.

PHOTO 11.

View southeast along West Valley Feeder No. 1 near the permanent access road/turnaround area.

PHOTO 12.

View southwest along West Valley Feeder No. 1, facing WVF1 STA 1415+42.

PHOTO 13.

View southwest along proposed new permanent access road.

PHOTO 14.

View southwest along West Valley Feeder No. 1, facing WVF1 STA 1415+42.

PHOTO 15.

View south near WVF1 STA 1415+42, existing air release and vacuum valve.

PHOTO 16.

View north near WVF1 STA 1415+42, proposed vault and pump well.

PHOTO 17.

View northeast along proposed new permanent access road.

PHOTO 18.

View east along proposed new permanent access road.

PHOTO 19.

View west near WVF1 1416+33, existing blowoff (to be abandoned).

PHOTO 20.

View north at contractor's laydown area 12' X 35'

PHOTO 21.

View north at contractor's laydown area 20' X 80'

PHOTO 22.

View northeast along proposed new permanent access road.

PHOTO 23.

View east along West Valley Feeder No. 2 near contractor's laydown area 20' X 80'.

PHOTO 24.

View west along West Valley Feeder No. 2.

Appendix D
Regulatory Database Report

West Valley Feeder No. 1 Stage 3 Improvements Project
22360 West Devonshire Street
Chatsworth, CA 91311

Inquiry Number: 5375619.1s
July 27, 2018

The EDR Radius Map™ Report

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

TABLE OF CONTENTS

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Executive Summary	ES1
Overview Map	2
Detail Map	3
Map Findings Summary	4
Map Findings	8
Orphan Summary	26
Government Records Searched/Data Currency Tracking	GR-1

GEOCHECK ADDENDUM

GeoCheck - Not Requested

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-13), the ASTM Standard Practice for Environmental Site Assessments for Forestland or Rural Property (E 2247-16), the ASTM Standard Practice for Limited Environmental Due Diligence: Transaction Screen Process (E 1528-14) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

22360 WEST DEVONSHIRE STREET
CHATSWORTH, CA 91311

COORDINATES

Latitude (North):	34.2619540 - 34° 15' 43.03''
Longitude (West):	118.6210480 - 118° 37' 15.77''
Universal Tranverse Mercator:	Zone 11
UTM X (Meters):	350750.1
UTM Y (Meters):	3792195.0
Elevation:	1035 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map:	5630759 OAT MOUNTAIN, CA
Version Date:	2012
Southeast Map:	5630737 CANOGA PARK, CA
Version Date:	2012
Southwest Map:	5630735 CALABASAS, CA
Version Date:	2012
Northwest Map:	5630769 SIMI VALLEY EAST, CA
Version Date:	2012

AERIAL PHOTOGRAPHY IN THIS REPORT

Portions of Photo from:	20140531
Source:	USDA

MAPPED SITES SUMMARY

Target Property Address:
22360 WEST DEVONSHIRE STREET
CHATSWORTH, CA 91311

Click on Map ID to see full detail.

MAP ID	SITE NAME	ADDRESS	DATABASE ACRONYMS	RELATIVE ELEVATION	DIST (ft. & mi.) DIRECTION
A1	CHATSWORTH PARK SOUT	22360 DEVONSHIRE STR	NPDES		TP
A2	CHATSWORTH PARK SOUT	22360 DEVONSHIRE ST	ENVIROSTOR, VCP, HAZNET, CIWQS		TP
3	CHIME CHARTER MIDDLE	22280 DEVONSHIRE STR	ENVIROSTOR, SCH	Lower	2616, 0.495, ESE

EXECUTIVE SUMMARY

TARGET PROPERTY SEARCH RESULTS

The target property was identified in the following records. For more information on this property see page 8 of the attached EDR Radius Map report:

Site	Database(s)	EPA ID
CHATSWORTH PARK SOUT 22360 DEVONSHIRE STR CHATSWORTH, CA 91311	NPDES Facility Status: Active	N/A
CHATSWORTH PARK SOUT 22360 DEVONSHIRE ST CHATSWORTH, CA 91311	ENVIROSTOR Facility Id: 60000893 Status: Active VCP Status: Active Facility Id: 60000893 HAZNET GEPAID: CAP000263467 GEPAID: CAC002721760 CIWQS	N/A

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the search radius around the target property for the following databases:

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL ---------- National Priority List
Proposed NPL ---------- Proposed National Priority List Sites
NPL LIENS ---------- Federal Superfund Liens

Federal Delisted NPL site list

Delisted NPL ---------- National Priority List Deletions

Federal CERCLIS list

FEDERAL FACILITY ---------- Federal Facility Site Information listing
SEMS ---------- Superfund Enterprise Management System

Federal CERCLIS NFRAP site list

SEMS-ARCHIVE ---------- Superfund Enterprise Management System Archive

EXECUTIVE SUMMARY

Federal RCRA CORRACTS facilities list

CORRACTS ..... Corrective Action Report

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF ..... RCRA - Treatment, Storage and Disposal

Federal RCRA generators list

RCRA-LQG ..... RCRA - Large Quantity Generators
RCRA-SQG ..... RCRA - Small Quantity Generators
RCRA-CESQG ..... RCRA - Conditionally Exempt Small Quantity Generator

Federal institutional controls / engineering controls registries

LUCIS ..... Land Use Control Information System
US ENG CONTROLS ..... Engineering Controls Sites List
US INST CONTROL ..... Sites with Institutional Controls

Federal ERNS list

ERNS ..... Emergency Response Notification System

State- and tribal - equivalent NPL

RESPONSE ..... State Response Sites

State and tribal landfill and/or solid waste disposal site lists

SWF/LF ..... Solid Waste Information System

State and tribal leaking storage tank lists

LUST ..... Geotracker's Leaking Underground Fuel Tank Report
INDIAN LUST ..... Leaking Underground Storage Tanks on Indian Land
CPS-SLIC ..... Statewide SLIC Cases

State and tribal registered storage tank lists

FEMA UST ..... Underground Storage Tank Listing
UST ..... Active UST Facilities
AST ..... Aboveground Petroleum Storage Tank Facilities
INDIAN UST ..... Underground Storage Tanks on Indian Land

State and tribal voluntary cleanup sites

INDIAN VCP ..... Voluntary Cleanup Priority Listing

State and tribal Brownfields sites

BROWNFIELDS ..... Considered Brownfieds Sites Listing

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS ..... A Listing of Brownfields Sites

EXECUTIVE SUMMARY

Local Lists of Landfill / Solid Waste Disposal Sites

WMUDS/SWAT	Waste Management Unit Database
SWRCY	Recycler Database
HAULERS	Registered Waste Tire Haulers Listing
INDIAN ODI	Report on the Status of Open Dumps on Indian Lands
DEBRIS REGION 9	Torres Martinez Reservation Illegal Dump Site Locations
ODI	Open Dump Inventory
IHS OPEN DUMPS	Open Dumps on Indian Land

Local Lists of Hazardous waste / Contaminated Sites

US HIST CDL	Delisted National Clandestine Laboratory Register
AOCONCERN	San Gabriel Valley Areas of Concern
HIST Cal-Sites	Historical Calsites Database
SCH	School Property Evaluation Program
CDL	Clandestine Drug Labs
Toxic Pits	Toxic Pits Cleanup Act Sites
US CDL	National Clandestine Laboratory Register
CERS HAZ WASTE	CERS HAZ WASTE

Local Lists of Registered Storage Tanks

SWEEPS UST	SWEEPS UST Listing
HIST UST	Hazardous Substance Storage Container Database
CA FID UST	Facility Inventory Database
CERS TANKS	California Environmental Reporting System (CERS) Tanks

Local Land Records

LIENS	Environmental Liens Listing
LIENS 2	CERCLA Lien Information
DEED	Deed Restriction Listing

Records of Emergency Release Reports

HMIRS	Hazardous Materials Information Reporting System
CHMIRS	California Hazardous Material Incident Report System
LDS	Land Disposal Sites Listing
MCS	Military Cleanup Sites Listing
SPILLS 90	SPILLS 90 data from FirstSearch

Other Ascertainable Records

RCRA NonGen / NLR	RCRA - Non Generators / No Longer Regulated
FUDS	Formerly Used Defense Sites
DOD	Department of Defense Sites
SCRD DRYCLEANERS	State Coalition for Remediation of Drycleaners Listing
US FIN ASSUR	Financial Assurance Information
EPA WATCH LIST	EPA WATCH LIST
2020 COR ACTION	2020 Corrective Action Program List
TSCA	Toxic Substances Control Act
TRIS	Toxic Chemical Release Inventory System
SSTS	Section 7 Tracking Systems

EXECUTIVE SUMMARY

ROD	Records Of Decision
RMP	Risk Management Plans
RAATS	RCRA Administrative Action Tracking System
PRP	Potentially Responsible Parties
PADS	PCB Activity Database System
ICIS	Integrated Compliance Information System
FTTS	FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
MLTS	Material Licensing Tracking System
COAL ASH DOE	Steam-Electric Plant Operation Data
COAL ASH EPA	Coal Combustion Residues Surface Impoundments List
PCB TRANSFORMER	PCB Transformer Registration Database
RADINFO	Radiation Information Database
HIST FTTS	FIFRA/TSCA Tracking System Administrative Case Listing
DOT OPS	Incident and Accident Data
CONSENT	Superfund (CERCLA) Consent Decrees
INDIAN RESERV	Indian Reservations
FUSRAP	Formerly Utilized Sites Remedial Action Program
UMTRA	Uranium Mill Tailings Sites
LEAD SMELTERS	Lead Smelter Sites
US AIRS	Aerometric Information Retrieval System Facility Subsystem
US MINES	Mines Master Index File
ABANDONED MINES	Abandoned Mines
FINDS	Facility Index System/Facility Registry System
UXO	Unexploded Ordnance Sites
DOCKET HWC	Hazardous Waste Compliance Docket Listing
ECHO	Enforcement & Compliance History Information
FUELS PROGRAM	EPA Fuels Program Registered Listing
CA BOND EXP. PLAN	Bond Expenditure Plan
Cortese	"Cortese" Hazardous Waste & Substances Sites List
CUPA Listings	CUPA Resources List
DRYCLEANERS	Cleaner Facilities
EMI	Emissions Inventory Data
ENF	Enforcement Action Listing
Financial Assurance	Financial Assurance Information Listing
ICE	ICE
HIST CORTESE	Hazardous Waste & Substance Site List
LOS ANGELES CO. HMS	HMS: Street Number List
HWP	EnviroStor Permitted Facilities Listing
HWT	Registered Hazardous Waste Transporter Database
MINES	Mines Site Location Listing
MWMP	Medical Waste Management Program Listing
PEST LIC	Pesticide Regulation Licenses Listing
PROC	Certified Processors Database
Notify 65	Proposition 65 Records
LA Co. Site Mitigation	Site Mitigation List
UIC	UIC Listing
WASTEWATER PITS	Oil Wastewater Pits Listing
WDS	Waste Discharge System
WIP	Well Investigation Program Case List
MILITARY PRIV SITES	MILITARY PRIV SITES (GEOTRACKER)
UIC GEO	UIC GEO (GEOTRACKER)
CERS	CERS
WELL STIM PROJ	Well Stimulation Project (GEOTRACKER)
SAMPLING POINT	SAMPLING POINT (GEOTRACKER)

EXECUTIVE SUMMARY

OTHER OIL GAS..... OTHER OIL & GAS (GEOTRACKER)
PROD WATER PONDS..... PROD WATER PONDS (GEOTRACKER)
PROJECT..... PROJECT (GEOTRACKER)
NON-CASE INFO..... NON-CASE INFO (GEOTRACKER)

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP..... EDR Proprietary Manufactured Gas Plants
EDR Hist Auto..... EDR Exclusive Historical Auto Stations
EDR Hist Cleaner..... EDR Exclusive Historical Cleaners

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LF..... Recovered Government Archive Solid Waste Facilities List
RGA LUST..... Recovered Government Archive Leaking Underground Storage Tank

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified in the following databases.

Elevations have been determined from the USGS Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property.
Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

STANDARD ENVIRONMENTAL RECORDS

State- and tribal - equivalent CERCLIS

ENVIROSTOR: The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifes sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

A review of the ENVIROSTOR list, as provided by EDR, and dated 04/30/2018 has revealed that there is 1 ENVIROSTOR site within approximately 1 mile of the target property.

EXECUTIVE SUMMARY

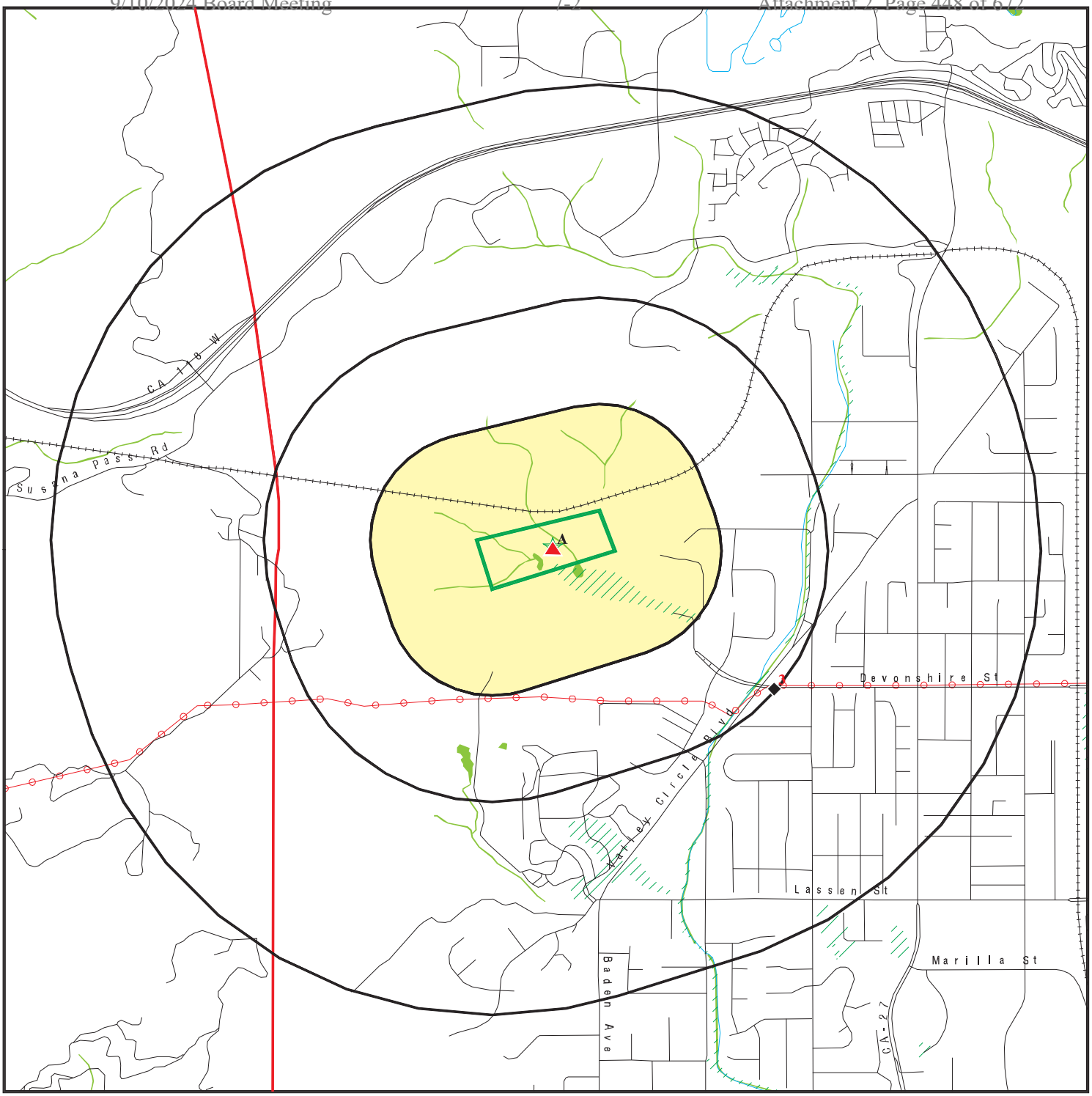
Lower Elevation	Address	Direction / Distance	Map ID	Page
CHIME CHARTER MIDDLE	***22280 DEVONSHIRE STR***	***ESE 1/4 - 1/2 (0.495 mi.)***	***3***	***23***
Facility Id: 70000135				
Status: No Further Action				

EXECUTIVE SUMMARY

Due to poor or inadequate address information, the following sites were not mapped. Count: 1 records.

Site Name	Database(s)
JIM DANDY DRY CLEANERS,JULIUS ALLI	DRYCLEANERS

OVERVIEW MAP - 5375619.1S

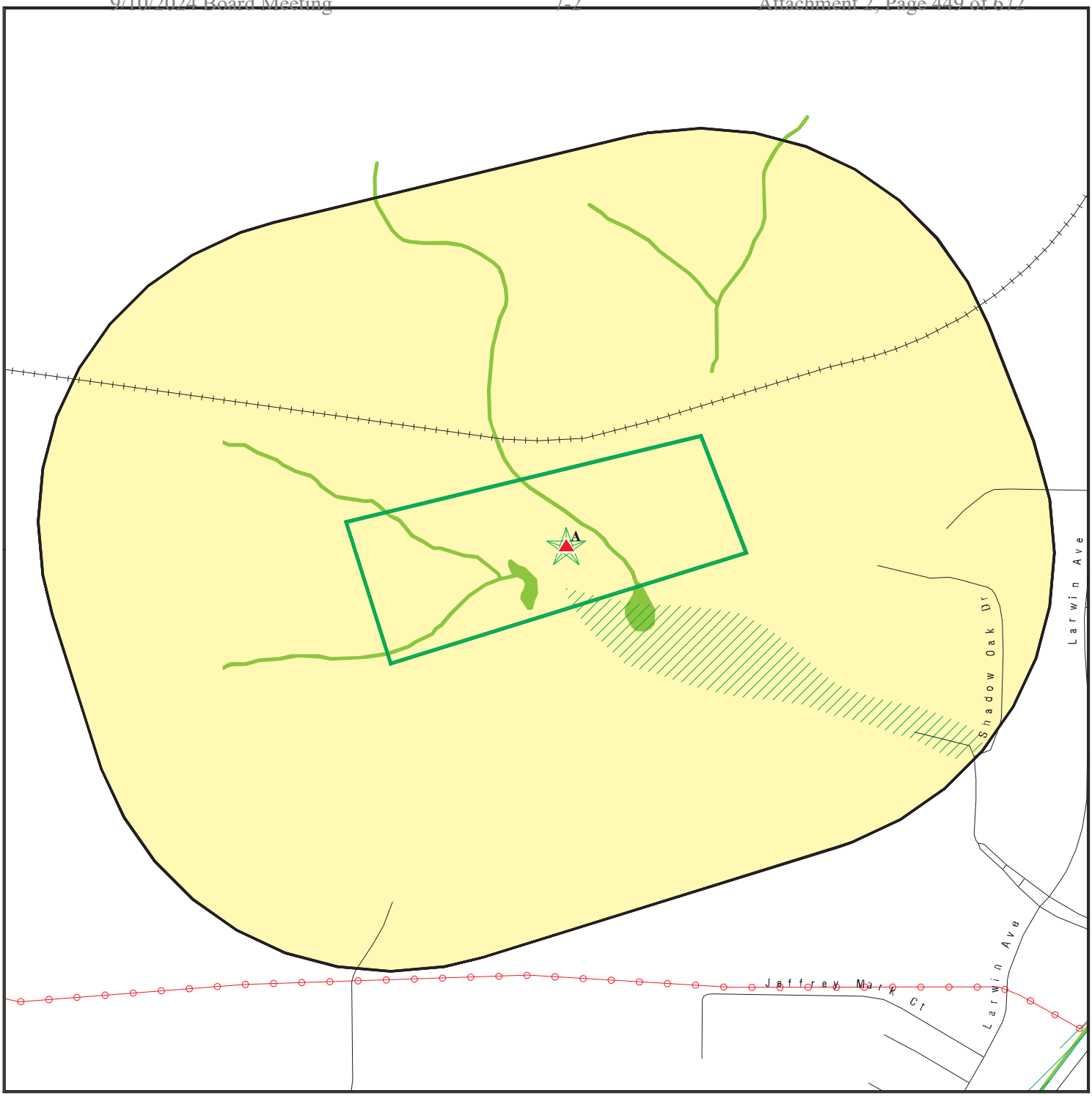


- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- County Boundary
- Power transmission lines
- 100-year flood zone
- 500-year flood zone
- National Wetland Inventory
- State Wetlands
- Areas of Concern

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME:	West Valley Feeder No. 1 Stage 3 Improvements Project	CLIENT:	C Young Associates
ADDRESS:	22360 West Devonshire Street Chatsworth CA 91311	CONTACT:	Daniel Weis
LAT/LONG:	34.261954 / 118.621048	INQUIRY #:	5375619.1s
		DATE:	July 27, 2018 5:29 pm

DETAIL MAP - 5375619.1S



- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- Sensitive Receptors
- National Priority List Sites
- Dept. Defense Sites

0 1/16 1/8 1/4 Miles

- Indian Reservations BIA
- Power transmission lines
- 100-year flood zone
- 500-year flood zone
- National Wetland Inventory
- State Wetlands
- Areas of Concern

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME:	West Valley Feeder No. 1 Stage 3 Improvements Project	CLIENT:	C Young Associates
ADDRESS:	22360 West Devonshire Street Chatsworth CA 91311	CONTACT:	Daniel Weis
		INQUIRY #:	5375619.1s
LAT/LONG:	34.261954 / 118.621048	DATE:	July 27, 2018 5:31 pm

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
STANDARD ENVIRONMENTAL RECORDS								
Federal NPL site list								
NPL	1.000		0	0	0	0	NR	0
Proposed NPL	1.000		0	0	0	0	NR	0
NPL LIENS	0.001		0	NR	NR	NR	NR	0
Federal Delisted NPL site list								
Delisted NPL	1.000		0	0	0	0	NR	0
Federal CERCLIS list								
FEDERAL FACILITY	0.500		0	0	0	NR	NR	0
SEMS	0.500		0	0	0	NR	NR	0
Federal CERCLIS NFRAP site list								
SEMS-ARCHIVE	0.500		0	0	0	NR	NR	0
Federal RCRA CORRACTS facilities list								
CORRACTS	1.000		0	0	0	0	NR	0
Federal RCRA non-CORRACTS TSD facilities list								
RCRA-TSDF	0.500		0	0	0	NR	NR	0
Federal RCRA generators list								
RCRA-LQG	0.250		0	0	NR	NR	NR	0
RCRA-SQG	0.250		0	0	NR	NR	NR	0
RCRA-CESQG	0.250		0	0	NR	NR	NR	0
Federal institutional controls / engineering controls registries								
LUCIS	0.500		0	0	0	NR	NR	0
US ENG CONTROLS	0.500		0	0	0	NR	NR	0
US INST CONTROL	0.500		0	0	0	NR	NR	0
Federal ERNS list								
ERNS	0.001		0	NR	NR	NR	NR	0
State- and tribal - equivalent NPL								
RESPONSE	1.000		0	0	0	0	NR	0
State- and tribal - equivalent CERCLIS								
ENVIROSTOR	1.000	1	0	0	1	0	NR	2
State and tribal landfill and/or solid waste disposal site lists								
SWF/LF	0.500		0	0	0	NR	NR	0
State and tribal leaking storage tank lists								
LUST	0.500		0	0	0	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
INDIAN LUST	0.500		0	0	0	NR	NR	0
CPS-SLIC	0.500		0	0	0	NR	NR	0
State and tribal registered storage tank lists								
FEMA UST	0.250		0	0	NR	NR	NR	0
UST	0.250		0	0	NR	NR	NR	0
AST	0.250		0	0	NR	NR	NR	0
INDIAN UST	0.250		0	0	NR	NR	NR	0
State and tribal voluntary cleanup sites								
INDIAN VCP	0.500		0	0	0	NR	NR	0
VCP	0.500	1	0	0	0	NR	NR	1
State and tribal Brownfields sites								
BROWNFIELDS	0.500		0	0	0	NR	NR	0
ADDITIONAL ENVIRONMENTAL RECORDS								
Local Brownfield lists								
US BROWNFIELDS	0.500		0	0	0	NR	NR	0
Local Lists of Landfill / Solid Waste Disposal Sites								
WMUDS/SWAT	0.500		0	0	0	NR	NR	0
SWRCY	0.500		0	0	0	NR	NR	0
HAULERS	0.001		0	NR	NR	NR	NR	0
INDIAN ODI	0.500		0	0	0	NR	NR	0
DEBRIS REGION 9	0.500		0	0	0	NR	NR	0
ODI	0.500		0	0	0	NR	NR	0
IHS OPEN DUMPS	0.500		0	0	0	NR	NR	0
Local Lists of Hazardous waste / Contaminated Sites								
US HIST CDL	0.001		0	NR	NR	NR	NR	0
AOCONCERN	1.000		0	0	0	0	NR	0
HIST Cal-Sites	1.000		0	0	0	0	NR	0
SCH	0.250		0	0	NR	NR	NR	0
CDL	0.001		0	NR	NR	NR	NR	0
Toxic Pits	1.000		0	0	0	0	NR	0
US CDL	0.001		0	NR	NR	NR	NR	0
CERS HAZ WASTE	0.250		0	0	NR	NR	NR	0
Local Lists of Registered Storage Tanks								
SWEEPS UST	0.250		0	0	NR	NR	NR	0
HIST UST	0.250		0	0	NR	NR	NR	0
CA FID UST	0.250		0	0	NR	NR	NR	0
CERS TANKS	0.250		0	0	NR	NR	NR	0
Local Land Records								
LIENS	0.001		0	NR	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
LIENS 2	0.001		0	NR	NR	NR	NR	0
DEED	0.500		0	0	0	NR	NR	0
Records of Emergency Release Reports								
HMIRS	0.001		0	NR	NR	NR	NR	0
CHMIRS	0.001		0	NR	NR	NR	NR	0
LDS	0.001		0	NR	NR	NR	NR	0
MCS	0.001		0	NR	NR	NR	NR	0
SPILLS 90	0.001		0	NR	NR	NR	NR	0
Other Ascertainable Records								
RCRA NonGen / NLR	0.250		0	0	NR	NR	NR	0
FUDS	1.000		0	0	0	0	NR	0
DOD	1.000		0	0	0	0	NR	0
SCRD DRYCLEANERS	0.500		0	0	0	NR	NR	0
US FIN ASSUR	0.001		0	NR	NR	NR	NR	0
EPA WATCH LIST	0.001		0	NR	NR	NR	NR	0
2020 COR ACTION	0.250		0	0	NR	NR	NR	0
TSCA	0.001		0	NR	NR	NR	NR	0
TRIS	0.001		0	NR	NR	NR	NR	0
SSTS	0.001		0	NR	NR	NR	NR	0
ROD	1.000		0	0	0	0	NR	0
RMP	0.001		0	NR	NR	NR	NR	0
RAATS	0.001		0	NR	NR	NR	NR	0
PRP	0.001		0	NR	NR	NR	NR	0
PADS	0.001		0	NR	NR	NR	NR	0
ICIS	0.001		0	NR	NR	NR	NR	0
FTTS	0.001		0	NR	NR	NR	NR	0
MLTS	0.001		0	NR	NR	NR	NR	0
COAL ASH DOE	0.001		0	NR	NR	NR	NR	0
COAL ASH EPA	0.500		0	0	0	NR	NR	0
PCB TRANSFORMER	0.001		0	NR	NR	NR	NR	0
RADINFO	0.001		0	NR	NR	NR	NR	0
HIST FTTS	0.001		0	NR	NR	NR	NR	0
DOT OPS	0.001		0	NR	NR	NR	NR	0
CONSENT	1.000		0	0	0	0	NR	0
INDIAN RESERV	0.001		0	NR	NR	NR	NR	0
FUSRAP	1.000		0	0	0	0	NR	0
UMTRA	0.500		0	0	0	NR	NR	0
LEAD SMELTERS	0.001		0	NR	NR	NR	NR	0
US AIRS	0.001		0	NR	NR	NR	NR	0
US MINES	0.250		0	0	NR	NR	NR	0
ABANDONED MINES	0.001		0	NR	NR	NR	NR	0
FINDS	0.001		0	NR	NR	NR	NR	0
UXO	1.000		0	0	0	0	NR	0
DOCKET HWC	0.001		0	NR	NR	NR	NR	0
ECHO	0.001		0	NR	NR	NR	NR	0
FUELS PROGRAM	0.250		0	0	NR	NR	NR	0
CA BOND EXP. PLAN	1.000		0	0	0	0	NR	0
Cortese	0.500		0	0	0	NR	NR	0
CUPA Listings	0.250		0	0	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
DRYCLEANERS	0.250		0	0	NR	NR	NR	0
EMI	0.001		0	NR	NR	NR	NR	0
ENF	0.001		0	NR	NR	NR	NR	0
Financial Assurance	0.001		0	NR	NR	NR	NR	0
HAZNET	0.001	1	0	NR	NR	NR	NR	1
ICE	0.001		0	NR	NR	NR	NR	0
HIST CORTESE	0.500		0	0	0	NR	NR	0
LOS ANGELES CO. HMS	0.001		0	NR	NR	NR	NR	0
HWP	1.000		0	0	0	0	NR	0
HWT	0.250		0	0	NR	NR	NR	0
MINES	0.001		0	NR	NR	NR	NR	0
MWMP	0.250		0	0	NR	NR	NR	0
NPDES	0.001	1	0	NR	NR	NR	NR	1
PEST LIC	0.001		0	NR	NR	NR	NR	0
PROC	0.500		0	0	0	NR	NR	0
Notify 65	1.000		0	0	0	0	NR	0
LA Co. Site Mitigation	0.001		0	NR	NR	NR	NR	0
UIC	0.001		0	NR	NR	NR	NR	0
WASTEWATER PITS	0.500		0	0	0	NR	NR	0
WDS	0.001		0	NR	NR	NR	NR	0
WIP	0.250		0	0	NR	NR	NR	0
CIWQS	0.001	1	0	NR	NR	NR	NR	1
MILITARY PRIV SITES	0.001		0	NR	NR	NR	NR	0
UIC GEO	0.001		0	NR	NR	NR	NR	0
CERS	0.001		0	NR	NR	NR	NR	0
WELL STIM PROJ	0.001		0	NR	NR	NR	NR	0
SAMPLING POINT	0.001		0	NR	NR	NR	NR	0
OTHER OIL GAS	0.001		0	NR	NR	NR	NR	0
PROD WATER PONDS	0.001		0	NR	NR	NR	NR	0
PROJECT	0.001		0	NR	NR	NR	NR	0
NON-CASE INFO	0.001		0	NR	NR	NR	NR	0
EDR HIGH RISK HISTORICAL RECORDS								
EDR Exclusive Records								
EDR MGP	1.000		0	0	0	0	NR	0
EDR Hist Auto	0.125		0	NR	NR	NR	NR	0
EDR Hist Cleaner	0.125		0	NR	NR	NR	NR	0
EDR RECOVERED GOVERNMENT ARCHIVES								
Exclusive Recovered Govt. Archives								
RGA LF	0.001		0	NR	NR	NR	NR	0
RGA LUST	0.001		0	NR	NR	NR	NR	0
- Totals --		5	0	0	1	0	0	6

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

MAP FINDINGS

Map ID / Direction / Distance / Elevation	Site	Database(s)	EDR ID Number / EPA ID Number
A1	**CHATSWORTH PARK SOUTH**	**NPDES**	**S118590651**
Target	**22360 DEVONSHIRE STREET**		**N/A**
Property	**CHATSWORTH, CA 91311**		

Site 1 of 2 in cluster A

Actual: 1035 ft.

NPDES:

Facility Status:	Active
NPDES Number:	CAS000002
Region:	4
Agency Number:	0
Regulatory Measure ID:	471130
Place ID:	Not reported
Order Number:	2009-0009-DWQ
WDID:	4 19C375884
Regulatory Measure Type:	Enrollee
Program Type:	Construction
Adoption Date Of Regulatory Measure:	Not reported
Effective Date Of Regulatory Measure:	04/05/2016
Termination Date Of Regulatory Measure:	Not reported
Expiration Date Of Regulatory Measure:	Not reported
Discharge Address:	221 N Figueroa Street
Discharge Name:	Department of Recreation and Parks
Discharge City:	Los Angeles
Discharge State:	California
Discharge Zip:	90012
Status:	Not reported
Status Date:	Not reported
Operator Name:	Not reported
Operator Address:	Not reported
Operator City:	Not reported
Operator State:	Not reported
Operator Zip:	Not reported

NPDES as of 03/2018:

NPDES Number:	Not reported
Status:	Not reported
Agency Number:	Not reported
Region:	4
Regulatory Measure ID:	471130
Order Number:	Not reported
Regulatory Measure Type:	Construction
Place ID:	Not reported
WDID:	4 19C375884
Program Type:	Not reported
Adoption Date Of Regulatory Measure:	Not reported
Effective Date Of Regulatory Measure:	Not reported
Expiration Date Of Regulatory Measure:	Not reported
Termination Date Of Regulatory Measure:	Not reported
Discharge Name:	Not reported
Discharge Address:	Not reported
Discharge City:	Not reported
Discharge State:	Not reported
Discharge Zip:	Not reported
Received Date:	03/31/2016
Processed Date:	04/05/2016
Status:	Active
Status Date:	04/05/2016
Place Size:	81
Place Size Unit:	Acres

MAP FINDINGS

Map ID
Direction
Distance
Elevation | Site | Database(s) | EDR ID Number EPA ID Number

CHATSWORTH PARK SOUTH (Continued) **S118590651**

Contact:	Paul Davis
Contact Title:	Not reported
Contact Phone:	213-202-2667
Contact Phone Ext:	Not reported
Contact Email:	Paul.J.Davis@lacity.org
Operator Name:	Department of Recreation and Parks
Operator Address:	221 N Figueroa Street
Operator City:	Los Angeles
Operator State:	California
Operator Zip:	90012
Operator Contact:	Paul Davis
Operator Contact Title:	Environmental Supervisor
Operator Contact Phone:	213-202-2681
Operator Contact Phone Ext:	Not reported
Operator Contact Email:	Paul.J.Davis@lacity.org
Operator Type:	County Agency
Developer:	American Integrated Services Inc
Developer Address:	1502 Opp Street
Developer City:	Wilmington
Developer State:	California
Developer Zip:	90744
Developer Contact:	Nathan Stanley
Developer Contact Title:	Dir. of Preconstruction
Constype Linear Utility Ind:	N
Emergency Phone:	951-907-8952
Emergency Phone Ext:	Not reported
Constype Above Ground Ind:	N
Constype Below Ground Ind:	N
Constype Cable Line Ind:	N
Constype Comm Line Ind:	N
Constype Commertial Ind:	N
Constype Electrical Line Ind:	N
Constype Gas Line Ind:	N
Constype Industrial Ind:	N
Constype Other Description:	Remediation and park
Constype Other Ind:	N
Constype Recons Ind:	N
Constype Residential Ind:	N
Constype Transport Ind:	N
Constype Utility Description:	Not reported
Constype Utility Ind:	N
Constype Water Sewer Ind:	N
Dir Discharge Uswater Ind:	N
Receiving Water Name:	Indirect discharge
Certifier:	Paul Davis
Certifier Title:	Environmental Supervisor
Certification Date:	30-NOV-16
Primary Sic:	Not reported
Secondary Sic:	Not reported
Tertiary Sic:	Not reported
NPDES Number:	CAS000002
Status:	Active
Agency Number:	0
Region:	4
Regulatory Measure ID:	471130
Order Number:	2009-0009-DWQ

MAP FINDINGS

Map ID
Direction
Distance
Elevation | Site | Database(s) | EDR ID Number EPA ID Number

CHATSWORTH PARK SOUTH (Continued) **S118590651**

Regulatory Measure Type:	Enrollee
Place ID:	Not reported
WDID:	4 19C375884
Program Type:	Construction
Adoption Date Of Regulatory Measure:	Not reported
Effective Date Of Regulatory Measure:	04/05/2016
Expiration Date Of Regulatory Measure:	Not reported
Termination Date Of Regulatory Measure:	Not reported
Discharge Name:	Department of Recreation and Parks
Discharge Address:	221 N Figueroa Street
Discharge City:	Los Angeles
Discharge State:	California
Discharge Zip:	90012
Received Date:	Not reported
Processed Date:	Not reported
Status:	Not reported
Status Date:	Not reported
Place Size:	Not reported
Place Size Unit:	Not reported
Contact:	Not reported
Contact Title:	Not reported
Contact Phone:	Not reported
Contact Phone Ext:	Not reported
Contact Email:	Not reported
Operator Name:	Not reported
Operator Address:	Not reported
Operator City:	Not reported
Operator State:	Not reported
Operator Zip:	Not reported
Operator Contact:	Not reported
Operator Contact Title:	Not reported
Operator Contact Phone:	Not reported
Operator Contact Phone Ext:	Not reported
Operator Contact Email:	Not reported
Operator Type:	Not reported
Developer:	Not reported
Developer Address:	Not reported
Developer City:	Not reported
Developer State:	Not reported
Developer Zip:	Not reported
Developer Contact:	Not reported
Developer Contact Title:	Not reported
Constype Linear Utility Ind:	Not reported
Emergency Phone:	Not reported
Emergency Phone Ext:	Not reported
Constype Above Ground Ind:	Not reported
Constype Below Ground Ind:	Not reported
Constype Cable Line Ind:	Not reported
Constype Comm Line Ind:	Not reported
Constype Commertial Ind:	Not reported
Constype Electrical Line Ind:	Not reported
Constype Gas Line Ind:	Not reported
Constype Industrial Ind:	Not reported
Constype Other Description:	Not reported
Constype Other Ind:	Not reported
Constype Recons Ind:	Not reported
Constype Residential Ind:	Not reported

MAP FINDINGS

Map ID / Direction / Distance / Elevation | Site | Database(s) | EDR ID Number / EPA ID Number

CHATSWORTH PARK SOUTH (Continued) **S118590651**

Constype Transport Ind:	Not reported
Constype Utility Description:	Not reported
Constype Utility Ind:	Not reported
Constype Water Sewer Ind:	Not reported
Dir Discharge Uswater Ind:	Not reported
Receiving Water Name:	Not reported
Certifier:	Not reported
Certifier Title:	Not reported
Certification Date:	Not reported
Primary Sic:	Not reported
Secondary Sic:	Not reported
Tertiary Sic:	Not reported

Facility Status:	Not reported
NPDES Number:	Not reported
Region:	Not reported
Agency Number:	Not reported
Regulatory Measure ID:	Not reported
Place ID:	Not reported
Order Number:	Not reported
WDID:	4 19C375884
Regulatory Measure Type:	Construction
Program Type:	Not reported
Adoption Date Of Regulatory Measure:	Not reported
Effective Date Of Regulatory Measure:	Not reported
Termination Date Of Regulatory Measure:	Not reported
Expiration Date Of Regulatory Measure:	Not reported
Discharge Address:	Not reported
Discharge Name:	Not reported
Discharge City:	Not reported
Discharge State:	Not reported
Discharge Zip:	Not reported
Status:	Active
Status Date:	09/14/2017
Operator Name:	Department of Recreation and Parks
Operator Address:	221 N Figueroa Street
Operator City:	Los Angeles
Operator State:	California
Operator Zip:	90012

NPDES as of 03/2018:

NPDES Number:	Not reported
Status:	Not reported
Agency Number:	Not reported
Region:	4
Regulatory Measure ID:	471130
Order Number:	Not reported
Regulatory Measure Type:	Construction
Place ID:	Not reported
WDID:	4 19C375884
Program Type:	Not reported
Adoption Date Of Regulatory Measure:	Not reported
Effective Date Of Regulatory Measure:	Not reported
Expiration Date Of Regulatory Measure:	Not reported
Termination Date Of Regulatory Measure:	Not reported
Discharge Name:	Not reported
Discharge Address:	Not reported

MAP FINDINGS

Map ID / Direction / Distance / Elevation | Site | Database(s) | EDR ID Number / EPA ID Number

CHATSWORTH PARK SOUTH (Continued) **S118590651**

Discharge City:	Not reported
Discharge State:	Not reported
Discharge Zip:	Not reported
Received Date:	03/31/2016
Processed Date:	04/05/2016
Status:	Active
Status Date:	04/05/2016
Place Size:	81
Place Size Unit:	Acres
Contact:	Paul Davis
Contact Title:	Not reported
Contact Phone:	213-202-2667
Contact Phone Ext:	Not reported
Contact Email:	Paul.J.Davis@lacity.org
Operator Name:	Department of Recreation and Parks
Operator Address:	221 N Figueroa Street
Operator City:	Los Angeles
Operator State:	California
Operator Zip:	90012
Operator Contact:	Paul Davis
Operator Contact Title:	Environmental Supervisor
Operator Contact Phone:	213-202-2681
Operator Contact Phone Ext:	Not reported
Operator Contact Email:	Paul.J.Davis@lacity.org
Operator Type:	County Agency
Developer:	American Integrated Services Inc
Developer Address:	1502 Opp Street
Developer City:	Wilmington
Developer State:	California
Developer Zip:	90744
Developer Contact:	Nathan Stanley
Developer Contact Title:	Dir. of Preconstruction
Constype Linear Utility Ind:	N
Emergency Phone:	951-907-8952
Emergency Phone Ext:	Not reported
Constype Above Ground Ind:	N
Constype Below Ground Ind:	N
Constype Cable Line Ind:	N
Constype Comm Line Ind:	N
Constype Commertial Ind:	N
Constype Electrical Line Ind:	N
Constype Gas Line Ind:	N
Constype Industrial Ind:	N
Constype Other Description:	Remediation and park
Constype Other Ind:	N
Constype Recons Ind:	N
Constype Residential Ind:	N
Constype Transport Ind:	N
Constype Utility Description:	Not reported
Constype Utility Ind:	N
Constype Water Sewer Ind:	N
Dir Discharge Uswater Ind:	N
Receiving Water Name:	Indirect discharge
Certifier:	Paul Davis
Certifier Title:	Environmental Supervisor
Certification Date:	30-NOV-16
Primary Sic:	Not reported

MAP FINDINGS

Map ID / Direction / Distance / Elevation | Site | Database(s) | EDR ID Number / EPA ID Number

CHATSWORTH PARK SOUTH (Continued) **S118590651**

Secondary Sic:	Not reported
Tertiary Sic:	Not reported
NPDES Number:	CAS000002
Status:	Active
Agency Number:	0
Region:	4
Regulatory Measure ID:	471130
Order Number:	2009-0009-DWQ
Regulatory Measure Type:	Enrollee
Place ID:	Not reported
WDID:	4 19C375884
Program Type:	Construction
Adoption Date Of Regulatory Measure:	Not reported
Effective Date Of Regulatory Measure:	04/05/2016
Expiration Date Of Regulatory Measure:	Not reported
Termination Date Of Regulatory Measure:	Not reported
Discharge Name:	Department of Recreation and Parks
Discharge Address:	221 N Figueroa Street
Discharge City:	Los Angeles
Discharge State:	California
Discharge Zip:	90012
Received Date:	Not reported
Processed Date:	Not reported
Status:	Not reported
Status Date:	Not reported
Place Size:	Not reported
Place Size Unit:	Not reported
Contact:	Not reported
Contact Title:	Not reported
Contact Phone:	Not reported
Contact Phone Ext:	Not reported
Contact Email:	Not reported
Operator Name:	Not reported
Operator Address:	Not reported
Operator City:	Not reported
Operator State:	Not reported
Operator Zip:	Not reported
Operator Contact:	Not reported
Operator Contact Title:	Not reported
Operator Contact Phone:	Not reported
Operator Contact Phone Ext:	Not reported
Operator Contact Email:	Not reported
Operator Type:	Not reported
Developer:	Not reported
Developer Address:	Not reported
Developer City:	Not reported
Developer State:	Not reported
Developer Zip:	Not reported
Developer Contact:	Not reported
Developer Contact Title:	Not reported
Constype Linear Utility Ind:	Not reported
Emergency Phone:	Not reported
Emergency Phone Ext:	Not reported
Constype Above Ground Ind:	Not reported
Constype Below Ground Ind:	Not reported
Constype Cable Line Ind:	Not reported

MAP FINDINGS

Map ID / Direction / Distance / Elevation | Site | Database(s) | EDR ID Number / EPA ID Number

CHATSWORTH PARK SOUTH (Continued) **S118590651**

Constype Comm Line Ind:	Not reported
Constype Commertial Ind:	Not reported
Constype Electrical Line Ind:	Not reported
Constype Gas Line Ind:	Not reported
Constype Industrial Ind:	Not reported
Constype Other Description:	Not reported
Constype Other Ind:	Not reported
Constype Recons Ind:	Not reported
Constype Residential Ind:	Not reported
Constype Transport Ind:	Not reported
Constype Utility Description:	Not reported
Constype Utility Ind:	Not reported
Constype Water Sewer Ind:	Not reported
Dir Discharge Uswater Ind:	Not reported
Receiving Water Name:	Not reported
Certifier:	Not reported
Certifier Title:	Not reported
Certification Date:	Not reported
Primary Sic:	Not reported
Secondary Sic:	Not reported
Tertiary Sic:	Not reported

A2 Target Property **CHATSWORTH PARK SOUTH** **ENVIROSTOR** **S109034309**
22360 DEVONSHIRE ST **VCP** **N/A**
CHATSWORTH, CA 91311 **HAZNET**
CIWQS

Site 2 of 2 in cluster A

Actual: 1035 ft.

ENVIROSTOR:

Facility ID:	60000893
Status:	Active
Status Date:	03/03/2010
Site Code:	301384
Site Type:	Voluntary Cleanup
Site Type Detailed:	Voluntary Cleanup
Acres:	81
NPL:	NO
Regulatory Agencies:	SMBRP
Lead Agency:	SMBRP
Program Manager:	Chand Sultana
Supervisor:	Allan Plaza
Division Branch:	Cleanup Chatsworth
Assembly:	38
Senate:	27
Special Program:	Voluntary Cleanup Program
Restricted Use:	NO
Site Mgmt Req:	NONE SPECIFIED
Funding:	Responsible Party
Latitude:	34.25814
Longitude:	-118.6148
APN:	NONE SPECIFIED
Past Use:	FIRING RANGE - SMALL ARMS ETC...
Potential COC:	Under Investigation Arsenic Dioxin (as 2,3,7,8-TCDD TEQ Lead Polynuclear aromatic hydrocarbons (PAHs
Confirmed COC:	30001-NO 30009-NO Lead Polynuclear aromatic hydrocarbons (PAHs 31001-NO
Potential Description:	SOIL, SURFW

MAP FINDINGS

Map ID / Direction / Distance / Elevation | Site | Database(s) | EDR ID Number / EPA ID Number

CHATSWORTH PARK SOUTH (Continued) **S109034309**

Alias Name: 301384
Alias Type: Project Code (Site Code)
Alias Name: 60000893
Alias Type: Envirostor ID Number

Completed Info:

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Voluntary Cleanup Agreement
Completed Date: 09/08/2008
Comments: Proponent signed VCA

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: CEQA - Responsible Agency Review
Completed Date: 07/23/2013
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: State/Federal Funded Site Contract
Completed Date: 04/30/2010
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Annual Oversight Cost Estimate
Completed Date: 09/25/2014
Comments: 2014-2015 Estimated Oversight Costs

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Annual Oversight Cost Estimate
Completed Date: 09/11/2015
Comments: completed

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Annual Oversight Cost Estimate
Completed Date: 09/15/2016
Comments: Annual Cost Estimate Letter sent out

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Annual Oversight Cost Estimate
Completed Date: 09/28/2017
Comments: 2017-2018 Annual Oversight Cost Estimate

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: State/Federal Funded Site Work Order
Completed Date: 01/25/2010
Comments: Start Work issued.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Site Characterization Workplan
Completed Date: 03/04/2010

MAP FINDINGS

Map ID
Direction
Distance
Elevation | Site | Database(s) | EDR ID Number EPA ID Number

CHATSWORTH PARK SOUTH (Continued) **S109034309**

Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Site Characterization Report
Completed Date: 01/10/2011
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Application
Completed Date: 09/28/2009
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Risk Assessment Workplan
Completed Date: 03/30/2010
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Risk Assessment Report
Completed Date: 04/28/2010
Comments: HHRA Report approved.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Risk Assessment Report
Completed Date: 09/23/2010
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Remedial Action Plan
Completed Date: 07/23/2013
Comments: The RAP has specified remedial action objectives, evaluated alternatives, and described the alternative proposed for the Site. The objective of the RAP is to mitigate potential risk from the contaminants in soil that may pose a threat to human health and the environment. DTSC received 50 comments during the public comment period held between March 21, 2013 to April 22, 2013 and at the public meeting held on April 2, 2013. Subsequently, a Responses to Comments (RTCs) document was prepared and sent to each commenter who provided an e-mail or a physical address. In addition, as a part of the approval process, DTSC prepared Responsible Agency Checklist and filed a Notice of Determination (NOD) document with the Office of Planning and Research to comply with the California Environmental Quality Act (CEQA) requirements for this project. However, the City was the lead agency who fulfilled the requirements for the CEQA and prepared Initial Study/Mitigation Negative Declaration (IS/MND) documents and filed a NOD to adopt MND. They were also responsible for responding to public and agencies comments received on the IS/MND. Modification to the draft RAP was not necessary based on the comments received. DTSC approved the Report.

Completed Area Name: PROJECT WIDE

CHATSWORTH PARK SOUTH (Continued) **S109034309**

Completed Sub Area Name: Not reported
Completed Document Type: Public Participation Plan / Community Relations Plan
Completed Date: 12/27/2012
Comments: Community Profile ready for public review.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Fact Sheets
Completed Date: 03/18/2013
Comments: Fact Sheet sent to the public. No formal DTSC letter required.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Fieldwork
Completed Date: 05/30/2014
Comments: Tree removal done. Plan was submitted to DTSC for the record.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Design/Implementation Workplan
Completed Date: 10/25/2012
Comments: DTSC approved the Interim Action Plan for opening the recreation building.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Remedial Action Completion Report
Completed Date: 04/18/2017
Comments: RACR approved.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Public Notice
Completed Date: 03/18/2013
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Fieldwork
Completed Date: 12/30/2016
Comments: Field work completed.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Public Participation Plan / Community Relations Plan
Completed Date: 04/02/2015
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Work Notice
Completed Date: 04/04/2016
Comments: Not reported

Future Area Name: PROJECT WIDE
Future Sub Area Name: Not reported
Future Document Type: Land Use Restriction

Map ID
Direction
Distance
Elevation Site

MAP FINDINGS

Database(s) EDR ID Number EPA ID Number

CHATSWORTH PARK SOUTH (Continued) **S109034309**

Future Due Date:	2018
Future Area Name:	PROJECT WIDE
Future Sub Area Name:	Not reported
Future Document Type:	Certification
Future Due Date:	2018
Future Area Name:	PROJECT WIDE
Future Sub Area Name:	Not reported
Future Document Type:	Operations and Maintenance Plan
Future Due Date:	2018
Future Area Name:	PROJECT WIDE
Future Sub Area Name:	Not reported
Future Document Type:	5 Year Review Reports
Future Due Date:	2022
Schedule Area Name:	Not reported
Schedule Sub Area Name:	Not reported
Schedule Document Type:	Not reported
Schedule Due Date:	Not reported
Schedule Revised Date:	Not reported

VCP:

Facility ID:	60000893
Site Type:	Voluntary Cleanup
Site Type Detail:	Voluntary Cleanup
Site Mgmt. Req.:	NONE SPECIFIED
Acres:	81
National Priorities List:	NO
Cleanup Oversight Agencies:	SMBRP
Lead Agency:	SMBRP
Lead Agency Description:	DTSC - Site Cleanup Program
Project Manager:	Chand Sultana
Supervisor:	Allan Plaza
Division Branch:	Cleanup Chatsworth
Site Code:	301384
Assembly:	38
Senate:	27
Special Programs Code:	Voluntary Cleanup Program
Status:	Active
Status Date:	03/03/2010
Restricted Use:	NO
Funding:	Responsible Party
Lat/Long:	34.25814 / -118.6148
APN:	NONE SPECIFIED
Past Use:	FIRING RANGE - SMALL ARMS ETC...
Potential COC:	31001, 30001, 30009, 30013, 30472
Confirmed COC:	30001-NO,30009-NO,30013,30472,31001-NO
Potential Description:	SOIL, SURFW
Alias Name:	301384
Alias Type:	Project Code (Site Code)
Alias Name:	60000893
Alias Type:	Envirostor ID Number

Completed Info:

Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Voluntary Cleanup Agreement
Completed Date:	09/08/2008
Comments:	Proponent signed VCA

MAP FINDINGS

Map ID
Direction
Distance
Elevation | Site | Database(s) | EDR ID Number / EPA ID Number

CHATSWORTH PARK SOUTH (Continued) **S109034309**

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: CEQA - Responsible Agency Review
Completed Date: 07/23/2013
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: State/Federal Funded Site Contract
Completed Date: 04/30/2010
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Annual Oversight Cost Estimate
Completed Date: 09/25/2014
Comments: 2014-2015 Estimated Oversight Costs

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Annual Oversight Cost Estimate
Completed Date: 09/11/2015
Comments: completed

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Annual Oversight Cost Estimate
Completed Date: 09/15/2016
Comments: Annual Cost Estimate Letter sent out

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Annual Oversight Cost Estimate
Completed Date: 09/28/2017
Comments: 2017-2018 Annual Oversight Cost Estimate

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: State/Federal Funded Site Work Order
Completed Date: 01/25/2010
Comments: Start Work issued.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Site Characterization Workplan
Completed Date: 03/04/2010
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Site Characterization Report
Completed Date: 01/10/2011
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Application

Map ID
Direction
Distance
Elevation Site

MAP FINDINGS

Database(s) EDR ID Number EPA ID Number

CHATSWORTH PARK SOUTH (Continued) **S109034309**

Completed Date: 09/28/2009
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Risk Assessment Workplan
Completed Date: 03/30/2010
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Risk Assessment Report
Completed Date: 04/28/2010
Comments: HHRA Report approved.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Risk Assessment Report
Completed Date: 09/23/2010
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Remedial Action Plan
Completed Date: 07/23/2013
Comments: The RAP has specified remedial action objectives, evaluated alternatives, and described the alternative proposed for the Site. The objective of the RAP is to mitigate potential risk from the contaminants in soil that may pose a threat to human health and the environment. DTSC received 50 comments during the public comment period held between March 21, 2013 to April 22, 2013 and at the public meeting held on April 2, 2013. Subsequently, a Responses to Comments (RTCs) document was prepared and sent to each commenter who provided an e-mail or a physical address. In addition, as a part of the approval process, DTSC prepared Responsible Agency Checklist and filed a Notice of Determination (NOD) document with the Office of Planning and Research to comply with the California Environmental Quality Act (CEQA) requirements for this project. However, the City was the lead agency who fulfilled the requirements for the CEQA and prepared Initial Study/Mitigation Negative Declaration (IS/MND) documents and filed a NOD to adopt MND. They were also responsible for responding to public and agencies comments received on the IS/MND. Modification to the draft RAP was not necessary based on the comments received. DTSC approved the Report.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Public Participation Plan / Community Relations Plan
Completed Date: 12/27/2012
Comments: Community Profile ready for public review.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Fact Sheets
Completed Date: 03/18/2013
Comments: Fact Sheet sent to the public. No formal DTSC letter required.

MAP FINDINGS

Map ID / Direction / Distance / Elevation | Site | Database(s) | EDR ID Number / EPA ID Number

CHATSWORTH PARK SOUTH (Continued) **S109034309**

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Fieldwork
Completed Date: 05/30/2014
Comments: Tree removal done. Plan was submitted to DTSC for the record.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Design/Implementation Workplan
Completed Date: 10/25/2012
Comments: DTSC approved the Interim Action Plan for opening the recreation building.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Remedial Action Completion Report
Completed Date: 04/18/2017
Comments: RACR approved.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Public Notice
Completed Date: 03/18/2013
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Fieldwork
Completed Date: 12/30/2016
Comments: Field work completed.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Public Participation Plan / Community Relations Plan
Completed Date: 04/02/2015
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Work Notice
Completed Date: 04/04/2016
Comments: Not reported

Future Area Name: PROJECT WIDE
Future Sub Area Name: Not reported
Future Document Type: Land Use Restriction
Future Due Date: 2018
Future Area Name: PROJECT WIDE
Future Sub Area Name: Not reported
Future Document Type: Certification
Future Due Date: 2018
Future Area Name: PROJECT WIDE
Future Sub Area Name: Not reported
Future Document Type: Operations and Maintenance Plan
Future Due Date: 2018
Future Area Name: PROJECT WIDE
Future Sub Area Name: Not reported

CHATSWORTH PARK SOUTH (Continued) **S109034309**

Future Document Type: 5 Year Review Reports
Future Due Date: 2022
Schedule Area Name: Not reported
Schedule Sub Area Name: Not reported
Schedule Document Type: Not reported
Schedule Due Date: Not reported
Schedule Revised Date: Not reported

HAZNET:
envid: S109034309
Year: 2016
GEPAID: CAP000263467
Contact: PAUL DAVIS
Telephone: 2132022667
Mailing Name: Not reported
Mailing Address: 221 N FIGUEROA ST FL 4
Mailing City,St,Zip: LOS ANGELES, CA 900122639
Gen County: Los Angeles
TSD EPA ID: NVT330010000
TSD County: 99
Waste Category: Contaminated soil from site clean-up
Disposal Method: Other Recovery Of Reclamation For Reuse Including Acid Regeneration, Organics Recovery Ect
Tons: 455.43
Cat Decode: Contaminated soil from site clean-up
Method Decode: Other Recovery Of Reclamation For Reuse Including Acid Regeneration, Organics Recovery Ect
Facility County: Los Angeles

envid: S109034309
Year: 2013
GEPAID: CAC002721760
Contact: EMMANUEL AMESI
Telephone: 2139783798
Mailing Name: Not reported
Mailing Address: 111 E FIRST ST RM 600
Mailing City,St,Zip: LOS ANGELES, CA 900120000
Gen County: Los Angeles
TSD EPA ID: CAD980675276
TSD County: Kern
Waste Category: Not reported
Disposal Method: Landfill Or Surface Impoundment That Will Be Closed As Landfill(To Include On-Site Treatment And/Or Stabilization)
Tons: 0.42
Cat Decode: Not reported
Method Decode: Not reported
Facility County: Not reported

CIWQS:
Agency: Department of Recreation and Parks
Agency Address: 221 N Figueroa Street Suite 100, Los Angeles, CA 90012
Place/Project Type: Construction
SIC/NAICS: Not reported
Region: 4
Program: CONSTW
Regulatory Measure Status: Terminated

MAP FINDINGS

Map ID / Direction / Distance / Elevation	Site	Database(s)	EDR ID Number / EPA ID Number

CHATSWORTH PARK SOUTH (Continued) **S109034309**

Regulatory Measure Type:	Storm water construction
Order Number:	2009-0009-DWQ
WDID:	4 19C375884
NPDES Number:	CAS000002
Adoption Date:	Not reported
Effective Date:	04/05/2016
Termination Date:	09/06/2017
Expiration/Review Date:	Not reported
Design Flow:	Not reported
Major/Minor:	Not reported
Complexity:	Not reported
TTWQ:	Not reported
Enforcement Actions within 5 years:	0
Violations within 5 years:	0
Latitude:	34.25789
Longitude:	-118.614375

---

3 **CHIME CHARTER MIDDLE SCHOOL** **ENVIROSTOR** **S107736119**
ESE **22280 DEVONSHIRE STREET** **SCH** **N/A**
1/4-1/2 **CHATSWORTH, CA 91311**
0.495 mi.
2616 ft.

Relative:
Lower

Actual:
957 ft.

ENVIROSTOR:

Facility ID:	70000135
Status:	No Further Action
Status Date:	04/27/2007
Site Code:	304518
Site Type:	School Investigation
Site Type Detailed:	School
Acres:	2.7
NPL:	NO
Regulatory Agencies:	SMBRP
Lead Agency:	SMBRP
Program Manager:	Not reported
Supervisor:	Javier Hinojosa
Division Branch:	Southern California Schools & Brownfields Outreach
Assembly:	38
Senate:	27
Special Program:	Not reported
Restricted Use:	NO
Site Mgmt Req:	NONE SPECIFIED
Funding:	School District
Latitude:	34.25668
Longitude:	-118.6120
APN:	NONE SPECIFIED
Past Use:	NONE
Potential COC:	Chlordane Lead Methane
Confirmed COC:	NONE SPECIFIED
Potential Description:	IA, SOIL, SV
Alias Name:	304518
Alias Type:	Project Code (Site Code)
Alias Name:	70000135
Alias Type:	Envirostor ID Number

Completed Info:

Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported

Map ID
Direction
Distance
Elevation Site

MAP FINDINGS

Database(s) EDR ID Number EPA ID Number

CHIME CHARTER MIDDLE SCHOOL (Continued) **S107736119**

Completed Document Type: Cost Recovery Closeout Memo
Completed Date: 02/07/2008
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Environmental Oversight Agreement
Completed Date: 06/07/2006
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Phase 1
Completed Date: 02/09/2006
Comments: PEAR for potential methane and LBP.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Preliminary Endangerment Assessment Workplan
Completed Date: 10/25/2006
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Preliminary Endangerment Assessment Report
Completed Date: 04/27/2007
Comments: Public review and comment from March 1, 2007 through March 30, 2007 and a public hearing was held on April 18, 2007

Future Area Name: Not reported
Future Sub Area Name: Not reported
Future Document Type: Not reported
Future Due Date: Not reported
Schedule Area Name: Not reported
Schedule Sub Area Name: Not reported
Schedule Document Type: Not reported
Schedule Due Date: Not reported
Schedule Revised Date: Not reported

SCH:

Facility ID: 70000135
Site Type: School Investigation
Site Type Detail: School
Site Mgmt. Req.: NONE SPECIFIED
Acres: 2.7
National Priorities List: NO
Cleanup Oversight Agencies: SMBRP
Lead Agency: SMBRP
Lead Agency Description: DTSC - Site Cleanup Program
Project Manager: Not reported
Supervisor: Javier Hinojosa
Division Branch: Southern California Schools & Brownfields Outreach
Site Code: 304518
Assembly: 38
Senate: 27
Special Program Status: Not reported

CHIME CHARTER MIDDLE SCHOOL (Continued) **S107736119**

Status: No Further Action
Status Date: 04/27/2007
Restricted Use: NO
Funding: School District
Latitude: 34.25668
Longitude: -118.6120
APN: NONE SPECIFIED
Past Use: NONE
Potential COC: Chlordane, Lead, Methane
Confirmed COC: NONE SPECIFIED
Potential Description: IA, SOIL, SV
Alias Name: 304518
Alias Type: Project Code (Site Code)
Alias Name: 70000135
Alias Type: Envirostor ID Number

Completed Info:
Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Cost Recovery Closeout Memo
Completed Date: 02/07/2008
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Environmental Oversight Agreement
Completed Date: 06/07/2006
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Phase 1
Completed Date: 02/09/2006
Comments: PEAR for potential methane and LBP.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Preliminary Endangerment Assessment Workplan
Completed Date: 10/25/2006
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Preliminary Endangerment Assessment Report
Completed Date: 04/27/2007
Comments: Public review and comment from March 1, 2007 through March 30, 2007 and a public hearing was held on April 18, 2007

Future Area Name: Not reported
Future Sub Area Name: Not reported
Future Document Type: Not reported
Future Due Date: Not reported
Schedule Area Name: Not reported
Schedule Sub Area Name: Not reported
Schedule Document Type: Not reported
Schedule Due Date: Not reported
Schedule Revised Date: Not reported

Count: 1 records. ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
CHATSWORTH	S121700613	JIM DANDY DRY CLEANERS,JULIUS ALLI	17505 CHATSWORTH ST	91311	DRYCLEANERS

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Number of Days to Update: Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL: National Priority List

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 05/13/2018
Date Data Arrived at EDR: 05/30/2018
Date Made Active in Reports: 06/22/2018
Number of Days to Update: 23

Source: EPA
Telephone: N/A
Last EDR Contact: 07/06/2018
Next Scheduled EDR Contact: 10/15/2018
Data Release Frequency: Quarterly

NPL Site Boundaries

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)
Telephone: 202-564-7333

EPA Region 1
Telephone 617-918-1143

EPA Region 6
Telephone: 214-655-6659

EPA Region 3
Telephone 215-814-5418

EPA Region 7
Telephone: 913-551-7247

EPA Region 4
Telephone 404-562-8033

EPA Region 8
Telephone: 303-312-6774

EPA Region 5
Telephone 312-886-6686

EPA Region 9
Telephone: 415-947-4246

EPA Region 10
Telephone 206-553-8665

Proposed NPL: Proposed National Priority List Sites

A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

Date of Government Version: 05/13/2018
Date Data Arrived at EDR: 05/30/2018
Date Made Active in Reports: 06/22/2018
Number of Days to Update: 23

Source: EPA
Telephone: N/A
Last EDR Contact: 07/06/2018
Next Scheduled EDR Contact: 10/15/2018
Data Release Frequency: Quarterly

NPL LIENS: Federal Superfund Liens

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/1991
Date Data Arrived at EDR: 02/02/1994
Date Made Active in Reports: 03/30/1994
Number of Days to Update: 56

Source: EPA
Telephone: 202-564-4267
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Federal Delisted NPL site list

Delisted NPL: National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 05/13/2018
Date Data Arrived at EDR: 05/30/2018
Date Made Active in Reports: 06/22/2018
Number of Days to Update: 23

Source: EPA
Telephone: N/A
Last EDR Contact: 07/06/2018
Next Scheduled EDR Contact: 10/15/2018
Data Release Frequency: Quarterly

Federal CERCLIS list

FEDERAL FACILITY: Federal Facility Site Information listing

A listing of National Priority List (NPL) and Base Realignment and Closure (BRAC) sites found in the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) Database where EPA Federal Facilities Restoration and Reuse Office is involved in cleanup activities.

Date of Government Version: 11/07/2016
Date Data Arrived at EDR: 01/05/2017
Date Made Active in Reports: 04/07/2017
Number of Days to Update: 92

Source: Environmental Protection Agency
Telephone: 703-603-8704
Last EDR Contact: 07/06/2018
Next Scheduled EDR Contact: 10/15/2018
Data Release Frequency: Varies

SEMS: Superfund Enterprise Management System

SEMS (Superfund Enterprise Management System) tracks hazardous waste sites, potentially hazardous waste sites, and remedial activities performed in support of EPA's Superfund Program across the United States. The list was formerly know as CERCLIS, renamed to SEMS by the EPA in 2015. The list contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). This dataset also contains sites which are either proposed to or on the National Priorities List (NPL) and the sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 05/18/2018
Date Data Arrived at EDR: 05/30/2018
Date Made Active in Reports: 06/22/2018
Number of Days to Update: 23

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 07/06/2018
Next Scheduled EDR Contact: 10/29/2018
Data Release Frequency: Quarterly

Federal CERCLIS NFRAP site list

SEMS-ARCHIVE: Superfund Enterprise Management System Archive

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

SEMS-ARCHIVE (Superfund Enterprise Management System Archive) tracks sites that have no further interest under the Federal Superfund Program based on available information. The list was formerly known as the CERCLIS-NFRAP, renamed to SEMS ARCHIVE by the EPA in 2015. EPA may perform a minimal level of assessment work at a site while it is archived if site conditions change and/or new information becomes available. Archived sites have been removed and archived from the inventory of SEMS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list the site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. The decision does not necessarily mean that there is no hazard associated with a given site; it only means that. based upon available information, the location is not judged to be potential NPL site.

Date of Government Version: 05/18/2018
Date Data Arrived at EDR: 05/30/2018
Date Made Active in Reports: 06/22/2018
Number of Days to Update: 23

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 07/06/2018
Next Scheduled EDR Contact: 10/29/2018
Data Release Frequency: Quarterly

Federal RCRA CORRACTS facilities list

CORRACTS: Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 03/01/2018
Date Data Arrived at EDR: 03/28/2018
Date Made Active in Reports: 06/22/2018
Number of Days to Update: 86

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 06/28/2018
Next Scheduled EDR Contact: 10/08/2018
Data Release Frequency: Quarterly

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF: RCRA - Treatment, Storage and Disposal

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 03/01/2018
Date Data Arrived at EDR: 03/28/2018
Date Made Active in Reports: 06/22/2018
Number of Days to Update: 86

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 06/28/2018
Next Scheduled EDR Contact: 10/08/2018
Data Release Frequency: Quarterly

Federal RCRA generators list

RCRA-LQG: RCRA - Large Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

Date of Government Version: 03/01/2018
Date Data Arrived at EDR: 03/28/2018
Date Made Active in Reports: 06/22/2018
Number of Days to Update: 86

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 06/28/2018
Next Scheduled EDR Contact: 10/08/2018
Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

RCRA-SQG: RCRA - Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

Date of Government Version: 03/01/2018
Date Data Arrived at EDR: 03/28/2018
Date Made Active in Reports: 06/22/2018
Number of Days to Update: 86

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 06/28/2018
Next Scheduled EDR Contact: 10/08/2018
Data Release Frequency: Quarterly

RCRA-CESQG: RCRA - Conditionally Exempt Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

Date of Government Version: 03/01/2018
Date Data Arrived at EDR: 03/28/2018
Date Made Active in Reports: 06/22/2018
Number of Days to Update: 86

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 06/28/2018
Next Scheduled EDR Contact: 10/08/2018
Data Release Frequency: Quarterly

Federal institutional controls / engineering controls registries

LUCIS: Land Use Control Information System

LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Date of Government Version: 05/14/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63

Source: Department of the Navy
Telephone: 843-820-7326
Last EDR Contact: 05/09/2018
Next Scheduled EDR Contact: 08/27/2018
Data Release Frequency: Varies

US ENG CONTROLS: Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 02/13/2018
Date Data Arrived at EDR: 02/27/2018
Date Made Active in Reports: 05/11/2018
Number of Days to Update: 73

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 05/29/2018
Next Scheduled EDR Contact: 09/10/2018
Data Release Frequency: Varies

US INST CONTROL: Sites with Institutional Controls

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 02/13/2018
Date Data Arrived at EDR: 02/27/2018
Date Made Active in Reports: 05/11/2018
Number of Days to Update: 73

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 05/29/2018
Next Scheduled EDR Contact: 09/10/2018
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Federal ERNS list

ERNS: Emergency Response Notification System

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 03/19/2018
Date Data Arrived at EDR: 03/27/2018
Date Made Active in Reports: 06/08/2018
Number of Days to Update: 73

Source: National Response Center, United States Coast Guard
Telephone: 202-267-2180
Last EDR Contact: 06/27/2018
Next Scheduled EDR Contact: 10/08/2018
Data Release Frequency: Quarterly

State- and tribal - equivalent NPL

RESPONSE: State Response Sites

Identifies confirmed release sites where DTSC is involved in remediation, either in a lead or oversight capacity. These confirmed release sites are generally high-priority and high potential risk.

Date of Government Version: 04/30/2018
Date Data Arrived at EDR: 05/02/2018
Date Made Active in Reports: 06/22/2018
Number of Days to Update: 51

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 05/02/2018
Next Scheduled EDR Contact: 08/13/2018
Data Release Frequency: Quarterly

State- and tribal - equivalent CERCLIS

ENVIROSTOR: EnviroStor Database

The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifes sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

Date of Government Version: 04/30/2018
Date Data Arrived at EDR: 05/02/2018
Date Made Active in Reports: 06/22/2018
Number of Days to Update: 51

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 05/02/2018
Next Scheduled EDR Contact: 08/13/2018
Data Release Frequency: Quarterly

State and tribal landfill and/or solid waste disposal site lists

SWF/LF (SWIS): Solid Waste Information System

Active, Closed and Inactive Landfills. SWF/LF records typically contain an inve ntory of solid waste disposal facilities or landfills. These may be active or i nactive facilities or open dumps that failed to meet RCRA Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 05/14/2018
Date Data Arrived at EDR: 05/16/2018
Date Made Active in Reports: 06/22/2018
Number of Days to Update: 37

Source: Department of Resources Recycling and Recovery
Telephone: 916-341-6320
Last EDR Contact: 05/16/2018
Next Scheduled EDR Contact: 08/27/2018
Data Release Frequency: Quarterly

State and tribal leaking storage tank lists

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

LUST REG 7: Leaking Underground Storage Tank Case Listing
Leaking Underground Storage Tank locations. Imperial, Riverside, San Diego, Santa Barbara counties.

Date of Government Version: 02/26/2004
Date Data Arrived at EDR: 02/26/2004
Date Made Active in Reports: 03/24/2004
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Colorado River Basin Region (7)
Telephone: 760-776-8943
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

LUST: Leaking Underground Fuel Tank Report (GEOTRACKER)
Leaking Underground Storage Tank (LUST) Sites included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 06/11/2018
Date Data Arrived at EDR: 06/13/2018
Date Made Active in Reports: 07/17/2018
Number of Days to Update: 34

Source: State Water Resources Control Board
Telephone: see region list
Last EDR Contact: 06/13/2018
Next Scheduled EDR Contact: 09/24/2018
Data Release Frequency: Quarterly

LUST REG 9: Leaking Underground Storage Tank Report
Orange, Riverside, San Diego counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 03/01/2001
Date Data Arrived at EDR: 04/23/2001
Date Made Active in Reports: 05/21/2001
Number of Days to Update: 28

Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-637-5595
Last EDR Contact: 09/26/2011
Next Scheduled EDR Contact: 01/09/2012
Data Release Frequency: No Update Planned

LUST REG 8: Leaking Underground Storage Tanks
California Regional Water Quality Control Board Santa Ana Region (8). For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/14/2005
Date Data Arrived at EDR: 02/15/2005
Date Made Active in Reports: 03/28/2005
Number of Days to Update: 41

Source: California Regional Water Quality Control Board Santa Ana Region (8)
Telephone: 909-782-4496
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: Varies

LUST REG 6V: Leaking Underground Storage Tank Case Listing
Leaking Underground Storage Tank locations. Inyo, Kern, Los Angeles, Mono, San Bernardino counties.

Date of Government Version: 06/07/2005
Date Data Arrived at EDR: 06/07/2005
Date Made Active in Reports: 06/29/2005
Number of Days to Update: 22

Source: California Regional Water Quality Control Board Victorville Branch Office (6)
Telephone: 760-241-7365
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

LUST REG 6L: Leaking Underground Storage Tank Case Listing
For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/09/2003
Date Data Arrived at EDR: 09/10/2003
Date Made Active in Reports: 10/07/2003
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Lahontan Region (6)
Telephone: 530-542-5572
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

LUST REG 5: Leaking Underground Storage Tank Database
Leaking Underground Storage Tank locations. Alameda, Alpine, Amador, Butte, Colusa, Contra Costa, Calveras, El Dorado, Fresno, Glenn, Kern, Kings, Lake, Lassen, Madera, Mariposa, Merced, Modoc, Napa, Nevada, Placer, Plumas, Sacramento, San Joaquin, Shasta, Solano, Stanislaus, Sutter, Tehama, Tulare, Tuolumne, Yolo, Yuba counties.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 07/01/2008
Date Data Arrived at EDR: 07/22/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 9

Source: California Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-4834
Last EDR Contact: 07/01/2011
Next Scheduled EDR Contact: 10/17/2011
Data Release Frequency: No Update Planned

LUST REG 4: Underground Storage Tank Leak List

Los Angeles, Ventura counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35

Source: California Regional Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6710
Last EDR Contact: 09/06/2011
Next Scheduled EDR Contact: 12/19/2011
Data Release Frequency: No Update Planned

LUST REG 3: Leaking Underground Storage Tank Database

Leaking Underground Storage Tank locations. Monterey, San Benito, San Luis Obispo, Santa Barbara, Santa Cruz counties.

Date of Government Version: 05/19/2003
Date Data Arrived at EDR: 05/19/2003
Date Made Active in Reports: 06/02/2003
Number of Days to Update: 14

Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-542-4786
Last EDR Contact: 07/18/2011
Next Scheduled EDR Contact: 10/31/2011
Data Release Frequency: No Update Planned

LUST REG 2: Fuel Leak List

Leaking Underground Storage Tank locations. Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, Sonoma counties.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30

Source: California Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-622-2433
Last EDR Contact: 09/19/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: Quarterly

LUST REG 1: Active Toxic Site Investigation

Del Norte, Humboldt, Lake, Mendocino, Modoc, Siskiyou, Sonoma, Trinity counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/01/2001
Date Data Arrived at EDR: 02/28/2001
Date Made Active in Reports: 03/29/2001
Number of Days to Update: 29

Source: California Regional Water Quality Control Board North Coast (1)
Telephone: 707-570-3769
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 04/25/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63

Source: EPA Region 8
Telephone: 303-312-6271
Last EDR Contact: 05/18/2018
Next Scheduled EDR Contact: 08/06/2018
Data Release Frequency: Varies

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 04/10/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63

Source: Environmental Protection Agency
Telephone: 415-972-3372
Last EDR Contact: 05/18/2018
Next Scheduled EDR Contact: 08/06/2018
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 04/24/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 05/18/2018
Next Scheduled EDR Contact: 08/06/2018
Data Release Frequency: Varies

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 04/01/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63

Source: EPA Region 6
Telephone: 214-665-6597
Last EDR Contact: 05/18/2018
Next Scheduled EDR Contact: 08/06/2018
Data Release Frequency: Varies

INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Florida, Mississippi and North Carolina.

Date of Government Version: 05/08/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63

Source: EPA Region 4
Telephone: 404-562-8677
Last EDR Contact: 05/16/2018
Next Scheduled EDR Contact: 08/06/2018
Data Release Frequency: Varies

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land
A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 04/13/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63

Source: EPA Region 1
Telephone: 617-918-1313
Last EDR Contact: 05/18/2018
Next Scheduled EDR Contact: 08/06/2018
Data Release Frequency: Varies

INDIAN LUST R5: Leaking Underground Storage Tanks on Indian Land
Leaking underground storage tanks located on Indian Land in Michigan, Minnesota and Wisconsin.

Date of Government Version: 04/12/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63

Source: EPA, Region 5
Telephone: 312-886-7439
Last EDR Contact: 05/18/2018
Next Scheduled EDR Contact: 08/06/2018
Data Release Frequency: Varies

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 04/12/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 05/18/2018
Next Scheduled EDR Contact: 08/06/2018
Data Release Frequency: Varies

CPS-SLIC: Statewide SLIC Cases (GEOTRACKER)
Cleanup Program Sites (CPS; also known as Site Cleanups [SC] and formerly known as Spills, Leaks, Investigations, and Cleanups [SLIC] sites) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 06/11/2018
Date Data Arrived at EDR: 06/13/2018
Date Made Active in Reports: 07/17/2018
Number of Days to Update: 34

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/12/2018
Next Scheduled EDR Contact: 09/24/2018
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

SLIC REG 1: Active Toxic Site Investigations
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2003
Date Data Arrived at EDR: 04/07/2003
Date Made Active in Reports: 04/25/2003
Number of Days to Update: 18

Source: California Regional Water Quality Control Board, North Coast Region (1)
Telephone: 707-576-2220
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

SLIC REG 2: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30

Source: Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-286-0457
Last EDR Contact: 09/19/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: Quarterly

SLIC REG 3: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/18/2006
Date Data Arrived at EDR: 05/18/2006
Date Made Active in Reports: 06/15/2006
Number of Days to Update: 28

Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-549-3147
Last EDR Contact: 07/18/2011
Next Scheduled EDR Contact: 10/31/2011
Data Release Frequency: Semi-Annually

SLIC REG 4: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/17/2004
Date Data Arrived at EDR: 11/18/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 47

Source: Region Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6600
Last EDR Contact: 07/01/2011
Next Scheduled EDR Contact: 10/17/2011
Data Release Frequency: Varies

SLIC REG 5: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/01/2005
Date Data Arrived at EDR: 04/05/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 16

Source: Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-3291
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: Semi-Annually

SLIC REG 6V: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/24/2005
Date Data Arrived at EDR: 05/25/2005
Date Made Active in Reports: 06/16/2005
Number of Days to Update: 22

Source: Regional Water Quality Control Board, Victorville Branch
Telephone: 619-241-6583
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: Semi-Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

SLIC REG 6L: SLIC Sites
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35
Source: California Regional Water Quality Control Board, Lahontan Region
Telephone: 530-542-5574
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

SLIC REG 7: SLIC List
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/24/2004
Date Data Arrived at EDR: 11/29/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 36
Source: California Regional Quality Control Board, Colorado River Basin Region
Telephone: 760-346-7491
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

SLIC REG 8: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2008
Date Data Arrived at EDR: 04/03/2008
Date Made Active in Reports: 04/14/2008
Number of Days to Update: 11
Source: California Region Water Quality Control Board Santa Ana Region (8)
Telephone: 951-782-3298
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: Semi-Annually

SLIC REG 9: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/10/2007
Date Data Arrived at EDR: 09/11/2007
Date Made Active in Reports: 09/28/2007
Number of Days to Update: 17
Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-467-2980
Last EDR Contact: 08/08/2011
Next Scheduled EDR Contact: 11/21/2011
Data Release Frequency: Annually

State and tribal registered storage tank lists

FEMA UST: Underground Storage Tank Listing
A listing of all FEMA owned underground storage tanks.

Date of Government Version: 05/15/2017
Date Data Arrived at EDR: 05/30/2017
Date Made Active in Reports: 10/13/2017
Number of Days to Update: 136
Source: FEMA
Telephone: 202-646-5797
Last EDR Contact: 07/11/2018
Next Scheduled EDR Contact: 10/22/2018
Data Release Frequency: Varies

UST CLOSURE: Proposed Closure of Underground Storage Tank (UST) Cases
UST cases that are being considered for closure by either the State Water Resources Control Board or the Executive Director have been posted for a 60-day public comment period. UST Case Closures being proposed for consideration by the State Water Resources Control Board. These are primarily UST cases that meet closure criteria under the decisional framework in State Water Board Resolution No. 92-49 and other Board orders. UST Case Closures proposed for consideration by the Executive Director pursuant to State Water Board Resolution No. 2012-0061. These are cases that meet the criteria of the Low-Threat UST Case Closure Policy. UST Case Closure Review Denials and Approved Orders.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 06/11/2018
Date Data Arrived at EDR: 06/13/2018
Date Made Active in Reports: 07/10/2018
Number of Days to Update: 27

Source: State Water Resources Control Board
Telephone: 916-327-7844
Last EDR Contact: 06/13/2018
Next Scheduled EDR Contact: 09/24/2018
Data Release Frequency: Varies

UST: Active UST Facilities

Active UST facilities gathered from the local regulatory agencies

Date of Government Version: 06/11/2018
Date Data Arrived at EDR: 06/13/2018
Date Made Active in Reports: 07/09/2018
Number of Days to Update: 26

Source: SWRCB
Telephone: 916-341-5851
Last EDR Contact: 06/13/2018
Next Scheduled EDR Contact: 09/24/2018
Data Release Frequency: Semi-Annually

MILITARY UST SITES: Military UST Sites (GEOTRACKER)

Military ust sites

Date of Government Version: 06/11/2018
Date Data Arrived at EDR: 06/13/2018
Date Made Active in Reports: 07/18/2018
Number of Days to Update: 35

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/12/2018
Next Scheduled EDR Contact: 09/24/2018
Data Release Frequency: Varies

AST: Aboveground Petroleum Storage Tank Facilities

A listing of aboveground storage tank petroleum storage tank locations.

Date of Government Version: 07/06/2016
Date Data Arrived at EDR: 07/12/2016
Date Made Active in Reports: 09/19/2016
Number of Days to Update: 69

Source: California Environmental Protection Agency
Telephone: 916-327-5092
Last EDR Contact: 06/21/2018
Next Scheduled EDR Contact: 10/01/2018
Data Release Frequency: Quarterly

INDIAN UST R10: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 10 (Alaska, Idaho, Oregon, Washington, and Tribal Nations).

Date of Government Version: 04/12/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 05/18/2018
Next Scheduled EDR Contact: 08/06/2018
Data Release Frequency: Varies

INDIAN UST R9: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 9 (Arizona, California, Hawaii, Nevada, the Pacific Islands, and Tribal Nations).

Date of Government Version: 04/10/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63

Source: EPA Region 9
Telephone: 415-972-3368
Last EDR Contact: 05/18/2018
Next Scheduled EDR Contact: 08/06/2018
Data Release Frequency: Varies

INDIAN UST R8: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 8 (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming and 27 Tribal Nations).

Date of Government Version: 04/25/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63

Source: EPA Region 8
Telephone: 303-312-6137
Last EDR Contact: 05/18/2018
Next Scheduled EDR Contact: 08/06/2018
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

INDIAN UST R7: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 7 (Iowa, Kansas, Missouri, Nebraska, and 9 Tribal Nations).

Date of Government Version: 04/24/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 05/18/2018
Next Scheduled EDR Contact: 08/06/2018
Data Release Frequency: Varies

INDIAN UST R6: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 6 (Louisiana, Arkansas, Oklahoma, New Mexico, Texas and 65 Tribes).

Date of Government Version: 04/01/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63

Source: EPA Region 6
Telephone: 214-665-7591
Last EDR Contact: 05/18/2018
Next Scheduled EDR Contact: 08/06/2018
Data Release Frequency: Varies

INDIAN UST R1: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 1 (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont and ten Tribal Nations).

Date of Government Version: 04/13/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63

Source: EPA, Region 1
Telephone: 617-918-1313
Last EDR Contact: 05/18/2018
Next Scheduled EDR Contact: 08/06/2018
Data Release Frequency: Varies

INDIAN UST R4: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 4 (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee and Tribal Nations)

Date of Government Version: 05/08/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63

Source: EPA Region 4
Telephone: 404-562-9424
Last EDR Contact: 05/16/2018
Next Scheduled EDR Contact: 08/06/2018
Data Release Frequency: Varies

INDIAN UST R5: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 5 (Michigan, Minnesota and Wisconsin and Tribal Nations).

Date of Government Version: 04/12/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63

Source: EPA Region 5
Telephone: 312-886-6136
Last EDR Contact: 05/18/2018
Next Scheduled EDR Contact: 08/06/2018
Data Release Frequency: Varies

State and tribal voluntary cleanup sites

VCP: Voluntary Cleanup Program Properties

Contains low threat level properties with either confirmed or unconfirmed releases and the project proponents have request that DTSC oversee investigation and/or cleanup activities and have agreed to provide coverage for DTSC's costs.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 04/30/2018
Date Data Arrived at EDR: 05/02/2018
Date Made Active in Reports: 06/22/2018
Number of Days to Update: 51

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 05/02/2018
Next Scheduled EDR Contact: 08/13/2018
Data Release Frequency: Quarterly

INDIAN VCP R1: Voluntary Cleanup Priority Listing
A listing of voluntary cleanup priority sites located on Indian Land located in Region 1.

Date of Government Version: 07/27/2015
Date Data Arrived at EDR: 09/29/2015
Date Made Active in Reports: 02/18/2016
Number of Days to Update: 142

Source: EPA, Region 1
Telephone: 617-918-1102
Last EDR Contact: 06/22/2018
Next Scheduled EDR Contact: 10/08/2018
Data Release Frequency: Varies

INDIAN VCP R7: Voluntary Cleanup Priority Lisitng
A listing of voluntary cleanup priority sites located on Indian Land located in Region 7.

Date of Government Version: 03/20/2008
Date Data Arrived at EDR: 04/22/2008
Date Made Active in Reports: 05/19/2008
Number of Days to Update: 27

Source: EPA, Region 7
Telephone: 913-551-7365
Last EDR Contact: 04/20/2009
Next Scheduled EDR Contact: 07/20/2009
Data Release Frequency: Varies

State and tribal Brownfields sites

BROWNFIELDS: Considered Brownfieds Sites Listing
A listing of sites the SWRCB considers to be Brownfields since these are sites have come to them through the MOA Process.

Date of Government Version: 03/26/2018
Date Data Arrived at EDR: 03/27/2018
Date Made Active in Reports: 05/04/2018
Number of Days to Update: 38

Source: State Water Resources Control Board
Telephone: 916-323-7905
Last EDR Contact: 06/27/2018
Next Scheduled EDR Contact: 10/08/2018
Data Release Frequency: Quarterly

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS: A Listing of Brownfields Sites
Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties takes development pressures off of undeveloped, open land, and both improves and protects the environment. Assessment, Cleanup and Redevelopment Exchange System (ACRES) stores information reported by EPA Brownfields grant recipients on brownfields properties assessed or cleaned up with grant funding as well as information on Targeted Brownfields Assessments performed by EPA Regions. A listing of ACRES Brownfield sites is obtained from Cleanups in My Community. Cleanups in My Community provides information on Brownfields properties for which information is reported back to EPA, as well as areas served by Brownfields grant programs.

Date of Government Version: 03/19/2018
Date Data Arrived at EDR: 03/21/2018
Date Made Active in Reports: 06/08/2018
Number of Days to Update: 79

Source: Environmental Protection Agency
Telephone: 202-566-2777
Last EDR Contact: 06/20/2018
Next Scheduled EDR Contact: 10/01/2018
Data Release Frequency: Semi-Annually

Local Lists of Landfill / Solid Waste Disposal Sites

WMUDS/SWAT: Waste Management Unit Database
Waste Management Unit Database System. WMUDS is used by the State Water Resources Control Board staff and the Regional Water Quality Control Boards for program tracking and inventory of waste management units. WMUDS is composed of the following databases: Facility Information, Scheduled Inspections Information, Waste Management Unit Information, SWAT Program Information, SWAT Report Summary Information, SWAT Report Summary Data, Chapter 15 (formerly Subchapter 15) Information, Chapter 15 Monitoring Parameters, TPCA Program Information, RCRA Program Information, Closure Information, and Interested Parties Information.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 04/01/2000
Date Data Arrived at EDR: 04/10/2000
Date Made Active in Reports: 05/10/2000
Number of Days to Update: 30

Source: State Water Resources Control Board
Telephone: 916-227-4448
Last EDR Contact: 07/24/2018
Next Scheduled EDR Contact: 11/12/2018
Data Release Frequency: No Update Planned

SWRCY: Recycler Database
A listing of recycling facilities in California.

Date of Government Version: 03/12/2018
Date Data Arrived at EDR: 03/14/2018
Date Made Active in Reports: 05/04/2018
Number of Days to Update: 51

Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 06/13/2018
Next Scheduled EDR Contact: 09/24/2018
Data Release Frequency: Quarterly

HAULERS: Registered Waste Tire Haulers Listing
A listing of registered waste tire haulers.

Date of Government Version: 05/29/2018
Date Data Arrived at EDR: 05/30/2018
Date Made Active in Reports: 07/17/2018
Number of Days to Update: 48

Source: Integrated Waste Management Board
Telephone: 916-341-6422
Last EDR Contact: 05/22/2018
Next Scheduled EDR Contact: 08/27/2018
Data Release Frequency: Varies

INDIAN ODI: Report on the Status of Open Dumps on Indian Lands
Location of open dumps on Indian land.

Date of Government Version: 12/31/1998
Date Data Arrived at EDR: 12/03/2007
Date Made Active in Reports: 01/24/2008
Number of Days to Update: 52

Source: Environmental Protection Agency
Telephone: 703-308-8245
Last EDR Contact: 01/30/2018
Next Scheduled EDR Contact: 05/14/2018
Data Release Frequency: Varies

ODI: Open Dump Inventory
An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985
Date Data Arrived at EDR: 08/09/2004
Date Made Active in Reports: 09/17/2004
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: 800-424-9346
Last EDR Contact: 06/09/2004
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

DEBRIS REGION 9: Torres Martinez Reservation Illegal Dump Site Locations
A listing of illegal dump sites location on the Torres Martinez Indian Reservation located in eastern Riverside County and northern Imperial County, California.

Date of Government Version: 01/12/2009
Date Data Arrived at EDR: 05/07/2009
Date Made Active in Reports: 09/21/2009
Number of Days to Update: 137

Source: EPA, Region 9
Telephone: 415-947-4219
Last EDR Contact: 07/17/2018
Next Scheduled EDR Contact: 11/05/2018
Data Release Frequency: No Update Planned

IHS OPEN DUMPS: Open Dumps on Indian Land
A listing of all open dumps located on Indian Land in the United States.

Date of Government Version: 04/01/2014
Date Data Arrived at EDR: 08/06/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 176

Source: Department of Health & Human Serivces, Indian Health Service
Telephone: 301-443-1452
Last EDR Contact: 05/04/2018
Next Scheduled EDR Contact: 08/13/2018
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Local Lists of Hazardous waste / Contaminated Sites

US HIST CDL: National Clandestine Laboratory Register

A listing of clandestine drug lab locations that have been removed from the DEAs National Clandestine Laboratory Register.

Date of Government Version: 02/22/2018
Date Data Arrived at EDR: 03/01/2018
Date Made Active in Reports: 05/11/2018
Number of Days to Update: 71

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 05/30/2018
Next Scheduled EDR Contact: 09/10/2018
Data Release Frequency: No Update Planned

HIST CAL-SITES: Calsites Database

The Calsites database contains potential or confirmed hazardous substance release properties. In 1996, California EPA reevaluated and significantly reduced the number of sites in the Calsites database. No longer updated by the state agency. It has been replaced by ENVIROSTOR.

Date of Government Version: 08/08/2005
Date Data Arrived at EDR: 08/03/2006
Date Made Active in Reports: 08/24/2006
Number of Days to Update: 21

Source: Department of Toxic Substance Control
Telephone: 916-323-3400
Last EDR Contact: 02/23/2009
Next Scheduled EDR Contact: 05/25/2009
Data Release Frequency: No Update Planned

SCH: School Property Evaluation Program

This category contains proposed and existing school sites that are being evaluated by DTSC for possible hazardous materials contamination. In some cases, these properties may be listed in the CalSites category depending on the level of threat to public health and safety or the environment they pose.

Date of Government Version: 04/30/2018
Date Data Arrived at EDR: 05/02/2018
Date Made Active in Reports: 06/22/2018
Number of Days to Update: 51

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 05/02/2018
Next Scheduled EDR Contact: 08/13/2018
Data Release Frequency: Quarterly

CDL: Clandestine Drug Labs

A listing of drug lab locations. Listing of a location in this database does not indicate that any illegal drug lab materials were or were not present there, and does not constitute a determination that the location either requires or does not require additional cleanup work.

Date of Government Version: 06/30/2017
Date Data Arrived at EDR: 08/18/2017
Date Made Active in Reports: 09/21/2017
Number of Days to Update: 34

Source: Department of Toxic Substances Control
Telephone: 916-255-6504
Last EDR Contact: 07/05/2018
Next Scheduled EDR Contact: 10/22/2018
Data Release Frequency: Varies

TOXIC PITS: Toxic Pits Cleanup Act Sites

Toxic PITS Cleanup Act Sites. TOXIC PITS identifies sites suspected of containing hazardous substances where cleanup has not yet been completed.

Date of Government Version: 07/01/1995
Date Data Arrived at EDR: 08/30/1995
Date Made Active in Reports: 09/26/1995
Number of Days to Update: 27

Source: State Water Resources Control Board
Telephone: 916-227-4364
Last EDR Contact: 01/26/2009
Next Scheduled EDR Contact: 04/27/2009
Data Release Frequency: No Update Planned

US CDL: Clandestine Drug Labs

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 02/22/2018
Date Data Arrived at EDR: 03/01/2018
Date Made Active in Reports: 05/11/2018
Number of Days to Update: 71

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 05/30/2018
Next Scheduled EDR Contact: 09/10/2018
Data Release Frequency: Quarterly

CERS HAZ WASTE: CERS HAZ WASTE

List of sites in the California Environmental Protection Agency (CalEPA) Regulated Site Portal which fall under the Hazardous Chemical Management, Hazardous Waste Onsite Treatment, Household Hazardous Waste Collection, Hazardous Waste Generator, and RCRA LQ HW Generator programs.

Date of Government Version: 04/23/2018
Date Data Arrived at EDR: 04/24/2018
Date Made Active in Reports: 06/07/2018
Number of Days to Update: 44

Source: CalEPA
Telephone: 916-323-2514
Last EDR Contact: 07/25/2018
Next Scheduled EDR Contact: 11/05/2018
Data Release Frequency: Quarterly

Local Lists of Registered Storage Tanks

SWEEPS UST: SWEEPS UST Listing

Statewide Environmental Evaluation and Planning System. This underground storage tank listing was updated and maintained by a company contacted by the SWRCB in the early 1990's. The listing is no longer updated or maintained. The local agency is the contact for more information on a site on the SWEEPS list.

Date of Government Version: 06/01/1994
Date Data Arrived at EDR: 07/07/2005
Date Made Active in Reports: 08/11/2005
Number of Days to Update: 35

Source: State Water Resources Control Board
Telephone: N/A
Last EDR Contact: 06/03/2005
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

UST MENDOCINO: Mendocino County UST Database

A listing of underground storage tank locations in Mendocino County.

Date of Government Version: 03/28/2018
Date Data Arrived at EDR: 05/25/2018
Date Made Active in Reports: 07/10/2018
Number of Days to Update: 46

Source: Department of Public Health
Telephone: 707-463-4466
Last EDR Contact: 05/22/2018
Next Scheduled EDR Contact: 09/10/2018
Data Release Frequency: Annually

HIST UST: Hazardous Substance Storage Container Database

The Hazardous Substance Storage Container Database is a historical listing of UST sites. Refer to local/county source for current data.

Date of Government Version: 10/15/1990
Date Data Arrived at EDR: 01/25/1991
Date Made Active in Reports: 02/12/1991
Number of Days to Update: 18

Source: State Water Resources Control Board
Telephone: 916-341-5851
Last EDR Contact: 07/26/2001
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

SAN FRANCISCO AST: Aboveground Storage Tank Site Listing

Aboveground storage tank sites

Date of Government Version: 04/19/2018
Date Data Arrived at EDR: 04/24/2018
Date Made Active in Reports: 05/04/2018
Number of Days to Update: 10

Source: San Francisco County Department of Public Health
Telephone: 415-252-3896
Last EDR Contact: 05/02/2018
Next Scheduled EDR Contact: 08/20/2018
Data Release Frequency: Varies

CA FID UST: Facility Inventory Database

The Facility Inventory Database (FID) contains a historical listing of active and inactive underground storage tank locations from the State Water Resource Control Board. Refer to local/county source for current data.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 10/31/1994
Date Data Arrived at EDR: 09/05/1995
Date Made Active in Reports: 09/29/1995
Number of Days to Update: 24

Source: California Environmental Protection Agency
Telephone: 916-341-5851
Last EDR Contact: 12/28/1998
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

CERS TANKS: California Environmental Reporting System (CERS) Tanks

List of sites in the California Environmental Protection Agency (CalEPA) Regulated Site Portal which fall under the Aboveground Petroleum Storage and Underground Storage Tank regulatory programs.

Date of Government Version: 04/23/2018
Date Data Arrived at EDR: 04/24/2018
Date Made Active in Reports: 06/07/2018
Number of Days to Update: 44

Source: California Environmental Protection Agency
Telephone: 916-323-2514
Last EDR Contact: 07/25/2018
Next Scheduled EDR Contact: 11/05/2018
Data Release Frequency: Quarterly

Local Land Records

LIENS: Environmental Liens Listing

A listing of property locations with environmental liens for California where DTSC is a lien holder.

Date of Government Version: 05/31/2018
Date Data Arrived at EDR: 06/05/2018
Date Made Active in Reports: 07/18/2018
Number of Days to Update: 43

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 05/31/2018
Next Scheduled EDR Contact: 09/17/2018
Data Release Frequency: Varies

LIENS 2: CERCLA Lien Information

A Federal CERCLA ('Superfund') lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties.

Date of Government Version: 05/13/2018
Date Data Arrived at EDR: 05/30/2018
Date Made Active in Reports: 06/29/2018
Number of Days to Update: 30

Source: Environmental Protection Agency
Telephone: 202-564-6023
Last EDR Contact: 07/06/2018
Next Scheduled EDR Contact: 08/06/2018
Data Release Frequency: Semi-Annually

DEED: Deed Restriction Listing

Site Mitigation and Brownfields Reuse Program Facility Sites with Deed Restrictions & Hazardous Waste Management Program Facility Sites with Deed / Land Use Restriction. The DTSC Site Mitigation and Brownfields Reuse Program (SMBRP) list includes sites cleaned up under the program's oversight and generally does not include current or former hazardous waste facilities that required a hazardous waste facility permit. The list represents deed restrictions that are active. Some sites have multiple deed restrictions. The DTSC Hazardous Waste Management Program (HWMP) has developed a list of current or former hazardous waste facilities that have a recorded land use restriction at the local county recorder's office. The land use restrictions on this list were required by the DTSC HWMP as a result of the presence of hazardous substances that remain on site after the facility (or part of the facility) has been closed or cleaned up. The types of land use restriction include deed notice, deed restriction, or a land use restriction that binds current and future owners.

Date of Government Version: 06/04/2018
Date Data Arrived at EDR: 06/06/2018
Date Made Active in Reports: 07/17/2018
Number of Days to Update: 41

Source: DTSC and SWRCB
Telephone: 916-323-3400
Last EDR Contact: 06/06/2018
Next Scheduled EDR Contact: 09/17/2018
Data Release Frequency: Semi-Annually

Records of Emergency Release Reports

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

HMIRS: Hazardous Materials Information Reporting System
Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 03/26/2018
Date Data Arrived at EDR: 03/27/2018
Date Made Active in Reports: 06/08/2018
Number of Days to Update: 73

Source: U.S. Department of Transportation
Telephone: 202-366-4555
Last EDR Contact: 03/27/2018
Next Scheduled EDR Contact: 07/09/2018
Data Release Frequency: Quarterly

CHMIRS: California Hazardous Material Incident Report System
California Hazardous Material Incident Reporting System. CHMIRS contains information on reported hazardous material incidents (accidental releases or spills).

Date of Government Version: 04/06/2018
Date Data Arrived at EDR: 04/24/2018
Date Made Active in Reports: 06/14/2018
Number of Days to Update: 51

Source: Office of Emergency Services
Telephone: 916-845-8400
Last EDR Contact: 04/24/2018
Next Scheduled EDR Contact: 08/06/2018
Data Release Frequency: Semi-Annually

LDS: Land Disposal Sites Listing (GEOTRACKER)
Land Disposal sites (Landfills) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 06/11/2018
Date Data Arrived at EDR: 06/13/2018
Date Made Active in Reports: 07/17/2018
Number of Days to Update: 34

Source: State Water Qualilty Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/12/2018
Next Scheduled EDR Contact: 09/24/2018
Data Release Frequency: Quarterly

MCS: Military Cleanup Sites Listing (GEOTRACKER)
Military sites (consisting of: Military UST sites; Military Privatized sites; and Military Cleanup sites [formerly known as DoD non UST]) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 06/11/2018
Date Data Arrived at EDR: 06/13/2018
Date Made Active in Reports: 07/17/2018
Number of Days to Update: 34

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/12/2018
Next Scheduled EDR Contact: 09/24/2018
Data Release Frequency: Quarterly

SPILLS 90: SPILLS90 data from FirstSearch
Spills 90 includes those spill and release records available exclusively from FirstSearch databases. Typically, they may include chemical, oil and/or hazardous substance spills recorded after 1990. Duplicate records that are already included in EDR incident and release records are not included in Spills 90.

Date of Government Version: 06/06/2012
Date Data Arrived at EDR: 01/03/2013
Date Made Active in Reports: 02/22/2013
Number of Days to Update: 50

Source: FirstSearch
Telephone: N/A
Last EDR Contact: 01/03/2013
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

Other Ascertainable Records

RCRA NonGen / NLR: RCRA - Non Generators / No Longer Regulated
RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 03/01/2018
Date Data Arrived at EDR: 03/28/2018
Date Made Active in Reports: 06/22/2018
Number of Days to Update: 86

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 06/28/2018
Next Scheduled EDR Contact: 10/08/2018
Data Release Frequency: Quarterly

FUDS: Formerly Used Defense Sites

The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 01/31/2015
Date Data Arrived at EDR: 07/08/2015
Date Made Active in Reports: 10/13/2015
Number of Days to Update: 97

Source: U.S. Army Corps of Engineers
Telephone: 202-528-4285
Last EDR Contact: 05/25/2018
Next Scheduled EDR Contact: 09/03/2018
Data Release Frequency: Varies

DOD: Department of Defense Sites

This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 11/10/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 62

Source: USGS
Telephone: 888-275-8747
Last EDR Contact: 07/11/2018
Next Scheduled EDR Contact: 10/22/2018
Data Release Frequency: Semi-Annually

FEDLAND: Federal and Indian Lands

Federally and Indian administrated lands of the United States. Lands included are administrated by: Army Corps of Engineers, Bureau of Reclamation, National Wild and Scenic River, National Wildlife Refuge, Public Domain Land, Wilderness, Wilderness Study Area, Wildlife Management Area, Bureau of Indian Affairs, Bureau of Land Management, Department of Justice, Forest Service, Fish and Wildlife Service, National Park Service.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 02/06/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 339

Source: U.S. Geological Survey
Telephone: 888-275-8747
Last EDR Contact: 07/13/2018
Next Scheduled EDR Contact: 10/22/2018
Data Release Frequency: N/A

SCRD DRYCLEANERS: State Coalition for Remediation of Drycleaners Listing

The State Coalition for Remediation of Drycleaners was established in 1998, with support from the U.S. EPA Office of Superfund Remediation and Technology Innovation. It is comprised of representatives of states with established drycleaner remediation programs. Currently the member states are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin.

Date of Government Version: 01/01/2017
Date Data Arrived at EDR: 02/03/2017
Date Made Active in Reports: 04/07/2017
Number of Days to Update: 63

Source: Environmental Protection Agency
Telephone: 615-532-8599
Last EDR Contact: 05/15/2018
Next Scheduled EDR Contact: 08/27/2018
Data Release Frequency: Varies

US FIN ASSUR: Financial Assurance Information

All owners and operators of facilities that treat, store, or dispose of hazardous waste are required to provide proof that they will have sufficient funds to pay for the clean up, closure, and post-closure care of their facilities.

Date of Government Version: 03/01/2018
Date Data Arrived at EDR: 03/27/2018
Date Made Active in Reports: 06/22/2018
Number of Days to Update: 87

Source: Environmental Protection Agency
Telephone: 202-566-1917
Last EDR Contact: 06/27/2018
Next Scheduled EDR Contact: 10/08/2018
Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

EPA WATCH LIST: EPA WATCH LIST

EPA maintains a "Watch List" to facilitate dialogue between EPA, state and local environmental agencies on enforcement matters relating to facilities with alleged violations identified as either significant or high priority. Being on the Watch List does not mean that the facility has actually violated the law only that an investigation by EPA or a state or local environmental agency has led those organizations to allege that an unproven violation has in fact occurred. Being on the Watch List does not represent a higher level of concern regarding the alleged violations that were detected, but instead indicates cases requiring additional dialogue between EPA, state and local agencies - primarily because of the length of time the alleged violation has gone unaddressed or unresolved.

Date of Government Version: 08/30/2013
Date Data Arrived at EDR: 03/21/2014
Date Made Active in Reports: 06/17/2014
Number of Days to Update: 88

Source: Environmental Protection Agency
Telephone: 617-520-3000
Last EDR Contact: 05/07/2018
Next Scheduled EDR Contact: 08/20/2018
Data Release Frequency: Quarterly

2020 COR ACTION: 2020 Corrective Action Program List

The EPA has set ambitious goals for the RCRA Corrective Action program by creating the 2020 Corrective Action Universe. This RCRA cleanup baseline includes facilities expected to need corrective action. The 2020 universe contains a wide variety of sites. Some properties are heavily contaminated while others were contaminated but have since been cleaned up. Still others have not been fully investigated yet, and may require little or no remediation. Inclusion in the 2020 Universe does not necessarily imply failure on the part of a facility to meet its RCRA obligations.

Date of Government Version: 09/30/2017
Date Data Arrived at EDR: 05/08/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 73

Source: Environmental Protection Agency
Telephone: 703-308-4044
Last EDR Contact: 05/08/2018
Next Scheduled EDR Contact: 08/20/2018
Data Release Frequency: Varies

TSCA: Toxic Substances Control Act

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2016
Date Data Arrived at EDR: 06/21/2017
Date Made Active in Reports: 01/05/2018
Number of Days to Update: 198

Source: EPA
Telephone: 202-260-5521
Last EDR Contact: 06/22/2018
Next Scheduled EDR Contact: 10/01/2018
Data Release Frequency: Every 4 Years

TRIS: Toxic Chemical Release Inventory System

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/2016
Date Data Arrived at EDR: 01/10/2018
Date Made Active in Reports: 01/12/2018
Number of Days to Update: 2

Source: EPA
Telephone: 202-566-0250
Last EDR Contact: 05/25/2018
Next Scheduled EDR Contact: 09/03/2018
Data Release Frequency: Annually

SSTS: Section 7 Tracking Systems

Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 12/10/2010
Date Made Active in Reports: 02/25/2011
Number of Days to Update: 77

Source: EPA
Telephone: 202-564-4203
Last EDR Contact: 04/09/2018
Next Scheduled EDR Contact: 08/06/2018
Data Release Frequency: Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 05/13/2018
Date Data Arrived at EDR: 05/30/2018
Date Made Active in Reports: 06/29/2018
Number of Days to Update: 30

Source: EPA
Telephone: 703-416-0223
Last EDR Contact: 07/06/2018
Next Scheduled EDR Contact: 10/15/2018
Data Release Frequency: Annually

RMP: Risk Management Plans

When Congress passed the Clean Air Act Amendments of 1990, it required EPA to publish regulations and guidance for chemical accident prevention at facilities using extremely hazardous substances. The Risk Management Program Rule (RMP Rule) was written to implement Section 112(r) of these amendments. The rule, which built upon existing industry codes and standards, requires companies of all sizes that use certain flammable and toxic substances to develop a Risk Management Program, which includes a(n): Hazard assessment that details the potential effects of an accidental release, an accident history of the last five years, and an evaluation of worst-case and alternative accidental releases; Prevention program that includes safety precautions and maintenance, monitoring, and employee training measures; and Emergency response program that spells out emergency health care, employee training measures and procedures for informing the public and response agencies (e.g the fire department) should an accident occur.

Date of Government Version: 11/02/2017
Date Data Arrived at EDR: 11/17/2017
Date Made Active in Reports: 12/08/2017
Number of Days to Update: 21

Source: Environmental Protection Agency
Telephone: 202-564-8600
Last EDR Contact: 07/20/2018
Next Scheduled EDR Contact: 11/05/2018
Data Release Frequency: Varies

RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995
Date Data Arrived at EDR: 07/03/1995
Date Made Active in Reports: 08/07/1995
Number of Days to Update: 35

Source: EPA
Telephone: 202-564-4104
Last EDR Contact: 06/02/2008
Next Scheduled EDR Contact: 09/01/2008
Data Release Frequency: No Update Planned

PRP: Potentially Responsible Parties

A listing of verified Potentially Responsible Parties

Date of Government Version: 10/25/2013
Date Data Arrived at EDR: 10/17/2014
Date Made Active in Reports: 10/20/2014
Number of Days to Update: 3

Source: EPA
Telephone: 202-564-6023
Last EDR Contact: 07/06/2018
Next Scheduled EDR Contact: 08/20/2018
Data Release Frequency: Quarterly

PADS: PCB Activity Database System

PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 06/01/2017
Date Data Arrived at EDR: 06/09/2017
Date Made Active in Reports: 10/13/2017
Number of Days to Update: 126

Source: EPA
Telephone: 202-566-0500
Last EDR Contact: 07/13/2018
Next Scheduled EDR Contact: 10/22/2018
Data Release Frequency: Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

ICIS: Integrated Compliance Information System

The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 11/18/2016
Date Data Arrived at EDR: 11/23/2016
Date Made Active in Reports: 02/10/2017
Number of Days to Update: 79

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 07/09/2018
Next Scheduled EDR Contact: 10/22/2018
Data Release Frequency: Quarterly

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Telephone: 202-566-1667
Last EDR Contact: 08/18/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: Quarterly

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA
Telephone: 202-566-1667
Last EDR Contact: 08/18/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: Quarterly

MLTS: Material Licensing Tracking System

MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 08/30/2016
Date Data Arrived at EDR: 09/08/2016
Date Made Active in Reports: 10/21/2016
Number of Days to Update: 43

Source: Nuclear Regulatory Commission
Telephone: 301-415-7169
Last EDR Contact: 07/23/2018
Next Scheduled EDR Contact: 11/05/2018
Data Release Frequency: Quarterly

COAL ASH DOE: Steam-Electric Plant Operation Data

A listing of power plants that store ash in surface ponds.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 08/07/2009
Date Made Active in Reports: 10/22/2009
Number of Days to Update: 76

Source: Department of Energy
Telephone: 202-586-8719
Last EDR Contact: 06/07/2018
Next Scheduled EDR Contact: 09/17/2018
Data Release Frequency: Varies

COAL ASH EPA: Coal Combustion Residues Surface Impoundments List

A listing of coal combustion residues surface impoundments with high hazard potential ratings.

Date of Government Version: 07/01/2014
Date Data Arrived at EDR: 09/10/2014
Date Made Active in Reports: 10/20/2014
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: N/A
Last EDR Contact: 06/04/2018
Next Scheduled EDR Contact: 09/17/2018
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

PCB TRANSFORMER: PCB Transformer Registration Database
The database of PCB transformer registrations that includes all PCB registration submittals.

Date of Government Version: 05/24/2017
Date Data Arrived at EDR: 11/30/2017
Date Made Active in Reports: 12/15/2017
Number of Days to Update: 15
Source: Environmental Protection Agency
Telephone: 202-566-0517
Last EDR Contact: 04/27/2018
Next Scheduled EDR Contact: 08/06/2018
Data Release Frequency: Varies

RADINFO: Radiation Information Database
The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

Date of Government Version: 04/03/2018
Date Data Arrived at EDR: 04/05/2018
Date Made Active in Reports: 06/29/2018
Number of Days to Update: 85
Source: Environmental Protection Agency
Telephone: 202-343-9775
Last EDR Contact: 07/05/2018
Next Scheduled EDR Contact: 10/15/2018
Data Release Frequency: Quarterly

HIST FTTS: FIFRA/TSCA Tracking System Administrative Case Listing
A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40
Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2007
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

HIST FTTS INSP: FIFRA/TSCA Tracking System Inspection & Enforcement Case Listing
A complete inspection and enforcement case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40
Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2008
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

DOT OPS: Incident and Accident Data
Department of Transporation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 07/31/2012
Date Data Arrived at EDR: 08/07/2012
Date Made Active in Reports: 09/18/2012
Number of Days to Update: 42
Source: Department of Transporation, Office of Pipeline Safety
Telephone: 202-366-4595
Last EDR Contact: 05/03/2018
Next Scheduled EDR Contact: 08/13/2018
Data Release Frequency: Varies

CONSENT: Superfund (CERCLA) Consent Decrees
Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 03/31/2018
Date Data Arrived at EDR: 04/16/2018
Date Made Active in Reports: 06/29/2018
Number of Days to Update: 74

Source: Department of Justice, Consent Decree Library
Telephone: Varies
Last EDR Contact: 07/09/2018
Next Scheduled EDR Contact: 10/01/2018
Data Release Frequency: Varies

BRS: Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2015
Date Data Arrived at EDR: 02/22/2017
Date Made Active in Reports: 09/28/2017
Number of Days to Update: 218

Source: EPA/NTIS
Telephone: 800-424-9346
Last EDR Contact: 06/28/2018
Next Scheduled EDR Contact: 09/03/2018
Data Release Frequency: Biennially

INDIAN RESERV: Indian Reservations

This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2014
Date Data Arrived at EDR: 07/14/2015
Date Made Active in Reports: 01/10/2017
Number of Days to Update: 546

Source: USGS
Telephone: 202-208-3710
Last EDR Contact: 07/11/2018
Next Scheduled EDR Contact: 10/22/2018
Data Release Frequency: Semi-Annually

FUSRAP: Formerly Utilized Sites Remedial Action Program

DOE established the Formerly Utilized Sites Remedial Action Program (FUSRAP) in 1974 to remediate sites where radioactive contamination remained from Manhattan Project and early U.S. Atomic Energy Commission (AEC) operations.

Date of Government Version: 12/23/2016
Date Data Arrived at EDR: 12/27/2016
Date Made Active in Reports: 02/17/2017
Number of Days to Update: 52

Source: Department of Energy
Telephone: 202-586-3559
Last EDR Contact: 05/07/2018
Next Scheduled EDR Contact: 08/20/2018
Data Release Frequency: Varies

UMTRA: Uranium Mill Tailings Sites

Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Date of Government Version: 06/23/2017
Date Data Arrived at EDR: 10/11/2017
Date Made Active in Reports: 11/03/2017
Number of Days to Update: 23

Source: Department of Energy
Telephone: 505-845-0011
Last EDR Contact: 05/18/2018
Next Scheduled EDR Contact: 09/03/2018
Data Release Frequency: Varies

LEAD SMELTER 1: Lead Smelter Sites

A listing of former lead smelter site locations.

Date of Government Version: 05/13/2018
Date Data Arrived at EDR: 05/30/2018
Date Made Active in Reports: 06/29/2018
Number of Days to Update: 30

Source: Environmental Protection Agency
Telephone: 703-603-8787
Last EDR Contact: 07/06/2018
Next Scheduled EDR Contact: 10/15/2018
Data Release Frequency: Varies

LEAD SMELTER 2: Lead Smelter Sites

A list of several hundred sites in the U.S. where secondary lead smelting was done from 1931and 1964. These sites may pose a threat to public health through ingestion or inhalation of contaminated soil or dust

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 04/05/2001
Date Data Arrived at EDR: 10/27/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 36

Source: American Journal of Public Health
Telephone: 703-305-6451
Last EDR Contact: 12/02/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

US AIRS (AFS): Aerometric Information Retrieval System Facility Subsystem (AFS)

The database is a sub-system of Aerometric Information Retrieval System (AIRS). AFS contains compliance data on air pollution point sources regulated by the U.S. EPA and/or state and local air regulatory agencies. This information comes from source reports by various stationary sources of air pollution, such as electric power plants, steel mills, factories, and universities, and provides information about the air pollutants they produce. Action, air program, air program pollutant, and general level plant data. It is used to track emissions and compliance data from industrial plants.

Date of Government Version: 10/12/2016
Date Data Arrived at EDR: 10/26/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 100

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 09/26/2017
Next Scheduled EDR Contact: 01/08/2018
Data Release Frequency: Annually

US AIRS MINOR: Air Facility System Data

A listing of minor source facilities.

Date of Government Version: 10/12/2016
Date Data Arrived at EDR: 10/26/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 100

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 09/26/2017
Next Scheduled EDR Contact: 01/08/2018
Data Release Frequency: Annually

US MINES: Mines Master Index File

Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 05/03/2018
Date Data Arrived at EDR: 05/31/2018
Date Made Active in Reports: 06/29/2018
Number of Days to Update: 29

Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959
Last EDR Contact: 05/31/2018
Next Scheduled EDR Contact: 09/10/2018
Data Release Frequency: Semi-Annually

US MINES 2: Ferrous and Nonferrous Metal Mines Database Listing

This map layer includes ferrous (ferrous metal mines are facilities that extract ferrous metals, such as iron ore or molybdenum) and nonferrous (Nonferrous metal mines are facilities that extract nonferrous metals, such as gold, silver, copper, zinc, and lead) metal mines in the United States.

Date of Government Version: 12/05/2005
Date Data Arrived at EDR: 02/29/2008
Date Made Active in Reports: 04/18/2008
Number of Days to Update: 49

Source: USGS
Telephone: 703-648-7709
Last EDR Contact: 05/30/2018
Next Scheduled EDR Contact: 09/10/2018
Data Release Frequency: Varies

US MINES 3: Active Mines & Mineral Plants Database Listing

Active Mines and Mineral Processing Plant operations for commodities monitored by the Minerals Information Team of the USGS.

Date of Government Version: 04/14/2011
Date Data Arrived at EDR: 06/08/2011
Date Made Active in Reports: 09/13/2011
Number of Days to Update: 97

Source: USGS
Telephone: 703-648-7709
Last EDR Contact: 05/30/2018
Next Scheduled EDR Contact: 09/10/2018
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

ABANDONED MINES: Abandoned Mines

An inventory of land and water impacted by past mining (primarily coal mining) is maintained by OSMRE to provide information needed to implement the Surface Mining Control and Reclamation Act of 1977 (SMCRA). The inventory contains information on the location, type, and extent of AML impacts, as well as, information on the cost associated with the reclamation of those problems. The inventory is based upon field surveys by State, Tribal, and OSMRE program officials. It is dynamic to the extent that it is modified as new problems are identified and existing problems are reclaimed.

Date of Government Version: 03/08/2018
Date Data Arrived at EDR: 03/13/2018
Date Made Active in Reports: 06/08/2018
Number of Days to Update: 87

Source: Department of Interior
Telephone: 202-208-2609
Last EDR Contact: 06/20/2018
Next Scheduled EDR Contact: 09/24/2018
Data Release Frequency: Quarterly

FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 02/21/2018
Date Data Arrived at EDR: 02/23/2018
Date Made Active in Reports: 03/23/2018
Number of Days to Update: 28

Source: EPA
Telephone: (415) 947-8000
Last EDR Contact: 06/06/2018
Next Scheduled EDR Contact: 09/17/2018
Data Release Frequency: Quarterly

ECHO: Enforcement & Compliance History Information

ECHO provides integrated compliance and enforcement information for about 800,000 regulated facilities nationwide.

Date of Government Version: 02/25/2018
Date Data Arrived at EDR: 03/17/2018
Date Made Active in Reports: 06/08/2018
Number of Days to Update: 83

Source: Environmental Protection Agency
Telephone: 202-564-2280
Last EDR Contact: 06/06/2018
Next Scheduled EDR Contact: 09/17/2018
Data Release Frequency: Quarterly

DOCKET HWC: Hazardous Waste Compliance Docket Listing

A complete list of the Federal Agency Hazardous Waste Compliance Docket Facilities.

Date of Government Version: 01/04/2018
Date Data Arrived at EDR: 01/19/2018
Date Made Active in Reports: 04/13/2018
Number of Days to Update: 84

Source: Environmental Protection Agency
Telephone: 202-564-0527
Last EDR Contact: 06/01/2018
Next Scheduled EDR Contact: 09/10/2018
Data Release Frequency: Varies

UXO: Unexploded Ordnance Sites

A listing of unexploded ordnance site locations

Date of Government Version: 09/30/2016
Date Data Arrived at EDR: 10/31/2017
Date Made Active in Reports: 01/12/2018
Number of Days to Update: 73

Source: Department of Defense
Telephone: 703-704-1564
Last EDR Contact: 07/13/2018
Next Scheduled EDR Contact: 10/29/2018
Data Release Frequency: Varies

FUELS PROGRAM: EPA Fuels Program Registered Listing

This listing includes facilities that are registered under the Part 80 (Code of Federal Regulations) EPA Fuels Programs. All companies now are required to submit new and updated registrations.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 02/20/2018
Date Data Arrived at EDR: 02/21/2018
Date Made Active in Reports: 03/23/2018
Number of Days to Update: 30

Source: EPA
Telephone: 800-385-6164
Last EDR Contact: 05/23/2018
Next Scheduled EDR Contact: 09/03/2018
Data Release Frequency: Quarterly

CA BOND EXP. PLAN: Bond Expenditure Plan

Department of Health Services developed a site-specific expenditure plan as the basis for an appropriation of Hazardous Substance Cleanup Bond Act funds. It is not updated.

Date of Government Version: 01/01/1989
Date Data Arrived at EDR: 07/27/1994
Date Made Active in Reports: 08/02/1994
Number of Days to Update: 6

Source: Department of Health Services
Telephone: 916-255-2118
Last EDR Contact: 05/31/1994
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

CORTESE: "Cortese" Hazardous Waste & Substances Sites List

The sites for the list are designated by the State Water Resource Control Board (LUST), the Integrated Waste Board (SWF/LS), and the Department of Toxic Substances Control (Cal-Sites).

Date of Government Version: 03/26/2018
Date Data Arrived at EDR: 03/27/2018
Date Made Active in Reports: 05/04/2018
Number of Days to Update: 38

Source: CAL EPA/Office of Emergency Information
Telephone: 916-323-3400
Last EDR Contact: 06/27/2018
Next Scheduled EDR Contact: 10/08/2018
Data Release Frequency: Quarterly

CUPA SAN FRANCISCO CO: CUPA SAN FRANCISCO CO

Cupa facilities

Date of Government Version: 04/20/2018
Date Data Arrived at EDR: 04/24/2018
Date Made Active in Reports: 05/04/2018
Number of Days to Update: 10

Source: San Francisco County Department of Environmental Health
Telephone: 415-252-3896
Last EDR Contact: 05/02/2018
Next Scheduled EDR Contact: 08/20/2018
Data Release Frequency: Varies

CUPA LIVERMORE-PLEASANTON: CUPA Facility Listing

list of facilities associated with the various CUPA programs in Livermore-Pleasanton

Date of Government Version: 04/03/2018
Date Data Arrived at EDR: 05/07/2018
Date Made Active in Reports: 06/15/2018
Number of Days to Update: 39

Source: Livermore-Pleasanton Fire Department
Telephone: 925-454-2361
Last EDR Contact: 05/07/2018
Next Scheduled EDR Contact: 08/27/2018
Data Release Frequency: Varies

DRYCLEAN AVAQMD: DRYCLEAN AVAQMD

A listing of dry cleaners in the Antelope Valley Air Quality Management District.

Date of Government Version: 03/08/2018
Date Data Arrived at EDR: 03/13/2018
Date Made Active in Reports: 05/04/2018
Number of Days to Update: 52

Source: Antelope Valley Air Quality Management District
Telephone: 661-723-8070
Last EDR Contact: 06/22/2018
Next Scheduled EDR Contact: 09/17/2018
Data Release Frequency: Varies

DRYCLEANERS: Cleaner Facilities

A list of drycleaner related facilities that have EPA ID numbers. These are facilities with certain SIC codes: power laundries, family and commercial; garment pressing and cleaner's agents; linen supply; coin-operated laundries and cleaning; drycleaning plants, except rugs; carpet and upholster cleaning; industrial launderers; laundry and garment services.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 03/27/2018
Date Data Arrived at EDR: 03/29/2018
Date Made Active in Reports: 05/04/2018
Number of Days to Update: 36

Source: Department of Toxic Substance Control
Telephone: 916-327-4498
Last EDR Contact: 05/30/2018
Next Scheduled EDR Contact: 09/17/2018
Data Release Frequency: Annually

DRYCLEAN SOUTH COAST: DRYCLEAN SOUTH COAST
A listing of dry cleaners in the South Coast Air Quality Management District

Date of Government Version: 03/16/2018
Date Data Arrived at EDR: 03/20/2018
Date Made Active in Reports: 05/04/2018
Number of Days to Update: 45

Source: South Coast Air Quality Management District
Telephone: 909-396-3211
Last EDR Contact: 06/11/2018
Next Scheduled EDR Contact: 09/10/2018
Data Release Frequency: Varies

EMI: Emissions Inventory Data
Toxics and criteria pollutant emissions data collected by the ARB and local air pollution agencies.

Date of Government Version: 12/31/2015
Date Data Arrived at EDR: 03/21/2017
Date Made Active in Reports: 08/15/2017
Number of Days to Update: 147

Source: California Air Resources Board
Telephone: 916-322-2990
Last EDR Contact: 06/20/2018
Next Scheduled EDR Contact: 10/01/2018
Data Release Frequency: Varies

ENF: Enforcement Action Listing
A listing of Water Board Enforcement Actions. Formal is everything except Oral/Verbal Communication, Notice of Violation, Expedited Payment Letter, and Staff Enforcement Letter.

Date of Government Version: 04/18/2018
Date Data Arrived at EDR: 04/24/2018
Date Made Active in Reports: 07/06/2018
Number of Days to Update: 73

Source: State Water Resoruces Control Board
Telephone: 916-445-9379
Last EDR Contact: 07/17/2018
Next Scheduled EDR Contact: 11/05/2018
Data Release Frequency: Varies

Financial Assurance 1: Financial Assurance Information Listing
Financial Assurance information

Date of Government Version: 04/18/2018
Date Data Arrived at EDR: 04/20/2018
Date Made Active in Reports: 06/19/2018
Number of Days to Update: 60

Source: Department of Toxic Substances Control
Telephone: 916-255-3628
Last EDR Contact: 07/17/2018
Next Scheduled EDR Contact: 11/05/2018
Data Release Frequency: Varies

Financial Assurance 2: Financial Assurance Information Listing
A listing of financial assurance information for solid waste facilities. Financial assurance is intended to ensure that resources are available to pay for the cost of closure, post-closure care, and corrective measures if the owner or operator of a regulated facility is unable or unwilling to pay.

Date of Government Version: 05/14/2018
Date Data Arrived at EDR: 05/15/2018
Date Made Active in Reports: 06/22/2018
Number of Days to Update: 38

Source: California Integrated Waste Management Board
Telephone: 916-341-6066
Last EDR Contact: 05/09/2018
Next Scheduled EDR Contact: 08/27/2018
Data Release Frequency: Varies

HAZNET: Facility and Manifest Data
Facility and Manifest Data. The data is extracted from the copies of hazardous waste manifests received each year by the DTSC. The annual volume of manifests is typically 700,000 - 1,000,000 annually, representing approximately 350,000 - 500,000 shipments. Data are from the manifests submitted without correction, and therefore many contain some invalid values for data elements such as generator ID, TSD ID, waste category, and disposal method. This database begins with calendar year 1993.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 12/31/2016
Date Data Arrived at EDR: 07/12/2017
Date Made Active in Reports: 10/17/2017
Number of Days to Update: 97

Source: California Environmental Protection Agency
Telephone: 916-255-1136
Last EDR Contact: 07/13/2018
Next Scheduled EDR Contact: 10/22/2018
Data Release Frequency: Annually

ICE: ICE

Contains data pertaining to the Permitted Facilities with Inspections / Enforcements sites tracked in Envirostor.

Date of Government Version: 05/21/2018
Date Data Arrived at EDR: 05/23/2018
Date Made Active in Reports: 07/17/2018
Number of Days to Update: 55

Source: Department of Toxic Subsances Control
Telephone: 877-786-9427
Last EDR Contact: 05/23/2018
Next Scheduled EDR Contact: 09/03/2018
Data Release Frequency: Quarterly

HIST CORTESE: Hazardous Waste & Substance Site List

The sites for the list are designated by the State Water Resource Control Board [LUST], the Integrated Waste Board [SWF/LS], and the Department of Toxic Substances Control [CALSITES]. This listing is no longer updated by the state agency.

Date of Government Version: 04/01/2001
Date Data Arrived at EDR: 01/22/2009
Date Made Active in Reports: 04/08/2009
Number of Days to Update: 76

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 01/22/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

HWP: EnviroStor Permitted Facilities Listing

Detailed information on permitted hazardous waste facilities and corrective action ("cleanups") tracked in EnviroStor.

Date of Government Version: 05/21/2018
Date Data Arrived at EDR: 05/23/2018
Date Made Active in Reports: 07/17/2018
Number of Days to Update: 55

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 05/23/2018
Next Scheduled EDR Contact: 09/03/2018
Data Release Frequency: Quarterly

HWT: Registered Hazardous Waste Transporter Database

A listing of hazardous waste transporters. In California, unless specifically exempted, it is unlawful for any person to transport hazardous wastes unless the person holds a valid registration issued by DTSC. A hazardous waste transporter registration is valid for one year and is assigned a unique registration number.

Date of Government Version: 04/09/2018
Date Data Arrived at EDR: 04/11/2018
Date Made Active in Reports: 06/19/2018
Number of Days to Update: 69

Source: Department of Toxic Substances Control
Telephone: 916-440-7145
Last EDR Contact: 07/11/2018
Next Scheduled EDR Contact: 10/22/2018
Data Release Frequency: Quarterly

MINES: Mines Site Location Listing

A listing of mine site locations from the Office of Mine Reclamation.

Date of Government Version: 03/12/2018
Date Data Arrived at EDR: 03/14/2018
Date Made Active in Reports: 05/04/2018
Number of Days to Update: 51

Source: Department of Conservation
Telephone: 916-322-1080
Last EDR Contact: 06/13/2018
Next Scheduled EDR Contact: 09/24/2018
Data Release Frequency: Quarterly

MWMP: Medical Waste Management Program Listing

The Medical Waste Management Program (MWMP) ensures the proper handling and disposal of medical waste by permitting and inspecting medical waste Offsite Treatment Facilities (PDF) and Transfer Stations (PDF) throughout the state. MWMP also oversees all Medical Waste Transporters.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 05/23/2018
Date Data Arrived at EDR: 06/06/2018
Date Made Active in Reports: 07/18/2018
Number of Days to Update: 42

Source: Department of Public Health
Telephone: 916-558-1784
Last EDR Contact: 06/06/2018
Next Scheduled EDR Contact: 09/17/2018
Data Release Frequency: Varies

NPDES: NPDES Permits Listing

A listing of NPDES permits, including stormwater.

Date of Government Version: 05/14/2018
Date Data Arrived at EDR: 05/16/2018
Date Made Active in Reports: 07/05/2018
Number of Days to Update: 50

Source: State Water Resources Control Board
Telephone: 916-445-9379
Last EDR Contact: 05/16/2018
Next Scheduled EDR Contact: 08/27/2018
Data Release Frequency: Quarterly

PEST LIC: Pesticide Regulation Licenses Listing

A listing of licenses and certificates issued by the Department of Pesticide Regulation. The DPR issues licenses and/or certificates to: Persons and businesses that apply or sell pesticides; Pest control dealers and brokers; Persons who advise on agricultural pesticide applications.

Date of Government Version: 06/04/2018
Date Data Arrived at EDR: 06/06/2018
Date Made Active in Reports: 07/19/2018
Number of Days to Update: 43

Source: Department of Pesticide Regulation
Telephone: 916-445-4038
Last EDR Contact: 06/06/2018
Next Scheduled EDR Contact: 09/17/2018
Data Release Frequency: Quarterly

PROC: Certified Processors Database

A listing of certified processors.

Date of Government Version: 03/12/2018
Date Data Arrived at EDR: 03/14/2018
Date Made Active in Reports: 05/04/2018
Number of Days to Update: 51

Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 06/13/2018
Next Scheduled EDR Contact: 09/24/2018
Data Release Frequency: Quarterly

NOTIFY 65: Proposition 65 Records

Listings of all Proposition 65 incidents reported to counties by the State Water Resources Control Board and the Regional Water Quality Control Board. This database is no longer updated by the reporting agency.

Date of Government Version: 03/23/2018
Date Data Arrived at EDR: 03/27/2018
Date Made Active in Reports: 05/04/2018
Number of Days to Update: 38

Source: State Water Resources Control Board
Telephone: 916-445-3846
Last EDR Contact: 06/14/2018
Next Scheduled EDR Contact: 10/01/2018
Data Release Frequency: No Update Planned

UIC: UIC Listing

A listing of wells identified as underground injection wells, in the California Oil and Gas Wells database.

Date of Government Version: 04/27/2018
Date Data Arrived at EDR: 06/13/2018
Date Made Active in Reports: 07/17/2018
Number of Days to Update: 34

Source: Deaprtment of Conservation
Telephone: 916-445-2408
Last EDR Contact: 06/13/2018
Next Scheduled EDR Contact: 09/24/2018
Data Release Frequency: Varies

WASTEWATER PITS: Oil Wastewater Pits Listing

Water officials discovered that oil producers have been dumping chemical-laden wastewater into hundreds of unlined pits that are operating without proper permits. Inspections completed by the Central Valley Regional Water Quality Control Board revealed the existence of previously unidentified waste sites. The water boards review found that more than one-third of the region's active disposal pits are operating without permission.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 04/10/2018
Date Data Arrived at EDR: 04/13/2018
Date Made Active in Reports: 06/19/2018
Number of Days to Update: 67

Source: RWQCB, Central Valley Region
Telephone: 559-445-5577
Last EDR Contact: 07/11/2018
Next Scheduled EDR Contact: 10/22/2018
Data Release Frequency: Varies

WDS: Waste Discharge System
Sites which have been issued waste discharge requirements.

Date of Government Version: 06/19/2007
Date Data Arrived at EDR: 06/20/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 9

Source: State Water Resources Control Board
Telephone: 916-341-5227
Last EDR Contact: 05/16/2018
Next Scheduled EDR Contact: 09/03/2018
Data Release Frequency: Quarterly

WIP: Well Investigation Program Case List
Well Investigation Program case in the San Gabriel and San Fernando Valley area.

Date of Government Version: 07/03/2009
Date Data Arrived at EDR: 07/21/2009
Date Made Active in Reports: 08/03/2009
Number of Days to Update: 13

Source: Los Angeles Water Quality Control Board
Telephone: 213-576-6726
Last EDR Contact: 06/25/2018
Next Scheduled EDR Contact: 10/08/2018
Data Release Frequency: Varies

PROD WATER PONDS: Produced Water Ponds Sites (GEOTRACKER)
Produced water ponds sites

Date of Government Version: 06/11/2018
Date Data Arrived at EDR: 06/13/2018
Date Made Active in Reports: 07/18/2018
Number of Days to Update: 35

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/12/2018
Next Scheduled EDR Contact: 09/24/2018
Data Release Frequency: Varies

PROJECT: Project Sites (GEOTRACKER)
Projects sites

Date of Government Version: 06/11/2018
Date Data Arrived at EDR: 06/13/2018
Date Made Active in Reports: 07/18/2018
Number of Days to Update: 35

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/12/2018
Next Scheduled EDR Contact: 09/24/2018
Data Release Frequency: Varies

NON-CASE INFO: Non-Case Information Sites (GEOTRACKER)
Non-Case Information sites

Date of Government Version: 06/11/2018
Date Data Arrived at EDR: 06/13/2018
Date Made Active in Reports: 07/18/2018
Number of Days to Update: 35

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/12/2018
Next Scheduled EDR Contact: 09/24/2018
Data Release Frequency: Varies

WELL STIM PROJ: Well Stimulation Project (GEOTRACKER)
Includes areas of groundwater monitoring plans, a depiction of the monitoring network, and the facilities, boundaries, and subsurface characteristics of the oilfield and the features (oil and gas wells, produced water ponds, UIC wells, water supply wells, etc?) being monitored

Date of Government Version: 06/11/2018
Date Data Arrived at EDR: 06/13/2018
Date Made Active in Reports: 07/18/2018
Number of Days to Update: 35

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/12/2018
Next Scheduled EDR Contact: 09/24/2018
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

CIWQS: California Integrated Water Quality System

The California Integrated Water Quality System (CIWQS) is a computer system used by the State and Regional Water Quality Control Boards to track information about places of environmental interest, manage permits and other orders, track inspections, and manage violations and enforcement activities.

Date of Government Version: 06/04/2018
Date Data Arrived at EDR: 06/06/2018
Date Made Active in Reports: 07/13/2018
Number of Days to Update: 37

Source: State Water Resources Control Board
Telephone: 866-794-4977
Last EDR Contact: 06/06/2018
Next Scheduled EDR Contact: 09/17/2018
Data Release Frequency: Varies

OTHER OIL GAS: Other Oil & Gas Projects Sites (GEOTRACKER)

Other Oil & Gas Projects sites

Date of Government Version: 06/11/2018
Date Data Arrived at EDR: 06/13/2018
Date Made Active in Reports: 07/18/2018
Number of Days to Update: 35

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/12/2018
Next Scheduled EDR Contact: 09/24/2018
Data Release Frequency: Varies

SAMPLING POINT: Sampling Point ? Public Sites (GEOTRACKER)

Sampling point - public sites

Date of Government Version: 06/11/2018
Date Data Arrived at EDR: 06/13/2018
Date Made Active in Reports: 07/18/2018
Number of Days to Update: 35

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/12/2018
Next Scheduled EDR Contact: 09/24/2018
Data Release Frequency: Varies

UIC GEO: Underground Injection Control Sites (GEOTRACKER)

Underground control injection sites

Date of Government Version: 06/11/2018
Date Data Arrived at EDR: 06/13/2018
Date Made Active in Reports: 07/18/2018
Number of Days to Update: 35

Source: State Water Resource Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/12/2018
Next Scheduled EDR Contact: 09/24/2018
Data Release Frequency: Varies

CERS: CalEPA Regulated Site Portal Data

The CalEPA Regulated Site Portal database combines data about environmentally regulated sites and facilities in California into a single database. It combines data from a variety of state and federal databases, and provides an overview of regulated activities across the spectrum of environmental programs for any given location in California. These activities include hazardous materials and waste, state and federal cleanups, impacted ground and surface waters, and toxic materials

Date of Government Version: 04/23/2018
Date Data Arrived at EDR: 04/24/2018
Date Made Active in Reports: 06/07/2018
Number of Days to Update: 44

Source: California Environmental Protection Agency
Telephone: 916-323-2514
Last EDR Contact: 07/25/2018
Next Scheduled EDR Contact: 11/05/2018
Data Release Frequency: Varies

MILITARY PRIV SITES: Military Privatized Sites (GEOTRACKER)

Military privatized sites

Date of Government Version: 06/11/2018
Date Data Arrived at EDR: 06/13/2018
Date Made Active in Reports: 07/18/2018
Number of Days to Update: 35

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/12/2018
Next Scheduled EDR Contact: 09/24/2018
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP: EDR Proprietary Manufactured Gas Plants

The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: N/A	Source: EDR, Inc.
Date Data Arrived at EDR: N/A	Telephone: N/A
Date Made Active in Reports: N/A	Last EDR Contact: N/A
Number of Days to Update: N/A	Next Scheduled EDR Contact: N/A
	Data Release Frequency: No Update Planned

EDR Hist Auto: EDR Exclusive Historical Auto Stations

EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A	Source: EDR, Inc.
Date Data Arrived at EDR: N/A	Telephone: N/A
Date Made Active in Reports: N/A	Last EDR Contact: N/A
Number of Days to Update: N/A	Next Scheduled EDR Contact: N/A
	Data Release Frequency: Varies

EDR Hist Cleaner: EDR Exclusive Historical Cleaners

EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A	Source: EDR, Inc.
Date Data Arrived at EDR: N/A	Telephone: N/A
Date Made Active in Reports: N/A	Last EDR Contact: N/A
Number of Days to Update: N/A	Next Scheduled EDR Contact: N/A
	Data Release Frequency: Varies

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LF: Recovered Government Archive Solid Waste Facilities List

The EDR Recovered Government Archive Landfill database provides a list of landfills derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Resources Recycling and Recovery in California.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 01/13/2014
Number of Days to Update: 196

Source: Department of Resources Recycling and Recovery
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

RGA LUST: Recovered Government Archive Leaking Underground Storage Tank

The EDR Recovered Government Archive Leaking Underground Storage Tank database provides a list of LUST incidents derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the State Water Resources Control Board in California.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 12/30/2013
Number of Days to Update: 182

Source: State Water Resources Control Board
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

COUNTY RECORDS

ALAMEDA COUNTY:

Contaminated Sites

A listing of contaminated sites overseen by the Toxic Release Program (oil and groundwater contamination from chemical releases and spills) and the Leaking Underground Storage Tank Program (soil and ground water contamination from leaking petroleum USTs).

Date of Government Version: 04/05/2018
Date Data Arrived at EDR: 04/10/2018
Date Made Active in Reports: 06/14/2018
Number of Days to Update: 65

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 07/17/2018
Next Scheduled EDR Contact: 10/22/2018
Data Release Frequency: Semi-Annually

Underground Tanks

Underground storage tank sites located in Alameda county.

Date of Government Version: 04/05/2018
Date Data Arrived at EDR: 04/10/2018
Date Made Active in Reports: 05/04/2018
Number of Days to Update: 24

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 07/05/2018
Next Scheduled EDR Contact: 04/24/2047
Data Release Frequency: Semi-Annually

AMADOR COUNTY:

CUPA Facility List

Cupa Facility List

Date of Government Version: 03/31/2018
Date Data Arrived at EDR: 04/05/2018
Date Made Active in Reports: 06/14/2018
Number of Days to Update: 70

Source: Amador County Environmental Health
Telephone: 209-223-6439
Last EDR Contact: 06/14/2018
Next Scheduled EDR Contact: 09/17/2018
Data Release Frequency: Varies

BUTTE COUNTY:

CUPA Facility Listing

Cupa facility list.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 04/21/2017
Date Data Arrived at EDR: 04/25/2017
Date Made Active in Reports: 08/09/2017
Number of Days to Update: 106

Source: Public Health Department
Telephone: 530-538-7149
Last EDR Contact: 07/05/2018
Next Scheduled EDR Contact: 10/22/2018
Data Release Frequency: No Update Planned

CALVERAS COUNTY:

CUPA Facility Listing
Cupa Facility Listing

Date of Government Version: 05/07/2018
Date Data Arrived at EDR: 05/09/2018
Date Made Active in Reports: 06/14/2018
Number of Days to Update: 36

Source: Calveras County Environmental Health
Telephone: 209-754-6399
Last EDR Contact: 06/25/2018
Next Scheduled EDR Contact: 10/08/2018
Data Release Frequency: Quarterly

COLUSA COUNTY:

CUPA Facility List
Cupa facility list.

Date of Government Version: 05/23/2018
Date Data Arrived at EDR: 05/24/2018
Date Made Active in Reports: 07/13/2018
Number of Days to Update: 50

Source: Health & Human Services
Telephone: 530-458-0396
Last EDR Contact: 05/16/2018
Next Scheduled EDR Contact: 08/20/2018
Data Release Frequency: Semi-Annually

CONTRA COSTA COUNTY:

Site List
List includes sites from the underground tank, hazardous waste generator and business plan/2185 programs.

Date of Government Version: 05/21/2018
Date Data Arrived at EDR: 05/25/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 56

Source: Contra Costa Health Services Department
Telephone: 925-646-2286
Last EDR Contact: 04/30/2018
Next Scheduled EDR Contact: 08/13/2018
Data Release Frequency: Semi-Annually

DEL NORTE COUNTY:

CUPA Facility List
Cupa Facility list

Date of Government Version: 04/27/2018
Date Data Arrived at EDR: 05/02/2018
Date Made Active in Reports: 06/15/2018
Number of Days to Update: 44

Source: Del Norte County Environmental Health Division
Telephone: 707-465-0426
Last EDR Contact: 07/24/2018
Next Scheduled EDR Contact: 11/12/2018
Data Release Frequency: Varies

EL DORADO COUNTY:

CUPA Facility List
CUPA facility list.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 03/05/2018
Date Data Arrived at EDR: 03/08/2018
Date Made Active in Reports: 04/16/2018
Number of Days to Update: 39

Source: El Dorado County Environmental Management Department
Telephone: 530-621-6623
Last EDR Contact: 07/12/2018
Next Scheduled EDR Contact: 08/13/2018
Data Release Frequency: Varies

FRESNO COUNTY:

CUPA Resources List

Certified Unified Program Agency. CUPA's are responsible for implementing a unified hazardous materials and hazardous waste management regulatory program. The agency provides oversight of businesses that deal with hazardous materials, operate underground storage tanks or aboveground storage tanks.

Date of Government Version: 03/01/2018
Date Data Arrived at EDR: 03/05/2018
Date Made Active in Reports: 03/14/2018
Number of Days to Update: 9

Source: Dept. of Community Health
Telephone: 559-445-3271
Last EDR Contact: 07/11/2018
Next Scheduled EDR Contact: 10/15/2018
Data Release Frequency: Semi-Annually

GLENN COUNTY:

CUPA Facility List

Cupa facility list

Date of Government Version: 01/22/2018
Date Data Arrived at EDR: 01/24/2018
Date Made Active in Reports: 03/14/2018
Number of Days to Update: 49

Source: Glenn County Air Pollution Control District
Telephone: 830-934-6500
Last EDR Contact: 07/17/2018
Next Scheduled EDR Contact: 11/05/2018
Data Release Frequency: Varies

HUMBOLDT COUNTY:

CUPA Facility List

CUPA facility list.

Date of Government Version: 03/05/2018
Date Data Arrived at EDR: 03/08/2018
Date Made Active in Reports: 04/30/2018
Number of Days to Update: 53

Source: Humboldt County Environmental Health
Telephone: N/A
Last EDR Contact: 05/21/2018
Next Scheduled EDR Contact: 09/03/2018
Data Release Frequency: Semi-Annually

IMPERIAL COUNTY:

CUPA Facility List

Cupa facility list.

Date of Government Version: 04/23/2018
Date Data Arrived at EDR: 04/25/2018
Date Made Active in Reports: 06/14/2018
Number of Days to Update: 50

Source: San Diego Border Field Office
Telephone: 760-339-2777
Last EDR Contact: 07/17/2018
Next Scheduled EDR Contact: 11/05/2018
Data Release Frequency: Varies

INYO COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

CUPA Facility List
Cupa facility list.

Date of Government Version: 04/02/2018
Date Data Arrived at EDR: 04/03/2018
Date Made Active in Reports: 06/14/2018
Number of Days to Update: 72

Source: Inyo County Environmental Health Services
Telephone: 760-878-0238
Last EDR Contact: 05/30/2018
Next Scheduled EDR Contact: 09/03/2018
Data Release Frequency: Varies

KERN COUNTY:

Underground Storage Tank Sites & Tank Listing
Kern County Sites and Tanks Listing.

Date of Government Version: 05/02/2018
Date Data Arrived at EDR: 05/07/2018
Date Made Active in Reports: 07/18/2018
Number of Days to Update: 72

Source: Kern County Environment Health Services Department
Telephone: 661-862-8700
Last EDR Contact: 07/20/2018
Next Scheduled EDR Contact: 08/20/2018
Data Release Frequency: Quarterly

KINGS COUNTY:

CUPA Facility List
A listing of sites included in the county's Certified Unified Program Agency database. California's Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities.

Date of Government Version: 06/12/2018
Date Data Arrived at EDR: 06/15/2018
Date Made Active in Reports: 07/13/2018
Number of Days to Update: 28

Source: Kings County Department of Public Health
Telephone: 559-584-1411
Last EDR Contact: 05/16/2018
Next Scheduled EDR Contact: 09/03/2018
Data Release Frequency: Varies

LAKE COUNTY:

CUPA Facility List
Cupa facility list

Date of Government Version: 05/09/2018
Date Data Arrived at EDR: 05/11/2018
Date Made Active in Reports: 06/14/2018
Number of Days to Update: 34

Source: Lake County Environmental Health
Telephone: 707-263-1164
Last EDR Contact: 07/16/2018
Next Scheduled EDR Contact: 10/29/2018
Data Release Frequency: Varies

LASSEN COUNTY:

CUPA Facility List
Cupa facility list

Date of Government Version: 01/22/2018
Date Data Arrived at EDR: 01/24/2018
Date Made Active in Reports: 03/14/2018
Number of Days to Update: 49

Source: Lassen County Environmental Health
Telephone: 530-251-8528
Last EDR Contact: 07/17/2018
Next Scheduled EDR Contact: 11/05/2018
Data Release Frequency: Varies

LOS ANGELES COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

San Gabriel Valley Areas of Concern

San Gabriel Valley areas where VOC contamination is at or above the MCL as designated by region 9 EPA office.

Date of Government Version: 03/30/2009
Date Data Arrived at EDR: 03/31/2009
Date Made Active in Reports: 10/23/2009
Number of Days to Update: 206

Source: EPA Region 9
Telephone: 415-972-3178
Last EDR Contact: 06/13/2018
Next Scheduled EDR Contact: 10/01/2018
Data Release Frequency: No Update Planned

HMS: Street Number List

Industrial Waste and Underground Storage Tank Sites.

Date of Government Version: 04/12/2018
Date Data Arrived at EDR: 04/16/2018
Date Made Active in Reports: 06/15/2018
Number of Days to Update: 60

Source: Department of Public Works
Telephone: 626-458-3517
Last EDR Contact: 07/05/2018
Next Scheduled EDR Contact: 10/22/2018
Data Release Frequency: Semi-Annually

List of Solid Waste Facilities

Solid Waste Facilities in Los Angeles County.

Date of Government Version: 04/16/2018
Date Data Arrived at EDR: 04/17/2018
Date Made Active in Reports: 06/19/2018
Number of Days to Update: 63

Source: La County Department of Public Works
Telephone: 818-458-5185
Last EDR Contact: 07/18/2018
Next Scheduled EDR Contact: 10/29/2018
Data Release Frequency: Varies

City of Los Angeles Landfills

Landfills owned and maintained by the City of Los Angeles.

Date of Government Version: 01/01/2018
Date Data Arrived at EDR: 05/01/2018
Date Made Active in Reports: 05/14/2018
Number of Days to Update: 13

Source: Engineering & Construction Division
Telephone: 213-473-7869
Last EDR Contact: 07/11/2018
Next Scheduled EDR Contact: 10/29/2018
Data Release Frequency: Varies

Site Mitigation List

Industrial sites that have had some sort of spill or complaint.

Date of Government Version: 04/01/2018
Date Data Arrived at EDR: 04/17/2018
Date Made Active in Reports: 06/19/2018
Number of Days to Update: 63

Source: Community Health Services
Telephone: 323-890-7806
Last EDR Contact: 07/20/2018
Next Scheduled EDR Contact: 10/29/2018
Data Release Frequency: Annually

City of El Segundo Underground Storage Tank

Underground storage tank sites located in El Segundo city.

Date of Government Version: 01/21/2017
Date Data Arrived at EDR: 04/19/2017
Date Made Active in Reports: 05/10/2017
Number of Days to Update: 21

Source: City of El Segundo Fire Department
Telephone: 310-524-2236
Last EDR Contact: 07/11/2018
Next Scheduled EDR Contact: 10/29/2018
Data Release Frequency: Semi-Annually

City of Long Beach Underground Storage Tank

Underground storage tank sites located in the city of Long Beach.

Date of Government Version: 03/09/2017
Date Data Arrived at EDR: 03/10/2017
Date Made Active in Reports: 05/03/2017
Number of Days to Update: 54

Source: City of Long Beach Fire Department
Telephone: 562-570-2563
Last EDR Contact: 07/17/2018
Next Scheduled EDR Contact: 11/05/2018
Data Release Frequency: Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

City of Torrance Underground Storage Tank
Underground storage tank sites located in the city of Torrance.

Date of Government Version: 01/04/2018
Date Data Arrived at EDR: 01/05/2018
Date Made Active in Reports: 01/18/2018
Number of Days to Update: 13

Source: City of Torrance Fire Department
Telephone: 310-618-2973
Last EDR Contact: 07/23/2018
Next Scheduled EDR Contact: 10/22/2018
Data Release Frequency: Semi-Annually

MADERA COUNTY:

CUPA Facility List
A listing of sites included in the county's Certified Unified Program Agency database. California's Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities.

Date of Government Version: 02/21/2018
Date Data Arrived at EDR: 02/22/2018
Date Made Active in Reports: 04/03/2018
Number of Days to Update: 40

Source: Madera County Environmental Health
Telephone: 559-675-7823
Last EDR Contact: 05/16/2018
Next Scheduled EDR Contact: 09/03/2018
Data Release Frequency: Varies

MARIN COUNTY:

Underground Storage Tank Sites
Currently permitted USTs in Marin County.

Date of Government Version: 03/30/2018
Date Data Arrived at EDR: 04/06/2018
Date Made Active in Reports: 05/04/2018
Number of Days to Update: 28

Source: Public Works Department Waste Management
Telephone: 415-473-6647
Last EDR Contact: 07/11/2018
Next Scheduled EDR Contact: 10/15/2018
Data Release Frequency: Semi-Annually

MERCED COUNTY:

CUPA Facility List
CUPA facility list.

Date of Government Version: 05/30/2018
Date Data Arrived at EDR: 06/01/2018
Date Made Active in Reports: 07/13/2018
Number of Days to Update: 42

Source: Merced County Environmental Health
Telephone: 209-381-1094
Last EDR Contact: 05/16/2018
Next Scheduled EDR Contact: 09/03/2018
Data Release Frequency: Varies

MONO COUNTY:

CUPA Facility List
CUPA Facility List

Date of Government Version: 05/22/2018
Date Data Arrived at EDR: 05/24/2018
Date Made Active in Reports: 07/13/2018
Number of Days to Update: 50

Source: Mono County Health Department
Telephone: 760-932-5580
Last EDR Contact: 05/22/2018
Next Scheduled EDR Contact: 09/10/2018
Data Release Frequency: Varies

MONTEREY COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

CUPA Facility Listing
CUPA Program listing from the Environmental Health Division.

Date of Government Version: 06/13/2018
Date Data Arrived at EDR: 06/19/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 31

Source: Monterey County Health Department
Telephone: 831-796-1297
Last EDR Contact: 07/02/2018
Next Scheduled EDR Contact: 10/15/2018
Data Release Frequency: Varies

NAPA COUNTY:

Sites With Reported Contamination
A listing of leaking underground storage tank sites located in Napa county.

Date of Government Version: 01/09/2017
Date Data Arrived at EDR: 01/11/2017
Date Made Active in Reports: 03/02/2017
Number of Days to Update: 50

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 05/22/2018
Next Scheduled EDR Contact: 09/10/2018
Data Release Frequency: No Update Planned

Closed and Operating Underground Storage Tank Sites
Underground storage tank sites located in Napa county.

Date of Government Version: 05/23/2018
Date Data Arrived at EDR: 05/31/2018
Date Made Active in Reports: 07/11/2018
Number of Days to Update: 41

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 05/22/2018
Next Scheduled EDR Contact: 09/10/2018
Data Release Frequency: No Update Planned

NEVADA COUNTY:

CUPA Facility List
CUPA facility list.

Date of Government Version: 04/24/2018
Date Data Arrived at EDR: 05/01/2018
Date Made Active in Reports: 06/15/2018
Number of Days to Update: 45

Source: Community Development Agency
Telephone: 530-265-1467
Last EDR Contact: 07/24/2018
Next Scheduled EDR Contact: 11/12/2018
Data Release Frequency: Varies

ORANGE COUNTY:

List of Industrial Site Cleanups
Petroleum and non-petroleum spills.

Date of Government Version: 04/02/2018
Date Data Arrived at EDR: 05/11/2018
Date Made Active in Reports: 06/22/2018
Number of Days to Update: 42

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 05/07/2018
Next Scheduled EDR Contact: 08/20/2018
Data Release Frequency: Annually

List of Underground Storage Tank Cleanups
Orange County Underground Storage Tank Cleanups (LUST).

Date of Government Version: 04/02/2018
Date Data Arrived at EDR: 05/11/2018
Date Made Active in Reports: 06/25/2018
Number of Days to Update: 45

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 05/07/2018
Next Scheduled EDR Contact: 08/20/2018
Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

List of Underground Storage Tank Facilities
Orange County Underground Storage Tank Facilities (UST).

Date of Government Version: 04/02/2018
Date Data Arrived at EDR: 05/08/2018
Date Made Active in Reports: 07/10/2018
Number of Days to Update: 63

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 05/08/2018
Next Scheduled EDR Contact: 08/20/2018
Data Release Frequency: Quarterly

PLACER COUNTY:

Master List of Facilities
List includes aboveground tanks, underground tanks and cleanup sites.

Date of Government Version: 05/31/2018
Date Data Arrived at EDR: 06/05/2018
Date Made Active in Reports: 07/18/2018
Number of Days to Update: 43

Source: Placer County Health and Human Services
Telephone: 530-745-2363
Last EDR Contact: 05/31/2018
Next Scheduled EDR Contact: 09/17/2018
Data Release Frequency: Semi-Annually

PLUMAS COUNTY:

CUPA Facility List
Plumas County CUPA Program facilities.

Date of Government Version: 01/22/2018
Date Data Arrived at EDR: 01/24/2018
Date Made Active in Reports: 03/15/2018
Number of Days to Update: 50

Source: Plumas County Environmental Health
Telephone: 530-283-6355
Last EDR Contact: 07/17/2018
Next Scheduled EDR Contact: 11/05/2018
Data Release Frequency: Varies

RIVERSIDE COUNTY:

Listing of Underground Tank Cleanup Sites
Riverside County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 04/05/2018
Date Data Arrived at EDR: 04/10/2018
Date Made Active in Reports: 05/04/2018
Number of Days to Update: 24

Source: Department of Environmental Health
Telephone: 951-358-5055
Last EDR Contact: 06/18/2018
Next Scheduled EDR Contact: 10/01/2018
Data Release Frequency: Quarterly

Underground Storage Tank Tank List
Underground storage tank sites located in Riverside county.

Date of Government Version: 04/05/2018
Date Data Arrived at EDR: 04/10/2018
Date Made Active in Reports: 05/04/2018
Number of Days to Update: 24

Source: Department of Environmental Health
Telephone: 951-358-5055
Last EDR Contact: 06/18/2018
Next Scheduled EDR Contact: 10/01/2018
Data Release Frequency: Quarterly

SACRAMENTO COUNTY:

Toxic Site Clean-Up List
List of sites where unauthorized releases of potentially hazardous materials have occurred.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 02/02/2018
Date Data Arrived at EDR: 04/04/2018
Date Made Active in Reports: 06/14/2018
Number of Days to Update: 71

Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 07/03/2018
Next Scheduled EDR Contact: 10/15/2018
Data Release Frequency: Quarterly

Master Hazardous Materials Facility List

Any business that has hazardous materials on site - hazardous material storage sites, underground storage tanks, waste generators.

Date of Government Version: 02/02/2018
Date Data Arrived at EDR: 04/04/2018
Date Made Active in Reports: 06/19/2018
Number of Days to Update: 76

Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 07/03/2018
Next Scheduled EDR Contact: 10/15/2018
Data Release Frequency: Quarterly

SAN BENITO COUNTY:

CUPA Facility List

Cupa facility list

Date of Government Version: 05/16/2018
Date Data Arrived at EDR: 05/22/2018
Date Made Active in Reports: 07/13/2018
Number of Days to Update: 52

Source: San Benito County Environmental Health
Telephone: N/A
Last EDR Contact: 05/16/2018
Next Scheduled EDR Contact: 08/20/2018
Data Release Frequency: Varies

SAN BERNARDINO COUNTY:

Hazardous Material Permits

This listing includes underground storage tanks, medical waste handlers/generators, hazardous materials handlers, hazardous waste generators, and waste oil generators/handlers.

Date of Government Version: 04/09/2018
Date Data Arrived at EDR: 04/11/2018
Date Made Active in Reports: 06/19/2018
Number of Days to Update: 69

Source: San Bernardino County Fire Department Hazardous Materials Division
Telephone: 909-387-3041
Last EDR Contact: 04/06/2018
Next Scheduled EDR Contact: 08/20/2018
Data Release Frequency: Quarterly

SAN DIEGO COUNTY:

Hazardous Materials Management Division Database

The database includes: HE58 - This report contains the business name, site address, business phone number, establishment 'H' permit number, type of permit, and the business status. HE17 - In addition to providing the same information provided in the HE58 listing, HE17 provides inspection dates, violations received by the establishment, hazardous waste generated, the quantity, method of storage, treatment/disposal of waste and the hauler, and information on underground storage tanks. Unauthorized Release List - Includes a summary of environmental contamination cases in San Diego County (underground tank cases, non-tank cases, groundwater contamination, and soil contamination are included.)

Date of Government Version: 06/04/2018
Date Data Arrived at EDR: 06/06/2018
Date Made Active in Reports: 07/17/2018
Number of Days to Update: 41

Source: Hazardous Materials Management Division
Telephone: 619-338-2268
Last EDR Contact: 06/06/2018
Next Scheduled EDR Contact: 09/17/2018
Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Solid Waste Facilities
San Diego County Solid Waste Facilities.

Date of Government Version: 04/18/2018
Date Data Arrived at EDR: 04/24/2018
Date Made Active in Reports: 06/19/2018
Number of Days to Update: 56
Source: Department of Health Services
Telephone: 619-338-2209
Last EDR Contact: 07/17/2018
Next Scheduled EDR Contact: 11/05/2018
Data Release Frequency: Varies

Local Oversight Program Listing
A listing of all LOP release sites that are or were under the County of San Diego's jurisdiction. Included are closed or transferred cases, open cases, and cases that did not have a case type indicated. The cases without a case type are mostly complaints; however, some of them could be LOP cases.

Date of Government Version: 04/18/2018
Date Data Arrived at EDR: 04/23/2018
Date Made Active in Reports: 05/04/2018
Number of Days to Update: 11
Source: Department of Environmental Health
Telephone: 858-505-6874
Last EDR Contact: 07/17/2018
Next Scheduled EDR Contact: 11/05/2018
Data Release Frequency: Varies

Environmental Case Listing
The listing contains all underground tank release cases and projects pertaining to properties contaminated with hazardous substances that are actively under review by the Site Assessment and Mitigation Program.

Date of Government Version: 03/23/2010
Date Data Arrived at EDR: 06/15/2010
Date Made Active in Reports: 07/09/2010
Number of Days to Update: 24
Source: San Diego County Department of Environmental Health
Telephone: 619-338-2371
Last EDR Contact: 05/31/2018
Next Scheduled EDR Contact: 09/17/2018
Data Release Frequency: No Update Planned

SAN FRANCISCO COUNTY:

Local Oversite Facilities
A listing of leaking underground storage tank sites located in San Francisco county.

Date of Government Version: 09/19/2008
Date Data Arrived at EDR: 09/19/2008
Date Made Active in Reports: 09/29/2008
Number of Days to Update: 10
Source: Department Of Public Health San Francisco County
Telephone: 415-252-3920
Last EDR Contact: 05/02/2018
Next Scheduled EDR Contact: 08/20/2018
Data Release Frequency: Quarterly

Underground Storage Tank Information
Underground storage tank sites located in San Francisco county.

Date of Government Version: 06/07/2018
Date Data Arrived at EDR: 06/12/2018
Date Made Active in Reports: 07/10/2018
Number of Days to Update: 28
Source: Department of Public Health
Telephone: 415-252-3920
Last EDR Contact: 05/02/2018
Next Scheduled EDR Contact: 08/20/2018
Data Release Frequency: Quarterly

SAN JOAQUIN COUNTY:

San Joaquin Co. UST
A listing of underground storage tank locations in San Joaquin county.

Date of Government Version: 06/22/2018
Date Data Arrived at EDR: 06/26/2018
Date Made Active in Reports: 07/11/2018
Number of Days to Update: 15
Source: Environmental Health Department
Telephone: N/A
Last EDR Contact: 06/14/2018
Next Scheduled EDR Contact: 10/01/2018
Data Release Frequency: Semi-Annually

SAN LUIS OBISPO COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

CUPA Facility List
Cupa Facility List.

Date of Government Version: 05/16/2018
Date Data Arrived at EDR: 05/22/2018
Date Made Active in Reports: 07/17/2018
Number of Days to Update: 56

Source: San Luis Obispo County Public Health Department
Telephone: 805-781-5596
Last EDR Contact: 05/16/2018
Next Scheduled EDR Contact: 09/03/2018
Data Release Frequency: Varies

SAN MATEO COUNTY:

Business Inventory
List includes Hazardous Materials Business Plan, hazardous waste generators, and underground storage tanks.

Date of Government Version: 03/14/2018
Date Data Arrived at EDR: 03/20/2018
Date Made Active in Reports: 05/04/2018
Number of Days to Update: 45

Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 06/06/2018
Next Scheduled EDR Contact: 09/24/2018
Data Release Frequency: Annually

Fuel Leak List
A listing of leaking underground storage tank sites located in San Mateo county.

Date of Government Version: 03/15/2018
Date Data Arrived at EDR: 03/20/2018
Date Made Active in Reports: 05/04/2018
Number of Days to Update: 45

Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 06/06/2018
Next Scheduled EDR Contact: 09/24/2018
Data Release Frequency: Semi-Annually

SANTA BARBARA COUNTY:

CUPA Facility Listing
CUPA Program Listing from the Environmental Health Services division.

Date of Government Version: 09/08/2011
Date Data Arrived at EDR: 09/09/2011
Date Made Active in Reports: 10/07/2011
Number of Days to Update: 28

Source: Santa Barbara County Public Health Department
Telephone: 805-686-8167
Last EDR Contact: 05/16/2018
Next Scheduled EDR Contact: 09/03/2018
Data Release Frequency: Varies

SANTA CLARA COUNTY:

Cupa Facility List
Cupa facility list

Date of Government Version: 05/16/2018
Date Data Arrived at EDR: 05/23/2018
Date Made Active in Reports: 07/17/2018
Number of Days to Update: 55

Source: Department of Environmental Health
Telephone: 408-918-1973
Last EDR Contact: 05/16/2018
Next Scheduled EDR Contact: 09/03/2018
Data Release Frequency: Varies

HIST LUST - Fuel Leak Site Activity Report
A listing of open and closed leaking underground storage tanks. This listing is no longer updated by the county. Leaking underground storage tanks are now handled by the Department of Environmental Health.

Date of Government Version: 03/29/2005
Date Data Arrived at EDR: 03/30/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 22

Source: Santa Clara Valley Water District
Telephone: 408-265-2600
Last EDR Contact: 03/23/2009
Next Scheduled EDR Contact: 06/22/2009
Data Release Frequency: No Update Planned

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

LOP Listing
A listing of leaking underground storage tanks located in Santa Clara county.

Date of Government Version: 03/03/2014
Date Data Arrived at EDR: 03/05/2014
Date Made Active in Reports: 03/18/2014
Number of Days to Update: 13
Source: Department of Environmental Health
Telephone: 408-918-3417
Last EDR Contact: 05/22/2018
Next Scheduled EDR Contact: 09/10/2018
Data Release Frequency: Annually

Hazardous Material Facilities
Hazardous material facilities, including underground storage tank sites.

Date of Government Version: 05/16/2018
Date Data Arrived at EDR: 05/22/2018
Date Made Active in Reports: 07/19/2018
Number of Days to Update: 58
Source: City of San Jose Fire Department
Telephone: 408-535-7694
Last EDR Contact: 05/16/2018
Next Scheduled EDR Contact: 08/20/2018
Data Release Frequency: Annually

SANTA CRUZ COUNTY:

CUPA Facility List
CUPA facility listing.

Date of Government Version: 01/21/2017
Date Data Arrived at EDR: 02/22/2017
Date Made Active in Reports: 05/23/2017
Number of Days to Update: 90
Source: Santa Cruz County Environmental Health
Telephone: 831-464-2761
Last EDR Contact: 05/16/2018
Next Scheduled EDR Contact: 09/03/2018
Data Release Frequency: Varies

SHASTA COUNTY:

CUPA Facility List
Cupa Facility List.

Date of Government Version: 06/15/2017
Date Data Arrived at EDR: 06/19/2017
Date Made Active in Reports: 08/09/2017
Number of Days to Update: 51
Source: Shasta County Department of Resource Management
Telephone: 530-225-5789
Last EDR Contact: 05/16/2018
Next Scheduled EDR Contact: 09/03/2018
Data Release Frequency: Varies

SOLANO COUNTY:

Leaking Underground Storage Tanks
A listing of leaking underground storage tank sites located in Solano county.

Date of Government Version: 06/04/2018
Date Data Arrived at EDR: 06/08/2018
Date Made Active in Reports: 07/18/2018
Number of Days to Update: 40
Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 05/31/2018
Next Scheduled EDR Contact: 09/17/2018
Data Release Frequency: Quarterly

Underground Storage Tanks
Underground storage tank sites located in Solano county.

Date of Government Version: 06/04/2018
Date Data Arrived at EDR: 06/12/2018
Date Made Active in Reports: 07/12/2018
Number of Days to Update: 30
Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 05/31/2018
Next Scheduled EDR Contact: 09/17/2018
Data Release Frequency: Quarterly

SONOMA COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Cupa Facility List
Cupa Facility list

Date of Government Version: 06/19/2018
Date Data Arrived at EDR: 06/26/2018
Date Made Active in Reports: 07/17/2018
Number of Days to Update: 21

Source: County of Sonoma Fire & Emergency Services Department
Telephone: 707-565-1174
Last EDR Contact: 06/21/2018
Next Scheduled EDR Contact: 10/08/2018
Data Release Frequency: Varies

Leaking Underground Storage Tank Sites
A listing of leaking underground storage tank sites located in Sonoma county.

Date of Government Version: 04/03/2018
Date Data Arrived at EDR: 04/06/2018
Date Made Active in Reports: 05/09/2018
Number of Days to Update: 33

Source: Department of Health Services
Telephone: 707-565-6565
Last EDR Contact: 06/21/2018
Next Scheduled EDR Contact: 10/08/2018
Data Release Frequency: Quarterly

STANISLAUS COUNTY:

CUPA Facility List
Cupa facility list

Date of Government Version: 05/08/2018
Date Data Arrived at EDR: 05/11/2018
Date Made Active in Reports: 06/15/2018
Number of Days to Update: 35

Source: Stanislaus County Department of Ennvironmental Protection
Telephone: 209-525-6751
Last EDR Contact: 07/16/2018
Next Scheduled EDR Contact: 10/29/2018
Data Release Frequency: Varies

SUTTER COUNTY:

Underground Storage Tanks
Underground storage tank sites located in Sutter county.

Date of Government Version: 06/04/2018
Date Data Arrived at EDR: 06/08/2018
Date Made Active in Reports: 07/11/2018
Number of Days to Update: 33

Source: Sutter County Department of Agriculture
Telephone: 530-822-7500
Last EDR Contact: 05/31/2018
Next Scheduled EDR Contact: 09/17/2018
Data Release Frequency: Semi-Annually

TEHAMA COUNTY:

CUPA Facility List
Cupa facilities

Date of Government Version: 01/26/2018
Date Data Arrived at EDR: 02/02/2018
Date Made Active in Reports: 03/21/2018
Number of Days to Update: 47

Source: Tehama County Department of Environmental Health
Telephone: 530-527-8020
Last EDR Contact: 05/03/2018
Next Scheduled EDR Contact: 08/20/2018
Data Release Frequency: Varies

TRINITY COUNTY:

CUPA Facility List
Cupa facility list

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 04/23/2018
Date Data Arrived at EDR: 04/25/2018
Date Made Active in Reports: 06/15/2018
Number of Days to Update: 51

Source: Department of Toxic Substances Control
Telephone: 760-352-0381
Last EDR Contact: 07/17/2018
Next Scheduled EDR Contact: 11/05/2018
Data Release Frequency: Varies

TULARE COUNTY:

CUPA Facility List
Cupa program facilities

Date of Government Version: 03/19/2018
Date Data Arrived at EDR: 03/22/2018
Date Made Active in Reports: 04/17/2018
Number of Days to Update: 26

Source: Tulare County Environmental Health Services Division
Telephone: 559-624-7400
Last EDR Contact: 07/16/2018
Next Scheduled EDR Contact: 08/20/2018
Data Release Frequency: Varies

TUOLUMNE COUNTY:

CUPA Facility List
Cupa facility list

Date of Government Version: 04/23/2018
Date Data Arrived at EDR: 04/25/2018
Date Made Active in Reports: 06/25/2018
Number of Days to Update: 61

Source: Divison of Environmental Health
Telephone: 209-533-5633
Last EDR Contact: 07/17/2018
Next Scheduled EDR Contact: 11/05/2018
Data Release Frequency: Varies

VENTURA COUNTY:

Business Plan, Hazardous Waste Producers, and Operating Underground Tanks
The BWT list indicates by site address whether the Environmental Health Division has Business Plan (B), Waste Producer (W), and/or Underground Tank (T) information.

Date of Government Version: 03/26/2018
Date Data Arrived at EDR: 04/25/2018
Date Made Active in Reports: 06/22/2018
Number of Days to Update: 58

Source: Ventura County Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 07/23/2018
Next Scheduled EDR Contact: 11/05/2018
Data Release Frequency: Quarterly

Inventory of Illegal Abandoned and Inactive Sites
Ventura County Inventory of Closed, Illegal Abandoned, and Inactive Sites.

Date of Government Version: 12/01/2011
Date Data Arrived at EDR: 12/01/2011
Date Made Active in Reports: 01/19/2012
Number of Days to Update: 49

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 06/27/2018
Next Scheduled EDR Contact: 10/15/2018
Data Release Frequency: Annually

Listing of Underground Tank Cleanup Sites
Ventura County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 05/29/2008
Date Data Arrived at EDR: 06/24/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 37

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 05/09/2018
Next Scheduled EDR Contact: 08/27/2018
Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Medical Waste Program List

To protect public health and safety and the environment from potential exposure to disease causing agents, the Environmental Health Division Medical Waste Program regulates the generation, handling, storage, treatment and disposal of medical waste throughout the County.

Date of Government Version: 03/26/2018
Date Data Arrived at EDR: 04/25/2018
Date Made Active in Reports: 06/25/2018
Number of Days to Update: 61

Source: Ventura County Resource Management Agency
Telephone: 805-654-2813
Last EDR Contact: 07/23/2018
Next Scheduled EDR Contact: 11/05/2018
Data Release Frequency: Quarterly

Underground Tank Closed Sites List

Ventura County Operating Underground Storage Tank Sites (UST)/Underground Tank Closed Sites List.

Date of Government Version: 04/26/2018
Date Data Arrived at EDR: 06/13/2018
Date Made Active in Reports: 07/11/2018
Number of Days to Update: 28

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 06/13/2018
Next Scheduled EDR Contact: 09/24/2018
Data Release Frequency: Quarterly

YOLO COUNTY:

Underground Storage Tank Comprehensive Facility Report

Underground storage tank sites located in Yolo county.

Date of Government Version: 06/20/2018
Date Data Arrived at EDR: 07/03/2018
Date Made Active in Reports: 07/12/2018
Number of Days to Update: 9

Source: Yolo County Department of Health
Telephone: 530-666-8646
Last EDR Contact: 06/27/2018
Next Scheduled EDR Contact: 10/15/2018
Data Release Frequency: Annually

YUBA COUNTY:

CUPA Facility List

CUPA facility listing for Yuba County.

Date of Government Version: 05/10/2018
Date Data Arrived at EDR: 05/15/2018
Date Made Active in Reports: 06/15/2018
Number of Days to Update: 31

Source: Yuba County Environmental Health Department
Telephone: 530-749-7523
Last EDR Contact: 07/24/2018
Next Scheduled EDR Contact: 11/12/2018
Data Release Frequency: Varies

OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

CT MANIFEST: Hazardous Waste Manifest Data

Facility and manifest data. Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a tsd facility.

Date of Government Version: 01/03/2018
Date Data Arrived at EDR: 02/14/2018
Date Made Active in Reports: 03/22/2018
Number of Days to Update: 36

Source: Department of Energy & Environmental Protection
Telephone: 860-424-3375
Last EDR Contact: 05/18/2018
Next Scheduled EDR Contact: 08/27/2018
Data Release Frequency: No Update Planned

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

NJ MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2016
Date Data Arrived at EDR: 04/11/2017
Date Made Active in Reports: 07/27/2017
Number of Days to Update: 107

Source: Department of Environmental Protection
Telephone: N/A
Last EDR Contact: 07/13/2018
Next Scheduled EDR Contact: 10/22/2018
Data Release Frequency: Annually

NY MANIFEST: Facility and Manifest Data
Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

Date of Government Version: 04/30/2018
Date Data Arrived at EDR: 05/03/2018
Date Made Active in Reports: 06/07/2018
Number of Days to Update: 35

Source: Department of Environmental Conservation
Telephone: 518-402-8651
Last EDR Contact: 05/03/2018
Next Scheduled EDR Contact: 08/13/2018
Data Release Frequency: Quarterly

PA MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2016
Date Data Arrived at EDR: 07/25/2017
Date Made Active in Reports: 09/25/2017
Number of Days to Update: 62

Source: Department of Environmental Protection
Telephone: 717-783-8990
Last EDR Contact: 07/12/2018
Next Scheduled EDR Contact: 10/29/2018
Data Release Frequency: Annually

RI MANIFEST: Manifest information
Hazardous waste manifest information

Date of Government Version: 12/31/2017
Date Data Arrived at EDR: 02/23/2018
Date Made Active in Reports: 04/09/2018
Number of Days to Update: 45

Source: Department of Environmental Management
Telephone: 401-222-2797
Last EDR Contact: 05/21/2018
Next Scheduled EDR Contact: 09/03/2018
Data Release Frequency: Annually

WI MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2017
Date Data Arrived at EDR: 06/15/2018
Date Made Active in Reports: 07/09/2018
Number of Days to Update: 24

Source: Department of Natural Resources
Telephone: N/A
Last EDR Contact: 06/11/2018
Next Scheduled EDR Contact: 09/24/2018
Data Release Frequency: Annually

Oil/Gas Pipelines
Source: PennWell Corporation
Petroleum Bundle (Crude Oil, Refined Products, Petrochemicals, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)) N = Natural Gas Bundle (Natural Gas, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)). This map includes information copyrighted by PennWell Corporation. This information is provided on a best effort basis and PennWell Corporation does not guarantee its accuracy nor warrant its fitness for any particular purpose. Such information has been reprinted with the permission of PennWell.

Electric Power Transmission Line Data
Source: PennWell Corporation
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Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

AHA Hospitals:
Source: American Hospital Association, Inc.
Telephone: 312-280-5991
The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

Medical Centers: Provider of Services Listing
Source: Centers for Medicare & Medicaid Services
Telephone: 410-786-3000
A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

Nursing Homes
Source: National Institutes of Health
Telephone: 301-594-6248
Information on Medicare and Medicaid certified nursing homes in the United States.

Public Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

Private Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on private school locations in the United States.

Daycare Centers: Licensed Facilities
Source: Department of Social Services
Telephone: 916-657-4041

Flood Zone Data: This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.
Source: FEMA
Telephone: 877-336-2627
Date of Government Version: 2003, 2015

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetland Inventory
Source: Department of Fish & Game
Telephone: 916-445-0411

Current USGS 7.5 Minute Topographic Map
Source: U.S. Geological Survey

STREET AND ADDRESS INFORMATION

Appendix E
Regulatory Agency Correspondence

Department of Toxic Substances Control

Matthew Rodriquez
Secretary for
Environmental Protection

Barbara A. Lee, Director
9211 Oakdale Avenue
Chatsworth, California 91311

Edmund G. Brown Jr.
Governor

April 20, 2017

Mr. Michael A. Shull
Superintendent
Planning and Construction
City of Los Angeles Department of Recreation and Parks
221 North Figueroa Street, Suite 100
Los Angeles, California 90012

APPROVAL OF REMEDIAL ACTION COMPLETION REPORT - CHATSWORTH PARK SOUTH, 22360 DEVONSHIRE STREET, CHATSWORTH, CALIFORNIA
SITE CODE: 301384-11

Dear Mr. Shull:

The Department of Toxic Substances Control (DTSC) has reviewed the Remedial Action Completion Report (Report) dated December 20, 2016 prepared by URS on behalf of the City of Los Angeles, Department of Recreation and Parks for the above referenced site (Site). The Report documents the removal and off-site disposal of soils contaminated with lead, metal, and polycyclic aromatic hydrocarbons (PAH) in accordance with an approved Remedial Action Workplan (RAP) (URS Corporation, March 2013) for the Site. The Report was prepared pursuant to Voluntary Cleanup Agreement (VCA), Docket No. HSA-VCA 08/09-021.

The 72 acre Site, identified by Los Angeles County Office of the Assessor parcel number 2723-010-904 had a small arms firing range (SAFR) on a portion of the Site from the early to the mid-1960s. The operation of the SAFR resulted in wide surficial spreading of lead shot and clay pigeon debris containing elevated polycyclic aromatic hydrocarbons (PAHs). The City of Los Angeles acquired the property in 1973 and developed approximately 21 acres of the Site with recreational facilities during the 1970s and 1980s. Historical investigations indicated that significant amounts of lead pellets and clay pigeon debris were present on the surface of many areas of the Site. Metals (lead, arsenic, antimony); PAHs (benzo(a)pyrene-equivalent, naphthalene), and dioxins/furans were identified as the primary contaminants of concern (COC) in the soil depth interval of 0 to 4 feet below ground surface (bgs) and were the targets for remediation at the Site.

The approved RAP proposed remediation of COCs in soil which included installation of an engineered surface cap, and some soil excavation with off-site disposal. To achieve the Remedial Action Objectives, various alternatives were evaluated in the RAP and the preferred remedial action alternative selected was Surface Capping to mitigate and/or remediate impacted shallow soil for non-volatile COC concentrations above risk-based cleanup levels established in the Human Health Risk Assessment document. In the rocky outcrop area (Area E), with extensive accumulation of visible lead pellets on the rock surface and shallow soil, pellets were

removed manually by vacuums, rakes, and shovels. Approximately 496 tons RCRA hazardous waste and 5,773 tons of grubbed material and excess excavated soil were lawfully transported offsite for disposal as non-hazardous and non-RCRA hazardous waste. In total, approximately 915,000 square feet of engineered surface cap were installed. In addition to approximately 4 acres of tree groves, the surface cap was vegetated and/or covered with 6,590 shrubs, native grass hydro-seed, and mulch to provide long-term erosion protection for the engineered cap.

As impacted soil remains beneath the site's engineered surface cap, from approximately 1 to 4 feet bgs, a land use covenant (LUC) is reasonably necessary to protect present or future human health or safety or the environment as a result of the presence of hazardous materials on the Site as defined in Health and Safety Code section 25260. The LUC will incorporate an Operation and Maintenance Plan (OMP) and Soil Management Plan (SMP) that will outline the requirements for future site work in order to maintain the constructed remedial components (i.e., engineered cap, fencing, etc.) and the requirements for future invasive site work that could expose workers to the residual COCs on the Site.

Based on the information provided, DTSC agrees with the Report's recommendations for land restriction and institutional controls through a long term Operations and Monitoring (O&M) Plan. DTSC hereby approves the Report.

If you have any questions, please contact Chand Sultana, Ph. D, Project Manager, at (818) 717-6552 or me, at (818) 717-6609.

Sincerely,

Allan Plaza

Allan Plaza
Unit Chief
Brownfields and Environmental Restoration Program – Chatsworth Office

cc: Mr. Paul Davis
Environmental Specialist, DRP/P&C
221 North Figueroa Street, Suite 100
Los Angeles, California 90012

Mr. Brian J. Jacobs, P.G., C.HG.
Program Manager
URS Corporation
915 Wilshire Boulevard, Suite 700
Los Angeles, California 90017

Nicole Bernson
Deputy Chief of Staff
Councilmember Mitchell Englander
200 North Spring Streets, Suite 405
Los Angeles, California 90012

Appendix F
Crimson Pipeline L.P. Information Regarding Pipeline At/Near Site

CRIMSON PIPELINE L.P.
3760 Kilroy Airport Way, Suite 300
Long Beach, CA 90806

August 22, 2018

Colin Young,
C. Young Forensics
1042 Skylark Dr.
La Jolla CA
92037

Re: C08202018E - Notice of Improvement Response Letter
FIRST UTILITY NOTICE FACILITY RESEARCH AND REQUEST FOR COMMENTS FOR C. YOUNG FORENSICS
22360 WEST DEVONSHIRE STREET, LOS ANGELES

Dear Colin Young,

Pursuant to your request dated August 16, 2018, pertaining to the above referenced project, please be advised that Crimson Pipeline Department maintains pipelines within the vicinity of your proposed project. We are prepared to mark our facilities upon receiving 48-hour advanced Underground Service Alert (USA) notice.

Enclosed for your information are drawings that depict the general alignment of our pipelines. Upon completion of your final project drawings, please provide us a detailed set of your plans for our review to determine if there is a conflict with any of our existing facilities.

Crimson requires a representative to be on site during any construction activities within the vicinity of our facilities. Therefore, you or your contractors are hereby notified to contact, in addition to the above referenced USA notice, Crimson's designated representative, Tim Eggleston cell: 805-791-0028, between the hours of 6:30 A.M. and 5:00 P.M., Monday through Friday, a minimum of 48 hours in advance of commencing said construction activities.

Please be advised that any and all facilities identified as "Active", "Idle", or "Abandoned", unless otherwise clearly specified, remain the property of Crimson, and that all activities affecting these facilities must be approved and controlled by Crimson. Should it be determined that said facility potentially interferes with your project this office must be notified immediately, at which time Crimson personnel will review the issues to determine what actions will be necessary to identify and resolve any conflicts.

If you have questions or require additional information regarding this submittal, please contact Nick Lisica at 562-285-4187.

Sincerely,

Nick Lisica

Utilities Coordinator

Construction Requirements in the Proximity of Crimson Pipelines

Crimson Pipeline L.P. (Crimson) is committed to the continued, safe operation of its pipeline. The listed construction requirements are designed to help ensure that the pipeline is protected from excavation damage, encroachment or other risks that could adversely impact the pipeline or prevent required inspection and maintenance activities.

1. Crimson requires two copies of any proposed plans for work within Crimson's right-of-way. Plans shall be provided 45 calendar days prior to commencement of work to the address listed above.

2. Above ground structures and improvements that interfere with the construction, maintenance or repair of the pipeline are prohibited within Crimson's right-of-way. Structures and improvements include, but are not limited to, buildings, fences and walls.

3. Landscaped areas are permitted within the right-of-way. Trees and large bushes that impede the visual inspection of the ground surface are not permitted within the right-of-way. Crimson shall review all plans that encroach the pipeline and the pipeline right of way prior to 4.

4. Federal law prohibits removing, damaging or defacing of pipelines, pipeline signs, or other appurtenances installed on the pipelines right of way.

5. Other utilities may be installed within the right-of-way with permission from Crimson. Such utilities must maintain a minimum of 5 feet parallel and 1-foot vertical clearances unless approved in writing by Crimson prior to their installation. All clearances must conform to existing state and federal regulations.

6. A minimum of 3 feet, but not more than 6 feet of cover must be maintained over the pipeline at all times, unless otherwise approved by Crimson Pipeline in writing. The ground contour cannot be changed within the right-of-way without prior written permission by Crimson.

7. Proposed roads and utility crossings should cross Crimson's right-of-way as close to 90 degrees as possible. If, in Crimson's sole judgment, additional precautions are required to protect Crimson's pipeline, Crimson shall review and approve the construction plans in writing prior to the start of construction.

8. California State Law requires that parties notify Underground Service Alert at 1-800-227-2600, two full working days prior to digging.

9. All work on/or around the Crimson facility must comply with appropriate sections of Code of Federal Regulations Title 49, Part 195 - **TRANSPORTATION OF HAZARDOUS LIQUIDS BY PIPELINE.**

10. Crimson may choose to have an inspector on-site during any grading or excavation activities near the Crimson pipeline. Arrangements may be made for on-site inspection by contacting Crimson Utilities Coordinator at the address shown above.

11. Crimson requires that all excavation in the vicinity of the pipeline be done with hand tools in the presence of the Crimson's inspector consistent with California State Law requirements. Any damage to the pipeline shall be reported immediately. Crimson shall perform the necessary repair to insure the safety of the public safety. Crimson shall be reimbursed for all repair work necessary to continue with the safe, reliable operation of the pipeline.

12. In an emergency, including any damage or suspected damage to the Crimson pipeline, immediately notify Crimson at: 1-866-351-7473.

13. Any questions regarding construction activities in the vicinity of Crimson's pipeline shall be directed to:

UTILITIES COORDINATOR
Ph: (562) 285-4112 or (833) 876-4589
Fx: (562) 285-4141
Email: landdepartment@crimsonpl.com

960 955 950 945 940

2783+00 2780+50 2778+00 2775+50 2773+00 2770+50 2768+00 2765+50

E. Devonshire Prods

E. Gray Line

Top of 6" Pipe

CAUTION

LOCATION OF PIPE LINES AS SHOWN MAY NOT BE EXACT. THE SPECIFIC LOCATIONS AND DEPTHS OF SUCH LINES MUST BE DETERMINED BY HAND EXCAVATION. BEFORE ANY EXCAVATION OR OTHER WORK NEAR THE LINES SHOWN ON THIS MAP, CONTACT CRIMSON PIPELINE, AT (866) 351-7473 24HRS. 7 DAYS A WEEK.

See Y-4104

N. 78°57'17" W.

2782+35 3.4 P.

N. 46°44'10" W.

2781+41 I.A.P.

970.122 F. HOLE

2782+99 4" ELECT. & 1-2" TELE. UNDER 4" FOX 2782+97 4" SEWER

2780+99 949.59 F. HOLE

N. 44°51'40" W.

℄ DEVONSHIRE PRODS N 48°09'53" W

8"

6" PRODS LINE

N. 0° 12' 19" E.

DEVONSHIRE ST.

60'

2773+74.10 To West EQ. 2772+81.77 Fr. East Pipe Change

2771+77.15 E. Devonshire Prods

2771+41.0 A.P.

CITY OF LOS ANGELES

2770+70±

2769+66.92 E.C.

2768+53.92 E. Gray Line

21' 21' 42'

LANE

6" VENTURA PRODS LINE

See Y-4103-02

Match Line 2765+00

2772+81.45 A.P. & Vent Bend

2772+78.35 6"x4" Swage Pipe Change

2772+74.20 6" 600# WN Flgd. G.V.

2772+72.37 6" 600# Wkmn Chk V

2772+69.05 Mag Anode

2772+65.43

2771+92.26 95'/.86 F. HOLE

2772+10.26 A.P.

624 624 A — SEE Y-4102-01-A FOR VALVE BOX DETAIL "A"

GRAY

LOS ANGELES COUNTY

NOTE: On Lessen St., Farralone Ave. & Devonshire St. 4" Gasoline Line is laid under City of Los Angeles Franchise granted under Ord. No. 85029 and by Board of Public Works Permit Nos. 6105-6104, & 6103 respectively.
See Land Dept File TL 12-2

BM - Std Survey Mon @ ℄ Int of Topanga Canyon Blvd & Devonshire St. Elev 960.346 - (1960 Adj.)
B.M. No. 05-00540

STATION TO STATION		SIZE I.D	DESCRIPTION	Date Installed	W.O.
2760+90.09	2772+78.35	6.249	X-52 Sam Coated	1-1969	
2772+78.35	2773+74.10 To W. EQ. 2772+81.77 Fr. E.	4.03	Std. Line Sam. Ctd.	1-1969	
2773+74.10 To W. EQ. 2772+81.77 Fr. E.	2794+53.10	3.66	Am. Seamless	1927	

FIELD BOOK	PAGE
PL-9	18
PL-6	24
P.L.-31	12-15 & 20-22

100 50 0 100 200 300
SCALE IN FEET

* Use Graphic Scale on Reduced Prints

This Dwg. Partially Replaces Y-4103 Dated 2-8-27

CRIMSON PIPELINE LLC
3760 Kilroy Airport Way, Suite 300
Long Beach, California 90806

DATE 1-27-69	SCALE 1"=100' HORIZ 1"=4' VERT
DRAWN BY Fleming	
CHECKED BY	Y-4103-03
APPROVED BY	

REVISED 3-19-74 (Job 5-138) F.E.

636

T 2 N R 17 W S.B.M.

Fd 2"x 2" mkd. 1/4-1/4 Cor. See F.B. P.L. 85-Pg. 27 for "R.P.S" to 1/4-1/4 Cor

Fd 2" I.P. Set in concrete with brass cap mkd. per C.S.F.B. 136-78

SOUTHERN PAC. R.R. R.o.W. (SIMI TUNNEL NO 78)

S 89°29'05" W. 2584.06

N 89°51'55" W.

Tunnel Portal

11 12 14 13

SEE Y-4105

N 53°02'19" W. 2825+50

2823+46.0 A.P. Set 2"x2"

S 59°12'11" W.

2822+08.6 Set 2"x2"

S 67°29'26" W. 2820+09.8 A.P. Set 2"x2"

N 85°23'41" W. 20' R/W.

2816+78.0 A.P. Set R.H.

2813+15.3 A.P. Set 2"x2"

544.42' N 1°12'41" E

9°07'30"

N 86°39'49" W.

TL-12-56
B.D. KOONTZ, ET UX

TL-12-55.7
METR. WATER DIST. OF SO. CA.

N 72°49'34" W

2805+30.9 A.P. Set 2"x2"

2804+30.37 AH A.P.
2804+36.35 BK
PIPE CHANGE

686.28'

2803+26.00 A.P.
PIPE CHANGE

2803+18.5 A.P.

TL-12-55.6
METR. WATER DIST. OF SO. CA.

RHODA J. HILL

N 78°25'11" W.

N 50°42'04" W.

N 50°20'23" W.

2800+45.3 A.P. Set 2"x2"

SEE DETAIL "B"

SEE DETAIL "A"

2796+81.2 A.P. Set 2"x2"

S 64°40'14" W.

2794+54.5 A.P. Set 2"x2"

S 52°07'29" W.

N 64°31'39" W. 2792+60.9 A.P. Set 2"x2"

N 64°09'47" W. 2790+61.6 A.P. Set 2"x2"

N 74°16'17" W.

2785+89.1 A.P. Set 2"x2"

N 75°02'54" W.

SEE Y-4103-03

S. B.T. In E. face of 30" Oak Tree Silver Point "RP" on Bark

71.8' N 6°E. Mag

2794+54.5 A.P. Set 2"x2" @ 12" Deep

14' ....End Cement Coating. Begin Somastic Coating. Begin New 4" I.D. Pipe. As Of 1956

4° To L.A.

S. B.T. W. Face of 30" Oak - Silver Point "RP" on Bark

56.4° W Mag 52.26

R.P.

56.6° W 3.17' Mag

4° To Ventura

2" I.P. MKR

Center of Centrifugal Water Well Pump. Top of Shell 4" Line is 7.36' below El. of top of W.W. Pump.

DETAIL "A"
No Scale

N 44°26'16" W.

N 78°27'16" W.

2799+46.6 A.P. Set 2"x2"

2797+16.6 A.P. Set 2"x2"

2794+53.1 A.P. Pipe Change

TL-12-55.2
TL-12-55.4
H.F. BERKENKAMP, ET UX

2783+40.6 A.P. Set 2"x2"

Border House

N 72°57'17" W.

2783+00

S 0°05'30" W.

LOT 1
SEC. 14

For Right of Way Agreement with L.D. Webster et ux see Land Dept. File TL 12-56

4" VENTURA PRODUCTS LINE

28.67'

4" VENTURA PRODUCTS LINE ABANDONED IN PLACE 11-74

NEW 8" SEGMENT VENTURA PRODUCTS LINE

EQ. 1+6

2804+30.37 AH A.P.
2804+36.35 BK
PIPE CHANGE

N.33°12'51"W. 18.00'

2804+18.35 A.P.

N.35°51'27"W. 33.10'

2803+85.25 A.P.

N.76°39'48"W. 32.75'

2803+52.50 A.P.

N.76°39'48"W. 32.75'

2803+26.00 A.P.
PIPE CHANGE

DETAIL "B"
SCALE: 1"=30'

NOTE: - THE STATIIONING SHOWN HEREON INDICATES ACTUAL LINEAR LENGTH OF PIPE LINE, WHICH LENGTH DOES NOT NECESSARILY COINCIDE WITH THE HORIZONTAL DISTANCE OVER THE SAME PORTION OF LINE.

FIELD BOOK	PAGE
PL - 6	88 - 89
PL - 31	9 - 11

NOTE: - Resurvey from Sta. 2812+15 to Sta 2832+22 made in April 1952.

150' 0' 150' 300' 450' 600'
SCALE IN FEET

CAUTION
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REV. NO.	DATE	REVISION DESCRIPTION	BY	CHK.	ENGR	APP.

STATION TO STATION		SIZE (I.D.)	GRADE	COATING	DATE	W.O.
2804+30.37 AH	2831+32.00 AH	3.66	A		1927	
2804+36.35 BK	2832+76.90 BK					
2803+26.00	2804+30.37 AH	7.98	B		1975	
	2804+36.35 BK					
2794+53.10	2803+26.00	4.026	A		1956	
2773+74.10 AH	2794+53.10	3.66	A		1927	
2772+81.77 BK						

CRIMSON PIPELINE L.P.
3760 Kilroy Airport Way, Suite 300
Long Beach, California 90806

FORMER DRAWING NUMBER | LOCATION CODE 71967

VENTURA PRODUCTS LINE
VENTURA PRODUCTS LINE
Sec.14-T.2N./R.17W. S.B..B. & M.
LOS ANGELES COUNTY
SCALE: SEE GR. SCL. | DATE: 6-24-99
DRAWN: C.I. FONSECA | Sheet 1 of 1
Y-4104 637

Z:\\great sw california\ventura\mainlines\ventura pdx line\alignment\van nuys ps to somis\y-4104 cif 1-30-02 3:30pm

Appendix G
Qualifications of the Environmental Professionals

COLIN P. YOUNG, CIH

PROFESSIONAL HISTORY

Current

- C Young Associates (CYA), La Jolla, California, 1996-2000, 2003, 01/2009-Present

Previous

- ERM-West, Inc., San Diego, California, Partner-Managing Principal, San Diego Office, 12/03-01/09
- Geocon, Inc., San Diego, California, Vice President/Southern California Operations Manager, 2000-2003, Project Manager/ Marketing Coordinator, 1989-1991
- Metcalf & Eddy, Inc., San Diego, California, Associate/Business Manager-Environmental Services Division, October 1994-1996
- University of California, San Diego (UCSD), Instructor for Occupational Medicine/Public Health & Safety Extension Certificate Program, 1992-2003
- Brown & Root Environmental/Halliburton NUS Corporation
  - San Diego, California, West Region Manager-Western Division Operations, 1991-1993
  - Boston, Massachusetts, U.S. EPA, Region 1 FIT Public Health Specialist, 1982-1985
- Westec Services, Inc./ERCE, San Diego, California, Project Manager/ Manager of Corporate Health & Safety, 1986-1989

PROFESSIONAL EXPERIENCE and QUALIFICATIONS-Academic

- UCSD, Course Instructor for Occupational Medicine Certificate Program, *Industrial Hygiene for the Occupational Health Nurse*, 1992-1995
- UCSD, Course Instructor for Occupational Health & Safety/ Hazardous Materials Certificate Program, *Principles in Industrial Hygiene*, 1995-2003

PROFESSIONAL EXPERIENCE and QUALIFICATIONS-Technical

Industrial Hygiene

Provide, or have provided, forensic investigation, human health assessment and exposure/injury prevention related services, including the performance of "sick-building"/indoor air quality evaluations, worker exposure assessments, biological contamination (e.g., bioaerosol/mold) studies, litigation support, workers' comp. investigations, asbestos and lead assessments, industrial process safety evaluations, health & safety training and support programs for environmental, hazardous waste, industrial and construction projects and activities. Services have been provided to legal, insurance, industrial, commercial and governmental (e.g., Navy, DOE, regulatory, etc.) clients, alike. Experience representations are summarized, as follows:

- Provide technical and risk management counsel on civil and exposure/toxic tort matters involving alleged environmental impairment and human exposures to hazardous materials, including chemicals and bioaerosols. To date, approximately 200 legal matters have been

C YOUNG ASSOCIATES
1042 Skylark Drive, La Jolla, CA 92037
Cell: (858) 945-7029
E-Mail: colin@cyaforensics.com

supported.

- Provided industrial hygiene/health & safety support and programs for more than 400 environmental and hazardous waste investigations and remediation programs for the US EPA and private entities. Typical projects involved the handling of, and/or potential for exposure to, biological contaminants, fuel and chlorinated hydrocarbons, pesticides, PCBs, asbestos, lead and explosive materials.
- Performed numerous surveys of commercial, industrial and residential structures believed to contain unhealthy and/or potentially hazardous indoor air-quality conditions, including chemical and bioaerosol intrusion.
- Performed numerous industrial process safety evaluations in support of both Workers' Compensation claim-reduction (i.e., limitation of liability) programs and impending Workers' Compensation claims. The services have been provided for the benefit of employers, property owners and business/property insurers and legal counsel.
- Provided training and developed corporate health and safety programs for more than thirty industrial facilities, environmental laboratories and/or engineering consulting firms.
- Performed a Job Safety Analysis (JSA) of more than 300 aerospace manufacturing processes in support of the company's existing and developing Industrial Health & Safety Program.
- Developed and managed a complex health and safety program for a multi-million dollar remediation project for the Department of Energy at Oak Ridge National Laboratory (ORNL) in Oak Ridge, Tennessee. The remedial and site safety program innovatively employed the use of remotely operated vehicles (i.e., submarines) to retrieve and decommission over 7000 containers of explosive, water-reactive and radiologically-contaminated materials.
- Developed and managed a health & safety/quality assurance-quality control (QA/QC) program for a study involving the assessment of 15 uncontrolled disposal sites at the Naval Air Weapons Station (NAWS) in China Lake, California. The studies evaluated the degree of environmental impact from chemical, biological and live ordnance wastes in the (typical) 115°F area climate.
- Contributed to the development of health and safety Standard Operating Procedures and training protocols currently used by each of the U.S. EPA FIT, Zone 1 offices.

Environmental Engineering

Provide, or have provided, forensic studies, environmental site assessments; remediation programs; environmental litigation support, and; regulatory compliance support and permitting.

- Developed and managed a multimillion-dollar burn dump remediation project for a client who was redeveloping a former Navy facility. Provided project management and oversight, data interpretation, training, and HASP development. The contaminants of concern include burn ash, lead, asbestos, PCBs, chlorinated and/or petroleum hydrocarbons.
- Managed multiple environmental assessments and mitigation programs of former

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agricultural properties. Many possessed impairment by the historic and legal application of pesticides and/or natural occurrence of arsenic. In all situations, the impairment was managed on-site by controlled burial of the impaired soils, resulting in no need for costly or wasteful removal, transport and treatment/disposal of the same.

- Provided technical support for an underground storage tank (UST) investigation at San Diego International Airport's (Lindbergh Field) tank farm. The project was performed for the local Port Authority and involved the in situ inspection of the interior of numerous fuel tanks throughout the fuel farm. This activity required the use of Level B PPE in confined space environments.
- Provided management of a million-dollar environmental design contract for Naval Public Works Center (PWC), San Diego, California. Services included the development of SPCC Plans, preparation of RCRA Part B permits, performance of cathodic protection evaluations and the design of TSD facilities.
- Planned and managed a multitude of UST investigations for the Department of Defense at MCB Camp Pendleton, North Island NAS and 32nd Street Naval Station, California. The results of each investigation were used to develop remediation specifications for MCON projects planned at each site. The remedial programs were subsequently implemented using fixed or unit-cost pricing structures dependent on the prepared specifications. Remediation technologies applied included controlled aeration, vapor extraction (VES), pump and treat, and dig and dispose. All of the projects were performed either on or under budget.
- Provided operations management of a multi-million dollar fuel recovery/remediation project at the fuel farm at Naval Air Station North Island (NASNI), California. Ground water at the site had been impaired by a 2-3 foot thick layer of fuel hydrocarbon, released from a multitude of concrete USTs on the base. The remediation technology applied to date included pump and treat.
- Provided Delivery Order management of a large-scale asbestos survey project at Naval Amphibious Base, Coronado for Southwest Division NAVFACENGCOM.
- Planned and managed an assessment and remediation project at Fire Fighting Training Areas at Pacific Missile Test Center (PMTC) in Point Mugu and CBC Port Hueneme, California, for the Western Division NAVFACENGCOM. The remedial programs were subsequently implemented using fixed or unit-cost pricing structures dependent on the prepared specifications. Remediation technologies applied included VES and dig and dispose. Each of the projects was performed under budget.
- Removed and performed an investigation of multiple USTs located on agricultural property owned by the Viejas Indian Reservation. The property is slated for Casino and Resort expansion.
- Performed a UST investigation at several commercial service stations. Determined MTBE impacts to beneficial-use ground water. Data used to initiate a ground water investigation and remediation plans.
- Provided environmental support and waste characterization services for engineering (i.e.,

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clean-out) projects performed within lead-impacted storm water basins throughout San Diego County.

- Provided technical and environmental management support for numerous engineering projects performed within lead-impacted areas along the highways of Orange County. Formulated a Lead Management Plan for the engineering/utility contractor providing the construction services for Caltrans.
- Provided environmental compliance support services to supplement an aerospace manufacturing company's environmental department. Products supported include the Hazardous Materials Business Plan, Storm Water Pollution Prevention (SWPP) Plan, Underground Storage Tank (UST) Program, Compliance Audit Program, etc.
- Providing environmental support to the owners of a property involved in litigation over the condemnation of the property by the local municipality acquisition.

ACADEMIC HISTORY

- University of Massachusetts, Amherst, Massachusetts, B.S., School of Environmental Science and Public Health, 1982
- Harvard School of Public Health, Boston, Massachusetts, Certificate of Risk Analysis in Environmental Health, 1985

PROFESSIONAL CERTIFICATIONS

- Certified Industrial Hygienist (CIH) No. 3987, American Board of Industrial Hygiene (ABIH), 1988; Recertified 1995, 2001, 2006, 2011, 2015
- Certified Safety Specialist/Executive (CSS/CSE), World Safety Organization (WSO), 1986 (inactive)
- AHERA-Certified Asbestos Inspector-California No. 855, U.S. EPA/UC Berkeley, 1989 (inactive)

PROFESSIONAL TRAINING

- Certificate in Professional Engineering Practice, ASFE/Institute for Professional Practice, 1990
  - Program Facilitator, 1991
- Professional "Loss Prevention" Training, ASFE, 1989
- Professional Management Training, Management Action Programs (MAP), 1990
- HazWOpER (29CFR 1910.120) Training, 1982; - Trainer, 1986-Present
- Guidelines for the Assessment of Microbiological Contamination, AIHA, 2002

PUBLICATIONS

- Fung M.D., F. Y., Young CIH, C. P., Mold-Associated Asthma, IAQ 2001, ASHRAE

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PROFESSIONAL AFFILIATION HISTORY

- American Industrial Hygiene Association (AIHA), Fairfax, VA
- American Academy of Industrial Hygiene (AAIH), Lansing, MI
- American Lung Association, San Diego and Imperial Counties, CA, Member-Board of Directors, 2002-2006, Board Chair 2006
- ASFE, Silver Spring, MD
  - "Loss Prevention Education" Committee (1990-1991)
- American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE)
- Association for Environmental Health and Sciences (AEHS), Amherst, MA
- American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, OH
- Institute for Professional Practice (IPP), Silver Spring, MD
- Society of American Military Engineers (SAME), San Diego, CA
- American Indoor Air Quality Council

C YOUNG ASSOCIATES
1042 Skylark Drive, La Jolla, CA 92037
Cell: (858) 945-7029
E-Mail: colin@cyaforensics.com

DANIEL A. WEIS, R.E.H.S.

PROFESSIONAL HISTORY

Current

- C Young Associates (CYA), La Jolla, California, Senior Associate/Technical Advisor, 01/2009-Present
- Advantage Environmental Consultants (AEC), San Marcos, California, Branch Manager, 11/2005-Present

Previous

- Rincon Consultants, Carlsbad, California, Project Manager, 11/2003-11/2005
- Geocon, Inc., San Diego, California, Project Manager, 11/2001-11/2003
- Geosoils, Inc., Carlsbad, California, Field Technician, 11/1999-11/2001

PROFESSIONAL EXPERIENCE SUMMARY

17 years of experience in the environmental sciences consulting field. Responsibilities include client development and management, project management, technical oversight and quality control for assessment, and remediation and construction oversight services. Clients include, but are not limited to, local government entities, developers (affordable housing and market rate), Federal government entities, law firms, architectural and engineering firms, commercial lending institutions, conservancies, commercial/industrial real estate owners/managers, insurance companies, wireless telecommunication carriers and other real estate developers. Experienced in the completion of assessment, construction and remediation quality assurance during the completion of urban redevelopment/brownfields projects, many of which have been located in downtown areas of San Diego, Los Angeles, Oakland, San Francisco, and other urban communities throughout the State of California.

Completed or managed over 2,500 due diligence related environmental assessments and completed or managed over 500 subsurface environmental investigations of soil gas, soil, groundwater and other media. Investigations have included human health and ecological risk assessments, evaluations of indoor air conditions based on interpretations of subsurface conditions, underground storage tank (UST) evaluation/closure and hazardous waste characterization/management. Subsurface activities performed include the completion of soil borings using various drilling technologies, soil and groundwater sampling, installation and sampling of groundwater monitoring wells, free product evaluations, exploratory trenching and real-time delineation using mobile analytical laboratories and other soil screening technology. Assets evaluated include industrial, commercial, residential, agricultural and vacant land sites throughout the State of California and numerous other states, with many of the assessments completed under the regulatory oversight of local environmental regulatory agencies, the California Regional Water Quality Control Boards (RWQCBs) and the California Environmental Protection Agency Department of Toxic Substances Control (DTSC). Has also conducted and/or managed hundreds of public/environmental health related assessments including electromagnetic field surveys, radionuclide surveys, indoor air quality investigations, radon surveys, drinking water assessments, asbestos containing materials (ACM) and lead-based paint (LBP) surveys and mold/microbial evaluations.

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Managed over 100 remediation or construction management related projects primarily related to source removal of subsurface contaminants, including but not limited to, petroleum hydrocarbons, chlorinated solvents, heavy metals, organochlorine pesticides and other agricultural related chemicals, dioxins and furans and polychlorinated biphenyls (PCBs). Has also assisted in cost recovery efforts from private parties and State/Federal funding programs for environmental assessment and remediation work and has served as an expert witness during legal proceedings pertaining to environmental related claims.

SPECIFIC PROJECT EXPERIENCE

- 14th and Island, San Diego, California – Development of Site Mitigation Plan, contaminated soil management and disposal concurrent with site construction activities at the superblock construction site in downtown San Diego and achievement of regulatory closure with the County of San Diego Department of Environmental Health.
- 2198 Market Street, San Francisco, California – Phase I and II Environmental Site Assessments, supplemental subsurface investigation, Site Mitigation Plan development, contaminated soil management and disposal concurrent with site construction activities and negotiation/achievement of regulatory closure with the City of San Francisco Department of Public Health.
- Former EZ Serve, 9305 Mission Gorge Road, Santee, California – Closure report preparation and San Diego Regional Water Quality Control Board interface and negotiation/achievement of regulatory closure under State of California low-threat policy.
- French Field – Former Vista Burn Dump, Oceanside, California – Oversight of the capping of a former burn dump/landfill facility and restoration for public use as a sports facility. Negotiation and achievement of regulatory closure with the California Department of Toxic Substances Control with concurrence from the San Diego Regional Water Quality Control Board and the County of San Diego Local Enforcement Agency.
- Indoor Skydiving Facility, 1401 Imperial Avenue, San Diego, California – Development of Soil Management Plan and contaminated soil management and disposal concurrent with site construction activities in downtown San Diego.
- Lemon Grove Avenue Realignment Project, Lemon Grove, California – Development of Impacted Soil Management Plan, Community Health and Safety Plan and Worker Health and Safety Plan and oversight of the implementation of such plans during construction activities.
- North Side Interior Road and Utilities Project at San Diego International Airport, San Diego, California - Subsurface assessment, development of Soil Management Plan and Work Health and Safety Plan and implementation and monitoring of soil management strategies.
- Olympic and Hill, Los Angeles, California – Removal of multiple underground storage tanks and underlying contaminated soil and achievement of regulatory closure with the City of Los Angeles Fire Department.
- San Ysidro - U.S. Land Port of Entry, San Diego, California – Subsurface assessment and development and implementation of soil management strategies.
- Tabata Ranch Site, Carlsbad, California – Development of Soil Management Plan and Community Health and Safety Plan, completion of soil removal action of petroleum hydrocarbon impacted soil, oversight and management of selective reuse and replacement of

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pesticide impacted soil and subsequent export of inert soils and achievement of regulatory closure with the County of San Diego Department of Environmental Health. Consent to discharge inert soils at an off-site receiving location was granted by the San Diego Regional Water Quality Control Board.

- VA Medical Center Long Beach, 5901 East 7th Street, Long Beach, California - VA Long Beach: Seismic Corrections – Mental Health, Community Living Center and Chiller Replacements Project – Asbestos containing materials and lead-based paint surveys and preparation of abatement contractor bid specifications.

EDUCATION

- Bachelor of Arts - University of Delaware, Newark, DE (1995)
- Master of Science – Public Health, San Diego State University, San Diego, CA (1998)

PROFESSIONAL REGISTRATIONS, LICENSES, AND CERTIFICATIONS

- Registered Environmental Health Specialist #8172 in the State of California
- OSHA 40-hour Hazardous Waste Operations Worker and Supervisor Certifications and Annual Refreshers

PUBLICATIONS

- Gersberg, R.M., Brown, C., Zambrano, V., Worthington, K., and Weis, D. (2000) Quality of urban runoff in the Tijuana River watershed. In Westerhoff, P. (editors), SCERP Monograph Series (no.2) on Water Issues Along the United States and Mexico Border. : Southwest Center for Environmental Research and Policy, 31-45.
- Weis, D.A., Callaway, J.C., and R.M. Gersberg (2001). Vertical Accretion Rates and Heavy Metal Chronologies in Wetland Sediments of the Tijuana Estuary. Estuaries 24(6A).
- Gersberg, R.M., Pitt, J.L., Weis, D.A., and D.D. Yorkey. Characterizing In-Stream Metal Loading in the Tijuana River Watershed. (2002). National TMDL Science and Policy Conference, Specialty Conference Proceeding on CD Rom, November 13-16, Phoenix, Arizona

PROFESSIONAL AFFILIATIONS

- Building Industry Association
- San Diego Environmental Professionals
- San Diego Housing Federation

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APPENDIX I

HYDROLOGY AND HYDRAULIC ANALYSES

MWD

METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

Hydrology and Hydraulic Analyses for West Valley Feeder No 1 Valve Structures Improvements (Stage 3)

Project No.104924

May 2018

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SECTION 1 INTRODUCTION

1.1 GENERAL

West Valley Feeder No 1 and No 2 are Treated Water Pipelines that travel through Chatsworth Park South. There are several Pipeline Structures in Chatsworth Park South that are not accessible by Metropolitan maintenance vehicles. The primary objective of this project is to construct access roads to isolated pipeline structures and provide manholes to house pipeline structures. The project drainage system would be developed to protect the proposed access roads and pipeline structures from erosion and storm water runoff from adjacent hillsides. A hydrologic and hydraulic study was prepared to characterize the storm water runoff within the project area. Results of this study would be used to support final design of the proposed drainage system. This report was developed in support of this task and summarizes the existing and project hydrologic and hydraulics study conducted for the site.

Chatsworth Park South is a City of Los Angeles Department of Recreation and Parks (LADRP) facility located at 22360 West Devonshire Street in the community of Chatsworth, in the City of Los Angeles, County of Los Angeles, California (Figure 1). This site located in the western portion of the San Fernando Valley consists of a recreational building, an adjoining fenced children's play area, parking lots, sand pit play area, two tennis courts, a basketball court, and landscaped fields. Residential housing abuts the site boundary to the east; and undeveloped hillside terrain borders the site to the north, west, and south. Various recreational trails for pedestrians, hikers, and equestrian use surround the level park facility areas. A railroad right-of-away is adjacent to the north. The park was closed to public access and use during the spring of 2008 because of hazards associated with lead pellets and sporting clay pigeon (target) debris from a former onsite small arms firing range (SAFR). The park was remediated by the LADRP in 2017. The remedial plan included an engineered cap on the park area considered hazardous and implementation of storm water management practices that limit the runoff from the site. It is important to note that the area north of the park between West Valley Feeder No 1 and West Valley Feeder No 2 was not remediated with the engineered cap.

Figure 1 - Project Location

1.2 SITE DESCRIPTION

The site occupies a box canyon with hills that ascend from the level portion of the developed recreational area to the north, west, and south and west into the alluvial canyon bottom with surface flow generally towards the east. A former fishing pond located northeast of the former SAFR was previously filled using onsite groundwater production and through damming of seasonal stream flows that drained from the upland areas to the west.

The existing drainage pattern mimics the historic predevelopment drainage conditions. The main drainage is along the alluvial canyon bottom (Figure 2) with surface flow generally towards the east and south towards the remediated park detention basins (Figure 3). The drainage path is shown as a blue line stream on the U. S. Geological Survey (USGS) topographic quadrangle (Figure 3). Several drainage culverts, pipes and detention basins were placed across the park to facilitate storm water runoff.

Figure 2 - WVF1 STA 1407+45 at Stream Crossing and WVF1 STA 1416+33 at Stream Bottom

Figure 3 - Canyon Drainage Path and USGS Blue Steam

Storm water runoff from the north-west of the project site sheet flows from the surrounding hillsides towards a central canyon bottom where it is conveyed towards WVF1 STA 1416+33. Runoff continues into an earthen flood control basin located south of the proposed access road and spills through a broken spillway into a Stone Lined stream leading to the park Detention Basins (Figure 4). Storm water runoff on the northerly side of the project site sheet flows towards a central canyon bottom where it is conveyed near WVF1 STA 1407+45. The northerly runoff joins the north-west runoff past WVF1 STA 1407+45 and continues into the Stone Lined stream towards the park Detention Basins (Figure 5). There is a non-operational culvert along the proposed access road alignment that was used to facilitate runoff from a small hillside tributary north of the road.

Figure 4 - Earthen Flood Control Basin and Broken Spillway

Figure 5 - Stone Lined Stream and Park Detention Basin

SECTION 2 HYDROLOGY ANALYSES

2.1 DRAINAGE BOUNDARIES AND DESIGN DISCHARGE

The existing condition drainage boundaries for the study area were delineated using two USGS digital elevation models (DEM) for 7.5-minute Oat Mountain Quadrangle and Simi Valley East Quadrangle overlaid with a ground survey prepared by Metropolitan through Survey Job Number 06-158. For project conditions, the project grading plan was overlaid on the USGS DEM. The horizontal datum for the topographic data is North American Datum of 1983 (NAD 83); the vertical datum is North American Vertical Datum of 1988 (NAVD 88). The total watershed for the project was 142 acres.

The Los Angeles County Department of Public Works (LACDPW) Modified Rational Method was used for completing the hydrologic analyses for this study. The LACDPW Tc Calculator was used to implement the MODRAT for each subarea to calculate peak flows. Soil Type, land use, rain depth, temporal distribution series were obtained from LACDPW hydrology manual hydrologic map and Los Angeles County GIS files.

MWD's distribution system is considered critical infrastructure. Design of improvements will be based on 100-year return period storms, similar storm events, or the regulating agency's recommended flow. Distribution system manholes that are subject to flooding will be raised to at least 1-foot above the 100-year water surface elevation.

Access related improvements are not as critical as structure or pipeline protection therefore the general approach is to design these improvements based on LACDPW's Capital Flood Protection criteria.

2.2 EXISTING CONDITIONS

A site walk was completed on March 15, 2017, to verify location of any catch basins, culverts, general drainage patterns and land use. The initial drainage boundary delineation was adjusted based on findings from the site walk. Exhibit 1 shows the existing watershed delineation. The watershed currently drains to the park Detention Basins.

Hydrologic model parameters such as sub-basin areas, basin slopes were calculated using the LACDPW's 2006 Hydrology Manual Section 7.2 Rational Method. The time of concentration was calculated using the LACDPW's Tc calculator. The results of the hydrologic analysis and supporting documentation can be found in Appendix A.

2.3 PROJECT CONDITIONS

The drainage boundaries for the project conditions, for the most part, remain similar to those of the existing conditions. The proposed access roads will consist of concrete pavement at steep slopes with v-ditches to convey runoff away from the road. Vented Ford style water crossings will be placed at sites where the access road crosses a stream. Grouted stone is recommended for erosion control at sites where pipeline structures are exposed to stream erosion. Existing canyon flow is retained and acts as the main drainage feature across the project site. Major changes between the existing and project conditions occur at the outlet of Subareas A3 and A7. The hydrology map for project conditions is shown on Exhibit 1.

The project grading plans incorporate two possible access roads with water crossing features near West Valley Feeder No 1 STA 1407+45 and West Valley Feeder No 1 STA 1416+33. The high water surface elevations at these two sites were calculated to determine the size of the water crossings and the extent of erosion protection.

The results of the hydrologic analyses for the proposed project conditions are shown in Table 1. All hydrologic calculations and supporting documentation for project conditions can be found in Appendix A. Results of hydraulic calculations for water crossings are shown in Appendix B.

Table 1- Summary of Hydrology Analyses

Water Crossing	100-Year (cfs)	50-Year (cfs)	2-Year (cfs)
WVF1 STA 1407+45 (Subarea A7, Node 21)	162	138	28
WVF1 STA 1416+33 (Subarea A1, A2 and A3, Node 15)	393	337	72

SECTION 3 HYDRAULIC ANALYSES

3.1 VENTED FORD CROSSINGS

The project grading concept includes “Vented Ford” or Culvert crossings to convey flow across access the access road at two stream crossing locations. The Vented Fords were sized using the results of the Hydrologic Analyses and the U.S. Department of Transportation Federal Highway Administration HY-8 Culvert Hydraulic Analyses Program. Culvert designs include headwalls at both ends and energy dissipater structures at culvert outlets. The culvert sizing calculations are provided in Appendix B.

3.2 ROAD DRAINAGE

Road drainage design reduces energy generated by flowing water. The drainage system includes v-ditches to catch roadway flows and convey them to the culvert inlets. Roadway overtopping was calculated using the HY-8 Culvert Hydraulic Analyses Program. Typical roadway sections are shown in Appendix C.

SECTION 4 CONCLUSIONS AND RECOMMENDATIONS

The Hydrology and Hydraulics Analyses conducted on the existing and proposed systems evaluated the project drainage system to adequately protect the proposed access roads. The existing condition 50-Year peak flow at WVF1 STA 1407+45 was determined to be 138 csf and at WVF1 STA 1416+33 was 337 cfs. There is no significant increase in runoff expected between existing conditions and project conditions.

As part of stream crossing design, culverts were incorporated as protective features for the roadway. Box culverts sizes 4ft provide adequate Capital Flood protection when used with v-ditches, headwalls and energy dissipaters.

SECTION 5 REFERENCES

1. Los Angeles County Department of Public Works, 2006. Hydrology Manual. January.
2. Los Angeles County Department of Public Works. Hydraulic Design Manual. March.
3. U.S. DOT Federal Highway Administration, 2012. Hydraulic Design of Highway Culverts. April.
4. NOAA, National Climatic Data Center.
5. USGS, StreamStats

SECTION 6 APPENDICES

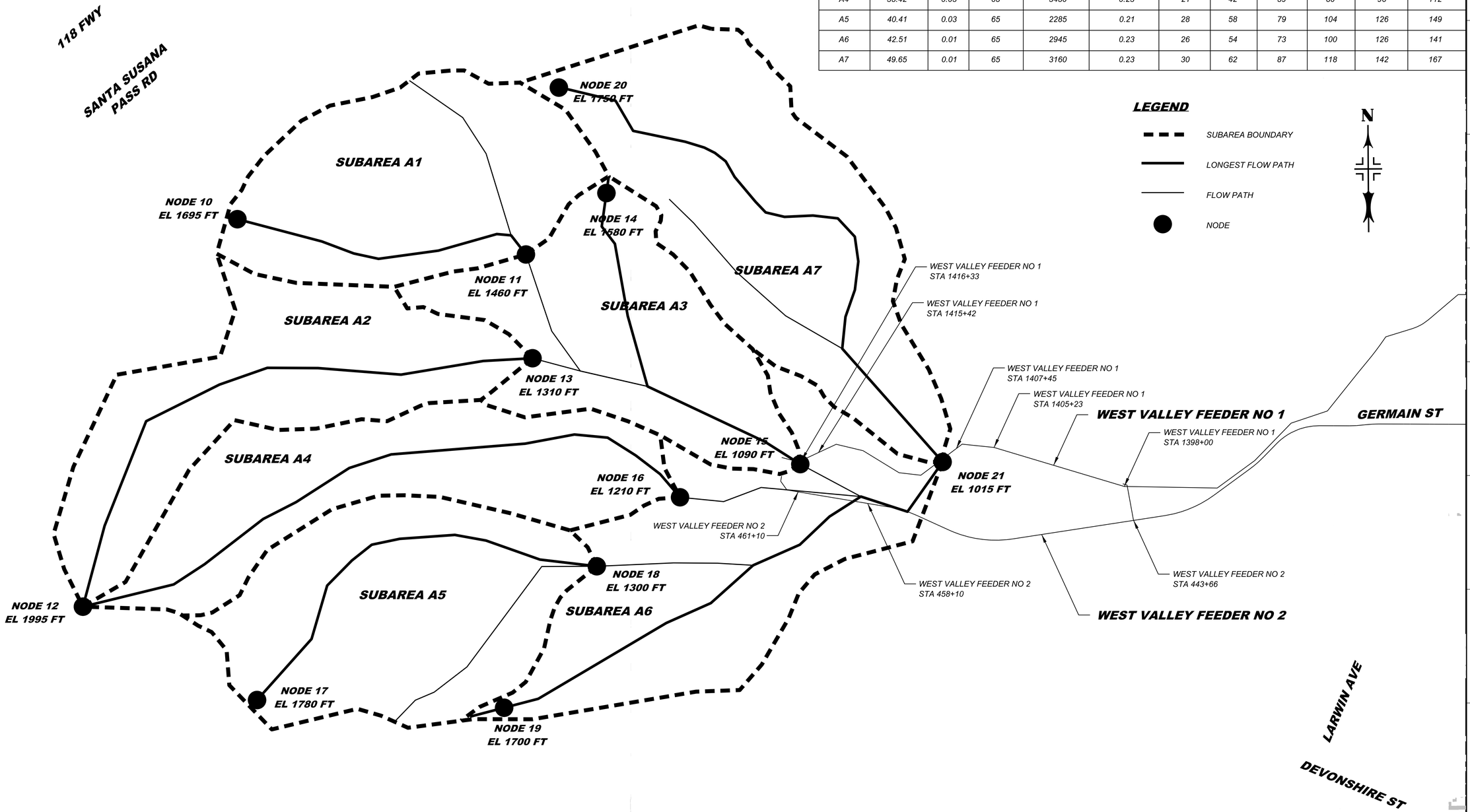
Appendix A – Hydrology Analysis

Appendix B – Culvert Crossing Calculations

Appendix C – Preliminary Design Drawings

Appendix A
Hydrology Analyses

SUBAREA	AREA, AC	IMP, %	SOIL TYPE	LENGTH, FT	SLOPE, FT/FT	Q2, CFS	Q5, CFS	Q10, CFS	Q25, CFS	Q50, CFS	Q100, CFS
A1	38.99	0.01	65	1655	0.14	31	60	82	116	132	157
A2	36.70	0.03	65	3110	0.22	22	45	63	86	104	122
A3	33.81	0.01	65	2040	0.24	25	49	67	93	113	126
A4	35.42	0.03	65	3450	0.23	21	42	59	80	96	112
A5	40.41	0.03	65	2285	0.21	28	58	79	104	126	149
A6	42.51	0.01	65	2945	0.23	26	54	73	100	126	141
A7	49.65	0.01	65	3160	0.23	30	62	87	118	142	167



SCALE BARS

STAMPING ENGINEER IS RESPONSIBLE FOR CURRENT DRAWING REVISION

ISSUE DESCRIPTION

ISSUE DATE MAY 2018

MWD
METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

DESIGNED MD
DRAWN MD
CHECKED

FOR DRAWING APPROVALS SEE
N/A

DISTRIBUTION SYSTEM
WEST VALLEY FEEDER NO. 1
VALVE MODIFICATION STAGE 3
CHATSWORTH PARK

HYDROLOGY STUDY

SPECIFICATIONS PDR
PROJECT NUMBER 104561
SHEET EXHIBIT-1
DWG N/A REV 0

BRDR DATE: 09/19/2017

FILE NAME: pw:\\USMWD224.mwd.h2o:MWD_Projects\Documents\Projects\Active Projects\104924 (PDR) West Valley Feeder No 1 Valve Modification Stage 3\06 Preliminary Design\Drawings\Scratch Drawings\Hydrology Study\PDR_104561_00hs001.dgn
PEN TABLE: MWD-FullSizeBW.pen

USER NAME: u10100
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2006 Los Angeles County Hydrology Manual

Appendix B - Hydrological Maps
USGS Map Grids: Oat Mountain, Santa Susana
Soil Classification Area - 65
Debris Potential Area - 4

Appendix C - Soil Type and Runoff Coefficient Data

Soil Identification Table		
Number	Original Name	Name
65	ULAR-13	UPPER LOS ANGELES RIVER

RAINFALL FREQUENCY MULTIPLICATION FACTORS	
FREQUENCY, YR	FACTOR
2	0.387
5	0.584
10	0.714
25	0.878
50	1
100	1.122
500	1.402

See Runoff Coefficient Curve Soil Type No 65

Table 6.3.3 - Design Fire Factors
Los Angeles River Watershed - 0.71

WATERSHED DATA													
SUBAREA	AREA, AC	IMPERVIOUS, %	SOIL TYPE	HIGH EL, FT	LOW EL, FT	LENGTH, FT	SLOPE, FT/FT	50 YR 24 HR	2 YR 24 HR	5 YR 24 HR	10 YR 24 HR	25 YR 24 HR	100 YR 24 HR
A1	38.99	0.01	65	1695	1460	1655	0.14	7.6	2.9	4.4	5.4	6.7	8.5
A2	36.7	0.03	65	1995	1310	3110	0.22	7.4	2.9	4.3	5.3	6.5	8.3
A3	33.81	0.01	65	1580	1090	2040	0.24	7.5	2.9	4.4	5.4	6.6	8.4
A4	35.42	0.03	65	1995	1210	3450	0.23	7.4	2.9	4.3	5.3	6.5	8.3
A5	40.41	0.03	65	1780	1300	2285	0.21	7.4	2.9	4.3	5.3	6.5	8.3
A6	42.51	0.01	65	1700	1015	2945	0.23	7.4	2.9	4.3	5.3	6.5	8.3
A7	49.65	0.01	65	1750	1015	3160	0.23	7.5	2.9	4.4	5.4	6.6	8.4

RESULTS				URS CHATSWORTH PARK HYDROLOGY REPORT		
Confluence Point	Q10, CFS	Q50, CFS	Q100, CFS	Q10, CFS	DIFF, CFS	PERCENT
CONFLUENCE AT NODE 15	204	337	393	172.64	31	18%
CONFLUENCE AT NODE 21 WEST	405	673	783	370.7	34	9%
CONFLUENCE AT NODE 21 NORTH	83	138	162	65.2	17	27%

- Q50 IS THE CAPITAL FLOOD OR DESIGN STORM PER LOS ANGELES COUNTY HYDROLOGY MANUAL

Los Angeles County HydroCalc Calculator Version 1.0.3

Summary of Input Data

Project	Subarea	Area	Length	Slope	Depth	Imp	Soil	Frequency	Fire
CP2	A1	38.99	1655	0.1420	7.6	0.01	65	2-yr	0.71
CP2	A2	36.7	3110	0.2203	7.4	0.03	65	2-yr	0.71
CP2	A3	33.81	2040	0.2402	7.5	0.01	65	2-yr	0.71
CP2	A4	35.42	3450	0.2275	7.4	0.03	65	2-yr	0.71
CP2	A5	40.41	2285	0.2626	7.4	0.03	65	2-yr	0.71
CP2	A6	42.51	2945	0.2326	7.4	0.01	65	2-yr	0.71
CP2	A7	49.65	3160	0.2326	7.5	0.01	65	2-yr	0.71
CP5	A1	38.99	1655	0.1420	7.6	0.01	65	5-yr	0.71
CP5	A2	36.7	3110	0.2203	7.4	0.03	65	5-yr	0.71
CP5	A3	33.81	2040	0.2402	7.5	0.01	65	5-yr	0.71
CP5	A4	35.42	3450	0.2275	7.4	0.03	65	5-yr	0.71
CP5	A5	40.41	2285	0.2626	7.4	0.03	65	5-yr	0.71
CP5	A6	42.51	2945	0.2326	7.4	0.01	65	5-yr	0.71
CP5	A7	49.65	3160	0.2326	7.5	0.01	65	5-yr	0.71
CP10	A1	38.99	1655	0.1420	7.6	0.01	65	10-yr	0.71
CP10	A2	36.7	3110	0.2203	7.4	0.03	65	10-yr	0.71
CP10	A3	33.81	2040	0.2402	7.5	0.01	65	10-yr	0.71
CP10	A4	35.42	3450	0.2275	7.4	0.03	65	10-yr	0.71
CP10	A5	40.41	2285	0.2626	7.4	0.03	65	10-yr	0.71
CP10	A6	42.51	2945	0.2326	7.4	0.01	65	10-yr	0.71
CP10	A7	49.65	3160	0.2326	7.5	0.01	65	10-yr	0.71
CP25	A1	38.99	1655	0.1420	7.6	0.01	65	25-yr	0.71
CP25	A2	36.7	3110	0.2203	7.4	0.03	65	25-yr	0.71
CP25	A3	33.81	2040	0.2402	7.5	0.01	65	25-yr	0.71
CP25	A4	35.42	3450	0.2275	7.4	0.03	65	25-yr	0.71
CP25	A5	40.41	2285	0.2626	7.4	0.03	65	25-yr	0.71
CP25	A6	42.51	2945	0.2326	7.4	0.01	65	25-yr	0.71
CP25	A7	49.65	3160	0.2326	7.5	0.01	65	25-yr	0.71
CP50	A1	38.99	1655	0.1420	7.6	0.01	65	50-yr	0.71
CP50	A2	36.7	3110	0.2203	7.4	0.03	65	50-yr	0.71
CP50	A3	33.81	2040	0.2402	7.5	0.01	65	50-yr	0.71
CP50	A4	35.42	3450	0.2275	7.4	0.03	65	50-yr	0.71
CP50	A5	40.41	2285	0.2626	7.4	0.03	65	50-yr	0.71
CP50	A6	42.51	2945	0.2326	7.4	0.01	65	50-yr	0.71
CP50	A7	49.65	3160	0.2326	7.5	0.01	65	50-yr	0.71
CP100	A1	38.99	1655	0.1420	7.6	0.01	65	100-yr	0.71
CP100	A2	36.7	3110	0.2203	7.4	0.03	65	100-yr	0.71
CP100	A3	33.81	2040	0.2402	7.5	0.01	65	100-yr	0.71
CP100	A4	35.42	3450	0.2275	7.4	0.03	65	100-yr	0.71
CP100	A5	40.41	2285	0.2626	7.4	0.03	65	100-yr	0.71
CP100	A6	42.51	2945	0.2326	7.4	0.01	65	100-yr	0.71
CP100	A7	49.65	3160	0.2326	7.5	0.01	65	100-yr	0.71

Los Angeles County HydroCalc Calculator Version 1.0.3
Summary of Output Data

Subarea	Modeled (2-yr) Rainfall Depth (in)	Tc, (min)	Clear Peak Flow Rate (cfs)	24-Hr Clear Runoff Volume (ac-ft)	Burned Peak Flow Rate (cfs)	Peak Intensity (in/hr)	Undeveloped Runoff Coefficient (Cu)	Developed Runoff Coefficient (Cd)
A1	2.9	17	28	2.22	31	0.99	0.73	0.74
A2	2.9	25	20	2.11	22	0.80	0.68	0.69
A3	2.9	18	23	1.88	25	0.95	0.72	0.72
A4	2.9	27	19	2.03	21	0.77	0.67	0.68
A5	2.9	20	26	2.33	28	0.89	0.71	0.71
A6	2.9	24	24	2.30	26	0.82	0.69	0.69
A7	2.9	25	28	2.75	30	0.81	0.68	0.69

Subarea	Modeled (5-yr) Rainfall Depth (in)	Tc, (min)	Clear Peak Flow Rate (cfs)	24-Hr Clear Runoff Volume (ac-ft)	Burned Peak Flow Rate (cfs)	Peak Intensity (in/hr)	Undeveloped Runoff Coefficient (Cu)	Developed Runoff Coefficient (Cd)
A1	4.4	12	57	4.45	60	1.75	0.83	0.83
A2	4.3	17	43	4.15	45	1.45	0.80	0.80
A3	4.4	13	46	3.77	49	1.67	0.82	0.82
A4	4.3	18	40	4.00	42	1.41	0.80	0.80
A5	4.3	13	55	4.58	58	1.65	0.82	0.82
A6	4.3	16	51	4.63	54	1.49	0.81	0.81
A7	4.4	17	59	5.53	62	1.47	0.80	0.81

Subarea	Modeled (10-yr) Rainfall Depth (in)	Tc, (min)	Clear Peak Flow Rate (cfs)	24-Hr Clear Runoff Volume (ac-ft)	Burned Peak Flow Rate (cfs)	Peak Intensity (in/hr)	Undeveloped Runoff Coefficient (Cu)	Developed Runoff Coefficient (Cd)
A1	5.4	10	79	6.36	82	2.34	0.87	0.87
A2	5.3	14	60	5.87	63	1.94	0.84	0.84
A3	5.4	11	64	5.38	67	2.21	0.86	0.86
A4	5.3	15	56	5.67	59	1.88	0.84	0.84
A5	5.3	11	76	6.47	79	2.18	0.86	0.86
A6	5.3	14	70	6.60	73	1.94	0.84	0.84
A7	5.4	14	83	7.89	87	1.97	0.84	0.85

Subarea	Modeled (25-yr) Rainfall Depth (in)	Tc, (min)	Clear Peak Flow Rate (cfs)	24-Hr Clear Runoff Volume (ac-ft)	Burned Peak Flow Rate (cfs)	Peak Intensity (in/hr)	Undeveloped Runoff Coefficient (Cu)	Developed Runoff Coefficient (Cd)
A1	6.7	8	112	9.21	116	3.19	0.90	0.90
A2	6.5	12	83	8.46	86	2.57	0.88	0.88
A3	6.6	9	90	7.80	93	2.98	0.90	0.90
A4	6.5	13	77	8.16	80	2.47	0.88	0.88
A5	6.5	10	101	9.31	104	2.80	0.89	0.89
A6	6.5	12	96	9.57	100	2.57	0.88	0.88
A7	6.6	12	114	11.45	118	2.60	0.88	0.88

Subarea	Modeled (50-yr) Rainfall Depth (in)	Tc, (min)	Clear Peak Flow Rate (cfs)	24-Hr Clear Runoff Volume (ac-ft)	Burned Peak Flow Rate (cfs)	Peak Intensity (in/hr)	Undeveloped Runoff Coefficient (Cu)	Developed Runoff Coefficient (Cd)
A1	7.6	8	128	11.48	132	3.64	0.90	0.90
A2	7.4	11	101	10.54	104	3.05	0.90	0.90
A3	7.5	8	109	9.74	113	3.59	0.90	0.90
A4	7.4	12	93	10.17	96	2.93	0.89	0.89
A5	7.4	9	122	11.60	126	3.35	0.90	0.90
A6	7.4	10	122	11.98	126	3.19	0.90	0.90
A7	7.5	11	138	14.30	142	3.09	0.90	0.90

Subarea	Modeled (100-yr) Rainfall Depth (in)	Tc, (min)	Clear Peak Flow Rate (cfs)	24-Hr Clear Runoff Volume (ac-ft)	Burned Peak Flow Rate (cfs)	Peak Intensity (in/hr)	Undeveloped Runoff Coefficient (Cu)	Developed Runoff Coefficient (Cd)
A1	8.5	7	152	13.82	157	4.34	0.90	0.90
A2	8.3	10	118	12.69	122	3.58	0.90	0.90
A3	8.4	8	122	11.74	126	4.03	0.90	0.90
A4	8.3	11	109	12.25	112	3.42	0.90	0.90
A5	8.3	8	144	13.96	149	3.97	0.90	0.90
A6	8.3	10	137	14.46	141	3.58	0.90	0.90
A7	8.4	10	162	17.25	167	3.62	0.90	0.90

Los Angeles County HydroCalc Calculator Version 1.0.3
Summary of Output Data

Subarea	Modeled (2-yr) Rainfall Depth (in)	Tc, (min)	Clear Peak Flow Rate (cfs)	24-Hr Clear Runoff Volume (ac-ft)	Burned Peak Flow Rate (cfs)	Peak Intensity (in/hr)	Undeveloped Runoff Coefficient (Cu)	Developed Runoff Coefficient (Cd)
A1	2.9	17	28	2.22	31	0.99	0.73	0.74
A2	2.9	25	20	2.11	22	0.80	0.68	0.69
A3	2.9	18	23	1.88	25	0.95	0.72	0.72
A4	2.9	27	19	2.03	21	0.77	0.67	0.68
A5	2.9	20	26	2.33	28	0.89	0.71	0.71
A6	2.9	24	24	2.30	26	0.82	0.69	0.69
A7	2.9	25	28	2.75	30	0.81	0.68	0.69

Subarea	Modeled (5-yr) Rainfall Depth (in)	Tc, (min)	Clear Peak Flow Rate (cfs)	24-Hr Clear Runoff Volume (ac-ft)	Burned Peak Flow Rate (cfs)	Peak Intensity (in/hr)	Undeveloped Runoff Coefficient (Cu)	Developed Runoff Coefficient (Cd)
A1	4.4	12	57	4.45	60	1.75	0.83	0.83
A2	4.3	17	43	4.15	45	1.45	0.80	0.80
A3	4.4	13	46	3.77	49	1.67	0.82	0.82
A4	4.3	18	40	4.00	42	1.41	0.80	0.80
A5	4.3	13	55	4.58	58	1.65	0.82	0.82
A6	4.3	16	51	4.63	54	1.49	0.81	0.81
A7	4.4	17	59	5.53	62	1.47	0.80	0.81

Subarea	Modeled (10-yr) Rainfall Depth (in)	Tc, (min)	Clear Peak Flow Rate (cfs)	24-Hr Clear Runoff Volume (ac-ft)	Burned Peak Flow Rate (cfs)	Peak Intensity (in/hr)	Undeveloped Runoff Coefficient (Cu)	Developed Runoff Coefficient (Cd)
A1	5.4	10	79	6.36	82	2.34	0.87	0.87
A2	5.3	14	60	5.87	63	1.94	0.84	0.84
A3	5.4	11	64	5.38	67	2.21	0.86	0.86
A4	5.3	15	56	5.67	59	1.88	0.84	0.84
A5	5.3	11	76	6.47	79	2.18	0.86	0.86
A6	5.3	14	70	6.60	73	1.94	0.84	0.84
A7	5.4	14	83	7.89	87	1.97	0.84	0.85

Subarea	Modeled (25-yr) Rainfall Depth (in)	Tc, (min)	Clear Peak Flow Rate (cfs)	24-Hr Clear Runoff Volume (ac-ft)	Burned Peak Flow Rate (cfs)	Peak Intensity (in/hr)	Undeveloped Runoff Coefficient (Cu)	Developed Runoff Coefficient (Cd)
A1	6.7	8	112	9.21	116	3.19	0.90	0.90
A2	6.5	12	83	8.46	86	2.57	0.88	0.88
A3	6.6	9	90	7.80	93	2.98	0.90	0.90
A4	6.5	13	77	8.16	80	2.47	0.88	0.88
A5	6.5	10	101	9.31	104	2.80	0.89	0.89
A6	6.5	12	96	9.57	100	2.57	0.88	0.88
A7	6.6	12	114	11.45	118	2.60	0.88	0.88

Subarea	Modeled (50-yr) Rainfall Depth (in)	Tc, (min)	Clear Peak Flow Rate (cfs)	24-Hr Clear Runoff Volume (ac-ft)	Burned Peak Flow Rate (cfs)	Peak Intensity (in/hr)	Undeveloped Runoff Coefficient (Cu)	Developed Runoff Coefficient (Cd)
A1	7.6	8	128	11.48	132	3.64	0.90	0.90
A2	7.4	11	101	10.54	104	3.05	0.90	0.90
A3	7.5	8	109	9.74	113	3.59	0.90	0.90
A4	7.4	12	93	10.17	96	2.93	0.89	0.89
A5	7.4	9	122	11.60	126	3.35	0.90	0.90
A6	7.4	10	122	11.98	126	3.19	0.90	0.90
A7	7.5	11	138	14.30	142	3.09	0.90	0.90

Subarea	Modeled (100-yr) Rainfall Depth (in)	Tc, (min)	Clear Peak Flow Rate (cfs)	24-Hr Clear Runoff Volume (ac-ft)	Burned Peak Flow Rate (cfs)	Peak Intensity (in/hr)	Undeveloped Runoff Coefficient (Cu)	Developed Runoff Coefficient (Cd)
A1	8.5	7	152	13.82	157	4.34	0.90	0.90
A2	8.3	10	118	12.69	122	3.58	0.90	0.90
A3	8.4	8	122	11.74	126	4.03	0.90	0.90
A4	8.3	11	109	12.25	112	3.42	0.90	0.90
A5	8.3	8	144	13.96	149	3.97	0.90	0.90
A6	8.3	10	137	14.46	141	3.58	0.90	0.90
A7	8.4	10	162	17.25	167	3.62	0.90	0.90

SUMMARY OF HYDROGRAPGH FOR PEAK FLOWS AT CONFLUENCE NODES

- CONFLUENCE IS MADE USING RATIONAL METHOD
- STORAGE ROUTING IS NOT CONSIDERED

2 YEAR - 24 HOUR HYDROGRAPGH FOR PEAK FLOWS AT CONFLUENCE NODES

CONFLUENCE AT NODE 15	72	cfs
CONFLUENCE AT NODE 21 WEST	140	cfs
CONFLUENCE AT NODE 21 NORTH	28	cfs

5 YEAR - 24 HOUR HYDROGRAPGH FOR PEAK FLOWS AT CONFLUENCE NODES

CONFLUENCE AT NODE 15	146	cfs
CONFLUENCE AT NODE 21 WEST	292	cfs
CONFLUENCE AT NODE 21 NORTH	59	cfs

10 YEAR - 24 HOUR HYDROGRAPGH FOR PEAK FLOWS AT CONFLUENCE NODES

CONFLUENCE AT NODE 15	204	cfs
CONFLUENCE AT NODE 21 WEST	405	cfs
CONFLUENCE AT NODE 21 NORTH	83	cfs

25 YEAR - 24 HOUR HYDROGRAPGH FOR PEAK FLOWS AT CONFLUENCE NODES

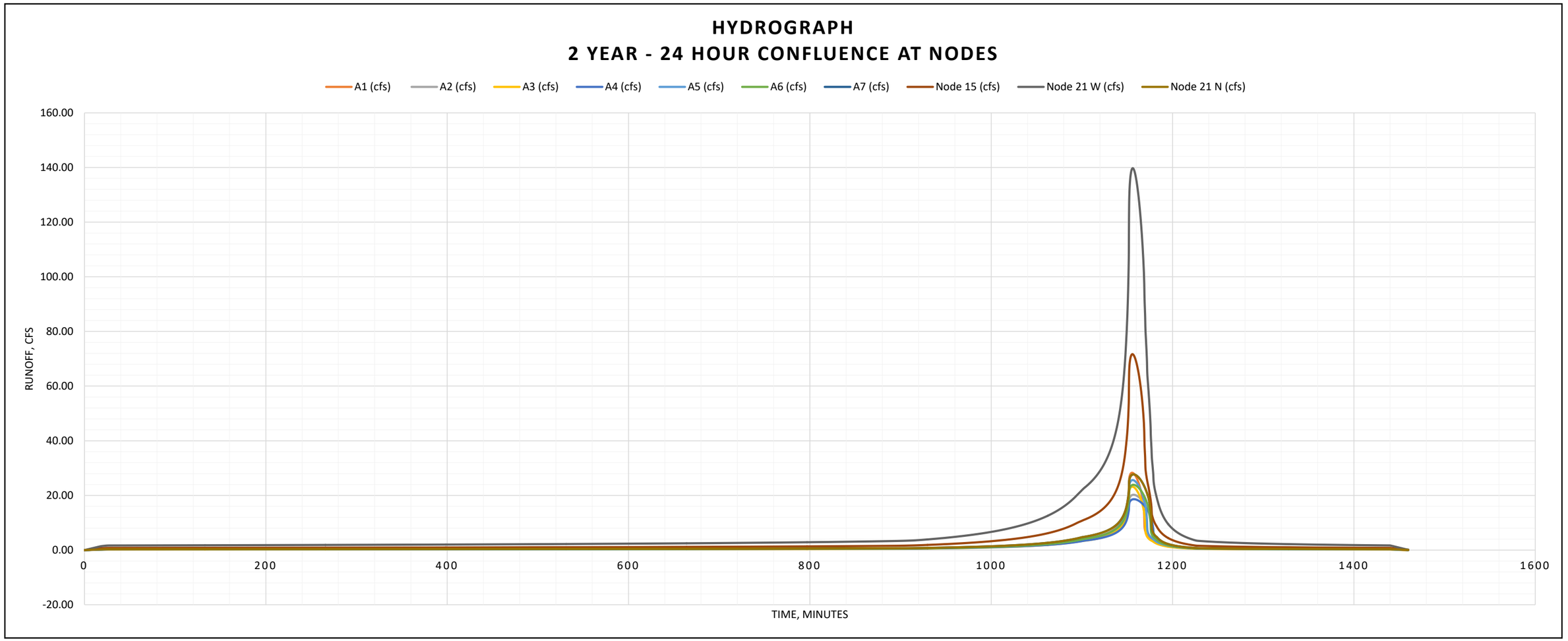
CONFLUENCE AT NODE 15	285	cfs
CONFLUENCE AT NODE 21 WEST	558	cfs
CONFLUENCE AT NODE 21 NORTH	114	cfs

50 YEAR - 24 HOUR HYDROGRAPGH FOR PEAK FLOWS AT CONFLUENCE NODES

CONFLUENCE AT NODE 15	337	cfs
CONFLUENCE AT NODE 21 WEST	673	cfs
CONFLUENCE AT NODE 21 NORTH	138	cfs

100 YEAR - 24 HOUR HYDROGRAPGH FOR PEAK FLOWS AT CONFLUENCE NODES

CONFLUENCE AT NODE 15	393	cfs
CONFLUENCE AT NODE 21 WEST	783	cfs
CONFLUENCE AT NODE 21 NORTH	162	cfs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2 YEAR - 24 HOUR CONFLUENCE AT NODES
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A4 (cfs)
A5 (cfs)
A6 (cfs)
A7 (cfs)
Node 15 (cfs)
Node 21 W (cfs)
Node 21 N (cfs)
160.00
140.00
120.00
100.00
80.00
60.00
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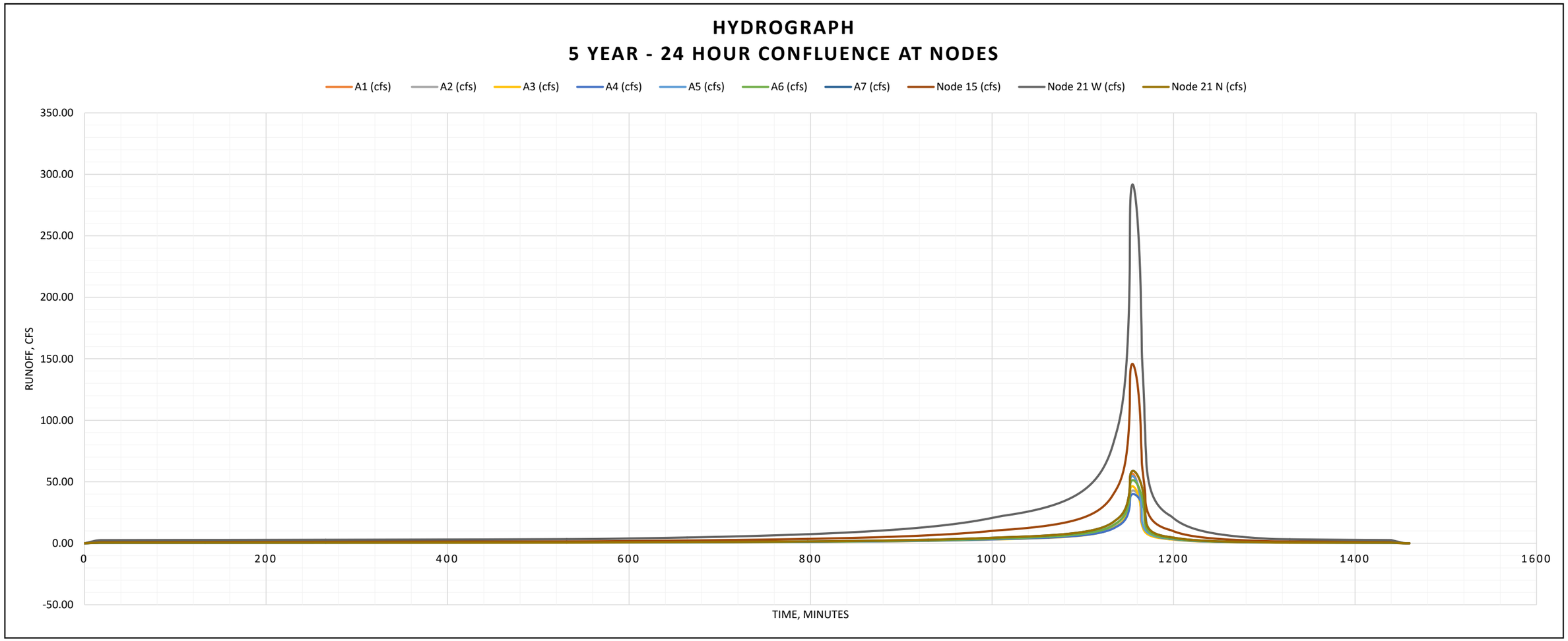
400
600
800
1000
1200
1400
1600
TIME, MINUTES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5 YEAR - 24 HOUR CONFLUENCE AT NODES
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A3 (cfs)
A4 (cfs)
A5 (cfs)
A6 (cfs)
A7 (cfs)
Node 15 (cfs)
Node 21 W (cfs)
Node 21 N (cfs)
350.00
300.00
250.00
200.00
150.00
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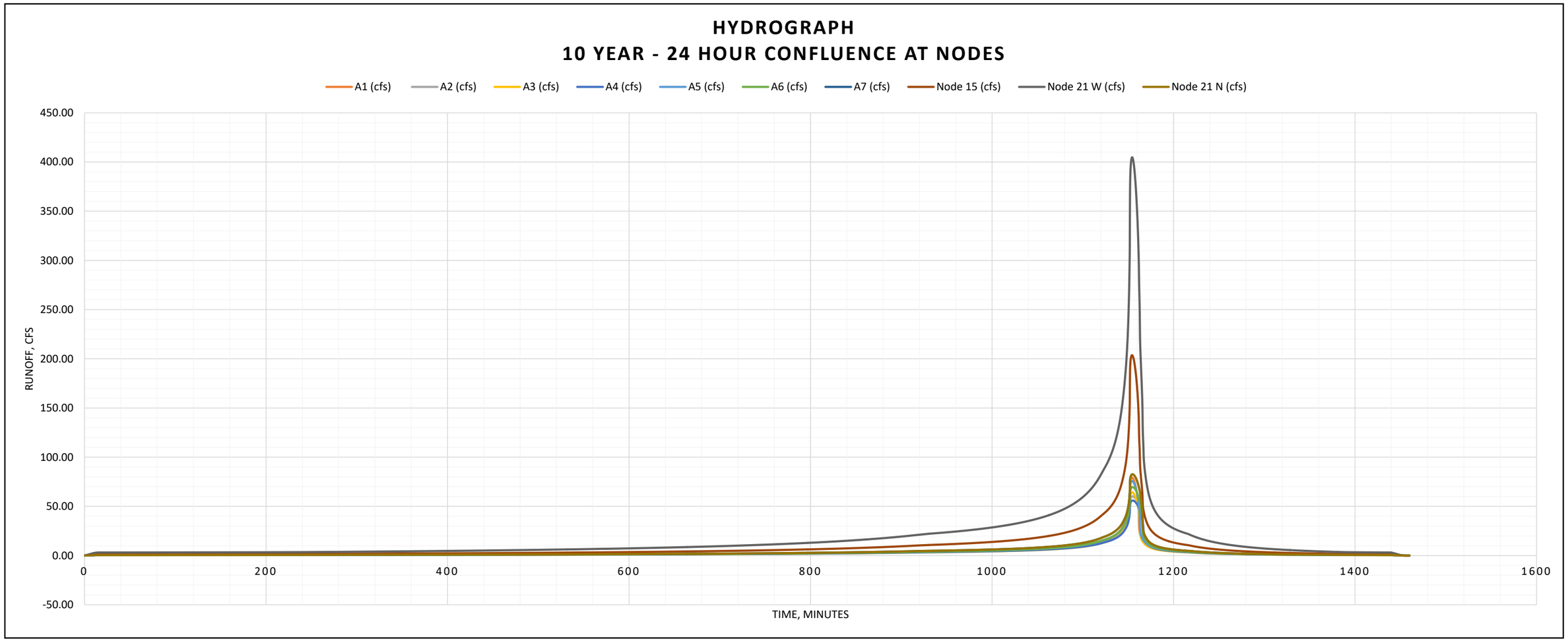
1600
TIME, MINUTES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10 YEAR - 24 HOUR CONFLUENCE AT NODES
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A3 (cfs)
A4 (cfs)
A5 (cfs)
A6 (cfs)
A7 (cfs)
Node 15 (cfs)
Node 21 W (cfs)
Node 21 N (cfs)
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400.00
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300.00
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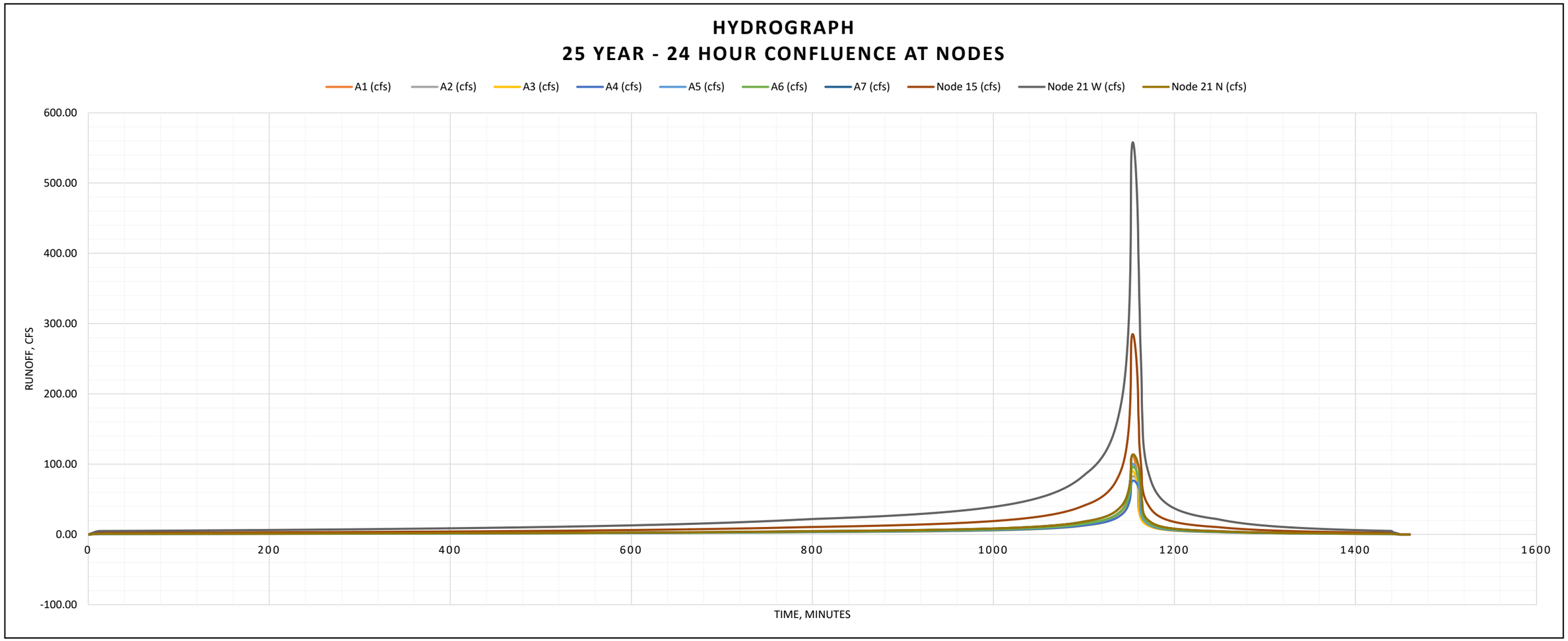
TIME, MINUTES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25 YEAR - 24 HOUR CONFLUENCE AT NODES
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A4 (cfs)
A5 (cfs)
A6 (cfs)
A7 (cfs)
Node 15 (cfs)
Node 21 W (cfs)
Node 21 N (cfs)
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500.00
400.00
300.00
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RUNOFF, CFS
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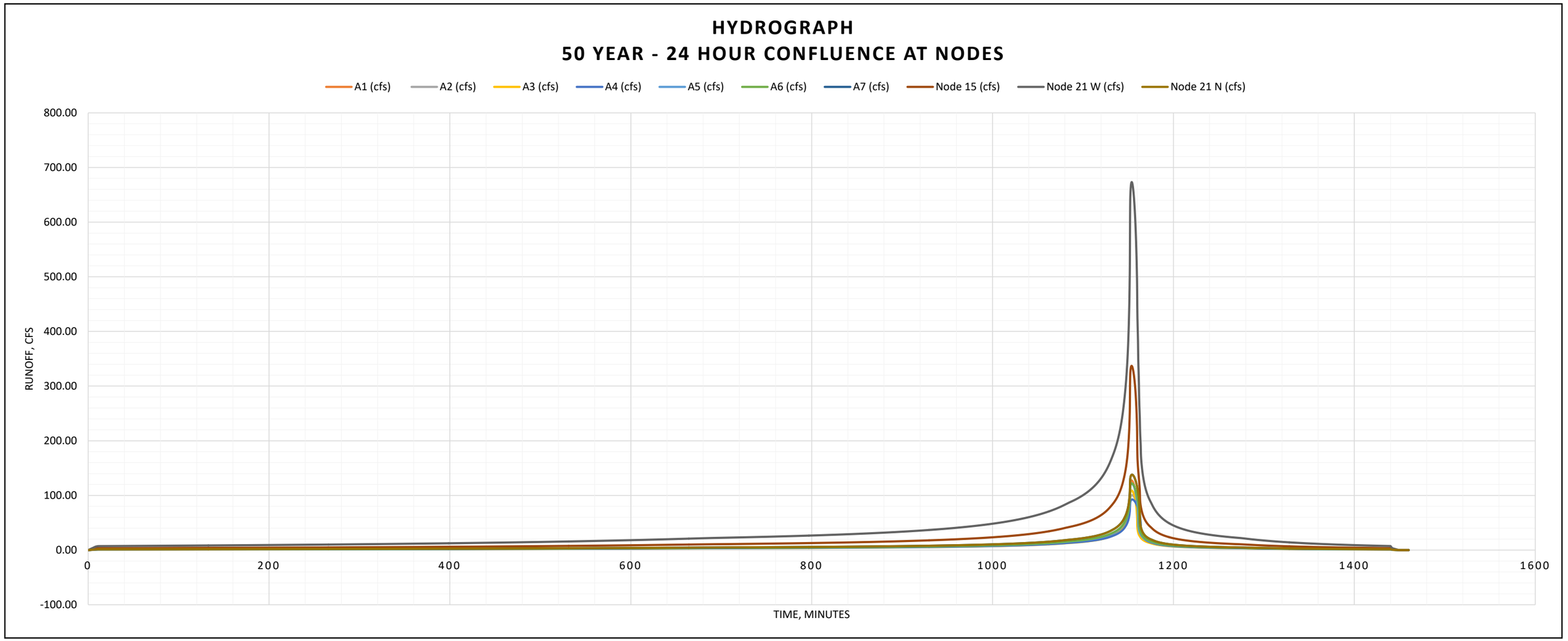
600
800
1000
1200
1400
1600
TIME, MINUTES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50 YEAR - 24 HOUR CONFLUENCE AT NODES
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A4 (cfs)
A5 (cfs)
A6 (cfs)
A7 (cfs)
Node 15 (cfs)
Node 21 W (cfs)
Node 21 N (cfs)
800.00
700.00
600.00
500.00
400.00
300.00
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RUNOFF, CFS
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600
800
1000
1200
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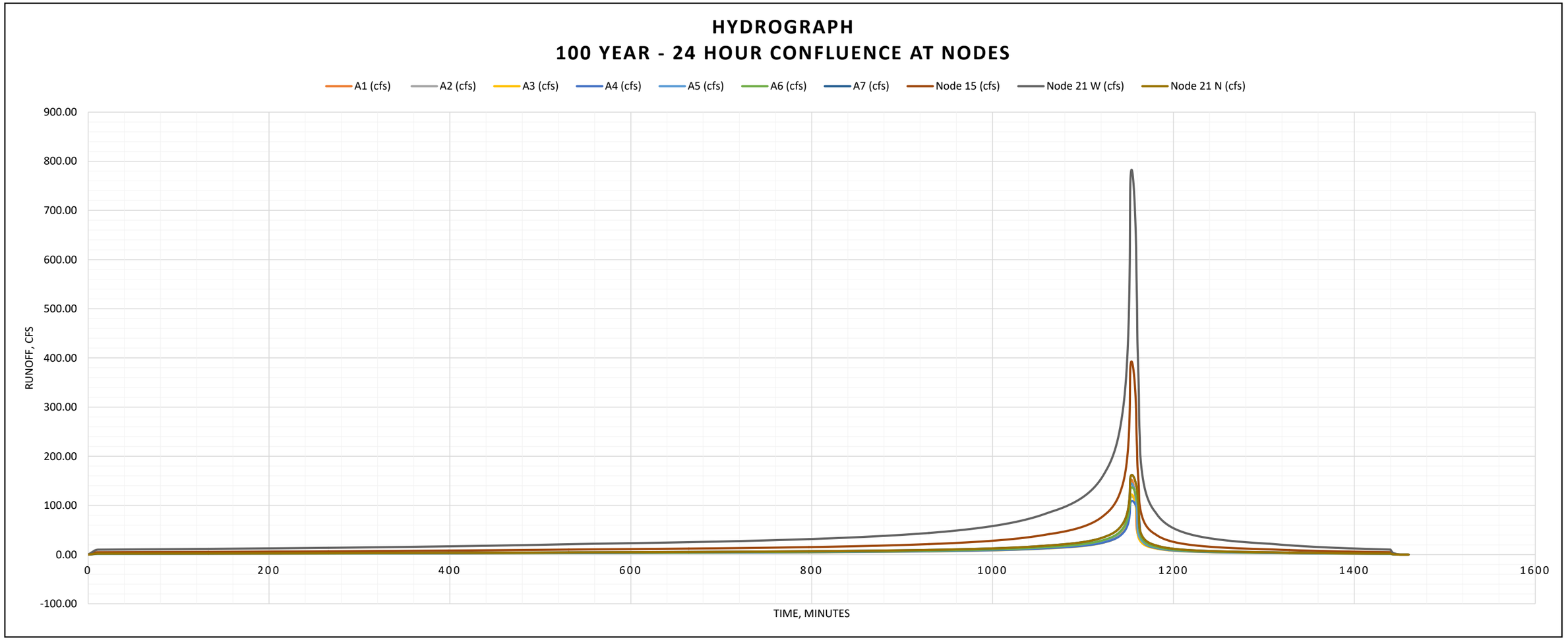
TIME, MINUTES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100 YEAR - 24 HOUR CONFLUENCE AT NODES
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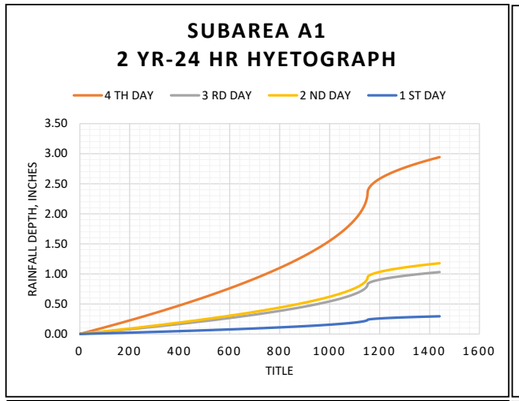
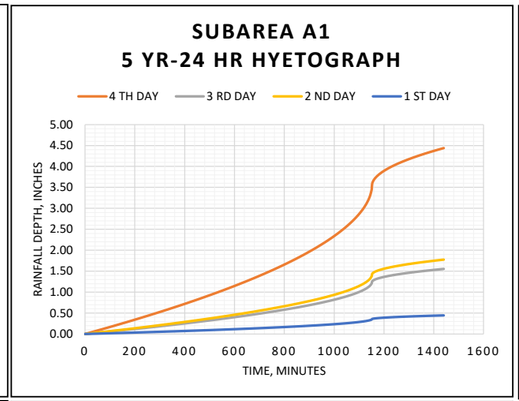
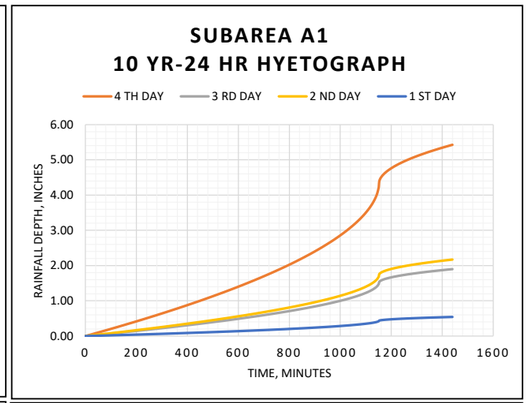
A3 (cfs)
A4 (cfs)
A5 (cfs)
A6 (cfs)
A7 (cfs)
Node 15 (cfs)
Node 21 W (cfs)
Node 21 N (cfs)
900.00
800.00
700.00
600.00
500.00
400.00
300.00
200.00
100.00
0.00
-100.00
RUNOFF, CFS
0
200
400
600
800
1000
1200
1400
1600
TIME, MINUTES

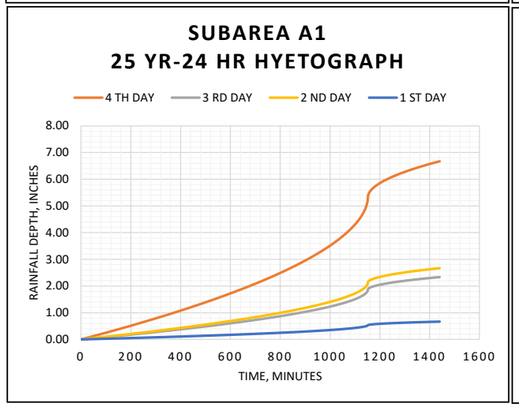
SUBAREA A1 HYETOGRAPHS
- Per 2006 Los Angeles County Hydrology Manual Appendix A

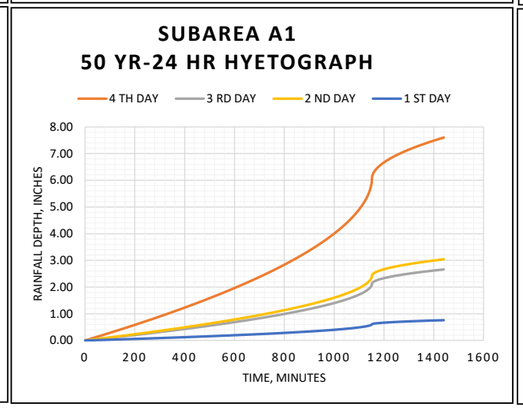
24 HR ISOHYETS,IN					
50 YR	2 YR	5 YR	10 YR	25 YR	100 YR
7.6	2.9	4.4	5.4	6.7	8.5

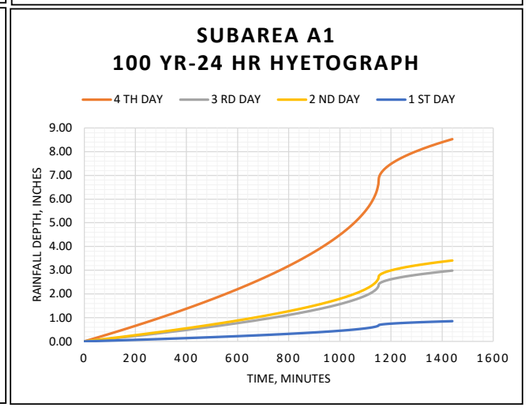












UNIT HYETOGRAPH		50 YR - 24 HR				2 YR - 24 HR				5 YR - 24 HR				10 YR - 24 HR				25 YR - 24 HR				100 YR - 24 HR			
	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth
Time	1 INCH	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30	0.01	0.08	0.03	0.03	0.01	0.03	0.01	0.01	0.00	0.05	0.02	0.02	0.00	0.06	0.02	0.02	0.01	0.07	0.03	0.03	0.01	0.09	0.03	0.04	0.01
60	0.02	0.17	0.06	0.07	0.02	0.07	0.02	0.03	0.01	0.10	0.03	0.04	0.01	0.12	0.04	0.05	0.01	0.15	0.05	0.06	0.01	0.19	0.07	0.08	0.02
90	0.03	0.26	0.09	0.10	0.03	0.10	0.03	0.04	0.01	0.15	0.05	0.06	0.01	0.18	0.06	0.07	0.02	0.23	0.08	0.09	0.02	0.29	0.10	0.12	0.03
120	0.05	0.34	0.12	0.14	0.03	0.13	0.05	0.05	0.01	0.20	0.07	0.08	0.02	0.25	0.09	0.10	0.02	0.30	0.11	0.12	0.03	0.39	0.14	0.15	0.04
150	0.06	0.43	0.15	0.17	0.04	0.17	0.06	0.07	0.02	0.25	0.09	0.10	0.03	0.31	0.11	0.12	0.03	0.38	0.13	0.15	0.04	0.49	0.17	0.19	0.05
180	0.07	0.52	0.18	0.21	0.05	0.20	0.07	0.08	0.02	0.31	0.11	0.12	0.03	0.37	0.13	0.15	0.04	0.46	0.16	0.18	0.05	0.59	0.21	0.23	0.06
210	0.08	0.62	0.22	0.25	0.06	0.24	0.08	0.10	0.02	0.36	0.13	0.14	0.04	0.44	0.15	0.18	0.04	0.54	0.19	0.22	0.05	0.69	0.24	0.28	0.07
240	0.09	0.71	0.25	0.28	0.07	0.27	0.10	0.11	0.03	0.41	0.14	0.17	0.04	0.51	0.18	0.20	0.05	0.62	0.22	0.25	0.06	0.79	0.28	0.32	0.08
270	0.11	0.80	0.28	0.32	0.08	0.31	0.11	0.12	0.03	0.47	0.16	0.19	0.05	0.57	0.20	0.23	0.06	0.70	0.25	0.28	0.07	0.90	0.32	0.36	0.09
300	0.12	0.90	0.31	0.36	0.09	0.35	0.12	0.14	0.03	0.52	0.18	0.21	0.05	0.64	0.22	0.26	0.06	0.79	0.28	0.32	0.08	1.01	0.35	0.40	0.10
330	0.13	1.00	0.35	0.40	0.10	0.39	0.13	0.15	0.04	0.58	0.20	0.23	0.06	0.71	0.25	0.28	0.07	0.87	0.31	0.35	0.09	1.12	0.39	0.45	0.11
360	0.14	1.10	0.38	0.44	0.11	0.42	0.15	0.17	0.04	0.64	0.22	0.26	0.06	0.78	0.27	0.31	0.08	0.96	0.34	0.38	0.10	1.23	0.43	0.49	0.12
390	0.16	1.20	0.42	0.48	0.12	0.46	0.16	0.19	0.05	0.70	0.24	0.28	0.07	0.85	0.30	0.34	0.09	1.05	0.37	0.42	0.11	1.34	0.47	0.54	0.13
420	0.17	1.30	0.45	0.52	0.13	0.50	0.18	0.20	0.05	0.76	0.27	0.30	0.08	0.93	0.32	0.37	0.09	1.14	0.40	0.46	0.11	1.46	0.51	0.58	0.15
450	0.18	1.40	0.49	0.56	0.14	0.54	0.19	0.22	0.05	0.82	0.29	0.33	0.08	1.00	0.35	0.40	0.10	1.23	0.43	0.49	0.12	1.58	0.55	0.63	0.16
480	0.20	1.51	0.53	0.60	0.15	0.58	0.20	0.23	0.06	0.88	0.31	0.35	0.09	1.08	0.38	0.43	0.11	1.33	0.46	0.53	0.13	1.70	0.59	0.68	0.17
510	0.21	1.62	0.57	0.65	0.16	0.63	0.22	0.25	0.06	0.95	0.33	0.38	0.09	1.16	0.40	0.46	0.12	1.42	0.50	0.57	0.14	1.82	0.64	0.73	0.18

UNIT HYETOGRAPH		50 YR - 24 HR				2 YR - 24 HR				5 YR - 24 HR				10 YR - 24 HR				25 YR - 24 HR				100 YR - 24 HR			
	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth
Time	1 INCH	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY
540	0.23	1.73	0.61	0.69	0.17	0.67	0.23	0.27	0.07	1.01	0.35	0.40	0.10	1.24	0.43	0.49	0.12	1.52	0.53	0.61	0.15	1.94	0.68	0.78	0.19
570	0.24	1.85	0.65	0.74	0.18	0.71	0.25	0.29	0.07	1.08	0.38	0.43	0.11	1.32	0.46	0.53	0.13	1.62	0.57	0.65	0.16	2.07	0.72	0.83	0.21
600	0.26	1.96	0.69	0.79	0.20	0.76	0.27	0.30	0.08	1.15	0.40	0.46	0.11	1.40	0.49	0.56	0.14	1.72	0.60	0.69	0.17	2.20	0.77	0.88	0.22
630	0.27	2.08	0.73	0.83	0.21	0.81	0.28	0.32	0.08	1.22	0.43	0.49	0.12	1.49	0.52	0.59	0.15	1.83	0.64	0.73	0.18	2.34	0.82	0.93	0.23
660	0.29	2.21	0.77	0.88	0.22	0.85	0.30	0.34	0.09	1.29	0.45	0.52	0.13	1.58	0.55	0.63	0.16	1.94	0.68	0.78	0.19	2.48	0.87	0.99	0.25
690	0.31	2.33	0.82	0.93	0.23	0.90	0.32	0.36	0.09	1.36	0.48	0.55	0.14	1.67	0.58	0.67	0.17	2.05	0.72	0.82	0.20	2.62	0.92	1.05	0.26
720	0.32	2.46	0.86	0.99	0.25	0.95	0.33	0.38	0.10	1.44	0.50	0.58	0.14	1.76	0.62	0.70	0.18	2.16	0.76	0.87	0.22	2.77	0.97	1.11	0.28
750	0.34	2.60	0.91	1.04	0.26	1.01	0.35	0.40	0.10	1.52	0.53	0.61	0.15	1.86	0.65	0.74	0.19	2.28	0.80	0.91	0.23	2.92	1.02	1.17	0.29
780	0.36	2.74	0.96	1.10	0.27	1.06	0.37	0.42	0.11	1.60	0.56	0.64	0.16	1.96	0.68	0.78	0.20	2.41	0.84	0.96	0.24	3.07	1.08	1.23	0.31
810	0.38	2.89	1.01	1.15	0.29	1.12	0.39	0.45	0.11	1.69	0.59	0.67	0.17	2.06	0.72	0.82	0.21	2.53	0.89	1.01	0.25	3.24	1.13	1.30	0.32
840	0.40	3.04	1.06	1.21	0.30	1.18	0.41	0.47	0.12	1.77	0.62	0.71	0.18	2.17	0.76	0.87	0.22	2.67	0.93	1.07	0.27	3.41	1.19	1.36	0.34
870	0.42	3.20	1.12	1.28	0.32	1.24	0.43	0.49	0.12	1.87	0.65	0.75	0.19	2.28	0.80	0.91	0.23	2.81	0.98	1.12	0.28	3.59	1.26	1.43	0.36
900	0.44	3.36	1.18	1.35	0.34	1.30	0.46	0.52	0.13	1.96	0.69	0.79	0.20	2.40	0.84	0.96	0.24	2.95	1.03	1.18	0.30	3.77	1.32	1.51	0.38
930	0.47	3.54	1.24	1.42	0.35	1.37	0.48	0.55	0.14	2.07	0.72	0.83	0.21	2.53	0.88	1.01	0.25	3.11	1.09	1.24	0.31	3.97	1.39	1.59	0.40
960	0.49	3.73	1.30	1.49	0.37	1.44	0.50	0.58	0.14	2.18	0.76	0.87	0.22	2.66	0.93	1.06	0.27	3.27	1.15	1.31	0.33	4.18	1.46	1.67	0.42
970	0.50	3.79	1.33	1.52	0.38	1.47	0.51	0.59	0.15	2.22	0.78	0.89	0.22	2.71	0.95	1.08	0.27	3.33	1.17	1.33	0.33	4.26	1.49	1.70	0.43
980	0.51	3.86	1.35	1.54	0.39	1.49	0.52	0.60	0.15	2.25	0.79	0.90	0.23	2.76	0.96	1.10	0.28	3.39	1.19	1.36	0.34	4.33	1.52	1.73	0.43
990	0.52	3.93	1.38	1.57	0.39	1.52	0.53	0.61	0.15	2.30	0.80	0.92	0.23	2.81	0.98	1.12	0.28	3.45	1.21	1.38	0.35	4.41	1.54	1.76	0.44
1000	0.53	4.00	1.40	1.60	0.40	1.55	0.54	0.62	0.15	2.34	0.82	0.93	0.23	2.86	1.00	1.14	0.29	3.51	1.23	1.41	0.35	4.49	1.57	1.80	0.45
1010	0.54	4.08	1.43	1.63	0.41	1.58	0.55	0.63	0.16	2.38	0.83	0.95	0.24	2.91	1.02	1.16	0.29	3.58	1.25	1.43	0.36	4.57	1.60	1.83	0.46
1020	0.55	4.15	1.45	1.66	0.42	1.61	0.56	0.64	0.16	2.42	0.85	0.97	0.24	2.96	1.04	1.19	0.30	3.64	1.28	1.46	0.36	4.66	1.63	1.86	0.47
1030	0.56	4.23	1.48	1.69	0.42	1.64	0.57	0.65	0.16	2.47	0.86	0.99	0.25	3.02	1.06	1.21	0.30	3.71	1.30	1.49	0.37	4.75	1.66	1.90	0.47
1040	0.57	4.31	1.51	1.72	0.43	1.67	0.58	0.67	0.17	2.52	0.88	1.01	0.25	3.08	1.08	1.23	0.31	3.79	1.33	1.51	0.38	4.84	1.69	1.94	0.48
1050	0.58	4.40	1.54	1.76	0.44	1.70	0.60	0.68	0.17	2.57	0.90	1.03	0.26	3.14	1.10	1.26	0.31	3.86	1.35	1.54	0.39	4.93	1.73	1.97	0.49
1060	0.59	4.49	1.57	1.79	0.45	1.74	0.61	0.69	0.17	2.62	0.92	1.05	0.26	3.20	1.12	1.28	0.32	3.94	1.38	1.58	0.39	5.03	1.76	2.01	0.50
1070	0.60	4.58	1.60	1.83	0.46	1.77	0.62	0.71	0.18	2.68	0.94	1.07	0.27	3.27	1.14	1.31	0.33	4.02	1.41	1.61	0.40	5.14	1.80	2.06	0.51
1080	0.62	4.68	1.64	1.87	0.47	1.81	0.63	0.72	0.18	2.73	0.96	1.09	0.27	3.34	1.17	1.34	0.33	4.11	1.44	1.64	0.41	5.25	1.84	2.10	0.53
1090	0.63	4.79	1.68	1.92	0.48	1.85	0.65	0.74	0.19	2.80	0.98	1.12	0.28	3.42	1.20	1.37	0.34	4.20	1.47	1.68	0.42	5.37	1.88	2.15	0.54
1100	0.65	4.90	1.72	1.96	0.49	1.90	0.66	0.76	0.19	2.86	1.00	1.15	0.29	3.50	1.23	1.40	0.35	4.30	1.51	1.72	0.43	5.50	1.93	2.20	0.55
1110	0.66	5.03	1.76	2.01	0.50	1.95	0.68	0.78	0.19	2.94	1.03	1.17	0.29	3.59	1.26	1.44	0.36	4.42	1.55	1.77	0.44	5.64	1.97	2.26	0.56
1115	0.67	5.10	1.78	2.04	0.51	1.97	0.69	0.79	0.20	2.98	1.04	1.19	0.30	3.64	1.27	1.46	0.36	4.48	1.57	1.79	0.45	5.72	2.00	2.29	0.57
1120	0.68	5.17	1.81	2.07	0.52	2.00	0.70	0.80	0.20	3.02	1.06	1.21	0.30	3.69	1.29	1.48	0.37	4.54	1.59	1.82	0.45	5.80	2.03	2.32	0.58
1125	0.69	5.25	1.84	2.10	0.52	2.03	0.71	0.81	0.20	3.07	1.07	1.23	0.31	3.75	1.31	1.50	0.37	4.61	1.61	1.84	0.46	5.89	2.06	2.36	0.59
1130	0.70	5.33	1.87	2.13	0.53	2.06	0.72	0.83	0.21	3.11	1.09	1.25	0.31	3.81	1.33	1.52	0.38	4.68	1.64	1.87	0.47	5.98	2.09	2.39	0.60
1135	0.71	5.43	1.90	2.17	0.54	2.10	0.74	0.84	0.21	3.17	1.11	1.27	0.32	3.88	1.36	1.55	0.39	4.77	1.67	1.91	0.48	6.09	2.13	2.44	0.61
1136	0.72	5.45	1.91	2.18	0.54	2.11	0.74	0.84	0.21	3.18	1.11	1.27	0.32	3.89	1.36	1.56	0.39	4.78	1.67	1.91	0.48	6.11	2.14	2.45	0.61
1137	0.72	5.47	1.91	2.19	0.55	2.12	0.74	0.85	0.21	3.20	1.12	1.28	0.32	3.91	1.37	1.56	0.39	4.80	1.68	1.92	0.48	6.14	2.15	2.46	0.61
1138	0.72	5.49	1.92	2.20	0.55	2.13	0.74	0.85	0.21	3.21	1.12	1.28	0.32	3.92	1.37	1.57	0.39	4.82	1.69	1.93	0.48	6.16	2.16	2.47	0.62
1139	0.73	5.52	1.93	2.21	0.55	2.13	0.75	0.85	0.21	3.22	1.13	1.29	0.32	3.94	1.38	1.58	0.39	4.84	1.69	1.94	0.48	6.19	2.17	2.48	0.62
1140	0.73	5.54	1.94	2.22	0.55	2.14	0.75	0.86	0.21	3.23	1.13	1.29	0.32	3.95	1.38	1.58	0.40	4.86	1.70	1.95	0.49	6.21	2.18	2.49	0.62
1145	0.75	5.67	1.99	2.27	0.57	2.20	0.77	0.88	0.22	3.31	1.16	1.33	0.33	4.05	1.42	1.62	0.41	4.98	1.74	1.99	0.50	6.37	2.23	2.55	0.64
1150	0.77	5.87	2.05	2.35	0.59	2.27	0.80	0.91	0.23	3.43	1.20	1.37	0.34	4.19	1.47	1.68	0.42	5.15	1.80	2.06	0.52	6.59	2.31	2.63	0.66
1151	0.78	5.94	2.08	2.37	0.59	2.30	0.80	0.92	0.23	3.47	1.21	1.39	0.35	4.24	1.48	1.70	0.42	5.21	1.82	2.08	0.52	6.66	2.33	2.66	0.67
1152	0.80	6.08	2.13	2.43	0.61	2.35	0.82	0.94	0.24	3.55	1.24	1.42	0.36	4.34	1.52	1.74	0.43	5.34	1.87	2.14	0.53	6.82	2.39	2.73	0.68
1153	0.81	6.16	2.15	2.46	0.62	2.38	0.83	0.95	0.24	3.59	1.26	1.44	0.36	4.40	1.54	1.76	0.44	5.40	1.89	2.16	0.54	6.91	2.42	2.76	0.69
1154	0.81	6.19	2.17	2.48	0.62	2.40	0.84	0.96	0.24	3.61	1.27	1.45	0.36	4.42	1.55	1.77	0.44	5.43	1.90	2.17	0.54	6.94	2.43	2.78	0.69
1155	0.82	6.22	2.18	2.49	0.62	2.41	0.84	0.96	0.24	3.63	1.27	1.45	0.36	4.44	1.55	1.78	0.44	5.46	1.91	2.18	0.55	6.97	2.44	2.79	0.70
1156	0.82	6.24	2.18	2.50	0.62	2.41	0.84	0.97	0.24	3.64	1.27	1.46	0.36	4.45	1.56	1.78	0.45	5.48	1.92	2.19	0.55	7.00	2.45	2.80	0.70
1157	0.82	6.26	2.19	2.50	0.63	2.42	0.85	0.97	0.24	3.65	1.28	1.46	0.37	4.47	1.56	1.79	0.45	5.49	1.92	2.20	0.55	7.02	2.46	2.81	0.70
1158	0.83	6.28	2.20	2.51	0.63	2.43	0.85	0.97	0.24	3.66	1.28	1.47	0.37	4.48	1.57	1.79	0.45	5.51	1.93	2.20	0.55	7.04	2.46	2.82	0.70
1159	0.83	6.29	2.20	2.52	0.63	2.43	0.85	0.97	0.24	3.67	1.29	1.47	0.37	4.49	1.57	1.80	0.45	5.52	1.93	2.21	0.55	7.06	2.47	2.82	0.71
1160	0.83	6.31	2.21	2.52	0.63	2.44	0.85	0.98	0.24	3.68	1.29	1.47	0.37	4.50	1.58	1.80	0.45	5.54	1.94	2.22	0.55	7.08	2.48	2.83	0.71
1161	0.83	6.32	2.21	2.53	0.63	2.45	0.86	0.98	0.24	3.69	1.29	1.48	0.37	4.51	1.58	1.81	0.45	5.55	1.94	2.22	0.56	7.09	2.48	2.84	0.71
1162	0.83	6.34	2.22	2.53	0.63	2.45	0.86	0.98	0.25	3.70	1.30	1.48	0.37	4.52	1.58	1.81	0.45	5.56	1.95	2.23	0.56	7.11	2.49	2.84	0.71
1163	0.84	6.35	2.22	2.54	0.63	2.46	0.86	0.98	0.25	3.71	1.30	1.48	0.37	4.53	1.59	1.81	0.45	5.57	1.95	2.23	0.56	7.12	2.49	2.85	0.71
1164	0.84	6.36	2.23	2.54	0.64	2.46	0.86	0.98	0.25	3.72	1.30	1.49	0.37	4.54	1.59	1.82	0.45	5.59	1.96	2.23	0.56	7.14	2.50	2.86	0.71
1165	0.84	6.37	2.23	2.55	0.64	2.47	0.86	0.99	0.25	3.72	1.30	1.49	0.37	4.55	1.59	1.82	0.46	5.60	1.96	2.24	0.56	7.15	2.50	2.86	0.72
1166	0.84	6.39	2.24	2.55	0.64	2.47	0.86	0.99	0.25	3.73	1.31	1.49	0.37	4.56	1.60	1.82	0.46	5.61	1.96	2.24	0.56	7.17	2.51	2.87	0.72
1167	0.84	6.40	2.24	2.56	0.64	2.48	0.87	0.99	0.25	3.74	1.31	1.49	0.37	4.57	1.60	1.83	0.46	5.62	1.97	2.25	0.56	7.18	2.51	2.87	0.72
1168	0.84	6.41	2.24	2.56	0.64	2.48	0.87	0.99	0.25	3.74	1.31	1.50	0.37	4.58	1.60	1.83	0.46	5.63	1.97	2.25	0.56	7.19	2.52	2.88	0.72
1169	0.84	6.42	2.25	2.57	0.64	2.48	0.87	0.99	0.25	3.75	1.31	1.50	0.37	4.58	1.60	1.83	0.46	5.64	1.97	2.25	0.56	7.20	2.52	2.88	0.72
1170	0.85	6.43	2.25	2.57	0.64	2.49	0.87	1.00	0.25	3.75	1.31	1.50	0.38	4.59	1.61	1.84	0.46	5.65	1.98	2.26	0.56	7.21	2.52	2.89	0.72
1171	0.85	6.44	2.25	2.58	0.64	2.49	0.87	1.00	0.25	3.76	1.32	1.50	0.38	4.60	1.61	1.84	0.46	5.65	1.98	2.26	0.57	7.23	2.53	2.89	0.72
1172	0.85	6.45	2.26	2.58	0.64	2.50	0.87	1.00	0.25	3.77	1.32	1.51	0.38	4.61	1.61	1.84	0.46	5.66	1.98	2.27	0.57	7.24	2.53	2.89	0.72
1173	0.85	6.46	2.26	2.58	0.65	2.50	0.87	1.00	0.25	3.77	1.32	1.51	0.38	4.61	1.61	1.84	0.46	5.67	1.98	2.27	0.57	7.25	2.54	2.90	0.72

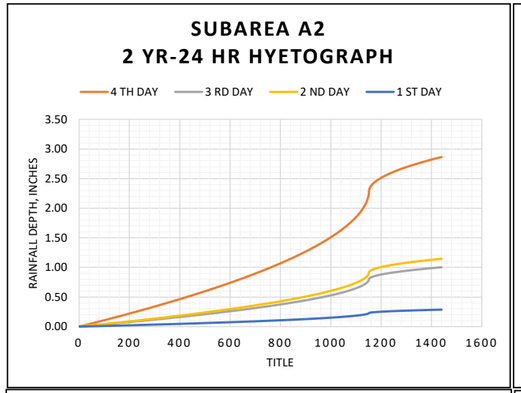
UNIT HYETOGRAPH		50 YR - 24 HR				2 YR - 24 HR				5 YR - 24 HR				10 YR - 24 HR				25 YR - 24 HR				100 YR - 24 HR			
	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth
Time	1 INCH	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY
1174	0.85	6.47	2.26	2.59	0.65	2.50	0.88	1.00	0.25	3.78	1.32	1.51	0.38	4.62	1.62	1.85	0.46	5.68	1.99	2.27	0.57	7.26	2.54	2.90	0.73
1175	0.85	6.48	2.27	2.59	0.65	2.51	0.88	1.00	0.25	3.78	1.32	1.51	0.38	4.63	1.62	1.85	0.46	5.69	1.99	2.28	0.57	7.27	2.54	2.91	0.73
1176	0.85	6.49	2.27	2.59	0.65	2.51	0.88	1.00	0.25	3.79	1.33	1.52	0.38	4.63	1.62	1.85	0.46	5.70	1.99	2.28	0.57	7.28	2.55	2.91	0.73
1177	0.85	6.50	2.27	2.60	0.65	2.51	0.88	1.01	0.25	3.79	1.33	1.52	0.38	4.64	1.62	1.86	0.46	5.70	2.00	2.28	0.57	7.29	2.55	2.92	0.73
1178	0.86	6.50	2.28	2.60	0.65	2.52	0.88	1.01	0.25	3.80	1.33	1.52	0.38	4.64	1.63	1.86	0.46	5.71	2.00	2.28	0.57	7.30	2.55	2.92	0.73
1179	0.86	6.51	2.28	2.61	0.65	2.52	0.88	1.01	0.25	3.80	1.33	1.52	0.38	4.65	1.63	1.86	0.47	5.72	2.00	2.29	0.57	7.31	2.56	2.92	0.73
1180	0.86	6.52	2.28	2.61	0.65	2.52	0.88	1.01	0.25	3.81	1.33	1.52	0.38	4.66	1.63	1.86	0.47	5.73	2.00	2.29	0.57	7.32	2.56	2.93	0.73
1181	0.86	6.53	2.29	2.61	0.65	2.53	0.88	1.01	0.25	3.81	1.33	1.53	0.38	4.66	1.63	1.87	0.47	5.73	2.01	2.29	0.57	7.33	2.56	2.93	0.73
1182	0.86	6.54	2.29	2.62	0.65	2.53	0.89	1.01	0.25	3.82	1.34	1.53	0.38	4.67	1.63	1.87	0.47	5.74	2.01	2.30	0.57	7.34	2.57	2.93	0.73
1183	0.86	6.55	2.29	2.62	0.65	2.53	0.89	1.01	0.25	3.82	1.34	1.53	0.38	4.67	1.64	1.87	0.47	5.75	2.01	2.30	0.57	7.35	2.57	2.94	0.73
1184	0.86	6.55	2.29	2.62	0.66	2.54	0.89	1.01	0.25	3.83	1.34	1.53	0.38	4.68	1.64	1.87	0.47	5.75	2.01	2.30	0.58	7.35	2.57	2.94	0.74
1185	0.86	6.56	2.30	2.62	0.66	2.54	0.89	1.02	0.25	3.83	1.34	1.53	0.38	4.69	1.64	1.87	0.47	5.76	2.02	2.30	0.58	7.36	2.58	2.95	0.74
1186	0.86	6.57	2.30	2.63	0.66	2.54	0.89	1.02	0.25	3.84	1.34	1.53	0.38	4.69	1.64	1.88	0.47	5.77	2.02	2.31	0.58	7.37	2.58	2.95	0.74
1187	0.87	6.58	2.30	2.63	0.66	2.55	0.89	1.02	0.25	3.84	1.34	1.54	0.38	4.70	1.64	1.88	0.47	5.77	2.02	2.31	0.58	7.38	2.58	2.95	0.74
1188	0.87	6.58	2.30	2.63	0.66	2.55	0.89	1.02	0.25	3.85	1.35	1.54	0.38	4.70	1.65	1.88	0.47	5.78	2.02	2.31	0.58	7.39	2.59	2.96	0.74
1189	0.87	6.59	2.31	2.64	0.66	2.55	0.89	1.02	0.26	3.85	1.35	1.54	0.38	4.71	1.65	1.88	0.47	5.79	2.03	2.32	0.58	7.40	2.59	2.96	0.74
1190	0.87	6.60	2.31	2.64	0.66	2.55	0.89	1.02	0.26	3.85	1.35	1.54	0.39	4.71	1.65	1.88	0.47	5.79	2.03	2.32	0.58	7.40	2.59	2.96	0.74
1191	0.87	6.61	2.31	2.64	0.66	2.56	0.89	1.02	0.26	3.86	1.35	1.54	0.39	4.72	1.65	1.89	0.47	5.80	2.03	2.32	0.58	7.41	2.59	2.97	0.74
1192	0.87	6.61	2.31	2.65	0.66	2.56	0.90	1.02	0.26	3.86	1.35	1.55	0.39	4.72	1.65	1.89	0.47	5.81	2.03	2.32	0.58	7.42	2.60	2.97	0.74
1193	0.87	6.62	2.32	2.65	0.66	2.56	0.90	1.02	0.26	3.87	1.35	1.55	0.39	4.73	1.65	1.89	0.47	5.81	2.03	2.33	0.58	7.43	2.60	2.97	0.74
1194	0.87	6.63	2.32	2.65	0.66	2.56	0.90	1.03	0.26	3.87	1.35	1.55	0.39	4.73	1.66	1.89	0.47	5.82	2.04	2.33	0.58	7.44	2.60	2.97	0.74
1195	0.87	6.63	2.32	2.65	0.66	2.57	0.90	1.03	0.26	3.87	1.36	1.55	0.39	4.74	1.66	1.89	0.47	5.83	2.04	2.33	0.58	7.44	2.61	2.98	0.74
1196	0.87	6.64	2.32	2.66	0.66	2.57	0.90	1.03	0.26	3.88	1.36	1.55	0.39	4.74	1.66	1.90	0.47	5.83	2.04	2.33	0.58	7.45	2.61	2.98	0.75
1197	0.87	6.65	2.33	2.66	0.66	2.57	0.90	1.03	0.26	3.88	1.36	1.55	0.39	4.75	1.66	1.90	0.47	5.84	2.04	2.33	0.58	7.46	2.61	2.98	0.75
1198	0.88	6.65	2.33	2.66	0.67	2.58	0.90	1.03	0.26	3.89	1.36	1.55	0.39	4.75	1.66	1.90	0.48	5.84	2.05	2.34	0.58	7.47	2.61	2.99	0.75
1199	0.88	6.66	2.33	2.66	0.67	2.58	0.90	1.03	0.26	3.89	1.36	1.56	0.39	4.76	1.66	1.90	0.48	5.85	2.05	2.34	0.58	7.47	2.62	2.99	0.75
1200	0.88	6.67	2.33	2.67	0.67	2.58	0.90	1.03	0.26	3.89	1.36	1.56	0.39	4.76	1.67	1.90	0.48	5.85	2.05	2.34	0.59	7.48	2.62	2.99	0.75
1201	0.88	6.67	2.34	2.67	0.67	2.58	0.90	1.03	0.26	3.90	1.36	1.56	0.39	4.77	1.67	1.91	0.48	5.86	2.05	2.34	0.59	7.49	2.62	3.00	0.75
1202	0.88	6.68	2.34	2.67	0.67	2.59	0.90	1.03	0.26	3.90	1.37	1.56	0.39	4.77	1.67	1.91	0.48	5.87	2.05	2.35	0.59	7.50	2.62	3.00	0.75
1203	0.88	6.69	2.34	2.67	0.67	2.59	0.91	1.04	0.26	3.91	1.37	1.56	0.39	4.77	1.67	1.91	0.48	5.87	2.05	2.35	0.59	7.50	2.63	3.00	0.75
1204	0.88	6.69	2.34	2.68	0.67	2.59	0.91	1.04	0.26	3.91	1.37	1.56	0.39	4.78	1.67	1.91	0.48	5.88	2.06	2.35	0.59	7.51	2.63	3.00	0.75
1205	0.88	6.70	2.34	2.68	0.67	2.59	0.91	1.04	0.26	3.91	1.37	1.57	0.39	4.78	1.67	1.91	0.48	5.88	2.06	2.35	0.59	7.52	2.63	3.01	0.75
1206	0.88	6.71	2.35	2.68	0.67	2.60	0.91	1.04	0.26	3.92	1.37	1.57	0.39	4.79	1.68	1.92	0.48	5.89	2.06	2.36	0.59	7.52	2.63	3.01	0.75
1207	0.88	6.71	2.35	2.68	0.67	2.60	0.91	1.04	0.26	3.92	1.37	1.57	0.39	4.79	1.68	1.92	0.48	5.89	2.06	2.36	0.59	7.53	2.64	3.01	0.75
1208	0.88	6.72	2.35	2.69	0.67	2.60	0.91	1.04	0.26	3.92	1.37	1.57	0.39	4.80	1.68	1.92	0.48	5.90	2.06	2.36	0.59	7.54	2.64	3.02	0.75
1209	0.88	6.72	2.35	2.69	0.67	2.60	0.91	1.04	0.26	3.93	1.37	1.57	0.39	4.80	1.68	1.92	0.48	5.90	2.07	2.36	0.59	7.54	2.64	3.02	0.75
1210	0.89	6.73	2.36	2.69	0.67	2.60	0.91	1.04	0.26	3.93	1.38	1.57	0.39	4.81	1.68	1.92	0.48	5.91	2.07	2.36	0.59	7.55	2.64	3.02	0.76
1211	0.89	6.74	2.36	2.69	0.67	2.61	0.91	1.04	0.26	3.93	1.38	1.57	0.39	4.81	1.68	1.92	0.48	5.91	2.07	2.37	0.59	7.56	2.65	3.02	0.76
1212	0.89	6.74	2.36	2.70	0.67	2.61	0.91	1.04	0.26	3.94	1.38	1.57	0.39	4.81	1.68	1.93	0.48	5.92	2.07	2.37	0.59	7.56	2.65	3.03	0.76
1213	0.89	6.75	2.36	2.70	0.67	2.61	0.91	1.04	0.26	3.94	1.38	1.58	0.39	4.82	1.69	1.93	0.48	5.92	2.07	2.37	0.59	7.57	2.65	3.03	0.76
1214	0.89	6.75	2.36	2.70	0.68	2.61	0.91	1.05	0.26	3.94	1.38	1.58	0.39	4.82	1.69	1.93	0.48	5.93	2.08	2.37	0.59	7.58	2.65	3.03	0.76
1215	0.89	6.76	2.37	2.70	0.68	2.62	0.92	1.05	0.26	3.95	1.38	1.58	0.39	4.83	1.69	1.93	0.48	5.93	2.08	2.37	0.59	7.58	2.65	3.03	0.76
1216	0.89	6.76	2.37	2.71	0.68	2.62	0.92	1.05	0.26	3.95	1.38	1.58	0.40	4.83	1.69	1.93	0.48	5.94	2.08	2.38	0.59	7.59	2.66	3.04	0.76
1217	0.89	6.77	2.37	2.71	0.68	2.62	0.92	1.05	0.26	3.95	1.38	1.58	0.40	4.83	1.69	1.93	0.48	5.94	2.08	2.38	0.59	7.60	2.66	3.04	0.76
1218	0.89	6.78	2.37	2.71	0.68	2.62	0.92	1.05	0.26	3.96	1.39	1.58	0.40	4.84	1.69	1.94	0.48	5.95	2.08	2.38	0.59	7.60	2.66	3.04	0.76
1219	0.89	6.78	2.37	2.71	0.68	2.62	0.92	1.05	0.26	3.96	1.39	1.58	0.40	4.84	1.69	1.94	0.48	5.95	2.08	2.38	0.60	7.61	2.66	3.04	0.76
1220	0.89	6.79	2.38	2.71	0.68	2.63	0.92	1.05	0.26	3.96	1.39	1.59	0.40	4.85	1.70	1.94	0.48	5.96	2.09	2.38	0.60	7.62	2.67	3.05	0.76
1221	0.89	6.79	2.38	2.72	0.68	2.63	0.92	1.05	0.26	3.97	1.39	1.59	0.40	4.85	1.70	1.94	0.49	5.96	2.09	2.39	0.60	7.62	2.67	3.05	0.76
1222	0.89	6.80	2.38	2.72	0.68	2.63	0.92	1.05	0.26	3.97	1.39	1.59	0.40	4.85	1.70	1.94	0.49	5.97	2.09	2.39	0.60	7.63	2.67	3.05	0.76
1223	0.90	6.80	2.38	2.72	0.68	2.63	0.92	1.05	0.26	3.97	1.39	1.59	0.40	4.86	1.70	1.94	0.49	5.97	2.09	2.39	0.60	7.63	2.67	3.05	0.76
1224	0.90	6.81	2.38	2.72	0.68	2.64	0.92	1.05	0.26	3.98	1.39	1.59	0.40	4.86	1.70	1.94	0.49	5.98	2.09	2.39	0.60	7.64	2.67	3.06	0.76
1225	0.90	6.81	2.39	2.73	0.68	2.64	0.92	1.05	0.26	3.98	1.39	1.59	0.40	4.87	1.70	1.95	0.49	5.98	2.09	2.39	0.60	7.65	2.68	3.06	0.76
1226	0.90	6.82	2.39	2.73	0.68	2.64	0.92	1.06	0.26	3.98	1.39	1.59	0.40	4.87	1.70	1.95	0.49	5.99	2.10	2.40	0.60	7.65	2.68	3.06	0.77
1227	0.90	6.82	2.39	2.73	0.68	2.64	0.92	1.06	0.26	3.99	1.40	1.59	0.40	4.87	1.71	1.95	0.49	5.99	2.10	2.40	0.60	7.66	2.68	3.06	0.77
1228	0.90	6.83	2.39	2.73	0.68	2.64	0.93	1.06	0.26	3.99	1.40	1.60	0.40	4.88	1.71	1.95	0.49	6.00	2.10	2.40	0.60	7.66	2.68	3.07	0.77
1229	0.90	6.84	2.39	2.73	0.68	2.65	0.93	1.06	0.26	3.99	1.40	1.60	0.40	4.88	1.71	1.95	0.49	6.00	2.10	2.40	0.60	7.67	2.68	3.07	0.77
1230	0.90	6.84	2.39	2.74	0.68	2.65	0.93	1.06	0.26	3.99	1.40	1.60	0.40	4.88	1.71	1.95	0.49	6.01	2.10	2.40	0.60	7.68	2.69	3.07	0.77
1231	0.90	6.85	2.40	2.74	0.68	2.65	0.93	1.06	0.26	4.00	1.40	1.60	0.40	4.89	1.71	1.96	0.49	6.01	2.10	2.40	0.60	7.68	2.69	3.07	0.77
1232	0.90	6.85	2.40	2.74	0.69	2.65	0.93	1.06	0.27	4.00	1.40	1.60	0.40	4.89	1.71	1.96	0.49	6.02	2.11	2.41	0.60	7.69	2.69	3.07	0.77
1233	0.90	6.86	2.40	2.74	0.69	2.65	0.93	1.06	0.27	4.00	1.40	1.60	0.40	4.90	1.71	1.96	0.49	6.02	2.11	2.41	0.60	7.69	2.69	3.08	0.77
1234	0.90	6.86	2.40	2.74	0.69	2.66	0.93	1.06	0.27	4.01	1.40	1.60	0.40	4.90	1.71	1.96	0.49	6.02	2.11	2.41	0.60	7.70	2.69	3.08	0.77
1235	0.90	6.87	2.40	2.75	0.69	2.66	0.93	1.06	0.27	4.01	1.40	1.60	0.40	4.90	1.72	1.96	0.49	6.03	2.11	2.41	0.60	7.70	2.70	3.08	0.77
1240	0.91	6.89	2.41	2.76	0.69	2.67	0.93	1.07	0.27	4.02	1.41	1.61	0.40	4.92	1.72	1.97	0.49	6.05	2.12	2.42	0.61	7.73	2.71	3.09	0.77
1245	0.91	6.91	2.42	2.77	0.69	2.68	0.94	1.07	0.27	4.04	1.41	1.62	0.40	4.94	1.73	1.97	0.49	6.07	2.12	2.43	0.61	7.76	2.72	3.10	0.78
1250	0.91	6.94	2.43	2.78	0.69	2.69	0.94	1.07	0.27	4.05	1.42	1.62	0.41	4.95	1.73	1.98	0.50	6.09	2.13	2.44	0.61	7.78	2.72	3.11	0.78

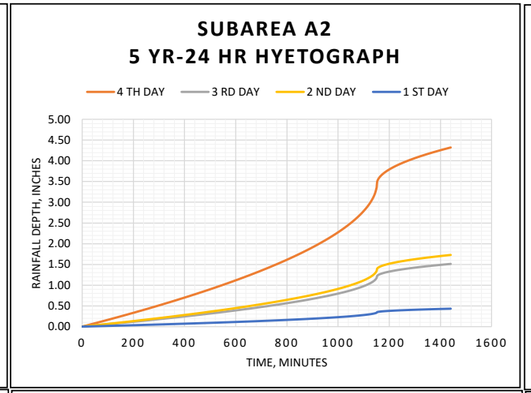
UNIT HYETOGRAPH		50 YR - 24 HR				2 YR - 24 HR				5 YR - 24 HR				10 YR - 24 HR				25 YR - 24 HR				100 YR - 24 HR			
	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth
Time	1 INCH	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY
1255	0.92	6.96	2.44	2.78	0.70	2.69	0.94	1.08	0.27	4.07	1.42	1.63	0.41	4.97	1.74	1.99	0.50	6.11	2.14	2.44	0.61	7.81	2.73	3.12	0.78
1260	0.92	6.98	2.44	2.79	0.70	2.70	0.95	1.08	0.27	4.08	1.43	1.63	0.41	4.99	1.75	1.99	0.50	6.13	2.15	2.45	0.61	7.84	2.74	3.13	0.78
1265	0.92	7.01	2.45	2.80	0.70	2.71	0.95	1.08	0.27	4.09	1.43	1.64	0.41	5.00	1.75	2.00	0.50	6.15	2.15	2.46	0.62	7.86	2.75	3.14	0.79
1270	0.92	7.03	2.46	2.81	0.70	2.72	0.95	1.09	0.27	4.10	1.44	1.64	0.41	5.02	1.76	2.01	0.50	6.17	2.16	2.47	0.62	7.88	2.76	3.15	0.79
1275	0.93	7.05	2.47	2.82	0.70	2.73	0.95	1.09	0.27	4.12	1.44	1.65	0.41	5.03	1.76	2.01	0.50	6.19	2.17	2.48	0.62	7.91	2.77	3.16	0.79
1280	0.93	7.07	2.47	2.83	0.71	2.74	0.96	1.09	0.27	4.13	1.44	1.65	0.41	5.05	1.77	2.02	0.50	6.21	2.17	2.48	0.62	7.93	2.78	3.17	0.79
1285	0.93	7.09	2.48	2.84	0.71	2.74	0.96	1.10	0.27	4.14	1.45	1.66	0.41	5.06	1.77	2.02	0.51	6.22	2.18	2.49	0.62	7.95	2.78	3.18	0.80
1290	0.94	7.11	2.49	2.84	0.71	2.75	0.96	1.10	0.28	4.15	1.45	1.66	0.42	5.08	1.78	2.03	0.51	6.24	2.18	2.50	0.62	7.98	2.79	3.19	0.80
1295	0.94	7.13	2.50	2.85	0.71	2.76	0.97	1.10	0.28	4.16	1.46	1.67	0.42	5.09	1.78	2.04	0.51	6.26	2.19	2.50	0.63	8.00	2.80	3.20	0.80
1300	0.94	7.15	2.50	2.86	0.71	2.77	0.97	1.11	0.28	4.17	1.46	1.67	0.42	5.10	1.79	2.04	0.51	6.28	2.20	2.51	0.63	8.02	2.81	3.21	0.80
1305	0.94	7.17	2.51	2.87	0.72	2.77	0.97	1.11	0.28	4.19	1.46	1.67	0.42	5.12	1.79	2.05	0.51	6.29	2.20	2.52	0.63	8.04	2.81	3.22	0.80
1310	0.95	7.19	2.52	2.87	0.72	2.78	0.97	1.11	0.28	4.20	1.47	1.68	0.42	5.13	1.80	2.05	0.51	6.31	2.21	2.52	0.63	8.06	2.82	3.22	0.81
1315	0.95	7.20	2.52	2.88	0.72	2.79	0.98	1.12	0.28	4.21	1.47	1.68	0.42	5.14	1.80	2.06	0.51	6.33	2.21	2.53	0.63	8.08	2.83	3.23	0.81
1320	0.95	7.22	2.53	2.89	0.72	2.80	0.98	1.12	0.28	4.22	1.48	1.69	0.42	5.16	1.80	2.06	0.52	6.34	2.22	2.54	0.63	8.10	2.84	3.24	0.81
1325	0.95	7.24	2.53	2.90	0.72	2.80	0.98	1.12	0.28	4.23	1.48	1.69	0.42	5.17	1.81	2.07	0.52	6.36	2.22	2.54	0.64	8.12	2.84	3.25	0.81
1330	0.95	7.26	2.54	2.90	0.73	2.81	0.98	1.12	0.28	4.24	1.48	1.70	0.42	5.18	1.81	2.07	0.52	6.37	2.23	2.55	0.64	8.14	2.85	3.26	0.81
1335	0.96	7.28	2.55	2.91	0.73	2.82	0.99	1.13	0.28	4.25	1.49	1.70	0.42	5.19	1.82	2.08	0.52	6.39	2.24	2.56	0.64	8.16	2.86	3.27	0.82
1340	0.96	7.29	2.55	2.92	0.73	2.82	0.99	1.13	0.28	4.26	1.49	1.70	0.43	5.21	1.82	2.08	0.52	6.40	2.24	2.56	0.64	8.18	2.86	3.27	0.82
1345	0.96	7.31	2.56	2.92	0.73	2.83	0.99	1.13	0.28	4.27	1.49	1.71	0.43	5.22	1.83	2.09	0.52	6.42	2.25	2.57	0.64	8.20	2.87	3.28	0.82
1350	0.96	7.33	2.56	2.93	0.73	2.84	0.99	1.13	0.28	4.28	1.50	1.71	0.43	5.23	1.83	2.09	0.52	6.43	2.25	2.57	0.64	8.22	2.88	3.29	0.82
1355	0.97	7.34	2.57	2.94	0.73	2.84	0.99	1.14	0.28	4.29	1.50	1.72	0.43	5.24	1.83	2.10	0.52	6.45	2.26	2.58	0.64	8.24	2.88	3.30	0.82
1360	0.97	7.36	2.58	2.94	0.74	2.85	1.00	1.14	0.28	4.30	1.50	1.72	0.43	5.25	1.84	2.10	0.53	6.46	2.26	2.58	0.65	8.26	2.89	3.30	0.83
1365	0.97	7.38	2.58	2.95	0.74	2.85	1.00	1.14	0.29	4.31	1.51	1.72	0.43	5.27	1.84	2.11	0.53	6.48	2.27	2.59	0.65	8.28	2.90	3.31	0.83
1370	0.97	7.39	2.59	2.96	0.74	2.86	1.00	1.14	0.29	4.32	1.51	1.73	0.43	5.28	1.85	2.11	0.53	6.49	2.27	2.60	0.65	8.29	2.90	3.32	0.83
1375	0.97	7.41	2.59	2.96	0.74	2.87	1.00	1.15	0.29	4.33	1.51	1.73	0.43	5.29	1.85	2.12	0.53	6.50	2.28	2.60	0.65	8.31	2.91	3.32	0.83
1380	0.98	7.42	2.60	2.97	0.74	2.87	1.01	1.15	0.29	4.34	1.52	1.73	0.43	5.30	1.86	2.12	0.53	6.52	2.28	2.61	0.65	8.33	2.92	3.33	0.83
1385	0.98	7.44	2.60	2.98	0.74	2.88	1.01	1.15	0.29	4.34	1.52	1.74	0.43	5.31	1.86	2.12	0.53	6.53	2.29	2.61	0.65	8.35	2.92	3.34	0.83
1390	0.98	7.45	2.61	2.98	0.75	2.88	1.01	1.15	0.29	4.35	1.52	1.74	0.44	5.32	1.86	2.13	0.53	6.54	2.29	2.62	0.65	8.36	2.93	3.35	0.84
1395	0.98	7.47	2.61	2.99	0.75	2.89	1.01	1.16	0.29	4.36	1.53	1.74	0.44	5.33	1.87	2.13	0.53	6.56	2.30	2.62	0.66	8.38	2.93	3.35	0.84
1400	0.98	7.48	2.62	2.99	0.75	2.90	1.01	1.16	0.29	4.37	1.53	1.75	0.44	5.34	1.87	2.14	0.53	6.57	2.30	2.63	0.66	8.40	2.94	3.36	0.84
1405	0.99	7.50	2.62	3.00	0.75	2.90	1.02	1.16	0.29	4.38	1.53	1.75	0.44	5.35	1.87	2.14	0.54	6.58	2.30	2.63	0.66	8.41	2.94	3.37	0.84
1410	0.99	7.51	2.63	3.01	0.75	2.91	1.02	1.16	0.29	4.39	1.54	1.76	0.44	5.36	1.88	2.15	0.54	6.60	2.31	2.64	0.66	8.43	2.95	3.37	0.84
1415	0.99	7.53	2.64	3.01	0.75	2.91	1.02	1.17	0.29	4.40	1.54	1.76	0.44	5.38	1.88	2.15	0.54	6.61	2.31	2.64	0.66	8.45	2.96	3.38	0.84
1420	0.99	7.54	2.64	3.02	0.75	2.92	1.02	1.17	0.29	4.41	1.54	1.76	0.44	5.39	1.89	2.15	0.54	6.62	2.32	2.65	0.66	8.46	2.96	3.39	0.85
1425	0.99	7.56	2.65	3.02	0.76	2.92	1.02	1.17	0.29	4.41	1.54	1.77	0.44	5.40	1.89	2.16	0.54	6.64	2.32	2.65	0.66	8.48	2.97	3.39	0.85
1430	1.00	7.57	2.65	3.03	0.76	2.93	1.03	1.17	0.29	4.42	1.55	1.77	0.44	5.41	1.89	2.16	0.54	6.65	2.33	2.66	0.66	8.50	2.97	3.40	0.85
1435	1.00	7.59	2.66	3.03	0.76	2.94	1.03	1.17	0.29	4.43	1.55	1.77	0.44	5.42	1.90	2.17	0.54	6.66	2.33	2.66	0.67	8.51	2.98	3.40	0.85
1440	1.00	7.60	2.66	3.04	0.76	2.94	1.03	1.18	0.29	4.44	1.55	1.78	0.44	5.43	1.90	2.17	0.54	6.67	2.34	2.67	0.67	8.53	2.98	3.41	0.85

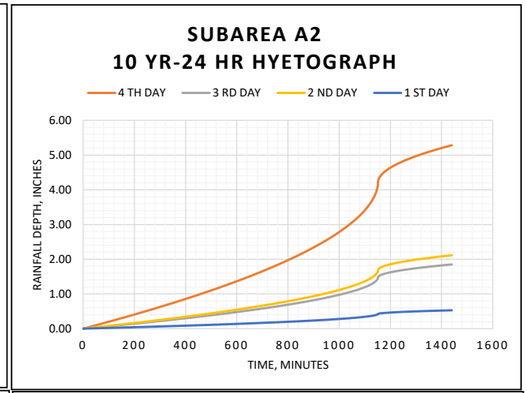
SUBAREA A2 HYETOPRAPHS

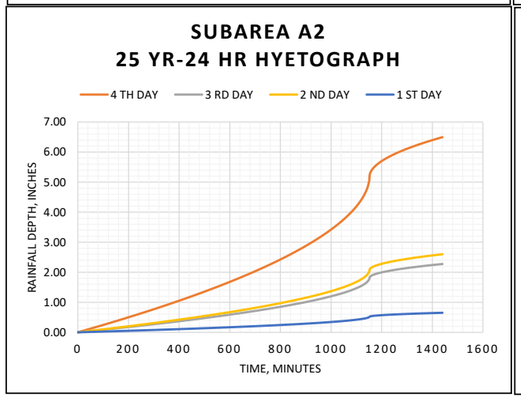
- Per 2006 Los Angeles County Hydrology Manual Appendix A

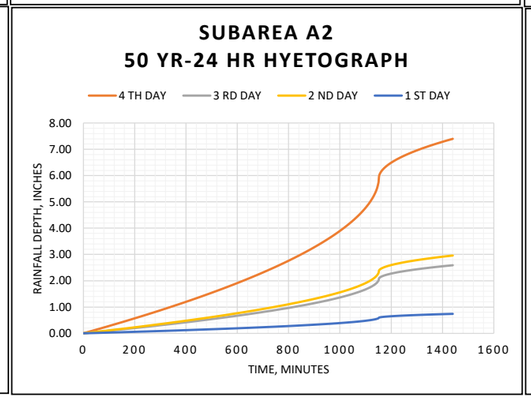
24 HR ISOHYETS,IN					
50 YR	2 YR	5 YR	10 YR	25 YR	100 YR
7.4	2.9	4.3	5.3	6.5	8.3

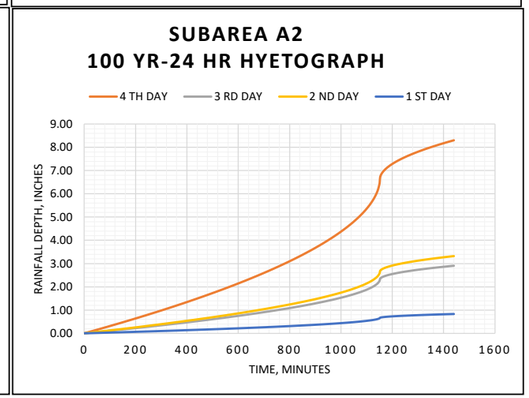












UNIT HYETOGRAPH		50 YR - 24 HR				2 YR - 24 HR				5 YR - 24 HR				10 YR - 24 HR				25 YR - 24 HR				100 YR - 24 HR			
	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth
Time	1 INCH	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30	0.01	0.08	0.03	0.03	0.01	0.03	0.01	0.01	0.00	0.05	0.02	0.02	0.00	0.06	0.02	0.02	0.01	0.07	0.03	0.03	0.01	0.09	0.03	0.04	0.01
60	0.02	0.17	0.06	0.07	0.02	0.06	0.02	0.03	0.01	0.10	0.03	0.04	0.01	0.12	0.04	0.05	0.01	0.15	0.05	0.06	0.01	0.19	0.06	0.07	0.02
90	0.03	0.25	0.09	0.10	0.02	0.10	0.03	0.04	0.01	0.15	0.05	0.06	0.01	0.18	0.06	0.07	0.02	0.22	0.08	0.09	0.02	0.28	0.10	0.11	0.03
120	0.05	0.34	0.12	0.13	0.03	0.13	0.05	0.05	0.01	0.20	0.07	0.08	0.02	0.24	0.08	0.10	0.02	0.29	0.10	0.12	0.03	0.38	0.13	0.15	0.04
150	0.06	0.42	0.15	0.17	0.04	0.16	0.06	0.07	0.02	0.25	0.09	0.10	0.02	0.30	0.11	0.12	0.03	0.37	0.13	0.15	0.04	0.47	0.17	0.19	0.05
180	0.07	0.51	0.18	0.20	0.05	0.20	0.07	0.08	0.02	0.30	0.10	0.12	0.03	0.36	0.13	0.15	0.04	0.45	0.16	0.18	0.04	0.57	0.20	0.23	0.06
210	0.08	0.60	0.21	0.24	0.06	0.23	0.08	0.09	0.02	0.35	0.12	0.14	0.03	0.43	0.15	0.17	0.04	0.53	0.18	0.21	0.05	0.67	0.24	0.27	0.07
240	0.09	0.69	0.24	0.28	0.07	0.27	0.09	0.11	0.03	0.40	0.14	0.16	0.04	0.49	0.17	0.20	0.05	0.61	0.21	0.24	0.06	0.77	0.27	0.31	0.08
270	0.11	0.78	0.27	0.31	0.08	0.30	0.11	0.12	0.03	0.46	0.16	0.18	0.05	0.56	0.20	0.22	0.06	0.69	0.24	0.27	0.07	0.88	0.31	0.35	0.09
300	0.12	0.87	0.31	0.35	0.09	0.34	0.12	0.14	0.03	0.51	0.18	0.20	0.05	0.62	0.22	0.25	0.06	0.77	0.27	0.31	0.08	0.98	0.34	0.39	0.10
330	0.13	0.97	0.34	0.39	0.10	0.38	0.13	0.15	0.04	0.57	0.20	0.23	0.06	0.69	0.24	0.28	0.07	0.85	0.30	0.34	0.09	1.09	0.38	0.44	0.11
360	0.14	1.07	0.37	0.43	0.11	0.41	0.14	0.17	0.04	0.62	0.22	0.25	0.06	0.76	0.27	0.30	0.08	0.94	0.33	0.37	0.09	1.20	0.42	0.48	0.12
390	0.16	1.16	0.41	0.47	0.12	0.45	0.16	0.18	0.05	0.68	0.24	0.27	0.07	0.83	0.29	0.33	0.08	1.02	0.36	0.41	0.10	1.31	0.46	0.52	0.13
420	0.17	1.26	0.44	0.51	0.13	0.49	0.17	0.20	0.05	0.74	0.26	0.30	0.07	0.90	0.32	0.36	0.09	1.11	0.39	0.44	0.11	1.42	0.50	0.57	0.14
450	0.18	1.37	0.48	0.55	0.14	0.53	0.19	0.21	0.05	0.80	0.28	0.32	0.08	0.98	0.34	0.39	0.10	1.20	0.42	0.48	0.12	1.53	0.54	0.61	0.15
480	0.20	1.47	0.51	0.59	0.15	0.57	0.20	0.23	0.06	0.86	0.30	0.34	0.09	1.05	0.37	0.42	0.11	1.29	0.45	0.52	0.13	1.65	0.58	0.66	0.17
510	0.21	1.58	0.55	0.63	0.16	0.61	0.21	0.24	0.06	0.92	0.32	0.37	0.09	1.13	0.39	0.45	0.11	1.38	0.48	0.55	0.14	1.77	0.62	0.71	0.18
540	0.23	1.69	0.59	0.67	0.17	0.65	0.23	0.26	0.07	0.98	0.34	0.39	0.10	1.20	0.42	0.48	0.12	1.48	0.52	0.59	0.15	1.89	0.66	0.76	0.19
570	0.24	1.80	0.63	0.72	0.18	0.70	0.24	0.28	0.07	1.05	0.37	0.42	0.10	1.28	0.45	0.51	0.13	1.58	0.55	0.63	0.16	2.02	0.71	0.81	0.20

UNIT HYETOGRAPH		50 YR - 24 HR				2 YR - 24 HR				5 YR - 24 HR				10 YR - 24 HR				25 YR - 24 HR				100 YR - 24 HR			
	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth
Time	1 INCH	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY
600	0.26	1.91	0.67	0.76	0.19	0.74	0.26	0.30	0.07	1.12	0.39	0.45	0.11	1.36	0.48	0.55	0.14	1.68	0.59	0.67	0.17	2.14	0.75	0.86	0.21
630	0.27	2.03	0.71	0.81	0.20	0.79	0.27	0.31	0.08	1.18	0.41	0.47	0.12	1.45	0.51	0.58	0.14	1.78	0.62	0.71	0.18	2.28	0.80	0.91	0.23
660	0.29	2.15	0.75	0.86	0.21	0.83	0.29	0.33	0.08	1.25	0.44	0.50	0.13	1.53	0.54	0.61	0.15	1.89	0.66	0.75	0.19	2.41	0.84	0.96	0.24
690	0.31	2.27	0.80	0.91	0.23	0.88	0.31	0.35	0.09	1.33	0.46	0.53	0.13	1.62	0.57	0.65	0.16	2.00	0.70	0.80	0.20	2.55	0.89	1.02	0.25
720	0.32	2.40	0.84	0.96	0.24	0.93	0.33	0.37	0.09	1.40	0.49	0.56	0.14	1.71	0.60	0.69	0.17	2.11	0.74	0.84	0.21	2.69	0.94	1.08	0.27
750	0.34	2.53	0.89	1.01	0.25	0.98	0.34	0.39	0.10	1.48	0.52	0.59	0.15	1.81	0.63	0.72	0.18	2.22	0.78	0.89	0.22	2.84	0.99	1.14	0.28
780	0.36	2.67	0.93	1.07	0.27	1.03	0.36	0.41	0.10	1.56	0.55	0.62	0.16	1.91	0.67	0.76	0.19	2.34	0.82	0.94	0.23	2.99	1.05	1.20	0.30
810	0.38	2.81	0.98	1.12	0.28	1.09	0.38	0.43	0.11	1.64	0.57	0.66	0.16	2.01	0.70	0.80	0.20	2.47	0.86	0.99	0.25	3.15	1.10	1.26	0.32
840	0.40	2.96	1.04	1.18	0.30	1.14	0.40	0.46	0.11	1.73	0.60	0.69	0.17	2.11	0.74	0.84	0.21	2.60	0.91	1.04	0.26	3.32	1.16	1.33	0.33
870	0.42	3.11	1.09	1.24	0.31	1.20	0.42	0.48	0.12	1.82	0.64	0.73	0.18	2.22	0.78	0.89	0.22	2.73	0.96	1.09	0.27	3.49	1.22	1.40	0.35
900	0.44	3.27	1.15	1.31	0.33	1.27	0.44	0.51	0.13	1.91	0.67	0.76	0.19	2.34	0.82	0.94	0.23	2.88	1.01	1.15	0.29	3.67	1.29	1.47	0.37
930	0.47	3.45	1.21	1.38	0.34	1.33	0.47	0.53	0.13	2.01	0.70	0.81	0.20	2.46	0.86	0.98	0.25	3.03	1.06	1.21	0.30	3.87	1.35	1.55	0.39
960	0.49	3.63	1.27	1.45	0.36	1.40	0.49	0.56	0.14	2.12	0.74	0.85	0.21	2.59	0.91	1.04	0.26	3.19	1.12	1.27	0.32	4.07	1.43	1.63	0.41
970	0.50	3.69	1.29	1.48	0.37	1.43	0.50	0.57	0.14	2.16	0.75	0.86	0.22	2.64	0.92	1.05	0.26	3.24	1.14	1.30	0.32	4.14	1.45	1.66	0.41
980	0.51	3.76	1.32	1.50	0.38	1.45	0.51	0.58	0.15	2.20	0.77	0.88	0.22	2.68	0.94	1.07	0.27	3.30	1.16	1.32	0.33	4.22	1.48	1.69	0.42
990	0.52	3.83	1.34	1.53	0.38	1.48	0.52	0.59	0.15	2.23	0.78	0.89	0.22	2.73	0.96	1.09	0.27	3.36	1.18	1.34	0.34	4.29	1.50	1.72	0.43
1000	0.53	3.90	1.36	1.56	0.39	1.51	0.53	0.60	0.15	2.28	0.80	0.91	0.23	2.78	0.97	1.11	0.28	3.42	1.20	1.37	0.34	4.37	1.53	1.75	0.44
1010	0.54	3.97	1.39	1.59	0.40	1.54	0.54	0.61	0.15	2.32	0.81	0.93	0.23	2.83	0.99	1.13	0.28	3.48	1.22	1.39	0.35	4.45	1.56	1.78	0.45
1020	0.55	4.04	1.41	1.62	0.40	1.56	0.55	0.63	0.16	2.36	0.83	0.94	0.24	2.89	1.01	1.15	0.29	3.55	1.24	1.42	0.35	4.54	1.59	1.81	0.45
1030	0.56	4.12	1.44	1.65	0.41	1.59	0.56	0.64	0.16	2.41	0.84	0.96	0.24	2.94	1.03	1.18	0.29	3.62	1.27	1.45	0.36	4.62	1.62	1.85	0.46
1040	0.57	4.20	1.47	1.68	0.42	1.62	0.57	0.65	0.16	2.45	0.86	0.98	0.25	3.00	1.05	1.20	0.30	3.69	1.29	1.47	0.37	4.71	1.65	1.88	0.47
1050	0.58	4.28	1.50	1.71	0.43	1.66	0.58	0.66	0.17	2.50	0.88	1.00	0.25	3.06	1.07	1.22	0.31	3.76	1.32	1.50	0.38	4.80	1.68	1.92	0.48
1060	0.59	4.37	1.53	1.75	0.44	1.69	0.59	0.68	0.17	2.55	0.89	1.02	0.26	3.12	1.09	1.25	0.31	3.84	1.34	1.53	0.38	4.90	1.72	1.96	0.49
1070	0.60	4.46	1.56	1.78	0.45	1.73	0.60	0.69	0.17	2.61	0.91	1.04	0.26	3.19	1.11	1.27	0.32	3.92	1.37	1.57	0.39	5.01	1.75	2.00	0.50
1080	0.62	4.56	1.60	1.82	0.46	1.76	0.62	0.71	0.18	2.66	0.93	1.06	0.27	3.25	1.14	1.30	0.33	4.00	1.40	1.60	0.40	5.11	1.79	2.05	0.51
1090	0.63	4.66	1.63	1.86	0.47	1.80	0.63	0.72	0.18	2.72	0.95	1.09	0.27	3.33	1.17	1.33	0.33	4.09	1.43	1.64	0.41	5.23	1.83	2.09	0.52
1100	0.65	4.77	1.67	1.91	0.48	1.85	0.65	0.74	0.18	2.79	0.98	1.12	0.28	3.41	1.19	1.36	0.34	4.19	1.47	1.68	0.42	5.36	1.87	2.14	0.54
1110	0.66	4.90	1.71	1.96	0.49	1.89	0.66	0.76	0.19	2.86	1.00	1.14	0.29	3.50	1.22	1.40	0.35	4.30	1.50	1.72	0.43	5.49	1.92	2.20	0.55
1115	0.67	4.96	1.74	1.99	0.50	1.92	0.67	0.77	0.19	2.90	1.01	1.16	0.29	3.54	1.24	1.42	0.35	4.36	1.53	1.74	0.44	5.57	1.95	2.23	0.56
1120	0.68	5.03	1.76	2.01	0.50	1.95	0.68	0.78	0.19	2.94	1.03	1.18	0.29	3.59	1.26	1.44	0.36	4.42	1.55	1.77	0.44	5.65	1.98	2.26	0.56
1125	0.69	5.11	1.79	2.04	0.51	1.98	0.69	0.79	0.20	2.98	1.04	1.19	0.30	3.65	1.28	1.46	0.36	4.49	1.57	1.79	0.45	5.73	2.01	2.29	0.57
1130	0.70	5.19	1.82	2.08	0.52	2.01	0.70	0.80	0.20	3.03	1.06	1.21	0.30	3.71	1.30	1.48	0.37	4.56	1.60	1.82	0.46	5.83	2.04	2.33	0.58
1135	0.71	5.29	1.85	2.11	0.53	2.05	0.72	0.82	0.20	3.09	1.08	1.23	0.31	3.77	1.32	1.51	0.38	4.64	1.62	1.86	0.46	5.93	2.08	2.37	0.59
1136	0.72	5.31	1.86	2.12	0.53	2.05	0.72	0.82	0.21	3.10	1.08	1.24	0.31	3.79	1.33	1.52	0.38	4.66	1.63	1.86	0.47	5.95	2.08	2.38	0.60
1137	0.72	5.33	1.86	2.13	0.53	2.06	0.72	0.82	0.21	3.11	1.09	1.24	0.31	3.80	1.33	1.52	0.38	4.68	1.64	1.87	0.47	5.98	2.09	2.39	0.60
1138	0.72	5.35	1.87	2.14	0.53	2.07	0.72	0.83	0.21	3.12	1.09	1.25	0.31	3.82	1.34	1.53	0.38	4.70	1.64	1.88	0.47	6.00	2.10	2.40	0.60
1139	0.73	5.37	1.88	2.15	0.54	2.08	0.73	0.83	0.21	3.14	1.10	1.25	0.31	3.83	1.34	1.53	0.38	4.72	1.65	1.89	0.47	6.03	2.11	2.41	0.60
1140	0.73	5.39	1.89	2.16	0.54	2.09	0.73	0.83	0.21	3.15	1.10	1.26	0.31	3.85	1.35	1.54	0.39	4.74	1.66	1.89	0.47	6.05	2.12	2.42	0.61
1145	0.75	5.52	1.93	2.21	0.55	2.14	0.75	0.86	0.21	3.23	1.13	1.29	0.32	3.94	1.38	1.58	0.39	4.85	1.70	1.94	0.49	6.20	2.17	2.48	0.62
1150	0.77	5.72	2.00	2.29	0.57	2.21	0.77	0.88	0.22	3.34	1.17	1.34	0.33	4.08	1.43	1.63	0.41	5.02	1.76	2.01	0.50	6.41	2.24	2.57	0.64
1151	0.78	5.78	2.02	2.31	0.58	2.24	0.78	0.89	0.22	3.37	1.18	1.35	0.34	4.13	1.44	1.65	0.41	5.07	1.78	2.03	0.51	6.48	2.27	2.59	0.65
1152	0.80	5.92	2.07	2.37	0.59	2.29	0.80	0.92	0.23	3.46	1.21	1.38	0.35	4.23	1.48	1.69	0.42	5.20	1.82	2.08	0.52	6.64	2.32	2.66	0.66
1153	0.81	5.99	2.10	2.40	0.60	2.32	0.81	0.93	0.23	3.50	1.23	1.40	0.35	4.28	1.50	1.71	0.43	5.26	1.84	2.10	0.53	6.72	2.35	2.69	0.67
1154	0.81	6.03	2.11	2.41	0.60	2.33	0.82	0.93	0.23	3.52	1.23	1.41	0.35	4.30	1.51	1.72	0.43	5.29	1.85	2.12	0.53	6.76	2.37	2.70	0.68
1155	0.82	6.05	2.12	2.42	0.61	2.34	0.82	0.94	0.23	3.53	1.24	1.41	0.35	4.32	1.51	1.73	0.43	5.31	1.86	2.13	0.53	6.79	2.38	2.72	0.68
1156	0.82	6.07	2.13	2.43	0.61	2.35	0.82	0.94	0.24	3.55	1.24	1.42	0.35	4.34	1.52	1.73	0.43	5.33	1.87	2.13	0.53	6.81	2.39	2.73	0.68
1157	0.82	6.09	2.13	2.44	0.61	2.36	0.83	0.94	0.24	3.56	1.25	1.42	0.36	4.35	1.52	1.74	0.44	5.35	1.87	2.14	0.53	6.84	2.39	2.73	0.68
1158	0.83	6.11	2.14	2.44	0.61	2.36	0.83	0.95	0.24	3.57	1.25	1.43	0.36	4.36	1.53	1.75	0.44	5.36	1.88	2.15	0.54	6.86	2.40	2.74	0.69
1159	0.83	6.13	2.14	2.45	0.61	2.37	0.83	0.95	0.24	3.58	1.25	1.43	0.36	4.37	1.53	1.75	0.44	5.38	1.88	2.15	0.54	6.87	2.41	2.75	0.69
1160	0.83	6.14	2.15	2.46	0.61	2.38	0.83	0.95	0.24	3.59	1.26	1.43	0.36	4.39	1.53	1.75	0.44	5.39	1.89	2.16	0.54	6.89	2.41	2.76	0.69
1161	0.83	6.16	2.15	2.46	0.62	2.38	0.83	0.95	0.24	3.59	1.26	1.44	0.36	4.40	1.54	1.76	0.44	5.40	1.89	2.16	0.54	6.91	2.42	2.76	0.69
1162	0.83	6.17	2.16	2.47	0.62	2.39	0.84	0.96	0.24	3.60	1.26	1.44	0.36	4.40	1.54	1.76	0.44	5.42	1.90	2.17	0.54	6.92	2.42	2.77	0.69
1163	0.84	6.18	2.16	2.47	0.62	2.39	0.84	0.96	0.24	3.61	1.26	1.44	0.36	4.41	1.54	1.77	0.44	5.43	1.90	2.17	0.54	6.94	2.43	2.77	0.69
1164	0.84	6.19	2.17	2.48	0.62	2.40	0.84	0.96	0.24	3.62	1.27	1.45	0.36	4.42	1.55	1.77	0.44	5.44	1.90	2.18	0.54	6.95	2.43	2.78	0.70
1165	0.84	6.21	2.17	2.48	0.62	2.40	0.84	0.96	0.24	3.62	1.27	1.45	0.36	4.43	1.55	1.77	0.44	5.45	1.91	2.18	0.54	6.96	2.44	2.79	0.70
1166	0.84	6.22	2.18	2.49	0.62	2.41	0.84	0.96	0.24	3.63	1.27	1.45	0.36	4.44	1.55	1.78	0.44	5.46	1.91	2.18	0.55	6.98	2.44	2.79	0.70
1167	0.84	6.23	2.18	2.49	0.62	2.41	0.84	0.96	0.24	3.64	1.27	1.46	0.36	4.45	1.56	1.78	0.44	5.47	1.91	2.19	0.55	6.99	2.45	2.80	0.70
1168	0.84	6.24	2.18	2.50	0.62	2.41	0.85	0.97	0.24	3.64	1.28	1.46	0.36	4.46	1.56	1.78	0.45	5.48	1.92	2.19	0.55	7.00	2.45	2.80	0.70
1169	0.84	6.25	2.19	2.50	0.63	2.42	0.85	0.97	0.24	3.65	1.28	1.46	0.37	4.46	1.56	1.79	0.45	5.49	1.92	2.20	0.55	7.01	2.45	2.81	0.70
1170	0.85	6.26	2.19	2.50	0.63	2.42	0.85	0.97	0.24	3.66	1.28	1.46	0.37	4.47	1.56	1.79	0.45	5.50	1.92	2.20	0.55	7.02	2.46	2.81	0.70
1171	0.85	6.27	2.19	2.51	0.63	2.43	0.85	0.97	0.24	3.66	1.28	1.46	0.37	4.48	1.57	1.79	0.45	5.51	1.93	2.20	0.55	7.04	2.46	2.81	0.70
1172	0.85	6.28	2.20	2.51	0.63	2.43	0.85	0.97	0.24	3.67	1.28	1.47	0.37	4.48	1.57	1.79	0.45	5.51	1.93	2.21	0.55	7.05	2.47	2.82	0.70
1173	0.85	6.29	2.20	2.52	0.63	2.43	0.85	0.97	0.24	3.67	1.29	1.47	0.37	4.49	1.57	1.80	0.45	5.52	1.93	2.21	0.55	7.06	2.47	2.82	0.71
1174	0.85	6.30	2.20	2.52	0.63	2.44	0.85	0.98	0.24	3.68	1.29	1.47	0.37	4.50	1.57	1.80	0.45	5.53	1.94	2.21	0.55	7.07	2.47	2.83	0.71
1175	0.85	6.31	2.21	2.52	0.63	2.44	0.85	0.98	0.24	3.68	1.29	1.47	0.37	4.50	1.58	1.80	0.45	5.54	1.94	2.22	0.55	7.08	2.48	2.83	0.71
1176	0.85	6.32	2.21	2.53	0.63	2.44	0.86	0.98	0.24	3.69	1.29	1.48	0.37	4.51	1.58	1.80	0.45	5.55	1.94	2.22	0.55	7.09	2.48	2.83	0.71
1177	0.85	6.33	2.21	2.53	0.63	2.45	0.86	0.98	0.24	3.69	1.29	1.48	0.37	4.52	1.58	1.81	0.45	5.55	1.94	2.22	0.56	7.10	2.48	2.84	0.71

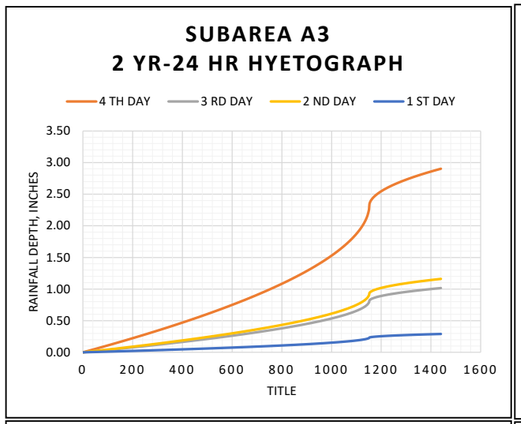
UNIT HYETOGRAPH		50 YR - 24 HR				2 YR - 24 HR				5 YR - 24 HR				10 YR - 24 HR				25 YR - 24 HR				100 YR - 24 HR			
	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth
Time	1 INCH	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY
1178	0.86	6.33	2.22	2.53	0.63	2.45	0.86	0.98	0.25	3.70	1.29	1.48	0.37	4.52	1.58	1.81	0.45	5.56	1.95	2.22	0.56	7.11	2.49	2.84	0.71
1179	0.86	6.34	2.22	2.54	0.63	2.45	0.86	0.98	0.25	3.70	1.30	1.48	0.37	4.53	1.58	1.81	0.45	5.57	1.95	2.23	0.56	7.12	2.49	2.85	0.71
1180	0.86	6.35	2.22	2.54	0.64	2.46	0.86	0.98	0.25	3.71	1.30	1.48	0.37	4.53	1.59	1.81	0.45	5.58	1.95	2.23	0.56	7.13	2.49	2.85	0.71
1181	0.86	6.36	2.23	2.54	0.64	2.46	0.86	0.98	0.25	3.71	1.30	1.49	0.37	4.54	1.59	1.82	0.45	5.58	1.95	2.23	0.56	7.13	2.50	2.85	0.71
1182	0.86	6.37	2.23	2.55	0.64	2.46	0.86	0.99	0.25	3.72	1.30	1.49	0.37	4.55	1.59	1.82	0.45	5.59	1.96	2.24	0.56	7.14	2.50	2.86	0.71
1183	0.86	6.37	2.23	2.55	0.64	2.47	0.86	0.99	0.25	3.72	1.30	1.49	0.37	4.55	1.59	1.82	0.46	5.60	1.96	2.24	0.56	7.15	2.50	2.86	0.72
1184	0.86	6.38	2.23	2.55	0.64	2.47	0.86	0.99	0.25	3.73	1.30	1.49	0.37	4.56	1.59	1.82	0.46	5.60	1.96	2.24	0.56	7.16	2.51	2.86	0.72
1185	0.86	6.39	2.24	2.56	0.64	2.47	0.87	0.99	0.25	3.73	1.31	1.49	0.37	4.56	1.60	1.82	0.46	5.61	1.96	2.24	0.56	7.17	2.51	2.87	0.72
1186	0.86	6.40	2.24	2.56	0.64	2.48	0.87	0.99	0.25	3.74	1.31	1.49	0.37	4.57	1.60	1.83	0.46	5.62	1.97	2.25	0.56	7.18	2.51	2.87	0.72
1187	0.87	6.40	2.24	2.56	0.64	2.48	0.87	0.99	0.25	3.74	1.31	1.50	0.37	4.57	1.60	1.83	0.46	5.62	1.97	2.25	0.56	7.19	2.51	2.87	0.72
1188	0.87	6.41	2.24	2.56	0.64	2.48	0.87	0.99	0.25	3.74	1.31	1.50	0.37	4.58	1.60	1.83	0.46	5.63	1.97	2.25	0.56	7.19	2.52	2.88	0.72
1189	0.87	6.42	2.25	2.57	0.64	2.48	0.87	0.99	0.25	3.75	1.31	1.50	0.37	4.58	1.60	1.83	0.46	5.64	1.97	2.25	0.56	7.20	2.52	2.88	0.72
1190	0.87	6.43	2.25	2.57	0.64	2.49	0.87	0.99	0.25	3.75	1.31	1.50	0.38	4.59	1.61	1.84	0.46	5.64	1.97	2.26	0.56	7.21	2.52	2.88	0.72
1191	0.87	6.43	2.25	2.57	0.64	2.49	0.87	1.00	0.25	3.76	1.31	1.50	0.38	4.59	1.61	1.84	0.46	5.65	1.98	2.26	0.56	7.22	2.53	2.89	0.72
1192	0.87	6.44	2.25	2.58	0.64	2.49	0.87	1.00	0.25	3.76	1.32	1.50	0.38	4.60	1.61	1.84	0.46	5.65	1.98	2.26	0.57	7.23	2.53	2.89	0.72
1193	0.87	6.45	2.26	2.58	0.64	2.49	0.87	1.00	0.25	3.76	1.32	1.51	0.38	4.60	1.61	1.84	0.46	5.66	1.98	2.26	0.57	7.23	2.53	2.89	0.72
1194	0.87	6.45	2.26	2.58	0.65	2.50	0.87	1.00	0.25	3.77	1.32	1.51	0.38	4.61	1.61	1.84	0.46	5.67	1.98	2.27	0.57	7.24	2.53	2.90	0.72
1195	0.87	6.46	2.26	2.58	0.65	2.50	0.88	1.00	0.25	3.77	1.32	1.51	0.38	4.61	1.61	1.85	0.46	5.67	1.99	2.27	0.57	7.25	2.54	2.90	0.72
1196	0.87	6.47	2.26	2.59	0.65	2.50	0.88	1.00	0.25	3.78	1.32	1.51	0.38	4.62	1.62	1.85	0.46	5.68	1.99	2.27	0.57	7.26	2.54	2.90	0.73
1197	0.87	6.47	2.27	2.59	0.65	2.51	0.88	1.00	0.25	3.78	1.32	1.51	0.38	4.62	1.62	1.85	0.46	5.68	1.99	2.27	0.57	7.26	2.54	2.91	0.73
1198	0.88	6.48	2.27	2.59	0.65	2.51	0.88	1.00	0.25	3.78	1.32	1.51	0.38	4.63	1.62	1.85	0.46	5.69	1.99	2.28	0.57	7.27	2.54	2.91	0.73
1199	0.88	6.49	2.27	2.59	0.65	2.51	0.88	1.00	0.25	3.79	1.33	1.52	0.38	4.63	1.62	1.85	0.46	5.69	1.99	2.28	0.57	7.28	2.55	2.91	0.73
1200	0.88	6.49	2.27	2.60	0.65	2.51	0.88	1.01	0.25	3.79	1.33	1.52	0.38	4.64	1.62	1.85	0.46	5.70	2.00	2.28	0.57	7.28	2.55	2.91	0.73
1201	0.88	6.50	2.27	2.60	0.65	2.52	0.88	1.01	0.25	3.80	1.33	1.52	0.38	4.64	1.62	1.86	0.46	5.71	2.00	2.28	0.57	7.29	2.55	2.92	0.73
1202	0.88	6.51	2.28	2.60	0.65	2.52	0.88	1.01	0.25	3.80	1.33	1.52	0.38	4.64	1.63	1.86	0.46	5.71	2.00	2.28	0.57	7.30	2.55	2.92	0.73
1203	0.88	6.51	2.28	2.60	0.65	2.52	0.88	1.01	0.25	3.80	1.33	1.52	0.38	4.65	1.63	1.86	0.46	5.72	2.00	2.29	0.57	7.31	2.56	2.92	0.73
1204	0.88	6.52	2.28	2.61	0.65	2.52	0.88	1.01	0.25	3.81	1.33	1.52	0.38	4.65	1.63	1.86	0.47	5.72	2.00	2.29	0.57	7.31	2.56	2.93	0.73
1205	0.88	6.52	2.28	2.61	0.65	2.52	0.88	1.01	0.25	3.81	1.33	1.52	0.38	4.66	1.63	1.86	0.47	5.73	2.00	2.29	0.57	7.32	2.56	2.93	0.73
1206	0.88	6.53	2.29	2.61	0.65	2.53	0.88	1.01	0.25	3.81	1.33	1.53	0.38	4.66	1.63	1.86	0.47	5.73	2.01	2.29	0.57	7.33	2.56	2.93	0.73
1207	0.88	6.54	2.29	2.61	0.65	2.53	0.89	1.01	0.25	3.82	1.34	1.53	0.38	4.67	1.63	1.87	0.47	5.74	2.01	2.30	0.57	7.33	2.57	2.93	0.73
1208	0.88	6.54	2.29	2.62	0.65	2.53	0.89	1.01	0.25	3.82	1.34	1.53	0.38	4.67	1.63	1.87	0.47	5.74	2.01	2.30	0.57	7.34	2.57	2.94	0.73
1209	0.88	6.55	2.29	2.62	0.65	2.53	0.89	1.01	0.25	3.82	1.34	1.53	0.38	4.67	1.64	1.87	0.47	5.75	2.01	2.30	0.57	7.35	2.57	2.94	0.73
1210	0.89	6.55	2.29	2.62	0.66	2.54	0.89	1.01	0.25	3.83	1.34	1.53	0.38	4.68	1.64	1.87	0.47	5.75	2.01	2.30	0.58	7.35	2.57	2.94	0.74
1211	0.89	6.56	2.30	2.62	0.66	2.54	0.89	1.02	0.25	3.83	1.34	1.53	0.38	4.68	1.64	1.87	0.47	5.76	2.02	2.30	0.58	7.36	2.58	2.94	0.74
1212	0.89	6.56	2.30	2.63	0.66	2.54	0.89	1.02	0.25	3.83	1.34	1.53	0.38	4.69	1.64	1.87	0.47	5.76	2.02	2.31	0.58	7.37	2.58	2.95	0.74
1213	0.89	6.57	2.30	2.63	0.66	2.54	0.89	1.02	0.25	3.84	1.34	1.53	0.38	4.69	1.64	1.88	0.47	5.77	2.02	2.31	0.58	7.37	2.58	2.95	0.74
1214	0.89	6.58	2.30	2.63	0.66	2.54	0.89	1.02	0.25	3.84	1.34	1.54	0.38	4.70	1.64	1.88	0.47	5.77	2.02	2.31	0.58	7.38	2.58	2.95	0.74
1215	0.89	6.58	2.30	2.63	0.66	2.55	0.89	1.02	0.25	3.84	1.35	1.54	0.38	4.70	1.64	1.88	0.47	5.78	2.02	2.31	0.58	7.38	2.58	2.95	0.74
1216	0.89	6.59	2.31	2.63	0.66	2.55	0.89	1.02	0.25	3.85	1.35	1.54	0.38	4.70	1.65	1.88	0.47	5.78	2.02	2.31	0.58	7.39	2.59	2.96	0.74
1217	0.89	6.59	2.31	2.64	0.66	2.55	0.89	1.02	0.26	3.85	1.35	1.54	0.38	4.71	1.65	1.88	0.47	5.79	2.03	2.32	0.58	7.40	2.59	2.96	0.74
1218	0.89	6.60	2.31	2.64	0.66	2.55	0.89	1.02	0.26	3.85	1.35	1.54	0.39	4.71	1.65	1.88	0.47	5.79	2.03	2.32	0.58	7.40	2.59	2.96	0.74
1219	0.89	6.60	2.31	2.64	0.66	2.56	0.89	1.02	0.26	3.86	1.35	1.54	0.39	4.71	1.65	1.89	0.47	5.80	2.03	2.32	0.58	7.41	2.59	2.96	0.74
1220	0.89	6.61	2.31	2.64	0.66	2.56	0.90	1.02	0.26	3.86	1.35	1.54	0.39	4.72	1.65	1.89	0.47	5.80	2.03	2.32	0.58	7.41	2.60	2.97	0.74
1221	0.89	6.61	2.31	2.65	0.66	2.56	0.90	1.02	0.26	3.86	1.35	1.55	0.39	4.72	1.65	1.89	0.47	5.81	2.03	2.32	0.58	7.42	2.60	2.97	0.74
1222	0.89	6.62	2.32	2.65	0.66	2.56	0.90	1.02	0.26	3.87	1.35	1.55	0.39	4.73	1.65	1.89	0.47	5.81	2.03	2.32	0.58	7.43	2.60	2.97	0.74
1223	0.90	6.62	2.32	2.65	0.66	2.56	0.90	1.03	0.26	3.87	1.35	1.55	0.39	4.73	1.66	1.89	0.47	5.82	2.04	2.33	0.58	7.43	2.60	2.97	0.74
1224	0.90	6.63	2.32	2.65	0.66	2.57	0.90	1.03	0.26	3.87	1.36	1.55	0.39	4.73	1.66	1.89	0.47	5.82	2.04	2.33	0.58	7.44	2.60	2.98	0.74
1225	0.90	6.64	2.32	2.65	0.66	2.57	0.90	1.03	0.26	3.87	1.36	1.55	0.39	4.74	1.66	1.89	0.47	5.83	2.04	2.33	0.58	7.44	2.61	2.98	0.74
1226	0.90	6.64	2.32	2.66	0.66	2.57	0.90	1.03	0.26	3.88	1.36	1.55	0.39	4.74	1.66	1.90	0.47	5.83	2.04	2.33	0.58	7.45	2.61	2.98	0.75
1227	0.90	6.65	2.33	2.66	0.66	2.57	0.90	1.03	0.26	3.88	1.36	1.55	0.39	4.74	1.66	1.90	0.47	5.83	2.04	2.33	0.58	7.46	2.61	2.98	0.75
1228	0.90	6.65	2.33	2.66	0.67	2.57	0.90	1.03	0.26	3.88	1.36	1.55	0.39	4.75	1.66	1.90	0.47	5.84	2.04	2.34	0.58	7.46	2.61	2.98	0.75
1229	0.90	6.66	2.33	2.66	0.67	2.58	0.90	1.03	0.26	3.89	1.36	1.55	0.39	4.75	1.66	1.90	0.48	5.84	2.05	2.34	0.58	7.47	2.61	2.99	0.75
1230	0.90	6.66	2.33	2.66	0.67	2.58	0.90	1.03	0.26	3.89	1.36	1.56	0.39	4.76	1.66	1.90	0.48	5.85	2.05	2.34	0.58	7.47	2.62	2.99	0.75
1231	0.90	6.67	2.33	2.67	0.67	2.58	0.90	1.03	0.26	3.89	1.36	1.56	0.39	4.76	1.67	1.90	0.48	5.85	2.05	2.34	0.59	7.48	2.62	2.99	0.75
1232	0.90	6.67	2.33	2.67	0.67	2.58	0.90	1.03	0.26	3.90	1.36	1.56	0.39	4.76	1.67	1.91	0.48	5.86	2.05	2.34	0.59	7.48	2.62	2.99	0.75
1233	0.90	6.68	2.34	2.67	0.67	2.58	0.90	1.03	0.26	3.90	1.36	1.56	0.39	4.77	1.67	1.91	0.48	5.86	2.05	2.34	0.59	7.49	2.62	3.00	0.75
1234	0.90	6.68	2.34	2.67	0.67	2.59	0.90	1.03	0.26	3.90	1.37	1.56	0.39	4.77	1.67	1.91	0.48	5.87	2.05	2.35	0.59	7.50	2.62	3.00	0.75
1235	0.90	6.69	2.34	2.67	0.67	2.59	0.91	1.03	0.26	3.90	1.37	1.56	0.39	4.77	1.67	1.91	0.48	5.87	2.05	2.35	0.59	7.50	2.63	3.00	0.75
1240	0.91	6.71	2.35	2.68	0.67	2.60	0.91	1.04	0.26	3.92	1.37	1.57	0.39	4.79	1.68	1.92	0.48	5.89	2.06	2.36	0.59	7.53	2.63	3.01	0.75
1245	0.91	6.73	2.36	2.69	0.67	2.61	0.91	1.04	0.26	3.93	1.38	1.57	0.39	4.81	1.68	1.92	0.48	5.91	2.07	2.36	0.59	7.55	2.64	3.02	0.76
1250	0.91	6.76	2.36	2.70	0.68	2.61	0.92	1.05	0.26	3.95	1.38	1.58	0.39	4.82	1.69	1.93	0.48	5.93	2.08	2.37	0.59	7.58	2.65	3.03	0.76
1255	0.92	6.78	2.37	2.71	0.68	2.62	0.92	1.05	0.26	3.96	1.39	1.58	0.40	4.84	1.69	1.94	0.48	5.95	2.08	2.38	0.60	7.61	2.66	3.04	0.76
1260	0.92	6.80	2.38	2.72	0.68	2.63	0.92	1.05	0.26	3.97	1.39	1.59	0.40	4.86	1.70	1.94	0.49	5.97	2.09	2.39	0.60	7.63	2.67	3.05	0.76
1265	0.92	6.82	2.39	2.73	0.68	2.64	0.92	1.06	0.26	3.98	1.39	1.59	0.40	4.87	1.70	1.95	0.49	5.99	2.10	2.40	0.60	7.65	2.68	3.06	0.77
1270	0.92	6.84	2.39	2.74	0.68	2.65	0.93	1.06	0.26	4.00	1.40	1.60	0.40	4.89	1.71	1.95	0.49	6.01	2.10	2.40	0.60	7.68	2.69	3.07	0.77
1275	0.93	6.86	2.40	2.75	0.69	2.66	0.93	1.06	0.27	4.01	1.40	1.60	0.40	4.90	1.72	1.96	0.49	6.03	2.11	2.41	0.60	7.70	2.70	3.08	0.77
1280	0.93	6.88	2.41	2.75	0.69	2.66	0.93	1.07	0.27	4.02	1.41	1.61	0.40	4.91	1.72	1.97	0.49	6.04	2.12	2.42	0.60	7.72	2.70	3.09	0.77

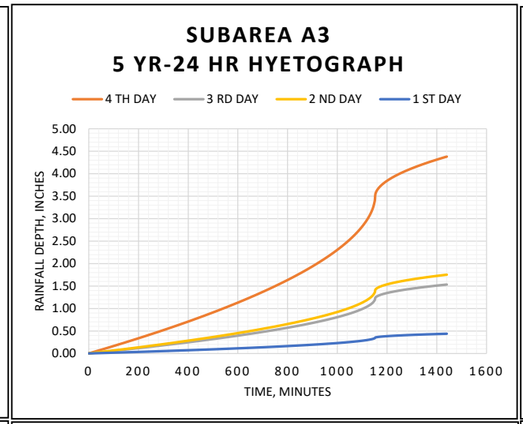
UNIT HYETOGRAPH		50 YR - 24 HR				2 YR - 24 HR				5 YR - 24 HR				10 YR - 24 HR				25 YR - 24 HR				100 YR - 24 HR			
	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth
Time	1 INCH	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY
1285	0.93	6.90	2.42	2.76	0.69	2.67	0.93	1.07	0.27	4.03	1.41	1.61	0.40	4.93	1.72	1.97	0.49	6.06	2.12	2.42	0.61	7.74	2.71	3.10	0.77
1290	0.94	6.92	2.42	2.77	0.69	2.68	0.94	1.07	0.27	4.04	1.41	1.62	0.40	4.94	1.73	1.98	0.49	6.08	2.13	2.43	0.61	7.77	2.72	3.11	0.78
1295	0.94	6.94	2.43	2.78	0.69	2.69	0.94	1.07	0.27	4.05	1.42	1.62	0.41	4.96	1.73	1.98	0.50	6.09	2.13	2.44	0.61	7.79	2.73	3.12	0.78
1300	0.94	6.96	2.44	2.78	0.70	2.69	0.94	1.08	0.27	4.06	1.42	1.63	0.41	4.97	1.74	1.99	0.50	6.11	2.14	2.44	0.61	7.81	2.73	3.12	0.78
1305	0.94	6.98	2.44	2.79	0.70	2.70	0.95	1.08	0.27	4.08	1.43	1.63	0.41	4.98	1.74	1.99	0.50	6.13	2.14	2.45	0.61	7.83	2.74	3.13	0.78
1310	0.95	7.00	2.45	2.80	0.70	2.71	0.95	1.08	0.27	4.09	1.43	1.63	0.41	5.00	1.75	2.00	0.50	6.14	2.15	2.46	0.61	7.85	2.75	3.14	0.79
1315	0.95	7.01	2.46	2.81	0.70	2.71	0.95	1.09	0.27	4.10	1.43	1.64	0.41	5.01	1.75	2.00	0.50	6.16	2.16	2.46	0.62	7.87	2.75	3.15	0.79
1320	0.95	7.03	2.46	2.81	0.70	2.72	0.95	1.09	0.27	4.11	1.44	1.64	0.41	5.02	1.76	2.01	0.50	6.17	2.16	2.47	0.62	7.89	2.76	3.16	0.79
1325	0.95	7.05	2.47	2.82	0.70	2.73	0.95	1.09	0.27	4.12	1.44	1.65	0.41	5.03	1.76	2.01	0.50	6.19	2.17	2.48	0.62	7.91	2.77	3.16	0.79
1330	0.95	7.07	2.47	2.83	0.71	2.73	0.96	1.09	0.27	4.13	1.44	1.65	0.41	5.05	1.77	2.02	0.50	6.20	2.17	2.48	0.62	7.93	2.78	3.17	0.79
1335	0.96	7.08	2.48	2.83	0.71	2.74	0.96	1.10	0.27	4.14	1.45	1.65	0.41	5.06	1.77	2.02	0.51	6.22	2.18	2.49	0.62	7.95	2.78	3.18	0.79
1340	0.96	7.10	2.49	2.84	0.71	2.75	0.96	1.10	0.27	4.15	1.45	1.66	0.41	5.07	1.77	2.03	0.51	6.23	2.18	2.49	0.62	7.97	2.79	3.19	0.80
1345	0.96	7.12	2.49	2.85	0.71	2.75	0.96	1.10	0.28	4.16	1.45	1.66	0.42	5.08	1.78	2.03	0.51	6.25	2.19	2.50	0.62	7.99	2.79	3.19	0.80
1350	0.96	7.13	2.50	2.85	0.71	2.76	0.97	1.10	0.28	4.17	1.46	1.67	0.42	5.09	1.78	2.04	0.51	6.26	2.19	2.51	0.63	8.00	2.80	3.20	0.80
1355	0.97	7.15	2.50	2.86	0.71	2.77	0.97	1.11	0.28	4.18	1.46	1.67	0.42	5.10	1.79	2.04	0.51	6.28	2.20	2.51	0.63	8.02	2.81	3.21	0.80
1360	0.97	7.17	2.51	2.87	0.72	2.77	0.97	1.11	0.28	4.18	1.46	1.67	0.42	5.12	1.79	2.05	0.51	6.29	2.20	2.52	0.63	8.04	2.81	3.22	0.80
1365	0.97	7.18	2.51	2.87	0.72	2.78	0.97	1.11	0.28	4.19	1.47	1.68	0.42	5.13	1.79	2.05	0.51	6.31	2.21	2.52	0.63	8.06	2.82	3.22	0.81
1370	0.97	7.20	2.52	2.88	0.72	2.79	0.97	1.11	0.28	4.20	1.47	1.68	0.42	5.14	1.80	2.06	0.51	6.32	2.21	2.53	0.63	8.07	2.83	3.23	0.81
1375	0.97	7.21	2.52	2.88	0.72	2.79	0.98	1.12	0.28	4.21	1.47	1.68	0.42	5.15	1.80	2.06	0.51	6.33	2.22	2.53	0.63	8.09	2.83	3.24	0.81
1380	0.98	7.23	2.53	2.89	0.72	2.80	0.98	1.12	0.28	4.22	1.48	1.69	0.42	5.16	1.81	2.06	0.52	6.35	2.22	2.54	0.63	8.11	2.84	3.24	0.81
1385	0.98	7.24	2.53	2.90	0.72	2.80	0.98	1.12	0.28	4.23	1.48	1.69	0.42	5.17	1.81	2.07	0.52	6.36	2.23	2.54	0.64	8.13	2.84	3.25	0.81
1390	0.98	7.26	2.54	2.90	0.73	2.81	0.98	1.12	0.28	4.24	1.48	1.70	0.42	5.18	1.81	2.07	0.52	6.37	2.23	2.55	0.64	8.14	2.85	3.26	0.81
1395	0.98	7.27	2.55	2.91	0.73	2.81	0.99	1.13	0.28	4.25	1.49	1.70	0.42	5.19	1.82	2.08	0.52	6.39	2.23	2.55	0.64	8.16	2.86	3.26	0.82
1400	0.98	7.29	2.55	2.91	0.73	2.82	0.99	1.13	0.28	4.26	1.49	1.70	0.43	5.20	1.82	2.08	0.52	6.40	2.24	2.56	0.64	8.18	2.86	3.27	0.82
1405	0.99	7.30	2.56	2.92	0.73	2.83	0.99	1.13	0.28	4.26	1.49	1.71	0.43	5.21	1.82	2.09	0.52	6.41	2.24	2.56	0.64	8.19	2.87	3.28	0.82
1410	0.99	7.32	2.56	2.93	0.73	2.83	0.99	1.13	0.28	4.27	1.50	1.71	0.43	5.22	1.83	2.09	0.52	6.42	2.25	2.57	0.64	8.21	2.87	3.28	0.82
1415	0.99	7.33	2.57	2.93	0.73	2.84	0.99	1.13	0.28	4.28	1.50	1.71	0.43	5.23	1.83	2.09	0.52	6.44	2.25	2.57	0.64	8.22	2.88	3.29	0.82
1420	0.99	7.34	2.57	2.94	0.73	2.84	0.99	1.14	0.28	4.29	1.50	1.72	0.43	5.24	1.84	2.10	0.52	6.45	2.26	2.58	0.64	8.24	2.88	3.30	0.82
1425	0.99	7.36	2.58	2.94	0.74	2.85	1.00	1.14	0.28	4.30	1.50	1.72	0.43	5.25	1.84	2.10	0.53	6.46	2.26	2.58	0.65	8.26	2.89	3.30	0.83
1430	1.00	7.37	2.58	2.95	0.74	2.85	1.00	1.14	0.29	4.31	1.51	1.72	0.43	5.26	1.84	2.11	0.53	6.47	2.27	2.59	0.65	8.27	2.90	3.31	0.83
1435	1.00	7.39	2.59	2.95	0.74	2.86	1.00	1.14	0.29	4.31	1.51	1.73	0.43	5.27	1.85	2.11	0.53	6.49	2.27	2.59	0.65	8.29	2.90	3.31	0.83
1440	1.00	7.40	2.59	2.96	0.74	2.86	1.00	1.15	0.29	4.32	1.51	1.73	0.43	5.28	1.85	2.11	0.53	6.50	2.27	2.60	0.65	8.30	2.91	3.32	0.83

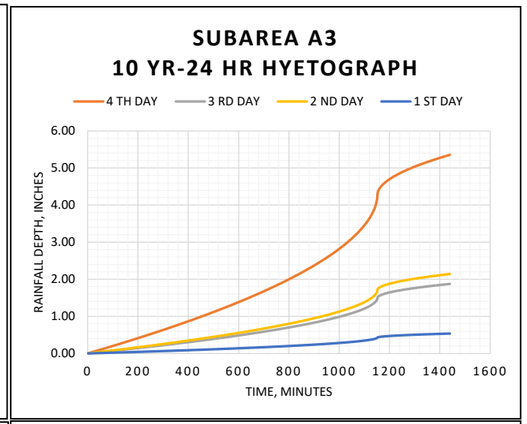
SUBAREA A3 HYETOPRAPHS

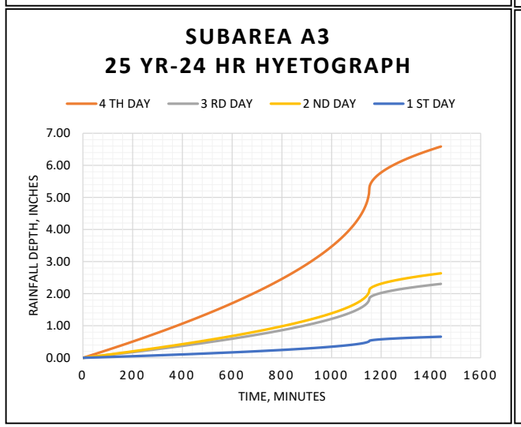
- Per 2006 Los Angeles County Hydrology Manual Appendix A

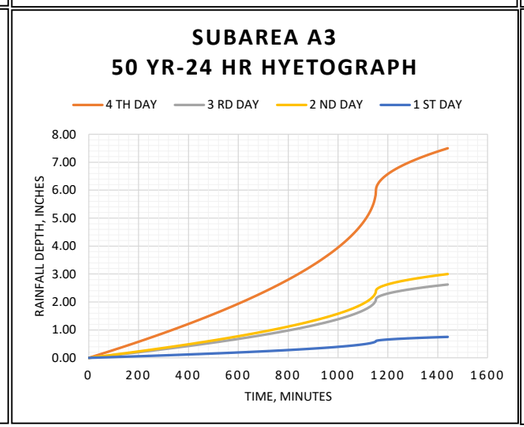
24 HR ISOHYETS,IN					
50 YR	2 YR	5 YR	10 YR	25 YR	100 YR
7.5	2.9	4.4	5.4	6.6	8.4

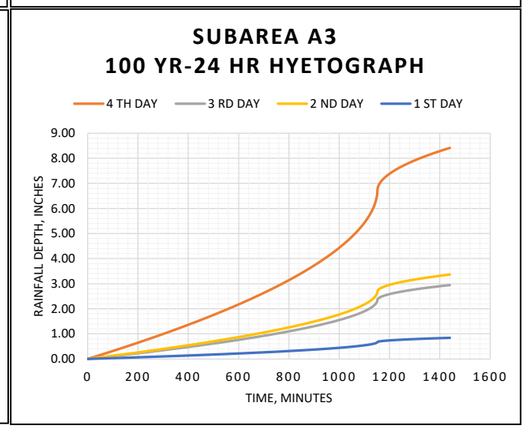












UNIT HYETOGRAPH		50 YR - 24 HR				2 YR - 24 HR				5 YR - 24 HR				10 YR - 24 HR				25 YR - 24 HR				100 YR - 24 HR			
	Depth	**Depth**	**Depth**	**Depth**	**Depth**	**Depth**	**Depth**	**Depth**	**Depth**	**Depth**	**Depth**	**Depth**	**Depth**	**Depth**	**Depth**	**Depth**	**Depth**	**Depth**	**Depth**	**Depth**	**Depth**	**Depth**	**Depth**	**Depth**	**Depth**
Time	1 INCH	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30	0.01	0.08	0.03	0.03	0.01	0.03	0.01	0.01	0.00	0.05	0.02	0.02	0.00	0.06	0.02	0.02	0.01	0.07	0.03	0.03	0.01	0.09	0.03	0.04	0.01
60	0.02	0.17	0.06	0.07	0.02	0.06	0.02	0.03	0.01	0.10	0.03	0.04	0.01	0.12	0.04	0.05	0.01	0.15	0.05	0.06	0.01	0.19	0.07	0.08	0.02
90	0.03	0.25	0.09	0.10	0.03	0.10	0.03	0.04	0.01	0.15	0.05	0.06	0.01	0.18	0.06	0.07	0.02	0.22	0.08	0.09	0.02	0.28	0.10	0.11	0.03
120	0.05	0.34	0.12	0.14	0.03	0.13	0.05	0.05	0.01	0.20	0.07	0.08	0.02	0.24	0.08	0.10	0.02	0.30	0.10	0.12	0.03	0.38	0.13	0.15	0.04
150	0.06	0.43	0.15	0.17	0.04	0.17	0.06	0.07	0.02	0.25	0.09	0.10	0.02	0.31	0.11	0.12	0.03	0.38	0.13	0.15	0.04	0.48	0.17	0.19	0.05
180	0.07	0.52	0.18	0.21	0.05	0.20	0.07	0.08	0.02	0.30	0.11	0.12	0.03	0.37	0.13	0.15	0.04	0.45	0.16	0.18	0.05	0.58	0.20	0.23	0.06
210	0.08	0.61	0.21	0.24	0.06	0.23	0.08	0.09	0.02	0.35	0.12	0.14	0.04	0.43	0.15	0.17	0.04	0.53	0.19	0.21	0.05	0.68	0.24	0.27	0.07
240	0.09	0.70	0.24	0.28	0.07	0.27	0.09	0.11	0.03	0.41	0.14	0.16	0.04	0.50	0.17	0.20	0.05	0.61	0.21	0.25	0.06	0.78	0.27	0.31	0.08
270	0.11	0.79	0.28	0.32	0.08	0.31	0.11	0.12	0.03	0.46	0.16	0.18	0.05	0.57	0.20	0.23	0.06	0.70	0.24	0.28	0.07	0.89	0.31	0.36	0.09
300	0.12	0.89	0.31	0.35	0.09	0.34	0.12	0.14	0.03	0.52	0.18	0.21	0.05	0.63	0.22	0.25	0.06	0.78	0.27	0.31	0.08	0.99	0.35	0.40	0.10
330	0.13	0.98	0.34	0.39	0.10	0.38	0.13	0.15	0.04	0.57	0.20	0.23	0.06	0.70	0.25	0.28	0.07	0.86	0.30	0.35	0.09	1.10	0.39	0.44	0.11
360	0.14	1.08	0.38	0.43	0.11	0.42	0.15	0.17	0.04	0.63	0.22	0.25	0.06	0.77	0.27	0.31	0.08	0.95	0.33	0.38	0.09	1.21	0.42	0.49	0.12
390	0.16	1.18	0.41	0.47	0.12	0.46	0.16	0.18	0.05	0.69	0.24	0.28	0.07	0.84	0.29	0.34	0.08	1.04	0.36	0.41	0.10	1.32	0.46	0.53	0.13
420	0.17	1.28	0.45	0.51	0.13	0.50	0.17	0.20	0.05	0.75	0.26	0.30	0.07	0.92	0.32	0.37	0.09	1.13	0.39	0.45	0.11	1.44	0.50	0.58	0.14

UNIT HYETOGRAPH		50 YR - 24 HR				2 YR - 24 HR				5 YR - 24 HR				10 YR - 24 HR				25 YR - 24 HR				100 YR - 24 HR			
	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth
Time	1 INCH	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY
450	0.18	1.39	0.48	0.55	0.14	0.54	0.19	0.21	0.05	0.81	0.28	0.32	0.08	0.99	0.35	0.40	0.10	1.22	0.43	0.49	0.12	1.55	0.54	0.62	0.16
480	0.20	1.49	0.52	0.60	0.15	0.58	0.20	0.23	0.06	0.87	0.30	0.35	0.09	1.06	0.37	0.43	0.11	1.31	0.46	0.52	0.13	1.67	0.59	0.67	0.17
510	0.21	1.60	0.56	0.64	0.16	0.62	0.22	0.25	0.06	0.93	0.33	0.37	0.09	1.14	0.40	0.46	0.11	1.40	0.49	0.56	0.14	1.79	0.63	0.72	0.18
540	0.23	1.71	0.60	0.68	0.17	0.66	0.23	0.26	0.07	1.00	0.35	0.40	0.10	1.22	0.43	0.49	0.12	1.50	0.53	0.60	0.15	1.92	0.67	0.77	0.19
570	0.24	1.82	0.64	0.73	0.18	0.71	0.25	0.28	0.07	1.06	0.37	0.43	0.11	1.30	0.46	0.52	0.13	1.60	0.56	0.64	0.16	2.04	0.72	0.82	0.20
600	0.26	1.94	0.68	0.77	0.19	0.75	0.26	0.30	0.07	1.13	0.40	0.45	0.11	1.38	0.48	0.55	0.14	1.70	0.60	0.68	0.17	2.17	0.76	0.87	0.22
630	0.27	2.06	0.72	0.82	0.21	0.80	0.28	0.32	0.08	1.20	0.42	0.48	0.12	1.47	0.51	0.59	0.15	1.81	0.63	0.72	0.18	2.31	0.81	0.92	0.23
660	0.29	2.18	0.76	0.87	0.22	0.84	0.29	0.34	0.08	1.27	0.45	0.51	0.13	1.55	0.54	0.62	0.16	1.91	0.67	0.76	0.19	2.44	0.86	0.98	0.24
690	0.31	2.30	0.81	0.92	0.23	0.89	0.31	0.36	0.09	1.34	0.47	0.54	0.13	1.64	0.58	0.66	0.16	2.02	0.71	0.81	0.20	2.58	0.90	1.03	0.26
720	0.32	2.43	0.85	0.97	0.24	0.94	0.33	0.38	0.09	1.42	0.50	0.57	0.14	1.74	0.61	0.69	0.17	2.14	0.75	0.85	0.21	2.73	0.96	1.09	0.27
750	0.34	2.57	0.90	1.03	0.26	0.99	0.35	0.40	0.10	1.50	0.52	0.60	0.15	1.83	0.64	0.73	0.18	2.25	0.79	0.90	0.23	2.88	1.01	1.15	0.29
780	0.36	2.70	0.95	1.08	0.27	1.05	0.37	0.42	0.10	1.58	0.55	0.63	0.16	1.93	0.68	0.77	0.19	2.37	0.83	0.95	0.24	3.03	1.06	1.21	0.30
810	0.38	2.85	1.00	1.14	0.28	1.10	0.39	0.44	0.11	1.66	0.58	0.67	0.17	2.03	0.71	0.81	0.20	2.50	0.88	1.00	0.25	3.20	1.12	1.28	0.32
840	0.40	3.00	1.05	1.20	0.30	1.16	0.41	0.46	0.12	1.75	0.61	0.70	0.18	2.14	0.75	0.86	0.21	2.63	0.92	1.05	0.26	3.36	1.18	1.35	0.34
870	0.42	3.15	1.10	1.26	0.32	1.22	0.43	0.49	0.12	1.84	0.64	0.74	0.18	2.25	0.79	0.90	0.23	2.77	0.97	1.11	0.28	3.54	1.24	1.42	0.35
900	0.44	3.32	1.16	1.33	0.33	1.28	0.45	0.51	0.13	1.94	0.68	0.78	0.19	2.37	0.83	0.95	0.24	2.91	1.02	1.17	0.29	3.72	1.30	1.49	0.37
930	0.47	3.49	1.22	1.40	0.35	1.35	0.47	0.54	0.14	2.04	0.71	0.82	0.20	2.49	0.87	1.00	0.25	3.07	1.07	1.23	0.31	3.92	1.37	1.57	0.39
960	0.49	3.68	1.29	1.47	0.37	1.42	0.50	0.57	0.14	2.15	0.75	0.86	0.21	2.63	0.92	1.05	0.26	3.23	1.13	1.29	0.32	4.13	1.44	1.65	0.41
970	0.50	3.74	1.31	1.50	0.37	1.45	0.51	0.58	0.14	2.19	0.77	0.87	0.22	2.67	0.94	1.07	0.27	3.29	1.15	1.31	0.33	4.20	1.47	1.68	0.42
980	0.51	3.81	1.33	1.52	0.38	1.47	0.52	0.59	0.15	2.23	0.78	0.89	0.22	2.72	0.95	1.09	0.27	3.35	1.17	1.34	0.33	4.28	1.50	1.71	0.43
990	0.52	3.88	1.36	1.55	0.39	1.50	0.53	0.60	0.15	2.27	0.79	0.91	0.23	2.77	0.97	1.11	0.28	3.41	1.19	1.36	0.34	4.35	1.52	1.74	0.44
1000	0.53	3.95	1.38	1.58	0.39	1.53	0.53	0.61	0.15	2.31	0.81	0.92	0.23	2.82	0.99	1.13	0.28	3.47	1.21	1.39	0.35	4.43	1.55	1.77	0.44
1010	0.54	4.02	1.41	1.61	0.40	1.56	0.54	0.62	0.16	2.35	0.82	0.94	0.23	2.87	1.01	1.15	0.29	3.53	1.24	1.41	0.35	4.51	1.58	1.80	0.45
1020	0.55	4.10	1.43	1.64	0.41	1.59	0.55	0.63	0.16	2.39	0.84	0.96	0.24	2.93	1.02	1.17	0.29	3.60	1.26	1.44	0.36	4.60	1.61	1.84	0.46
1030	0.56	4.17	1.46	1.67	0.42	1.62	0.57	0.65	0.16	2.44	0.85	0.98	0.24	2.98	1.04	1.19	0.30	3.67	1.28	1.47	0.37	4.68	1.64	1.87	0.47
1040	0.57	4.26	1.49	1.70	0.43	1.65	0.58	0.66	0.16	2.49	0.87	0.99	0.25	3.04	1.06	1.22	0.30	3.74	1.31	1.49	0.37	4.77	1.67	1.91	0.48
1050	0.58	4.34	1.52	1.74	0.43	1.68	0.59	0.67	0.17	2.53	0.89	1.01	0.25	3.10	1.08	1.24	0.31	3.81	1.33	1.52	0.38	4.87	1.70	1.95	0.49
1060	0.59	4.43	1.55	1.77	0.44	1.71	0.60	0.69	0.17	2.59	0.91	1.03	0.26	3.16	1.11	1.26	0.32	3.89	1.36	1.56	0.39	4.97	1.74	1.99	0.50
1070	0.60	4.52	1.58	1.81	0.45	1.75	0.61	0.70	0.17	2.64	0.92	1.06	0.26	3.23	1.13	1.29	0.32	3.97	1.39	1.59	0.40	5.07	1.78	2.03	0.51
1080	0.62	4.62	1.62	1.85	0.46	1.79	0.63	0.72	0.18	2.70	0.94	1.08	0.27	3.30	1.15	1.32	0.33	4.06	1.42	1.62	0.41	5.18	1.81	2.07	0.52
1090	0.63	4.72	1.65	1.89	0.47	1.83	0.64	0.73	0.18	2.76	0.97	1.10	0.28	3.37	1.18	1.35	0.34	4.15	1.45	1.66	0.41	5.30	1.86	2.12	0.53
1100	0.65	4.84	1.69	1.94	0.48	1.87	0.66	0.75	0.19	2.83	0.99	1.13	0.28	3.45	1.21	1.38	0.35	4.25	1.49	1.70	0.42	5.43	1.90	2.17	0.54
1110	0.66	4.96	1.74	1.99	0.50	1.92	0.67	0.77	0.19	2.90	1.01	1.16	0.29	3.54	1.24	1.42	0.35	4.36	1.53	1.74	0.44	5.57	1.95	2.23	0.56
1115	0.67	5.03	1.76	2.01	0.50	1.95	0.68	0.78	0.19	2.94	1.03	1.18	0.29	3.59	1.26	1.44	0.36	4.42	1.55	1.77	0.44	5.64	1.98	2.26	0.56
1120	0.68	5.10	1.79	2.04	0.51	1.97	0.69	0.79	0.20	2.98	1.04	1.19	0.30	3.64	1.27	1.46	0.36	4.48	1.57	1.79	0.45	5.72	2.00	2.29	0.57
1125	0.69	5.18	1.81	2.07	0.52	2.00	0.70	0.80	0.20	3.02	1.06	1.21	0.30	3.70	1.29	1.48	0.37	4.55	1.59	1.82	0.45	5.81	2.03	2.32	0.58
1130	0.70	5.26	1.84	2.11	0.53	2.04	0.71	0.81	0.20	3.07	1.08	1.23	0.31	3.76	1.32	1.50	0.38	4.62	1.62	1.85	0.46	5.91	2.07	2.36	0.59
1135	0.71	5.36	1.88	2.14	0.54	2.07	0.73	0.83	0.21	3.13	1.10	1.25	0.31	3.83	1.34	1.53	0.38	4.70	1.65	1.88	0.47	6.01	2.10	2.40	0.60
1136	0.72	5.38	1.88	2.15	0.54	2.08	0.73	0.83	0.21	3.14	1.10	1.26	0.31	3.84	1.34	1.54	0.38	4.72	1.65	1.89	0.47	6.03	2.11	2.41	0.60
1137	0.72	5.40	1.89	2.16	0.54	2.09	0.73	0.84	0.21	3.15	1.10	1.26	0.32	3.85	1.35	1.54	0.39	4.74	1.66	1.90	0.47	6.06	2.12	2.42	0.61
1138	0.72	5.42	1.90	2.17	0.54	2.10	0.73	0.84	0.21	3.17	1.11	1.27	0.32	3.87	1.35	1.55	0.39	4.76	1.67	1.90	0.48	6.08	2.13	2.43	0.61
1139	0.73	5.44	1.90	2.18	0.54	2.11	0.74	0.84	0.21	3.18	1.11	1.27	0.32	3.89	1.36	1.55	0.39	4.78	1.67	1.91	0.48	6.11	2.14	2.44	0.61
1140	0.73	5.47	1.91	2.19	0.55	2.12	0.74	0.85	0.21	3.19	1.12	1.28	0.32	3.90	1.37	1.56	0.39	4.80	1.68	1.92	0.48	6.13	2.15	2.45	0.61
1145	0.75	5.60	1.96	2.24	0.56	2.17	0.76	0.87	0.22	3.27	1.14	1.31	0.33	4.00	1.40	1.60	0.40	4.92	1.72	1.97	0.49	6.28	2.20	2.51	0.63
1150	0.77	5.79	2.03	2.32	0.58	2.24	0.78	0.90	0.22	3.38	1.18	1.35	0.34	4.14	1.45	1.65	0.41	5.09	1.78	2.03	0.51	6.50	2.28	2.60	0.65
1151	0.78	5.86	2.05	2.34	0.59	2.27	0.79	0.91	0.23	3.42	1.20	1.37	0.34	4.18	1.46	1.67	0.42	5.14	1.80	2.06	0.51	6.57	2.30	2.63	0.66
1152	0.80	6.00	2.10	2.40	0.60	2.32	0.81	0.93	0.23	3.50	1.23	1.40	0.35	4.28	1.50	1.71	0.43	5.27	1.84	2.11	0.53	6.73	2.36	2.69	0.67
1153	0.81	6.07	2.13	2.43	0.61	2.35	0.82	0.94	0.24	3.55	1.24	1.42	0.35	4.34	1.52	1.73	0.43	5.33	1.87	2.13	0.53	6.82	2.39	2.73	0.68
1154	0.81	6.11	2.14	2.44	0.61	2.36	0.83	0.95	0.24	3.57	1.25	1.43	0.36	4.36	1.53	1.74	0.44	5.36	1.88	2.15	0.54	6.85	2.40	2.74	0.69
1155	0.82	6.13	2.15	2.45	0.61	2.37	0.83	0.95	0.24	3.58	1.25	1.43	0.36	4.38	1.53	1.75	0.44	5.39	1.88	2.15	0.54	6.88	2.41	2.75	0.69
1156	0.82	6.16	2.15	2.46	0.62	2.38	0.83	0.95	0.24	3.59	1.26	1.44	0.36	4.40	1.54	1.76	0.44	5.40	1.89	2.16	0.54	6.91	2.42	2.76	0.69
1157	0.82	6.18	2.16	2.47	0.62	2.39	0.84	0.96	0.24	3.61	1.26	1.44	0.36	4.41	1.54	1.76	0.44	5.42	1.90	2.17	0.54	6.93	2.42	2.77	0.69
1158	0.83	6.19	2.17	2.48	0.62	2.40	0.84	0.96	0.24	3.62	1.27	1.45	0.36	4.42	1.55	1.77	0.44	5.44	1.90	2.17	0.54	6.95	2.43	2.78	0.69
1159	0.83	6.21	2.17	2.48	0.62	2.40	0.84	0.96	0.24	3.63	1.27	1.45	0.36	4.43	1.55	1.77	0.44	5.45	1.91	2.18	0.55	6.97	2.44	2.79	0.70
1160	0.83	6.22	2.18	2.49	0.62	2.41	0.84	0.96	0.24	3.64	1.27	1.45	0.36	4.44	1.56	1.78	0.44	5.47	1.91	2.19	0.55	6.98	2.44	2.79	0.70
1161	0.83	6.24	2.18	2.50	0.62	2.41	0.85	0.97	0.24	3.64	1.28	1.46	0.36	4.45	1.56	1.78	0.45	5.48	1.92	2.19	0.55	7.00	2.45	2.80	0.70
1162	0.83	6.25	2.19	2.50	0.63	2.42	0.85	0.97	0.24	3.65	1.28	1.46	0.37	4.46	1.56	1.79	0.45	5.49	1.92	2.20	0.55	7.02	2.46	2.81	0.70
1163	0.84	6.27	2.19	2.51	0.63	2.42	0.85	0.97	0.24	3.66	1.28	1.46	0.37	4.47	1.57	1.79	0.45	5.50	1.93	2.20	0.55	7.03	2.46	2.81	0.70
1164	0.84	6.28	2.20	2.51	0.63	2.43	0.85	0.97	0.24	3.67	1.28	1.47	0.37	4.48	1.57	1.79	0.45	5.51	1.93	2.20	0.55	7.04	2.47	2.82	0.70
1165	0.84	6.29	2.20	2.52	0.63	2.43	0.85	0.97	0.24	3.67	1.29	1.47	0.37	4.49	1.57	1.80	0.45	5.52	1.93	2.21	0.55	7.06	2.47	2.82	0.71
1166	0.84	6.30	2.21	2.52	0.63	2.44	0.85	0.98	0.24	3.68	1.29	1.47	0.37	4.50	1.57	1.80	0.45	5.53	1.94	2.21	0.55	7.07	2.47	2.83	0.71
1167	0.84	6.31	2.21	2.53	0.63	2.44	0.86	0.98	0.24	3.69	1.29	1.47	0.37	4.51	1.58	1.80	0.45	5.54	1.94	2.22	0.55	7.08	2.48	2.83	0.71

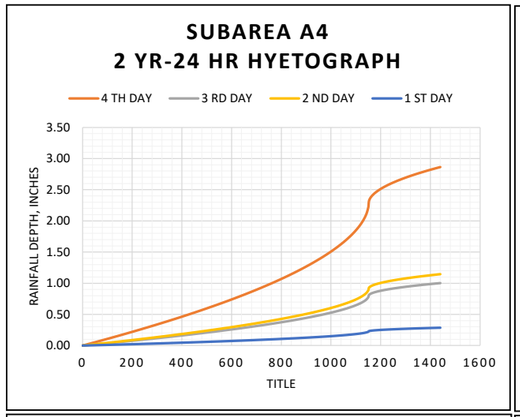
UNIT HYETOGRAPH		50 YR - 24 HR				2 YR - 24 HR				5 YR - 24 HR				10 YR - 24 HR				25 YR - 24 HR				100 YR - 24 HR			
	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth
Time	1 INCH	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY
1168	0.84	6.32	2.21	2.53	0.63	2.45	0.86	0.98	0.24	3.69	1.29	1.48	0.37	4.52	1.58	1.81	0.45	5.55	1.94	2.22	0.56	7.10	2.48	2.84	0.71
1169	0.84	6.33	2.22	2.53	0.63	2.45	0.86	0.98	0.25	3.70	1.29	1.48	0.37	4.52	1.58	1.81	0.45	5.56	1.95	2.22	0.56	7.11	2.49	2.84	0.71
1170	0.85	6.35	2.22	2.54	0.63	2.46	0.86	0.98	0.25	3.71	1.30	1.48	0.37	4.53	1.59	1.81	0.45	5.57	1.95	2.23	0.56	7.12	2.49	2.85	0.71
1171	0.85	6.36	2.22	2.54	0.64	2.46	0.86	0.98	0.25	3.71	1.30	1.48	0.37	4.54	1.59	1.82	0.45	5.58	1.95	2.23	0.56	7.13	2.50	2.85	0.71
1172	0.85	6.36	2.23	2.55	0.64	2.46	0.86	0.99	0.25	3.72	1.30	1.49	0.37	4.54	1.59	1.82	0.45	5.59	1.96	2.24	0.56	7.14	2.50	2.86	0.71
1173	0.85	6.37	2.23	2.55	0.64	2.47	0.86	0.99	0.25	3.72	1.30	1.49	0.37	4.55	1.59	1.82	0.46	5.60	1.96	2.24	0.56	7.15	2.50	2.86	0.72
1174	0.85	6.38	2.23	2.55	0.64	2.47	0.86	0.99	0.25	3.73	1.30	1.49	0.37	4.56	1.60	1.82	0.46	5.60	1.96	2.24	0.56	7.16	2.51	2.87	0.72
1175	0.85	6.39	2.24	2.56	0.64	2.47	0.87	0.99	0.25	3.73	1.31	1.49	0.37	4.56	1.60	1.83	0.46	5.61	1.96	2.25	0.56	7.17	2.51	2.87	0.72
1176	0.85	6.40	2.24	2.56	0.64	2.48	0.87	0.99	0.25	3.74	1.31	1.50	0.37	4.57	1.60	1.83	0.46	5.62	1.97	2.25	0.56	7.18	2.51	2.87	0.72
1177	0.85	6.41	2.24	2.56	0.64	2.48	0.87	0.99	0.25	3.74	1.31	1.50	0.37	4.58	1.60	1.83	0.46	5.63	1.97	2.25	0.56	7.19	2.52	2.88	0.72
1178	0.86	6.42	2.25	2.57	0.64	2.48	0.87	0.99	0.25	3.75	1.31	1.50	0.37	4.58	1.60	1.83	0.46	5.64	1.97	2.25	0.56	7.20	2.52	2.88	0.72
1179	0.86	6.43	2.25	2.57	0.64	2.49	0.87	1.00	0.25	3.75	1.31	1.50	0.38	4.59	1.61	1.84	0.46	5.64	1.98	2.26	0.56	7.21	2.52	2.88	0.72
1180	0.86	6.44	2.25	2.57	0.64	2.49	0.87	1.00	0.25	3.76	1.32	1.50	0.38	4.60	1.61	1.84	0.46	5.65	1.98	2.26	0.57	7.22	2.53	2.89	0.72
1181	0.86	6.44	2.26	2.58	0.64	2.49	0.87	1.00	0.25	3.76	1.32	1.51	0.38	4.60	1.61	1.84	0.46	5.66	1.98	2.26	0.57	7.23	2.53	2.89	0.72
1182	0.86	6.45	2.26	2.58	0.65	2.50	0.87	1.00	0.25	3.77	1.32	1.51	0.38	4.61	1.61	1.84	0.46	5.67	1.98	2.27	0.57	7.24	2.53	2.90	0.72
1183	0.86	6.46	2.26	2.58	0.65	2.50	0.88	1.00	0.25	3.77	1.32	1.51	0.38	4.61	1.61	1.85	0.46	5.67	1.99	2.27	0.57	7.25	2.54	2.90	0.72
1184	0.86	6.47	2.26	2.59	0.65	2.50	0.88	1.00	0.25	3.78	1.32	1.51	0.38	4.62	1.62	1.85	0.46	5.68	1.99	2.27	0.57	7.26	2.54	2.90	0.73
1185	0.86	6.48	2.27	2.59	0.65	2.51	0.88	1.00	0.25	3.78	1.32	1.51	0.38	4.62	1.62	1.85	0.46	5.69	1.99	2.27	0.57	7.27	2.54	2.91	0.73
1186	0.86	6.48	2.27	2.59	0.65	2.51	0.88	1.00	0.25	3.79	1.33	1.51	0.38	4.63	1.62	1.85	0.46	5.69	1.99	2.28	0.57	7.27	2.55	2.91	0.73
1187	0.87	6.49	2.27	2.60	0.65	2.51	0.88	1.00	0.25	3.79	1.33	1.52	0.38	4.63	1.62	1.85	0.46	5.70	1.99	2.28	0.57	7.28	2.55	2.91	0.73
1188	0.87	6.50	2.27	2.60	0.65	2.51	0.88	1.01	0.25	3.79	1.33	1.52	0.38	4.64	1.62	1.86	0.46	5.71	2.00	2.28	0.57	7.29	2.55	2.92	0.73
1189	0.87	6.51	2.28	2.60	0.65	2.52	0.88	1.01	0.25	3.80	1.33	1.52	0.38	4.64	1.63	1.86	0.46	5.71	2.00	2.28	0.57	7.30	2.55	2.92	0.73
1190	0.87	6.51	2.28	2.61	0.65	2.52	0.88	1.01	0.25	3.80	1.33	1.52	0.38	4.65	1.63	1.86	0.47	5.72	2.00	2.29	0.57	7.31	2.56	2.92	0.73
1191	0.87	6.52	2.28	2.61	0.65	2.52	0.88	1.01	0.25	3.81	1.33	1.52	0.38	4.66	1.63	1.86	0.47	5.72	2.00	2.29	0.57	7.32	2.56	2.93	0.73
1192	0.87	6.53	2.28	2.61	0.65	2.53	0.88	1.01	0.25	3.81	1.33	1.52	0.38	4.66	1.63	1.86	0.47	5.73	2.01	2.29	0.57	7.32	2.56	2.93	0.73
1193	0.87	6.53	2.29	2.61	0.65	2.53	0.89	1.01	0.25	3.82	1.34	1.53	0.38	4.67	1.63	1.87	0.47	5.74	2.01	2.29	0.57	7.33	2.57	2.93	0.73
1194	0.87	6.54	2.29	2.62	0.65	2.53	0.89	1.01	0.25	3.82	1.34	1.53	0.38	4.67	1.63	1.87	0.47	5.74	2.01	2.30	0.57	7.34	2.57	2.94	0.73
1195	0.87	6.55	2.29	2.62	0.65	2.53	0.89	1.01	0.25	3.82	1.34	1.53	0.38	4.67	1.64	1.87	0.47	5.75	2.01	2.30	0.57	7.35	2.57	2.94	0.73
1196	0.87	6.55	2.29	2.62	0.66	2.54	0.89	1.01	0.25	3.83	1.34	1.53	0.38	4.68	1.64	1.87	0.47	5.75	2.01	2.30	0.58	7.35	2.57	2.94	0.74
1197	0.87	6.56	2.30	2.62	0.66	2.54	0.89	1.02	0.25	3.83	1.34	1.53	0.38	4.68	1.64	1.87	0.47	5.76	2.02	2.30	0.58	7.36	2.58	2.94	0.74
1198	0.88	6.57	2.30	2.63	0.66	2.54	0.89	1.02	0.25	3.84	1.34	1.53	0.38	4.69	1.64	1.88	0.47	5.77	2.02	2.31	0.58	7.37	2.58	2.95	0.74
1199	0.88	6.57	2.30	2.63	0.66	2.54	0.89	1.02	0.25	3.84	1.34	1.54	0.38	4.69	1.64	1.88	0.47	5.77	2.02	2.31	0.58	7.38	2.58	2.95	0.74
1200	0.88	6.58	2.30	2.63	0.66	2.55	0.89	1.02	0.25	3.84	1.35	1.54	0.38	4.70	1.64	1.88	0.47	5.78	2.02	2.31	0.58	7.38	2.58	2.95	0.74
1201	0.88	6.59	2.31	2.63	0.66	2.55	0.89	1.02	0.25	3.85	1.35	1.54	0.38	4.70	1.65	1.88	0.47	5.78	2.02	2.31	0.58	7.39	2.59	2.96	0.74
1202	0.88	6.59	2.31	2.64	0.66	2.55	0.89	1.02	0.26	3.85	1.35	1.54	0.39	4.71	1.65	1.88	0.47	5.79	2.03	2.32	0.58	7.40	2.59	2.96	0.74
1203	0.88	6.60	2.31	2.64	0.66	2.55	0.89	1.02	0.26	3.85	1.35	1.54	0.39	4.71	1.65	1.88	0.47	5.79	2.03	2.32	0.58	7.40	2.59	2.96	0.74
1204	0.88	6.61	2.31	2.64	0.66	2.56	0.89	1.02	0.26	3.86	1.35	1.54	0.39	4.72	1.65	1.89	0.47	5.80	2.03	2.32	0.58	7.41	2.59	2.96	0.74
1205	0.88	6.61	2.31	2.64	0.66	2.56	0.90	1.02	0.26	3.86	1.35	1.54	0.39	4.72	1.65	1.89	0.47	5.81	2.03	2.32	0.58	7.42	2.60	2.97	0.74
1206	0.88	6.62	2.32	2.65	0.66	2.56	0.90	1.02	0.26	3.86	1.35	1.55	0.39	4.73	1.65	1.89	0.47	5.81	2.03	2.32	0.58	7.43	2.60	2.97	0.74
1207	0.88	6.62	2.32	2.65	0.66	2.56	0.90	1.03	0.26	3.87	1.35	1.55	0.39	4.73	1.66	1.89	0.47	5.82	2.04	2.33	0.58	7.43	2.60	2.97	0.74
1208	0.88	6.63	2.32	2.65	0.66	2.57	0.90	1.03	0.26	3.87	1.36	1.55	0.39	4.73	1.66	1.89	0.47	5.82	2.04	2.33	0.58	7.44	2.60	2.98	0.74
1209	0.88	6.64	2.32	2.65	0.66	2.57	0.90	1.03	0.26	3.88	1.36	1.55	0.39	4.74	1.66	1.90	0.47	5.83	2.04	2.33	0.58	7.45	2.61	2.98	0.74
1210	0.89	6.64	2.32	2.66	0.66	2.57	0.90	1.03	0.26	3.88	1.36	1.55	0.39	4.74	1.66	1.90	0.47	5.83	2.04	2.33	0.58	7.45	2.61	2.98	0.75
1211	0.89	6.65	2.33	2.66	0.66	2.57	0.90	1.03	0.26	3.88	1.36	1.55	0.39	4.75	1.66	1.90	0.47	5.84	2.04	2.33	0.58	7.46	2.61	2.98	0.75
1212	0.89	6.65	2.33	2.66	0.67	2.57	0.90	1.03	0.26	3.89	1.36	1.55	0.39	4.75	1.66	1.90	0.48	5.84	2.04	2.34	0.58	7.46	2.61	2.99	0.75
1213	0.89	6.66	2.33	2.66	0.67	2.58	0.90	1.03	0.26	3.89	1.36	1.56	0.39	4.75	1.66	1.90	0.48	5.85	2.05	2.34	0.58	7.47	2.61	2.99	0.75
1214	0.89	6.66	2.33	2.67	0.67	2.58	0.90	1.03	0.26	3.89	1.36	1.56	0.39	4.76	1.67	1.90	0.48	5.85	2.05	2.34	0.59	7.48	2.62	2.99	0.75
1215	0.89	6.67	2.33	2.67	0.67	2.58	0.90	1.03	0.26	3.90	1.36	1.56	0.39	4.76	1.67	1.91	0.48	5.86	2.05	2.34	0.59	7.48	2.62	2.99	0.75
1216	0.89	6.68	2.34	2.67	0.67	2.58	0.90	1.03	0.26	3.90	1.36	1.56	0.39	4.77	1.67	1.91	0.48	5.86	2.05	2.34	0.59	7.49	2.62	3.00	0.75
1217	0.89	6.68	2.34	2.67	0.67	2.59	0.91	1.03	0.26	3.90	1.37	1.56	0.39	4.77	1.67	1.91	0.48	5.87	2.05	2.35	0.59	7.50	2.62	3.00	0.75
1218	0.89	6.69	2.34	2.67	0.67	2.59	0.91	1.04	0.26	3.91	1.37	1.56	0.39	4.77	1.67	1.91	0.48	5.87	2.05	2.35	0.59	7.50	2.63	3.00	0.75
1219	0.89	6.69	2.34	2.68	0.67	2.59	0.91	1.04	0.26	3.91	1.37	1.56	0.39	4.78	1.67	1.91	0.48	5.88	2.06	2.35	0.59	7.51	2.63	3.00	0.75
1220	0.89	6.70	2.34	2.68	0.67	2.59	0.91	1.04	0.26	3.91	1.37	1.56	0.39	4.78	1.67	1.91	0.48	5.88	2.06	2.35	0.59	7.52	2.63	3.01	0.75
1221	0.89	6.70	2.35	2.68	0.67	2.59	0.91	1.04	0.26	3.91	1.37	1.57	0.39	4.79	1.68	1.91	0.48	5.89	2.06	2.35	0.59	7.52	2.63	3.01	0.75
1222	0.89	6.71	2.35	2.68	0.67	2.60	0.91	1.04	0.26	3.92	1.37	1.57	0.39	4.79	1.68	1.92	0.48	5.89	2.06	2.36	0.59	7.53	2.63	3.01	0.75
1223	0.90	6.71	2.35	2.69	0.67	2.60	0.91	1.04	0.26	3.92	1.37	1.57	0.39	4.79	1.68	1.92	0.48	5.90	2.06	2.36	0.59	7.53	2.64	3.01	0.75
1224	0.90	6.72	2.35	2.69	0.67	2.60	0.91	1.04	0.26	3.92	1.37	1.57	0.39	4.80	1.68	1.92	0.48	5.90	2.06	2.36	0.59	7.54	2.64	3.02	0.75
1225	0.90	6.72	2.35	2.69	0.67	2.60	0.91	1.04	0.26	3.93	1.37	1.57	0.39	4.80	1.68	1.92	0.48	5.90	2.07	2.36	0.59	7.55	2.64	3.02	0.75
1226	0.90	6.73	2.36	2.69	0.67	2.60	0.91	1.04	0.26	3.93	1.38	1.57	0.39	4.81	1.68	1.92	0.48	5.91	2.07	2.36	0.59	7.55	2.64	3.02	0.76
1227	0.90	6.74	2.36	2.69	0.67	2.61	0.91	1.04	0.26	3.93	1.38	1.57	0.39	4.81	1.68	1.92	0.48	5.91	2.07	2.37	0.59	7.56	2.64	3.02	0.76
1228	0.90	6.74	2.36	2.70	0.67	2.61	0.91	1.04	0.26	3.94	1.38	1.57	0.39	4.81	1.68	1.93	0.48	5.92	2.07	2.37	0.59	7.56	2.65	3.03	0.76
1229	0.90	6.75	2.36	2.70	0.67	2.61	0.91	1.04	0.26	3.94	1.38	1.58	0.39	4.82	1.69	1.93	0.48	5.92	2.07	2.37	0.59	7.57	2.65	3.03	0.76

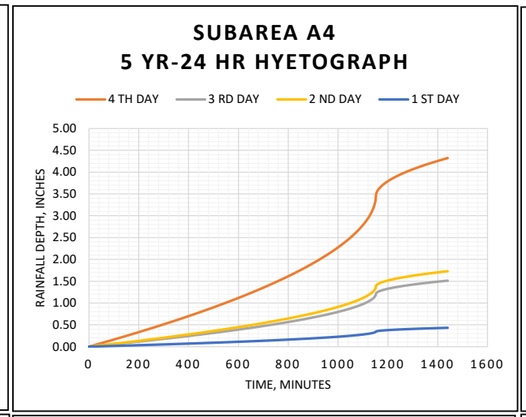
UNIT HYETOGRAPH		50 YR - 24 HR				2 YR - 24 HR				5 YR - 24 HR				10 YR - 24 HR				25 YR - 24 HR				100 YR - 24 HR			
	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth
Time	1 INCH	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY
1230	0.90	6.75	2.36	2.70	0.68	2.61	0.91	1.04	0.26	3.94	1.38	1.58	0.39	4.82	1.69	1.93	0.48	5.93	2.07	2.37	0.59	7.57	2.65	3.03	0.76
1231	0.90	6.76	2.36	2.70	0.68	2.61	0.92	1.05	0.26	3.95	1.38	1.58	0.39	4.82	1.69	1.93	0.48	5.93	2.08	2.37	0.59	7.58	2.65	3.03	0.76
1232	0.90	6.76	2.37	2.70	0.68	2.62	0.92	1.05	0.26	3.95	1.38	1.58	0.39	4.83	1.69	1.93	0.48	5.94	2.08	2.37	0.59	7.59	2.65	3.03	0.76
1233	0.90	6.77	2.37	2.71	0.68	2.62	0.92	1.05	0.26	3.95	1.38	1.58	0.40	4.83	1.69	1.93	0.48	5.94	2.08	2.38	0.59	7.59	2.66	3.04	0.76
1234	0.90	6.77	2.37	2.71	0.68	2.62	0.92	1.05	0.26	3.95	1.38	1.58	0.40	4.83	1.69	1.93	0.48	5.94	2.08	2.38	0.59	7.60	2.66	3.04	0.76
1235	0.90	6.78	2.37	2.71	0.68	2.62	0.92	1.05	0.26	3.96	1.38	1.58	0.40	4.84	1.69	1.94	0.48	5.95	2.08	2.38	0.59	7.60	2.66	3.04	0.76
1240	0.91	6.80	2.38	2.72	0.68	2.63	0.92	1.05	0.26	3.97	1.39	1.59	0.40	4.86	1.70	1.94	0.49	5.97	2.09	2.39	0.60	7.63	2.67	3.05	0.76
1245	0.91	6.82	2.39	2.73	0.68	2.64	0.92	1.06	0.26	3.99	1.39	1.59	0.40	4.87	1.71	1.95	0.49	5.99	2.10	2.40	0.60	7.66	2.68	3.06	0.77
1250	0.91	6.85	2.40	2.74	0.68	2.65	0.93	1.06	0.26	4.00	1.40	1.60	0.40	4.89	1.71	1.96	0.49	6.01	2.10	2.40	0.60	7.68	2.69	3.07	0.77
1255	0.92	6.87	2.40	2.75	0.69	2.66	0.93	1.06	0.27	4.01	1.40	1.60	0.40	4.91	1.72	1.96	0.49	6.03	2.11	2.41	0.60	7.71	2.70	3.08	0.77
1260	0.92	6.89	2.41	2.76	0.69	2.67	0.93	1.07	0.27	4.02	1.41	1.61	0.40	4.92	1.72	1.97	0.49	6.05	2.12	2.42	0.61	7.73	2.71	3.09	0.77
1265	0.92	6.91	2.42	2.77	0.69	2.68	0.94	1.07	0.27	4.04	1.41	1.62	0.40	4.94	1.73	1.97	0.49	6.07	2.12	2.43	0.61	7.76	2.71	3.10	0.78
1270	0.92	6.93	2.43	2.77	0.69	2.68	0.94	1.07	0.27	4.05	1.42	1.62	0.40	4.95	1.73	1.98	0.50	6.09	2.13	2.44	0.61	7.78	2.72	3.11	0.78
1275	0.93	6.96	2.43	2.78	0.70	2.69	0.94	1.08	0.27	4.06	1.42	1.62	0.41	4.97	1.74	1.99	0.50	6.11	2.14	2.44	0.61	7.80	2.73	3.12	0.78
1280	0.93	6.98	2.44	2.79	0.70	2.70	0.94	1.08	0.27	4.07	1.43	1.63	0.41	4.98	1.74	1.99	0.50	6.12	2.14	2.45	0.61	7.83	2.74	3.13	0.78
1285	0.93	7.00	2.45	2.80	0.70	2.71	0.95	1.08	0.27	4.09	1.43	1.63	0.41	5.00	1.75	2.00	0.50	6.14	2.15	2.46	0.61	7.85	2.75	3.14	0.78
1290	0.94	7.02	2.46	2.81	0.70	2.72	0.95	1.09	0.27	4.10	1.43	1.64	0.41	5.01	1.75	2.00	0.50	6.16	2.16	2.46	0.62	7.87	2.76	3.15	0.79
1295	0.94	7.04	2.46	2.81	0.70	2.72	0.95	1.09	0.27	4.11	1.44	1.64	0.41	5.02	1.76	2.01	0.50	6.18	2.16	2.47	0.62	7.89	2.76	3.16	0.79
1300	0.94	7.05	2.47	2.82	0.71	2.73	0.96	1.09	0.27	4.12	1.44	1.65	0.41	5.04	1.76	2.01	0.50	6.19	2.17	2.48	0.62	7.91	2.77	3.17	0.79
1305	0.94	7.07	2.48	2.83	0.71	2.74	0.96	1.09	0.27	4.13	1.45	1.65	0.41	5.05	1.77	2.02	0.50	6.21	2.17	2.48	0.62	7.94	2.78	3.17	0.79
1310	0.95	7.09	2.48	2.84	0.71	2.74	0.96	1.10	0.27	4.14	1.45	1.66	0.41	5.06	1.77	2.03	0.51	6.23	2.18	2.49	0.62	7.96	2.78	3.18	0.80
1315	0.95	7.11	2.49	2.84	0.71	2.75	0.96	1.10	0.28	4.15	1.45	1.66	0.42	5.08	1.78	2.03	0.51	6.24	2.18	2.50	0.62	7.98	2.79	3.19	0.80
1320	0.95	7.13	2.49	2.85	0.71	2.76	0.97	1.10	0.28	4.16	1.46	1.66	0.42	5.09	1.78	2.04	0.51	6.26	2.19	2.50	0.63	8.00	2.80	3.20	0.80
1325	0.95	7.14	2.50	2.86	0.71	2.77	0.97	1.11	0.28	4.17	1.46	1.67	0.42	5.10	1.79	2.04	0.51	6.27	2.20	2.51	0.63	8.02	2.81	3.21	0.80
1330	0.95	7.16	2.51	2.86	0.72	2.77	0.97	1.11	0.28	4.18	1.46	1.67	0.42	5.11	1.79	2.05	0.51	6.29	2.20	2.52	0.63	8.04	2.81	3.21	0.80
1335	0.96	7.18	2.51	2.87	0.72	2.78	0.97	1.11	0.28	4.19	1.47	1.68	0.42	5.13	1.79	2.05	0.51	6.30	2.21	2.52	0.63	8.06	2.82	3.22	0.81
1340	0.96	7.20	2.52	2.88	0.72	2.79	0.97	1.11	0.28	4.20	1.47	1.68	0.42	5.14	1.80	2.06	0.51	6.32	2.21	2.53	0.63	8.07	2.83	3.23	0.81
1345	0.96	7.21	2.52	2.89	0.72	2.79	0.98	1.12	0.28	4.21	1.47	1.69	0.42	5.15	1.80	2.06	0.52	6.33	2.22	2.53	0.63	8.09	2.83	3.24	0.81
1350	0.96	7.23	2.53	2.89	0.72	2.80	0.98	1.12	0.28	4.22	1.48	1.69	0.42	5.16	1.81	2.06	0.52	6.35	2.22	2.54	0.63	8.11	2.84	3.24	0.81
1355	0.97	7.25	2.54	2.90	0.72	2.80	0.98	1.12	0.28	4.23	1.48	1.69	0.42	5.17	1.81	2.07	0.52	6.36	2.23	2.54	0.64	8.13	2.85	3.25	0.81
1360	0.97	7.26	2.54	2.90	0.73	2.81	0.98	1.12	0.28	4.24	1.48	1.70	0.42	5.19	1.81	2.07	0.52	6.38	2.23	2.55	0.64	8.15	2.85	3.26	0.81
1365	0.97	7.28	2.55	2.91	0.73	2.82	0.99	1.13	0.28	4.25	1.49	1.70	0.43	5.20	1.82	2.08	0.52	6.39	2.24	2.56	0.64	8.17	2.86	3.27	0.82
1370	0.97	7.29	2.55	2.92	0.73	2.82	0.99	1.13	0.28	4.26	1.49	1.70	0.43	5.21	1.82	2.08	0.52	6.40	2.24	2.56	0.64	8.18	2.86	3.27	0.82
1375	0.97	7.31	2.56	2.92	0.73	2.83	0.99	1.13	0.28	4.27	1.49	1.71	0.43	5.22	1.83	2.09	0.52	6.42	2.25	2.57	0.64	8.20	2.87	3.28	0.82
1380	0.98	7.33	2.56	2.93	0.73	2.83	0.99	1.13	0.28	4.28	1.50	1.71	0.43	5.23	1.83	2.09	0.52	6.43	2.25	2.57	0.64	8.22	2.88	3.29	0.82
1385	0.98	7.34	2.57	2.94	0.73	2.84	0.99	1.14	0.28	4.29	1.50	1.71	0.43	5.24	1.83	2.10	0.52	6.45	2.26	2.58	0.64	8.24	2.88	3.29	0.82
1390	0.98	7.36	2.57	2.94	0.74	2.85	1.00	1.14	0.28	4.30	1.50	1.72	0.43	5.25	1.84	2.10	0.53	6.46	2.26	2.58	0.65	8.25	2.89	3.30	0.83
1395	0.98	7.37	2.58	2.95	0.74	2.85	1.00	1.14	0.29	4.30	1.51	1.72	0.43	5.26	1.84	2.11	0.53	6.47	2.27	2.59	0.65	8.27	2.89	3.31	0.83
1400	0.98	7.39	2.58	2.95	0.74	2.86	1.00	1.14	0.29	4.31	1.51	1.73	0.43	5.27	1.85	2.11	0.53	6.48	2.27	2.59	0.65	8.29	2.90	3.31	0.83
1405	0.99	7.40	2.59	2.96	0.74	2.86	1.00	1.15	0.29	4.32	1.51	1.73	0.43	5.28	1.85	2.11	0.53	6.50	2.27	2.60	0.65	8.30	2.91	3.32	0.83
1410	0.99	7.42	2.60	2.97	0.74	2.87	1.00	1.15	0.29	4.33	1.52	1.73	0.43	5.29	1.85	2.12	0.53	6.51	2.28	2.60	0.65	8.32	2.91	3.33	0.83
1415	0.99	7.43	2.60	2.97	0.74	2.88	1.01	1.15	0.29	4.34	1.52	1.74	0.43	5.30	1.86	2.12	0.53	6.52	2.28	2.61	0.65	8.34	2.92	3.33	0.83
1420	0.99	7.44	2.61	2.98	0.74	2.88	1.01	1.15	0.29	4.35	1.52	1.74	0.43	5.31	1.86	2.13	0.53	6.54	2.29	2.61	0.65	8.35	2.92	3.34	0.84
1425	0.99	7.46	2.61	2.98	0.75	2.89	1.01	1.15	0.29	4.36	1.52	1.74	0.44	5.33	1.86	2.13	0.53	6.55	2.29	2.62	0.65	8.37	2.93	3.35	0.84
1430	1.00	7.47	2.62	2.99	0.75	2.89	1.01	1.16	0.29	4.36	1.53	1.75	0.44	5.34	1.87	2.13	0.53	6.56	2.30	2.62	0.66	8.38	2.93	3.35	0.84
1435	1.00	7.49	2.62	2.99	0.75	2.90	1.01	1.16	0.29	4.37	1.53	1.75	0.44	5.35	1.87	2.14	0.53	6.57	2.30	2.63	0.66	8.40	2.94	3.36	0.84
1440	1.00	7.50	2.63	3.00	0.75	2.90	1.02	1.16	0.29	4.38	1.53	1.75	0.44	5.36	1.87	2.14	0.54	6.59	2.30	2.63	0.66	8.42	2.95	3.37	0.84

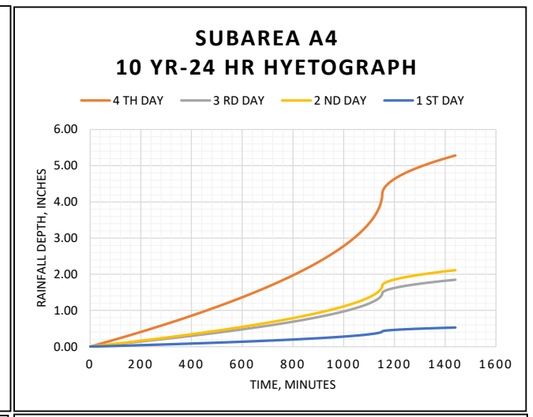
SUBAREA A4 HYETOPRAPHS

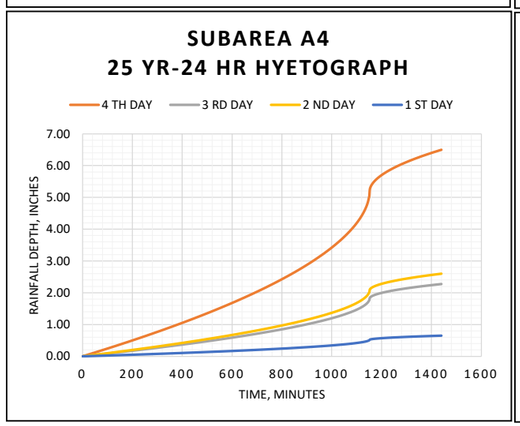
- Per 2006 Los Angeles County Hydrology Manual Appendix A

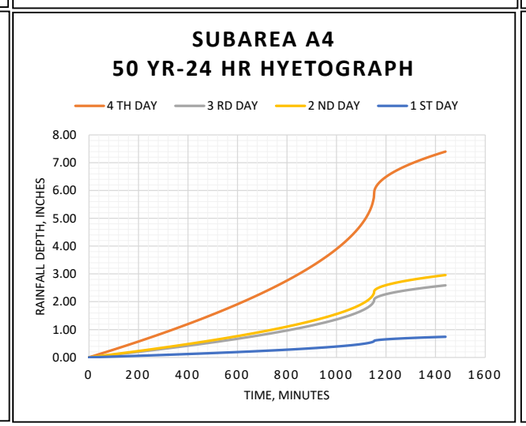
24 HR ISOHYETS,IN					
50 YR	2 YR	5 YR	10 YR	25 YR	100 YR
7.4	2.9	4.3	5.3	6.5	8.3

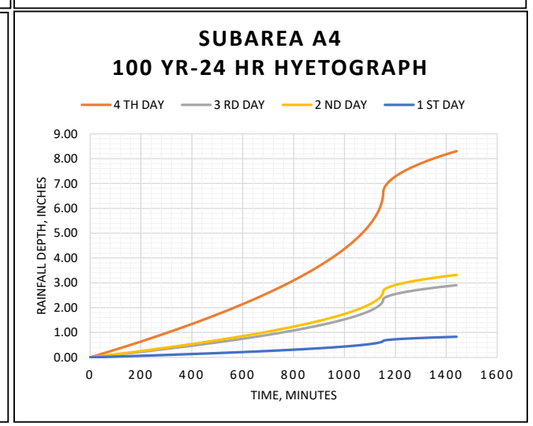












UNIT HYETOGRAPH	50 YR - 24 HR					2 YR - 24 HR				5 YR - 24 HR				10 YR - 24 HR				25 YR - 24 HR				100 YR - 24 HR			
	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth
Time	1 INCH	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30	0.01	0.08	0.03	0.03	0.01	0.03	0.01	0.01	0.00	0.05	0.02	0.02	0.00	0.06	0.02	0.02	0.01	0.07	0.03	0.03	0.01	0.09	0.03	0.04	0.01
60	0.02	0.17	0.06	0.07	0.02	0.06	0.02	0.03	0.01	0.10	0.03	0.04	0.01	0.12	0.04	0.05	0.01	0.15	0.05	0.06	0.01	0.19	0.06	0.07	0.02
90	0.03	0.25	0.09	0.10	0.02	0.10	0.03	0.04	0.01	0.15	0.05	0.06	0.01	0.18	0.06	0.07	0.02	0.22	0.08	0.09	0.02	0.28	0.10	0.11	0.03
120	0.05	0.34	0.12	0.13	0.03	0.13	0.05	0.05	0.01	0.20	0.07	0.08	0.02	0.24	0.08	0.10	0.02	0.29	0.10	0.12	0.03	0.38	0.13	0.15	0.04
150	0.06	0.42	0.15	0.17	0.04	0.16	0.06	0.07	0.02	0.25	0.09	0.10	0.02	0.30	0.11	0.12	0.03	0.37	0.13	0.15	0.04	0.47	0.17	0.19	0.05
180	0.07	0.51	0.18	0.20	0.05	0.20	0.07	0.08	0.02	0.30	0.10	0.12	0.03	0.36	0.13	0.15	0.04	0.45	0.16	0.18	0.04	0.57	0.20	0.23	0.06
210	0.08	0.60	0.21	0.24	0.06	0.23	0.08	0.09	0.02	0.35	0.12	0.14	0.03	0.43	0.15	0.17	0.04	0.53	0.18	0.21	0.05	0.67	0.24	0.27	0.07
240	0.09	0.69	0.24	0.28	0.07	0.27	0.09	0.11	0.03	0.40	0.14	0.16	0.04	0.49	0.17	0.20	0.05	0.61	0.21	0.24	0.06	0.77	0.27	0.31	0.08
270	0.11	0.78	0.27	0.31	0.08	0.30	0.11	0.12	0.03	0.46	0.16	0.18	0.05	0.56	0.20	0.22	0.06	0.69	0.24	0.27	0.07	0.88	0.31	0.35	0.09
300	0.12	0.87	0.31	0.35	0.09	0.34	0.12	0.14	0.03	0.51	0.18	0.20	0.05	0.62	0.22	0.25	0.06	0.77	0.27	0.31	0.08	0.98	0.34	0.39	0.10
330	0.13	0.97	0.34	0.39	0.10	0.38	0.13	0.15	0.04	0.57	0.20	0.23	0.06	0.69	0.24	0.28	0.07	0.85	0.30	0.34	0.09	1.09	0.38	0.44	0.11
360	0.14	1.07	0.37	0.43	0.11	0.41	0.14	0.17	0.04	0.62	0.22	0.25	0.06	0.76	0.27	0.30	0.08	0.94	0.33	0.37	0.09	1.20	0.42	0.48	0.12
390	0.16	1.16	0.41	0.47	0.12	0.45	0.16	0.18	0.05	0.68	0.24	0.27	0.07	0.83	0.29	0.33	0.08	1.02	0.36	0.41	0.10	1.31	0.46	0.52	0.13
420	0.17	1.26	0.44	0.51	0.13	0.49	0.17	0.20	0.05	0.74	0.26	0.30	0.07	0.90	0.32	0.36	0.09	1.11	0.39	0.44	0.11	1.42	0.50	0.57	0.14
450	0.18	1.37	0.48	0.55	0.14	0.53	0.19	0.21	0.05	0.80	0.28	0.32	0.08	0.98	0.34	0.39	0.10	1.20	0.42	0.48	0.12	1.53	0.54	0.61	0.15

UNIT HYETOGRAPH		50 YR - 24 HR				2 YR - 24 HR				5 YR - 24 HR				10 YR - 24 HR				25 YR - 24 HR				100 YR - 24 HR			
	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth
Time	1 INCH	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY
480	0.20	1.47	0.51	0.59	0.15	0.57	0.20	0.23	0.06	0.86	0.30	0.34	0.09	1.05	0.37	0.42	0.11	1.29	0.45	0.52	0.13	1.65	0.58	0.66	0.17
510	0.21	1.58	0.55	0.63	0.16	0.61	0.21	0.24	0.06	0.92	0.32	0.37	0.09	1.13	0.39	0.45	0.11	1.38	0.48	0.55	0.14	1.77	0.62	0.71	0.18
540	0.23	1.69	0.59	0.67	0.17	0.65	0.23	0.26	0.07	0.98	0.34	0.39	0.10	1.20	0.42	0.48	0.12	1.48	0.52	0.59	0.15	1.89	0.66	0.76	0.19
570	0.24	1.80	0.63	0.72	0.18	0.70	0.24	0.28	0.07	1.05	0.37	0.42	0.10	1.28	0.45	0.51	0.13	1.58	0.55	0.63	0.16	2.02	0.71	0.81	0.20
600	0.26	1.91	0.67	0.76	0.19	0.74	0.26	0.30	0.07	1.12	0.39	0.45	0.11	1.36	0.48	0.55	0.14	1.68	0.59	0.67	0.17	2.14	0.75	0.86	0.21
630	0.27	2.03	0.71	0.81	0.20	0.79	0.27	0.31	0.08	1.18	0.41	0.47	0.12	1.45	0.51	0.58	0.14	1.78	0.62	0.71	0.18	2.28	0.80	0.91	0.23
660	0.29	2.15	0.75	0.86	0.21	0.83	0.29	0.33	0.08	1.25	0.44	0.50	0.13	1.53	0.54	0.61	0.15	1.89	0.66	0.75	0.19	2.41	0.84	0.96	0.24
690	0.31	2.27	0.80	0.91	0.23	0.88	0.31	0.35	0.09	1.33	0.46	0.53	0.13	1.62	0.57	0.65	0.16	2.00	0.70	0.80	0.20	2.55	0.89	1.02	0.25
720	0.32	2.40	0.84	0.96	0.24	0.93	0.33	0.37	0.09	1.40	0.49	0.56	0.14	1.71	0.60	0.69	0.17	2.11	0.74	0.84	0.21	2.69	0.94	1.08	0.27
750	0.34	2.53	0.89	1.01	0.25	0.98	0.34	0.39	0.10	1.48	0.52	0.59	0.15	1.81	0.63	0.72	0.18	2.22	0.78	0.89	0.22	2.84	0.99	1.14	0.28
780	0.36	2.67	0.93	1.07	0.27	1.03	0.36	0.41	0.10	1.56	0.55	0.62	0.16	1.91	0.67	0.76	0.19	2.34	0.82	0.94	0.23	2.99	1.05	1.20	0.30
810	0.38	2.81	0.98	1.12	0.28	1.09	0.38	0.43	0.11	1.64	0.57	0.66	0.16	2.01	0.70	0.80	0.20	2.47	0.86	0.99	0.25	3.15	1.10	1.26	0.32
840	0.40	2.96	1.04	1.18	0.30	1.14	0.40	0.46	0.11	1.73	0.60	0.69	0.17	2.11	0.74	0.84	0.21	2.60	0.91	1.04	0.26	3.32	1.16	1.33	0.33
870	0.42	3.11	1.09	1.24	0.31	1.20	0.42	0.48	0.12	1.82	0.64	0.73	0.18	2.22	0.78	0.89	0.22	2.73	0.96	1.09	0.27	3.49	1.22	1.40	0.35
900	0.44	3.27	1.15	1.31	0.33	1.27	0.44	0.51	0.13	1.91	0.67	0.76	0.19	2.34	0.82	0.94	0.23	2.88	1.01	1.15	0.29	3.67	1.29	1.47	0.37
930	0.47	3.45	1.21	1.38	0.34	1.33	0.47	0.53	0.13	2.01	0.70	0.81	0.20	2.46	0.86	0.98	0.25	3.03	1.06	1.21	0.30	3.87	1.35	1.55	0.39
960	0.49	3.63	1.27	1.45	0.36	1.40	0.49	0.56	0.14	2.12	0.74	0.85	0.21	2.59	0.91	1.04	0.26	3.19	1.12	1.27	0.32	4.07	1.43	1.63	0.41
970	0.50	3.69	1.29	1.48	0.37	1.43	0.50	0.57	0.14	2.16	0.75	0.86	0.22	2.64	0.92	1.05	0.26	3.24	1.14	1.30	0.32	4.14	1.45	1.66	0.41
980	0.51	3.76	1.32	1.50	0.38	1.45	0.51	0.58	0.15	2.20	0.77	0.88	0.22	2.68	0.94	1.07	0.27	3.30	1.16	1.32	0.33	4.22	1.48	1.69	0.42
990	0.52	3.83	1.34	1.53	0.38	1.48	0.52	0.59	0.15	2.23	0.78	0.89	0.22	2.73	0.96	1.09	0.27	3.36	1.18	1.34	0.34	4.29	1.50	1.72	0.43
1000	0.53	3.90	1.36	1.56	0.39	1.51	0.53	0.60	0.15	2.28	0.80	0.91	0.23	2.78	0.97	1.11	0.28	3.42	1.20	1.37	0.34	4.37	1.53	1.75	0.44
1010	0.54	3.97	1.39	1.59	0.40	1.54	0.54	0.61	0.15	2.32	0.81	0.93	0.23	2.83	0.99	1.13	0.28	3.48	1.22	1.39	0.35	4.45	1.56	1.78	0.45
1020	0.55	4.04	1.41	1.62	0.40	1.56	0.55	0.63	0.16	2.36	0.83	0.94	0.24	2.89	1.01	1.15	0.29	3.55	1.24	1.42	0.35	4.54	1.59	1.81	0.45
1030	0.56	4.12	1.44	1.65	0.41	1.59	0.56	0.64	0.16	2.41	0.84	0.96	0.24	2.94	1.03	1.18	0.29	3.62	1.27	1.45	0.36	4.62	1.62	1.85	0.46
1040	0.57	4.20	1.47	1.68	0.42	1.62	0.57	0.65	0.16	2.45	0.86	0.98	0.25	3.00	1.05	1.20	0.30	3.69	1.29	1.47	0.37	4.71	1.65	1.88	0.47
1050	0.58	4.28	1.50	1.71	0.43	1.66	0.58	0.66	0.17	2.50	0.88	1.00	0.25	3.06	1.07	1.22	0.31	3.76	1.32	1.50	0.38	4.80	1.68	1.92	0.48
1060	0.59	4.37	1.53	1.75	0.44	1.69	0.59	0.68	0.17	2.55	0.89	1.02	0.26	3.12	1.09	1.25	0.31	3.84	1.34	1.53	0.38	4.90	1.72	1.96	0.49
1070	0.60	4.46	1.56	1.78	0.45	1.73	0.60	0.69	0.17	2.61	0.91	1.04	0.26	3.19	1.11	1.27	0.32	3.92	1.37	1.57	0.39	5.01	1.75	2.00	0.50
1080	0.62	4.56	1.60	1.82	0.46	1.76	0.62	0.71	0.18	2.66	0.93	1.06	0.27	3.25	1.14	1.30	0.33	4.00	1.40	1.60	0.40	5.11	1.79	2.05	0.51
1090	0.63	4.66	1.63	1.86	0.47	1.80	0.63	0.72	0.18	2.72	0.95	1.09	0.27	3.33	1.17	1.33	0.33	4.09	1.43	1.64	0.41	5.23	1.83	2.09	0.52
1100	0.65	4.77	1.67	1.91	0.48	1.85	0.65	0.74	0.18	2.79	0.98	1.12	0.28	3.41	1.19	1.36	0.34	4.19	1.47	1.68	0.42	5.36	1.87	2.14	0.54
1110	0.66	4.90	1.71	1.96	0.49	1.89	0.66	0.76	0.19	2.86	1.00	1.14	0.29	3.50	1.22	1.40	0.35	4.30	1.50	1.72	0.43	5.49	1.92	2.20	0.55
1115	0.67	4.96	1.74	1.99	0.50	1.92	0.67	0.77	0.19	2.90	1.01	1.16	0.29	3.54	1.24	1.42	0.35	4.36	1.53	1.74	0.44	5.57	1.95	2.23	0.56
1120	0.68	5.03	1.76	2.01	0.50	1.95	0.68	0.78	0.19	2.94	1.03	1.18	0.29	3.59	1.26	1.44	0.36	4.42	1.55	1.77	0.44	5.65	1.98	2.26	0.56
1125	0.69	5.11	1.79	2.04	0.51	1.98	0.69	0.79	0.20	2.98	1.04	1.19	0.30	3.65	1.28	1.46	0.36	4.49	1.57	1.79	0.45	5.73	2.01	2.29	0.57
1130	0.70	5.19	1.82	2.08	0.52	2.01	0.70	0.80	0.20	3.03	1.06	1.21	0.30	3.71	1.30	1.48	0.37	4.56	1.60	1.82	0.46	5.83	2.04	2.33	0.58
1135	0.71	5.29	1.85	2.11	0.53	2.05	0.72	0.82	0.20	3.09	1.08	1.23	0.31	3.77	1.32	1.51	0.38	4.64	1.62	1.86	0.46	5.93	2.08	2.37	0.59
1136	0.72	5.31	1.86	2.12	0.53	2.05	0.72	0.82	0.21	3.10	1.08	1.24	0.31	3.79	1.33	1.52	0.38	4.66	1.63	1.86	0.47	5.95	2.08	2.38	0.60
1137	0.72	5.33	1.86	2.13	0.53	2.06	0.72	0.82	0.21	3.11	1.09	1.24	0.31	3.80	1.33	1.52	0.38	4.68	1.64	1.87	0.47	5.98	2.09	2.39	0.60
1138	0.72	5.35	1.87	2.14	0.53	2.07	0.72	0.83	0.21	3.12	1.09	1.25	0.31	3.82	1.34	1.53	0.38	4.70	1.64	1.88	0.47	6.00	2.10	2.40	0.60
1139	0.73	5.37	1.88	2.15	0.54	2.08	0.73	0.83	0.21	3.14	1.10	1.25	0.31	3.83	1.34	1.53	0.38	4.72	1.65	1.89	0.47	6.03	2.11	2.41	0.60
1140	0.73	5.39	1.89	2.16	0.54	2.09	0.73	0.83	0.21	3.15	1.10	1.26	0.31	3.85	1.35	1.54	0.39	4.74	1.66	1.89	0.47	6.05	2.12	2.42	0.61
1145	0.75	5.52	1.93	2.21	0.55	2.14	0.75	0.86	0.21	3.23	1.13	1.29	0.32	3.94	1.38	1.58	0.39	4.85	1.70	1.94	0.49	6.20	2.17	2.48	0.62
1150	0.77	5.72	2.00	2.29	0.57	2.21	0.77	0.88	0.22	3.34	1.17	1.34	0.33	4.08	1.43	1.63	0.41	5.02	1.76	2.01	0.50	6.41	2.24	2.57	0.64
1151	0.78	5.78	2.02	2.31	0.58	2.24	0.78	0.89	0.22	3.37	1.18	1.35	0.34	4.13	1.44	1.65	0.41	5.07	1.78	2.03	0.51	6.48	2.27	2.59	0.65
1152	0.80	5.92	2.07	2.37	0.59	2.29	0.80	0.92	0.23	3.46	1.21	1.38	0.35	4.23	1.48	1.69	0.42	5.20	1.82	2.08	0.52	6.64	2.32	2.66	0.66
1153	0.81	5.99	2.10	2.40	0.60	2.32	0.81	0.93	0.23	3.50	1.23	1.40	0.35	4.28	1.50	1.71	0.43	5.26	1.84	2.10	0.53	6.72	2.35	2.69	0.67
1154	0.81	6.03	2.11	2.41	0.60	2.33	0.82	0.93	0.23	3.52	1.23	1.41	0.35	4.30	1.51	1.72	0.43	5.29	1.85	2.12	0.53	6.76	2.37	2.70	0.68
1155	0.82	6.05	2.12	2.42	0.61	2.34	0.82	0.94	0.23	3.53	1.24	1.41	0.35	4.32	1.51	1.73	0.43	5.31	1.86	2.13	0.53	6.79	2.38	2.72	0.68
1156	0.82	6.07	2.13	2.43	0.61	2.35	0.82	0.94	0.24	3.55	1.24	1.42	0.35	4.34	1.52	1.73	0.43	5.33	1.87	2.13	0.53	6.81	2.39	2.73	0.68
1157	0.82	6.09	2.13	2.44	0.61	2.36	0.83	0.94	0.24	3.56	1.25	1.42	0.36	4.35	1.52	1.74	0.44	5.35	1.87	2.14	0.53	6.84	2.39	2.73	0.68
1158	0.83	6.11	2.14	2.44	0.61	2.36	0.83	0.95	0.24	3.57	1.25	1.43	0.36	4.36	1.53	1.75	0.44	5.36	1.88	2.15	0.54	6.86	2.40	2.74	0.69
1159	0.83	6.13	2.14	2.45	0.61	2.37	0.83	0.95	0.24	3.58	1.25	1.43	0.36	4.37	1.53	1.75	0.44	5.38	1.88	2.15	0.54	6.87	2.41	2.75	0.69
1160	0.83	6.14	2.15	2.46	0.61	2.38	0.83	0.95	0.24	3.59	1.26	1.43	0.36	4.39	1.53	1.75	0.44	5.39	1.89	2.16	0.54	6.89	2.41	2.76	0.69
1161	0.83	6.16	2.15	2.46	0.62	2.38	0.83	0.95	0.24	3.59	1.26	1.44	0.36	4.40	1.54	1.76	0.44	5.40	1.89	2.16	0.54	6.91	2.42	2.76	0.69
1162	0.83	6.17	2.16	2.47	0.62	2.39	0.84	0.96	0.24	3.60	1.26	1.44	0.36	4.40	1.54	1.76	0.44	5.42	1.90	2.17	0.54	6.92	2.42	2.77	0.69
1163	0.84	6.18	2.16	2.47	0.62	2.39	0.84	0.96	0.24	3.61	1.26	1.44	0.36	4.41	1.54	1.77	0.44	5.43	1.90	2.17	0.54	6.94	2.43	2.77	0.69
1164	0.84	6.19	2.17	2.48	0.62	2.40	0.84	0.96	0.24	3.62	1.27	1.45	0.36	4.42	1.55	1.77	0.44	5.44	1.90	2.18	0.54	6.95	2.43	2.78	0.70
1165	0.84	6.21	2.17	2.48	0.62	2.40	0.84	0.96	0.24	3.62	1.27	1.45	0.36	4.43	1.55	1.77	0.44	5.45	1.91	2.18	0.54	6.96	2.44	2.79	0.70
1166	0.84	6.22	2.18	2.49	0.62	2.41	0.84	0.96	0.24	3.63	1.27	1.45	0.36	4.44	1.55	1.78	0.44	5.46	1.91	2.18	0.55	6.98	2.44	2.79	0.70
1167	0.84	6.23	2.18	2.49	0.62	2.41	0.84	0.96	0.24	3.64	1.27	1.46	0.36	4.45	1.56	1.78	0.44	5.47	1.91	2.19	0.55	6.99	2.45	2.80	0.70
1168	0.84	6.24	2.18	2.50	0.62	2.41	0.85	0.97	0.24	3.64	1.28	1.46	0.36	4.46	1.56	1.78	0.45	5.48	1.92	2.19	0.55	7.00	2.45	2.80	0.70
1169	0.84	6.25	2.19	2.50	0.63	2.42	0.85	0.97	0.24	3.65	1.28	1.46	0.37	4.46	1.56	1.79	0.45	5.49	1.92	2.20	0.55	7.01	2.45	2.81	0.70

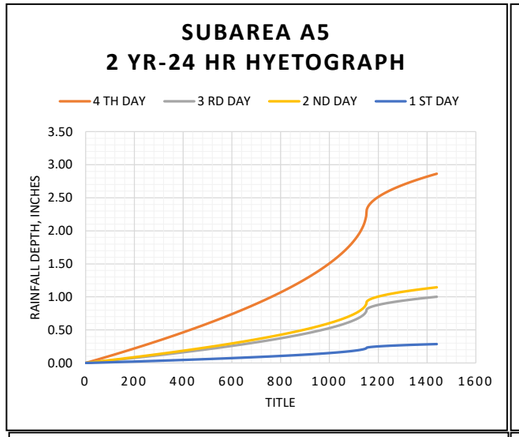
UNIT HYETOGRAPH		50 YR - 24 HR				2 YR - 24 HR				5 YR - 24 HR				10 YR - 24 HR				25 YR - 24 HR				100 YR - 24 HR			
	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth
Time	1 INCH	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY
1170	0.85	6.26	2.19	2.50	0.63	2.42	0.85	0.97	0.24	3.66	1.28	1.46	0.37	4.47	1.56	1.79	0.45	5.50	1.92	2.20	0.55	7.02	2.46	2.81	0.70
1171	0.85	6.27	2.19	2.51	0.63	2.43	0.85	0.97	0.24	3.66	1.28	1.46	0.37	4.48	1.57	1.79	0.45	5.51	1.93	2.20	0.55	7.04	2.46	2.81	0.70
1172	0.85	6.28	2.20	2.51	0.63	2.43	0.85	0.97	0.24	3.67	1.28	1.47	0.37	4.48	1.57	1.79	0.45	5.51	1.93	2.21	0.55	7.05	2.47	2.82	0.70
1173	0.85	6.29	2.20	2.52	0.63	2.43	0.85	0.97	0.24	3.67	1.29	1.47	0.37	4.49	1.57	1.80	0.45	5.52	1.93	2.21	0.55	7.06	2.47	2.82	0.71
1174	0.85	6.30	2.20	2.52	0.63	2.44	0.85	0.98	0.24	3.68	1.29	1.47	0.37	4.50	1.57	1.80	0.45	5.53	1.94	2.21	0.55	7.07	2.47	2.83	0.71
1175	0.85	6.31	2.21	2.52	0.63	2.44	0.85	0.98	0.24	3.68	1.29	1.47	0.37	4.50	1.58	1.80	0.45	5.54	1.94	2.22	0.55	7.08	2.48	2.83	0.71
1176	0.85	6.32	2.21	2.53	0.63	2.44	0.86	0.98	0.24	3.69	1.29	1.48	0.37	4.51	1.58	1.80	0.45	5.55	1.94	2.22	0.55	7.09	2.48	2.83	0.71
1177	0.85	6.33	2.21	2.53	0.63	2.45	0.86	0.98	0.24	3.69	1.29	1.48	0.37	4.52	1.58	1.81	0.45	5.55	1.94	2.22	0.56	7.10	2.48	2.84	0.71
1178	0.86	6.33	2.22	2.53	0.63	2.45	0.86	0.98	0.25	3.70	1.29	1.48	0.37	4.52	1.58	1.81	0.45	5.56	1.95	2.22	0.56	7.11	2.49	2.84	0.71
1179	0.86	6.34	2.22	2.54	0.63	2.45	0.86	0.98	0.25	3.70	1.30	1.48	0.37	4.53	1.58	1.81	0.45	5.57	1.95	2.23	0.56	7.12	2.49	2.85	0.71
1180	0.86	6.35	2.22	2.54	0.64	2.46	0.86	0.98	0.25	3.71	1.30	1.48	0.37	4.53	1.59	1.81	0.45	5.58	1.95	2.23	0.56	7.13	2.49	2.85	0.71
1181	0.86	6.36	2.23	2.54	0.64	2.46	0.86	0.98	0.25	3.71	1.30	1.49	0.37	4.54	1.59	1.82	0.45	5.58	1.95	2.23	0.56	7.13	2.50	2.85	0.71
1182	0.86	6.37	2.23	2.55	0.64	2.46	0.86	0.99	0.25	3.72	1.30	1.49	0.37	4.55	1.59	1.82	0.45	5.59	1.96	2.24	0.56	7.14	2.50	2.86	0.71
1183	0.86	6.37	2.23	2.55	0.64	2.47	0.86	0.99	0.25	3.72	1.30	1.49	0.37	4.55	1.59	1.82	0.46	5.60	1.96	2.24	0.56	7.15	2.50	2.86	0.72
1184	0.86	6.38	2.23	2.55	0.64	2.47	0.86	0.99	0.25	3.73	1.30	1.49	0.37	4.56	1.59	1.82	0.46	5.60	1.96	2.24	0.56	7.16	2.51	2.86	0.72
1185	0.86	6.39	2.24	2.56	0.64	2.47	0.87	0.99	0.25	3.73	1.31	1.49	0.37	4.56	1.60	1.82	0.46	5.61	1.96	2.24	0.56	7.17	2.51	2.87	0.72
1186	0.86	6.40	2.24	2.56	0.64	2.48	0.87	0.99	0.25	3.74	1.31	1.49	0.37	4.57	1.60	1.83	0.46	5.62	1.97	2.25	0.56	7.18	2.51	2.87	0.72
1187	0.87	6.40	2.24	2.56	0.64	2.48	0.87	0.99	0.25	3.74	1.31	1.50	0.37	4.57	1.60	1.83	0.46	5.62	1.97	2.25	0.56	7.19	2.51	2.87	0.72
1188	0.87	6.41	2.24	2.56	0.64	2.48	0.87	0.99	0.25	3.74	1.31	1.50	0.37	4.58	1.60	1.83	0.46	5.63	1.97	2.25	0.56	7.19	2.52	2.88	0.72
1189	0.87	6.42	2.25	2.57	0.64	2.48	0.87	0.99	0.25	3.75	1.31	1.50	0.37	4.58	1.60	1.83	0.46	5.64	1.97	2.25	0.56	7.20	2.52	2.88	0.72
1190	0.87	6.43	2.25	2.57	0.64	2.49	0.87	0.99	0.25	3.75	1.31	1.50	0.38	4.59	1.61	1.84	0.46	5.64	1.97	2.26	0.56	7.21	2.52	2.88	0.72
1191	0.87	6.43	2.25	2.57	0.64	2.49	0.87	1.00	0.25	3.76	1.31	1.50	0.38	4.59	1.61	1.84	0.46	5.65	1.98	2.26	0.56	7.22	2.53	2.89	0.72
1192	0.87	6.44	2.25	2.58	0.64	2.49	0.87	1.00	0.25	3.76	1.32	1.50	0.38	4.60	1.61	1.84	0.46	5.65	1.98	2.26	0.57	7.23	2.53	2.89	0.72
1193	0.87	6.45	2.26	2.58	0.64	2.49	0.87	1.00	0.25	3.76	1.32	1.51	0.38	4.60	1.61	1.84	0.46	5.66	1.98	2.26	0.57	7.23	2.53	2.89	0.72
1194	0.87	6.45	2.26	2.58	0.65	2.50	0.87	1.00	0.25	3.77	1.32	1.51	0.38	4.61	1.61	1.84	0.46	5.67	1.98	2.27	0.57	7.24	2.53	2.90	0.72
1195	0.87	6.46	2.26	2.58	0.65	2.50	0.88	1.00	0.25	3.77	1.32	1.51	0.38	4.61	1.61	1.85	0.46	5.67	1.99	2.27	0.57	7.25	2.54	2.90	0.72
1196	0.87	6.47	2.26	2.59	0.65	2.50	0.88	1.00	0.25	3.78	1.32	1.51	0.38	4.62	1.62	1.85	0.46	5.68	1.99	2.27	0.57	7.26	2.54	2.90	0.73
1197	0.87	6.47	2.27	2.59	0.65	2.51	0.88	1.00	0.25	3.78	1.32	1.51	0.38	4.62	1.62	1.85	0.46	5.68	1.99	2.27	0.57	7.26	2.54	2.91	0.73
1198	0.88	6.48	2.27	2.59	0.65	2.51	0.88	1.00	0.25	3.78	1.32	1.51	0.38	4.63	1.62	1.85	0.46	5.69	1.99	2.28	0.57	7.27	2.54	2.91	0.73
1199	0.88	6.49	2.27	2.59	0.65	2.51	0.88	1.00	0.25	3.79	1.33	1.52	0.38	4.63	1.62	1.85	0.46	5.69	1.99	2.28	0.57	7.28	2.55	2.91	0.73
1200	0.88	6.49	2.27	2.60	0.65	2.51	0.88	1.01	0.25	3.79	1.33	1.52	0.38	4.64	1.62	1.85	0.46	5.70	2.00	2.28	0.57	7.28	2.55	2.91	0.73
1201	0.88	6.50	2.27	2.60	0.65	2.52	0.88	1.01	0.25	3.80	1.33	1.52	0.38	4.64	1.62	1.86	0.46	5.71	2.00	2.28	0.57	7.29	2.55	2.92	0.73
1202	0.88	6.51	2.28	2.60	0.65	2.52	0.88	1.01	0.25	3.80	1.33	1.52	0.38	4.64	1.63	1.86	0.46	5.71	2.00	2.28	0.57	7.30	2.55	2.92	0.73
1203	0.88	6.51	2.28	2.60	0.65	2.52	0.88	1.01	0.25	3.80	1.33	1.52	0.38	4.65	1.63	1.86	0.46	5.72	2.00	2.29	0.57	7.31	2.56	2.92	0.73
1204	0.88	6.52	2.28	2.61	0.65	2.52	0.88	1.01	0.25	3.81	1.33	1.52	0.38	4.65	1.63	1.86	0.47	5.72	2.00	2.29	0.57	7.31	2.56	2.93	0.73
1205	0.88	6.52	2.28	2.61	0.65	2.52	0.88	1.01	0.25	3.81	1.33	1.52	0.38	4.66	1.63	1.86	0.47	5.73	2.00	2.29	0.57	7.32	2.56	2.93	0.73
1206	0.88	6.53	2.29	2.61	0.65	2.53	0.88	1.01	0.25	3.81	1.33	1.53	0.38	4.66	1.63	1.86	0.47	5.73	2.01	2.29	0.57	7.33	2.56	2.93	0.73
1207	0.88	6.54	2.29	2.61	0.65	2.53	0.89	1.01	0.25	3.82	1.34	1.53	0.38	4.67	1.63	1.87	0.47	5.74	2.01	2.30	0.57	7.33	2.57	2.93	0.73
1208	0.88	6.54	2.29	2.62	0.65	2.53	0.89	1.01	0.25	3.82	1.34	1.53	0.38	4.67	1.63	1.87	0.47	5.74	2.01	2.30	0.57	7.34	2.57	2.94	0.73
1209	0.88	6.55	2.29	2.62	0.65	2.53	0.89	1.01	0.25	3.82	1.34	1.53	0.38	4.67	1.64	1.87	0.47	5.75	2.01	2.30	0.57	7.35	2.57	2.94	0.73
1210	0.89	6.55	2.29	2.62	0.66	2.54	0.89	1.01	0.25	3.83	1.34	1.53	0.38	4.68	1.64	1.87	0.47	5.75	2.01	2.30	0.58	7.35	2.57	2.94	0.74
1211	0.89	6.56	2.30	2.62	0.66	2.54	0.89	1.02	0.25	3.83	1.34	1.53	0.38	4.68	1.64	1.87	0.47	5.76	2.02	2.30	0.58	7.36	2.58	2.94	0.74
1212	0.89	6.56	2.30	2.63	0.66	2.54	0.89	1.02	0.25	3.83	1.34	1.53	0.38	4.69	1.64	1.87	0.47	5.76	2.02	2.31	0.58	7.37	2.58	2.95	0.74
1213	0.89	6.57	2.30	2.63	0.66	2.54	0.89	1.02	0.25	3.84	1.34	1.53	0.38	4.69	1.64	1.88	0.47	5.77	2.02	2.31	0.58	7.37	2.58	2.95	0.74
1214	0.89	6.58	2.30	2.63	0.66	2.54	0.89	1.02	0.25	3.84	1.34	1.54	0.38	4.70	1.64	1.88	0.47	5.77	2.02	2.31	0.58	7.38	2.58	2.95	0.74
1215	0.89	6.58	2.30	2.63	0.66	2.55	0.89	1.02	0.25	3.84	1.35	1.54	0.38	4.70	1.64	1.88	0.47	5.78	2.02	2.31	0.58	7.38	2.58	2.95	0.74
1216	0.89	6.59	2.31	2.63	0.66	2.55	0.89	1.02	0.25	3.85	1.35	1.54	0.38	4.70	1.65	1.88	0.47	5.78	2.02	2.31	0.58	7.39	2.59	2.96	0.74
1217	0.89	6.59	2.31	2.64	0.66	2.55	0.89	1.02	0.26	3.85	1.35	1.54	0.38	4.71	1.65	1.88	0.47	5.79	2.03	2.32	0.58	7.40	2.59	2.96	0.74
1218	0.89	6.60	2.31	2.64	0.66	2.55	0.89	1.02	0.26	3.85	1.35	1.54	0.39	4.71	1.65	1.88	0.47	5.79	2.03	2.32	0.58	7.40	2.59	2.96	0.74
1219	0.89	6.60	2.31	2.64	0.66	2.56	0.89	1.02	0.26	3.86	1.35	1.54	0.39	4.71	1.65	1.89	0.47	5.80	2.03	2.32	0.58	7.41	2.59	2.96	0.74
1220	0.89	6.61	2.31	2.64	0.66	2.56	0.90	1.02	0.26	3.86	1.35	1.54	0.39	4.72	1.65	1.89	0.47	5.80	2.03	2.32	0.58	7.41	2.60	2.97	0.74
1221	0.89	6.61	2.31	2.65	0.66	2.56	0.90	1.02	0.26	3.86	1.35	1.55	0.39	4.72	1.65	1.89	0.47	5.81	2.03	2.32	0.58	7.42	2.60	2.97	0.74
1222	0.89	6.62	2.32	2.65	0.66	2.56	0.90	1.02	0.26	3.87	1.35	1.55	0.39	4.73	1.65	1.89	0.47	5.81	2.03	2.32	0.58	7.43	2.60	2.97	0.74
1223	0.90	6.62	2.32	2.65	0.66	2.56	0.90	1.03	0.26	3.87	1.35	1.55	0.39	4.73	1.66	1.89	0.47	5.82	2.04	2.33	0.58	7.43	2.60	2.97	0.74
1224	0.90	6.63	2.32	2.65	0.66	2.57	0.90	1.03	0.26	3.87	1.36	1.55	0.39	4.73	1.66	1.89	0.47	5.82	2.04	2.33	0.58	7.44	2.60	2.98	0.74
1225	0.90	6.64	2.32	2.65	0.66	2.57	0.90	1.03	0.26	3.87	1.36	1.55	0.39	4.74	1.66	1.89	0.47	5.83	2.04	2.33	0.58	7.44	2.61	2.98	0.74
1226	0.90	6.64	2.32	2.66	0.66	2.57	0.90	1.03	0.26	3.88	1.36	1.55	0.39	4.74	1.66	1.90	0.47	5.83	2.04	2.33	0.58	7.45	2.61	2.98	0.75
1227	0.90	6.65	2.33	2.66	0.66	2.57	0.90	1.03	0.26	3.88	1.36	1.55	0.39	4.74	1.66	1.90	0.47	5.83	2.04	2.33	0.58	7.46	2.61	2.98	0.75
1228	0.90	6.65	2.33	2.66	0.67	2.57	0.90	1.03	0.26	3.88	1.36	1.55	0.39	4.75	1.66	1.90	0.47	5.84	2.04	2.34	0.58	7.46	2.61	2.98	0.75
1229	0.90	6.66	2.33	2.66	0.67	2.58	0.90	1.03	0.26	3.89	1.36	1.55	0.39	4.75	1.66	1.90	0.48	5.84	2.05	2.34	0.58	7.47	2.61	2.99	0.75
1230	0.90	6.66	2.33	2.66	0.67	2.58	0.90	1.03	0.26	3.89	1.36	1.56	0.39	4.76	1.66	1.90	0.48	5.85	2.05	2.34	0.58	7.47	2.62	2.99	0.75
1231	0.90	6.67	2.33	2.67	0.67	2.58	0.90	1.03	0.26	3.89	1.36	1.56	0.39	4.76	1.67	1.90	0.48	5.85	2.05	2.34	0.59	7.48	2.62	2.99	0.75
1232	0.90	6.67	2.33	2.67	0.67	2.58	0.90	1.03	0.26	3.90	1.36	1.56	0.39	4.76	1.67	1.91	0.48	5.86	2.05	2.34	0.59	7.48	2.62	2.99	0.75

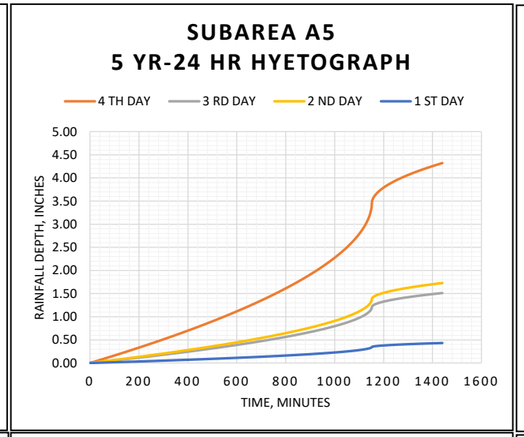
UNIT HYETOGRAPH		50 YR - 24 HR				2 YR - 24 HR				5 YR - 24 HR				10 YR - 24 HR				25 YR - 24 HR				100 YR - 24 HR			
	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth
Time	1 INCH	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY
1233	0.90	6.68	2.34	2.67	0.67	2.58	0.90	1.03	0.26	3.90	1.36	1.56	0.39	4.77	1.67	1.91	0.48	5.86	2.05	2.34	0.59	7.49	2.62	3.00	0.75
1234	0.90	6.68	2.34	2.67	0.67	2.59	0.90	1.03	0.26	3.90	1.37	1.56	0.39	4.77	1.67	1.91	0.48	5.87	2.05	2.35	0.59	7.50	2.62	3.00	0.75
1235	0.90	6.69	2.34	2.67	0.67	2.59	0.91	1.03	0.26	3.90	1.37	1.56	0.39	4.77	1.67	1.91	0.48	5.87	2.05	2.35	0.59	7.50	2.63	3.00	0.75
1240	0.91	6.71	2.35	2.68	0.67	2.60	0.91	1.04	0.26	3.92	1.37	1.57	0.39	4.79	1.68	1.92	0.48	5.89	2.06	2.36	0.59	7.53	2.63	3.01	0.75
1245	0.91	6.73	2.36	2.69	0.67	2.61	0.91	1.04	0.26	3.93	1.38	1.57	0.39	4.81	1.68	1.92	0.48	5.91	2.07	2.36	0.59	7.55	2.64	3.02	0.76
1250	0.91	6.76	2.36	2.70	0.68	2.61	0.92	1.05	0.26	3.95	1.38	1.58	0.39	4.82	1.69	1.93	0.48	5.93	2.08	2.37	0.59	7.58	2.65	3.03	0.76
1255	0.92	6.78	2.37	2.71	0.68	2.62	0.92	1.05	0.26	3.96	1.39	1.58	0.40	4.84	1.69	1.94	0.48	5.95	2.08	2.38	0.60	7.61	2.66	3.04	0.76
1260	0.92	6.80	2.38	2.72	0.68	2.63	0.92	1.05	0.26	3.97	1.39	1.59	0.40	4.86	1.70	1.94	0.49	5.97	2.09	2.39	0.60	7.63	2.67	3.05	0.76
1265	0.92	6.82	2.39	2.73	0.68	2.64	0.92	1.06	0.26	3.98	1.39	1.59	0.40	4.87	1.70	1.95	0.49	5.99	2.10	2.40	0.60	7.65	2.68	3.06	0.77
1270	0.92	6.84	2.39	2.74	0.68	2.65	0.93	1.06	0.26	4.00	1.40	1.60	0.40	4.89	1.71	1.95	0.49	6.01	2.10	2.40	0.60	7.68	2.69	3.07	0.77
1275	0.93	6.86	2.40	2.75	0.69	2.66	0.93	1.06	0.27	4.01	1.40	1.60	0.40	4.90	1.72	1.96	0.49	6.03	2.11	2.41	0.60	7.70	2.70	3.08	0.77
1280	0.93	6.88	2.41	2.75	0.69	2.66	0.93	1.07	0.27	4.02	1.41	1.61	0.40	4.91	1.72	1.97	0.49	6.04	2.12	2.42	0.60	7.72	2.70	3.09	0.77
1285	0.93	6.90	2.42	2.76	0.69	2.67	0.93	1.07	0.27	4.03	1.41	1.61	0.40	4.93	1.72	1.97	0.49	6.06	2.12	2.42	0.61	7.74	2.71	3.10	0.77
1290	0.94	6.92	2.42	2.77	0.69	2.68	0.94	1.07	0.27	4.04	1.41	1.62	0.40	4.94	1.73	1.98	0.49	6.08	2.13	2.43	0.61	7.77	2.72	3.11	0.78
1295	0.94	6.94	2.43	2.78	0.69	2.69	0.94	1.07	0.27	4.05	1.42	1.62	0.41	4.96	1.73	1.98	0.50	6.09	2.13	2.44	0.61	7.79	2.73	3.12	0.78
1300	0.94	6.96	2.44	2.78	0.70	2.69	0.94	1.08	0.27	4.06	1.42	1.63	0.41	4.97	1.74	1.99	0.50	6.11	2.14	2.44	0.61	7.81	2.73	3.12	0.78
1305	0.94	6.98	2.44	2.79	0.70	2.70	0.95	1.08	0.27	4.08	1.43	1.63	0.41	4.98	1.74	1.99	0.50	6.13	2.14	2.45	0.61	7.83	2.74	3.13	0.78
1310	0.95	7.00	2.45	2.80	0.70	2.71	0.95	1.08	0.27	4.09	1.43	1.63	0.41	5.00	1.75	2.00	0.50	6.14	2.15	2.46	0.61	7.85	2.75	3.14	0.79
1315	0.95	7.01	2.46	2.81	0.70	2.71	0.95	1.09	0.27	4.10	1.43	1.64	0.41	5.01	1.75	2.00	0.50	6.16	2.16	2.46	0.62	7.87	2.75	3.15	0.79
1320	0.95	7.03	2.46	2.81	0.70	2.72	0.95	1.09	0.27	4.11	1.44	1.64	0.41	5.02	1.76	2.01	0.50	6.17	2.16	2.47	0.62	7.89	2.76	3.16	0.79
1325	0.95	7.05	2.47	2.82	0.70	2.73	0.95	1.09	0.27	4.12	1.44	1.65	0.41	5.03	1.76	2.01	0.50	6.19	2.17	2.48	0.62	7.91	2.77	3.16	0.79
1330	0.95	7.07	2.47	2.83	0.71	2.73	0.96	1.09	0.27	4.13	1.44	1.65	0.41	5.05	1.77	2.02	0.50	6.20	2.17	2.48	0.62	7.93	2.78	3.17	0.79
1335	0.96	7.08	2.48	2.83	0.71	2.74	0.96	1.10	0.27	4.14	1.45	1.65	0.41	5.06	1.77	2.02	0.51	6.22	2.18	2.49	0.62	7.95	2.78	3.18	0.79
1340	0.96	7.10	2.49	2.84	0.71	2.75	0.96	1.10	0.27	4.15	1.45	1.66	0.41	5.07	1.77	2.03	0.51	6.23	2.18	2.49	0.62	7.97	2.79	3.19	0.80
1345	0.96	7.12	2.49	2.85	0.71	2.75	0.96	1.10	0.28	4.16	1.45	1.66	0.42	5.08	1.78	2.03	0.51	6.25	2.19	2.50	0.62	7.99	2.79	3.19	0.80
1350	0.96	7.13	2.50	2.85	0.71	2.76	0.97	1.10	0.28	4.17	1.46	1.67	0.42	5.09	1.78	2.04	0.51	6.26	2.19	2.51	0.63	8.00	2.80	3.20	0.80
1355	0.97	7.15	2.50	2.86	0.71	2.77	0.97	1.11	0.28	4.18	1.46	1.67	0.42	5.10	1.79	2.04	0.51	6.28	2.20	2.51	0.63	8.02	2.81	3.21	0.80
1360	0.97	7.17	2.51	2.87	0.72	2.77	0.97	1.11	0.28	4.18	1.46	1.67	0.42	5.12	1.79	2.05	0.51	6.29	2.20	2.52	0.63	8.04	2.81	3.22	0.80
1365	0.97	7.18	2.51	2.87	0.72	2.78	0.97	1.11	0.28	4.19	1.47	1.68	0.42	5.13	1.79	2.05	0.51	6.31	2.21	2.52	0.63	8.06	2.82	3.22	0.81
1370	0.97	7.20	2.52	2.88	0.72	2.79	0.97	1.11	0.28	4.20	1.47	1.68	0.42	5.14	1.80	2.06	0.51	6.32	2.21	2.53	0.63	8.07	2.83	3.23	0.81
1375	0.97	7.21	2.52	2.88	0.72	2.79	0.98	1.12	0.28	4.21	1.47	1.68	0.42	5.15	1.80	2.06	0.51	6.33	2.22	2.53	0.63	8.09	2.83	3.24	0.81
1380	0.98	7.23	2.53	2.89	0.72	2.80	0.98	1.12	0.28	4.22	1.48	1.69	0.42	5.16	1.81	2.06	0.52	6.35	2.22	2.54	0.63	8.11	2.84	3.24	0.81
1385	0.98	7.24	2.53	2.90	0.72	2.80	0.98	1.12	0.28	4.23	1.48	1.69	0.42	5.17	1.81	2.07	0.52	6.36	2.23	2.54	0.64	8.13	2.84	3.25	0.81
1390	0.98	7.26	2.54	2.90	0.73	2.81	0.98	1.12	0.28	4.24	1.48	1.70	0.42	5.18	1.81	2.07	0.52	6.37	2.23	2.55	0.64	8.14	2.85	3.26	0.81
1395	0.98	7.27	2.55	2.91	0.73	2.81	0.99	1.13	0.28	4.25	1.49	1.70	0.42	5.19	1.82	2.08	0.52	6.39	2.23	2.55	0.64	8.16	2.86	3.26	0.82
1400	0.98	7.29	2.55	2.91	0.73	2.82	0.99	1.13	0.28	4.26	1.49	1.70	0.43	5.20	1.82	2.08	0.52	6.40	2.24	2.56	0.64	8.18	2.86	3.27	0.82
1405	0.99	7.30	2.56	2.92	0.73	2.83	0.99	1.13	0.28	4.26	1.49	1.71	0.43	5.21	1.82	2.09	0.52	6.41	2.24	2.56	0.64	8.19	2.87	3.28	0.82
1410	0.99	7.32	2.56	2.93	0.73	2.83	0.99	1.13	0.28	4.27	1.50	1.71	0.43	5.22	1.83	2.09	0.52	6.42	2.25	2.57	0.64	8.21	2.87	3.28	0.82
1415	0.99	7.33	2.57	2.93	0.73	2.84	0.99	1.13	0.28	4.28	1.50	1.71	0.43	5.23	1.83	2.09	0.52	6.44	2.25	2.57	0.64	8.22	2.88	3.29	0.82
1420	0.99	7.34	2.57	2.94	0.73	2.84	0.99	1.14	0.28	4.29	1.50	1.72	0.43	5.24	1.84	2.10	0.52	6.45	2.26	2.58	0.64	8.24	2.88	3.30	0.82
1425	0.99	7.36	2.58	2.94	0.74	2.85	1.00	1.14	0.28	4.30	1.50	1.72	0.43	5.25	1.84	2.10	0.53	6.46	2.26	2.58	0.65	8.26	2.89	3.30	0.83
1430	1.00	7.37	2.58	2.95	0.74	2.85	1.00	1.14	0.29	4.31	1.51	1.72	0.43	5.26	1.84	2.11	0.53	6.47	2.27	2.59	0.65	8.27	2.90	3.31	0.83
1435	1.00	7.39	2.59	2.95	0.74	2.86	1.00	1.14	0.29	4.31	1.51	1.73	0.43	5.27	1.85	2.11	0.53	6.49	2.27	2.59	0.65	8.29	2.90	3.31	0.83
1440	1.00	7.40	2.59	2.96	0.74	2.86	1.00	1.15	0.29	4.32	1.51	1.73	0.43	5.28	1.85	2.11	0.53	6.50	2.27	2.60	0.65	8.30	2.91	3.32	0.83

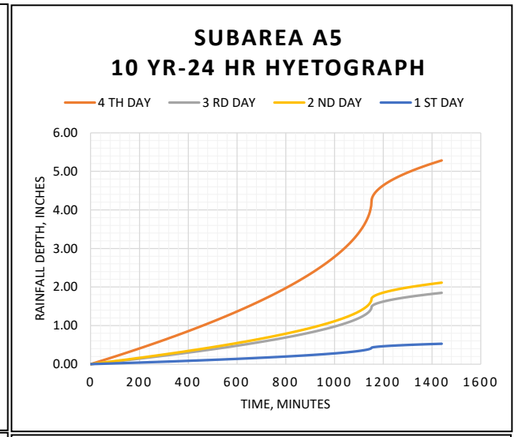
SUBAREA A5 HYETOPRAPHS

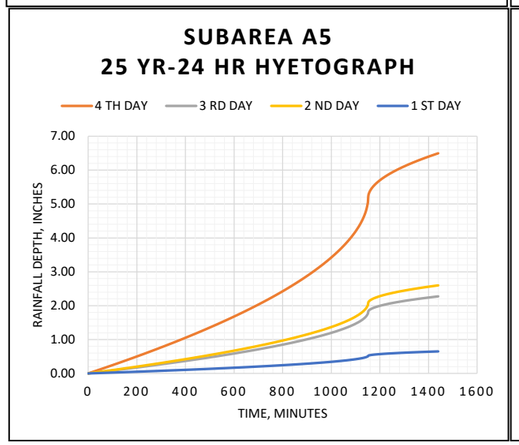
- Per 2006 Los Angeles County Hydrology Manual Appendix A

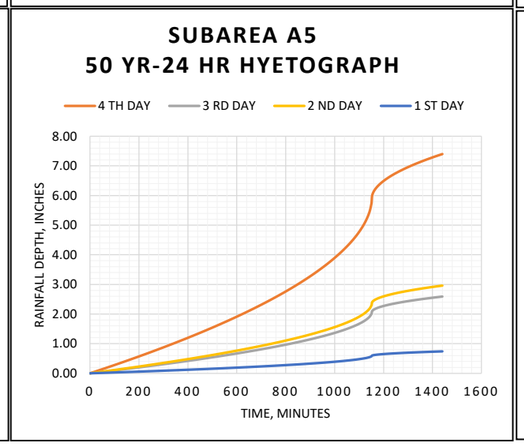
24 HR ISOHYETS,IN					
50 YR	2 YR	5 YR	10 YR	25 YR	100 YR
7.4	2.9	4.3	5.3	6.5	8.3

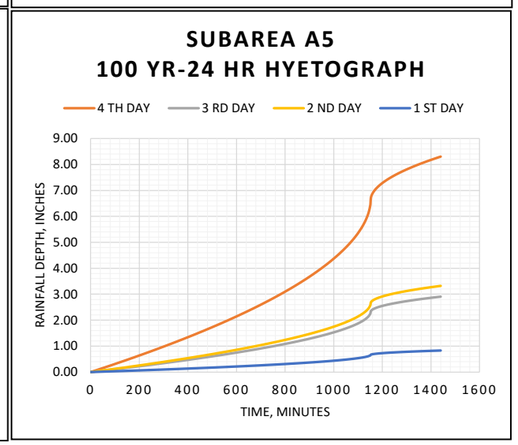












UNIT HYETOGRAPH	50 YR - 24 HR				2 YR - 24 HR				5 YR - 24 HR				10 YR - 24 HR				25 YR - 24 HR				100 YR - 24 HR			
	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth
Time	1 INCH	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30	0.01	0.08	0.03	0.03	0.01	0.03	0.01	0.01	0.00	0.05	0.02	0.02	0.00	0.06	0.02	0.02	0.01	0.07	0.03	0.03	0.01	0.09	0.03	0.04	0.01
60	0.02	0.17	0.06	0.07	0.02	0.06	0.02	0.03	0.01	0.10	0.03	0.04	0.01	0.12	0.04	0.05	0.01	0.15	0.05	0.06	0.01	0.19	0.06	0.07	0.02
90	0.03	0.25	0.09	0.10	0.02	0.10	0.03	0.04	0.01	0.15	0.05	0.06	0.01	0.18	0.06	0.07	0.02	0.22	0.08	0.09	0.02	0.28	0.10	0.11	0.03
120	0.05	0.34	0.12	0.13	0.03	0.13	0.05	0.05	0.01	0.20	0.07	0.08	0.02	0.24	0.08	0.10	0.02	0.29	0.10	0.12	0.03	0.38	0.13	0.15	0.04
150	0.06	0.42	0.15	0.17	0.04	0.16	0.06	0.07	0.02	0.25	0.09	0.10	0.02	0.30	0.11	0.12	0.03	0.37	0.13	0.15	0.04	0.47	0.17	0.19	0.05
180	0.07	0.51	0.18	0.20	0.05	0.20	0.07	0.08	0.02	0.30	0.10	0.12	0.03	0.36	0.13	0.15	0.04	0.45	0.16	0.18	0.04	0.57	0.20	0.23	0.06
210	0.08	0.60	0.21	0.24	0.06	0.23	0.08	0.09	0.02	0.35	0.12	0.14	0.03	0.43	0.15	0.17	0.04	0.53	0.18	0.21	0.05	0.67	0.24	0.27	0.07
240	0.09	0.69	0.24	0.28	0.07	0.27	0.09	0.11	0.03	0.40	0.14	0.16	0.04	0.49	0.17	0.20	0.05	0.61	0.21	0.24	0.06	0.77	0.27	0.31	0.08
270	0.11	0.78	0.27	0.31	0.08	0.30	0.11	0.12	0.03	0.46	0.16	0.18	0.05	0.56	0.20	0.22	0.06	0.69	0.24	0.27	0.07	0.88	0.31	0.35	0.09
300	0.12	0.87	0.31	0.35	0.09	0.34	0.12	0.14	0.03	0.51	0.18	0.20	0.05	0.62	0.22	0.25	0.06	0.77	0.27	0.31	0.08	0.98	0.34	0.39	0.10
330	0.13	0.97	0.34	0.39	0.10	0.38	0.13	0.15	0.04	0.57	0.20	0.23	0.06	0.69	0.24	0.28	0.07	0.85	0.30	0.34	0.09	1.09	0.38	0.44	0.11
360	0.14	1.07	0.37	0.43	0.11	0.41	0.14	0.17	0.04	0.62	0.22	0.25	0.06	0.76	0.27	0.30	0.08	0.94	0.33	0.37	0.09	1.20	0.42	0.48	0.12

UNIT HYETOGRAPH		50 YR - 24 HR				2 YR - 24 HR				5 YR - 24 HR				10 YR - 24 HR				25 YR - 24 HR				100 YR - 24 HR			
	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth
Time	1 INCH	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY
390	0.16	1.16	0.41	0.47	0.12	0.45	0.16	0.18	0.05	0.68	0.24	0.27	0.07	0.83	0.29	0.33	0.08	1.02	0.36	0.41	0.10	1.31	0.46	0.52	0.13
420	0.17	1.26	0.44	0.51	0.13	0.49	0.17	0.20	0.05	0.74	0.26	0.30	0.07	0.90	0.32	0.36	0.09	1.11	0.39	0.44	0.11	1.42	0.50	0.57	0.14
450	0.18	1.37	0.48	0.55	0.14	0.53	0.19	0.21	0.05	0.80	0.28	0.32	0.08	0.98	0.34	0.39	0.10	1.20	0.42	0.48	0.12	1.53	0.54	0.61	0.15
480	0.20	1.47	0.51	0.59	0.15	0.57	0.20	0.23	0.06	0.86	0.30	0.34	0.09	1.05	0.37	0.42	0.11	1.29	0.45	0.52	0.13	1.65	0.58	0.66	0.17
510	0.21	1.58	0.55	0.63	0.16	0.61	0.21	0.24	0.06	0.92	0.32	0.37	0.09	1.13	0.39	0.45	0.11	1.38	0.48	0.55	0.14	1.77	0.62	0.71	0.18
540	0.23	1.69	0.59	0.67	0.17	0.65	0.23	0.26	0.07	0.98	0.34	0.39	0.10	1.20	0.42	0.48	0.12	1.48	0.52	0.59	0.15	1.89	0.66	0.76	0.19
570	0.24	1.80	0.63	0.72	0.18	0.70	0.24	0.28	0.07	1.05	0.37	0.42	0.10	1.28	0.45	0.51	0.13	1.58	0.55	0.63	0.16	2.02	0.71	0.81	0.20
600	0.26	1.91	0.67	0.76	0.19	0.74	0.26	0.30	0.07	1.12	0.39	0.45	0.11	1.36	0.48	0.55	0.14	1.68	0.59	0.67	0.17	2.14	0.75	0.86	0.21
630	0.27	2.03	0.71	0.81	0.20	0.79	0.27	0.31	0.08	1.18	0.41	0.47	0.12	1.45	0.51	0.58	0.14	1.78	0.62	0.71	0.18	2.28	0.80	0.91	0.23
660	0.29	2.15	0.75	0.86	0.21	0.83	0.29	0.33	0.08	1.25	0.44	0.50	0.13	1.53	0.54	0.61	0.15	1.89	0.66	0.75	0.19	2.41	0.84	0.96	0.24
690	0.31	2.27	0.80	0.91	0.23	0.88	0.31	0.35	0.09	1.33	0.46	0.53	0.13	1.62	0.57	0.65	0.16	2.00	0.70	0.80	0.20	2.55	0.89	1.02	0.25
720	0.32	2.40	0.84	0.96	0.24	0.93	0.33	0.37	0.09	1.40	0.49	0.56	0.14	1.71	0.60	0.69	0.17	2.11	0.74	0.84	0.21	2.69	0.94	1.08	0.27
750	0.34	2.53	0.89	1.01	0.25	0.98	0.34	0.39	0.10	1.48	0.52	0.59	0.15	1.81	0.63	0.72	0.18	2.22	0.78	0.89	0.22	2.84	0.99	1.14	0.28
780	0.36	2.67	0.93	1.07	0.27	1.03	0.36	0.41	0.10	1.56	0.55	0.62	0.16	1.91	0.67	0.76	0.19	2.34	0.82	0.94	0.23	2.99	1.05	1.20	0.30
810	0.38	2.81	0.98	1.12	0.28	1.09	0.38	0.43	0.11	1.64	0.57	0.66	0.16	2.01	0.70	0.80	0.20	2.47	0.86	0.99	0.25	3.15	1.10	1.26	0.32
840	0.40	2.96	1.04	1.18	0.30	1.14	0.40	0.46	0.11	1.73	0.60	0.69	0.17	2.11	0.74	0.84	0.21	2.60	0.91	1.04	0.26	3.32	1.16	1.33	0.33
870	0.42	3.11	1.09	1.24	0.31	1.20	0.42	0.48	0.12	1.82	0.64	0.73	0.18	2.22	0.78	0.89	0.22	2.73	0.96	1.09	0.27	3.49	1.22	1.40	0.35
900	0.44	3.27	1.15	1.31	0.33	1.27	0.44	0.51	0.13	1.91	0.67	0.76	0.19	2.34	0.82	0.94	0.23	2.88	1.01	1.15	0.29	3.67	1.29	1.47	0.37
930	0.47	3.45	1.21	1.38	0.34	1.33	0.47	0.53	0.13	2.01	0.70	0.81	0.20	2.46	0.86	0.98	0.25	3.03	1.06	1.21	0.30	3.87	1.35	1.55	0.39
960	0.49	3.63	1.27	1.45	0.36	1.40	0.49	0.56	0.14	2.12	0.74	0.85	0.21	2.59	0.91	1.04	0.26	3.19	1.12	1.27	0.32	4.07	1.43	1.63	0.41
970	0.50	3.69	1.29	1.48	0.37	1.43	0.50	0.57	0.14	2.16	0.75	0.86	0.22	2.64	0.92	1.05	0.26	3.24	1.14	1.30	0.32	4.14	1.45	1.66	0.41
980	0.51	3.76	1.32	1.50	0.38	1.45	0.51	0.58	0.15	2.20	0.77	0.88	0.22	2.68	0.94	1.07	0.27	3.30	1.16	1.32	0.33	4.22	1.48	1.69	0.42
990	0.52	3.83	1.34	1.53	0.38	1.48	0.52	0.59	0.15	2.23	0.78	0.89	0.22	2.73	0.96	1.09	0.27	3.36	1.18	1.34	0.34	4.29	1.50	1.72	0.43
1000	0.53	3.90	1.36	1.56	0.39	1.51	0.53	0.60	0.15	2.28	0.80	0.91	0.23	2.78	0.97	1.11	0.28	3.42	1.20	1.37	0.34	4.37	1.53	1.75	0.44
1010	0.54	3.97	1.39	1.59	0.40	1.54	0.54	0.61	0.15	2.32	0.81	0.93	0.23	2.83	0.99	1.13	0.28	3.48	1.22	1.39	0.35	4.45	1.56	1.78	0.45
1020	0.55	4.04	1.41	1.62	0.40	1.56	0.55	0.63	0.16	2.36	0.83	0.94	0.24	2.89	1.01	1.15	0.29	3.55	1.24	1.42	0.35	4.54	1.59	1.81	0.45
1030	0.56	4.12	1.44	1.65	0.41	1.59	0.56	0.64	0.16	2.41	0.84	0.96	0.24	2.94	1.03	1.18	0.29	3.62	1.27	1.45	0.36	4.62	1.62	1.85	0.46
1040	0.57	4.20	1.47	1.68	0.42	1.62	0.57	0.65	0.16	2.45	0.86	0.98	0.25	3.00	1.05	1.20	0.30	3.69	1.29	1.47	0.37	4.71	1.65	1.88	0.47
1050	0.58	4.28	1.50	1.71	0.43	1.66	0.58	0.66	0.17	2.50	0.88	1.00	0.25	3.06	1.07	1.22	0.31	3.76	1.32	1.50	0.38	4.80	1.68	1.92	0.48
1060	0.59	4.37	1.53	1.75	0.44	1.69	0.59	0.68	0.17	2.55	0.89	1.02	0.26	3.12	1.09	1.25	0.31	3.84	1.34	1.53	0.38	4.90	1.72	1.96	0.49
1070	0.60	4.46	1.56	1.78	0.45	1.73	0.60	0.69	0.17	2.61	0.91	1.04	0.26	3.19	1.11	1.27	0.32	3.92	1.37	1.57	0.39	5.01	1.75	2.00	0.50
1080	0.62	4.56	1.60	1.82	0.46	1.76	0.62	0.71	0.18	2.66	0.93	1.06	0.27	3.25	1.14	1.30	0.33	4.00	1.40	1.60	0.40	5.11	1.79	2.05	0.51
1090	0.63	4.66	1.63	1.86	0.47	1.80	0.63	0.72	0.18	2.72	0.95	1.09	0.27	3.33	1.17	1.33	0.33	4.09	1.43	1.64	0.41	5.23	1.83	2.09	0.52
1100	0.65	4.77	1.67	1.91	0.48	1.85	0.65	0.74	0.18	2.79	0.98	1.12	0.28	3.41	1.19	1.36	0.34	4.19	1.47	1.68	0.42	5.36	1.87	2.14	0.54
1110	0.66	4.90	1.71	1.96	0.49	1.89	0.66	0.76	0.19	2.86	1.00	1.14	0.29	3.50	1.22	1.40	0.35	4.30	1.50	1.72	0.43	5.49	1.92	2.20	0.55
1115	0.67	4.96	1.74	1.99	0.50	1.92	0.67	0.77	0.19	2.90	1.01	1.16	0.29	3.54	1.24	1.42	0.35	4.36	1.53	1.74	0.44	5.57	1.95	2.23	0.56
1120	0.68	5.03	1.76	2.01	0.50	1.95	0.68	0.78	0.19	2.94	1.03	1.18	0.29	3.59	1.26	1.44	0.36	4.42	1.55	1.77	0.44	5.65	1.98	2.26	0.56
1125	0.69	5.11	1.79	2.04	0.51	1.98	0.69	0.79	0.20	2.98	1.04	1.19	0.30	3.65	1.28	1.46	0.36	4.49	1.57	1.79	0.45	5.73	2.01	2.29	0.57
1130	0.70	5.19	1.82	2.08	0.52	2.01	0.70	0.80	0.20	3.03	1.06	1.21	0.30	3.71	1.30	1.48	0.37	4.56	1.60	1.82	0.46	5.83	2.04	2.33	0.58
1135	0.71	5.29	1.85	2.11	0.53	2.05	0.72	0.82	0.20	3.09	1.08	1.23	0.31	3.77	1.32	1.51	0.38	4.64	1.62	1.86	0.46	5.93	2.08	2.37	0.59
1136	0.72	5.31	1.86	2.12	0.53	2.05	0.72	0.82	0.21	3.10	1.08	1.24	0.31	3.79	1.33	1.52	0.38	4.66	1.63	1.86	0.47	5.95	2.08	2.38	0.60
1137	0.72	5.33	1.86	2.13	0.53	2.06	0.72	0.82	0.21	3.11	1.09	1.24	0.31	3.80	1.33	1.52	0.38	4.68	1.64	1.87	0.47	5.98	2.09	2.39	0.60
1138	0.72	5.35	1.87	2.14	0.53	2.07	0.72	0.83	0.21	3.12	1.09	1.25	0.31	3.82	1.34	1.53	0.38	4.70	1.64	1.88	0.47	6.00	2.10	2.40	0.60
1139	0.73	5.37	1.88	2.15	0.54	2.08	0.73	0.83	0.21	3.14	1.10	1.25	0.31	3.83	1.34	1.53	0.38	4.72	1.65	1.89	0.47	6.03	2.11	2.41	0.60
1140	0.73	5.39	1.89	2.16	0.54	2.09	0.73	0.83	0.21	3.15	1.10	1.26	0.31	3.85	1.35	1.54	0.39	4.74	1.66	1.89	0.47	6.05	2.12	2.42	0.61
1145	0.75	5.52	1.93	2.21	0.55	2.14	0.75	0.86	0.21	3.23	1.13	1.29	0.32	3.94	1.38	1.58	0.39	4.85	1.70	1.94	0.49	6.20	2.17	2.48	0.62
1150	0.77	5.72	2.00	2.29	0.57	2.21	0.77	0.88	0.22	3.34	1.17	1.34	0.33	4.08	1.43	1.63	0.41	5.02	1.76	2.01	0.50	6.41	2.24	2.57	0.64
1151	0.78	5.78	2.02	2.31	0.58	2.24	0.78	0.89	0.22	3.37	1.18	1.35	0.34	4.13	1.44	1.65	0.41	5.07	1.78	2.03	0.51	6.48	2.27	2.59	0.65
1152	0.80	5.92	2.07	2.37	0.59	2.29	0.80	0.92	0.23	3.46	1.21	1.38	0.35	4.23	1.48	1.69	0.42	5.20	1.82	2.08	0.52	6.64	2.32	2.66	0.66
1153	0.81	5.99	2.10	2.40	0.60	2.32	0.81	0.93	0.23	3.50	1.23	1.40	0.35	4.28	1.50	1.71	0.43	5.26	1.84	2.10	0.53	6.72	2.35	2.69	0.67
1154	0.81	6.03	2.11	2.41	0.60	2.33	0.82	0.93	0.23	3.52	1.23	1.41	0.35	4.30	1.51	1.72	0.43	5.29	1.85	2.12	0.53	6.76	2.37	2.70	0.68
1155	0.82	6.05	2.12	2.42	0.61	2.34	0.82	0.94	0.23	3.53	1.24	1.41	0.35	4.32	1.51	1.73	0.43	5.31	1.86	2.13	0.53	6.79	2.38	2.72	0.68
1156	0.82	6.07	2.13	2.43	0.61	2.35	0.82	0.94	0.24	3.55	1.24	1.42	0.35	4.34	1.52	1.73	0.43	5.33	1.87	2.13	0.53	6.81	2.39	2.73	0.68
1157	0.82	6.09	2.13	2.44	0.61	2.36	0.83	0.94	0.24	3.56	1.25	1.42	0.36	4.35	1.52	1.74	0.44	5.35	1.87	2.14	0.53	6.84	2.39	2.73	0.68
1158	0.83	6.11	2.14	2.44	0.61	2.36	0.83	0.95	0.24	3.57	1.25	1.43	0.36	4.36	1.53	1.75	0.44	5.36	1.88	2.15	0.54	6.86	2.40	2.74	0.69
1159	0.83	6.13	2.14	2.45	0.61	2.37	0.83	0.95	0.24	3.58	1.25	1.43	0.36	4.37	1.53	1.75	0.44	5.38	1.88	2.15	0.54	6.87	2.41	2.75	0.69
1160	0.83	6.14	2.15	2.46	0.61	2.38	0.83	0.95	0.24	3.59	1.26	1.43	0.36	4.39	1.53	1.75	0.44	5.39	1.89	2.16	0.54	6.89	2.41	2.76	0.69
1161	0.83	6.16	2.15	2.46	0.62	2.38	0.83	0.95	0.24	3.59	1.26	1.44	0.36	4.40	1.54	1.76	0.44	5.40	1.89	2.16	0.54	6.91	2.42	2.76	0.69
1162	0.83	6.17	2.16	2.47	0.62	2.39	0.84	0.96	0.24	3.60	1.26	1.44	0.36	4.40	1.54	1.76	0.44	5.42	1.90	2.17	0.54	6.92	2.42	2.77	0.69
1163	0.84	6.18	2.16	2.47	0.62	2.39	0.84	0.96	0.24	3.61	1.26	1.44	0.36	4.41	1.54	1.77	0.44	5.43	1.90	2.17	0.54	6.94	2.43	2.77	0.69

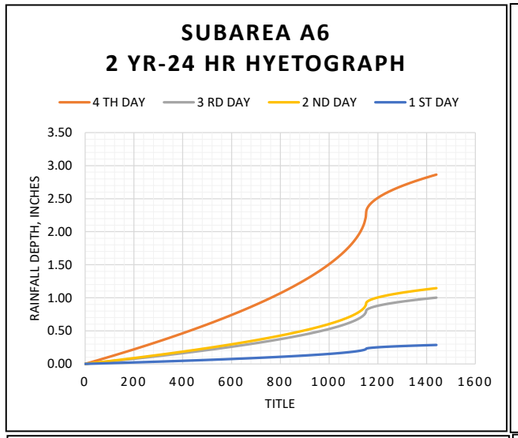
UNIT HYETOGRAPH		50 YR - 24 HR				2 YR - 24 HR				5 YR - 24 HR				10 YR - 24 HR				25 YR - 24 HR				100 YR - 24 HR			
	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth
Time	1 INCH	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY
1164	0.84	6.19	2.17	2.48	0.62	2.40	0.84	0.96	0.24	3.62	1.27	1.45	0.36	4.42	1.55	1.77	0.44	5.44	1.90	2.18	0.54	6.95	2.43	2.78	0.70
1165	0.84	6.21	2.17	2.48	0.62	2.40	0.84	0.96	0.24	3.62	1.27	1.45	0.36	4.43	1.55	1.77	0.44	5.45	1.91	2.18	0.54	6.96	2.44	2.79	0.70
1166	0.84	6.22	2.18	2.49	0.62	2.41	0.84	0.96	0.24	3.63	1.27	1.45	0.36	4.44	1.55	1.78	0.44	5.46	1.91	2.18	0.55	6.98	2.44	2.79	0.70
1167	0.84	6.23	2.18	2.49	0.62	2.41	0.84	0.96	0.24	3.64	1.27	1.46	0.36	4.45	1.56	1.78	0.44	5.47	1.91	2.19	0.55	6.99	2.45	2.80	0.70
1168	0.84	6.24	2.18	2.50	0.62	2.41	0.85	0.97	0.24	3.64	1.28	1.46	0.36	4.46	1.56	1.78	0.45	5.48	1.92	2.19	0.55	7.00	2.45	2.80	0.70
1169	0.84	6.25	2.19	2.50	0.63	2.42	0.85	0.97	0.24	3.65	1.28	1.46	0.37	4.46	1.56	1.79	0.45	5.49	1.92	2.20	0.55	7.01	2.45	2.81	0.70
1170	0.85	6.26	2.19	2.50	0.63	2.42	0.85	0.97	0.24	3.66	1.28	1.46	0.37	4.47	1.56	1.79	0.45	5.50	1.92	2.20	0.55	7.02	2.46	2.81	0.70
1171	0.85	6.27	2.19	2.51	0.63	2.43	0.85	0.97	0.24	3.66	1.28	1.46	0.37	4.48	1.57	1.79	0.45	5.51	1.93	2.20	0.55	7.04	2.46	2.81	0.70
1172	0.85	6.28	2.20	2.51	0.63	2.43	0.85	0.97	0.24	3.67	1.28	1.47	0.37	4.48	1.57	1.79	0.45	5.51	1.93	2.21	0.55	7.05	2.47	2.82	0.70
1173	0.85	6.29	2.20	2.52	0.63	2.43	0.85	0.97	0.24	3.67	1.29	1.47	0.37	4.49	1.57	1.80	0.45	5.52	1.93	2.21	0.55	7.06	2.47	2.82	0.71
1174	0.85	6.30	2.20	2.52	0.63	2.44	0.85	0.98	0.24	3.68	1.29	1.47	0.37	4.50	1.57	1.80	0.45	5.53	1.94	2.21	0.55	7.07	2.47	2.83	0.71
1175	0.85	6.31	2.21	2.52	0.63	2.44	0.85	0.98	0.24	3.68	1.29	1.47	0.37	4.50	1.58	1.80	0.45	5.54	1.94	2.22	0.55	7.08	2.48	2.83	0.71
1176	0.85	6.32	2.21	2.53	0.63	2.44	0.86	0.98	0.24	3.69	1.29	1.48	0.37	4.51	1.58	1.80	0.45	5.55	1.94	2.22	0.55	7.09	2.48	2.83	0.71
1177	0.85	6.33	2.21	2.53	0.63	2.45	0.86	0.98	0.24	3.69	1.29	1.48	0.37	4.52	1.58	1.81	0.45	5.55	1.94	2.22	0.56	7.10	2.48	2.84	0.71
1178	0.86	6.33	2.22	2.53	0.63	2.45	0.86	0.98	0.25	3.70	1.29	1.48	0.37	4.52	1.58	1.81	0.45	5.56	1.95	2.22	0.56	7.11	2.49	2.84	0.71
1179	0.86	6.34	2.22	2.54	0.63	2.45	0.86	0.98	0.25	3.70	1.30	1.48	0.37	4.53	1.58	1.81	0.45	5.57	1.95	2.23	0.56	7.12	2.49	2.85	0.71
1180	0.86	6.35	2.22	2.54	0.64	2.46	0.86	0.98	0.25	3.71	1.30	1.48	0.37	4.53	1.59	1.81	0.45	5.58	1.95	2.23	0.56	7.13	2.49	2.85	0.71
1181	0.86	6.36	2.23	2.54	0.64	2.46	0.86	0.98	0.25	3.71	1.30	1.49	0.37	4.54	1.59	1.82	0.45	5.58	1.95	2.23	0.56	7.13	2.50	2.85	0.71
1182	0.86	6.37	2.23	2.55	0.64	2.46	0.86	0.99	0.25	3.72	1.30	1.49	0.37	4.55	1.59	1.82	0.45	5.59	1.96	2.24	0.56	7.14	2.50	2.86	0.71
1183	0.86	6.37	2.23	2.55	0.64	2.47	0.86	0.99	0.25	3.72	1.30	1.49	0.37	4.55	1.59	1.82	0.46	5.60	1.96	2.24	0.56	7.15	2.50	2.86	0.72
1184	0.86	6.38	2.23	2.55	0.64	2.47	0.86	0.99	0.25	3.73	1.30	1.49	0.37	4.56	1.59	1.82	0.46	5.60	1.96	2.24	0.56	7.16	2.51	2.86	0.72
1185	0.86	6.39	2.24	2.56	0.64	2.47	0.87	0.99	0.25	3.73	1.31	1.49	0.37	4.56	1.60	1.82	0.46	5.61	1.96	2.24	0.56	7.17	2.51	2.87	0.72
1186	0.86	6.40	2.24	2.56	0.64	2.48	0.87	0.99	0.25	3.74	1.31	1.49	0.37	4.57	1.60	1.83	0.46	5.62	1.97	2.25	0.56	7.18	2.51	2.87	0.72
1187	0.87	6.40	2.24	2.56	0.64	2.48	0.87	0.99	0.25	3.74	1.31	1.50	0.37	4.57	1.60	1.83	0.46	5.62	1.97	2.25	0.56	7.19	2.51	2.87	0.72
1188	0.87	6.41	2.24	2.56	0.64	2.48	0.87	0.99	0.25	3.74	1.31	1.50	0.37	4.58	1.60	1.83	0.46	5.63	1.97	2.25	0.56	7.19	2.52	2.88	0.72
1189	0.87	6.42	2.25	2.57	0.64	2.48	0.87	0.99	0.25	3.75	1.31	1.50	0.37	4.58	1.60	1.83	0.46	5.64	1.97	2.25	0.56	7.20	2.52	2.88	0.72
1190	0.87	6.43	2.25	2.57	0.64	2.49	0.87	0.99	0.25	3.75	1.31	1.50	0.38	4.59	1.61	1.84	0.46	5.64	1.97	2.26	0.56	7.21	2.52	2.88	0.72
1191	0.87	6.43	2.25	2.57	0.64	2.49	0.87	1.00	0.25	3.76	1.31	1.50	0.38	4.59	1.61	1.84	0.46	5.65	1.98	2.26	0.56	7.22	2.53	2.89	0.72
1192	0.87	6.44	2.25	2.58	0.64	2.49	0.87	1.00	0.25	3.76	1.32	1.50	0.38	4.60	1.61	1.84	0.46	5.65	1.98	2.26	0.57	7.23	2.53	2.89	0.72
1193	0.87	6.45	2.26	2.58	0.64	2.49	0.87	1.00	0.25	3.76	1.32	1.51	0.38	4.60	1.61	1.84	0.46	5.66	1.98	2.26	0.57	7.23	2.53	2.89	0.72
1194	0.87	6.45	2.26	2.58	0.65	2.50	0.87	1.00	0.25	3.77	1.32	1.51	0.38	4.61	1.61	1.84	0.46	5.67	1.98	2.27	0.57	7.24	2.53	2.90	0.72
1195	0.87	6.46	2.26	2.58	0.65	2.50	0.88	1.00	0.25	3.77	1.32	1.51	0.38	4.61	1.61	1.85	0.46	5.67	1.99	2.27	0.57	7.25	2.54	2.90	0.72
1196	0.87	6.47	2.26	2.59	0.65	2.50	0.88	1.00	0.25	3.78	1.32	1.51	0.38	4.62	1.62	1.85	0.46	5.68	1.99	2.27	0.57	7.26	2.54	2.90	0.73
1197	0.87	6.47	2.27	2.59	0.65	2.51	0.88	1.00	0.25	3.78	1.32	1.51	0.38	4.62	1.62	1.85	0.46	5.68	1.99	2.27	0.57	7.26	2.54	2.91	0.73
1198	0.88	6.48	2.27	2.59	0.65	2.51	0.88	1.00	0.25	3.78	1.32	1.51	0.38	4.63	1.62	1.85	0.46	5.69	1.99	2.28	0.57	7.27	2.54	2.91	0.73
1199	0.88	6.49	2.27	2.59	0.65	2.51	0.88	1.00	0.25	3.79	1.33	1.52	0.38	4.63	1.62	1.85	0.46	5.69	1.99	2.28	0.57	7.28	2.55	2.91	0.73
1200	0.88	6.49	2.27	2.60	0.65	2.51	0.88	1.01	0.25	3.79	1.33	1.52	0.38	4.64	1.62	1.85	0.46	5.70	2.00	2.28	0.57	7.28	2.55	2.91	0.73
1201	0.88	6.50	2.27	2.60	0.65	2.52	0.88	1.01	0.25	3.80	1.33	1.52	0.38	4.64	1.62	1.86	0.46	5.71	2.00	2.28	0.57	7.29	2.55	2.92	0.73
1202	0.88	6.51	2.28	2.60	0.65	2.52	0.88	1.01	0.25	3.80	1.33	1.52	0.38	4.64	1.63	1.86	0.46	5.71	2.00	2.28	0.57	7.30	2.55	2.92	0.73
1203	0.88	6.51	2.28	2.60	0.65	2.52	0.88	1.01	0.25	3.80	1.33	1.52	0.38	4.65	1.63	1.86	0.46	5.72	2.00	2.29	0.57	7.31	2.56	2.92	0.73
1204	0.88	6.52	2.28	2.61	0.65	2.52	0.88	1.01	0.25	3.81	1.33	1.52	0.38	4.65	1.63	1.86	0.47	5.72	2.00	2.29	0.57	7.31	2.56	2.93	0.73
1205	0.88	6.52	2.28	2.61	0.65	2.52	0.88	1.01	0.25	3.81	1.33	1.52	0.38	4.66	1.63	1.86	0.47	5.73	2.00	2.29	0.57	7.32	2.56	2.93	0.73
1206	0.88	6.53	2.29	2.61	0.65	2.53	0.88	1.01	0.25	3.81	1.33	1.53	0.38	4.66	1.63	1.86	0.47	5.73	2.01	2.29	0.57	7.33	2.56	2.93	0.73
1207	0.88	6.54	2.29	2.61	0.65	2.53	0.89	1.01	0.25	3.82	1.34	1.53	0.38	4.67	1.63	1.87	0.47	5.74	2.01	2.30	0.57	7.33	2.57	2.93	0.73
1208	0.88	6.54	2.29	2.62	0.65	2.53	0.89	1.01	0.25	3.82	1.34	1.53	0.38	4.67	1.63	1.87	0.47	5.74	2.01	2.30	0.57	7.34	2.57	2.94	0.73
1209	0.88	6.55	2.29	2.62	0.65	2.53	0.89	1.01	0.25	3.82	1.34	1.53	0.38	4.67	1.64	1.87	0.47	5.75	2.01	2.30	0.57	7.35	2.57	2.94	0.73
1210	0.89	6.55	2.29	2.62	0.66	2.54	0.89	1.01	0.25	3.83	1.34	1.53	0.38	4.68	1.64	1.87	0.47	5.75	2.01	2.30	0.58	7.35	2.57	2.94	0.74
1211	0.89	6.56	2.30	2.62	0.66	2.54	0.89	1.02	0.25	3.83	1.34	1.53	0.38	4.68	1.64	1.87	0.47	5.76	2.02	2.30	0.58	7.36	2.58	2.94	0.74
1212	0.89	6.56	2.30	2.63	0.66	2.54	0.89	1.02	0.25	3.83	1.34	1.53	0.38	4.69	1.64	1.87	0.47	5.76	2.02	2.31	0.58	7.37	2.58	2.95	0.74
1213	0.89	6.57	2.30	2.63	0.66	2.54	0.89	1.02	0.25	3.84	1.34	1.53	0.38	4.69	1.64	1.88	0.47	5.77	2.02	2.31	0.58	7.37	2.58	2.95	0.74
1214	0.89	6.58	2.30	2.63	0.66	2.54	0.89	1.02	0.25	3.84	1.34	1.54	0.38	4.70	1.64	1.88	0.47	5.77	2.02	2.31	0.58	7.38	2.58	2.95	0.74
1215	0.89	6.58	2.30	2.63	0.66	2.55	0.89	1.02	0.25	3.84	1.35	1.54	0.38	4.70	1.64	1.88	0.47	5.78	2.02	2.31	0.58	7.38	2.58	2.95	0.74
1216	0.89	6.59	2.31	2.63	0.66	2.55	0.89	1.02	0.25	3.85	1.35	1.54	0.38	4.70	1.65	1.88	0.47	5.78	2.02	2.31	0.58	7.39	2.59	2.96	0.74
1217	0.89	6.59	2.31	2.64	0.66	2.55	0.89	1.02	0.26	3.85	1.35	1.54	0.38	4.71	1.65	1.88	0.47	5.79	2.03	2.32	0.58	7.40	2.59	2.96	0.74
1218	0.89	6.60	2.31	2.64	0.66	2.55	0.89	1.02	0.26	3.85	1.35	1.54	0.39	4.71	1.65	1.88	0.47	5.79	2.03	2.32	0.58	7.40	2.59	2.96	0.74
1219	0.89	6.60	2.31	2.64	0.66	2.56	0.89	1.02	0.26	3.86	1.35	1.54	0.39	4.71	1.65	1.89	0.47	5.80	2.03	2.32	0.58	7.41	2.59	2.96	0.74
1220	0.89	6.61	2.31	2.64	0.66	2.56	0.90	1.02	0.26	3.86	1.35	1.54	0.39	4.72	1.65	1.89	0.47	5.80	2.03	2.32	0.58	7.41	2.60	2.97	0.74
1221	0.89	6.61	2.31	2.65	0.66	2.56	0.90	1.02	0.26	3.86	1.35	1.55	0.39	4.72	1.65	1.89	0.47	5.81	2.03	2.32	0.58	7.42	2.60	2.97	0.74
1222	0.89	6.62	2.32	2.65	0.66	2.56	0.90	1.02	0.26	3.87	1.35	1.55	0.39	4.73	1.65	1.89	0.47	5.81	2.03	2.32	0.58	7.43	2.60	2.97	0.74
1223	0.90	6.62	2.32	2.65	0.66	2.56	0.90	1.03	0.26	3.87	1.35	1.55	0.39	4.73	1.66	1.89	0.47	5.82	2.04	2.33	0.58	7.43	2.60	2.97	0.74

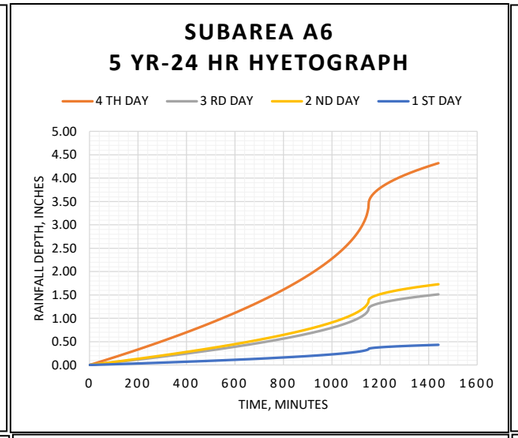
UNIT HYETOGRAPH		50 YR - 24 HR				2 YR - 24 HR				5 YR - 24 HR				10 YR - 24 HR				25 YR - 24 HR				100 YR - 24 HR			
	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth
Time	1 INCH	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY
1224	0.90	6.63	2.32	2.65	0.66	2.57	0.90	1.03	0.26	3.87	1.36	1.55	0.39	4.73	1.66	1.89	0.47	5.82	2.04	2.33	0.58	7.44	2.60	2.98	0.74
1225	0.90	6.64	2.32	2.65	0.66	2.57	0.90	1.03	0.26	3.87	1.36	1.55	0.39	4.74	1.66	1.89	0.47	5.83	2.04	2.33	0.58	7.44	2.61	2.98	0.74
1226	0.90	6.64	2.32	2.66	0.66	2.57	0.90	1.03	0.26	3.88	1.36	1.55	0.39	4.74	1.66	1.90	0.47	5.83	2.04	2.33	0.58	7.45	2.61	2.98	0.75
1227	0.90	6.65	2.33	2.66	0.66	2.57	0.90	1.03	0.26	3.88	1.36	1.55	0.39	4.74	1.66	1.90	0.47	5.83	2.04	2.33	0.58	7.46	2.61	2.98	0.75
1228	0.90	6.65	2.33	2.66	0.67	2.57	0.90	1.03	0.26	3.88	1.36	1.55	0.39	4.75	1.66	1.90	0.47	5.84	2.04	2.34	0.58	7.46	2.61	2.98	0.75
1229	0.90	6.66	2.33	2.66	0.67	2.58	0.90	1.03	0.26	3.89	1.36	1.55	0.39	4.75	1.66	1.90	0.48	5.84	2.05	2.34	0.58	7.47	2.61	2.99	0.75
1230	0.90	6.66	2.33	2.66	0.67	2.58	0.90	1.03	0.26	3.89	1.36	1.56	0.39	4.76	1.66	1.90	0.48	5.85	2.05	2.34	0.58	7.47	2.62	2.99	0.75
1231	0.90	6.67	2.33	2.67	0.67	2.58	0.90	1.03	0.26	3.89	1.36	1.56	0.39	4.76	1.67	1.90	0.48	5.85	2.05	2.34	0.59	7.48	2.62	2.99	0.75
1232	0.90	6.67	2.33	2.67	0.67	2.58	0.90	1.03	0.26	3.90	1.36	1.56	0.39	4.76	1.67	1.91	0.48	5.86	2.05	2.34	0.59	7.48	2.62	2.99	0.75
1233	0.90	6.68	2.34	2.67	0.67	2.58	0.90	1.03	0.26	3.90	1.36	1.56	0.39	4.77	1.67	1.91	0.48	5.86	2.05	2.34	0.59	7.49	2.62	3.00	0.75
1234	0.90	6.68	2.34	2.67	0.67	2.59	0.90	1.03	0.26	3.90	1.37	1.56	0.39	4.77	1.67	1.91	0.48	5.87	2.05	2.35	0.59	7.50	2.62	3.00	0.75
1235	0.90	6.69	2.34	2.67	0.67	2.59	0.91	1.03	0.26	3.90	1.37	1.56	0.39	4.77	1.67	1.91	0.48	5.87	2.05	2.35	0.59	7.50	2.63	3.00	0.75
1240	0.91	6.71	2.35	2.68	0.67	2.60	0.91	1.04	0.26	3.92	1.37	1.57	0.39	4.79	1.68	1.92	0.48	5.89	2.06	2.36	0.59	7.53	2.63	3.01	0.75
1245	0.91	6.73	2.36	2.69	0.67	2.61	0.91	1.04	0.26	3.93	1.38	1.57	0.39	4.81	1.68	1.92	0.48	5.91	2.07	2.36	0.59	7.55	2.64	3.02	0.76
1250	0.91	6.76	2.36	2.70	0.68	2.61	0.92	1.05	0.26	3.95	1.38	1.58	0.39	4.82	1.69	1.93	0.48	5.93	2.08	2.37	0.59	7.58	2.65	3.03	0.76
1255	0.92	6.78	2.37	2.71	0.68	2.62	0.92	1.05	0.26	3.96	1.39	1.58	0.40	4.84	1.69	1.94	0.48	5.95	2.08	2.38	0.60	7.61	2.66	3.04	0.76
1260	0.92	6.80	2.38	2.72	0.68	2.63	0.92	1.05	0.26	3.97	1.39	1.59	0.40	4.86	1.70	1.94	0.49	5.97	2.09	2.39	0.60	7.63	2.67	3.05	0.76
1265	0.92	6.82	2.39	2.73	0.68	2.64	0.92	1.06	0.26	3.98	1.39	1.59	0.40	4.87	1.70	1.95	0.49	5.99	2.10	2.40	0.60	7.65	2.68	3.06	0.77
1270	0.92	6.84	2.39	2.74	0.68	2.65	0.93	1.06	0.26	4.00	1.40	1.60	0.40	4.89	1.71	1.95	0.49	6.01	2.10	2.40	0.60	7.68	2.69	3.07	0.77
1275	0.93	6.86	2.40	2.75	0.69	2.66	0.93	1.06	0.27	4.01	1.40	1.60	0.40	4.90	1.72	1.96	0.49	6.03	2.11	2.41	0.60	7.70	2.70	3.08	0.77
1280	0.93	6.88	2.41	2.75	0.69	2.66	0.93	1.07	0.27	4.02	1.41	1.61	0.40	4.91	1.72	1.97	0.49	6.04	2.12	2.42	0.60	7.72	2.70	3.09	0.77
1285	0.93	6.90	2.42	2.76	0.69	2.67	0.93	1.07	0.27	4.03	1.41	1.61	0.40	4.93	1.72	1.97	0.49	6.06	2.12	2.42	0.61	7.74	2.71	3.10	0.77
1290	0.94	6.92	2.42	2.77	0.69	2.68	0.94	1.07	0.27	4.04	1.41	1.62	0.40	4.94	1.73	1.98	0.49	6.08	2.13	2.43	0.61	7.77	2.72	3.11	0.78
1295	0.94	6.94	2.43	2.78	0.69	2.69	0.94	1.07	0.27	4.05	1.42	1.62	0.41	4.96	1.73	1.98	0.50	6.09	2.13	2.44	0.61	7.79	2.73	3.12	0.78
1300	0.94	6.96	2.44	2.78	0.70	2.69	0.94	1.08	0.27	4.06	1.42	1.63	0.41	4.97	1.74	1.99	0.50	6.11	2.14	2.44	0.61	7.81	2.73	3.12	0.78
1305	0.94	6.98	2.44	2.79	0.70	2.70	0.95	1.08	0.27	4.08	1.43	1.63	0.41	4.98	1.74	1.99	0.50	6.13	2.14	2.45	0.61	7.83	2.74	3.13	0.78
1310	0.95	7.00	2.45	2.80	0.70	2.71	0.95	1.08	0.27	4.09	1.43	1.63	0.41	5.00	1.75	2.00	0.50	6.14	2.15	2.46	0.61	7.85	2.75	3.14	0.79
1315	0.95	7.01	2.46	2.81	0.70	2.71	0.95	1.09	0.27	4.10	1.43	1.64	0.41	5.01	1.75	2.00	0.50	6.16	2.16	2.46	0.62	7.87	2.75	3.15	0.79
1320	0.95	7.03	2.46	2.81	0.70	2.72	0.95	1.09	0.27	4.11	1.44	1.64	0.41	5.02	1.76	2.01	0.50	6.17	2.16	2.47	0.62	7.89	2.76	3.16	0.79
1325	0.95	7.05	2.47	2.82	0.70	2.73	0.95	1.09	0.27	4.12	1.44	1.65	0.41	5.03	1.76	2.01	0.50	6.19	2.17	2.48	0.62	7.91	2.77	3.16	0.79
1330	0.95	7.07	2.47	2.83	0.71	2.73	0.96	1.09	0.27	4.13	1.44	1.65	0.41	5.05	1.77	2.02	0.50	6.20	2.17	2.48	0.62	7.93	2.78	3.17	0.79
1335	0.96	7.08	2.48	2.83	0.71	2.74	0.96	1.10	0.27	4.14	1.45	1.65	0.41	5.06	1.77	2.02	0.51	6.22	2.18	2.49	0.62	7.95	2.78	3.18	0.79
1340	0.96	7.10	2.49	2.84	0.71	2.75	0.96	1.10	0.27	4.15	1.45	1.66	0.41	5.07	1.77	2.03	0.51	6.23	2.18	2.49	0.62	7.97	2.79	3.19	0.80
1345	0.96	7.12	2.49	2.85	0.71	2.75	0.96	1.10	0.28	4.16	1.45	1.66	0.42	5.08	1.78	2.03	0.51	6.25	2.19	2.50	0.62	7.99	2.79	3.19	0.80
1350	0.96	7.13	2.50	2.85	0.71	2.76	0.97	1.10	0.28	4.17	1.46	1.67	0.42	5.09	1.78	2.04	0.51	6.26	2.19	2.51	0.63	8.00	2.80	3.20	0.80
1355	0.97	7.15	2.50	2.86	0.71	2.77	0.97	1.11	0.28	4.18	1.46	1.67	0.42	5.10	1.79	2.04	0.51	6.28	2.20	2.51	0.63	8.02	2.81	3.21	0.80
1360	0.97	7.17	2.51	2.87	0.72	2.77	0.97	1.11	0.28	4.18	1.46	1.67	0.42	5.12	1.79	2.05	0.51	6.29	2.20	2.52	0.63	8.04	2.81	3.22	0.80
1365	0.97	7.18	2.51	2.87	0.72	2.78	0.97	1.11	0.28	4.19	1.47	1.68	0.42	5.13	1.79	2.05	0.51	6.31	2.21	2.52	0.63	8.06	2.82	3.22	0.81
1370	0.97	7.20	2.52	2.88	0.72	2.79	0.97	1.11	0.28	4.20	1.47	1.68	0.42	5.14	1.80	2.06	0.51	6.32	2.21	2.53	0.63	8.07	2.83	3.23	0.81
1375	0.97	7.21	2.52	2.88	0.72	2.79	0.98	1.12	0.28	4.21	1.47	1.68	0.42	5.15	1.80	2.06	0.51	6.33	2.22	2.53	0.63	8.09	2.83	3.24	0.81
1380	0.98	7.23	2.53	2.89	0.72	2.80	0.98	1.12	0.28	4.22	1.48	1.69	0.42	5.16	1.81	2.06	0.52	6.35	2.22	2.54	0.63	8.11	2.84	3.24	0.81
1385	0.98	7.24	2.53	2.90	0.72	2.80	0.98	1.12	0.28	4.23	1.48	1.69	0.42	5.17	1.81	2.07	0.52	6.36	2.23	2.54	0.64	8.13	2.84	3.25	0.81
1390	0.98	7.26	2.54	2.90	0.73	2.81	0.98	1.12	0.28	4.24	1.48	1.70	0.42	5.18	1.81	2.07	0.52	6.37	2.23	2.55	0.64	8.14	2.85	3.26	0.81
1395	0.98	7.27	2.55	2.91	0.73	2.81	0.99	1.13	0.28	4.25	1.49	1.70	0.42	5.19	1.82	2.08	0.52	6.39	2.23	2.55	0.64	8.16	2.86	3.26	0.82
1400	0.98	7.29	2.55	2.91	0.73	2.82	0.99	1.13	0.28	4.26	1.49	1.70	0.43	5.20	1.82	2.08	0.52	6.40	2.24	2.56	0.64	8.18	2.86	3.27	0.82
1405	0.99	7.30	2.56	2.92	0.73	2.83	0.99	1.13	0.28	4.26	1.49	1.71	0.43	5.21	1.82	2.09	0.52	6.41	2.24	2.56	0.64	8.19	2.87	3.28	0.82
1410	0.99	7.32	2.56	2.93	0.73	2.83	0.99	1.13	0.28	4.27	1.50	1.71	0.43	5.22	1.83	2.09	0.52	6.42	2.25	2.57	0.64	8.21	2.87	3.28	0.82
1415	0.99	7.33	2.57	2.93	0.73	2.84	0.99	1.13	0.28	4.28	1.50	1.71	0.43	5.23	1.83	2.09	0.52	6.44	2.25	2.57	0.64	8.22	2.88	3.29	0.82
1420	0.99	7.34	2.57	2.94	0.73	2.84	0.99	1.14	0.28	4.29	1.50	1.72	0.43	5.24	1.84	2.10	0.52	6.45	2.26	2.58	0.64	8.24	2.88	3.30	0.82
1425	0.99	7.36	2.58	2.94	0.74	2.85	1.00	1.14	0.28	4.30	1.50	1.72	0.43	5.25	1.84	2.10	0.53	6.46	2.26	2.58	0.65	8.26	2.89	3.30	0.83
1430	1.00	7.37	2.58	2.95	0.74	2.85	1.00	1.14	0.29	4.31	1.51	1.72	0.43	5.26	1.84	2.11	0.53	6.47	2.27	2.59	0.65	8.27	2.90	3.31	0.83
1435	1.00	7.39	2.59	2.95	0.74	2.86	1.00	1.14	0.29	4.31	1.51	1.73	0.43	5.27	1.85	2.11	0.53	6.49	2.27	2.59	0.65	8.29	2.90	3.31	0.83
1440	1.00	7.40	2.59	2.96	0.74	2.86	1.00	1.15	0.29	4.32	1.51	1.73	0.43	5.28	1.85	2.11	0.53	6.50	2.27	2.60	0.65	8.30	2.91	3.32	0.83

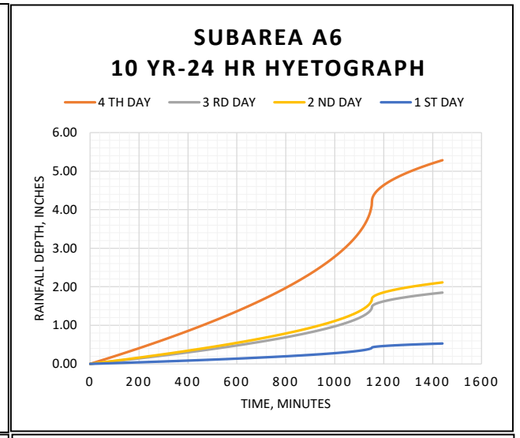
SUBAREA A6 HYETOPRAPHS

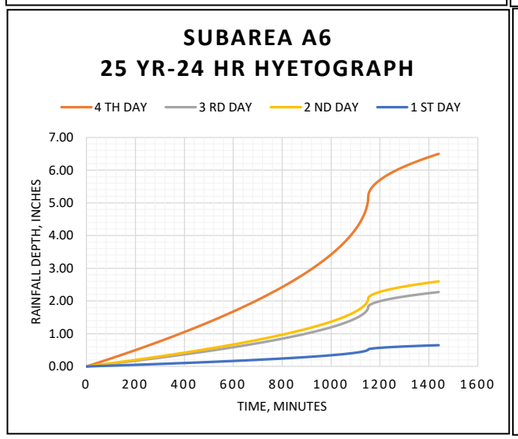
- Per 2006 Los Angeles County Hydrology Manual Appendix A

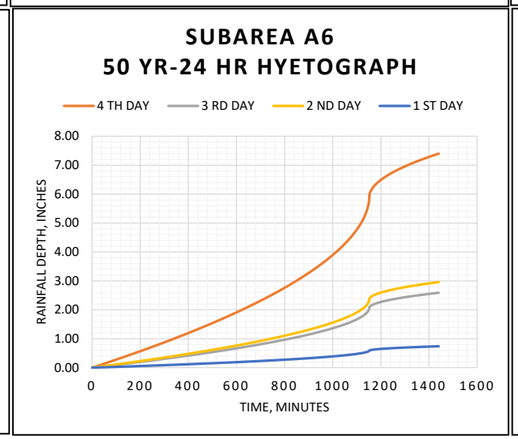
24 HR ISOHYETS,IN					
50 YR	2 YR	5 YR	10 YR	25 YR	100 YR
7.4	2.9	4.3	5.3	6.5	8.3

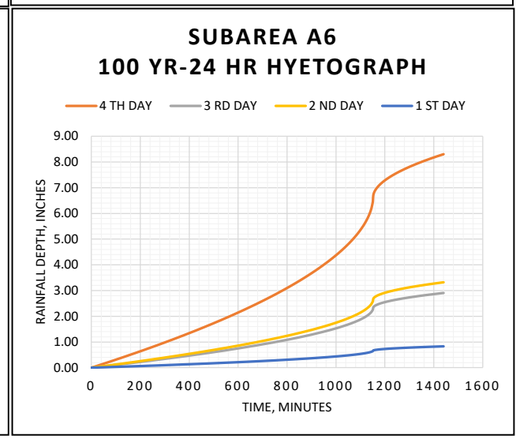












UNIT HYETOGRAPH		50 YR - 24 HR				2 YR - 24 HR				5 YR - 24 HR				10 YR - 24 HR				25 YR - 24 HR				100 YR - 24 HR			
	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth
Time	1 INCH	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30	0.01	0.08	0.03	0.03	0.01	0.03	0.01	0.01	0.00	0.05	0.02	0.02	0.00	0.06	0.02	0.02	0.01	0.07	0.03	0.03	0.01	0.09	0.03	0.04	0.01
60	0.02	0.17	0.06	0.07	0.02	0.06	0.02	0.03	0.01	0.10	0.03	0.04	0.01	0.12	0.04	0.05	0.01	0.15	0.05	0.06	0.01	0.19	0.06	0.07	0.02
90	0.03	0.25	0.09	0.10	0.02	0.10	0.03	0.04	0.01	0.15	0.05	0.06	0.01	0.18	0.06	0.07	0.02	0.22	0.08	0.09	0.02	0.28	0.10	0.11	0.03
120	0.05	0.34	0.12	0.13	0.03	0.13	0.05	0.05	0.01	0.20	0.07	0.08	0.02	0.24	0.08	0.10	0.02	0.29	0.10	0.12	0.03	0.38	0.13	0.15	0.04
150	0.06	0.42	0.15	0.17	0.04	0.16	0.06	0.07	0.02	0.25	0.09	0.10	0.02	0.30	0.11	0.12	0.03	0.37	0.13	0.15	0.04	0.47	0.17	0.19	0.05
180	0.07	0.51	0.18	0.20	0.05	0.20	0.07	0.08	0.02	0.30	0.10	0.12	0.03	0.36	0.13	0.15	0.04	0.45	0.16	0.18	0.04	0.57	0.20	0.23	0.06
210	0.08	0.60	0.21	0.24	0.06	0.23	0.08	0.09	0.02	0.35	0.12	0.14	0.03	0.43	0.15	0.17	0.04	0.53	0.18	0.21	0.05	0.67	0.24	0.27	0.07
240	0.09	0.69	0.24	0.28	0.07	0.27	0.09	0.11	0.03	0.40	0.14	0.16	0.04	0.49	0.17	0.20	0.05	0.61	0.21	0.24	0.06	0.77	0.27	0.31	0.08
270	0.11	0.78	0.27	0.31	0.08	0.30	0.11	0.12	0.03	0.46	0.16	0.18	0.05	0.56	0.20	0.22	0.06	0.69	0.24	0.27	0.07	0.88	0.31	0.35	0.09
300	0.12	0.87	0.31	0.35	0.09	0.34	0.12	0.14	0.03	0.51	0.18	0.20	0.05	0.62	0.22	0.25	0.06	0.77	0.27	0.31	0.08	0.98	0.34	0.39	0.10
330	0.13	0.97	0.34	0.39	0.10	0.38	0.13	0.15	0.04	0.57	0.20	0.23	0.06	0.69	0.24	0.28	0.07	0.85	0.30	0.34	0.09	1.09	0.38	0.44	0.11
360	0.14	1.07	0.37	0.43	0.11	0.41	0.14	0.17	0.04	0.62	0.22	0.25	0.06	0.76	0.27	0.30	0.08	0.94	0.33	0.37	0.09	1.20	0.42	0.48	0.12

UNIT HYETOGRAPH		50 YR - 24 HR				2 YR - 24 HR				5 YR - 24 HR				10 YR - 24 HR				25 YR - 24 HR				100 YR - 24 HR			
	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth
Time	1 INCH	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY
390	0.16	1.16	0.41	0.47	0.12	0.45	0.16	0.18	0.05	0.68	0.24	0.27	0.07	0.83	0.29	0.33	0.08	1.02	0.36	0.41	0.10	1.31	0.46	0.52	0.13
420	0.17	1.26	0.44	0.51	0.13	0.49	0.17	0.20	0.05	0.74	0.26	0.30	0.07	0.90	0.32	0.36	0.09	1.11	0.39	0.44	0.11	1.42	0.50	0.57	0.14
450	0.18	1.37	0.48	0.55	0.14	0.53	0.19	0.21	0.05	0.80	0.28	0.32	0.08	0.98	0.34	0.39	0.10	1.20	0.42	0.48	0.12	1.53	0.54	0.61	0.15
480	0.20	1.47	0.51	0.59	0.15	0.57	0.20	0.23	0.06	0.86	0.30	0.34	0.09	1.05	0.37	0.42	0.11	1.29	0.45	0.52	0.13	1.65	0.58	0.66	0.17
510	0.21	1.58	0.55	0.63	0.16	0.61	0.21	0.24	0.06	0.92	0.32	0.37	0.09	1.13	0.39	0.45	0.11	1.38	0.48	0.55	0.14	1.77	0.62	0.71	0.18
540	0.23	1.69	0.59	0.67	0.17	0.65	0.23	0.26	0.07	0.98	0.34	0.39	0.10	1.20	0.42	0.48	0.12	1.48	0.52	0.59	0.15	1.89	0.66	0.76	0.19
570	0.24	1.80	0.63	0.72	0.18	0.70	0.24	0.28	0.07	1.05	0.37	0.42	0.10	1.28	0.45	0.51	0.13	1.58	0.55	0.63	0.16	2.02	0.71	0.81	0.20
600	0.26	1.91	0.67	0.76	0.19	0.74	0.26	0.30	0.07	1.12	0.39	0.45	0.11	1.36	0.48	0.55	0.14	1.68	0.59	0.67	0.17	2.14	0.75	0.86	0.21
630	0.27	2.03	0.71	0.81	0.20	0.79	0.27	0.31	0.08	1.18	0.41	0.47	0.12	1.45	0.51	0.58	0.14	1.78	0.62	0.71	0.18	2.28	0.80	0.91	0.23
660	0.29	2.15	0.75	0.86	0.21	0.83	0.29	0.33	0.08	1.25	0.44	0.50	0.13	1.53	0.54	0.61	0.15	1.89	0.66	0.75	0.19	2.41	0.84	0.96	0.24
690	0.31	2.27	0.80	0.91	0.23	0.88	0.31	0.35	0.09	1.33	0.46	0.53	0.13	1.62	0.57	0.65	0.16	2.00	0.70	0.80	0.20	2.55	0.89	1.02	0.25
720	0.32	2.40	0.84	0.96	0.24	0.93	0.33	0.37	0.09	1.40	0.49	0.56	0.14	1.71	0.60	0.69	0.17	2.11	0.74	0.84	0.21	2.69	0.94	1.08	0.27
750	0.34	2.53	0.89	1.01	0.25	0.98	0.34	0.39	0.10	1.48	0.52	0.59	0.15	1.81	0.63	0.72	0.18	2.22	0.78	0.89	0.22	2.84	0.99	1.14	0.28
780	0.36	2.67	0.93	1.07	0.27	1.03	0.36	0.41	0.10	1.56	0.55	0.62	0.16	1.91	0.67	0.76	0.19	2.34	0.82	0.94	0.23	2.99	1.05	1.20	0.30
810	0.38	2.81	0.98	1.12	0.28	1.09	0.38	0.43	0.11	1.64	0.57	0.66	0.16	2.01	0.70	0.80	0.20	2.47	0.86	0.99	0.25	3.15	1.10	1.26	0.32
840	0.40	2.96	1.04	1.18	0.30	1.14	0.40	0.46	0.11	1.73	0.60	0.69	0.17	2.11	0.74	0.84	0.21	2.60	0.91	1.04	0.26	3.32	1.16	1.33	0.33
870	0.42	3.11	1.09	1.24	0.31	1.20	0.42	0.48	0.12	1.82	0.64	0.73	0.18	2.22	0.78	0.89	0.22	2.73	0.96	1.09	0.27	3.49	1.22	1.40	0.35
900	0.44	3.27	1.15	1.31	0.33	1.27	0.44	0.51	0.13	1.91	0.67	0.76	0.19	2.34	0.82	0.94	0.23	2.88	1.01	1.15	0.29	3.67	1.29	1.47	0.37
930	0.47	3.45	1.21	1.38	0.34	1.33	0.47	0.53	0.13	2.01	0.70	0.81	0.20	2.46	0.86	0.98	0.25	3.03	1.06	1.21	0.30	3.87	1.35	1.55	0.39
960	0.49	3.63	1.27	1.45	0.36	1.40	0.49	0.56	0.14	2.12	0.74	0.85	0.21	2.59	0.91	1.04	0.26	3.19	1.12	1.27	0.32	4.07	1.43	1.63	0.41
970	0.50	3.69	1.29	1.48	0.37	1.43	0.50	0.57	0.14	2.16	0.75	0.86	0.22	2.64	0.92	1.05	0.26	3.24	1.14	1.30	0.32	4.14	1.45	1.66	0.41
980	0.51	3.76	1.32	1.50	0.38	1.45	0.51	0.58	0.15	2.20	0.77	0.88	0.22	2.68	0.94	1.07	0.27	3.30	1.16	1.32	0.33	4.22	1.48	1.69	0.42
990	0.52	3.83	1.34	1.53	0.38	1.48	0.52	0.59	0.15	2.23	0.78	0.89	0.22	2.73	0.96	1.09	0.27	3.36	1.18	1.34	0.34	4.29	1.50	1.72	0.43
1000	0.53	3.90	1.36	1.56	0.39	1.51	0.53	0.60	0.15	2.28	0.80	0.91	0.23	2.78	0.97	1.11	0.28	3.42	1.20	1.37	0.34	4.37	1.53	1.75	0.44
1010	0.54	3.97	1.39	1.59	0.40	1.54	0.54	0.61	0.15	2.32	0.81	0.93	0.23	2.83	0.99	1.13	0.28	3.48	1.22	1.39	0.35	4.45	1.56	1.78	0.45
1020	0.55	4.04	1.41	1.62	0.40	1.56	0.55	0.63	0.16	2.36	0.83	0.94	0.24	2.89	1.01	1.15	0.29	3.55	1.24	1.42	0.35	4.54	1.59	1.81	0.45
1030	0.56	4.12	1.44	1.65	0.41	1.59	0.56	0.64	0.16	2.41	0.84	0.96	0.24	2.94	1.03	1.18	0.29	3.62	1.27	1.45	0.36	4.62	1.62	1.85	0.46
1040	0.57	4.20	1.47	1.68	0.42	1.62	0.57	0.65	0.16	2.45	0.86	0.98	0.25	3.00	1.05	1.20	0.30	3.69	1.29	1.47	0.37	4.71	1.65	1.88	0.47
1050	0.58	4.28	1.50	1.71	0.43	1.66	0.58	0.66	0.17	2.50	0.88	1.00	0.25	3.06	1.07	1.22	0.31	3.76	1.32	1.50	0.38	4.80	1.68	1.92	0.48
1060	0.59	4.37	1.53	1.75	0.44	1.69	0.59	0.68	0.17	2.55	0.89	1.02	0.26	3.12	1.09	1.25	0.31	3.84	1.34	1.53	0.38	4.90	1.72	1.96	0.49
1070	0.60	4.46	1.56	1.78	0.45	1.73	0.60	0.69	0.17	2.61	0.91	1.04	0.26	3.19	1.11	1.27	0.32	3.92	1.37	1.57	0.39	5.01	1.75	2.00	0.50
1080	0.62	4.56	1.60	1.82	0.46	1.76	0.62	0.71	0.18	2.66	0.93	1.06	0.27	3.25	1.14	1.30	0.33	4.00	1.40	1.60	0.40	5.11	1.79	2.05	0.51
1090	0.63	4.66	1.63	1.86	0.47	1.80	0.63	0.72	0.18	2.72	0.95	1.09	0.27	3.33	1.17	1.33	0.33	4.09	1.43	1.64	0.41	5.23	1.83	2.09	0.52
1100	0.65	4.77	1.67	1.91	0.48	1.85	0.65	0.74	0.18	2.79	0.98	1.12	0.28	3.41	1.19	1.36	0.34	4.19	1.47	1.68	0.42	5.36	1.87	2.14	0.54
1110	0.66	4.90	1.71	1.96	0.49	1.89	0.66	0.76	0.19	2.86	1.00	1.14	0.29	3.50	1.22	1.40	0.35	4.30	1.50	1.72	0.43	5.49	1.92	2.20	0.55
1115	0.67	4.96	1.74	1.99	0.50	1.92	0.67	0.77	0.19	2.90	1.01	1.16	0.29	3.54	1.24	1.42	0.35	4.36	1.53	1.74	0.44	5.57	1.95	2.23	0.56
1120	0.68	5.03	1.76	2.01	0.50	1.95	0.68	0.78	0.19	2.94	1.03	1.18	0.29	3.59	1.26	1.44	0.36	4.42	1.55	1.77	0.44	5.65	1.98	2.26	0.56
1125	0.69	5.11	1.79	2.04	0.51	1.98	0.69	0.79	0.20	2.98	1.04	1.19	0.30	3.65	1.28	1.46	0.36	4.49	1.57	1.79	0.45	5.73	2.01	2.29	0.57
1130	0.70	5.19	1.82	2.08	0.52	2.01	0.70	0.80	0.20	3.03	1.06	1.21	0.30	3.71	1.30	1.48	0.37	4.56	1.60	1.82	0.46	5.83	2.04	2.33	0.58
1135	0.71	5.29	1.85	2.11	0.53	2.05	0.72	0.82	0.20	3.09	1.08	1.23	0.31	3.77	1.32	1.51	0.38	4.64	1.62	1.86	0.46	5.93	2.08	2.37	0.59
1136	0.72	5.31	1.86	2.12	0.53	2.05	0.72	0.82	0.21	3.10	1.08	1.24	0.31	3.79	1.33	1.52	0.38	4.66	1.63	1.86	0.47	5.95	2.08	2.38	0.60
1137	0.72	5.33	1.86	2.13	0.53	2.06	0.72	0.82	0.21	3.11	1.09	1.24	0.31	3.80	1.33	1.52	0.38	4.68	1.64	1.87	0.47	5.98	2.09	2.39	0.60
1138	0.72	5.35	1.87	2.14	0.53	2.07	0.72	0.83	0.21	3.12	1.09	1.25	0.31	3.82	1.34	1.53	0.38	4.70	1.64	1.88	0.47	6.00	2.10	2.40	0.60
1139	0.73	5.37	1.88	2.15	0.54	2.08	0.73	0.83	0.21	3.14	1.10	1.25	0.31	3.83	1.34	1.53	0.38	4.72	1.65	1.89	0.47	6.03	2.11	2.41	0.60
1140	0.73	5.39	1.89	2.16	0.54	2.09	0.73	0.83	0.21	3.15	1.10	1.26	0.31	3.85	1.35	1.54	0.39	4.74	1.66	1.89	0.47	6.05	2.12	2.42	0.61
1145	0.75	5.52	1.93	2.21	0.55	2.14	0.75	0.86	0.21	3.23	1.13	1.29	0.32	3.94	1.38	1.58	0.39	4.85	1.70	1.94	0.49	6.20	2.17	2.48	0.62
1150	0.77	5.72	2.00	2.29	0.57	2.21	0.77	0.88	0.22	3.34	1.17	1.34	0.33	4.08	1.43	1.63	0.41	5.02	1.76	2.01	0.50	6.41	2.24	2.57	0.64
1151	0.78	5.78	2.02	2.31	0.58	2.24	0.78	0.89	0.22	3.37	1.18	1.35	0.34	4.13	1.44	1.65	0.41	5.07	1.78	2.03	0.51	6.48	2.27	2.59	0.65
1152	0.80	5.92	2.07	2.37	0.59	2.29	0.80	0.92	0.23	3.46	1.21	1.38	0.35	4.23	1.48	1.69	0.42	5.20	1.82	2.08	0.52	6.64	2.32	2.66	0.66
1153	0.81	5.99	2.10	2.40	0.60	2.32	0.81	0.93	0.23	3.50	1.23	1.40	0.35	4.28	1.50	1.71	0.43	5.26	1.84	2.10	0.53	6.72	2.35	2.69	0.67
1154	0.81	6.03	2.11	2.41	0.60	2.33	0.82	0.93	0.23	3.52	1.23	1.41	0.35	4.30	1.51	1.72	0.43	5.29	1.85	2.12	0.53	6.76	2.37	2.70	0.68
1155	0.82	6.05	2.12	2.42	0.61	2.34	0.82	0.94	0.23	3.53	1.24	1.41	0.35	4.32	1.51	1.73	0.43	5.31	1.86	2.13	0.53	6.79	2.38	2.72	0.68
1156	0.82	6.07	2.13	2.43	0.61	2.35	0.82	0.94	0.24	3.55	1.24	1.42	0.35	4.34	1.52	1.73	0.43	5.33	1.87	2.13	0.53	6.81	2.39	2.73	0.68
1157	0.82	6.09	2.13	2.44	0.61	2.36	0.83	0.94	0.24	3.56	1.25	1.42	0.36	4.35	1.52	1.74	0.44	5.35	1.87	2.14	0.53	6.84	2.39	2.73	0.68
1158	0.83	6.11	2.14	2.44	0.61	2.36	0.83	0.95	0.24	3.57	1.25	1.43	0.36	4.36	1.53	1.75	0.44	5.36	1.88	2.15	0.54	6.86	2.40	2.74	0.69
1159	0.83	6.13	2.14	2.45	0.61	2.37	0.83	0.95	0.24	3.58	1.25	1.43	0.36	4.37	1.53	1.75	0.44	5.38	1.88	2.15	0.54	6.87	2.41	2.75	0.69
1160	0.83	6.14	2.15	2.46	0.61	2.38	0.83	0.95	0.24	3.59	1.26	1.43	0.36	4.39	1.53	1.75	0.44	5.39	1.89	2.16	0.54	6.89	2.41	2.76	0.69
1161	0.83	6.16	2.15	2.46	0.62	2.38	0.83	0.95	0.24	3.59	1.26	1.44	0.36	4.40	1.54	1.76	0.44	5.40	1.89	2.16	0.54	6.91	2.42	2.76	0.69
1162	0.83	6.17	2.16	2.47	0.62	2.39	0.84	0.96	0.24	3.60	1.26	1.44	0.36	4.40	1.54	1.76	0.44	5.42	1.90	2.17	0.54	6.92	2.42	2.77	0.69
1163	0.84	6.18	2.16	2.47	0.62	2.39	0.84	0.96	0.24	3.61	1.26	1.44	0.36	4.41	1.54	1.77	0.44	5.43	1.90	2.17	0.54	6.94	2.43	2.77	0.69

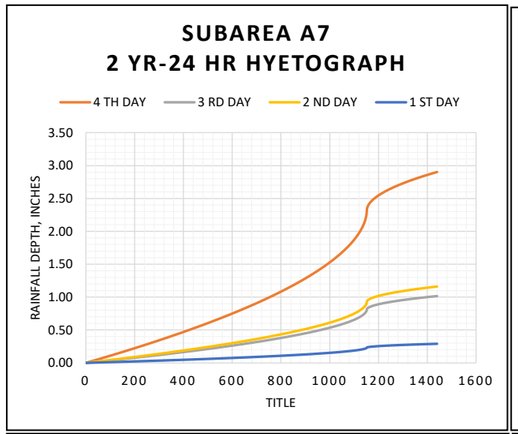
UNIT HYETOGRAPH		50 YR - 24 HR				2 YR - 24 HR				5 YR - 24 HR				10 YR - 24 HR				25 YR - 24 HR				100 YR - 24 HR			
	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth
Time	1 INCH	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY
1164	0.84	6.19	2.17	2.48	0.62	2.40	0.84	0.96	0.24	3.62	1.27	1.45	0.36	4.42	1.55	1.77	0.44	5.44	1.90	2.18	0.54	6.95	2.43	2.78	0.70
1165	0.84	6.21	2.17	2.48	0.62	2.40	0.84	0.96	0.24	3.62	1.27	1.45	0.36	4.43	1.55	1.77	0.44	5.45	1.91	2.18	0.54	6.96	2.44	2.79	0.70
1166	0.84	6.22	2.18	2.49	0.62	2.41	0.84	0.96	0.24	3.63	1.27	1.45	0.36	4.44	1.55	1.78	0.44	5.46	1.91	2.18	0.55	6.98	2.44	2.79	0.70
1167	0.84	6.23	2.18	2.49	0.62	2.41	0.84	0.96	0.24	3.64	1.27	1.46	0.36	4.45	1.56	1.78	0.44	5.47	1.91	2.19	0.55	6.99	2.45	2.80	0.70
1168	0.84	6.24	2.18	2.50	0.62	2.41	0.85	0.97	0.24	3.64	1.28	1.46	0.36	4.46	1.56	1.78	0.45	5.48	1.92	2.19	0.55	7.00	2.45	2.80	0.70
1169	0.84	6.25	2.19	2.50	0.63	2.42	0.85	0.97	0.24	3.65	1.28	1.46	0.37	4.46	1.56	1.79	0.45	5.49	1.92	2.20	0.55	7.01	2.45	2.81	0.70
1170	0.85	6.26	2.19	2.50	0.63	2.42	0.85	0.97	0.24	3.66	1.28	1.46	0.37	4.47	1.56	1.79	0.45	5.50	1.92	2.20	0.55	7.02	2.46	2.81	0.70
1171	0.85	6.27	2.19	2.51	0.63	2.43	0.85	0.97	0.24	3.66	1.28	1.46	0.37	4.48	1.57	1.79	0.45	5.51	1.93	2.20	0.55	7.04	2.46	2.81	0.70
1172	0.85	6.28	2.20	2.51	0.63	2.43	0.85	0.97	0.24	3.67	1.28	1.47	0.37	4.48	1.57	1.79	0.45	5.51	1.93	2.21	0.55	7.05	2.47	2.82	0.70
1173	0.85	6.29	2.20	2.52	0.63	2.43	0.85	0.97	0.24	3.67	1.29	1.47	0.37	4.49	1.57	1.80	0.45	5.52	1.93	2.21	0.55	7.06	2.47	2.82	0.71
1174	0.85	6.30	2.20	2.52	0.63	2.44	0.85	0.98	0.24	3.68	1.29	1.47	0.37	4.50	1.57	1.80	0.45	5.53	1.94	2.21	0.55	7.07	2.47	2.83	0.71
1175	0.85	6.31	2.21	2.52	0.63	2.44	0.85	0.98	0.24	3.68	1.29	1.47	0.37	4.50	1.58	1.80	0.45	5.54	1.94	2.22	0.55	7.08	2.48	2.83	0.71
1176	0.85	6.32	2.21	2.53	0.63	2.44	0.86	0.98	0.24	3.69	1.29	1.48	0.37	4.51	1.58	1.80	0.45	5.55	1.94	2.22	0.55	7.09	2.48	2.83	0.71
1177	0.85	6.33	2.21	2.53	0.63	2.45	0.86	0.98	0.24	3.69	1.29	1.48	0.37	4.52	1.58	1.81	0.45	5.55	1.94	2.22	0.56	7.10	2.48	2.84	0.71
1178	0.86	6.33	2.22	2.53	0.63	2.45	0.86	0.98	0.25	3.70	1.29	1.48	0.37	4.52	1.58	1.81	0.45	5.56	1.95	2.22	0.56	7.11	2.49	2.84	0.71
1179	0.86	6.34	2.22	2.54	0.63	2.45	0.86	0.98	0.25	3.70	1.30	1.48	0.37	4.53	1.58	1.81	0.45	5.57	1.95	2.23	0.56	7.12	2.49	2.85	0.71
1180	0.86	6.35	2.22	2.54	0.64	2.46	0.86	0.98	0.25	3.71	1.30	1.48	0.37	4.53	1.59	1.81	0.45	5.58	1.95	2.23	0.56	7.13	2.49	2.85	0.71
1181	0.86	6.36	2.23	2.54	0.64	2.46	0.86	0.98	0.25	3.71	1.30	1.49	0.37	4.54	1.59	1.82	0.45	5.58	1.95	2.23	0.56	7.13	2.50	2.85	0.71
1182	0.86	6.37	2.23	2.55	0.64	2.46	0.86	0.99	0.25	3.72	1.30	1.49	0.37	4.55	1.59	1.82	0.45	5.59	1.96	2.24	0.56	7.14	2.50	2.86	0.71
1183	0.86	6.37	2.23	2.55	0.64	2.47	0.86	0.99	0.25	3.72	1.30	1.49	0.37	4.55	1.59	1.82	0.46	5.60	1.96	2.24	0.56	7.15	2.50	2.86	0.72
1184	0.86	6.38	2.23	2.55	0.64	2.47	0.86	0.99	0.25	3.73	1.30	1.49	0.37	4.56	1.59	1.82	0.46	5.60	1.96	2.24	0.56	7.16	2.51	2.86	0.72
1185	0.86	6.39	2.24	2.56	0.64	2.47	0.87	0.99	0.25	3.73	1.31	1.49	0.37	4.56	1.60	1.82	0.46	5.61	1.96	2.24	0.56	7.17	2.51	2.87	0.72
1186	0.86	6.40	2.24	2.56	0.64	2.48	0.87	0.99	0.25	3.74	1.31	1.49	0.37	4.57	1.60	1.83	0.46	5.62	1.97	2.25	0.56	7.18	2.51	2.87	0.72
1187	0.87	6.40	2.24	2.56	0.64	2.48	0.87	0.99	0.25	3.74	1.31	1.50	0.37	4.57	1.60	1.83	0.46	5.62	1.97	2.25	0.56	7.19	2.51	2.87	0.72
1188	0.87	6.41	2.24	2.56	0.64	2.48	0.87	0.99	0.25	3.74	1.31	1.50	0.37	4.58	1.60	1.83	0.46	5.63	1.97	2.25	0.56	7.19	2.52	2.88	0.72
1189	0.87	6.42	2.25	2.57	0.64	2.48	0.87	0.99	0.25	3.75	1.31	1.50	0.37	4.58	1.60	1.83	0.46	5.64	1.97	2.25	0.56	7.20	2.52	2.88	0.72
1190	0.87	6.43	2.25	2.57	0.64	2.49	0.87	0.99	0.25	3.75	1.31	1.50	0.38	4.59	1.61	1.84	0.46	5.64	1.97	2.26	0.56	7.21	2.52	2.88	0.72
1191	0.87	6.43	2.25	2.57	0.64	2.49	0.87	1.00	0.25	3.76	1.31	1.50	0.38	4.59	1.61	1.84	0.46	5.65	1.98	2.26	0.56	7.22	2.53	2.89	0.72
1192	0.87	6.44	2.25	2.58	0.64	2.49	0.87	1.00	0.25	3.76	1.32	1.50	0.38	4.60	1.61	1.84	0.46	5.65	1.98	2.26	0.57	7.23	2.53	2.89	0.72
1193	0.87	6.45	2.26	2.58	0.64	2.49	0.87	1.00	0.25	3.76	1.32	1.51	0.38	4.60	1.61	1.84	0.46	5.66	1.98	2.26	0.57	7.23	2.53	2.89	0.72
1194	0.87	6.45	2.26	2.58	0.65	2.50	0.87	1.00	0.25	3.77	1.32	1.51	0.38	4.61	1.61	1.84	0.46	5.67	1.98	2.27	0.57	7.24	2.53	2.90	0.72
1195	0.87	6.46	2.26	2.58	0.65	2.50	0.88	1.00	0.25	3.77	1.32	1.51	0.38	4.61	1.61	1.85	0.46	5.67	1.99	2.27	0.57	7.25	2.54	2.90	0.72
1196	0.87	6.47	2.26	2.59	0.65	2.50	0.88	1.00	0.25	3.78	1.32	1.51	0.38	4.62	1.62	1.85	0.46	5.68	1.99	2.27	0.57	7.26	2.54	2.90	0.73
1197	0.87	6.47	2.27	2.59	0.65	2.51	0.88	1.00	0.25	3.78	1.32	1.51	0.38	4.62	1.62	1.85	0.46	5.68	1.99	2.27	0.57	7.26	2.54	2.91	0.73
1198	0.88	6.48	2.27	2.59	0.65	2.51	0.88	1.00	0.25	3.78	1.32	1.51	0.38	4.63	1.62	1.85	0.46	5.69	1.99	2.28	0.57	7.27	2.54	2.91	0.73
1199	0.88	6.49	2.27	2.59	0.65	2.51	0.88	1.00	0.25	3.79	1.33	1.52	0.38	4.63	1.62	1.85	0.46	5.69	1.99	2.28	0.57	7.28	2.55	2.91	0.73
1200	0.88	6.49	2.27	2.60	0.65	2.51	0.88	1.01	0.25	3.79	1.33	1.52	0.38	4.64	1.62	1.85	0.46	5.70	2.00	2.28	0.57	7.28	2.55	2.91	0.73
1201	0.88	6.50	2.27	2.60	0.65	2.52	0.88	1.01	0.25	3.80	1.33	1.52	0.38	4.64	1.62	1.86	0.46	5.71	2.00	2.28	0.57	7.29	2.55	2.92	0.73
1202	0.88	6.51	2.28	2.60	0.65	2.52	0.88	1.01	0.25	3.80	1.33	1.52	0.38	4.64	1.63	1.86	0.46	5.71	2.00	2.28	0.57	7.30	2.55	2.92	0.73
1203	0.88	6.51	2.28	2.60	0.65	2.52	0.88	1.01	0.25	3.80	1.33	1.52	0.38	4.65	1.63	1.86	0.46	5.72	2.00	2.29	0.57	7.31	2.56	2.92	0.73
1204	0.88	6.52	2.28	2.61	0.65	2.52	0.88	1.01	0.25	3.81	1.33	1.52	0.38	4.65	1.63	1.86	0.47	5.72	2.00	2.29	0.57	7.31	2.56	2.93	0.73
1205	0.88	6.52	2.28	2.61	0.65	2.52	0.88	1.01	0.25	3.81	1.33	1.52	0.38	4.66	1.63	1.86	0.47	5.73	2.00	2.29	0.57	7.32	2.56	2.93	0.73
1206	0.88	6.53	2.29	2.61	0.65	2.53	0.88	1.01	0.25	3.81	1.33	1.53	0.38	4.66	1.63	1.86	0.47	5.73	2.01	2.29	0.57	7.33	2.56	2.93	0.73
1207	0.88	6.54	2.29	2.61	0.65	2.53	0.89	1.01	0.25	3.82	1.34	1.53	0.38	4.67	1.63	1.87	0.47	5.74	2.01	2.30	0.57	7.33	2.57	2.93	0.73
1208	0.88	6.54	2.29	2.62	0.65	2.53	0.89	1.01	0.25	3.82	1.34	1.53	0.38	4.67	1.63	1.87	0.47	5.74	2.01	2.30	0.57	7.34	2.57	2.94	0.73
1209	0.88	6.55	2.29	2.62	0.65	2.53	0.89	1.01	0.25	3.82	1.34	1.53	0.38	4.67	1.64	1.87	0.47	5.75	2.01	2.30	0.57	7.35	2.57	2.94	0.73
1210	0.89	6.55	2.29	2.62	0.66	2.54	0.89	1.01	0.25	3.83	1.34	1.53	0.38	4.68	1.64	1.87	0.47	5.75	2.01	2.30	0.58	7.35	2.57	2.94	0.74
1211	0.89	6.56	2.30	2.62	0.66	2.54	0.89	1.02	0.25	3.83	1.34	1.53	0.38	4.68	1.64	1.87	0.47	5.76	2.02	2.30	0.58	7.36	2.58	2.94	0.74
1212	0.89	6.56	2.30	2.63	0.66	2.54	0.89	1.02	0.25	3.83	1.34	1.53	0.38	4.69	1.64	1.87	0.47	5.76	2.02	2.31	0.58	7.37	2.58	2.95	0.74
1213	0.89	6.57	2.30	2.63	0.66	2.54	0.89	1.02	0.25	3.84	1.34	1.53	0.38	4.69	1.64	1.88	0.47	5.77	2.02	2.31	0.58	7.37	2.58	2.95	0.74
1214	0.89	6.58	2.30	2.63	0.66	2.54	0.89	1.02	0.25	3.84	1.34	1.54	0.38	4.70	1.64	1.88	0.47	5.77	2.02	2.31	0.58	7.38	2.58	2.95	0.74
1215	0.89	6.58	2.30	2.63	0.66	2.55	0.89	1.02	0.25	3.84	1.35	1.54	0.38	4.70	1.64	1.88	0.47	5.78	2.02	2.31	0.58	7.38	2.58	2.95	0.74
1216	0.89	6.59	2.31	2.63	0.66	2.55	0.89	1.02	0.25	3.85	1.35	1.54	0.38	4.70	1.65	1.88	0.47	5.78	2.02	2.31	0.58	7.39	2.59	2.96	0.74
1217	0.89	6.59	2.31	2.64	0.66	2.55	0.89	1.02	0.26	3.85	1.35	1.54	0.38	4.71	1.65	1.88	0.47	5.79	2.03	2.32	0.58	7.40	2.59	2.96	0.74
1218	0.89	6.60	2.31	2.64	0.66	2.55	0.89	1.02	0.26	3.85	1.35	1.54	0.39	4.71	1.65	1.88	0.47	5.79	2.03	2.32	0.58	7.40	2.59	2.96	0.74
1219	0.89	6.60	2.31	2.64	0.66	2.56	0.89	1.02	0.26	3.86	1.35	1.54	0.39	4.71	1.65	1.89	0.47	5.80	2.03	2.32	0.58	7.41	2.59	2.96	0.74
1220	0.89	6.61	2.31	2.64	0.66	2.56	0.90	1.02	0.26	3.86	1.35	1.54	0.39	4.72	1.65	1.89	0.47	5.80	2.03	2.32	0.58	7.41	2.60	2.97	0.74
1221	0.89	6.61	2.31	2.65	0.66	2.56	0.90	1.02	0.26	3.86	1.35	1.55	0.39	4.72	1.65	1.89	0.47	5.81	2.03	2.32	0.58	7.42	2.60	2.97	0.74
1222	0.89	6.62	2.32	2.65	0.66	2.56	0.90	1.02	0.26	3.87	1.35	1.55	0.39	4.73	1.65	1.89	0.47	5.81	2.03	2.32	0.58	7.43	2.60	2.97	0.74
1223	0.90	6.62	2.32	2.65	0.66	2.56	0.90	1.03	0.26	3.87	1.35	1.55	0.39	4.73	1.66	1.89	0.47	5.82	2.04	2.33	0.58	7.43	2.60	2.97	0.74

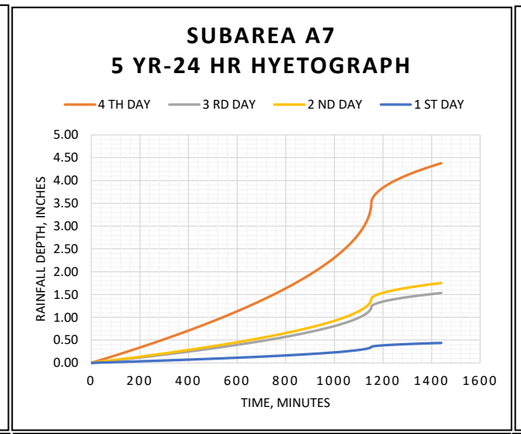
UNIT HYETOGRAPH		50 YR - 24 HR				2 YR - 24 HR				5 YR - 24 HR				10 YR - 24 HR				25 YR - 24 HR				100 YR - 24 HR			
	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth
Time	1 INCH	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY
1224	0.90	6.63	2.32	2.65	0.66	2.57	0.90	1.03	0.26	3.87	1.36	1.55	0.39	4.73	1.66	1.89	0.47	5.82	2.04	2.33	0.58	7.44	2.60	2.98	0.74
1225	0.90	6.64	2.32	2.65	0.66	2.57	0.90	1.03	0.26	3.87	1.36	1.55	0.39	4.74	1.66	1.89	0.47	5.83	2.04	2.33	0.58	7.44	2.61	2.98	0.74
1226	0.90	6.64	2.32	2.66	0.66	2.57	0.90	1.03	0.26	3.88	1.36	1.55	0.39	4.74	1.66	1.90	0.47	5.83	2.04	2.33	0.58	7.45	2.61	2.98	0.75
1227	0.90	6.65	2.33	2.66	0.66	2.57	0.90	1.03	0.26	3.88	1.36	1.55	0.39	4.74	1.66	1.90	0.47	5.83	2.04	2.33	0.58	7.46	2.61	2.98	0.75
1228	0.90	6.65	2.33	2.66	0.67	2.57	0.90	1.03	0.26	3.88	1.36	1.55	0.39	4.75	1.66	1.90	0.47	5.84	2.04	2.34	0.58	7.46	2.61	2.98	0.75
1229	0.90	6.66	2.33	2.66	0.67	2.58	0.90	1.03	0.26	3.89	1.36	1.55	0.39	4.75	1.66	1.90	0.48	5.84	2.05	2.34	0.58	7.47	2.61	2.99	0.75
1230	0.90	6.66	2.33	2.66	0.67	2.58	0.90	1.03	0.26	3.89	1.36	1.56	0.39	4.76	1.66	1.90	0.48	5.85	2.05	2.34	0.58	7.47	2.62	2.99	0.75
1231	0.90	6.67	2.33	2.67	0.67	2.58	0.90	1.03	0.26	3.89	1.36	1.56	0.39	4.76	1.67	1.90	0.48	5.85	2.05	2.34	0.59	7.48	2.62	2.99	0.75
1232	0.90	6.67	2.33	2.67	0.67	2.58	0.90	1.03	0.26	3.90	1.36	1.56	0.39	4.76	1.67	1.91	0.48	5.86	2.05	2.34	0.59	7.48	2.62	2.99	0.75
1233	0.90	6.68	2.34	2.67	0.67	2.58	0.90	1.03	0.26	3.90	1.36	1.56	0.39	4.77	1.67	1.91	0.48	5.86	2.05	2.34	0.59	7.49	2.62	3.00	0.75
1234	0.90	6.68	2.34	2.67	0.67	2.59	0.90	1.03	0.26	3.90	1.37	1.56	0.39	4.77	1.67	1.91	0.48	5.87	2.05	2.35	0.59	7.50	2.62	3.00	0.75
1235	0.90	6.69	2.34	2.67	0.67	2.59	0.91	1.03	0.26	3.90	1.37	1.56	0.39	4.77	1.67	1.91	0.48	5.87	2.05	2.35	0.59	7.50	2.63	3.00	0.75
1240	0.91	6.71	2.35	2.68	0.67	2.60	0.91	1.04	0.26	3.92	1.37	1.57	0.39	4.79	1.68	1.92	0.48	5.89	2.06	2.36	0.59	7.53	2.63	3.01	0.75
1245	0.91	6.73	2.36	2.69	0.67	2.61	0.91	1.04	0.26	3.93	1.38	1.57	0.39	4.81	1.68	1.92	0.48	5.91	2.07	2.36	0.59	7.55	2.64	3.02	0.76
1250	0.91	6.76	2.36	2.70	0.68	2.61	0.92	1.05	0.26	3.95	1.38	1.58	0.39	4.82	1.69	1.93	0.48	5.93	2.08	2.37	0.59	7.58	2.65	3.03	0.76
1255	0.92	6.78	2.37	2.71	0.68	2.62	0.92	1.05	0.26	3.96	1.39	1.58	0.40	4.84	1.69	1.94	0.48	5.95	2.08	2.38	0.60	7.61	2.66	3.04	0.76
1260	0.92	6.80	2.38	2.72	0.68	2.63	0.92	1.05	0.26	3.97	1.39	1.59	0.40	4.86	1.70	1.94	0.49	5.97	2.09	2.39	0.60	7.63	2.67	3.05	0.76
1265	0.92	6.82	2.39	2.73	0.68	2.64	0.92	1.06	0.26	3.98	1.39	1.59	0.40	4.87	1.70	1.95	0.49	5.99	2.10	2.40	0.60	7.65	2.68	3.06	0.77
1270	0.92	6.84	2.39	2.74	0.68	2.65	0.93	1.06	0.26	4.00	1.40	1.60	0.40	4.89	1.71	1.95	0.49	6.01	2.10	2.40	0.60	7.68	2.69	3.07	0.77
1275	0.93	6.86	2.40	2.75	0.69	2.66	0.93	1.06	0.27	4.01	1.40	1.60	0.40	4.90	1.72	1.96	0.49	6.03	2.11	2.41	0.60	7.70	2.70	3.08	0.77
1280	0.93	6.88	2.41	2.75	0.69	2.66	0.93	1.07	0.27	4.02	1.41	1.61	0.40	4.91	1.72	1.97	0.49	6.04	2.12	2.42	0.60	7.72	2.70	3.09	0.77
1285	0.93	6.90	2.42	2.76	0.69	2.67	0.93	1.07	0.27	4.03	1.41	1.61	0.40	4.93	1.72	1.97	0.49	6.06	2.12	2.42	0.61	7.74	2.71	3.10	0.77
1290	0.94	6.92	2.42	2.77	0.69	2.68	0.94	1.07	0.27	4.04	1.41	1.62	0.40	4.94	1.73	1.98	0.49	6.08	2.13	2.43	0.61	7.77	2.72	3.11	0.78
1295	0.94	6.94	2.43	2.78	0.69	2.69	0.94	1.07	0.27	4.05	1.42	1.62	0.41	4.96	1.73	1.98	0.50	6.09	2.13	2.44	0.61	7.79	2.73	3.12	0.78
1300	0.94	6.96	2.44	2.78	0.70	2.69	0.94	1.08	0.27	4.06	1.42	1.63	0.41	4.97	1.74	1.99	0.50	6.11	2.14	2.44	0.61	7.81	2.73	3.12	0.78
1305	0.94	6.98	2.44	2.79	0.70	2.70	0.95	1.08	0.27	4.08	1.43	1.63	0.41	4.98	1.74	1.99	0.50	6.13	2.14	2.45	0.61	7.83	2.74	3.13	0.78
1310	0.95	7.00	2.45	2.80	0.70	2.71	0.95	1.08	0.27	4.09	1.43	1.63	0.41	5.00	1.75	2.00	0.50	6.14	2.15	2.46	0.61	7.85	2.75	3.14	0.79
1315	0.95	7.01	2.46	2.81	0.70	2.71	0.95	1.09	0.27	4.10	1.43	1.64	0.41	5.01	1.75	2.00	0.50	6.16	2.16	2.46	0.62	7.87	2.75	3.15	0.79
1320	0.95	7.03	2.46	2.81	0.70	2.72	0.95	1.09	0.27	4.11	1.44	1.64	0.41	5.02	1.76	2.01	0.50	6.17	2.16	2.47	0.62	7.89	2.76	3.16	0.79
1325	0.95	7.05	2.47	2.82	0.70	2.73	0.95	1.09	0.27	4.12	1.44	1.65	0.41	5.03	1.76	2.01	0.50	6.19	2.17	2.48	0.62	7.91	2.77	3.16	0.79
1330	0.95	7.07	2.47	2.83	0.71	2.73	0.96	1.09	0.27	4.13	1.44	1.65	0.41	5.05	1.77	2.02	0.50	6.20	2.17	2.48	0.62	7.93	2.78	3.17	0.79
1335	0.96	7.08	2.48	2.83	0.71	2.74	0.96	1.10	0.27	4.14	1.45	1.65	0.41	5.06	1.77	2.02	0.51	6.22	2.18	2.49	0.62	7.95	2.78	3.18	0.79
1340	0.96	7.10	2.49	2.84	0.71	2.75	0.96	1.10	0.27	4.15	1.45	1.66	0.41	5.07	1.77	2.03	0.51	6.23	2.18	2.49	0.62	7.97	2.79	3.19	0.80
1345	0.96	7.12	2.49	2.85	0.71	2.75	0.96	1.10	0.28	4.16	1.45	1.66	0.42	5.08	1.78	2.03	0.51	6.25	2.19	2.50	0.62	7.99	2.79	3.19	0.80
1350	0.96	7.13	2.50	2.85	0.71	2.76	0.97	1.10	0.28	4.17	1.46	1.67	0.42	5.09	1.78	2.04	0.51	6.26	2.19	2.51	0.63	8.00	2.80	3.20	0.80
1355	0.97	7.15	2.50	2.86	0.71	2.77	0.97	1.11	0.28	4.18	1.46	1.67	0.42	5.10	1.79	2.04	0.51	6.28	2.20	2.51	0.63	8.02	2.81	3.21	0.80
1360	0.97	7.17	2.51	2.87	0.72	2.77	0.97	1.11	0.28	4.18	1.46	1.67	0.42	5.12	1.79	2.05	0.51	6.29	2.20	2.52	0.63	8.04	2.81	3.22	0.80
1365	0.97	7.18	2.51	2.87	0.72	2.78	0.97	1.11	0.28	4.19	1.47	1.68	0.42	5.13	1.79	2.05	0.51	6.31	2.21	2.52	0.63	8.06	2.82	3.22	0.81
1370	0.97	7.20	2.52	2.88	0.72	2.79	0.97	1.11	0.28	4.20	1.47	1.68	0.42	5.14	1.80	2.06	0.51	6.32	2.21	2.53	0.63	8.07	2.83	3.23	0.81
1375	0.97	7.21	2.52	2.88	0.72	2.79	0.98	1.12	0.28	4.21	1.47	1.68	0.42	5.15	1.80	2.06	0.51	6.33	2.22	2.53	0.63	8.09	2.83	3.24	0.81
1380	0.98	7.23	2.53	2.89	0.72	2.80	0.98	1.12	0.28	4.22	1.48	1.69	0.42	5.16	1.81	2.06	0.52	6.35	2.22	2.54	0.63	8.11	2.84	3.24	0.81
1385	0.98	7.24	2.53	2.90	0.72	2.80	0.98	1.12	0.28	4.23	1.48	1.69	0.42	5.17	1.81	2.07	0.52	6.36	2.23	2.54	0.64	8.13	2.84	3.25	0.81
1390	0.98	7.26	2.54	2.90	0.73	2.81	0.98	1.12	0.28	4.24	1.48	1.70	0.42	5.18	1.81	2.07	0.52	6.37	2.23	2.55	0.64	8.14	2.85	3.26	0.81
1395	0.98	7.27	2.55	2.91	0.73	2.81	0.99	1.13	0.28	4.25	1.49	1.70	0.42	5.19	1.82	2.08	0.52	6.39	2.23	2.55	0.64	8.16	2.86	3.26	0.82
1400	0.98	7.29	2.55	2.91	0.73	2.82	0.99	1.13	0.28	4.26	1.49	1.70	0.43	5.20	1.82	2.08	0.52	6.40	2.24	2.56	0.64	8.18	2.86	3.27	0.82
1405	0.99	7.30	2.56	2.92	0.73	2.83	0.99	1.13	0.28	4.26	1.49	1.71	0.43	5.21	1.82	2.09	0.52	6.41	2.24	2.56	0.64	8.19	2.87	3.28	0.82
1410	0.99	7.32	2.56	2.93	0.73	2.83	0.99	1.13	0.28	4.27	1.50	1.71	0.43	5.22	1.83	2.09	0.52	6.42	2.25	2.57	0.64	8.21	2.87	3.28	0.82
1415	0.99	7.33	2.57	2.93	0.73	2.84	0.99	1.13	0.28	4.28	1.50	1.71	0.43	5.23	1.83	2.09	0.52	6.44	2.25	2.57	0.64	8.22	2.88	3.29	0.82
1420	0.99	7.34	2.57	2.94	0.73	2.84	0.99	1.14	0.28	4.29	1.50	1.72	0.43	5.24	1.84	2.10	0.52	6.45	2.26	2.58	0.64	8.24	2.88	3.30	0.82
1425	0.99	7.36	2.58	2.94	0.74	2.85	1.00	1.14	0.28	4.30	1.50	1.72	0.43	5.25	1.84	2.10	0.53	6.46	2.26	2.58	0.65	8.26	2.89	3.30	0.83
1430	1.00	7.37	2.58	2.95	0.74	2.85	1.00	1.14	0.29	4.31	1.51	1.72	0.43	5.26	1.84	2.11	0.53	6.47	2.27	2.59	0.65	8.27	2.90	3.31	0.83
1435	1.00	7.39	2.59	2.95	0.74	2.86	1.00	1.14	0.29	4.31	1.51	1.73	0.43	5.27	1.85	2.11	0.53	6.49	2.27	2.59	0.65	8.29	2.90	3.31	0.83
1440	1.00	7.40	2.59	2.96	0.74	2.86	1.00	1.15	0.29	4.32	1.51	1.73	0.43	5.28	1.85	2.11	0.53	6.50	2.27	2.60	0.65	8.30	2.91	3.32	0.83

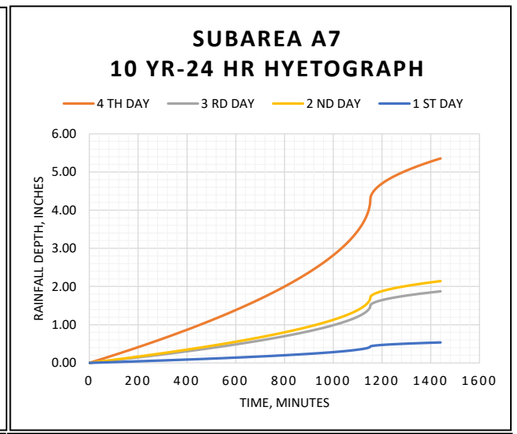
SUBAREA A7 HYETOPRAPHS

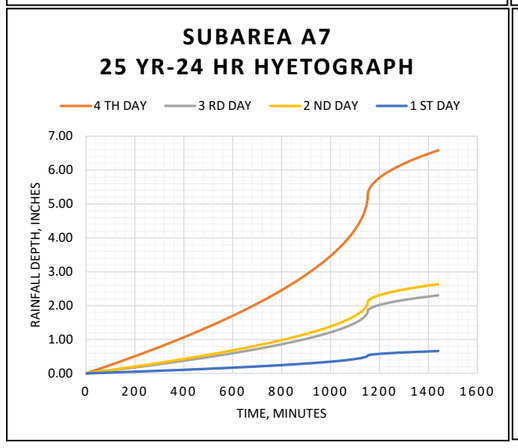
- Per 2006 Los Angeles County Hydrology Manual Appendix A

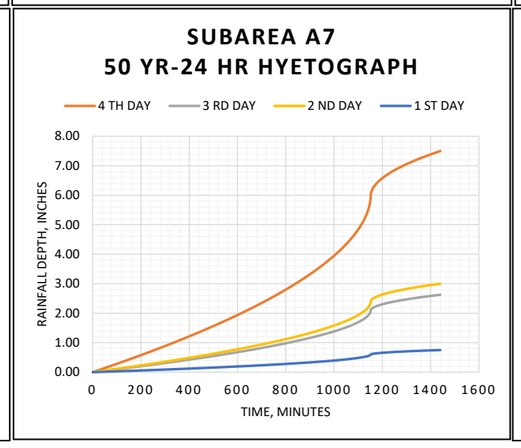
24 HR ISOHYETS,IN					
50 YR	2 YR	5 YR	10 YR	25 YR	100 YR
7.5	2.9	4.4	5.4	6.6	8.4

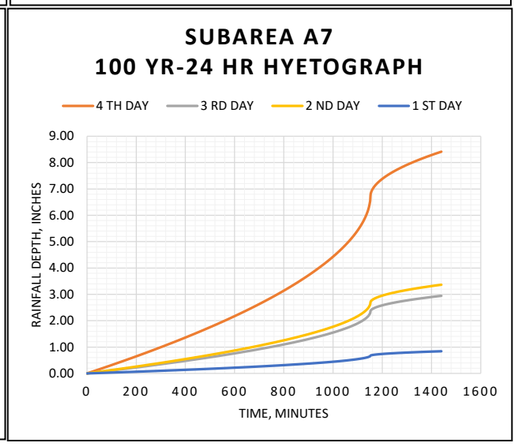












UNIT HYETOGRAPH	50 YR - 24 HR					2 YR - 24 HR				5 YR - 24 HR				10 YR - 24 HR				25 YR - 24 HR				100 YR - 24 HR			
	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth
Time	1 INCH	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30	0.01	0.08	0.03	0.03	0.01	0.03	0.01	0.01	0.00	0.05	0.02	0.02	0.00	0.06	0.02	0.02	0.01	0.07	0.03	0.03	0.01	0.09	0.03	0.04	0.01
60	0.02	0.17	0.06	0.07	0.02	0.06	0.02	0.03	0.01	0.10	0.03	0.04	0.01	0.12	0.04	0.05	0.01	0.15	0.05	0.06	0.01	0.19	0.07	0.08	0.02
90	0.03	0.25	0.09	0.10	0.03	0.10	0.03	0.04	0.01	0.15	0.05	0.06	0.01	0.18	0.06	0.07	0.02	0.22	0.08	0.09	0.02	0.28	0.10	0.11	0.03
120	0.05	0.34	0.12	0.14	0.03	0.13	0.05	0.05	0.01	0.20	0.07	0.08	0.02	0.24	0.08	0.10	0.02	0.30	0.10	0.12	0.03	0.38	0.13	0.15	0.04
150	0.06	0.43	0.15	0.17	0.04	0.17	0.06	0.07	0.02	0.25	0.09	0.10	0.02	0.31	0.11	0.12	0.03	0.38	0.13	0.15	0.04	0.48	0.17	0.19	0.05
180	0.07	0.52	0.18	0.21	0.05	0.20	0.07	0.08	0.02	0.30	0.11	0.12	0.03	0.37	0.13	0.15	0.04	0.45	0.16	0.18	0.05	0.58	0.20	0.23	0.06
210	0.08	0.61	0.21	0.24	0.06	0.23	0.08	0.09	0.02	0.35	0.12	0.14	0.04	0.43	0.15	0.17	0.04	0.53	0.19	0.21	0.05	0.68	0.24	0.27	0.07
240	0.09	0.70	0.24	0.28	0.07	0.27	0.09	0.11	0.03	0.41	0.14	0.16	0.04	0.50	0.17	0.20	0.05	0.61	0.21	0.25	0.06	0.78	0.27	0.31	0.08
270	0.11	0.79	0.28	0.32	0.08	0.31	0.11	0.12	0.03	0.46	0.16	0.18	0.05	0.57	0.20	0.23	0.06	0.70	0.24	0.28	0.07	0.89	0.31	0.36	0.09
300	0.12	0.89	0.31	0.35	0.09	0.34	0.12	0.14	0.03	0.52	0.18	0.21	0.05	0.63	0.22	0.25	0.06	0.78	0.27	0.31	0.08	0.99	0.35	0.40	0.10
330	0.13	0.98	0.34	0.39	0.10	0.38	0.13	0.15	0.04	0.57	0.20	0.23	0.06	0.70	0.25	0.28	0.07	0.86	0.30	0.35	0.09	1.10	0.39	0.44	0.11
360	0.14	1.08	0.38	0.43	0.11	0.42	0.15	0.17	0.04	0.63	0.22	0.25	0.06	0.77	0.27	0.31	0.08	0.95	0.33	0.38	0.09	1.21	0.42	0.49	0.12

UNIT HYETOGRAPH		50 YR - 24 HR				2 YR - 24 HR				5 YR - 24 HR				10 YR - 24 HR				25 YR - 24 HR				100 YR - 24 HR			
	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth
Time	1 INCH	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY
390	0.16	1.18	0.41	0.47	0.12	0.46	0.16	0.18	0.05	0.69	0.24	0.28	0.07	0.84	0.29	0.34	0.08	1.04	0.36	0.41	0.10	1.32	0.46	0.53	0.13
420	0.17	1.28	0.45	0.51	0.13	0.50	0.17	0.20	0.05	0.75	0.26	0.30	0.07	0.92	0.32	0.37	0.09	1.13	0.39	0.45	0.11	1.44	0.50	0.58	0.14
450	0.18	1.39	0.48	0.55	0.14	0.54	0.19	0.21	0.05	0.81	0.28	0.32	0.08	0.99	0.35	0.40	0.10	1.22	0.43	0.49	0.12	1.55	0.54	0.62	0.16
480	0.20	1.49	0.52	0.60	0.15	0.58	0.20	0.23	0.06	0.87	0.30	0.35	0.09	1.06	0.37	0.43	0.11	1.31	0.46	0.52	0.13	1.67	0.59	0.67	0.17
510	0.21	1.60	0.56	0.64	0.16	0.62	0.22	0.25	0.06	0.93	0.33	0.37	0.09	1.14	0.40	0.46	0.11	1.40	0.49	0.56	0.14	1.79	0.63	0.72	0.18
540	0.23	1.71	0.60	0.68	0.17	0.66	0.23	0.26	0.07	1.00	0.35	0.40	0.10	1.22	0.43	0.49	0.12	1.50	0.53	0.60	0.15	1.92	0.67	0.77	0.19
570	0.24	1.82	0.64	0.73	0.18	0.71	0.25	0.28	0.07	1.06	0.37	0.43	0.11	1.30	0.46	0.52	0.13	1.60	0.56	0.64	0.16	2.04	0.72	0.82	0.20
600	0.26	1.94	0.68	0.77	0.19	0.75	0.26	0.30	0.07	1.13	0.40	0.45	0.11	1.38	0.48	0.55	0.14	1.70	0.60	0.68	0.17	2.17	0.76	0.87	0.22
630	0.27	2.06	0.72	0.82	0.21	0.80	0.28	0.32	0.08	1.20	0.42	0.48	0.12	1.47	0.51	0.59	0.15	1.81	0.63	0.72	0.18	2.31	0.81	0.92	0.23
660	0.29	2.18	0.76	0.87	0.22	0.84	0.29	0.34	0.08	1.27	0.45	0.51	0.13	1.55	0.54	0.62	0.16	1.91	0.67	0.76	0.19	2.44	0.86	0.98	0.24
690	0.31	2.30	0.81	0.92	0.23	0.89	0.31	0.36	0.09	1.34	0.47	0.54	0.13	1.64	0.58	0.66	0.16	2.02	0.71	0.81	0.20	2.58	0.90	1.03	0.26
720	0.32	2.43	0.85	0.97	0.24	0.94	0.33	0.38	0.09	1.42	0.50	0.57	0.14	1.74	0.61	0.69	0.17	2.14	0.75	0.85	0.21	2.73	0.96	1.09	0.27
750	0.34	2.57	0.90	1.03	0.26	0.99	0.35	0.40	0.10	1.50	0.52	0.60	0.15	1.83	0.64	0.73	0.18	2.25	0.79	0.90	0.23	2.88	1.01	1.15	0.29
780	0.36	2.70	0.95	1.08	0.27	1.05	0.37	0.42	0.10	1.58	0.55	0.63	0.16	1.93	0.68	0.77	0.19	2.37	0.83	0.95	0.24	3.03	1.06	1.21	0.30
810	0.38	2.85	1.00	1.14	0.28	1.10	0.39	0.44	0.11	1.66	0.58	0.67	0.17	2.03	0.71	0.81	0.20	2.50	0.88	1.00	0.25	3.20	1.12	1.28	0.32
840	0.40	3.00	1.05	1.20	0.30	1.16	0.41	0.46	0.12	1.75	0.61	0.70	0.18	2.14	0.75	0.86	0.21	2.63	0.92	1.05	0.26	3.36	1.18	1.35	0.34
870	0.42	3.15	1.10	1.26	0.32	1.22	0.43	0.49	0.12	1.84	0.64	0.74	0.18	2.25	0.79	0.90	0.23	2.77	0.97	1.11	0.28	3.54	1.24	1.42	0.35
900	0.44	3.32	1.16	1.33	0.33	1.28	0.45	0.51	0.13	1.94	0.68	0.78	0.19	2.37	0.83	0.95	0.24	2.91	1.02	1.17	0.29	3.72	1.30	1.49	0.37
930	0.47	3.49	1.22	1.40	0.35	1.35	0.47	0.54	0.14	2.04	0.71	0.82	0.20	2.49	0.87	1.00	0.25	3.07	1.07	1.23	0.31	3.92	1.37	1.57	0.39
960	0.49	3.68	1.29	1.47	0.37	1.42	0.50	0.57	0.14	2.15	0.75	0.86	0.21	2.63	0.92	1.05	0.26	3.23	1.13	1.29	0.32	4.13	1.44	1.65	0.41
970	0.50	3.74	1.31	1.50	0.37	1.45	0.51	0.58	0.14	2.19	0.77	0.87	0.22	2.67	0.94	1.07	0.27	3.29	1.15	1.31	0.33	4.20	1.47	1.68	0.42
980	0.51	3.81	1.33	1.52	0.38	1.47	0.52	0.59	0.15	2.23	0.78	0.89	0.22	2.72	0.95	1.09	0.27	3.35	1.17	1.34	0.33	4.28	1.50	1.71	0.43
990	0.52	3.88	1.36	1.55	0.39	1.50	0.53	0.60	0.15	2.27	0.79	0.91	0.23	2.77	0.97	1.11	0.28	3.41	1.19	1.36	0.34	4.35	1.52	1.74	0.44
1000	0.53	3.95	1.38	1.58	0.39	1.53	0.53	0.61	0.15	2.31	0.81	0.92	0.23	2.82	0.99	1.13	0.28	3.47	1.21	1.39	0.35	4.43	1.55	1.77	0.44
1010	0.54	4.02	1.41	1.61	0.40	1.56	0.54	0.62	0.16	2.35	0.82	0.94	0.23	2.87	1.01	1.15	0.29	3.53	1.24	1.41	0.35	4.51	1.58	1.80	0.45
1020	0.55	4.10	1.43	1.64	0.41	1.59	0.55	0.63	0.16	2.39	0.84	0.96	0.24	2.93	1.02	1.17	0.29	3.60	1.26	1.44	0.36	4.60	1.61	1.84	0.46
1030	0.56	4.17	1.46	1.67	0.42	1.62	0.57	0.65	0.16	2.44	0.85	0.98	0.24	2.98	1.04	1.19	0.30	3.67	1.28	1.47	0.37	4.68	1.64	1.87	0.47
1040	0.57	4.26	1.49	1.70	0.43	1.65	0.58	0.66	0.16	2.49	0.87	0.99	0.25	3.04	1.06	1.22	0.30	3.74	1.31	1.49	0.37	4.77	1.67	1.91	0.48
1050	0.58	4.34	1.52	1.74	0.43	1.68	0.59	0.67	0.17	2.53	0.89	1.01	0.25	3.10	1.08	1.24	0.31	3.81	1.33	1.52	0.38	4.87	1.70	1.95	0.49
1060	0.59	4.43	1.55	1.77	0.44	1.71	0.60	0.69	0.17	2.59	0.91	1.03	0.26	3.16	1.11	1.26	0.32	3.89	1.36	1.56	0.39	4.97	1.74	1.99	0.50
1070	0.60	4.52	1.58	1.81	0.45	1.75	0.61	0.70	0.17	2.64	0.92	1.06	0.26	3.23	1.13	1.29	0.32	3.97	1.39	1.59	0.40	5.07	1.78	2.03	0.51
1080	0.62	4.62	1.62	1.85	0.46	1.79	0.63	0.72	0.18	2.70	0.94	1.08	0.27	3.30	1.15	1.32	0.33	4.06	1.42	1.62	0.41	5.18	1.81	2.07	0.52
1090	0.63	4.72	1.65	1.89	0.47	1.83	0.64	0.73	0.18	2.76	0.97	1.10	0.28	3.37	1.18	1.35	0.34	4.15	1.45	1.66	0.41	5.30	1.86	2.12	0.53
1100	0.65	4.84	1.69	1.94	0.48	1.87	0.66	0.75	0.19	2.83	0.99	1.13	0.28	3.45	1.21	1.38	0.35	4.25	1.49	1.70	0.42	5.43	1.90	2.17	0.54
1110	0.66	4.96	1.74	1.99	0.50	1.92	0.67	0.77	0.19	2.90	1.01	1.16	0.29	3.54	1.24	1.42	0.35	4.36	1.53	1.74	0.44	5.57	1.95	2.23	0.56
1115	0.67	5.03	1.76	2.01	0.50	1.95	0.68	0.78	0.19	2.94	1.03	1.18	0.29	3.59	1.26	1.44	0.36	4.42	1.55	1.77	0.44	5.64	1.98	2.26	0.56
1120	0.68	5.10	1.79	2.04	0.51	1.97	0.69	0.79	0.20	2.98	1.04	1.19	0.30	3.64	1.27	1.46	0.36	4.48	1.57	1.79	0.45	5.72	2.00	2.29	0.57
1125	0.69	5.18	1.81	2.07	0.52	2.00	0.70	0.80	0.20	3.02	1.06	1.21	0.30	3.70	1.29	1.48	0.37	4.55	1.59	1.82	0.45	5.81	2.03	2.32	0.58
1130	0.70	5.26	1.84	2.11	0.53	2.04	0.71	0.81	0.20	3.07	1.08	1.23	0.31	3.76	1.32	1.50	0.38	4.62	1.62	1.85	0.46	5.91	2.07	2.36	0.59
1135	0.71	5.36	1.88	2.14	0.54	2.07	0.73	0.83	0.21	3.13	1.10	1.25	0.31	3.83	1.34	1.53	0.38	4.70	1.65	1.88	0.47	6.01	2.10	2.40	0.60
1136	0.72	5.38	1.88	2.15	0.54	2.08	0.73	0.83	0.21	3.14	1.10	1.26	0.31	3.84	1.34	1.54	0.38	4.72	1.65	1.89	0.47	6.03	2.11	2.41	0.60
1137	0.72	5.40	1.89	2.16	0.54	2.09	0.73	0.84	0.21	3.15	1.10	1.26	0.32	3.85	1.35	1.54	0.39	4.74	1.66	1.90	0.47	6.06	2.12	2.42	0.61
1138	0.72	5.42	1.90	2.17	0.54	2.10	0.73	0.84	0.21	3.17	1.11	1.27	0.32	3.87	1.35	1.55	0.39	4.76	1.67	1.90	0.48	6.08	2.13	2.43	0.61
1139	0.73	5.44	1.90	2.18	0.54	2.11	0.74	0.84	0.21	3.18	1.11	1.27	0.32	3.89	1.36	1.55	0.39	4.78	1.67	1.91	0.48	6.11	2.14	2.44	0.61
1140	0.73	5.47	1.91	2.19	0.55	2.12	0.74	0.85	0.21	3.19	1.12	1.28	0.32	3.90	1.37	1.56	0.39	4.80	1.68	1.92	0.48	6.13	2.15	2.45	0.61
1145	0.75	5.60	1.96	2.24	0.56	2.17	0.76	0.87	0.22	3.27	1.14	1.31	0.33	4.00	1.40	1.60	0.40	4.92	1.72	1.97	0.49	6.28	2.20	2.51	0.63
1150	0.77	5.79	2.03	2.32	0.58	2.24	0.78	0.90	0.22	3.38	1.18	1.35	0.34	4.14	1.45	1.65	0.41	5.09	1.78	2.03	0.51	6.50	2.28	2.60	0.65
1151	0.78	5.86	2.05	2.34	0.59	2.27	0.79	0.91	0.23	3.42	1.20	1.37	0.34	4.18	1.46	1.67	0.42	5.14	1.80	2.06	0.51	6.57	2.30	2.63	0.66
1152	0.80	6.00	2.10	2.40	0.60	2.32	0.81	0.93	0.23	3.50	1.23	1.40	0.35	4.28	1.50	1.71	0.43	5.27	1.84	2.11	0.53	6.73	2.36	2.69	0.67
1153	0.81	6.07	2.13	2.43	0.61	2.35	0.82	0.94	0.24	3.55	1.24	1.42	0.35	4.34	1.52	1.73	0.43	5.33	1.87	2.13	0.53	6.82	2.39	2.73	0.68
1154	0.81	6.11	2.14	2.44	0.61	2.36	0.83	0.95	0.24	3.57	1.25	1.43	0.36	4.36	1.53	1.74	0.44	5.36	1.88	2.15	0.54	6.85	2.40	2.74	0.69
1155	0.82	6.13	2.15	2.45	0.61	2.37	0.83	0.95	0.24	3.58	1.25	1.43	0.36	4.38	1.53	1.75	0.44	5.39	1.88	2.15	0.54	6.88	2.41	2.75	0.69
1156	0.82	6.16	2.15	2.46	0.62	2.38	0.83	0.95	0.24	3.59	1.26	1.44	0.36	4.40	1.54	1.76	0.44	5.40	1.89	2.16	0.54	6.91	2.42	2.76	0.69
1157	0.82	6.18	2.16	2.47	0.62	2.39	0.84	0.96	0.24	3.61	1.26	1.44	0.36	4.41	1.54	1.76	0.44	5.42	1.90	2.17	0.54	6.93	2.42	2.77	0.69
1158	0.83	6.19	2.17	2.48	0.62	2.40	0.84	0.96	0.24	3.62	1.27	1.45	0.36	4.42	1.55	1.77	0.44	5.44	1.90	2.17	0.54	6.95	2.43	2.78	0.69
1159	0.83	6.21	2.17	2.48	0.62	2.40	0.84	0.96	0.24	3.63	1.27	1.45	0.36	4.43	1.55	1.77	0.44	5.45	1.91	2.18	0.55	6.97	2.44	2.79	0.70
1160	0.83	6.22	2.18	2.49	0.62	2.41	0.84	0.96	0.24	3.64	1.27	1.45	0.36	4.44	1.56	1.78	0.44	5.47	1.91	2.19	0.55	6.98	2.44	2.79	0.70
1161	0.83	6.24	2.18	2.50	0.62	2.41	0.85	0.97	0.24	3.64	1.28	1.46	0.36	4.45	1.56	1.78	0.45	5.48	1.92	2.19	0.55	7.00	2.45	2.80	0.70
1162	0.83	6.25	2.19	2.50	0.63	2.42	0.85	0.97	0.24	3.65	1.28	1.46	0.37	4.46	1.56	1.79	0.45	5.49	1.92	2.20	0.55	7.02	2.46	2.81	0.70
1163	0.84	6.27	2.19	2.51	0.63	2.42	0.85	0.97	0.24	3.66	1.28	1.46	0.37	4.47	1.57	1.79	0.45	5.50	1.93	2.20	0.55	7.03	2.46	2.81	0.70

UNIT HYETOGRAPH		50 YR - 24 HR				2 YR - 24 HR				5 YR - 24 HR				10 YR - 24 HR				25 YR - 24 HR				100 YR - 24 HR			
	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth
Time	1 INCH	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY
1164	0.84	6.28	2.20	2.51	0.63	2.43	0.85	0.97	0.24	3.67	1.28	1.47	0.37	4.48	1.57	1.79	0.45	5.51	1.93	2.20	0.55	7.04	2.47	2.82	0.70
1165	0.84	6.29	2.20	2.52	0.63	2.43	0.85	0.97	0.24	3.67	1.29	1.47	0.37	4.49	1.57	1.80	0.45	5.52	1.93	2.21	0.55	7.06	2.47	2.82	0.71
1166	0.84	6.30	2.21	2.52	0.63	2.44	0.85	0.98	0.24	3.68	1.29	1.47	0.37	4.50	1.57	1.80	0.45	5.53	1.94	2.21	0.55	7.07	2.47	2.83	0.71
1167	0.84	6.31	2.21	2.53	0.63	2.44	0.86	0.98	0.24	3.69	1.29	1.47	0.37	4.51	1.58	1.80	0.45	5.54	1.94	2.22	0.55	7.08	2.48	2.83	0.71
1168	0.84	6.32	2.21	2.53	0.63	2.45	0.86	0.98	0.24	3.69	1.29	1.48	0.37	4.52	1.58	1.81	0.45	5.55	1.94	2.22	0.56	7.10	2.48	2.84	0.71
1169	0.84	6.33	2.22	2.53	0.63	2.45	0.86	0.98	0.25	3.70	1.29	1.48	0.37	4.52	1.58	1.81	0.45	5.56	1.95	2.22	0.56	7.11	2.49	2.84	0.71
1170	0.85	6.35	2.22	2.54	0.63	2.46	0.86	0.98	0.25	3.71	1.30	1.48	0.37	4.53	1.59	1.81	0.45	5.57	1.95	2.23	0.56	7.12	2.49	2.85	0.71
1171	0.85	6.36	2.22	2.54	0.64	2.46	0.86	0.98	0.25	3.71	1.30	1.48	0.37	4.54	1.59	1.82	0.45	5.58	1.95	2.23	0.56	7.13	2.50	2.85	0.71
1172	0.85	6.36	2.23	2.55	0.64	2.46	0.86	0.99	0.25	3.72	1.30	1.49	0.37	4.54	1.59	1.82	0.45	5.59	1.96	2.24	0.56	7.14	2.50	2.86	0.71
1173	0.85	6.37	2.23	2.55	0.64	2.47	0.86	0.99	0.25	3.72	1.30	1.49	0.37	4.55	1.59	1.82	0.46	5.60	1.96	2.24	0.56	7.15	2.50	2.86	0.72
1174	0.85	6.38	2.23	2.55	0.64	2.47	0.86	0.99	0.25	3.73	1.30	1.49	0.37	4.56	1.60	1.82	0.46	5.60	1.96	2.24	0.56	7.16	2.51	2.87	0.72
1175	0.85	6.39	2.24	2.56	0.64	2.47	0.87	0.99	0.25	3.73	1.31	1.49	0.37	4.56	1.60	1.83	0.46	5.61	1.96	2.25	0.56	7.17	2.51	2.87	0.72
1176	0.85	6.40	2.24	2.56	0.64	2.48	0.87	0.99	0.25	3.74	1.31	1.50	0.37	4.57	1.60	1.83	0.46	5.62	1.97	2.25	0.56	7.18	2.51	2.87	0.72
1177	0.85	6.41	2.24	2.56	0.64	2.48	0.87	0.99	0.25	3.74	1.31	1.50	0.37	4.58	1.60	1.83	0.46	5.63	1.97	2.25	0.56	7.19	2.52	2.88	0.72
1178	0.86	6.42	2.25	2.57	0.64	2.48	0.87	0.99	0.25	3.75	1.31	1.50	0.37	4.58	1.60	1.83	0.46	5.64	1.97	2.25	0.56	7.20	2.52	2.88	0.72
1179	0.86	6.43	2.25	2.57	0.64	2.49	0.87	1.00	0.25	3.75	1.31	1.50	0.38	4.59	1.61	1.84	0.46	5.64	1.98	2.26	0.56	7.21	2.52	2.88	0.72
1180	0.86	6.44	2.25	2.57	0.64	2.49	0.87	1.00	0.25	3.76	1.32	1.50	0.38	4.60	1.61	1.84	0.46	5.65	1.98	2.26	0.57	7.22	2.53	2.89	0.72
1181	0.86	6.44	2.26	2.58	0.64	2.49	0.87	1.00	0.25	3.76	1.32	1.51	0.38	4.60	1.61	1.84	0.46	5.66	1.98	2.26	0.57	7.23	2.53	2.89	0.72
1182	0.86	6.45	2.26	2.58	0.65	2.50	0.87	1.00	0.25	3.77	1.32	1.51	0.38	4.61	1.61	1.84	0.46	5.67	1.98	2.27	0.57	7.24	2.53	2.90	0.72
1183	0.86	6.46	2.26	2.58	0.65	2.50	0.88	1.00	0.25	3.77	1.32	1.51	0.38	4.61	1.61	1.85	0.46	5.67	1.99	2.27	0.57	7.25	2.54	2.90	0.72
1184	0.86	6.47	2.26	2.59	0.65	2.50	0.88	1.00	0.25	3.78	1.32	1.51	0.38	4.62	1.62	1.85	0.46	5.68	1.99	2.27	0.57	7.26	2.54	2.90	0.73
1185	0.86	6.48	2.27	2.59	0.65	2.51	0.88	1.00	0.25	3.78	1.32	1.51	0.38	4.62	1.62	1.85	0.46	5.69	1.99	2.27	0.57	7.27	2.54	2.91	0.73
1186	0.86	6.48	2.27	2.59	0.65	2.51	0.88	1.00	0.25	3.79	1.33	1.51	0.38	4.63	1.62	1.85	0.46	5.69	1.99	2.28	0.57	7.27	2.55	2.91	0.73
1187	0.87	6.49	2.27	2.60	0.65	2.51	0.88	1.00	0.25	3.79	1.33	1.52	0.38	4.63	1.62	1.85	0.46	5.70	1.99	2.28	0.57	7.28	2.55	2.91	0.73
1188	0.87	6.50	2.27	2.60	0.65	2.51	0.88	1.01	0.25	3.79	1.33	1.52	0.38	4.64	1.62	1.86	0.46	5.71	2.00	2.28	0.57	7.29	2.55	2.92	0.73
1189	0.87	6.51	2.28	2.60	0.65	2.52	0.88	1.01	0.25	3.80	1.33	1.52	0.38	4.64	1.63	1.86	0.46	5.71	2.00	2.28	0.57	7.30	2.55	2.92	0.73
1190	0.87	6.51	2.28	2.61	0.65	2.52	0.88	1.01	0.25	3.80	1.33	1.52	0.38	4.65	1.63	1.86	0.47	5.72	2.00	2.29	0.57	7.31	2.56	2.92	0.73
1191	0.87	6.52	2.28	2.61	0.65	2.52	0.88	1.01	0.25	3.81	1.33	1.52	0.38	4.66	1.63	1.86	0.47	5.72	2.00	2.29	0.57	7.32	2.56	2.93	0.73
1192	0.87	6.53	2.28	2.61	0.65	2.53	0.88	1.01	0.25	3.81	1.33	1.52	0.38	4.66	1.63	1.86	0.47	5.73	2.01	2.29	0.57	7.32	2.56	2.93	0.73
1193	0.87	6.53	2.29	2.61	0.65	2.53	0.89	1.01	0.25	3.82	1.34	1.53	0.38	4.67	1.63	1.87	0.47	5.74	2.01	2.29	0.57	7.33	2.57	2.93	0.73
1194	0.87	6.54	2.29	2.62	0.65	2.53	0.89	1.01	0.25	3.82	1.34	1.53	0.38	4.67	1.63	1.87	0.47	5.74	2.01	2.30	0.57	7.34	2.57	2.94	0.73
1195	0.87	6.55	2.29	2.62	0.65	2.53	0.89	1.01	0.25	3.82	1.34	1.53	0.38	4.67	1.64	1.87	0.47	5.75	2.01	2.30	0.57	7.35	2.57	2.94	0.73
1196	0.87	6.55	2.29	2.62	0.66	2.54	0.89	1.01	0.25	3.83	1.34	1.53	0.38	4.68	1.64	1.87	0.47	5.75	2.01	2.30	0.58	7.35	2.57	2.94	0.74
1197	0.87	6.56	2.30	2.62	0.66	2.54	0.89	1.02	0.25	3.83	1.34	1.53	0.38	4.68	1.64	1.87	0.47	5.76	2.02	2.30	0.58	7.36	2.58	2.94	0.74
1198	0.88	6.57	2.30	2.63	0.66	2.54	0.89	1.02	0.25	3.84	1.34	1.53	0.38	4.69	1.64	1.88	0.47	5.77	2.02	2.31	0.58	7.37	2.58	2.95	0.74
1199	0.88	6.57	2.30	2.63	0.66	2.54	0.89	1.02	0.25	3.84	1.34	1.54	0.38	4.69	1.64	1.88	0.47	5.77	2.02	2.31	0.58	7.38	2.58	2.95	0.74
1200	0.88	6.58	2.30	2.63	0.66	2.55	0.89	1.02	0.25	3.84	1.35	1.54	0.38	4.70	1.64	1.88	0.47	5.78	2.02	2.31	0.58	7.38	2.58	2.95	0.74
1201	0.88	6.59	2.31	2.63	0.66	2.55	0.89	1.02	0.25	3.85	1.35	1.54	0.38	4.70	1.65	1.88	0.47	5.78	2.02	2.31	0.58	7.39	2.59	2.96	0.74
1202	0.88	6.59	2.31	2.64	0.66	2.55	0.89	1.02	0.26	3.85	1.35	1.54	0.39	4.71	1.65	1.88	0.47	5.79	2.03	2.32	0.58	7.40	2.59	2.96	0.74
1203	0.88	6.60	2.31	2.64	0.66	2.55	0.89	1.02	0.26	3.85	1.35	1.54	0.39	4.71	1.65	1.88	0.47	5.79	2.03	2.32	0.58	7.40	2.59	2.96	0.74
1204	0.88	6.61	2.31	2.64	0.66	2.56	0.89	1.02	0.26	3.86	1.35	1.54	0.39	4.72	1.65	1.89	0.47	5.80	2.03	2.32	0.58	7.41	2.59	2.96	0.74
1205	0.88	6.61	2.31	2.64	0.66	2.56	0.90	1.02	0.26	3.86	1.35	1.54	0.39	4.72	1.65	1.89	0.47	5.81	2.03	2.32	0.58	7.42	2.60	2.97	0.74
1206	0.88	6.62	2.32	2.65	0.66	2.56	0.90	1.02	0.26	3.86	1.35	1.55	0.39	4.73	1.65	1.89	0.47	5.81	2.03	2.32	0.58	7.43	2.60	2.97	0.74
1207	0.88	6.62	2.32	2.65	0.66	2.56	0.90	1.03	0.26	3.87	1.35	1.55	0.39	4.73	1.66	1.89	0.47	5.82	2.04	2.33	0.58	7.43	2.60	2.97	0.74
1208	0.88	6.63	2.32	2.65	0.66	2.57	0.90	1.03	0.26	3.87	1.36	1.55	0.39	4.73	1.66	1.89	0.47	5.82	2.04	2.33	0.58	7.44	2.60	2.98	0.74
1209	0.88	6.64	2.32	2.65	0.66	2.57	0.90	1.03	0.26	3.88	1.36	1.55	0.39	4.74	1.66	1.90	0.47	5.83	2.04	2.33	0.58	7.45	2.61	2.98	0.74
1210	0.89	6.64	2.32	2.66	0.66	2.57	0.90	1.03	0.26	3.88	1.36	1.55	0.39	4.74	1.66	1.90	0.47	5.83	2.04	2.33	0.58	7.45	2.61	2.98	0.75
1211	0.89	6.65	2.33	2.66	0.66	2.57	0.90	1.03	0.26	3.88	1.36	1.55	0.39	4.75	1.66	1.90	0.47	5.84	2.04	2.33	0.58	7.46	2.61	2.98	0.75
1212	0.89	6.65	2.33	2.66	0.67	2.57	0.90	1.03	0.26	3.89	1.36	1.55	0.39	4.75	1.66	1.90	0.48	5.84	2.04	2.34	0.58	7.46	2.61	2.99	0.75
1213	0.89	6.66	2.33	2.66	0.67	2.58	0.90	1.03	0.26	3.89	1.36	1.56	0.39	4.75	1.66	1.90	0.48	5.85	2.05	2.34	0.58	7.47	2.61	2.99	0.75
1214	0.89	6.66	2.33	2.67	0.67	2.58	0.90	1.03	0.26	3.89	1.36	1.56	0.39	4.76	1.67	1.90	0.48	5.85	2.05	2.34	0.59	7.48	2.62	2.99	0.75
1215	0.89	6.67	2.33	2.67	0.67	2.58	0.90	1.03	0.26	3.90	1.36	1.56	0.39	4.76	1.67	1.91	0.48	5.86	2.05	2.34	0.59	7.48	2.62	2.99	0.75
1216	0.89	6.68	2.34	2.67	0.67	2.58	0.90	1.03	0.26	3.90	1.36	1.56	0.39	4.77	1.67	1.91	0.48	5.86	2.05	2.34	0.59	7.49	2.62	3.00	0.75
1217	0.89	6.68	2.34	2.67	0.67	2.59	0.91	1.03	0.26	3.90	1.37	1.56	0.39	4.77	1.67	1.91	0.48	5.87	2.05	2.35	0.59	7.50	2.62	3.00	0.75
1218	0.89	6.69	2.34	2.67	0.67	2.59	0.91	1.04	0.26	3.91	1.37	1.56	0.39	4.77	1.67	1.91	0.48	5.87	2.05	2.35	0.59	7.50	2.63	3.00	0.75
1219	0.89	6.69	2.34	2.68	0.67	2.59	0.91	1.04	0.26	3.91	1.37	1.56	0.39	4.78	1.67	1.91	0.48	5.88	2.06	2.35	0.59	7.51	2.63	3.00	0.75
1220	0.89	6.70	2.34	2.68	0.67	2.59	0.91	1.04	0.26	3.91	1.37	1.56	0.39	4.78	1.67	1.91	0.48	5.88	2.06	2.35	0.59	7.52	2.63	3.01	0.75
1221	0.89	6.70	2.35	2.68	0.67	2.59	0.91	1.04	0.26	3.91	1.37	1.57	0.39	4.79	1.68	1.91	0.48	5.89	2.06	2.35	0.59	7.52	2.63	3.01	0.75
1222	0.89	6.71	2.35	2.68	0.67	2.60	0.91	1.04	0.26	3.92	1.37	1.57	0.39	4.79	1.68	1.92	0.48	5.89	2.06	2.36	0.59	7.53	2.63	3.01	0.75
1223	0.90	6.71	2.35	2.69	0.67	2.60	0.91	1.04	0.26	3.92	1.37	1.57	0.39	4.79	1.68	1.92	0.48	5.90	2.06	2.36	0.59	7.53	2.64	3.01	0.75

UNIT HYETOGRAPH		50 YR - 24 HR				2 YR - 24 HR				5 YR - 24 HR				10 YR - 24 HR				25 YR - 24 HR				100 YR - 24 HR			
	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth
Time	1 INCH	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY	4 TH DAY	3 RD DAY	2 ND DAY	1 ST DAY
1224	0.90	6.72	2.35	2.69	0.67	2.60	0.91	1.04	0.26	3.92	1.37	1.57	0.39	4.80	1.68	1.92	0.48	5.90	2.06	2.36	0.59	7.54	2.64	3.02	0.75
1225	0.90	6.72	2.35	2.69	0.67	2.60	0.91	1.04	0.26	3.93	1.37	1.57	0.39	4.80	1.68	1.92	0.48	5.90	2.07	2.36	0.59	7.55	2.64	3.02	0.75
1226	0.90	6.73	2.36	2.69	0.67	2.60	0.91	1.04	0.26	3.93	1.38	1.57	0.39	4.81	1.68	1.92	0.48	5.91	2.07	2.36	0.59	7.55	2.64	3.02	0.76
1227	0.90	6.74	2.36	2.69	0.67	2.61	0.91	1.04	0.26	3.93	1.38	1.57	0.39	4.81	1.68	1.92	0.48	5.91	2.07	2.37	0.59	7.56	2.64	3.02	0.76
1228	0.90	6.74	2.36	2.70	0.67	2.61	0.91	1.04	0.26	3.94	1.38	1.57	0.39	4.81	1.68	1.93	0.48	5.92	2.07	2.37	0.59	7.56	2.65	3.03	0.76
1229	0.90	6.75	2.36	2.70	0.67	2.61	0.91	1.04	0.26	3.94	1.38	1.58	0.39	4.82	1.69	1.93	0.48	5.92	2.07	2.37	0.59	7.57	2.65	3.03	0.76
1230	0.90	6.75	2.36	2.70	0.68	2.61	0.91	1.04	0.26	3.94	1.38	1.58	0.39	4.82	1.69	1.93	0.48	5.93	2.07	2.37	0.59	7.57	2.65	3.03	0.76
1231	0.90	6.76	2.36	2.70	0.68	2.61	0.92	1.05	0.26	3.95	1.38	1.58	0.39	4.82	1.69	1.93	0.48	5.93	2.08	2.37	0.59	7.58	2.65	3.03	0.76
1232	0.90	6.76	2.37	2.70	0.68	2.62	0.92	1.05	0.26	3.95	1.38	1.58	0.39	4.83	1.69	1.93	0.48	5.94	2.08	2.37	0.59	7.59	2.65	3.03	0.76
1233	0.90	6.77	2.37	2.71	0.68	2.62	0.92	1.05	0.26	3.95	1.38	1.58	0.40	4.83	1.69	1.93	0.48	5.94	2.08	2.38	0.59	7.59	2.66	3.04	0.76
1234	0.90	6.77	2.37	2.71	0.68	2.62	0.92	1.05	0.26	3.95	1.38	1.58	0.40	4.83	1.69	1.93	0.48	5.94	2.08	2.38	0.59	7.60	2.66	3.04	0.76
1235	0.90	6.78	2.37	2.71	0.68	2.62	0.92	1.05	0.26	3.96	1.38	1.58	0.40	4.84	1.69	1.94	0.48	5.95	2.08	2.38	0.59	7.60	2.66	3.04	0.76
1240	0.91	6.80	2.38	2.72	0.68	2.63	0.92	1.05	0.26	3.97	1.39	1.59	0.40	4.86	1.70	1.94	0.49	5.97	2.09	2.39	0.60	7.63	2.67	3.05	0.76
1245	0.91	6.82	2.39	2.73	0.68	2.64	0.92	1.06	0.26	3.99	1.39	1.59	0.40	4.87	1.71	1.95	0.49	5.99	2.10	2.40	0.60	7.66	2.68	3.06	0.77
1250	0.91	6.85	2.40	2.74	0.68	2.65	0.93	1.06	0.26	4.00	1.40	1.60	0.40	4.89	1.71	1.96	0.49	6.01	2.10	2.40	0.60	7.68	2.69	3.07	0.77
1255	0.92	6.87	2.40	2.75	0.69	2.66	0.93	1.06	0.27	4.01	1.40	1.60	0.40	4.91	1.72	1.96	0.49	6.03	2.11	2.41	0.60	7.71	2.70	3.08	0.77
1260	0.92	6.89	2.41	2.76	0.69	2.67	0.93	1.07	0.27	4.02	1.41	1.61	0.40	4.92	1.72	1.97	0.49	6.05	2.12	2.42	0.61	7.73	2.71	3.09	0.77
1265	0.92	6.91	2.42	2.77	0.69	2.68	0.94	1.07	0.27	4.04	1.41	1.62	0.40	4.94	1.73	1.97	0.49	6.07	2.12	2.43	0.61	7.76	2.71	3.10	0.78
1270	0.92	6.93	2.43	2.77	0.69	2.68	0.94	1.07	0.27	4.05	1.42	1.62	0.40	4.95	1.73	1.98	0.50	6.09	2.13	2.44	0.61	7.78	2.72	3.11	0.78
1275	0.93	6.96	2.43	2.78	0.70	2.69	0.94	1.08	0.27	4.06	1.42	1.62	0.41	4.97	1.74	1.99	0.50	6.11	2.14	2.44	0.61	7.80	2.73	3.12	0.78
1280	0.93	6.98	2.44	2.79	0.70	2.70	0.94	1.08	0.27	4.07	1.43	1.63	0.41	4.98	1.74	1.99	0.50	6.12	2.14	2.45	0.61	7.83	2.74	3.13	0.78
1285	0.93	7.00	2.45	2.80	0.70	2.71	0.95	1.08	0.27	4.09	1.43	1.63	0.41	5.00	1.75	2.00	0.50	6.14	2.15	2.46	0.61	7.85	2.75	3.14	0.78
1290	0.94	7.02	2.46	2.81	0.70	2.72	0.95	1.09	0.27	4.10	1.43	1.64	0.41	5.01	1.75	2.00	0.50	6.16	2.16	2.46	0.62	7.87	2.76	3.15	0.79
1295	0.94	7.04	2.46	2.81	0.70	2.72	0.95	1.09	0.27	4.11	1.44	1.64	0.41	5.02	1.76	2.01	0.50	6.18	2.16	2.47	0.62	7.89	2.76	3.16	0.79
1300	0.94	7.05	2.47	2.82	0.71	2.73	0.96	1.09	0.27	4.12	1.44	1.65	0.41	5.04	1.76	2.01	0.50	6.19	2.17	2.48	0.62	7.91	2.77	3.17	0.79
1305	0.94	7.07	2.48	2.83	0.71	2.74	0.96	1.09	0.27	4.13	1.45	1.65	0.41	5.05	1.77	2.02	0.50	6.21	2.17	2.48	0.62	7.94	2.78	3.17	0.79
1310	0.95	7.09	2.48	2.84	0.71	2.74	0.96	1.10	0.27	4.14	1.45	1.66	0.41	5.06	1.77	2.03	0.51	6.23	2.18	2.49	0.62	7.96	2.78	3.18	0.80
1315	0.95	7.11	2.49	2.84	0.71	2.75	0.96	1.10	0.28	4.15	1.45	1.66	0.42	5.08	1.78	2.03	0.51	6.24	2.18	2.50	0.62	7.98	2.79	3.19	0.80
1320	0.95	7.13	2.49	2.85	0.71	2.76	0.97	1.10	0.28	4.16	1.46	1.66	0.42	5.09	1.78	2.04	0.51	6.26	2.19	2.50	0.63	8.00	2.80	3.20	0.80
1325	0.95	7.14	2.50	2.86	0.71	2.77	0.97	1.11	0.28	4.17	1.46	1.67	0.42	5.10	1.79	2.04	0.51	6.27	2.20	2.51	0.63	8.02	2.81	3.21	0.80
1330	0.95	7.16	2.51	2.86	0.72	2.77	0.97	1.11	0.28	4.18	1.46	1.67	0.42	5.11	1.79	2.05	0.51	6.29	2.20	2.52	0.63	8.04	2.81	3.21	0.80
1335	0.96	7.18	2.51	2.87	0.72	2.78	0.97	1.11	0.28	4.19	1.47	1.68	0.42	5.13	1.79	2.05	0.51	6.30	2.21	2.52	0.63	8.06	2.82	3.22	0.81
1340	0.96	7.20	2.52	2.88	0.72	2.79	0.97	1.11	0.28	4.20	1.47	1.68	0.42	5.14	1.80	2.06	0.51	6.32	2.21	2.53	0.63	8.07	2.83	3.23	0.81
1345	0.96	7.21	2.52	2.89	0.72	2.79	0.98	1.12	0.28	4.21	1.47	1.69	0.42	5.15	1.80	2.06	0.52	6.33	2.22	2.53	0.63	8.09	2.83	3.24	0.81
1350	0.96	7.23	2.53	2.89	0.72	2.80	0.98	1.12	0.28	4.22	1.48	1.69	0.42	5.16	1.81	2.06	0.52	6.35	2.22	2.54	0.63	8.11	2.84	3.24	0.81
1355	0.97	7.25	2.54	2.90	0.72	2.80	0.98	1.12	0.28	4.23	1.48	1.69	0.42	5.17	1.81	2.07	0.52	6.36	2.23	2.54	0.64	8.13	2.85	3.25	0.81
1360	0.97	7.26	2.54	2.90	0.73	2.81	0.98	1.12	0.28	4.24	1.48	1.70	0.42	5.19	1.81	2.07	0.52	6.38	2.23	2.55	0.64	8.15	2.85	3.26	0.81
1365	0.97	7.28	2.55	2.91	0.73	2.82	0.99	1.13	0.28	4.25	1.49	1.70	0.43	5.20	1.82	2.08	0.52	6.39	2.24	2.56	0.64	8.17	2.86	3.27	0.82
1370	0.97	7.29	2.55	2.92	0.73	2.82	0.99	1.13	0.28	4.26	1.49	1.70	0.43	5.21	1.82	2.08	0.52	6.40	2.24	2.56	0.64	8.18	2.86	3.27	0.82
1375	0.97	7.31	2.56	2.92	0.73	2.83	0.99	1.13	0.28	4.27	1.49	1.71	0.43	5.22	1.83	2.09	0.52	6.42	2.25	2.57	0.64	8.20	2.87	3.28	0.82
1380	0.98	7.33	2.56	2.93	0.73	2.83	0.99	1.13	0.28	4.28	1.50	1.71	0.43	5.23	1.83	2.09	0.52	6.43	2.25	2.57	0.64	8.22	2.88	3.29	0.82
1385	0.98	7.34	2.57	2.94	0.73	2.84	0.99	1.14	0.28	4.29	1.50	1.71	0.43	5.24	1.83	2.10	0.52	6.45	2.26	2.58	0.64	8.24	2.88	3.29	0.82
1390	0.98	7.36	2.57	2.94	0.74	2.85	1.00	1.14	0.28	4.30	1.50	1.72	0.43	5.25	1.84	2.10	0.53	6.46	2.26	2.58	0.65	8.25	2.89	3.30	0.83
1395	0.98	7.37	2.58	2.95	0.74	2.85	1.00	1.14	0.29	4.30	1.51	1.72	0.43	5.26	1.84	2.11	0.53	6.47	2.27	2.59	0.65	8.27	2.89	3.31	0.83
1400	0.98	7.39	2.58	2.95	0.74	2.86	1.00	1.14	0.29	4.31	1.51	1.73	0.43	5.27	1.85	2.11	0.53	6.48	2.27	2.59	0.65	8.29	2.90	3.31	0.83
1405	0.99	7.40	2.59	2.96	0.74	2.86	1.00	1.15	0.29	4.32	1.51	1.73	0.43	5.28	1.85	2.11	0.53	6.50	2.27	2.60	0.65	8.30	2.91	3.32	0.83
1410	0.99	7.42	2.60	2.97	0.74	2.87	1.00	1.15	0.29	4.33	1.52	1.73	0.43	5.29	1.85	2.12	0.53	6.51	2.28	2.60	0.65	8.32	2.91	3.33	0.83
1415	0.99	7.43	2.60	2.97	0.74	2.88	1.01	1.15	0.29	4.34	1.52	1.74	0.43	5.30	1.86	2.12	0.53	6.52	2.28	2.61	0.65	8.34	2.92	3.33	0.83
1420	0.99	7.44	2.61	2.98	0.74	2.88	1.01	1.15	0.29	4.35	1.52	1.74	0.43	5.31	1.86	2.13	0.53	6.54	2.29	2.61	0.65	8.35	2.92	3.34	0.84
1425	0.99	7.46	2.61	2.98	0.75	2.89	1.01	1.15	0.29	4.36	1.52	1.74	0.44	5.33	1.86	2.13	0.53	6.55	2.29	2.62	0.65	8.37	2.93	3.35	0.84
1430	1.00	7.47	2.62	2.99	0.75	2.89	1.01	1.16	0.29	4.36	1.53	1.75	0.44	5.34	1.87	2.13	0.53	6.56	2.30	2.62	0.66	8.38	2.93	3.35	0.84
1435	1.00	7.49	2.62	2.99	0.75	2.90	1.01	1.16	0.29	4.37	1.53	1.75	0.44	5.35	1.87	2.14	0.53	6.57	2.30	2.63	0.66	8.40	2.94	3.36	0.84
1440	1.00	7.50	2.63	3.00	0.75	2.90	1.02	1.16	0.29	4.38	1.53	1.75	0.44	5.36	1.87	2.14	0.54	6.59	2.30	2.63	0.66	8.42	2.95	3.37	0.84

WVF1 STA 1407+45.fm8 Report

Label	Solve For	Friction Method	Roughness Coefficient	Channel Slope (ft/ft)	Water Surface Elevation (ft)	Elevation Range	Discharge (ft³/s)	Flow Area (ft²)	Wetted Perimeter (ft)	Hydraulic Radius (ft)	Top Width (ft)
STA 0+10	Normal Depth	Manning Formula	0.080	0.02764	1015.92	1012.69 to 1018.04 ft	138.00	34.92	24.12	1.45	22.83
STA 0+20	Normal Depth	Manning Formula	0.080	0.02764	1015.21	1012.02 to 1017.95 ft	138.00	34.00	22.56	1.51	20.98
STA 0+30	Normal Depth	Manning Formula	0.080	0.02764	1014.96	1010.94 to 1015.76 ft	138.00	35.59	25.29	1.41	21.62
STA 0+40	Normal Depth	Manning Formula	0.080	0.10784	1011.34	1008.69 to 1014.08 ft	138.00	17.34	11.64	1.49	9.33
STA 0+50	Normal Depth	Manning Formula	0.080	0.10784	1009.61	1007.82 to 1013.02 ft	138.00	20.60	17.89	1.15	17.02
STA 0+60	Normal Depth	Manning Formula	0.080	0.10784	1008.42	1006.19 to 1010.07 ft	138.00	19.08	14.79	1.29	13.92
STA 0+68	Normal Depth	Manning Formula	0.080	0.10784	1007.12	1005.79 to 1008.26 ft	138.00	22.46	22.21	1.01	21.72

Normal Depth (ft)	Critical Depth (ft)	Critical Slope (ft/ft)	Velocity (ft/s)	Velocity Head (ft)	Specific Energy (ft)	Froude Number	Flow Type	Notes	Messages
3.23	2.60	0.09448	3.95	0.24	3.47	0.56	Subcritical		
3.19	2.52	0.09441	4.06	0.26	3.44	0.56	Subcritical		
4.02	3.13	0.10577	3.88	0.23	4.26	0.53	Subcritical		
2.65	2.69	0.10167	7.96	0.98	3.63	1.03	Supercritical		
1.79	1.85	0.09251	6.70	0.70	2.49	1.07	Supercritical		
2.23	2.32	0.08998	7.23	0.81	3.04	1.09	Supercritical		
1.33	1.38	0.09403	6.15	0.59	1.92	1.07	Supercritical		

Worksheet for STA 0+10

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.02764	ft/ft
Discharge	138.00	ft³/s

Section Definitions

Station (ft)	Elevation (ft)
-0+18	1016.37
0+01	1012.69
0+02	1013.94
0+06	1015.59
0+10	1017.44
0+15	1018.04

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(-0+18, 1016.37)	(0+15, 1018.04)	0.080

Options

Current Roughness Weighted Method	Pavlovskii's Method
Open Channel Weighting Method	Pavlovskii's Method
Closed Channel Weighting Method	Pavlovskii's Method

Results

Normal Depth	3.23	ft
Elevation Range	1012.69 to 1018.04 ft	
Flow Area	34.92	ft²
Wetted Perimeter	24.12	ft
Hydraulic Radius	1.45	ft
Top Width	22.83	ft
Normal Depth	3.23	ft

Worksheet for STA 0+10

Results

Critical Depth		2.60	ft
Critical Slope		0.09448	ft/ft
Velocity		3.95	ft/s
Velocity Head		0.24	ft
Specific Energy		3.47	ft
Froude Number		0.56	
Flow Type	Subcritical		

GVF Input Data

Downstream Depth		0.00	ft
Length		0.00	ft
Number Of Steps		0	

GVF Output Data

Upstream Depth		0.00	ft
Profile Description			
Profile Headloss		0.00	ft
Downstream Velocity		Infinity	ft/s
Upstream Velocity		Infinity	ft/s
Normal Depth		3.23	ft
Critical Depth		2.60	ft
Channel Slope		0.02764	ft/ft
Critical Slope		0.09448	ft/ft

Cross Section for STA 0+10

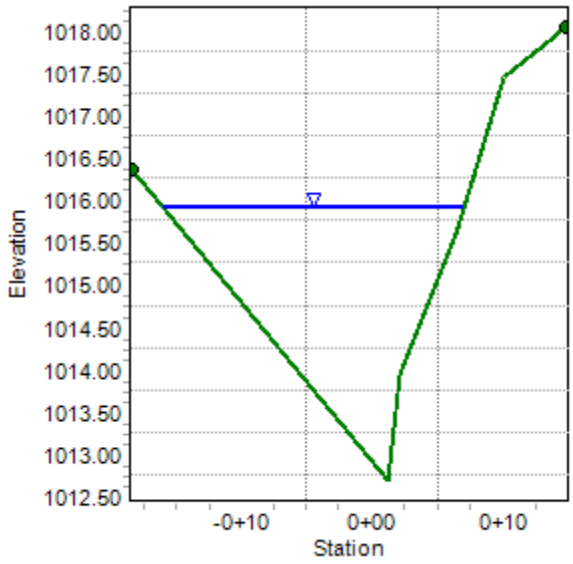
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.02764	ft/ft
Normal Depth	3.23	ft
Discharge	138.00	ft³/s

Cross Section Image



Worksheet for STA 0+20

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.02764	ft/ft
Discharge	138.00	ft³/s

Section Definitions

Station (ft)	Elevation (ft)
-0+25	1017.29
-0+04	1013.54
0+04	1012.02
0+06	1013.33
0+09	1016.34
0+22	1017.95

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(-0+25, 1017.29)	(0+22, 1017.95)	0.080

Options

Current Roughness Weighted Method	Pavlovskii's Method
Open Channel Weighting Method	Pavlovskii's Method
Closed Channel Weighting Method	Pavlovskii's Method

Results

Normal Depth	3.19	ft
Elevation Range	1012.02 to 1017.95 ft	
Flow Area	34.00	ft²
Wetted Perimeter	22.56	ft
Hydraulic Radius	1.51	ft
Top Width	20.98	ft
Normal Depth	3.19	ft

Worksheet for STA 0+20

Results

Critical Depth		2.52	ft
Critical Slope		0.09441	ft/ft
Velocity		4.06	ft/s
Velocity Head		0.26	ft
Specific Energy		3.44	ft
Froude Number		0.56	
Flow Type	Subcritical		

GVF Input Data

Downstream Depth		0.00	ft
Length		0.00	ft
Number Of Steps		0	

GVF Output Data

Upstream Depth		0.00	ft
Profile Description			
Profile Headloss		0.00	ft
Downstream Velocity		Infinity	ft/s
Upstream Velocity		Infinity	ft/s
Normal Depth		3.19	ft
Critical Depth		2.52	ft
Channel Slope		0.02764	ft/ft
Critical Slope		0.09441	ft/ft

Cross Section for STA 0+20

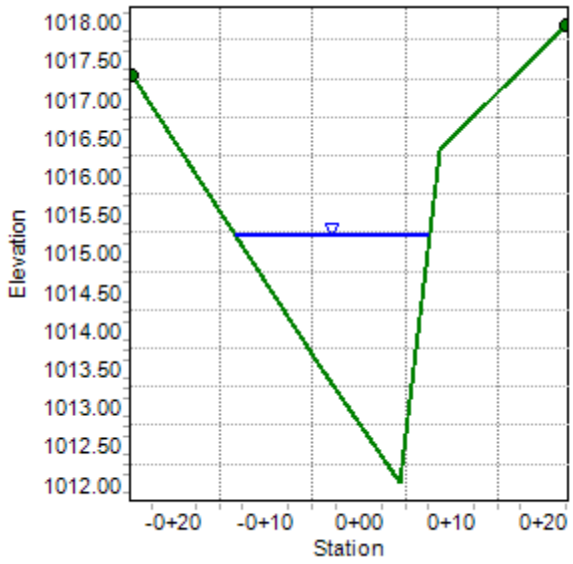
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.02764	ft/ft
Normal Depth	3.19	ft
Discharge	138.00	ft³/s

Cross Section Image



Worksheet for STA 0+30

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.02764	ft/ft
Discharge	138.00	ft³/s

Section Definitions

Station (ft)	Elevation (ft)
-0+27	1015.76
-0+13	1014.87
-0+09	1014.52
-0+06	1013.92
-0+02	1013.07
0+03	1011.99
0+05	1010.94
0+06	1011.15
0+07	1015.16
0+10	1015.45

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(-0+27, 1015.76)	(0+10, 1015.45)	0.080

Options

Current Roughness Weighted Method	Pavlovskii's Method
Open Channel Weighting Method	Pavlovskii's Method
Closed Channel Weighting Method	Pavlovskii's Method

Results

Normal Depth	4.02	ft
Elevation Range	1010.94 to 1015.76 ft	
Flow Area	35.59	ft²

Worksheet for STA 0+30

Results

Wetted Perimeter		25.29	ft
Hydraulic Radius		1.41	ft
Top Width		21.62	ft
Normal Depth		4.02	ft
Critical Depth		3.13	ft
Critical Slope		0.10577	ft/ft
Velocity		3.88	ft/s
Velocity Head		0.23	ft
Specific Energy		4.26	ft
Froude Number		0.53	
Flow Type	Subcritical		

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	4.02	ft
Critical Depth	3.13	ft
Channel Slope	0.02764	ft/ft
Critical Slope	0.10577	ft/ft

Cross Section for STA 0+30

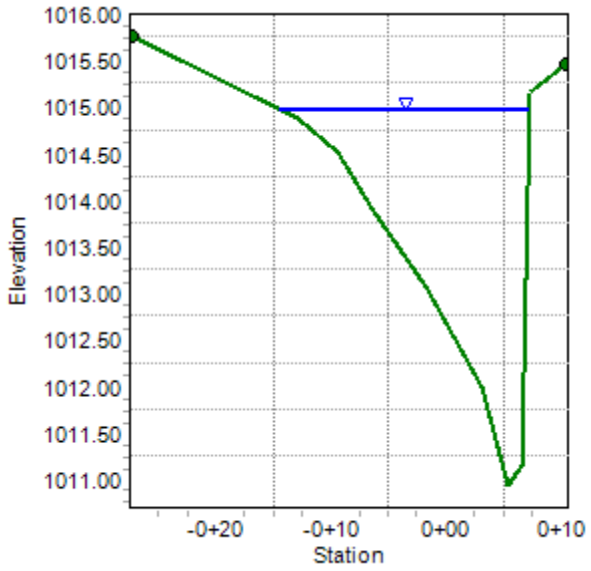
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.02764	ft/ft
Normal Depth	4.02	ft
Discharge	138.00	ft³/s

Cross Section Image



Worksheet for STA 0+40

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.10784	ft/ft
Discharge	138.00	ft³/s

Section Definitions

Station (ft)	Elevation (ft)
-0+11	1013.03
-0+05	1012.41
-0+02	1008.69
0+00	1008.97
0+04	1009.44
0+08	1014.08

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(-0+11, 1013.03)	(0+08, 1014.08)	0.080

Options

Current Roughness Weighted Method	Pavlovskii's Method
Open Channel Weighting Method	Pavlovskii's Method
Closed Channel Weighting Method	Pavlovskii's Method

Results

Normal Depth	2.65	ft
Elevation Range	1008.69 to 1014.08 ft	
Flow Area	17.34	ft²
Wetted Perimeter	11.64	ft
Hydraulic Radius	1.49	ft
Top Width	9.33	ft
Normal Depth	2.65	ft

Worksheet for STA 0+40

Results

Critical Depth		2.69	ft
Critical Slope		0.10167	ft/ft
Velocity		7.96	ft/s
Velocity Head		0.98	ft
Specific Energy		3.63	ft
Froude Number		1.03	
Flow Type	Supercritical		

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	2.65	ft
Critical Depth	2.69	ft
Channel Slope	0.10784	ft/ft
Critical Slope	0.10167	ft/ft

Cross Section for STA 0+40

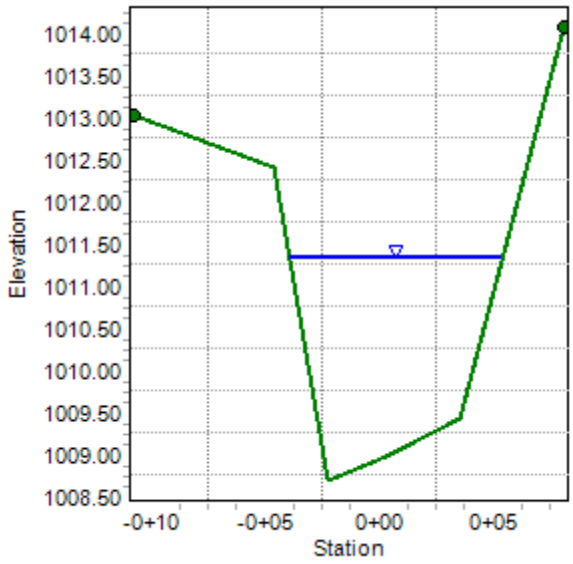
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.10784	ft/ft
Normal Depth	2.65	ft
Discharge	138.00	ft³/s

Cross Section Image



Worksheet for STA 0+50

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.10784	ft/ft
Discharge	138.00	ft³/s

Section Definitions

Station (ft)	Elevation (ft)
-0+13	1010.25
-0+12	1009.06
-0+11	1009.09
-0+08	1008.35
-0+01	1007.88
0+01	1007.82
0+07	1011.32
0+09	1013.02

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(-0+13, 1010.25)	(0+09, 1013.02)	0.080

Options

Current Roughness Weighted Method	Pavlovskii's Method
Open Channel Weighting Method	Pavlovskii's Method
Closed Channel Weighting Method	Pavlovskii's Method

Results

Normal Depth	1.79	ft
Elevation Range	1007.82 to 1013.02 ft	
Flow Area	20.60	ft²
Wetted Perimeter	17.89	ft
Hydraulic Radius	1.15	ft

Worksheet for STA 0+50

Results

Top Width		17.02	ft
Normal Depth		1.79	ft
Critical Depth		1.85	ft
Critical Slope		0.09251	ft/ft
Velocity		6.70	ft/s
Velocity Head		0.70	ft
Specific Energy		2.49	ft
Froude Number		1.07	
Flow Type	Supercritical		

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	1.79	ft
Critical Depth	1.85	ft
Channel Slope	0.10784	ft/ft
Critical Slope	0.09251	ft/ft

Cross Section for STA 0+50

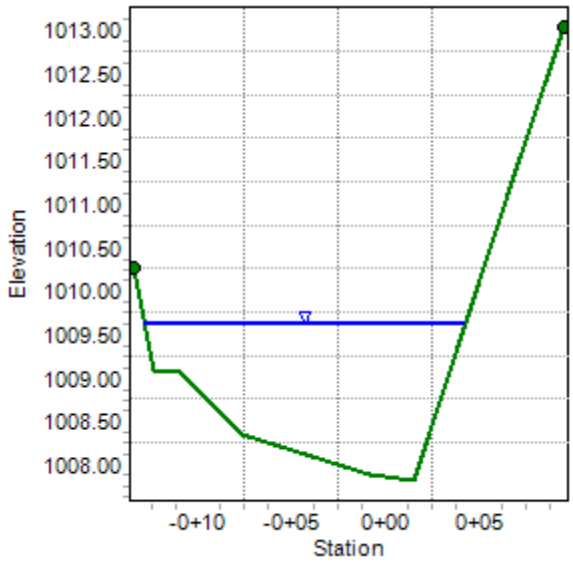
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.10784	ft/ft
Normal Depth	1.79	ft
Discharge	138.00	ft³/s

Cross Section Image



Worksheet for STA 0+60

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.10784	ft/ft
Discharge	138.00	ft³/s

Section Definitions

Station (ft)	Elevation (ft)
-0+09	1010.07
-0+04	1007.74
-0+03	1006.63
-0+02	1006.39
-0+01	1006.19
0+01	1006.33
0+06	1007.63
0+09	1008.97

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(-0+09, 1010.07)	(0+09, 1008.97)	0.080

Options

Current Roughness Weighted Method	Pavlovskii's Method
Open Channel Weighting Method	Pavlovskii's Method
Closed Channel Weighting Method	Pavlovskii's Method

Results

Normal Depth	2.23	ft
Elevation Range	1006.19 to 1010.07 ft	
Flow Area	19.08	ft²
Wetted Perimeter	14.79	ft
Hydraulic Radius	1.29	ft

Worksheet for STA 0+60

Results

Top Width		13.92	ft
Normal Depth		2.23	ft
Critical Depth		2.32	ft
Critical Slope		0.08998	ft/ft
Velocity		7.23	ft/s
Velocity Head		0.81	ft
Specific Energy		3.04	ft
Froude Number		1.09	
Flow Type	Supercritical		

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	2.23	ft
Critical Depth	2.32	ft
Channel Slope	0.10784	ft/ft
Critical Slope	0.08998	ft/ft

Cross Section for STA 0+60

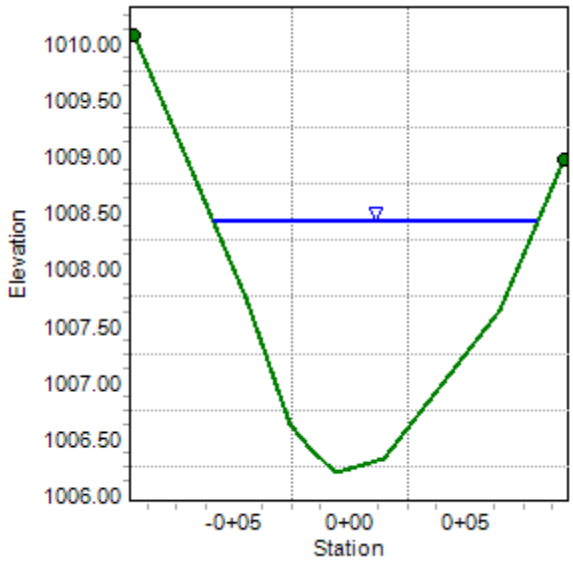
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.10784	ft/ft
Normal Depth	2.23	ft
Discharge	138.00	ft³/s

Cross Section Image



Worksheet for STA 0+68

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.10784	ft/ft
Discharge	138.00	ft³/s

Section Definitions

Station (ft)	Elevation (ft)
-0+11	1008.26
-0+08	1007.21
-0+06	1005.88
0+02	1005.79
0+06	1005.85
0+09	1006.27
0+17	1007.76

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(-0+11, 1008.26)	(0+17, 1007.76)	0.080

Options

Current Roughness Weighted Method	Pavlovskii's Method
Open Channel Weighting Method	Pavlovskii's Method
Closed Channel Weighting Method	Pavlovskii's Method

Results

Normal Depth	1.33	ft
Elevation Range	1005.79 to 1008.26 ft	
Flow Area	22.46	ft²
Wetted Perimeter	22.21	ft
Hydraulic Radius	1.01	ft
Top Width	21.72	ft

Worksheet for STA 0+68

Results

Normal Depth		1.33	ft
Critical Depth		1.38	ft
Critical Slope		0.09403	ft/ft
Velocity		6.15	ft/s
Velocity Head		0.59	ft
Specific Energy		1.92	ft
Froude Number		1.07	
Flow Type	Supercritical		

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	1.33	ft
Critical Depth	1.38	ft
Channel Slope	0.10784	ft/ft
Critical Slope	0.09403	ft/ft

Cross Section for STA 0+68

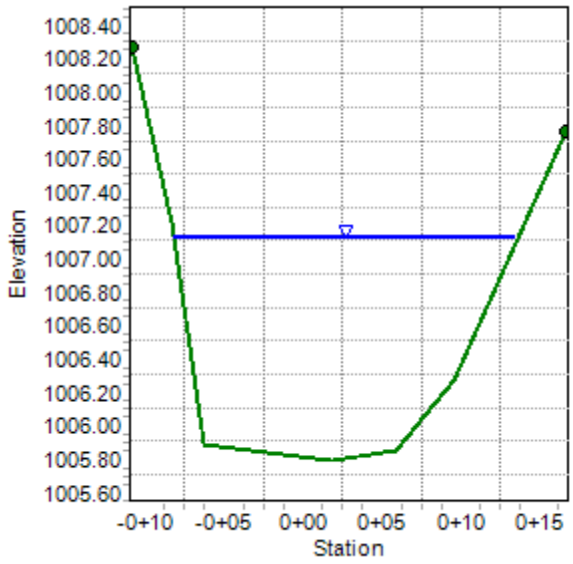
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.10784	ft/ft
Normal Depth	1.33	ft
Discharge	138.00	ft³/s

Cross Section Image



WVF1 STA 1416+33.fm8 Report

Label	Solve For	Friction Method	Roughness Coefficient
STA 0+10	Normal Depth	Manning Formula	0.080
STA 0+20	Normal Depth	Manning Formula	0.080
STA 0+30	Normal Depth	Manning Formula	0.080
STA 0+40	Normal Depth	Manning Formula	0.080
STA 0+50	Normal Depth	Manning Formula	0.080
STA 0+60	Normal Depth	Manning Formula	0.080
STA 0+70	Normal Depth	Manning Formula	0.080
STA 0+80	Normal Depth	Manning Formula	0.080
STA 0+90	Normal Depth	Manning Formula	0.080
STA 1+00	Normal Depth	Manning Formula	0.080
STA 1+10	Normal Depth	Manning Formula	0.080
STA 1+18	Normal Depth	Manning Formula	0.080

Channel Slope (ft/ft)	Water Surface Elevation (ft)	Elevation Range	Discharge (ft^3/s)
0.15151	1093.28	1089.30 to 1104.20 ft	337.00
0.15151	1091.17	1087.20 to 1106.30 ft	337.00
0.15151	1089.49	1086.20 to 1107.00 ft	337.00
0.15151	1086.99	1084.60 to 1106.10 ft	337.00
0.15151	1084.36	1081.50 to 1096.10 ft	337.00
0.32350	1082.16	1079.10 to 1092.00 ft	337.00
0.05333	1082.48	1078.50 to 1097.90 ft	337.00
0.04885	1081.40	1077.10 to 1084.30 ft	337.00
0.30612	1078.74	1075.80 to 1087.70 ft	337.00
0.30612	1076.28	1073.50 to 1086.30 ft	337.00
0.30612	1074.05	1071.30 to 1085.20 ft	337.00
0.30612	1073.78	1070.30 to 1084.60 ft	337.00

WVF1 STA 1416+33.fm8 Report

Flow Area (ft^2)	Wetted Perimeter (ft)	Hydraulic Radius (ft)	Top Width (ft)
31.45	17.43	1.80	15.02
32.63	19.11	1.71	17.07
33.77	20.82	1.62	19.49
34.22	21.53	1.59	20.42
32.25	18.56	1.74	17.26
23.56	14.96	1.57	13.43
48.26	23.23	2.08	21.57
51.88	26.06	1.99	24.19
25.52	17.51	1.46	16.17
25.23	17.02	1.48	15.95
24.67	16.10	1.53	14.97
24.56	15.92	1.54	14.01

Normal Depth (ft)	Critical Depth (ft)	Critical Slope (ft/ft)	Velocity (ft/s)
3.98	4.45	0.08571	10.72
3.97	4.38	0.08437	10.33
3.29	3.72	0.08235	9.98
2.39	2.78	0.08077	9.85
2.86	3.32	0.08030	10.45
3.06	4.09	0.08241	14.30
3.98	3.66	0.08084	6.98
4.30	3.92	0.08291	6.50
2.94	3.82	0.08207	13.21
2.78	3.68	0.08061	13.36
2.75	3.67	0.08040	13.66
3.48	4.43	0.08440	13.72

WVF1 STA 1416+33.fm8 Report

Velocity Head (ft)	Specific Energy (ft)	Froude Number	Flow Type
1.78	5.76	1.31	Supercritical
1.66	5.63	1.32	Supercritical
1.55	4.84	1.34	Supercritical
1.51	3.90	1.34	Supercritical
1.70	4.56	1.35	Supercritical
3.18	6.24	1.90	Supercritical
0.76	4.73	0.82	Subcritical
0.66	4.96	0.78	Subcritical
2.71	5.65	1.85	Supercritical
2.77	5.55	1.87	Supercritical
2.90	5.65	1.88	Supercritical
2.93	6.40	1.83	Supercritical

Notes	Messages

WVF1 STA 1416+33.fm8 Report

Worksheet for STA 0+10

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.15151	ft/ft
Discharge	337.00	ft³/s

Section Definitions

Station (ft)	Elevation (ft)
-0+35	1104.20
-0+03	1091.20
-0+03	1090.20
0+00	1089.80
0+02	1089.30
0+08	1094.10
0+13	1098.10
0+21	1104.20

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(-0+35, 1104.20)	(0+21, 1104.20)	0.080

Options

Current Roughness Weighted Method	Pavlovskii's Method
Open Channel Weighting Method	Pavlovskii's Method
Closed Channel Weighting Method	Pavlovskii's Method

Results

Normal Depth	3.98	ft
Elevation Range	1089.30 to 1104.20 ft	
Flow Area	31.45	ft²
Wetted Perimeter	17.43	ft
Hydraulic Radius	1.80	ft

Worksheet for STA 0+10

Results

Top Width		15.02	ft
Normal Depth		3.98	ft
Critical Depth		4.45	ft
Critical Slope		0.08571	ft/ft
Velocity		10.72	ft/s
Velocity Head		1.78	ft
Specific Energy		5.76	ft
Froude Number		1.31	
Flow Type	Supercritical		

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	3.98	ft
Critical Depth	4.45	ft
Channel Slope	0.15151	ft/ft
Critical Slope	0.08571	ft/ft

Cross Section for STA 0+10

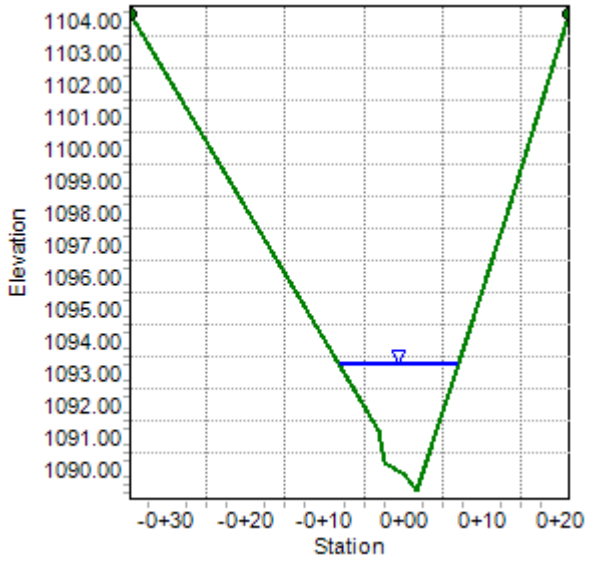
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.15151	ft/ft
Normal Depth	3.98	ft
Discharge	337.00	ft³/s

Cross Section Image



Worksheet for STA 0+20

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.15151	ft/ft
Discharge	337.00	ft³/s

Section Definitions

Station (ft)	Elevation (ft)
-0+43	1106.30
-0+13	1093.80
-0+11	1091.10
-0+10	1091.00
0+00	1087.60
0+01	1087.20
0+09	1093.80
0+19	1099.70
0+27	1105.30

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(-0+43, 1106.30)	(0+27, 1105.30)	0.080

Options

Current Roughness Weighted Method	Pavlovskii's Method
Open Channel Weighting Method	Pavlovskii's Method
Closed Channel Weighting Method	Pavlovskii's Method

Results

Normal Depth	3.97	ft
Elevation Range	1087.20 to 1106.30 ft	
Flow Area	32.63	ft²
Wetted Perimeter	19.11	ft

Worksheet for STA 0+20

Results

Hydraulic Radius		1.71	ft
Top Width		17.07	ft
Normal Depth		3.97	ft
Critical Depth		4.38	ft
Critical Slope		0.08437	ft/ft
Velocity		10.33	ft/s
Velocity Head		1.66	ft
Specific Energy		5.63	ft
Froude Number		1.32	
Flow Type	Supercritical		

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	3.97	ft
Critical Depth	4.38	ft
Channel Slope	0.15151	ft/ft
Critical Slope	0.08437	ft/ft

Cross Section for STA 0+20

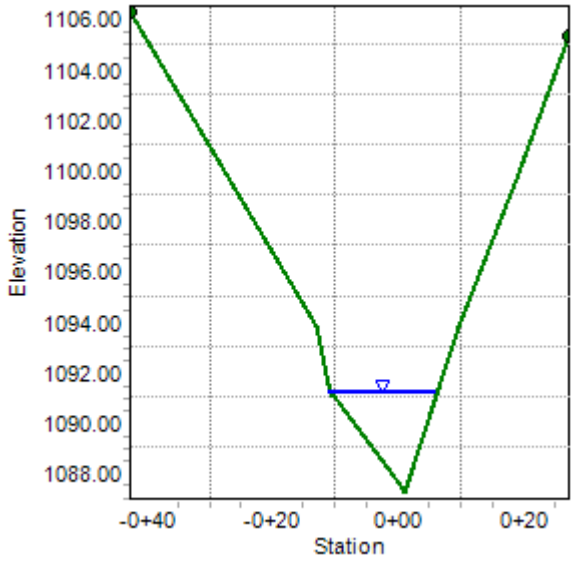
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.15151	ft/ft
Normal Depth	3.97	ft
Discharge	337.00	ft³/s

Cross Section Image



Worksheet for STA 0+30

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.15151	ft/ft
Discharge	337.00	ft³/s

Section Definitions

Station (ft)	Elevation (ft)
-0+29	1099.60
-0+21	1096.00
-0+19	1094.80
-0+17	1093.30
-0+14	1089.70
-0+10	1089.40
0+01	1086.20
0+04	1086.50
0+13	1092.30
0+34	1107.00

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(-0+29, 1099.60)	(0+34, 1107.00)	0.080

Options

Current Roughness Weighted Method	Pavlovskii's Method
Open Channel Weighting Method	Pavlovskii's Method
Closed Channel Weighting Method	Pavlovskii's Method

Results

Normal Depth	3.29	ft
Elevation Range	1086.20 to 1107.00 ft	
Flow Area	33.77	ft²

Worksheet for STA 0+30

Results

Wetted Perimeter		20.82	ft
Hydraulic Radius		1.62	ft
Top Width		19.49	ft
Normal Depth		3.29	ft
Critical Depth		3.72	ft
Critical Slope		0.08235	ft/ft
Velocity		9.98	ft/s
Velocity Head		1.55	ft
Specific Energy		4.84	ft
Froude Number		1.34	
Flow Type	Supercritical		

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	3.29	ft
Critical Depth	3.72	ft
Channel Slope	0.15151	ft/ft
Critical Slope	0.08235	ft/ft

Cross Section for STA 0+30

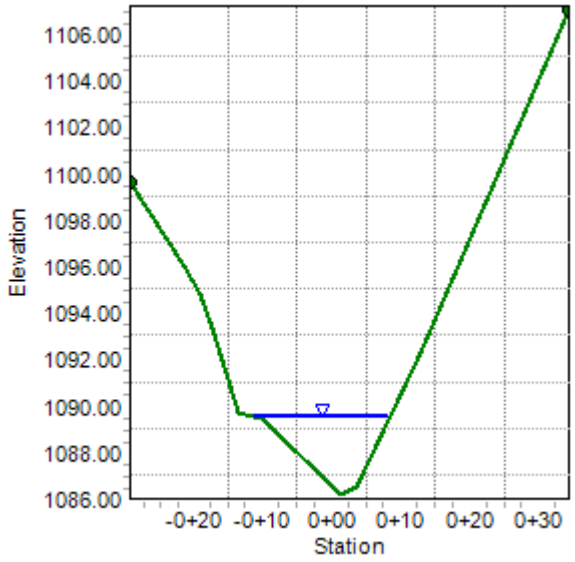
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.15151	ft/ft
Normal Depth	3.29	ft
Discharge	337.00	ft³/s

Cross Section Image



Worksheet for STA 0+40

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.15151	ft/ft
Discharge	337.00	ft³/s

Section Definitions

Station (ft)	Elevation (ft)
-0+42	1104.60
-0+26	1097.00
-0+18	1092.70
-0+11	1086.70
-0+10	1085.70
0+01	1084.70
0+01	1084.60
0+07	1085.30
0+08	1085.70
0+37	1106.10

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(-0+42, 1104.60)	(0+37, 1106.10)	0.080

Options

Current Roughness Weighted Method	Pavlovskii's Method
Open Channel Weighting Method	Pavlovskii's Method
Closed Channel Weighting Method	Pavlovskii's Method

Results

Normal Depth	2.39	ft
Elevation Range	1084.60 to 1106.10 ft	
Flow Area	34.22	ft²

Worksheet for STA 0+40

Results

Wetted Perimeter		21.53	ft
Hydraulic Radius		1.59	ft
Top Width		20.42	ft
Normal Depth		2.39	ft
Critical Depth		2.78	ft
Critical Slope		0.08077	ft/ft
Velocity		9.85	ft/s
Velocity Head		1.51	ft
Specific Energy		3.90	ft
Froude Number		1.34	
Flow Type	Supercritical		

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	2.39	ft
Critical Depth	2.78	ft
Channel Slope	0.15151	ft/ft
Critical Slope	0.08077	ft/ft

Cross Section for STA 0+40

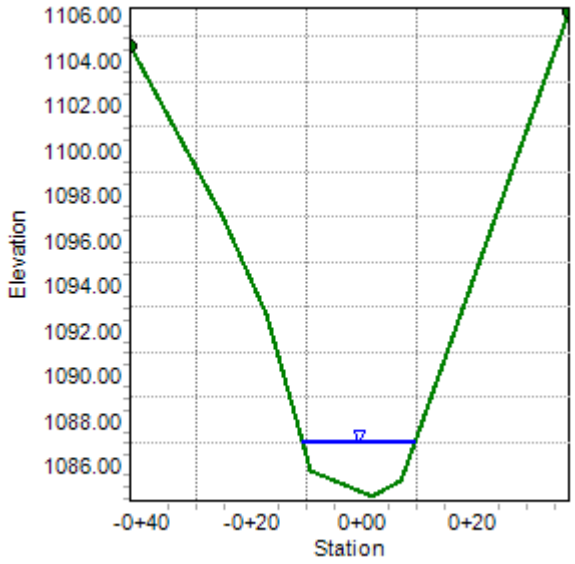
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.15151	ft/ft
Normal Depth	2.39	ft
Discharge	337.00	ft³/s

Cross Section Image



Worksheet for STA 0+50

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.15151	ft/ft
Discharge	337.00	ft³/s

Section Definitions

Station (ft)	Elevation (ft)
-0+23	1094.30
-0+16	1090.80
-0+11	1086.30
-0+05	1081.90
0+00	1081.50
0+03	1081.80
0+12	1085.50
0+37	1096.10

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(-0+23, 1094.30)	(0+37, 1096.10)	0.080

Options

Current Roughness Weighted Method	Pavlovskii's Method
Open Channel Weighting Method	Pavlovskii's Method
Closed Channel Weighting Method	Pavlovskii's Method

Results

Normal Depth	2.86	ft
Elevation Range	1081.50 to 1096.10 ft	
Flow Area	32.25	ft²
Wetted Perimeter	18.56	ft
Hydraulic Radius	1.74	ft

Worksheet for STA 0+50

Results

Top Width		17.26	ft
Normal Depth		2.86	ft
Critical Depth		3.32	ft
Critical Slope		0.08030	ft/ft
Velocity		10.45	ft/s
Velocity Head		1.70	ft
Specific Energy		4.56	ft
Froude Number		1.35	
Flow Type	Supercritical		

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	2.86	ft
Critical Depth	3.32	ft
Channel Slope	0.15151	ft/ft
Critical Slope	0.08030	ft/ft

Cross Section for STA 0+50

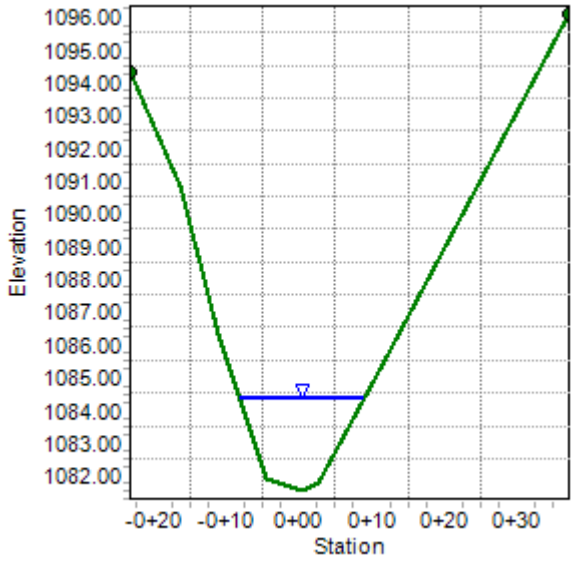
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.15151	ft/ft
Normal Depth	2.86	ft
Discharge	337.00	ft³/s

Cross Section Image



Worksheet for STA 0+60

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.32350	ft/ft
Discharge	337.00	ft³/s

Section Definitions

Station (ft)	Elevation (ft)
-0+20	1092.00
-0+16	1089.20
-0+14	1088.00
-0+01	1079.40
0+02	1079.10
0+12	1083.60
0+16	1085.30
0+17	1086.00

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(-0+20, 1092.00)	(0+17, 1086.00)	0.080

Options

Current Roughness Weighted Method	Pavlovskii's Method
Open Channel Weighting Method	Pavlovskii's Method
Closed Channel Weighting Method	Pavlovskii's Method

Results

Normal Depth	3.06	ft
Elevation Range	1079.10 to 1092.00 ft	
Flow Area	23.56	ft²
Wetted Perimeter	14.96	ft
Hydraulic Radius	1.57	ft

Worksheet for STA 0+60

Results

Top Width		13.43	ft
Normal Depth		3.06	ft
Critical Depth		4.09	ft
Critical Slope		0.08241	ft/ft
Velocity		14.30	ft/s
Velocity Head		3.18	ft
Specific Energy		6.24	ft
Froude Number		1.90	
Flow Type	Supercritical		

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	3.06	ft
Critical Depth	4.09	ft
Channel Slope	0.32350	ft/ft
Critical Slope	0.08241	ft/ft

Cross Section for STA 0+60

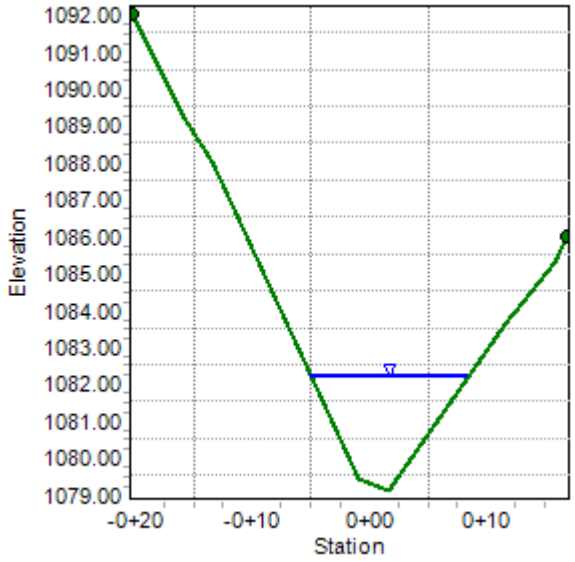
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.32350	ft/ft
Normal Depth	3.06	ft
Discharge	337.00	ft³/s

Cross Section Image



Worksheet for STA 0+70

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.05333	ft/ft
Discharge	337.00	ft³/s

Section Definitions

Station (ft)	Elevation (ft)
-0+17	1087.70
-0+05	1081.30
-0+03	1080.60
0+08	1078.50
0+11	1080.20
0+18	1084.20
0+37	1097.90

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(-0+17, 1087.70)	(0+37, 1097.90)	0.080

Options

Current Roughness Weighted Method	Pavlovskii's Method
Open Channel Weighting Method	Pavlovskii's Method
Closed Channel Weighting Method	Pavlovskii's Method

Results

Normal Depth	3.98	ft
Elevation Range	1078.50 to 1097.90 ft	
Flow Area	48.26	ft²
Wetted Perimeter	23.23	ft
Hydraulic Radius	2.08	ft
Top Width	21.57	ft

Worksheet for STA 0+70

Results

Normal Depth		3.98	ft
Critical Depth		3.66	ft
Critical Slope		0.08084	ft/ft
Velocity		6.98	ft/s
Velocity Head		0.76	ft
Specific Energy		4.73	ft
Froude Number		0.82	
Flow Type	Subcritical		

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	3.98	ft
Critical Depth	3.66	ft
Channel Slope	0.05333	ft/ft
Critical Slope	0.08084	ft/ft

Cross Section for STA 0+70

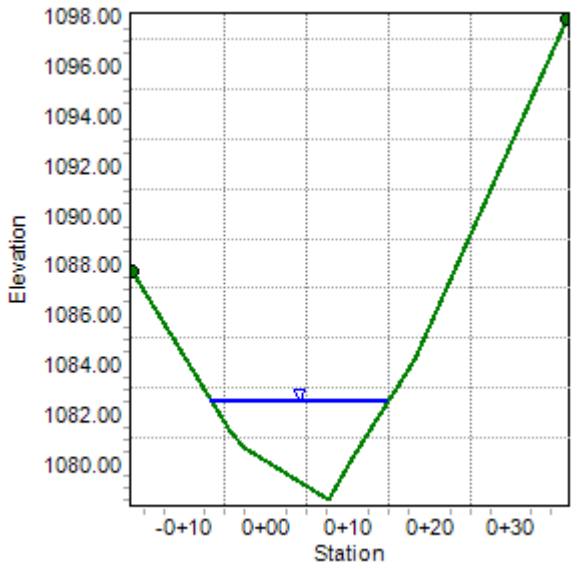
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.05333	ft/ft
Normal Depth	3.98	ft
Discharge	337.00	ft³/s

Cross Section Image



Worksheet for STA 0+80

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.04885	ft/ft
Discharge	337.00	ft³/s

Section Definitions

Station (ft)	Elevation (ft)
-0+13	1084.30
-0+05	1080.70
0+00	1079.70
0+04	1078.50
0+09	1077.10
0+09	1077.70
0+12	1078.40
0+18	1081.60
0+21	1083.90

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(-0+13, 1084.30)	(0+21, 1083.90)	0.080

Options

Current Roughness Weighted Method	Pavlovskii's Method
Open Channel Weighting Method	Pavlovskii's Method
Closed Channel Weighting Method	Pavlovskii's Method

Results

Normal Depth	4.30	ft
Elevation Range	1077.10 to 1084.30 ft	
Flow Area	51.88	ft²
Wetted Perimeter	26.06	ft

Worksheet for STA 0+80

Results

Hydraulic Radius		1.99	ft
Top Width		24.19	ft
Normal Depth		4.30	ft
Critical Depth		3.92	ft
Critical Slope		0.08291	ft/ft
Velocity		6.50	ft/s
Velocity Head		0.66	ft
Specific Energy		4.96	ft
Froude Number		0.78	
Flow Type	Subcritical		

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	4.30	ft
Critical Depth	3.92	ft
Channel Slope	0.04885	ft/ft
Critical Slope	0.08291	ft/ft

Cross Section for STA 0+80

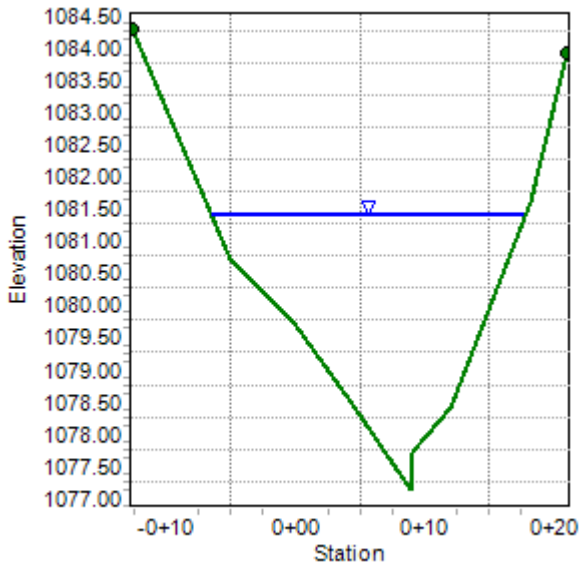
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.04885	ft/ft
Normal Depth	4.30	ft
Discharge	337.00	ft³/s

Cross Section Image



Worksheet for STA 0+90

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.30612	ft/ft
Discharge	337.00	ft³/s

Section Definitions

Station (ft)	Elevation (ft)
-0+14	1082.20
-0+05	1079.40
-0+02	1078.60
0+03	1077.20
0+10	1075.80
0+17	1081.30
0+26	1087.70

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(-0+14, 1082.20)	(0+26, 1087.70)	0.080

Options

Current Roughness Weighted Method	Pavlovskii's Method
Open Channel Weighting Method	Pavlovskii's Method
Closed Channel Weighting Method	Pavlovskii's Method

Results

Normal Depth	2.94	ft
Elevation Range	1075.80 to 1087.70 ft	
Flow Area	25.52	ft²
Wetted Perimeter	17.51	ft
Hydraulic Radius	1.46	ft
Top Width	16.17	ft

Worksheet for STA 0+90

Results

Normal Depth		2.94	ft
Critical Depth		3.82	ft
Critical Slope		0.08207	ft/ft
Velocity		13.21	ft/s
Velocity Head		2.71	ft
Specific Energy		5.65	ft
Froude Number		1.85	
Flow Type	Supercritical		

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	2.94	ft
Critical Depth	3.82	ft
Channel Slope	0.30612	ft/ft
Critical Slope	0.08207	ft/ft

Cross Section for STA 0+90

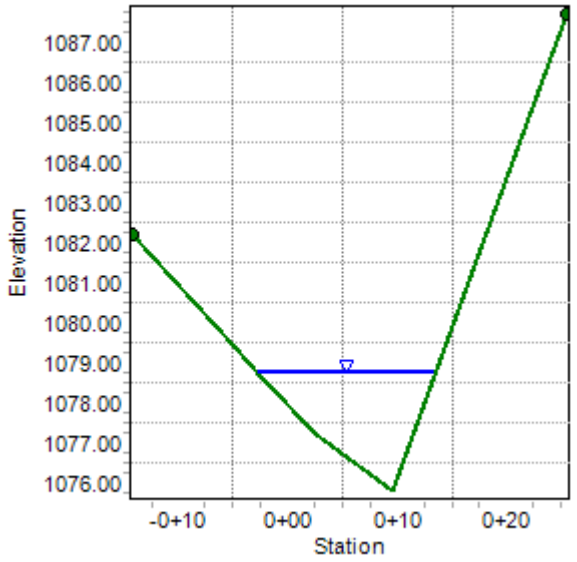
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.30612	ft/ft
Normal Depth	2.94	ft
Discharge	337.00	ft³/s

Cross Section Image



Worksheet for STA 1+00

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.30612	ft/ft
Discharge	337.00	ft³/s

Section Definitions

Station (ft)	Elevation (ft)
-0+15	1080.90
-0+11	1078.70
-0+10	1078.00
0+02	1074.10
0+05	1073.50
0+08	1074.00
0+11	1075.70
0+14	1077.90
0+24	1086.30

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(-0+15, 1080.90)	(0+24, 1086.30)	0.080

Options

Current Roughness Weighted Method	Pavlovskii's Method
Open Channel Weighting Method	Pavlovskii's Method
Closed Channel Weighting Method	Pavlovskii's Method

Results

Normal Depth	2.78	ft
Elevation Range	1073.50 to 1086.30 ft	
Flow Area	25.23	ft²
Wetted Perimeter	17.02	ft

Worksheet for STA 1+00

Results

Hydraulic Radius		1.48	ft
Top Width		15.95	ft
Normal Depth		2.78	ft
Critical Depth		3.68	ft
Critical Slope		0.08061	ft/ft
Velocity		13.36	ft/s
Velocity Head		2.77	ft
Specific Energy		5.55	ft
Froude Number		1.87	
Flow Type	Supercritical		

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	2.78	ft
Critical Depth	3.68	ft
Channel Slope	0.30612	ft/ft
Critical Slope	0.08061	ft/ft

Cross Section for STA 1+00

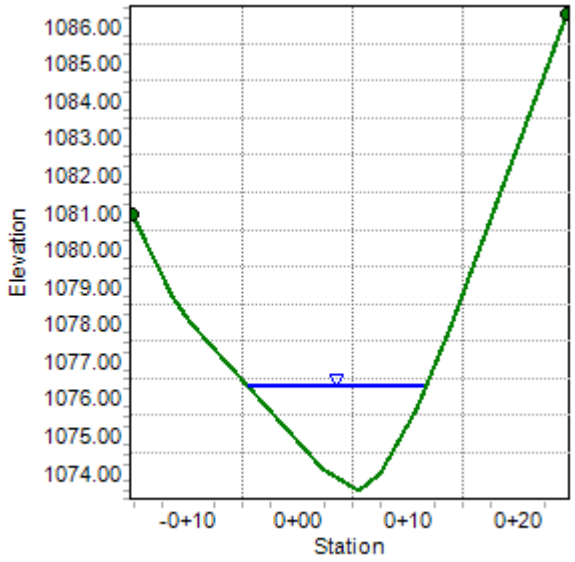
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.30612	ft/ft
Normal Depth	2.78	ft
Discharge	337.00	ft³/s

Cross Section Image



Worksheet for STA 1+10

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.30612	ft/ft
Discharge	337.00	ft³/s

Section Definitions

Station (ft)	Elevation (ft)
-0+23	1085.20
-0+16	1080.50
-0+15	1079.20
-0+14	1078.80
-0+05	1073.10
-0+04	1073.00
0+01	1071.30
0+05	1072.00
0+11	1075.30
0+17	1079.30
0+20	1081.90

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(-0+23, 1085.20)	(0+20, 1081.90)	0.080

Options

Current Roughness Weighted Method	Pavlovskii's Method
Open Channel Weighting Method	Pavlovskii's Method
Closed Channel Weighting Method	Pavlovskii's Method

Results

Normal Depth	2.75	ft
Elevation Range	1071.30 to 1085.20 ft	

Worksheet for STA 1+10

Results

Flow Area		24.67	ft²
Wetted Perimeter		16.10	ft
Hydraulic Radius		1.53	ft
Top Width		14.97	ft
Normal Depth		2.75	ft
Critical Depth		3.67	ft
Critical Slope		0.08040	ft/ft
Velocity		13.66	ft/s
Velocity Head		2.90	ft
Specific Energy		5.65	ft
Froude Number		1.88	
Flow Type	Supercritical		

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	2.75	ft
Critical Depth	3.67	ft
Channel Slope	0.30612	ft/ft
Critical Slope	0.08040	ft/ft

Cross Section for STA 1+10

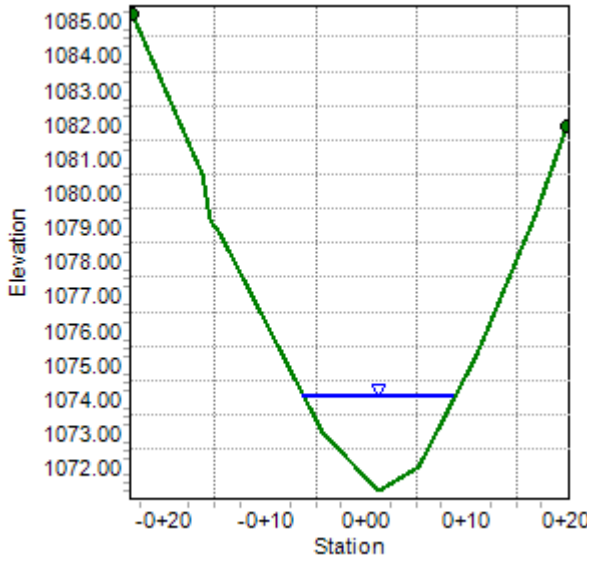
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.30612	ft/ft
Normal Depth	2.75	ft
Discharge	337.00	ft³/s

Cross Section Image



Worksheet for STA 1+18

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.30612	ft/ft
Discharge	337.00	ft³/s

Section Definitions

Station (ft)	Elevation (ft)
-0+23	1084.60
-0+07	1073.70
-0+05	1072.50
0+01	1070.30
0+03	1072.20
0+13	1076.10
0+18	1080.00
0+20	1081.20

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(-0+23, 1084.60)	(0+20, 1081.20)	0.080

Options

Current Roughness Weighted Method	Pavlovskii's Method
Open Channel Weighting Method	Pavlovskii's Method
Closed Channel Weighting Method	Pavlovskii's Method

Results

Normal Depth	3.48	ft
Elevation Range	1070.30 to 1084.60 ft	
Flow Area	24.56	ft²
Wetted Perimeter	15.92	ft
Hydraulic Radius	1.54	ft

Worksheet for STA 1+18

Results

Top Width		14.01	ft
Normal Depth		3.48	ft
Critical Depth		4.43	ft
Critical Slope		0.08440	ft/ft
Velocity		13.72	ft/s
Velocity Head		2.93	ft
Specific Energy		6.40	ft
Froude Number		1.83	
Flow Type	Supercritical		

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	3.48	ft
Critical Depth	4.43	ft
Channel Slope	0.30612	ft/ft
Critical Slope	0.08440	ft/ft

Cross Section for STA 1+18

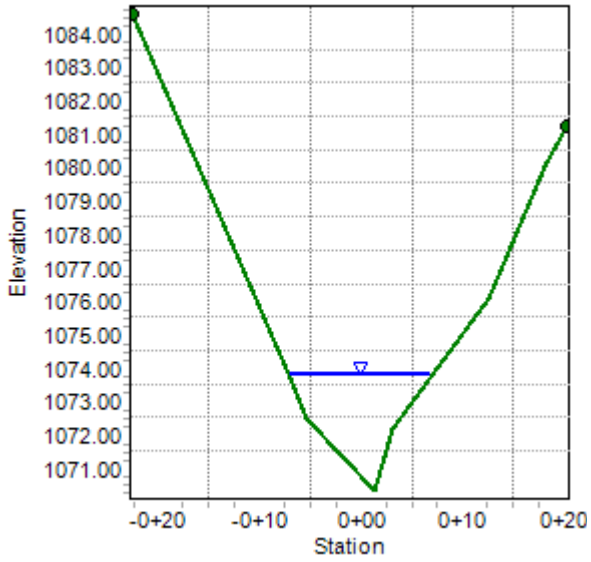
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.30612	ft/ft
Normal Depth	3.48	ft
Discharge	337.00	ft³/s

Cross Section Image



Appendix B
Culvert Crossing Calculations

HY-8 Culvert Analysis Report
WVF1 STA 1407+45

Crossing Discharge Data

Discharge Selection Method: Specify Minimum, Design, and Maximum Flow

Minimum Flow: 28 cfs

Design Flow: 138 cfs

Maximum Flow: 162 cfs

Table 1 - Summary of Culvert Flows at Crossing: WVF STA 1407+45

Headwater Elevation (ft)	Total Discharge (cfs)	Culvert 1 Discharge (cfs)	Roadway Discharge (cfs)	Iterations
1013.93	28.00	28.00	0.00	1
1014.21	41.40	41.40	0.00	1
1014.52	54.80	54.80	0.00	1
1014.80	68.20	68.20	0.00	1
1015.06	81.60	81.60	0.00	1
1015.32	95.00	95.00	0.00	1
1015.59	108.40	108.40	0.00	1
1015.87	121.80	121.80	0.00	1
1016.17	135.20	135.20	0.00	1
1016.23	138.00	138.00	0.00	1
1016.85	162.00	162.00	0.00	1
1018.04	199.91	199.91	0.00	Overtopping

Rating Curve Plot for Crossing: WVF STA 1407+45

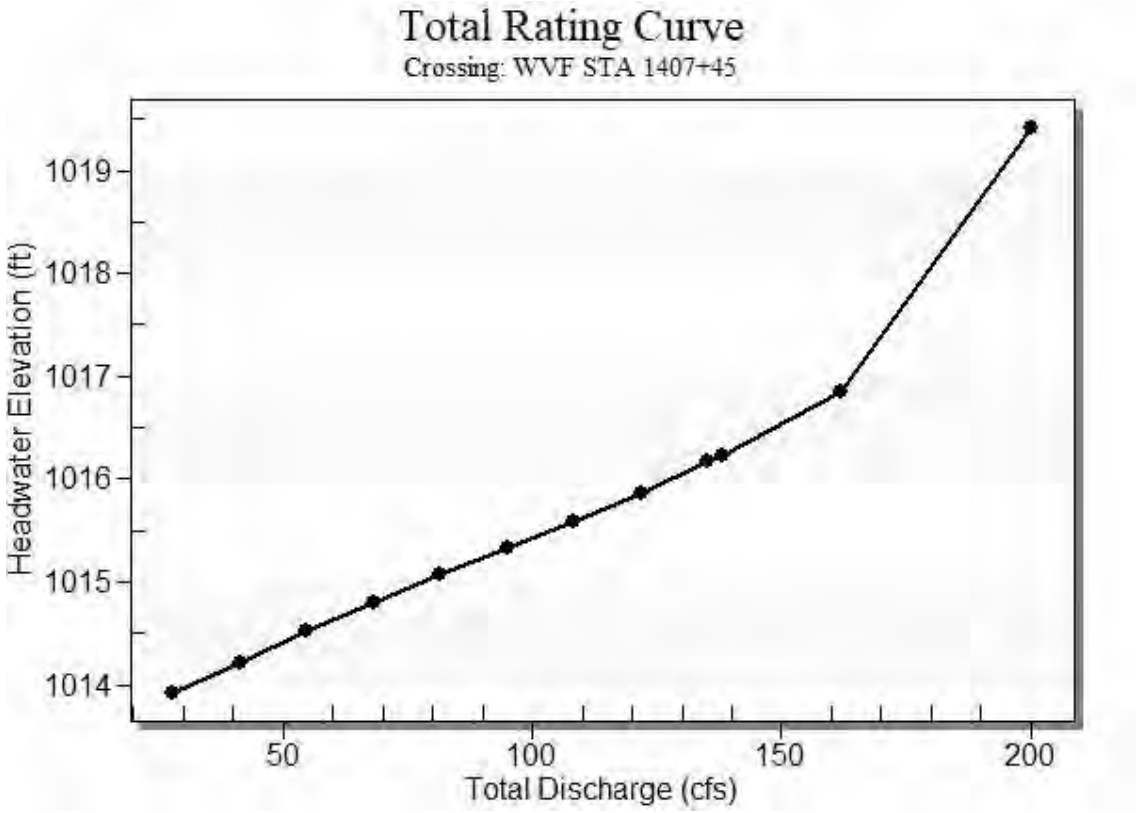


Table 2 - Culvert Summary Table: Culvert 1

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
28.00	28.00	1013.93	1.198	0.0*	1-S2n	0.373	0.962	0.373	0.572	17.733	3.601
41.40	41.40	1014.21	1.476	0.0*	1-S2n	0.451	1.180	0.507	0.701	16.936	4.129
54.80	54.80	1014.52	1.785	0.0*	1-S2n	0.517	1.369	0.592	0.814	17.806	4.544
68.20	68.20	1014.80	2.069	0.0*	1-S2n	0.575	1.534	0.671	0.914	18.529	4.890
81.60	81.60	1015.06	2.335	0.0*	1-S2n	0.629	1.683	0.745	1.006	19.135	5.189
95.00	95.00	1015.32	2.594	0.0*	1-S2n	0.679	1.823	0.817	1.091	19.652	5.453
108.40	108.40	1015.59	2.858	0.0*	1-S2n	0.725	1.950	0.886	1.170	19.996	5.690
121.80	121.80	1015.87	3.137	0.0*	5-S2n	0.770	2.073	0.952	1.245	20.329	5.906
135.20	135.20	1016.17	3.436	0.0*	5-S2n	0.812	2.184	1.016	1.317	20.643	6.105
138.00	138.00	1016.23	3.502	0.0*	5-S2n	0.820	2.207	1.029	1.331	20.712	6.144
162.00	162.00	1016.85	4.118	0.0*	5-S2n	0.891	2.384	1.136	1.450	21.248	6.457

* Full Flow Headwater elevation is below inlet invert.

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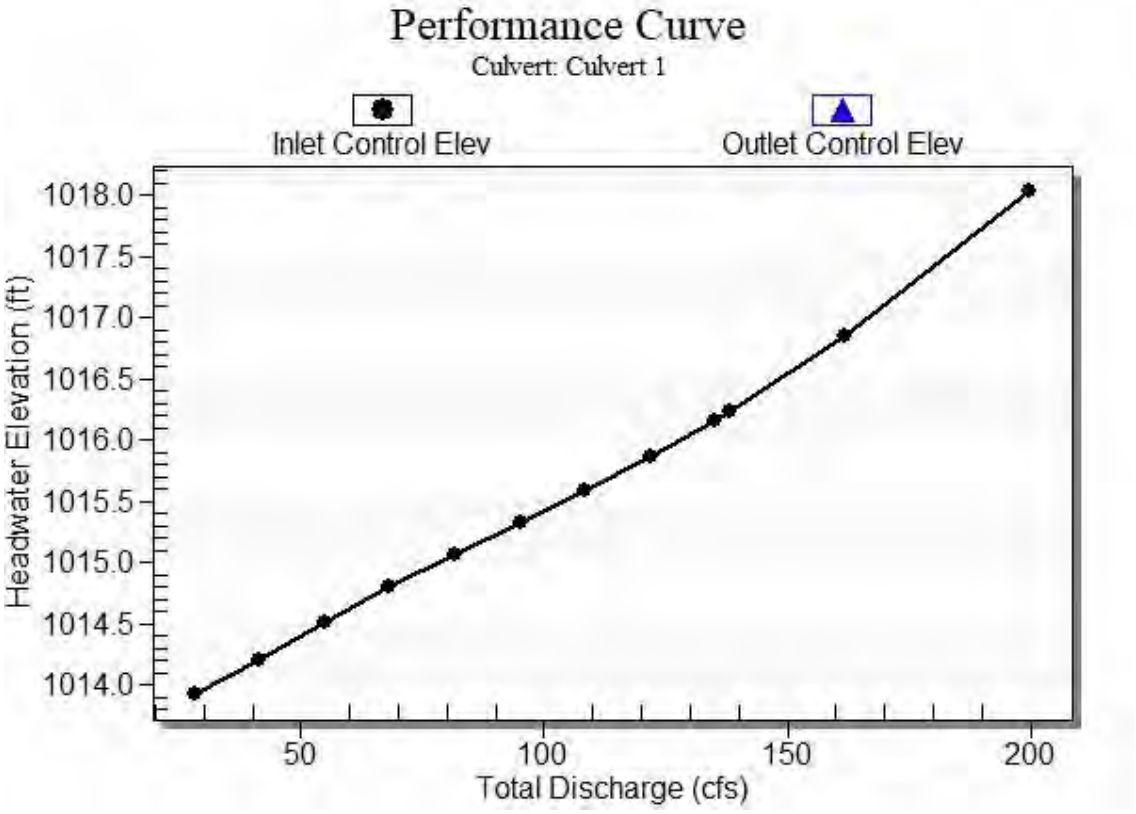
Straight Culvert

Inlet Elevation (invert): 1012.73 ft, Outlet Elevation (invert): 1005.93 ft

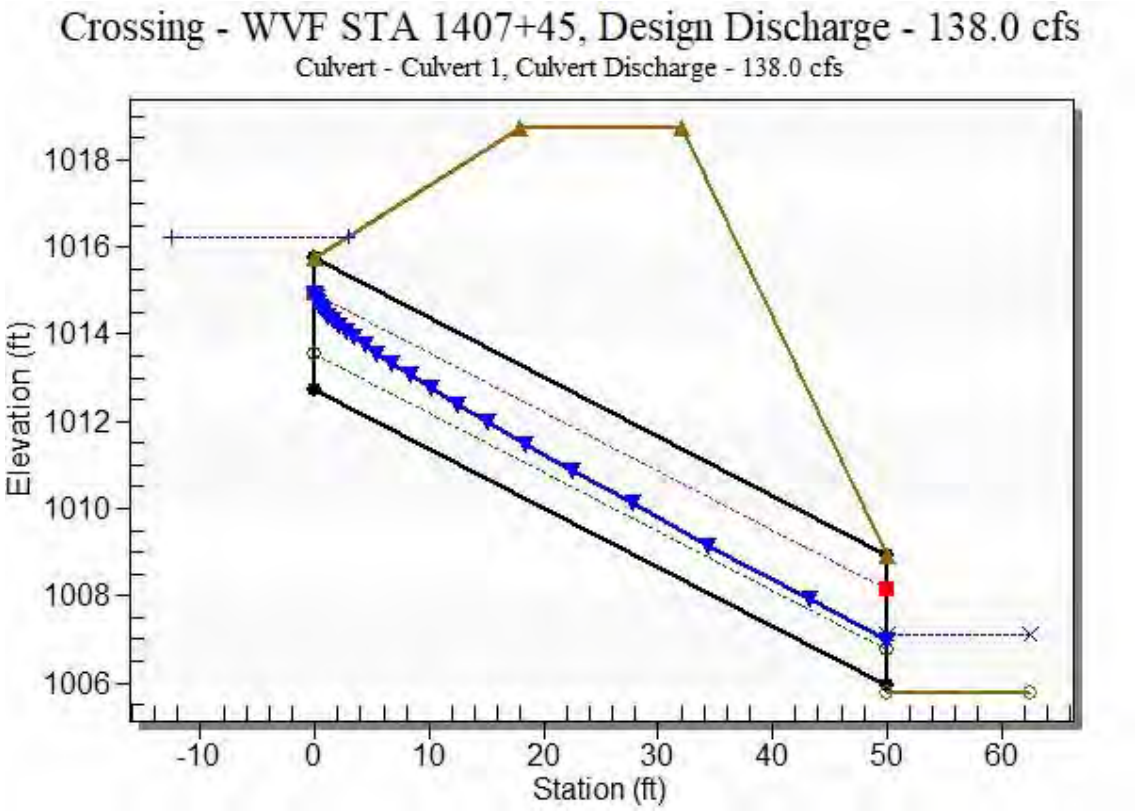
Culvert Length: 50.46 ft, Culvert Slope: 0.1360

****

Culvert Performance Curve Plot: Culvert 1



Water Surface Profile Plot for Culvert: Culvert 1



Site Data - Culvert 1

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 1012.73 ft

Outlet Station: 50.00 ft

Outlet Elevation: 1005.93 ft

Number of Barrels: 3

Culvert Data Summary - Culvert 1

Barrel Shape: Circular

Barrel Diameter: 3.00 ft

Barrel Material: Concrete

Embedment: 0.00 in

Barrel Manning's n: 0.0120

Culvert Type: Straight

Inlet Configuration: Square Edge with Headwall

Inlet Depression: None

Table 3 - Downstream Channel Rating Curve (Crossing: WVF STA 1407+45)

Flow (cfs)	Water Surface Elev (ft)	Depth (ft)	Velocity (ft/s)	Shear (psf)	Froude Number
28.00	1006.36	0.57	3.60	3.85	0.94
41.40	1006.49	0.70	4.13	4.72	0.97
54.80	1006.60	0.81	4.54	5.47	0.99
68.20	1006.70	0.91	4.89	6.15	1.01
81.60	1006.80	1.01	5.19	6.76	1.02
95.00	1006.88	1.09	5.45	7.34	1.04
108.40	1006.96	1.17	5.69	7.87	1.05
121.80	1007.04	1.25	5.91	8.38	1.05
135.20	1007.11	1.32	6.10	8.86	1.06
138.00	1007.12	1.33	6.14	8.95	1.06
162.00	1007.24	1.45	6.46	9.75	1.08

Tailwater Channel Data - WVF STA 1407+45

Tailwater Channel Option: Irregular Channel

Channel Slope: 0.1078

User Defined Channel Cross-Section:

Coord No.	Station (ft)	Elevation (ft)	Manning's n
1	-10.77	1008.26	0.0800
2	-8.32	1007.21	0.0800
3	-6.30	1005.88	0.0800
4	1.89	1005.79	0.0800
5	5.94	1005.85	0.0800
6	9.49	1006.27	0.0800
7	16.58	1007.76	0.0800

Roadway Data for Crossing: WVF STA 1407+45

Roadway Profile Shape: Irregular Roadway Shape (coordinates)

Irregular Roadway Cross-Section:

Coord No.	Station (ft)	Elevation (ft)
0	0.00	1018.75
1	26.78	1018.20
2	41.40	1018.04
3	126.78	1023.21

Roadway Surface: Paved

Roadway Top Width: 14.00 ft

HY-8 Culvert Analysis Report
WVF1 STA 1416+33

Crossing Discharge Data

Discharge Selection Method: Specify Minimum, Design, and Maximum Flow

Minimum Flow: 72 cfs

Design Flow: 337 cfs

Maximum Flow: 393 cfs

Table 1 - Summary of Culvert Flows at Crossing: WVF1 STA 1416+33

Headwater Elevation (ft)	Total Discharge (cfs)	Box Culvert Discharge (cfs)	Roadway Discharge (cfs)	Iterations
1080.83	72.00	72.00	0.00	1
1081.25	104.10	104.10	0.00	1
1081.67	136.20	136.20	0.00	1
1082.07	168.30	168.30	0.00	1
1082.44	200.40	200.40	0.00	1
1082.81	232.50	232.50	0.00	1
1083.18	264.60	264.60	0.00	1
1083.55	296.70	296.70	0.00	1
1083.94	328.80	328.80	0.00	1
1084.04	337.00	337.00	0.00	1
1084.78	393.00	393.00	0.00	1
1086.08	477.83	477.83	0.00	Overtopping

Rating Curve Plot for Crossing: WVF1 STA 1416+33

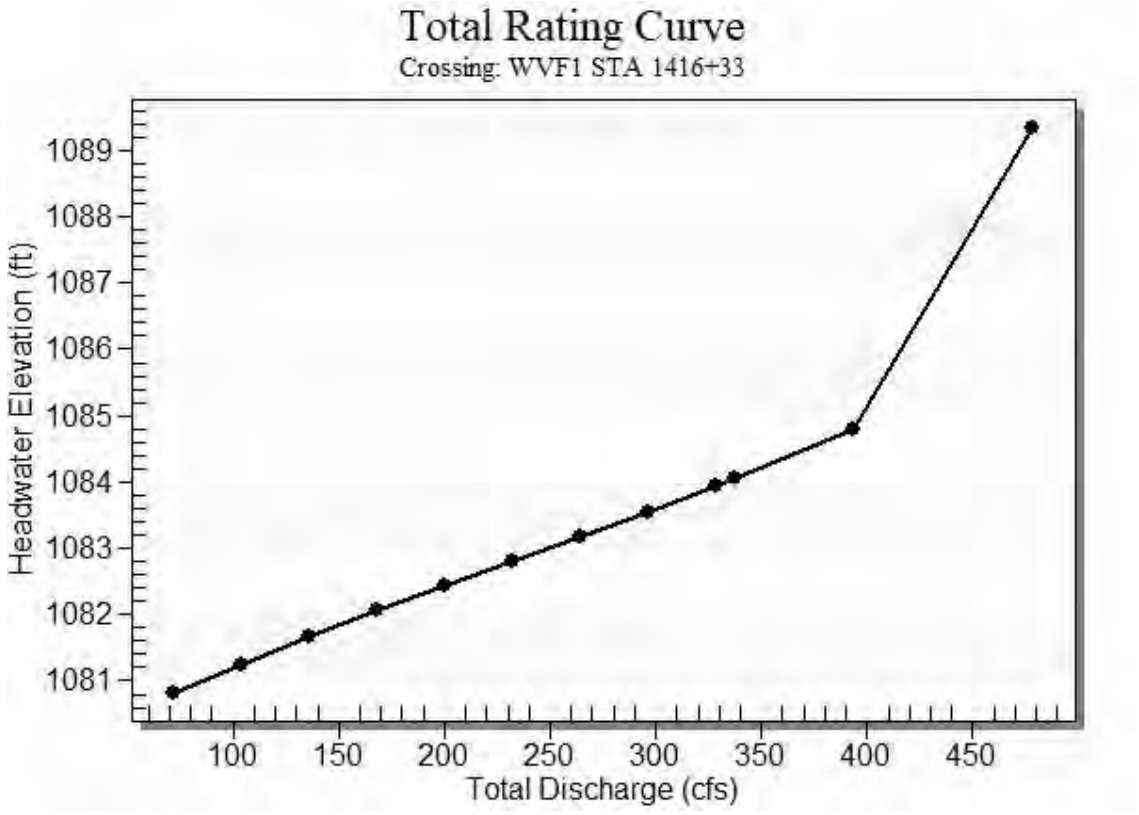


Table 2 - Culvert Summary Table: Box Culvert

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
72.00	72.00	1080.83	1.508	0.0*	1-S2n	0.280	1.038	0.313	2.503	19.167	9.717
104.10	104.10	1081.25	1.929	0.0*	1-S2n	0.355	1.327	0.407	2.874	21.341	10.655
136.20	136.20	1081.67	2.349	0.0*	1-S2n	0.423	1.587	0.493	3.178	23.031	11.396
168.30	168.30	1082.07	2.747	0.0*	1-S2n	0.485	1.828	0.585	3.450	23.987	11.946
200.40	200.40	1082.44	3.125	0.0*	1-S2n	0.544	2.054	0.677	3.695	24.674	12.325
232.50	232.50	1082.81	3.493	0.0*	1-S2n	0.601	2.267	0.764	3.902	25.362	12.724
264.60	264.60	1083.18	3.859	0.0*	1-S2n	0.654	2.472	0.854	4.087	25.834	13.093
296.70	296.70	1083.55	4.234	0.0*	5-S2n	0.707	2.668	0.941	4.255	26.286	13.435
328.80	328.80	1083.94	4.622	0.0*	5-S2n	0.757	2.857	1.027	4.410	26.684	13.755
337.00	337.00	1084.04	4.724	0.0*	5-S2n	0.770	2.904	1.048	4.448	26.797	13.834
393.00	393.00	1084.78	5.464	0.0*	5-S2n	0.855	3.218	1.197	4.689	27.356	14.339

* Full Fl w Headwater elevation is below inlet invert.

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Straight Culvert

Inlet Elevation (invert): 1079.32 ft, Outlet Elevation (invert): 1068.84 ft

Culvert Length: 60.91 ft, Culvert Slope: 0.1747

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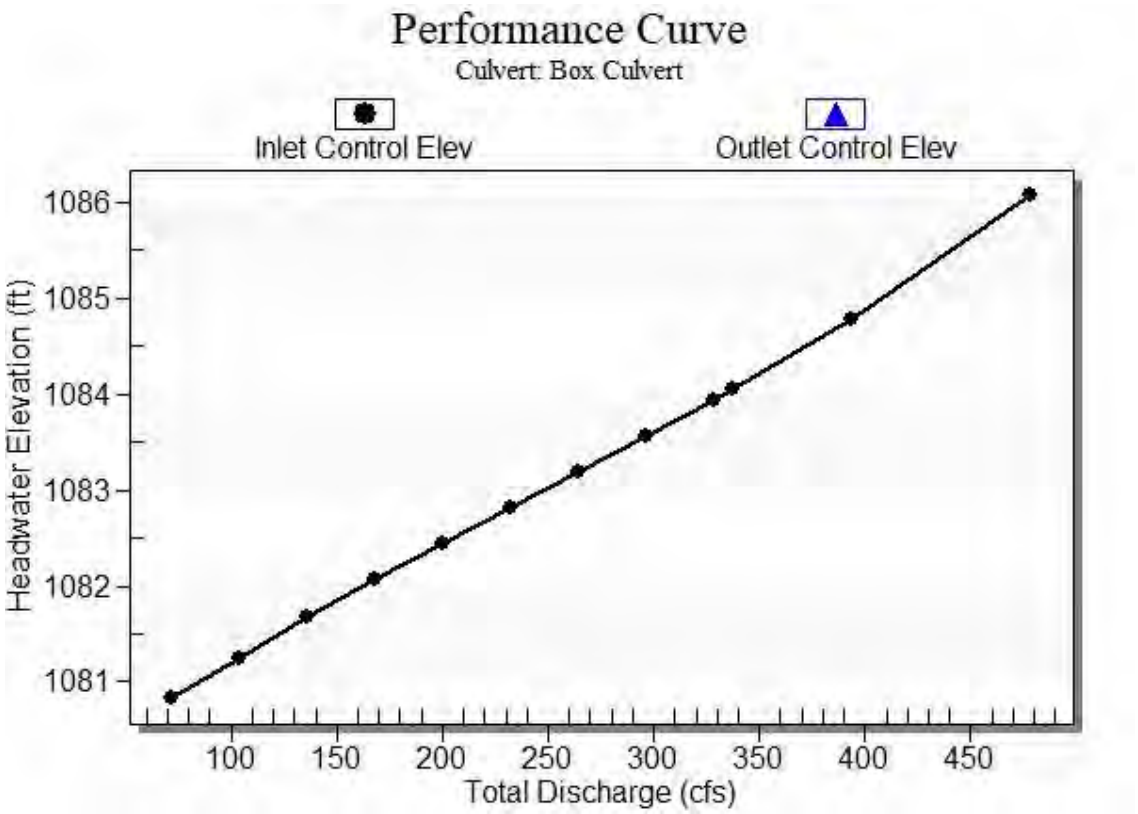
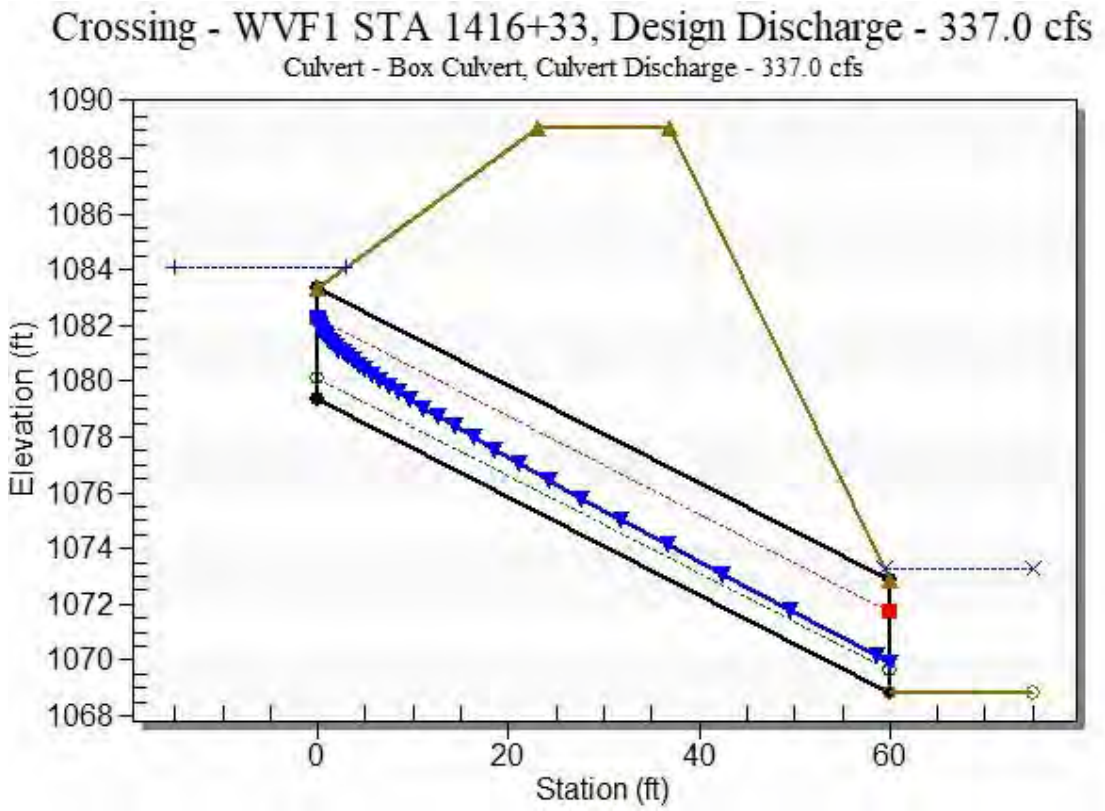
Culvert Performance Curve Plot: Box Culvert



Water Surface Profile Plot for Culvert: Box Culvert



Site Data - Box Culvert

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 1079.32 ft

Outlet Station: 60.00 ft

Outlet Elevation: 1068.84 ft

Number of Barrels: 3

Culvert Data Summary - Box Culvert

Barrel Shape: Concrete Box

Barrel Span: 4.00 ft

Barrel Rise: 4.00 ft

Barrel Material: Concrete

Embedment: 0.00 in

Barrel Manning's n: 0.0120

Culvert Type: Straight

Inlet Configuration: Square Edge (90º) Headwall

Inlet Depression: None

Table 3 - Downstream Channel Rating Curve (Crossing: WVF1 STA 1416+33)

Flow (cfs)	Water Surface Elev (ft)	Depth (ft)	Velocity (ft/s)	Shear (psf)	Froude Number
72.00	1071.34	2.50	9.72	47.80	1.53
104.10	1071.71	2.87	10.66	54.89	1.57
136.20	1072.02	3.18	11.40	60.71	1.59
168.30	1072.29	3.45	11.95	65.89	1.62
200.40	1072.54	3.70	12.33	70.58	1.65
232.50	1072.74	3.90	12.72	74.53	1.67
264.60	1072.93	4.09	13.09	78.06	1.69
296.70	1073.09	4.25	13.44	81.27	1.70
328.80	1073.25	4.41	13.76	84.23	1.72
337.00	1073.29	4.45	13.83	84.95	1.72
393.00	1073.53	4.69	14.34	89.57	1.75

Tailwater Channel Data - WVF1 STA 1416+33

Tailwater Channel Option: Irregular Channel

Channel Slope: 0.3061

User Defined Channel Cross-Section:

Coord No.	Station (ft)	Elevation (ft)	Manning's n
1	-22.70	1084.60	0.0800
2	-7.00	1073.70	0.0800
3	-5.40	1072.50	0.0800
4	1.30	1068.84	0.0800
5	3.10	1072.20	0.0800
6	12.50	1076.10	0.0800
7	18.10	1080.00	0.0000

Roadway Data for Crossing: WVF1 STA 1416+33

Roadway Profile Shape: Irregular Roadway Shape (coordinates)

Irregular Roadway Cross-Section:

Coord No.	Station (ft)	Elevation (ft)
0	171.40	1089.11
1	199.81	1086.08
2	221.40	1087.83

Roadway Surface: Paved

Roadway Top Width: 14.00 ft

Appendix C
Preliminary Design Drawings

APPENDIX J

PROJECT NOISE CALCULATIONS

Construction Generated Noise

Building Type		**Distance (ft)**
Construction Noise at 50 Feet (dBA Leq)		50
Construction Phase	**Minimum Required Equipment in Use**[1]	
Ground Clearing/Demolition	84	
Excavation	78	
Foundation Construction	88	
Building Construction	78	
Finishing and Site Cleanup	84	
Church to the North		
Maximum Construction Noise (dBA Leq)		3,581
Construction Phase	**Minimum Required Equipment in Use**[1]	
Ground Clearing/Demolition	47	
Excavation	41	
Foundation Construction	51	
Building Construction	41	
Finishing and Site Cleanup	47	
Average Construction Noise (dBA Leq)		3,581
Construction Phase	**Minimum Required Equipment in Use**[1]	
Ground Clearing/Demolition	47	
Excavation	41	
Foundation Construction	51	
Building Construction	41	
Finishing and Site Cleanup	47	
Residents to the West		
Maximum Construction Noise (dBA Leq)		1,982
Construction Phase	**Minimum Required Equipment in Use**[1]	
Ground Clearing/Demolition	52	
Excavation	46	
Foundation Construction	56	
Building Construction	46	
Finishing and Site Cleanup	52	
Average Construction Noise (dBA Leq)		1,982
Construction Phase	**Minimum Required Equipment in Use**[1]	
Ground Clearing/Demolition	52	
Excavation	46	
Foundation Construction	56	
Building Construction	46	
Finishing and Site Cleanup	52	
Park to the South		
Maximum Construction Noise (dBA Leq)		502
Construction Phase	**Minimum Required Equipment in Use**[1]	
Ground Clearing/Demolition	64	
Excavation	58	
Foundation Construction	68	
Building Construction	58	
Finishing and Site Cleanup	64	
Average Construction Noise (dBA Leq)		502
Construction Phase	**Minimum Required Equipment in Use**[1]	
Ground Clearing/Demolition	64	
Excavation	58	
Foundation Construction	68	
Building Construction	58	
Finishing and Site Cleanup	64	

Residents to the East		
Maximum Construction Noise (dBA Leq)		1,415
Construction Phase	**Minimum Required Equipment in Use**[1]	
Ground Clearing/Demolition	55	
Excavation	49	
Foundation Construction	59	
Building Construction	49	
Finishing and Site Cleanup	55	
Average Construction Noise (dBA Leq)		1,415
Construction Phase	**Minimum Required Equipment in Use**[1]	
Ground Clearing/Demolition	55	
Excavation	49	
Foundation Construction	59	
Building Construction	49	
Finishing and Site Cleanup	55	

Source: Bolt, Beranek and Newman, "Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances," prepared for the USEPA, December 31, 1971. Based on analysis for Office Building, Hotel, Hospital, School, and Public Works.

Construction Generated Vibration

Vibration Annoyance Criteria

Church to the North			
Maximum Vibration Levels		Closest Distance (feet):	**3,581**
	Approximate Velocity	Approximate Velocity	
Equipment	Level at 25 ft, VdB	Level, VdB	
Caisson Drill	87	44	
Large bulldozer	87	44	
Small bulldozer	58	15	
Jackhammer	79	36	
Loaded trucks	86	43	
	Criteria	78	
Average Vibration Level		Average Distance (feet):	**3,581**
	Approximate Velocity	Approximate Velocity	
Equipment	Level at 25 ft, VdB	Level, VdB	
Caisson Drill	87	44	
Large bulldozer	87	44	
Small bulldozer	58	15	
Jackhammer	79	36	
Loaded trucks	86	43	
	Criteria	78	
Residents to the West			
Maximum Vibration Levels		Closest Distance (feet):	**1,982**
	Approximate Velocity	Approximate Velocity	
Equipment	Level at 25 ft, VdB	Level, VdB	
Caisson Drill	87	49	
Large bulldozer	87	49	
Small bulldozer	58	20	
Jackhammer	79	41	
Loaded trucks	86	48	
	Criteria	78	
Average Vibration Level		Average Distance (feet):	**1,982**
	Approximate Velocity	Approximate Velocity	
Equipment	Level at 25 ft, VdB	Level, VdB	
Caisson Drill	87	49	
Large bulldozer	87	49	
Small bulldozer	58	20	
Jackhammer	79	41	
Loaded trucks	86	48	
	Criteria	78	

Construction Generated Vibration

Park to the South			
Maximum Vibration Levels		Closest Distance (feet):	**502**
	Approximate Velocity	Approximate Velocity	
Equipment	Level at 25 ft, VdB	Level, VdB	
Caisson Drill	87	61	
Large bulldozer	87	61	
Small bulldozer	58	32	
Jackhammer	79	53	
Loaded trucks	86	60	
	Criteria	78	
Average Vibration Level		Average Distance (feet):	**502**
	Approximate Velocity	Approximate Velocity	
Equipment	Level at 25 ft, VdB	Level, VdB	
Caisson Drill	87	61	
Large bulldozer	87	61	
Small bulldozer	58	32	
Jackhammer	79	53	
Loaded trucks	86	60	
	Criteria	78	
Residents to the East			
Maximum Vibration Levels		Closest Distance (feet):	**1,415**
	Approximate Velocity	Approximate Velocity	
Equipment	Level at 25 ft, VdB	Level, VdB	
Caisson Drill	87	52	
Large bulldozer	87	52	
Small bulldozer	58	23	
Jackhammer	79	44	
Loaded trucks	86	51	
	Criteria	78	
Average Vibration Level		Average Distance (feet):	**1,415**
	Approximate Velocity	Approximate Velocity	
Equipment	Level at 25 ft, VdB	Level, VdB	
Caisson Drill	87	52	
Large bulldozer	87	52	
Small bulldozer	58	23	
Jackhammer	79	44	
Loaded trucks	86	51	
	Criteria	78	

Construction Generated Vibration

Structural Damage Criteria

Church to the North		Closest Distance (feet):	3,581
Equipment	Approximate RMS a Velocity at 25 ft, inch/second	Approximate RMS Velocity Level, inch/second	
Caisson Drill	0.089	0.000	
Large bulldozer	0.089	0.000	
Small bulldozer	0.003	0.000	
Jackhammer	0.035	0.000	
Loaded trucks	0.076	0.000	
	Criteria	0.200	
Residents to the West		Closest Distance (feet):	1,982
Equipment	**Approximate RMS a** Velocity at 25 ft, inch/second	Approximate RMS Velocity Level, inch/second	
Caisson Drill	0.089	0.000	
Large bulldozer	0.089	0.000	
Small bulldozer	0.003	0.000	
Jackhammer	0.035	0.000	
Loaded trucks	0.076	0.000	
	Criteria	0.200	
Park to the South		Closest Distance (feet):	502
Equipment	**Approximate RMS a** Velocity at 25 ft, inch/second	Approximate RMS Velocity Level, inch/second	
Caisson Drill	0.089	0.001	
Large bulldozer	0.089	0.001	
Small bulldozer	0.003	0.000	
Jackhammer	0.035	0.000	
Loaded trucks	0.076	0.001	
	Criteria	0.200	
Residents to the East		Closest Distance (feet):	1,415
Equipment	Approximate RMS a Velocity at 25 ft, inch/second	Approximate RMS Velocity Level, inch/second	
Caisson Drill	0.089	0.000	
Large bulldozer	0.089	0.000	
Small bulldozer	0.003	0.000	
Jackhammer	0.035	0.000	
Loaded trucks	0.076	0.000	
	Criteria	0.200	

Based on distance to nearest structure

[1.] Determined based on use of jackhammers or pneumatic hammers that may be used for pavement demolition at a distance of 25 feet

Notes: RMS velocity calculated from vibration level (VdB) using the reference of one microinch/second.

Source: Based on methodology from the United States Department of Transportation Federal Transit Administration, *Transit Noise and Vibration Impact Assessment* (2006).

West Valley Feeder No. 1
Stage 3 Improvements Project

Responses to Comments Received

The Metropolitan Water District of Southern California
700 North Alameda Street
Los Angeles, CA 90012

Report No. 1582

July 2024

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RESPONSES TO COMMENTS RECEIVED

Responses to Comments

This document includes comments received during the public review period of the Initial Study/Mitigated Negative Declaration (IS/MND) prepared for the West Valley Feeder No. 1 Stage 3 Improvements Project (proposed Project). This document includes a copy of the one comment letter submitted during the public review period for the IS/MND, which was submitted by the California Department of Transportation (Caltrans).

Although not required by the California Environmental Quality Act (CEQA) or the CEQA Guidelines, the Metropolitan Water District of Southern California (Metropolitan) is providing written responses to comments received on the IS/MND for the proposed Project as part of the administrative record and for the Metropolitan Board of Directors (Board) to review when considering adoption of the IS/MND. In accordance with the requirements of CEQA Guidelines Section 15073(e), Metropolitan will provide notification in writing to the commenters 10 days in advance of the Board meeting to adopt the MND for the proposed Project.

The comment letter received during the public review period is included in Table 1-1. The letter has been marked with brackets that delineate comments pertaining to environmental issues and the information and analysis contained in the IS/MND. Responses to comments are provided below.

TABLE 1-1
COMMENT LETTERS RECEIVED

Comment Letter No.	Commenter	Date of Comment
1	Anthony Higgins – California Department of Transportation (Caltrans)	June 21, 2024

STATE OF CALIFORNIA—CALIFORNIA STATE TRANSPORTATION AGENCY GAVIN NEWSOM, Governor

DEPARTMENT OF TRANSPORTATION
DISTRICT 7
100 S. MAIN STREET, MS 16
LOS ANGELES, CA 90012
PHONE (213) 897- 0673
FAX (213) 897-1337
TTY 711
www.dot.ca.gov

Making Conservation a California Way of Life

June 21, 2024

Michelle Morrison
Senior Environmental Specialist
Metropolitan Water District of Southern California
700 N. Alameda Street
Los Angeles, CA 90012

RE: West Valley Feeder No. 1 Stage 3 Improvements Project– Mitigated Negative Declaration (MND)
SCH #2024060605
GTS #07-LA-2024-04555
Vic. LA Multiple

Dear Michelle Morrison,

Thank you for including the California Department of Transportation (Caltrans) in the environmental review process for the above referenced project. The Project proposes modifications to the West Valley Feeder No. 1 (WVF1) structures at four locations along the pipeline alignment, construction of a new access road, and vehicle turn around areas within Chatsworth Park South. Additionally, the proposed Project includes the construction of an access road, vehicle turnaround areas, and access gates to accommodate a full-size maintenance truck. Operations and maintenance activities at the West Valley Feeder No. 1, including the frequency of staff visits, maintenance, and shutdowns, would be similar to existing conditions once construction activities are completed. 1-1

After reviewing the MND, Caltrans has the following comments:

As stated in the Initial Study, the Contractor shall prepare a traffic control plan to address temporary traffic control for each construction site in public roadways. Any transportation of heavy construction equipment and/or materials that requires the use of oversized transport vehicles on State Highways will need a Caltrans transportation permit. 1-2

Caltrans advises that the Project limit construction traffic to off-peak periods to minimize the potential impact on State facilities. If construction traffic is expected to cause issues on 1-3

any State facilities, please submit a construction traffic control plan detailing these issues for Caltrans' review. We look forward to the coordination of our efforts to ensure potential impacts to the highway facilities and traveling public are discussed and addressed before work begins.

1-3 cont.

If you have any questions, please contact project coordinator Frances Duong, at frances.duong@dot.ca.gov and refer to GTS #07-LA-2024-04555.

Sincerely,

Anthony Higgins

Anthony Higgins
Acting LDR Branch Chief

Cc: State Clearinghouse

Response to Comment Letter 1

COMMENTER: Anthony Higgins, Acting LDR Branch Chief, California Department of Transportation

DATE: June 21, 2024

Response 1-1

The commenter provides an introduction to the comment letter and provides a summary of the proposed Project. This comment is noted.

Response 1-2

The commenter acknowledges that Metropolitan has stated in the Initial Study that a traffic control plan would be prepared to address temporary traffic control on local roadways and states that any transportation of heavy construction equipment or use of oversized transport vehicles on State Highways will require a Caltrans transportation permit

This comment is noted and Metropolitan or its Contractor will obtain a obtain a Traffic Control Plan and/or Caltrans transportation permit, if necessary, should transport of heavy equipment or use of oversized transport vehicles be required on State Highways.

Response 1-3

The commenter advises that the Project limit construction traffic to off-peak periods and if traffic is expected to cause issues on any State facilities, that a construction traffic control plan be submitted for Caltrans' review.

This comment is noted and Metropolitan or its Contractor will attempt to limit construction traffic to off-peak periods, if feasible, and will obtain a Traffic Control Plan, if necessary, as specified on Page 3-42 of the Initial Study-Mitigated Negative Declaration and in Appendix A (Metropolitan Standard Practices).

West Valley Feeder No. 1
Stage 3 Improvements Project

Mitigation Monitoring and Reporting Program

The Metropolitan Water District of Southern California
700 North Alameda Street
Los Angeles, CA 90012

Report No. 1582

July 2024

Mitigation Monitoring and Reporting Program

The Mitigation Monitoring and Reporting Program (MMRP) for the proposed West Valley Feeder No. 1 Stage 3 Improvements Project (proposed Project) has been prepared in accordance with Public Resources Code Section 21081.6 and *State CEQA Guidelines* Section 15074(d). Metropolitan will use this MMRP to track compliance with the required Project mitigation measures.

Metropolitan's Board of Directors will consider the MMRP during the adoption hearing for the Initial Study-Mitigated Negative Declaration (IS-MND). The MMRP will incorporate all mitigation measures adopted for the proposed Project.

This MMRP summarizes mitigation commitments identified in the IS-MND. Table 1 provides the MMRP, which includes all mitigation measures, monitoring process, and monitoring timing. Metropolitan is the agency responsible for ensuring implementation of all mitigation measures. Impacts and mitigation measures are presented in the same order as in the IS-MND. The columns in the table provide the following information:

- **Mitigation Measure:** This column indicates the action(s) that will be taken to reduce the impact to a less-than-significant level.
- **Responsible Party:** This column indicates the party who must ensure each mitigation measure is implemented and that monitoring and reporting activities occur.
- **Timing of Implementation:** This column indicates the general schedule for conducting each monitoring task, either during the design phase, prior to construction, during construction, and/or after construction.
- **Implementation Party:** This column lists the party responsible for implementing the mitigation measure.

Table 1 Mitigation Monitoring and Reporting Program

Mitigation Measure	Responsible Party	Timing of Implementation	Implementation Party	Comments	Initials/Date
Biological Resources					
BIO-1 Rare Plant Survey					
If more than three years have elapsed since the Project rare plant survey was conducted, Metropolitan shall conduct a rare plant survey to confirm presence or absence of rare plant species. Surveys would be conducted to confirm presence or absence within the proposed Project's disturbance areas previously determined to have the potential to support special status plant species. Surveys will be conducted in accordance with Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities (CDFW 2018) and will occur during the appropriate time of year.	Metropolitan	Implement prior to start of construction	Metropolitan, Qualified biologist		
BIO-2 Wildlife Focused Surveys					
If more than three years have elapsed since the Project focused protocol wildlife surveys for potentially occurring listed species, the least Bell's vireo and California gnatcatcher, Metropolitan shall conduct focused protocol surveys to ensure that the Project avoids impacts to these species. All surveys would be conducted to confirm absence within proposed Project disturbance areas that may support these species. Surveys would be conducted in accordance with the approved CDFW or USFWS protocol guidelines for each species. Additional surveys for the California red-legged frog would be unwarranted based on the determination of lack of potentially suitable habitat within the Project Area following initial focused protocol surveys.	Metropolitan	Implement prior to construction	Metropolitan, Qualified biologist		

Mitigation Measure	Responsible Party	Timing of Implementation	Implementation Party	Comments	Initials/Date
BIO-3 Special-status Species Avoidance					
Should special-status plants or wildlife be identified during BIO-1 or BIO-2, Metropolitan shall develop and implement appropriate monitoring and avoidance measures. Measures may include but are not limited to: ■ Installation of Environmentally Sensitive Area/avoidance fencing. ■ Flagging or fencing of any special-status species burrows or nests by a monitoring biologist to ensure avoidance. ■ Monitoring by a biologist during all initial ground disturbing activities and vegetation removal. Once initial ground disturbing activities and vegetation removal activities have been completed, the biologist shall conduct daily pre-activity clearance surveys, as necessary. ■ If at any time during Project activities a special-status species enters the Project Area or otherwise may be impacted by the Project, all activities at the site where the find occurred shall cease. At that point, a monitoring biologist shall recommend an appropriate course of action to avoid, relocate or otherwise protect the species such that construction may proceed without harming the species.	Metropolitan	Implement prior to and during construction	Metropolitan, Qualified biologist		
BIO-4 Demarcation of Disturbance Limits					
To avoid impacts on biological resources adjacent to the Project Area, the designated Project disturbance limits shall be visibly marked in the field to ensure that no inadvertent impacts occur outside the approved disturbance limits.	Metropolitan	Implement prior to start of construction	Metropolitan, Qualified biologist		
BIO-5 Special-status Species On and Off-site Compensation					
Compensation for Impacts to Special-Status Species. If the Project Area is determined to be occupied by a special-status species prior to start of construction, and cannot be avoided, direct temporary and/or permanent impacts to suitable habitat for federally or State-listed species within the proposed Project Area	Metropolitan	Implement prior to, during, and post-construction	Metropolitan, Qualified biologist		

Mitigation Measure	Responsible Party	Timing of Implementation	Implementation Party	Comments	Initials/Date
shall be mitigated through on-site or off-site measures. Mitigation for temporary and permanent impacts to listed species habitat shall consider, and may overlap with, mitigation for impacts to jurisdictional waters and wetlands (BIO-6). Temporary Impacts. Mitigation for direct temporary impacts to suitable habitat for federally or State-listed species shall be implemented through on-site rehabilitation at a 1:1 mitigation ratio. Areas temporarily impacted shall be returned to similar conditions to those that existed prior to grading and/or ground-disturbing activities. Proposed rehabilitation of impact areas may include, at a minimum, a feasible implementation structure, salvage/seeding details, invasive species eradication methods, a monitoring schedule, performance standards of success, estimated costs, and identification of responsible entities. Permanent Impacts. Metropolitan shall fund a mitigation bank or in-lieu fee program to compensate for all permanent loss of suitable habitat for federally or State-listed species, if available, at a 1:1 ratio. Direct impacts to federally listed species' occupied habitat shall be addressed through either the Section 7 or Section 10(a)(1)(B) process under the federal Endangered Species Act (ESA) of 1973, as amended. Direct impacts to state-listed species shall be addressed through the California Fish and Game Code Section 2081(b) incidental take permit process. Metropolitan would comply with any additional measures (e.g. avoidance, conservation, etc.) incorporated into any permits or authorizations issued by the regulatory agencies with jurisdiction over these resources beyond what is being proposed under this CEQA analysis to reduce the impact to less than significant.					

Mitigation Measure	Responsible Party	Timing of Implementation	Implementation Party	Comments	Initials/Date
BIO-6 Jurisdictional Waters On and Off-site Compensation					
Compensation for Impacts to Jurisdictional Wetlands and Waters, inclusive of jurisdictional riparian habitat. Mitigation for temporary and permanent impacts to jurisdictional wetlands and waters shall consider and overlap with mitigation for impacts to special-status species habitat (BIO-5) where feasible. Metropolitan would comply with any additional measures (e.g. avoidance, conservation, etc.) incorporated into any permits or authorizations issued by the regulatory agencies with jurisdiction over these resources. Temporary Impacts. Mitigation for direct temporary impacts to jurisdictional wetlands and waters resulting from the Project shall be implemented through on-site restoration. Areas temporarily impacted shall be returned to conditions similar to those that existed prior to grading and/or ground-disturbing activities. For impacted vegetated jurisdictional wetlands and waters, the proposed rehabilitation of impact areas may include, at a minimum, a feasible implementation structure, salvage/seeding details, invasive species eradication methods, a monitoring schedule, performance standards of success, estimated costs, and identification of responsible entities. Permanent Impacts. Mitigation for permanent impacts to jurisdictional wetlands and waters resulting from the Project shall be implemented at a minimum 1:1 mitigation ratio through purchase of credits through an agency-approved mitigation bank, in-lieu fee program, or other agreement.	Metropolitan	Implement prior to, during, and post-construction	Metropolitan, Qualified biologist		
Cultural Resources					
CUL-1 Retain Qualified Archaeologist					
Prior to the initiation of construction, a qualified archaeologist who meets the Secretary of the Interior's Professional Qualifications Standards for Archaeology (National Park Service 1983) shall be retained.	Metropolitan	Implement prior to start of construction	Metropolitan		

Mitigation Measure	Responsible Party	Timing of Implementation	Implementation Party	Comments	Initials/Date
CUL-2 Retain Gabrieleño Band of Mission Indians-Kizh Nation Monitor					
Metropolitan will coordinate with the Gabrieleño Band of Mission Indians-Kizh Nation to retain a Native American monitor with ancestral ties to the Project area (Native American Tribal Monitor), as needed to protect cultural resources.	Metropolitan	Implement prior to start of construction	Metropolitan, Tribal Representative		
CUL-3 Archaeological Monitoring					
The archaeologist and Native American Tribal Monitor shall monitor construction-related ground-disturbing activities associated with valve relocation areas and new access road construction. Monitoring for excavation work associated with valve relocations will be on a spot-check basis (as these areas have been previously disturbed), and full-time for excavation activities associated with the proposed new access road construction. The archaeological monitor and Native American Tribal Monitor shall complete monitoring logs that describe the work and details regarding resources encountered during the ground-disturbing activities.	Metropolitan	Implement during construction	Metropolitan, Qualified Archaeologist, Tribal Monitor		
CUL-4 Archaeological Resource Treatment and Evaluation					
If archaeological resources are identified during Project-related activities, Metropolitan and/or its contractors shall cease all activity within 50 feet of the find until the archaeologist and Native American Tribal Monitor can evaluate the find. If necessary, the evaluation may require preparation of a treatment plan and determination of California Register of Historical Resources eligibility. If the discovery proves to be significant under CEQA and cannot be avoided by the Project, additional work, such as data recovery excavation, reporting, curation, or reburial, may be warranted, thereby reducing the impact to a less than significant level. Any data recovery plans will be developed in consultation with the Gabrieleno Band of Mission Indians-Kizh Nation.	Metropolitan	Implement during construction	Metropolitan, Qualified Archaeologist, Tribal Monitor		

Mitigation Measure	Responsible Party	Timing of Implementation	Implementation Party	Comments	Initials/Date
Geology and Soils					
GEO-1 Retain Qualified Paleontologist					
Prior to the initiation of construction-related ground disturbing activities, Metropolitan shall retain the services of a qualified paleontologist to monitor excavation activities within the Chatsworth Formation.	Metropolitan	Implement prior to start of construction	Metropolitan		
GEO-2 Prepare Paleontological Resources Mitigation Plan					
The qualified paleontologist shall prepare a Paleontological Resources Mitigation Plan. The mitigation plan will specify the level of monitoring to be implemented, if any, when earthmoving activities are occurring in the Chatsworth Formation. The mitigation plan will also provide criteria for determining when and to what extent monitoring will be reduced if too few or no fossil remains are recovered as a result of monitoring. The mitigation plan will also include procedures for fossil recovery and curation, and identify potential museum repositories.	Metropolitan	Implement prior to start of construction	Metropolitan, Qualified Paleontologist		
GEO-3 Paleontological Resources Recovery					
As soon as practicable and if necessary, the paleontological monitor will recover all larger vertebrate fossil specimens, a representative sample of any invertebrate or plant specimens, and any fine-grained rock or sediment sample that can be recovered easily. If unique paleontological resources are recovered as a result of monitoring, the paleontologist will assist Metropolitan in developing a formal curation agreement with a recognized museum repository. Paleontological monitoring and fossil/sample recovery shall follow the procedures outlined in the Paleontological Resources Mitigation Plan.	Metropolitan	Implement during construction	Metropolitan, Qualified Paleontologist		
GEO-4 Paleontological Curation					
All unique fossil remains recovered from the Project Area as a result of the mitigation program will be treated (prepared, identified, curated, cataloged) in accordance with designated museum repository requirements.	Metropolitan	Implement during construction and post-construction	Metropolitan, Qualified Paleontologist		

Engineering, Operations, & Technology Committee

Adopt Mitigated Negative Declaration for West Valley Feeder No. 1 Stage 3 Improvements Project

Item 7-2

September 9, 2024

Item 7-2
West Valley Feeder No. 1 Stage 3 Improvements MND

Subject

Adopt the Mitigated Negative Declaration for the West Valley Feeder No. 1 Stage 3 Improvements Project and take related CEQA actions

Purpose

Adoption of the CEQA determination will allow for environmental permitting actions and easement acquisition associated with the West Valley Feeder No. 1 Stage 3 Improvements Project

Recommendation and Fiscal Impact

Adopt the Mitigated Negative Declaration (MND) and take related CEQA actions

No Fiscal Impact

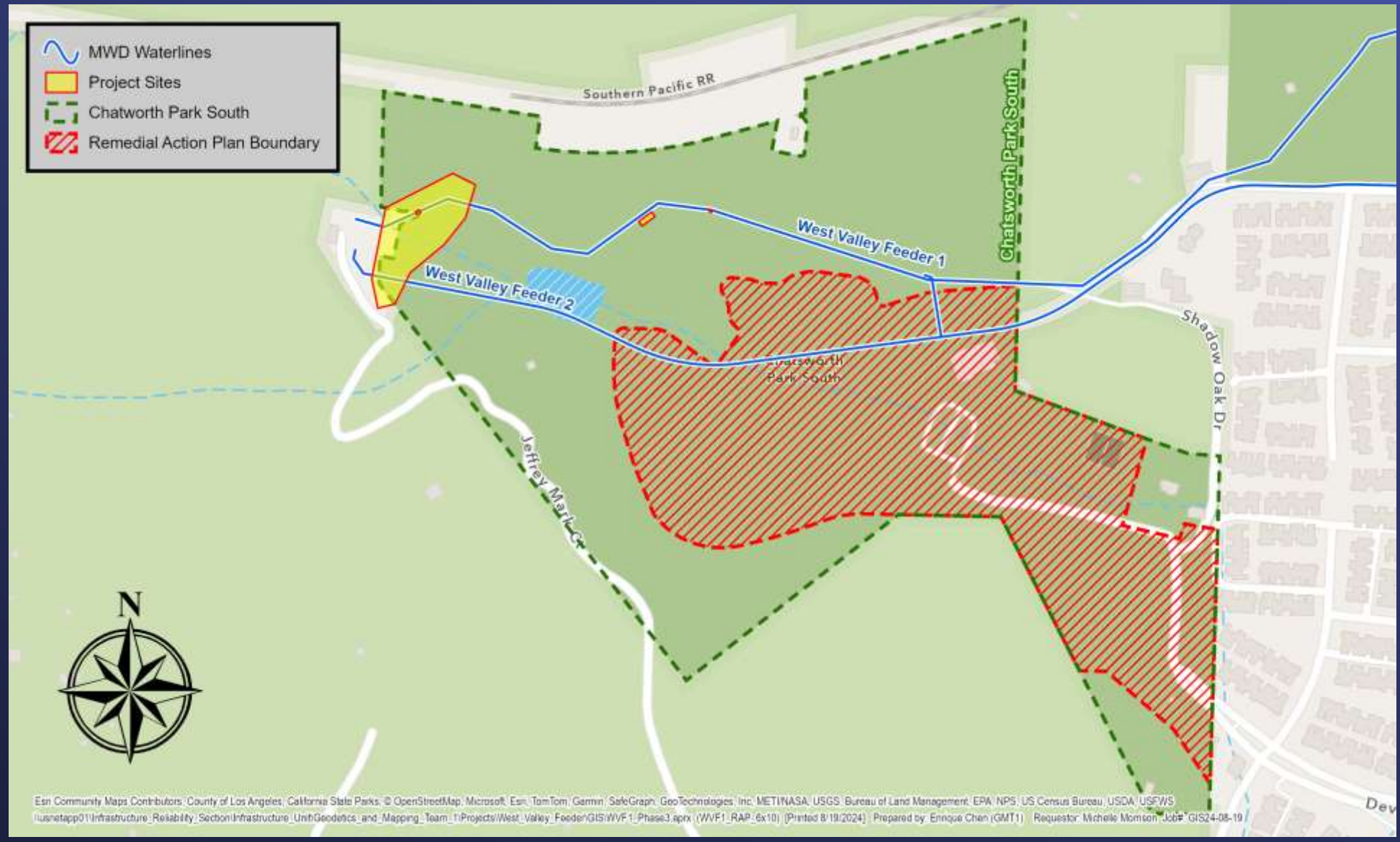
Budgeted

Location Map

Background

- Feeder's blowoff valves, air release/vacuum valves, & sectionalizing valve are deteriorating
- Work was prioritized and divided in three stages
  - Stage 1 – addressed 42 structures; completed in 2006
  - Stage 2 – addressed 14 structures; completed in 2012
  - Stage 3 – addresses three structures
    - Deferred due to lead remediation
    - Site fully remediated by City of LA in 2017
    - Design is ongoing
      - Requires approval of environmental documentation to advertise & award contract

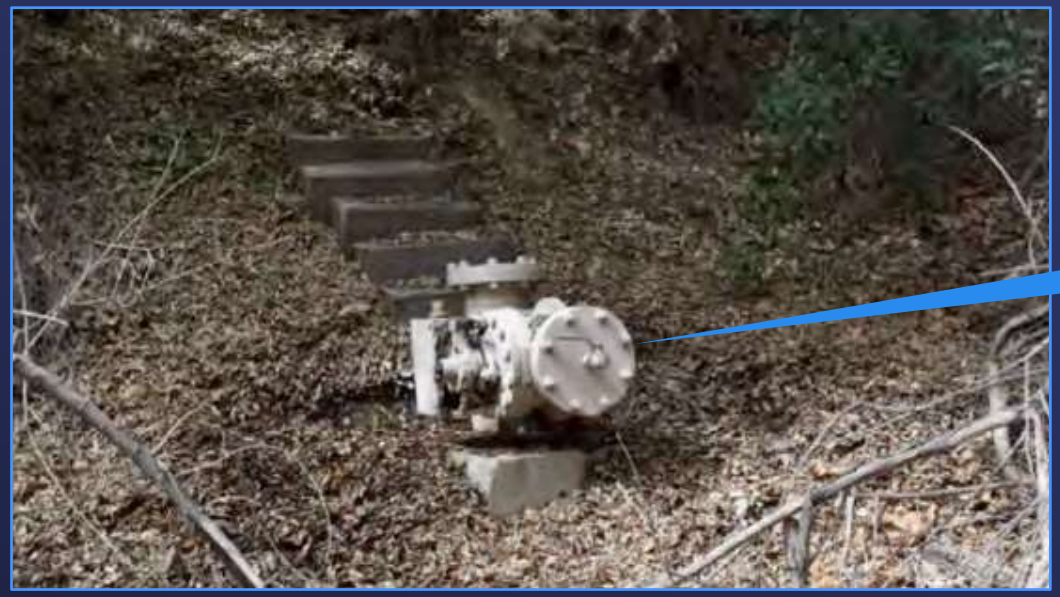
Project Area Map



West Valley Feeder No. 1 Stage 3 Improvements MND

Project Scope of Work

- Add new vaults at three locations
- Replace existing deteriorated valves
- Install new enclosures for air release/vacuum valves
- Construct new access road
- Install protective bollards at structures



Adopt Mitigated Negative Declaration

West Valley Feeder No. 1 Stage 3 Improvements MND

- Three potentially significant impact categories
  - Biological resources
  - Cultural resources
  - Paleontological resources
- All impacts less than significant with mitigation

Board Options

- Option #1

  Adopt the Mitigated Negative Declaration for the West Valley Feeder No. 1 Stage 3 Improvements Project and take related CEQA actions.

- Option #2

  Do not adopt the Mitigated Negative Declaration at this time.

Staff Recommendation

- Option #1


THE METROPOLITAN WATER DISTRICT OF
SOUTHERN CALIFORNIA
1928

- **Board of Directors**
  Engineering, Operations, and Technology Committee

9/10/2024 Board Meeting

7-3

Subject

Award a $1,285,000 contract to Resource Environmental Incorporated for abatement and roof replacement of houses at four Colorado River Aqueduct Pumping Plant villages; the General Manager has determined that the proposed action is exempt or otherwise not subject to CEQA

Executive Summary

Metropolitan maintains employee housing, kitchens, and short-term lodging facilities at the Colorado River Aqueduct (CRA) pumping plant villages. These facilities have exceeded their design life, are showing signs of deterioration, and require replacement. Metropolitan has initiated an improvement program for the CRA pumping plant villages. It is currently in the process of completing a community planning effort to identify a recommended approach for long-term employee housing at the pump plant villages. In the interim, and to ensure the current housing provides clean and safe living conditions at the CRA villages, a Desert Housing and Recreation Interim Action Plan (DHRIAP) was initiated that focuses on making various near-term improvements in the four villages in parallel to the ongoing long-term efforts. As part of the DHRIAP, 14 houses have been identified that require roof replacement and hazardous materials abatement.

This action awards a $1,285,000 construction contract to Resource Environmental Incorporated for abatement, roof replacement of 14 houses located at four CRA pumping plant villages, and demolition of eight houses that are beyond their expected useful life and have been deemed surplus. See **Attachment 1** for the Allocation of Funds, **Attachment 2** for the Abstract of Bids, **Attachment 3** for the Subcontractors for Low Bidder, and **Attachment 4** for the Location Map.

Proposed Action(s)/Recommendation(s) and Options

Staff Recommendation: Option #1

Option #1

Award a $1,285,000 contract to Resource Environmental Incorporated for abatement and roof replacement on houses at four Colorado River Aqueduct Pumping Plant villages.

Fiscal Impact: Expenditure of $1,105,000 in capital funds and $615,000 in operations and maintenance (O&M) funds. All costs will be incurred in the current biennium and have been previously authorized.
Business Analysis: This option will preserve Metropolitan assets and maintain an appropriate standard of living for staff stationed at Metropolitan's desert facilities.

Option #2

Do not proceed with the project at this time.
Fiscal Impact: None
Business Analysis: This option would forgo an opportunity to preserve Metropolitan assets at the desert facilities.

Alternatives Considered

Alternatives considered for completing roof replacement and housing demolition included deferring the work until the Desert Housing and Recreation Improvement Project is completed. However, deferring this work will not address the immediate repairs that were identified in the District Housing and Recreation Interim Action Plan Improvements.

Applicable Policy

Metropolitan Water District Administrative Code Section 8121: General Authority of the General Manager to Enter Contracts

Metropolitan Water District Administrative Code Section 11104: Delegation of Responsibilities

Related Board Action(s)/Future Action(s)

By Minute Item 52179, dated November 10, 2020, the Board authorized preparation of conceptual master plan and to conduct property assessments for District housing.

By Minute Item 52381, dated May 11, 2021, the Board authorized two new agreements for environmental documentation and geotechnical services in support of the District Housing and Property Improvements.

By Minute Item 52448, dated July 13, 2021, the Board authorized an increase to an agreement with Roesling Nakamura Terada Architects for preliminary design and architectural services in support of the District Housing and Property Improvements.

By Minute Item 52790, dated April 12, 2022, the Board appropriated a total of $600 million for projects identified in the Capital Investment Plan for Fiscal Years 2022/23 and 2023/24.

California Environmental Quality Act (CEQA)

CEQA determination for Option #1:

The proposed action is exempt from CEQA because it involves the operation, repair, maintenance, or minor alteration of existing public structures, facilities, or mechanical equipment involving negligible or no expansion of existing or former use and no possibility of significantly impacting the physical environment. In addition, the proposed action is exempt from CEQA because it consists of replacement or reconstruction of existing structures and facilities where the new structure will be located on the same site as the structure replaced and will have substantially the same purpose and capacity as the structure replaced. (State CEQA Guidelines Sections 15301 and 15302).

CEQA determination for Option #2:

None required

Details and Background

Background

The CRA is a 242-mile-long conveyance system that transports water from the Colorado River to Lake Mathews in Riverside County. The CRA includes five pumping plants that are in remote, isolated areas of the California desert. The aqueduct system was constructed in the late 1930s and was placed into service in 1941. Since the CRA's inception, Metropolitan has provided lodging or housing to employees involved in the construction, operation, and maintenance of the aqueduct system. Due to the remoteness of the pumping plants, the provision of housing ensures that staff can respond to emergency events in a timely manner.

Houses, kitchens, and short-term lodging were initially constructed at the CRA pumping plants in the early 1940s. The expansion of the CRA's capacity in the 1950s led to the construction of additional houses. Metropolitan has performed routine maintenance on each of these facilities since they were built, but following decades of continuous use and exposure to the harsh desert environment, the houses have deteriorated and need replacement.

Replacement of these houses, coupled with the development of multiple enhancement features across Metropolitan's CRA pumping plants villages, will provide for employee retention, create an attraction for future employees, and help create a vibrant, healthy, and sustainable community. In 2023, Metropolitan's Board authorized a community planning effort that focuses on providing the most optimized options suited to achieve long-term retention goals.

In the interim, to ensure the current housing is clean and safe for the residents while the longer-term efforts are underway, a Housing and Recreation Committee was established in September 2022 consisting of representatives from the Office of the General Manager, Facilities Management, Diversity, Equity and Inclusion, and Water System Operations. After meeting with residents and gathering feedback on immediate housing and recreational needs, the committee created DHRIP. This plan focuses on implementing short-term enhancements to improve living conditions at the desert facilities. Improvements include (1) shade structures for parked vehicles and playgrounds; (2) fencing at homes to improve privacy; (3) installation of air conditioning units for garages; (4) stand-alone freezers for houses to store food for the residents and their families; (5) housing improvements such as roof replacement, kitchen, and bathroom remodeling; and (6) housing demolition. To date, the DHRIAP has identified 36 projects, and 60 percent of the projects have been completed. The remaining are anticipated to be completed by May 2025. The total cost of these improvements is estimated to be $10,000,000.

As part of the ongoing short-term housing improvements, staff identified 14 houses at the four CRA villages that require roof replacement and associated hazardous materials abatement. These houses are located at Gene Pump Plant (4), Iron Mtn. Pump Plant (3), Eagle Mtn. Pump Plant (6), and Hinds Pump Plant (1). In addition, eight houses that are significantly deteriorated and deemed surplus have been identified for demolition. These houses are located at Gene Pump Plant (7) and Iron Mtn. Pump Plant. Demolition of these houses and abatement of hazardous materials will be paid for with budgeted O&M funds. Staff recommends moving forward with the roof replacements, hazardous materials abatement, and demolition of the houses.

CRA Employee Housing Demolition and Roof Replacement – Construction

The scope of the contract includes: (1) roof replacement for 14 houses at four pump plants and associated hazardous materials abatement containing asbestos and lead; (3) abatement and demolition of eight houses at two pump plants and associated concrete slab removal and abandonment of utilities.

A total of $1,720,000 is required for this work. In addition to the amount of the contract described below, other allocated funds include: $159,00 for construction management and inspection; $186,000 for project management, site support, and contract administration; and $90,000 for the remaining budget. **Attachment 1** provides the allocation of the required funds.

Award of Construction Contract (Resource Environmental Incorporated)

Specification No. 2086 for CRA Employee Housing Roof Replacement and Abatement was advertised on May 3, 2024. As shown in **Attachment 2**, eight bids were received and opened on July 2, 2024. The low bid from Resource Environmental Incorporated in the amount of $1,285,000 complies with the requirements of the specifications. The other bid ranged between $1,782,390 to $3,999,478, while the engineer's estimate for this project was approximately $2,880,000. For this contract, Metropolitan established a Small Business Enterprise participation level of at least 25 percent of the bid amount. Resource Environmental Incorporated has agreed to meet this level of participation. The subcontractors for this contract are listed in **Attachment 3**.

This action awards a $1,285,000 contract to Resource Environmental Incorporated for abatement and roof replacement of 14 houses at four Colorado River Aqueduct Pumping Plant villages. As described above, Metropolitan staff will perform construction management and inspection. Engineering Services' performance metric target range for construction management and inspection of projects with construction less than $3 million is 9 to 15 percent. For this project, the performance metric goal for inspection is 12.4 percent of the total construction cost ($1,285,000).

Project Milestone

May 2025 – Completion of construction

8/21/2024
Keith Nobriga *Date*
Group Manager
Integrated Operations, Planning, and
Support Services

8/23/2024
Deven Upadhyay *Date*
Interim General Manager

Attachment 1 – Allocation of Funds

Attachment 2 – Abstract of Bids

Attachment 3 – Subcontractors for Low Bidder

Attachment 4 – Location Map

Ref# wso12702099

Allocation of Funds for CRA Housing Demolition and Roof Replacement

	Current Board Action (Sept. 2024)
Labor	
Studies & Investigations	$ -
Final Design	-
Owner Costs (Program mgmt., envir. monitoring)	186,000
Submittals Review & Record Drwgs.	4,000
Construction Inspection & Support	155,000
Metropolitan Force Construction	
Materials & Supplies	-
Incidental Expenses	-
Professional/Technical Services	-
Right-of-Way	-
Equipment Use	-
Contracts	-
Resource Environmental Incorporated	1,285,000
Remaining Budget	90,000
Total	**$ 1,720,000**

The total amount expended to date for the Desert Housing and Recreation Interim Action Plan is approximately $4.6 million. The total estimated cost to complete the CRA housing roofing and demolition, including the amount appropriated to date, funds allocated for the work described in this action, and future construction costs, is $10 million.

The Metropolitan Water District of Southern California

Abstract of Bids Received on July 2, 2024, at 2:00 P.M.

Specifications No. 2064
Colorado River Aqueduct Employee Housing Demolition and Roof Replacement

The work includes abatement, roof replacement of fourteen houses located at four CRA Pumping Plant Villages, and demolition of eight houses that are beyond their expected useful life and have been deemed surplus.

Engineer's estimate: $2,880,000

Bidder and Location	Total	SBE $	SBE %	Met SBE[1]
Resource Environmental Incorporated Cerritos, CA	**$1,285,000**	**$321,250**	**25%**	**Yes**
Shipley Construction and Plumbing Yucca Valley, CA	$1,782,390	-	-	-
Environmental Construction Group Incorporated Signal Hill, CA	$1,976,400	-	-	-
Wakeco Incorporated Temecula, CA	$2,196,000	-	-	-
Spectrum Builders and Renovations Incorporated Sacramento, CA	$2,277,904	-	-	-
AME Builders Incorporated Pomona, CA	$2,602,500	-	-	-
Knight Commerical Services – CA LLC Addison, TX	$2,691,458	-	-	-
Rite-Way Roof Corporation Fontana, CA	$3,999,748	-	-	-

[1] Small Business Enterprise (SBE) participation level established at 25% for this contract.

The Metropolitan Water District of Southern California

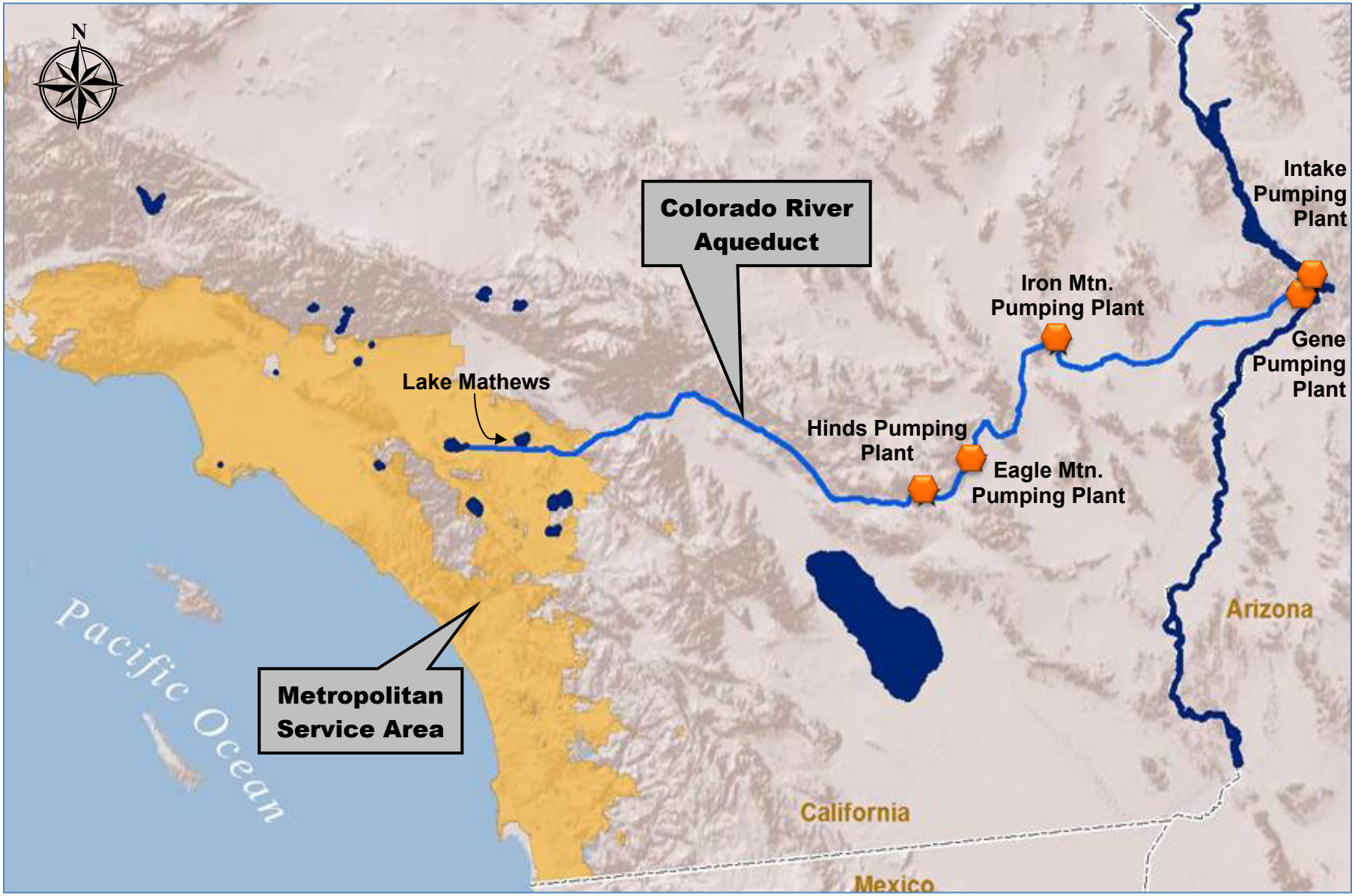
Subcontractors for Low Bidder

Specifications No. 2064
CRA Employee Housing Demolition and Roof Replacement

Low bidder: Resource Environmental Incorporated

Subcontractor	Service Category; Specialty
Billmans Cool Roofing Company Stockton, CA	Roofing

Location Map



Engineering, Operations, & Technology Committee

Colorado River Aqueduct Housing Abatement and Roof Replacement

Item 7-3

September 9, 2024

Item 7-3

Colorado River Aqueduct Housing Abatement and Roof Replacement

Subject

Award a $1,285,000 contract to Resource Environmental Incorporated for abatement and roof replacement of houses at four Colorado River Aqueduct Pumping Plant villages

Purpose

This action supports the Desert Housing and Recreation Interim Action Plan and includes abatement, roof replacement of 14 houses, and demolition of 8 houses that are beyond their expected useful life

Recommendation and Fiscal Impact

Award a construction contract to perform Colorado River Aqueduct housing improvements

Fiscal Impact of $1,720,000

Budgeted

Location Map

Background

Colorado River Aqueduct Housing & Facility Improvements

Iron Mtn. Lodge & Kitchen

Committed to Supporting Desert Staff

- Housing provided due to remoteness & timely response
- Houses aging after decades of use in the harsh desert environment
- Two efforts to improve housing are underway
  - Community Planning
  - Desert Housing & Recreation Interim Action Plan

Community Planning

Long-term

Housing &
Facility Solutions

- Identify long-term housing options
- Identify long-term kitchen & lodging facilities
- June 2024 - Community Planning Study submitted to Board
- October 2024 - Concurrence
- November 2024 - Board Action

Desert Housing & Recreation Interim Action Plan

Near-term

Urgent improvements began September 2022

Resident Feedback Session

- Recreation Improvements
  - Wellness & Community Center
  - Archery ranges
  - Community garden
- Housing Improvements
  - Refurbishments
  - Carports & shade structures
  - Fencing (future board action)
  - Roofing
  - Demolition of surplus houses
- 22 of 36 projects are complete
- **Today's action**: Roof replacements & demolition of surplus houses

Desert Housing & Recreation Interim Action Plan

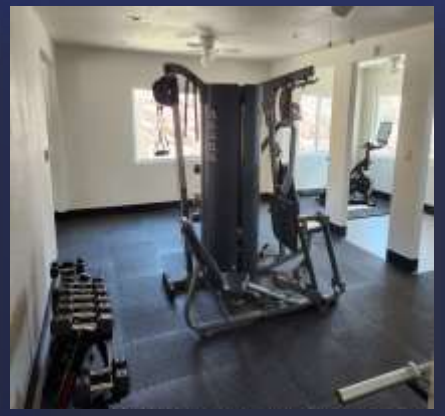
Work Completed

Near-Term Improvements Began September 2022

Resurfaced Sports Courts

Archery Range w/Shade Structures

Map Boards



Wellness Center

Carports

Backyard Shade

Desert Housing & Recreation Interim Action Plan

Current Action: Project Scope of Work

Abatement & roof replacement for 14 houses at four residential villages (CIP)

Abatement & demolition of eight houses deemed surplus (O&M)

Colorado River Aqueduct Housing Abatement & Roof Replacement

Scope of Work

- Contractor
  - Environmental Abatement & Clearance
  - Roof Replacement
  - Demolition Services
- Metropolitan
  - Resident Notification
  - Submittal Review
  - Construction Management
  - Secure Utilities
  - Remove Foundations

Bid Results

Specifications No. 2086

Bids Received	July 2, 2024
No. of Bidders	8
Lowest Responsible Bidder	Environmental Resource Incorporated
Low Bid	$1,285,000
Other Bids	$1.7M to $3.9M
Engineer’s Estimate	$2.8M
SBE Participation	100%

*SBE (Small Business Enterprise) participation level set at 25%

Allocation of Funds

Colorado River Aqueduct Housing Abatement and Roof Replacement

Metropolitan Labor		
Owner costs (Proj. Mgmt., Contract Admin., Envir. Support)	$	185,000
Construction Inspection & Support		155,000
Submittal Review & Tech Support		4,000
Contracts		
Environmental Resource Incorporated		1,285,000
Remaining Budget		90,000
Total	$	1,720,000 *

* Includes $615,000 in O&M Funds for demolition of houses

Project Schedule

Board Options

- Option #1
  - Award a $1,285,000 contract to Resource Environmental Incorporated for abatement & roof replacement of houses at four Colorado River Aqueduct Pumping Plant villages.
- Option #2
  - Do not proceed with the contract at this time.

Staff Recommendation

- Option #1


THE METROPOLITAN WATER DISTRICT OF
SOUTHERN CALIFORNIA
1928

- **Board of Directors**
  One Water and Stewardship Committee

9/10/2024 Board Meeting

7-4

Subject

Authorize the General Manager to enter into agreements with the Plumas Community Protection I Forest Resilience Bond LLC, North Feather I Forest Resilience Bond LLC, and Upper Butte Creek I Forest Resilience Bond LLC to establish watershed partnerships and forest health pilot investigations in the Northern Sierra Nevada; each agreement is not to exceed $200,000 per year for a maximum of two years; the General Manager has determined that the proposed action is exempt or otherwise not subject to CEQA

Executive Summary

Staff is seeking authorization to enter into agreements with Upper Butte Creek I Forest Resilience Bond (FRB) LLC, North Feather I FRB LLC and Plumas Community Protection I FRB LLC in amounts not to exceed $200,000 per year each for a maximum of two years. These agreements would be funded from the approved FY 2024/25-FY 2025/26 Bay-Delta Initiatives Grant/Donation budget.

Staff has been exploring upper Bay-Delta watershed partnerships in support of Metropolitan's One Water approach and Bay-Delta Policies to improve water supply resiliency in the face of climate change. Supplies from the Bay-Delta watershed are integral to implementing Metropolitan's water supply portfolio and Metropolitan's One Water approach. Impacts of climate change include changes in hydrology (wetter and drier periods than experienced historically) and wildfire risk threatening water supply reliability and water quality that Metropolitan relies upon. Investments in watershed health in the Bay-Delta watershed could help to protect or enhance, inform, and improve water source resilience for the State Water Project, along with other source supplies from the Bay-Delta watershed that Metropolitan relies upon, such as critical dry year supplemental supplies (e.g., Yuba Accord transfer water).

Consistent with the Board's adopted Bay-Delta Policies, staff has advanced efforts to participate in three distinct and complimentary watershed partnerships to assess the potential water supply and water quality benefits of various watershed management techniques (pilot investigations). The proposed partnerships support pilot investigations facilitated by Blue Forest, a 501(c)(3) nonprofit and developer of the FRB conservation finance model. Metropolitan would enter into agreements with LLCs which are subsidiaries of Blue Forest and were developed to finance portions of larger watershed programs and projects being led by the United States Department of Agriculture (USDA) Forest Service. The primary purpose of the proposed programs and projects led by the USDA Forest Service is to reduce the risk of wildfire impacts to communities and critical infrastructure (including State Water Project infrastructure).

Metropolitan staff and Blue Forest have identified a suite of potential water supply and water quality benefits that could accrue once the programs and projects have been implemented. Metropolitan's investment at this time would ensure that the programs and projects, subject to the agreements, would be implemented such that the potential water supply and water quality benefits would be assessed and reported. Evaluating the potential water supply and water quality benefits of watershed health treatments over the next two years would provide valuable information to guide: Metropolitan's future policies, potential and existing investments related to the State Water Project or supplemental water supplies, and future legislative and regulatory development by state and federal

administrations and agencies. Other funding partners are specific to each LLC and are listed below. Blue Forest has successfully implemented similar watershed partnerships in the upper Yuba and Mokelumne watersheds in the past.

- Upper Butte Creek I FRB LLC - up to $200,000 per year in FY 2024/25 and FY 2025/26
- North Feather I FRB LLC - up to $200,000 per year in FY 2024/25 and FY 2025/26
- Plumas Community Protection I FRB LLC – up to $200,000 per year in fiscal year (FY) 2024/25 and FY 2025/26

The key deliverable for each agreement will be an Annual Impact Report. These reports will summarize pilot investigation outcomes, including those associated with water supply and other key information. In addition, these pilot investigations will create opportunities for additional science, foster collaborative relationships in the upper watersheds, and establish a methodology for valuing ecosystem services to help inform Metropolitan's potential future participation in upper watershed health initiatives to help inform Metropolitan's future policies, potential and existing investments related to the State Water Project or supplemental water supplies, future legislative and regulatory development by state and federal administrations and agencies.

Proposed Action(s)/Recommendation(s) and Options

Staff Recommendation: Option #1

Option #1

Authorize the General Manager to enter into agreements with the Plumas Community Protection I Forest Resilience Bond LLC, North Feather I Forest Resilience Bond LLC, and Upper Butte Creek I Forest Resilience Bond LLC to establish watershed partnerships and forest health pilot investigations in the Northern Sierra Nevada, each agreement is not to exceed $200,000 per year for a maximum of two years.

Fiscal Impact: The total fiscal impact would be $1.2 million over the term of the biennial budget; $200,000 per year, per agreement, for two years. These funds were included in the approved FY 2024/25-FY 2025/26 Bay-Delta Initiatives Grant/Donation budget and therefore would not require a budget adjustment.
Business Analysis: These agreements would initiate pilot investigations into the potential benefits and value to Metropolitan of investments in Northern Sierra Nevada watershed health projects. In addition, these agreements would help strengthen relationships in the upper watersheds and advance the associated science.

Option #2

Do not authorize the General Manager to enter into agreements with the Plumas Community Protection I Forest Resilience Bond LLC, North Feather I Forest Resilience Bond LLC, and Upper Butte Creek I Forest Resilience Bond LLC at this time.
Fiscal Impact: Not approving these agreements would likely result in unspent funds that were included in the approved FY 2024/25-FY 2025/26 Bay-Delta Initiatives Grant/Donation budget.
Business Analysis: Under this option, Metropolitan would not initiate pilot investigations to evaluate the potential benefits of investments in Northern Sierra Nevada watershed health projects. This option would forego the opportunity to strengthen relationships in the upper watersheds and advance the associated science.

Applicable Policy

Metropolitan Water District Administrative Code Section 8121: General Authority of the General Manager to Enter Contracts

Metropolitan Water District Administrative Code Section 11104: Delegation of Responsibilities

Metropolitan Water District Administrative Code Section 8140: Competitive Procurement

By Minute Item 53012, dated October 11, 2022, the Board adopted the revision and restatement of Bay-Delta Policies.

Related Board Action(s)/Future Action(s)

None

California Environmental Quality Act (CEQA)

CEQA determination for Option #1:

The proposed action to enter into agreements is not defined as a project under CEQA because it involves organizational or administrative activities; government fiscal activities; and/or general policy and procedure making that will not result in direct or indirect physical changes in the environment. (Public Resources Code Section 21065; State CEQA Guidelines Section 15378(b)(2), (4) and (5)).

CEQA determination for Option #2:

None required

Details and Background

Background

Over the past few years, staff has been exploring upper watershed partnerships in support of Metropolitan's One Water approach and Bay-Delta Policies to improve water supply resiliency in the face of climate change. Staff has kept the Board apprised of developments related to watershed health and watershed partnerships. In September and October 2022, these concepts were discussed as part of the Revision and Restatement of Bay-Delta Policies process. In January 2023, Yuba Water Agency General Manager Willie Whittlesey presented on their North Yuba Forest Partnership Resilience Bond investments at One Water and Stewardship Committee (OWS Committee). And in March 2023, staff provided an update to the OWS Committee seeking direction from the Board to pursue pilot investigations in the Northern Sierra Nevada. The three proposed agreements funding pilot investigations, presented as an informational item to the OWS Committee in August 2024, represent a first step towards building better relationships in the upper watersheds, furthering science related to quantifying the benefits of forest management actions and valuing the potential benefits to Metropolitan of investments that promote improved forest health in the upper watersheds of the Bay-Delta.

Overview of Importance/Relevance of Watershed Health

State Water Project supplies and water transfers from the Bay-Delta watershed are integral to implementing Metropolitan's One Water approach. Such supplies are foundational to the One Water approach as they meet demands in Metropolitan's service area, help ensure drought resilience in conjunction with Metropolitan's storage portfolio and provide a high level of water quality that supports salinity management goals and the production of key local supply sources in the region. With much of the state's water supply originating in the mountains, the health and management of the upper watersheds are critically important to California's water quality and water supply.

Metropolitan's water supplies from the Bay-Delta watershed are already facing increasing pressures from the impacts of climate change, including reduced snowpack, increased drought severity and frequency, changing precipitation patterns, degradation of habitat and ecosystems, and sea level rise. In addition, wildfires in the Western United States are becoming more frequent, larger, and more severe due to a combination of climate change and overly dense forest conditions resulting from modern forest management and fire suppression practices. Over the last decade, major catastrophic wildfires including the Camp Fire (2018), North Complex Fire (2020), Dixie Fire (2021) and Beckwourth Complex Fire (2021) have burned more than 1.5 million acres of land in the Feather River Watershed, which is more than 65 percent of the watershed. Investments in watershed health in the Northern Sierra Nevada that reduce the risk of catastrophic wildfire may contribute to improved imported water source resilience for the State Water Project and sources of water transfers. Potential benefits of investments in upper watershed health include:

- Resilience to Climate Variability – Healthy forests are more resilient to climate extremes, such as droughts and heavy rains, ensuring more stable and reliable water supplies.
- Enhanced Water Supply – Forests regulate the flow of water by absorbing rainfall, reducing runoff, and increasing groundwater recharge. This helps maintain water supplies during dry periods.

- Improved Water Quality – Healthy forests filter pollutants, reduce sedimentation, and enhance water quality.
- Biodiversity and Ecosystem Services – Forests support diverse ecosystems that provide essential services, such as cold-water habitats for temperature-sensitive aquatic species.
- Carbon Sequestration – Forests act as carbon sinks, capturing CO2 from the atmosphere and helping to mitigate climate change impacts.
- Fire Risk Reduction - Healthy, well-managed forests are less susceptible to catastrophic wildfires, which can damage watersheds and infrastructure, leading to costly repairs and water contamination.

Metropolitan's Guiding Policies

The proposed watershed partnerships and associated pilot investigations support several elements of Metropolitan's Bay-Delta Policy Objectives and Framework that were adopted by the Board in October 2022, including:

- Promoting a sustainable Bay-Delta within Metropolitan's One Water approach.
- Addressing the risks associated with climate change.
- Protecting and restoring aquatic species and habitats based on best available science.
- Partnering in watershed-wide approaches to develop comprehensive solutions.
- Maintaining and pursuing cost-effective financial investments.
- Fostering broad and inclusive engagement of Delta interests and beneficiaries.
- Promoting innovative and multi-benefit initiatives.

Overview of Funding

Metropolitan has the opportunity to participate in three distinct and complimentary watershed partnerships. Funding would come from Bay-Delta Initiatives' Grant/Donation Expense funds, which were approved under the current biennial budget. This budget category is intended for cost-share contributions through collaborative partnerships with other agencies and academic institutions that pursue studies that are of interest to Metropolitan.

The proposed pilot investigations would be facilitated by Blue Forest, a 501(c)(3) nonprofit and developer of the FRB. The FRB is a conservation finance model specifically designed to add new revenue streams to fund forest restoration and finance project costs. The three partnerships would be contracted through sole-source agreements with three different FRB LLCs. Each is a separate and distinct subsidiary of Blue Forest.

- Upper Butte Creek I Forest Resilience Bond LLC – The pilot Upper Butte Creek I FRB LLC will be launched in early 2025, contingent upon a signed National Environmental Policy Act (NEPA) record of decision for the Upper Butte Creek Forest Health Initiative. Funding would be provided by Metropolitan to the Upper Butte Creek I FRB LLC to support financing of the Upper Butte Creek I FRB. Metropolitan's maximum funding contribution would be $400,000 over FY 2024/25 and FY 2025/26, and the Upper Butte Creek I FRB would finance up to $5 million of initial work on the landscape. Upon success, this initial investment could unlock further opportunities within the Upper Butte Creek Watershed. A scaled FRB could finance up to $40 million to restore and protect 20,000 acres. Other potential FRB financing partners currently include the Wildlife Conservation Board, CalFire, the National Fish and Wildlife Foundation, and the Sierra Nevada Conservancy. As the project is implemented, Metropolitan would work with Blue Forest to assess the potential water flow, water quality, and aquatic ecosystem benefits and economic impacts within the Upper Butte Creek Watershed.

- North Feather I Forest Resilience Bond LLC -– The pilot North Feather I FRB LLC will be launched in late 2024 or early 2025, contingent upon a signed NEPA record of decision for the North Fork Forest Recovery Project. Funding would be provided by Metropolitan to the North Feather I FRB LLC to support financing of the North Feather I FRB. Metropolitan's maximum funding contribution would be

$400,000 over FY 2024/25 and FY 2025/26. While funding commitments are still being finalized, we expect The North Feather I FRB would leverage public and private funds to finance up to $3.5 million of initial work on the landscape. Upon success, this initial investment could unlock further opportunities within the Feather River Watershed. A scaled FRB could finance up to $50 million of restoration activities to restore up to 12,000 priority acres within the 167,000-acre North Fork Forest Recovery Project. Other potential FRB financing partners currently include USDA Forest Service - Plumas National Forest, Cal Fire, Sierra Institute, Pacific Gas & Electric Company (PG&E), and the California Department of Water Resources (DWR). As the project is implemented, Metropolitan would work with Blue Forest to conduct pilot investigations to assess the potential water supply and quality benefits and economic impacts within the Feather River Watershed.

- Plumas Community Protection I Forest Resilience Bond LLC– The pilot Plumas Community Protection I FRB LLC will be launched in late 2024 or early 2025, contingent upon a signed NEPA record of decision. Funding would be provided by Metropolitan to the Plumas Community Protection I FRB LLC to support financing of the Plumas Community Protection I FRB. Metropolitan's maximum funding contribution would be $400,000 over FY 2024/25 and FY 2025/26. Similar to the other two pilot projects, a pilot Plumas Community Protection I FRB would finance critical restoration and protection work on the landscape. While pilot footprint and funding commitments are still being finalized, it is estimated the Plumas Community Protection I FRB could finance the restoration activities to protect 9,000 to 39,000 acres within the 240,000-acre Plumas Community Protection Project. Other potential FRB financing partners currently include the USDA Forest Service Wildlife Crisis Strategy, PG&E, and DWR. As the project is implemented, Metropolitan would work with Blue Forest to conduct pilot investigations to assess the potential water supply and quality benefits and economic impacts within the Feather River Watershed.

Although there was a structured decision-making process used to select these specific partnership opportunities, these contracts would be made through sole-source agreements per Administrative Code Section 8140(1)(d). As described in Section 8140(1)(d), Metropolitan may enter sole-source agreements "[i]f competitive procurement could not produce an advantage, or it is impracticable to obtain what is required subject to the competitive procurement provisions because of the unique, exploratory, or experimental nature of the work." Blue Forest created the FRB financing model and is the only entity currently facilitating this type of investment in the Northern Sierra Mountains.

The Forest Resilience Bond Model

To launch an FRB, Blue Forest partners with communities, land managers, governments, and nonprofits to develop a finance plan and facilitate the development of an implementation team to manage the work on the ground that will ultimately improve forest and watershed health. Blue Forest also works with beneficiaries to evaluate the benefits of a potential project and uses this information to establish an economic, social, and environmental case for funding. The FRB is then brought to private investors, like foundations and institutional asset managers, who provide capital to finance the project work. This means critical financing is available up-front for restoration projects, enabling them to happen at a faster pace and larger scale. The primary goals of the FRB model are to:

- Provide up-front funding needed for project work to enable faster implementation.
- Smooth cash flows to enable consistent and ongoing work.
- Blend public and private funding sources to streamline administration.
- Quantify ecosystem benefits to attract new, flexible funding streams for the implementation of forest and watershed restoration projects.
- Develop long-term contracts that support local restoration economies.
- Leverage federal and state funding sources.

The use of the FRB financing model to implement large-scale forest health initiatives has been increasing, with several projects completed, underway, and under development in California, Oregon, and Washington. For example, the Yuba I and Yuba II FRBs helped catalyze the formation of the North Yuba Forest Partnership, a partnership of nine federal, Tribal, state, local government agencies, and nonprofits focused on forest restoration across 275,000 acres of public and private lands in the North Yuba River Watershed. The Yuba I FRB was launched in 2018, and restoration work was completed in 2023. The Yuba I FRB protected and restored 15,000 acres in the upper headwaters of the North Yuba River Watershed. Building on the success of the Yuba I FRB, the Yuba II FRB was launched in 2021 and finances an additional 28,000 acres of treatment activities such as thinning, prescribed burning, hardwood regeneration, invasive species removal, and other forms of ecological restoration.

Proposed Pilot Investigations

The selection of these watershed partnership opportunities was facilitated through a structured decision-making process (**Attachment 1 and Attachment 2**). Each partnership targets different aspects of potential watershed management activities that could improve water supply resiliency of supplies from the Bay-Delta watershed, including conditions for anadromous fish, water quality, water supply and improved forest health.

Upper Butte Creek I Forest Resilience Bond LLC

Funding would be provided by Metropolitan to the Upper Butte Creek I FRB LLC to support financing of the Upper Butte Creek I FRB. As the project is implemented, Blue Forest would conduct pilot investigations to assess the potential benefits of the project to Metropolitan. Butte Creek supports the largest self-sustaining, naturally spawning, wild population of spring-run Chinook salmon in the Central Valley. This investment would also complement past investments made by Metropolitan and others to improve fish passage on lower Butte Creek.

The Upper Butte Creek Forest Health Initiative will restore and protect 20,000 acres within the Upper Butte Creek Watershed. The Upper Butte Creek Watershed was specifically chosen because this area has high biodiversity values, proximity to communities, committed partnership opportunities, and risk of severe wildfire. Other potential FRB financing partners include the Wildlife Conservation Board, CalFire, the National Fish and Wildlife Foundation, and the Sierra Nevada Conservancy. Potential local partners include the Lassen National Forest, the South Lassen Watershed Group, and the Butte County Resource Conservation District.

Forest health treatments planned through the Upper Butte Creek I FRB include general forest thinning, prescribed fire, meadow and aspen restoration, and trail development. A quarter of the project area will restore and reforest areas burned by the 2021 Dixie Fire. These treatments yield numerous benefits to the Lassen National Forest and nearby communities by restoring overly dense forests to a resilient state, encouraging a more natural fire return interval, protecting water supply, and increasing carbon sequestration.

North Feather I Forest Resilience Bond LLC

Funding would be provided by Metropolitan to the North Feather I FRB LLC to support financing of the North Feather I FRB. As the project is implemented, Metropolitan would work with Blue Forest to conduct pilot investigations to assess the potential benefits of the project to Metropolitan.

The North Fork Recovery Project will restore and protect up to 12,000 acres as part of the 167,000-acre North Fork Forest Recovery Project. This project provides an opportunity to accelerate post-Dixie Fire recovery to build resilience for the landscape and surrounding communities. Other potential FRB financing partners include USDA Forest Service - Plumas National Forest, Cal Fire, Sierra Institute, PG&E and DWR. Potential local partners include the Sierra Institute and the Plumas National Forest.

Forest health treatments planned through the North Feather I FRB include general forest thinning, prescribed fire, fuels reduction, reforestation, invasive species management, stream restoration, and recreation improvements. These treatments yield numerous benefits to the Plumas National Forest and nearby communities by restoring overly dense forests to a resilient state, encouraging a more natural fire

return interval, protecting water supply, and increasing carbon sequestration. The post-fire nature of this project makes it vital for activities to happen as quickly as possible, making funding available to speed along implementation even more critical than in some other projects.

Plumas Community Protection I Forest Resilience Bond LLC

Funding would be provided by Metropolitan to the Plumas Community Protection I FRB LLC to support financing of the Plumas Community Protection I FRB. As the project is implemented Metropolitan would work with Blue Forest to conduct pilot investigations to assess the potential benefits of the project to Metropolitan. As the source of much of State Water Project water supplies, the Feather River Watershed is of significant importance to Metropolitan's current and future water supplies.

At its full scale, the FRB would finance the restoration and protection of up to 39,000 acres within the total 240,000-acre Plumas Community Protection Project. In addition to directly supporting long-term reliability of the State Water Project, the Feather River Watershed was specifically chosen as this area has high biodiversity values, proximity to communities, committed partnership opportunities, and risk of severe wildfire. Potential FRB financing partners include PG&E and DWR. In addition, the Plumas National Forest has received Wildfire Crisis Strategy funding for the Plumas Community Protection Project, and there is $278 million in federal funding that requires a 5 percent match to deploy. Potential local partners include the National Forest Foundation, the Feather River Resource Conservation District, the Mule Deer Foundation, and the Plumas National Forest.

Forest health treatments planned through the Plumas Community Protection I FRB include general forest thinning, prescribed fire, meadow and aspen restoration, and trail development. These treatments yield numerous benefits to the Plumas National Forest and nearby communities by restoring overly dense forests to a resilient state, encouraging a more natural fire return interval, protecting water supply, and increasing carbon sequestration.

Benefits to Metropolitan

The deliverables for each cost-share agreement will be an FRB Annual Impact Report developed by Blue Forest. These Reports will summarize pilot investigation outcomes, including those associated with water supply and other key information. For each pilot investigation, Blue Forest will analyze and report in the FRB Annual Impact Report the annual and cumulative quantities of:

- Water supply protected.
- Contributions to local economic growth and job creation.
- Contributions to local community protection.
- Plant and animal species protected.
- Land area of forest, meadow, and invasive plant treatments implemented.
- Terrestrial ecosystems restored and protected.

In addition, these pilot investigations will create opportunities for additional science, foster collaborative relationships in the upper watersheds, and establish a methodology for valuing ecosystem services to help inform Metropolitan's potential future participation in upper watershed health initiatives.

Project Milestones

The FRB Annual Impact Report for each pilot investigation will be provided to Metropolitan annually beginning in 2025.

8/28/2024
Nina E. Hawk *Date*
Chief, Bay-Delta Resources

9/3/2024
Deven Upadhyay *Date*
Interim General Manager

Attachment 1 – Project Decision-Making Memo

Attachment 2 – Benefit Analysis Results

Ref# eo12696876

Memo: Project Decision Making Process Utilized on August 16, 2023

Created by Blue Forest for Metropolitan Water District

Blue Forest developed a decision-making process to help Metropolitan Water District (Met Water) members narrow down the list of potential projects to consider funding through a Forest Resilience Bond (FRB). Seven projects were initially considered based on their proximity to the State Water Project and potential impacts on the Bay Delta. Met Water worked with Blue Forest to prioritize four projects for further consideration and analysis using a number of materials, including a spreadsheet of information about each project as well as maps depicting the wildfire hazard potential and water benefits on each project's landscape.

This memo details this process and the rationale behind the selection of the four projects about which Met Water and Blue Forest will continue discussions.

Step One: Determining Criteria Importance

In the spring of 2023, Met Water and Blue Forest discussed various components of restoration projects that might make a project a funding priority for Met Water. Eight criteria were identified through these discussions: Primary Benefits to Met Water, Collaboration, Terrestrial Species Benefitted, ESA-listed Salmonids, Tributaries, Service Area Connection, Other Project Benefits, and Timeline.

The first step of the decision-making process utilized on August 16 was for Met Water members to consider the relative importance of each of these project criteria, culminating in an assignment of scores ranging from 1-3 for each criterion (with 3 being assigned to the criteria of most importance, and 1 to the criteria of least importance). Met Water staff assigned the following weights to each of the eight criteria: 3 to the Primary Benefits to Met and ESA-listed Salmonids criteria, 2.5 to Collaboration, 2 to Service Area Connection and Other Project Benefits, 1.5 to Timeline, and 1 to Terrestrial Species Benefitted. The Tributaries category was not weighted (and therefore discarded as a criterion), as the information conveyed by this criterion was already captured by the ESA-listed Salmonids criterion.

Step Two: Identifying Projects That Best Meet Criteria

Each Met Water member individually considered the spreadsheet of information and maps of water benefits and wildfire hazard potential provided by Blue Forest for each project area to narrow down the top two projects that they believed best met each criterion.

These decisions were visually depicted through colored-coded sticky notes: each Met Water member received 14 sticky notes, with two of each color according to the seven criterion (again, Tributaries was no longer being used as a criterion). In each color pair, one sticky note had a "1" on it (indicating best), and the other had a "2" on it (indicating second-best). Eight sticky notes, each with a project name on it, had been set up by Blue Forest on a wall of the conference room, and Met Water members put sticky notes under the projects corresponding to what they believed were the best and second-best project for

meeting each of the seven criteria. A picture of this process can be seen in *Appendix A: Sticky Note Activity.*

Four projects (West Lassen Headwaters, Upper Butte Creek Forest Health Initiative, West Shore Community Protection Project, and Plumas National Forest Community Protection Project) dominated in terms of the numbers of sticky notes corresponding with them — meaning that these four were the most preferred according to the seven criterion.

Met Water members discussed their choices for each project criterion. Following this discussion, it was unanimously agreed that the three projects that had *not* received the majority of sticky note votes would no longer be considered. The few votes cast for these projects were then reassigned to the top four projects (for example, the "1" that the Texas Vegetation Management/Nyack project received in the "Other Project Benefits" category was reassigned to a different project, in this case the Plumas National Forest Community Protection Project). The completion of this vote reassignment resulted in six votes *per criterion* across the top four projects, with three votes designating projects that best met the criterion, and three votes designating projects that second best met the criterion. This can be seen in *Appendix B: Results of Sticky Note Activity.*

Step Three: Scorecard Ranking Activity

Each of the voting assignments were converted into a score. Votes of 1 (best) were assigned a score of 2, and votes of 2 (second-best) were assigned a score of 1, such that higher scores indicated better-ranked projects. Following this conversion, the scores in each box of the matrix were added up (for example, three sticky notes labeled "1" would translate to a combined score of 6), resulting in a matrix in which each of the four projects was given a score for how well it met each criterion, with higher scores indicating a project that better met a certain criterion.

These scores were then multiplied by the criterion weighting assigned in step 1, and these products were summed, to determine a final score for each of the projects, again with higher scores indicating better projects. As shown in *Appendix C: Final Scores Matrix*, Upper Butte Creek Forest Health Initiative scored the highest, with Plumas National Forest Community Protection Project coming in second, West Lassen Headwaters a close third, and West Shore Community Protection Project coming in a rather distant fourth.

Step Four: Final Scores Discussion

Met Water members agreed with the scores and project rankings given their thinking around how well each project met the different criteria. To get a better sense of how criterion weighting affected these scores, the criterion weights were toggled to perform a sensitivity analysis (for example, Service Area Connection being bumped from a 2 to a 3), and results consistently indicated that the Plumas Community Protection Project, Upper Butte Creek, and West Lassen Headwaters were all the most-preferred, although toggling the scores sometimes switched the order of first, second, and third place ranking among these projects.

The initial intention of the exercise was to determine the top two or three projects for Met Water to consider for contributing funding. However, although the West Shore Community Protection Project was ranked lower than all the others, after some discussion it was decided that this project would continue to be considered as well as the other three. This decision was made for three reasons:

1. The project performed well in meeting some of the most important criteria, as evidenced by the fact that toggling of criteria importance decreased the gap in scores between this project and the other projects.
2. Given the smaller size of the project, Met Water's potential funding contribution to the project could close a larger portion of the funding gap compared to some of the other larger projects.
3. The project is already in implementation whereas the other three projects won't begin implementation until late 2024 or early 2025.

The decision-making activities resulted in four projects that Met Water will further consider for potential funding contributions. With this narrowed-down list, Blue Forest will now provide Met Water with more detailed scientific and economic analyses to help determine which one or two of these projects might best meet Met Water's financial, ecological, and other organization goals.

Appendix

Appendix A: Sticky Note Activity

Appendix B: Results of Sticky Note Activity (Screenshot)

	A	B	C	D	E	F	G	H
1	*Weighting*	2	3	2.5	1	3	2	1.5
2		**Other Project Benefits**	**Primary Benefits to Met**	**Collaboration**	**Species Benefitted**	**ESA-Listed Salmonids**	**Service Area Connection**	**Timeline**
3	**West Lassen Headwaters**	2,2	1,2	2,2	2,2,2	1,2,2	2	
4	**Upper Butte Creek Forest Health Initiative**	2		1,1	1,1,1	1,1,2		1 2,2
5	**West Shore Community Protection Project**		1, 2	2			1,1	1,1
6	**Community Protection Project**	1,1,1	1,2	1			1 2,2	2

Appendix C: Final Scores Matrix (Screenshot)

	A	B	C	D	E	F	G	H	I
1	*Weighting*	2	3	2.5	1	3	2	1.5	
2		**Other Project Benefits**	**Primary Benefits to Met**	**Collaboration**	**Species Benefitted**	**ESA-Listed Salmonids**	**Service Area Connection**	**Timeline**	**Score**
3	**West Lassen Headwaters**	2	3	2	3	4	1		**35**
4	**Upper Butte Creek Forest Health Initiative**	1		4	6	5		4	**39**
5	**West Shore Community Protection Project**		3	1			4	4	**25.5**
6	**Community Protection Project**	6	3	2			4	1	**35.5**

Benefit Analysis Results

Created by Blue Forest for Metropolitan Water District *July 2024*

Overview of Modeling and Analysis

Blue Forest's analysis focused on three benefits associated with the planned activities of each project: water volume (via reduced evapotranspiration), water quality (via reduced sedimentation risk), and decreased risk of high-severity wildfire. Analysis activities were completed using the Natural Climate Solutions (NCS) Toolbox developed by the Center for Ecosystem Climate Solutions (CECS). See Appendix 1 for more information about the NCS Toolbox.

The tables in the following section summarize contextual information about each project and benefit analysis results. Please note that, while the models used are built on sophisticated and rigorous research, the actual benefit values that result from project implementation may vary from the values presented in this document.

Summary of Benefits Analyzed:

- ***Water Volume:*** increased water yield as measured by decreased evapotranspiration.
- ***Water Quality:*** the decrease in sediment deposition in bodies of water, which in turn affects infrastructure that processes and intakes water. The tool has some limitations and these numbers should only be used as a comparative metric between projects. See Appendix 1 for more information.
- ***Flame Length:*** a metric that informs the wildfire hazard potential (WHP) and rate of spread from a potential wildfire. Decreased flame length indicates a lower WHP and rate of spread.

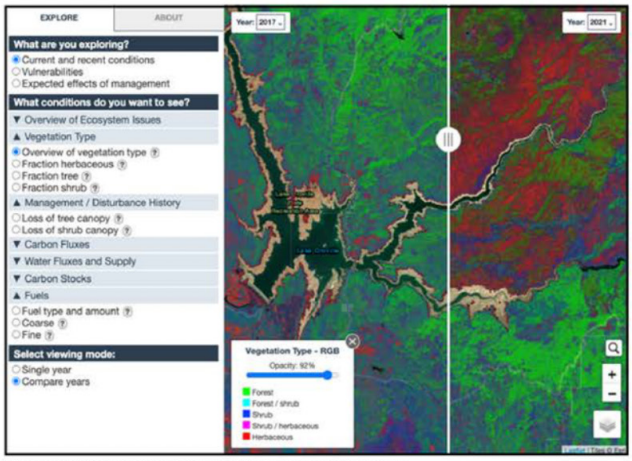
Project Profiles and Analysis Results

Upper Butte Creek Forest Health Initiative (Lassen National Forest)		
Basic information	• 20,079 acres in the Lassen NF • Forest thinning, prescribed fire, meadow/aspen restoration, trail development • A quarter of the project area will restore and reforest areas burned by the 2021 Dixie Fire • NEPA decision expected spring 2025, implementation can begin soon thereafter	
Notable details	• This project scored the highest during the August 16, 2023 Met prioritization exercise	
Funding and collaboration	• Current funder(s): Wildlife Conservation Board Forest Conservation Program, Dept of Conservation Forest Health Watershed Coordinator funding, private foundations, National Fish and Wildlife Foundation CA Forests & Watersheds Program, seeking additional funding from Sierra Nevada Conservancy • Local partners: South Lassen Watershed Group, Butte County RCD	
Salmonids & habitat impact	• Additional water flows and water quality protection for ecological purposes (largest self-sustaining, naturally spawning, wild population of spring-run Chinook salmon in the Central Valley) • TNC's Salmonscape map shows that the Butte Creek watershed is a high priority for salmonid conservation, particularly the northeastern portion of the watershed (adjacent to the Lower Feather watershed) • Protected spotted owl and goshawk habitat	
Estimate of Benefits		
Wildfire Benefits	Average Flame Length Reduction (percent): 77%	
Water Benefits	Volume: 2,500 acre feet (AF) of reduced evapotranspiration (0.12 AF/acre)	Quality: 37% decrease in post-fire sedimentation risk

North Fork Forest Recovery Project (Plumas National Forest)	
Basic information	• 166,889 acres in the Plumas NF • Post-fire restoration activities: prescribed fire, thinning, hazard tree removal, reforestation, invasive species management, and hydrological improvements • Within the Feather River Watershed • NEPA decision expected in spring 2025, implementation to begin soon thereafter
Notable details	• This project is almost entirely comprised of post-fire restoration activities, following the 2021 Dixie Fire
Funding and collaboration	• Current funders: FS Wildfire Crisis Strategy funding, CALFIRE • Local partners: Sierra Institute • Other potential beneficiaries have expressed interest in this project, including PG&E and CA DWR
Salmonids & habitat impact	• TNC's Salmonscape map shows a portion of the Lower Feather watershed along the Sacramento River as high priority for salmonid conservation
Estimate of Benefits	
Wildfire Benefits	Average Flame Length Reduction: 9.18%
Water Benefits	Volume: 26,317 AF of reduced evapotranspiration (0.16 AF/acre)

Plumas Community Protection Project (Plumas National Forest)		
Basic information	• 250,000 acres in the Plumas NF • Focused on reducing the potential for extreme fire behavior in the wildland urban interface and improving road systems for community egress • Implementation will begin in 2025	
Notable details	• Acreage will be further refined over time, likely larger than 250k when the Forest finalizes planning	
Funding and collaboration	• Current Funders: Plumas NF has $278M in federal funds that will require a 5% match to deploy • PG&E is also considering funding contributions on this landscape • Adding resources would help leverage an already well-funded project	
Salmonids & habitat impact	• TNC's Salmonscape map shows portions of the Lower Feather, Battle, Paynes, Singer, and Big Chico watersheds as high priority for salmonid conservation (steelhead and Chinook salmon)	
Estimate of Benefits		
Wildfire Benefits	Average Flame Length Reduction: 80%	
Water Benefits	Volume: 36,400 AF of reduced evapotranspiration (0.48 AF/acre)	Quality: 4% decrease in post-fire sedimentation risk

Appendix 1: Information and Resources about the CECS Tool[1]



The DataAtlas is an online visualization tool that displays select ecosystem data at 30-m resolution statewide. Every data layer within this tool is an original CECS product, and was created using the DataEngine. The DataAtlas allows users to get an overview of ecosystem conditions, compare years, forecast general outcomes of potential management, and identify areas of interest for further analysis using the DataBridge.

View the DataAtlas here:
https://cecs.ess.uci.edu/data-atlas/

Figure 2: *The DataAtlas tool visualizes CECS-original data.*

The DataBridge tools allow a user to select and export ecosystem data from the DataEngine to a user's preferred analysis software. Users select data based on their needs, including for planning, prioritization, or monitoring. Data files can be statewide or for a specific area. The DataBridge creates formatted tables, time series, or shapefiles that can be imported into software such as ArcGIS, QGIS, Excel, R, or ForSys. This tool is best for advanced users with working knowledge of one of these software tools, as well as experience in landscape. Contact CECS for more information.

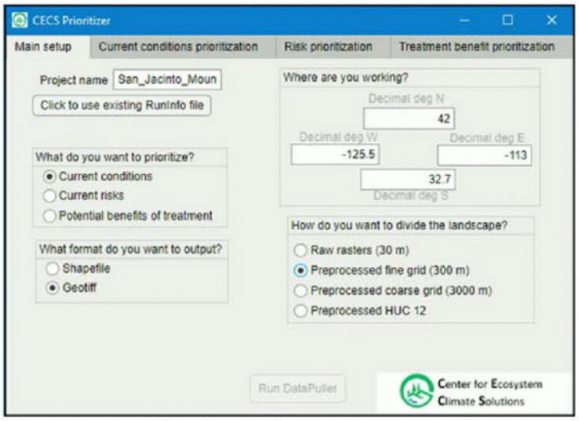
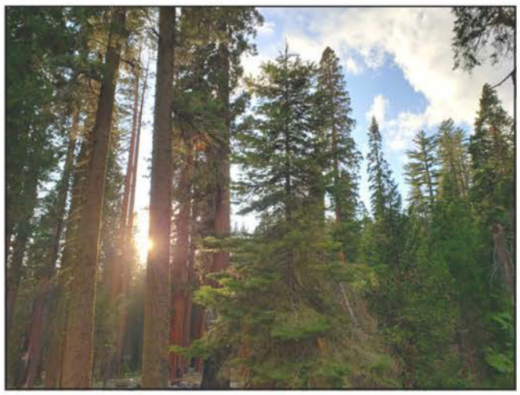


Figure 3: *The DataBridge tool extracts data based on a user's needs.*



We'd like to collaborate!
Please reach out with your input and ideas.

Contact: ecosystemclimate@ess.uci.edu
Director: Michael Goulden, UC Irvine, mgoulden@uci.edu
Co-Director: Roger Bales, UC Merced, rbales@ucmerced.edu

https://california-ecosystem-climate.solutions/
@CA_CECS

Rev. August 2022

Center for Ecosystem Climate Solutions

CECS is supported by the California Strategic Growth Council's Climate Change Research Program with funds from California Climate Investments—Cap-and-Trade Dollars at Work.

CALIFORNIA STRATEGIC GROWTH COUNCIL

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One Water & Stewardship Committee

Watershed partnerships and forest health pilot investigations in the Northern Sierra Nevada

Item 7-4

September 9, 2024

Item 7-4
Watershed Agreements

Subject

Authorize the General Manager to enter into agreements with the Plumas Community Protection I Forest Resilience Bond LLC, North Feather I Forest Resilience Bond LLC, and Upper Butte Creek I Forest Resilience Bond LLC to establish watershed partnerships and forest health pilot investigations in the Northern Sierra Nevada; each agreement is not to exceed $200,000 per year for a maximum of two years.

Purpose

These agreements would help Metropolitan assess the potential benefits and value of investments in watershed health through pilot investigations, while advancing the relevant science and building relationships within the watersheds.

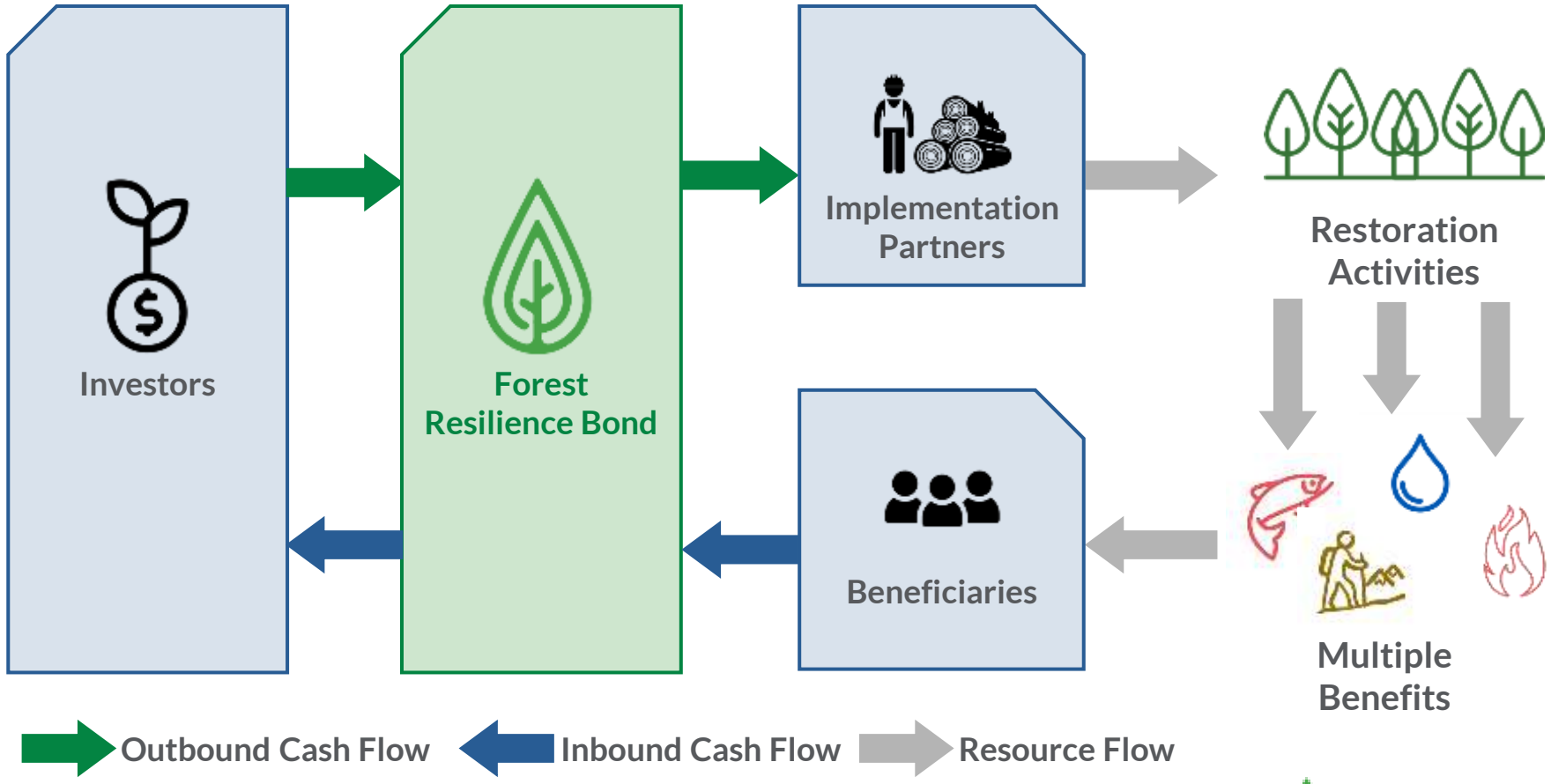
Recommendation and Fiscal Impact

Authorize the General Manager to enter into agreements with the Plumas Community Protection I Forest Resilience Bond LLC, North Feather I Forest Resilience Bond LLC, and Upper Butte Creek I Forest Resilience Bond LLC, each agreement is not to exceed $200,000 per year for a maximum of two years. These funds were included in the approved FY 2024/25-FY 2025/26 Bay Delta Initiatives Grant/Donation budget and therefore would not require a budget adjustment.

Budgeted

Blue Forest

Forest Resilience Bond



FOREST RESILIENCE BOND

Upper Butte Creek I Forest Resilience Bond

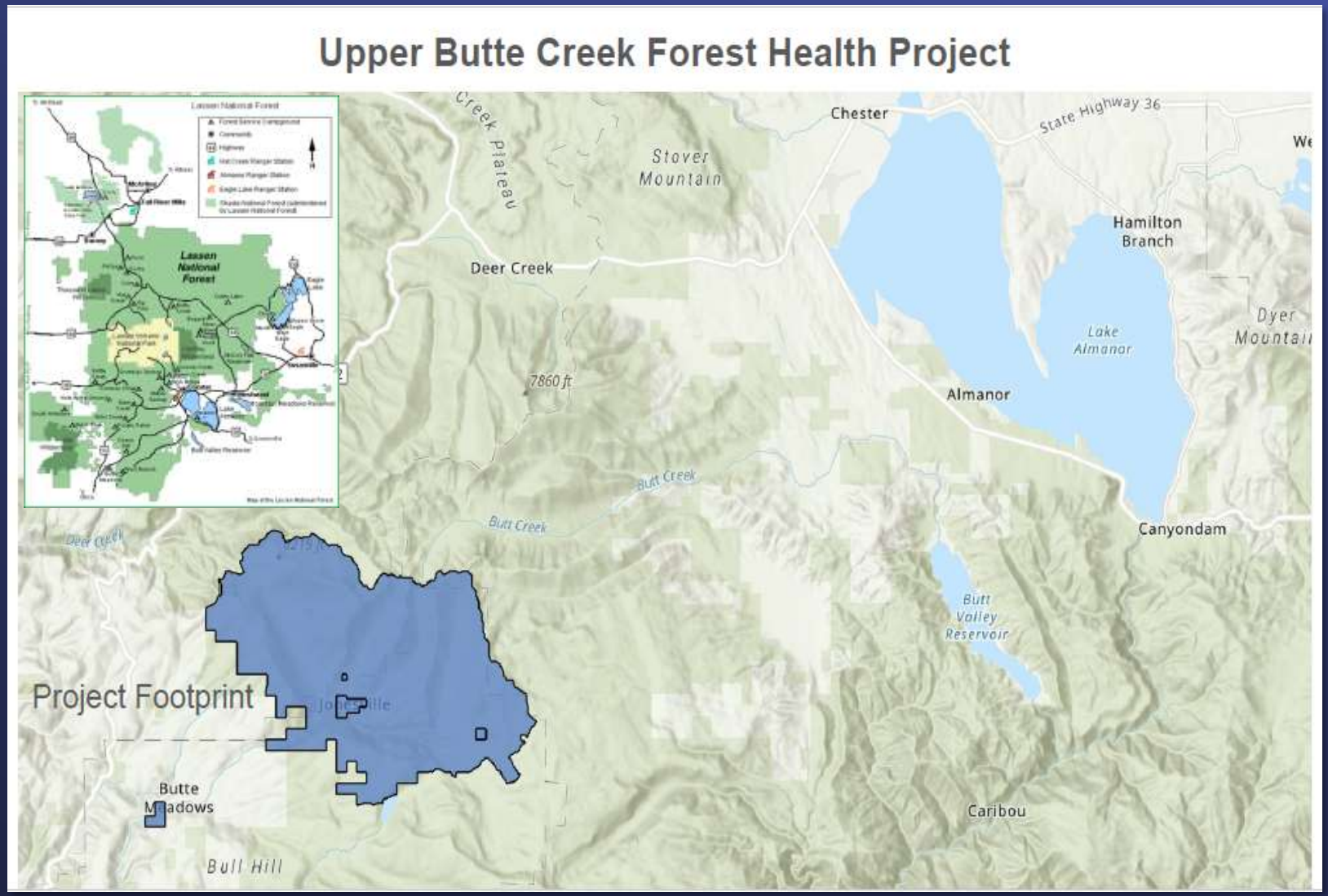
Focus on potential benefits to aquatic species

Full Project
20,000 acres

Initial FRB
~$5 million

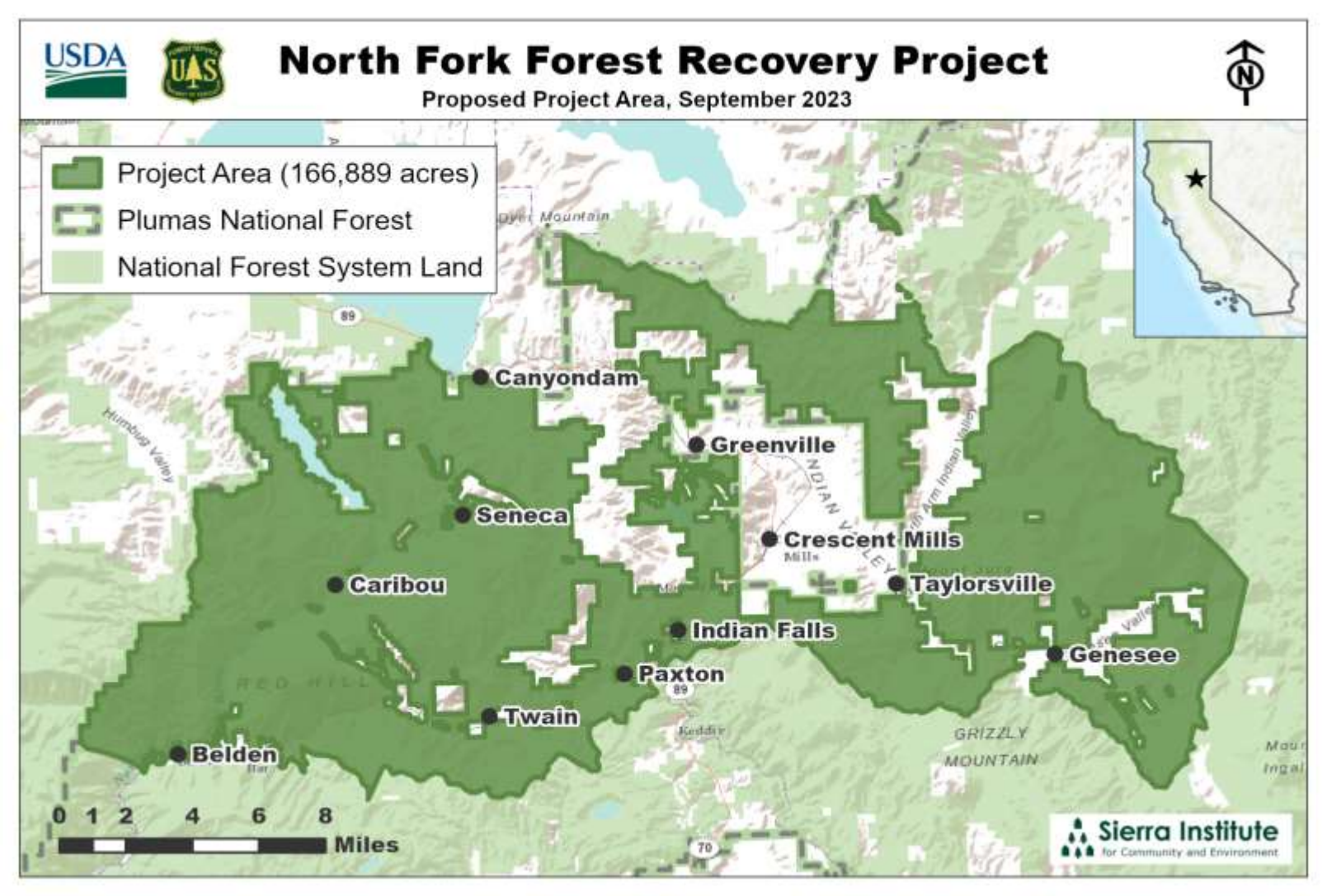
Potential FRB Partners
CalFire, NFWF, Wildlife Conservation Board, Sierra Nevada Conservancy

Local Partners
Lassen NF, South Lassen Watershed Group, Butte County RCD



North Feather I Forest Resilience Bond

Focus on potential benefits of post-fire recovery



Full Project
167,000 acres

Initial FRB
~$3.5 million

Potential FRB Partners
Plumas NF, CalFire, Sierra Institute, PG&E, DWR

Local Partners
Sierra Institute, Plumas NF

Plumas Community Protection I FRB

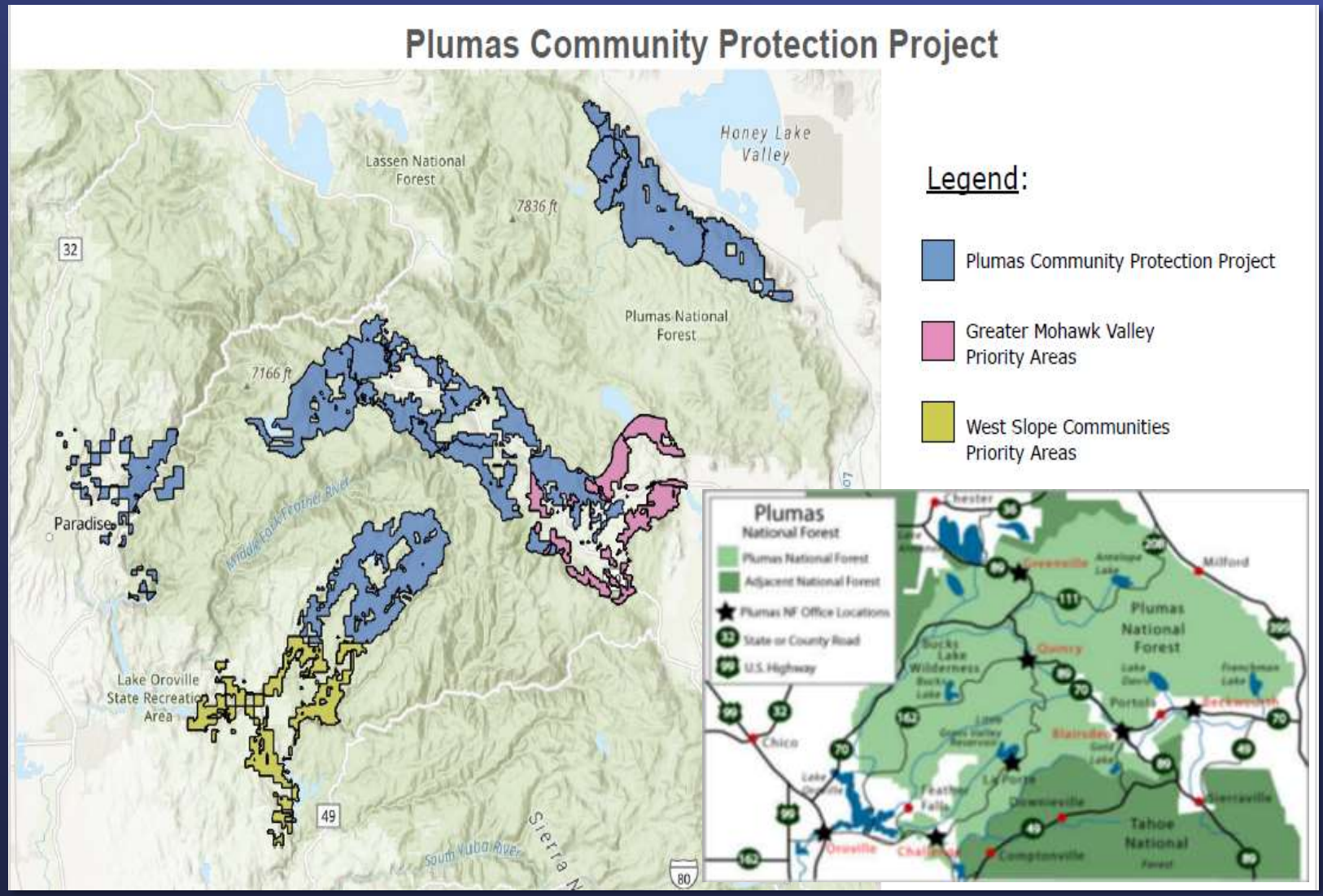
Focus on potential benefits of green forest protection

Full Project
240,000 acres

Initial FRB
Up to 39,000 acres

Potential FRB Partners
PG&E, DWR

Local Partners
National Forest Foundation, Feather River RCD, Mule Deer Foundation, Plumas NF



August Committee Input

- Minimize Financial & Implementation Risk
  - Protections will be provided in contract provisions
  - Spending contingent on successful Forest Resilience Bonds
  - Ensure overhead and administrative costs are minimized
- Ensure Project Outcomes
  - Implementation of restoration and management actions
  - Pilot Investigations will help quantify and value potential benefits
- Be Mindful of Budget Concerns
  - Funding in approved Bay-Delta science budget
  - Future investments should include additional partners (e.g. State & Federal contractors, other PWA's, associations)

Item 7-4
Watershed Agreements

Next Steps

- Updates on implementation progress and Pilot Investigation findings at future One Water & Stewardship Committee meetings

Item 7-4
Watershed Agreements

Board Options

Option 1

- Authorize the General Manager to enter into agreements with the Plumas Community Protection I Forest Resilience Bond LLC, North Feather I Forest Resilience Bond LLC, and Upper Butte Creek I Forest Resilience Bond LLC, to establish watershed partnerships and forest health pilot investigations in the Northern Sierra Nevada; each agreement is not to exceed $200,000 per year for a maximum of two years

Option 2

- Do not authorize the General Manager to enter into agreements with the Plumas Community Protection I Forest Resilience Bond LLC, North Feather I Forest Resilience Bond LLC, and Upper Butte Creek I Forest Resilience Bond LLC at this time

Item 7-4
Watershed Agreements

Item 7-4 Watershed Agreements

Staff Recommendation

- Option 1


THE METROPOLITAN WATER DISTRICT OF
SOUTHERN CALIFORNIA
1928

THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

Board Action

- **Board of Directors**
  Ethics, Organization, and Personnel Committee

9/10/2024 Board Meeting

7-5

Subject

Approve the Metropolitan Water District of Southern California's salary schedules pursuant to CalPERS regulations; the General Manager has determined that the proposed action is exempt or otherwise not subject to CEQA

Executive Summary

Pursuant to the California Code of Regulations, Section 570.5, Metropolitan's Board of Directors is required to approve an annual salary schedule, meeting specific requirements as outlined in the Code.

Proposed Action(s)/Recommendation(s) and Options

Staff Recommendation: Option #1: Approve to adopt the attached salary schedule to ensure compliance with California Code of Regulations, Section 570.5 and the negotiated MOUs.

Option #1

Approve the attached salary schedule.

Fiscal Impact: There is no fiscal impact associated with this board action.
Business Analysis: If approved, Metropolitan will be in compliance with California Code of Regulations, Section 570.5 and the negotiated MOUs.

Option #2

Do not approve the salary schedule.
Fiscal Impact: None
Business Analysis: If not approved, Metropolitan will not be in compliance with California Code of Regulations, Section 570.5 and the negotiated MOUs.

Alternatives Considered

Not applicable

Applicable Policy

Metropolitan Water District Administrative Code Section 6207: Positions Authorized.

Metropolitan Water District Administrative Code Section 6208: Pay Rate Administration.

Metropolitan Water District Administrative Code Section 6500: Hourly Pay Rate Schedule.

Metropolitan Water District Administrative Code Section 11104: Delegations of Responsibilities.

Related Board Action(s)/Future Action(s)

Not applicable

California Environmental Quality Act (CEQA)

CEQA determination for Option #1:

The proposed action is not defined as a project under CEQA because it involves organizational, maintenance, or administrative activities; personnel-related actions; and/or general policy and procedure making that will not result in direct or indirect physical changes in the environment. (Public Resources Code Section 21065; State CEQA Guidelines Section 15378(b)(2) and (5)).

CEQA determination for Option #2:

None required

Details and Background

Background

Pursuant to CalPERS regulations, California Code of Regulations, Section 570.5, employee salaries must be delineated in a salary schedule that meets the following requirements:

1. Approved and adopted by the employer's governing body according to the requirements of applicable public meeting laws.
2. Identifies the position title for every employee position.
3. Shows pay rate for each identified position, which may be stated as a single amount or amounts within a range.
4. Indicates the time base.
5. Is posted at the office of the employer or immediately accessible and available for public review from the employer during normal business hours or posted on the employer's internet website.
6. Indicates an effective date and date of any revisions.
7. Is retained by the employer and available for public inspection for not less than five years.
8. Does not reference another document in lieu of disclosing the pay rate.

To comply with these requirements, The Metropolitan Water District of Southern California's Salary Schedules for the following dates are attached for the Board's approval.

Effective date:

- Metropolitan Water District of Southern California Salary Schedule effective June 25, 2023 (**Attachment 1**)
- Metropolitan Water District of Southern California Salary Schedule effective June 23, 2024 (**Attachment 2**)

The approval of these salary schedules will ensure Metropolitan's compliance with the Code, the negotiated MOUs, and Administrative Codes. This will also ensure employee's retirement calculations will be based on the appropriate rate of pay.

9/6/2024
Mark Brower *Date*
Human Resources Group Manager

9/6/2024
Deven Upadhyay *Date*
General Manager

Attachment 1 – Metropolitan Water District of Southern California Salary Schedule effective June 25, 2023

Attachment 2 – Metropolitan Water District of Southern California Salary Schedule effective June 23, 2024

Metropolitan Water District of Southern California

Report ID: MHR828 SALARY SCHEDULE Page No. 1
Run Date 09/04/2024

Effective Date: 06/25/2023 Run Time 10:09:07

Classification Code		Title	Salary Grade	Hourly Range	Monthly Range	Annual Range	Unit Code
YA01		Accountant	038	$ 38.93- 51.21	$ 6,748- 8,876	$ 80,974-106,517	02
VA01		Accounting Tech I	029	$ 30.39- 40.02	$ 5,268- 6,937	$ 63,211- 83,242	02
VA02		Accounting Tech II	034	$ 34.90- 45.89	$ 6,049- 7,954	$ 72,592- 95,451	02
YA04		Admin Analyst	044	$ 45.89- 60.44	$ 7,954-10,476	$ 95,451-125,715	02
YC01		Admin Analyst I (C)	039	$ 40.02- 52.62	$ 6,937- 9,121	$ 83,242-109,450	05
YC02		Admin Analyst II (C)	042	$ 43.43- 57.22	$ 7,528- 9,918	$ 90,334-119,018	05
YC03	*	Admin Analyst III (C)	045	$ 47.18- 62.15	$ 8,178-10,773	$ 98,134-129,272	05
VA04		Admin Assistant I	031	$ 32.10- 42.25	$ 5,564- 7,323	$ 66,768- 87,880	02
VC01		Admin Assistant I (C)	031	$ 32.10- 42.25	$ 5,564- 7,323	$ 66,768- 87,880	05
VA05		Admin Assistant II	035	$ 35.91- 47.18	$ 6,224- 8,178	$ 74,693- 98,134	02
VC02		Admin Assistant II (C)	035	$ 35.91- 47.18	$ 6,224- 8,178	$ 74,693- 98,134	05
VA06		Admin Assistant III	039	$ 40.02- 52.62	$ 6,937- 9,121	$ 83,242-109,450	02
VC03		Admin Assistant III (C)	039	$ 40.02- 52.62	$ 6,937- 9,121	$ 83,242-109,450	05
UA04		Admin Secretary	037	$ 37.89- 49.86	$ 6,568- 8,642	$ 78,811-103,709	02
PM034	*	Agricultural Liaison	060	$ 71.09- 92.89	$12,322-16,101	$147,867-193,211	04
937		Aircraft Pilot	047	$ 47.26- 62.17	$ 8,192-10,776	$ 98,301-129,314	03
TA12		Aqueduct & Power Dispatcher	045	$ 47.18- 62.15	$ 8,178-10,773	$ 98,134-129,272	02
T11		Aqueduct Pump Specialist	046	$ 48.47- 63.84	$ 8,401-11,066	$100,818-132,787	02
YC62	*	Assistant Ethics Officer	071	$ 95.39-124.94	$16,534-21,656	$198,411-259,875	05
YA08		Assoc Biologist	043	$ 44.67- 58.81	$ 7,743-10,194	$ 92,914-122,325	02
YA16		Assoc Chemist	043	$ 44.67- 58.81	$ 7,743-10,194	$ 92,914-122,325	02
YC18	*	Assoc Dpty General Counsel (C)	060	$ 71.09- 92.89	$12,322-16,101	$147,867-193,211	05
YA26		Assoc Engineer	050	$ 54.14- 71.09	$ 9,384-12,322	$112,611-147,867	02
YA30		Assoc Environmental Specialist	048	$ 51.21- 67.36	$ 8,876-11,676	$106,517-140,109	02
YA51		Assoc IT Proj Contr Specialist	039	$ 40.02- 52.62	$ 6,937- 9,121	$ 83,242-109,450	02
YA71		Assoc Limnologist	043	$ 44.67- 58.81	$ 7,743-10,194	$ 92,914-122,325	02
YA76		Assoc Microbiologist	043	$ 44.67- 58.81	$ 7,743-10,194	$ 92,914-122,325	02
YA84		Assoc Proj Controls Specialist	038	$ 38.93- 51.21	$ 6,748- 8,876	$ 80,974-106,517	02
YA97		Assoc Resource Specialist	049	$ 52.62- 69.23	$ 9,121-12,000	$109,450-143,998	02
WC02		Assoc Security Specialist (C)	049	$ 52.62- 69.23	$ 9,121-12,000	$109,450-143,998	05
YA100		Assoc Water Quality Specialist	043	$ 44.67- 58.81	$ 7,743-10,194	$ 92,914-122,325	02
YA07		Asst Biologist	038	$ 38.93- 51.21	$ 6,748- 8,876	$ 80,974-106,517	02
YC63	*	Asst Board Administrator	056	$ 63.84- 83.51	$11,066-14,475	$132,787-173,701	05
YA15		Asst Chemist	038	$ 38.93- 51.21	$ 6,748- 8,876	$ 80,974-106,517	02
YA24		Asst Engineer I	043	$ 44.67- 58.81	$ 7,743-10,194	$ 92,914-122,325	02
YA25		Asst Engineer II	046	$ 48.47- 63.84	$ 8,401-11,066	$100,818-132,787	02
YA28		Asst Env Specialist I	038	$ 38.93- 51.21	$ 6,748- 8,876	$ 80,974-106,517	02
YA29		Asst Env Specialist II	043	$ 44.67- 58.81	$ 7,743-10,194	$ 92,914-122,325	02
Z12	*	Asst GM Strategic Wtr Initiatv	093	$133.68-182.63	$23,171-31,656	$278,054-379,870	01
985	*	Asst General Auditor	081	$ 96.54-131.91	$16,734-22,864	$200,803-274,373	01
032	*	Asst General Counsel	086	$110.54-151.01	$19,160-26,175	$229,923-314,101	01
Z55	*	Asst General Counsel (C)	078	$115.16-151.01	$19,961-26,175	$239,533-314,101	05
024	*	Asst General Manager/CAO	093	$133.68-182.63	$23,171-31,656	$278,054-379,870	01
Z14	*	Asst General Manager/CEAO	093	$133.68-182.63	$23,171-31,656	$278,054-379,870	01
006	*	Asst General Manager/CFO	093	$133.68-182.63	$23,171-31,656	$278,054-379,870	01
002	*	Asst General Manager/COO	094	$137.31-187.67	$23,800-32,529	$285,605-390,354	01
Z02	*	Asst Group Manager	085	$107.59-146.97	$18,649-25,475	$223,787-305,698	01
YA50		Asst IT Proj Contrl Specialist	033	$ 33.92- 44.67	$ 5,879- 7,743	$ 70,554- 92,914	02
YC66	*	Asst LegislativeRepresentative	048	$ 51.21- 67.36	$ 8,876-11,676	$106,517-140,109	05
YA70		Asst Limnologist	038	$ 38.93- 51.21	$ 6,748- 8,876	$ 80,974-106,517	02
YA75		Asst Microbiologist	038	$ 38.93- 51.21	$ 6,748- 8,876	$ 80,974-106,517	02
YA83		Asst Proj Controls Specialist	033	$ 33.92- 44.67	$ 5,879- 7,743	$ 70,554- 92,914	02
YA95		Asst Resource Specialist I	042	$ 43.43- 57.22	$ 7,528- 9,918	$ 90,334-119,018	02
YA96		Asst Resource Specialist II	045	$ 47.18- 62.15	$ 8,178-10,773	$ 98,134-129,272	02
Z04C	*	Asst Section Manager II (C)	067	$ 85.73-112.07	$14,860-19,425	$178,318-233,106	05
TA15		Asst System Operator	041	$ 42.25- 55.59	$ 7,323- 9,636	$ 87,880-115,627	02
295	*	Asst Treasurer	057	$ 65.59- 85.73	$11,369-14,860	$136,427-178,318	04
UM044	*	Asst Treasury and Debt Manager	066	$ 83.51-109.01	$14,475-18,895	$173,701-226,741	04
Z52	*	Asst Unit Mgr-Conveyance&Distr	064	$ 79.08-103.40	$13,707-17,923	$164,486-215,072	04
YA99		Asst Water Quality Specialist	038	$ 38.93- 51.21	$ 6,748- 8,876	$ 80,974-106,517	02
UM001	*	AsstContrl/Unit Mgr-Accounting	066	$ 83.51-109.01	$14,475-18,895	$173,701-226,741	04
UM039	*	AsstContrl/Unit Mgr-FinclRptng	066	$ 83.51-109.01	$14,475-18,895	$173,701-226,741	04
Z68	*	Bay-Delta InitiativesPolicyMgr	085	$107.59-146.97	$18,649-25,475	$223,787-305,698	01
YA09		Biologist	048	$ 51.21- 67.36	$ 8,876-11,676	$106,517-140,109	02
Z64	*	Board Administrator	072	$ 75.68-103.40	$13,118-17,923	$157,414-215,072	01
Z78	*	Board Executive Officer	088	$116.70-159.44	$20,228-27,636	$242,736-331,635	01
U04	*	Board Executive Secretary	072	$ 75.68-103.40	$13,118-17,923	$157,414-215,072	01
YC06	*	Board Specialist (C)	045	$ 47.18- 62.15	$ 8,178-10,773	$ 98,134-129,272	05
Z65	*	Budget and Treasury Manager	081	$ 96.54-131.91	$16,734-22,864	$200,803-274,373	01
Z09	*	Business Outreach Manager	060	$ 71.09- 92.89	$12,322-16,101	$147,867-193,211	04

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Run Date 09/04/2024

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Classification Code		Title	Salary Grade	Hourly Range	Monthly Range	Annual Range	Unit Code
YA12		Buyer I	038	$ 38.93- 51.21	$ 6,748- 8,876	$ 80,974-106,517	02
YA13		Buyer II	043	$ 44.67- 58.81	$ 7,743-10,194	$ 92,914-122,325	02
YA17		Chemist	048	$ 51.21- 67.36	$ 8,876-11,676	$106,517-140,109	02
SA06		Chief Cook	024	$ 26.44- 34.90	$ 4,583- 6,049	$ 54,995- 72,592	02
YC65	*	Chief EEO Investigator	077	$ 86.58-118.33	$15,007-20,511	$180,086-246,126	01
Z71	*	Chief EEO Officer	085	$107.59-146.97	$18,649-25,475	$223,787-305,698	01
XA47		Chief Photographer	048	$ 51.21- 67.36	$ 8,876-11,676	$106,517-140,109	02
122	*	Chief of Party	054	$ 57.29- 74.96	$ 9,930-12,993	$119,163-155,917	03
Z80	*	Chief of Staff	099	$157.29-214.94	$27,264-37,256	$327,163-447,075	01
Z73	*	ChiefDvrstyEqty&InclsnOfficer	085	$107.59-146.97	$18,649-25,475	$223,787-305,698	01
Z84	*	ChiefSafetySecurity&ProOfficer	085	$107.59-146.97	$18,649-25,475	$223,787-305,698	01
Z72	*	ChiefSustRslncy&InnovOfficer	085	$107.59-146.97	$18,649-25,475	$223,787-305,698	01
Z42	*	Class & Comp Manager	064	$ 79.08-103.40	$13,707-17,923	$164,486-215,072	05
SA04		Commercial Truck Driver A	037	$ 37.89- 49.86	$ 6,568- 8,642	$ 78,811-103,709	02
SA05A		Commercial Truck Driver B	037	$ 37.89- 49.86	$ 6,568- 8,642	$ 78,811-103,709	02
XA01A		Construction Inspector I	038	$ 38.93- 51.21	$ 6,748- 8,876	$ 80,974-106,517	02
XA02A		Construction Inspector II	043	$ 44.67- 58.81	$ 7,743-10,194	$ 92,914-122,325	02
XA03A		Construction Inspector III	048	$ 51.21- 67.36	$ 8,876-11,676	$106,517-140,109	02
XA04A		Construction Inspector IV	053	$ 58.81- 77.04	$10,194-13,354	$122,325-160,243	02
XA05A		Construction Inspector V	056	$ 63.84- 83.51	$11,066-14,475	$132,787-173,701	02
Z36	*	Controller	072	$ 98.02-128.36	$16,990-22,249	$203,882-266,989	05
T04		Conveyance&Distrbtn Specialist	047	$ 49.86- 65.59	$ 8,642-11,369	$103,709-136,427	02
XA06		Crane Certification Tech I	038	$ 38.93- 51.21	$ 6,748- 8,876	$ 80,974-106,517	02
XA07		Crane Certification Tech II	043	$ 44.67- 58.81	$ 7,743-10,194	$ 92,914-122,325	02
XA09		Cross Connection Technician	043	$ 44.67- 58.81	$ 7,743-10,194	$ 92,914-122,325	02
PM030	*	Debt Management Specialist	060	$ 71.09- 92.89	$12,322-16,101	$147,867-193,211	04
YA20		Deputy Auditor I	031	$ 32.10- 42.25	$ 5,564- 7,323	$ 66,768- 87,880	02
YA21		Deputy Auditor II	036	$ 36.91- 48.47	$ 6,398- 8,401	$ 76,773-100,818	02
YA22		Deputy Auditor III	045	$ 47.18- 62.15	$ 8,178-10,773	$ 98,134-129,272	02
Z77	*	Deputy Chief DE&I Officer	080	$ 93.91-128.36	$16,278-22,249	$195,333-266,989	01
Z75	*	Deputy Chief EEO Officer	080	$ 93.91-128.36	$16,278-22,249	$195,333-266,989	01
YC60	*	Deputy Ethics Officer	066	$ 83.51-109.01	$14,475-18,895	$173,701-226,741	05
Z57	*	Deputy General Auditor	077	$ 86.58-118.33	$15,007-20,511	$180,086-246,126	01
YC19	*	Deputy General Counsel (C)	066	$ 83.51-109.01	$14,475-18,895	$173,701-226,741	05
VA07		Deputy Treasurer	048	$ 51.21- 67.36	$ 8,876-11,676	$106,517-140,109	02
XA11		Designer I	032	$ 33.03- 43.43	$ 5,725- 7,528	$ 68,702- 90,334	02
XA12		Designer II	035	$ 35.91- 47.18	$ 6,224- 8,178	$ 74,693- 98,134	02
XA13		Designer III	039	$ 40.02- 52.62	$ 6,937- 9,121	$ 83,242-109,450	02
Z41	*	Director of Info Tech Services	072	$ 98.02-128.36	$16,990-22,249	$203,882-266,989	04
T14		Diver-Inland Commercial	047	$ 49.86- 65.59	$ 8,642-11,369	$103,709-136,427	02
YC61	*	DptyEthicsOfcr Adv,Comp&Policy	060	$ 71.09- 92.89	$12,322-16,101	$147,867-193,211	05
PM036	*	DvrstyEqty&InclsnOut&EngageMgr	063	$ 77.04-100.71	$13,354-17,456	$160,243-209,477	04
Z25	*	EEO Manager	068	$ 88.01-115.16	$15,255-19,961	$183,061-239,533	05
YC25		EHS Field Specialist I (C)	043	$ 44.67- 58.81	$ 7,743-10,194	$ 92,914-122,325	05
YC26		EHS Field Specialist II (C)	045	$ 47.18- 62.15	$ 8,178-10,773	$ 98,134-129,272	05
YC27		EHS Field Specialist III (C)	050	$ 54.14- 71.09	$ 9,384-12,322	$112,611-147,867	05
T12		Electrical Specialist	048	$ 51.21- 67.36	$ 8,876-11,676	$106,517-140,109	02
168	*	Electronic Tech Supervisor	055	$ 58.91- 76.96	$10,211-13,340	$122,533-160,077	03
YC42	*	Employee Relations Specialist	051	$ 55.59- 73.04	$ 9,636-12,660	$115,627-151,923	05
YA27		Engineer	056	$ 63.84- 83.51	$11,066-14,475	$132,787-173,701	02
XA20A		Engineering Tech I	038	$ 38.93- 51.21	$ 6,748- 8,876	$ 80,974-106,517	02
XA21A		Engineering Tech II	043	$ 44.67- 58.81	$ 7,743-10,194	$ 92,914-122,325	02
XA22A		Engineering Tech III	048	$ 51.21- 67.36	$ 8,876-11,676	$106,517-140,109	02
YA31		Environmental Specialist	053	$ 58.81- 77.04	$10,194-13,354	$122,325-160,243	02
Z59	*	Equal Emp Compliance&Policy Co	066	$ 83.51-109.01	$14,475-18,895	$173,701-226,741	05
Z16	*	Ethics Officer	FR			$313,643	00
YC35	*	Ethics Policy Analyst	060	$ 71.09- 92.89	$12,322-16,101	$147,867-193,211	05
Z81	*	Exec Advisor: WtrRes&CapImprvs	086	$110.54-151.01	$19,160-26,175	$229,923-314,101	01
002A	*	ExecOff&AsstGM/Wtr&TechResrcs	097	$149.02-203.59	$25,830-35,289	$309,962-423,467	01
VC04		Executive Assistant I (C)	044	$ 45.89- 60.44	$ 7,954-10,476	$ 95,451-125,715	05
VC05		Executive Assistant II (C)	048	$ 51.21- 67.36	$ 8,876-11,676	$106,517-140,109	05
VC13	*	Executive Assistant to the GC	051	$ 55.59- 73.04	$ 9,636-12,660	$115,627-151,923	05
VC14	*	Executive Assistant to the GM	051	$ 55.59- 73.04	$ 9,636-12,660	$115,627-151,923	05
021	*	Executive Legislative Rep	081	$ 96.54-131.91	$16,734-22,864	$200,803-274,373	01
Z56	*	Executive Legislative Rep (C)	073	$100.71-131.91	$17,456-22,864	$209,477-274,373	05
Z74	*	Executive Office Manager	067	$ 66.20- 90.41	$11,475-15,671	$137,696-188,053	01
061	*	Executive Secretary	051	$ 55.59- 73.04	$ 9,636-12,660	$115,627-151,923	04
017	*	Executive Strategist	073	$100.71-131.91	$17,456-22,864	$209,477-274,373	05
SA07		Facilities Maint Assistant	029	$ 30.39- 40.02	$ 5,268- 6,937	$ 63,211- 83,242	02
TA14		Facilities Maint Mechanic	037	$ 37.89- 49.86	$ 6,568- 8,642	$ 78,811-103,709	02

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Classification Code		Title	Salary Grade	Hourly Range	Monthly Range	Annual Range	Unit Code
YA32		Fleet Coordinator	048	$ 51.21- 67.36	$ 8,876-11,676	$106,517-140,109	02
VA17		Fleet Dispatch Coordinator	035	$ 35.91- 47.18	$ 6,224- 8,178	$ 74,693- 98,134	02
VA16		Fleet Dispatcher	031	$ 32.10- 42.25	$ 5,564- 7,323	$ 66,768- 87,880	02
041	*	General Auditor	FR			$288,413	00
031	*	General Counsel	FR			$399,194	00
706		General Maintenance Asst	021	$ 24.37- 32.10	$ 4,224- 5,564	$ 50,690- 66,768	02
001	*	General Manager	FR			$503,942	00
YC22	*	Government&Regional Aff Rep(C)	052	$ 57.22- 74.97	$ 9,918-12,995	$119,018-155,938	05
XA24		Graphic Technician I	034	$ 34.90- 45.89	$ 6,049- 7,954	$ 72,592- 95,451	02
XA25		Graphic Technician II	038	$ 38.93- 51.21	$ 6,748- 8,876	$ 80,974-106,517	02
XA26		Graphic Technician III	043	$ 44.67- 58.81	$ 7,743-10,194	$ 92,914-122,325	02
SA08		Grounds Maintenance Worker	029	$ 30.39- 40.02	$ 5,268- 6,937	$ 63,211- 83,242	02
Z01	*	Group Manager	086	$110.54-151.01	$19,160-26,175	$229,923-314,101	01
Z29	*	Group Manager-Bay Delta Intivs	086	$110.54-151.01	$19,160-26,175	$229,923-314,101	01
Z60	*	Group Manager-Engineering Svcs	089	$119.87-163.87	$20,777-28,404	$249,330-340,850	01
Z58	*	Group Manager-External Affairs	086	$110.54-151.01	$19,160-26,175	$229,923-314,101	01
Z76	*	Group Manager-Finance	086	$110.54-151.01	$19,160-26,175	$229,923-314,101	01
Z54	*	Group Manager-Human Resources	086	$110.54-151.01	$19,160-26,175	$229,923-314,101	01
Z66	*	Group Manager-Info Technology	088	$116.70-159.44	$20,228-27,636	$242,736-331,635	01
Z61	*	Group Manager-Real Property	086	$110.54-151.01	$19,160-26,175	$229,923-314,101	01
Z62	*	Group Manager-Water Resrc Mgmt	088	$116.70-159.44	$20,228-27,636	$242,736-331,635	01
Z63	*	Group Manager-Water System Ops	089	$119.87-163.87	$20,777-28,404	$249,330-340,850	01
Z82	*	Group Mgr-Conveyance&Distrbtn	088	$116.70-159.44	$20,228-27,636	$242,736-331,635	01
Z83	*	Group Mgr-IntOpsPlng&Supp Svcs	088	$116.70-159.44	$20,228-27,636	$242,736-331,635	01
Z85	*	Group Mgr-Treatment&Water Qlty	088	$116.70-159.44	$20,228-27,636	$242,736-331,635	01
VC06		HR Assistant I (C)	031	$ 32.10- 42.25	$ 5,564- 7,323	$ 66,768- 87,880	05
VC07		HR Assistant II (C)	035	$ 35.91- 47.18	$ 6,224- 8,178	$ 74,693- 98,134	05
VC08		HR Assistant III (C)	039	$ 40.02- 52.62	$ 6,937- 9,121	$ 83,242-109,450	05
UMA03	*	HR Strategic Partner	066	$ 83.51-109.01	$14,475-18,895	$173,701-226,741	05
Z40	*	HRIS Manager	063	$ 77.04-100.71	$13,354-17,456	$160,243-209,477	05
YC30		Human Resources Analyst I (C)	039	$ 40.02- 52.62	$ 6,937- 9,121	$ 83,242-109,450	05
YC31		Human Resources Analyst II (C)	042	$ 43.43- 57.22	$ 7,528- 9,918	$ 90,334-119,018	05
YC32	*	Human Resources Analyst III(C)	045	$ 47.18- 62.15	$ 8,178-10,773	$ 98,134-129,272	05
VC09		Human Resources Coordinator	041	$ 42.25- 55.59	$ 7,323- 9,636	$ 87,880-115,627	05
Z22	*	Human Resources Manager I	075	$ 81.99-112.07	$14,212-19,425	$170,539-233,106	01
Z23	*	Human Resources Manager II	078	$ 88.95-121.55	$15,418-21,069	$185,016-252,824	01
Z24	*	Human Resources Manager III	081	$ 96.54-131.91	$16,734-22,864	$200,803-274,373	01
Z03D	*	Human Resources Section Mgr	080	$ 93.91-128.36	$16,278-22,249	$195,333-266,989	01
T08		Hydroelectric Specialist I	042	$ 43.43- 57.22	$ 7,528- 9,918	$ 90,334-119,018	02
T05		Hydroelectric Specialist II	048	$ 51.21- 67.36	$ 8,876-11,676	$106,517-140,109	02
530	*	Hydroelectric Supervisor	058	$ 63.85- 83.42	$11,067-14,459	$132,808-173,514	03
Y12	*	IT Architect-Enterprs Software	063	$ 77.04-100.71	$13,354-17,456	$160,243-209,477	04
YA106		IT Business Analyst I	037	$ 37.89- 49.86	$ 6,568- 8,642	$ 78,811-103,709	02
YA107		IT Business Analyst II	042	$ 43.43- 57.22	$ 7,528- 9,918	$ 90,334-119,018	02
YA108		IT Business Analyst III	047	$ 49.86- 65.59	$ 8,642-11,369	$103,709-136,427	02
XA27A		IT Communication Tech I	038	$ 38.93- 51.21	$ 6,748- 8,876	$ 80,974-106,517	02
XA28A		IT Communication Tech II	043	$ 44.67- 58.81	$ 7,743-10,194	$ 92,914-122,325	02
XA29A		IT Communication Tech III	047	$ 49.86- 65.59	$ 8,642-11,369	$103,709-136,427	02
YA38		IT Enterprise App Analyst I	037	$ 37.89- 49.86	$ 6,568- 8,642	$ 78,811-103,709	02
YA39		IT Enterprise App Analyst II	042	$ 43.43- 57.22	$ 7,528- 9,918	$ 90,334-119,018	02
YA40		IT Enterprise App Analyst III	047	$ 49.86- 65.59	$ 8,642-11,369	$103,709-136,427	02
YA33		IT GIS Analyst I	037	$ 37.89- 49.86	$ 6,568- 8,642	$ 78,811-103,709	02
YA34		IT GIS Analyst II	042	$ 43.43- 57.22	$ 7,528- 9,918	$ 90,334-119,018	02
YA35		IT GIS Analyst III	047	$ 49.86- 65.59	$ 8,642-11,369	$103,709-136,427	02
YA42		IT Infrastructure Adminstr I	037	$ 37.89- 49.86	$ 6,568- 8,642	$ 78,811-103,709	02
YA43		IT Infrastructure Adminstr II	042	$ 43.43- 57.22	$ 7,528- 9,918	$ 90,334-119,018	02
YA44		IT Infrastructure Adminstr III	047	$ 49.86- 65.59	$ 8,642-11,369	$103,709-136,427	02
YA46		IT Network Engineer I	037	$ 37.89- 49.86	$ 6,568- 8,642	$ 78,811-103,709	02
YA47		IT Network Engineer II	042	$ 43.43- 57.22	$ 7,528- 9,918	$ 90,334-119,018	02
YA48		IT Network Engineer III	047	$ 49.86- 65.59	$ 8,642-11,369	$103,709-136,427	02
YA52		IT Project Controls Specialist	044	$ 45.89- 60.44	$ 7,954-10,476	$ 95,451-125,715	02
YA54		IT Quality Analyst I	037	$ 37.89- 49.86	$ 6,568- 8,642	$ 78,811-103,709	02
YA55		IT Quality Analyst II	042	$ 43.43- 57.22	$ 7,528- 9,918	$ 90,334-119,018	02
YA56		IT Quality Analyst III	047	$ 49.86- 65.59	$ 8,642-11,369	$103,709-136,427	02
PM032	*	IT Service Manager	064	$ 79.08-103.40	$13,707-17,923	$164,486-215,072	04
YA58		IT Software Developer I	037	$ 37.89- 49.86	$ 6,568- 8,642	$ 78,811-103,709	02
YA59		IT Software Developer II	042	$ 43.43- 57.22	$ 7,528- 9,918	$ 90,334-119,018	02
YA60		IT Software Developer III	047	$ 49.86- 65.59	$ 8,642-11,369	$103,709-136,427	02
Y05	*	IT Specialist -Disaster Recvry	058	$ 67.36- 88.01	$11,676-15,255	$140,109-183,061	04
XA31A		IT Support Analyst I	037	$ 37.89- 49.86	$ 6,568- 8,642	$ 78,811-103,709	02

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Classification Code		Title	Salary Grade	Hourly Range	Monthly Range	Annual Range	Unit Code
XA32A		IT Support Analyst II	042	$ 43.43- 57.22	$ 7,528- 9,918	$ 90,334-119,018	02
XA33A		IT Support Analyst III	047	$ 49.86- 65.59	$ 8,642-11,369	$103,709-136,427	02
YA62		IT System Administrator I	037	$ 37.89- 49.86	$ 6,568- 8,642	$ 78,811-103,709	02
YA63		IT System Administrator II	042	$ 43.43- 57.22	$ 7,528- 9,918	$ 90,334-119,018	02
YA64		IT System Administrator III	047	$ 49.86- 65.59	$ 8,642-11,369	$103,709-136,427	02
Y18	*	Info Gov&Ent Content Mgmt Spec	059	$ 69.23- 90.41	$12,000-15,671	$143,998-188,053	04
YC11		Info Tech Analyst I (C)	037	$ 37.89- 49.86	$ 6,568- 8,642	$ 78,811-103,709	05
YC12		Info Tech Analyst II (C)	042	$ 43.43- 57.22	$ 7,528- 9,918	$ 90,334-119,018	05
YC13	*	Info Tech Analyst III (C)	047	$ 49.86- 65.59	$ 8,642-11,369	$103,709-136,427	05
Y14	*	Info Technology Architect	064	$ 79.08-103.40	$13,707-17,923	$164,486-215,072	04
Y06	*	Inland Feeder Projects Admintr	058	$ 67.36- 88.01	$11,676-15,255	$140,109-183,061	04
Y10	*	Inspection Trip Manager	061	$ 73.04- 95.39	$12,660-16,534	$151,923-198,411	04
Y17	*	Inspection Trip Specialist	058	$ 67.36- 88.01	$11,676-15,255	$140,109-183,061	04
184		Inspector IV	050	$ 51.32- 67.38	$ 8,895-11,679	$106,746-140,150	03
XA16		Instrumnt&Cntrl Tech I	035	$ 35.91- 47.18	$ 6,224- 8,178	$ 74,693- 98,134	02
XA17		Instrumnt&Cntrl Tech II	039	$ 40.02- 52.62	$ 6,937- 9,121	$ 83,242-109,450	02
XA18		Instrumnt&Cntrl Tech III	044	$ 45.89- 60.44	$ 7,954-10,476	$ 95,451-125,715	02
XA19		Instrumnt&Cntrl Tech Specialst	047	$ 49.86- 65.59	$ 8,642-11,369	$103,709-136,427	02
716		Inventory Coordinator	045	$ 44.72- 58.91	$ 7,751-10,211	$ 93,018-122,533	03
PM033	*	Investment Mgmt Specialist	060	$ 71.09- 92.89	$12,322-16,101	$147,867-193,211	04
XA35A		Lab Info Systems Specialist I	042	$ 43.43- 57.22	$ 7,528- 9,918	$ 90,334-119,018	02
XA36A		Lab Info Systems Specialist II	048	$ 51.21- 67.36	$ 8,876-11,676	$106,517-140,109	02
UA16		Laboratory Assistant I	025	$ 27.25- 35.91	$ 4,723- 6,224	$ 56,680- 74,693	02
UA17		Laboratory Assistant II	029	$ 30.39- 40.02	$ 5,268- 6,937	$ 63,211- 83,242	02
XA40		Laboratory Technologist I	034	$ 34.90- 45.89	$ 6,049- 7,954	$ 72,592- 95,451	02
XA41		Laboratory Technologist II	036	$ 36.91- 48.47	$ 6,398- 8,401	$ 76,773-100,818	02
YA110		Land Surveyor	053	$ 58.81- 77.04	$10,194-13,354	$122,325-160,243	02
705		Landscape Maint Coordinator	044	$ 43.50- 57.29	$ 7,540- 9,930	$ 90,480-119,163	03
XA42A		Landscape Maintenance Tech I	038	$ 38.93- 51.21	$ 6,748- 8,876	$ 80,974-106,517	02
XA43A		Landscape Maintenance Tech II	043	$ 44.67- 58.81	$ 7,743-10,194	$ 92,914-122,325	02
VA08		Law Clerk	029	$ 30.39- 40.02	$ 5,268- 6,937	$ 63,211- 83,242	02
Z30	*	Law Office Administrator (C)	060	$ 71.09- 92.89	$12,322-16,101	$147,867-193,211	05
YA67		Legal Analyst	044	$ 45.89- 60.44	$ 7,954-10,476	$ 95,451-125,715	02
VA09		Legal Assistant I	033	$ 33.92- 44.67	$ 5,879- 7,743	$ 70,554- 92,914	02
VA10		Legal Assistant II	037	$ 37.89- 49.86	$ 6,568- 8,642	$ 78,811-103,709	02
VA11		Legal Assistant III	041	$ 42.25- 55.59	$ 7,323- 9,636	$ 87,880-115,627	02
UC01		Legal Secretary I (C)	028	$ 29.51- 38.93	$ 5,115- 6,748	$ 61,381- 80,974	05
UC02		Legal Secretary II (C)	035	$ 35.91- 47.18	$ 6,224- 8,178	$ 74,693- 98,134	05
YA104		Legal Technology Specialist	047	$ 49.86- 65.59	$ 8,642-11,369	$103,709-136,427	02
Y09	*	Legislative Representative	053	$ 58.81- 77.04	$10,194-13,354	$122,325-160,243	05
YA72		Limnologist	048	$ 51.21- 67.36	$ 8,876-11,676	$106,517-140,109	02
SA09		Lodging Assistant I	029	$ 30.39- 40.02	$ 5,268- 6,937	$ 63,211- 83,242	02
SA10		Lodging Assistant II	033	$ 33.92- 44.67	$ 5,879- 7,743	$ 70,554- 92,914	02
UA08		Mailroom Assistant I	016	$ 21.27- 27.98	$ 3,687- 4,850	$ 44,242- 58,198	02
UA09		Mailroom Assistant II	021	$ 24.37- 32.10	$ 4,224- 5,564	$ 50,690- 66,768	02
UA10		Mailroom Assistant III	026	$ 27.98- 36.91	$ 4,850- 6,398	$ 58,198- 76,773	02
620		Maintenance Mechanic I	037	$ 37.89- 49.86	$ 6,568- 8,642	$ 78,811-103,709	02
612		Maintenance Worker I	025	$ 27.25- 35.91	$ 4,723- 6,224	$ 56,680- 74,693	02
613		Maintenance Worker II	029	$ 30.39- 40.02	$ 5,268- 6,937	$ 63,211- 83,242	02
614		Maintenance Worker III	033	$ 33.92- 44.67	$ 5,879- 7,743	$ 70,554- 92,914	02
Z39	*	Manager of Admin Services	070	$ 92.89-121.55	$16,101-21,069	$193,211-252,824	05
Z70	*	Manager of Bay-Delta Programs	082	$ 99.13-135.48	$17,183-23,483	$206,190-281,798	01
Z33	*	Manager of Colo RiverResources	086	$110.54-151.01	$19,160-26,175	$229,923-314,101	01
Z35	*	Manager of Financial Services	072	$ 98.02-128.36	$16,990-22,249	$203,882-266,989	05
SM020	*	Manager of Treasury&Debt Mgmt	072	$ 98.02-128.36	$16,990-22,249	$203,882-266,989	04
Z79	*	MgrBay-Delta Science&RegStrtgy	082	$ 99.13-135.48	$17,183-23,483	$206,190-281,798	01
M81	*	Mgt Pr Admin Analyst	055	$ 62.15- 81.19	$10,773-14,073	$129,272-168,875	04
YA77		Microbiologist	048	$ 51.21- 67.36	$ 8,876-11,676	$106,517-140,109	02
186	*	Microcomputer Technology Supv	060	$ 67.38- 88.05	$11,679-15,262	$140,150-183,144	03
636	*	O & M Supervisor	056	$ 60.51- 79.16	$10,488-13,721	$125,861-164,653	03
S03	+	O&M Tech I	028	$ 29.51- 38.93	$ 5,115- 6,748	$ 61,381- 80,974	02
S03A	+	O&M Tech I	027	$ 28.73- 37.89	$ 4,980- 6,568	$ 59,758- 78,811	02
S03P	+	O&M Tech I	028	$ 29.51- 38.93	$ 5,115- 6,748	$ 61,381- 80,974	02
S02	+	O&M Tech II	032	$ 33.03- 43.43	$ 5,725- 7,528	$ 68,702- 90,334	02
S02A	+	O&M Tech II	031	$ 32.10- 42.25	$ 5,564- 7,323	$ 66,768- 87,880	02
S02P	+	O&M Tech II	032	$ 33.03- 43.43	$ 5,725- 7,528	$ 68,702- 90,334	02
T10	+	O&M Tech III	036	$ 36.91- 48.47	$ 6,398- 8,401	$ 76,773-100,818	02
T10A	+	O&M Tech III	035	$ 35.91- 47.18	$ 6,224- 8,178	$ 74,693- 98,134	02
T10P	+	O&M Tech III	036	$ 36.91- 48.47	$ 6,398- 8,401	$ 76,773-100,818	02
T03	+	O&M Tech IV	042	$ 43.43- 57.22	$ 7,528- 9,918	$ 90,334-119,018	02

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T03A	+	O&M Tech IV	041	$ 42.25- 55.59	$ 7,323- 9,636	$ 87,880-115,627	02
T03FS	+	O&M Tech IV	042	$ 43.43- 57.22	$ 7,528- 9,918	$ 90,334-119,018	02
YA80		Oc Health Safety Specialist I	031	$ 32.10- 42.25	$ 5,564- 7,323	$ 66,768- 87,880	02
YA81		Oc Health Safety Specialist II	038	$ 38.93- 51.21	$ 6,748- 8,876	$ 80,974-106,517	02
YA82		Oc Health Safety Specialst III	043	$ 44.67- 58.81	$ 7,743-10,194	$ 92,914-122,325	02
927	*	Occ Safety & Health Spec	054	$ 60.44- 79.08	$10,476-13,707	$125,715-164,486	04
UA11		Office Assistant	026	$ 27.98- 36.91	$ 4,850- 6,398	$ 58,198- 76,773	02
Z53	*	Operations Program Manager	067	$ 85.73-112.07	$14,860-19,425	$178,318-233,106	04
SA11		Ops and Maintenance Assistant	021	$ 24.37- 32.10	$ 4,224- 5,564	$ 50,690- 66,768	02
Z44	*	Org Develop & Training Manager	064	$ 79.08-103.40	$13,707-17,923	$164,486-215,072	05
VA18		Payroll Specialist	049	$ 52.62- 69.23	$ 9,121-12,000	$109,450-143,998	02
VA20		Payroll Technician I	035	$ 35.91- 47.18	$ 6,224- 8,178	$ 74,693- 98,134	02
VA19		Payroll Technician II	042	$ 43.43- 57.22	$ 7,528- 9,918	$ 90,334-119,018	02
XA45		Photographer I	035	$ 35.91- 47.18	$ 6,224- 8,178	$ 74,693- 98,134	02
XA46		Photographer II	041	$ 42.25- 55.59	$ 7,323- 9,636	$ 87,880-115,627	02
XA48		Planner Scheduler	043	$ 44.67- 58.81	$ 7,743-10,194	$ 92,914-122,325	02
139	*	Plant Laboratory Supervisor	055	$ 58.91- 76.96	$10,211-13,340	$122,533-160,077	03
519	*	Plant Operations Supervisor	058	$ 63.85- 83.42	$11,067-14,459	$132,808-173,514	03
Y20	*	Postdoctoral Research Assoc	046	$ 48.47- 63.84	$ 8,401-11,066	$100,818-132,787	04
T06		Power Line Specialist	048	$ 51.21- 67.36	$ 8,876-11,676	$106,517-140,109	02
PM028	*	Power Planning Specialist	066	$ 83.51-109.01	$14,475-18,895	$173,701-226,741	04
YA03		Pr Accountant	049	$ 52.62- 69.23	$ 9,121-12,000	$109,450-143,998	02
YA06		Pr Admin Analyst	055	$ 62.15- 81.19	$10,773-14,073	$129,272-168,875	02
YC56	*	Pr Admin Analyst	066	$ 64.54- 88.01	$11,187-15,255	$134,243-183,061	01
YC05	*	Pr Admin Analyst (C)	056	$ 63.84- 83.51	$11,066-14,475	$132,787-173,701	05
Y16	*	Pr Architect	064	$ 79.08-103.40	$13,707-17,923	$164,486-215,072	04
216	*	Pr Auditor	058	$ 67.36- 88.01	$11,676-15,255	$140,109-183,061	04
YC44	*	Pr Benefits Analyst (C)	056	$ 63.84- 83.51	$11,066-14,475	$132,787-173,701	05
YA11		Pr Biologist	058	$ 67.36- 88.01	$11,676-15,255	$140,109-183,061	02
245	*	Pr Buyer	055	$ 62.15- 81.19	$10,773-14,073	$129,272-168,875	04
YA19		Pr Chemist	058	$ 67.36- 88.01	$11,676-15,255	$140,109-183,061	02
YC50	*	Pr Class & Comp Analyst (C)	056	$ 63.84- 83.51	$11,066-14,475	$132,787-173,701	05
XA15		Pr Designer	048	$ 51.21- 67.36	$ 8,876-11,676	$106,517-140,109	02
YC21	*	Pr Dpty General Counsel (C)	074	$103.40-135.48	$17,923-23,483	$215,072-281,798	05
Y08	*	Pr Dpty General Counsel-LbrRlt	085	$107.59-146.97	$18,649-25,475	$223,787-305,698	01
YC48	*	Pr EEO Analyst (C)	056	$ 63.84- 83.51	$11,066-14,475	$132,787-173,701	05
YC40	*	Pr Emp Relations Specialist	060	$ 71.09- 92.89	$12,322-16,101	$147,867-193,211	05
115	*	Pr Engineer	064	$ 79.08-103.40	$13,707-17,923	$164,486-215,072	04
165	*	Pr Engineering Technician	058	$ 67.36- 88.01	$11,676-15,255	$140,109-183,061	04
925	*	Pr Environmental Spec	064	$ 79.08-103.40	$13,707-17,923	$164,486-215,072	04
YC24	*	Pr Government&Region AffRep(C)	060	$ 71.09- 92.89	$12,322-16,101	$147,867-193,211	05
YA111	*	Pr Graphic Art Designer	055	$ 62.15- 81.19	$10,773-14,073	$129,272-168,875	02
YC52	*	Pr HR Training Specialist (C)	055	$ 62.15- 81.19	$10,773-14,073	$129,272-168,875	05
YC46	*	Pr HRIS Analyst (C)	056	$ 63.84- 83.51	$11,066-14,475	$132,787-173,701	05
231	*	Pr Info Tech Analyst	056	$ 63.84- 83.51	$11,066-14,475	$132,787-173,701	04
YC15	*	Pr Info Tech Analyst (C)	056	$ 63.84- 83.51	$11,066-14,475	$132,787-173,701	05
YC64	*	Pr Info Tech Network Engineer	058	$ 67.36- 88.01	$11,676-15,255	$140,109-183,061	04
Y07	*	Pr Land Surveyor	059	$ 69.23- 90.41	$12,000-15,671	$143,998-188,053	04
YA69		Pr Legal Analyst	055	$ 62.15- 81.19	$10,773-14,073	$129,272-168,875	02
022	*	Pr Legislative Representative	062	$ 74.97- 98.02	$12,995-16,990	$155,938-203,882	05
YA74		Pr Limnologist	058	$ 67.36- 88.01	$11,676-15,255	$140,109-183,061	02
YA79		Pr Microbiologist	058	$ 67.36- 88.01	$11,676-15,255	$140,109-183,061	02
YA105		Pr Project Controls Specialist	056	$ 63.84- 83.51	$11,066-14,475	$132,787-173,701	02
289	*	Pr Public Affairs Rep	058	$ 67.36- 88.01	$11,676-15,255	$140,109-183,061	04
275	*	Pr Real Estate Rep	055	$ 62.15- 81.19	$10,773-14,073	$129,272-168,875	04
YC54	*	Pr Recruitment Specialist (C)	056	$ 63.84- 83.51	$11,066-14,475	$132,787-173,701	05
933	*	Pr Resource Specialist	064	$ 79.08-103.40	$13,707-17,923	$164,486-215,072	04
223	*	Pr Systems Analyst	054	$ 60.44- 79.08	$10,476-13,707	$125,715-164,486	04
YC17	*	Pr Training Administrator (C)	056	$ 63.84- 83.51	$11,066-14,475	$132,787-173,701	05
YC10	*	Pr Training Specialist (C)	056	$ 63.84- 83.51	$11,066-14,475	$132,787-173,701	05
YA112		Pr Treasury Analyst	055	$ 62.15- 81.19	$10,773-14,073	$129,272-168,875	02
XA71	*	Pr Videographer	055	$ 62.15- 81.19	$10,773-14,073	$129,272-168,875	02
YA103		Pr Water Quality Specialist	058	$ 67.36- 88.01	$11,676-15,255	$140,109-183,061	02
S01		Pre-Apprentice	017	$ 21.88- 28.73	$ 3,793- 4,980	$ 45,510- 59,758	02
PMA04	*	Prgm Mgr-Outreach PrjLaborAgrt	070	$ 92.89-121.55	$16,101-21,069	$193,211-252,824	05
PM031	*	Prgrm Mgr-Audit	065	$ 81.19-106.19	$14,073-18,406	$168,875-220,875	04
PM021	*	Prgrm Mgr-Bay-Delta Initiative	066	$ 83.51-109.01	$14,475-18,895	$173,701-226,741	04
PM002	*	Prgrm Mgr-Business Continuity	060	$ 71.09- 92.89	$12,322-16,101	$147,867-193,211	04
PM027	*	Prgrm Mgr-Business Outreach	060	$ 71.09- 92.89	$12,322-16,101	$147,867-193,211	04
PM038	*	Prgrm Mgr-Climate Action Plan	063	$ 77.04-100.71	$13,354-17,456	$160,243-209,477	04

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PM037	*	Prgrm Mgr-Climate Adaptn Plng	071	$ 95.39-124.94	$16,534-21,656	$198,411-259,875	04
PMA03	*	Prgrm Mgr-CmtyRlts Delta/PV	066	$ 83.51-109.01	$14,475-18,895	$173,701-226,741	05
PMA02	*	Prgrm Mgr-Community Relations	066	$ 83.51-109.01	$14,475-18,895	$173,701-226,741	05
PM004	*	Prgrm Mgr-Corporate Resources	060	$ 71.09- 92.89	$12,322-16,101	$147,867-193,211	04
PM029	*	Prgrm Mgr-Creative Design	063	$ 77.04-100.71	$13,354-17,456	$160,243-209,477	04
PM005	*	Prgrm Mgr-Dam Safety Initiatvs	071	$ 95.39-124.94	$16,534-21,656	$198,411-259,875	04
PM006	*	Prgrm Mgr-Emergency Management	063	$ 77.04-100.71	$13,354-17,456	$160,243-209,477	04
PM026	*	Prgrm Mgr-Engineering	067	$ 85.73-112.07	$14,860-19,425	$178,318-233,106	04
PM001	*	Prgrm Mgr-Finance	066	$ 83.51-109.01	$14,475-18,895	$173,701-226,741	04
PM007	*	Prgrm Mgr-Fleet	060	$ 71.09- 92.89	$12,322-16,101	$147,867-193,211	04
PM009	*	Prgrm Mgr-Info Technology	066	$ 83.51-109.01	$14,475-18,895	$173,701-226,741	04
PM035	*	Prgrm Mgr-Innovation	063	$ 77.04-100.71	$13,354-17,456	$160,243-209,477	04
PM013	*	Prgrm Mgr-Power Sched&Trading	060	$ 71.09- 92.89	$12,322-16,101	$147,867-193,211	04
PM014	*	Prgrm Mgr-Press Office	066	$ 83.51-109.01	$14,475-18,895	$173,701-226,741	04
PM015	*	Prgrm Mgr-Pure Wtr So Califor	071	$ 95.39-124.94	$16,534-21,656	$198,411-259,875	04
PM022	*	Prgrm Mgr-Real Property	060	$ 71.09- 92.89	$12,322-16,101	$147,867-193,211	04
PM023	*	Prgrm Mgr-Safety&RegCompliance	066	$ 83.51-109.01	$14,475-18,895	$173,701-226,741	04
PM017	*	Prgrm Mgr-Water Resource	066	$ 83.51-109.01	$14,475-18,895	$173,701-226,741	04
PM019	*	Prgrm Mgr-Web	063	$ 77.04-100.71	$13,354-17,456	$160,243-209,477	04
XA50		Production Planner	048	$ 51.21- 67.36	$ 8,876-11,676	$106,517-140,109	02
Z13D	*	Program Manager I	068	$ 68.02- 92.89	$11,790-16,101	$141,482-193,211	01
Z13E	*	Program Manager II	071	$ 73.67-100.71	$12,769-17,456	$153,234-209,477	01
Z13F	*	Program Manager III	074	$ 79.91-109.01	$13,851-18,895	$166,213-226,741	01
YA85		Project Controls Specialist	045	$ 47.18- 62.15	$ 8,178-10,773	$ 98,134-129,272	02
TA25		Property Maintenance Specialst	044	$ 45.89- 60.44	$ 7,954-10,476	$ 95,451-125,715	02
TA24		Property Maintenance Tech I	037	$ 37.89- 49.86	$ 6,568- 8,642	$ 78,811-103,709	02
TA23		Property Maintenance Tech II	041	$ 42.25- 55.59	$ 7,323- 9,636	$ 87,880-115,627	02
YA87		Public Affairs Rep I	038	$ 38.93- 51.21	$ 6,748- 8,876	$ 80,974-106,517	02
YA88		Public Affairs Rep II	043	$ 44.67- 58.81	$ 7,743-10,194	$ 92,914-122,325	02
TA21		Pump Plant Maint Operator I	032	$ 33.03- 43.43	$ 5,725- 7,528	$ 68,702- 90,334	02
TA22		Pump Plant Maint Operator II	036	$ 36.91- 48.47	$ 6,398- 8,401	$ 76,773-100,818	02
T01		Pump Plant Specialist	048	$ 51.21- 67.36	$ 8,876-11,676	$106,517-140,109	02
YA90		Quality Assurance Officer	056	$ 63.84- 83.51	$11,066-14,475	$132,787-173,701	02
YA91		Real Estate Representative I	037	$ 37.89- 49.86	$ 6,568- 8,642	$ 78,811-103,709	02
YA92		Real Estate Representative II	042	$ 43.43- 57.22	$ 7,528- 9,918	$ 90,334-119,018	02
YA93		Real Estate Representative III	046	$ 48.47- 63.84	$ 8,401-11,066	$100,818-132,787	02
UA12		Reprographics Technician I	023	$ 25.76- 33.92	$ 4,465- 5,879	$ 53,581- 70,554	02
UA13		Reprographics Technician II	028	$ 29.51- 38.93	$ 5,115- 6,748	$ 61,381- 80,974	02
UA14		Reprographics Technician III	031	$ 32.10- 42.25	$ 5,564- 7,323	$ 66,768- 87,880	02
YA98		Resource Specialist	055	$ 62.15- 81.19	$10,773-14,073	$129,272-168,875	02
Z03B	*	Section Manager I (C)	067	$ 85.73-112.07	$14,860-19,425	$178,318-233,106	05
Z03C	*	Section Manager II (C)	069	$ 90.41-118.33	$15,671-20,511	$188,053-246,126	05
SM005	*	Section Mgr-Business Outreach	068	$ 88.01-115.16	$15,255-19,961	$183,061-239,533	04
SM014	*	Section Mgr-Conveyance&Distrbn	073	$100.71-131.91	$17,456-22,864	$209,477-274,373	04
SM002	*	Section Mgr-Customer&Comm Svcs	068	$ 88.01-115.16	$15,255-19,961	$183,061-239,533	04
SM015	*	Section Mgr-Engineering Svcs	073	$100.71-131.91	$17,456-22,864	$209,477-274,373	04
SM009	*	Section Mgr-Environ Planning	072	$ 98.02-128.36	$16,990-22,249	$203,882-266,989	04
SM003	*	Section Mgr-Legislative Svcs	068	$ 88.01-115.16	$15,255-19,961	$183,061-239,533	04
SM004	*	Section Mgr-Media Services	068	$ 88.01-115.16	$15,255-19,961	$183,061-239,533	04
SM006	*	Section Mgr-MembrSvc&PubOutrch	068	$ 88.01-115.16	$15,255-19,961	$183,061-239,533	04
SM010	*	Section Mgr-Ops Safety&Reg Srv	072	$ 98.02-128.36	$16,990-22,249	$203,882-266,989	04
SM011	*	Section Mgr-Ops Support Svcs	072	$ 98.02-128.36	$16,990-22,249	$203,882-266,989	04
SM012	*	Section Mgr-Power Ops&Planning	072	$ 98.02-128.36	$16,990-22,249	$203,882-266,989	04
SM018	*	Section Mgr-Real Property	071	$ 95.39-124.94	$16,534-21,656	$198,411-259,875	04
SM007	*	Section Mgr-Rev, Rates &Budget	068	$ 88.01-115.16	$15,255-19,961	$183,061-239,533	04
SM019	*	Section Mgr-Revenue & Budget	072	$ 98.02-128.36	$16,990-22,249	$203,882-266,989	04
SM021	*	Section Mgr-Sustain&Resilience	072	$ 98.02-128.36	$16,990-22,249	$203,882-266,989	04
SM013	*	Section Mgr-Water Ops&Planning	072	$ 98.02-128.36	$16,990-22,249	$203,882-266,989	04
SM016	*	Section Mgr-Water Quality	073	$100.71-131.91	$17,456-22,864	$209,477-274,373	04
SM008	*	Section Mgr-Water Resource Mgt	072	$ 98.02-128.36	$16,990-22,249	$203,882-266,989	04
SM017	*	Section Mgr-Water Treatment	073	$100.71-131.91	$17,456-22,864	$209,477-274,373	04
WC01		Security Specialist (C)	051	$ 55.59- 73.04	$ 9,636-12,660	$115,627-151,923	05
Z32	*	Senior Audit Manager	073	$ 77.75-106.19	$13,477-18,406	$161,720-220,875	01
V02	*	Special Asst to the GM	072	$ 75.68-103.40	$13,118-17,923	$157,414-215,072	01
Z16A	*	Special Projects Manager	072	$ 98.02-128.36	$16,990-22,249	$203,882-266,989	05
YA02		Sr Accountant	045	$ 47.18- 62.15	$ 8,178-10,773	$ 98,134-129,272	02
VA03		Sr Accounting Tech	039	$ 40.02- 52.62	$ 6,937- 9,121	$ 83,242-109,450	02
YA05		Sr Admin Analyst	049	$ 52.62- 69.23	$ 9,121-12,000	$109,450-143,998	02
YC04	*	Sr Admin Analyst (C)	049	$ 52.62- 69.23	$ 9,121-12,000	$109,450-143,998	05
Y01	*	Sr Architect	059	$ 69.23- 90.41	$12,000-15,671	$143,998-188,053	04

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Classification Code	Title	Salary Grade	Hourly Range	Monthly Range	Annual Range	Unit Code
YC43	* Sr Benefits Analyst (C)	049	$ 52.62- 69.23	$ 9,121-12,000	$109,450-143,998	05
YA10	Sr Biologist	053	$ 58.81- 77.04	$10,194-13,354	$122,325-160,243	02
YC07	* Sr Board Specialist (C)	050	$ 54.14- 71.09	$ 9,384-12,322	$112,611-147,867	05
YA14	Sr Buyer	048	$ 51.21- 67.36	$ 8,876-11,676	$106,517-140,109	02
YA18	Sr Chemist	053	$ 58.81- 77.04	$10,194-13,354	$122,325-160,243	02
YC49	* Sr Class & Comp Analyst (C)	049	$ 52.62- 69.23	$ 9,121-12,000	$109,450-143,998	05
XA08	Sr Crane Certification Tech	048	$ 51.21- 67.36	$ 8,876-11,676	$106,517-140,109	02
XA10	Sr Cross Connection Tech	048	$ 51.21- 67.36	$ 8,876-11,676	$106,517-140,109	02
Z11	* Sr Dep Gen Counsel Lbr Reltns	079	$ 91.41-124.94	$15,844-21,656	$190,133-259,875	01
YA23	Sr Deputy Auditor	052	$ 57.22- 74.97	$ 9,918-12,995	$119,018-155,938	02
XA14	Sr Designer	043	$ 44.67- 58.81	$ 7,743-10,194	$ 92,914-122,325	02
YC20	* Sr Dpty General Counsel (C)	071	$ 95.39-124.94	$16,534-21,656	$198,411-259,875	05
YC47	* Sr EEO Analyst (C)	049	$ 52.62- 69.23	$ 9,121-12,000	$109,450-143,998	05
YC28	* Sr EHS Field Specialist (C)	055	$ 62.15- 81.19	$10,773-14,073	$129,272-168,875	05
YC41	* Sr Emp Relations Specialist	054	$ 60.44- 79.08	$10,476-13,707	$125,715-164,486	05
114	* Sr Engineer	060	$ 71.09- 92.89	$12,322-16,101	$147,867-193,211	04
XA23A	Sr Engineering Technician	053	$ 58.81- 77.04	$10,194-13,354	$122,325-160,243	02
924	* Sr Environmental Specialist	060	$ 67.38- 88.05	$11,679-15,262	$140,150-183,144	03
YC04A	* Sr Financial Analyst (C)	051	$ 55.59- 73.04	$ 9,636-12,660	$115,627-151,923	05
YC23	* Sr Government&Region AffRep(C)	057	$ 65.59- 85.73	$11,369-14,860	$136,427-178,318	05
YA37	Sr Graphic Art Designer	048	$ 51.21- 67.36	$ 8,876-11,676	$106,517-140,109	02
YC51	* Sr HR Training Specialist (C)	048	$ 51.21- 67.36	$ 8,876-11,676	$106,517-140,109	05
YC45	* Sr HRIS Analyst (C)	049	$ 52.62- 69.23	$ 9,121-12,000	$109,450-143,998	05
YA109	Sr IT Business Analyst	052	$ 57.22- 74.97	$ 9,918-12,995	$119,018-155,938	02
XA30A	Sr IT Communication Technician	050	$ 54.14- 71.09	$ 9,384-12,322	$112,611-147,867	02
YA41	Sr IT Enterprise App Analyst	052	$ 57.22- 74.97	$ 9,918-12,995	$119,018-155,938	02
YA36	Sr IT GIS Analyst	052	$ 57.22- 74.97	$ 9,918-12,995	$119,018-155,938	02
YA45	Sr IT Infrastructure Adminstr	052	$ 57.22- 74.97	$ 9,918-12,995	$119,018-155,938	02
YA49	Sr IT Network Engineer	053	$ 58.81- 77.04	$10,194-13,354	$122,325-160,243	02
YA53	Sr IT Proj Controls Specialist	049	$ 52.62- 69.23	$ 9,121-12,000	$109,450-143,998	02
YA57	Sr IT Quality Analyst	052	$ 57.22- 74.97	$ 9,918-12,995	$119,018-155,938	02
YA61	Sr IT Software Developer	052	$ 57.22- 74.97	$ 9,918-12,995	$119,018-155,938	02
XA34A	Sr IT Support Analyst	051	$ 55.59- 73.04	$ 9,636-12,660	$115,627-151,923	02
YA65	Sr IT System Administrator	052	$ 57.22- 74.97	$ 9,918-12,995	$119,018-155,938	02
201	* Sr Info Systems Auditor	055	$ 62.15- 81.19	$10,773-14,073	$129,272-168,875	04
YC14	* Sr Info Tech Analyst (C)	052	$ 57.22- 74.97	$ 9,918-12,995	$119,018-155,938	05
XA37A	Sr Lab Info Systems Specialist	053	$ 58.81- 77.04	$10,194-13,354	$122,325-160,243	02
YA66	Sr Land Surveyor	056	$ 63.84- 83.51	$11,066-14,475	$132,787-173,701	02
XA44A	Sr Landscape Maintenance Tech	048	$ 51.21- 67.36	$ 8,876-11,676	$106,517-140,109	02
YA68	Sr Legal Analyst	049	$ 52.62- 69.23	$ 9,121-12,000	$109,450-143,998	02
UC03	Sr Legal Secretary (C)	040	$ 41.12- 54.14	$ 7,127- 9,384	$ 85,530-112,611	05
YA117	Sr Legal Technology Specialist	052	$ 57.22- 74.97	$ 9,918-12,995	$119,018-155,938	02
YC67	* Sr Legislative Representative	058	$ 67.36- 88.01	$11,676-15,255	$140,109-183,061	05
YA73	Sr Limnologist	053	$ 58.81- 77.04	$10,194-13,354	$122,325-160,243	02
YA78	Sr Microbiologist	053	$ 58.81- 77.04	$10,194-13,354	$122,325-160,243	02
928	* Sr Occup Safety & Health Spec	058	$ 67.36- 88.01	$11,676-15,255	$140,109-183,061	04
XA49	Sr Planner Scheduler	048	$ 51.21- 67.36	$ 8,876-11,676	$106,517-140,109	02
YA86	Sr Project Controls Specialist	050	$ 54.14- 71.09	$ 9,384-12,322	$112,611-147,867	02
YA89	Sr Public Affairs Rep	048	$ 51.21- 67.36	$ 8,876-11,676	$106,517-140,109	02
YA94	Sr Real Estate Representative	050	$ 54.14- 71.09	$ 9,384-12,322	$112,611-147,867	02
YC53	* Sr Recruitment Specialist (C)	049	$ 52.62- 69.23	$ 9,121-12,000	$109,450-143,998	05
UA15	Sr Reprographic Technician	034	$ 34.90- 45.89	$ 6,049- 7,954	$ 72,592- 95,451	02
155	* Sr Research Chemist	059	$ 65.62- 85.70	$11,374-14,855	$136,490-178,256	03
932	* Sr Resource Specialist	060	$ 67.38- 88.05	$11,679-15,262	$140,150-183,144	03
WC03	Sr Security Specialist	054	$ 60.44- 79.08	$10,476-13,707	$125,715-164,486	05
XA56	Sr System Operations Tech	053	$ 58.81- 77.04	$10,194-13,354	$122,325-160,243	02
TA17	Sr System Operator	048	$ 51.21- 67.36	$ 8,876-11,676	$106,517-140,109	02
XA62A	Sr Technical Writer	053	$ 58.81- 77.04	$10,194-13,354	$122,325-160,243	02
YC16	* Sr Training Administrator (C)	051	$ 55.59- 73.04	$ 9,636-12,660	$115,627-151,923	05
YC09	* Sr Training Specialist (C)	050	$ 54.14- 71.09	$ 9,384-12,322	$112,611-147,867	05
YA113	Sr Treasury Analyst	049	$ 52.62- 69.23	$ 9,121-12,000	$109,450-143,998	02
XA65	Sr Videographer	048	$ 51.21- 67.36	$ 8,876-11,676	$106,517-140,109	02
YA102	Sr Water Quality Specialist	053	$ 58.81- 77.04	$10,194-13,354	$122,325-160,243	02
XA69	Sr Water Quality Technician	048	$ 51.21- 67.36	$ 8,876-11,676	$106,517-140,109	02
V01	* Staff Assistant to the GM	072	$ 75.68-103.40	$13,118-17,923	$157,414-215,072	01
Z43	* Staffing Manager	062	$ 74.97- 98.02	$12,995-16,990	$155,938-203,882	05
VA12	Storekeeper I	026	$ 27.98- 36.91	$ 4,850- 6,398	$ 58,198- 76,773	02
VA13	Storekeeper II	031	$ 32.10- 42.25	$ 5,564- 7,323	$ 66,768- 87,880	02
VA14	Storekeeper III	035	$ 35.91- 47.18	$ 6,224- 8,178	$ 74,693- 98,134	02
Y19	* Strategic Comm&Policy Advisor	081	$ 96.54-131.91	$16,734-22,864	$200,803-274,373	01

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Classification Code		Title	Salary Grade	Hourly Range	Monthly Range	Annual Range	Unit Code
PMA01	*	Strategic Program Mgr, HR	066	$ 83.51-109.01	$14,475-18,895	$173,701-226,741	05
Y13		Student Intern	022	$ 19.44- 26.44	$ 3,370- 4,583	$ 40,435- 54,995	01
S04		Student Intern Desert	010	$ 18.04- 23.71	$ 3,127- 4,110	$ 37,523- 49,317	02
UA18		Student Youth Intern	014	$ 15.58- 21.27	$ 2,701- 3,687	$ 32,406- 44,242	01
260	*	Supervising Admin Analyst	049	$ 49.88- 65.62	$ 8,646-11,374	$103,750-136,490	03
XA51A		Survey and Mapping Tech I	036	$ 36.91- 48.47	$ 6,398- 8,401	$ 76,773-100,818	02
XA52A		Survey and Mapping Tech II	040	$ 41.12- 54.14	$ 7,127- 9,384	$ 85,530-112,611	02
XA53A		Survey and Mapping Tech III	048	$ 51.21- 67.36	$ 8,876-11,676	$106,517-140,109	02
XA54A		Survey and Mapping Tech IV	053	$ 58.81- 77.04	$10,194-13,354	$122,325-160,243	02
XA55		System Operations Technician	048	$ 51.21- 67.36	$ 8,876-11,676	$106,517-140,109	02
TA16		System Operator	045	$ 47.18- 62.15	$ 8,178-10,773	$ 98,134-129,272	02
Z06A	*	Team Manager I	056	$ 60.51- 79.16	$10,488-13,721	$125,861-164,653	03
Z06B	*	Team Manager II	057	$ 62.17- 81.26	$10,776-14,085	$129,314-169,021	03
Z06C	*	Team Manager III	059	$ 65.62- 85.70	$11,374-14,855	$136,490-178,256	03
Z06D	*	Team Manager IV	060	$ 67.38- 88.05	$11,679-15,262	$140,150-183,144	03
Z06R	*	Team Manager IV (C)	058	$ 67.36- 88.01	$11,676-15,255	$140,109-183,061	05
Z06E	*	Team Manager V	061	$ 69.23- 90.42	$12,000-15,673	$143,998-188,074	03
Z06S	*	Team Manager V (C)	060	$ 71.09- 92.89	$12,322-16,101	$147,867-193,211	05
Z06F	*	Team Manager VI	065	$ 76.96-100.65	$13,340-17,446	$160,077-209,352	03
Z06G	*	Team Manager VII	065	$ 76.96-100.65	$13,340-17,446	$160,077-209,352	03
TM085	*	Team Mgr-Accounts Payable	059	$ 69.23- 90.41	$12,000-15,671	$143,998-188,053	04
TM086	*	Team Mgr-Accounts Receivable	059	$ 69.23- 90.41	$12,000-15,671	$143,998-188,053	04
TM001	*	Team Mgr-Admin Svcs Bus Mgmt	059	$ 69.23- 90.41	$12,000-15,671	$143,998-188,053	04
TM080	*	Team Mgr-Budget	062	$ 74.97- 98.02	$12,995-16,990	$155,938-203,882	04
TM002	*	Team Mgr-Business Applications	063	$ 77.04-100.71	$13,354-17,456	$160,243-209,477	04
TM061	*	Team Mgr-Business Intel System	063	$ 77.04-100.71	$13,354-17,456	$160,243-209,477	04
TM084	*	Team Mgr-Capital Invstmnt Plan	066	$ 83.51-109.01	$14,475-18,895	$173,701-226,741	04
TM003	*	Team Mgr-Chemistry	064	$ 79.08-103.40	$13,707-17,923	$164,486-215,072	04
TM079	*	Team Mgr-Community Relations	063	$ 77.04-100.71	$13,354-17,456	$160,243-209,477	04
TM005	*	Team Mgr-Construction Mgmt I	060	$ 71.09- 92.89	$12,322-16,101	$147,867-193,211	04
TM004	*	Team Mgr-Construction Mgmt II	066	$ 83.51-109.01	$14,475-18,895	$173,701-226,741	04
TM064	*	Team Mgr-ConstructionContracts	066	$ 83.51-109.01	$14,475-18,895	$173,701-226,741	04
TM006	*	Team Mgr-Control Systems Apps	064	$ 79.08-103.40	$13,707-17,923	$164,486-215,072	04
TM007	*	Team Mgr-Corrosion Control	064	$ 79.08-103.40	$13,707-17,923	$164,486-215,072	04
TM078	*	Team Mgr-Creative Design	063	$ 77.04-100.71	$13,354-17,456	$160,243-209,477	04
TM008	*	Team Mgr-Database	064	$ 79.08-103.40	$13,707-17,923	$164,486-215,072	04
TM009	*	Team Mgr-Design	066	$ 83.51-109.01	$14,475-18,895	$173,701-226,741	04
TM073	*	Team Mgr-Design Support	057	$ 65.59- 85.73	$11,369-14,860	$136,427-178,318	04
TM072	*	Team Mgr-Design Technology	059	$ 69.23- 90.41	$12,000-15,671	$143,998-188,053	04
TM081	*	Team Mgr-Education	063	$ 77.04-100.71	$13,354-17,456	$160,243-209,477	04
TM013	*	Team Mgr-Eng Compliance	066	$ 83.51-109.01	$14,475-18,895	$173,701-226,741	04
TM012	*	Team Mgr-Engineering Administr	064	$ 79.08-103.40	$13,707-17,923	$164,486-215,072	04
TM014	*	Team Mgr-Enterprise Apps	064	$ 79.08-103.40	$13,707-17,923	$164,486-215,072	04
TM022	*	Team Mgr-Enterprise GIS & CAD	063	$ 77.04-100.71	$13,354-17,456	$160,243-209,477	04
TM015	*	Team Mgr-EnterprsWaterSysPrgrm	065	$ 81.19-106.19	$14,073-18,406	$168,875-220,875	04
TM065	*	Team Mgr-Environ Planning	065	$ 81.19-106.19	$14,073-18,406	$168,875-220,875	04
TM016	*	Team Mgr-Environ Prgrm Support	066	$ 83.51-109.01	$14,475-18,895	$173,701-226,741	04
TM011	*	Team Mgr-Ext Affairs Bus Mgmt	059	$ 69.23- 90.41	$12,000-15,671	$143,998-188,053	04
TM019	*	Team Mgr-Facility Operations	059	$ 69.23- 90.41	$12,000-15,671	$143,998-188,053	04
TM018	*	Team Mgr-Facility Planning	066	$ 83.51-109.01	$14,475-18,895	$173,701-226,741	04
TM020	*	Team Mgr-Field Survey	065	$ 81.19-106.19	$14,073-18,406	$168,875-220,875	04
TM033	*	Team Mgr-FinanceRpt&PlantAsset	059	$ 69.23- 90.41	$12,000-15,671	$143,998-188,053	04
TM021	*	Team Mgr-Geodetics and Mapping	065	$ 81.19-106.19	$14,073-18,406	$168,875-220,875	04
TM023	*	Team Mgr-Graphic Design	058	$ 67.36- 88.01	$11,676-15,255	$140,109-183,061	04
TMA01	*	Team Mgr-HR Business Support	058	$ 67.36- 88.01	$11,676-15,255	$140,109-183,061	05
TM024	*	Team Mgr-Health&SafetyPrgrmSup	064	$ 79.08-103.40	$13,707-17,923	$164,486-215,072	04
TM025	*	Team Mgr-Hydraulics&SysMdlng	066	$ 83.51-109.01	$14,475-18,895	$173,701-226,741	04
TM026	*	Team Mgr-Hydroelectric	066	$ 83.51-109.01	$14,475-18,895	$173,701-226,741	04
TM027	*	Team Mgr-IT Administration	062	$ 74.97- 98.02	$12,995-16,990	$155,938-203,882	04
TM074	*	Team Mgr-IT Business Analysis	061	$ 73.04- 95.39	$12,660-16,534	$151,923-198,411	04
TM077	*	Team Mgr-IT Client Systems Spt	060	$ 71.09- 92.89	$12,322-16,101	$147,867-193,211	04
TM082	*	Team Mgr-IT Network Systems	063	$ 77.04-100.71	$13,354-17,456	$160,243-209,477	04
TM066	*	Team Mgr-IT Prgrm Project Sppt	065	$ 81.19-106.19	$14,073-18,406	$168,875-220,875	04
TM028	*	Team Mgr-IT Quality Assurance	061	$ 73.04- 95.39	$12,660-16,534	$151,923-198,411	04
TM010	*	Team Mgr-IT Service Desk	060	$ 71.09- 92.89	$12,322-16,101	$147,867-193,211	04
TM055	*	Team Mgr-IT Telecommunication	063	$ 77.04-100.71	$13,354-17,456	$160,243-209,477	04
TM067	*	Team Mgr-Info Security	061	$ 73.04- 95.39	$12,660-16,534	$151,923-198,411	04
TM046	*	Team Mgr-InternalCntr&WaterInv	059	$ 69.23- 90.41	$12,000-15,671	$143,998-188,053	04
TM029	*	Team Mgr-Inventory Control	056	$ 63.84- 83.51	$11,066-14,475	$132,787-173,701	04
TM075	*	Team Mgr-Laboratory Support	057	$ 62.17- 81.26	$10,776-14,085	$129,314-169,021	03

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Classification Code		Title	Salary Grade	Hourly Range	Monthly Range	Annual Range	Unit Code
TM068	*	Team Mgr-LandPlanning&Managemt	063	$ 77.04-100.71	$13,354-17,456	$160,243-209,477	04
TM030	*	Team Mgr-Limnology & Reservoir	064	$ 79.08-103.40	$13,707-17,923	$164,486-215,072	04
TM031	*	Team Mgr-Maint Engineering	066	$ 83.51-109.01	$14,475-18,895	$173,701-226,741	04
TM032	*	Team Mgr-Materials&Metallurgy	060	$ 71.09- 92.89	$12,322-16,101	$147,867-193,211	04
TM034	*	Team Mgr-Microbiology	064	$ 79.08-103.40	$13,707-17,923	$164,486-215,072	04
TM035	*	Team Mgr-Operations App Svcs	063	$ 77.04-100.71	$13,354-17,456	$160,243-209,477	04
TM036	*	Team Mgr-Operations Compliance	066	$ 83.51-109.01	$14,475-18,895	$173,701-226,741	04
TM076	*	Team Mgr-Operations Planning	064	$ 79.08-103.40	$13,707-17,923	$164,486-215,072	04
TM037	*	Team Mgr-Ops Control Center	064	$ 79.08-103.40	$13,707-17,923	$164,486-215,072	04
TM087	*	Team Mgr-Payroll	062	$ 74.97- 98.02	$12,995-16,990	$155,938-203,882	04
TM060	*	Team Mgr-Power Ops& Scheduling	064	$ 79.08-103.40	$13,707-17,923	$164,486-215,072	04
TM038	*	Team Mgr-Procurement	059	$ 69.23- 90.41	$12,000-15,671	$143,998-188,053	04
TM039	*	Team Mgr-Prof Contracting Svcs	059	$ 69.23- 90.41	$12,000-15,671	$143,998-188,053	04
TM040	*	Team Mgr-Program Management	066	$ 83.51-109.01	$14,475-18,895	$173,701-226,741	04
TM041	*	Team Mgr-Project Support	060	$ 71.09- 92.89	$12,322-16,101	$147,867-193,211	04
TM063	*	Team Mgr-Property Management	063	$ 77.04-100.71	$13,354-17,456	$160,243-209,477	04
TM042	*	Team Mgr-Pump Plant	061	$ 73.04- 95.39	$12,660-16,534	$151,923-198,411	04
TM043	*	Team Mgr-QltyAsrn&CompSampling	064	$ 79.08-103.40	$13,707-17,923	$164,486-215,072	04
TM044	*	Team Mgr-Real Prop Bus Mgmt	059	$ 69.23- 90.41	$12,000-15,671	$143,998-188,053	04
TM045	*	Team Mgr-RecordsMgt&ImagingSvc	059	$ 69.23- 90.41	$12,000-15,671	$143,998-188,053	04
TM069	*	Team Mgr-Resource Development	064	$ 79.08-103.40	$13,707-17,923	$164,486-215,072	04
TM070	*	Team Mgr-Resource Planning	064	$ 79.08-103.40	$13,707-17,923	$164,486-215,072	04
TM062	*	Team Mgr-Right of Way Acquistn	063	$ 77.04-100.71	$13,354-17,456	$160,243-209,477	04
TM047	*	Team Mgr-Safety of Dams&Geotch	066	$ 83.51-109.01	$14,475-18,895	$173,701-226,741	04
TM017	*	Team Mgr-Safety&RegSvcSiteSupt	064	$ 79.08-103.40	$13,707-17,923	$164,486-215,072	04
TMA02	*	Team Mgr-SafetyRegTechTraining	060	$ 71.09- 92.89	$12,322-16,101	$147,867-193,211	05
TM048	*	Team Mgr-Security Management	064	$ 79.08-103.40	$13,707-17,923	$164,486-215,072	04
TM049	*	Team Mgr-Server Administration	064	$ 79.08-103.40	$13,707-17,923	$164,486-215,072	04
TM050	*	Team Mgr-Substructures	064	$ 79.08-103.40	$13,707-17,923	$164,486-215,072	04
TM051	*	Team Mgr-Supply Acquisition	064	$ 79.08-103.40	$13,707-17,923	$164,486-215,072	04
TM053	*	Team Mgr-Technical Control	065	$ 81.19-106.19	$14,073-18,406	$168,875-220,875	04
TM054	*	Team Mgr-Technical Writing	058	$ 67.36- 88.01	$11,676-15,255	$140,109-183,061	04
TM071	*	Team Mgr-Treasury Operations	062	$ 74.97- 98.02	$12,995-16,990	$155,938-203,882	04
TM058	*	Team Mgr-WRM Business Mgmt	059	$ 69.23- 90.41	$12,000-15,671	$143,998-188,053	04
TM059	*	Team Mgr-WSO Business Mgmt	059	$ 69.23- 90.41	$12,000-15,671	$143,998-188,053	04
TM056	*	Team Mgr-Warehouse	056	$ 63.84- 83.51	$11,066-14,475	$132,787-173,701	04
TM057	*	Team Mgr-Water Efficiency	066	$ 83.51-109.01	$14,475-18,895	$173,701-226,741	04
TM083	*	Team Mgr-WaterReuse&ProcessDev	066	$ 83.51-109.01	$14,475-18,895	$173,701-226,741	04
XA57		Technical Illustrator I	038	$ 38.93- 51.21	$ 6,748- 8,876	$ 80,974-106,517	02
XA58		Technical Illustrator II	043	$ 44.67- 58.81	$ 7,743-10,194	$ 92,914-122,325	02
XA59A		Technical Writer I	038	$ 38.93- 51.21	$ 6,748- 8,876	$ 80,974-106,517	02
XA60A		Technical Writer II	043	$ 44.67- 58.81	$ 7,743-10,194	$ 92,914-122,325	02
XA61A		Technical Writer III	048	$ 51.21- 67.36	$ 8,876-11,676	$106,517-140,109	02
YC55	*	Training Administrator	045	$ 47.18- 62.15	$ 8,178-10,773	$ 98,134-129,272	05
VC10		Training Assistant I	030	$ 31.26- 41.12	$ 5,418- 7,127	$ 65,021- 85,530	05
VC11		Training Assistant II	034	$ 34.90- 45.89	$ 6,049- 7,954	$ 72,592- 95,451	05
VC12		Training Assistant III	038	$ 38.93- 51.21	$ 6,748- 8,876	$ 80,974-106,517	05
Y15	*	Training Logistics Specialist	059	$ 65.62- 85.70	$11,374-14,855	$136,490-178,256	03
YC08	*	Training Specialist (C)	045	$ 47.18- 62.15	$ 8,178-10,773	$ 98,134-129,272	05
ASM01	*	Treasurer	066	$ 83.51-109.01	$14,475-18,895	$173,701-226,741	04
VA15		Treasury Administrator	039	$ 40.02- 52.62	$ 6,937- 9,121	$ 83,242-109,450	02
YA116		Treasury Analyst I	035	$ 35.91- 47.18	$ 6,224- 8,178	$ 74,693- 98,134	02
YA115		Treasury Analyst II	041	$ 42.25- 55.59	$ 7,323- 9,636	$ 87,880-115,627	02
YA114		Treasury Analyst III	044	$ 45.89- 60.44	$ 7,954-10,476	$ 95,451-125,715	02
Z05E	*	Unit Manager V	066	$ 83.51-109.01	$14,475-18,895	$173,701-226,741	04
Z05J	*	Unit Manager V (C)	066	$ 83.51-109.01	$14,475-18,895	$173,701-226,741	05
UM002	*	Unit Mgr-Application Services	067	$ 85.73-112.07	$14,860-19,425	$178,318-233,106	04
UM003	*	Unit Mgr-Apprentice&TechTrain	064	$ 79.08-103.40	$13,707-17,923	$164,486-215,072	04
UM004	*	Unit Mgr-Audit	065	$ 81.19-106.19	$14,073-18,406	$168,875-220,875	04
UMA01	*	Unit Mgr-Benefits Services	066	$ 83.51-109.01	$14,475-18,895	$173,701-226,741	05
UM031	*	Unit Mgr-Budget	066	$ 83.51-109.01	$14,475-18,895	$173,701-226,741	04
UM030	*	Unit Mgr-Chemistry	068	$ 88.01-115.16	$15,255-19,961	$183,061-239,533	04
UMA02	*	Unit Mgr-ClassComp&Recruitment	066	$ 83.51-109.01	$14,475-18,895	$173,701-226,741	05
UM005	*	Unit Mgr-Construction Services	068	$ 88.01-115.16	$15,255-19,961	$183,061-239,533	04
UM006	*	Unit Mgr-Contracting Services	066	$ 83.51-109.01	$14,475-18,895	$173,701-226,741	04
UM007	*	Unit Mgr-Conveyance&Distribtn	068	$ 88.01-115.16	$15,255-19,961	$183,061-239,533	04
UM008	*	Unit Mgr-Document Services	064	$ 79.08-103.40	$13,707-17,923	$164,486-215,072	04
UM042	*	Unit Mgr-DvrstyEqty&IncWkfcDev	068	$ 88.01-115.16	$15,255-19,961	$183,061-239,533	04
UM009	*	Unit Mgr-Education	066	$ 83.51-109.01	$14,475-18,895	$173,701-226,741	04
UM010	*	Unit Mgr-Engineering Services	069	$ 90.41-118.33	$15,671-20,511	$188,053-246,126	04

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Classification Code	Title	Salary Grade	Hourly Range	Monthly Range	Annual Range	Unit Code
UM038	* Unit Mgr-Environmental Plng	069	$ 90.41-118.33	$15,671-20,511	$188,053-246,126	04
UM011	* Unit Mgr-Facility Management	067	$ 85.73-112.07	$14,860-19,425	$178,318-233,106	04
UM045	* Unit Mgr-Finance Services	066	$ 83.51-109.01	$14,475-18,895	$173,701-226,741	04
UM012	* Unit Mgr-Fleet Services	065	$ 81.19-106.19	$14,073-18,406	$168,875-220,875	04
UM043	* Unit Mgr-Grants & Research	065	$ 81.19-106.19	$14,073-18,406	$168,875-220,875	04
UM016	* Unit Mgr-IT Infrastructure	068	$ 88.01-115.16	$15,255-19,961	$183,061-239,533	04
UM033	* Unit Mgr-IT Program Mgt Office	069	$ 90.41-118.33	$15,671-20,511	$188,053-246,126	04
UM017	* Unit Mgr-IT Project Planning	066	$ 83.51-109.01	$14,475-18,895	$173,701-226,741	04
UM032	* Unit Mgr-IT Security	068	$ 88.01-115.16	$15,255-19,961	$183,061-239,533	04
UM013	* Unit Mgr-Implemnt Proj&Studies	068	$ 88.01-115.16	$15,255-19,961	$183,061-239,533	04
UM014	* Unit Mgr-Imported Supply	068	$ 88.01-115.16	$15,255-19,961	$183,061-239,533	04
UM015	* Unit Mgr-Info Security Svcs	066	$ 83.51-109.01	$14,475-18,895	$173,701-226,741	04
UM037	* Unit Mgr-Laboratory Services	068	$ 88.01-115.16	$15,255-19,961	$183,061-239,533	04
UM023	* Unit Mgr-Land Management	067	$ 85.73-112.07	$14,860-19,425	$178,318-233,106	04
UM018	* Unit Mgr-Manufacturing Svcs	068	$ 88.01-115.16	$15,255-19,961	$183,061-239,533	04
UM029	* Unit Mgr-Microbiology	068	$ 88.01-115.16	$15,255-19,961	$183,061-239,533	04
UM019	* Unit Mgr-Ops Planning&Program	068	$ 88.01-115.16	$15,255-19,961	$183,061-239,533	04
UM036	* Unit Mgr-Ops Proj & Asset Mgmt	069	$ 90.41-118.33	$15,671-20,511	$188,053-246,126	04
UM021	* Unit Mgr-Planning and Acquistn	067	$ 85.73-112.07	$14,860-19,425	$178,318-233,106	04
UM020	* Unit Mgr-Power&EquipReliabilty	068	$ 88.01-115.16	$15,255-19,961	$183,061-239,533	04
UM040	* Unit Mgr-PowerCompl&Programs	068	$ 88.01-115.16	$15,255-19,961	$183,061-239,533	04
UM035	* Unit Mgr-Rates,Charges&FinPlan	066	$ 83.51-109.01	$14,475-18,895	$173,701-226,741	04
UM024	* Unit Mgr-Risk Management	065	$ 81.19-106.19	$14,073-18,406	$168,875-220,875	04
UM041	* Unit Mgr-Safety&Environ Svcs	068	$ 88.01-115.16	$15,255-19,961	$183,061-239,533	04
UM034	* Unit Mgr-Security	068	$ 88.01-115.16	$15,255-19,961	$183,061-239,533	04
UM025	* Unit Mgr-System Analysis	069	$ 90.41-118.33	$15,671-20,511	$188,053-246,126	04
UM026	* Unit Mgr-System Operations	068	$ 88.01-115.16	$15,255-19,961	$183,061-239,533	04
UM027	* Unit Mgr-Water Purification	068	$ 88.01-115.16	$15,255-19,961	$183,061-239,533	04
UM028	* Unit Mgr-Water Treatment Plant	068	$ 88.01-115.16	$15,255-19,961	$183,061-239,533	04
XA63	Videographer I	035	$ 35.91- 47.18	$ 6,224- 8,178	$ 74,693- 98,134	02
XA64	Videographer II	041	$ 42.25- 55.59	$ 7,323- 9,636	$ 87,880-115,627	02
YA101	Water Quality Specialist	048	$ 51.21- 67.36	$ 8,876-11,676	$106,517-140,109	02
XA66	Water Quality Technician I	033	$ 33.92- 44.67	$ 5,879- 7,743	$ 70,554- 92,914	02
XA67	Water Quality Technician II	038	$ 38.93- 51.21	$ 6,748- 8,876	$ 80,974-106,517	02
XA68	Water Quality Technician III	043	$ 44.67- 58.81	$ 7,743-10,194	$ 92,914-122,325	02
XA70A	Water Sampling Field Tech	033	$ 33.92- 44.67	$ 5,879- 7,743	$ 70,554- 92,914	02
Z38	* Workers Compensation Manager	066	$ 83.51-109.01	$14,475-18,895	$173,701-226,741	05
T13	Wtr Treatment Plant Specialist	048	$ 51.21- 67.36	$ 8,876-11,676	$106,517-140,109	02
TA18	Wtr Trtment Plant Operator I	035	$ 35.91- 47.18	$ 6,224- 8,178	$ 74,693- 98,134	02
TA19	Wtr Trtment Plant Operator II	040	$ 41.12- 54.14	$ 7,127- 9,384	$ 85,530-112,611	02
TA20	Wtr Trtment Plant Operator III	045	$ 47.18- 62.15	$ 8,178-10,773	$ 98,134-129,272	02

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Classification Code	Title	Salary Grade	Hourly Range	Monthly Range	Annual Range	Unit Code

Unit Code

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00 - Executive
01 - Unrepresented
02 - AFSCME Local 1902
03 - Supervisors Association
04 - Management&Professional Assoc
05 - Assoc of Conf Employees

* Not Eligible for Overtime

O&M Tech Titles

+ O&M Tech I
  S03A (Grade 27): Carpenter, Coater, Equipment Operator, Fleet, Plumber, Welder-Fabricator
  S03 (Grade 28): Electrical, HVAC, Machinist, Mechanical
  S03P (Grade 28 - Apprentice): Electrical, Mechanical
+ O&M Tech II
  S02A (Grade 31): Carpenter, Coater, Equipment Operator, Fleet, Plumber, Welder-Fabricator
  S02 (Grade 32): Electrical, HVAC, Machinist, Mechanical
  S02P (Grade 32 - Apprentice): Electrical, Mechanical
+ O&M Tech III
  T10A (Grade 35): Carpenter, Coater, Equipment Operator, Fleet, Plumber, Welder-Fabricator
  T10 (Grade 36): Electrical, HVAC, Machinist, Mechanical
  T10P (Grade 36 - Apprentice): Electrical, Mechanical
+ O&M Tech IV
  T03A (Grade 41): Carpenter, Coater, Equipment Operator, Fleet, Plumber, Welder-Fabricator
  T03 (Grade 42): Electrical, HVAC, Machinist, Mechanical
  T03FS (Grade 42): Welder-Fabricator/Field Services

End of Report

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Classification Code		Title	Salary Grade	Hourly Range	Monthly Range	Annual Range	Unit Code
YA01		Accountant	038	$ 40.10- 52.75	$ 6,951- 9,143	$ 83,408-109,720	02
VA01		Accounting Tech I	029	$ 31.30- 41.22	$ 5,425- 7,145	$ 65,104- 85,738	02
VA02		Accounting Tech II	034	$ 35.95- 47.27	$ 6,231- 8,193	$ 74,776- 98,322	02
YA04		Admin Analyst	044	$ 47.27- 62.25	$ 8,193-10,790	$ 98,322-129,480	02
YC01		Admin Analyst I (C)	039	$ 41.22- 54.20	$ 7,145- 9,395	$ 85,738-112,736	05
YC02		Admin Analyst II (C)	042	$ 44.73- 58.94	$ 7,753-10,216	$ 93,038-122,595	05
YC03	*	Admin Analyst III (C)	045	$ 48.60- 64.01	$ 8,424-11,095	$101,088-133,141	05
VA04		Admin Assistant I	031	$ 33.06- 43.52	$ 5,730- 7,543	$ 68,765- 90,522	02
VC01		Admin Assistant I (C)	031	$ 33.06- 43.52	$ 5,730- 7,543	$ 68,765- 90,522	05
VA05		Admin Assistant II	035	$ 36.99- 48.60	$ 6,412- 8,424	$ 76,939-101,088	02
VC02		Admin Assistant II (C)	035	$ 36.99- 48.60	$ 6,412- 8,424	$ 76,939-101,088	05
VA06		Admin Assistant III	039	$ 41.22- 54.20	$ 7,145- 9,395	$ 85,738-112,736	02
VC03		Admin Assistant III (C)	039	$ 41.22- 54.20	$ 7,145- 9,395	$ 85,738-112,736	05
UA04		Admin Secretary	037	$ 39.03- 51.36	$ 6,765- 8,902	$ 81,182-106,829	02
PM034	*	Agricultural Liaison	060	$ 73.22- 95.68	$12,691-16,585	$152,298-199,014	04
937		Aircraft Pilot	047	$ 48.68- 64.04	$ 8,438-11,100	$101,254-133,203	03
TA12		Aqueduct & Power Dispatcher	045	$ 48.60- 64.01	$ 8,424-11,095	$101,088-133,141	02
T11		Aqueduct Pump Specialist	046	$ 49.92- 65.76	$ 8,653-11,398	$103,834-136,781	02
YC62	*	Assistant Ethics Officer	071	$ 98.25-128.69	$17,030-22,306	$204,360-267,675	05
YA08		Assoc Biologist	043	$ 46.01- 60.57	$ 7,975-10,499	$ 95,701-125,986	02
YA16		Assoc Chemist	043	$ 46.01- 60.57	$ 7,975-10,499	$ 95,701-125,986	02
YC18	*	Assoc Dpty General Counsel (C)	060	$ 73.22- 95.68	$12,691-16,585	$152,298-199,014	05
YA26		Assoc Engineer	050	$ 55.76- 73.22	$ 9,665-12,691	$115,981-152,298	02
YA30		Assoc Environmental Specialist	048	$ 52.75- 69.38	$ 9,143-12,026	$109,720-144,310	02
YA51		Assoc IT Proj Contr Specialist	039	$ 41.22- 54.20	$ 7,145- 9,395	$ 85,738-112,736	02
YA71		Assoc Limnologist	043	$ 46.01- 60.57	$ 7,975-10,499	$ 95,701-125,986	02
YA76		Assoc Microbiologist	043	$ 46.01- 60.57	$ 7,975-10,499	$ 95,701-125,986	02
YA84		Assoc Proj Controls Specialist	038	$ 40.10- 52.75	$ 6,951- 9,143	$ 83,408-109,720	02
YA97		Assoc Resource Specialist	049	$ 54.20- 71.31	$ 9,395-12,360	$112,736-148,325	02
WC02		Assoc Security Specialist (C)	049	$ 54.20- 71.31	$ 9,395-12,360	$112,736-148,325	05
YA100		Assoc Water Quality Specialist	043	$ 46.01- 60.57	$ 7,975-10,499	$ 95,701-125,986	02
YA07		Asst Biologist	038	$ 40.10- 52.75	$ 6,951- 9,143	$ 83,408-109,720	02
YC63	*	Asst Board Administrator	056	$ 65.76- 86.02	$11,398-14,910	$136,781-178,922	05
YA15		Asst Chemist	038	$ 40.10- 52.75	$ 6,951- 9,143	$ 83,408-109,720	02
YA24		Asst Engineer I	043	$ 46.01- 60.57	$ 7,975-10,499	$ 95,701-125,986	02
YA25		Asst Engineer II	046	$ 49.92- 65.76	$ 8,653-11,398	$103,834-136,781	02
YA28		Asst Env Specialist I	038	$ 40.10- 52.75	$ 6,951- 9,143	$ 83,408-109,720	02
YA29		Asst Env Specialist II	043	$ 46.01- 60.57	$ 7,975-10,499	$ 95,701-125,986	02
Z12	*	Asst GM Strategic Wtr Initiatv	093	$137.69-188.11	$23,866-32,606	$286,395-391,269	01
985	*	Asst General Auditor	081	$ 99.44-135.87	$17,236-23,551	$206,835-282,610	01
032	*	Asst General Counsel	086	$113.86-155.54	$19,736-26,960	$236,829-323,523	01
Z55	*	Asst General Counsel (C)	078	$118.61-155.54	$20,559-26,960	$246,709-323,523	05
024	*	Asst General Manager/CAO	093	$137.69-188.11	$23,866-32,606	$286,395-391,269	01
Z14	*	Asst General Manager/CEAO	093	$137.69-188.11	$23,866-32,606	$286,395-391,269	01
006	*	Asst General Manager/CFO	093	$137.69-188.11	$23,866-32,606	$286,395-391,269	01
002	*	Asst General Manager/COO	094	$141.43-193.30	$24,515-33,505	$294,174-402,064	01
Z02	*	Asst Group Manager	085	$110.82-151.38	$19,209-26,239	$230,506-314,870	01
YA50		Asst IT Proj Contrl Specialist	033	$ 34.94- 46.01	$ 6,056- 7,975	$ 72,675- 95,701	02
YC66	*	Asst LegislativeRepresentative	048	$ 52.75- 69.38	$ 9,143-12,026	$109,720-144,310	05
YA70		Asst Limnologist	038	$ 40.10- 52.75	$ 6,951- 9,143	$ 83,408-109,720	02
YA75		Asst Microbiologist	038	$ 40.10- 52.75	$ 6,951- 9,143	$ 83,408-109,720	02
YA83		Asst Proj Controls Specialist	033	$ 34.94- 46.01	$ 6,056- 7,975	$ 72,675- 95,701	02
YA95		Asst Resource Specialist I	042	$ 44.73- 58.94	$ 7,753-10,216	$ 93,038-122,595	02
YA96		Asst Resource Specialist II	045	$ 48.60- 64.01	$ 8,424-11,095	$101,088-133,141	02
Z04C	*	Asst Section Manager II (C)	067	$ 88.30-115.43	$15,305-20,008	$183,664-240,094	05
TA15		Asst System Operator	041	$ 43.52- 57.26	$ 7,543- 9,925	$ 90,522-119,101	02
295	*	Asst Treasurer	057	$ 67.56- 88.30	$11,710-15,305	$140,525-183,664	04
UM044	*	Asst Treasury and Debt Manager	066	$ 86.02-112.28	$14,910-19,462	$178,922-233,542	04
Z52	*	Asst Unit Mgr-Conveyance&Distr	064	$ 81.45-106.50	$14,118-18,460	$169,416-221,520	04
YA99		Asst Water Quality Specialist	038	$ 40.10- 52.75	$ 6,951- 9,143	$ 83,408-109,720	02
UM001	*	AsstContrl/Unit Mgr-Accounting	066	$ 86.02-112.28	$14,910-19,462	$178,922-233,542	04
UM039	*	AsstContrl/Unit Mgr-FinclRptng	066	$ 86.02-112.28	$14,910-19,462	$178,922-233,542	04
Z68	*	Bay-Delta InitiativesPolicyMgr	085	$110.82-151.38	$19,209-26,239	$230,506-314,870	01
YA09		Biologist	048	$ 52.75- 69.38	$ 9,143-12,026	$109,720-144,310	02
Z64	*	Board Administrator	072	$ 77.95-106.50	$13,511-18,460	$162,136-221,520	01
Z78	*	Board Executive Officer	088	$120.20-164.22	$20,835-28,465	$250,016-341,578	01
U04	*	Board Executive Secretary	072	$ 77.95-106.50	$13,511-18,460	$162,136-221,520	01
YC06	*	Board Specialist (C)	045	$ 48.60- 64.01	$ 8,424-11,095	$101,088-133,141	05
Z65	*	Budget and Treasury Manager	081	$ 99.44-135.87	$17,236-23,551	$206,835-282,610	01
Z09	*	Business Outreach Manager	060	$ 73.22- 95.68	$12,691-16,585	$152,298-199,014	04

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Run Date 09/04/2024

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Classification Code		Title	Salary Grade	Hourly Range	Monthly Range	Annual Range	Unit Code
YA12		Buyer I	038	$ 40.10- 52.75	$ 6,951- 9,143	$ 83,408-109,720	02
YA13		Buyer II	043	$ 46.01- 60.57	$ 7,975-10,499	$ 95,701-125,986	02
YA17		Chemist	048	$ 52.75- 69.38	$ 9,143-12,026	$109,720-144,310	02
SA06		Chief Cook	024	$ 27.23- 35.95	$ 4,720- 6,231	$ 56,638- 74,776	02
YC65	*	Chief EEO Investigator	069	$ 93.12-121.88	$16,141-21,126	$193,690-253,510	05
Z71	*	Chief EEO Officer	085	$110.82-151.38	$19,209-26,239	$230,506-314,870	01
XA47		Chief Photographer	048	$ 52.75- 69.38	$ 9,143-12,026	$109,720-144,310	02
122	*	Chief of Party	054	$ 59.01- 77.21	$10,228-13,383	$122,741-160,597	03
Z80	*	Chief of Staff	099	$162.01-221.39	$28,082-38,374	$336,981-460,491	01
Z73	*	ChiefDvrstyEqty&InclsnOfficer	085	$110.82-151.38	$19,209-26,239	$230,506-314,870	01
Z84	*	ChiefSafetySecurity&ProOfficer	085	$110.82-151.38	$19,209-26,239	$230,506-314,870	01
Z72	*	ChiefSustRslncy&InnovOfficer	085	$110.82-151.38	$19,209-26,239	$230,506-314,870	01
Z42	*	Class & Comp Manager	064	$ 81.45-106.50	$14,118-18,460	$169,416-221,520	05
SA04		Commercial Truck Driver A	037	$ 39.03- 51.36	$ 6,765- 8,902	$ 81,182-106,829	02
SA05A		Commercial Truck Driver B	037	$ 39.03- 51.36	$ 6,765- 8,902	$ 81,182-106,829	02
XA01A		Construction Inspector I	038	$ 40.10- 52.75	$ 6,951- 9,143	$ 83,408-109,720	02
XA02A		Construction Inspector II	043	$ 46.01- 60.57	$ 7,975-10,499	$ 95,701-125,986	02
XA03A		Construction Inspector III	048	$ 52.75- 69.38	$ 9,143-12,026	$109,720-144,310	02
XA04A		Construction Inspector IV	053	$ 60.57- 79.35	$10,499-13,754	$125,986-165,048	02
XA05A		Construction Inspector V	056	$ 65.76- 86.02	$11,398-14,910	$136,781-178,922	02
Z36	*	Controller	072	$100.96-132.21	$17,500-22,916	$209,997-274,997	05
T04		Conveyance&Distrbtn Specialist	047	$ 51.36- 67.56	$ 8,902-11,710	$106,829-140,525	02
XA06		Crane Certification Tech I	038	$ 40.10- 52.75	$ 6,951- 9,143	$ 83,408-109,720	02
XA07		Crane Certification Tech II	043	$ 46.01- 60.57	$ 7,975-10,499	$ 95,701-125,986	02
XA09		Cross Connection Technician	043	$ 46.01- 60.57	$ 7,975-10,499	$ 95,701-125,986	02
PM030	*	Debt Management Specialist	060	$ 73.22- 95.68	$12,691-16,585	$152,298-199,014	04
YA20		Deputy Auditor I	031	$ 33.06- 43.52	$ 5,730- 7,543	$ 68,765- 90,522	02
YA21		Deputy Auditor II	036	$ 38.02- 49.92	$ 6,590- 8,653	$ 79,082-103,834	02
YA22		Deputy Auditor III	045	$ 48.60- 64.01	$ 8,424-11,095	$101,088-133,141	02
Z77	*	Deputy Chief DE&I Officer	080	$ 96.73-132.21	$16,767-22,916	$201,198-274,997	01
Z75	*	Deputy Chief EEO Officer	080	$ 96.73-132.21	$16,767-22,916	$201,198-274,997	01
YC60	*	Deputy Ethics Officer	066	$ 86.02-112.28	$14,910-19,462	$178,922-233,542	05
Z57	*	Deputy General Auditor	077	$ 89.18-121.88	$15,458-21,126	$185,494-253,510	01
YC19	*	Deputy General Counsel (C)	066	$ 86.02-112.28	$14,910-19,462	$178,922-233,542	05
XA11		Designer I	032	$ 34.02- 44.73	$ 5,897- 7,753	$ 70,762- 93,038	02
XA12		Designer II	035	$ 36.99- 48.60	$ 6,412- 8,424	$ 76,939-101,088	02
XA13		Designer III	039	$ 41.22- 54.20	$ 7,145- 9,395	$ 85,738-112,736	02
Z41	*	Director of Info Tech Services	072	$100.96-132.21	$17,500-22,916	$209,997-274,997	04
T14		Diver-Inland Commercial	047	$ 51.36- 67.56	$ 8,902-11,710	$106,829-140,525	02
YC61	*	DptyEthicsOfcr Adv,Comp&Policy	060	$ 73.22- 95.68	$12,691-16,585	$152,298-199,014	05
PM036	*	DvrstyEqty&InclsnOut&EngageMgr	063	$ 79.35-103.73	$13,754-17,980	$165,048-215,758	04
Z25	*	EEO Manager	068	$ 90.65-118.61	$15,713-20,559	$188,552-246,709	05
YC25		EHS Field Specialist I (C)	043	$ 46.01- 60.57	$ 7,975-10,499	$ 95,701-125,986	05
YC26		EHS Field Specialist II (C)	045	$ 48.60- 64.01	$ 8,424-11,095	$101,088-133,141	05
YC27		EHS Field Specialist III (C)	050	$ 55.76- 73.22	$ 9,665-12,691	$115,981-152,298	05
T12		Electrical Specialist	048	$ 52.75- 69.38	$ 9,143-12,026	$109,720-144,310	02
168	*	Electronic Tech Supervisor	055	$ 60.68- 79.27	$10,518-13,740	$126,214-164,882	03
YC42	*	Employee Relations Specialist	051	$ 57.26- 75.23	$ 9,925-13,040	$119,101-156,478	05
YA27		Engineer	056	$ 65.76- 86.02	$11,398-14,910	$136,781-178,922	02
XA20A		Engineering Tech I	038	$ 40.10- 52.75	$ 6,951- 9,143	$ 83,408-109,720	02
XA21A		Engineering Tech II	043	$ 46.01- 60.57	$ 7,975-10,499	$ 95,701-125,986	02
XA22A		Engineering Tech III	048	$ 52.75- 69.38	$ 9,143-12,026	$109,720-144,310	02
YA31		Environmental Specialist	053	$ 60.57- 79.35	$10,499-13,754	$125,986-165,048	02
Z59	*	Equal Emp Compliance&Policy Co	066	$ 86.02-112.28	$14,910-19,462	$178,922-233,542	05
Z16	*	Ethics Officer	FR			$313,643	00
YC35	*	Ethics Policy Analyst	060	$ 73.22- 95.68	$12,691-16,585	$152,298-199,014	05
Z81	*	Exec Advisor: WtrRes&CapImprvs	086	$113.86-155.54	$19,736-26,960	$236,829-323,523	01
002A	*	ExecOff&AsstGM/Wtr&TechResrcs	097	$153.49-209.70	$26,605-36,348	$319,259-436,176	01
VC04		Executive Assistant I (C)	044	$ 47.27- 62.25	$ 8,193-10,790	$ 98,322-129,480	05
VC05		Executive Assistant II (C)	048	$ 52.75- 69.38	$ 9,143-12,026	$109,720-144,310	05
VC13	*	Executive Assistant to the GC	051	$ 57.26- 75.23	$ 9,925-13,040	$119,101-156,478	05
VC14	*	Executive Assistant to the GM	051	$ 57.26- 75.23	$ 9,925-13,040	$119,101-156,478	05
021	*	Executive Legislative Rep	081	$ 99.44-135.87	$17,236-23,551	$206,835-282,610	01
Z56	*	Executive Legislative Rep (C)	073	$103.73-135.87	$17,980-23,551	$215,758-282,610	05
Z74	*	Executive Office Manager	067	$ 68.19- 93.12	$11,820-16,141	$141,835-193,690	01
061	*	Executive Secretary	051	$ 57.26- 75.23	$ 9,925-13,040	$119,101-156,478	04
017	*	Executive Strategist	073	$103.73-135.87	$17,980-23,551	$215,758-282,610	05
SA07		Facilities Maint Assistant	029	$ 31.30- 41.22	$ 5,425- 7,145	$ 65,104- 85,738	02
TA14		Facilities Maint Mechanic	037	$ 39.03- 51.36	$ 6,765- 8,902	$ 81,182-106,829	02
YA32		Fleet Coordinator	048	$ 52.75- 69.38	$ 9,143-12,026	$109,720-144,310	02

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Classification Code		Title	Salary Grade	Hourly Range	Monthly Range	Annual Range	Unit Code
VA17		Fleet Dispatch Coordinator	035	$ 36.99- 48.60	$ 6,412- 8,424	$ 76,939-101,088	02
VA16		Fleet Dispatcher	031	$ 33.06- 43.52	$ 5,730- 7,543	$ 68,765- 90,522	02
041	*	General Auditor	FR			$288,413	00
031	*	General Counsel	FR			$399,194	00
706		General Maintenance Asst	021	$ 25.10- 33.06	$ 4,351- 5,730	$ 52,208- 68,765	02
001	*	General Manager	FR			$472,160	00
YC22	*	Government&Regional Aff Rep(C)	052	$ 58.94- 77.22	$10,216-13,385	$122,595-160,618	05
XA24		Graphic Technician I	034	$ 35.95- 47.27	$ 6,231- 8,193	$ 74,776- 98,322	02
XA25		Graphic Technician II	038	$ 40.10- 52.75	$ 6,951- 9,143	$ 83,408-109,720	02
XA26		Graphic Technician III	043	$ 46.01- 60.57	$ 7,975-10,499	$ 95,701-125,986	02
SA08		Grounds Maintenance Worker	029	$ 31.30- 41.22	$ 5,425- 7,145	$ 65,104- 85,738	02
Z01	*	Group Manager	086	$113.86-155.54	$19,736-26,960	$236,829-323,523	01
Z29	*	Group Manager-Bay Delta Intivs	086	$113.86-155.54	$19,736-26,960	$236,829-323,523	01
Z60	*	Group Manager-Engineering Svcs	089	$123.47-168.79	$21,401-29,257	$256,818-351,083	01
Z58	*	Group Manager-External Affairs	086	$113.86-155.54	$19,736-26,960	$236,829-323,523	01
Z54	*	Group Manager-Human Resources	086	$113.86-155.54	$19,736-26,960	$236,829-323,523	01
Z66	*	Group Manager-Info Technology	088	$120.20-164.22	$20,835-28,465	$250,016-341,578	01
Z61	*	Group Manager-Real Property	086	$113.86-155.54	$19,736-26,960	$236,829-323,523	01
Z62	*	Group Manager-Water Resrc Mgmt	088	$120.20-164.22	$20,835-28,465	$250,016-341,578	01
Z63	*	Group Manager-Water System Ops	089	$123.47-168.79	$21,401-29,257	$256,818-351,083	01
Z82	*	Group Mgr-Conveyance&Distrbtn	088	$120.20-164.22	$20,835-28,465	$250,016-341,578	01
Z76	*	Group Mgr-Finance&Admnstration	088	$120.20-164.22	$20,835-28,465	$250,016-341,578	01
Z83	*	Group Mgr-IntOpsPlng&Supp Svcs	088	$120.20-164.22	$20,835-28,465	$250,016-341,578	01
Z85	*	Group Mgr-Treatment&Water Qlty	088	$120.20-164.22	$20,835-28,465	$250,016-341,578	01
VC06		HR Assistant I (C)	031	$ 33.06- 43.52	$ 5,730- 7,543	$ 68,765- 90,522	05
VC07		HR Assistant II (C)	035	$ 36.99- 48.60	$ 6,412- 8,424	$ 76,939-101,088	05
VC08		HR Assistant III (C)	039	$ 41.22- 54.20	$ 7,145- 9,395	$ 85,738-112,736	05
UMA03	*	HR Strategic Partner	066	$ 86.02-112.28	$14,910-19,462	$178,922-233,542	05
Z40	*	HRIS Manager	063	$ 79.35-103.73	$13,754-17,980	$165,048-215,758	05
YC30		Human Resources Analyst I (C)	039	$ 41.22- 54.20	$ 7,145- 9,395	$ 85,738-112,736	05
YC31		Human Resources Analyst II (C)	042	$ 44.73- 58.94	$ 7,753-10,216	$ 93,038-122,595	05
YC32	*	Human Resources Analyst III(C)	045	$ 48.60- 64.01	$ 8,424-11,095	$101,088-133,141	05
VC09		Human Resources Coordinator	041	$ 43.52- 57.26	$ 7,543- 9,925	$ 90,522-119,101	05
Z22	*	Human Resources Manager I	075	$ 84.45-115.43	$14,638-20,008	$175,656-240,094	01
Z23	*	Human Resources Manager II	078	$ 91.62-125.20	$15,881-21,701	$190,570-260,416	01
Z24	*	Human Resources Manager III	081	$ 99.44-135.87	$17,236-23,551	$206,835-282,610	01
Z03D	*	Human Resources Section Mgr	080	$ 96.73-132.21	$16,767-22,916	$201,198-274,997	01
T08		Hydroelectric Specialist I	042	$ 44.73- 58.94	$ 7,753-10,216	$ 93,038-122,595	02
T05		Hydroelectric Specialist II	048	$ 52.75- 69.38	$ 9,143-12,026	$109,720-144,310	02
530	*	Hydroelectric Supervisor	058	$ 65.77- 85.92	$11,400-14,893	$136,802-178,714	03
Y12	*	IT Architect-Enterprs Software	063	$ 79.35-103.73	$13,754-17,980	$165,048-215,758	04
YA106		IT Business Analyst I	037	$ 39.03- 51.36	$ 6,765- 8,902	$ 81,182-106,829	02
YA107		IT Business Analyst II	042	$ 44.73- 58.94	$ 7,753-10,216	$ 93,038-122,595	02
YA108		IT Business Analyst III	047	$ 51.36- 67.56	$ 8,902-11,710	$106,829-140,525	02
XA27A		IT Communication Tech I	038	$ 40.10- 52.75	$ 6,951- 9,143	$ 83,408-109,720	02
XA28A		IT Communication Tech II	043	$ 46.01- 60.57	$ 7,975-10,499	$ 95,701-125,986	02
XA29A		IT Communication Tech III	047	$ 51.36- 67.56	$ 8,902-11,710	$106,829-140,525	02
YA38		IT Enterprise App Analyst I	037	$ 39.03- 51.36	$ 6,765- 8,902	$ 81,182-106,829	02
YA39		IT Enterprise App Analyst II	042	$ 44.73- 58.94	$ 7,753-10,216	$ 93,038-122,595	02
YA40		IT Enterprise App Analyst III	047	$ 51.36- 67.56	$ 8,902-11,710	$106,829-140,525	02
YA33		IT GIS Analyst I	037	$ 39.03- 51.36	$ 6,765- 8,902	$ 81,182-106,829	02
YA34		IT GIS Analyst II	042	$ 44.73- 58.94	$ 7,753-10,216	$ 93,038-122,595	02
YA35		IT GIS Analyst III	047	$ 51.36- 67.56	$ 8,902-11,710	$106,829-140,525	02
YA42		IT Infrastructure Adminstr I	037	$ 39.03- 51.36	$ 6,765- 8,902	$ 81,182-106,829	02
YA43		IT Infrastructure Adminstr II	042	$ 44.73- 58.94	$ 7,753-10,216	$ 93,038-122,595	02
YA44		IT Infrastructure Adminstr III	047	$ 51.36- 67.56	$ 8,902-11,710	$106,829-140,525	02
YA46		IT Network Engineer I	037	$ 39.03- 51.36	$ 6,765- 8,902	$ 81,182-106,829	02
YA47		IT Network Engineer II	042	$ 44.73- 58.94	$ 7,753-10,216	$ 93,038-122,595	02
YA48		IT Network Engineer III	047	$ 51.36- 67.56	$ 8,902-11,710	$106,829-140,525	02
YA52		IT Project Controls Specialist	044	$ 47.27- 62.25	$ 8,193-10,790	$ 98,322-129,480	02
YA54		IT Quality Analyst I	037	$ 39.03- 51.36	$ 6,765- 8,902	$ 81,182-106,829	02
YA55		IT Quality Analyst II	042	$ 44.73- 58.94	$ 7,753-10,216	$ 93,038-122,595	02
YA56		IT Quality Analyst III	047	$ 51.36- 67.56	$ 8,902-11,710	$106,829-140,525	02
PM032	*	IT Service Manager	064	$ 81.45-106.50	$14,118-18,460	$169,416-221,520	04
YA58		IT Software Developer I	037	$ 39.03- 51.36	$ 6,765- 8,902	$ 81,182-106,829	02
YA59		IT Software Developer II	042	$ 44.73- 58.94	$ 7,753-10,216	$ 93,038-122,595	02
YA60		IT Software Developer III	047	$ 51.36- 67.56	$ 8,902-11,710	$106,829-140,525	02
Y05	*	IT Specialist -Disaster Recvry	058	$ 69.38- 90.65	$12,026-15,713	$144,310-188,552	04
XA31A		IT Support Analyst I	037	$ 39.03- 51.36	$ 6,765- 8,902	$ 81,182-106,829	02
XA32A		IT Support Analyst II	042	$ 44.73- 58.94	$ 7,753-10,216	$ 93,038-122,595	02

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Classification Code		Title	Salary Grade	Hourly Range	Monthly Range	Annual Range	Unit Code
XA33A		IT Support Analyst III	047	$ 51.36- 67.56	$ 8,902-11,710	$106,829-140,525	02
YA62		IT System Administrator I	037	$ 39.03- 51.36	$ 6,765- 8,902	$ 81,182-106,829	02
YA63		IT System Administrator II	042	$ 44.73- 58.94	$ 7,753-10,216	$ 93,038-122,595	02
YA64		IT System Administrator III	047	$ 51.36- 67.56	$ 8,902-11,710	$106,829-140,525	02
Y18	*	Info Gov&Ent Content Mgmt Spec	059	$ 71.31- 93.12	$12,360-16,141	$148,325-193,690	04
YC11		Info Tech Analyst I (C)	037	$ 39.03- 51.36	$ 6,765- 8,902	$ 81,182-106,829	05
YC12		Info Tech Analyst II (C)	042	$ 44.73- 58.94	$ 7,753-10,216	$ 93,038-122,595	05
YC13	*	Info Tech Analyst III (C)	047	$ 51.36- 67.56	$ 8,902-11,710	$106,829-140,525	05
Y14	*	Info Technology Architect	064	$ 81.45-106.50	$14,118-18,460	$169,416-221,520	04
Y06	*	Inland Feeder Projects Admintr	058	$ 69.38- 90.65	$12,026-15,713	$144,310-188,552	04
Y10	*	Inspection Trip Manager	061	$ 75.23- 98.25	$13,040-17,030	$156,478-204,360	04
Y17	*	Inspection Trip Specialist	058	$ 69.38- 90.65	$12,026-15,713	$144,310-188,552	04
184		Inspector IV	050	$ 52.86- 69.40	$ 9,162-12,029	$109,949-144,352	03
XA16		Instrumnt&Cntrl Tech I	035	$ 36.99- 48.60	$ 6,412- 8,424	$ 76,939-101,088	02
XA17		Instrumnt&Cntrl Tech II	039	$ 41.22- 54.20	$ 7,145- 9,395	$ 85,738-112,736	02
XA18		Instrumnt&Cntrl Tech III	044	$ 47.27- 62.25	$ 8,193-10,790	$ 98,322-129,480	02
XA19		Instrumnt&Cntrl Tech Specialst	047	$ 51.36- 67.56	$ 8,902-11,710	$106,829-140,525	02
716		Inventory Coordinator	045	$ 46.06- 60.68	$ 7,984-10,518	$ 95,805-126,214	03
PM033	*	Investment Mgmt Specialist	060	$ 73.22- 95.68	$12,691-16,585	$152,298-199,014	04
XA35A		Lab Info Systems Specialist I	042	$ 44.73- 58.94	$ 7,753-10,216	$ 93,038-122,595	02
XA36A		Lab Info Systems Specialist II	048	$ 52.75- 69.38	$ 9,143-12,026	$109,720-144,310	02
UA16		Laboratory Assistant I	025	$ 28.07- 36.99	$ 4,865- 6,412	$ 58,386- 76,939	02
UA17		Laboratory Assistant II	029	$ 31.30- 41.22	$ 5,425- 7,145	$ 65,104- 85,738	02
XA40		Laboratory Technologist I	034	$ 35.95- 47.27	$ 6,231- 8,193	$ 74,776- 98,322	02
XA41		Laboratory Technologist II	036	$ 38.02- 49.92	$ 6,590- 8,653	$ 79,082-103,834	02
YA110		Land Surveyor	053	$ 60.57- 79.35	$10,499-13,754	$125,986-165,048	02
705		Landscape Maint Coordinator	044	$ 44.81- 59.01	$ 7,767-10,228	$ 93,205-122,741	03
XA42A		Landscape Maintenance Tech I	038	$ 40.10- 52.75	$ 6,951- 9,143	$ 83,408-109,720	02
XA43A		Landscape Maintenance Tech II	043	$ 46.01- 60.57	$ 7,975-10,499	$ 95,701-125,986	02
VA08		Law Clerk	029	$ 31.30- 41.22	$ 5,425- 7,145	$ 65,104- 85,738	02
Z30	*	Law Office Administrator (C)	060	$ 73.22- 95.68	$12,691-16,585	$152,298-199,014	05
YA67		Legal Analyst	044	$ 47.27- 62.25	$ 8,193-10,790	$ 98,322-129,480	02
VA09		Legal Assistant I	033	$ 34.94- 46.01	$ 6,056- 7,975	$ 72,675- 95,701	02
VA10		Legal Assistant II	037	$ 39.03- 51.36	$ 6,765- 8,902	$ 81,182-106,829	02
VA11		Legal Assistant III	041	$ 43.52- 57.26	$ 7,543- 9,925	$ 90,522-119,101	02
UC01		Legal Secretary I (C)	028	$ 30.40- 40.10	$ 5,269- 6,951	$ 63,232- 83,408	05
UC02		Legal Secretary II (C)	035	$ 36.99- 48.60	$ 6,412- 8,424	$ 76,939-101,088	05
YA104		Legal Technology Specialist	047	$ 51.36- 67.56	$ 8,902-11,710	$106,829-140,525	02
Y09	*	Legislative Representative	053	$ 60.57- 79.35	$10,499-13,754	$125,986-165,048	05
YA72		Limnologist	048	$ 52.75- 69.38	$ 9,143-12,026	$109,720-144,310	02
SA09		Lodging Assistant I	029	$ 31.30- 41.22	$ 5,425- 7,145	$ 65,104- 85,738	02
SA10		Lodging Assistant II	033	$ 34.94- 46.01	$ 6,056- 7,975	$ 72,675- 95,701	02
UA08		Mailroom Assistant I	016	$ 21.91- 28.82	$ 3,798- 4,995	$ 45,573- 59,946	02
UA09		Mailroom Assistant II	021	$ 25.10- 33.06	$ 4,351- 5,730	$ 52,208- 68,765	02
UA10		Mailroom Assistant III	026	$ 28.82- 38.02	$ 4,995- 6,590	$ 59,946- 79,082	02
620		Maintenance Mechanic I	037	$ 39.03- 51.36	$ 6,765- 8,902	$ 81,182-106,829	02
612		Maintenance Worker I	025	$ 28.07- 36.99	$ 4,865- 6,412	$ 58,386- 76,939	02
613		Maintenance Worker II	029	$ 31.30- 41.22	$ 5,425- 7,145	$ 65,104- 85,738	02
614		Maintenance Worker III	033	$ 34.94- 46.01	$ 6,056- 7,975	$ 72,675- 95,701	02
Z39	*	Manager of Admin Services	070	$ 95.68-125.20	$16,585-21,701	$199,014-260,416	05
Z70	*	Manager of Bay-Delta Programs	082	$102.10-139.54	$17,697-24,187	$212,368-290,243	01
Z33	*	Manager of Colo RiverResources	086	$113.86-155.54	$19,736-26,960	$236,829-323,523	01
Z35	*	Manager of Financial Services	072	$100.96-132.21	$17,500-22,916	$209,997-274,997	05
SM020	*	Manager of Treasury&Debt Mgmt	072	$100.96-132.21	$17,500-22,916	$209,997-274,997	04
Z79	*	MgrBay-Delta Science&RegStrtgy	082	$102.10-139.54	$17,697-24,187	$212,368-290,243	01
M81	*	Mgt Pr Admin Analyst	055	$ 64.01- 83.63	$11,095-14,496	$133,141-173,950	04
YA77		Microbiologist	048	$ 52.75- 69.38	$ 9,143-12,026	$109,720-144,310	02
186	*	Microcomputer Technology Supv	060	$ 69.40- 90.69	$12,029-15,720	$144,352-188,635	03
636	*	O & M Supervisor	056	$ 62.33- 81.53	$10,804-14,132	$129,646-169,582	03
S03A	+	O&M Tech I	027	$ 29.59- 39.03	$ 5,129- 6,765	$ 61,547- 81,182	02
S03P	+	O&M Tech I	028	$ 30.40- 40.10	$ 5,269- 6,951	$ 63,232- 83,408	02
S03	+	O&M Tech I	028	$ 30.40- 40.10	$ 5,269- 6,951	$ 63,232- 83,408	02
S02	+	O&M Tech II	032	$ 34.02- 44.73	$ 5,897- 7,753	$ 70,762- 93,038	02
S02A	+	O&M Tech II	031	$ 33.06- 43.52	$ 5,730- 7,543	$ 68,765- 90,522	02
S02P	+	O&M Tech II	032	$ 34.02- 44.73	$ 5,897- 7,753	$ 70,762- 93,038	02
T10A	+	O&M Tech III	035	$ 36.99- 48.60	$ 6,412- 8,424	$ 76,939-101,088	02
T10	+	O&M Tech III	036	$ 38.02- 49.92	$ 6,590- 8,653	$ 79,082-103,834	02
T10P	+	O&M Tech III	036	$ 38.02- 49.92	$ 6,590- 8,653	$ 79,082-103,834	02
T03FS	+	O&M Tech IV	042	$ 44.73- 58.94	$ 7,753-10,216	$ 93,038-122,595	02
T03	+	O&M Tech IV	042	$ 44.73- 58.94	$ 7,753-10,216	$ 93,038-122,595	02

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T03A	+	O&M Tech IV	041	$ 43.52- 57.26	$ 7,543- 9,925	$ 90,522-119,101	02
YA80		Oc Health Safety Specialist I	031	$ 33.06- 43.52	$ 5,730- 7,543	$ 68,765- 90,522	02
YA81		Oc Health Safety Specialist II	038	$ 40.10- 52.75	$ 6,951- 9,143	$ 83,408-109,720	02
YA82		Oc Health Safety Specialst III	043	$ 46.01- 60.57	$ 7,975-10,499	$ 95,701-125,986	02
927	*	Occ Safety & Health Spec	054	$ 62.25- 81.45	$10,790-14,118	$129,480-169,416	04
UA11		Office Assistant	026	$ 28.82- 38.02	$ 4,995- 6,590	$ 59,946- 79,082	02
Z53	*	Operations Program Manager	067	$ 88.30-115.43	$15,305-20,008	$183,664-240,094	04
SA11		Ops and Maintenance Assistant	021	$ 25.10- 33.06	$ 4,351- 5,730	$ 52,208- 68,765	02
Z44	*	Org Develop & Training Manager	064	$ 81.45-106.50	$14,118-18,460	$169,416-221,520	05
VA18		Payroll Specialist	049	$ 54.20- 71.31	$ 9,395-12,360	$112,736-148,325	02
VA20		Payroll Technician I	035	$ 36.99- 48.60	$ 6,412- 8,424	$ 76,939-101,088	02
VA19		Payroll Technician II	042	$ 44.73- 58.94	$ 7,753-10,216	$ 93,038-122,595	02
XA45		Photographer I	035	$ 36.99- 48.60	$ 6,412- 8,424	$ 76,939-101,088	02
XA46		Photographer II	041	$ 43.52- 57.26	$ 7,543- 9,925	$ 90,522-119,101	02
XA48		Planner Scheduler	043	$ 46.01- 60.57	$ 7,975-10,499	$ 95,701-125,986	02
139	*	Plant Laboratory Supervisor	055	$ 60.68- 79.27	$10,518-13,740	$126,214-164,882	03
519	*	Plant Operations Supervisor	058	$ 65.77- 85.92	$11,400-14,893	$136,802-178,714	03
Y20	*	Postdoctoral Research Assoc	046	$ 49.92- 65.76	$ 8,653-11,398	$103,834-136,781	04
T06		Power Line Specialist	048	$ 52.75- 69.38	$ 9,143-12,026	$109,720-144,310	02
PM028	*	Power Planning Specialist	066	$ 86.02-112.28	$14,910-19,462	$178,922-233,542	04
YA03		Pr Accountant	049	$ 54.20- 71.31	$ 9,395-12,360	$112,736-148,325	02
YC56	*	Pr Admin Analyst	066	$ 66.48- 90.65	$11,523-15,713	$138,278-188,552	01
YA06		Pr Admin Analyst	055	$ 64.01- 83.63	$11,095-14,496	$133,141-173,950	02
YC05	*	Pr Admin Analyst (C)	056	$ 65.76- 86.02	$11,398-14,910	$136,781-178,922	05
Y16	*	Pr Architect	064	$ 81.45-106.50	$14,118-18,460	$169,416-221,520	04
216	*	Pr Auditor	058	$ 69.38- 90.65	$12,026-15,713	$144,310-188,552	04
YC44	*	Pr Benefits Analyst (C)	056	$ 65.76- 86.02	$11,398-14,910	$136,781-178,922	05
YA11		Pr Biologist	058	$ 69.38- 90.65	$12,026-15,713	$144,310-188,552	02
245	*	Pr Buyer	055	$ 64.01- 83.63	$11,095-14,496	$133,141-173,950	04
YA19		Pr Chemist	058	$ 69.38- 90.65	$12,026-15,713	$144,310-188,552	02
YC50	*	Pr Class & Comp Analyst (C)	056	$ 65.76- 86.02	$11,398-14,910	$136,781-178,922	05
XA15		Pr Designer	048	$ 52.75- 69.38	$ 9,143-12,026	$109,720-144,310	02
YC21	*	Pr Dpty General Counsel (C)	074	$106.50-139.54	$18,460-24,187	$221,520-290,243	05
Y08	*	Pr Dpty General Counsel-LbrRlt	085	$110.82-151.38	$19,209-26,239	$230,506-314,870	01
YC48	*	Pr EEO Analyst (C)	056	$ 65.76- 86.02	$11,398-14,910	$136,781-178,922	05
YC40	*	Pr Emp Relations Specialist	060	$ 73.22- 95.68	$12,691-16,585	$152,298-199,014	05
115	*	Pr Engineer	064	$ 81.45-106.50	$14,118-18,460	$169,416-221,520	04
165	*	Pr Engineering Technician	058	$ 69.38- 90.65	$12,026-15,713	$144,310-188,552	04
925	*	Pr Environmental Spec	064	$ 81.45-106.50	$14,118-18,460	$169,416-221,520	04
YC24	*	Pr Government&Region AffRep(C)	060	$ 73.22- 95.68	$12,691-16,585	$152,298-199,014	05
YA111	*	Pr Graphic Art Designer	055	$ 64.01- 83.63	$11,095-14,496	$133,141-173,950	02
YC52	*	Pr HR Training Specialist (C)	055	$ 64.01- 83.63	$11,095-14,496	$133,141-173,950	05
YC46	*	Pr HRIS Analyst (C)	056	$ 65.76- 86.02	$11,398-14,910	$136,781-178,922	05
231	*	Pr Info Tech Analyst	056	$ 65.76- 86.02	$11,398-14,910	$136,781-178,922	04
YC15	*	Pr Info Tech Analyst (C)	056	$ 65.76- 86.02	$11,398-14,910	$136,781-178,922	05
YC64	*	Pr Info Tech Network Engineer	058	$ 69.38- 90.65	$12,026-15,713	$144,310-188,552	04
Y07	*	Pr Land Surveyor	059	$ 71.31- 93.12	$12,360-16,141	$148,325-193,690	04
YA69		Pr Legal Analyst	055	$ 64.01- 83.63	$11,095-14,496	$133,141-173,950	02
022	*	Pr Legislative Representative	062	$ 77.22-100.96	$13,385-17,500	$160,618-209,997	05
YA74		Pr Limnologist	058	$ 69.38- 90.65	$12,026-15,713	$144,310-188,552	02
YA79		Pr Microbiologist	058	$ 69.38- 90.65	$12,026-15,713	$144,310-188,552	02
YA105		Pr Project Controls Specialist	056	$ 65.76- 86.02	$11,398-14,910	$136,781-178,922	02
289	*	Pr Public Affairs Rep	058	$ 69.38- 90.65	$12,026-15,713	$144,310-188,552	04
275	*	Pr Real Estate Rep	055	$ 64.01- 83.63	$11,095-14,496	$133,141-173,950	04
YC54	*	Pr Recruitment Specialist (C)	056	$ 65.76- 86.02	$11,398-14,910	$136,781-178,922	05
933	*	Pr Resource Specialist	064	$ 81.45-106.50	$14,118-18,460	$169,416-221,520	04
223	*	Pr Systems Analyst	054	$ 62.25- 81.45	$10,790-14,118	$129,480-169,416	04
YC17	*	Pr Training Administrator (C)	056	$ 65.76- 86.02	$11,398-14,910	$136,781-178,922	05
YC10	*	Pr Training Specialist (C)	056	$ 65.76- 86.02	$11,398-14,910	$136,781-178,922	05
YA112		Pr Treasury Analyst	055	$ 64.01- 83.63	$11,095-14,496	$133,141-173,950	02
XA71	*	Pr Videographer	055	$ 64.01- 83.63	$11,095-14,496	$133,141-173,950	02
YA103		Pr Water Quality Specialist	058	$ 69.38- 90.65	$12,026-15,713	$144,310-188,552	02
S01		Pre-Apprentice	017	$ 22.54- 29.59	$ 3,907- 5,129	$ 46,883- 61,547	02
PMA04	*	Prgm Mgr-Outreach PrjLaborAgrt	070	$ 95.68-125.20	$16,585-21,701	$199,014-260,416	05
PM031	*	Prgrm Mgr-Audit	065	$ 83.63-109.38	$14,496-18,959	$173,950-227,510	04
PM021	*	Prgrm Mgr-Bay-Delta Initiative	066	$ 86.02-112.28	$14,910-19,462	$178,922-233,542	04
PM002	*	Prgrm Mgr-Business Continuity	060	$ 73.22- 95.68	$12,691-16,585	$152,298-199,014	04
PM027	*	Prgrm Mgr-Business Outreach	060	$ 73.22- 95.68	$12,691-16,585	$152,298-199,014	04
PM038	*	Prgrm Mgr-Climate Action Plan	063	$ 79.35-103.73	$13,754-17,980	$165,048-215,758	04
PM037	*	Prgrm Mgr-Climate Adaptn Plng	071	$ 98.25-128.69	$17,030-22,306	$204,360-267,675	04

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PMA03	*	Prgrm Mgr-CmtyRlts Delta/PV	066	$ 86.02-112.28	$14,910-19,462	$178,922-233,542	05
PMA02	*	Prgrm Mgr-Community Relations	066	$ 86.02-112.28	$14,910-19,462	$178,922-233,542	05
PM004	*	Prgrm Mgr-Corporate Resources	060	$ 73.22- 95.68	$12,691-16,585	$152,298-199,014	04
PM029	*	Prgrm Mgr-Creative Design	063	$ 79.35-103.73	$13,754-17,980	$165,048-215,758	04
PM005	*	Prgrm Mgr-Dam Safety Initiatvs	071	$ 98.25-128.69	$17,030-22,306	$204,360-267,675	04
PM006	*	Prgrm Mgr-Emergency Management	063	$ 79.35-103.73	$13,754-17,980	$165,048-215,758	04
PM026	*	Prgrm Mgr-Engineering	067	$ 88.30-115.43	$15,305-20,008	$183,664-240,094	04
PM007	*	Prgrm Mgr-Fleet	060	$ 73.22- 95.68	$12,691-16,585	$152,298-199,014	04
PM009	*	Prgrm Mgr-Info Technology	066	$ 86.02-112.28	$14,910-19,462	$178,922-233,542	04
PM035	*	Prgrm Mgr-Innovation	063	$ 79.35-103.73	$13,754-17,980	$165,048-215,758	04
PM013	*	Prgrm Mgr-Power Sched&Trading	060	$ 73.22- 95.68	$12,691-16,585	$152,298-199,014	04
PM014	*	Prgrm Mgr-Press Office	066	$ 86.02-112.28	$14,910-19,462	$178,922-233,542	04
PM015	*	Prgrm Mgr-Pure Wtr So Califor	071	$ 98.25-128.69	$17,030-22,306	$204,360-267,675	04
PM022	*	Prgrm Mgr-Real Property	060	$ 73.22- 95.68	$12,691-16,585	$152,298-199,014	04
PM023	*	Prgrm Mgr-Safety&RegCompliance	066	$ 86.02-112.28	$14,910-19,462	$178,922-233,542	04
PM039	*	Prgrm Mgr-Safety,Reg&Training	063	$ 79.35-103.73	$13,754-17,980	$165,048-215,758	04
PM017	*	Prgrm Mgr-Water Resource	066	$ 86.02-112.28	$14,910-19,462	$178,922-233,542	04
PM019	*	Prgrm Mgr-Web	063	$ 79.35-103.73	$13,754-17,980	$165,048-215,758	04
XA50		Production Planner	048	$ 52.75- 69.38	$ 9,143-12,026	$109,720-144,310	02
Z13D	*	Program Manager I	068	$ 70.06- 95.68	$12,144-16,585	$145,725-199,014	01
Z13E	*	Program Manager II	071	$ 75.88-103.73	$13,153-17,980	$157,830-215,758	01
Z13F	*	Program Manager III	074	$ 82.31-112.28	$14,267-19,462	$171,205-233,542	01
YA85		Project Controls Specialist	045	$ 48.60- 64.01	$ 8,424-11,095	$101,088-133,141	02
TA25		Property Maintenance Specialst	044	$ 47.27- 62.25	$ 8,193-10,790	$ 98,322-129,480	02
TA24		Property Maintenance Tech I	037	$ 39.03- 51.36	$ 6,765- 8,902	$ 81,182-106,829	02
TA23		Property Maintenance Tech II	041	$ 43.52- 57.26	$ 7,543- 9,925	$ 90,522-119,101	02
YA87		Public Affairs Rep I	038	$ 40.10- 52.75	$ 6,951- 9,143	$ 83,408-109,720	02
YA88		Public Affairs Rep II	043	$ 46.01- 60.57	$ 7,975-10,499	$ 95,701-125,986	02
TA21		Pump Plant Maint Operator I	032	$ 34.02- 44.73	$ 5,897- 7,753	$ 70,762- 93,038	02
TA22		Pump Plant Maint Operator II	036	$ 38.02- 49.92	$ 6,590- 8,653	$ 79,082-103,834	02
T01		Pump Plant Specialist	048	$ 52.75- 69.38	$ 9,143-12,026	$109,720-144,310	02
YA90		Quality Assurance Officer	056	$ 65.76- 86.02	$11,398-14,910	$136,781-178,922	02
YA91		Real Estate Representative I	037	$ 39.03- 51.36	$ 6,765- 8,902	$ 81,182-106,829	02
YA92		Real Estate Representative II	042	$ 44.73- 58.94	$ 7,753-10,216	$ 93,038-122,595	02
YA93		Real Estate Representative III	046	$ 49.92- 65.76	$ 8,653-11,398	$103,834-136,781	02
UA12		Reprographics Technician I	023	$ 26.53- 34.94	$ 4,599- 6,056	$ 55,182- 72,675	02
UA13		Reprographics Technician II	028	$ 30.40- 40.10	$ 5,269- 6,951	$ 63,232- 83,408	02
UA14		Reprographics Technician III	031	$ 33.06- 43.52	$ 5,730- 7,543	$ 68,765- 90,522	02
YA98		Resource Specialist	055	$ 64.01- 83.63	$11,095-14,496	$133,141-173,950	02
Z03B	*	Section Manager I (C)	067	$ 88.30-115.43	$15,305-20,008	$183,664-240,094	05
Z03C	*	Section Manager II (C)	069	$ 93.12-121.88	$16,141-21,126	$193,690-253,510	05
SM005	*	Section Mgr-Business Outreach	068	$ 90.65-118.61	$15,713-20,559	$188,552-246,709	04
SM014	*	Section Mgr-Conveyance&Distrbn	073	$103.73-135.87	$17,980-23,551	$215,758-282,610	04
SM002	*	Section Mgr-Customer&Comm Svcs	068	$ 90.65-118.61	$15,713-20,559	$188,552-246,709	04
SM015	*	Section Mgr-Engineering Svcs	073	$103.73-135.87	$17,980-23,551	$215,758-282,610	04
SM009	*	Section Mgr-Environ Planning	072	$100.96-132.21	$17,500-22,916	$209,997-274,997	04
SM003	*	Section Mgr-Legislative Svcs	068	$ 90.65-118.61	$15,713-20,559	$188,552-246,709	04
SM004	*	Section Mgr-Media Services	068	$ 90.65-118.61	$15,713-20,559	$188,552-246,709	04
SM006	*	Section Mgr-MembrSvc&PubOutrch	068	$ 90.65-118.61	$15,713-20,559	$188,552-246,709	04
SM011	*	Section Mgr-Ops Support Svcs	072	$100.96-132.21	$17,500-22,916	$209,997-274,997	04
SM012	*	Section Mgr-Power Ops&Planning	072	$100.96-132.21	$17,500-22,916	$209,997-274,997	04
SM018	*	Section Mgr-Real Property	071	$ 98.25-128.69	$17,030-22,306	$204,360-267,675	04
SM007	*	Section Mgr-Rev, Rates &Budget	068	$ 90.65-118.61	$15,713-20,559	$188,552-246,709	04
SM019	*	Section Mgr-Revenue & Budget	072	$100.96-132.21	$17,500-22,916	$209,997-274,997	04
SM010	*	Section Mgr-SafetyReg&TechTrng	072	$100.96-132.21	$17,500-22,916	$209,997-274,997	04
SM021	*	Section Mgr-Sustain&Resilience	072	$100.96-132.21	$17,500-22,916	$209,997-274,997	04
SM013	*	Section Mgr-Water Ops&Planning	072	$100.96-132.21	$17,500-22,916	$209,997-274,997	04
SM016	*	Section Mgr-Water Quality	073	$103.73-135.87	$17,980-23,551	$215,758-282,610	04
SM008	*	Section Mgr-Water Resource Mgt	072	$100.96-132.21	$17,500-22,916	$209,997-274,997	04
SM017	*	Section Mgr-Water Treatment	073	$103.73-135.87	$17,980-23,551	$215,758-282,610	04
WC01		Security Specialist (C)	051	$ 57.26- 75.23	$ 9,925-13,040	$119,101-156,478	05
Z32	*	Senior Audit Manager	073	$ 80.08-109.38	$13,881-18,959	$166,566-227,510	01
V02	*	Special Asst to the GM	072	$ 77.95-106.50	$13,511-18,460	$162,136-221,520	01
Z16A	*	Special Projects Manager	072	$100.96-132.21	$17,500-22,916	$209,997-274,997	05
YA02		Sr Accountant	045	$ 48.60- 64.01	$ 8,424-11,095	$101,088-133,141	02
VA03		Sr Accounting Tech	039	$ 41.22- 54.20	$ 7,145- 9,395	$ 85,738-112,736	02
YA05		Sr Admin Analyst	049	$ 54.20- 71.31	$ 9,395-12,360	$112,736-148,325	02
YC04	*	Sr Admin Analyst (C)	049	$ 54.20- 71.31	$ 9,395-12,360	$112,736-148,325	05
Y01	*	Sr Architect	059	$ 71.31- 93.12	$12,360-16,141	$148,325-193,690	04
YC43	*	Sr Benefits Analyst (C)	049	$ 54.20- 71.31	$ 9,395-12,360	$112,736-148,325	05

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Classification Code		Title	Salary Grade	Hourly Range	Monthly Range	Annual Range	Unit Code
YA10		Sr Biologist	053	$ 60.57- 79.35	$10,499-13,754	$125,986-165,048	02
YC07	*	Sr Board Specialist (C)	050	$ 55.76- 73.22	$ 9,665-12,691	$115,981-152,298	05
YA14		Sr Buyer	048	$ 52.75- 69.38	$ 9,143-12,026	$109,720-144,310	02
YA18		Sr Chemist	053	$ 60.57- 79.35	$10,499-13,754	$125,986-165,048	02
YC49	*	Sr Class & Comp Analyst (C)	049	$ 54.20- 71.31	$ 9,395-12,360	$112,736-148,325	05
XA08		Sr Crane Certification Tech	048	$ 52.75- 69.38	$ 9,143-12,026	$109,720-144,310	02
XA10		Sr Cross Connection Tech	048	$ 52.75- 69.38	$ 9,143-12,026	$109,720-144,310	02
Z11	*	Sr Dep Gen Counsel Lbr Reltns	079	$ 94.15-128.69	$16,319-22,306	$195,832-267,675	01
YA23		Sr Deputy Auditor	052	$ 58.94- 77.22	$10,216-13,385	$122,595-160,618	02
XA14		Sr Designer	043	$ 46.01- 60.57	$ 7,975-10,499	$ 95,701-125,986	02
YC20	*	Sr Dpty General Counsel (C)	071	$ 98.25-128.69	$17,030-22,306	$204,360-267,675	05
YC47	*	Sr EEO Analyst (C)	049	$ 54.20- 71.31	$ 9,395-12,360	$112,736-148,325	05
YC28	*	Sr EHS Field Specialist (C)	055	$ 64.01- 83.63	$11,095-14,496	$133,141-173,950	05
YC41	*	Sr Emp Relations Specialist	054	$ 62.25- 81.45	$10,790-14,118	$129,480-169,416	05
114	*	Sr Engineer	060	$ 73.22- 95.68	$12,691-16,585	$152,298-199,014	04
XA23A		Sr Engineering Technician	053	$ 60.57- 79.35	$10,499-13,754	$125,986-165,048	02
924	*	Sr Environmental Specialist	060	$ 69.40- 90.69	$12,029-15,720	$144,352-188,635	03
YC04A	*	Sr Financial Analyst (C)	051	$ 57.26- 75.23	$ 9,925-13,040	$119,101-156,478	05
YC23	*	Sr Government&Region AffRep(C)	057	$ 67.56- 88.30	$11,710-15,305	$140,525-183,664	05
YA37		Sr Graphic Art Designer	048	$ 52.75- 69.38	$ 9,143-12,026	$109,720-144,310	02
YC51	*	Sr HR Training Specialist (C)	048	$ 52.75- 69.38	$ 9,143-12,026	$109,720-144,310	05
YC45	*	Sr HRIS Analyst (C)	049	$ 54.20- 71.31	$ 9,395-12,360	$112,736-148,325	05
YA109		Sr IT Business Analyst	052	$ 58.94- 77.22	$10,216-13,385	$122,595-160,618	02
XA30A		Sr IT Communication Technician	050	$ 55.76- 73.22	$ 9,665-12,691	$115,981-152,298	02
YA41		Sr IT Enterprise App Analyst	052	$ 58.94- 77.22	$10,216-13,385	$122,595-160,618	02
YA36		Sr IT GIS Analyst	052	$ 58.94- 77.22	$10,216-13,385	$122,595-160,618	02
YA45		Sr IT Infrastructure Adminstr	052	$ 58.94- 77.22	$10,216-13,385	$122,595-160,618	02
YA49		Sr IT Network Engineer	053	$ 60.57- 79.35	$10,499-13,754	$125,986-165,048	02
YA53		Sr IT Proj Controls Specialist	049	$ 54.20- 71.31	$ 9,395-12,360	$112,736-148,325	02
YA57		Sr IT Quality Analyst	052	$ 58.94- 77.22	$10,216-13,385	$122,595-160,618	02
YA61		Sr IT Software Developer	052	$ 58.94- 77.22	$10,216-13,385	$122,595-160,618	02
XA34A		Sr IT Support Analyst	051	$ 57.26- 75.23	$ 9,925-13,040	$119,101-156,478	02
YA65		Sr IT System Administrator	052	$ 58.94- 77.22	$10,216-13,385	$122,595-160,618	02
201	*	Sr Info Systems Auditor	055	$ 64.01- 83.63	$11,095-14,496	$133,141-173,950	04
YC14	*	Sr Info Tech Analyst (C)	052	$ 58.94- 77.22	$10,216-13,385	$122,595-160,618	05
XA37A		Sr Lab Info Systems Specialist	053	$ 60.57- 79.35	$10,499-13,754	$125,986-165,048	02
YA66		Sr Land Surveyor	056	$ 65.76- 86.02	$11,398-14,910	$136,781-178,922	02
XA44A		Sr Landscape Maintenance Tech	048	$ 52.75- 69.38	$ 9,143-12,026	$109,720-144,310	02
YA68		Sr Legal Analyst	049	$ 54.20- 71.31	$ 9,395-12,360	$112,736-148,325	02
UC03		Sr Legal Secretary (C)	040	$ 42.35- 55.76	$ 7,341- 9,665	$ 88,088-115,981	05
YA117		Sr Legal Technology Specialist	052	$ 58.94- 77.22	$10,216-13,385	$122,595-160,618	02
YC67	*	Sr Legislative Representative	058	$ 69.38- 90.65	$12,026-15,713	$144,310-188,552	05
YA73		Sr Limnologist	053	$ 60.57- 79.35	$10,499-13,754	$125,986-165,048	02
YA78		Sr Microbiologist	053	$ 60.57- 79.35	$10,499-13,754	$125,986-165,048	02
928	*	Sr Occup Safety & Health Spec	058	$ 69.38- 90.65	$12,026-15,713	$144,310-188,552	04
XA49		Sr Planner Scheduler	048	$ 52.75- 69.38	$ 9,143-12,026	$109,720-144,310	02
YA86		Sr Project Controls Specialist	050	$ 55.76- 73.22	$ 9,665-12,691	$115,981-152,298	02
YA89		Sr Public Affairs Rep	048	$ 52.75- 69.38	$ 9,143-12,026	$109,720-144,310	02
YA94		Sr Real Estate Representative	050	$ 55.76- 73.22	$ 9,665-12,691	$115,981-152,298	02
YC53	*	Sr Recruitment Specialist (C)	049	$ 54.20- 71.31	$ 9,395-12,360	$112,736-148,325	05
UA15		Sr Reprographic Technician	034	$ 35.95- 47.27	$ 6,231- 8,193	$ 74,776- 98,322	02
155	*	Sr Research Chemist	059	$ 67.59- 88.27	$11,716-15,300	$140,587-183,602	03
932	*	Sr Resource Specialist	060	$ 69.40- 90.69	$12,029-15,720	$144,352-188,635	03
WC03		Sr Security Specialist	054	$ 62.25- 81.45	$10,790-14,118	$129,480-169,416	05
XA56		Sr System Operations Tech	053	$ 60.57- 79.35	$10,499-13,754	$125,986-165,048	02
TA17		Sr System Operator	048	$ 52.75- 69.38	$ 9,143-12,026	$109,720-144,310	02
XA62A		Sr Technical Writer	053	$ 60.57- 79.35	$10,499-13,754	$125,986-165,048	02
YC16	*	Sr Training Administrator (C)	051	$ 57.26- 75.23	$ 9,925-13,040	$119,101-156,478	05
YC09	*	Sr Training Specialist (C)	050	$ 55.76- 73.22	$ 9,665-12,691	$115,981-152,298	05
YA113		Sr Treasury Analyst	049	$ 54.20- 71.31	$ 9,395-12,360	$112,736-148,325	02
XA65		Sr Videographer	048	$ 52.75- 69.38	$ 9,143-12,026	$109,720-144,310	02
YA102		Sr Water Quality Specialist	053	$ 60.57- 79.35	$10,499-13,754	$125,986-165,048	02
XA69		Sr Water Quality Technician	048	$ 52.75- 69.38	$ 9,143-12,026	$109,720-144,310	02
V01	*	Staff Assistant to the GM	072	$ 77.95-106.50	$13,511-18,460	$162,136-221,520	01
Z43	*	Staffing Manager	062	$ 77.22-100.96	$13,385-17,500	$160,618-209,997	05
VA12		Storekeeper I	026	$ 28.82- 38.02	$ 4,995- 6,590	$ 59,946- 79,082	02
VA13		Storekeeper II	031	$ 33.06- 43.52	$ 5,730- 7,543	$ 68,765- 90,522	02
VA14		Storekeeper III	035	$ 36.99- 48.60	$ 6,412- 8,424	$ 76,939-101,088	02
Y19	*	Strategic Comm&Policy Advisor	081	$ 99.44-135.87	$17,236-23,551	$206,835-282,610	01
PMA01	*	Strategic Program Mgr, HR	066	$ 86.02-112.28	$14,910-19,462	$178,922-233,542	05

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Classification Code		Title	Salary Grade	Hourly Range	Monthly Range	Annual Range	Unit Code
Y13		Student Intern	022	$ 20.02- 27.23	$ 3,470- 4,720	$ 41,642- 56,638	01
S04		Student Intern Desert	010	$ 18.58- 24.42	$ 3,221- 4,233	$ 38,646- 50,794	02
UA18		Student Youth Intern	014	$ 16.05- 21.91	$ 2,782- 3,798	$ 33,384- 45,573	01
260	*	Supervising Admin Analyst	049	$ 51.38- 67.59	$ 8,906-11,716	$106,870-140,587	03
XA51A		Survey and Mapping Tech I	036	$ 38.02- 49.92	$ 6,590- 8,653	$ 79,082-103,834	02
XA52A		Survey and Mapping Tech II	040	$ 42.35- 55.76	$ 7,341- 9,665	$ 88,088-115,981	02
XA53A		Survey and Mapping Tech III	048	$ 52.75- 69.38	$ 9,143-12,026	$109,720-144,310	02
XA54A		Survey and Mapping Tech IV	053	$ 60.57- 79.35	$10,499-13,754	$125,986-165,048	02
XA55		System Operations Technician	048	$ 52.75- 69.38	$ 9,143-12,026	$109,720-144,310	02
TA16		System Operator	045	$ 48.60- 64.01	$ 8,424-11,095	$101,088-133,141	02
Z06A	*	Team Manager I	056	$ 62.33- 81.53	$10,804-14,132	$129,646-169,582	03
Z06B	*	Team Manager II	057	$ 64.04- 83.70	$11,100-14,508	$133,203-174,096	03
Z06C	*	Team Manager III	059	$ 67.59- 88.27	$11,716-15,300	$140,587-183,602	03
Z06D	*	Team Manager IV	060	$ 69.40- 90.69	$12,029-15,720	$144,352-188,635	03
Z06R	*	Team Manager IV (C)	058	$ 69.38- 90.65	$12,026-15,713	$144,310-188,552	05
Z06E	*	Team Manager V	061	$ 71.31- 93.13	$12,360-16,143	$148,325-193,710	03
Z06S	*	Team Manager V (C)	060	$ 73.22- 95.68	$12,691-16,585	$152,298-199,014	05
Z06F	*	Team Manager VI	065	$ 79.27-103.67	$13,740-17,969	$164,882-215,634	03
Z06G	*	Team Manager VII	065	$ 79.27-103.67	$13,740-17,969	$164,882-215,634	03
TM085	*	Team Mgr-Accounts Payable	059	$ 71.31- 93.12	$12,360-16,141	$148,325-193,690	04
TM086	*	Team Mgr-Accounts Receivable	059	$ 71.31- 93.12	$12,360-16,141	$148,325-193,690	04
TM001	*	Team Mgr-Admin Svcs Bus Mgmt	059	$ 71.31- 93.12	$12,360-16,141	$148,325-193,690	04
TM080	*	Team Mgr-Budget	062	$ 77.22-100.96	$13,385-17,500	$160,618-209,997	04
TM002	*	Team Mgr-Business Applications	063	$ 79.35-103.73	$13,754-17,980	$165,048-215,758	04
TM061	*	Team Mgr-Business Intel System	063	$ 79.35-103.73	$13,754-17,980	$165,048-215,758	04
TM084	*	Team Mgr-Capital Invstmnt Plan	066	$ 86.02-112.28	$14,910-19,462	$178,922-233,542	04
TM003	*	Team Mgr-Chemistry	064	$ 81.45-106.50	$14,118-18,460	$169,416-221,520	04
TM079	*	Team Mgr-Community Relations	063	$ 79.35-103.73	$13,754-17,980	$165,048-215,758	04
TM005	*	Team Mgr-Construction Mgmt I	060	$ 73.22- 95.68	$12,691-16,585	$152,298-199,014	04
TM004	*	Team Mgr-Construction Mgmt II	066	$ 86.02-112.28	$14,910-19,462	$178,922-233,542	04
TM064	*	Team Mgr-ConstructionContracts	066	$ 86.02-112.28	$14,910-19,462	$178,922-233,542	04
TM006	*	Team Mgr-Control Systems Apps	064	$ 81.45-106.50	$14,118-18,460	$169,416-221,520	04
TM007	*	Team Mgr-Corrosion Control	064	$ 81.45-106.50	$14,118-18,460	$169,416-221,520	04
TM078	*	Team Mgr-Creative Design	063	$ 79.35-103.73	$13,754-17,980	$165,048-215,758	04
TM008	*	Team Mgr-Database	064	$ 81.45-106.50	$14,118-18,460	$169,416-221,520	04
TM009	*	Team Mgr-Design	066	$ 86.02-112.28	$14,910-19,462	$178,922-233,542	04
TM073	*	Team Mgr-Design Support	057	$ 67.56- 88.30	$11,710-15,305	$140,525-183,664	04
TM072	*	Team Mgr-Design Technology	059	$ 71.31- 93.12	$12,360-16,141	$148,325-193,690	04
TM081	*	Team Mgr-Education	063	$ 79.35-103.73	$13,754-17,980	$165,048-215,758	04
TM013	*	Team Mgr-Eng Compliance	066	$ 86.02-112.28	$14,910-19,462	$178,922-233,542	04
TM012	*	Team Mgr-Engineering Administr	064	$ 81.45-106.50	$14,118-18,460	$169,416-221,520	04
TM014	*	Team Mgr-Enterprise Apps	064	$ 81.45-106.50	$14,118-18,460	$169,416-221,520	04
TM022	*	Team Mgr-Enterprise GIS & CAD	063	$ 79.35-103.73	$13,754-17,980	$165,048-215,758	04
TM015	*	Team Mgr-EnterprsWaterSysPrgrm	065	$ 83.63-109.38	$14,496-18,959	$173,950-227,510	04
TM065	*	Team Mgr-Environ Planning	065	$ 83.63-109.38	$14,496-18,959	$173,950-227,510	04
TM016	*	Team Mgr-Environ Prgrm Support	066	$ 86.02-112.28	$14,910-19,462	$178,922-233,542	04
TM011	*	Team Mgr-Ext Affairs Bus Mgmt	059	$ 71.31- 93.12	$12,360-16,141	$148,325-193,690	04
TM019	*	Team Mgr-Facility Operations	059	$ 71.31- 93.12	$12,360-16,141	$148,325-193,690	04
TM018	*	Team Mgr-Facility Planning	066	$ 86.02-112.28	$14,910-19,462	$178,922-233,542	04
TM020	*	Team Mgr-Field Survey	065	$ 83.63-109.38	$14,496-18,959	$173,950-227,510	04
TM033	*	Team Mgr-FinanceRpt&PlantAsset	059	$ 71.31- 93.12	$12,360-16,141	$148,325-193,690	04
TM021	*	Team Mgr-Geodetics and Mapping	065	$ 83.63-109.38	$14,496-18,959	$173,950-227,510	04
TM023	*	Team Mgr-Graphic Design	058	$ 69.38- 90.65	$12,026-15,713	$144,310-188,552	04
TMA01	*	Team Mgr-HR Business Support	058	$ 69.38- 90.65	$12,026-15,713	$144,310-188,552	05
TM024	*	Team Mgr-Health&SafetyPrgrmSup	064	$ 81.45-106.50	$14,118-18,460	$169,416-221,520	04
TM025	*	Team Mgr-Hydraulics&SysMdlng	066	$ 86.02-112.28	$14,910-19,462	$178,922-233,542	04
TM026	*	Team Mgr-Hydroelectric	066	$ 86.02-112.28	$14,910-19,462	$178,922-233,542	04
TM027	*	Team Mgr-IT Administration	062	$ 77.22-100.96	$13,385-17,500	$160,618-209,997	04
TM074	*	Team Mgr-IT Business Analysis	061	$ 75.23- 98.25	$13,040-17,030	$156,478-204,360	04
TM077	*	Team Mgr-IT Client Systems Spt	060	$ 73.22- 95.68	$12,691-16,585	$152,298-199,014	04
TM082	*	Team Mgr-IT Network Systems	063	$ 79.35-103.73	$13,754-17,980	$165,048-215,758	04
TM066	*	Team Mgr-IT Prgrm Project Sppt	065	$ 83.63-109.38	$14,496-18,959	$173,950-227,510	04
TM028	*	Team Mgr-IT Quality Assurance	061	$ 75.23- 98.25	$13,040-17,030	$156,478-204,360	04
TM010	*	Team Mgr-IT Service Desk	060	$ 73.22- 95.68	$12,691-16,585	$152,298-199,014	04
TM055	*	Team Mgr-IT Telecommunication	063	$ 79.35-103.73	$13,754-17,980	$165,048-215,758	04
TM067	*	Team Mgr-Info Security	061	$ 75.23- 98.25	$13,040-17,030	$156,478-204,360	04
TM046	*	Team Mgr-InternalCntr&WaterInv	059	$ 71.31- 93.12	$12,360-16,141	$148,325-193,690	04
TM029	*	Team Mgr-Inventory Control	056	$ 65.76- 86.02	$11,398-14,910	$136,781-178,922	04
TM075	*	Team Mgr-Laboratory Support	057	$ 64.04- 83.70	$11,100-14,508	$133,203-174,096	03
TM068	*	Team Mgr-LandPlanning&Managemt	063	$ 79.35-103.73	$13,754-17,980	$165,048-215,758	04

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Classification Code		Title	Salary Grade	Hourly Range	Monthly Range	Annual Range	Unit Code
TM088	*	Team Mgr-Legislative Services	063	$ 79.35-103.73	$13,754-17,980	$165,048-215,758	
TM030	*	Team Mgr-Limnology & Reservoir	064	$ 81.45-106.50	$14,118-18,460	$169,416-221,520	04
TM031	*	Team Mgr-Maint Engineering	066	$ 86.02-112.28	$14,910-19,462	$178,922-233,542	04
TM032	*	Team Mgr-Materials&Metallurgy	060	$ 73.22- 95.68	$12,691-16,585	$152,298-199,014	04
TM034	*	Team Mgr-Microbiology	064	$ 81.45-106.50	$14,118-18,460	$169,416-221,520	04
TM035	*	Team Mgr-Operations App Svcs	063	$ 79.35-103.73	$13,754-17,980	$165,048-215,758	04
TM036	*	Team Mgr-Operations Compliance	066	$ 86.02-112.28	$14,910-19,462	$178,922-233,542	04
TM076	*	Team Mgr-Operations Planning	064	$ 81.45-106.50	$14,118-18,460	$169,416-221,520	04
TM037	*	Team Mgr-Ops Control Center	064	$ 81.45-106.50	$14,118-18,460	$169,416-221,520	04
TM087	*	Team Mgr-Payroll	062	$ 77.22-100.96	$13,385-17,500	$160,618-209,997	04
TM060	*	Team Mgr-Power Ops& Scheduling	064	$ 81.45-106.50	$14,118-18,460	$169,416-221,520	04
TM038	*	Team Mgr-Procurement	059	$ 71.31- 93.12	$12,360-16,141	$148,325-193,690	04
TM039	*	Team Mgr-Prof Contracting Svcs	059	$ 71.31- 93.12	$12,360-16,141	$148,325-193,690	04
TM040	*	Team Mgr-Program Management	066	$ 86.02-112.28	$14,910-19,462	$178,922-233,542	04
TM041	*	Team Mgr-Project Controls	062	$ 77.22-100.96	$13,385-17,500	$160,618-209,997	04
TM063	*	Team Mgr-Property Management	063	$ 79.35-103.73	$13,754-17,980	$165,048-215,758	04
TM042	*	Team Mgr-Pump Plant	061	$ 75.23- 98.25	$13,040-17,030	$156,478-204,360	04
TM043	*	Team Mgr-QltyAsrn&CompSampling	064	$ 81.45-106.50	$14,118-18,460	$169,416-221,520	04
TM044	*	Team Mgr-Real Prop Bus Mgmt	059	$ 71.31- 93.12	$12,360-16,141	$148,325-193,690	04
TM045	*	Team Mgr-RecordsMgt&ImagingSvc	059	$ 71.31- 93.12	$12,360-16,141	$148,325-193,690	04
TM069	*	Team Mgr-Resource Development	064	$ 81.45-106.50	$14,118-18,460	$169,416-221,520	04
TM070	*	Team Mgr-Resource Planning	064	$ 81.45-106.50	$14,118-18,460	$169,416-221,520	04
TM062	*	Team Mgr-Right of Way Acquistn	063	$ 79.35-103.73	$13,754-17,980	$165,048-215,758	04
TM047	*	Team Mgr-Safety of Dams&Geotch	066	$ 86.02-112.28	$14,910-19,462	$178,922-233,542	04
TM017	*	Team Mgr-Safety&RegSvcSiteSupt	064	$ 81.45-106.50	$14,118-18,460	$169,416-221,520	04
TMA02	*	Team Mgr-SafetyRegTechTraining	060	$ 73.22- 95.68	$12,691-16,585	$152,298-199,014	05
TM048	*	Team Mgr-Security Management	064	$ 81.45-106.50	$14,118-18,460	$169,416-221,520	04
TM049	*	Team Mgr-Server Administration	064	$ 81.45-106.50	$14,118-18,460	$169,416-221,520	04
TM050	*	Team Mgr-Substructures	064	$ 81.45-106.50	$14,118-18,460	$169,416-221,520	04
TM051	*	Team Mgr-Supply Acquisition	064	$ 81.45-106.50	$14,118-18,460	$169,416-221,520	04
TM053	*	Team Mgr-Technical Control	065	$ 83.63-109.38	$14,496-18,959	$173,950-227,510	04
TM054	*	Team Mgr-Technical Writing	058	$ 69.38- 90.65	$12,026-15,713	$144,310-188,552	04
TM071	*	Team Mgr-Treasury Operations	062	$ 77.22-100.96	$13,385-17,500	$160,618-209,997	04
TM058	*	Team Mgr-WRM Business Mgmt	059	$ 71.31- 93.12	$12,360-16,141	$148,325-193,690	04
TM059	*	Team Mgr-WSO Business Mgmt	059	$ 71.31- 93.12	$12,360-16,141	$148,325-193,690	04
TM056	*	Team Mgr-Warehouse	056	$ 65.76- 86.02	$11,398-14,910	$136,781-178,922	04
TM057	*	Team Mgr-Water Efficiency	066	$ 86.02-112.28	$14,910-19,462	$178,922-233,542	04
TM083	*	Team Mgr-WaterReuse&ProcessDev	066	$ 86.02-112.28	$14,910-19,462	$178,922-233,542	04
XA57		Technical Illustrator I	038	$ 40.10- 52.75	$ 6,951- 9,143	$ 83,408-109,720	02
XA58		Technical Illustrator II	043	$ 46.01- 60.57	$ 7,975-10,499	$ 95,701-125,986	02
XA59A		Technical Writer I	038	$ 40.10- 52.75	$ 6,951- 9,143	$ 83,408-109,720	02
XA60A		Technical Writer II	043	$ 46.01- 60.57	$ 7,975-10,499	$ 95,701-125,986	02
XA61A		Technical Writer III	048	$ 52.75- 69.38	$ 9,143-12,026	$109,720-144,310	02
YC55	*	Training Administrator	045	$ 48.60- 64.01	$ 8,424-11,095	$101,088-133,141	05
VC10		Training Assistant I	030	$ 32.20- 42.35	$ 5,581- 7,341	$ 66,976- 88,088	05
VC11		Training Assistant II	034	$ 35.95- 47.27	$ 6,231- 8,193	$ 74,776- 98,322	05
VC12		Training Assistant III	038	$ 40.10- 52.75	$ 6,951- 9,143	$ 83,408-109,720	05
Y15	*	Training Logistics Specialist	059	$ 67.59- 88.27	$11,716-15,300	$140,587-183,602	03
YC08	*	Training Specialist (C)	045	$ 48.60- 64.01	$ 8,424-11,095	$101,088-133,141	05
ASM01	*	Treasurer	066	$ 86.02-112.28	$14,910-19,462	$178,922-233,542	04
VA15		Treasury Administrator	039	$ 41.22- 54.20	$ 7,145- 9,395	$ 85,738-112,736	02
YA116		Treasury Analyst I	035	$ 36.99- 48.60	$ 6,412- 8,424	$ 76,939-101,088	02
YA115		Treasury Analyst II	041	$ 43.52- 57.26	$ 7,543- 9,925	$ 90,522-119,101	02
YA114		Treasury Analyst III	044	$ 47.27- 62.25	$ 8,193-10,790	$ 98,322-129,480	02
Z05J	*	Unit Manager V (C)	066	$ 86.02-112.28	$14,910-19,462	$178,922-233,542	05
UM002	*	Unit Mgr-Application Services	067	$ 88.30-115.43	$15,305-20,008	$183,664-240,094	04
UM003	*	Unit Mgr-Apprentice&TechTrain	064	$ 81.45-106.50	$14,118-18,460	$169,416-221,520	04
UM004	*	Unit Mgr-Audit	065	$ 83.63-109.38	$14,496-18,959	$173,950-227,510	04
UMA01	*	Unit Mgr-Benefits Services	066	$ 86.02-112.28	$14,910-19,462	$178,922-233,542	05
UM031	*	Unit Mgr-Budget	066	$ 86.02-112.28	$14,910-19,462	$178,922-233,542	04
UM030	*	Unit Mgr-Chemistry	068	$ 90.65-118.61	$15,713-20,559	$188,552-246,709	04
UMA02	*	Unit Mgr-ClassComp&Recruitment	066	$ 86.02-112.28	$14,910-19,462	$178,922-233,542	05
UM005	*	Unit Mgr-Construction Services	068	$ 90.65-118.61	$15,713-20,559	$188,552-246,709	04
UM006	*	Unit Mgr-Contracting Services	066	$ 86.02-112.28	$14,910-19,462	$178,922-233,542	04
UM007	*	Unit Mgr-Conveyance&Distribtn	068	$ 90.65-118.61	$15,713-20,559	$188,552-246,709	04
UM008	*	Unit Mgr-Document Services	064	$ 81.45-106.50	$14,118-18,460	$169,416-221,520	04
UM042	*	Unit Mgr-DvrstyEqty&IncWkfcDev	068	$ 90.65-118.61	$15,713-20,559	$188,552-246,709	04
UM009	*	Unit Mgr-Education	066	$ 86.02-112.28	$14,910-19,462	$178,922-233,542	04
UM010	*	Unit Mgr-Engineering Services	069	$ 93.12-121.88	$16,141-21,126	$193,690-253,510	04
UM038	*	Unit Mgr-Environmental Plng	069	$ 93.12-121.88	$16,141-21,126	$193,690-253,510	04

Metropolitan Water District of Southern California

Report ID: MHR828 SALARY SCHEDULE Page No. 10

Run Date 09/04/2024

Effective Date: 06/23/2024 Run Time 10:07:18

Classification Code		Title	Salary Grade	Hourly Range	Monthly Range	Annual Range	Unit Code
UM011	*	Unit Mgr-Facility Management	067	$ 88.30-115.43	$15,305-20,008	$183,664-240,094	04
UM045	*	Unit Mgr-Finance Services	066	$ 86.02-112.28	$14,910-19,462	$178,922-233,542	04
UM012	*	Unit Mgr-Fleet Services	065	$ 83.63-109.38	$14,496-18,959	$173,950-227,510	04
UM043	*	Unit Mgr-Grants & Research	073	$ 80.08-109.38	$13,881-18,959	$166,566-227,510	01
UM016	*	Unit Mgr-IT Infrastructure	068	$ 90.65-118.61	$15,713-20,559	$188,552-246,709	04
UM033	*	Unit Mgr-IT Program Mgt Office	069	$ 93.12-121.88	$16,141-21,126	$193,690-253,510	04
UM017	*	Unit Mgr-IT Project Planning	066	$ 86.02-112.28	$14,910-19,462	$178,922-233,542	04
UM032	*	Unit Mgr-IT Security	068	$ 90.65-118.61	$15,713-20,559	$188,552-246,709	04
UM013	*	Unit Mgr-Implemnt Proj&Studies	068	$ 90.65-118.61	$15,713-20,559	$188,552-246,709	04
UM014	*	Unit Mgr-Imported Supply	068	$ 90.65-118.61	$15,713-20,559	$188,552-246,709	04
UM015	*	Unit Mgr-Info Security Svcs	066	$ 86.02-112.28	$14,910-19,462	$178,922-233,542	04
UM037	*	Unit Mgr-Laboratory Services	068	$ 90.65-118.61	$15,713-20,559	$188,552-246,709	04
UM023	*	Unit Mgr-Land Management	067	$ 88.30-115.43	$15,305-20,008	$183,664-240,094	04
UM018	*	Unit Mgr-Manufacturing Svcs	068	$ 90.65-118.61	$15,713-20,559	$188,552-246,709	04
UM029	*	Unit Mgr-Microbiology	068	$ 90.65-118.61	$15,713-20,559	$188,552-246,709	04
UM019	*	Unit Mgr-Ops Planning&Program	068	$ 90.65-118.61	$15,713-20,559	$188,552-246,709	04
UM036	*	Unit Mgr-Ops Proj & Asset Mgmt	069	$ 93.12-121.88	$16,141-21,126	$193,690-253,510	04
UM021	*	Unit Mgr-Planning and Acquistn	067	$ 88.30-115.43	$15,305-20,008	$183,664-240,094	04
UM020	*	Unit Mgr-Power&EquipReliabilty	068	$ 90.65-118.61	$15,713-20,559	$188,552-246,709	04
UM040	*	Unit Mgr-PowerCompl&Programs	068	$ 90.65-118.61	$15,713-20,559	$188,552-246,709	04
UM035	*	Unit Mgr-Rates,Charges&FinPlan	066	$ 86.02-112.28	$14,910-19,462	$178,922-233,542	04
UM024	*	Unit Mgr-Risk Management	065	$ 83.63-109.38	$14,496-18,959	$173,950-227,510	04
UM041	*	Unit Mgr-Safety&Environ Svcs	068	$ 90.65-118.61	$15,713-20,559	$188,552-246,709	04
UM034	*	Unit Mgr-Security	068	$ 90.65-118.61	$15,713-20,559	$188,552-246,709	04
UM025	*	Unit Mgr-System Analysis	069	$ 93.12-121.88	$16,141-21,126	$193,690-253,510	04
UM026	*	Unit Mgr-System Operations	068	$ 90.65-118.61	$15,713-20,559	$188,552-246,709	04
UM027	*	Unit Mgr-Water Purification	068	$ 90.65-118.61	$15,713-20,559	$188,552-246,709	04
UM028	*	Unit Mgr-Water Treatment Plant	068	$ 90.65-118.61	$15,713-20,559	$188,552-246,709	04
XA63		Videographer I	035	$ 36.99- 48.60	$ 6,412- 8,424	$ 76,939-101,088	02
XA64		Videographer II	041	$ 43.52- 57.26	$ 7,543- 9,925	$ 90,522-119,101	02
YA101		Water Quality Specialist	048	$ 52.75- 69.38	$ 9,143-12,026	$109,720-144,310	02
XA66		Water Quality Technician I	033	$ 34.94- 46.01	$ 6,056- 7,975	$ 72,675- 95,701	02
XA67		Water Quality Technician II	038	$ 40.10- 52.75	$ 6,951- 9,143	$ 83,408-109,720	02
XA68		Water Quality Technician III	043	$ 46.01- 60.57	$ 7,975-10,499	$ 95,701-125,986	02
XA70A		Water Sampling Field Tech	033	$ 34.94- 46.01	$ 6,056- 7,975	$ 72,675- 95,701	02
Z38	*	Workers Compensation Manager	066	$ 86.02-112.28	$14,910-19,462	$178,922-233,542	05
T13		Wtr Treatment Plant Specialist	048	$ 52.75- 69.38	$ 9,143-12,026	$109,720-144,310	02
TA18		Wtr Trtment Plant Operator I	035	$ 36.99- 48.60	$ 6,412- 8,424	$ 76,939-101,088	02
TA19		Wtr Trtment Plant Operator II	040	$ 42.35- 55.76	$ 7,341- 9,665	$ 88,088-115,981	02
TA20		Wtr Trtment Plant Operator III	045	$ 48.60- 64.01	$ 8,424-11,095	$101,088-133,141	02

Metropolitan Water District of Southern California

Report ID: MHR828 SALARY SCHEDULE Page No. 11

Run Date 09/04/2024

Effective Date: 06/23/2024 Run Time 10:07:18

Classification Code	Title	Salary Grade	Hourly Range	Monthly Range	Annual Range	Unit Code

Unit Code

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00 - Executive
01 - Unrepresented
02 - AFSCME Local 1902
03 - Supervisors Association
04 - Management&Professional Assoc
05 - Assoc of Conf Employees

* Not Eligible for Overtime

O&M Tech Titles

+ O&M Tech I
  S03A (Grade 27): Carpenter, Coater, Equipment Operator, Fleet, Plumber, Welder-Fabricator
  S03 (Grade 28): Electrical, HVAC, Machinist, Mechanical
  S03P (Grade 28 - Apprentice): Electrical, Mechanical
+ O&M Tech II
  S02A (Grade 31): Carpenter, Coater, Equipment Operator, Fleet, Plumber, Welder-Fabricator
  S02 (Grade 32): Electrical, HVAC, Machinist, Mechanical
  S02P (Grade 32 - Apprentice): Electrical, Mechanical
+ O&M Tech III
  T10A (Grade 35): Carpenter, Coater, Equipment Operator, Fleet, Plumber, Welder-Fabricator
  T10 (Grade 36): Electrical, HVAC, Machinist, Mechanical
  T10P (Grade 36 - Apprentice): Electrical, Mechanical
+ O&M Tech IV
  T03A (Grade 41): Carpenter, Coater, Equipment Operator, Fleet, Plumber, Welder-Fabricator
  T03 (Grade 42): Electrical, HVAC, Machinist, Mechanical
  T03FS (Grade 42): Welder-Fabricator/Field Services

End of Report

Ethics, Organization, and Personnel Committee

Approve Employee Salary Schedule Pursuant to CalPERS Regulations

Item 7-5

September 10, 2024

Item # 7-5

Subject

Approve Employee Salary Schedule Pursuant to CalPERS Regulations

Purpose

Approve salary schedule to ensure compliance with California Code of Regulations, Section 570.5, and the negotiated MOUs.

Purpose and Background

- Metropolitan's Board is required by CalPERS to annually approve and adopt a salary schedule.
- Doing so does not amend or revise Memoranda of Understanding (MOUs), which have already been approved by the Board.

Governing Authority

- California Code of Regulations, Section 570.5
- Pay rate for calculating pensions specifically limited to amount listed on a *pay schedule*
- *Pay schedule* must
  - Be approved and adopted by the Board
  - Identify the position title for every employee
  - Show the pay rate for each identified position
  - Indicate the effective date
  - Meet public posting requirements

Changes to Salary Schedule for 2023

- Implements changes from the Board-approved MOUs
- Implements Board-approved salary changes for Department Heads
- Implements any newly created job titles/classifications

Board Options

- Option #1

  Approve the attached salary schedule to ensure compliance with California Code of Regulations, Section 570.5, and the negotiated MOUs.

- Option #2

  Do not approve the salary schedule

Staff Recommendation

- Option #1

  Approve the attached salary schedules.


THE METROPOLITAN WATER DISTRICT OF
SOUTHERN CALIFORNIA
1928

THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

Board Action

- **Board of Directors**
  Legislation and Communications Committee

9/10/2024 Board Meeting

7-6

Subject

Express support for Proposition 4, The Safe Drinking Water, Wildfire Prevention, Drought Preparedness, and Clean Air Bond Act of 2024; the General Manager has determined that the proposed action is exempt or otherwise not subject to CEQA

Executive Summary

The California Legislature passed SB 867 (Allen, D – Santa Monica), a bill to enact a climate bond measure, which is now set to appear before voters on the November 2024 ballot as Proposition 4 **(Attachment 1**).

Metropolitan's Board of Directors adopted five priorities for advocacy and Metropolitan participated in coalitions to advocate for significant water infrastructure funding in the climate bond. Following extensive engagement from the water community and a range of other interest groups, the Legislature ultimately passed a $10 billion bond package focused on water resilience, wildfire, sea level rise, nature-based solutions, clean air, outdoor recreation, agriculture and extreme heat mitigation, with $3.8 billion identified for water issues (the largest individual category).

With the passage of this legislation and its consideration as a ballot measure, Metropolitan staff seek board direction for a position on Proposition 4.

Proposed Action(s)/Recommendation(s) and Options

Staff Recommendation: Option #1

Option #1

Express support for Proposition 4, The Safe Drinking Water, Wildfire Prevention, Drought Preparedness, and Clean Air Bond Act of 2024.

Fiscal Impact: $0
Business Analysis: No direct fiscal impact to Metropolitan; if passed by the voters, Metropolitan could benefit through funding for priority projects.

Option #2

Take no action.
Fiscal Impact: $0
Business Analysis: No direct fiscal impact to Metropolitan; if passed by the voters, Metropolitan could benefit through funding for priority projects.

Alternatives Considered

None

Applicable Policy

Metropolitan Water District Administrative Code Section 11104: Delegation of Responsibilities

By Minute Item 53500, dated January 9, 2024, Legislative Priorities and Principles for 2024 with the revisions by staff and the committee members.

By Minute Item 53288, dated June 13, 2023, the Board agreed to express support, if amended, on two legislative bond proposals, Assembly Bill 1567 (Garcia, D - Coachella) and Senate Bill 867 (Allen, D - Santa Monica), to provide funding for water projects to address climate change impacts.

By Minute Item 53012, dated October 11, 2022, the Board adopted the Revision and Reinstatement of Bay-Delta Policies.

Related Board Action(s)/Future Action(s)

By Minute Item 53595, dated April 9, 2024, the Board agreed to express support for broadening Metropolitan's board priorities to include funding for Delta levee maintenance in the State of California's climate resiliency bond proposals, AB 1567 (Garcia, D - Coachella) and SB 867 (Allen, D - Santa Monica).

By Minute Item 53288, dated June 13, 2023, the Board agreed to express support, if amended, on two legislative bond proposals, Assembly Bill 1567 (Garcia, D - Coachella) and Senate Bill 867 (Allen, D - Santa Monica), to provide funding for water projects to address climate change impacts.

Summary of Outreach Completed

Metropolitan staff spoke with leading representatives from both the support and opposition campaigns for Proposition 4, which include staff from Yes on Prop 4 California and the Howard Jarvis Taxpayers Association. The arguments of both parties are detailed in the support and opposition stakeholder section below. Staff also briefed and solicited input from Metropolitan's member agencies.

California Environmental Quality Act (CEQA)

CEQA determination(s) for Option #1:

The proposed action is not defined as a project under CEQA because it involves a bond measure placed on the ballot by the State Legislature to be voted on by the public. (State CEQA Guidelines Section 15378(b)(1)).

Details and Background

In February 2023, two legislative measures were introduced—AB 1567 (Garcia, D - Coachella) and SB 867 (Allen, D - El Segundo)—as frameworks for a climate bond to provide the state resources to help address the significant impacts of climate change and support investments that improve statewide adaptability and resilience.

In June 2023, Metropolitan's Board of Directors adopted a support if amended position on both proposals, contingent upon investments in recycled water, regional conveyance, conservation and dam safety. Metropolitan's Board also acted in April 2024 to support funding for Delta levees, in partnership with the Delta Counties Coalition, establishing a fifth legislative priority.

To further these board-adopted priorities, in May 2024, Metropolitan joined a coalition including water, labor, business, local government and social justice organizations to advance collective priorities with an overall request that at least two-thirds of the climate bond be committed for water infrastructure.

In the final negotiations, the Legislature agreed to advance SB 867, providing a $10 billion total bond with $3.8 billion for water categories. However, Metropolitan and coalition partners refrained from taking a support position on this final bill due to its low total investment in our coalition priorities. SB 867 was signed into law on July 3.

Coalition Priorities

Category	Requested	Actual
Recycling and Desalination: ***	$1 B	$386.25 M
Water Quality and Safe Drinking Water:	$500 M	$610 M
Conservation and Water Use Efficiency: ***	$400 M	$75 M
Dam Safety: ***	$700 M	$480 M
Groundwater Management:	$750 M	$386.25 M
Surface Storage:	$550 M	$75 M
Regional Conveyance: ***	$600 M	$75 M
Flood Protection and Reactivation ***	$950 M	$550 M
State Water Project Public Benefits:	$500 M	$0
Regional and Coastal Watershed Resilience:	$700 M	$100 M
Total	**$6.65 B**	**$2.74 B**

(*** = Metropolitan Board Priority)

Now that Proposition 4, California Climate Bond will appear on the November 2024 ballot, Metropolitan is bringing this item back to the Board of Directors for further consideration on taking a position. In assessing the bond's total contents, the climate bond provides $10 billion spread across eight primary categories.

Final Climate Bond Allocation

Chapter	Totals
Safe Drinking Water, Drought, Flood, and Water Resilience	3.8 B
Wildfire and Forest Resilience	1.5 B
Sea Level Rise and Coastal Resilience	1.2 B
Protect Biodiversity and Accelerating Nature-Based Climate Solutions	1.2 B
Clean Air	850 M
Park Creation and Outdoor Access	700 M
Climate Smart, Sustainable, and Resilient Farms, Ranches, and Working Lands	300 M
Extreme Heat Mitigation	450 M
Total	**$10 B**

Beyond the prior focus on water infrastructure, further analysis identified several direct and indirect benefits for Metropolitan throughout the bond. These funds could provide direct funding benefits or reduce operational costs indirectly by improving water quality, watershed health, habitat restoration and renewable energy development.

- Water Quality: The bond provides over $600 million in funding for grants and loans related to clean and safe drinking water, providing funds for groundwater contamination and Per- and Polyfluoroalkyl Substances and hexavalent chromium remediation. These represent significant areas of focus for Metropolitan historically, and the funding in these categories could greatly benefit Metropolitan and our member agencies.
- Watershed Health: The bond includes over $500 million in funding for forest health to address the impacts of wildfires and would benefit our water operations and long-term water supply interests by reducing the impacts of fire on the environment and our sources of water, helping to protect water quality and system operations. In addition, the bond provides $100 million for integrated regional watershed management programs, which would be allocated through local conservancies. Funding for this program

supports collaboration between local agencies, like Metropolitan and the member agencies, and stakeholders to improve regional self-reliance through the development of multi-benefit projects.

- Habitat Restoration: Several categories in the bond provide funding for habitat restoration, supporting ecosystems and advancing species preservation. More than $1 billion in the bond is designated specifically for utilizing nature-based solutions to advance environmental conservation and respond to climate change. This funding could help offset Metropolitan costs for ecosystem restoration projects on district properties or for the acquisition of Metropolitan-owned properties for conservation purposes. In addition, $100 million is available to advance the Newsom Administration's Salmon Strategy, which has been a Metropolitan priority and would provide funding for dam removal and fish hatchery expansions. The bond would also provide $170 million for the Salton Sea Management Plan. Environmental restoration of the Salton Sea is important to address habitat and public health concerns and supports Metropolitan's Colorado River negotiations given prior concerns around the lack of funding for Salton Sea impacts.
- Renewable Energy Development: Multiple bond categories include funding that could be used to advance Metropolitan's and our Member Agency's renewable energy and climate response goals, including $50 million for battery energy storage and $35 million for transmission line hardening.

Notable Support:
San Diego County Water Authority
West Basin Municipal Water District
California Firefighters (CalFire Local 2881)
Clean Water Action
The National Wildlife Federation
The Nature Conservancy

Excerpts from Ballot Arguments in Support from Proposition 4 Official Title and Summary (**Attachment 2**):

> "California faces increasing threats from wildfires, water pollution, and extreme heat. Investments *today* can prevent future costs and damage from a changing climate and more frequent natural disasters."
>
> "Proposition 4 will clean up and protect California's drinking water supplies in all regions of California—remove toxic pollutants from our drinking water, addressing infrastructure risks like weakened dams and levees, and increasing supplies. Today, nearly 1 million Californians lack access to drinking water that meets safety and reliability standards, according to the State Water Board. Yes on 4 helps ensure we all have safe water to drink."
>
> "Recent California wildfires have burned 2 million acres, released toxic smoke into our air, and polluted drinking water supplies. Fire damage and smoke have harmed quality of life and health, including children's lungs, in every corner of California. Proposition 4 invests in projects to prevent wildfires, reduce their intensity when they do occur, and improve disaster response."
>
> "Protecting natural areas and wildlife is more urgent today than ever before, as we lose wildlife habitat, farm and ranchland, and even beaches wash away. Prop. 4 protects these natural areas from wildfire, pollution, and other threats from a changing climate."
>
> "California is already paying the price for failing to adequately prepare for drought and a changing climate. This measure helps shift from disaster response to *prevention*. Our state and communities will save billions more by avoiding and reducing damage from wildfires, droughts, and floods."

Notable Opposition:
Senate Minority Leader Brian W. Jones
Assemblyman Jim Patterson
Howard Jarvis Taxpayers Association

Excerpts from Ballot Arguments in Opposition from Proposition 4 Official Title and Summary: (**Attachment 2**):

"Bonds are the most expensive way for the government to pay for things. Proposition 4 would add a whopping *$10 billion* of debt to the taxpayers—PLUS an estimated *$9.3 billion* in interest—to pay for climate-related programs. This funding would also cover administrative costs and salaries for grant recipients. But remember, this is borrowed money."

"Two years ago, California had a nearly *$100 billion SURPLUS*. If these climate projects had been prioritized then, we could have covered the entire cost of this bond with just 10 percent of that surplus. Now, due to the government's inability to manage its spending, they are asking voters for more of their hard-earned money."

"Bonds should be reserved for financing essential projects that will build infrastructure lasting beyond the 30-year payoff period. However, many elements of Proposition 4 fail to meet that standard, resulting in *$10 billion* of spending just being added to the taxpayers' credit card—with a lack of accountability or measured metrics for success! Proposition 4 is full of money being funneled to unproven technologies that may sound promising on paper but have no concrete evidence of success."

Given the opportunities to pursue funding for various Metropolitan water resource and operational priorities, staff recommends the Board support Proposition 4 and, if passed by voters, pursue funding for the benefit of the region.

9/5/2024
Susan H. Sims *Date*
Group Manager, External Affairs

9/6/2024
Deven Upadhyay *Date*
Interim General Manager

Attachment 1 – SB 867, Allen (D – Santa Monica). Safe Drinking Water, Wildfire Prevention, Drought Preparedness, and Clean Air Bond Act of 2024

Attachment 2 – Proposition 4 Official Title and Summary

Ref# 12704995

Senate Bill No. 867

CHAPTER 83

An act to add Division 50 (commencing with Section 90000) to the Public Resources Code, relating to safe drinking water, wildfire prevention, drought preparedness, and clean air, by providing the funds necessary therefor through an election of the issuance and sale of bonds of the State of California and for the handling and disposition of those funds, and declaring the urgency thereof, to take effect immediately.

[Approved by Governor July 3, 2024. Filed with Secretary of State July 3, 2024.]

LEGISLATIVE COUNSEL'S DIGEST

SB 867, Allen. Safe Drinking Water, Wildfire Prevention, Drought Preparedness, and Clean Air Bond Act of 2024.

The California Drought, Water, Parks, Climate, Coastal Protection, and Outdoor Access For All Act of 2018, approved by the voters as Proposition 68 at the June 5, 2018, statewide primary election, authorizes the issuance of bonds in the amount of $4,100,000,000 pursuant to the State General Obligation Bond Law to finance a drought, water, parks, climate, coastal protection, and outdoor access for all program. Article XVI of the California Constitution requires measures authorizing general obligation bonds to specify the single object or work to be funded by the bonds and further requires a bond act to be approved by a ⅔ vote of each house of the Legislature and a majority of the voters.

This bill would enact the Safe Drinking Water, Wildfire Prevention, Drought Preparedness, and Clean Air Bond Act of 2024, which, if approved by the voters, would authorize the issuance of bonds in the amount of $10,000,000,000 pursuant to the State General Obligation Bond Law to finance projects for safe drinking water, drought, flood, and water resilience, wildfire and forest resilience, coastal resilience, extreme heat mitigation, biodiversity and nature-based climate solutions, climate-smart, sustainable, and resilient farms, ranches, and working lands, park creation and outdoor access, and clean air programs.

This bill would declare that it is to take effect immediately as an urgency statute.

The people of the State of California do enact as follows:

SECTION 1. The people of California find and declare all of the following:

(a) Every human being has the right to safe, clean, affordable drinking water. California was the first state in the nation to legally declare this right.

(b) More than 60 percent of California's rivers and streams fail to meet federal clean water standards, and more than 1,000,000 Californians still lack easy access to safe, affordable, and clean drinking water. California must make needed investments to keep toxic pollution out of our water and ensure every person in the state has clean water to drink.

(c) In recent years, California has experienced the deadliest and most destructive wildfires on record. Fifteen of the 20 most destructive wildfires in state history have occurred in the last decade alone, including the deadliest, the 2018 Camp Fire. These wildfires have claimed more than 100 lives, tens of thousands of homes and structures lost, and more than 2,000,000 acres burned.

(d) California's changing climate creates increased risk of catastrophic wildfires, drought, severe heat events, and sea level rise, as well as impacts to agriculture, water supply and water quality, and the health of the forests, watershed, and wildlife.

(e) These risks and impacts vary by region and can overwhelm the resources of local governments that must cope with severe climate change-related events.

(f) Reducing vulnerability to fire, flood, drought, and other climate change-related events requires a statewide investment to increase climate resilience of communities and natural systems.

(g) Planning, investment, and action to address current and future climate change impacts must be guided by the best available science, including local and traditional knowledge.

(h) Governor Gavin Newsom has issued several reports and executive orders that have created a roadmap to climate resiliency in California that will help guide and direct investments.

(i) California's Water Supply Strategy Adapting to a Hotter, Drier Future outlines actions needed in order to recycle and reuse at least 800,000 acre-feet of water per year by 2030, make available up to 500,000 acre-feet of water through more efficient water use and conservation, and make new water available for use by capturing stormwater and desalinating brackish water in groundwater basins.

(j) The Water Resilience Portfolio serves as a blueprint for equipping California to cope with more extreme droughts and floods and rising temperatures, while addressing longstanding challenges that include declining fish populations, over-reliance on groundwater and lack of safe drinking water in many communities.

(k) California's Wildfire and Forest Resilience Action Plan outlines a strategy to increase the pace and scale of forest health projects, strengthen protection of communities, and manage forests, to achieve the state's economic and environmental goals and drive innovation and measure progress.

(*l*) The Extreme Heat Action Plan outlines a strategy to protect communities from rising temperatures in order to accelerate readiness and

protection of communities most impacted by extreme heat, including through cooling schools and homes, supporting community resilience centers, and expanding nature-based solutions.

(m) California's strategy for achieving the first-in-the-nation 30x30 conservation goal is described in the Pathways to 30x30: Accelerating Conservation of California's Nature report, which outlines a vision to conserve an additional 6,000,000 acres of lands and 500,000 acres of coastal waters needed to reach 30-percent conservation goals by 2030.

(n) Executive Order No. N-82-20 outlines a strategy to expand nature-based solutions across California. The executive order calls for restoring nature and landscape health to deliver on our climate change goals and other critical priorities, including improving public health and safety, securing our food and water supplies, and achieving greater equity across California.

(o) California Salmon Strategy for a Hotter, Drier Future outlines a path to a healthier, thriving salmon population in California, actions state agencies are already taking to stabilize and recover salmon populations, and additional or intensified actions needed in coming years.

(p) Governor Gavin Newsom signed Senate Bill 1 of the 2021–22 Regular Session (Chapter 236 of the Statutes of 2021) that directed the California Coastal Commission to take sea level rise into account in its planning, policies, and activities, and established a cross-government group tasked with educating the public and advising local, regional, and state government on feasible sea level rise mitigation efforts.

(q) California's Natural and Working Lands Climate Smart Strategy showcases that sustainable agricultural practices have important implications for equity and public health, and can promote economic resilience, buffer communities from extreme heat, improve air and water quality, and provide local food sources. These outcomes benefit all Californians, and are particularly important for rural, vulnerable communities.

(r) The 2022 Scoping Plan for Achieving Carbon Neutrality focuses on the importance of investing in strategies for reducing California's dependency on petroleum, including transitioning to clean energy options that address climate change, improve air quality, and support economic growth and clean sector jobs.

(s) Without intervention, the cost of climate change to California is estimated to reach $113,000,000,000 annually by 2050, according to the Natural Resources Agency's California's Fourth Climate Change Assessment.

(t) The Federal Emergency Management Agency estimates that every dollar spent on resiliency saves $6 in disaster relief. A $10,000,000,000 investment could help avoid $60,000,000,000 in disaster relief.

(u) Providing a source of funding for comprehensive investment in climate resilience in all regions of the state is cost effective and in the public interest. These investments will result in public benefits that will address the most critical statewide needs and priorities for public funding.

(v) The Safe Drinking Water, Wildfire Prevention, Drought Preparedness, and Clean Air Bond Act of 2024 provides a comprehensive and fiscally responsible approach for addressing the varied challenges facing California's current and future climate impacts.

(w) Investing in water infrastructure will provide jobs, improve resiliency, and reduce local government spending.

(x) Continued investments in California's parks, trails, natural and working lands, and greening urban areas will help mitigate the impacts of climate change, making cities more livable, and will protect California's natural resources for future generations.

(y) The expenditure of funds from the Safe Drinking Water, Wildfire Prevention, Drought Preparedness, and Clean Air Bond Act of 2024 will help communities avoid and recover from the impacts of wildfire, flood, drought, or other climate-related events, and help restore and protect natural systems from the impacts of wildfire, flooding, drought, or other climate-related events.

SEC. 2. Division 50 (commencing with Section 90000) is added to the Public Resources Code, to read:

DIVISION 50. SAFE DRINKING WATER, WILDFIRE PREVENTION, DROUGHT PREPAREDNESS, AND CLEAN AIR BOND ACT OF 2024

Chapter 1. General Provisions

90000. This division shall be known, and may be cited, as the Safe Drinking Water, Wildfire Prevention, Drought Preparedness, and Clean Air Bond Act of 2024.

90050. (a) In expending funds pursuant to this division, an administering state agency shall give priority to projects that leverage private, federal, and local funding or produce the greatest public benefit.

(b) To the extent practicable, a project funded pursuant to this division shall include signage informing the public that the project received funding from the Safe Drinking Water, Wildfire Prevention, Drought Preparedness, and Clean Air Bond Act of 2024.

(c) Projects funded pursuant to this division shall, where appropriate, include the planning, monitoring, and reporting necessary to ensure successful implementation of this division's objectives.

90100. For purposes of this division, the following definitions apply:

(a) "Committee" means the Safe Drinking Water, Wildfire Prevention, Drought Preparedness, and Clean Air Bond Finance Committee created pursuant to Section 95002.

(b) "Community" has the same meaning as set forth in paragraph (1) of subdivision (a) of Section 65302.10 of the Government Code.

(c) "Critical community infrastructure" means infrastructure that is necessary to providing vital community and individual functions, including, but not limited to, drinking and wastewater infrastructure, emergency

shelters, communication and warning systems, evacuation routes, emergency power and public medical facilities, schools, town halls, hospitals, health clinics, community centers, community nonprofit facilities providing essential services, libraries, homeless shelters, senior and youth centers, childcare facilities, food banks, grocery stores, and parks and recreation sites.

(d) "Disadvantaged community" means a community with a median household income of less than 80 percent of the area average or less than 80 percent of statewide median household income.

(e) "Economically distressed areas" has the same meaning as set forth in Section 79702 of the Water Code.

(f) "Natural infrastructure" has the same meaning as set forth in paragraph (3) of subdivision (c) of Section 71154.

(g) "Nonprofit organization" means a nonprofit corporation qualified to do business in California and qualified under Section 501(c)(3) of the Internal Revenue Code.

(h) "Protection" includes those actions necessary to prevent harm or damage to persons, property, or natural, cultural, and historic resources, actions to improve access to public open-space areas, or actions to allow the continued use and enjoyment of property or natural, cultural, and historic resources. Protection includes site monitoring, acquisition, development, restoration, preservation, and interpretation.

(i) (1) "Restoration" includes the improvement of physical structures or facilities and, in the case of natural systems and landscape features, includes, but is not limited to, any of the following:

(A) The control of erosion.

(B) Stormwater capture, treatment, reuse, and storage, or to otherwise reduce stormwater pollution.

(C) The control and elimination of invasive species and harmful algal blooms.

(D) The planting of native species.

(E) The removal of waste and debris.

(F) Prescribed burning and other fuel hazard reduction measures.

(G) Fencing out threats to existing or restored natural resources.

(H) Improving instream, riparian, floodplain, or wetland habitat conditions.

(I) Other plant and wildlife habitat improvement to increase the natural system value of the property or coastal or ocean resources.

(J) Activities described in subdivision (b) of Section 79737 of the Water Code.

(2) "Restoration" also includes activities, including the planning, permitting, monitoring, and reporting that are necessary to ensure successful implementation of the restoration objectives.

(j) "Severely disadvantaged community" means a community with a median household income of less than 60 percent of the area average or less than 60 percent of statewide median household income.

(k) "Socially disadvantaged farmer or rancher" has the same meaning set forth in Section 512 of the Food and Agricultural Code. This provision shall apply to the extent allowable by law.

(*l*) "State General Obligation Bond Law" means the State General Obligation Bond Law (Chapter 4 (commencing with Section 16720) of Part 3 of Division 4 of Title 2 of the Government Code), as it may be amended from time to time.

(m) "Structure hardening" includes the installation, replacement, or retrofitting of building materials, systems, or assemblies used in the exterior design and construction of existing nonconforming structures with features that are in compliance with Chapter 7A (commencing with Section 701A.1) of Part 2 of Title 24 of the California Code of Regulations, or any appropriate successor regulatory code, with the primary purpose of reducing risk to structures from wildfire or conforming to the low-cost retrofit list, and updates to that list, developed pursuant to paragraph (1) of subdivision (c) of Section 51189 of the Government Code.

(n) "Tribe" means a federally recognized Native American tribe or a nonfederally recognized Native American tribe listed on the California Tribal Consultation List maintained by the Native American Heritage Commission.

(o) "Vulnerable population" means a subgroup of population within a region or community that faces a disproportionately heightened risk or increased sensitivity to impacts of climate change and that lacks adequate resources to cope with, adapt to, or recover from such impacts.

(p) "Water board" means the State Water Resources Control Board.

90105. Funds provided by this division shall not be expended to fulfill any environmental mitigation requirements or compliance obligations imposed by law.

90107. Funds provided by this division shall not be expended to pay the costs of the design, construction, operation, mitigation, or maintenance of isolated Delta conveyance facilities. Those costs shall be the responsibility of the water agencies that benefit from the design, construction, operation, mitigation, or maintenance of those facilities.

90110. An eligible applicant under this division is a public agency, local agency, nonprofit organization, special district, joint powers authority, tribe, public utility, local publicly owned utility, or mutual water company.

90115. The Legislature may enact legislation necessary to implement programs funded by this division.

90120. It is the intent of the Legislature that bond moneys shall not be used for shareholder incentives or profits for shareholders of private corporations.

90130. For grants awarded for projects under this division, the administering agency may provide advanced payments in the amount of 25 percent of the grant award to the recipient, including state-related entities, to initiate the project in a timely manner. The administering agency shall adopt additional requirements for the recipient of the grant regarding the use of the advanced payments to ensure that the moneys are used properly.

90133. For grants awarded for projects under this division, the administering agency may, when awarding a grant, reimburse the grantee's indirect costs. When reimbursing a grantee for indirect costs, the administering agency shall apply one of the following rates, as requested by the grantee:

(a) The grantee's negotiated indirect cost rate, pursuant to its negotiated indirect cost rate agreement.

(b) The de minimis indirect cost rate specified in Part 200 of Title 2 of the Code of Federal Regulations.

(c) A rate negotiated by the grantee with another state agency within the last five years.

(d) A rate proposed by the grantee in the grantee's program application with the administering state agency if the grantee does not have an existing state rate.

90135. (a) The Secretary of the Natural Resources Agency shall publish a list of all program and project expenditures pursuant to this division not less than annually, in written form, and shall post an electronic form of the list on the agency's internet website in a downloadable spreadsheet format. The spreadsheet shall include all of the following information:

(1) Information about the location and footprint of each funded project.

(2) The project's objectives.

(3) The status of the project.

(4) Anticipated outcomes.

(5) The public benefits to be derived from the project, including whether the project has meaningful and direct benefits to vulnerable populations, disadvantaged communities, or severely disadvantaged communities.

(6) The total cost of the project, if known.

(7) The amount of bond funding provided.

(8) Any matching moneys provided for the project by the grant recipient or other partners.

(9) The applicable chapter of this division pursuant to which the recipient received moneys.

(b) The Department of Finance shall provide for an independent audit of expenditures pursuant to this division. If an audit, required by law, of any entity that receives funding authorized by this division is conducted pursuant to state law and reveals any impropriety, the California State Auditor or the Controller may conduct or arrange for a full audit of any or all of the activities funded pursuant to this division. Any audit of a federal Department of Energy or National Aeronautics and Space Administration research and development center pursuant to this section shall be conducted in accordance with the Federal Laboratory Contracting Act (Chapter 7 (commencing with Section 12500) of Part 2 of Division 2 of the Public Contract Code).

(c) A state agency issuing any grant with funding authorized by this division shall require adequate reporting of the expenditures of the funding from the grant.

(d) The costs associated with the publications, audits, statewide bond tracking, cash management, and related oversight activities provided for in this section shall be funded from the proceeds of bonds authorized by this division. These costs shall be shared proportionally by each program funded by this division. Actual costs incurred to administer nongrant programs authorized by this division shall be paid from the proceeds of bonds authorized by this division.

90140. At least 40 percent of the total funds available pursuant to this division shall be allocated for projects that provide meaningful and direct benefits to vulnerable populations or disadvantaged communities. At least 10 percent of the total funds available pursuant to this division shall be allocated for projects that provide meaningful and direct benefits to severely disadvantaged communities.

90150. To the extent feasible, a project whose application includes the use of services of the California Conservation Corps or certified community conservation corps, as defined in Section 14507.5, shall be given preference for receipt of a grant under this division.

90500. (a) The proceeds of bonds issued and sold pursuant to this division, exclusive of refunding bonds issued and sold pursuant to Section 95012, shall be deposited in the Safe Drinking Water, Wildfire Prevention, Drought Preparedness, and Clean Air Fund, which is hereby created in the State Treasury. Moneys in the fund shall be available, upon appropriation by the Legislature, for purposes of this division.

(b) Proceeds of bonds issued and sold pursuant to this division shall be allocated according to the following schedule:

(1) Three billion eight hundred million dollars ($3,800,000,000) for safe drinking water, drought, flood, and water resilience programs, in accordance with Chapter 2 (commencing with Section 91000).

(2) One billion five hundred million dollars ($1,500,000,000) for wildfire and forest resilience programs, in accordance with Chapter 3 (commencing with Section 91500).

(3) One billion two hundred million dollars ($1,200,000,000) for coastal resilience programs, in accordance with Chapter 4 (commencing with Section 92000).

(4) Four hundred fifty million dollars ($450,000,000) for extreme heat mitigation programs, in accordance with Chapter 5 (commencing with Section 92500).

(5) One billion two hundred million dollars ($1,200,000,000) for biodiversity protection and nature-based climate solution programs, in accordance with Chapter 6 (commencing with Section 93000).

(6) Three hundred million dollars ($300,000,000) for climate-smart, sustainable, and resilient farms, ranches, and working lands programs, in accordance with Chapter 7 (commencing with Section 93500).

(7) Seven hundred million dollars ($700,000,000) for park creation and outdoor access programs, in accordance with Chapter 8 (commencing with Section 94000).

(8) Eight hundred fifty million dollars ($850,000,000) for clean air programs, in accordance with Chapter 9 (commencing with Section 94500).

90600. (a) An amount that equals not more than the lesser of 7 percent of the funds or twenty million dollars ($20,000,000) allocated for a grant program pursuant to this division may be used to pay the administrative costs of that program.

(b) (1) Up to 10 percent of the funds available pursuant to each chapter of this division may be allocated for technical assistance to disadvantaged communities, severely disadvantaged communities, or vulnerable populations. The agency administering the moneys shall operate a multidisciplinary technical assistance program for disadvantaged communities, severely disadvantaged communities, or vulnerable populations.

(2) Funds used for providing technical assistance to disadvantaged communities, severely disadvantaged communities, or vulnerable populations may exceed 10 percent of the funds allocated under each chapter of this division if the state agency administering the moneys determines that there is a need for the additional funding.

90610. To the extent practicable, a project that receives moneys pursuant to this division may provide workforce education and training, contractor, and job opportunities for vulnerable populations.

90620. Funds allocated pursuant to this division may be used by the Natural Resources Agency and its departments, boards, and conservancies to collaboratively fund projects at a landscape or multijurisdictional scale to provide multiple benefits.

Chapter 2. Safe Drinking Water, Drought, Flood, and Water Resilience

91000. The sum of three billion eight hundred million dollars ($3,800,000,000) shall be available, upon appropriation by the Legislature, for safe drinking water, drought, flood, and water resilience programs.

91010. Of the funds made available by Section 91000, one billion eight hundred eighty-five million dollars ($1,885,000,000) shall be available, upon appropriation by the Legislature, to protect and increase California water supply and water quality.

91011. (a) Of the funds made available by Section 91010, six hundred ten million dollars ($610,000,000) shall be available, upon appropriation by the Legislature, to the State Water Resources Control Board for grants or loans that improve water quality or help provide clean, safe, and reliable drinking water. Eligible projects include, but are not limited to, any of the following:

(1) Projects that help to provide clean, safe, and reliable drinking water.

(2) Projects that increase water quality monitoring and remediation of perfluoroalkyl and polyfluoroalkyl substances.

(3) Innovative projects to increase the affordability of safe drinking water.

(4) Projects that implement countywide drought and water shortage contingency plans adopted pursuant to Chapter 10 (commencing with Section 10609.40) of Part 2.55 of Division 6 of the Water Code.

(5) Projects that prevent, reduce, or treat the contamination of groundwater that serves as a major source of drinking water for a community.

(6) Projects to consolidate water or wastewater systems or to extend wastewater service to residences currently served by inadequate onsite sewer treatment systems.

(7) Grants for projects and technical and financial assistance to address hexavalent chromium in drinking water.

(8) (A) Tribal water infrastructure projects that provide safe, clean, and reliable drinking water to tribal communities.

(B) Not less than twenty-five million dollars ($25,000,000) shall be allocated to projects described in subparagraph (A).

(b) If there is a responsible party identified to have contributed to contamination of a drinking water well, or system, the water system or public agency responsible for the infrastructure may apply for competitive state grant program funding for a drinking water infrastructure project to address water quality issues. The grant applicant may apply for funding in the amount above and beyond what the responsible party is required to contribute to the infrastructure project.

(c) Reasonable geographic allocation to eligible projects throughout the state shall be considered, including both northern and southern California and inland and coastal regions.

(d) At least 40 percent of the allocation made pursuant to this section shall benefit disadvantaged communities, severely disadvantaged communities, or vulnerable populations.

(e) For severely disadvantaged communities with populations of no more than 500 persons that serve no more than 100 service connections, there shall be no maximum amount per service connection for eligible projects.

91012. (a) Of the funds made available by Section 91010, three hundred eighty-six million two hundred fifty thousand dollars ($386,250,000) shall be available, upon appropriation by the Legislature, to the Department of Water Resources for projects related to groundwater storage, groundwater banking, groundwater recharge, or instream flow projects that support the conjunctive use of groundwater and surface water supplies. Of the funds made available pursuant to this subdivision, a minimum of twenty-five million dollars ($25,000,000) shall be for projects that provide direct benefits to tribal communities.

(b) Of the funds made available by subdivision (a), one hundred ninety-three million one hundred twenty-five thousand dollars ($193,125,000) shall be available for projects that increase groundwater storage, improve the management and operation of groundwater storage, or are for groundwater banking, and support implementation of the Sustainable Groundwater Management Act (Part 2.74 (commencing with Section 10720) of Division 6 of the Water Code).

(c) (1) Of the funds made available by subdivision (a), one hundred ninety-three million one hundred twenty-five thousand dollars ($193,125,000) shall be available for projects that support conjunctive use and groundwater recharge. The projects shall provide the following benefits:

(A) Provide improved regional watershed management.

(B) Address current and projected drought conditions and demonstrate adaptation to climate change for a region.

(C) Provide ecosystem benefits to fish and wildlife and improve stream flow for anadromous fish.

(2) Reasonable geographic allocation to eligible projects throughout the state shall be considered, including both northern and southern California and inland and coastal regions.

91013. Of the funds made available by Section 91010, two hundred million dollars ($200,000,000) shall be available, upon appropriation by the Legislature, to the Department of Conservation's Multibenefit Land Repurposing Program for groundwater sustainability projects that reduce groundwater use, repurpose irrigated agricultural land, provide wildlife habitat, improve drought resilience or floodwater management, or support implementation of the Sustainable Groundwater Management Act (Part 2.74 (commencing with Section 10720) of Division 6 of the Water Code).

91014. (a) Of the funds made available by Section 91010, three hundred eighty-six million two hundred fifty thousand dollars ($386,250,000) shall be available, upon appropriation by the Legislature, to the State Water Resources Control Board for grants and projects related to water reuse and recycling, including, but not limited to, the following:

(1) Treatment, storage, conveyance, and distribution facilities for potable and nonpotable recycling projects.

(2) Dedicated distribution infrastructure to serve residential, commercial, agricultural, and industrial end user retrofit projects to allow use of recycled water.

(3) Multiple-benefit recycled water projects that improve water quality.

(b) At least a 50-percent local cost share shall be required for projects funded pursuant to this section. That cost share may be suspended or reduced for disadvantaged communities or severely disadvantaged communities, or prorated for disadvantaged communities or severely disadvantaged communities within a larger service area project. A loan, grant, or other funding received, regardless of funding source, shall qualify as local cost share.

(c) The water board shall adopt modified grant funding requirements for large-scale water recycling or reuse projects, including all of the following requirements:

(1) Ancillary facilities that are part of large-scale water recycling or reuse projects shall be eligible for funding. Ancillary facilities include, but are not limited to, pipelines, extraction wells, injection wells, recharge basins, and nitrogen removal treatment systems, pertinent structures, and connection assemblies.

(2) This section does not preclude the water board from awarding funding to a large-scale water recycling or reuse project for multiple project phases or components, or more than once during the project development period. The water board shall not require user agreements or contracts for water delivery, nor shall full completion of the project be required before the submission of a subsequent grant application, as a condition for award of grant funding.

(3) At least 10 percent of the grant funding shall be awarded for the purpose of planning and design.

(4) Reasonable geographic allocation to eligible projects throughout the state, including both northern and southern California and coastal and inland regions.

91015. Of the funds made available by Section 91010, seventy-five million dollars ($75,000,000) shall be available, upon appropriation by the Legislature, to the California Water Commission for projects under the Water Storage Investment Program. Priority for these funds and any funds returned to the commission shall be to support timely completion of existing approved projects by providing supplemental grants to reflect the increase in costs due to inflation since the original grant applications and any increase in public benefits.

91016. Of the funds made available by Section 91010, sixty-two million five hundred thousand dollars ($62,500,000) shall be available, upon appropriation by the Legislature, for capital investments in brackish desalination, contaminant and salt removal, and salinity management projects to improve California water and drought resilience. Priority shall be given to projects that use new incremental eligible renewable energy resources during operation and reduce greenhouse gas emissions associated with their construction and operation.

91017. Of the funds made available by Section 91010, fifteen million dollars ($15,000,000) shall be available, upon appropriation by the Legislature, to the Department of Water Resources and the State Water Resources Control Board to improve water data management and to implement Section 144 of the Water Code to reactivate existing stream gages and deploy new gages.

91018. Of the funds made available by Section 91010, seventy-five million dollars ($75,000,000) shall be available, upon appropriation by the Legislature, to the Natural Resources Agency and the Department of Water Resources for competitive grants for regional conveyance projects or repairs to existing conveyances. Priority shall be given to projects that provide one or more of the following benefits:

(a) Improvements in regional or interregional water supply or water supply reliability.

(b) Increased groundwater recharge or mitigation of conditions of groundwater overdraft, salinity intrusion, water quality degradation, or subsidence.

(c) Adaptation to the impacts of hydrologic changes.

(d) Improvements in water security from drought, natural disasters, or other events that could interrupt water supplies.

(e) Providing safe drinking water for disadvantaged communities and economically distressed areas.

91019. Of the funds made available by Section 91010, seventy-five million dollars ($75,000,000) shall be available, upon appropriation by the Legislature, to the Department of Water Resources for projects that increase water conservation in agricultural and urban areas.

91020. Of the funds made available by Section 91000, one billion one hundred forty million dollars ($1,140,000,000) shall be available, upon appropriation by the Legislature, to reduce flood risk and improve stormwater management.

91021. Of the funds made available by Section 91020, five hundred fifty million dollars ($550,000,000) shall be available, upon appropriation by the Legislature, to the Natural Resources Agency and its departments, boards, and conservancies for flood management projects. Priority shall be given to projects designed and implemented to achieve both flood safety and ecosystem functions, while providing additional benefits. At least 40 percent of the allocation made pursuant to this section shall benefit disadvantaged communities, severely disadvantaged communities, or vulnerable populations. Funding shall be allocated as follows:

(a) One hundred fifty million dollars ($150,000,000) shall be available for projects in the Sacramento-San Joaquin Delta to improve existing levees to increase flood protection and improve climate resiliency. For purposes of this subdivision, "Sacramento-San Joaquin Delta" has the same meaning as described in Section 12220 of the Water Code.

(b) One hundred fifty million dollars ($150,000,000) shall be available for projects that implement the Flood Control Subventions Program.

(c) Two hundred fifty million dollars ($250,000,000) shall be available for projects related to the systemwide evaluation, repair, rehabilitation, reconstruction, expansion, or replacement of levees, weirs, bypasses, and facilities of the State Plan of Flood Control.

91022. Of the funds made available by Section 91020, four hundred eighty million dollars ($480,000,000) shall be available, upon appropriation by the Legislature, to the Department of Water Resources for the Dam Safety and Climate Resilience Local Assistance Program for competitive grants for projects that enhance dam safety and reservoir operations and protect public benefits pursuant to Section 6700 of the Water Code.

91023. Of the funds made available by Section 91020, one hundred ten million dollars ($110,000,000) shall be available, upon appropriation by the Legislature, to the State Water Resources Control Board for grants for multiple-benefit urban stormwater management projects. Projects funded pursuant to this section shall address flooding in urbanized areas and provide multiple benefits, with preference given to natural infrastructure projects. Eligible stormwater projects shall include, but are not limited to, stormwater capture and reuse, planning and implementation of low-impact development,

restoration of urban streams and watersheds, debris flow mitigation, and increasing permeable surfaces to help reduce flooding.

91030. Of the funds made available by Section 91000, six hundred five million dollars ($605,000,000) shall be available, upon appropriation by the Legislature, to protect and restore rivers, lakes, and streams, and to improve watershed resilience, including the resilience of fish and wildlife within the watershed.

91031. Of the funds made available by Section 91030, one hundred million dollars ($100,000,000) shall be available, upon appropriation by the Legislature, to the Department of Water Resources for projects related to integrated regional water management to improve climate resilience on a watershed basis. The department shall update and revise the guidelines for the integrated regional water management program to address impacts associated with climate risk.

91032. Of the funds made available by Section 91030, three hundred thirty-five million dollars ($335,000,000) shall be available, upon appropriation by the Legislature, for projects that protect and restore rivers, wetlands, streams, lakes, and watersheds, and improve the resilience of fish and wildlife. Projects shall improve climate resilience, water supplies, or water quality. To the extent feasible, preference shall be given to natural infrastructure projects. At least 40 percent of the allocation made pursuant to this section shall benefit disadvantaged communities, severely disadvantaged communities, or vulnerable populations. The funds made available pursuant to this section shall be allocated as follows:

(a) Forty million dollars ($40,000,000) shall be available pursuant to Division 22.8 (commencing with Section 32600) for projects that improve the climate resiliency or the protection of the Los Angeles River Watershed or are consistent with the Lower Los Angeles River Revitalization Plan.

(b) Forty million dollars ($40,000,000) shall be available pursuant to Division 23 (commencing with Section 33000) for projects that improve the climate resiliency or the protection of the Los Angeles River Watershed and are a part of the revitalization plan developed by the Upper Los Angeles River and Tributaries Working Group pursuant to Section 33220 or the Los Angeles River Master Plan.

(c) Fifty million dollars ($50,000,000) shall be available to the Riverine Stewardship Program established pursuant to Section 7049 of the Water Code for projects that improve climate resiliency.

(d) Twenty-five million dollars ($25,000,000) shall be available to the State Coastal Conservancy for the Santa Ana River Conservancy Program.

(e) Twenty-five million dollars ($25,000,000) shall be available for multiple-benefit urban stream and river projects under the Urban Streams Restoration Program established pursuant to Section 7048 of the Water Code that protect and restore riparian habitats, improve climate resilience, enhance natural drainages, protect and restore watersheds, and provide public access.

(f) Twenty-five million dollars ($25,000,000) shall be available to the Natural Resources Agency for projects that improve conditions on wildlife

refuges and wetland habitat areas. Projects may include the acquisition and delivery of water from willing sellers and water conveyance rights to achieve compliance with subsection (d) of Section 3406 of the federal Central Valley Project Improvement Act (Title 34 of Public Law 102-575) and the acquisition of water and conveyance rights for the Lower Klamath National Wildlife Refuge.

(g) Ten million dollars ($10,000,000) shall be available to the Wildlife Conservation Board for the Lower American River Conservancy Program.

(h) Twenty-five million dollars ($25,000,000) shall be available to the State Coastal Conservancy to protect and restore watersheds through the Coyote Valley Conservation Program in the County of Santa Clara.

(i) Twenty-five million dollars ($25,000,000) shall be available to the State Coastal Conservancy to protect and restore watersheds through the West Coyote Hills Program.

(j) (1) Fifty million dollars ($50,000,000) shall be available to the water board for loans or grants for projects that will address water quality problems arising in the California-Mexico cross-border rivers and coastal waters. Funds may be made available under this subdivision for water quality projects in the Tijuana River Valley Watershed, as described in the Tijuana River Plan created pursuant to Section 71107, and for projects consistent with the New River Water Quality, Public Health, and River Parkway Development Program, as described in Section 71103.6.

(2) Grants or loans awarded under this subdivision for projects located outside of California shall have a documented water quality benefit to California and its residents.

(3) Funding may be awarded to bilateral financial institutions as a state match pursuant to this subdivision only after federally committed funds have been secured and are available for expenditure on a one-to-one basis.

(k) Twenty million dollars ($20,000,000) shall be available to improve the climate resiliency or for the protection of the Clear Lake Watershed.

91033. (a) Of the funds made available by Section 91030, one hundred seventy million dollars ($170,000,000) shall be available, upon appropriation by the Legislature, to implement the Salton Sea Management Program 10-year Plan, and any subsequent revisions to that plan, or any subsequent plans, to provide air quality, public health, and habitat benefits.

(b) Of the funds made available by subdivision (a), ten million dollars ($10,000,000) shall be available for either of the following:

(1) The creation of a Salton Sea Conservancy.

(2) The Salton Sea Authority.

91040. (a) Of the funds made available by Section 91000, one hundred fifty million dollars ($150,000,000) shall be available, upon appropriation by the Legislature, to the Wildlife Conservation Board for projects pursuant to the guidelines of the Stream Flow Enhancement Program, including the acquisition of water or water rights, acquisition of land that includes water rights or contractual rights to water, and short- or long-term water transfers and leases.

(b) Of the funds made available by subdivision (a), fifty million dollars ($50,000,000) shall be available to the Wildlife Conservation Board for the Habitat Enhancement and Restoration Program for fishery enhancement projects and programs that support reintroducing salmon into cold water habitat in the Sacramento and San Joaquin Rivers watersheds.

91045. Of the funds made available by Section 91000, twenty million dollars ($20,000,000) shall be available, upon appropriation by the Legislature, to the Natural Resources Agency for grants to nature and climate education and research facilities, nonprofit organizations and public institutions, natural history museums, California zoos and aquariums accredited by the Association of Zoos and Aquariums, and geologic heritage sites that serve diverse populations. Grants may be used for buildings, equipment, structures, and exhibit galleries that present collections to promote climate, biodiversity, and cultural literacy. Projects may support species recovery and biodiversity protection in order to advance the state's 30x30 conservation goal.

91050. Projects funded pursuant to this chapter shall be consistent with the policies and guidelines established by the Water Resilience Portfolio, California's Water Supply Strategy, the Central Valley Flood Protection Plan, and the Sustainable Groundwater Management Act (Part 2.74 (commencing with Section 10720) of Division 6 of the Water Code), if applicable.

Chapter 3. Wildfire and Forest Resilience

91500. The sum of one billion five hundred million dollars ($1,500,000,000) shall be available, upon appropriation by the Legislature, for wildfire prevention, including reducing community wildfire risk and restoring the health and resilience of forests and landscapes.

91510. (a) Of the funds made available by Section 91500, one hundred thirty-five million dollars ($135,000,000) shall be available, upon appropriation by the Legislature, to the Office of Emergency Services for a wildfire mitigation grant program. The Office of Emergency Services shall coordinate with the Department of Forestry and Fire Protection in administering these moneys. The grant program shall assist local and state agencies to leverage additional funds, including matching grants from federal agencies. Funds may be used to provide loans, rebates, direct assistance, and matching funds for projects that prevent wildfires, increase resilience, maintain existing wildfire risk reduction projects, reduce the risk of wildfires to communities, or increase home or community hardening. Projects shall benefit disadvantaged communities, severely disadvantaged communities, or vulnerable populations. Eligible projects include, but are not limited to, any of the following:

(1) Grants to local agencies, state agencies, joint powers authorities, nonprofit organizations, resource conservation districts, and tribes for

projects that reduce wildfire risks to people and property consistent with an approved community wildfire protection plan.

(2) Grants to local agencies, state agencies, joint powers authorities, tribes, resource conservation districts, fire safe councils, and nonprofit organizations for structure hardening of critical community infrastructure, wildfire smoke mitigation, evacuation centers, including community clean air centers, structure hardening projects that reduce the risk of wildfire for entire neighborhoods and communities, water delivery system improvements for fire suppression purposes for communities in very high or high fire hazard areas, wildfire buffers, and incentives to remove structures that significantly increase hazard risk.

(3) Grants, in coordination with the Public Utilities Commission, to local agencies, state agencies, special districts, joint powers authorities, tribes, and nonprofit organizations for zero-emission backup power, energy storage, and microgrids for critical community infrastructure in order to provide continuity of electrical service, reduced wildfire ignitions, and to safeguard communities from disruption due to deenergization events, wildfire, or air pollution caused by wildfire, extreme heat, or other disaster.

(4) Grants under the Home Hardening Program to retrofit, harden, or create defensible space for homes at high risk of wildfire in order to protect California communities.

(b) The Office of Emergency Services and the Department of Forestry and Fire Protection shall prioritize wildfire mitigation grant funding applications from local agencies based on the Fire Risk Reduction Community list, pursuant to Section 4290.1.

(c) The Office of Emergency Services and the Department of Forestry and Fire Protection shall provide technical assistance to disadvantaged communities, severely disadvantaged communities, or vulnerable populations, including those with access and functional needs, socially disadvantaged farmers or ranchers, and economically distressed areas to ensure the grant program reduces the vulnerability of those most in need.

91520. Of the funds made available by Section 91500, one billion two hundred five million dollars ($1,205,000,000) shall be available, upon appropriation by the Legislature, to the Natural Resources Agency and to its departments, boards, and conservancies for projects and grants to improve local fire prevention capacity, improve forest health and resilience, and reduce the risk of wildfire spreading into populated areas from wildlands. Where appropriate, projects may include activities on lands owned by the United States. The funding made available by this section shall be allocated as follows:

(a) One hundred eighty-five million dollars ($185,000,000) shall be available to the Department of Conservation’s Regional Forest and Fire Capacity Program to increase regional capacity to prioritize, develop, and implement projects that improve forest health and fire resilience, implement community fire preparedness demonstration projects, facilitate greenhouse gas emissions reductions, and increase carbon sequestration in forests and other landscapes across regions and throughout the state. The funding shall

be allocated based, to the extent feasible, on the Wildfire and Forest Resilience Action Plan.

(b) One hundred seventy million dollars ($170,000,000) shall be available to implement regional projects, including, but not limited to, landscape-scale projects developed by forest collaboratives as defined in Section 4810, projects developed by regional entities as defined in Section 4208, and projects that implement strategies developed by state conservancies through block grants and direct appropriations by the Legislature.

(c) One hundred seventy-five million dollars ($175,000,000) shall be available to the Department of Forestry and Fire Protection's Forest Health Program for long-term forest health projects, including improved forest management, prescribed fire, prescribed grazing, cultural fire, forest watershed restoration, reforestation, upper watershed, riparian, and mountain meadow restoration, and activities that promote long-term carbon storage and sequestration. Funds may be used for tribal wildfire resilience grants.

(d) One hundred eighty-five million dollars ($185,000,000) shall be available to the Department of Forestry and Fire Protection for local fire prevention grants consistent with Article 2.5 (commencing with Section 4124) of Chapter 1 of Part 2 of Division 4 and for grants to conduct workforce development for fire prevention and wildfire resiliency work. Workforce development grants may include, but are not limited to, the construction of designated housing for wildfire prevention workers.

(e) Twenty-five million dollars ($25,000,000) shall be available to the Department of Forestry and Fire Protection for the creation or expansion of a fire training center.

(f) Two hundred million dollars ($200,000,000) shall be available to the Natural Resources Agency and the Department of Parks and Recreation for forest health and watershed improvement projects in forests and other habitats, including, but not limited to, redwoods, conifers, oak woodlands, mountain meadows, chaparral, and coastal forests. Projects shall involve the restoration of natural ecosystem functions in very high, high, and moderate fire hazard areas and may include prescribed fire, cultural fire, environmentally sensitive vegetation management, land protection, science-based fuel reduction, watershed protection, carbon sequestration, protection of older fire-resistant trees, or improved forest health.

(g) Fifty million dollars ($50,000,000) shall be available for grants to conduct fuel reduction, structure hardening, create defensible space, reforestation, or targeted acquisitions to improve forest health and fire resilience.

(h) Thirty-three million five hundred thousand dollars ($33,500,000) shall be available to the Sierra Nevada Conservancy for watershed improvement, forest health, biomass utilization, chaparral and forest restoration, and workforce development that addresses needs related to this subdivision and is designed to create career pathways for individuals from disadvantaged communities, severely disadvantaged communities, or vulnerable populations.

(i) Twenty-five million five hundred thousand dollars ($25,500,000) shall be available to the California Tahoe Conservancy for watershed improvement, forest health, biomass utilization, chaparral and forest restoration, and workforce development that addresses needs related to this subdivision and is designed to create career pathways for individuals from disadvantaged communities, severely disadvantaged communities, or vulnerable populations.

(j) Thirty-three million five hundred thousand dollars ($33,500,000) shall be available to the Santa Monica Mountains Conservancy for watershed improvement, wildfire resilience, chaparral and forest restoration, and workforce development that addresses needs related to this subdivision and is designed to create career pathways for individuals from disadvantaged communities, severely disadvantaged communities, or vulnerable populations.

(k) Thirty-three million five hundred thousand dollars ($33,500,000) shall be available to the State Coastal Conservancy for watershed improvement, wildfire resilience, chaparral and forest restoration, and workforce development that addresses needs related to this subdivision and is designed to create career pathways for individuals from disadvantaged communities, severely disadvantaged communities, or vulnerable populations.

(*l*) Thirty-three million five hundred thousand dollars ($33,500,000) shall be available to the San Gabriel and Lower Los Angeles Rivers and Mountains Conservancy for watershed improvement, wildfire resilience, chaparral and forest restoration, and workforce development that addresses needs related to this subdivision and is designed to create career pathways for individuals from disadvantaged communities, severely disadvantaged communities, or vulnerable populations.

(m) Twenty-five million five hundred thousand dollars ($25,500,000) shall be available to the San Diego Rivers Conservancy for watershed improvement, wildfire resilience, chaparral and forest restoration, and workforce development that addresses needs related to this subdivision and is designed to create career pathways for individuals from disadvantaged communities, severely disadvantaged communities, or vulnerable populations.

(n) Fifteen million dollars ($15,000,000) shall be available to the Wildfire Conservancy to improve firefighter health and safety, advance fire attack effectiveness, and promote community resilience and awareness.

(o) Fifteen million dollars ($15,000,000) shall be available to the California Fire Foundation to support vegetation mitigation and fuels reduction projects, public education and outreach, personal protective equipment, specialized firefighting equipment, and firefighter health and safety.

91530. Of the funds made available by Section 91500, fifty million dollars ($50,000,000) shall be available, upon appropriation by the Legislature, to the Department of Conservation or State Energy Resources Conservation and Development Commission for projects in California that

provide long-term capital infrastructure to use forest and other vegetative waste removed for wildfire mitigation for noncombustible uses that maximize reductions in greenhouse gas emissions, provide local air quality benefits, and increase local community resilience against climate change impacts.

91535. Of the funds made available by Section 91500, twenty-five million dollars ($25,000,000) shall be available, upon appropriation by the Legislature, to the Department of Forestry and Fire Protection for technologies that improve detection and assessment of new fire ignitions.

91540. (a) Of the funds made available by Section 91500, thirty-five million dollars ($35,000,000) shall be available, upon appropriation by the Legislature, for uses to reduce wildfire risk related to electricity transmission.

(b) The proportion of any asset funded pursuant to this section shall be funded without return on equity for the lifetime of the proportion of that asset that would have otherwise been borne by ratepayers.

(c) The proportion of any projects funded pursuant to this section shall be excluded from the ratebase, and no costs may be collected from ratepayers.

91545. (a) Of the funds made available by Section 91500, fifty million dollars ($50,000,000) shall be available, upon appropriation by the Legislature, to the California Conservation Corps or certified community conservation corps, as defined in Section 14507.5, and nonprofit workforce organizations for demonstrated jobs projects, including either of the following:

(1) Projects to mitigate unemployment and assist the state with the implementation of critical natural resources, transportation, energy, and housing infrastructure to promote climate resilience.

(2) Projects to prepare for, prevent, respond to, and rehabilitate following natural disasters, declared emergencies, or climate-related impacts to communities.

(b) At least 60 percent of the amount available pursuant to subdivision (a) shall be available to certified community conservation corps, as defined in Section 14507.5.

(c) Eligible workforce organizations include nonprofits, local agencies, and joint powers authorities that have programs that provide park and conservation employment training.

(d) The California Conservation Corps may expend the funds made available as grants to certified community conservation corps for purposes specified in this section.

91550. Projects funded pursuant to this chapter shall be consistent with the policies and guidelines established by the California Wildfire and Forest Resilience Action Plan, and by the Natural Resources Agency and the Department of Forestry and Fire Protection, if applicable.

Chapter 4. Coastal Resilience

92000. The sum of one billion two hundred million dollars ($1,200,000,000) shall be available, upon appropriation by the Legislature, to increase coastal and ocean resiliency and to protect coastal lands, waters, communities, natural resources, and urban waterfronts from sea level rise and other climate impacts. Eligible projects include, but are not limited to, projects to restore coastal wetlands and projects to address sea level rise.

92010. (a) Of the funds made available by Section 92000, four hundred fifteen million dollars ($415,000,000) shall be available, upon appropriation by the Legislature, for projects identified by the State Coastal Conservancy for coastal resilience projects and programs, including, but not limited to, grants and expenditures to protect, restore, and increase the resilience of beaches, bays, coastal dunes, wetlands, coastal forests, watersheds, trails, and public access facilities. The funds made available pursuant to this section may be allocated to any of the following:

(1) Grants through the Climate Ready Program pursuant to Section 31113.

(2) Projects to protect coastal lands and restore habitats, including subtidal habitats, wetlands, riparian areas, redwood forests, grasslands, oak woodlands, and other important wildlife habitats, including projects to protect and restore healthy sea otter populations.

(3) Natural infrastructure projects that use existing natural areas to minimize coastal flooding, erosion, and runoff.

(4) Projects to restore coastal land for public uses on surplus land for formerly fossil-fueled powerplants.

(5) Projects for purposes of the San Francisco Bay Area Conservancy Program established pursuant to Chapter 4.5 (commencing with Section 31160) of Division 21.

(6) Lower cost coastal accommodation grants consistent with the Lower Cost Coastal Accommodations Program established pursuant to Section 31412.

(7) Projects that are consistent with the San Francisco Bay Restoration Authority Act (Title 7.25 (commencing with Section 66700) of the Government Code).

(b) Of the funds made available pursuant to subdivision (a), not less than eighty-five million dollars ($85,000,000) shall be available, upon appropriation by the Legislature, for projects that are consistent with the San Francisco Bay Restoration Authority Act (Title 7.25 (commencing with Section 66700) of the Government Code) or the San Francisco Bay Area Conservancy Program established pursuant to Chapter 4.5 (commencing with Section 31160) of Division 21, including, but not limited to, projects that address sea level rise, flood management, and wetland restoration.

92015. Of the funds made available by Section 92000, three hundred fifty million dollars ($350,000,000) shall be available, upon appropriation by the Legislature, to the State Coastal Conservancy for the purpose of coastal and combined flood management projects and activities for developed shoreline areas, including areas with critical community infrastructure,

including, but not limited to, transportation and port infrastructure at risk of current flooding and flooding due to sea level rise. Funds shall be allocated to multiple-benefit projects that improve public safety, including shoreline resilience projects designed to address flooding, sea level rise, and shoreline stability that include engineering with nature or nature-based features. These funds shall be available to local agencies as matching funds for federally funded coastal flood risk management and flood risk management projects.

92020. Of the funds made available by Section 92000, one hundred thirty-five million dollars ($135,000,000) shall be available, upon appropriation by the Legislature, for deposit into the California Ocean Protection Trust Fund for grants to increase resilience from the impacts of climate change. Preference shall be given to projects that conserve, protect, and restore marine wildlife and healthy ocean and coastal ecosystems, including, but not limited to, estuarine habitat, kelp forests, eelgrass meadows, and native oyster beds, or that maintain the state's system of marine protected areas, and support sustainable fisheries. Funding may be used to purchase and install ocean current mapping infrastructure and new maritime research infrastructure to reduce emissions. The funds made available pursuant to this section may be used to establish a program with acre-based targets to advance habitat recovery projects that will contribute to protecting and restoring kelp forests, eelgrass meadows, and native oyster beds.

92030. Of the funds made available by Section 92000, seventy-five million dollars ($75,000,000) shall be available, upon appropriation by the Legislature, to implement the California Sea Level Rise Mitigation and Adaptation Act of 2021 (Division 20.6.5 (commencing with Section 30970)).

92040. Of the funds made available by Section 92000, fifty million dollars ($50,000,000) shall be available, upon appropriation by the Legislature, to the Department of Parks and Recreation to implement the Sea Level Rise Adaptation Strategy to address the impacts of sea level rise in coastal state parks, support continued access and recreational opportunities, and protect coastal natural and cultural resources.

92050. Of the funds made available by Section 92000, seventy-five million dollars ($75,000,000) shall be available, upon appropriation by the Legislature, to the Natural Resources Agency and the Department of Fish and Wildlife for all of the following:

(a) To protect and restore island ecosystems by mitigating the threat of island invasive species and advancing biosecurity initiatives.

(b) To advance climate-ready fisheries management by expanding opportunities for experimentation and adaptive cooperative management, modernizing electronic fisheries data management systems, and increasing the use of electronic technologies to facilitate more nimble decisionmaking and timely management responses under changing ocean conditions.

(c) To support the restoration and management of kelp ecosystems.

92060. Of the funds made available by Section 92000, seventy-five million dollars ($75,000,000) shall be allocated, upon appropriation by the Legislature, to the State Coastal Conservancy for grants or expenditures to

remove outdated or obsolete dams and for related water infrastructure. Projects may also increase climate resilience, enhance sediment supply, improve wildlife and fish passage, and modernize related water infrastructure, including related planning, monitoring, permitting, habitat restoration, and recreational improvements.

92070. Of the funds made available by Section 92000, twenty-five million dollars ($25,000,000) shall be available, upon appropriation by the Legislature, to the Department of Fish and Wildlife for hatchery upgrades and expansions and for new conservation hatcheries that increase fish production and include the latest technologies to support species conservation and reintroduction efforts necessary to support genetically diverse populations of Central Valley Chinook Salmon.

92080. Projects funded pursuant to this chapter shall be consistent with the policies and guidelines established by the California Coastal Commission, the Department of Parks and Recreation, the Ocean Protection Council, the State Lands Commission, the San Francisco Bay Conservation and Development Commission, and the State Coastal Conservancy, if applicable.

Chapter 5. Extreme Heat Mitigation

92500. The sum of four hundred fifty million dollars ($450,000,000) shall be available, upon appropriation by the Legislature, to respond to severe weather and increasing temperatures, and address extreme heat and extreme heat events in communities. Priority shall be given to projects that provide meaningful direct benefits to disadvantaged communities, severely disadvantaged communities, and vulnerable populations.

92510. Of the funds made available by Section 92500, fifty million dollars ($50,000,000) shall be available, upon appropriation by the Legislature, to the Office of Planning and Research's Extreme Heat and Community Resilience Program to fund projects that reduce the impact of extreme heat, reduce the urban heat island effect, and build community resilience in order to strengthen communities that are vulnerable to the extreme heat impacts of climate change.

92520. Of the funds made available by Section 92500, one hundred fifty million dollars ($150,000,000) shall be available, upon appropriation by the Legislature, to the Strategic Growth Council's Transformative Climate Communities Program established pursuant to Section 75240 for projects that provide local economic, environmental, and health benefits, and improve the resilience of priority populations, as defined by the Transformative Climate Communities Program guidelines.

92530. Of the funds made available by Section 92500, one hundred million dollars ($100,000,000) shall be available, upon appropriation by the Legislature, to the Natural Resources Agency for competitive grants for urban greening. These funds shall support projects that mitigate the urban heat island effect, rising temperatures, and extreme heat impacts. Eligible projects may include, but are not limited to, the creation and expansion of

green streets and alleyways, and investments that support an expanded urban greening program that supports the creation of green recreational parks and green schoolyards in park-poor communities.

92540. Of the funds made available by Section 92500, fifty million dollars ($50,000,000) shall be available, upon appropriation by the Legislature, to the Department of Forestry and Fire Protection to protect or augment California's urban forests pursuant to Section 4799.12. Projects shall contribute to mitigating the urban heat island effect and extreme heat impacts.

92550. (a) Of the funds made available by Section 92500, sixty million dollars ($60,000,000) shall be available, upon appropriation by the Legislature, to the Office of Emergency Services and the Strategic Growth Council for competitive grants for the creation of strategically located community resilience centers across diverse regions of the state at eligible community facilities. These grants shall be awarded to eligible community facilities that model integrated delivery of emergency response services during disruptions, including zero-emission backup power, drinking water, clean air, cooling, food storage, shelter, telecommunications and broadband services, economic assistance, accommodation of pets, and other health protection measures and emergency resources during a disaster, state of emergency, local emergency, or deenergization event. Grants shall be prioritized to proposed centers that demonstrate involvement of community-based organizations and community residents within governance and decisionmaking processes.

(b) The Office of Emergency Services and the Strategic Growth Council shall coordinate with the Department of Food and Agriculture to ensure there is no duplication with funding awarded under Section 92560.

(c) For purposes of this section, the following definitions apply:

(1) "Deenergization event" means a preventative measure to deenergize all, or a portion, of an electric generation, distribution, or transmission system when the electricity provider reasonably believes there is an imminent and significant risk that strong winds, or other extreme and potentially dangerous weather events, increase the probability of a wildfire.

(2) "Eligible community facilities" include, but are not limited to, senior and youth centers, park and recreation sites, libraries, health clinics, hospitals, schools, town halls, food banks, homeless shelters, childcare facilities, community centers, community nonprofit facilities providing essential services, places of worship, mobile sites, and fairgrounds.

92560. Of the funds made available by Section 92500, forty million dollars ($40,000,000) shall be available, upon appropriation by the Legislature, to the Department of Food and Agriculture for grants to fairgrounds operated by the network of California fairs for modifications or upgrades that do one or both of the following activities:

(a) Enhance the ability of those facilities to serve as multirole community, staging, and evacuation centers to provide community resilience benefits during a disaster, state of emergency, local emergency, or deenergization event.

(b) Deploy communications and broadband infrastructure at those facilities to improve their capability to serve as multirole community, staging, and evacuation centers and enhance local telecommunications service.

92570. Projects funded pursuant to this chapter shall be consistent with the policies and guidelines established by the Protecting Californians From Extreme Heat: A State Action Plan to Build Community Resilience, and the Office of Planning and Research's Extreme Heat and Community Resilience Program, if applicable.

Chapter 6. Protect Biodiversity and Accelerating Nature-Based Climate Solutions

93000. The sum of one billion two hundred million dollars ($1,200,000,000) shall be available, upon appropriation by the Legislature, for the protection of California's biodiversity and to protect nature and restore landscape health to achieve California's climate change goals.

93010. (a) Of the funds made available by Section 93000, eight hundred seventy million dollars ($870,000,000) shall be available, upon appropriation by the Legislature, to the Wildlife Conservation Board for grant programs to protect and enhance fish and wildlife resources and habitat and achieve the state's biodiversity, public access, and conservation goals. Eligible programs include, but are not limited to, any of the following:

(1) Land acquisition.
(2) Habitat enhancement and restoration.
(3) Rangeland, grazing land, and grassland protection.
(4) Inland wetland conservation.
(5) Ecosystem restoration on agricultural lands.
(6) Climate adaptation and resiliency.
(7) Monarch butterfly and pollinator rescue.
(8) Desert conservation.
(9) Oak woodland conservation.
(10) Purposes of reimbursing the General Fund, pursuant to the Natural Heritage Preservation Tax Credit Act of 2000 (Division 28 (commencing with Section 37000)).

(b) Funding made available pursuant to subdivision (a) shall not be used to reduce or offset environmental mitigation or compliance obligations otherwise required, but may be used as part of a funding partnership to enhance, expand, or augment conservation efforts required by mitigation. Nothing in this subdivision authorizes the expenditure of bond funds for voluntary agreements as described in Section 80114.

93020. (a) Of the funds made available by Section 93000, three hundred twenty million dollars ($320,000,000) shall be available, upon appropriation by the Legislature, to reduce the risks of climate change impacts upon communities, fish and wildlife, and natural resources, and increase public access, and shall be allocated in accordance with the following schedule:

(1) Baldwin Hills Conservancy, forty-eight million dollars ($48,000,000).

(2) California Tahoe Conservancy, twenty-nine million dollars ($29,000,000).

(3) Coachella Valley Mountains Conservancy, eleven million dollars ($11,000,000).

(4) Sacramento-San Joaquin Delta Conservancy, twenty-nine million dollars ($29,000,000).

(5) San Diego River Conservancy, forty-eight million dollars ($48,000,000).

(6) San Gabriel and Lower Los Angeles Rivers and Mountains Conservancy, forty-eight million dollars ($48,000,000).

(7) San Joaquin River Conservancy, eleven million dollars ($11,000,000).

(8) Santa Monica Mountains Conservancy, forty-eight million dollars ($48,000,000).

(9) Sierra Nevada Conservancy, forty-eight million dollars ($48,000,000).

(b) Up to 5 percent of the funds made available pursuant to this section may be allocated for community access projects that benefit disadvantaged communities, severely disadvantaged communities, and vulnerable populations and that include, but are not limited to, the following:

(1) Transportation.

(2) Physical activity programming.

(3) Resource interpretation.

(4) Multilingual translation.

(5) Natural science.

(6) Workforce development and career pathways.

(7) Education.

(8) Communication related to water, parks, climate, coastal protection, and other outdoor pursuits.

93030. Of the funds made available by Section 93010, one hundred eighty million dollars ($180,000,000) shall be available, upon appropriation by the Legislature, to the Wildlife Conservation Board for projects to improve habitat connectivity and establish wildlife crossings and corridors, including eighty million dollars ($80,000,000) to establish the San Andreas Corridor Program for the protection and restoration of wildlife corridors along the inner Coast Ranges and the San Andreas Fault.

93040. Of the funds made available by Section 93000, ten million dollars ($10,000,000) shall be available, upon appropriation by the Legislature, to the Natural Resources Agency for the Tribal Nature-Based Solutions Program.

93050. Of the funds made available by Section 93010, twenty two million dollars ($22,000,000) shall be available, upon appropriation of the Legislature, to the Wildlife Conservation Board for projects for climate change adaptation improvements to protect, conserve, and restore the health and resilience of the southern Ballona Creek Watershed.

93060. Projects funded pursuant to this chapter shall be consistent with the policies and guidelines established by the Wildlife Conservation Board, the Pathways to 30x30 strategy, the Natural and Working Lands Climate

Smart Strategy, California's 2022 Scoping Plan for Achieving Carbon Neutrality, and the California Climate Adaptation Strategy, if applicable.

Chapter 7. Climate Smart, Sustainable, and Resilient Farms, Ranches, and Working lands

93500. The sum of three hundred million dollars ($300,000,000) shall be available, upon appropriation by the Legislature, for improving climate resilience and sustainability of agricultural lands.

93510. Of the funds made available by Section 93500, one hundred five million dollars ($105,000,000) shall be available, upon appropriation by the Legislature, to the Department of Food and Agriculture's Office of Environmental Farming and Innovation for improvements in climate resilience of agricultural lands and ecosystem health and allocated to eligible projects as follows:

(a) Sixty-five million dollars ($65,000,000) shall be available for grants to promote practices on farms and ranches that improve soil health, or accelerate atmospheric carbon removal or soil carbon sequestration.

(b) Forty million dollars ($40,000,000) shall be available for the State Water Efficiency and Enhancement Program to promote onfarm water use efficiency with a focus on multiple-benefit projects that improve resilience to climate change and save water on California agricultural operations.

(c) Funds allocated pursuant to this section shall be allocated to projects that provide meaningful and direct benefits to socially disadvantaged farmers and ranchers.

93520. Of the funds made available by Section 93500, twenty million dollars ($20,000,000) shall, upon appropriation by the Legislature, be deposited in the Invasive Species Account established pursuant to Section 7706 of the Food and Agricultural Code for purposes of funding invasive species projects and activities recommended by the Invasive Species Council of California. Preference shall be given to projects that restore and protect biodiversity and ecosystem health. Consideration shall be given to geographic equity.

93530. Of the funds made available by Section 93500, fifteen million dollars ($15,000,000) shall be available, upon appropriation by the Legislature, to the Department of Conservation for projects for the protection, restoration, conservation, and enhancement of farmland and rangeland, including, but not limited to, the acquisition of fee title or easements, that improve climate resilience, open-space soil health, atmospheric carbon removal, soil carbon sequestration, erosion control, watershed health, water quality, or water retention. Projects shall provide multiple benefits. In awarding funds for farmland and rangeland projects pursuant to this section, the Department of Conservation shall give preference to projects for small- and medium-sized farms.

93540. Of the funds made available by Section 93500, ninety million dollars ($90,000,000) shall be available, upon appropriation by the

Legislature, to the Department of Food and Agriculture for grants that benefit small- and medium-sized farms, socially disadvantaged farmers, beginning farmers or ranchers, and veteran farmers or ranchers, as defined, and increase the sustainability of agricultural infrastructure and facilities that support food systems, and increase market access. Funding made available pursuant to this section shall be allocated as follows:

(a) Twenty million dollars ($20,000,000) shall be available for infrastructure related to certified mobile farmers' markets, including, but not limited to, a mobile farmers' market vehicle, refrigeration, and other equipment to comply with relevant Health and Safety Code sections and regulations.

(b) Twenty million dollars ($20,000,000) shall be available to develop year-round infrastructure for certified farmers' markets, as defined in Section 47004 of the Food and Agricultural Code, fishermen's markets, as defined in Section 113780 of the Health and Safety Code, or tribe-operated or native-serving farmers' markets, including, but not limited to, all of the following:

(1) All-weather infrastructure such as canopies and shade structures, tables and seating, market stalls, restrooms and hand wash stations, tent weights and tie-downs, produce washing stations, barricades and bollards for traffic management and pedestrian safety, bicycle parking racks, and other equipment.

(2) Facilities for food preparation, cooking demonstrations, and other nutrition education.

(3) Wireless electronic benefits transfer point-of-sale terminals for market managers and producers to process CalFresh transactions.

(4) Wireless electronic benefits transfer point-of-sale terminals for producers to accept the electronic cash value benefit through the program designed to implement the federal WIC Farmers' Market Nutrition Act of 1992 (Public Law 102-314) pursuant to Section 123279 of the Health and Safety Code, or equivalent tribal programs.

(5) Other equipment to support the seniors farmers' market nutrition program, as described in Section 3007 of Title 7 of the United States Code, or equivalent tribal programs.

(c) Twenty million dollars ($20,000,000) shall be available for urban agriculture projects that create or expand city or suburban community farms or gardens, including community food producers, as defined in Section 113752 of the Health and Safety Code, through in-ground small plot cultivation, raised beds, mushroom growing, rooftop farms, and cultivation of vacant lots and in parks.

(d) Fifteen million dollars ($15,000,000) shall be available for grants for regional farm equipment sharing. Preference shall be given to projects and programs that benefit small- and medium- sized farms and socially disadvantaged farmers and ranchers.

(e) Fifteen million dollars ($15,000,000) shall be available to advance tribes' food sovereignty to grow, produce, procure, and distribute foods that reflect Native American culture and traditions and support the development

of tribal producers and vendors, including, but not limited to, the following projects:

(1) Irrigation and water infrastructure.

(2) Utility and power infrastructure.

(3) Food processing infrastructure.

93550. (a) Of the funds made available by Section 93500, thirty million dollars ($30,000,000) shall be available, upon appropriation by the Legislature, to the Department of Conservation, in consultation with the California Agricultural Land Equity Task Force at the Strategic Growth Council, to improve land access and tenure for socially disadvantaged farmers or ranchers, tribal producers, and beginning farmers and ranchers.

(b) The Department of Conservation may make low-interest loans to qualified entities, which shall include land trusts, nonprofit organizations, public agencies, farmer cooperatives, tribal governments, or tribal entities, for the purpose of acquiring agricultural lands to transfer or provide long-term leases to socially disadvantaged farmers or ranchers and beginning farmers and ranchers.

(c) Any agricultural land acquired pursuant to this section shall be required to have an agricultural land conservation easement before being leased or transferred, and the department may require additional appropriate resale restrictions, such as affordability provisions, preemptive purchase right, or shared appreciation consistent with the purposes of this subdivision.

(d) The department shall ensure that the proceeds of future resales of land continue to be used for purposes of this chapter.

93560. Of the funds made available by Section 93500, fifteen million dollars ($15,000,000) shall be available, upon appropriation by the Legislature, to the California Vanpool Authority for grants for the deployment of vanpool vehicles, clean technologies, and related facilities, including, but not limited to, charging and alternative fuel infrastructure, for use by low-income agricultural workers.

93570. Of the funds made available by Section 93500, fifteen million dollars ($15,000,000) shall be available, upon appropriation by the Legislature, to the State Department of Education, in consultation with the Department of Food and Agriculture, for purposes of providing grants to public postsecondary educational institutions that are designated as Agricultural Experiment Stations or Agricultural Research Institutes, to develop research farms to improve climate resiliency. Funding provided pursuant to this section shall not exceed one million dollars ($1,000,000) per institution and shall be constructed and maintained with environmentally sustainable infrastructure practices.

93580. Of the funds made available by Section 93500, ten million dollars ($10,000,000) shall be available, upon appropriation by the Legislature, as part of the Farmworker Housing Component of the Low-Income Weatherization Program through the Department of Community Services and Development, to low-income farmworker households for no-cost energy efficiency upgrades designed to reduce greenhouse gas emissions by saving energy. These energy efficiency upgrades shall include, but are not limited

to, insulation, central heating and cooling system upgrades, lighting upgrades, and window replacement.

93590. For purposes of this chapter, the following definitions apply:

(a) "Beginning farmer or rancher" means a farmer or rancher who has not actively operated and managed a farm or ranch with a bona fide insurable interest in a crop or livestock as an owner-operator, landlord, tenant, or sharecropper for more than five crop years, as determined by the United States Secretary of Agriculture and as defined in Section 1502 of Title 7 of the United States Code.

(b) "Veteran farmer or rancher" means a farmer or rancher who is all of the following:

(1) Has served in the United States Armed Forces, as defined in Section 101 of Title 38 of the United States Code.

(2) Meets either of the following:

(A) Has not operated a farm or ranch.

(B) Has operated a farm or ranch for not more than five years.

(3) Is a veteran, as defined in Section 101 of Title 38 of the United States Code, who first obtained status as a veteran during the most recent five-year period.

(4) Is a beginning veteran farmer or rancher, as that term is used in Section 1502 of Title 7 of the United States Code.

93600. Projects funded pursuant to this chapter shall be consistent with the policies and guidelines established by the Department of Food and Agriculture and the Natural and Working Lands Climate Smart Strategy, if applicable.

Chapter 8. Park Creation and Outdoor Access

94000. The sum of seven hundred million dollars ($700,000,000) shall be available, upon appropriation by the Legislature, for the creation and protection of parks, outdoor access, and educational institutions and facilities.

94010. (a) Of the funds made available by Section 94000, two hundred million dollars ($200,000,000) shall be available, upon appropriation by the Legislature, to the Department of Parks and Recreation for the creation, expansion, and renovation of safe neighborhood parks in park-poor neighborhoods in accordance with the Statewide Park Development and Community Revitalization Act of 2008's competitive grant program described in Chapter 3.3 (commencing with Section 5640) of Division 5.

(b) When administering grants pursuant to subdivision (a), priority shall be given to projects that provide multiple benefits, including, but not limited to, mitigating impacts of extreme heat, sea level rise, or flooding, enhancing stormwater capture, improving air quality, supporting local biodiversity, and other environmental benefits.

(c) Of the amount available pursuant to subdivision (a), not less than 10 percent shall be available for the rehabilitation, repurposing, or substantial improvement of existing park infrastructure that will lead to increased use

and enhanced user experiences or increase access, including, but not limited to, for individuals with disabilities, as defined by the federal Americans with Disabilities Act of 1990 (42 U.S.C. Sec. 12101 et seq.).

94020. Of the funds made available by Section 94000, two hundred million dollars ($200,000,000) shall be available, upon appropriation by the Legislature, to the Natural Resources Agency and its departments, boards, and conservancies for the reduction of climate impacts on disadvantaged communities and vulnerable populations and the creation, protection, and expansion of outdoor recreation opportunities. Eligible projects include, but are not limited to, any of the following:

(a) Improvements to city parks, county parks, regional parks, and open-space lands to preserve infrastructure, including natural infrastructure, to promote resilience and adaptation or the promotion and enhancement of natural resources and water conservation and efficiencies on local and regional public park lands and open-space lands.

(b) Funding for park-poor communities experiencing a significant loss of parks or open and recreation space resulting from climate-related infrastructure projects.

(c) Multiple-benefit projects that reduce risks of exposure to toxic or hazardous materials that may increase as a result of wildfires, flooding, sea level rise, or reduced water flows to polluted bodies of water.

(d) Improved public access, including for individuals with disabilities, as defined by the federal Americans with Disabilities Act of 1990 (42 U.S.C. Sec. 12101 et seq.), and outdoor recreation at state parks, city parks, county parks, regional parks, and open-space preserves.

(e) Protection, restoration, and enhancement of the natural resource values of the state park system and projects to expand public access for disadvantaged communities, including, but not limited to, the expansion of lower cost coastal accommodation project development.

(f) Coastal public access infrastructure for disadvantaged communities, including, but not limited to, trails, parking areas, restrooms, bicycle lanes, and transportation improvements, including projects consistent with a public access program pursuant to Section 30610.81.

(g) Projects for the creation and improvement of local parks to correct historic underinvestment in communities identified by the department as park deficient for active recreational infrastructure, including aquatic centers, to encourage youth health, fitness, and recreational pursuits.

94030. Of the funds made available by Section 94000, one hundred million dollars ($100,000,000) shall be available, upon appropriation by the Legislature, to the Natural Resources Agency and its departments, boards, and conservancies for the protection, restoration, and enhancement of the natural resource values of the state park system and for projects to expand recreational opportunities and public access to state and public park nonmotorized trails. Projects may include enhancing and expanding existing trails and creating new trails.

94040. Of the funds made available by Section 94000, one hundred seventy-five million dollars ($175,000,000) shall be available, upon

appropriation by the Legislature, to the Department of Parks and Recreation to implement projects to address the department's backlog of deferred maintenance.

94050. Of the funds made available by Section 94000, twenty-five million dollars ($25,000,000) shall be available, upon appropriation by the Legislature, to the Natural Resources Agency for grants to nature and climate education and research facilities, nonprofit organizations and public institutions, natural history museums, California zoos and aquariums accredited by the Association of Zoos and Aquariums, and geologic heritage sites that serve diverse populations. Grants may be used for buildings, equipment, structures, and exhibit galleries that present collections to promote climate, biodiversity, and cultural literacy. Projects may support species recovery and biodiversity protection in order to advance the state's 30x30 conservation goal.

94060. Projects funded pursuant to this chapter shall be consistent with the policies and guidelines established by the Natural Resources Agency, the Outdoors for All strategy, and the Pathways to 30x30 strategy, if applicable.

Chapter 9. Clean Air

94500. The sum of eight hundred fifty million dollars ($850,000,000) shall be available, upon appropriation by the Legislature, for clean energy projects.

94510. (a) The proportion of any asset funded pursuant to this section or Section 94520 or 94530 shall be funded without return on equity for the lifetime of the proportion of that asset that would have otherwise been borne by ratepayers.

(b) The proportion of any projects funded pursuant to this section or Section 94520 or 94530 shall be excluded from the ratebase, and no costs may be collected from ratepayers.

(c) It is the intent of the Legislature that bond moneys shall not be used for shareholder incentives or profits for shareholders of private corporations.

94520. (a) Of the funds made available by Section 94500, three hundred twenty-five million dollars ($325,000,000) shall be available, upon appropriation by the Legislature, to the California Infrastructure and Economic Development Bank, the State Energy Resources Conservation and Development Commission, or any other entity chosen by the Legislature, upon appropriation by the Legislature, for the public financing of clean energy transmission projects that are necessary to meet the state's clean energy goals to reduce or offset ratepayer costs associated with the public benefits of transmission projects.

(b) Preference may be given to projects under this section that provide multiple benefits, including, but not limited to, reducing the risk of wildfire, reducing reliance on fossil fuel plants in disadvantaged communities, and

reducing rate pressure, including reconductoring and other grid-enhancing technologies.

94530. Of the funds made available by Section 94500, fifty million dollars ($50,000,000) shall be available, upon appropriation by the Legislature, to the State Energy Resources Conservation and Development Commission for grants or loans to support the Long-Duration Energy Storage Program. Eligible uses may also include zero-emissions distributed energy backup assets, virtual power plants, and demand side grid support.

94540. (a) Of the funds made available by Section 94500, four hundred seventy-five million dollars ($475,000,000) shall be available, upon appropriation by the Legislature, to the State Energy Resources Conservation and Development Commission to support any of the following activities related to the development of offshore wind generation:

(1) Construction of publicly owned port facilities for manufacturing, assembly, staging, and integration of entitlements and components for offshore wind generation.

(2) Expansion and improvement of public port infrastructure to accommodate vessels involved in the installation, maintenance, and operation of offshore wind generation.

(3) Upgrades to port facilities.

(b) The commission may expend moneys made available pursuant to subdivision (a) consistent with the strategic plan developed pursuant to Section 25991.

(c) The commission shall prioritize projects that can show matching funds or that are located at staging and integration ports that have released a notice of preparation pursuant to the California Environmental Quality Act process on or before February 29, 2024.

Chapter 10. Fiscal Provisions

95000. (a) Bonds in the total amount of ten billion dollars ($10,000,000,000), not including the amount of any refunding bonds issued in accordance with Section 95012, may be issued and sold for carrying out the purposes expressed in this division and to reimburse the General Obligation Bond Expense Revolving Fund pursuant to Section 16724.5 of the Government Code. The bonds, when sold, issued, and delivered, shall be and constitute a valid and binding obligation of the State of California, and the full faith and credit of the State of California is hereby pledged for the punctual payment of both the principal of, and interest on, the bonds as the principal and interest become due and payable.

(b) The Treasurer shall cause the issuance and sell the bonds authorized by the committee pursuant to subdivision (a) in the amount determined by the committee to be necessary or desirable pursuant to Section 95003. The bonds shall be issued and sold upon the terms and conditions specified in a resolution to be adopted by the committee pursuant to Section 16731 of the Government Code.

95001. The bonds authorized by this division shall be prepared, executed, issued, sold, paid, and redeemed as provided in the State General Obligation Bond Law, and all of the provisions of that law, except subdivisions (a) and (b) of Section 16727 of the Government Code, apply to the bonds and to this division and are hereby incorporated in this division as though set forth in full in this division.

95002. (a) Solely for the purpose of authorizing the issuance and sale, pursuant to the State General Obligation Bond Law, of the bonds authorized by this division, the Safe Drinking Water, Wildfire Prevention, Drought Preparedness, and Clean Air Bond Finance Committee is hereby created. For purposes of this division, the Safe Drinking Water, Wildfire Prevention, Drought Preparedness, and Clean Air Bond Finance Committee is the "committee," as that term is used in the State General Obligation Bond Law.

(b) The committee consists of the Director of Finance, the Treasurer, the Controller, the Secretary of the Natural Resources Agency, and the Secretary for Environmental Protection. Notwithstanding any other law, any member may designate a representative to act as that member in that member's place for all purposes, as though the member were personally present.

(c) The Treasurer shall serve as the chairperson of the committee.

(d) A majority of the committee may act for the committee.

95003. The committee shall by resolution determine whether or not it is necessary or desirable to issue and sell bonds authorized by this division in order to carry out the actions specified in this division and, if so, the amount of bonds to be issued and sold. Successive issues of bonds may be authorized and sold to carry out those actions progressively, and it is not necessary that all of the bonds authorized to be issued be sold at any one time.

95004. For purposes of the State General Obligation Bond Law, "board," as defined in Section 16722 of the Government Code, means the Secretary of the Natural Resources Agency.

95005. There shall be collected each year and in the same manner and at the same time as other state revenue is collected, in addition to the ordinary revenues of the state, a sum in an amount required to pay the principal of, and interest on, the bonds becoming due in that year. It is the duty of all officers charged by law with any duty regarding the collection of the revenue to do and perform each and every act that is necessary to collect that additional sum.

95006. Notwithstanding Section 13340 of the Government Code, there is hereby continuously appropriated from the General Fund in the State Treasury, for the purposes of this division, and without regard to fiscal years, an amount that will equal the total of the following:

(a) The sum annually necessary to pay the principal of, and interest on, bonds issued and sold pursuant to this division, as the principal and interest become due and payable.

(b) The sum that is necessary to carry out Section 95009.

95007. The board may request the Pooled Money Investment Board to make a loan from the Pooled Money Investment Account or any other form

of interim financing in accordance with Section 16312 of the Government Code, for the purpose of carrying out this division. The amount of the request shall not exceed the amount of the unsold bonds that the committee has, by resolution, authorized to be sold for the purpose of carrying out this division, excluding any refunding bonds authorized pursuant to Section 95012, less any amount loaned and not yet repaid pursuant to this section and any amount withdrawn from the General Fund pursuant to Section 95009 and not yet returned to the General Fund. The board shall execute those documents required by the Pooled Money Investment Board to obtain and repay the loan. Any amounts loaned shall be deposited in the fund to be allocated in accordance with this division.

95008. Notwithstanding any other provision of this division, or of the State General Obligation Bond Law, if the Treasurer sells bonds pursuant to this chapter that include a bond counsel opinion to the effect that the interest on the bonds is excluded from gross income for federal tax purposes under designated conditions or is otherwise entitled to any federal tax advantage, the Treasurer may maintain separate accounts for the bond proceeds invested and for the investment earnings on those proceeds and may use or direct the use of those proceeds or earnings to pay any rebate, penalty, or other payment required under federal law or take any other action with respect to the investment and use of those bond proceeds, as may be required or desirable under federal law in order to maintain the tax-exempt status of those bonds and to obtain any other advantage under federal law on behalf of the funds of this state.

95009. For purposes of carrying out this division, the Director of Finance may authorize the withdrawal from the General Fund of an amount or amounts not to exceed the amount of the unsold bonds that have been authorized by the committee to be sold for the purpose of carrying out this division, excluding refunding bonds authorized pursuant to Section 95012, less any amount loaned pursuant to Section 95007 and not yet repaid and any amount withdrawn from the General Fund pursuant to this section and not yet returned to the General Fund. Any amounts withdrawn shall be deposited in the fund to be allocated in accordance with this division. Any moneys made available under this section shall be returned to the General Fund, with interest at the rate earned by the moneys in the Pooled Money Investment Account, from proceeds received from the sale of bonds for the purpose of carrying out this division.

95010. All moneys deposited in the fund that are derived from premiums and accrued interest on bonds sold pursuant to this division shall be reserved in the fund and shall be available for transfer to the General Fund as a credit to expenditures for bond interest, except that amounts derived from premiums may be reserved and used to pay costs of bond issuance before any transfer to the General Fund.

95011. Pursuant to the State General Obligation Bond Law, the cost of bond issuance shall be paid or reimbursed out of the bond proceeds, including premiums, if any. To the extent the cost of bond issuance is not paid from premiums received from the sale of bonds, these costs shall be allocated

proportionally to each program funded through this division by the applicable bond sale.

95012. The bonds issued and sold pursuant to this division may be refunded in accordance with Article 6 (commencing with Section 16780) of Chapter 4 of Part 3 of Division 4 of Title 2 of the Government Code, which is a part of the State General Obligation Bond Law. Approval by the voters of the state for the issuance of the bonds under this division shall include approval of the issuance, sale, or exchange of any bonds issued to refund any bonds originally issued under this division or any previously issued refunding bonds. Any bond refunded with the proceeds of a refunding bond as authorized by this section may be legally defeased to the extent permitted by law in the manner and to the extent set forth in the resolution, as amended from time to time, authorizing that refunded bond.

95013. Notwithstanding Section 16727 of the Government Code, funds provided pursuant to this division may be used for grants and loans to nonprofit organizations to repay financing described in Section 22064 of the Financial Code related to projects that are consistent with the purpose of the respective provisions of this division.

95014. The proceeds from the sale of bonds authorized by this division are not "proceeds of taxes" as that term is used in Article XIII B of the California Constitution, and the disbursement of these proceeds is not subject to the limitations imposed by that article.

95015. Bonds issued under this division may, whenever practical, be aligned with generally recognized principles and best practices guidelines for financing climate mitigation, adaptation, or resilience projects.

SEC. 3. Section 2 of this act shall take effect upon the approval by the voters of the Safe Drinking Water, Wildfire Prevention, Drought Preparedness, and Clean Air Bond Act of 2024, as set forth in Section 2 of this act.

SEC. 4. The provisions of this act are severable. If any provision of this act or its application is held invalid, that invalidity shall not affect other provisions or applications that can be given effect without the invalid provision or application.

SEC. 5. This act is an urgency statute necessary for the immediate preservation of the public peace, health, or safety within the meaning of Article IV of the California Constitution and shall go into immediate effect. The facts constituting the necessity are:

In order to place the Safe Drinking Water, Wildfire Prevention, Drought Preparedness, and Clean Air Bond Act of 2024 on the November 5, 2024, statewide general election ballot and to expedite the implementation of the projects supported by that bond act for the protection of public health, safety, and the environment, it is necessary for this measure to take effect immediately.

O

PROPOSITION
4
AUTHORIZES BONDS FOR SAFE DRINKING WATER, WILDFIRE PREVENTION, AND PROTECTING COMMUNITIES AND NATURAL LANDS FROM CLIMATE RISKS. LEGISLATIVE STATUTE.

OFFICIAL TITLE AND SUMMARY — PREPARED BY THE ATTORNEY GENERAL

The text of this measure can be found on page 75 and the Secretary of State's website at *voterguide.sos.ca.gov.*

4

- Authorizes $10 billion in state general obligation bonds for various projects to reduce climate risks and impacts: $3.8 billion for safe drinking water and water resilience; $1.95 billion for wildfire prevention and extreme heat mitigation; $1.9 billion for protection of natural lands, parks, and wildlife; $1.2 billion for protection of coastal lands, bays, and oceans; $850 million for clean energy; and $300 million for agriculture.
- Prioritizes projects benefitting disadvantaged communities.
- Requires annual audits.
- Appropriates money from General Fund to repay bonds.

SUMMARY OF LEGISLATIVE ANALYST'S ESTIMATE OF NET STATE AND LOCAL GOVERNMENT FISCAL IMPACT:

- Increased state costs of about $400 million annually for 40 years to repay the bond.

State Bond Cost Estimate	
Amount borrowed	$10 billion
Average repayment cost	$400 million per year over 40 years
Source of repayment	General tax revenue

FINAL VOTES CAST BY THE LEGISLATURE ON SB 867 (PROPOSITION 4)
(CHAPTER 83, STATUTES OF 2024)

Senate:	Ayes 33	Noes 6
Assembly:	Ayes 66	Noes 6

ANALYSIS BY THE LEGISLATIVE ANALYST

BACKGROUND

State Pays for Natural Resources and Climate Activities. The state pays for many activities aimed at conserving natural resources, as well as responding to the causes and effects of climate change ("natural resources and climate activities"). These activities focus on increasing the amount of water available for use, conserving land to benefit fish and wildlife, increasing recreational opportunities at state and local parks, and other purposes. In some cases, state government agencies perform natural resources and climate activities. In other cases, the state provides grants and loans to local governments, not-for-profit organizations, and businesses to support similar activities.

State Pays for Natural Resources and Climate Activities in Various Ways. Sometimes the state pays up front for natural resources and climate activities with money it already has. In other cases, the state pays for these activities by using bonds. Bonds are a way that the state borrows money and then repays the money plus interest over time. (For more information about bonds, please see "Overview of State Bond Debt" later in this guide.)

Over the past decade, the state has spent an average of about $13 billion each year (annually) on natural resources and climate activities. About 15 percent of this amount has been from bonds. The state still has a few billion dollars remaining from prior natural resources and climate bonds that have not yet been committed for specific activities.

Local and Federal Governments Also Pay for Similar Activities. In addition to the state funding, other entities also pay for natural resources and climate activities. For example,

in some areas, local governments pay for water and energy infrastructure as part of their roles as local utilities. Local governments such as cities and counties also pay for local parks. The federal government also pays for various natural resources and climate activities. For example, the federal government provides money to improve local drinking water systems and to build energy infrastructure.

PROPOSAL

New Bond for Natural Resources and Climate Activities. Proposition 4 allows the state to sell a $10 billion bond for natural resources and climate activities. Much of the bond money would be used for loans and grants to local governments, Native American tribes, not-for-profit organizations, and businesses. Some bond money also would be available for state agencies to spend on state-run activities.

Funding Would Pay for a Variety of Activities. As shown in Figure 1, Proposition 4 pays for activities within eight broad categories, each with different goals. Some of the main activities in each category are summarized below:

Figure 1

Key Goals of Proposition 4 Bond Funds

(In Millions)

Category	Key Goals	Amount
Drought, Flood, and Water Supply	Increase the amount and quality of water available for people to use and reduce the risk of flooding.	$3,800
Forest Health and Wildfire Prevention	Improve the health of forests and protect communities from wildfires.	1,500
Sea-Level Rise and Coastal Areas	Reduce the risks from sea-level rise, restore coastal areas, and protect fish.	1,200
Land Conservation and Habitat Restoration	Protect and restore natural areas.	1,200
Energy Infrastructure	Support the state's shift to more renewable sources of energy, such as offshore wind.	850
Parks	Expand, renovate, and repair local and state parks.	700
Extreme Heat	Reduce the effects of extreme heat on communities.	450
Farms and Agriculture	Help farms respond to the effects of climate change and become more sustainable.	300
Total		**$10,000**

For the full text of Proposition 4, see page 75.

PROPOSITION **4** AUTHORIZES BONDS FOR SAFE DRINKING WATER, WILDFIRE PREVENTION, AND PROTECTING COMMUNITIES AND NATURAL LANDS FROM CLIMATE RISKS. LEGISLATIVE STATUTE.

ANALYSIS BY THE LEGISLATIVE ANALYST

CONTINUED

- ***Drought, Flood, and Water Supply ($3.8 Billion).*** Roughly half of this money would be for activities to increase the amount and quality of water available for people to use ($1.9 billion). This would include storing water so it can be used during future droughts, as well as cleaning polluted water to make it safe to drink. Money would also be used to help reduce the risk of floods, such as by repairing dams and capturing and reusing stormwater ($1.1 billion). The rest of the money would be used for various activities, such as restoring rivers and lakes.
- ***Forest Health and Wildfire Prevention ($1.5 Billion).*** All of this money would support activities to improve the health of forests and reduce the risk of severe and destructive wildfires. This would include thinning trees in forests that are overgrown and clearing vegetation near where people live. Money would also be used for other activities, such as helping homeowners make their properties more resistant to wildfire damage.
- ***Sea-Level Rise and Coastal Areas ($1.2 Billion).*** Most of this money would pay for activities to restore coastal areas and protect them from the effects of rising sea levels ($890 million). This could include restoring wetlands so they can serve as buffers to rising sea levels. The rest of this money would be used to improve ocean habitats and protect fish and other marine wildlife ($310 million).
- ***Land Conservation and Habitat Restoration ($1.2 Billion).*** This money would be used to protect and restore land for the benefit of fish and wildlife. For example, it could support purchasing land to set aside so that it is not developed.
- ***Energy Infrastructure ($850 Million).*** More than half of this money would support the development of wind turbines off the California coast ($475 million). Most of the remaining money would pay for building infrastructure such as transmission lines to carry electricity long distances ($325 million). The rest of the money would pay for projects to build large batteries that store electricity for when it is needed ($50 million).
- ***Parks ($700 Million).*** The bulk of this money would support various activities that expand recreational opportunities at parks or reduce the impacts of climate change on parks ($300 million). These activities could include adding new trails and parking areas. Some of this money would provide grants to local communities to build new parks or renovate existing parks ($200 million). The rest of this money would be used to repair state parks and provide nature education ($200 million).
- ***Extreme Heat ($450 Million).*** Much of this money would pay for activities focused on protecting communities from extreme heat ($200 million). These activities could include adding trees and greenspaces. Money would also support places for people to go during heatwaves or disasters ($100 million). The rest of the money would provide grants for local communities to conduct activities that provide environmental benefits, such as reducing air pollution ($150 million).
- ***Farms and Agriculture ($300 Million).*** Much of this money would be used for activities that encourage farmers to improve soil health, reduce air pollution, and use less water ($105 million). This money would also support community gardens and farmers' markets, such as by purchasing shade canopies ($60 million). The rest of this money would support a range of other activities, such as purchasing vans to transport farmworkers and conserving farmland.

Establishes Other Requirements for the Use of Funds. Proposition 4 requires the bond money to be used in certain ways. For example, at least 40 percent of bond money must be used for activities that directly benefit communities that

have lower incomes or are more vulnerable to the impacts of climate change. Proposition 4 also requires regular public reporting of how the bond money is spent.

FISCAL EFFECTS

Increased State Costs of About $400 Million Annually for 40 Years to Repay the Bond. The estimated cost to repay the bond would be **about $400 million annually over a 40-year period.** Payments would be made from the state General Fund. (The General Fund is the account the state uses to pay for most public services, including education, health care, and prisons.) This would be less than one-half of 1 percent of the state's total General Fund budget. Since the state has to pay interest on the money it borrows, the total cost of the bond would be about 10 percent more (after adjusting for inflation) than if the state paid up front with money it already has.

Likely Reduced Local Costs for Natural Resources and Climate Activities. The availability of state bond funds could have various fiscal effects on local governments. In some cases, the additional state funding could replace local government money that would otherwise be needed to pay for a project. For example, this could include using bond funds to help support an essential water treatment facility the local government otherwise would have needed to fund by itself. In other cases, however, the availability of state funds could encourage local governments to spend more money to build larger projects than they otherwise would. For example, this could include adding additional amenities to a local park. On net, Proposition 4 likely would result in savings to local governments. The amount of these savings is uncertain but could average tens of millions of dollars annually over the next few decades.

Potential State and Local Savings if Funding Prevents Disasters. To the extent the bond funds result in completing activities that reduce the risk or amount of damage from disasters, it could reduce state and local costs for responding to and recovering from those events. For example, improving a levee could reduce the amount of flooding that occurs. Additionally, thinning trees in a forest could reduce the severity of wildfires. The amount of such potential savings is uncertain.

Visit *sos.ca.gov/campaign-lobbying/cal-access-resources/measure-contributions/2024-ballot-measure-contribution-totals* for a list of committees primarily formed to support or oppose this measure.

Visit *fppc.ca.gov/transparency/top-contributors.html* to access the committee's top 10 contributors.

For the full text of Proposition 4, see page 75.

PROPOSITION **4** AUTHORIZES BONDS FOR SAFE DRINKING WATER, WILDFIRE PREVENTION, AND PROTECTING COMMUNITIES AND NATURAL LANDS FROM CLIMATE RISKS. LEGISLATIVE STATUTE.

★ ARGUMENT IN FAVOR OF PROPOSITION 4 ★

YES on 4: TO CLEAN AND PROTECT OUR DRINKING WATER, PREVENT WILDFIRES

Prop. 4 makes urgent, commonsense investments to protect our communities, health, economy, and natural resources by:

• Cleaning up and protecting water supplies • Preventing devastating wildfires • Protecting forests, beaches, fresh water sources, and wildlife habitat

Voting Yes on 4 is urgently needed. California faces increasing threats from wildfires, water pollution, and extreme heat. Investments *today* can prevent future costs and damage from a changing climate and more frequent natural disasters.

PROVIDING CLEAN, SAFE DRINKING WATER

Prop. 4 will clean up and protect California's drinking water supplies in all regions of California—remove toxic pollutants from our drinking water, addressing infrastructure risks like weakened dams and levees, and increasing supplies.

Today, nearly 1 million Californians lack access to drinking water that meets safety and reliability standards, according to the State Water Board. Yes on 4 helps ensure we all have safe water to drink.

PREVENTING DEVASTATING WILDFIRES AND SMOKE

Recent California wildfires have burned 2 million acres, released toxic smoke into our air, and polluted drinking water supplies. Fire damage and smoke have harmed quality of life and health, including children's lungs, in every corner of California. Prop. 4 invests in projects to prevent wildfires, reduce their intensity when they do occur, and improve disaster response.

"Giving firefighters the tools to prevent wildfires is the best, most cost effective way to prevent the human and financial costs of these disasters. Prop. 4 makes the right investments to save lives and billions in response and recovery costs."—Tim Edwards, President, CALFIRE Firefighters

PROTECTING FORESTS, BEACHES, RIVERS, STREAMS, AND WILDLIFE

Our beaches, forests, and mountains make California special, and we have a responsibility to protect them for our children and future generations. Protecting natural areas and wildlife is more urgent today than ever before, as we lose wildlife habitat, farm and ranchland, and even beaches wash away. Prop. 4 protects these natural areas from wildfire, pollution, and other threats from a changing climate.

PROTECTING PUBLIC HEALTH

By removing pollution from the air and toxins from our water, Prop. 4 protects the health of vulnerable seniors and children.

STRONG FISCAL RESPONSIBILITY, ACCOUNTABILITY & TRANSPARENCY

California is already paying the price for failing to adequately prepare for drought and a changing climate. This measure helps shift from disaster response to *prevention*.

Our state and communities will save billions more by avoiding and reducing damage from wildfires, droughts, and floods.

Prop. 4 contains strict fiscal accountability and transparency:

• Annual independent audits • Full public disclosure of all future funding

Join California firefighters (CalFire Local 2881), the National Wildlife Federation, the Nature Conservancy, Clean Water Action, and water agencies including San Diego Co Water Authority: YES on 4.

Jennifer Clary, State Director
Clean Water Action

Tim Edwards, President
CALFIRE Firefighters

Beth Pratt, California Regional Executive Director
National Wildlife Federation

★ REBUTTAL TO ARGUMENT IN FAVOR OF PROPOSITION 4 ★

Clean drinking water and preventing destructive wildfires are necessities, not luxuries. These should be addressed within our state budget, not by demanding $10 billion more from the taxpayers in the form of a bond that will cost nearly double to repay—$19.3 billion.

The challenges we face with wildfires and water supply are the result of decades of neglect and mismanagement of our resources. Empowering tribal leaders for forest management and investing in water infrastructure could have prevented these crises. These aren't random occurrences, but repercussions of misguided policies.

Despite politicians' frequent promises for accountability, since 2000 California voters have approved over $30 billion in natural resources bonds—with little to show. After years of refusing to prioritize spending on forest management, we are suffering the aftermath of major wildfires that could have been prevented, or at least minimized. After years of refusing to invest in water storage, we are facing water supply instability.

Instead of burdening taxpayers with a bond that overpromises, we should tackle these issues in the budget. *Real change stems from commitment, not quick fixes.* This isn't just policy, it's our future. Let's choose pragmatism over procrastination.

Sacramento politicians should not demand more money from the taxpayers or pressure voters to pass an unrealistic bond package that lacks any lasting change to state policy. Vote NO on Proposition 4.

Vote NO on deferring our environmental responsibility at double the cost. Let's invest in a greener tomorrow today.

Senate Minority Leader Brian W. Jones

Assemblyman Jim Patterson

Jon Coupal, President
Howard Jarvis Taxpayers Association

★ ARGUMENT AGAINST PROPOSITION 4 ★

TOO MUCH DEBT, TOO LITTLE BENEFIT: THE PROBLEM WITH PROPOSITION 4

Bonds are the most expensive way for the government to pay for things. Proposition 4 would add a whopping *$10 billion* of debt to the taxpayers—PLUS an estimated *$9.3 billion* in interest—to pay for climate-related programs. This funding would also cover administrative costs and salaries for grant recipients. But remember, this is borrowed money.

At the start of the year, California already had over *$78 billion* of bond debt. Proposition 1 in March added another *$6.38 billion*. Now there's a proposal to add an additional *$10 billion* for ambiguous climate programs. Guess who's going to foot the bill? That's right—we taxpayers. Our tax dollars will be diverted from essential services to cover interest payments and principal repayment of the bond.

Bonds are borrowed money that must be paid back, PLUS INTEREST, no matter what the state must cut to do it. Governor Newsom already declared a budget emergency because the state spends more than it takes in. How many programs will have to be cut in the future to pay for Proposition 4? According to the nonpartisan Legislative Analyst's Office, we had a *$62 billion* deficit this year. What will happen when we have both a deficit AND the obligation to repay this enormous bond debt?

Two years ago, California had a nearly *$100 billion SURPLUS*. If these climate projects had been prioritized then, we could have covered the entire cost of this bond with just 10 percent of that surplus. Now, due to the government's inability to manage its spending, they are asking voters for more of their hard-earned money.

AS A VOTER, YOUR TAX DOLLARS SHOULD FUND YOUR HIGHEST PRIORITIES, NOT PET PROJECTS.

Bonds should be reserved for financing essential projects that will build infrastructure lasting beyond the 30-year payoff period. However, many elements of Proposition 4 fail to meet that standard, resulting in *$10 billion* of spending just being added to the taxpayers' credit card—with a lack of accountability or measured metrics for success! Proposition 4 is full of money being funneled to unproven technologies that may sound promising on paper but have no concrete evidence of success. By committing funds to speculative projects, Proposition 4 overlooks long-term water storage and critical wildfire fuel management programs in favor of short-term, unproven projects.

IT'S RECKLESS TO USE COSTLY BORROWED MONEY TO PAY FOR UNPROVEN PROGRAMS.

Proposition 4 represents a reckless increase in state debt with questionable benefits. The government should prioritize essential services and ensure that any borrowing is reserved for projects that provide lasting, tangible benefits to the state and its residents. Vital programs should be funded in the budget with the taxes we already pay, not through costly borrowing. What's in the budget that's a higher priority than safe drinking water and wildfire prevention? Politicians should answer that question before racking up another *$10+ billion* in debt that will have to be paid back, WITH INTEREST.

Senate Minority Leader Brian W. Jones
Assemblyman Jim Patterson
Jon Coupal, President
Howard Jarvis Taxpayers Association

★ REBUTTAL TO ARGUMENT AGAINST PROPOSITION 4 ★

YES on 4: ADDRESSES CALIFORNIA'S HIGHEST PRIORITY DRINKING WATER and FIRE PREVENTION NEEDS

California firefighters, clean water organizations, public health experts, and conservation groups urge YES on 4, to address our state's *most vital needs* for a safe water supply, wildfire prevention, and clean air.

The opposition itself admits, clean water and wildfire prevention are critical priorities.

Prop. 4 makes efficient, sensible investments in proven solutions: upgrading drinking water treatment to remove contaminants, fixing crumbling dams and levees to prevent floods, creating groundwater storage and recycling plants to boost supply and prepare for drought, and investing in effective wildfire prevention and containment strategies.

YES on 4: SMART, URGENT INVESTMENTS WITH STRICT ACCOUNTABILITY REQUIREMENTS, PROTECTS COMMUNITIES AND PREVENTS BILLIONS IN FUTURE COSTS

Yes on 4 is fiscally responsible and fully transparent.

Nearly 1 million Californians lack access to clean drinking water. Yes on 4's investments strengthen safe water supplies and flood control infrastructure—saving billions in temporary fixes and economic losses.

A UCLA study found 10 years of wildfire smoke have caused 50,000 premature deaths and $400 billion in economic losses. Wildfire prevention saves six times its cost in reduced damage, while protecting our health.

"California's financial health is vulnerable to natural disasters, neglected infrastructure, and a changing climate. Without raising taxes, Yes on Prop. 4 saves California money while helping state and local governments protect our communities."—Tim Gage, former state Director of Finance.

California communities can't wait.

YES on 4: CLEAN DRINKING WATER, WILDFIRE PREVENTION, and OUR HEALTH.

Susana De Anda, Executive Director
Community Water Center
Sarah Gibson, Fire Manager
The Nature Conservancy
Christopher Chavez, Deputy Policy Director
Coalition for Clean Air

Legislation and Communications Committee

Express support for Proposition 4, The Safe Drinking Water, Wildfire Prevention, Drought Preparedness, and Clean Air Bond Act of 2024

Item 7-6

September 9, 2024

Legislation & Communications Committee

2024 Climate Bond

Subject

Express support for Proposition 4, The Safe Drinking Water, Wildfire Prevention, Drought Preparedness, and Clean Air Bond Act of 2024; the General Manager has determined that the proposed action is exempt or otherwise not subject to CEQA.

Purpose

Seek Board direction on Proposition 4, on the November 2024 Statewide Ballot.

Legislation & Communications Committee

2024 Climate Bond

History

SB 867 (Allen, D – Santa Monica) Safe Drinking Water, Wildfire Prevention, Drought Preparedness, and Clean Air Bond Act of 2024.

Introduced: February 17, 2023

Final Language: June 29, 2024

Signed: July 3, 2024

Ballot Measure: Proposition 4 - November 5, 2024

Current Metropolitan Position: Support if Amended

2024 Climate Bond

Permissible Uses

- 40% for vulnerable populations or disadvantaged communities
- At least 10% for severely disadvantaged communities
- Administrative cap at 7% of allocation or $20 M, whichever is lower
- Funds cannot be used for environmental mitigation requirements

Legislation & Communications Committee

2024 Climate Bond

Legislative Bond Priorities

Category	Requested	Actual
Recycling and Desalination: ***	$1 B	$386.25 M
Water Quality and Safe Drinking Water:	$500 M	$610 M
Conservation and Water Use Efficiency: ***	$400 M	$75 M
Dam Safety: ***	$700 M	$480 M
Groundwater Management:	$750 M	$386.25 M
Surface Storage:	$550 M	$75 M
Regional Conveyance: ***	$600 M	$75 M
Flood Protection and Reactivation ***	$950 M	$550 M
State Water Project Public Benefits:	$500 M	$0
Regional and Coastal Watershed Resilience:	$700 M	$100 M
Total	**$6.65 B**	**$2.74 B**

Legislation & Communications Committee

2024 Climate Bond

Beyond Water Infrastructure

Legislation & Communications Committee

2024 Climate Bond

Final Bond Chapter Allocations

- Safe Drinking Water, Drought, Flood, Water Resilience: $3.8 B
- Wildfire and Forest Resilience: $1.5 B
- Sea Level Rise and Coastal Resilience: $1.2 B
- Protect Biodiversity and Nature-Based Solutions: $1.2 B
- Extreme Heat Mitigation: $450 M
- Park Creation and Outdoor Access: $700 M
- Climate Smart, Sustainable, and Resilient Farms: $300 M
- Clean Air: $850 M

Total: $10 Billion

Legislation & Communications Committee

2024 Climate Bond

Water Quality and Restoration

- Safe Drinking Water: $610 M
- Salton Sea Management Plan: $170 M

Wildfire and Forest Resilience

- Regional Wildfire Prevention Strategies: $170 M
- CAL FIRE Long-Term Forest Health Projects: $175 M
- CNRA Forest Health/Watershed Restoration: $200 M
- Electric Transmission for Wildfire Prevention: $35 M

Legislation & Communications Committee

2024 Climate Bond

Sea Level Rise and Coastal Resilience

- Coastal Flood/Sea Level Rise: $85 M
- Sea Level Rise Adaptation/Mitigation: $75 M
- Hatcheries – Salmon Restoration: $25 M
- Dam Removal: $75 M

Protect Biodiversity and Accelerating Nature-Based Climate Solutions

- 30 X 30 California: $870 M
- Conservancies: $320 M

2024 Climate Bond

Farms, Ranches and Working Lands

- Healthy Soils: $65 M
- SWEEP/Sustainable, Climate-Smart Water Use/Efficiency: $40 M
- Invasive Species: $20M
- Protection and Enhancement of Ag Lands (DOC): $15 M

Park Creation and Outdoor Access

- Parks Restoration/Enhancement & Access: $200 M
- Expanded Trail Access: $100 M

Clean Air

- Battery Energy Storage: $50 M

Legislation & Communications Committee

2024 Climate Bond

Support

San Diego County Water Authority
West Basin MWD
California Firefighters (CalFire Local 2881)
Clean Water Action
The National Wildlife Federation
The Nature Conservancy

Excerpts from Ballot Arguments

"California faces increasing threats from wildfires, water pollution, and extreme heat."

"Our state and communities will save billions more by avoiding and reducing damage from wildfires, droughts, and floods."

2024 Climate Bond

Opposition

Howard Jarvis Taxpayers Association
Senate Minority Leader Brian Jones
Assemblymember Jim Patterson

Excerpts from Ballot Arguments

"Bonds are the most expensive way for the government to pay for things. Proposition 4 would add a whopping *$10 billion* of debt to the taxpayers—PLUS an estimated *$9.3 billion* in interest to pay for climate-related programs."

"Bonds should be reserved for financing essential projects that will build infrastructure lasting beyond the 30-year payoff period."

Benefits

All Metropolitan priority categories included:

- Recycled Water (including large-scale projects): $386.25 M
- Regional Conveyance: $75 M
- Conservation: $75 M
- Dam Safety: $480 M
- Delta Levees: $150 M (plus funding for flood protection)

2024 Climate Bond

Benefits

Funding for operational costs and initiatives

- Watershed health (mitigate downstream impacts)
- Habitat restoration
- Climate action - renewable energy development
- Salton Sea

2024 Climate Bond

Concerns

- Climate change significantly impacts water, but less than 1/3 of bond funding addresses water priorities
- Limited opportunity to receive funds
- General obligation bonds should fund infrastructure that lasts the term of the bond

Options

Option #1

- Express support for Proposition 4, The Safe Drinking Water, Wildfire Prevention, Drought Preparedness, and Clean Air Bond Act of 2024

Option #2

- Take no action

Legislation & Communications Committee

2024 Climate Bond

Staff Recommendation

Option #1


THE METROPOLITAN WATER DISTRICT OF
SOUTHERN CALIFORNIA

- **Board of Directors**
  Engineering, Operations, and Technology Committee

9/10/2024 Board Meeting

8-1

Subject

Authorize a $40 million increase to an existing agreement with J.F. Shea Construction Inc. to purchase long-lead equipment for the Sepulveda Feeder Pump Stations Project, for a new not-to-exceed amount of $50.4 million; the General Manager has determined that the proposed action is exempt or otherwise not subject to CEQA (This action is part of a series of projects that are being undertaken to improve the supply reliability for State Water Project-dependent areas.)

Executive Summary

The Sepulveda Feeder Pump Stations Project will result in the construction of two new pump stations, one each located at the existing Venice and Sepulveda Canyon Pressure Control Facilities. The project will allow for water to be pumped northward through the Sepulveda Feeder, thereby enabling greater deliveries of Colorado River Aqueduct (CRA) and Diamond Valley Lake (DVL) water supplies to State Water Project-dependent agencies in Metropolitan's western service area. The project will lessen the impacts of future low State Water Project (SWP) allocations on these agencies. The project utilizes progressive design-build (PDB) delivery to expedite the development of these pump stations.

An advantage of the PDB project delivery process is the ability to make early procurements of long lead-time equipment before the entire design of the facility is completed. In July 2024, Metropolitan's Board authorized the initial procurement of long-lead equipment and electrical power transformers under the Phase 1 PDB agreement with J.F. Shea Construction Inc. (J.F. Shea). The initial design of the pump stations has progressed to a point where the remaining major equipment, including pumps, large valves, switchgear, and motor control centers for the two pump stations have been sized and bids received by the contractor. Procurement of this long-lead-time equipment by the PDB contractor is recommended at this time to ensure the equipment can be installed during a 2026 shutdown and to expedite project completion.

This action authorizes a $40 million increase to an existing agreement with J.F. Shea to purchase long-lead equipment for a new not-to-exceed amount of $50.4 million. See **Attachment 1** for the Allocation of Funds and **Attachment 2** for the Location Map.

Proposed Action(s)/Recommendation(s) and Options

Staff Recommendation: Option #1

Option #1

Authorize a $40 million increase to an existing design-build services agreement with J.F. Shea Construction Inc. to purchase long-lead equipment for the Sepulveda Feeder Pump Stations Project for a new not-to-exceed amount of $50.4 million.

Fiscal Impact: Expenditure of $40 million in capital funds. All costs will be incurred in the current biennium and have been previously authorized.

Business Analysis: The project will expand Metropolitan's ability to serve Diamond Valley Lake and Colorado River water to a portion of the distribution system that normally receives water from the State Water

Project and will provide an alternate route to deliver treated water to the west service area during emergencies or when major feeders are removed from service for rehabilitation.

Option #2

Do not proceed with the procurement at this time.
Fiscal Impact: None
Business Analysis: This option would forego an opportunity for early procurement of long-lead equipment and may impact the project's ability to be ready for a planned shutdown in 2026.

Alternatives Considered

Alternatives for procuring long-lead equipment for the Sepulveda Feeder Pump Stations Project included using traditional procurement by Metropolitan staff in which drawings and specifications would be developed for advertisement and competitive bidding. It was determined that this traditional method would delay the completion of the project by over two years when compared to having the PDB contractor procure equipment directly on a best-value basis. It is recommended that the PDB contractor procure the long-lead equipment identified in this board letter to expedite the project schedule.

Another alternative was to wait until the Guaranteed Maximum Price (GMP) was established and then start procuring equipment. The lead times for some equipment can take up to 20 months, and the GMP will not be finalized until late 2024. With this approach, there is a risk that equipment will not be delivered in time for the planned 2026 start-up and commissioning of the new facilities.

Staff determined that the recommended option to have the PDB contractor purchase long-lead equipment will provide the earliest possible completion for the project.

Applicable Policy

Metropolitan Water District Administrative Code Section 8121: General Authority of the General Manager to Enter Contracts

Metropolitan Water District Administrative Code Section 8148: Alternative Project Delivery

Metropolitan Water District Administrative Code Section 11104: Delegation of Responsibilities

Related Board Action(s)/Future Action(s)

By Minute Item 52703, dated February 8, 2022, the Board authorized the West Area Water Supply Reliability Improvements.

By Minute Item 53188, dated March 14, 2023, the Board authorized amendments to the Metropolitan Water District Administrative Code to provide for the implementation of new legislation authorizing the use of alternative project delivery methods.

By Minute Item 53377, dated September 12, 2023, the Board authorized an agreement for Phase 1 design-build services for the Sepulveda Feeder Pump Stations Project.

By Minute Item 53598, dated April 9, 2024, the Board appropriated a total of $636.6 million for projects identified in the Capital Investment Plan for Fiscal Years 2024/25 and 2025/26.

By Minute Item 53718, dated July 9, 2024, the Board amended the agreement for design-build services for the Sepulveda Feeder Pump Stations Project.

California Environmental Quality Act (CEQA)

CEQA determination for Option #1:

The proposed action does not constitute an approval of the project for the purposes of CEQA. Environmental review will be completed prior to any decision by the Board which commits Metropolitan to the project. (State CEQA Guidelines Section 15352.)

CEQA determination for Option #2:

None required

Details and Background

Background

Metropolitan's distribution system was initially constructed in the 1940s to deliver treated CRA supplies throughout its service area. The system was expanded in the 1970s to connect to and distribute SWP water supplies. The distribution system was designed to take advantage of the region's topography and primarily utilizes gravity to move water through the system. While much of the service area benefits from access to both sources of supply and stored water in DVL, certain portions of the system can only receive limited DVL/CRA water due to inherent hydraulic limitations of the gravity-fed system. During multi-year droughts, as California recently experienced, SWP-dependent areas rely on stored SWP supplies, transfers, and exchange deliveries.

The west service area portion of Metropolitan's distribution system typically receives SWP water via the Joseph Jensen Water Treatment Plant (Jensen plant), Sepulveda Feeder, and connecting pipelines. During periods of low deliveries from the West Branch of the SWP, or when the Jensen plant is out of service, the west area can be served by the Weymouth plant through the East Valley Feeder and the Greg Avenue Pump Station. This pumping system is limited to a maximum capacity of approximately 50 cubic feet per second (cfs). Throughout the recent statewide drought that ended in early 2023, the Greg Avenue Pump Station operated nearly full-time at its maximum capacity.

In February 2022, Metropolitan's Board approved planning efforts for the Sepulveda Feeder Pump Stations Project to increase delivery reliability in the west area. This project will enable Metropolitan to convey treated CRA and DVL water from its Central Pool northward along the Sepulveda Feeder to the west service area, supplementing deliveries from the Greg Avenue Pump Station. This concept requires two new pump stations along the Sepulveda Feeder: one each located adjacent to the existing Venice and Sepulveda Canyon Pressure Control Facilities. The project will be implemented in multiple stages. The initial stage of the project includes the construction of two pump stations capable of moving up to 30 cfs northward from the Central Pool to the west service area. However, once operational, the net benefits of the project to the west service area will be approximately 60 cfs of water supply as there will no longer be a need to send "operational water" southward on the Sepulveda Feeder from the Jensen plant during periods of low SWP demands. These operational water flows in the Sepulveda Feeder are currently necessary to maintain water quality during low SWP allocations. Therefore, once the initial phase of this project is complete, the operational flows can be diverted to the west service area.

The pump stations will not only enhance the reliability of water supplies in the west area in times of reduced SWP supplies, but they will increase overall system flexibility by enabling the Jensen exclusive area to receive flows when the Jensen plant is removed from service for maintenance and repairs. During the upcoming rehabilitation of prestressed concrete cylinder pipeline (PCCP) portions of the Sepulveda Feeder, the pump stations will also aid in minimizing delivery impacts to member agencies as the PCCP lining work proceeds.

In September 2023, the Board authorized an agreement with J.F. Shea to begin Phase 1 of the PDB process. The Phase 1 agreement permits J.F. Shea, upon Metropolitan's approval, to commence procurement of required equipment during Phase 1, prior to agreement on the GMP. In July 2024, the Board authorized an amendment to the agreement with J.F. Shea to procure electrical transformers. Design for the remaining major equipment has been finalized, and staff recommends procuring long-lead pumps, large valves, electrical switchgear, and motor control centers at this time in order to expedite the procurement of equipment and streamline the project schedule. Since the not-to-exceed amount in the agreement does not include this equipment, an amendment to increase the existing not-to-exceed agreement amount is necessary. Staff anticipates returning to the Board in late 2024 for an amendment to the agreement to cover Phase 2 work, which includes completion of design and construction.

Sepulveda Feeder Pump Stations – PDB Phase 1 Agreement Amendment (J.F. Shea Construction Inc.)

The amended PDB agreement will enable J.F. Shea to procure four pumps (two for each site), 19 valves varying in size from 54-inch to 24-inch, electrical switchgear, and motor control centers for the two new pump stations at

the Venice and Sepulveda Canyon Pressure Control Structure sites. These long-lead items can take up to 20 months to procure, and staff recommends procurement of this equipment at this time to streamline the overall project schedule. J.F. Shea will lead the procurement effort, utilizing a best-value process to select the vendors. Equipment would be installed with the Phase 2 construction work.

A total of $40 million is allocated for this work. Allocated funds for this procurement effort include approximately $13.4 million for the pumps and motors, $20.4 million for valves, and $6.2 million for the electrical switchgears and motor control centers. Metropolitan staff will partner with the design-build team on technical issues and conduct fabrication inspections. Adequate funds were previously allocated for staff support through the completion of Phase 1. **Attachment 1** provides the allocation of the required funds. The total estimated cost to complete the work, including the amount appropriated to date, funds allocated for the work described in this action, and future construction costs, is anticipated to range from $105 million to $115 million.

Proceeding with early procurement of the long-lead equipment at this time will enable the completion of the pump stations at the Venice and Sepulveda Canyon sites during a planned 2026 shutdown of the Sepulveda Feeder. This action authorizes a $40 million increase to an existing agreement with J.F. Shea to purchase long-lead equipment for the Sepulveda Feeder Pump Stations Project for a new not-to-exceed amount of $50.4 million.

Project Milestone

May 2026 – Delivery of equipment

8/20/2024
Mai M. Hattar *Date*
Interim Manager/Chief Engineer
Engineering Services

8/26/2024
Deven Upadhyay *Date*
Interim General Manager

Attachment 1 – Allocation of Funds

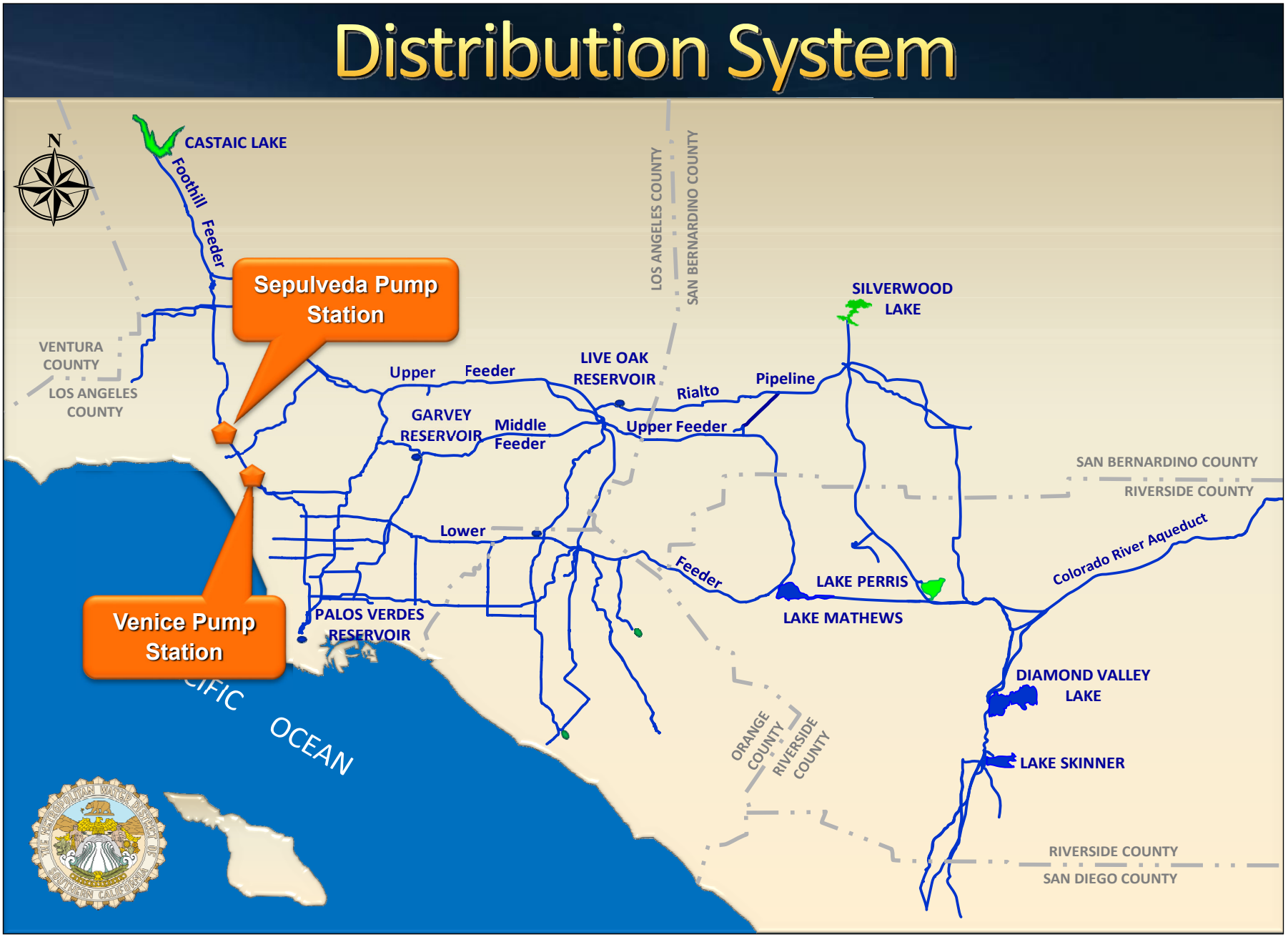
Attachment 2 – Location Map

Ref# es12698256

Allocation of Funds for Sepulveda Feeder Pump Stations

	Current Board Action (Sep. 2024)
Labor	
Studies & Investigations	$ -
Final Design	-
Owner Costs (Program mgmt.)	-
Submittals Review & Record Drwgs.	-
Construction Inspection & Support	-
Metropolitan Force Construction	-
Materials & Supplies	-
Incidental Expenses	-
Professional/Technical Services	-
Right-of-Way	-
Equipment Use	-
Contracts	-
J.F. Shea Construction Inc.	40,000,000
Remaining Budget	-
Total	**$ 40,000,000**

The amount expended to date on the Sepulveda Feeder Pump Stations Project is approximately $5.5 million. The total estimated cost to complete this project, including the funds allocated for the work described in this action is anticipated to range from $105 million to $115 million.


Distribution System
N
CASTAIC LAKE
Foothill Feeder
Sepulveda Pump Station
Venice Pump Station
VENTURA COUNTY
LOS ANGELES COUNTY
LOS ANGELES COUNTY
SAN BERNARDINO COUNTY
SILVERWOOD LAKE
LIVE OAK RESERVOIR
Upper Feeder
Rialto Pipeline
GARVEY RESERVOIR
Middle Feeder
Upper Feeder
SAN BERNARDINO COUNTY
RIVERSIDE COUNTY
Lower Feeder
Colorado River Aqueduct
LAKE PERRIS
LAKE MATHEWS
PALOS VERDES RESERVOIR
DIAMOND VALLEY LAKE
ORANGE COUNTY
RIVERSIDE COUNTY
LAKE SKINNER
RIVERSIDE COUNTY
SAN DIEGO COUNTY
OCEAN

Engineering, Operations, & Technology Committee

Sepulveda Feeder Pump Stations – Long-lead Equipment Procurement

Item 8-1

September 9, 2024

Item 8-1
Sepulveda Feeder Pump Stations – Long-lead Equipment Procurement

Subject

Authorize a $40 million increase to an existing agreement with J.F. Shea Construction Inc., to purchase long-lead equipment for the Sepulveda Feeder Pump Stations project, for a new not-to-exceed amount of $50.4 million

Purpose

To improve the supply reliability for State Water Project-dependent areas

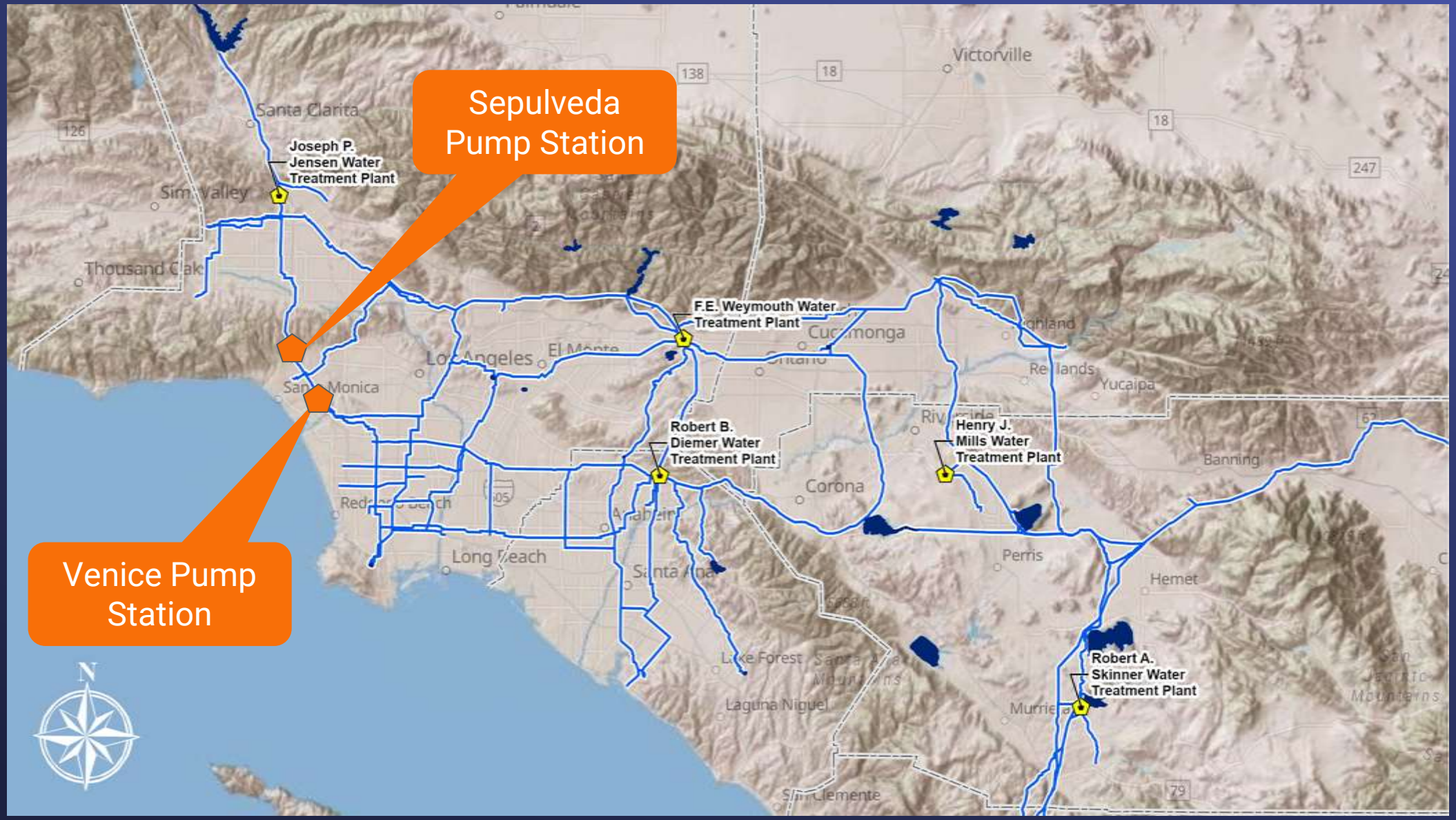
Recommendation and Fiscal Impact

Authorize an increase to an existing Progressive Design Build (PDB) agreement for the Sepulveda Feeder Pump Stations project

Fiscal Impact of $40 M

Budgeted

Location Map



Sepulveda Feeder Pump Stations
Long-lead Equipment Procurement

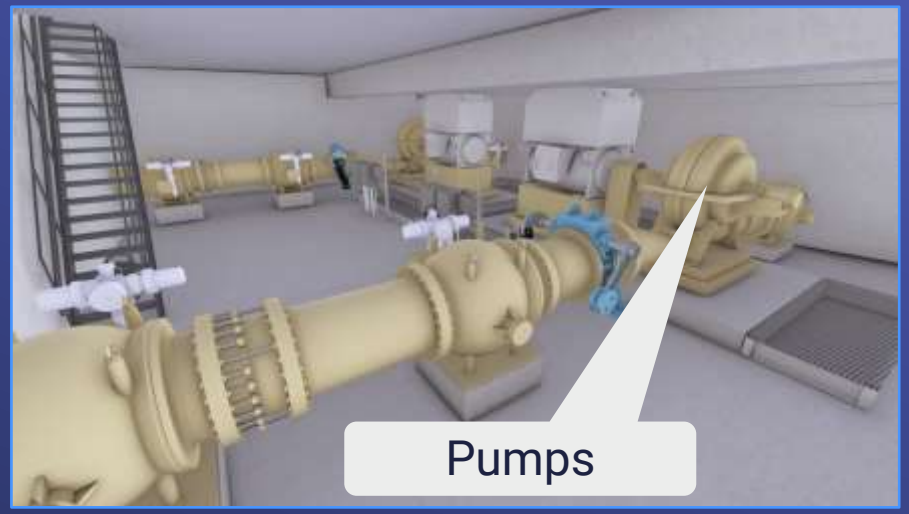
Sepulveda Pump Station Layout Rendering

Background

- Addition of pump stations at Sepulveda Canyon & Venice Pressure Control Facilities will allow Metropolitan to reverse normal flow in the Sepulveda Feeder
  - Augments treated water deliveries to west service area
  - Initial hydraulic capacity of pump stations of 30 cfs
  - Enhances reliability of water supplies in the west area as well as increases overall system flexibility

Project Scope

- Two new pumping plants on the Sepulveda Feeder
- Project components
  - Pumps, motors, & interconnection piping
  - Valve structures
  - Mechanical eqpt. for surge protection
  - Electrical modifications & switchgear
  - Electrical & control buildings



Sepulveda Pump Station Vault Rendering

Venice Pump Station Layout Rendering

Sepulveda Feeder Pump Stations

Long-lead Equipment Procurement

Alternatives Considered

- Traditional procurement by Metropolitan staff
  - Competitive bidding would delay completion of project by up to two years
- Wait until guaranteed maximum price (GMP) is established before starting procurement
  - Delays project completion
- Selected Alternative - PDB Contractor purchases long-lead equipment
  - PDB contractor procures equipment directly on a best-value basis
  - Early procurement expedites project schedule

Allocation of Funds

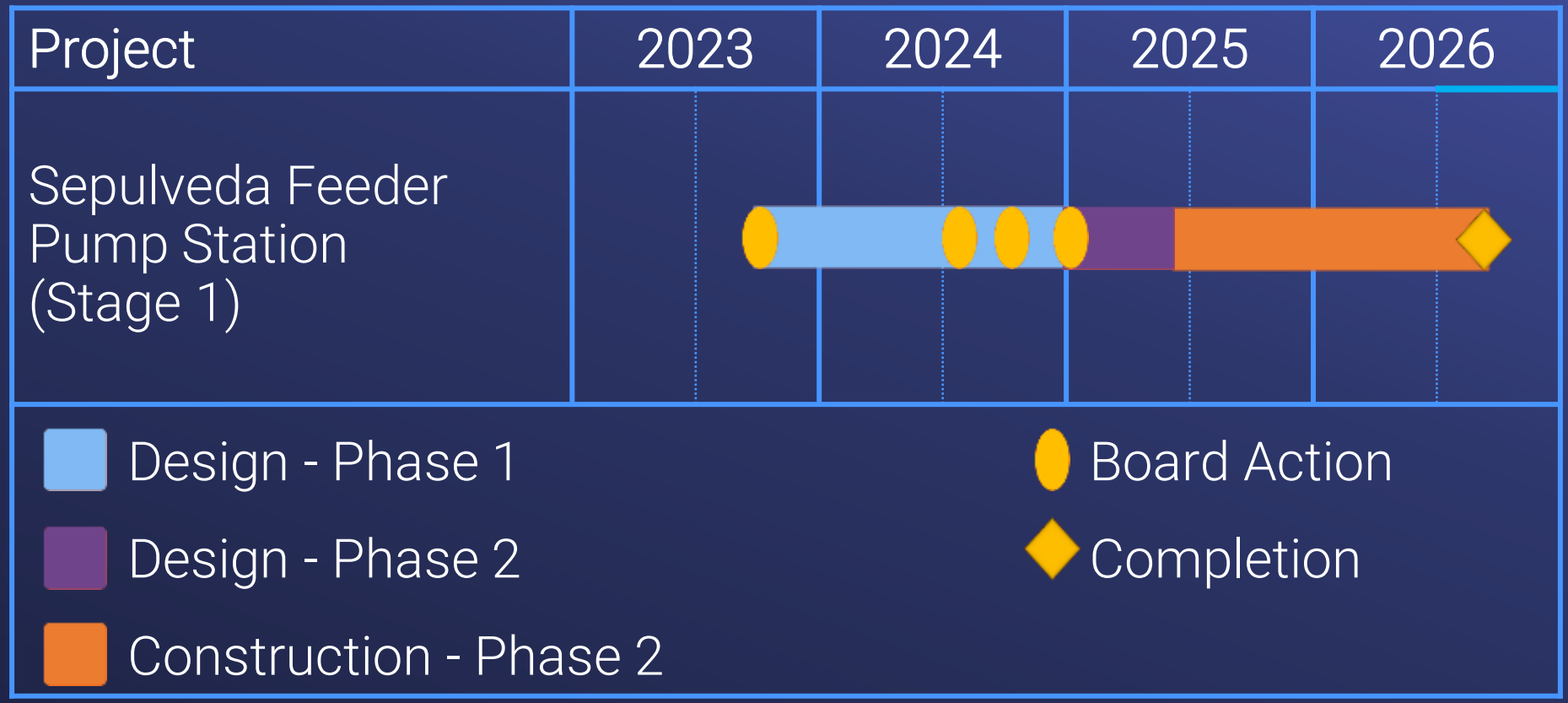
Sepulveda Feeder Pump Stations

Contracts

J.F. Shea Construction Inc.

4 Pumps (2600 to 2800 hp)	$ 13,400,000
19 Valves (24- to 54-inch-diam.)	20,400,000
Electrical Switchgear & MCC's	6,200,000
Total	$ 40,000,000

Project Schedule



Board Options

- Option #1

  Authorize a $40 million increase to an existing design-build services agreement with J.F. Shea Construction Inc. to purchase long-lead equipment for the Sepulveda Feeder Pump Stations project for a new not-to-exceed amount of $50.4 million.

- Option #2

  Do not proceed with the procurement at this time.

Staff Recommendation

- Option #1


THE METROPOLITAN WATER DISTRICT OF
SOUTHERN CALIFORNIA
1928

- **Board of Directors**
  Engineering, Operations, and Technology Committee

9/10/2024 Board Meeting

8-2

Subject

Authorize an amended and restated agreement with the Los Angeles County Sanitation District for shared implementation of the advanced water purification facility for Pure Water Southern California; the General Manager has determined that the proposed action is exempt or otherwise not subject to CEQA

Executive Summary

In November 2015, Metropolitan's Board authorized an agreement with the County Sanitation District No. 2 of Los Angeles County (Sanitation District) to implement a demonstration project and establish a framework of initial terms and conditions for the joint development of a large-scale regional recycled water supply program. This agreement was amended in November 2020 to include certain provisions related to cost-sharing, in-kind technical studies, and public outreach efforts in support of the environmental planning phase for the Pure Water Southern California Program (PWSC).

Both parties initially envisioned that Metropolitan would have responsibility for most of the treatment facilities related to the large-scale program. The key treatment facilities under Metropolitan's scope of work at that time included the membrane bioreactor (MBR), reverse osmosis (RO), and ultraviolet with advanced oxidation process (UV/AOP). Metropolitan and the Sanitation District have recently collaborated to prepare an amended and restated agreement (Restated Agreement) to document a revised set of shared responsibilities to produce purified water for PWSC and align each agency's participation in the program with its expertise and organizational mission.

Under the revised approach, the Sanitation District would be responsible for the design, construction, and operation of pre-treatment and nitrogen management facilities, including the MBR process. Metropolitan would be primarily responsible for advanced water treatment downstream of the MBR, including RO and UV/AOP. The proposed Restated Agreement also would provide for Sanitation District staff to assist in operating the Grace F. Napolitano Pure Water Southern California Innovation Center (NIC) to obtain experience for full-scale MBR operation. Furthermore, the Restated Agreement would define the sharing of grant funds and each party's obligation to provide matching funds for grants received for PWSC. As a result, Metropolitan's overall program costs would be reduced as the Sanitation District will implement additional treatment facilities when compared to the original arrangement.

The Restated Agreement also would establish sharing of grant funding between the two agencies. Up to $1 million of the United States of Reclamation (USBR) WaterSMART $5 million planning grant funds will be allocated to the Sanitation District for preliminary design of the sidestream centrate treatment facility. A portion of the $80 million state funds Metropolitan received in December 2022 for PWSC planning would be shared with the Sanitation District for planning and design of the pre-treatment facilities. Finally, the Sanitation District would also receive a portion of the USBR Large-Scale Water Recycling Project (LSWRP) grant award to support planning and design activities related to the pre-treatment and nitrogen management facilities following the terms outlined in the Restated Agreement. The Sanitation District would contribute the associated matching funds for its

portion of the cost-share obligation for the LSWRP grant. This also would proportionally reduce Metropolitan's cost-share obligation.

This action authorizes a Restated Agreement with the Sanitation District to establish roles and responsibilities for the development of PWSC, including design of treatment facilities, joint operation of NIC, operator training, and sharing of grant funds.

Proposed Action(s)/Recommendation(s) and Options

Staff Recommendation: Option #1

Option #1

Authorize an amended and restated agreement with County Sanitation District No. 2 of Los Angeles County for shared implementation of Pure Water Southern California.

Fiscal Impact: The Sanitation District will be responsible for funding the program costs for its portion of the treatment facilities. This would directly offset Metropolitan's program cost and share of matching funds should the Board authorize the amended and restated agreement.
Business Analysis: This option would establish roles and responsibilities for each agency and provide financial support to advance the development of PWSC.

Option #2

Do not authorize an amended and restated agreement with the County Sanitation District No. 2 of Los Angeles County for shared implementation of Pure Water Southern California.
Fiscal Impact: Metropolitan would require additional funds to advance the PWSC.
Business Analysis: This would forego the opportunity to share costs and responsibilities for treatment facilities implementation and leverage PWSC partner contributions to cover a significant portion of the cost-share obligation for the LSWRP grant. As a result, this would delay the development of a new water resource to address drought, climate change, and seismic risk.

Alternatives Considered

Several alternatives were considered for amending the existing agreement with the Sanitation Districts, including the extent of the Sanitation District's role and responsibilities in the development of the treatment facilities, as well as the timing to amend and restate the agreement.

Shared Implementation of the AWPF

The 2015 agreement and 2020 amendment between Metropolitan and the Sanitation District were based on Metropolitan taking the sole responsibility for the development and implementation of the AWPF. The Restated Agreement considers the Sanitation District's expanded role in AWPF implementation to share costs and responsibilities in the implementation of PWSC.

Timing of the Restated Agreement

Staff also considered deferring the Restated Agreement until Metropolitan's Board considers final approval of the PWSC. Board approval of PWSC and certification of the environmental documentation is anticipated in the second quarter of 2026. However, this would increase Metropolitan's planning costs and likely delay the Sanitation District's planning effort for the pre-treatment facilities.

To better align each agency's scope with its expertise and organizational mission, streamline the program schedule, and reduce Metropolitan's costs for the full-scale program, staff recommends amending and restating the existing agreement with the Sanitation District for shared implementation of the AWPF, joint operation of the NIC, and sharing of grant funds and cost-share obligations, while continuing to work with the Sanitation District on long-term commitments for the full implementation of PWSC. A future agreement is envisioned to detail the responsibilities of each agency for the full-scale program.

Applicable Policy

Metropolitan Water District Administrative Code Section 5108: Appropriations

Metropolitan Water District Administrative Code Section 8121: General Authority of the General Manager to Enter Contracts

Metropolitan Water District Administrative Code Section 11104: Delegation of Responsibilities

Related Board Action(s)/Future Action(s)

By Minute Item 50299, dated November 10, 2015, the Board authorized an agreement with County Sanitation District No. 2 of Los Angeles County for development of a potential regional recycled water supply program and a demonstration project.

By Minute Item 52181, dated November 10, 2020, the Board authorized an amendment to an existing agreement with County Sanitation District No. 2 of Los Angeles County and a new agreement with Southern Nevada Water Authority to support continued evaluation and development of the Regional Recycled Water Program.

By Minute Item 53052, dated December 13, 2022, the Board authorized the General Manager to use $80 million in funding from the State Water Resources Control Board and to commence activities related to the initiation of the Pure Water Southern California Program.

Summary of Outreach Completed

Metropolitan staff has collaborated with the Sanitation District to identify the respective design and operational responsibilities for the AWPF. Multiple meetings were conducted with the Sanitation District staff to discuss the scope of work, roles and responsibilities, technical parameters, and operational interfaces. As a result, the Sanitation District will assume responsibility for the planning, design, construction, and operation of the MBR and upstream pre-treatment facilities, while Metropolitan will assume primary responsibility for the planning, design, construction, and operation of treatment facilities downstream of the MBR and ancillary facilities. Shared implementation of the AWPF will result in cost-sharing and other mutual benefits to both agencies.

California Environmental Quality Act (CEQA)

CEQA determination for Option #1:

The proposed action is not defined as a project under CEQA because it will not result in either a direct physical change in the environment, or a reasonably foreseeable indirect physical change in the environment. (State CEQA Guidelines Section 15378(a)). In addition, the proposed action is not defined as a project under CEQA because it involves the creation of government funding mechanisms or other government fiscal activities that do not involve any commitment to any specific project which may result in a potentially significant physical impact on the environment. (State CEQA Guidelines Section 15378(b)(4)). Finally, the proposed action does not constitute an approval of the project for the purposes of CEQA. Environmental review will be completed prior to any decision by the Board which commits Metropolitan to the project. (State CEQA Guidelines Section 15352).

CEQA determination for Option #2:

None required

Details and Background

Background

Pure Water Southern California would reuse treated wastewater currently being discharged to the Pacific Ocean from the Sanitation District's A. K. Warren Water Resource Facility (Warren Facility) in the city of Carson. The treated wastewater would be further purified at a new AWPF located at the Warren Facility to produce up to 115 million gallons per day (mgd) of purified water in the first phase and up to 150 mgd at full build-out. Purified water would recharge regional groundwater basins through spreading facilities and injection wells, satisfy non-potable demands currently relying on imported water, and augment existing water supplies at two of

Metropolitan's existing water treatment plants. In addition to the treatment facilities, a new backbone conveyance system would extend from the city of Carson as far north as the city of Azusa and east to the city of La Verne to connect with Metropolitan's existing water treatment and distribution facilities as a form of direct potable reuse (DPR) through raw water augmentation. Staff is also developing options for additional DPR applications, including the potential for future use of treated water augmentation.

In November 2015, Metropolitan's Board authorized an agreement with the Sanitation District to implement a demonstration project and establish the initial terms and conditions for developing a regional recycled water supply program. The demonstration project was defined as having components such as a demonstration plant for testing advanced treatment processes, feasibility studies of the delivery system, and a financing plan for program funding. The terms and conditions for development of the demonstration project included (1) location and capacity of the testing facility; (2) design and construction; (3) ownership and operation; (4) removal of facilities; (5) permitting and authorization; (6) utilities; (7) source water obligation and facilities; (8) distribution and use of purified water; and (9) pursuit of grant and loan funding. The terms and conditions for development of a full-scale program included (1) the design, construction, permitting, and operation of a full-scale AWPF; (2) source water control and obligations; (3) distribution and use of purified water; (4) disposal of treatment residuals; (5) laboratory analyses and data sharing; and (6) pursuit of grant and loan funding.

In November 2020, Metropolitan's Board authorized an amendment to the existing agreement with the Sanitation District to include provisions related to cost-sharing, in-kind technical studies, and public outreach efforts in support of the environmental planning phase for the PWSC. With respect to cost-sharing, the amendment provided for reimbursement for the preparation of environmental documentation (equally split with Metropolitan for approximately $2 million from the Sanitation District), engineering studies (equally split for Warren Facility-related consultant work for approximately $2 million from the Sanitation District), and public outreach efforts (equally split with Metropolitan for approximately $400,000 from the Sanitation District). In total, the Sanitation District agreed to contribute approximately $4.4 million, which Metropolitan is using to offset the program cost by the same amount directly.

Key Terms – Los Angeles County Sanitation District Agreement Amendment and Restatement

Staff collaborated with the Sanitation District to prepare the Restated Agreement to define the roles and responsibilities of each agency. Changes to the current agreement are proposed primarily to revise the scope of work to increase the Sanitation District's treatment responsibility, provide for sharing of grant funds, and allow joint operation of the NIC, as explained below. The term sheet that provides details on these items is included in **Attachment 1**.

Implementation of PWSC Treatment Facilities - Revised Scopes of Work

Metropolitan and the Sanitation District are interested in shared implementation of the AWPF, whereby the Sanitation District would be responsible for the pre-treatment and nitrogen management components of the AWPF. This aligns each agency's participation with its expertise and mission. The Sanitation District's staff intends to present a proposed plan to its board this fall to authorize funding, management, and contract administration for design of these facilities. The work includes a connection to an existing secondary effluent channel, influent pump station, fine screening, MBR, sidestream centrate treatment, modifications to the Warren Facility's secondary treatment modules, and associated support facilities. Metropolitan would be primarily responsible for funding, management, and contract administration for design of the (1) AWPF components downstream of the proposed MBR facility, including RO, UV/AOP, and post-treatment; (2) chemical feed systems; (3) clearwell and product water pump station; and (4) ancillary facilities. Metropolitan and the Sanitation District would share responsibilities for regulatory permitting, public engagement, program management, and other related work.

Use of Grant Funds

The Amendment also would establish sharing of grant funding between the two agencies. Up to $1 million of the United States of Reclamation (USBR) WaterSMART planning grant funds will be allocated to the Sanitation District for preliminary design of the sidestream centrate treatment facility. In December 2022, Metropolitan's

Board authorized the acceptance of $80 million in state funds to initiate PWSC activities, including program management, continuing demonstration testing, AWPF planning, and preliminary design of the first two pipeline reaches. Pursuant to the 2015 agreement with the Sanitation District, state funds allocated for treatment facilities will be shared with the Sanitation District to support planning and design activities for its portion of the treatment facilities.

Metropolitan worked with its congressional representatives to develop a new grant program that was created with the passage of the Bipartisan Infrastructure Law (P.L. 117-58, § 40905), known as the LSWRP. The Bipartisan Infrastructure Law was enacted on November 15, 2021. Metropolitan applied for an LSWRP grant in November 2023. In May 2024, the USBR notified Metropolitan of its intent to award up to $99,199,096 in federal grant funds to Metropolitan to advance PWSC. Under current plans, the Sanitation District would receive a portion of the grant funds to support planning and design activities for its portion of treatment facilities. USBR requires three times the cost-share match from Metropolitan. The Sanitation District would contribute towards required matching funds to cover a portion of the cost-share in accordance with the terms that will be set forth in the Restated Agreement. PWSC partner contributions from the Sanitation District may also be used to cover a portion of the cost-share obligation for the LSWRP grant.

Operation of the NIC

The Sanitation District is interested in joint operation of the NIC to gain experience for full-scale MBR operation. Metropolitan would initially provide operator training for the Sanitation District's staff. Metropolitan and the Sanitation District would share responsibilities and costs for the operation and maintenance of the NIC.

Next Steps

Staff will also work with the Sanitation District on a future agreement to further define each agency's roles and responsibilities for the full implementation of treatment and support facilities for PWSC, including agency governance, final design responsibilities, construction obligations, system operation, water quality, and other long-term agency commitments. The future agreement would replace the Restated Agreement that is the subject of this action and be brought to the Board for authorization after the terms have been negotiated.

Project Milestone

Early 2026 – Request the Board to consider a new agreement with the Sanitation District for the construction and operation of PWSC

8/26/2024
Mai M. Hattar *Date*
Interim Manager/Chief Engineer
Engineering Services

9/3/2024
Deven Upadhyay *Date*
Interim General Manager

Attachment 1 – Term Sheet for Amendment and Restatement for Agreement with the Los Angeles County Sanitation District

Ref# Es12702746

The Metropolitan Water District of Southern California

DRAFT Terms for Amended and Restated Pure Water Southern California Program (previously Regional Recycled Water Program) Agreement

General Provisions

- Parties
  - County Sanitation District No. 2 of Los Angeles County (Sanitation District)
  - Metropolitan Water District of Southern California (Metropolitan)
- Term
  - Terminates with the existing 2015 Agreement (no change) or when it is superseded by another agreement.
- Purpose
  - This amended and restated agreement (Restated Agreement) is intended to define the partnership and division of work for the treatment and support facilities located within the Warren Facility only.
- Conditions
  - Construction of the treatment facilities are conditioned upon completion and certification of a Final Environmental Impact Report (EIR) pursuant to the California Environmental Quality Act. No construction work described in this Restated Agreement will be awarded or performed prior to certification of the Final EIR.

Design and Construction Responsibilities

- Metropolitan
  - Pay for, manage, and serve as contracting authority for the design and construction of all advanced water treatment (AWT) facilities (i.e., downstream of the proposed membrane bioreactor (MBR)), including reverse osmosis, ultra-violet light/advanced oxidation process (UV/AOP), and all support facilities associated with AWT.
  - Pay for, manage, and serve as contracting authority for the design and construction of all ancillary facilities associated with the AWT, including but not limited to the laboratory, warehouse, parking facilities and electric vehicle charging stations, chemical facilities, and administration, maintenance, and operations buildings.
  - Manage and serve as contracting authority for the workforce training center and public outreach facilities, such as amphitheater, demonstration garden, and visitor center and tour galleries.

- Sanitation District
  - Pay for, manage, and serve as contracting authority for the design and construction of:
    - Sidestream centrate treatment facilities,
    - Pretreatment facilities upstream of AWT facilities including the connection to existing secondary effluent channel, influent pump station, fine screening facilities, MBR, and all ancillary facilities associated with pretreatment facilities (collectively referred to herein as “Pretreatment").

- Metropolitan and the Sanitation District
  - Share equally the cost of design and construction of the workforce training center and public outreach facilities.
  - Share site preparation costs as mutually agreed by both parties.

- Share proportional cost of design and construction of the main electrical power supplies facilities.

Owner's Advisor for PDB Contract of Pretreatment Facilities

- Metropolitan
  - Issue a task order to the Program Management Team of the AECOM Technical Services, Inc. and Brown and Caldwell joint venture (AECOM/BC) under the existing contract authorized by Metropolitan's Board of Directors, to provide the Sanitation District with "Owner's Advisor" services for the proposed Pretreatment facilities, including but not limited to preparation of PDB contract documents, evaluation of PDB proposals, and negotiations with qualified PDB contractors, and supporting Sanitation District staff with management of the PDB contract, through award of the GMP.
  - Submit quarterly invoice for costs incurred under this task to the Sanitation District.

- Sanitation District
  - Develop scope of work for the Program Management Team's task order for the proposed Pretreatment facilities, including defining key personnel and staffing requirements.
  - Lead and manage this task, including carrying out day-to-day activities and approval of work product and invoices from the Program Management Team.
  - Pay 100% of the costs of this task and pay invoices provided by Metropolitan within 30 days of receipt.

Operator Training and Joint Operation of Grace F. Napolitano Pure Water Southern California Innovation Center (NIC)

- Metropolitan
  - Provide initial training for Sanitation District's employees to learn the operations at NIC.

- Metropolitan and the Sanitation District
  - Share responsibility for the operation and maintenance of the NIC as mutually agreed by both Parties.
  - Each party will pay for all costs associated with their staff's work at the NIC. Operational costs currently covered by Metropolitan (e.g., chemicals, utilities) will continue to be paid by Metropolitan. Costs for special projects, maintenance, and repairs will be shared per mutual agreement of both Parties.
  - Personnel from each Party will abide by safety and emergency procedures established for the facilities.

Sharing of Grant Funding

- Metropolitan
  - Share a portion of the $80 million appropriation by the State of California for tasks related to the Pretreatment and sidestream centrate treatment facilities.
  - Share up to $1 million of the WaterSmart planning grant awarded by the Bureau of Reclamation (Bureau) to Metropolitan in September 2023 with the Sanitation District for preliminary design of the sidestream centrate treatment facility.
  - Share funds from any Large-Scale Water Recycling Project (LSWRP) grant awarded by the Bureau to Metropolitan with the Sanitation District for design of the Pretreatment and sidestream centrate treatment facilities.

- Metropolitan and the Sanitation District
    - Jointly pursue future grant and loan funding opportunities in support of the overall implementation of the full-scale project.
    - Share any grant and loan funding received based on the percentage of full-scale project facility design and construction costs contributed by each Party in support of the full-scale project.
    - Unless otherwise negotiated, each Party will keep 100% of any grant awarded if the grant was sought by either Party for elements of the full-scale project specific to facilities to be designed and constructed by the Party.

Engineering, Operations, & Technology Committee

Proposed Restated Agreement with County Sanitation District No. 2 of Los Angeles County for Shared Implementation of the Pure Water Southern California Program

Item 8-2

September 9, 2024

Item 8-2
PWSC
Los Angeles County Sanitation District
Restated Agreement

Subject

Authorize an amended and restated agreement with the County Sanitation District No. 2 of Los Angeles County for shared implementation of the Pure Water Southern California Program

Purpose

To amend and restate agreement with the Sanitation District for PWSC

Recommendations and Fiscal Impact

Request for board authorization to amend and restate this agreement

No Fiscal Impact

Pure Water Southern California Overview

Project Location

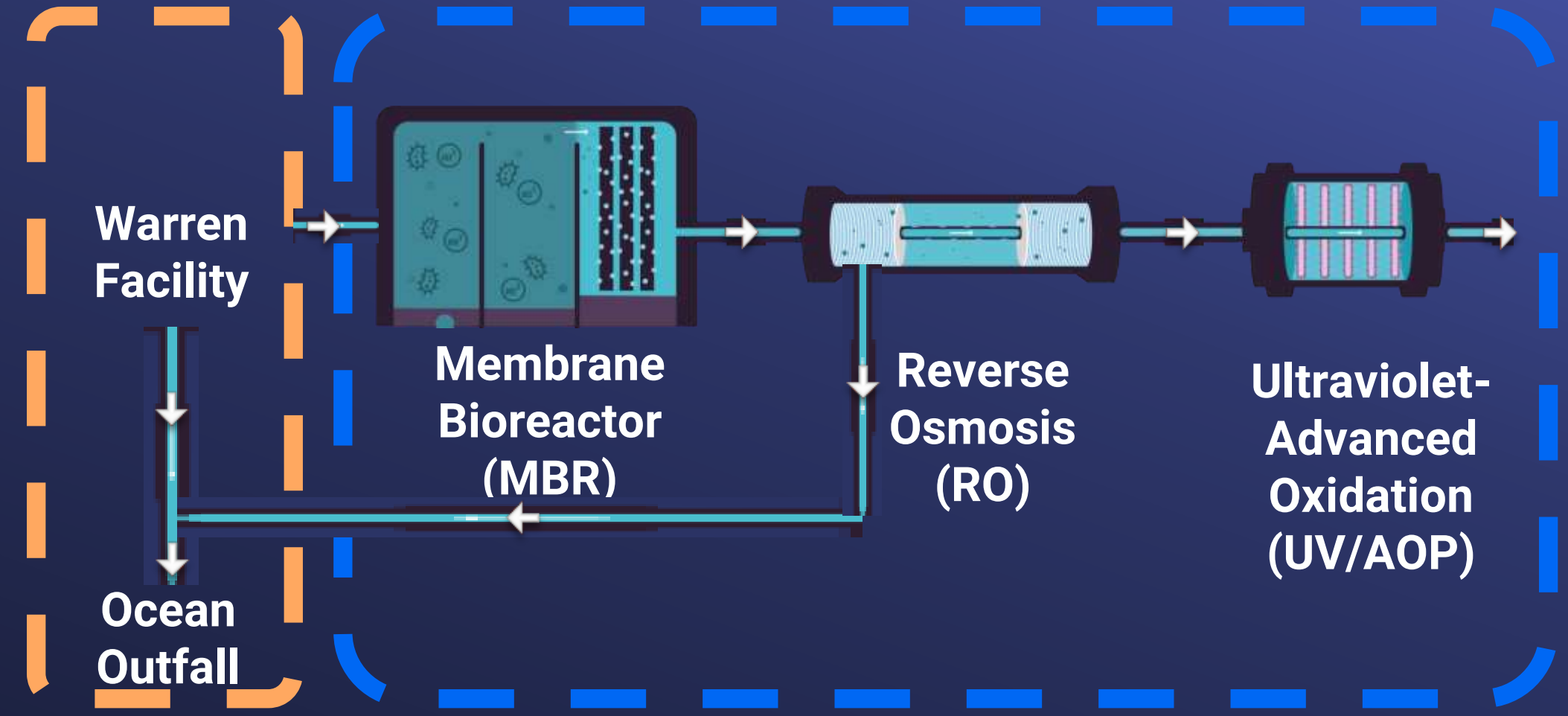
2015 Agreement Key Terms

- Agreement covers feasibility and planning phase
- Demonstration Project/Grace F. Napolitano Innovation Center (NIC)
  - Metropolitan – design, construct & operate
  - Sanitation District – provide site, utilities, supply source & residuals management
- Framework for development of full-scale treatment facilities
  - Metropolitan – fund, design, construct & operate
  - Sanitation District – provide site, utilities, supply source & manage waste streams
    - Land lease – $5,000 per acre in 2015 dollars, to be adjusted per Consumer Price Index (CPI)

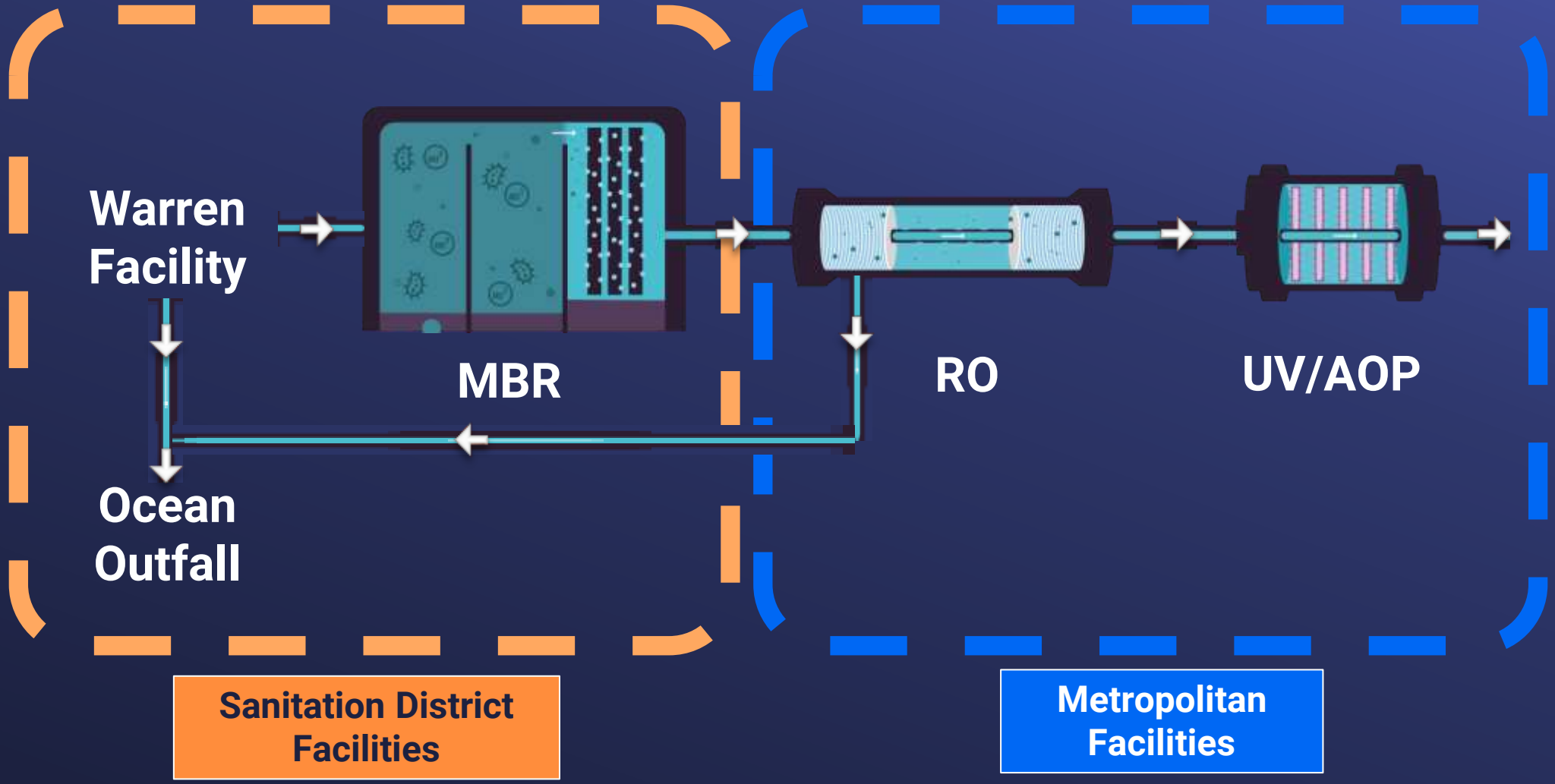
2020 Amendment No. 1 Key Terms

- Environmental Planning Phase
  - Collaboration & shared costs for
    - EIR preparation
    - Public outreach program
    - AWPF conceptual facilities planning

PWSC Treatment Process Responsibilities (Original Concept)



PWSC Treatment Process Responsibilities (Revised Concept)



2024 Restated Agreement Key Terms

- Full-Scale AWPF
  - Share responsibility for implementation
    - Sanitation District – pre-treatment & MBR
    - Metropolitan – RO, UV/AOP, post-treatment & ancillary facilities
  - Share PDB Owner's Advisor team
- NIC joint operation & maintenance
- State & grant funding
  - Share funds & cost-share obligations proportionally to work performed

Alternatives Considered

- Defer amendment until after Board approves PWSC
  - Impacts cost, schedule & use of federal grants
- Selected Alternative - Expand the Sanitation District's role in AWPF implementation
  - Amend & restate 2015 agreement with the Sanitation District for shared implementation of the AWPF while continuing to work together on long-term planning for PWSC
  - Future agreement would be needed for construction, operation & governance of full-scale program

Current Program Schedule during LSWRP Grant Funding Period

Board Options

- Option #1

  Authorize an amended and restated agreement with County Sanitation District No. 2 of Los Angeles County for shared implementation of Pure Water Southern California.

- Option #2

  Do not authorize an amended and restated agreement with the County Sanitation District No. 2 of Los Angeles County for shared implementation of Pure Water Southern California.

Staff Recommendation

- Option #1


THE METROPOLITAN WATER DISTRICT OF
SOUTHERN CALIFORNIA
1928

THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

Board Report

Water Resource Management Group

- **Conservation Board Report September 2024**

Summary

This report provides a summary of conservation activity and expenditures for Jul 2024.

Purpose

Informational

Detailed Report

Conservation Expenditures – FY2024/25 & FY2025/26 (1)

	Paid (2)	Committed (3)
Regional Devices	$0.6 M	$2.1 M
Member Agency Administered	$1.1 M	$4.2 M
Turf Replacement	$2.2 M	$19.6 M
Advertising	$0.0 M	$7.0 M
Other	$0.2 M	$1.2 M
TOTAL	$4.1 M	$34.1 M

(1) The Conservation Program biennial expenditure authorization is $98.2 million.
(2) Paid as of 7/1/2024 - 7/31/2024. Financial reporting on cash basis.
(3) Committed dollars as of August 10, 2024

Summary of Expenditures in July 2024: $4,044,822 (1)

Lifetime Water Savings to be achieved by all rebates in July 2024: 5,288 AF
FY2024/25-FY2025/26: 5,288 AF lifetime water savings

Turf Replacement Rebates:
July: 917,667 ft^2 replaced
FY2024/25-FY2025/26: 917,667 ft^2 replaced

Clothes Washers:
July: 724 units rebated
FY2024/25-FY2025/26: 724 units rebated

Smart Controllers:
July: 765 units rebated
FY2024/25-FY2025/26: 765 units rebated

Toilets:
July: 2,063 units rebated
FY2024/25-FY2025/26: 2,063 units rebated

Rain Barrels and Cisterns:
July: 54 units rebated
FY2024/25-FY2025/26: 54 units rebated

Sprinkler Nozzles:
July: 1,638 units rebated
FY2024/25-FY2025/26: 1,638 units rebated

(1) Expenditures may include advertising and Water Savings Incentive Program activity in addition to the incentives highlighted above.

Date of Report: 9/10/2024

- **Board of Directors**
  One Water and Stewardship Committee

9/10/2024 Board Meeting

9-2

Subject

Proposed Modifications to the Reverse-Cyclic Program

Executive Summary

This report provides information on potential modifications to the Reverse-Cyclic Program ("Program"). The Program allowed member agencies to purchase and pay for water and defer the actual delivery of water to a later year. The Program helped to preserve Metropolitan's limited State Water Project ("SWP") supplies in calendar year ("CY") 2022 while preserving current year revenues. The Program implemented in CY 2022 was designed to manage the particular conditions that year. Because staff recognizes that the Program can be effective in managing both water supply conditions and revenue requirements, staff is proposing a modified Reverse-Cyclic Program to defer deliveries of purchased water under various water supply conditions. Under the modified program, the General Manager would have the authorization and discretion to initiate the program similarly to the Cyclic Program – when supplies are available for this Program – or when Metropolitan must preserve supplies during drought years. In wet years when member agencies are unable to accept Metropolitan deliveries due to capacity limitations or in dry years when Metropolitan must preserve limited available stored supplies, member agencies would be able to purchase water at that year's full-service rate for deferred delivery in a future year.

Fiscal Impact

None expected. The difference in revenues due to increases in the full-service rate between the time of purchase and the time of delivery is anticipated to be offset with savings to Metropolitan that would accrue from having to acquire water during drought years. In wet years, Metropolitan would increase its sales revenue by recording a full-service rate transaction when a delivery cannot take place due to capacity constraints.

Applicable Policy

Metropolitan Water District Administrative Code Section 11104: Delegation of Responsibilities

Metropolitan Water District Administrative Code Section 4209: Contracts

Metropolitan Water District Administrative Code Section 4507: Billing and Payment of Water Deliveries

By Minute Item 43514, dated April 13, 1999, the Board adopted the Water Surplus and Drought Management Plan.

Related Board Action(s)/Future Action(s)

By Minute Item 52707, dated February 8, 2022, the Board authorized the General Manager to enter into reverse-cyclic agreements with participating agencies to preserve the availability of State Water Project supplies to Metropolitan. Staff will bring an action for consideration next month.

Staff plans to bring the proposed modifications to the Reverse Cyclic Program to the Board for approval in October 2024.

Details and Background

Background

Metropolitan is on track to end CY 2024 with record-high dry-year storage levels of 3.7 million acre-feet. This accomplishment follows three unprecedented drought years, nine atmospheric rivers that saturated Metropolitan's service area, a 100 percent SWP allocation, and a 40 percent SWP allocation. As conditions changed from dry to wet, Metropolitan has experienced lower sales and a corresponding decrease in revenue.

During the 2020-2022 drought, Metropolitan's Board of Directors ("Board") took actions to mitigate historically low SWP allocations by authorizing programs to preserve limited SWP stored supplies. In February 2022, the Board approved the Reverse-Cyclic Program to allow member agencies to purchase water in CY 2022 for delivery in a future year. Member agencies paid the full-service rate in effect at the time of purchase, generating revenue that Metropolitan would not have received without the Program. The Reverse-Cyclic Program ended on December 31, 2022.

In the year that followed, Metropolitan began to refill Diamond Valley Lake for the first time in three years and has subsequently been storing water in its various out-of-region banking programs, local storage accounts via the Cyclic Program, and other storage reserves. In CY 2023, demands remained low due to the overall cooler weather and capacity constraints resulting from the atmospheric rivers that refilled member agency reservoirs and replenishment basins. Metropolitan continues to experience low demands as some member agencies continue to be unable to accept planned Metropolitan deliveries due to having to manage their high local supplies. For example, member agencies with high local supplies have been unable to accept planned deliveries this year due to capacity constraints. To mitigate these capacity impacts, staff proposes modifying the Reverse-Cyclic Program to allow member agencies to purchase water for future delivery. Allowing the purchases now generates full-service sales revenue to help increase the decrease in water demands Metropolitan is experiencing this biennium and ensures future movement of water Metropolitan is currently storing.

Proposed Modifications to the Reverse-Cyclic Program

Staff is proposing modifications to the 2022 Reverse-Cyclic Program that would make it a standing program that could be initiated and implemented at the General Manager's discretion with no additional Board authorization required. These proposed modifications would provide staff with additional flexibility to allow the purchase of water and defer deliveries under various water supply conditions and would provide the General Manager with the authority to enter into agreements with the member agencies without requiring Board action for each separate agreement. Staff will evaluate the supply and demand conditions through the Water Surplus and Demand Management (WSDM) process and provide a WSDM recommendation to the General Manager when there is a need to initiate the Program. In the years the General Manager initiates the Program, these agreements will allow member agencies to purchase water for delivery in a future dry or wet year per the terms described in this report.

General Terms

The following conditions would apply each year – wet or dry - the General Manager initiates the Reverse-Cyclic Program:

- The member agency's purchase may not exceed the difference between its highest annual purchase in any of the prior five years and the projected deliveries to the member agency in the year the Program is implemented.
- Metropolitan will bill the member agency at the full-service water rate in effect, plus the treatment charge if applicable, at the time of the purchase.
- Metropolitan will include member agency purchases under the Program as allocated supply under a Metropolitan Water Supply Allocation Plan implementation or any other allocation or shortage program that may be implemented.

- When Metropolitan determines water is available to deliver to participating agencies, Metropolitan would deliver water to reduce the deferment balance incurred under the Program.
    - Metropolitan, at its sole discretion, shall determine when the water may be returned.
    - Deliveries will be negotiated based on the conditions for Metropolitan and the conditions for the member agency but will not exceed five full calendar years from the date of purchase unless the Parties mutually agree to a different delivery schedule.
    - Metropolitan will make best efforts to prioritize deliveries to the member agency if there is a critical need; for example, the groundwater storage basin reaches low levels where wells are not operable, or the basin reaches emergency storage levels.
    - Metropolitan will not apply any losses to the pre-purchased water if the water is delivered within five years or if delivered after five years due to Metropolitan's inability to deliver the water within that time period. If Metropolitan is unable to deliver the pre-purchased water within five years due to the member agency's inability to receive the water, then losses shall be applied to the pre-purchased water at a rate of 20 percent per year.
- Each year the Program is initiated, the GM will determine the supplies available for the Program based on water supply, hydrologic, financial, and operational conditions.

Metropolitan will consider member agency purchases under the Program to be part of the member agency's Revised Base Firm Demand for the year of the purchase. Purchases made under this Program will be included in the determination of the member agency's Readiness-to-Serve Charge at the time of purchase but will not be included in the determinations of the Capacity Charge because the deferred delivery will be completed at Metropolitan's discretion.

Initiating Dry Year Pre-Sales

The Program would be initiated in a dry year when the General Manager determines that the supply conditions warrant deferring the use of limited stored supplies due to the risk of shortage. For example, the Program may be initiated when there is a need to strategically work with the member agencies to reduce deliveries to help preserve limited available supplies and to avoid additional resource and operational costs that would be necessary without demand deferment. Metropolitan proposes offering the Program in dry years under the following conditions:

- The member agency and Metropolitan agree to defer Metropolitan deliveries of water purchased to allow Metropolitan to preserve limited stored supplies.
- When the General Manager initiates the Program to preserve limited stored supplies, Metropolitan would certify that the purchase reduces deliveries.

Initiating Wet Year Pre-Sales

The Program would be initiated when the General Manager deems it necessary to pre-sell water in wet years with SWP allocations of 40 percent or higher. For example, the General Manager may initiate the Program at times when Metropolitan is unable to complete deliveries due to member agency capacity constraints or limitations. Metropolitan proposes offering the Program in wet years under the following conditions:

- The member agency and Metropolitan agree to defer Metropolitan deliveries of water purchased.
- Metropolitan and the member agency agree on a baseline purchase of normal demands for the agency over five years.
- The delivery of pre-sold water to a member agency shall not reduce Metropolitan's full-service water sales in the year the water is delivered. Certification of Reverse-Cyclic deliveries could be limited if the member agency does not achieve projected full-service deliveries as determined by Metropolitan for that year.

Reporting and Billing

Metropolitan regularly reports to the Board on developing supply and demand conditions through WSDM Plan reports. Staff provides these monthly reports through the winter and spring and keeps the Board apprised of developing conditions, including the potential use of storage assets and the likelihood of storing or withdrawing supplies. Implementation of the Program will be incorporated into this regular reporting. Under the Program, Metropolitan will bill the member agency the full-service water rate plus the treatment charge, if applicable, at the time of the purchase. Under the Program, billing will occur before delivery is made, modifying the timing of billing required under Section 4507 of the Metropolitan Administrative Code (normally required at the time of delivery); all other aspects of Section 4507 will continue to apply. Metropolitan will include purchases made under this Program to determine the member agency's Readiness-to-Serve Charge at the time of sale but will not include the purchase or delivery in the determination of the agency's Capacity Charge because the initiation of the Program and the deliveries are at Metropolitan's discretion.

Summary

The proposed Reverse-Cyclic Program would help member agencies purchase planned amounts in times when Metropolitan may be unable to meet a member agency's normal demands due to a need to preserve limited stored supplies or because the member agency is temporarily unable to accept Metropolitan deliveries in a wet year. Metropolitan will bill member agencies the full-service rate and applicable treatment charge in effect at the time of purchase. In doing so, the member agency will avoid paying the projected higher service rate that would be in place when Metropolitan makes the deferred delivery. Additionally, Metropolitan will benefit from a positive financial impact in the year the Program is initiated. With this delegation of authority to the General Manager, Metropolitan will have the additional operational flexibility (1) in dry years to save the limited storage for future drought years and (2) in wet years to assist member agencies with making planned purchases when they do not have the capacity to accept their full normal demands.

Next Steps

Staff will incorporate feedback received from the committee and return to the Board to request approval of the proposed modifications to the Reverse Cyclic Program in October 2024.

9/4/2024
Brandon J. Goshi *Date*
Interim Manager,
Water Resource Management

9/5/2024
Deven N. Upadhyay *Date*
Interim General Manager

Ref# wrm12702252

One Water & Stewardship Committee

Proposed Modifications to the Reverse-Cyclic Program

Item 9-2

September 9, 2024

Item 9-2

Proposed Modifications to the Reverse Cyclic Program

Subject

Information on proposed modifications to the Reverse Cyclic Program

Purpose

To expand the Reverse Cyclic Program to make it available under various conditions

Next Steps

Incorporate committee feedback and bring as action in October 2024

Overview

What is the Reverse Cyclic Program?

- When initiated, allows member agencies to purchase water at the current rate that Metropolitan will deliver in a future year.
- Allowed the General Manager to offer the Program in a dry year (CY 2022) to preserve limited stored supplies.

Proposed modifications to the Reverse Cyclic Program would:

- Authorize and delegate the General Manager to offer the Program in wet years and allow deferral of deliveries member agencies cannot temporarily accept due to capacity limitations or operational constraints.

Outline

- Background on 2022 Reverse Cyclic Program
- Current Need and Proposed Program Modifications
- Next Steps

Background

2022 Reverse Cyclic Program

- Member agencies could purchase supplies for delivery in a future year
- Benefits to Metropolitan
  - Deferred deliveries preserved limited stored supplies for the remainder of the drought
  - Increased revenue
- Benefit to Member Agencies
  - Cost savings when purchasing supplies at the current year full-service rate rather than the potentially higher future full-service rate

Why do we need the modifications today?

Saturated Service Area

- Member agencies have decreased capacity to store additional supplies due to wet year
- Decreased participation in storage programs

Capacity or Operational Constraints

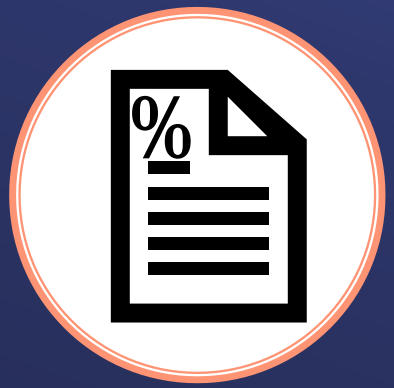
- Member agencies unable to take planned deliveries due to prioritized operations or groundwater recharge basin conditions

Decreased Sales

- Metropolitan is experiencing lower sales than budgeted
- Member agencies have available budget to pre-purchase supplies due to decreased planned purchases
- Additional sales would help maintain Metropolitan's revenue base across the biennium

Proposed Modifications to the Reverse Cyclic Program

Deferral



~~Low SWP allocation~~
Various water supply conditions

GM determination
(based on WSDM Recommendation)

Pre-purchase and Deferral with additional parameters

Delivery

~~SWP allocation above 40% or~~
Metropolitan determines it has supplies

Delivery of supplies within five years *

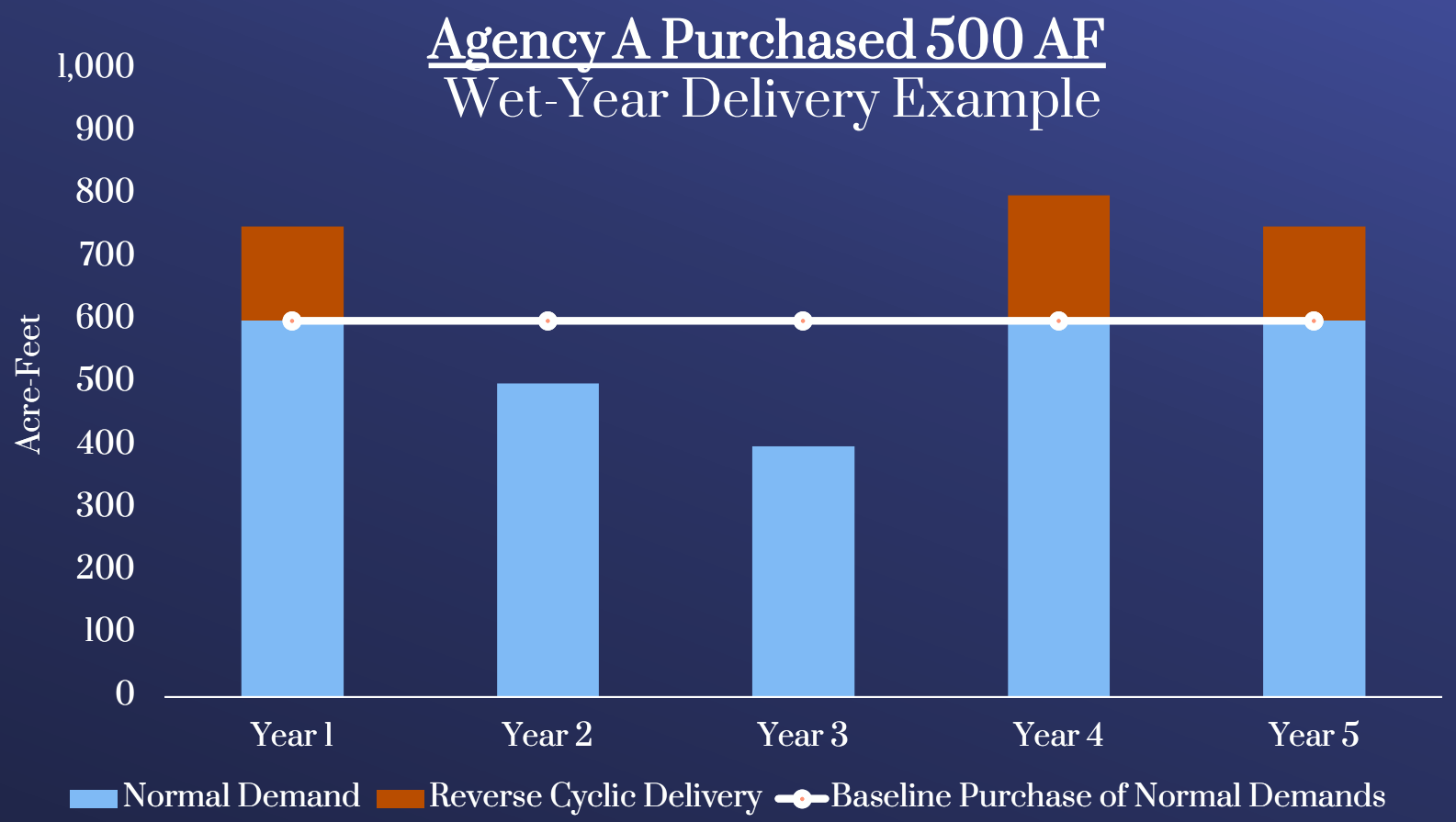
*Metropolitan will apply losses if the member agency is unable to receive the water within 5 years

Proposed Modifications to the Reverse Cyclic Program

Deferral	Member agencies purchase supplies for deferred delivery		
Dry Year	Available at GM's discretion Example: to preserve limited stored supplies	Billed at that year's full-service rate. Capacity charge waived.	Limited to a portion of the highest annual purchase in the preceding 5 years.
Wet Year	Available at GM's discretion in wet years with SWP allocations of 40%+ Example: when MAs are unable to accept planned deliveries due to high local storage	Billed at that year's full-service rate. Capacity charge waived.	Limited to a portion of the highest annual purchase in the preceding 5 years. Metropolitan to determine a baseline to ensure deliveries do not reduce future full-service sales.

Example of Wet Year Reverse Cyclic Purchase

The General Manager identifies 2,000 AF for pre-sale in 2024. Four member agencies purchase 500 AF each.



Program Terms

Program Terms

- At time of purchase, purchases would be included in the:
  - Readiness to Serve Charge
  - Revised Base Firm Demand

- Purchases will be included as allocated supply under a Metropolitan allocation or shortage program (if/when implemented)

- Reverse Cyclic water shall be documented and ineligible for other Metropolitan programs

- Metropolitan staff to certify and reconcile deferred deliveries

Proposed Modification

Additional Proposed Modifications: Control Parameters

- General Manager would have authority and delegation to initiate the Program

- General Manager to determine amount of water available for pre-sale at time of initiation

- 10 year agreement term with member agencies

- Deferral not to exceed highest annual purchase in the past 5 years.

- Baseline calculated for deliveries deferred in wet years

Summary

Modifications to the Reverse Cyclic Program would:

- Allow all member agencies to purchase water - at the current rate – that Metropolitan will deliver in a future year.
- Allow deferral of deliveries under various supply conditions, such as when members are not able to accept deliveries due to capacity or operational constraints or limitations.
- Include additional parameters to provide Metropolitan with flexibility on the initiation of deferrals and the delivery of water.

Next Steps

- Incorporate committee feedback
- Action to approve in October 2024


THE METROPOLITAN WATER DISTRICT OF
SOUTHERN CALIFORNIA
1928

- **Board of Directors**
  One Water and Stewardship Committee

9/10/2024 Board Meeting

9-3

Subject

Update on proposed agreements with Western Canal Water District and Richvale Irrigation District for water transfer options and first rights of refusal during 2025 through 2027

Executive Summary

Staff has been developing water transfer agreements with Western Canal Water District (Western) and Richvale Irrigation District (Richvale) for annual north-of-Delta water transfers during 2025 through 2027. Under the proposed agreements, Metropolitan would pay an option to each agency, located in the Feather River service area, in return for the first right to annually call on each agency's available water transfer supplies during 2025 through 2027. The proposed one-time up-front option payment would secure the first right of refusal for available water transfer supplies from each agency at negotiated prices tied to the final State Water Project (SWP) allocation. The option payment would be $250,000 for each of the two agencies. The price for water made available and called is $965 per acre-foot at SWP allocations of 20 percent or less and $600 per acre-foot at SWP allocations greater than 20 percent. Western and Richvale may annually transfer up to a combined 52,800 acre-feet.

In recent years, Metropolitan has purchased water transfers from sellers north of the Delta via the collective buying groups facilitated by the State Water Contractors (Buyers Group). In the recent drought years of 2021 and 2022, Metropolitan's share of water transfer purchases via the Buyers Group was only 6,000 to 8,000 acre-feet. The purpose of the new agreements is to secure a first right of refusal on available water from two willing sellers in order to maximize the quantity of water that can be secured by Metropolitan. The ultimate goal of the agreements is to improve reliability for Metropolitan's SWP dependent area, consistent with the Board's intent to provide equitable reliability across Metropolitan's service area.

Fiscal Impact

If the Board approves the agreements, the fiscal impact in the current 2024/25 fiscal year would be the one-time option payment of $500,000, and up to $51 million annually for water purchases in the event the maximum amount of water were purchased under a low SWP allocation (20 percent or less). These costs were not included in the biennial budget for Fiscal Years 2024/25 and 2025/26 and would be sourced from budgeted funds from the Water Supply Program and SWP budget. Potential purchases in fiscal years beyond the current biennium would be considered in the requested budget for Water Supply Programs for those future years.

Applicable Policy

Metropolitan Water District Administrative Code Section 4203: Water Transfer Policy

Metropolitan Water District Administrative Code Section 8121: General Authority of the General Manager to Enter Contracts

By Minute Item 52946, dated August 16, 2022, the Board adopted a resolution committing to regional reliability for all member agencies.

Related Board Action(s)/Future Action(s)

Staff plans to bring the proposed agreement terms with Western and Richvale to the Board for approval in October 2024.

Details and Background

Background

Over the past few years, staff has been exploring water transfer partnerships to help improve dry-year reliability for the SWP-dependent area. The Board has supported the pursuit of water transfers with various parties through annual authorizations, and most recently authorized the General Manager to secure up to $100 million of water transfer supplies in 2022 and up to $50 million of water transfer supplies in 2023. Since 2008, Metropolitan has purchased dry-year water transfers from sellers north of the Delta via a Buyers Group facilitated by the State Water Contractors (SWC). During the recent drought years of 2021 and 2022, Metropolitan's share of purchases via the SWC Buyers Group was only 6,000 to 8,000 acre-feet. To maximize the potential water transfers available to Metropolitan, staff proposes entering into option agreements with Western and Richvale for the first right of refusal on their available water transfer supplies from 2025 through 2027.

Sellers

Western and Richvale are agricultural water districts in the Feather River service area in Butte County with pre-1914 surface water rights. The districts have a diversion agreement with the State of California Department of Water Resources (DWR) to receive their water supplies via Thermalito Afterbay, downstream of Oroville Reservoir. Land in these districts is irrigated primarily for rice production. Water is made available for transfer solely by crop idling (fallowing) participating fields during May through December.

Both agencies have historically sold water transfer supplies to SWP contractors, including Metropolitan, via the SWC Buyers Group. In recent years, Western and Richvale sold transfers in 2008 to 2010, 2012, 2014, and 2018, with total combined volumes ranging from approximately 13,000 acre-feet to 56,000 acre-feet. The districts did not sell water in 2015, 2021, or 2022 because DWR curtailed contract deliveries to the districts by 50 percent pursuant to the drought provisions in their diversion agreement.

Environmental Compliance

In 2018, Western and Richvale certified the Final Environmental Impact Report for the Western Canal Water District and Richvale Irrigation District Water Transfers from 2018 to 2022. In 2022, the districts approved an addendum to the Environmental Impact Report (EIR) to extend the covered period for water transfers another five years, from 2023 to 2027. The term lengths of the proposed agreements are coincident with the environmental coverage provided by the addendum. The proposed option payment of $250,000 to each agency ($500,000 total) is sized to help defray costs incurred by Western and Richvale to prepare the EIR and addendum.

Proposed Agreements

Staff is proposing two separate option agreements, one with each agency, that will provide the framework for Metropolitan having the first right to annually call on available transfer supplies from 2025 through 2027. Key provisions proposed include:

- *Option Payment* - Metropolitan will pay Western and Richvale $250,000 each (a total of $500,000) for the exclusive first right to purchase water offered by Western and Richvale from 2025 to 2027.
- *Available Supply*
    - Western may transfer up to 33,600 acre-feet of water via crop idling up to 11,200 acres.
    - Richvale may transfer up to 19,200 acre-feet of water via crop idling up to 6,400 acres.

- *Notification Dates*
    - By February 28 of each year, Metropolitan will notify Western and Richvale of its interest in acquiring transfer supplies for that year, and upon notification, Western and Richvale will solicit landowner interest in participating in a transfer on the terms set forth in the agreement.
    - By March 31 of each year, Western and Richvale will notify Metropolitan of the amount of water, if any, offered during the year.
    - By April 15 of each year, Metropolitan will notify Western and Richvale of the amount of water, if any, it will purchase during the year.
- *Water Purchase Price*
    - Metropolitan will pay Western and Richvale $965 for each acre-foot Western and Richvale deliver to point of delivery (Thermalito Afterbay) when the SWP allocation as of June 30 is less than or equal to 20 percent.
    - Metropolitan will pay Western and Richvale $600 for each acre-foot Western and Richvale deliver to point of delivery (Thermalito Afterbay) when the SWP allocation as of June 30 is greater than 20 percent.
- *Conveyance Risk*
    - Metropolitan will bear the conveyance risk for water purchased by the April 15 call date that the sellers have provided at Thermalito Afterbay. This risk includes the inability of DWR to export transfer supply from the Delta during the "transfer window" or the potential spilling of any backed-up transfer supply temporarily stored in Lake Oroville. Staff will monitor DWR's monthly studies as the SWP supply develops during the water year.
    - Metropolitan will be responsible for any carriage losses that DWR assesses to convey transfer supply from the point of delivery at Thermalito Afterbay through the Delta. This loss is a share of the transfer supply that contributes to Delta water quality and flow objectives and has historically ranged from 20 to 35 percent.
- *Reductions in Available Supply*
    - Western and Richvale will not make water available during a year in which their surface water allocations are reduced, including if reduced pursuant to the shortage provisions in their diversion agreement with the State of California.
    - Western and Richvale are potential participants in the Agreements to Support Healthy Rivers and Landscapes (Voluntary Agreements) under consideration as part of the State Water Resources Control Board's planned update to the Bay-Delta Water Quality Control Plan; if Voluntary Agreements are adopted and implemented during the term of the proposed agreements, Western and Richvale's available transfer supplies will be reduced in Above Normal, Below Normal, and Dry water year types.

If Metropolitan were to call on available supplies in future years, in addition to the proposed agreements with Western and Richvale, Metropolitan would need to enter into annual storage and conveyance agreements with the sellers and DWR.

Metropolitan's decision to purchase transfer supplies, under the proposed agreements, will be consistent with and informed by Metropolitan's Water Surplus and Drought Management plan. As with any decision to purchase annual water transfers via the SWP, Metropolitan will consider the developing hydrologic conditions, the need for and capacity to store the supplemental water supply, and the DWR's ability to convey the transfer supplies through the Delta. Staff will continue to seek annual board authorization for purchasing additional water transfers beyond the scope of the proposed agreements.

Benefits to Metropolitan

The proposed agreements benefit Metropolitan by enhancing dry-year reliability for the SWP-dependent area. They offer exclusive first-right access to purchase water that may be made available by two major sellers in the Feather River service area ensuring a dependable source when water is typically scarce. Additionally, these agreements increase Metropolitan's flexibility in managing water resources, allowing for better planning and response to fluctuating hydrologic conditions. By securing available water supply from trusted sources, Metropolitan can reduce the risk of shortages and maintain consistent service to its customers.

Upcoming Milestones

Staff will obtain board feedback and finalize negotiations with Western Canal Water District and Richvale Irrigation District. Staff anticipates bringing the proposed agreements to the board for approval in October.

9/4/2024

Brandon J. Goshi *Date*
Interim Manager,
Water Resource Management

9/6/2024

Deven Upadhyay *Date*
Interim General Manager

Ref# wrm12698514

One Water & Stewardship Committee

Proposed agreements with Western Canal Water District and Richvale Irrigation District for water transfer options and first rights of refusal during 2025 through 2027

Item 9-3

September 9, 2024

Item 9-2
Proposed Water Transfer Agreements

Subject

Proposed agreements with Western Canal Water District and Richvale Irrigation District for water transfer options and first rights of refusal during 2025 through 2027

Purpose

Update the board on proposed water transfer agreements that would improve access to limited north-of-Delta water transfer supplies and increase drought reliability for the SWP dependent area.

Next Steps

Staff will return to the One Water and Stewardship Committee in October with an Action letter and oral report.

Background

Slide 6 Item 6B OW&S Committee
August 19, 2024

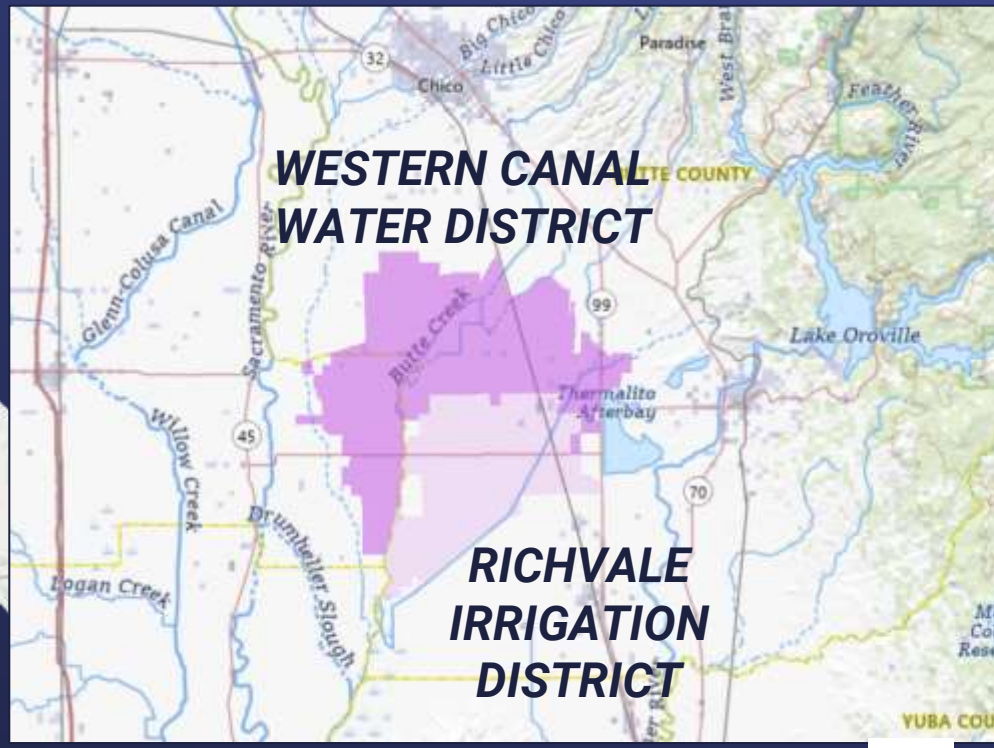
- Water transfers help meet demands
  - Approach for dry and critical years
- Board authorized the General Manager to secure up to $50M of water transfers in 2024
  - Funded by unused Water Supply Program and SWP Budget
- Past participation in the dry-year transfer program with State Water Contractors
  - Limited availability and access
- Exploring new partnerships and approaches to water transfer arrangements
  - Improve access to limited supplies
  - Increase drought reliability for the SWP-dependent area

Proposed Water Transfer Agreements

- Multi-year option with north-of-Delta sellers for single-year transfers
  - Annual decision to purchase water based on WSDM recommendation
- One-time option payment for first right of refusal of available water supplies
- Pre-negotiated price of water based in SWP allocation

Western Canal Water District and Richvale Irrigation District

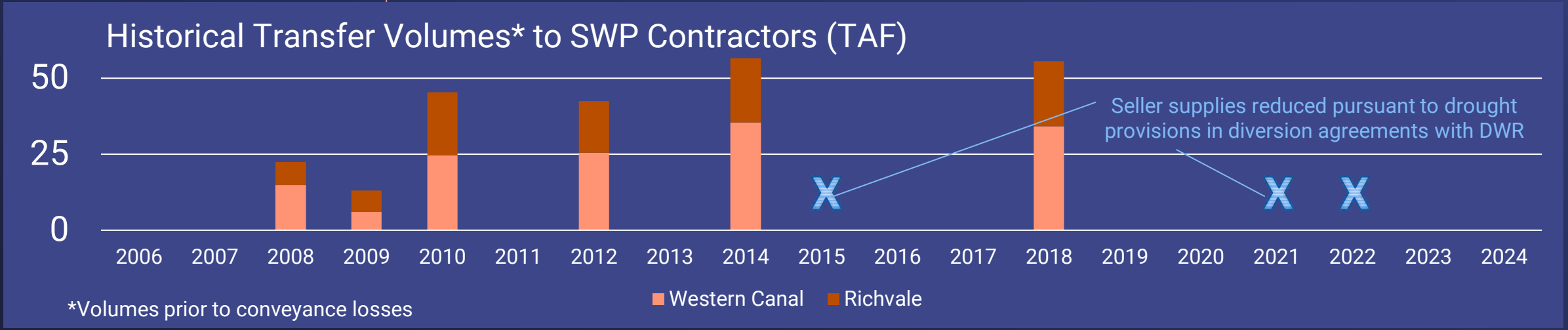
- Located in Glenn and Butte Counties
- Land in these districts is irrigated primarily for rice production
- Combined total of 445 TAF of water supply from the Feather River during irrigation season (Apr-Oct)
  - Pre-1914 surface water rights
  - Diversion agreements with the State of California



Seller Water Transfer Program

Program Description

- Transfer water provided by idling up to 20 percent of rice acreage within the districts
  - Up to 53 TAFY transfer supply combined is available



Seller Water Transfer Program

Program Description (continued)

- Water made available on same pattern as rice irrigation season (May – September)
- Department of Water Resources temporarily stores water in Oroville prior to conveyance to Delta export facilities
  - Separate annual storage and conveyance agreements needed with DWR
  - Delta carriage losses of 20 to 35 percent imposed
    - Help achieve Delta water quality objectives

Multi-Year Option

Proposed Agreements

- One agreement for each seller (two total):
  - Western Canal Water District
  - Richvale Irrigation District
- Term: 2025-2027
- One-time option payment to each seller for first right of refusal on crop idling water transfers
- Water purchase price based on final SWP allocation

Rice fields in northern CA, DWR photo

Multi-Year Option

Proposed Agreements (continued)

- Annual decisions for single-year transfers
  - Sellers decide:
    - To offer water for sale
    - Quantity of water for sale
  - Metropolitan decides:
    - To purchase water
    - Quantity of water to purchase

Rice fields in northern CA, DWR photo

Fiscal Impact

- In February 2024, Board authorized the General Manager to secure up to $50 million of water transfers if needed
  - Funding from unused Water Supply Program and SWP Budget

	FY 24/25	FY 25/26	FY 26/27
Option Payment	$500,000	$0	$0
Water Purchase Payments	Up to $51M	Up to $51M	Up to $51M
Total	Up to $51.5M	Up to $51M	Up to $51M
Source of Funds	Unused Water Supply Program and State Water Project Budget		Budget request for Water Supply Programs

Benefits

- Increase Metropolitan's flexibility in managing water resources
  - Better planning and response to fluctuating hydrologic conditions
- Securing available water supplies from trusted sources reduces the risk of shortages
  - Maintain consistent service to its customers
- Exclusive first-right access to limited north-of-Delta transfer supplies
- Stability in purchase price
- Building partnerships with north of Delta agricultural districts

Next Steps

- Receive committee feedback
- Board action item on proposed new agreements in October
- Continue to identify new structures and partnerships


THE METROPOLITAN WATER DISTRICT OF
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