

# 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

March 14, 2023

12:00 PM

Tuesday, March 14, 2023 Meeting Schedule
09:00 a.m. OWS 11:00 a.m. EIA 11:30 a.m. Break 12:00 p.m. BOD 01:00 p.m. EOP Wksp

Agendas, live streaming, meeting schedules, and other board materials are available here: <https://mwdh2o.legistar.com/Calendar.aspx>. 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 or a Committee on matters within their jurisdiction as listed on the agenda via in-person or teleconference. To participate via teleconference (833) 548-0276 and enter meeting ID: 815 2066 4276.

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MWD Headquarters Building - 700 N. Alameda Street - Los Angeles, CA 90012

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## 1. Call to Order

- a. Invocation: Director Karl Seckel, Municipal Water District of Orange County
- b. Pledge of Allegiance: Director David D. De Jesus, Three Valleys Municipal Water District

## 2. Roll Call

## 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

[21-1954](#)

**Attachments:** [03142023 BOD 5A Report](#)

- B. Chair's Monthly Activity Report

[21-1955](#)

**Attachments:** [03142023 BOD 5B Report](#)

- C. General Manager's summary of activities [21-1956](#)  
**Attachments:** [03142023 BOD 5C Report](#)
- D. General Counsel's summary of activities [21-1957](#)  
**Attachments:** [03142023 BOD 5D Report](#)
- E. General Auditor's summary of activities [21-1958](#)  
**Attachments:** [03142023 BOD 5E Report](#)
- F. Ethics Officer's summary of activities [21-1959](#)  
**Attachments:** [03142023 BOD 5F Report](#)
- G. Presentation of Commendatory Resolution honoring Director Gloria D. Gray, West Basin Municipal Water District for her leadership during her term as Chair of Metropolitan's Board of Directors [21-2018](#)

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

**6. CONSENT CALENDAR OTHER ITEMS - ACTION**

- A. Approval of the Minutes of the Special Board of the Directors Meeting for January 17, 2023 and Minutes of the Board of the Directors Meeting for February 13, 2023 (Copies have been submitted to each Director, any additions, corrections, or omissions) [21-1960](#)  
**Attachments:** [03142023 BOD 6A-1 \(01172023\) minutes](#)  
[03142023 BOD 6A-2 \(02142023\) minutes](#)
- B. Approve Commendatory Resolutions for Directors Phillip D. Hawkins and Robert Apodaca both representing Central Basin Municipal Water District; Randy Record representing Eastern Municipal Water District; Steve Blois representing Calleguas Municipal Water District; Satoru Tamaribuchi representing Municipal Water District of Orange County; and Harold C. Williams representing West Basin Municipal Water District [21-2017](#)
- C. Approve Committee Assignments [21-1961](#)

**7. CONSENT CALENDAR ITEMS - ACTION**



- 7-1** Adopt the Twenty-Fifth Supplemental Resolution to the Master Bond Resolution authorizing the issuance of up to \$330 million of Water Revenue Bonds, 2023 Series; and approve expenditures to fund the costs of issuance of the Bonds; the General Manager has determined that the proposed action is exempt or otherwise not subject to CEQA (FAIRP) [21-1963](#)

**Attachments:** [03132023 FAIRP 7-1 B-L](#)

- 7-2** Authorize the General Manager to issue a new fifty-year license agreement, with options to extend for up to fifty additional years, to DesertXpress Enterprises, LLC for the purpose of a high-speed rail line traversing Metropolitan property in the city of Fontana, California; the General Manager has determined that the proposed action is exempt or otherwise not subject to CEQA (FAIRP) [21-1962](#)

**Attachments:** [03142023 FAIRP 7-2 B-L](#)  
[03132023 FAIRP 7-2 Presentation](#)

- 7-3** Authorize agreement with Black & Veatch Corporation, Inc. in an amount not to exceed \$8 million for the preliminary design of conveyance Reach 1 of the Pure Water Southern California program; authorize agreement with HDR Engineering, Inc. in an amount not to exceed \$9 million for preliminary design of conveyance Reach 2 of the Pure Water Southern California program; and adopt a resolution to support a grant application to the U.S. Bureau of Reclamation for water recycling and desalination planning and authorize the General Manager to accept the grant if awarded; the General Manager has determined that the proposed actions are exempt or otherwise not subject to CEQA (EOT) [21-1964](#)

**Attachments:** [03142023 EOT 7-3 B-L](#)  
[03132023 EOT 7-3 Presentation](#)

- 7-4** Authorize an increase of \$500,000 in change order authority for the contract to replace the overhead bridge cranes at the five Colorado River Aqueduct pumping plants; the General Manager has determined that the proposed action is exempt or otherwise not subject to CEQA (EOT) [21-1965](#)

**Attachments:** [03142023 EOT 7-4 B-L](#)  
[03132023 EOT 7-4 Presentation](#)

- 7-5** Authorize on-call agreements with Fugro USA Land, Inc., GeoPentech, Inc., Geosyntec Consultants, Inc., and Kleinfelder West, Inc., in amounts not to exceed \$3 million each, for a maximum of five years for geotechnical engineering services; the General Manager has determined that the proposed action is exempt or otherwise not subject to CEQA (EOT) **[21-1966](#)**

**Attachments:** [03142023 EOT 7-5 B-L](#)  
[03132023 EOT 7-5 Presentation](#)

- 7-6** Award a \$394,534 contract to Slater Waterproofing, Inc. to rehabilitate concrete walls within the ozone contactor structure at the Robert A. Skinner Water Treatment Plant; the General Manager has determined that the proposed action is exempt or otherwise not subject to CEQA (EOT) **[21-1967](#)**

**Attachments:** [03142023 EOT 7-6 B-L](#)  
[03132023 EOT 7-6 Presentation](#)

- 7-7** Adopt Mitigated Negative Declaration for the Copper Basin Discharge Valve Replacement and Access Road Improvements Project and take related CEQA actions (EOT) **[21-1968](#)**

**Attachments:** [03142023 EOT 7-7 B-L](#)  
[03132023 EOT 7-7 Presentation](#)

- 7-8** Authorize the General Manager to enter into an agreement with Western Municipal Water District, Rubidoux Community Services District, West Valley Water District, and San Bernardino Valley Municipal Water District to provide Rubidoux Community Services District assistance with water deliveries; the General Manager has determined that the proposed action is exempt or otherwise not subject to CEQA (OWS) **[21-1969](#)**

**Attachments:** [03142023 OWS 7-8 B-L](#)  
[03142023 OWS 7-8 Presentation](#)

- 7-9** Consider changes to the Water Shortage Emergency Condition and the Emergency Water Conservation Program for the State Water Project dependent area and reaffirm the Regional Drought Emergency for all member agencies; the General Manager has determined that the proposed action is exempt or otherwise not subject to CEQA (OWS) [21-1970](#)
- Attachments:** [03142023 OWS 7-9 B-L](#)  
[03142023 OWS 7-9 Presentation](#)
- 7-10** 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) [21-1971](#)
- Attachments:** [03142023 EOP 7-10 BL](#)  
[03132023 EOP 7-10 Presentation](#)
- 7-11** Adopt CalPERS Resolutions for Paying and Reporting the Value of Employer-Paid Member Contributions; the General Manager has determined that the proposed action is exempt or otherwise not subject to CEQA (EOP) [21-1972](#)
- Attachments:** [03142023 EOP 7-11 B-L](#)
- 7-12** Approve proposed amendment to Administrative Code section 6471 to increase the amount of the Ethics Officer's authority to obtain professional services for external investigations from \$50,000 to \$100,000; the General Manager has determined that the proposed action is exempt or otherwise not subject to CEQA (EOP) [21-1973](#)
- Attachments:** [03142023 EOP 7-12 B-L](#)  
[03132023 EOP 7-12 Presentation](#)
- 7-13** Authorize an increase in the maximum amount payable under contract with Burke, Williams & Sorensen, LLP for legal services related to general real estate and leasing law issues by \$100,000 to a maximum amount payable of \$200,000; the General Manager has determined that the proposed action is exempt or otherwise not subject to CEQA (LC) [21-1974](#)
- Attachments:** [03142023 LC 7-13 B-L](#)  
[03132023 LC 7-13 Presentation](#)

- 7-14** Authorize increase of \$100,000, to a maximum amount payable of \$400,000, for existing General Counsel contract with Olson Remcho LLP to provide general government law advice related to the Political Reform Act, the Fair Political Practices Commission regulations, conflict of interest law and other legislative and ethics matters; the General Manager has determined the proposed action is exempt or otherwise not subject to CEQA (LC) **21-1975**

**Attachments:** [03142023 LC 7-14 B-L](#)  
[03132023 LC 7-14 Presentation](#)

- 7-15** Approve amendments to the Metropolitan Water District Administrative Code to provide for the implementation of new legislation authorizing the use of alternative project delivery methods; adopt an organizational conflict-of-interest policy governing the solicitation of a design-build or progressive design-build project; and authorize an increase in the maximum amount payable under contract with Hanson Bridgett LLP, for legal services related to implementation of new legislation, by \$150,000 for an amount not to exceed \$250,000; the General Manager has determined the proposed action is exempt or otherwise not subject to CEQA (LC) **21-1976**

**Attachments:** [03142023 LC 7-15 B-L](#)  
[03132023 LC 7-15 Presentation](#)

- 7-16** Report on litigation in Darren A. Reese v. Metropolitan Water District of Southern California, Riverside County Superior Court Case No. CVPS2204312; and authorize increase in maximum amount payable under contract for legal services with Seyfarth Shaw LLP in the amount of \$300,000 for a total amount not to exceed \$400,000; the General Manager has determined that the proposed action is exempt or otherwise not subject to CEQA. [Conference with legal counsel – existing litigation; to be heard in closed session pursuant to Gov. Code Section 54956.9(d)(2)]. [UPDATED SUBJECT] (LC) **21-2026**

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

## **8. OTHER BOARD ITEMS - ACTION**

NONE

## **9. BOARD INFORMATION ITEMS**

- 9-1 Conservation Program Board Report [21-1977](#)

**Attachments:** [03142023 BOD 9-1 Report](#)

- 9-2 Information on the High Desert Water Bank Program status, updated costs, and water quality [21-1978](#)

**Attachments:** [03142023 OWS 9-2 B-L](#)  
[03142023 OWS 9-2 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). Committee agendas may be obtained from the Board Executive Secretary.

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.

## March 14, 2023 Board Meeting

### Item 5A



### Metropolitan Water District of Southern California Summary of Events

**Attended by Directors at Metropolitan's Expense in February 2023**

Date(s)	Location	Meeting Hosted by:	Participating Director(s)
Feb. 22-24	Palm Springs, CA	Urban Water Institute	Larry Dick
Feb. 26 – Mar. 2	Washington, D.C.	Association of California Water Agencies (ACWA) DC and legislator meetings	Gloria Cordero Juan Garza Fred Jung Marty Miller Adán Ortega Glen Peterson Heather Repenning



## ● Chair of the Board Monthly Activity Report – February 2023

### Summary

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This report highlights the activities of the Chair of the Board during the month of February 2023 on matters relating to The Metropolitan Water District of Southern California's business.

### Monthly Activities

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#### Key Activities

##### Tour of Metropolitan's Desert Facilities

Directors Goldberg, Erdman, De Jesus, and General Manager Hagekhalil joined me on a tour of the villages at Metropolitan's pumping plant facilities in the desert to get a better understanding of current conditions of employee housing, recent progress to address issues, and preliminary plans to improve conditions for employees.

I have asked the General Manager to work with Director DeJesus, Chair, Ad Hoc Committee on Implementation of State Audit, to schedule similar opportunities throughout the year for any Director who is interested. I encourage Directors to participate in order to better understand the issues we are working to improve.



##### Association of California Water Agencies Conference in Washington D.C. and meetings with Federal Officials

Attended the Association of California Water Agencies annual conference in Washington, D.C. and met with the offices of Speaker Kevin McCarthy; United States Senators Dianne Feinstein and Alex Padilla; Representatives Ken Calvert, Grace F. Napolitano; Bureau of Reclamation Commissioner Camille Touton, Deputy Commissioner David Palumbo; and United States Environmental Protection Agency's Radhika Fox and the Office of Environmental Quality at the White House. We discussed critical issues including the need for a multi-agency approach to address the impacts of potential Colorado River reductions on human health and safety; the need to invest in conservation and alternative supplies; and discussed safe drinking water issues in California related to Per- and polyfluoroalkyl substances and underserved communities.



During key meetings with Members of Congress and Administration Officials involving the Colorado River, we were joined by the leadership of the Imperial Irrigation District and the Colorado River Board to demonstrate California's unity.





### Speaking Engagements/Events

- Served as keynote speaker at the 24th Annual California American Ground Water Trust-American Ground Water Association's Groundwater Conference in Ontario, California.
- Served as a speaker for the San Gabriel Valley Water Associations Quarterly Breakfast, noting the pioneering efforts of the leaders in the past and their ongoing work on improving resiliency. I emphasized the need for continued efforts to develop solutions for the future and value to the region and state.
- Moderated panel representing Member Agency Managers that included Metropolitan's General Manager Hagekhalil discussing water issues facing the region and the state at Municipal Water District of Orange County (MWDOC) Water Policy Forum, which honored the life of MWDOC's General Manager Rob Hunter.
- Served as a featured speaker at Mesa Water District's *Yo Amo Agua* community event featuring their innovative vending machine that was first installed about six years ago to provide a convenient source of low-cost, high-quality drinking water for the community. It dispenses more than 60,000 gallons of 100% local water annually at a cost of just five cents a gallon, which is significantly less than buying bottled water or the cost of water at vending machines elsewhere and is environmentally friendly to reuse and refill large containers. This is a great example of providing innovative options for the communities we serve.
- Served as afternoon speaker at the Urban Water Institute's Spring Water Conference focused on Metropolitan's Climate Adaptation Master Planning process where I entertained a host of questions.
- Served on a panel at Groundswell's Water Justice Summit, which brought leaders representing faith-based organizations, businesses, environmental justice, and labor together to discuss the crisis facing California water needs and social justice.



### Interviews

- Participated in an Exchange Contractors "We Grow California" podcast hosted by Darcy Burke, Darcy Villere, and Judy Zulfiqar, focused on California water policy and Metropolitan's relationships with California agriculture.
- Participated in a question-and-answer session with the Black Employees Association outlining goals during my tenure as Metropolitan's Board Chair.
- Participated in an interview by Spectrum's "Inside the Issues" program with Alex Cohen about current water supply issues, Metropolitan's workplace issues, as well as goals during my tenure as Board Chair.

**Regularly Scheduled/Ongoing Meetings**

I continue to meet regularly to review issues and coordinate activities with the Board Vice Chairs, Department Heads, and Directors.



# General Manager's Monthly Report



**Activities for the Month of February 2023**



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# Message from the General Manager

Thank you for your time and contributions to making our recent Board retreat such a success. I deeply appreciate and value the discussion among everyone who participated. This was the second retreat during my tenure as GM, and I'm confident that these retreats bring our Board closer together and help facilitate greater understanding among directors.

One takeaway from the retreat was a strong desire to make climate adaptation central to our water resource and financial planning.

The series of intense storms that hit California this winter show why our directors are on the right track.

After the three driest years our state has ever seen, now depleted reservoirs are starting to recover from record lows, and the Department of Water Resources announced a modest increase in its forecasted water deliveries.

I am hopeful that the snowpack and eventual runoff will allow further increases in State Water Project allocations, but we must keep in mind that extremely variable weather has complicated traditional water resource management.

Southern California's water challenges cannot be tackled season-to-season. No single series of storms alone can ready us for the next drought cycle or the impacts of a rapidly changing climate.

Meanwhile, conditions in California's groundwater basins remain stressed, and, after more than two decades of drought in the Colorado River basin, additional reductions in that supply could begin as soon as next year.

We must continue investing in local supplies, such as water recycling and stormwater capture, and we must improve our distribution system to ensure water can reach everyone equitably.

To replenish local storage and reduce reliance on imported supplies, we must continue to encourage Southern Californians to conserve, use water as efficiently as possible and transition to more sustainable, California friendly landscapes.

Recent storms must not distract us from the work that the Board retreat began to envision: to adapt to the changing climate and achieve a more resilient future.

We are one,

Adel



**“You can do what you have to do, and sometimes you can do it even better than you think you can.”**

**- President Jimmy Carter**



# Strategic Priorities Update

The General Manager's Strategic Priorities guide actions in key areas of focus, investment, and transformation for Metropolitan.

## Empower the workforce and promote diversity, equity, and inclusion

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

Organizational Development & Training (OD&T) developed and hosted a three-part training program on "Avoiding Burnout & Managing Stress." Upcoming sessions include "Developing Positive Mindset" and "Focusing on Wellness."

Prepare and support the workforce by expanding training and skill development and updating strategies to recruit and retain diverse talent at a time when Metropolitan's needs are evolving and employee expectations about the workplace are changing.

OD&T is working on the development of a resources and training guide to help managers have more focused career development conversations with team members during this year's MyPerformance cycle.

## Sustain Metropolitan's mission with a strengthened business model

Conduct a careful, deliberative and inclusive review of the rate structure to ensure the business model can adapt to changing needs of the member agencies and support sustainable local and imported supplies.

The Board Retreat was well attended and substantive, with emphasis on the impacts of climate change on water resources and ways to improve understanding among directors and member agencies. Follow-up discussion toward a proposed Climate Adaptation Master Plan for Water has begun at the LRPPBM subcommittee.

Manage rate pressure on member agencies through attention to programmatic costs, organizational efficiencies and efforts to secure external funding for projects with broad and multi-purpose benefits.

Aligned with our Climate Action Plan, we issued a [Request for Statements of Interest](#) to solicit concept ideas for developing renewable energy and storage projects on Metropolitan properties. Submissions are due April 11.

To better position Metropolitan to access large-scale water recycling funding in the recently passed federal Infrastructure Bill, we are applying for a USBR WaterSMART grant to conduct a required feasibility study.

## Adapt to changing climate and water resources

Provide each member agency access to an equivalent level of water supply reliability through necessary adaptive implementation of the IRP findings.

Staff is bringing forward board action to unify the district under the same conservation requirements by ending the Emergency Water Conservation Program for SWP-dependent areas. State-imposed conservation requirements include demand response actions from Level 2 (20 percent reduction) of the Water Shortage Contingency Plan.

In March staff will present to the Board an update on the drought mitigation portfolio for the SWP-dependent areas.

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 changing climate.

The SRI team facilitated a GM Listening Session with environmental leaders to discuss development of the Sustainability Strategy. The team sent a follow-up survey and is also seeking input from the newly formed SRI Council.

On Pure Water, initial pipeline preliminary design procurement is progressing, two consultants have been selected, and a March 2023 board action is planned to authorize professional services agreements. The NOP and scoping meetings are complete, but because of increasing the phase 1 capacity from 100 mgd to 115 mgd (for DPR) and other adjustments between project and program level analysis, the CEQA approval milestone has moved from March 2023 to September 2023. We believe this change should not affect the construction schedule.



The Chino Groundwater Basin Sustainability Tour hosted by the Chino Basin Water Conservation District included the Montclair Basins Improvement Project, a project funded by Metropolitan's stormwater recharge pilot program.

Accelerate Resilience LA shared with staff the preliminary results of its study of stormwater capture strategies, focused on potential in the Lower San Gabriel, Lower Los Angeles River, and Malibu Creek watersheds.

The public comment period on the U.S. Army Corps of Engineers (USACE) Draft Environmental Impact Statement for the Delta Conveyance Project closes on March 16, 2023.

Staff submitted a concept proposal to the Delta Conservancy's Wetland Restoration Grant Program for a \$20M, three-year project for Webb Tract to use managed flooded wetlands and rice fields to address subsidence, reduce emissions, provide environmental benefits, and potentially generate income through carbon credits and leases. The proposal has advanced in the grant process, and the Conservancy Board is expected to consider it in summer or fall of 2023.

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

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

In light of recent incidents across the country where electrical structures have been targeted, staff has increased its focus on identifying, assessing, and mitigating physical threats to the electrical components along the Colorado River Aqueduct system.

Staff is finalizing negotiations for a Cyber Security Operations Center services vendor, with a contract expected to come to the Board in April.

Project closure activities are underway for the recently completed Datacenter Modernization and Relocation Project.

Apply innovation, technology, and sustainable practices across project lifecycles (design, construction, operations, maintenance, and replacement).

After a semester of access to and information from Metropolitan staff and engineers, UCLA students presented an innovative concept to install solar panels along our canals to reduce evaporation loss, generate power, and potentially generate hydrogen for a zero-emission fleet. Staff is considering this among other potential solar-over-water pilots and related state and federal funding opportunities.

Contracting Services is developing an Operating Policy for Sustainable Procurement and this month participated in the SRI Council and the Zero Emission Vehicle (ZEV) task force, including establishment of a ZEV First executive directive to support the transition to a greener fleet.

## Partner with interested parties and the communities we serve

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 is finalizing recommendations to enhance the Community Partnering Program and revise criteria to align more directly with SRI. Staff is also completing a separate review of public engagement strategies used by other large regional agencies.

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

Metropolitan and Caltrans co-sponsored an event to promote small business inclusion in government contracting and to consider how such programs can help close the income inequality gap.



# 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.*

## **Administrative Services**

One of Investment Recovery's core responsibilities is to collect electronic waste from all facilities across the district, as well as to weigh, document, and report yearly collections with the California Department of Toxic Substances Control. It is important to collect e-waste because it keeps electronics out of landfills, which can contaminate the soil and waterways. Collecting e-waste also gives the equipment the opportunity to be reused or repurposed, which decreases the demand for new materials, helping to conserve natural resources. Metropolitan and the team at Investment Recovery are doing their part of environmental stewardship by inspecting electronic waste as it comes in and determining whether the equipment can be sold via auction or scrapped via e-waste. In 2022, Investment Recovery collected 31,500 lbs. of electronic waste and disposed of it via e-waste collection companies.

## **Bay-Delta Initiatives**

Staff worked with researchers from UC Davis to initiate the second deployment of the Delta Smelt Pilot Propagation Study on Bouldin Island to evaluate whether the impoundments on Metropolitan islands can be leveraged to conduct Delta Smelt Supplementation Research. The first deployment from November 21, 2022, to January 5, 2023, was successful, and the second deployment is to repeat and verify the results and test conditions during the warmer period of March 2023.

## **Chief Financial Officer**

Initiated an internal update of Metropolitan's Appendix A document for a bond financing anticipated in the late Spring 2023.

## **Colorado River**

Metropolitan has been conducting a number of outreach campaigns to educate outside entities of the potential risks to Metropolitan's Colorado River supplies by a modelling proposal from the other Colorado River Basin States. Despite the current differences, Metropolitan continued to work with the other Basin States to develop a consensus alternative to be included in the Final Supplemental Environmental Impact Statement.

## **Diversity, Equity & Inclusion**

The Diversity, Equity & Inclusion team continues to build connections and trust in the communities in which we serve and advance the GM's strategic priorities. During the month of February, members of the team met with the Soboba Tribe and initiated conversations regarding apprenticeship programs and creating diverse talent pipelines from the reservations into opportunities at Metropolitan. We hosted two big events for our small and diverse business community, MetWorks, which was held in Carson, and Dream Big, which was hosted at Metropolitan Headquarters. Both events helped break down barriers for our contracting opportunities and helped establish Metropolitan as an agency of choice for the small and diverse business community.

## **Engineering Services**

On February 2, Business Outreach and Engineering Services held the first in-person MetWorks Industry Day event at the Carson Community Center. Directors Dennis Erdman and Heather Repenning and General Manager Adel Hagekhalil welcomed over 360 of Metropolitan's business partners to the event. Engineering staff provided updates on the Pure Water Southern California Program, Metropolitan's initial alternative project delivery projects, and contracts that will be out to bid soon. The event provided opportunities for small business to meet prime contractors and for engineering staff to actively partner with the communities we serve.

## External Affairs

Bureau of Reclamation Commissioner Touton and Deputy Commissioner Palumbo met with directors and staff at the board retreat to talk about the cooperation and action needed to address the many challenges facing the West. (February 13)

## Human Resources

HR Benefits and HRIS are working together to create and issue the 2022 calendar year 1095-C employee statements as required by the IRS to meet the requirements of the Affordable Care Act (ACA). A memo to all employees explaining the reason and requirements for the statements and encouraging employees to go green by opting in to receive their statements electronically was emailed to all employees in February.

## Information Technology

IT successfully created a new GIS mobile application for Environmental Services to spatially organize current and past projects, as well as to store documents. All users who have access to the web application can view the project site and related information at any time. This provides a cleaner interface for the customer to view the project location on a map and all related documents.

## Real Property

The Diamond Valley Lake Marina opened the Wildflower Trail for visitors to enjoy a walk on the 1.3-mile trail loop. Although the full bloom has not arrived, staff expects this year's bloom to be bigger than the blooms in recent years.

## Security Management

Metropolitan security specialists worked with staff from the Western Region Conveyance and Distribution (C&D) Valley, Los Angeles, and La Verne teams to rapidly identify, assess, and reinforce dozens of spillway openings against potential security vulnerabilities and tampering with public drinking water substructures and pipelines.

## Sustainability, Resiliency and Innovation

The SRI Office helped prepare and present climate vulnerabilities for the Board Retreat and is working closely with others on a process to develop a Climate Adaptation Master Plan for Water. The Office also hosted a GM Listening Session for Environmental Partners on the Sustainability Strategy and facilitated the SRI Council and our second SRI Lunch and Learn, which was in partnership with WSO at La Verne. We also issued an RFSI with Real Property to solicit concepts for renewable energy and storage on Metropolitan properties and are working with WSO on ordering zero-emission vehicles and installing fleet chargers at Union Station. EPS is focused on several projects including the Draft EIR for Pure Water Southern California.

## Water Resource Management

Staff continued to track and respond to improving water supply conditions in the State Water Project watersheds. With the allocation increasing to 35 percent of Table A amounts, staff is developing options for the Board to consider modifying or ending the Water Shortage Emergency Condition and the Emergency Water Conservation Program.

## Water System Operations

The 2023 CRA shutdown was completed this month. The work focused on several capital projects and critical maintenance of the aqueduct system. Nearly 300 employees and contractors successfully coordinated to safely complete the critical work that helps keep the over-80-year-old aqueduct system delivering Colorado River supplies reliably for years to come.

# Upcoming Board Items

ANTICIPATED KEY ITEMS OF FOCUS – NOT AN EXHAUSTIVE LIST  
SCHEDULE SUBJECT TO CHANGE

<b>April</b>	<ul style="list-style-type: none"><li>• Quarterly Desert Housing update</li></ul>
<b>May</b>	<ul style="list-style-type: none"><li>• Update on Direct Potable Reuse regulations</li><li>• Review of Draft Supplemental Environmental Impact Statement for Colorado River Interim Guidelines</li><li>• Update on Climate Vulnerability and Risk Assessment</li><li>• Authorization to amend PVID following agreement and accept Inflation Reduction Act funding</li></ul>
<b>June</b>	<ul style="list-style-type: none"><li>• Award two Drought Resilience Construction Contracts on east side of system</li><li>• Authorize Agreement(s) to conduct Desalination Studies</li></ul>
<b>July</b>	<ul style="list-style-type: none"><li>• Quarterly Desert Housing update</li><li>• Approve new Colorado River implementing agreements</li><li>• General Manager’s Business Plan update</li><li>• Award 1 Drought Resilience Construction Contract on east side of system</li><li>• Emergency Management Program Update</li></ul>
<b>August</b>	<ul style="list-style-type: none"><li>• Update on Sites Reservoir Project</li><li>• Award Phase 1 Progressive Design Build services contract for Sepulveda Pump Stations project for drought resilience</li></ul>

The schedule of the following upcoming board items has not yet been determined:

<b>September - March</b>	<ul style="list-style-type: none"><li>• Long Range Finance Plan – Phase 1</li><li>• Metropolitan Storage Portfolio workshop</li><li>• Sustainability, Resiliency, and Innovation Strategic Plan workshop</li><li>• Update on Voluntary Agreements package</li><li>• Federal grants for large recycled water projects</li></ul>
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Pipe Removal in Pasadena



Pipe Access Site



Pipe Segment Installation

**“An innovative and successful project takes place in the heart of Orange County.”**

***Sam Mouawad, Project Manager***

## PROGRAM DESCRIPTION

Metropolitan is replacing the inner lining of the Orange County Feeder, an important pipeline that is more than 80 years old and serves water to several cities and agencies in Los Angeles and Orange Counties. A portion of the pipeline follows Bristol Street south for approximately 11 miles through Santa Ana, Costa Mesa, and Newport Beach. The pipeline is constructed of welded steel pipe with a coal-tar enamel lining and has a diameter of 36 inches. Due to steel shortages during World War II, Metropolitan purchased used pipe from the city of Pasadena, refurbished it, and reinstalled it for this reach. Pasadena had constructed a pipeline to deliver water from Morris Dam to Pasadena, however construction of Metropolitan’s Upper Feeder rendered the pipeline obsolete.

Internal inspections of this pipe found significant deterioration of the existing coal-tar enamel lining. In November 2014, staff began design to replace the lining in three stages. The initial phase, which relined 3 miles, acted as a pilot project to confirm the production rates and construction efficiencies for complete removal of the interior lining and reapplication of a new lining. The second stage which was completed in November 2019, rehabilitated four miles. The third and final stage of the project, which is currently under construction, will reline the remaining four miles within the cities of Costa Mesa and Newport Beach.

The scope of work for the current rehabilitation contract includes removing a pipeline segment at 17 sites to create access points for machines to enter the line to remove the lining and application of mortar lining. New steel pipe segments with outlets will be installed at the sites. The work is anticipated to be completed by November 2023. The total estimated cost to reline 11 miles of the Orange County Feeder is \$46.9 million.

## MEMORABLE MOMENT

The contractor and Metropolitan staff are working as a team to complete this challenging project, which used rover machines to remove the coal tar lining and apply the mortar lining, a first for California. The most memorable moment for Resident Engineer Robert Ponce De Leon, was the successful pipeline relining under the Newport Back Bay. This work was completed under strict environmental restrictions due to the location’s importance as an ecological reserve on California coast. The rehabilitation of the Orange County Feeder will extend its life span and enhance the water delivery reliability to these communities for years to come.

# Water Resources and Engineering



## Water Resource Management

### **Ensure Reliable State Water Project (SWP).**

Staff participated in a DWR workshop on climate change considerations for the upcoming 2023 State Water Project Delivery Capability Report. DWR staff presented on the development of risk-informed climate scenarios that will be applied across all DWR programs. These reports update the estimation of the current and future conditions of State Water Project delivery capability.

### **Ensure Access to Sufficient Water Supplies to Operate a Full Colorado River Aqueduct in Times of Drought**

Staff attended meetings of the Colorado River Basin (CRB) Salinity Control Forum Work Group at the offices of Coachella Valley Water District in Palm Desert. Meeting topics included updates from federal agencies involved in the Forum's activities, the 2023 Review of Water Quality Standards for Salinity in the Colorado River System, and updates on the status of the Paradox Valley Unit (PVU). PVU is the largest single salinity control project in the CRB. The U.S. Bureau of Reclamation (USBR) recently completed a six-month test of PVU at two-thirds of its full injection capacity (approximately 65,000 tons of salt control per year). Post-test analysis showed normal pressure levels in the well and no evidence of abnormal seismicity during the test. As a result, USBR has decided to operate the well at two-thirds capacity in additional consecutive six-month tests until a long-term seismic risk analysis is completed in late 2023. The U.S. Bureau of Reclamation continues to work with the CRB states to develop a long-term alternative to replace PVU once it is no longer operable.

### **Support Capital Investment Program Planning**

Staff continues to support the Capital Investment Program (CIP) by reviewing minor capital proposals (under \$400,000) and providing feedback and/or recommendation to proceed. In addition, staff continues to support the drought projects spearheaded by Metropolitan's Engineering Group by working with the Department of Water Resources (DWR) to secure necessary agreements for the use of DWR's Devil Canyon facility in San Bernardino.

### **Manage Existing and Develop New Regional Water Management Programs to Maintain Water Supply Reliability in the Face of Increasing Water Supply Volatility.**

Metropolitan prepares an annual report on regional progress in achieving the goals of increased emphasis on cost-effective conservation, recycling, and groundwater recharge. This year's report presents the achievements during fiscal year 2021/22. Metropolitan submitted this report to the California State Legislature on January 30, 2023.

### **Implement Water Surplus and Drought Management Plan**

Staff is working on setting priorities and targets to rebuild Metropolitan's State Water Project (SWP) surface storage as DWR increased the SWP allocation to 35 percent. Staff is also working on potentially managing other SWP contractors and Metropolitan's member agencies' surplus water while protecting Metropolitan's interests.



## Implement Regional Conservation Program

Water efficiency staff continued conservation outreach activities to implement the regional conservation program. Activities included making a presentation on the turf dashboard at the California Data Collaborative quarterly meeting. The presentation included a run-through of the dashboard along with a detailed explanation of the data sources and potential uses. Staff held a Water Efficient Landscaper Dual Certification Program series for 45 landscape professionals at the Chino Basin Water Conservation District.

Staff met with representatives from the City of West Hollywood and the West Basin Municipal Water District to discuss the Water Savings Incentive program. \*West Hollywood is interested in projects that can potentially use nuisance groundwater that currently goes to sewers during dewatering for buildings under construction.

The Water Efficiency Team also held a quarterly Program Advisory Committee (PAC) meeting with the member and retail agency conservation coordinators. Discussion items included how to improve communications with underserved communities about conservation incentives, trees, and tree canopies as a runoff retention strategy, and other Conservation Credits Program concerns.

Metropolitan was a sponsor for the 61st Annual California Irrigation Institute Conference “One Water—Partnering for Solutions.” This is the only agricultural and urban water efficiency conference in the state. Staff is on the board of directors that organized the conference. Staff also moderated and presented at a session on urban landscapes. Conference speakers were from DWR, San Francisco Public Utilities Commission (SFPUC), Arvin Edison Water Storage District, Coachella Valley Water District, USBR, KB Homes, State Water Resources Control Board (SWRCB), Utah State University, and many others.

The 2022 Innovative Conservation Program (ICP) application period closed in December 2022. Proposals were reviewed and scored by a selection panel in January. The panel included staff from the Water Efficiency Team, ICP funding partner, Southern California Gas Company, and one-member agency. Grant recipients were notified of their awards in early February. Six projects were chosen and will be executed over the next two years. Recipients and their project titles include:

- Alliance for Water Efficiency—Commercial-scale Landscape Transformation Savings Study
- City of Fullerton—City of Fullerton Meter Health Analytics Pilot Project
- University of California Riverside—Establishing real-world water use and irrigation cooling benefits baselines for 18 landscape species in inland southern California
- Mimir—Simplifying Cooling Tower Management for Commercial Properties with the One Number Efficiency (ONE) Program
- Shower Stream—Big data analytics with smart shower systems in hotel buildings
- NOWi Sensors—A Cost-Effective Approach for Leak Detection and Leak Localization in Multi-Family Housing

# Water Resources and Engineering

(continued)

## **Collaborate with Member Agencies, Water Agencies and Associations, and Provide Leadership for Policy Development, Advocacy, Outreach and Education**

In February, Metropolitan sponsored CalDesal's and the Multi-State Salinity Coalition's (MSSC) conferences. CalDesal held its annual summit on February 16 and 17 in Sacramento. Staff participated in a panel discussing research in the desalination industry and presented on Metropolitan's 60-year history of studying seawater desalination. The presentation included a discussion of the latest Future Supply Actions Funding Program. Wade Crowfoot, the Secretary of California's Natural Resources Agency, gave the keynote speech. The Multi-State Salinity Coalition's annual summit was held in Las Vegas from February 22 to 24. Staff discussed industry trends and Metropolitan's long-term sustainability plans in a panel discussion on Friday morning. Metropolitan is a founding member and sits on the boards of both CalDesal and MSSC.



Staff continued implementation of the Emergency Water Conservation Program (EWCP) to address severely limited SWP system water supplies.

The affected member agencies continued to show reductions in purchases from Metropolitan compared with historical and projected levels, indicating consumer responsiveness with demand-cutting measures. Path One watering day limit compliance requirements remained at one day-per-week watering restrictions during February. Volumetric limits were updated and increased to reflect the additional SWP supplies available through the 2023 allocation. Staff is continuously monitoring and reporting water use performance to the affected member agencies to ensure that SWP water usage stays on track to remain within the available supplies.

## **Implement Future Supply Actions Funding Program.**

Staff submitted a letter to the SWRCB regarding the Los Angeles Department of Water and Power's (LADWP) Mono Lake supplies. The SWRCB held a preliminary hearing to consider a request by the Mono Lake Committee for further curtailment of LADWP's water supplies from the Mono Basin. Metropolitan's letter highlighted the importance of maintaining LADWP's supplies because of the increased pressure that the supply reduction would have on Metropolitan's critically stressed imported water supplies. Metropolitan's letter was quoted in a Los Angeles Times article: <https://www.latimes.com/environment/story/2023-02-19/los-angeles-dwp-fights-to-keep-spigot-open-at-mono-lake>. Letters were also submitted by several of Metropolitan's member agencies, primarily those within the SWP-Dependent Area. The SWRCB plans to schedule a full hearing on the matter.



# Water Resources and Engineering

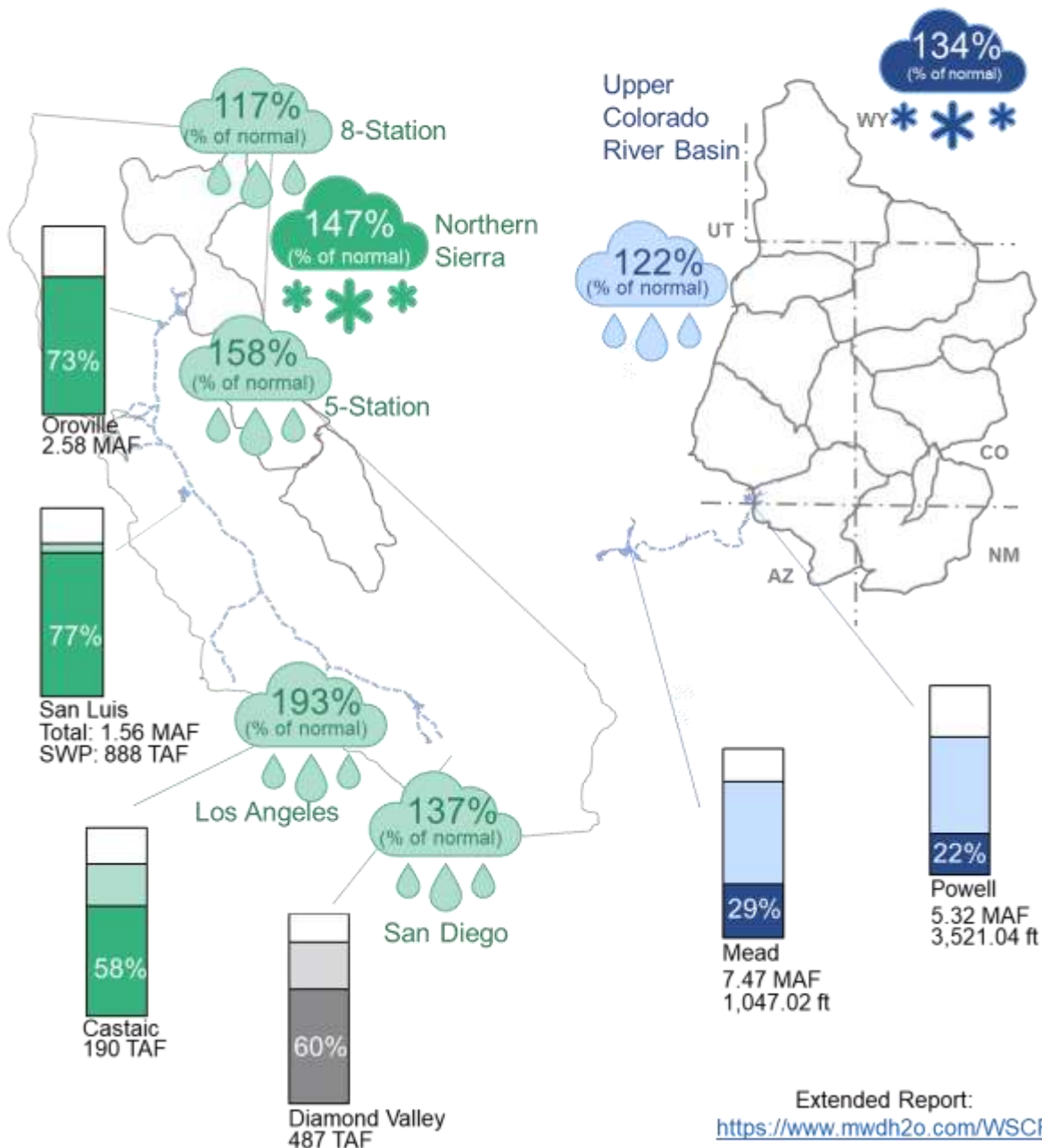
(continued)

## State Water Project Resources

SWP Table A – 35% - 669,025 AF

## Colorado River Resources

Projected CRA Diversions – 991,000 AF



As of February 28, 2023

## Bay-Delta Initiatives

### Project Highlights

#### Delta Conveyance

The public comment period for the Delta Conveyance Project (DCP) Draft Environmental Impact Report (EIR) closed on December 16, 2022. The Department of Water Resources (DWR) received more than 700 unique comment letters with over 6,000 individual comments. DWR is currently working to organize the comments and develop responses. The Final EIR is expected at the end of 2023. It will include responses to all substantive comments on the Draft EIR and edits to the Draft EIR, as appropriate, to respond to the comments.

The U.S. Army Corps of Engineers released the public Draft Environmental Impact Statement (EIS) for DCP in December 2022, and comments are due on March 16, 2023. The Draft EIS has some similarities to DWR's Draft EIR but also some key differences. DWR prepared a summary of the similarities and differences. It is available on the DWR website. ([https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Delta-Conveyance/Environmental-Planning/DWR\\_DCP\\_DRAFT-EIS\\_FS\\_Final\\_Dec-2022.pdf](https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Delta-Conveyance/Environmental-Planning/DWR_DCP_DRAFT-EIS_FS_Final_Dec-2022.pdf)).

#### Joint Powers Authorities

During the regularly scheduled Board of Directors meeting on February 16, the Delta Conveyance Design and Construction Authority (DCA) Board of Directors adopted a resolution commending and thanking Director Richard Atwater for his service on the DCA board. Director Atwater was instrumental to the creation of the DCA, its success to date, and its expected continued development. Director Miguel Luna is the new Metropolitan representative on the DCA board. The DCA board also approved a resolution extending the authorization for virtual board and committee meetings and received the monthly board report information item.

The February 16 regularly scheduled Delta Conveyance Finance Authority meeting was cancelled.

#### Sites Reservoir

In their February joint meetings, the Sites Project Authority Board (Authority Board) and the Sites Reservoir Committee (Reservoir Committee) conducted the 2023 election of officers. The current committee and workgroup designations and participation was confirmed. The Reservoir Committee and Authority Board also approved the 2023 federal and state legislative priorities for the project.

#### Science Activities

Staff worked with researchers from UC Davis to initiate the second deployment of the Delta Smelt Pilot Propagation Study on Bouldin Island. The purpose of the study is to evaluate whether the impoundments on Metropolitan islands can be leveraged to conduct Delta Smelt Supplementation Research. The first deployment from November 21, 2022, to January 5, 2023, successfully demonstrated that it is possible. The second deployment is to repeat and verify the results and test conditions during the warmer period of March 2023.

Phase 3 of the Reorienting to Salmonid Recovery project started this month and includes developing an agreed-upon suite of priorities for salmonid recovery. This phase will use an iterative approach with participants and modelers to review and refine recovery scenarios. Staff is organizing intensive workshops for participants to work in groups using web applications developed to evaluate model output sensitivity to different salmonid management scenarios and

understand the trade-offs associated with different suites of recovery actions. Workshops will be held March to December 2023.

## **Regulatory Activities**

On February 13, in response to Governor Newsom's [Executive Order \(EO\) N-3-23](#) to build water resilience amid climate-driven weather extremes, both DWR and the U.S. Bureau of Reclamation (USBR) submitted a Temporary Urgency Change Petition (TUCP) to the State Water Resources Control Board (State Board). This TUCP requested approval to temporarily modify the most-westerly X2 (2 parts per thousand isohaline at Port Chicago) compliance location specified in their water right permits for February and March to the next upstream compliance location at Chipps Island. Without the TUCP, DWR and USBR would be required to cut Delta exports and/or release stored water from upstream reservoirs to provide an estimated 700,000 acre-feet of Delta outflow required to maintain the X2 at Port Chicago. On February 14, the California Department of Fish and Wildlife (CDFW) submitted a letter to the State Board identifying no unreasonable impacts to fish and wildlife resulting from the TUCP. On February 22, the State Board conditionally approved the changes within the TUCP through March 31, 2023.

Staff coordinated with the State Water Contractors to develop and implement a special environmental DNA monitoring program, from January 20 to February 3, to determine whether Delta smelt were present in the South Delta turbidity field and to evaluate the effects of the 2019/20 Biological Opinion and Incidental Take Permit Early Winter Pulse Protection Action. The monitoring did not detect Delta smelt in the south Delta, suggesting that the action may not always be needed during high turbid conditions. The monitoring results may inform management of turbidity to reduce the entrainment of Delta smelt.

## **Delta Island Activities**

Staff submitted a \$20 million concept proposal to the Delta Conservancy's Nature Based Solutions: Wetland Restoration Grant Program. The concept proposal is for a three-year project that will convert approximately 4,500 acres on Webb Tract to a mosaic of managed flooded wetlands and rice fields to stop and/or reverse ongoing organic soil subsidence, reduce greenhouse gas emissions, provide environmental benefits by contributing to augmentation of the Delta pelagic food web, and generate an income from carbon credits generated from the proposed flooded wetlands and lease income from the proposed rice fields. The proposed project has been selected to move forward in the grant process. Staff will introduce the project at Metropolitan's March One Water and Stewardship Committee meeting. The Delta Conservancy Board will consider the Webb Tract grant application at an upcoming board meeting, anticipated in summer or fall 2023.

## Colorado River

### **Metropolitan Highlights Risks of Six Basin State Proposal to Metropolitan's Colorado River Supplies**

After the Colorado River Basin States (Basin States) were unable to develop a consensus proposal to be submitted to the Bureau of Reclamation (Reclamation) in the Supplemental Environmental Impact Statement (SEIS) to the 2007 Colorado River Interim Guidelines, California and six Basin States each submitted modeling proposals. The California proposal focuses on maximizing voluntary compensated conservation and contemplates mandatory cutbacks only if needed, whereas the six Basin State proposal immediately imposes significant cutbacks to all water users in the Lower Basin. Metropolitan staff analyzed the risk of the six Basin State proposal to our region, concluding that although the proposal purported to evenly share cuts, up to 75 percent of Metropolitan's Colorado River supplies would actually be placed at risk. Metropolitan explained those risks to several outside entities, including the Los Angeles Times Editorial Board and members of Congress, to highlight the potential impact to our service area. While two modeling proposals were submitted for the Draft SEIS, Metropolitan staff continued to work with the other Basin States to see whether a seven-state consensus proposal can be submitted to Reclamation for the Final EIS. It is anticipated that comments for that document will be due in late May or early June 2023.

## Engineering

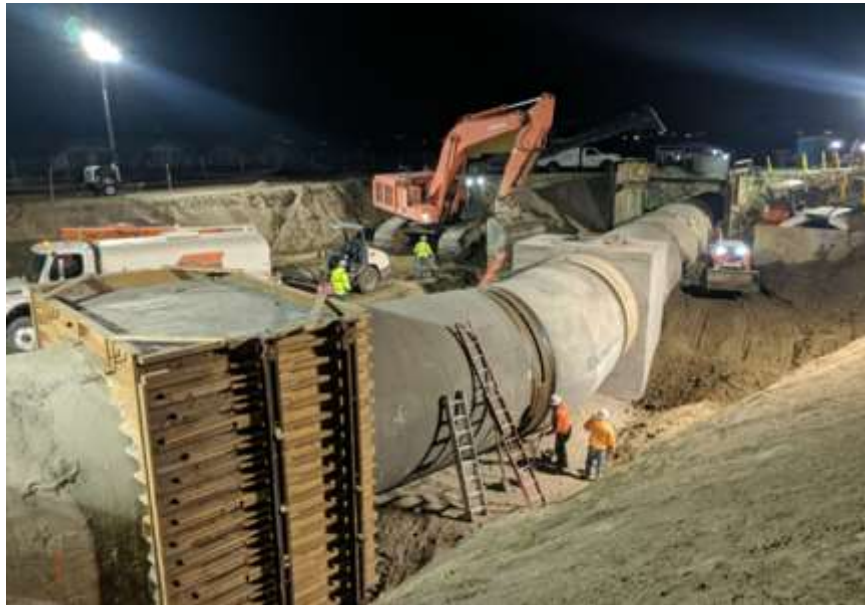
### Core Business Function—Execute Capital Investment Plan projects

Engineering Services manages and executes projects within the Capital Investment Plan (CIP) to maintain infrastructure resiliency, ensure regulatory compliance, enhance sustainability, and provide flexibility in system operations to address uncertain water supply conditions.

#### Distribution System Reliability Program

This program maintains reliable water deliveries through specific rehabilitation and upgrade projects on Metropolitan's pipelines, reservoirs, and control structures. Recent activities include the following:

- **Casa Loma Siphon Seismic Upgrades**—This project mitigates leaks associated with long-term ground subsidence and will improve seismic resilience of the siphon as it crosses the Casa Loma Fault. This project replaces approximately 1,200 feet of the Casa Loma Siphon Barrel No. 1 at a fault crossing using earthquake-resistant ductile iron pipe (ERDIP) and welded steel pipe. The final tie-in was completed in February 2023 during the planned CRA shutdown and will be placed into operation once the shutdown is completed. Overall construction is approximately 90 percent complete and is scheduled to be complete by May 2023.
- **Etiwanda Pipeline Relining**—This project will remove damaged mortar lining in 5.5 miles of pipeline and replace it with polyurethane lining. Stages 1 and 2, which relined 3 miles of the pipeline, have already been completed. Stage 3 will reline the remaining 2.5 miles of pipeline and is currently under construction. The contractor is removing mortar lining and installing noise control panels at pipe entry portals. Stage 3 construction is approximately 42 percent complete and is scheduled to be complete by October 2023.
- **La Verne Shop Improvements**—This project includes the installation of previously procured equipment, installation of new contractor-furnished equipment, refurbishment of existing equipment, and completion of building and utility improvements for several shop buildings. The contractor has completed several small shop equipment foundations in the fabrication shop, started excavation for a large floor mill foundation in the machine shop, and is repairing the damaged exterior concrete walls of the machine and fabrication shop. Construction is approximately 16 percent complete and should be completed in late 2024.
- **Orange County Feeder Relining**—This project replaces the deteriorated internal lining along an 11-mile portion of the Orange County Feeder within the cities of Santa Ana, Costa Mesa, and Newport Beach. Rehabilitation is proceeding in three stages. Construction of Stages 1 and 2 are complete. The shutdown for Stage 3 began in September 2022. The contractor is currently performing construction at multiple sites; work includes excavation for access pits, removal of the existing coal tar lining, welding butt-straps on all the joints, and installing new mortar lining. Construction is approximately 30 percent complete and is anticipated to be complete by September 2023.
- **Lake Mathews Wastewater**—This project installs a wastewater system in place of existing septic tank system at the Lake Mathews facility. The new wastewater system connects various facilities at Lake Mathews and ultimately connects to Western Municipal Water District main wastewater line. The contractor continues to install the wastewater line and plans to connect to the Western Municipal Water District line in early March 2023. Construction is 81 percent complete and is scheduled to be complete by June 2023.



**Casa Loma Siphon Seismic Upgrades—Casa Loma Siphon Barrel No. 1 west tie-in backfill**



**Etiwanda Pipeline Relining—Testing new polyurethane coating**





La Verne Shop Improvements—Welding trench drain supports

## **Prestressed Concrete Cylinder Pipe (PCCP) Reliability Program**

This program was established to enhance the reliability of Metropolitan’s water distribution system and to reduce the risk of costly emergency repairs of PCCP. The priority pipelines included in the program are the Second Lower Feeder, Sepulveda Feeder, Calabasas Feeder, Rialto Pipeline, and the Allen-McColloch Pipeline. A total of 100 miles of PCCP pipelines will eventually be relined with new steel pipe liners under this 20-year program. Recent activities include the following:

- **Second Lower Feeder PCCP Rehabilitation Reach 3A**—This project enhances distribution system reliability by rehabilitating 6,500 feet PCCP portions of the Second Lower Feeder within the city of Rolling Hills Estates. The contractor has completed the traffic control, fencing, excavation, shoring, and the PCCP pipe demolition at the first pipe access site, and continues with pipe deliveries, installation, and welding. The contractor commenced work at the second and final pipe access site. Construction is 45 percent complete and is scheduled to be complete in August 2023.
- **Sepulveda PCCP Reach 1**—This project enhances distribution system reliability by rehabilitating PCCP segments of the Sepulveda Feeder. Reach 1 spans 4.7 miles through several cities including the City of Hawthorne, City of Inglewood, and City of Los Angeles. Final design is approximately 72 percent complete and is scheduled to be complete in August 2023.
- **Rialto Pipeline Rehabilitation Reach 1**—This project will rehabilitate approximately 4.5 miles of Rialto PCCP from the Indian Hills Sectionalizing Valve to the San Dimas Hydroelectric Plant. The project is currently in preliminary design, and all pipe access sites for relining of this reach have been identified. Preliminary design is approximately 50 percent complete and is scheduled to be completed by mid-2024.
- **Electromagnetic Inspections**—This project performs inspections of Metropolitan’s PCCP distribution system pipelines to prioritize rehabilitation of those pipelines. Inspection of portions of the Yorba Linda Feeder was completed during a planned shutdown in January 2023.



## Colorado River Aqueduct (CRA) Reliability Program

This program maintains the reliability of Metropolitan’s CRA conveyance system. Recent activities include the following:

- **Domestic Water System**—This project replaces the membrane filtration system and associated water treatment equipment at the five Colorado River Aqueduct pumping plants. Procurement of water treatment equipment is underway. Three membrane systems were delivered in November 2022 and the remaining three are expected to be delivered in mid-2024. Construction is currently paused to avoid conflicts during the annual CRA shutdown. The contractor is expected to install the temporary water treatment system at Intake Pumping Plant in Spring 2023. Construction is 18 percent complete and is scheduled to be complete by March 2025.
- **Mile 12 Flow Monitor**—This project will replace the CRA Mile 12 flow meter and upgrades the appurtenant facilities at the monitoring station. The contractor is completing the final terminations and testing of the electrical equipment. Construction is 93 percent complete and is scheduled to be completed by May 2023.
- **Conduit Structural Protection**—This project consists of installing new reinforced concrete slab protection crossings over portions of the cut-and-cover conduits on the Colorado River Aqueduct. Final design is complete, and award of a construction contract is scheduled for the April 2023 board meeting.
- **CRA Storage Buildings**—This project furnishes and installs storage buildings at Hinds, Eagle Mountain, and Iron Mountain and constructs associated site improvements. Final design is complete, and award of a construction contract is scheduled for the May 2023 board meeting.

## System Flexibility/Supply Reliability

Projects under this program will enhance the flexibility and/or increase the capacity of Metropolitan’s water supply and delivery infrastructure to meet current and projected service demands. Projects under this program address climate change affecting water supply, regional drought, and alternative water sources for areas dependent on State Project Water. The following projects are part of a series of projects that are being undertaken to improve supply reliability for State Water Project-dependent member agencies.

- **Inland Feeder Surge Protection**—In conjunction with the Wadsworth Pumping Plant-Eastside Pipeline Intertie, Foothill Pump Station Intertie, and Inland Feeder-Rialto Pipeline Intertie projects, this project enhances water supply reliability in the Rialto Pipeline service area by enabling water to be pumped from the Wadsworth Pumping Plant forebay to Rialto Pipeline by way of the Inland Feeder. This project will provide surge protection for the Badlands Tunnel portion of the Inland Feeder when water is being pumped from Wadsworth Pumping Plant. Final design for this project is approximately 90 percent complete and is anticipated to be complete in April 2023.
- **Inland Feeder-Rialto Pipeline Intertie**—In conjunction with other projects, this project enhances water supply reliability in the Rialto Pipeline service area by enabling water to be pumped from the Wadsworth Pumping Plant forebay to Rialto Pipeline by way of the Inland Feeder. This project will install an interconnection pipeline and isolation valve structure between the Inland Feeder and Rialto Pipeline. Final design for this project is approximately 90 percent complete and is anticipated to be complete in April 2023.
- **Inland Feeder/SBVMWD Foothill Pump Station Intertie**—This project will connect San Bernardino Valley Municipal Water District’s (SBVMWD) Foothill Pump Station with the Inland Feeder to provide the needed hydraulic lift to deliver water from DVL to the Rialto service area. Final design is 90 percent complete and is scheduled to be complete in April 2023. Concurrent with the design effort, staff is also working with SBVMWD

on a joint-use agreement for the facility. Staff is also working with US Fish and Wildlife to address issues related to the presence of a protected species in the vicinity of the planned construction. A procurement contract for valves has been advertised and is scheduled for award by the Board in April 2023.

- **Wadsworth Pumping Plant Bypass**—In conjunction with other projects, this project enhances water supply reliability in the Rialto Pipeline service area by enabling water to be pumped from the Wadsworth Pumping Plant forebay to Rialto Pipeline by way of the Inland Feeder. This project will install a bypass pipeline and an isolation valve to interconnect the Wadsworth Pumping Plant with the Eastside Pipeline. A construction contract was awarded in January 2023, and the Notice to Proceed was issued on January 31, 2023. Pre-construction activities are starting, including preparation of submittals. Construction is anticipated to be completed by February 2024.
- **Sepulveda Feeder Pumping Stations**—This project will install new pump stations at the existing Venice and Sepulveda Canyon Pressure Control Facilities, providing the ability to reverse flow in the Sepulveda Feeder and deliver water from the Central Pool to parts of the Jensen plant exclusive area. This project will use progressive design-build (PDB) for delivery. Preparation of the Request for Qualifications, including a Conceptual Design Report, is 90 percent complete with a forecasted issue date in March 2023. Board award of the Phase 1 agreement for preconstruction services under the PDB contract is scheduled for August 2023.

## Treatment Plant Reliability Program

This program was initiated to maintain reliability and improve the operating efficiency of Metropolitan's water treatment plants through specific improvement projects. Recent activities include the following:

- **Weymouth Basins 5–8 and Filter Building No. 2 Rehabilitation**—This project rehabilitates major mechanical and structural components including the flocculation/sedimentation equipment, sludge pumps, baffle boards and walls, launders, inlet gates, and outlet drop gates at the Weymouth plant. Other improvements included in this contract are seismic upgrades of basin walls and inlet channel, hazardous material abatement, and replacement of filter valves and actuators in Filter Building No. 2. During a planned outage of Basins 5–8, the contractor completed installation and testing of six new Metropolitan-furnished filter valves, an isolation drop gate in the basin inlet channel, and critical electrical equipment. In January, the half-plant shutdown was completed on schedule. The contractor has started work under the first planned quarter-plant outage including equipment removal, hazardous waste abatement, and installation of temporary cranes. Construction is 20 percent complete and is scheduled to be complete by May 2025.
- **Mills Ozonation System PLC Upgrade**—This project replaces the outdated generator control system at the Mills plant with new PLC equipment along with upgraded software. Installation of the new software was completed in January 2023. Metropolitan forces are currently commissioning the upgraded software with support from a specialized consultant. The system upgrade is scheduled to be completed by April 2023.
- **Mills Electrical Upgrades, Stage 2**—This project upgrades the electrical system with dual-power feeds to key process equipment to comply with current codes and industry practices; improve plant reliability; and enhance worker safety. Stage 1 construction is complete. Stage 2 improvements will add a second incoming 12 kV service from Riverside Public Utilities (RPU), reconfigure the existing 4160-volt switchgear, and replace the standby generator switchgear and the emergency generator programmable logic controller. The contractor has started installation of duct banks and electrical vaults and is preparing to expand the ORP ozone switchgear building. Shutdowns are planned in March 2023 and Spring 2024. Construction is 22 percent complete and is scheduled to be complete by December 2024. Shutdowns are planned in March 2023 and Spring 2024.



**Weymouth Basins 5-8 and Filter Building No. 2 Rehabilitation—Installing crane pad**



**Mills Electrical Upgrade—RPU Switchyard—Concrete placement near electrical vault**

## System Reliability Program

The System Reliability Program consists of projects to improve or modify facilities located throughout Metropolitan's service area in order to use new processes and/or technologies and improve facility safety and overall reliability. Recent activities include the following:

- **Headquarters Physical Security Upgrades**—This project implements comprehensive security upgrades for the Metropolitan Headquarters Building. These upgrades are consistent with federally recommended best practices for government buildings. This work has been prioritized and staged to minimize rework and impacts on day-to-day operations within the building. Stage 1 work is complete and provides enhanced security related to perimeter windows and doors. Stage 2 work is complete and provides security system upgrades inside the building with a focus on the main entry rotunda area, boardroom, executive dining lounge, and security control room. Stage 3 improvements will provide security system upgrades around the perimeter of the building. A construction contract for Stage 3 improvements was awarded in December 2022, and the contractor is transmitting project submittals. Construction is scheduled to be complete by December 2023.
- **Headquarters Building Fire Alarm and Smoke Control System Upgrades**—This project upgrades the Metropolitan Headquarters Building fire life safety systems, which includes replacement of the fire detection and alarm system and HVAC system improvements for smoke control. The fire alarm and smoke control systems in the Metropolitan Headquarters Building provide detection, notification, and control of building functions so that occupants and visitors can safely exit in the event of a fire. The contractor completed the fire alarm and the emergency responder radio communication system upgrades and is currently working on the smoke control upgrades. Construction is 80 percent complete and is scheduled to be complete by September 2023.
- **SCADA System Upgrades**—This project will upgrade Metropolitan's entire control system in incremental stages, spanning the Colorado River Aqueduct, the five water treatment plants, and the conveyance and distribution system. The first stage of this project replaces the control system at the Mills plant, starting with a pilot effort on one of the plant's remote terminal units. The pilot effort will demonstrate the proposed technology and the consultant's approach for the plant and the overall project. The consultant is currently providing submittals. The pilot phase is 12 percent complete and is scheduled to be complete by September 2023. The system upgrades at the Mills plant are scheduled to be complete by April 2026.



# Operations

## Water System Operations Core Business Objectives



### Prepare Employees for New Opportunities

The Water System Operations Apprentice and Technical Training Programs develop and train personnel to become qualified mechanics and electricians responsible for maintaining Metropolitan's water treatment and distribution systems. This month, Apprentice and Technical Training staff visited desert facilities and met with apprentices, journeymen, and managers to discuss and answer questions about the Apprenticeship Program. These meetings facilitate ongoing communication between program administration and apprentices and provide an opportunity to include journeymen and managers who oversee apprentices' work. In addition to Apprenticeship, staff reviewed regulatory training requirements and safety and technical training completion percentages and encouraged employees to complete training in a timely manner. Apprentice and Technical Training staff will continue to visit field sites in coming months.

The Class of 2026 electrical apprentices completed first period midterm exams on industrial health and safety. The Class of 2023 electricians and mechanics continued the eighth period of instruction. This month, apprentices prepared a job or shutdown plan and presented it to the class. Apprentices prepare tasks, coordinate resources, organize timelines, and identify affected agencies. As a result, apprentices will be equipped as journeymen to plan and communicate work that complies with Metropolitan policies and procedures.



Apprenticeship program staff, apprentices, and journeymen (left) and mechanical instructor and an apprentice (right) at Hinds pumping plant



**Apprentices viewing micrometer with instructors**

## **Administer Group Operations, Provide Management Controls, and Access Available**

### **Manage Vacancies**

WSO filled nine vacant positions in January.

### **Provide Reliable Water Deliveries**

Metropolitan member agency water deliveries were 60,100 acre-feet (AF) for February with an average of 2,150 AF per day, which was 110 AF per day higher than in January. Treated water deliveries increased by 3,200 AF from January for a total of 37,500 AF, or 62 percent of total deliveries for the month. The Colorado River Aqueduct (CRA) was at zero flow at the beginning of the month and transitioned to a four-pump flow near the end of the month, with a total of 14,000 AF pumped in February. State Water Project (SWP) imports averaged 250 AF per day, totaling about 7,050 AF for the month, which accounted for approximately 12 percent of Metropolitan's deliveries. The target SWP blend remained at zero percent for the Weymouth, Diemer, and Skinner plants, except for the last day of the month when Weymouth and Diemer plants transitioned to 30 percent SWP blend on their way towards 100 percent SWP before the Lake Mathews shutdown in mid-March.

### **Manage Water Reserves**

Water reserves continued to be managed according to Water Surplus and Drought Management (WSDM) principles, operational objectives, and the low State Water Project (SWP) allocation. Deliveries of SWP supplies were minimized to preserve SWP Carryover and Flexible Storage. Releases from Diamond Valley Lake (DVL) through PC-1 to connections on the Lakeview Pipeline, as well as the DVL-to-Mills plant operation, continued in February to conserve SWP supply use in that area. Returns from the Semitropic and Kern Delta SWP Banking Programs continued in February. Friant surface water supplies were also provided to Metropolitan in exchange for return water from the Arvin Program. In addition, staff continued coordination with member agencies, shifting their deliveries from SWP



connections to Colorado River water connections, when possible. Staff continues to evaluate the drought actions and the potential to shift to normal or wet year operations should the SWP supplies continue to improve in 2023.

## **Support the Pure Water Southern California Program**

Staff worked with the Los Angeles County Sanitation Districts to continue baseline testing of secondary membrane bioreactor operations at the Pure Water Southern California demonstration plant in Carson. The project team coordinated on preparing materials for upcoming meetings with the state regulators from the Division of Drinking Water and Regional Water Quality Control Boards on March 13, and the Independent Science Advisory Panel in late March.

## **Manage Power Resources and Energy Use in a Sustainable Manner**

Energy markets in February did not exhibit the same price volatility as in December 2022 and in January, and electricity prices in the California Independent System Operator (CAISO) market were within seasonal norms. As the CRA was shut down for most of February, Metropolitan was a net energy contributor to the CAISO market, through the hydropower allocations at Hoover and Parker dams. Net electric revenue for Metropolitan for February was approximately \$2.3 million.

Because of low SWP allocations and system operating conditions, Metropolitan's hydroelectric plants generated an average of about 2.8 megawatts, or 2,065 megawatt-hours and \$306,290 in revenue, for January 2023. Metropolitan's solar facilities totaling 5.4 megawatts of capacity generated approximately 491 megawatt-hours in January 2023.

## **Ensure Water Quality Compliance, Worker Safety, and Environmental Protection**

Metropolitan complied with all water quality regulations and primary drinking water standards during January 2023.

On February 7, Metropolitan hosted its quarterly meeting with the State Water Resources Control Board's Division of Drinking Water. Discussion topics included updates on regulations, cybersecurity, capital projects, elevated turbidity in Castaic Lake following January rainstorms and the Jensen plant's excellent performance in managing turbidity, current projects to operate the Jensen plant at a new minimum flow, and bromate monitoring results.

In October and November 2022, the Water Quality Laboratory in La Verne and the satellite laboratories at each of the treatment plants were audited by a state-approved assessor under the newly adopted state laboratory accreditation regulation. The final results of this multi-lab audit were provided at the end of January 2023, with the laboratories meeting all requirements under the regulation, allowing Metropolitan to now submit its accreditation renewal application to the state later in the year.

This month, staff published and posted the WSO Environmental, Health and Safety (EHS) Performance Chart on the IntraMet for calendar year 2022. The chart presents how operational units performed against established EHS performance metrics and the results are used to tabulate safety awards given during National Safety Month celebrations in June.

Date of Last Update:		2/14/2023		WSO EHS Performance Chart																							
Includes Data Up To:		CY 2022																									
		Leading Indicators												Lagging Indicators												Regulatory Inspection Count	
		Safety Inspection Completion Rate (%)		Training Completion Rate (Training % by FY)		Toolbox Completion Rate (%)		Safety Committee Meeting Rate (%)		Lost Checklist Completion Count		Near Miss Submissions Count		Recordable Injury Count		Reportable Chemical Release or Spill Count		Regulatory Inspection Findings - NCV Count		Regulatory Inspection Findings - NTC Count							
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## The Environmental, Health and Safety Performance Chart posted on the IntraMet

Staff published and posted several Safety Talks on the IntraMet to inform and promote employee safety during on-the-job activities. Topics included Hazardous Chemicals Awareness, Effective Housekeeping, Safety Communication, Stress in the Workplace and Employee Assistance Program, 10 Steps to Safety, and Excavation Hazards.

### MWD Safety Talk

Employee Environmental, Health & Safety Information for Electrical Safety: Don't Get Shocked



**Don't Get Shocked**  
Electrical shocks occur when a person becomes part of a circuit and the current flows through the body. Shocking someone or being shocked can cause serious injury, including death. Shocking is extremely dangerous when working with electrical equipment, cables, and conductors.

Equipment with a grounding prong must be plugged into an extension cord with a ground. Never disconnect the grounding plug from the equipment.

**Prevention is the Best Policy**

- Only qualified and authorized employees shall work on electrical equipment. Never use electrical tools when working with electricity.
- Follow the emergency response plan and the check-out procedures before the work begins.
- Use PPE: wear eye protection and insulated hand tools and gloves. Do not wear jewelry.
- Use insulated tools and equipment.
- Do not assume circuits have been properly de-energized. Test with voltmeter or voltage detector, etc. before work begins.
- Test equipment being interrupted by pressing the STOP/ON button.
- Do not ground the working leads. If a live lead is not needed, use a safety lock (lock) or tag (tag) to isolate the lead.
- Keep electrical work area dry and clean.
- Use a Ground Fault Circuit Interrupter (GFCI) or wet, damp, or rubber flooring.
- Do not use an extension cord as permanent wiring. Remove extension cords after temporary use for any activity if equipment is powered from an extension cord for more than 30 days. Then a permanent cord shall be installed.
- Play it safe: use personal safety equipment: any high-voltage equipment such as power lines, power cables, conductors, insulators, transformers, or other equipment.
- Do not connect cables. Use proper technique. Do not use two or more cable connections together.
- Do not touch power cords with eyes or ears.
- Do not use electrical tools through protective covers or insulation.
- Control any exposed electrical components or wires. Keep 3-foot clearance in front of electrical panels.
- Unplug cords from this outlet by pulling the plug. Do not pull the cord.

**If an Electrical Shock Incident Occurs, Know How to Respond**

- Designate someone to call 911 and notify the Area Control Center (ACC).
- If possible and safe to do so, turn off the source of the current. Use a wooden or plastic nonconductive item to remove power from contact with the source. Do not touch the person or any object that has become part of the circuit yourself.
- Resuscitate if person is breathing and check for a pulse. If needed, begin CPR when necessary.
- Keep the person lying down until medical personnel arrive. Do not move the person. Keep the person calm and help them. Immediately have a medical professional check on the person's condition.

**Discussion Questions**

- Can you identify any sources of electricity that need attention? What can you do to prevent getting shocked?

### MWD Safety Talk

Employee Environmental, Health & Safety Information for When to Call 911 or Go to Nearest Hospital Emergency Room or Go to a MWD Industrial Medical Provider

**When to Call 911 or Go to Nearest Hospital Emergency Room**

**OR**

**Go to Nearest Hospital Emergency Room**

- Heart trouble
  - Full motor vehicle collision, premeditated collision, concussion, serious burn, broken bone, dislocation
- Life-threatening injuries or illness
  - Electric shock, along neck, chest, breathing apparatus, difficulty swallowing, blood on face, sudden blindness, vision loss, paralysis or other symptoms
- Any chemical exposure or spill
  - Any chemical exposure or spill
- First aid
  - First aid or first aid training, swelling, pain, bruising, headache, high body temperature, confusion, dizziness, slurred speech, extreme weakness or fatigue
- Other medical conditions
  - Other medical conditions such as diabetes or a heart condition and employee is working with electricity and equipment
- Any other situation requiring immediate assistance from emergency medical services

**When to Go to a MWD Industrial Medical Provider**

Go to the nearest MWD Industrial Medical Provider or go to a MWD Industrial Medical Provider.

- Non-life-threatening conditions
  - Non-life-threatening conditions: first aid, minor infection, headache, and stomach ache. Not life-threatening (not life-threatening).
- Minor injuries
  - Minor injuries: first aid, minor infection, headache, and stomach ache. Not life-threatening (not life-threatening).
- Minor medical conditions
  - Minor medical conditions: first aid, minor infection, headache, and stomach ache. Not life-threatening (not life-threatening).
- Minor medical conditions
  - Minor medical conditions: first aid, minor infection, headache, and stomach ache. Not life-threatening (not life-threatening).

**Important Reminders**

- Never leave first aid equipment alone. If necessary, call for help from other employees.
- Never send an employee home after a reported serious medical issue unless instructed by a medical professional.
- When 911 is contacted, notify the Area Control Center (ACC) or Security Watch Center at 911. Do not leave the area until instructed by the emergency services. Do not leave the area until instructed by the emergency services.
- Notify Team Manager, Unit Manager, and EHS Site Support representative of incident as soon as possible.
- Report incident to the Incident Reporting System at 911 or 911 or 911.



## Safety Talks published and posted to the IntraMet

Staff pulled a communication cable between the hazmat 90-day storage area and the treatment plant control center at the Diemer plant. The new communication cable and high-level sensor will provide alarms to the Control Room in the event of a spill in the hazmat 90-day storage area.



**Staff upgrading hazmat storage area sensor cables at the Diemer plant**

## Optimize Maintenance

The 2023 CRA shutdown was performed over 24 days throughout the month of February. This annual shutdown allowed contractors and staff to work on several capital projects as well as complete maintenance, repairs, and inspections along the 242-mile long aqueduct and five desert pumping plants. Capital projects included the Hinds Pumping Plant panel replacement, the Hayfield tunnel level transducer installation, contractor delivery-line mortar lining repairs, and contractor repair of the Cholla Wash lining project. Operations and maintenance work included performing regulatory-required high-voltage system and transformer maintenance and testing, servicing the 230kV transmission system, completing coating repairs and inspections, servicing valves and gates, and cleaning canals and tunnels. The tunnel cleaning machine, designed and built by Metropolitan staff, traveled over 80 miles underground this year, cleaning and smoothing out concrete to maximize CRA flows. Staff also performed crack injection sealing inside Freda Siphon to reduce losses along the canal and inside the cable tunnel to prevent water intrusion at Hinds pumping plant. The transition structures, which connect delivery lines with headgate structures, were also repaired to prevent leaks and future erosion. Additionally, staff coordinated an outage of the Lakeview Siphon on the CRA and the interconnected San Diego Canal to perform a minor leak repair and install an enhanced dewatering sump to expedite canal dewatering. Nearly 300 employees and contractors safely coordinated to complete the critical work performed during the shutdown that helps keep the over 80-year-old aqueduct delivering Colorado River water reliably.





**Staff performing maintenance and repairs on a 230kV circuit breaker at Hinds pumping plant**



**Staff preparing to perform underwater cleaning at Intake pumping plant**



**Eagle Mountain inlet channel before (left) and after cleaning (right) with heavy equipment**



**Staff performing measurements of the discharge valve at Eagle Mountain pumping plant**



**Staff performing high-voltage switching at Hinds pumping plant**





**Staff staging area in support of the tunnel cleaning machine and crew**



**Desert staff lowering the tunnel cleaning machine into the CRA**



**Desert staff using heavy equipment to clean along the CRA during a high wind event**



**Staff performing high-voltage maintenance during the CRA shutdown**



**Staff performing inspections at Hinds pumping plant**



**The morning view from the Eagle Mountain headgate structure during the CRA shutdown**

Pipelines, aqueducts, and other conveyance infrastructure must often be dewatered to perform maintenance. Portable pumps and pipelines are constructed to ensure that the excess water is routed through proper draining areas. Staff fabricated drainage pipes to accommodate dewatering the CRA ahead of the 2023 shutdown.



**Staff fabricating a pipeline for a portable pump to dewater during the CRA shutdown**

Staff dewatered the Casa Loma Siphon during the CRA shutdown to accommodate contractor work to tie in earthquake-resistant flexible pipe. A dedicated 30-inch dewatering pipeline was used to route the discharge water back into the CRA, saving 65 AF of water.



**Staff dewatering the Casa Loma Siphon during the CRA shutdown**



**A large gate lowered into the CRA defines the beginning of the Casa Loma Siphon clearance**



**Inside view of the CRA downstream of the Casa Loma clearance zone**

Flowmeters on the CRA delivery lines provide instantaneous readings to help modulate flow along the 242-mile-long aqueduct. When the flowmeters fail, staff is quickly dispatched to troubleshoot and repair.



**Staff troubleshooting a flowmeter at Hinds pumping plant**



Monitoring the operating temperatures of main pump bearings provides insight into possible issues such as misalignment, lack of lubrication, or other concerns. Use of a Resistance Temperature Detector (RTD) provides accurate indication of pump bearing temperatures during operation. Staff calibrates the RTDs on an annual basis and replaces them as needed.



**Staff replacing an RTD on pump bearing at Eagle Mountain pumping plant**

Staff completed a shutdown of the Sepulveda Feeder to allow a contractor to internally inspect approximately 10 miles of the pre-stressed concrete cylinder pipe (PCCP) from the Roscoe sectionalizing valve to the Sepulveda Pressure Control Structure (PCS) with a pipe-diver device. The pipe-diver moved inside the pipeline with a controlled low flowrate to gather ultrasonic data to assess the condition of the pipeline. The contractor will analyze the data collected and will report whether there are additional wire breaks compared with a similar inspection that was performed in October 2015. Staff also completed coatings work at Sepulveda PCS on four ball valves, replaced 13 faulty valves, and conducted an inspection of the Peach Street sectionalizing valve during this shutdown.

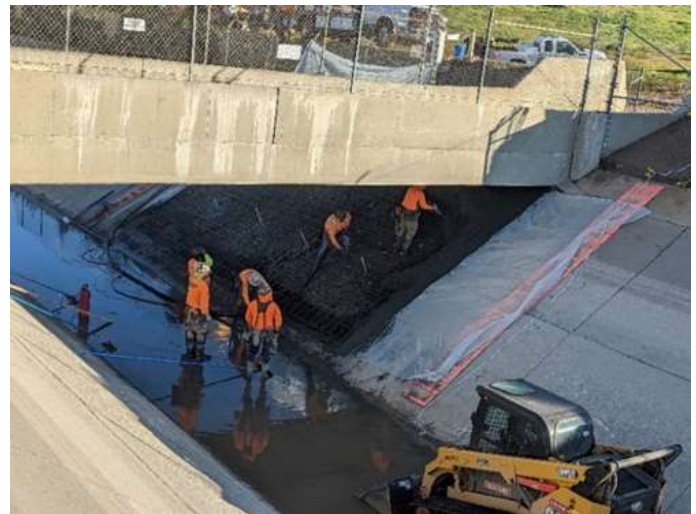


**Staff installing pipe-diver device to begin inspection of the Sepulveda Feeder**



**Metropolitan and contractor staff removing pipe-diver at Sepulveda PCS**

Staff completed liner repairs on the San Diego Canal at two locations. The San Diego Canal is a concrete-lined open channel that conveys Colorado River water from the Casa Loma Canal to Lake Skinner and the Skinner plant. The concrete panels vary in thickness from four to eight inches and are unreinforced. The replacement panels will be six inches thick with reinforcing steel.



**Staff removing (left) and replacing damaged concrete panels (right) on the San Diego Canal**

Staff repaired a 40-year-old air circuit breaker at the Temescal Hydroelectric Plant (HEP). The circuit breaker is used to connect the hydroelectric generator to the grid to export power as well as to isolate electrical faults in the generator.





**Staff repairing circuit breaker at Temescal HEP**

Staff began upgrading the transformer bank protection relays at Hinds pumping plant. The new protection relays are fast-acting devices that detect electrical faults and adjust the transmission line voltage to the voltage required to operate the pumps. The new protection relays add functionality to record fault events for faster troubleshooting in the future and are a critical step to facilitate the upcoming transformer replacement project.



**Staff verifying final wiring of new panels and relays at Hinds pumping plant**



**Staff performing system testing on new transformer protection relay panel at Hinds pumping plant**

The backwash header piping and filter valves are undergoing repairs after an equipment failure at the Diemer plant. This work includes disassembly of the backwash header and valves, restoration of the piping and mounts, coating, and reassembly. Staff installed lifting points into the overhead structure, disassembled the piping and valves, and is making the repairs.



**Staff installing lifting points (left) and removing one of two filter valves (right) at the Diemer plant**



**Staff lowering the main backwash line (left) and performing welding repairs (right) at the Diemer plant**

Weymouth plant staff is tasked with conducting National Fire Protection Association-mandated testing and maintenance of all low-voltage circuit breakers (breakers rated at less than 600 volts), with electronic/digital protection devices. This work is continuous throughout the year and often requires coordination with operations and other teams to complete. Staff recently completed the testing on the breakers in a unit substation. These breakers require the assistance of mechanical staff to lift the equipment using cranes and forklifts to remove the breakers from the substation. This testing improves the reliability and sustainability of the plant's electrical system.



**Electricians preparing for breaker removal at the Weymouth plant**



**Crane lifting circuit breaker at the Weymouth plant**

Staff continued work on disconnecting power and labeling the remote terminal unit (RTU) for the filter consoles in at the Weymouth plant. This work is in preparation for the quarter plant shutdown during the Basins 5–8 Rehabilitation Project. The team labeled all of the conductors going to the RTU boards for more efficient troubleshooting. The result of this work will allow power to the RTU to be easily disconnected to allow staff to safely work when troubleshooting and making repairs.





## **Technician disconnecting power from filter console and labeling conductors**

Staff replaced upstream and downstream elevation differential pressure cells at the Sepulveda Feeder and Inglewood Feeder Interconnection Pressure Control Structure (PCS). The differential pressure transmitters are used by system operators to monitor the elevation throughout the distribution system and control system flow. The old sensors and valves were at the end of their functional life and exhibiting signs of failure. New isolation ball valves, bi-directional valves, and a manifold were also replaced to correct flow meter issues and increase elevation measurement accuracy. The upgrades will provide more usable and accurate information for system operators.



## **Staff assembling new equipment at the Sepulveda Feeder and Inglewood Feeder Interconnection PCS**



## **Staff testing SCADA signals at the Sepulveda Feeder and Inglewood Feeder Interconnection PCS**

With 62 miles of open canal, consistent maintenance is required to keep the CRA clean and flowing efficiently. This month sand traps were cleaned. Sand traps are used to slow the flow of water and allow suspended debris to settle for later removal from the system. This process reduces wear on CRA pump components and related systems.



## **Removal of silt and debris from the sand trap at Eagle Mountain pumping plant**

With billions of gallons of water passing through annually, maintenance of the trash rack system at the Whitsett Intake pumping plant is critical. Divers are lowered into Lake Havasu to remove debris and quagga mussels that would eventually affect flow to the plant. Reduced inlet flows could potentially cause cavitation of the main pump units as well as issues with auxiliary systems such as circulating water. This maintenance is completed on a regular basis to ensure reliable operations.



**Staff performing maintenance on Intake trash racks**

In order to meet demand, some CRA components operate non-stop throughout the majority of the year. The circulating water systems in the pump plants provide a constant supply of cooling water to ensure that transformers, motors, and bearings can operate within normal temperatures in the hot desert environment. Secondary systems are used when primary pumps are removed from service for maintenance.



**Staff removing a circulating water pump for inspection and repair**



## Optimize Water Treatment and Distribution

The State Water Project target blend entering the Weymouth and Diemer plants and Lake Skinner was zero percent in February 2023.

Flow-weighted running annual averages for total dissolved solids from December 2021 through November 2022 for Metropolitan's treatment plants capable of receiving a blend of supplies from the State Water Project and the Colorado River Aqueduct were 599, 503, and 601 mg/L for the Weymouth, Diemer, and Skinner plants, respectively.

On February 28, staff held a 100 Percent Compliance Committee meeting to review the Skinner plant's performance and activities to ensure continued 100 percent compliance with primary drinking water regulations. Plant staff reviewed its regulatory compliance, operational performance, and optimization efforts. Metropolitan's 100 Percent Compliance Committee consists of managers from Water Treatment, Water Quality, Conveyance and Distribution, Engineering Services, and Control Systems. The committee meets regularly to review treatment plant and conveyance and distribution system performance and discuss compliance issues or operational modifications that may improve operations at Metropolitan facilities.

Staff replaced flocculator baffle boards at the Skinner plant. Flocculator baffle boards ensure that water does not move through the critical flocculation stage in the water treatment process too quickly. Using baffle boards ensures that the water remains in the flocculation basin long enough for small particles to gently mix and combine into larger floc, which can more readily settle out in the sedimentation process.



**Staff cutting new flocculator baffle boards before installation at the Skinner plant**

Staff performed annual preventative maintenance of an ozone contactor using a trailer-mounted vacuum at the Diemer plant. This work included removing quagga mussel shells, cleaning, and testing ozone diffusers. This work ensures that the ozone feed system functions properly.



**Staff vacuuming quagga mussel shells inside the ozone contactor (left) and using a trailer-mounted vacuum (right) at the Diemer plant**

Staff made repairs to the Finished Water Reservoir influent flow meter at the Skinner plant. Plant staff relies on flow to this meter to provide information on plant performance, because flowrate data is used to determine optimal chemical dosing values. Real-time flow information is crucial to ensuring that water quality goals are consistently met. Staff is required to adjust flows drastically to meet the changing demands of Metropolitan customers, sometimes multiple times each day. Expedient repairs such as this help keep the plant in compliance.



**Staff repairing the finished water reservoir influent flowmeter at the Skinner plant**

Staff continued work to install additional level monitors along the CRA for continuous remote monitoring of flows and elevations at key locations. An increased flow through the CRA requires increased monitoring of canal operations to ensure maximum capacity while mitigating the risk of overtopping the canal. Eleven new level monitors or gauging stations will be installed along the CRA to provide continuous flow data and to ensure reliable operations.



**Staff installing conduit (left) and the completed installation (right) along the top of the Hayfield Tunnel**

## **Improve Emergency Preparedness and Response**

Staff continued to reach out to external agencies and support various planning efforts throughout Metropolitan. On January 31, staff participated in an emergency exercise with the Long Beach Utilities Department (Water and Gas). During February, staff supported multiple orientation tours with the Orange County Fire Authority at the Diemer plant. Staff also supported Metropolitan's Local Hazard Mitigation Planning efforts by facilitating an outreach meeting with Southern California Edison. Staff also supported outreach efforts for multiple dam emergency action plans in San Bernardino County, California, and La Paz County, Arizona.

Mills plant staff participated in a "Stop the Bleed" training course. The course was taught in person with all plant personnel present. The training covered how to apply tourniquets to yourself and to someone else, packing wounds, and the urgency of time in a life-or-death situation. This training will allow all staff to use the provided bleeding control kits located in various locations around the treatment plant.



**Staff practicing tourniquet placement during "Stop the Bleed" training at the Mills plant**





**EMT Trainer demonstrating tourniquet placement during “Stop the Bleed” training at the Mills plant**

## **Actively Engage in Capital Project Planning and Execution**

Staff fabricated and installed a new fluoride injection feed line at the Weymouth plant. The new injection piping consists of PVC piping inside of a clear secondary containment PVC pipe, which feeds the new injection lance. Staff fabricated the new injection lance with a stainless-steel sleeve for additional support. This line provides redundancy and reliability to continue to feed fluoride to the treatment process during the Basins 5–8 Rehabilitation Project.



**Double containment piping (left) and new containment lance (right) for fluoride injection feed line at the Weymouth plant**

## Protect Source Water Quality

On February 23, an internal workshop was held with staff from various units and sections, to discuss the recent detection of a confirmed quagga mussel veliger (larval stage) at the Foothill PCS. On January 20, member agency managers and board members were updated, and based on information provided by Metropolitan staff, the California Department of Fish and Wildlife posted a summary of this discovery on its invasive species website on February 10. Discussion during the workshop focused on Metropolitan's monitoring program in the West Branch of the State Water Project, previous adult mussel discoveries in Pyramid Lake and Castaic Lake, possible control measures if needed, potential implications for raw water deliveries, and continued coordination on monitoring and control with the Department of Water Resources.

On February 27, Metropolitan's Colorado River Water Quality Issues group convened a meeting to discuss the status of active cleanup projects along the Colorado River, including the Moab Uranium Mill Tailings removal, Henderson perchlorate remediation, and PG&E Topock Compressor Station chromium-6 remediation. In addition, staff discussed the Colorado River Basin Salinity Control Program and related efforts to continue improving salinity control in the Colorado River.



**Staff examining water samples for quagga mussel veligers by cross-polarized microscopy**

## Prepare for Future Legislation and Regulation

On February 16, the State Water Resources Control Board announced a proposal to reduce the manganese notification level (NL) from 500 µg/L to 20 µg/L and the response level (RL) from 5,000 µg/L to 200 µg/L, based on the Division of Drinking Water's newly developed health protective concentration. NLs and RLs are not enforceable regulations; rather, they are state recommendations to provide customers and consumers with information about the presence of chemicals and health concerns associated with potential exposure through drinking water. Manganese is currently regulated by the U.S. Environmental Protection Agency (USEPA) and by California with a Secondary Maximum Contaminant Level of 50 µg/L, based on staining and taste considerations. The USEPA also recommends a one-day health advisory of 1,000 µg/L for acute manganese exposures for children and adults.

On February 13, staff participated in the 2023 California-Nevada Section of the American Water Works Association (AWWA) Water Utility Council planning workshop in Sacramento, to develop the AWWA legislation and regulation priorities to track during the next year. Updates and discussion topics included the state's financial assistance and water operator certification programs. Participation in such forums ensures that Metropolitan has the latest information on legislative and regulatory activities.



On February 3, the California Air Resources Board (CARB) released an unofficial draft of the Advanced Clean Fleets (ACF) Regulation prior to the 15-day public comment period. Metropolitan has over 500 diesel and gasoline trucks that will be affected by the ACF regulation. The latest draft includes a delay of the zero-emission vehicle (ZEV) purchase requirement from 2024 to 2030; however, Metropolitan would need to be on a ZEV purchase compliance schedule. In addition, the updated draft includes new exemptions for infrastructure construction or electrification delays. Staff is reviewing this latest draft and will provide comments to CARB, if needed.

On January 18, the USEPA and the Army Corps of Engineers published the final rule revising the definition of “waters of the United States” (WOTUS). Staff had previously commented in support of this rulemaking that restores the pre-2015 definition of WOTUS and codifies recent Supreme Court decisions. Staff will continue to monitor and engage on the issue, as USEPA still plans to build upon this “foundational rule” with a second rule designed to restore longstanding protections under the Clean Water Act.

On January 1, DDW issued a Drought and Conservation Technical Reporting Order (Order No. DDW\_HQ\_Drought2023\_001) (Order) requiring all community water systems and non-transient non-community schools to prepare drought and conservation reports beginning January 2023. Staff worked with the California Municipal Utilities Association (CMUA) last year to amend SB 552 to exclude Metropolitan’s small water systems from the need to conduct drought reporting; yet the Order still does so. Staff is conferring with DDW staff and CMUA to confirm whether Metropolitan’s Eagle, Gene, and Iron Mountain pumping plants fall under the Order.

## **Advance Education and Outreach Initiatives**

On January 31, the Water Quality Laboratory hosted a technical exchange with staff from the Korea Ministry of Environment, the Korea National Institute of Environmental Research, the Korea Water Resources Corporation, and two professors from local southern California universities. The discussion focused on Metropolitan's analytical methods for detecting and identifying cyanobacteria and cyanotoxins, along with control and treatment strategies. The visitors’ interest was spurred by Water Quality’s internationally recognized applied research and publications on cyanotoxins and other water quality issues.



**Technical exchange with Korean water industry professionals**

## **Support and Engage with Member Agencies on Technical Matters**

The La Verne Shops received a request from the Los Angeles County Public Works to manufacture several components to relocate a valve actuator at the San Gabriel Dam. The actuator operates a 48-inch hollow jet valve that was susceptible to water intrusion. After the components were manufactured, staff successfully installed and tested the valve actuator for proper operation.



**Original actuator in service (left) and new actuator assembly being lowered in place (right) at the San Gabriel Dam**



**Functional testing of the assembly (left) and final arrangement of the relocated actuator (right) at the San Gabriel Dam**

Monthly Update as of:

2/28/2023

<u>Reservoir</u>	<u>Current Storage</u>	<u>Percent of Capacity</u>
<b><i>Colorado River Basin</i></b>		
Lake Powell	5,324,000	22%
Lake Mead	7,469,000	29%
<b><i>DWR</i></b>		
Lake Oroville	2,576,043	72%
Shasta Lake	2,747,084	60%
San Luis Total	1,560,651	77%
San Luis CDWR	887,946	84%
Castaic Lake	189,998	59%
Silverwood Lake	68,725	92%
Lake Perris	91,531	70%
<b><i>MWD</i></b>		
DVL	487,471	60%
Lake Mathews	138,017	76%
Lake Skinner	25,677	58%



Hoover Dam

## Information Technology

### Project Highlights

#### LIMS TNI Implementation Project

The Information Technology Group has completed additional milestones for the Laboratory Information Management System (LIMS) project to increase compliance with requirements from The National Environment Laboratories Accreditation Conference Institute (TNI). The scope of the LIMS TNI Implementation project is to modify the existing Laboratory Information System's database, workflows, and other components to adhere to 2016 Rev 2.1 TNI requirements. An internal laboratory assessment based on TNI guidelines determined that the Water Quality laboratory's LIMS needs to be enhanced/revised in the following areas to ensure compliance with TNI's regulations and standards: data integrity; data traceability; quality control data; audit logging; inventory management; and process documentation. An agile project approach was adopted to fulfill project requirements faster through the release of specific functionality in small iterations. Within the past 3 months, the following project milestones have been completed:

- Support Equipment Traceability
  - LIMS has been successfully configured to accommodate selection and data storage for supporting equipment used during laboratory analyses such as thermometers, balances, etc.
- Quality Control Calculations
  - Detailed reporting and data exports have been created for analytical Method Detection Limits (MDL) in accordance with requirements.

The last project sprint "Configure Analytical Quality Control Charts" is in progress.

#### ServiceNow Upgrade

The Information Technology Group implemented its new IT Service Management (ITSM) enterprise system called ServiceNow in early 2021. It has provided a self-service customer support portal to all Metropolitan employees. The Information Technology Group uses this system to monitor and track all IT incidents, service requests, and changes. ServiceNow is also used for IT operations real-time dashboard and knowledge management.

Recently, IT underwent a successful six-week project to upgrade ServiceNow, which brings the ServiceNow enterprise platform to the latest release. This is the second upgrade successfully completed by the Information Technology team using the standard guidelines provided by the ServiceNow vendor. A complete set of regression test scenarios were executed covering all modules of ServiceNow ITSM solution in a non-production instance. According to ServiceNow, several improvements were incorporated in this release including artificial intelligence search, service catalog workflows, and automated test framework.



## Real Property

### Highlights

#### **Foster staff training and development.**

Staff attended a webinar sponsored by the California Lawyers Association: Negotiations Ethics - Winning Without Selling Your Soul, which presented negotiation scenarios and solutions.

Staff attended a Metropolitan sponsored Adobe Forms workshop, which provided instructions on how to create fill-in forms from scratch.

Staff served as a course coordinator for IRWA Course 215 - Right of Way Acquisition for Pipeline Projects, which provided education related to acquisition for pipeline projects.

### **Core Business: Real Property Acquisition, Management, and Revenue Enhancement**

#### **Efficiently maintain and operate assets not related to the treatment and distribution of water.**

The Diamond Valley Lake Marina opened the Wildflower Trail for visitors to enjoy a walk on the 1.3 mile trail loop. While the full bloom has not arrived, staff expects this year's bloom to be bigger than the blooms in recent years.





Staff completed urgent repair work to replace leaking section of 8" fire line piping within the fire pump room at MWD Headquarters building. This repair was critical for maintaining LA City fire water feed to the underground tank which feeds the buildings entire fire sprinkler water distribution system.



**Before**



**After**

## **District Housing Maintenance and Management.**

Desert staff completed maintenance request that included new dishwashers, repair of door locks, repair furnaces, water heater replacements, plumbing repairs and assessed electrical issues.

Pre-occupancy repairs on one house were completed this reporting period. Repairs to this house consisted of interior/exterior painting, new windows, new flooring, new kitchen cabinets/countertops, new appliances, and a full bathroom remodel.



**House 109-G Before**



**House 109-G After**

The Desert Housing and Recreation Interim Action Plan (DHRIAP) has been implemented and continues to work on carport installations at Gene, and preparations for backyard shade structure installations. The resurfacing of the Iron Mountain multi-purpose sport court has been completed. In addition, 14 residential load centers were replaced or repaired, and 23 garage sub-panels were replaced at houses located at the Gene village.



**Before and After Carport Installation at House 47-G**



**Iron Mountain Sport Court - Before**



**Iron Mountain Sport Court - After**



## Security

### Project Highlights

#### Security and Emergency Response

Spillway openings are connected to storm drains and other local interagency wastewater systems and can be susceptible to casual trespass opportunities and encroachment. Securing these potential security vulnerabilities mitigates against the tampering with public drinking water substructures and pipelines.

Metropolitan security specialists worked with staff from the Western Region Conveyance and Distribution Teams (Valley, Los Angeles, and La Verne) to rapidly identify, assess, and reinforce dozens of spillway openings. Staff presented findings to management and immediately addressed the highest-risk infrastructure vulnerabilities by taking the following actions:

- Welding substructure hatches
- Affixing permanent stainless-steel gratings
- Reinforcing door hasps
- Adding through-hardened steel chains with high-security padlocks

These additional physical improvements increase both public safety and the integrity of Metropolitan's distribution system.



**Metropolitan's Security Specialists partnered with Western Region C&D staff to mitigate spillway vulnerabilities**

## Employee Readiness for All Hazards and Emergencies

Ongoing security exercises and realistic training rehearsals are key components in effective and reliable security planning. Members of Metropolitan's Security Unit conducted a full-scale simulated security lockdown drill at the Metropolitan Headquarters Building. Staff validated recent security system upgrades, the public address system, security procedures, and access control equipment. Participants included:

- Securitas contract security personnel
- Security contract technicians
- Staff from Metropolitan's Construction Management and Engineering Services Group

The drill kicked off with a safety toolbox included a detailed verbal briefing and took one hour to complete. An informal debrief was immediately conducted, and invaluable written feedback gathered with specific recommendations to improve equipment shortfalls, emergency response gaps, and additional training needs.



**Members of Metropolitan's Security Unit conducted a full-scale simulated security lockdown drill**



# Finance and Administration



## Finance

### Maintain Strong Financial Position

**Provide timely and discerning financial analyses, planning, and management to ensure that forecasted revenues are sufficient to meet planned expenses and provide a prudent level of reserves consistent with board policy.**

**Manage risk to protect Metropolitan's assets against exposure to loss.**

The Risk Management Unit completed 36 incident reports communicating instances of Metropolitan property damage, liability, workplace injuries, regulatory visits, and spills.

Risk Management completed 54 risk assessments on contracts, including professional service agreements, construction contracts, entry permits, special events, and film permits.

### Business Continuity

**Facilitate district-wide planning and training to prepare employees and managers to effectively carry out critical roles and recover mission essential functions thus ensuring continuity of operations and resiliency in the event of a disaster.**

**Manage the Business Continuity Management Program in accordance with Operating Policy A-06.**

- Continued to deliver training to planning coordinators across the district on how to update business continuity plans in the Fusion software.
- Participated in planning meetings to develop a Local Hazard Mitigation Plan in accordance with FEMA requirements that would enable Metropolitan to seek grant funding for projects.
- Continued conducting business continuity tabletop exercises focused on a loss of IT systems scenario in an ongoing effort to prepare for continuity of operations following a cyberattack.

### Financial Management

**Manage Metropolitan's finances in an ethical and transparent manner and provide consistent, clear, and timely financial reporting. Update Metropolitan's capital financing plans and work with rating agencies and investors to communicate Metropolitan's financial needs, strategies, and capabilities, thus ensuring that Metropolitan has cost effective access to capital markets and the ability to finance ongoing future needs. In addition, actively manage Metropolitan's short-term investment portfolio to meet ongoing liquidity needs and changing economic environments.**

**Record and report the financial activities of Metropolitan in a timely, accurate, and transparent manner to the Board, executive management, member agencies, and the financial community.**

- Water Transactions for January 2023 (for water delivered in November 2022) totaled 112.4 thousand acre-feet (TAF), which was 45.9 TAF lower than the budget of 158.3 TAF and translates to \$105.5 million in receipts for January 2023, which was \$36.2 million lower than budget of \$141.7 million.
- Year-to-date water transactions through January 2023 (for water delivered in May 2022 through November 2022) were 1,005.2 TAF, which was 39.2 TAF lower than the budget of 1,044.4 TAF. Year-to-date water receipts through January 2023 were \$936.2 million, which was \$56.3 million lower than the budget of \$992.5 million.

# Finance and Administration

(continued)

- In January 2023, Accounts Payable processed approximately 3,200 vendor invoices for payment and took advantage of about \$1,400 in discounts.

## **Manage investor relations to ensure clear communications, accuracy of information, and integrity.**

Provided updates to Metropolitan's website and Investor Relations portal related to various financial documents and reports and capital investment plan updates.

## **Update capital financing plans and work with rating agencies and investors to communicate financial needs and capabilities, ensure cost-effective access to capital markets, and maintain long-term bond ratings of AA or better.**

Initiated an internal update of Metropolitan's Appendix A document for a bond financing anticipated in the late Spring 2023. Appointed an underwriting team to commence preparation of bond documents and processes to support the upcoming bond sale.

## **Prudently manage the investment of Metropolitan's funds in accordance with policy guidelines and liquidity considerations.**

As of January 31, 2023, Metropolitan's investment portfolio balance was \$1.2 billion; in January 2023, Metropolitan's portfolio managers executed 29 trades.

In January 2023, Treasury staff processed 996 disbursements by check, 22 disbursements by Automated Clearing House (ACH), and 121 disbursements by wire transfer. Treasury staff also processed 82 receipts by check, 42 receipts by ACH, and 52 receipts by incoming wires and bank transfers.

In addition, there were 7,942 P-One Card transactions, totaling \$1.1M, recorded in the January bank statement.

## Administrative Services

### Accomplishments

#### Pure Water Southern California Program

During the month of February, the Professional Services Contracting Team (PSCT) completed a crucial acquisition in support of the Pure Water Southern California Program. **Request for Proposal (RFP) No. 133—Pure Water California Engineering Design Services for Conveyance Reaches 1 & 2** was awarded to obtain the services of experienced and qualified consultants to provide engineering design services for the Pure Water Southern California Conveyance Reach No. 1 through the City of Carson and Reach No. 2 through the cities of Long Beach and Lakewood. This project enables Metropolitan and the Los Angeles County Sanitation Districts to explore the potential of a large-scale recycled water infrastructure system to beneficially reuse water currently discharged to the Pacific Ocean.

#### Inventory Management Team Donation

One of Investment Recovery's responsibilities is to assist with donating equipment that has no further use and is considered salvage at Metropolitan. As identified in Operation Policy F-02 Disposal of Surplus Personal Property, Metropolitan surplus personal property can be disposed of by donation with the approval of the General Counsel.

Last month, Metropolitan approved the donation of turbidimeters to Casitas Municipal Water District. Turbidimeters are used to measure the clarity of the water in Nephelometric Turbidity Units and provide a real time reading that can be recorded and transmitted. It is a requirement for all public water utilities to measure, record, and report the clarity of the water in accordance with EPA regulations and the State Water Resource Control Board. The units donated are a few generations old and are no longer used at Metropolitan's facilities. While the turbidimeters have no further use at Metropolitan, they will greatly benefit the Casitas Municipal Water District. The donation will help Casitas Municipal Water District staff secure spare parts to continue their organization's water operations.

#### E-Waste Yearly Collection

One of Investment Recovery's core responsibilities is to collect electronic waste from all facilities across the district, as well as to weigh, document, and report yearly collections with the California Department of Toxic Substances Control. It is important to collect e-waste because it keeps electronics out of landfills, which can contaminate the soil and waterways. Collecting e-waste also gives the equipment the opportunity to be reused or repurposed, which decreases the demand for new materials helping to conserve natural resources. Metropolitan and the team at Investment Recovery are doing their part of environmental stewardship by inspecting electronic waste as it comes in and determining whether the equipment can be sold via auction or scrapped via e-waste. In 2022, Investment Recovery collected **31,500 lbs.** of electronic waste and disposed of it via e-waste collection companies.

## Human Resources

### HR Priorities

**Partner with Metropolitan leadership to support learning, development, and adaptive workforce planning initiatives.**

In February, 110 Metropolitan employees attended virtually facilitated classes, including Avoiding Burnout, Excel Charts & Graphs, Conflict Management, Advanced PowerPoint, Intro to SharePoint, and Communication Skills.

LinkedIn Learning, Metropolitan's online e-learning content platform, was accessed for such topics as Problem Solving Techniques, Negotiations Foundations, Leading Projects, and Delegating Tasks.

**Seek diverse, high-quality talent, and establish partnerships to discover additional outreach opportunities that aid in staffing positions.**

Recruitment successfully filled 22 positions for February. Recruitment received 30 new staffing requisitions resulting in 211 positions currently in recruitment.

### HR Core Business: Provide Excellent Human Resources Services

**Objective #1: Administer all HR services with efficiency and a focus on customer service excellence, consistency, and flexibility.**

The HR Benefits Unit is working with legal staff, Empower, and Hyas Group on details of the SECURE Act 2.0 to develop a chart of all optional provisions available for the 401(k) and 457(b) plans to provide to the Deferred Compensation Advisory Committee (DCAC) for review and discussion. Further research and meetings will be required to determine which optional provisions will be beneficial for Metropolitan to adopt. Once final decisions are made and provisions are adopted, a communication campaign and financial education plan will be developed and deployed to all active employees and plan participants.

The Employee Leave page is currently being revised to include a new Employee Leave Guide to summarize the provisions of the various Administrative Codes (6227, 6228, 6229, 6231, 6246, and 6530) approved by the Board on December 13, 2022. This guide will help educate employees about their leave rights, accruals, and options; and provide information on the leave donation and other benefit programs available to assist them with their leave of absence and transition back to work.

### HR Core Business: Comply with Employment Laws and Regulations

**Objective #1: Effectively administer all Human Resources policies, programs, and practices in compliance with applicable federal and state laws and Metropolitan's Administrative Code, Operating Policies, and Memorandum of Understanding.**

The HR Benefits Unit worked with CalPERS Compliance staff to develop two new Board Resolutions to ensure the value of reporting employer paid member contributions (EPMC) continue to be administered according to the current Memorandum of Understandings (MOUs) with all Bargaining Units and Administrative Code 6521. This request of updated Resolutions from CalPERS is following the EPMC Audit (Job No 3P20-049) conducted in late 2021 of 60 agencies randomly selected by PERS. Human Resources staff is currently working with legal staff on the Board Action Letter and presentation for the March 14 board meeting to request approval of the new Resolutions required to replace Resolution 8740 for Unrepresented employees and 9129 for Represented employees.

# Finance and Administration

(continued)

Following approval of the Administrative Codes affecting Leave Administration, the Family and Medical Leave application and HR Procedure Guidelines have been updated to ensure compliance with the new state laws under AB 1041 and AB 1949 and a separate Military Leave application developed to assist employees with their leave requests and decisions regarding pay and benefits while on an approved leave of absence. The HR Benefits unit is currently working with legal staff, Empower, and Hyas Group on the details of the SECURE Act 2.0 to ensure that all mandatory provisions affecting Metropolitan's 401(k) and 457(b) plans are implemented by the required deadline dates set by this new federal bill to ensure continued compliance.

HR Benefits and HRIS are working together to create and issue the 2022 calendar year 1095-C employee statements on or before March 2 as required by the IRS to meet the requirements of the Affordable Care Act (ACA). A memo to all employees explaining the reason and requirements for the statements, and encouraging employees to go green by opting in to receive their statements electronically will be emailed to all employees in February.

In February, six new workers' compensation claims were received. Nine employees remain off work because of an industrial injury or illness. This reflects Metropolitan's effort to accommodate injured workers, while enabling them to be productive and on the job.

In addition, staff is collaborating with other Metropolitan stakeholders to implement a new Incident Reporting and Case Management System designed by Ventiv Technology. Staff continues to work closely with our Workers' Compensation Third-Party Administrator, TRISTAR Risk Management.

Activities of the Medical Screening Unit are summarized as follows for February:

- Coordinated two medical Medvan visits (DMV, respirator exams, and hearing tests) at Lake Skinner and Lake Mathews.
- Facilitated return-to-work from leave for four employees.
- Addressed 30 accommodation issues, referrals, and follow ups with Shaw Consulting Group.

HR Metrics	June 2022	February 2023	Prior Month January 2023
<b>Headcount</b>			
Regular Employees	1,762	1758	1,786
Temporary Employees	37	17	19
Interns	2	1	1
Recurrents	18	18	18
Annuitants	19	25	22

	February 2023	January 2023
<b>Number of Recruitments in Progress (Includes Temps and Intern positions)</b>	211	203
<b>Number of New Staffing Requisitions</b>	30	11
	February 2023	January 2022
<b>Number of Job Audit Requests in Progress</b>	8	7
<b>Number of Completed/Closed Job Audits</b>	2	0
<b>Number of New Job Audit Requests</b>	3	1



# Finance and Administration

(continued)

Transactions Current Month and Fiscal YTD (includes current month)			
<u>External Hires</u>	<u>FY 21/22 Totals</u>	<u>February 2023</u>	<u>FISCAL YTD</u>
Regular Employees	82	12	79
Temporary Employees	36	3	13
Interns	4	0	0
Internal Promotions	70	2	41
Management Requested Promotions	152	20	97
Retirements/Separations (regular employees)	127	40	82
Employee-Requested Transfers	15	1	12

## Departures

Last	First Name	Classification	Eff Date	Reason	Group
Bermudez-Bracy	Carmen	Pr Admin Analyst (C)	12/24/2022	Retirement - Service	DIVERSITY,EQUITY& INCLUSION
Norberg	Neil	Pr Engineering Technician	12/24/2022	Retirement - Service	ENGINEERING SERVICES GROUP
Runyan Jr.	Harold	O&M Tech IV	12/23/2022	Retirement - Service	WATER SYSTEM OPERATIONS GROUP
Castillo	Julio	Unit Mgr-Engineering Services	12/31/2022	Retirement - Service	ENGINEERING SERVICES GROUP
De Leon	Juan	Resource Specialist	12/31/2022	Retirement - Service	WATER RESOURCE MANAGEMENT GRP
Donhoff	Kevin	Section Mgr-Water Resource Mgt	12/31/2022	Retirement - Service	WATER RESOURCE MANAGEMENT GRP
Hamm	Brad	Sr Engineering Technician	12/31/2022	Retirement - Service	ENGINEERING SERVICES GROUP
Kalbacher	Julie	Pr Public Affairs Rep	12/31/2022	Retirement - Service	EXTERNAL AFFAIRS
Lem	Stephen	Human Resources Section Mgr	12/31/2022	Retirement - Service	HUMAN RESOURCES GROUP
Masannat	Clara	Pr Admin Analyst (C)	12/31/2022	Retirement - Service	HUMAN RESOURCES GROUP
McDonnell	Christopher	Sr Planner Scheduler	12/30/2022	Retirement - Service	WATER SYSTEM OPERATIONS GROUP
McMillan	Jacquelyn	Pr Government & Region Aff Rep(C)	1/7/2023	Retirement - Service	EXTERNAL AFFAIRS
Radhakrishnan	Suresh	HR Strategic Partner	12/31/2022	Retirement - Service	HUMAN RESOURCES GROUP
Schlang	Setha	Sr Dpty General Counsel (C)	12/31/2022	Retirement - Service	GENERAL COUNSEL

# Finance and Administration

(continued)

## Departures (continued)

Last	First Name	Classification	Eff Date	Reason	Group
Shraibati	Lilly	Group Manager-Real Property	12/31/2022	Retirement - Service	REAL PROPERTY
Hamawi	Izzat	Sr Engineer	12/31/2022	Retirement - Service	ENGINEERING SERVICES GROUP
Popick	Leonard	Occ Safety & Health Spec	12/31/2022	Retirement - Service	WATER SYSTEM OPERATIONS GROUP
Sells	Yley	Planner Scheduler	12/30/2022	Retirement - Service	WATER SYSTEM OPERATIONS GROUP
Arakawa	Stephen	Group Manager-Bay Delta Intivs	12/31/2022	Retirement - Service	BAY DELTA INITIATIVES
Bentley	Donald	Engineer	12/31/2022	Retirement - Service	WATER RESOURCE MANAGEMENT GRP
Davenport	Benny	Team Manager IV	12/31/2022	Retirement - Service	WATER SYSTEM OPERATIONS GROUP
DesRoches	Trudi	Unit Mgr-Water Treatment Plant	12/31/2022	Retirement - Service	WATER SYSTEM OPERATIONS GROUP
Jalali	Mehdi	Unit Mgr-Construction Services	12/31/2022	Retirement - Service	WATER SYSTEM OPERATIONS GROUP
Ma	Stephen	Team Mgr-Operations App Svcs	12/31/2022	Retirement - Service	INFORMATION TECHNOLOGY GROUP
Petrassi	Domenico	IT Support Analyst II	12/31/2022	Retirement - Service	INFORMATION TECHNOLOGY GROUP
Ramirez	Jose	Sr IT Infrastructure Adminstr	12/31/2022	Retirement - Service	INFORMATION TECHNOLOGY GROUP
Reyes	Christina Mae	Sr Accounting Tech	12/31/2022	Retirement - Service	FINANCE GROUP
Siewert	Barbara	Sr Recruitment Specialist (C)	12/31/2022	Retirement - Service	HUMAN RESOURCES GROUP
Tonsick	John	Asst General Auditor	1/4/2023	Retirement - Service	OFFICE OF THE GENERAL AUDITOR
Wagner	Harold	EHS Field Specialist III (C)	12/31/2022	Retirement - Service	WATER SYSTEM OPERATIONS GROUP
Cortez	Manuel	Pr Land Surveyor	12/31/2022	Retirement - Service	ENGINEERING SERVICES GROUP

# Finance and Administration

(continued)

## Departures (continued)

Last	First Name	Classification	Eff Date	Reason	Group
Goodman	Mark	Sr Engineer	12/31/2022	Retirement - Service	WATER SYSTEM OPERATIONS GROUP
Hackett-Cole	Veronica	Sr Admin Analyst (C)	12/31/2022	Retirement - Service	EXTERNAL AFFAIRS
Holland	Leonard	Pr Engineering Technician	12/31/2022	Retirement - Service	ENGINEERING SERVICES GROUP
McLain	Susan	Team Manager II	12/31/2022	Retirement - Service	WATER SYSTEM OPERATIONS GROUP
Mohr	Jay	Team Mgr-IT Telecommunication	12/31/2022	Retirement - Service	INFORMATION TECHNOLOGY GROUP
Okano	Florence	Admin Assistant III	12/31/2022	Retirement - Service	ENGINEERING SERVICES GROUP
Veale	Barry	Wtr Trtment Plant Operator III	12/29/2022	Retirement - Service	WATER SYSTEM OPERATIONS GROUP
Yamasaki	Brent	Group Manager-Water System Ops	12/31/2022	Retirement - Service	WATER SYSTEM OPERATIONS GROUP
Parker	Dawn	Pr Project Controls Specialist	1/7/2023	Deceased	ENGINEERING SERVICES GROUP

## Diversity, Equity and Inclusion

### **Tribal Outreach & Engagement**

DEI staff met with the Soboba Tribe environmental group staff. The in-person meeting, held at the Soboba reservation, covered a discussion of workforce development as well as apprenticeship opportunities for Soboba tribal members. Parties agree that the next step would be a job tour of Metropolitan facilities, focusing particularly how certain careers function within the Metropolitan water systems operation. This provides a way for tribal participants to gain an understanding of the career field.

### **Business Outreach & Community Engagement**

The Metropolitan Water District of Southern California hosted the MetWorks Industry Day In-Person event at the Carson Event Center on February 2, 2023. Over 400 attendees and Primes consultants attended the event to provide the construction and consulting community an opportunity to foster partnerships while becoming informed of potential upcoming contracting opportunities with our Pure Water Southern California reuse program and our drought sustainability projects, which are currently designated to use a combination of Alternative Project Delivery and traditional design-bid-build approaches.

### **Equity in Infrastructure Pledge (EIP)**

Metropolitan, in conjunction with an organization called LAVA, convened several different stakeholders and community-based organizations to collectively envision how to advance contracting opportunities to historically underserved businesses. The forum, called “Dream Big,” was hosted by Metropolitan and featured representatives from CalTrans, The Port of Long Beach (POLB) and the Governor’s Office of Business and Economic Development (GO-Biz). Afterward, Metropolitan and POLB leadership met to discuss details of a potential MOU between both EIP signatory organizations.







## External Affairs

### Highlights

Vice Chair Repenning, Director Erdman, and GM Hagekhalil welcomed more than 200 prospective contractors and consultants at the MetWorks Industry Day, where businesses learned about Metropolitan's 10-year, \$3.2 billion capital investment program, project labor agreements, and initiatives to increase employment and contractor opportunities. (February 2)

GM Hagekhalil, the keynote speaker at a Walton Family Foundation event, spoke about how Metropolitan is using a One Water approach to address both climate resilience and mitigation. Also in attendance was Natural Resource Secretary Crowfoot. (February 4)

Metropolitan sponsored the Municipal Water District of Orange County's Public Policy Dinner honoring the life of MWDOC General Manager Rob Hunter. Chair Ortega, Vice-Chair Goldberg, Vice-Chair Camacho, Directors Dennstedt, Dick, Luna and Lefevre, GM Adel Hagekhalil, and staff attended. (February 9)

Bureau of Reclamation Commissioner Touton and Deputy Commissioner Palumbo met with directors and staff at the board retreat to talk about the cooperation and action needed to address the many challenges facing the West. (February 13)

GM Hagekhalil spoke at the NACWA conference and shared his vision of how the One Water approach can be operationalized for improved water resiliency. (February 16)

GM Hagekhalil spoke at the "Dream Big" event, which focused on small business inclusion as a key part of Metropolitan's DEI priorities. (February 23)

Metropolitan sponsored and Chair Ortega, Director Dick, EO/AGM Upadhyay and Colorado River Resource Manager Hasencamp were speakers at the Urban Water Institute Spring conference. (February 22-24)



Chair Ortega joined with more than 100 local leaders and representatives from the faith community, business, and labor at the Groundswell Water Justice Summit to demand water justice and more support for small water systems, many of which serve low-income communities. (February 24)



*Top Photo: CFO Kasaine, Chief Engineer Bednarski, Vice Chair Repenning, Dir. Erdman, DEI Chief Thomas, and former Dir. Trevino at MetWorks. Middle Photo: GM Hagekhalil with CA Natural Resources Secretary Crowfoot. Bottom Photo: GM Hagekhalil with Reclamation Commissioner Touton and Deputy Commissioner Palumbo.*

## Legislative Services

### Federal

Representatives Calvert (R-Corona), and Napolitano (D- El Monte) sponsored a briefing for Congressional staff on California's perspective on the Colorado River. Metropolitan participated in the briefing along with staff from the Colorado River Board of California and Imperial Irrigation District. (February 27)

Chair Ortega, Vice Chair Repenning, Directors Cordero, Garza, Jung, Luna, and Miller, GM Hagekhalil, and AGM/CEAO Zinke traveled to Washington, D.C., and met with members of Congress and the Biden Administration to discuss California's Colorado River proposal, progress on Pure Water Southern California, and water supply conditions. Meetings were held with Senators Feinstein and Padilla, Representatives Calvert, Napolitano, and Bentz (R-Oregon), the White House Council on Environmental Quality, EPA Office of Water, and the Bureau of Reclamation. Several directors including Directors Fellow and Peterson also attended the ACWA DC conference, which took place the same week. (February 28)



*Metropolitan delegation at Congressional briefing*

### State

The Senate and Assembly budget committees hosted their first hearings of the Governor's proposed budget and heard from the LAO and Dept of Finance that the state could see a potential budget shortfall of up to \$60 billion.

Metropolitan staff is analyzing newly introduced legislative proposals including those dealing with water rights, removal of non-functional turf, Delta conveyance, and measures for climate resilience.

### Local

Metropolitan staff accompanied Chair Ortega, who was the featured speaker at the San Gabriel Valley Water Association. He spoke to past pioneering and ongoing resiliency efforts of Valley water leaders and the importance of continued similar efforts to meet today's challenges. (February 8)

Board Secretary Fong-Sakai and Director Smith attended, and Metropolitan sponsored, the San Diego Chamber of Commerce Anniversary event. (February 9)

Directors Jung, Luna, and Quinn and GM Hagekhalil attended, and Metropolitan sponsored the Los Angeles Area Chamber of Commerce's 2023 Inaugural, which recognized civic and business leadership. (February 16)

Metropolitan staff presented, monitored, and/or participated in 64 webinars, virtual meetings and events with community organizations, trade associations, and local officials on water-specific topics.

## Media and Communications

Hosted media availability at WRM Resource Specialist Guerrero's home to share her experience installing water-efficient landscaping. KABC-TV Channel 7, KTLA-TV Channel 5, KCBS-TV/KCAL-TV Channel 2/9, and Spectrum covered the media event. GM Hagekhalil and Director Faessel attended.

Coordinated interviews with CNN, USA Today, KPCC's AirTalk with Larry Mantle, KTLA-TV Channel 5, KABC7 Los Angeles, Fox 10 Phoenix, ABC 10 Sacramento, NBC 3 Las Vegas, ABC 13 Las Vegas, and Stateline with GM Hagekhalil, EO/AGM Upadhyay, and Colorado River Resources Manager Hasencamp regarding the two water use modeling proposals from California and the other six Basin States.

Arranged an interview between Insider news climate reporter Catherine Boudreau, Colorado River Resources Manager Hasencamp, and WSO Asst. Group Manager Jontry on how dropping lake levels at Mead and Powell may affect hydropower production and electricity users.

Coordinated an interview with Spectrum's Alex Cohen and Chair Ortega on leadership, drought, and other issues.

Set up an interview between Pepperdine student Allison Levens and WRM's Resource Planning Team Manager Polyzos regarding drought conditions.



*Media Event on Landscape Transformation from Lawns to Native Gardens*



Arranged a live interview with Fox Weather and Colorado River Resources Manager Hasencamp about Lake Mead's conditions, the effects of climate change, and the impact of this winter's wet weather.

Coordinated an interview with Estuary News writer Michael Adamson and Bay Delta Initiatives Engineer Ryan about restoration projects on Bouldin Island.

Arranged a meeting with LA Times editorial board, GM Hagekhalil, and Natural Resources Secretary Crowfoot on the Colorado River and the competing SEIS proposals from California and the six Basin States.

Hosted a tour of Lake Mathews and an interview with NBC national reporter Steve Patterson and Colorado River Resources Manager Hasencamp on Colorado River developments and climate change.

Coordinated an interview with KNX-AM 1070 and Sustainability, Resiliency and Innovations Chief Crosson on the opening of the wildflower trail at Diamond Valley Lake.

Arranged an interview between CalMatters reporter Alastair Bland and Bay-Delta Initiative Manager Hawk regarding Sites Reservoir.

Set up a tour of Pure Water Southern California with Wall Street Journal reporter Alex Ossola for a story about recycled water for the Future of Everything podcast, and interviews with External Affairs' Team Manager Soni and Water System Operations' Asst Group Manager Collins.



*Wildflowers at Diamond Valley Lake*



## Press Releases

- State Water Project allocation increases
- GM statement for California agencies press release on Colorado River proposed modeling framework
- New directors representing the Municipal Water District of Orange County and Central Basin and West Basin municipal water districts
- Wildflower trail at Diamond Valley Lake
- New General Auditor Scott Suzuki

## Creative Design

Filmed beauty influencer Josie Maran for the next series of the social media influencer campaign to promote conservation.

Filmed a smelt release research project on Metropolitan islands in the Sacramento-San Joaquin Delta.

Completed a new training video on water quality sampling.

Created video recaps of the facility-naming event at Lake Mathews for former board Chairwoman Lois Krieger and former Director Don Galleano, and of the Project Labor Agreement signing ceremony.

Created a Super Bowl-themed, Valentine's Day, and a series of animated rainy-day digital messaging promoting water conservation and directing viewers to [bewaterwise.com](http://bewaterwise.com).



*Videographers were on site in the Delta as researchers released hatchery Delta Smelt in cages in a pond on Bouldin Island as part of a pilot project between UC Davis and Metropolitan.*



## Website

Added a new home page section on the GM strategic priorities, posted the Annual Achievement Report and accompanying scorecard, and completed the final conversion of the website's content management system.



Added English, Spanish, and Chinese language flyers on non-functional turf to the bewaterwise.com toolkit.

Received nearly 96,000 views on mwdh2o.com, with careers, job listings, and board pages among the most visited.

## Social Media

Collaborated with Black Employees Association on social media series to commemorate leadership and legacy during Black History Month.

Received more than 20 million impressions on social media platforms with more than 120,000 clicks to bewaterwise.com.

## Public Outreach and Member Services

Conducted one director inspection trip to the Lower Colorado River. (February 24–26)

Participated on Emergency Preparedness Summit Drought Panel hosted by California Special District Association, USC, and So Cal Edison. (February 24)

Conducted community outreach activities on the following projects:

- Provided information in Fontana and Rancho Cucamonga on the Etiwanda Pipeline North Lining Repair
- Briefed LA City Council District 15 staff on Second Lower Feeder PCCP Rehabilitation
- Updated residents of Rolling Hills Estates on the Second Lower Feeder PCCP Rehabilitation
- Notified residents and businesses of the Santiago Lateral and Lower Feeder Shutdowns

Convened meetings of the Member Agency managers and Member Agency public information officers to discuss water supply conditions and Colorado River issues.

Pure Water Southern California Activities:

- Resumed public in-person tours of the Demonstration Plant, which are offered in English and Spanish
- Briefed Rotary Club of South Bay in Torrance (February 8), Marathon Petroleum Corp. (February 16), and staff from Phillips 66 Refinery (February 21)
- Updated Cerritos city officials on the proposed conveyance system (February 14)
- Participated in a regional recycled water planning meeting with Council for Watershed Health to coordinate recycled water communications (February 28)

## Education and Community Relations

Metropolitan staff interacted with nearly 2,400 teachers, students, and parents through in-person and online field trips, meetings, and customized ZOOM class presentations.

Student teams submitted their first set of assignments for Water Engineering 4 Good, Metropolitan's new online STEAM (Science, Technology, Engineering, Arts, and Mathematics) program for middle and high school students.



A series of social media posts ran throughout Black History Month and featured Metropolitan employees sharing their personal perspectives on legacy.



## Community Partnering and Sponsorship Program



Sponsored and hosted an exhibit booth at the Tarzana Native Plant Fair and provided water conservation resources, rebate information, and kids' activities to approximately 600 attendees. (February 18)

Five water conservation and education projects were supported this month by the Community Partnering Program:

- Cucamonga Valley Water District Earth Day & Open House
- Venice Community Foundation Tabor Court Native Plant Garden
- Elsinore Valley MWD Splash into Spring Community Water Festival
- Council for Watershed Health Landscaping Lightly 2023 Calendar
- Niguel Botanical Preserve Earth Day 2023

# Sustainability, Resiliency and Innovation



## Sustainability, Resiliency, Innovation and Environmental Planning

### SRI Core Activities

#### Two-Day Board Retreat

The Chief SRI Officer participated in a two-day board retreat in Temecula. The Retreat kicked off a board process to build understanding and agreement about water supply resilience, climate impacts, risks, and vulnerabilities facing the Metropolitan's water system, its member agencies, and the communities we serve. SRI's role was to bring in the facilitators (experts in climate adaptation) and set the stage for deepening our understanding of climate vulnerabilities.



#### SRI Council Meeting

The SRI Office hosted its second monthly meeting of the SRI Council, whose 17 members represent each of Metropolitan's groups. The council discussed SRI priorities for each group and opportunities for the SRI Office to support these group initiatives. The SRI Council also discussed the ongoing planning timelines for Metropolitan's Climate Vulnerability Assessment and district-wide SRI Strategy.

#### Zero Electric Fleet Transition

- **ZEV Executive Task Force:** The SRI Office conducted its monthly meeting to coordinate Metropolitan's transition of its fleet to ZEVs. Metropolitan-wide groups and sections discussed a vehicle replacement strategy, infrastructure build-out, upcoming regulations, and potential financing options.
- **Zero Electric Vehicle First Directive Zero:** The SRI Office, WSO Group, and Administrative Services Section completed a draft directive which would require Metropolitan to purchase ZEVs whenever operationally feasible.

# Sustainability, Resiliency and Innovation

(continued)

- **Southern California Edison (SCE) Transportation Electrification Advisory Services:** SRI, WSO, and Engineering Services Groups met with SCE to discuss this program which offers customers advisory services in the early stages of planning.
- **LADWP ZEV Fleet Procurement Meeting:** The SRI Office, WSO Safety and Regulatory staff, and Administrative Services Section met with LADWP's Executive and Senior Fleet Managers to discuss how they have successfully been able to use cooperative purchasing agreements to position themselves to be first in line for procuring electric vehicles. Procurement of ZEVs has been extremely competitive; therefore, use of these types of agreements has been essential to being positioned to purchase the vehicles as manufacturer's announce release dates. Administrative Services is exploring options on how to secure cooperative agreements that are needed to position Metropolitan for ZEV purchase.
- **Low Carbon Fuel Standard (LCFS) Program:** SRI, WSO, and ESG had meetings with the Los Angeles County Sanitations Districts and an LCFS aggregator to learn more about implementing an LCFS program that would track and generate credits for reductions in CO2 levels. SRI is gathering additional information for the aggregator to see whether any current benefit exists.

## General Manager Listening Session

The SRI Office participated with External Affairs in the *GM Listening Session: Development of Metropolitan's Sustainability, Resiliency and Innovation* on February 9. Both Metropolitan and external participants attended as our General Manager, Adel Hagekhalil, and Chief SRI Officer, Liz Crosson, presented Metropolitan's SRI strategy development. The session also included two breakout sessions where the participants were able to engage with SRI and staff. The breakout sessions were to gather important feedback and attain substantive community engagement.



water· need· communiti· includ·  
mwd· rebat· captur· drought· educ· project·  
based local make develop· low· people solutions  
access· agenc· benefit· ground· issu· meet· recycl· use· also  
climate conservation design easier land provide stormwater  
technical impact· basin· engag· implement· suppli· home· sustain·  
assistance change help important income like multi nature  
population rain reduce residential build· particip· note· websit· resili· resourc·  
1305 address amount better care central consider conversation county delta  
dewatering example groundwater groups information landscape large look  
messaging plants public services watershed actions sale· strateg· agriv· reward· fast· growth  
enter· irrig· lot· overflow· priority· benefit· worth· adaptation· smart· california· carbon·

## SRI Lunch and Learn

On February 21, the SRI Office sponsored the second of its hybrid "Lunch and Learn" series at Weymouth's Water Quality Lab. Robert Rietveld, Mills' Electrical Team Manager, presented "Solar Powered Battery Storage" and discussed how Mills staff recently used solar technology to charge small power tools for Upper Feeder repairs. After the presentation, the 118 participants were able to ask questions about how the technology worked and see the actual generator that continues to be used for maintenance repairs. The Lunch and Learn series will continue monthly at Union Station and other Metropolitan facilities.



# Sustainability, Resiliency and Innovation

(continued)



## Green Procurement

The SRI Office and the Administrative Services Group attended an online demo of green procurement software that would make it easier for staff to purchase sustainable products. The software is an add-on toolbar that can be used with Google Chrome while shopping. This toolbar is becoming widely used and is already supported by Amazon. Administrative Services will consider future adoption of this software.

## Carbon Free Energy Request for Statement of Interest

The SRI Office, in collaboration with WSO, ESG, Real Property Group, and Legal, issued a Request for Statement of Interest for Carbon-Free Energy Development. This is the first step in assessing what types of renewable energy and storage developers may be interested in pursuing on Metropolitan properties. This supports the Climate Action Plan and could be potential revenue generation.

## Delta Conservancy Proposal

Staff submitted a \$20 million concept proposal to the Delta Conservancy to fund a three-year project that will convert approximately 4,500 acres on Webb Tract to a mosaic of managed flooded wetlands and rice fields to stop and/or reverse ongoing organic soil subsidence, reduce greenhouse gas (GHG) emissions, provide environmental benefits by contributing to augmentation of the Delta pelagic food web, and generate an income from carbon credits generated from the proposed flooded wetlands and lease income from the proposed rice fields. The project has been selected to move forward in the grant process. Staff will introduce the project at Metropolitan's March board meeting. The Delta Conservancy Board will consider the Webb Tract grant application at their May board meeting. A second grant application to fund the development of 380 acres to flooded wetlands on Bouldin Island is under development.

## Innovation

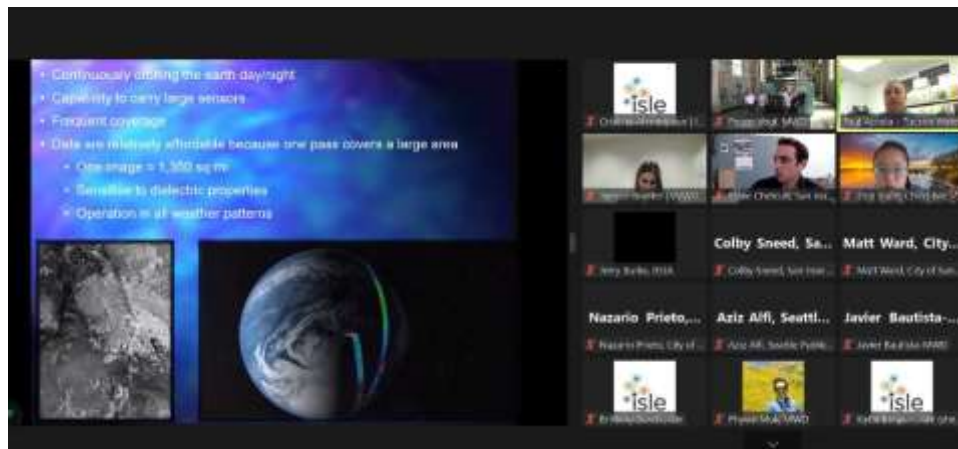
### Emerging Technologies

On February 8, Metropolitan's SRI team held our **Water TAG 33 + NorCal TAG 30 Technology Approval Group (TAG)** meeting with over sixty attendees. Technology Approval Group (TAG) is an innovation forum of the world's leading end-users. Attendees included Metropolitan staff, Isle Technologies, technology presenters, Northern California Water Agencies, Metropolitan member agencies and sub-agencies, Denver Water, LADWP, Albuquerque Water, Tucson Water, City of Santa Barbara, and Southern Nevada Water Authority, etc. The TAG model was first launched in the UK in 2005 and is led by Isle US. TAG accelerates the market uptake of "step-change" technologies by engaging the industry during the pre-commercial stages of development and by leveraging external investment from venture

# Sustainability, Resiliency and Innovation

(continued)

capital investors. Isle US currently operates in eight regions across the country. The group shared technology implementation successes and failures and evaluated technology presentations on a predictive network asset management platform with machine-learning driven analytics and multiparameter sensors; extremely high-resolution, engineering grade, 3D asset models for safe and cost-effective asset condition assessments; pullable and threaded alternative for mechanical connections of high-density polyethylene pipes; reagent-free, flow-independent, multiparameter sensor; and battery-powered, disinfection-by-product sensor that provides real-time monitoring for network-wide deployment.



## Partnerships and Demos

Innovation staff met with the US Green Build Council (USGBC-LA) office to explore a partnership and voting seat on the 2023 Net Zero Accelerator. The 2022 Net Zero Accelerator launched several green building technologies that may be useful in Metropolitan facilities; see [NZA-Pilot-Flight-Manual-2023.pdf](#) ([usgbc-la.org](https://usgbc-la.org)). With Metropolitan's participation, the 2023 Net Zero Accelerator will focus more on water technologies.

Metropolitan is one of 36 international utilities in the research project titled "Leveraging Utility Innovation Performance Measures for Program Management and Organizational Transformation" (TWTI-21-01) led by the Water Tower and Arcadis. The project goal is to develop guidelines for utilities to create and maintain an innovative culture, select the best performance measures for innovation programs, and implement strategies to convey the value and impact of an innovation program. Metropolitan staff from Admin Services and Real Property staff participate in the research project.

Finance and IT staff met with Kognitos for a demo. Kognitos is the world's first combination of Generative AI and Logical execution built to bring the power of AI to all enterprises. Staff is exploring the use of Kognitos to automate accounts payable/receivable.

On February 23, Metropolitan's Filmmakers Club partnered with the Metropolitan Sustainability Expo to show and discuss "Global Peril" a film by Metropolitan's Risk Management Unit Manager, Drew Boronkay. The hybrid event drew over 123 participants, and the second half of the film and discussion will be presented at a future date.

# Sustainability, Resiliency and Innovation

(continued)



Metropolitan's Filmmakers Club and Sustainability Expo

## Environmental Planning Section

**Core Business: Environmental Planning and Regulatory Compliance Support**

### Bay Delta Initiatives

- Continued coordination with DWR and regulatory agencies to support ongoing regulatory permitting efforts for the Delta Conveyance Project.
- Finalized and distributed for public review the Initial Study and Mitigated Negative Declaration (IS/MND) for the Delta Smelt and Native Species Preservation Project.

### Engineering Services Group

#### **Pure Water Southern California**

- Conducted technical studies for project modifications.
- Continued preparation of Biological Resources, Hazardous Materials, and Paleontological Resources technical reports.
- Conducted Tribal Cultural Resources consultation, including organizing and leading a meeting with the Gabrieleño Band of Mission Indians-Kizh Nation to initiate consultation, and coordinating with the San Gabriel Band of Mission Indians (Tongva).

#### **Copper Basin Discharge Valve Replacement and Access Road Improvements Project**

- Finalized the Responses to Comments and Mitigation Monitoring and Reporting Program in preparation for March board action to adopt the IS/MND.

#### **Weymouth Water Treatment Plant and La Verne Site Improvements Program**

- Initiated preparation of technical study in support of traffic/transportation analysis in support of the Environmental Impact Report (EIR).
- Initiated Tribal Cultural Resources consultation.

#### **Perris Valley Pipeline**

- Initiated implementation of the Mitigation Monitoring Reporting Program for environmental monitoring of construction activities.

# Sustainability, Resiliency and Innovation

(continued)

## **Construction Monitoring**

- Continued environmental construction monitoring efforts for Etiwanda Pipeline Relining, Prestressed Concrete Cylinder Pipe (PCCP) Second Lower Feeder Reach 3A, PCCP Rehabilitation Valve Storage Building, Orange County Feeder Relining Reach 3, Weymouth Basins 5–8 Rehabilitation, La Verne Shops Upgrades, and Live Oak Reservoir Cathodic System Replacement projects.

## **External Affairs Group**

- Provided legislative analysis on Senate Bill (SB23) (Caballero) Expedited Permitting and Assembly Bill (AB) 606 (Mathis) California Endangered Species Act (CESA): Accidental Take
- Participated in California Council for Environmental and Economic Balance (CCEEB) Natural Resources Task Force (NRTF) monthly meeting.

## **Sustainability, Resiliency, and Innovation Office**

### **Climate Action Plan (CAP) Monitoring and Reporting**

- Gathered data and continued preparation of the draft 2023 CAP Annual Report.
- Continued to gather data for the Natural Gas Equipment Inventory Usage, Employee Commute/Transit, and Net Zero Waste policies.
- Initiated LED Lighting Inventory to document LED technologies within Metropolitan.

### **Water System Operations Group**

- Conducted environmental, biological, and desert tortoise clearance surveys of work sites and staging areas and provided tortoise and desert biological resources training for WSO and other Metropolitan staff in support of the Colorado River Aqueduct (CRA) shutdown and related maintenance and CIP projects (see photos below taken during CRA shutdown).



**Canidae Upper Jaw**



**Notch Leaf Scorpion Weed (*Phacelia crenulata*)**



# Sustainability, Resiliency and Innovation

(continued)



Desert sand verbena (*Arbonia villosa*)



Desert Fivespot (*Eremalche rotundifolia*)



Desert Chicory (*Rafinesquia neomexicana*)



Scorpion tracks



Crab spider on brittle bush flower

# Sustainability, Resiliency and Innovation

(continued)

## **Surface Mining and Reclamation Act (SMARA) Compliance**

- Metropolitan Board of Directors approved the CRA Master Reclamation Plan and adopted the associated Mitigated Negative Declaration.
- Coordinated with Surface Mining and Geology Board (SMGB) personnel regarding Metropolitan support of SMGB's public hearing in March to adopt the Metropolitan's CRA Master Reclamation Plan.

## **Reserve Management**

### **Lake Mathews Multiple Species Reserve**

- Continued invasive stinknet removal; over 100 acres of stinknet have been mapped and treated this year.
- Restored one acre of Riversidean sage scrub habitat, including planting of two species of cactus.
- Conducted sheep grazing on grasslands south of Cajalco Road.

### **Southwestern Riverside County Multi-Species Reserve**

- Coordinated with Real Property, External Affairs, Marina Concessionaire, and Reserve Manager to support opening of the Wildflower Trail at Diamond Valley Lake on February 15.
- Coordinated with CalFire for prescribed burns this year, including conducting a cultural resource survey in the South Shore burn area.
- Collected seeds and plant cuttings for the Reserve nursery to support future restoration site plantings.
- Conducted road grading because of rain damage.



**California Poppy Bloom at Southwestern Riverside County Multi-Species Reserve**

## **External Document Reviews**

- Reviewed six CEQA notices for external projects and prepared comment letters for those that may affect Metropolitan facilities and/or operations.



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](http://www.mwdh2o.com) [www.bewaterwise.com](http://www.bewaterwise.com)

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## Metropolitan Cases

### ***Rick Faith v. Metropolitan, All Persons Interested, etc. (Los Angeles Superior Court)***

On October 14, 2022, Rick Faith, an individual property owner from Orange County, filed a reverse validation action alleging Metropolitan's ad valorem property taxes for fiscal year 2022/23 are invalid pursuant to the constitutional provisions added by Propositions 13, 26, and 218. Plaintiff alleges Metropolitan does not have authority to collect the taxes to pay the State Water Project expenses.

A validation or reverse validation action requires a validation summons be issued and published, as approved by the court. On November 17, plaintiff sought approval of its proposed validation summons for publication via an *ex parte* application; Metropolitan successfully opposed the issuance. Following plaintiff's failure to amend his complaint to allege any causes of action other than a reverse validation, plaintiff agreed to dismiss the case.

On February 6, 2023, plaintiff filed a Request for Dismissal without prejudice, which the court must sign.

## Matters Received

<u>Category</u>	<u>Received</u>	<u>Description</u>	
Government Code Claims	2	Claims relating to accidents involving MWD vehicles	
Subpoenas	1	Subpoena for employee deferred compensation records for a matter unrelated to MWD	
Requests Pursuant to the Public Records Act	12	<u>Requestor</u>	<u>Documents Requested</u>
		CivilGrid	Drawings of any MWD underground facilities near project in the city of Oxnard
		Deltek	Contact and bid tabulation for Request for Qualifications for Asset Management and Asset Reliability Services
		Jacobs Engineering Group	Information on location and depth of water line near Southern California Gas Company project along Bristol Street
		Oracle Consulting Services	Documents relating to the Request for Proposal for Peoplesoft HCM Modules Implementation Services





<u>Requestor</u>	<u>Documents Requested</u>
Pasadena Civility (3 requests)	(1) List of turf removal rebate applications submitted in Pasadena from January 2021-December 2022; (2) list of turf removal rebate applications submitted in Pasadena from January 2014-December 2020 for public agencies; HOA common areas, institutional, and or multiplex; and (3) copies of certain turf removal rebate applications for properties in Pasadena
Richard Brady & Associates	Contract documents for Mills and Jensen Water Treatment Plants Finished Water Reservoirs Rehabilitation Preliminary Design Services
SmartProcure	Purchase order data including purchase order number, purchase order date, line item details, line item quantity, line item price, vendor information from 11/18/2022 to current
University of California, Los Angeles - Student and Professor (2 requests)	(1) GIS files on member agency boundaries and LRP project sites, and (2) data on LRP projects awarded to member agencies
Varigard	Bid tabulation or other documents relating to evaluation of the bids submitted in response to the Request for Bids for Airpura UV600 Air Purifier



#### 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

### 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)

#### • Validation Action

- Metropolitan, Mojave Water Agency, Coachella Valley Water District, and Santa Clarita Valley Water Agency have filed answers in support
- Kern County Water Agency, Tulare Lake Basin Water Storage District, Oak Flat Water District, County of Kings, Kern Member Units & Dudley Ridge Water District, and City of Yuba City filed answers in opposition
- North Coast Rivers Alliance et al., Howard Jarvis Taxpayers Association, Sierra Club et al., County of Sacramento & Sacramento County Water Agency, CWIN et al., Clarksburg Fire Protection District, Delta Legacy Communities, Inc, and South Delta Water Agency & Central Delta Water Agency have filed answers in opposition
- Case ordered consolidated with the DCP Revenue Bond CEQA Case for pre-trial and trial purposes and assigned to Judge Earl for all purposes
- DWR's motions for summary judgment re CEQA affirmative defenses granted; cross-motions by opponents denied
- Dec. 9, 2022 DWR's motion for summary adjudication of Delta Reform Act and public trust doctrine affirmative defenses granted; NCRA's motion for summary judgment re same denied
- Trial on the merits set for May 15-18, 2023

#### • CEQA Case

- Sierra Club, Center for Biological Diversity, Planning and Conservation League, Restore the Delta, and Friends of Stone Lakes National Wildlife Refuge filed a standalone CEQA lawsuit challenging DWR's adoption of the bond resolutions
- Alleges DWR violated CEQA by adopting bond resolutions before certifying a Final EIR for the Delta Conveyance Project
- Cases ordered consolidated for all purposes
- DWR's motion for summary judgment granted; Sierra Club's motion denied



Subject	Status
<p><b>SWP-CVP 2019 BiOp Cases</b></p> <p><i>Pacific Coast Fed'n of Fishermen's Ass'ns, et al. v. Raimondo, et al. (PCFFA)</i></p> <p><i>Calif. Natural Resources Agency, et al. v. Raimondo, et al. (CNRA)</i></p> <p>Federal District Court, Eastern Dist. of California, Fresno Division (Judge Thurston)</p>	<ul style="list-style-type: none"> <li>SWC intervened in both <i>PCFFA</i> and <i>CNRA</i> cases</li> <li>Federal defendants reinitiated consultation on Oct 1, 2021</li> <li><u>February 24, 2023 court approved the 2023 Interim Operations Plan proposed by federal defendants and state plaintiffs, denied all alternative proposed operations and extended the stay until December 31, 2023</u></li> </ul>
<p><b>CESA Incidental Take Permit Cases</b></p> <p><b>Coordinated Case Name <i>CDWR Water Operations Cases, JCCP 5117</i> (Coordination Trial Judge Gevercer)</b></p> <p><i>Metropolitan &amp; Mojave Water Agency v. Calif. Dept. of Fish &amp; Wildlife, et al. (CESA/CEQA/Breach of Contract)</i></p> <p><i>State Water Contractors &amp; Kern County Water Agency v. Calif. Dept. of Fish &amp; Wildlife, et al. (CESA/CEQA)</i></p> <p><i>Tehama-Colusa Canal Auth., et al. v. Calif. Dept. of Water Resources (CEQA)</i></p> <p><i>San Bernardino Valley Municipal Water Dist. v. Calif. Dept. of Water Resources, et al. (CEQA/CESA/ Breach of Contract/Takings)</i></p> <p><i>Sierra Club, et al. v. Calif. Dept. of Water Resources (CEQA/Delta Reform Act/Public Trust)</i></p> <p><i>North Coast Rivers Alliance, et al. v. Calif. Dept. of Water Resources (CEQA/Delta Reform Act/Public Trust)</i></p> <p><i>Central Delta Water Agency, et. al. v. Calif. Dept. of Water Resources (CEQA/Delta Reform Act/Public Trust/ Delta Protection Acts/Area of Origin)</i></p> <p><i>San Francisco Baykeeper, et al. v. Calif. Dept. of Water Resources, et al. (CEQA/CESA)</i></p>	<ul style="list-style-type: none"> <li>All 8 cases ordered coordinated in Sacramento County Superior Court</li> <li>Stay on discovery issued until coordination trial judge orders otherwise</li> <li>All four Fresno cases transferred to Sacramento to be heard with the four other coordinated cases</li> <li>Certified administrative records lodged March 4, 2022</li> <li>State Water Contractors et al. granted leave to intervene in <i>Sierra Club, North Coast Rivers Alliance, Central Delta Water Agency, and San Francisco Baykeeper</i> cases by stipulation</li> <li>SWC, et al. granted leave to intervene as respondents in <i>Tehama-Colusa Canal Auth., et al. v. Calif. Dept. of Water Resources</i> CEQA case</li> <li>Feb. <u>24</u>, 2023 hearing on SWC's renewed motion to augment the administrative records</li> </ul>



<p><b>CDWR Environmental Impact Cases</b> <b>Sacramento Superior Ct. Case No. JCCP 4942,</b> <b>3d DCA Case No. C091771</b> <b>(20 Coordinated Cases)</b></p> <p>Validation Action <i>DWR v. All Persons Interested</i></p> <p>CEQA 17 cases</p> <p>CESA/Incidental Take Permit 2 cases</p> <p>(Judge <a href="#">Arguelles</a>)</p>	<ul style="list-style-type: none"> <li>• Cases dismissed after DWR rescinded project approval, bond resolutions, decertified the EIR, and CDFW rescinded the CESA incidental take permit</li> <li>• January 10, 2020 – Nine motions for attorneys’ fees and costs denied in their entirety</li> <li>• Parties have appealed attorneys’ fees and costs rulings</li> <li>• May 11, 2022, court of appeal reversed the trial court’s denial of attorney fees and costs in an unpublished opinion</li> <li>• Opinion ordered published</li> <li>• Coordinated cases remitted to trial court for re-hearing of fee motions consistent with the court of appeal’s opinion</li> <li>• <a href="#">April 28, 2023 re-hearing on fee motions</a></li> </ul>
<p><b>COA Addendum/ No-Harm Agreement</b></p> <p><i>North Coast Rivers Alliance v. DWR</i> Sacramento County Superior Ct. (Judge Gevercer)</p>	<ul style="list-style-type: none"> <li>• Plaintiffs allege violations of CEQA, Delta Reform Act &amp; public trust doctrine</li> <li>• USBR Statement of Non-Waiver of Sovereign Immunity filed September 2019</li> <li>• Westlands Water District and North Delta Water Agency granted leave to intervene</li> <li>• Metropolitan &amp; SWC monitoring</li> <li>• Deadline to prepare administrative record extended to Nov. 18, 2022</li> </ul>
<p><b>Delta Plan Amendments and Program EIR</b> 4 Consolidated Cases Sacramento County Superior Ct. (Judge Gevercer )</p> <p><i>North Coast Rivers Alliance, et al. v. Delta Stewardship Council</i> (lead case)</p> <p><i>Central Delta Water Agency, et al. v. Delta Stewardship Council</i></p> <p><i>Friends of the River, et al. v. Delta Stewardship Council</i></p> <p><i>California Water Impact Network, et al. v. Delta Stewardship Council</i></p>	<ul style="list-style-type: none"> <li>• Cases challenge, among other things, the Delta Plan Updates recommending dual conveyance as the best means to update the SWP Delta conveyance infrastructure to further the coequal goals</li> <li>• Allegations relating to “Delta pool” water rights theory and public trust doctrine raise concerns for SWP and CVP water supplies</li> <li>• Cases consolidated for pre-trial and trial under <i>North Coast Rivers Alliance v. Delta Stewardship Council</i></li> <li>• SWC granted leave to intervene</li> <li>• Metropolitan supports SWC</li> <li>• Nov. 7, 2022 court ruled in favor of Delta Stewardship Council on all claims</li> <li>• Orders denying all claims and final judgments entered Nov. 22, 2022</li> <li>• <a href="#">Notice of appeal filed in <i>North Coast Rivers Alliance, et al. case</i></a></li> </ul>





	<ul style="list-style-type: none"> <li>Parties in the other three cases settled with the Delta Stewardship Council</li> </ul>
<p><b>SWP Contract Extension Validation Action</b> Court of Appeal for the Third App. Dist. Case No. C096316</p> <p><i>DWR v. All Persons Interested in the Matter, etc.</i></p>	<ul style="list-style-type: none"> <li>DWR seeks a judgment that the Contract Extension amendments to the State Water Contracts are lawful</li> <li>Metropolitan and 7 other SWCs filed answers in support of validity to become parties</li> <li>Jan. 5-7, 2022 Hearing on the merits held with CEQA cases, below</li> <li>Final statement of decision in DWR's favor filed March 9, 2022</li> <li>Final judgment entered and served</li> <li>C-WIN et al., County of San Joaquin et al. and North Coast Rivers Alliance et al. filed notices of appeal</li> <li>Validation and CEQA cases consolidated on appeal</li> <li>Briefing schedule set by stipulation with estimated completion in April or May 2023</li> </ul>
<p><b>SWP Contract Extension CEQA Cases</b> Court of Appeal for the Third App. Dist. Case Nos. C096384 &amp; C096304</p> <p><i>North Coast Rivers Alliance, et al. v. DWR</i> <i>Planning &amp; Conservation League, et al. v. DWR</i></p>	<ul style="list-style-type: none"> <li>Petitions for writ of mandate alleging CEQA and Delta Reform Act violations filed on January 8 &amp; 10, 2019</li> <li>Deemed related to DWR's Contract Extension Validation Action and assigned to Judge Culhane</li> <li>Administrative Record completed</li> <li>DWR filed its answers on September 28, 2020</li> <li>Metropolitan, Kern County Water Agency and Coachella Valley Water District have intervened and filed answers in the two CEQA cases</li> <li>Final statement of decision in DWR's favor denying the writs of mandate filed March 9, 2022</li> <li>Final judgments entered and served</li> <li>North Coast Rivers Alliance et al. and PCL et al. filed notices of appeal</li> <li>Appeals consolidated with the validation action above</li> </ul>



### **Delta Conveyance Project Soil Exploration Cases**

*Central Delta Water Agency, et al. v. DWR*  
Sacramento County Superior Ct.  
(Judge Chang)

*Central Delta Water Agency, et al. v. DWR (II)*,  
Sacramento County Super. Ct.  
(Judge Acquisto)

- Original case filed August 10, 2020; new case challenging the second addendum to the CEQA document filed Aug. 1, 2022
- Plaintiffs Central Delta Water Agency, South Delta Water Agency and Local Agencies of the North Delta
- One cause of action alleging that DWR's adoption of an Initial Study/Mitigated Negative Declaration (IS/MND) for soil explorations needed for the Delta Conveyance Project violates CEQA
- March 24, 2021 Second Amended Petition filed to add allegation that DWR's addendum re changes in locations and depths of certain borings violates CEQA
- DWR's petition to add the 2020 CEQA case to the *Department of Water Resources Cases*, JCCP 4594, San Joaquin County Superior Court denied
- Hearing on the merits held Oct.13, 2022
- Dec. 2, 2022 ruling on the merits granting the petition with respect to two mitigation measures and denying on all other grounds
- Dec. 23, 2022 court order directing DWR to address the two mitigation measures within 60 days while declining to order DWR to vacate the IS/MND
- Jan. 25, 2023 DWR filed the return on the writ with the amended mitigation measures and moved to discharge the writ

### **Water Management Tools Contract Amendment**

*California Water Impact Network et al. v. DWR*  
Sacramento County Superior Ct.  
(Judge Aquisto)

*North Coast Rivers Alliance, et al. v. DWR*  
Sacramento County Super. Ct.  
(Judge Aquisto)

- 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
- 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
<b>2010, 2012</b>	Aug. 13-14, 2020	Final judgment and writ issued. Transmitted to the Board on August 17.
	Sept. 11	Metropolitan filed notice of appeal of judgment and writ.
	Jan. 13, 2021	Court issued order finding SDCWA is the prevailing party on the Exchange Agreement, entitled to attorneys' fees and costs under the contract.
	Feb. 10	Court issued order awarding SDCWA statutory costs, granting SDCWA's and denying Metropolitan's related motions.
	Feb. 16	Per SDCWA's request, Metropolitan paid contract damages in 2010-2012 cases judgment and interest. Metropolitan made same payment in Feb. 2019, which SDCWA rejected.
	Feb. 25	Metropolitan filed notice of appeal of Jan. 13 (prevailing party on Exchange Agreement) and Feb. 10 (statutory costs) orders.
	Sept. 21	Court of Appeal issued opinion on Metropolitan's appeal regarding final judgment and writ, holding: (1) the court's 2017 decision invalidating allocation of Water Stewardship Rate costs to transportation in the Exchange Agreement price and wheeling rate applied not only to 2011-2014, but also 2015 forward; (2) no relief is required to cure the judgment's omission of the court's 2017 decision that allocation of State Water Project costs to transportation is lawful; and (3) the writ is proper and applies to 2015 forward.
	Mar. 17, 2022	Court of Appeal unpublished decision affirming orders determining SDCWA is the prevailing party in the Exchange Agreement and statutory costs.
	Mar. 21	Metropolitan paid SDCWA \$14,296,864.99 for attorneys' fees and \$352,247.79 for costs, including interest.
	July 27	Metropolitan paid SDCWA \$411,888.36 for attorneys' fees on appeals of post-remand orders.
<b>2014, 2016</b>	Aug. 28, 2020	SDCWA served first amended (2014) and second amended (2016) petitions/complaints.
	Sept. 28	Metropolitan filed demurrers and motions to strike portions of the amended petitions/complaints.



Cases	Date	Status
<b>2014, 2016 (cont.)</b>	Sept. 28-29	Member agencies City of Torrance, Eastern Municipal Water District, Foothill Municipal Water District, Las Virgenes Municipal Water District, Three Valleys Municipal Water District, Municipal Water District of Orange County, West Basin Municipal Water District, and Western Municipal Water District filed joinders to the demurrers and motions to strike.
	Feb. 16, 2021	Court issued order denying Metropolitan's demurrers and motions to strike, allowing SDCWA to retain contested allegations in amended petitions/complaints.
	March 22	Metropolitan filed answers to the amended petitions/complaints and cross-complaints against SDCWA for declaratory relief and reformation, in the 2014, 2016 cases.
	March 22-23	Member agencies City of Torrance, Eastern Municipal Water District, Foothill Municipal Water District, Las Virgenes Municipal Water District, Three Valleys Municipal Water District, Municipal Water District of Orange County, West Basin Municipal Water District, and Western Municipal Water District filed answers to the amended petitions/complaints in the 2014, 2016 cases.
	April 23	SDCWA filed answers to Metropolitan's cross-complaints.
	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.
<b>2017</b>	July 23, 2020	Dismissal without prejudice entered.
<b>2018</b>	July 28, 2020	Parties filed a stipulation and application to designate the case complex and related to the 2010-2017 cases, and to assign the case to Judge Massullo's court.
	Nov. 13	Court ordered case complex and assigned to Judge Massullo's court.
	April 21, 2021	SDCWA filed second amended petition/complaint.
	May 25	Metropolitan filed motion to strike portions of the second amended petition/complaint.
	May 25-26	Member agencies City of Torrance, Eastern Municipal Water District, Foothill Municipal Water District, Las Virgenes Municipal Water District, Three Valleys Municipal Water District, Municipal Water District of Orange County, West Basin Municipal Water District, and Western Municipal Water District filed joinders to the motion to strike.



Cases	Date	Status
<b>2018 (cont.)</b>	July 19	Court issued order denying Metropolitan's motion to strike portions of the second amended petition/complaint.
	July 29	Metropolitan filed answer to the second amended petition/complaint and cross-complaint against SDCWA for declaratory relief and reformation.
	July 29	Member agencies City of Torrance, Eastern Municipal Water District, Foothill Municipal Water District, Las Virgenes Municipal Water District, Three Valleys Municipal Water District, Municipal Water District of Orange County, West Basin Municipal Water District, and Western Municipal Water District filed answers to the second amended petition/complaint.
	Aug. 31	SDCWA filed answer to Metropolitan's cross-complaint.
	April 11, 2022	Court entered order of voluntary dismissal of parties' WaterFix claims and cross-claims.
<b>2014, 2016, 2018</b>	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.
	Oct. 27	Parties submitted to the court a joint stipulation and proposed order staying discovery through Dec. 8 and resetting pre-trial deadlines.
	Oct. 29	Court issued order staying discovery through Dec. 8 and resetting pre-trial deadlines, while the parties discuss the prospect of settling some or all remaining claims and crossclaims.
	Jan. 12, 2022	Case Management Conference. Court ordered a 35-day case stay to allow the parties to focus on settlement negotiations, with weekly written check-ins with the court; and directed the parties to meet and confer regarding discovery and deadlines.
	Feb. 22	Court issued order resetting pre-trial deadlines as proposed by the parties.
	Feb. 22	Metropolitan and SDCWA each filed motions for summary adjudication.





Cases	Date	Status
<b>2014, 2016, 2018 (cont.)</b>	April 13	Hearing on Metropolitan's and SDCWA's motions for summary adjudication.
	April 18	Parties filed supplemental briefs regarding their respective motions for summary adjudication, as directed by the court.
	April 18	Court issued order resetting pre-trial deadlines as proposed by the parties.
	April 29	Parties filed pre-trial briefs.
	April 29	Metropolitan filed motions in limine.
	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 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 13	Pre-trial conference; court denied Metropolitan's motions in limine.
	May 16	Court issued order setting post-trial brief deadline and closing arguments.
	May 16-27	Trial occurred but did not conclude.
	May 23, June 21	SDCWA filed motions in limine.



Cases	Date	Status
<b>2014, 2016, 2018 (cont.)</b>	May 26, June 24	Court denied SDCWA's motions in limine.
	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	The 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.
<b>All Cases</b>	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
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
Atkinson Andelson Loya Ruud & Romo	Employee Relations	59302	04/04	\$1,214,517
	Delta Conveyance Project Bond Validation-CEQA Litigation	185899	09/21	<del>\$100,000</del> <u>\$250,000</u>
	MWD Drone and Airspace Issues	193452	08/20	\$50,000
	Equal Employee Opportunity Commission Charge	200462	03/21	\$20,000
	DFEH Charge (DFEH Number 202102-12621316)	201882	07/01/21	\$25,000
	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
	DFEH Charge (DFEH Number 202109-14694608)	203460	02/22	\$15,000
Best, Best & Krieger	Navajo Nation v. U.S. Department of the Interior, et al.	54332	05/03	\$185,000
	Bay-Delta Conservation Plan/Delta Conveyance Project (with SWCs)	170697	08/17	\$500,000
	Environmental Compliance Issues	185888	05/20	\$100,000
	Pure Water Southern California	207966	11/22	\$100,000
Blooston, Mordkofsky, Dickens, Duffy & Prendergast, LLP	FCC and Communications Matters	110227	11/10	\$100,000
Brown White & Osborn LLP	HR Matter	203450	03/22	\$50,000



Firm Name	Matter Name	Agreement No.	Effective Date	Contract Maximum
Buchalter, a Professional Corp.	Union Pacific Industry Track Agreement	193464	12/07/20	\$50,000
Burke, Williams & Sorensen, LLP	Real Property – General	180192	01/19	\$100,000
	Labor and Employment Matters	180207	04/19	\$50,000
	General Real Estate Matters	180209	08/19	\$100,000
	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
Cislo & Thomas LLP	Intellectual Property	170703	08/17	\$75,000
Cummins & White, LLP	Board Advice	207941	05/22	\$10,000
Curls Bartling P.C.*	Bond Counsel	200470	07/21	N/A
Duane Morris LLP	SWRCB Curtailment Process	138005	09/14	\$615,422
Duncan, Weinberg, Genzer & Pembroke PC	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
Greines, Martin, Stein & Richland LLP	SDCWA v. MWD	207958	10/22	\$100,000
	Colorado River Matters	207965	11/22	\$100,000
Haden Law Office	Real Property Matters re Agricultural Land	180194	01/19	\$50,000



Firm Name	Matter Name	Agreement No.	Effective Date	Contract Maximum
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	\$100,000
	Faith v. MWD	207963	10/22	\$100,000
Hausman & Sosa, LLP	MOU Hearing Officer Appeal	201892	09/21	\$95,000
	<del>MOU Hearing Officer Appeal</del>	<del>207943</del>	<del>05/22</del>	<del>\$25,000</del>
	MOU Hearing Officer Appeal	207949	07/22	\$25,000
Hawkins Delafield & Wood LLP*	Bond Counsel	193469	07/21	N/A
Horvitz & Levy	SDCWA v. MWD	124100	02/12	\$1,250,000
	General Appellate Advice	146616	12/15	\$100,000
	Colorado River	203464	04/22	\$100,000
<u>Innovative Legal Services, P.C.</u>	<u>Employment Matter</u>	<u>211915</u>	<u>01/19/23</u>	<u>\$100,000</u>
Internet Law Center	Cybersecurity and Privacy Advice and Representation	200478	04/13/21	\$100,000
	Systems Integrated, LLC v. MWD	201875	05/17/21	\$65,000
Amira Jackmon, Attorney at Law*	Bond Counsel	200464	07/21	N/A
Jackson Lewis P.C.	Employment: Department of Labor Office of Contract Compliance (OFCCP)	137992	02/14	\$45,000
Jones Hall, A Professional Law Corporation*	Bond Counsel	200465	07/21	N/A
Kegel, Tobin & Truce	Workers' Compensation	180206	06/19	\$250,000
Kutak Rock LLP	Delta Islands Land Management	207959	10/22	\$10,000

Date of Report: March 1, 2023





Firm Name	Matter Name	Agreement No.	Effective Date	Contract Maximum
Liebert Cassidy Whitmore	Labor and Employment	158032	02/17	\$201,444
	FLSA Audit	180199	02/19	\$50,000
Manatt, Phelps & Phillips	SDCWA v. MWD rate litigation	146627	06/16	\$4,400,000
	Raftelis - Subcontractor of Manatt, Phelps & Phillips Agreement No. 146627: Pursuant to 05/02/22 Engagement Letter between Manatt, Phelps & Phillips and Raftelis Financial Consultants, Inc., Metropolitan Water District paid Raftelis Financial Consultants, Inc.	Invoice No. 23949		\$56,376.64 for expert services and reimbursable expenses in SDCWA v. MWD
Meyers Nave Riback Silver & Wilson	OCWD v. Northrop Corporation	118445	07/11	\$2,300,000
	Pure Water Southern California	207967	11/22	\$100,000
	<u>PFAS Compliance Issues</u>	<u>207968</u>	<u>11/14/22</u>	<u>\$100,000</u>
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	\$900,000
	Arvin-Edison v. Dow Chemical	203452	01/22	<del>-\$90,000</del> <u>\$100,000</u>
	Semitropic TCP Litigation	207954	09/22	\$75,000
Nixon Peabody LLP*	Bond Counsel	193473	07/21	N/A
Norton Rose Fulbright US LLP*	Bond Counsel	200466	07/21	N/A
Olson Remcho LLP	Government Law	131968	07/14	\$200,000
	Executive Committee/Ad Hoc Committees Advice	207947	08/22	\$60,000
	Public Records Act	207950	08/22	<del>\$20,000</del> <u>\$45,000</u>



Firm Name	Matter Name	Agreement No.	Effective Date	Contract Maximum
Renne Public Law Group, LLP	ACE v. MWD (PERB Case No. LA-CE-1574-M)	203466	05/22	\$50,000
	MOU Hearing Officer Appeal	203948	07/22	\$100,000
	ACE v. MWD (PERB Case No. LA-CE-1611-M)	207962	10/22	\$50,000
Ryan & Associates	Leasing Issues	43714	06/01	\$200,000
Seyfarth Shaw LLP	<del>HR Litigation</del>	<del>185863</del>	<del>12/19</del>	<del>\$250,000</del>
	Claim (Contract #201897)	201897	11/04/21	\$200,000
	Claim (Contract #203436)	203436	11/15/21	\$350,000
	Claim (Contract #203454)	203454	01/22	\$160,000
	Claim (Contract #203455)	203455	10/21	\$175,000
Sheppard Mullin Richter & Hampton LLP	Rivers v. MWD	207946	07/22	\$100,000
Stradling Yocca Carlson & Rauth*	Bond Counsel	200471	07/21	N/A
Theodora Oringher PC	Construction Contracts - General Conditions Update	185896	07/20	\$100,000
Thompson Coburn LLP	FERC Representation re Colorado River Aqueduct Electrical Transmission System	122465	12/11	\$100,000
	NERC Energy Reliability Standards	193451	08/20	\$100,000
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
Western Water and Energy	California Independent System Operator-Related Matters	193463	11/20/20	\$100,000

\*Expenditures paid by Bond Proceeds/Finance

\*\*Expenditures paid by another group

Date of Report: March 1, 2023



## **General Auditor's Report for February 2023**

### **Summary**

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This report highlights significant activities of the Office of the General Auditor for the month ended February 28, 2023.

No audit reports were issued during this period.

### **Audit & Advisory Services**

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Twelve projects are in progress.

### **Other General Auditor Activities**

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#### **1. External Financial Auditor Contract**

Proposals for Metropolitan's external financial auditor contract are under review in collaboration with the Office of the Chief Financial Officer.

#### **2. General Auditor Department Assessment**

The new general auditor is conducting a department assessment that will result in a strategic plan driving future focus and optimal service delivery.

#### **3. Administrative Code Revision**

Recommended revisions to sections of the Metropolitan Water District Administrative Code for the General Auditor (Section 6450, et seq.) are in progress.

#### **4. Audit Project Management System Upgrade**

Coordination with the application vendor is in progress to upgrade the Office of the General Auditor's project management system to a secure, web-based, software as a service solution.

#### **5. Department Policies & Procedures Update**

An update to the department's policies and procedures manual is underway that includes professional audit standards and current internal auditing means and methods.

#### **6. Risk Assessment Update**

The audit universe (processes/areas subject to audit) utilized for the General Auditor's risk assessment and audit plan is being refreshed.

Date of Report: February 28, 2023



# Ethics Office Monthly Report

**FEBRUARY 2023**

## **EDUCATION**

Provided two ethics orientation sessions to new employees.

## **COMPLIANCE**

Assisted employees with Assuming Office and Leaving Office Form 700 filings, including troubleshooting the electronic filing system and notifications of deadlines.

Monitored the status of past due Assuming Office and Leaving Office Form 700 filings. Sent notices to three current employees and 21 former employees; obtained compliance from three current employees and 12 former employees.

## **ADVICE**

Addressed 10 advice matters involving: conflicts of interest, outside employment, financial disclosure, gifts, and other ethics-related topics.

## **INVESTIGATIONS**

Responded to five complaints involving:

- Unauthorized release of confidential records.
- Misuse of authority for personal gain.
- Sexual harassment and/or discrimination.

Referred EEO-related complaints to the EEO Office.

## **ADVICE AND INVESTIGATIVE DATA**

Advice Matters	10
Compliance Assistance	91
Complaints Received	5
Investigations Opened	0
Pending Investigations	4

**MINUTES**  
**SPECIAL MEETING OF THE**  
**BOARD OF DIRECTORS**  
**THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA**  
**January 17, 2023**

**53114** The Board of Directors of The Metropolitan Water District of Southern California met in a special session on Tuesday, January 17, 2023.

Board Chair Ortega called the hybrid in-person and teleconference meeting to order at 9:00 a.m.

**53115** Board Secretary Fong-Sakai administered the roll call. Those responding present were: Directors Abdo, Ackerman, Apodaca, Armstrong, Atwater, Camacho, Cordero, De Jesus, Dennstedt, Dick, Faessel, Fellow, Fong-Sakai, Goldberg, Gray, Jung, Lefevre, McCoy, Miller, Ortega, Petersen, Phan, Pressman, Repenning, Smith, and Tamaribuchi.

Those not responding were: Directors Chacon, Kurtz, Luna, McMillan, Morris, Peterson, Quinn, Ramos, Sutley, and Williams.

Directors entered the meeting after the roll call Erdman and Kassakhian.

Board Secretary Fong-Sakai declared a quorum present.

**53116** Chair Ortega invited members of the public to address the Board limited to the items listed on the agenda (in-person and teleconference). There were none.

**53117** Adopt resolution to continue remote teleconference meetings pursuant to the Brown Act Section 54953(e) for meetings of Metropolitan's legislative bodies for a period of 30 days (Agenda Item 6A). Chair Ortega asked Directors if there were any comments or discussions on the item. No comments were made.

Chair Ortega called for a vote to approve Consent Calendar Item 5A (**M.I. No. 53117**).

Director Fellow moved, seconded by Director McCoy that the Board approve the Consent Calendar Item 5A as follows:



The following is a record of the vote:

Record of Vote on Consent Item(s): 5A									
Member Agency	Total Votes	Director	Present	Yes	Yes Vote	No	No Vote	Abstain	Abstain Vote
Anaheim	5627	Faessel	x	x	5627				
Beverly Hills	4267	Pressman	x	x	4267				
Burbank	2893	Ramos							
Calleguas Municipal Water District	12368	McMillan							
Central Basin Municipal Water District	18216	Apodaca	x	x	18216				
		Chacon							
			Subtotal:		18216				
Compton	599	McCoy	x	x	599				
Eastern Municipal Water District	10502	Armstrong	x	x	10502				
Foothill Municipal Water District	2290	Atwater	x	x	2290				
Fullerton	2390	Jung	x	x	2390				
Glendale	3814	Kassakhian							
Inland Empire Utilities Agency	14663	Camacho	x	x	14663				
Las Virgenes	2927	Peterson							
Long Beach	6151	Cordero	x	x	6151				
Los Angeles	75699	Sutley							
		Petersen	x	x	37850				
		Quinn							
		Luna							
		Repenning	x	x	37850				
			Subtotal:		75699				
Municipal Water Dist. of Orange County	60913	Ackerman	x	x	20304				
		Tamaribuchi	x	x	20304				
		Dick	x	x	20304				
		Erdman							
			Subtotal:		60913				
Pasadena	3716	Kurtz							
San Diego County Water Authority	63232	Fong-Sakai	x	x	15808				
		Goldberg	x	x	15808				
		Miller	x	x	15808				
		Smith	x	x	15808				
			Subtotal:		63232				
San Fernando	238	Ortega	x	x	238				
San Marino	770	Morris							
Santa Ana	3228	Phan	x	x	3228				
Santa Monica	4619	Abdo	x	x	4619				
Three Valleys Municipal Water District	8254	De Jesus	x	x	8254				
Torrance	3416	Lefevre	x	x	3416				
Upper San Gabriel Valley Mun. Wat. Dis	12688	Fellow	x	x	12688				
West Basin Municipal Water District	25453	Williams							
		Gray	x	x	25453				
			Subtotal:		25453				
Western Municipal Water District	13541	Dennstedt	x	x	13541				
<b>Total</b>	<b>362474</b>				<b>335986</b>				
<b>Present and not voting</b>									
<b>Absent</b>	<b>26488</b>								

The motion to approve the Consent Calendar Item 5A (**M.I. No. 53117**) passed by a vote of 335,986 ayes; 0 noes; 0 abstain; 0 not voting; and 26,488 absent.

**53118** Chair Ortega asked Directors if there were any comments or discussions on the approval of the Minutes of the Diversity, Equity, and Inclusion Committee; Underserved Communities Committee; and One Water (Conservation and Local Resources) Committee held October 25, 2022 (Agenda Item 6B). No comments were made. Chair Ortega called for a vote to approve Consent Calendar Item 5B Diversity, Equity, and Inclusion Committee Minutes held October 25, 2022; members of that committee vote only (**M.I. No. 53118**).

Chair Ortega called for a vote to approve Consent Calendar Item 5B Diversity, Equity, and Inclusion Committee Minutes held October 25, 2022.

Director McCoy made a motion, seconded by Director Jung to approve the Consent Calendar Item 5B Diversity, Equity, and Inclusion Committee Minutes held October 25, 2022, as follows:

Director Erdman entered the meeting.

The following is a record of the vote:

Ayes:	Directors Abdo, Atwater, Erdman, Fong-Sakai, McCoy, Ortega, and Tamaribuchi
Noes:	None
Abstentions:	None
Absent:	Ramos and Williams

The motion for Item 5B Diversity, Equity, and Inclusion Committee Minutes held on October 25, 2022, passed by a vote of 8 ayes; 0 noes; 0 abstention; and 2 absent.

Chair Ortega called for a vote to approve Consent Calendar Item 5B Underserved Communities Committee Minutes held October 25, 2022.

Director Cordero made a motion, seconded by Director Camacho to approve the Consent Calendar Item 5B Underserved Communities Committee Minutes held October 25, 2022, as follows:

The following is a record of the vote:

Ayes:	Directors Ackerman, Atwater, Camacho, Cordero, Erdman, Jung, Miller, Ortega, and Smith
Noes:	None
Abstentions:	None
Absent:	Quinn, Sutley, and Williams

The motion for Item 5B Underserved Communities Committee Minutes held October 25, 2022, passed by a vote of 9 ayes; 0 noes; 0 abstention; and 3 absent.

Chair Ortega called for a vote to approve Consent Calendar Item 5B One Water (Conservation and Local Resources) Committee Minutes held October 25, 2022.

Director Ackerman made a motion, seconded by Director Fong-Sakai to approve the Consent Calendar Item 5B One Water (Conservation and Local Resources) Committee Minutes held October 25, 2022, as follows:

The following is a record of the vote:

Ayes:	Directors Abdo, Ackerman, Atwater, Cordero, Erdman, Fellow, Fong-Sakai, Lefevre, Miller, and Pressman
Noes:	None
Abstentions:	None
Absent:	Kurtz, Morris, and Quinn

The motion for Item 5B One Water (Conservation and Local Resources) Committee Minutes held October 25, 2022, passed by a vote of 10 ayes; 0 noes; 0 abstention; and 3 absent.

**53119** Chair Ortega asked if there were any Follow-up Items. There were none.

Chair Ortega asked if there were any Future Agenda Items.

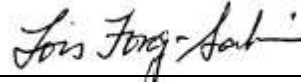
**53120** Chair Ortega addressed Committee Assignments (Agenda Item 5C) regarding the Ad Hoc Committee on Agricultural Water Conservation Partnerships, Bay-Delta, and Colorado River Negotiations.

For Colorado River purposes only Director Miller was assigned as Chair and Director Ackerman as Vice Chair to the Ad Hoc on the Colorado River. Membership for the Ad Hoc on the Colorado River will include Directors DeJesus, Cordero, Kurtz, and Sutley. Board approval was not needed for these committee assignments.

Director Kassakhian entered the meeting.

**53121** Chair Ortega asked if there were any Future Agenda Items. There were none.

**53122** There being no objection, at 9:18 a.m. Chair Ortega adjourned the meeting.



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**SECRETARY**



**CHAIR**

**MINUTES**  
**REGULAR MEETING OF THE**  
**BOARD OF DIRECTORS**  
**THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA**  
**February 13, 2023**

**53123** The Board of Directors of The Metropolitan Water District of Southern California met in a regular session on Monday, February 13, 2023.

Chair Ortega called the hybrid in-person and teleconference meeting to order at 10:43 a.m.

**53124** The Meeting was opened with an invocation by Director Nancy Sutley, City of Los Angeles.

**53125** The Pledge of Allegiance was given by Director Richard Atwater, Foothill Municipal Water District.

Chair Ortega announced Metropolitan's celebration of Black History Month.

**53126** Board Secretary Fong-Sakai administered the roll call. Those responding present were: Directors Abdo, Ackerman, Alvarez, Armstrong, Camacho, Chacon, Cordero, De Jesus, Dennstedt, Dick, Faessel, Fellow, Fong-Sakai, Garza, Goldberg, Gray, Jung, Kassakhian, Kurtz, Lefevre, Luna, McCoy, McMillan, Miller, Morris, Ortega, Petersen, Peterson, Phan, Pressman, Quinn, Ramos, Repenning, Seckel, Smith, and Sutley.

Those not responding were: Director Erdman.

Directors entered the meeting after the roll call Atwater.

Board Secretary Fong-Sakai declared a quorum present.

**53127** Chair Ortega invited members of the public to address the Board on matters within the Board's jurisdiction (in-person and via teleconference). There were none.

Director Atwater entered the meeting.

Chair Ortega addressed the following: Other Matters and Reports.

**53128** Chair Ortega asked if there were any changes to the report of events attended by Directors at Metropolitan's expense during the month of January, as previously posted and distributed to the Board. Chair Ortega asked the Directors if there were any corrections on the item. No amendments were made.



**53129** Chair Ortega referred to Chair's monthly report, which was previously posted and distributed to the Board. Chair Ortega asked the Directors if there were any questions on the item. No comments were made.

**53130** General Manager Hagekhalil stated he had nothing to add to his previously provided written report.

**53131** General Counsel Scully stated she had nothing to add to her report.

Chair Ortega introduced and welcomed Metropolitan's new General Auditor, Scott Suzuki.

**53132** General Auditor Suzuki stated he had nothing to add to the written report.

**53133** Chair Ortega announced the Induction of new Director Karl Seckel of Municipal Water District of Orange County (Agenda Item 5G).

- (a) Received credentials
- (b) Reported on credentials by General Counsel
- (c) Filed credentials
- (d) Administered Oath of Office
- (e) Filed Oath

General Counsel Scully reported that the credentials were received and are in order.

Director Dick introduced new Director Seckel. Director Seckel made brief remarks.

**53134** Ethics Officer Salinas stated that he had nothing to add to the written report.

**53135** Chair Ortega announced the Induction of new Director Juan Garza of Central Basin Municipal Water District (Agenda Item 5H).

- (a) Received credentials
- (b) Reported on credentials by General Counsel
- (c) Filed credentials
- (d) Administered Oath of Office
- (e) Filed Oath

General Counsel Scully reported that the credentials were received and are in order.

Chair Ortega introduced new Director Garza. Director Garza made brief remarks.

**53136** Chair Ortega announced the Induction of new Desi Alvarez of West Basin Municipal Water District (Agenda Item 5I).

- (a) Received credentials
- (b) Reported on credentials by General Counsel
- (c) Filed credentials
- (d) Administered Oath of Office
- (e) Filed Oath

General Counsel Scully reported that the credentials were received and are in order.

Chair Ortega and Director Gray introduced new Director Alvarez. Director Alvarez made brief remarks.

**53137** Presentation of 30-year Service Pin to Director Glen D. Peterson, Las Virgenes Municipal Water District. Director Peterson made brief remarks.

Chair Ortega addressed the Consent Calendar Items for February 2023.

**53138** Chair Ortega asked the Directors if there were any comments or discussions on the Approval of the Minutes of the Special Board Meeting for January 9, 2023, and the Board of Directors Meeting for January 10, 2023. (Copies have been submitted to each Director, Any additions, corrections, or omissions) (Agenda Item 6A). No amendments were made.

**53139** Adopt resolution to continue remote teleconference meetings pursuant to the Brown Act Section 54953(e) for meetings of Metropolitan's legislative bodies for a period of 30 days. (Agenda Item 6B).

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

Director(s)

1. Peterson

Staff responded to the Directors' comments or questions.

**53140** Approval of Committee Assignments (Agenda Item 6C).

<u>Director</u>	<u>Committee</u>
Director McMillan	Legislation, Regulatory Affairs, and Communications Committee Engineering, Operations, and Technology Committee Ethics, Organization, and Personnel Committee
Director Garza	Legal and Claims Committee, Vice Chair Legislation, Regulatory Affairs, and Communications Committee Equity, Inclusion, and Affordability Committee
Director Alvarez	One Water and Stewardship Committee Engineering, Operations, and Technology Committee Finance, Audit, Insurance, and Real Property Committee
Director Seckel	Engineering, Operations, and Technology Committee Finance, Audit, Insurance, and Real Property Committee Legal and Claims Committee

Chair Ortega addressed the Consent Calendar Items for February 2023.

Chair Ortega called on the Committee Chairs to give a report on Consent Calendar Action Items and to hear recusals before any discussion on the items.

Director Phan recused herself on Item 7-6 due to the fact that Atkinson, Andelson, Loya, Ruud & Romo, PLC, and Item 8-1 City of Torrance are clients of her employer Rutan & Tucker, LLP.

Director Smith recused himself and Directors Miller, Fong-Sakai, and Goldberg on Item 8-1 due as San Diego County Water Authority Delegation.

**53141** Award a \$407,800.33 procurement contract to Cascade Consultants, LLC for a triple offset ball valve to rehabilitate Service Connection CB-11, as set forth in Agenda Item 7-1 board letter.

**53142** Adopt the Mitigated Negative Declaration for the Colorado River Aqueduct Master Reclamation Plan for San Bernardino and Riverside Counties and take related CEQA actions, and approve the Master Reclamation Plan for San Bernardino and Riverside Counties, as set forth in Agenda Item 7-2 board letter.

**53143** Adopt resolutions to support three applications for the California Department of Water Resources' 2022 Urban Community Drought Relief Program totaling \$38 million; and authorize the General Manager to accept this potential funding and enter contracts with the California Department of Water Resources if awarded, as set forth in Agenda Item 7-3 board letter.

**53144** Authorize an increase in the maximum amount payable under contract with Musick, Peeler & Garrett LLP, for legal services by \$800,000 to an amount not to exceed \$1,700,000; and authorize an increase in the maximum payable under contract with HKA Global, Inc. for consultant services by \$300,000 to an amount not to exceed \$400,000, as set forth in Agenda Item 7-4 board letter.

**53145** Authorize the General Counsel to increase the maximum amount payable under a contract with Renne Public Law Group for legal services by \$100,000, to an amount not to exceed \$200,000, as set forth in Agenda Item 7-5 board letter.

**53146** Authorize the General Counsel to amend the agreement with Atkinson, Andelson, Loya, Ruud & Romo, PLC to increase the maximum amount payable by Metropolitan by \$150,000 to an amount not to exceed \$250,000, as set forth in Agenda Item 7-6 board letter.

Chair Ortega called for a vote to approve Consent Calendar Items 6A, 6B, 6C, 7-1 through 7-6 (**M.I. No. 53138 through 53146**).

Director Sutley moved, seconded by Director Ramos that the Board approve the Consent Calendar Items 6A, 6B, 6C, 7-1 through 7-6 as follows:

The following is a record of the vote:

Record of Vote on Consent Item(s):		6A, 6B, 6C, 7-1 through 7-6							
Member Agency	Total Votes	Director	Present	Yes	Yes Vote	No	No Vote	Abstain	Abstain Vote
Anaheim	5627	Faessel	x	x	5627				
Beverly Hills	4267	Pressman	x	x	4267				
Burbank	2893	Ramos	x	x	2893				
Calleguas Municipal Water District	12368	McMillan	x	x	12368				
Central Basin Municipal Water District	18216	Garza	x	x	9108				
		Chacon	x	x	9108				
			Subtotal:		18216				
Compton	599	McCoy	x	x	599				
Eastern Municipal Water District	10502	Armstrong	x	x	10502				
Foothill Municipal Water District	2290	Atwater	x	x	2290				
Fullerton	2390	Jung	x	x	2390				
Glendale	3814	Kassakhian	x	x	3814				
Inland Empire Utilities Agency	14663	Camacho	x	x	14663				
Las Virgenes	2927	Peterson	x	x	2927				
Long Beach	6151	Cordero	x	x	6151				
Los Angeles	75699	Sutley	x	x	15140				
		Petersen	x	x	15140				
		Quinn	x	x	15140				
		Luna	x	x	15140				
		Repenning	x	x	15140				
			Subtotal:		75699				
Municipal Water Dist. of Orange County	60913	Ackerman	x	x	20304				
		Seckel	x	x	20304				
		Dick	x	x	20304				
		Erdman							
			Subtotal:		60913				
Pasadena	3716	Kurtz	x	x	3716				
San Diego County Water Authority	63232	Fong-Sakai	x	x	15808				
		Goldberg	x	x	15808				
		Miller	x	x	15808				
		Smith	x	x	15808				
			Subtotal:		63232				
San Fernando	238	Ortega	x	x	238				
San Marino	770	Morris	x	x	770				
Santa Ana	3228	Phan	x	x	3228				
Santa Monica	4619	Abdo	x	x	4619				
Three Valleys Municipal Water District	8254	De Jesus	x	x	8254				
Torrance	3416	Lefevre	x	x	3416				
Upper San Gabriel Valley Mun. Wat. Dist.	12688	Fellow	x	x	12688				
West Basin Municipal Water District	25453	Alvarez	x	x	25453				
		Gray							
			Subtotal:		25453				
Western Municipal Water District	13541	Dennstedt	x	x	13541				
<b>Total</b>	<b>362474</b>				<b>362474</b>				
<b>Present and not voting</b>									
<b>Absent</b>	<b>0</b>								

The motion to approve the Consent Calendar Items 6A, 6B, 6C, 7-1 through 7-6 (**M.I. 53138 through 53146**)\* passed by a vote of 362,474 ayes; 0 noes; 0 abstain; 0 not voting; and 0 absent.



**\*Note: Individual vote tally for Item 6A**

Director Garza abstained on Item 6A due to the fact that he was not a member of the Board at that time. The motion to approve the Consent Calendar Items 6A passed by a vote of 353,366 ayes; 0 noes; 9,108 abstain; 0 not voting; and 0 absent.

**\*Note: Individual vote tally for Item 6B**

Directors Peterson voted No on Item 6B. The motion to approve the Consent Calendar Items 6B passed by a vote of 359,547 ayes; 2,927 noes; 0 abstain; 0 not voting; and 0 absent.

**\*Note: Individual vote tally for Item 7-4**

Director Dennstedt abstained on Item 7-4. The motion to approve the Consent Calendar Items 7-4 passed by a vote of 348,933 ayes; 0 noes; 13,541 abstain; 0 not voting; and 0 absent.

**\*Note: Individual vote tally for Item 7-5**

Director Dennstedt abstained on Item 7-5. The motion to approve the Consent Calendar Items 7-5 passed by a vote of 348,933 ayes; 0 noes; 13,541 abstain; 0 not voting; and 0 absent.

**\*Note: Individual vote tally for Item 7-6**

Director Dennstedt abstained on Item 7-6. Director Phan recused herself on Item 7-6 due to the fact that Atkinson, Andelson, Loya, Ruud & Romo, PLC are clients of her employer Rutan & Tucker, LLP. The motion to approve the Consent Calendar Items 7-6 passed by a vote of 345,705 ayes; 0 noes; 13,541 abstain; 3,228 not voting; and 0 absent.

**53147** Report on litigation San Diego County Water Authority v. Metropolitan Water District of Southern California, et al., San Francisco County Superior Court case numbers are listed on the agenda to consider a proposal by the San Diego County Water Authority to be heard in closed session pursuant to Gov. Code Section 54956.9(d)(1).

Chair Ortega called the meeting into closed session to discuss Agenda Item 8-1. Directors Phan, Smith, Miller, Fong-Sakai, and Goldberg left the meeting during the closed session.

The Board returned to open session at 11:30 a.m.; in closed session, the Board discussed and conferred with legal counsel, and there were no reportable actions regarding Agenda Item 8-1.

**53148** Chair Ortega asked if there were questions or need for discussion for Board Information Items 9-1, 9-2, 9-3, and 9-4. No requests were made.

**53149** Chair Ortega asked if there were any Other Matters Items.

Director Faessel requested that the Directors for the Municipal Water District of Orange County accept a document from the City of Anaheim regarding the loss of their General Manager, Rob Hunter.

**53150** Chair Ortega asked if there were any Follow-Up Items. There were none.

**53151** Chair Ortega asked if there were any Future Agenda Items. There were none.

**53152** There being no objection, at 11:31 a.m., Chair Ortega adjourned the meeting.

  
\_\_\_\_\_  
**LOIS FONG-SAKAI**  
**SECRETARY**

  
\_\_\_\_\_  
**ADÁN ORTEGA**  
**CHAIR**



● **Board of Directors**

***Finance, Audit, Insurance, and Real Property Committee***

3/14/2023 Board Meeting

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7-1

**Subject**

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Adopt the Twenty-Fifth Supplemental Resolution to the Master Bond Resolution authorizing the issuance of up to \$330 million of Water Revenue Bonds, 2023 Series; and approve expenditures to fund the costs of issuance of the Bonds; the General Manager has determined that the proposed action is exempt or otherwise not subject to CEQA

**Executive Summary**

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The Twenty-Fifth Supplemental Resolution to the Master Bond Resolution (the Twenty-Fifth Supplemental Resolution) in **Attachment 1** would authorize the issuance of up to \$330 million of Water Revenue Bonds. Bond proceeds would fund a portion of projected FYs 2023 and 2024 Capital Investment Plan (CIP) expenditures, reimburse a portion of capital expenditures made during FY 2023, and all or a portion of the costs of issuance.

**Details**

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**Background**

On September 15, 2020, Metropolitan's Board adopted Ordinance No. 151, which determined that the interests of Metropolitan require the use of revenue bonds up to an aggregate amount of \$500 million to fund a portion of capital expenditures. Approximately \$104 million of revenue bonds have been issued under Ordinance No. 151. The Twenty-Fifth Supplemental Resolution would authorize the issuance of up to \$330 million from the approximately remaining \$396 million authorization under Ordinance No. 151.

If authorized, the bonds are expected to be issued in one or more series. Annual debt service on \$330 million of bonds is estimated to be approximately \$19.1 million per year. The costs of issuance, estimated to be \$1.1 million, would be funded from bond proceeds or Metropolitan funds.

The proceeds from the sale of bonds under the Twenty-Fifth Supplemental Resolution would be used to pay for capital expenditures, primarily for FYs 2022/23 and 2023/24. The Biennial Budget for Fiscal Years 2022/23 and 2023/24, adopted by the Board on April 12, 2022, includes funding for CIP expenditures of \$300 million for each of FYs 2022/23 and 2023/24. The CIP funding for FYs 2022/23 and 2023/24 each consists of \$165 million from revenue bonds and \$135 million from operating revenues. Under current market conditions, issuance of \$293.5 million in par would provide approximately \$330 million in total proceeds.

Consistent with past Board practice, the Twenty-Fifth Supplemental Resolution establishes an Ad Hoc Committee of the Board with authority to determine the aggregate principal amount and the terms and conditions of each sale of bonds. The Ad Hoc Committee consists of the Chair of the Board, the Chair of the Finance, Audit, Insurance, and Real Property Committee, and the General Manager.

## Policy

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Metropolitan Water District Act Section 57: Vote Required for Board Action

Metropolitan Water District Act Section 61: Ordinances, Resolutions and Orders

Metropolitan Water District Act Section 123: Borrowing, Limitation

Metropolitan Water District Act Sections 235-239.4: Revenue Bonds

Metropolitan Board Ordinance No. 126, dated March 12, 1974: Revenue Bond Election

Metropolitan Board Ordinance No. 151, dated September 15, 2020: Determining that the Interests of the District Require the Use of Revenue Bonds in the Aggregate Principal Amount of \$500,000,000 to Finance a Portion of Capital Expenditures

By Minute Item 52790, dated April 12, 2022, the Board approved the FYs 2022/23 and 2023/24 Biennial Budget, approved appropriations for debt service, and approved the budget for capital expenditures.

Metropolitan Water District Administrative Code Section 11104: Delegation of Responsibilities

## California Environmental Quality Act (CEQA)

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### CEQA determination for Option #1:

The proposed action is not defined as a project under CEQA (Public Resources Code Section 21065, State CEQA Guidelines Section 15378) because the proposed action will not cause either a direct physical change in the environment or a reasonably foreseeable indirect physical change in the environment and involves continuing administrative activities, such as general policy and procedure making (Section 15378(b)(2) of the State CEQA Guidelines). 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, which do not involve any commitment to any specific project which may result in a potentially significant physical impact on the environment (Section 15378(b)(4) of the State of CEQA Guidelines). Finally, it can be seen with certainty that there is no possibility that the proposed action may have a significant impact on the environment; therefore, the proposed action is not subject to CEQA (Section 15061(b)(3) of the State CEQA Guidelines).

### CEQA determination for Option #2:

None required

## Board Options

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### Option #1

- a. Adopt the Twenty-Fifth Supplemental Resolution to the Master Bond Resolution authorizing the issuance of up to \$330 million of Water Revenue Bonds, 2023 Series, and providing the terms and conditions for the sale and issuance of said Water Revenue Bonds; and
- b. Approve approximately \$1.1 million for the payment of the costs of issuance of the Water Revenue Bonds to be paid from bond proceeds or Metropolitan funds.

**Fiscal Impact:** Estimated increase in debt service payments of approximately \$19.1 million per year will be paid from net operating revenues.

**Business Analysis:** Approval would enable Metropolitan to access the capital markets to provide funding for ongoing capital expenditures in accordance with the Adopted Budget, Fiscal Years 2022/23 and 2023/24.

### Option #2

Do not adopt the Twenty-Fifth Supplemental Resolution to the Master Bond Resolution.

**Fiscal Impact:** May miss the opportunity to fund capital expenditures at favorable interest rate levels, thereby resulting in higher debt service costs and/or higher water rates.

**Business Analysis:** Capital market access would be delayed, thereby limiting Metropolitan's options or ability to fund ongoing capital expenditures, or Metropolitan may have to curtail funding capital projects. Inflation could further increase the estimated cost of CIP projects if delayed.

**Staff Recommendation**


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Option #1

  
\_\_\_\_\_  
Katano Kasaine  
Assistant General Manager/  
Chief Financial Officer

3/1/2023

Date

  
\_\_\_\_\_  
Adel Hagekhalil  
General Manager

3/2/2023

Date

**Attachment 1 – Resolution Authorizing The Issuance Of Up To \$330,000,000 Of Water Revenue Bonds and Providing The Terms And Conditions For The Sale And Issuance Of Said Water Revenue Bonds (Twenty-Fifth Supplemental Resolution)**

Ref# cfo12691443



THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA  
RESOLUTION \_\_\_\_\_

RESOLUTION AUTHORIZING THE ISSUANCE OF UP TO  
\$330,000,000 OF WATER REVENUE BONDS  
AND PROVIDING THE TERMS AND CONDITIONS  
FOR THE SALE AND ISSUANCE OF SAID WATER REVENUE BONDS  
(TWENTY-FIFTH SUPPLEMENTAL RESOLUTION)

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THE METROPOLITAN WATER DISTRICT OF  
SOUTHERN CALIFORNIA

RESOLUTION \_\_\_\_\_

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RESOLUTION AUTHORIZING THE ISSUANCE OF UP TO  
\$330,000,000 WATER REVENUE BONDS  
AND PROVIDING THE TERMS AND CONDITIONS  
FOR THE SALE AND ISSUANCE OF SAID WATER REVENUE BONDS  
(TWENTY-FIFTH SUPPLEMENTAL RESOLUTION)

---

WHEREAS, pursuant to the Act (as defined in the Master Resolution described below), the Board of Directors of the Metropolitan Water District of Southern California (the “District”) may authorize the issuance of revenue bonds for any purpose permitted under the Act;

WHEREAS, pursuant to Resolution 8329 adopted by the District on July 9, 1991, as amended and supplemented (the “Master Resolution”), the District has authorized the issuance of The Metropolitan Water District of Southern California Water Revenue Bonds (the “Bonds”) by adoption of supplemental resolutions from time to time, with the payment of the principal of, interest on, and any redemption premiums thereon being secured by and payable solely from the Net Operating Revenues (as defined in the Master Resolution) of the District;

WHEREAS, pursuant to Ordinance 151 adopted by the District on September 15, 2020, the District has determined that the interests of the District require the use of revenue bonds in the aggregate principal amount of \$500,000,000 to fund a portion of the District’s capital expenditures, the cost of which is too great to be paid out of the ordinary annual income and revenue of the District;

WHEREAS, the interests of the District require the District to proceed under the Master Resolution and Ordinances 151, and issue and sell from time to time revenue bonds in an aggregate principal amount not to exceed \$330,000,000 secured by and payable from the Net Operating Revenues for the purpose of, among other things, paying all or a portion of the costs of acquisition, construction and improvements to the Water System (as defined in the Master Resolution); and

WHEREAS, the District desires to adopt this Supplemental Resolution to the Master Resolution (the “Twenty-Fifth Supplemental Resolution”) for the purposes of authorizing the issuance of revenue bonds;

NOW, THEREFORE, the Board of Directors of the District, DOES HEREBY RESOLVE, DETERMINE AND ORDER as follows:

## ARTICLE I

### AUTHORIZATION OF BONDS; DEFINITIONS

SECTION 1.01 Definitions. All terms which are defined in Section 1.01 of the Master Resolution or in the Act shall, unless otherwise defined herein, have the same meanings, respectively, in this Twenty-Fifth Supplemental Resolution. Unless the context otherwise requires, the terms defined in this Section shall, for all purposes of this Twenty-Fifth Supplemental Resolution and of any certificate, opinion or other document herein mentioned, have the meanings herein specified, to be equally applicable to both the singular and the plural forms of any of the terms herein defined.

“Ad Hoc Committee” has the meaning set forth in Section 5.01 hereof.

“Authorized Denominations” means, with respect to the Fixed Rate Bonds, \$5,000 and integral multiples thereof, and with respect to the Variable Rate Bonds, except as otherwise set forth in the applicable Trust Agreement, \$100,000 and integral multiples of \$5,000 in excess thereof.

“Bond Reserve Requirement” means the reserve requirement established for a Series of Bonds under the terms of the Sales Documents or Trust Agreement with respect to such Series and pursuant to the terms of Section 3.04 hereof.

“Bonds” means the Bonds described in Section 2.01 hereof, authorized and issued pursuant to the Master Resolution, as supplemented by this Twenty-Fifth Supplemental Resolution, and includes Fixed Rate Bonds and Variable Rate Bonds.

“Capital Appreciation Bonds” means the Bonds issued as Capital Appreciation Bonds as described in Section 2.02(B) of this Twenty-Fifth Supplemental Resolution.

“Current Interest Bonds” means the Bonds issued as Current Interest Bonds as described in Section 2.02(A) of this Twenty-Fifth Supplemental Resolution.

“Code” means the Internal Revenue Code of 1986, as amended.

“Construction Costs” means the cost of acquiring, constructing, reconstructing, replacing, extending and improving any project eligible to be financed under the Act.

“Construction Fund” means, with respect to a Series of Bonds, the Construction Fund, established for such Series pursuant to Section 3.03 hereof.

“Continuing Disclosure Certificate” means, with respect to a Series of Bonds, the Continuing Disclosure Certificate or Undertaking of the District, delivered by the District in connection with the issuance of such Series of Bonds.



“Costs of Issuance” means all items of expense directly or indirectly payable by or reimbursable to the District and related to the authorization, execution, sale and delivery of a Series of Bonds, including but not limited to advertising and printing costs, costs of preparation and reproduction of documents, filing and recording fees, initial fees and charges of any agent including any Fiscal Agent, Paying Agent, Remarketing Agent, legal fees and charges, underwriter discounts, fees and disbursements of consultants and professionals, financial advisor fees and expenses, rating agency fees, fees and charges for preparation, execution, transportation and safekeeping of the Bonds, and any other cost, charge or fee in connection with the delivery of the Bonds.

“Costs of Issuance Fund” means, with respect to a Series of Bonds, the Costs of Issuance Fund established for such Series pursuant to Section 3.02 hereof.

“DTC” means the Depository Trust Company, New York, New York, and its successors and assigns.

“Excess Earnings Fund” means, with respect to a Series of Bonds, the Water Revenue Excess Earnings Fund established for such Series pursuant to Section 3.05 hereof.

“Final Compounded Amount” shall have the meaning ascribed to such term in the Master Resolution; provided that upon redemption of any Capital Appreciation Bonds prior to their respective maturity date, then such term shall refer to the Accreted Value of such Bonds on their respective redemption date.

“Fiscal Agent” means the fiscal agent appointed pursuant to Section 4.01 hereof.

“Fixed Rate Bonds” means Bonds other than Variable Rate Bonds.

“Master Resolution” means Resolution 8329 adopted by the District on July 9, 1991, as from time to time amended and supplemented.

“Nominee” means the nominee of the Securities Depository, which may be the Securities Depository, as determined from time to time pursuant hereto.

“Participants” means those broker-dealers, banks and other financial institutions for which the Securities Depository directly or indirectly holds certificates as securities depository.

“Paying Agent” means a paying agent appointed pursuant to Section 4.01 of this Twenty-Fifth Supplemental Resolution.

“Record Date” means, with respect to Fixed Rate Bonds of a Series, the close of business on the fifteenth (15th) day of each month preceding an interest payment date, and with respect to Variable Rate Bonds of a Series means the record date established pursuant to the applicable Trust Agreement.

“Remarketing Agent” means, with respect to a Series of Variable Rate Bonds, a remarketing agent appointed by the District from time to time pursuant to the applicable Trust Agreement.

“Representation Letter” means a representation letter from the District to the Securities Depository as described in Section 2.09 hereof.

“Reserve Fund” means, with respect to a Series of Bonds, the Reserve Fund established for such Series pursuant to Section 3.04 hereof.

“Reserve Fund Credit Policy” means, with respect to a Series of Bonds, an insurance policy, surety bond, letter of credit or other credit facility deposited with the Fiscal Agent pursuant to Section 3.04(D) hereof.

“Sales Documents” means, in the case of a negotiated sale, that certain bond purchase contract or other agreement for the purchase of one or more Series of Bonds between the District and the Underwriters for such Series or, in the case of a competitive sale, the notice of sale, bid form and other documents providing for the sale of one or more Series of Bonds by the District to the Underwriters.

“Securities Depository” means the Securities Depository acting as such hereunder (initially DTC) and which may be the District.

“Twenty-Fifth Supplemental Resolution” means this resolution of the District, and any amendments, modifications or supplements hereto.

“Tax Certificate” means, with respect to a Series of Bonds, the Tax and Nonarbitrage Certificate of the District delivered by the District in connection with the issuance of such Series of Bonds.

“Trust Agreement” means the trust agreement, paying agent agreement or such other instrument or instruments executed and delivered in connection with the issuance of a Series of Bonds and which sets forth the terms and conditions of such Series of Bonds and which appoints any Paying Agent, Remarketing Agent or other agent with respect to such Series of Bonds.

“Underwriters” means, with respect to a Series of Bonds, in the case of a negotiated sale, the original purchaser or purchasers of such Series of Bonds and in the case of a competitive sale, the successful bidder or bidders for such Series of Bonds.

“Variable Rate Bonds” means Bonds bearing interest as determined from time to time by a Remarketing Agent or a calculation agent, pursuant to an index or otherwise in accordance with the provisions of the Trust Agreement with respect to such Series of Bonds.

## ARTICLE II

### THE BONDS

SECTION 2.01 Authorization. Bonds are hereby authorized to be issued pursuant to the Act and the Master Resolution. The Bonds shall be designated as “The Metropolitan Water District of Southern California Water Revenue Bonds, 2023 Series (the “2023 Water Revenue Bonds”); or as otherwise designated by the District. The Bonds may be issued in one or more Series at one time or from time to time in accordance with the terms hereof, and each Series of Bonds shall bear

such additional designation as may be ascribed thereto in the Sales Documents for such Series. A Series of Bonds may be issued as Fixed Rate Bonds (including Current Interest Bonds and Capital Appreciation Bonds) or Variable Rate Bonds and shall be issued in the aggregate principal amount specified in the Sales Documents for such Series; provided, however, in no event shall the total aggregate principal amount of the Bonds exceed \$330,000,000.

#### SECTION 2.02 Terms of the Bonds.

(A) Current Interest Bonds. Each Series of Current Interest Bonds, if any, shall be Current Interest Bonds as described in the Master Resolution and shall be issued in the aggregate principal amount and be dated such date as shall be specified in the Sales Documents for such Series, shall bear interest from such dated date at the rates and shall mature on the date or dates and in the principal amount or amounts set forth in such Sales Documents, or Trust Agreement, if any, for such Series. Each Series of Current Interest Bonds, if any, shall be delivered in fully registered form in principal amounts in Authorized Denominations, and shall be numbered in such manner as the Fiscal Agent determines.

The Sales Documents or Trust Agreement, if any, with respect to a Series of Bonds shall designate which, if any, of the Current Interest Bonds of such Series shall be Term Bonds.

(B) Capital Appreciation Bonds. Each Series of Capital Appreciation Bonds shall be Capital Appreciation Bonds as described in the Master Resolution and, if any shall be issued, shall be issued in the aggregate Initial Amount, shall mature on the dates and have a yield to maturity as set forth in the Sales Documents for such Series. The Capital Appreciation Bonds, if any, shall be issued, shall be dated the date of delivery thereof, shall be delivered in fully registered form with Final Compounded Amounts in Authorized Denominations, and shall be numbered in such manner as determined by the Fiscal Agent.

The Accreted Value for a Capital Appreciation Bond having a \$5,000 Final Compounded Amount shall be illustrated by the Accreted Value Table set forth as an exhibit to the Sales Documents for such Capital Appreciation Bonds.

(C) Sources of Payment. The payment of the principal, Accreted Value and Final Compounded Amount of, and interest and any redemption premiums on the Bonds shall be secured by and payable solely from Net Operating Revenues and other funds pledged under the Master Resolution and the Twenty-Fifth Supplemental Resolution.

#### SECTION 2.03 Interest.

(A) Current Interest Bonds. The Current Interest Bonds of any Series which are Fixed Rate Bonds, if any, shall bear interest at the rates set forth in the Sales Documents for such Series (calculated on the basis of a 360-day year consisting of twelve 30-day months), payable on the dates set forth in such Sales Documents. Current Interest Bonds of any Series which are Variable Rate Bonds, if any, shall bear interest as determined pursuant to the Trust Agreement for such Series (calculated on the basis of a 365- or 366-day year, as applicable, and actual days elapsed, unless otherwise provided in the Trust Agreement) payable as provided in such Trust Agreement. Each Current Interest Bond shall bear interest from the interest payment date before the date of authentication thereof unless it is authenticated during the period after a Record Date but on or

before the next interest payment date, in which event it shall bear interest from that interest payment date, or unless it is authenticated prior to the first Record Date, in which event it shall bear interest from the dated date of the Current Interest Bonds specified in the Sales Documents, or Trust Agreement if any, or unless at the time of authentication interest is in default, in which event it shall bear interest from the interest payment date to which interest has been paid or provided for.

(B) Capital Appreciation Bonds. Interest with respect to the Capital Appreciation Bonds of any maturity shall be compounded at the original yield thereof set forth in the Sales Documents on the dates specified in such Sales Documents, computed using a year of 360 days comprised of twelve months of 30 days and shall be payable only at maturity or upon redemption as part of the Accreted Value. Accreted Value on any date other than the dates on which interest is compounded as specified in such Sales Documents shall be calculated by straight line interpolation of the Accreted Value as of the immediately preceding and succeeding dates on which interest is compounded as specified in such Sales Documents.

(C) Payment of Interest. Each Bond shall bear or accrete interest until the principal or Final Compounded Amount thereof has been paid; provided, however, that if at the maturity date of any Bond or if on the redemption date thereof if the same has been fully called for redemption, in each case, funds are available for the payment thereof in full in accordance with the terms of Article IX of the Master Resolution, such Bond shall then cease to bear or accrete interest.

SECTION 2.04 Place of Payment. Subject to Section 2.08 hereof, for so long as the Treasurer is the Fiscal Agent, the principal or Final Compounded Amount of the Bonds shall be payable in lawful money of the United States of America upon presentation and surrender of such Fixed Rate Bonds at the corporate office of the District. Interest on the Current Interest Bonds shall be paid by check or draft mailed by first class mail to the persons whose names appear on the registration books of the Fiscal Agent as the registered Owners of such Current Interest Bonds as of the close of business on the Record Date at such persons' addresses as they appear on such registration books, except that an Owner of \$1,000,000 or more in principal amount of Fixed Rate Bonds which are Current Interest Bonds may be paid interest by wire transfer to an account in the United States if such Owner makes a written request of the Fiscal Agent at least thirty (30) days preceding any interest payment date specifying the wire transfer instructions for such Owner. Such notice may provide that it will remain in effect for later interest payments until changed or revoked by another written notice. Payments of default interest shall be paid by check, draft or wire transfer to the Owners as of a special record date to be fixed by the Fiscal Agent, notice of which special record date shall be given to the Owners by the Fiscal Agent not less than ten (10) days prior thereto. Principal of and interest on the Variable Rate Bonds shall be payable as provided in the applicable Trust Agreement.

#### SECTION 2.05 Redemption.

(A) Optional Redemption. The Fixed Rate Bonds of any Series shall be subject to call and redemption prior to maturity, at the option of the District, in the amounts, at the redemption prices and on the dates set forth in the Sales Documents with respect to such Series. The Variable Rate Bonds of any Series shall be subject to call or redemption as provided in the Trust Agreement with respect to such Series.

(B) Mandatory Sinking Account Payments. The Term Bonds of any Series, if any, shall be called before maturity and redeemed at a redemption price equal to the par amount thereof from Mandatory Sinking Account Payments with respect to such Series which have been deposited in the Bond Service Fund, in the amounts and upon the dates established for each such maturity, as set forth in the Sales Documents or Trust Agreement, as the case may be, with respect to such Series.

(C) Disposition of Redemption Rights. The Sales Documents applicable to a Series of Bonds may contain provisions with respect to the sale or disposition of the right of the District to redeem any Bonds of such Series.

(D) Conditional Notice of Redemption. In addition to the notice requirements for redemption included in the Master Resolution, each such notice may also state that the proposed redemption is conditioned on there being on deposit in the applicable fund or account on the Redemption Date sufficient money to pay the full Redemption Price of the Bonds to be redeemed. Upon deposit of sufficient money to pay the full Redemption Price and provision of irrevocable instructions to the Fiscal Agent or Paying Agent to apply such money to the payment of the Redemption Price and interest with respect to the Bonds to be redeemed, all liability of the District in respect of such Bonds shall be discharged as provided in Section 9.02 of the Master Resolution.

SECTION 2.06 Form of Bonds. Except as otherwise provided in the applicable Sales Documents, the Current Interest Bonds and Capital Appreciation Bonds of each Series that are Fixed Rate Bonds shall be issued in substantially the form set forth in Exhibit A1 and Exhibit A2, respectively, which exhibits are incorporated herein by this reference as if set forth in full. The Variable Rate Bonds of each Series shall be issued in substantially the form set forth in the Trust Agreement relating to such Series of Bonds.

SECTION 2.07 CUSIP Identification Numbers. CUSIP identification numbers shall be ordered by the Underwriters and caused by the District to be printed on the Bonds, but such numbers shall not be deemed a part of the Bonds or a part of the contract evidenced thereby and no liability shall attach to the District or its officers, employees or agents because of or on account of such CUSIP identification numbers.

SECTION 2.08 Book-Entry System. Except as otherwise provided in the Trust Agreement with respect to Variable Rate Bonds of any Series, the Bonds shall be initially issued in the form of a single (unless more than a single Bond is required by the Securities Depository), separate, fully registered Bond (which may be typewritten) for each of the maturities of the Bonds. Upon initial issuance, the ownership of each such Bond shall be registered in the Bond Register of the Fiscal Agent in the name of the Nominee of the Securities Depository. Except as provided in Section 2.10 hereof, the ownership of each Outstanding Bond shall be registered in the Bond Register of the Fiscal Agent in the name of the Nominee.

With respect to the Bonds registered in the Bond Register of the Fiscal Agent in the name of the Nominee, the District and the Fiscal Agent shall have no responsibility or obligation to any Participant or to any person on behalf of which a Participant holds an interest in the Bonds. Without limiting the immediately preceding sentence, the District and the Fiscal Agent shall have no responsibility or obligation (unless the Fiscal Agent is at such time the Securities Depository)



with respect to (i) the accuracy of the records of the Securities Depository, the Nominee or any Participant with respect to any ownership interest in the Bonds, (ii) the delivery to any Participant or any other person, other than an Owner as shown in the Bond Register of the Fiscal Agent, of any notice with respect to the Bonds, or (iii) the payment to any Participant or any other person, other than an Owner as shown in the Bond Register of the Fiscal Agent, of any amount with respect to principal of or interest and premium, if any, on the Bonds. The District and the Fiscal Agent may treat and consider the person in whose name each Bond is registered in the Bond Register of the Fiscal Agent as the holder and absolute Owner of such Bond for the purpose of payment of principal or Final Compounded Amount of, and interest on, such Bond, for the purpose of giving notices and other matters with respect to such Bond, and for all other purposes whatsoever.

The Fiscal Agent shall pay all principal and Accreted Value of and interest on the Bonds only to or upon the order of the respective Owners, as shown in the Bond Register of the Fiscal Agent, or their respective attorneys, duly authorized in writing, and all such payments shall be valid and effective to fully satisfy and discharge the obligations hereunder with respect to the payment of principal and Final Compounded Amount of, and interest on, the Bonds to the extent of the sum or sums so paid. No person other than an Owner, as shown in the Bond Register of the Fiscal Agent, shall receive a Bond evidencing the obligation to make payments of principal, Final Compounded Amount and interest and premium, if any, pursuant to this Twenty-Fifth Supplemental Resolution. Upon delivery by the Securities Depository to the Fiscal Agent and the District of written notice to the effect that the Securities Depository has determined to substitute a new nominee in place of the Nominee, and subject to the provisions herein with respect to record dates, the word Nominee in this Twenty-Fifth Supplemental Resolution shall refer to such new nominee of the Securities Depository.

SECTION 2.09 Representation Letter. To qualify the Bonds for the Securities Depository's book-entry system, the Authorized Representative is hereby authorized to execute and deliver on behalf of the District to such Securities Depository a letter, if necessary, from the District representing such matters as shall be necessary to so qualify the Bonds (the "Representation Letter"). The execution and delivery of the Representation Letter shall not in any way limit the provisions of Section 2.08 hereof or in any other way impose upon the District any obligation whatsoever with respect to persons having interests in the Bonds other than the Owners, as shown on the Bond Register of the Fiscal Agent. In the Representation Letter, the Fiscal Agent shall agree to take all actions necessary to comply with all representations of the District in the Representation Letter. In addition to the execution and delivery of the Representation Letter, each Authorized Representative of the District is hereby authorized to take any other actions, not inconsistent with this Twenty-Fifth Supplemental Resolution, to qualify the Bonds for the Securities Depository's book-entry program.

SECTION 2.10 Transfers Outside Book-Entry System. In the event (i) the Securities Depository determines not to continue to act as securities depository for the Bonds, or (ii) the District determines that the Securities Depository shall, subject to the provisions of the applicable Trust Agreement with respect to Variable Rate Bonds of such Series, no longer so act and delivers a written certificate to the Fiscal Agent to that effect, then the District will discontinue the book-entry system with the Securities Depository. Subject to the provisions of the applicable Trust Agreement with respect to Variable Rate Bonds of any Series, if the District determines to replace the Securities Depository with another qualified securities depository, the District shall prepare or

direct the preparation of a new, single, separate, fully registered Bond for each of the maturities of the Bonds, registered in the name of such successor or substitute qualified securities depository or its nominee, or make such other arrangement acceptable to the District and the Securities Depository as are not inconsistent with the terms of this Twenty-Fifth Supplemental Resolution. If the District fails to identify another qualified securities depository to replace the Securities Depository, then the Bonds shall no longer be restricted to being registered in the Bond Register of the Fiscal Agent in the name of the Nominee, but shall be registered in whatever name or names the Participants transferring or exchanging Bonds shall designate, in accordance with the provisions of Article II of the Master Resolution and, with respect to the Variable Rate Bonds, the provisions of the applicable Trust Agreement.

SECTION 2.11 Payments and Notices to the Nominee. Notwithstanding any other provision of this Twenty-Fifth Supplemental Resolution or the Master Resolution to the contrary, so long as any Bond is registered in the name of the Nominee, all payments with respect to principal and Final Compounded Amount of, and interest and premium, if any, on, such Bond and all notices with respect to such Bond shall be made and given, respectively, as provided in the Representation Letter or as otherwise instructed by the Securities Depository.

SECTION 2.12 Initial Depository and Nominee. The initial Securities Depository under this Twenty-Fifth Supplemental Resolution shall be DTC. The initial Nominee shall be Cede & Co., as Nominee of DTC.

### ARTICLE III

#### APPLICATION OF BOND PROCEEDS; ESTABLISHMENT OF FUNDS; COVENANTS

SECTION 3.01 Application of Proceeds of Bonds. The proceeds of the sale of a Series of Bonds and such other moneys as are available and necessary to accomplish the purposes of this Twenty-Fifth Supplemental Resolution from time to time shall be deposited with the Treasurer and shall be held in trust and, unless otherwise specified in a Certificate of an Authorized Representative, shall be set aside by the Treasurer as follows:

- (a) The Treasurer shall deposit in the Bond Service Fund the amount of such proceeds representing interest accrued, if any, on such Series of Bonds to the date of delivery thereof.
- (b) The Treasurer shall deposit in the applicable Reserve Fund, if any, for each Series of Bonds an amount equal to the Bond Reserve Requirement for each such Series of Bonds or provide for a Reserve Fund Credit Policy to satisfy the Bond Reserve Requirement for each such Series of Bonds.
- (c) The Treasurer shall deposit in the Costs of Issuance Fund for the applicable Series of Bonds the amount of such proceeds necessary to pay all Costs of Issuance that are not to be paid from other sources.
- (d) The remaining proceeds shall be deposited in the Construction Fund for the applicable Series of Bonds.

### SECTION 3.02 Establishment and Application of Costs of Issuance Funds.

(A) The District shall establish, and the Treasurer shall maintain and hold in trust one or more separate funds which shall be designated as the “Water Revenue Bonds 2023 Series \_\_\_\_\_ Costs of Issuance Fund” (inserting the designation for each Series or multiple Series of Bonds, as applicable), and shall bear such additional designation as shall be determined by an Authorized Representative. The moneys in each such Costs of Issuance Fund shall be used and withdrawn by the Treasurer to pay Costs of Issuance incurred in connection with the issuance of the applicable Series of Bonds. The Treasurer shall hold moneys in each such Costs of Issuance Fund uninvested until expended unless directed otherwise by a Certificate of an Authorized Representative. Any amounts remaining in a Costs of Issuance Fund six months following the date of issuance of the Bonds with respect thereto either (i) shall be transferred to the corresponding Construction Fund and applied as provided in Section 3.03 or (ii) shall be applied for such other lawful purposes determined by the District as are approved in an Opinion of Bond Counsel to the effect that such action shall not, in and of itself, adversely affect the tax-exempt status of interest on the Bonds.

(B) The Treasurer shall keep a record of all payments from each Costs of Issuance Fund, which record shall state: (i) the item number of such payment; (ii) the name and address of the person to whom each such payment is due, which may be the District in the case of reimbursement for costs theretofore paid by the District; and (iii) the purpose by general classification for which each obligation to be paid was incurred.

### SECTION 3.03 Establishment and Application of Construction Funds.

(A) The District shall establish, and the Treasurer shall maintain and hold in trust, one or more separate funds which shall be designated as the “Water Revenue Bonds 2023 Series \_\_\_\_\_ Construction Fund” (inserting the designation for each Series or multiple Series of Bonds, as applicable), and shall bear such additional designation as shall be determined by an Authorized Representative. The moneys in each Construction Fund shall be used and withdrawn by the Treasurer to pay Construction Costs. All investment earnings on funds held in each Construction Fund shall be credited to such fund unless otherwise specified in a Certificate of an Authorized Representative.

(B) The Treasurer shall keep a record of all payments from each Construction Fund, which record shall state: (i) the item number of such payment; (ii) the name and address of the person to whom each such payment is due, which may be the District in the case of reimbursement for costs theretofore paid by the District; and (iii) the purpose by general classification for which each obligation to be paid was incurred.

### SECTION 3.04 Establishment, Pledge, Funding and Application of Reserve Funds.

(A) In connection with the issuance of each Series of Bonds pursuant to this Twenty-Fifth Supplemental Resolution, the District may establish and, if established, the Treasurer shall maintain and hold in trust a separate fund for such Series designated as the “Water Revenue Bonds 2023 Series \_\_\_\_\_ Reserve Fund” (inserting the designation for each Series or multiple Series of Bonds, as applicable) and shall bear such additional designation as shall be determined by an

Authorized Representative. Each Reserve Fund shall be funded as set forth in Section 3.01 hereof and applied as set forth in this Section 3.04. All amounts held by the Treasurer in a Reserve Fund established with respect to a Series of Bonds shall be pledged to secure the payment of the principal and Final Compounded Amount of, and interest on, such Series of Bonds in accordance with their terms.

(B) The District shall at all times maintain an amount equal to the applicable Bond Reserve Requirement in a Reserve Fund established with respect to a Series of Bonds until such Series is discharged in accordance with the provisions of Article IX of the Master Resolution. The amount of the Bond Reserve Requirement applicable to a designated Series of Bonds shall be set forth in the Sales Documents for such Series of Bonds. In the event of any deficiency in a Reserve Fund, the Treasurer shall replenish such deficiency in accordance with the provisions of Section 5.07 of the Master Resolution.

(C) All amounts in a Reserve Fund established with respect to a Series of Bonds shall be used and withdrawn by the Treasurer, as hereinafter provided, solely for the purpose of (i) paying principal and Final Compounded Amount of, and interest on, such Series of Bonds in the event moneys in the Bond Service Fund are insufficient, or (ii) for the payment of the final principal and Final Compounded Amount and interest payment on such Series of Bonds. Any amounts in a Reserve Fund established with respect to a Series of Bonds in excess of the Bond Reserve Requirement for such Series shall be transferred to the Bond Service Fund for such Series unless otherwise specified in a Certificate of an Authorized Representative.

All Authorized Investments credited to a Reserve Fund shall be valued as of June 30 of each year (or the next preceding or succeeding Business Day, as determined by the District, if such day is not a Business Day) at their fair market value determined to the extent practical by reference to the closing bid price thereof published in The Wall Street Journal or any other financial publication or quotation service selected by the Treasurer at his or her discretion.

(D) Notwithstanding anything herein to the contrary, at the option of the District, amounts required to be held in a Reserve Fund may be substituted, in whole or in part, by the deposit with the Fiscal Agent of a Reserve Fund Credit Policy in a stated amount equal to the amounts so substituted, provided that prior to the substitution of such Reserve Fund Credit Policy the Rating Agencies shall have been notified of such proposed substitution and the substitution shall not result in a downgrading or withdrawal of any rating of such Series of Bonds then in effect by the Rating Agencies. Any such substituted moneys shall be applied as provided in a Certificate of an Authorized Representative.

So long as a Reserve Fund Credit Policy shall be in force and effect with respect to such Series of Bonds, any deposits required to be made with respect to the applicable Reserve Fund pursuant to Section 5.07 of the Master Resolution shall include any amounts due to the provider of such Reserve Fund Credit Policy resulting from a draw on such Reserve Fund Credit Policy (which amounts shall constitute a “deficiency” or “withdrawal” from the applicable Reserve Fund within the meaning of Section 5.07 of the Master Resolution). Any such amounts shall be paid to the provider of such Reserve Fund Credit Policy as provided in such Reserve Fund Credit Policy or any related agreement.

SECTION 3.05 Establishment and Application of Excess Earnings Funds. To ensure proper compliance with the tax covenants contained in Section 3.06 hereof, the District shall establish when required and, if established, the Treasurer shall maintain, a fund for each Series of Bonds issued hereunder, which fund, if any, shall be separate from any other fund or account established and maintained hereunder or under the Master Resolution. The fund, if any, shall be designated as the “Water Revenue Bonds 2023 Series \_\_\_\_\_ Excess Earnings Fund” (inserting the designation for each Series or multiple Series of Bonds, as applicable), and shall bear such additional designation as shall be determined by an Authorized Representative. All money at any time deposited in the Excess Earnings Fund with respect to a Series of Bonds in accordance with the provisions of the Tax Certificate applicable to such Series shall be held by the Treasurer for the account of the District in trust for payment to the federal government of the United States of America, and neither the District nor the Owner of any bonds of such Series of Bonds shall have any rights in or claim to such money. All amounts deposited into or on deposit in any such Excess Earnings Fund shall be governed by this Twenty-Fifth Supplemental Resolution and by the applicable Tax Certificate. The Treasurer shall invest all amounts held in any such Excess Earnings Fund in accordance with the applicable Tax Certificate. Money shall not be transferred from the Excess Earnings Fund established for a Series of Bonds except in accordance with the Tax Certificate with respect to such Series.

SECTION 3.06 Tax Covenants. In order to maintain the exclusion from gross income of the interest on the Bonds for federal income tax purposes, the District covenants to comply with each applicable requirement of Section 103 and Sections 141 through 150 of the Code and the District agrees to comply with the covenants contained in, and the instructions given pursuant to, each Tax Certificate which by this reference is incorporated herein, as a source of guidance for compliance with such provisions.

Notwithstanding any other provisions of the Master Resolution or this Twenty-Fifth Supplemental Resolution to the contrary, upon the District’s failure to observe, or refusal to comply with, the foregoing covenant, no Person other than the Owners of the Bonds shall be entitled to exercise any right or remedy provided to the Owners under the Master Resolution or this Twenty-Fifth Supplemental Resolution on the basis of the District’s failure to observe, or refusal to comply with, such covenant.

SECTION 3.07 Establishment and Application of Additional Funds. In addition to the funds established pursuant to the Master Resolution and this Twenty-Fifth Supplemental Resolution, there shall be established and maintained such additional funds and/or accounts as shall be set forth in the Trust Agreement, if any, including funds with respect to the purchase and remarketing of Variable Rate Bonds, with respect to the payments to be made by the District under any interest rate swap agreement or agreements entered into by the District, and for such other purposes as the District or the Fiscal Agent deem necessary or desirable.

#### ARTICLE IV

##### FISCAL AGENT AND PAYING AGENT

SECTION 4.01 Fiscal Agent and Paying Agent. The Treasurer of the District is hereby appointed as Fiscal Agent with respect to the Bonds. In addition, with respect to a Series of

Variable Rate Bonds, if any, an Authorized Representative may appoint a Paying Agent, which shall have such duties as shall be set forth in the respective Trust Agreement.

## ARTICLE V

### SALE OF BONDS; APPROVAL OF SALES DOCUMENTS AND TRUST AGREEMENTS

SECTION 5.01 Ad Hoc Committee. The Chair of the Board, or in the event of a vacancy, the Acting Chair of the Board, the Chair of the Finance, Audit, Insurance, and Real Property Committee of the Board (or in the event the Finance, Audit, Insurance, and Real Property Committee is renamed, dissolved, or reorganized, such other committee of the Board which shall have substantially all of the duties of the Finance, Audit, Insurance, and Real Property Committee prior to such renaming, dissolution, or reorganization), or in the event of a vacancy, the Vice Chair or Acting Chair of the Finance, Audit, Insurance, and Real Property Committee of the Board (or in the event the Finance, Audit, Insurance, and Real Property Committee is renamed, dissolved, or reorganized, such other committee of the Board which shall have substantially all of the duties of the Finance, Audit, Insurance, and Real Property Committee prior to such renaming, dissolution, or reorganization), and the General Manager or his or her designee, or in the event of a vacancy, the Acting General Manager or his or her designee, acting jointly, are hereby constituted an ad hoc committee (the “Ad Hoc Committee”).

SECTION 5.02 Approval of Sales Documents and Trust Agreements. The Ad Hoc Committee is authorized and directed to determine on behalf of the District the aggregate principal amount, terms and conditions of each Series of Bonds, and the terms and conditions of the sale of each Series of Bonds at either a private sale or a competitive sale to one or more purchasers. The Ad Hoc Committee is hereby empowered to establish on behalf of the District such aggregate principal amount, terms and conditions of each Series of Bonds, and the terms and conditions of the sale of each Series of Bonds to the Underwriters, as the members of the Ad Hoc Committee shall agree upon in their sole discretion as being in the best interests of the District, subject only to the provisions of the Act and of this Twenty-Fifth Supplemental Resolution, and shall be so empowered solely to implement the fundamental policies established by this Twenty-Fifth Supplemental Resolution in a manner that is most advantageous to the District, and, if required, to deem the preliminary official statement relating to each Series of Bonds as being final within the meaning of Rule 15c2-12 promulgated under the Securities Exchange Act of 1934, as amended.

Such aggregate principal amount, terms and conditions of each Series of Bonds and the terms and conditions of their sale shall be set forth in the Sales Documents with respect to such Series of Bonds and, with respect to Variable Rate Bonds of a Series, if any, in the respective Trust Agreement. Such terms and conditions as so set forth, together with the other terms and conditions of each Series of Bonds set forth in this Twenty-Fifth Supplemental Resolution, shall, upon execution and delivery of the Sales Documents with respect to such Series and, if any, the Trust Agreement, by the Ad Hoc Committee, or its designee, on behalf of the District, be all the terms and conditions of each Series of Bonds, as if all such terms and conditions were fully set forth in this Twenty-Fifth Supplemental Resolution.



The provisions of the Sales Documents, and Trust Agreement, if any, pertaining to the terms of each Series of Bonds are hereby incorporated by reference into this Twenty-Fifth Supplemental Resolution with the same force and effect as if set forth herein.

In connection with the sale of Bonds, the Ad Hoc Committee or its designee is further hereby authorized to approve on behalf of the District, one or more credit enhancement instruments (such as municipal bond insurance), all upon such terms and conditions as the Ad Hoc Committee shall determine to be in the best interests of the District.

In connection with the sale of Bonds that are Variable Rate Bonds, the Ad Hoc Committee or its designee is further hereby authorized to approve on behalf of the District, one or more remarketing agreements providing for the remarketing of such Variable Rate Bonds, if necessary, fiscal agent agreements, calculation agent agreements or any other agreement in connection with such Variable Rate Bonds and one or more liquidity or credit agreements, standby bond purchase agreements and/or similar agreements providing liquidity or credit support for remarketing the Variable Rate Bonds, if applicable, and one or more agreements providing for reimbursement of draws under such liquidity or credit support instrument, all upon such terms and conditions as the Ad Hoc Committee shall determine to be in the best interests of the District.

The Board hereby finds and determines that the interests of the District and the public interest and necessity require that the provisions of Section 225 and of Section 226 of the Act be waived.

The Ad Hoc Committee shall file a certificate concerning its actions pursuant to this Twenty-Fifth Supplemental Resolution with the District. The Controller of the District shall maintain true and correct copies of the final Sales Documents and any Trust Agreement for each Series of Bonds in the files of the District.

SECTION 5.03 Further Action. The Chair of the Board, the General Manager, and the Assistant General Manager/Chief Financial Officer of the District shall be and each of them is hereby authorized, empowered and directed to execute such other documents and agreements in addition to those enumerated herein and take such other actions as they deem necessary or advisable in order to carry out and perform the purposes of this Twenty-Fifth Supplemental Resolution.

## ARTICLE VI

### UNDERTAKINGS

SECTION 6.01 Municipal Securities Disclosure. The District hereby agrees to provide or cause to be provided certain annual financial information and notices of certain material events to the extent required by Rule 15c2-12 adopted by the Securities and Exchange Commission under the Securities Exchange Act of 1934, as amended, with respect to each Series of Bonds in accordance with the terms of the Continuing Disclosure Certificate, delivered by the District in connection with such Series of Bonds.

SECTION 6.02 Default. Failure to comply with the provisions of Section 6.01 hereof shall not be deemed an Event of Default under the Master Resolution. The sole remedy under this

Article VI in the event of any failure of the District to comply with this Article VI shall be an action to compel performance, and no person or entity shall be entitled to recover monetary damages hereunder under any circumstances.

SECTION 6.03 Amendment. This Article VI may be amended, supplemented, modified or deleted, from time to time and at any time, as the District may determine without the consent of any Owner of the Bonds.

## ARTICLE VII

### MISCELLANEOUS

SECTION 7.01 Bonds Subject to Master Resolution. This Twenty-Fifth Supplemental Resolution is adopted in accordance with the provisions of the Master Resolution. The Master Resolution, as supplemented by this Twenty-Fifth Supplemental Resolution, is in all respects ratified and approved. Except as expressly provided in this Twenty-Fifth Supplemental Resolution, every term and condition contained in the Master Resolution shall apply to this Twenty-Fifth Supplemental Resolution and to the Bonds with the same force and effect as if it were herein set forth at length, with such omissions, variations and modifications thereof as may be appropriate to make the same conform to this Twenty-Fifth Supplemental Resolution.

SECTION 7.02 Severability of Invalid Provisions. If any one or more of the provisions contained in this Twenty-Fifth Supplemental Resolution or in the Bonds shall for any reason be held to be invalid, illegal or unenforceable in any respect, then such provision or provisions shall be deemed severable from the remaining provisions contained in this Twenty-Fifth Supplemental Resolution and such invalidity, illegality or unenforceability shall not affect any other provision of this Twenty-Fifth Supplemental Resolution, and this Twenty-Fifth Supplemental Resolution shall be construed as if such invalid, illegal or unenforceable provision had never been contained herein. The District hereby declares that it would have adopted this Twenty-Fifth Supplemental Resolution and each and every other Section, paragraph, sentence, clause or phrase hereof and authorized the issuance of the Bonds pursuant thereto irrespective of the fact that any one or more Sections, paragraphs, sentences, clauses or phrases of this Twenty-Fifth Supplemental Resolution may be held illegal, invalid or unenforceable.

SECTION 7.03 Article and Section Headings and References; Interpretation. The headings or titles of the several Articles and Sections hereof shall be solely for convenience of reference and shall not affect the meaning, construction or effect of this Twenty-Fifth Supplemental Resolution.

All references herein to "Article," "Sections" and other subdivisions are to the corresponding Articles, Sections or subdivisions of this Twenty-Fifth Supplemental Resolution; the words "herein," "hereof," "hereby," "hereunder" and other words of similar import refer to this Twenty-Fifth Supplemental Resolution as a whole and not to any particular Article, Section or subdivision hereof; and words of the masculine gender shall mean and include words of the feminine and neuter genders.

SECTION 7.04 Governing Law. This Twenty-Fifth Supplemental Resolution shall be construed and governed in accordance with the laws of the State of California.

**I HEREBY CERTIFY** that the foregoing is a full, true and correct copy of a Resolution adopted by the affirmative votes of members representing more than 50 percent (50%) of the total number of votes of all members of the Board of Directors of The Metropolitan Water District of Southern California at its meeting held on March 14, 2023.

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Secretary of the Board of Directors  
of The Metropolitan Water District of  
Southern California

**EXHIBIT A1****FORM OF FIXED RATE 2023 WATER REVENUE CURRENT INTEREST BOND**

UNITED STATES OF AMERICA

No. \_\_\_\_\_ \$ \_\_\_\_\_

THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA  
 WATER REVENUE BONDS, 2023  
 SERIES \_\_\_\_

UNLESS THIS BOND IS PRESENTED BY AN AUTHORIZED REPRESENTATIVE OF THE SECURITIES DEPOSITORY (AS DEFINED IN THE TWENTY-FIFTH SUPPLEMENTAL RESOLUTION) TO THE FISCAL AGENT FOR REGISTRATION OF TRANSFER, EXCHANGE, OR PAYMENT, AND ANY BOND ISSUED IS REGISTERED IN THE NAME OF CEDE & CO. OR IN SUCH OTHER NAME AS IS REQUESTED BY AN AUTHORIZED REPRESENTATIVE OF THE SECURITIES DEPOSITORY (AND ANY PAYMENT IS MADE TO CEDE & CO. OR TO SUCH OTHER ENTITY AS IS REQUESTED BY AN AUTHORIZED REPRESENTATIVE OF THE SECURITIES DEPOSITORY), ANY TRANSFER, PLEDGE, OR OTHER USE HEREOF FOR VALUE OR OTHERWISE BY OR TO ANY PERSON IS WRONGFUL INASMUCH AS THE REGISTERED OWNER HEREOF, CEDE & CO., HAS AN INTEREST HEREIN.

INTEREST RATE	MATURITY DATE	ORIGINAL ISSUE DATE	CUSIP #
____ %	_____	_____	_____

REGISTERED OWNER: CEDE &amp; CO.

PRINCIPAL AMOUNT: \_\_\_\_\_ (\$ \_\_\_\_\_)

THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA, FOR VALUE RECEIVED, hereby promises to pay, solely from Net Operating Revenues, as hereinafter provided, to the registered owner named above, or registered assigns, on the maturity date set forth above, unless redeemed prior thereto as hereinafter provided, the principal amount set forth above, and to pay interest (calculated on the basis of a 360-day year consisting of twelve 30-day months) on such principal amount from the interest payment date before the date of authentication hereof (unless this 2023 Water Revenue Series \_\_\_\_ Bond is authenticated during the period after a record date but on or before the next interest payment date, in which event this 2023 Water Revenue Series \_\_\_\_ Bond shall bear interest from that interest payment date, or unless this 2023 Water Revenue Series \_\_\_\_ Bond is authenticated prior to the first record date, in which event this 2023 Water Revenue Series \_\_\_\_ Bond shall bear interest from \_\_\_\_\_, 2023 or unless at the time of authentication interest is in default, in which event it shall bear interest from the interest payment date to which interest has been paid or provided for), semi-annually on \_\_\_\_\_ and \_\_\_\_\_ of each year, commencing \_\_\_\_\_, 2023 at the interest rate set forth above, until

the principal amount hereof is paid or made available for payment. For so long as the Treasurer of the District is the Fiscal Agent (the “Fiscal Agent”), the principal of this 2023 Water Revenue Series \_\_\_ Bond is payable to the registered holder hereof in lawful money of the United States of America upon presentation and surrender of this 2023 Water Revenue Series \_\_\_ Bond at the corporate office of the District. Interest on this 2023 Water Revenue Series \_\_\_ Bond shall be paid by check or draft of the Fiscal Agent mailed by first class mail to the registered holder hereof as of the close of business on the 15th day of the month immediately preceding an interest payment date (a “record date”) at such registered holder’s address as it appears on the registration books maintained by the Fiscal Agent, except that a registered holder of \$1,000,000 or more in principal amount of the 2023 Water Revenue Series \_\_\_ Bonds may be paid interest by wire transfer to an account in the United States if such registered owner makes a written request of the Fiscal Agent at least 30 days preceding any interest payment date specifying the wire transfer instructions for such registered owner. Such notice may provide that it will remain in effect for later interest payments until changed or revoked by another written notice.

This 2023 Water Revenue Series \_\_\_ Bond is one of a duly authorized issue of “The Metropolitan Water District of Southern California Water Revenue Bonds, 2023 Authorization” (the “2023 Water Revenue Bonds”) issued in the aggregate principal amount of \$ \_\_\_\_\_ pursuant to the Metropolitan Water District Act, California Statutes 1969, Chapter 209, as amended and supplemented (the “Act”), Resolution 8329 of the District adopted on July 9, 1991 (as amended and supplemented, the “Master Resolution”) and Resolution \_\_\_\_\_ adopted by the District on March 14, 2023 (the “Twenty-Fifth Supplemental Resolution”; the Master Resolution as supplemented by the Twenty-Fifth Supplemental Resolution is referred to herein as the “Resolution”). Reference is hereby made to the Master Resolution, the Twenty-Fifth Supplemental Resolution and to the Act for a description of the terms on which the 2023 Water Revenue Series \_\_\_ Bonds are issued and to be issued, the provisions with regard to the nature and extent of the Net Operating Revenues (as defined in the Master Resolution), and all of the terms of the Resolution and the Act are hereby incorporated herein and constitute a contract between the District and the registered owner from time to time of this 2023 Water Revenue Series \_\_\_ Bond, and by acceptance hereof the registered holder of this 2023 Water Revenue Series \_\_\_ Bond assents to said terms and conditions. The Resolution is adopted under, and this 2023 Water Revenue Series \_\_\_ Bond is issued under, and all are to be construed in accordance with, the laws of the State of California.

This 2023 Water Revenue Series \_\_\_ Bond is a special limited obligation of the District payable from and secured by a pledge of and a lien and charge upon the Net Operating Revenues on a parity with all Bonds and all other debt issued or incurred and payable from Net Operating Revenues on a parity with the Bonds. The principal of, premium (if any) and interest on this 2023 Water Revenue Series \_\_\_ Bond is not a debt of the District, nor a legal or equitable pledge, charge, lien or encumbrance upon any of its property or upon any of its income, receipts or revenues, except the Net Operating Revenues. The general fund of the District is not liable for the payment of the 2023 Water Revenue Series \_\_\_ Bonds or their interest, nor is the credit or the taxing power of the District or the forfeiture of any of its property for the payment of this 2023 Water Revenue Series \_\_\_ Bond or any interest hereon.

The 2023 Water Revenue Series \_\_\_ Bonds are payable as to principal, interest and any redemption premium exclusively from the Net Operating Revenues and other funds pledged under the Master Resolution and the Twenty-Fifth Supplemental Resolution.

This 2023 Water Revenue Series \_\_\_ Bond is one of the 2023 Water Revenue Current Interest Bonds described in the Resolution.

[Redemption provisions to be inserted]

This 2023 Water Revenue Series \_\_\_ Bond may be transferred without charge upon the registration books required to be kept by the Fiscal Agent, by the person in whose name it is registered, in person or by his or her duly authorized attorney, upon surrender of this 2023 Water Revenue Series \_\_\_ Bond for cancellation, accompanied by delivery of a written instrument of transfer, duly executed in a form approved by the Fiscal Agent. Whenever any 2023 Water Revenue Series \_\_\_ Bond is surrendered for transfer, the District shall execute and the Fiscal Agent shall authenticate and deliver a new 2023 Water Revenue Series \_\_\_ Bond or Bonds, of the same tenor and maturity and for a like aggregate principal amount. This 2023 Water Revenue Series \_\_\_ Bond may be exchanged without charge at the office of the Fiscal Agent in Los Angeles, California for 2023 Water Revenue Series \_\_\_ Bonds of authorized denominations having the same aggregate principal amount, tenor and maturity. The Fiscal Agent need not transfer registration or exchange any 2023 Water Revenue Series \_\_\_ Bond later than 15 days prior to the date of selection of 2023 Water Revenue Series \_\_\_ Bonds for redemption or any portion thereof for redemption. The Fiscal Agent may require the holder of any 2023 Water Revenue Series \_\_\_ Bond requesting transfer of registration or exchange to pay any tax or other governmental charge required to be paid with respect to such transfer of registration or exchange.

The rights and obligations of the District, the Fiscal Agent and of the owners of the 2023 Water Revenue Series \_\_\_ Bonds may be modified or amended from time to time in the manner, to the extent and upon the terms provided in the Resolution, provided that no such modification or amendment shall extend the fixed maturity of this 2023 Water Revenue Series \_\_\_ Bond, or reduce the amount of principal hereof, or extend the time of payment, or reduce the rate of interest hereon, or extend the time of payment of interest hereon, or reduce any premium payable upon the redemption hereof without the consent of the owner hereof, or reduce the percent of 2023 Water Revenue Series \_\_\_ Bonds the consent of the holders of which is required to effect any such modification or amendment, or permit the creation of any lien on the Net Operating Revenues and other assets pledged under the Resolution prior to the lien created by the Resolution, or deprive the holders of the 2023 Water Revenue Series \_\_\_ Bonds of the lien created by the Resolution on such Net Operating Revenues and other assets (in each case, except as expressly provided in the Resolution), without the consent of the holders of all of the 2023 Water Revenue Series \_\_\_ Bonds then outstanding.

This 2023 Water Revenue Series \_\_\_ Bond shall not be entitled to any benefit under the Resolution, or become valid or obligatory for any purpose, until the certificate of authentication and registration hereon endorsed shall have been executed and dated by the Fiscal Agent. It is hereby certified and recited that any and all acts, conditions and things required to exist, to have happened and to have been performed precedent to and in the issuance of this 2023 Water Revenue Series \_\_\_ Bond to exist, have happened, and have been performed in due time, form and manner



as required by the Constitution and laws of the State of California and that this 2023 Water Revenue Series \_\_\_ Bond, together with all other indebtedness of the District, does not exceed any limit prescribed by the Constitution and laws of the State of California and the Act and is not in excess of the amount of 2023 Water Revenue Series \_\_\_ Bonds permitted to be issued under the Resolution.

IN WITNESS WHEREOF, the District has caused this 2023 Water Revenue Series \_\_\_\_ Bond to be signed by the Chair of the Board of Directors and the Secretary of the Board of Directors of the District, and countersigned by the Controller of the District, each by their facsimile or manual signatures, and sealed with the corporate seal of said District as of the Original Issue Date specified above.

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Chairman of the Board of Directors,  
The Metropolitan Water District  
of Southern California

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Secretary of the Board of Directors,  
The Metropolitan Water  
District of Southern California

COUNTERSIGNED:

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Controller of The Metropolitan  
Water District of Southern California

FISCAL AGENT'S CERTIFICATE OF AUTHENTICATION  
AND REGISTRATION

This Bond is one of The Metropolitan Water District of Southern California Water Revenue Bonds, 2023 Water Revenue Series \_\_ delivered pursuant to the within mentioned Master Resolution and Twenty-Fifth Supplemental Resolution.

Treasurer of The Metropolitan  
Water District of Southern  
California, as Fiscal Agent

By \_\_\_\_\_  
Authorized Signature

## ASSIGNMENT

The following abbreviations, when used in the inscription on the face of the within-mentioned 2023 Water Revenue Series \_\_ Bond and in the assignment below, shall be construed as though they were written out in full according to applicable laws or regulations.

TEN COM:           as tenants in common

TEN ENT:           as tenants by the entireties

JT TEN: as joint tenants with right of survivorship and not as tenants in common

UNIF GIFT MIN ACT                      \_\_\_\_\_ Custodian \_\_\_\_\_  
  (Cust)                                  (Minor)

Additional abbreviations may also be used though not in the above list.

FOR VALUE RECEIVED, the undersigned do(es) hereby sell, assign and transfer unto the \_\_\_\_\_ the within-mentioned registered 2023 Water Revenue Series \_\_\_\_ Bond and hereby irrevocably constitute(s) \_\_\_\_\_ and \_\_\_\_\_ appoint(s) \_\_\_\_\_ attorney, to transfer the same on the books of the Fiscal Agent with full power of substitution in the premises.

Dated:

SIGNATURE GUARANTEED:

Note: The signature(s) to this Assignment must correspond with the name(s) as written on the face of the within 2023 Water Revenue Series \_\_ Bond in every particular, without alteration or enlargement or any change whatsoever.

NOTICE: Signature(s) must be guaranteed by a member firm of the New York Stock Exchange or a commercial bank or trust company.

**EXHIBIT A2****FORM OF FIXED RATE 2023 WATER REVENUE CAPITAL APPRECIATION BOND**

UNITED STATES OF AMERICA

No. \_\_\_\_\_

\$ \_\_\_\_\_

THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA  
WATER REVENUE BONDS, 2023

Series \_\_\_\_

UNLESS THIS BOND IS PRESENTED BY AN AUTHORIZED REPRESENTATIVE OF THE SECURITIES DEPOSITORY (AS DEFINED IN THE TWENTY-FIFTH SUPPLEMENTAL RESOLUTION) TO THE FISCAL AGENT FOR REGISTRATION OF TRANSFER, EXCHANGE, OR PAYMENT, AND ANY BOND ISSUED IS REGISTERED IN THE NAME OF CEDE & CO. OR IN SUCH OTHER NAME AS IS REQUESTED BY AN AUTHORIZED REPRESENTATIVE OF THE SECURITIES DEPOSITORY (AND ANY PAYMENT IS MADE TO CEDE & CO. OR TO SUCH OTHER ENTITY AS IS REQUESTED BY AN AUTHORIZED REPRESENTATIVE OF THE SECURITIES DEPOSITORY), ANY TRANSFER, PLEDGE, OR OTHER USE HEREOF FOR VALUE OR OTHERWISE BY OR TO ANY PERSON IS WRONGFUL INASMUCH AS THE REGISTERED OWNER HEREOF, CEDE & CO., HAS AN INTEREST HEREIN.

YIELD TO  
MATURITY

MATURITY DATE

ORIGINAL ISSUE DATE

CUSIP #

\_\_\_\_\_%

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

REGISTERED OWNER: CEDE &amp; CO.

INITIAL AMOUNT: \_\_\_\_\_ (\$ \_\_\_\_\_)

FINAL COMPOUNDED AMOUNT: \_\_\_\_\_ (\$ \_\_\_\_\_)

THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA, FOR VALUE RECEIVED, hereby promises to pay, solely from Net Operating Revenues, as hereinafter provided, to the registered owner named above, or registered assigns, on the maturity date set forth above, unless redeemed prior thereto as hereinafter provided, the Final Compounded Amount set forth above. Interest with respect to the Initial Amount hereof will accrete at the Yield to Maturity per annum shown above from the Original Issuer Date above, shall be compounded on \_\_\_\_\_, 2023 and semiannually on \_\_\_\_\_ and \_\_\_\_\_ of each year until the maturity date specified above, but shall be payable only at maturity or the earlier redemption hereof as part of the Accreted Value hereof. The Accreted Value hereof as of any date of calculation shall equal to the sum of the Initial Amount hereof and the interest accreted and compounded semiannually hereon at the Yield to maturity set forth above, all as determined in accordance with the provisions of the Twenty-Fifth Supplemental Resolution (as hereinafter defined). For so long as the Treasurer

of the District is the Fiscal Agent (the “Fiscal Agent”), the Final Compounded Amount of this 2023 Water Revenue Series \_\_ Bond is payable to the registered holder hereof in lawful money of the United States of America upon presentation and surrender of this 2023 Water Revenue Series \_\_ Bond at the corporate office of the District.

This 2023 Water Revenue Series \_\_ Bond is one of a duly authorized issue of “The Metropolitan Water District of Southern California Water Revenue Bonds, 2023 Series” (the “2023 Water Revenue Bonds”) issued in the aggregate principal amount of \$\_\_\_\_\_ pursuant to the Metropolitan Water District Act, California Statutes 1969, Chapter 209, as amended and supplemented (the “Act”), Resolution 8329 of the District adopted on July 9, 1991 (as amended and supplemented, the “Master Resolution”) and Resolution \_\_\_\_\_ adopted by the District on March 14, 2023 (the “Twenty-Fifth Supplemental Resolution”; the Master Resolution as supplemented by the Twenty-Fifth Supplemental Resolution is referred to herein as the “Resolution”). Reference is hereby made to the Master Resolution, the Twenty-Fifth Supplemental Resolution and to the Act for a description of the terms on which the 2023 Water Revenue Bonds are issued and to be issued, the provisions with regard to the nature and extent of the Net Operating Revenues (as defined in the Master Resolution), and all of the terms of the Resolution and the Act are hereby incorporated herein and constitute a contract between the District and the registered owner from time to time of this 2023 Water Revenue Series \_\_ Bond, and by acceptance hereof the registered holder of this 2023 Water Revenue Series \_\_ Bond assents to said terms and conditions. The Resolution is adopted under, and this 2023 Water Revenue Series \_\_ Bond is issued under, and all are to be construed in accordance with, the laws of the State of California.

This 2023 Water Revenue Series \_\_ Bond is a special limited obligation of the District payable from and secured by a pledge of and a lien and charge upon the Net Operating Revenues on parity with all Bonds and all other debt issued or incurred and payable from Net Operating Revenues on parity with the Bonds. The Accreted Value of and premium (if any) on this 2023 Water Revenue Series \_\_ Bond is not a debt of the District, nor a legal or equitable pledge, charge, lien or encumbrance upon any of its property or upon any of its income, receipts or revenues, except the Net Operating Revenues. The general fund of the District is not liable for the payment of the 2023 Water Revenue Series \_\_ Bonds or their interest, nor is the credit or the taxing power of the District or the forfeiture of any of its property for the payment of this 2023 Water Revenue Series \_\_ Bond or any interest hereon.

The 2023 Water Revenue Series \_\_ Bonds are payable as to Accreted Value and any redemption premium exclusively from the Net Operating Revenues and other funds pledged under the Master Resolution and the Twenty-Fifth Supplemental Resolution.

This 2023 Water Revenue Series \_\_ Bond is one of the 2023 Water Revenue Capital Appreciation Bonds described in the Resolution.

[Redemption provisions to be inserted]

This 2023 Water Revenue Series \_\_ Bond may be transferred without charge upon the registration books required to be kept by the Fiscal Agent, by the person in whose name it is registered, in person or by his or her duly authorized attorney, upon surrender of this 2023 Water



Revenue Series \_\_ Bond for cancellation, accompanied by delivery of a written instrument of transfer, duly executed in a form approved by the Fiscal Agent. Whenever any 2023 Water Revenue Series \_\_ Bond is surrendered for transfer, the District shall execute and the Fiscal Agent shall authenticate and deliver a new 2023 Water Revenue Series \_\_ Bond or Bonds, of the same tenor and maturity and for a like aggregate Final Compounded Amount. This 2023 Water Revenue Series \_\_ Bond may be exchanged without charge at the office of the Fiscal Agent in Los Angeles, California for 2023 Water Revenue Series \_\_ Bonds of authorized denominations having the same aggregate Final Compounded Amount, tenor and maturity. The Fiscal Agent need not transfer registration or exchange any 2023 Water Revenue Series \_\_ Bond later than 17 days prior to the date of selection of 2023 Water Revenue Series \_\_ Bonds for redemption or any portion thereof for redemption. The Fiscal Agent may require the holder of any 2023 Water Revenue Series \_\_ Bond requesting transfer of registration or exchange to pay any tax or other governmental charge required to be paid with respect to such transfer of registration or exchange.

The rights and obligations of the District, the Fiscal Agent and of the owners of the 2023 Water Revenue Series \_\_ Bonds may be modified or amended from time to time in the manner, to the extent and upon the terms provided in the Resolution, provided that no such modification or amendment shall extend the fixed maturity of this 2023 Water Revenue Series \_\_ Bond, or reduce the Final Compounded Amount hereof, or extend the time of payment, or reduce the rate of interest hereon, or extend the time of payment of interest hereon, or reduce any premium payable upon the redemption hereof without the consent of the owner hereof, or reduce the percent of 2023 Water Revenue Series \_\_ Bonds the consent of the holders of which is required to effect any such modification or amendment, or permit the creation of any lien on the Net Operating Revenues and other assets pledged under the Resolution prior to the lien created by the Resolution, or deprive the holders of the 2023 Water Revenue Series \_\_ Bonds of the lien created by the Resolution on such Net Operating Revenues and other assets (in each case, except as expressly provided in the Resolution) without the consent of the holders of all of the 2023 Water Revenue Series \_\_ Bonds then outstanding.

This 2023 Water Revenue Series \_\_ Bond shall not be entitled to any benefit under the Resolution, or become valid or obligatory for any purpose, until the certificate of authentication and registration hereon endorsed shall have been executed and dated by the Fiscal Agent. It is hereby certified and recited that any and all acts, conditions and things required to exist, to have happened and to have been performed precedent to and in the issuance of this 2023 Water Revenue Series \_\_ Bond to exist, have happened, and have been performed in due time, form and manner as required by the Constitution and laws of the State of California and that this 2023 Water Revenue Series \_\_ Bond, together with all other indebtedness of the District, does not exceed any limit prescribed by the Constitution and laws of the State of California and the Act and is not in excess of the amount of 2023 Water Revenue Series \_\_ Bonds permitted to be issued under the Resolution.

IN WITNESS WHEREOF, the District has caused this 2023 Water Revenue Series \_\_\_\_ Bond to be signed by the Chair of the Board of Directors and the Secretary of the Board of Directors of the District, and countersigned by the Controller of the District, each by their facsimile or manual signatures, and sealed with the corporate seal of said District as of the Original Issue Date specified above.

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Chairman of the Board of Directors,  
The Metropolitan Water District  
of Southern California

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Secretary of the Board of Directors,  
The Metropolitan Water  
District of Southern California

COUNTERSIGNED:

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Controller of The Metropolitan  
Water District of Southern California

FISCAL AGENT'S CERTIFICATE OF AUTHENTICATION  
AND REGISTRATION

This Bond is one of The Metropolitan Water District of Southern California Water Revenue Bonds, 2023 Water Revenue Series \_\_ delivered pursuant to the within mentioned Master Resolution and Twenty-Fifth Supplemental Resolution.

Treasurer of The Metropolitan  
Water District of Southern  
California, as Fiscal Agent

By \_\_\_\_\_  
Authorized Signature

## ASSIGNMENT

The following abbreviations, when used in the inscription on the face of the within-mentioned 2023 Water Revenue Series \_\_ Bond and in the assignment below, shall be construed as though they were written out in full according to applicable laws or regulations.

TEN COM: as tenants in common

TEN ENT:           as tenants by the entireties

JT TEN: as joint tenants with right of survivorship and not as tenants in common

UNIF GIFT MIN ACT                      \_\_\_\_\_ Custodian \_\_\_\_\_  
  (Cust)                                  (Minor)

Additional abbreviations may also be used though not in the above list.

FOR VALUE RECEIVED, the undersigned do(es) hereby sell, assign and transfer unto \_\_\_\_\_ the  
within-mentioned registered 2023 Water Revenue Series \_\_\_\_ Bond and hereby irrevocably  
constitute(s) \_\_\_\_\_ and \_\_\_\_\_ appoint(s) \_\_\_\_\_  
\_\_\_\_\_, attorney, to transfer the  
same on the books of the Fiscal Agent with full power of substitution in the premises.

Dated:

SIGNATURE GUARANTEED:

Note: The signature(s) to this Assignment must correspond with the name(s) as written on the face of the within 2023 Water Revenue Series \_\_ Bond in every particular, without alteration or enlargement or any change whatsoever.

NOTICE: Signature(s) must be guaranteed by a member firm of the New York Stock Exchange or a commercial bank or trust company.



• **Board of Directors**

***Finance, Audit, Insurance, and Real Property Committee***

3/14/2023 Board Meeting

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7-2

**Subject**

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Authorize the General Manager to issue a new fifty-year license agreement, with options to extend for up to fifty additional years, to DesertXpress Enterprises, LLC for the purpose of a high-speed rail line traversing Metropolitan property in the city of Fontana, California; the General Manager has determined that the proposed action is exempt or otherwise not subject to CEQA

**Executive Summary**

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This action authorizes the General Manager to issue a license agreement to DesertXpress Enterprises, LLC (Brightline West) for a high-speed rail route traversing Metropolitan's fee-owned property. The proposed license agreement will encumber a small portion of Metropolitan's property (**Attachment 1**) that is already subject to a highway easement granted by Metropolitan to the California Department of Transportation (CalTrans). The rail use would be subordinate to both Metropolitan and Caltrans uses and would be located along the Interstate 15 (I-15) median in the city of Fontana, San Bernardino County. Board authorization to grant this license agreement is required since the real property interest to be conveyed exceeds five years.

**Details**

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**Background**

Brightline West is seeking a railroad crossing license from Metropolitan as part of its efforts to aggregate property rights and separate approvals for a potential high-speed rail project. The request before Metropolitan is a limited crossing license that will ensure continued priority use of Metropolitan land for the water pipeline and other purposes.

Brightline West proposes to construct and operate a roughly 170-mile high-speed rail route linking Las Vegas, Nevada, to Rancho Cucamonga, California, with trains capable of reaching speeds of up to 180 miles per hour. The project is intended to provide an alternative to air and automobile travel between Southern California and Las Vegas. Approximately 135 miles of the rail corridor and associated stations would be within California and would generally follow the Interstate 15 freeway alignment, with much of the rail facilities lying in the median area of I-15.

The proposed rail route will traverse Metropolitan's Rialto Feeder Pipeline within the city of Fontana. The proposed license area would encumber between 5,300 to 7,000 square feet of Metropolitan's property, depending on the final design. Brightline's project is proceeding as a design-build project, whereby the exact license area may not be finalized until a final design is completed. Conceptual plans have been submitted to Metropolitan for review and approval, and no construction work within the licensed area will commence by Brightline West under the license until these plans have been approved. Any changes that occur midstream during the design-build process would also require Metropolitan's written approval. Brightline West's license would be subordinated to Metropolitan's continued operation and maintenance of the Rialto Pipeline and any future Metropolitan facilities and operations.

The license agreement will have the following key provisions:

- Compatible use reservations and protection of Metropolitan's paramount rights to use the land for Metropolitan water facilities, operations, and other needs.

- Conditions prohibiting the use of the crossing area until Brightline West's acquisition of all permits and approvals for its rail project, as well as the required submittal and approval by Metropolitan of complete rail facility design and construction plans for purposes of ensuring compatibility with Metropolitan water operations and facilities.
- Restrictions limiting the licensed use to passenger rail-related construction, operation, and maintenance activities. Freight or cargo train uses, and non-train uses would be prohibited.
- Brightline West's provision of both insurance and indemnification protections for Metropolitan.

The annual payment amount for the proposed license agreement is consistent with our appraisal process and nominal value determination of \$2,500. The license fee will increase annually according to applicable commodity and cost indices and will also be subject to possible base-fee reappraisals regularly in order to ensure that the license fee amount keeps pace with market conditions throughout the license term. Metropolitan will also receive a one-time processing fee of \$7,500.

## Policy

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Metropolitan Water District Administrative Code Section 8230: Grants of Real Property Interests

Metropolitan Water District Administrative Code Section 8231: Appraisal of Real Property Interests

Metropolitan Water District Administrative Code Section 8232: Terms and Conditions of Management

Metropolitan Water District Administrative Code Section 11104: Delegation of Responsibilities

By Minute Item 48766, dated August 16, 2011, the Board adopted fair market value policies for managing Metropolitan's real property assets.

## California Environmental Quality Act (CEQA)

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### CEQA determination for Option #1:

The proposed action is categorically exempt under the provisions of CEQA and the State CEQA Guidelines. The proposed action consists of the licensing of existing public land, involving negligible or no expansion of use beyond that existing at the time of the lead agency's determination. Additionally, Metropolitan's action on the proposed project consists of the issuance of a license agreement for the use of Metropolitan's fee-owned property, which would not in itself result in a ground disturbing activity. Accordingly, the proposed action qualifies under Class 1 and Class 5 Categorical Exemptions (Section 15301 and Section 15305 of the State CEQA Guidelines).

### CEQA determination for Option #2:

None required

## Board Options

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### Option #1

Authorize issuing a license agreement to Brightline West for an initial fifty-year term with options to extend, totaling an additional fifty years.

**Fiscal Impact:** Metropolitan will receive an initial annual payment of \$2,500 for the license agreement and one-time processing fees of \$7,500.

**Business Analysis:** By issuing a license agreement and other rights of entry, cooperation with other agencies and utility companies furthers the public interest and facilitates Metropolitan's ability to obtain easements and other property rights critical for its operations. Metropolitan will also receive positive revenue from the value of the license agreement and fees.

### Option #2

Do not authorize the license agreement.

**Fiscal Impact:** Metropolitan will forego revenue of \$2,500 per year and processing fees of \$7,500.

**Business Analysis:** Brightline West may be delayed or prevented from implementing its high-speed rail project. Brightline West may use eminent domain action to obtain the necessary crossing rights.



## Staff Recommendation

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Option #1

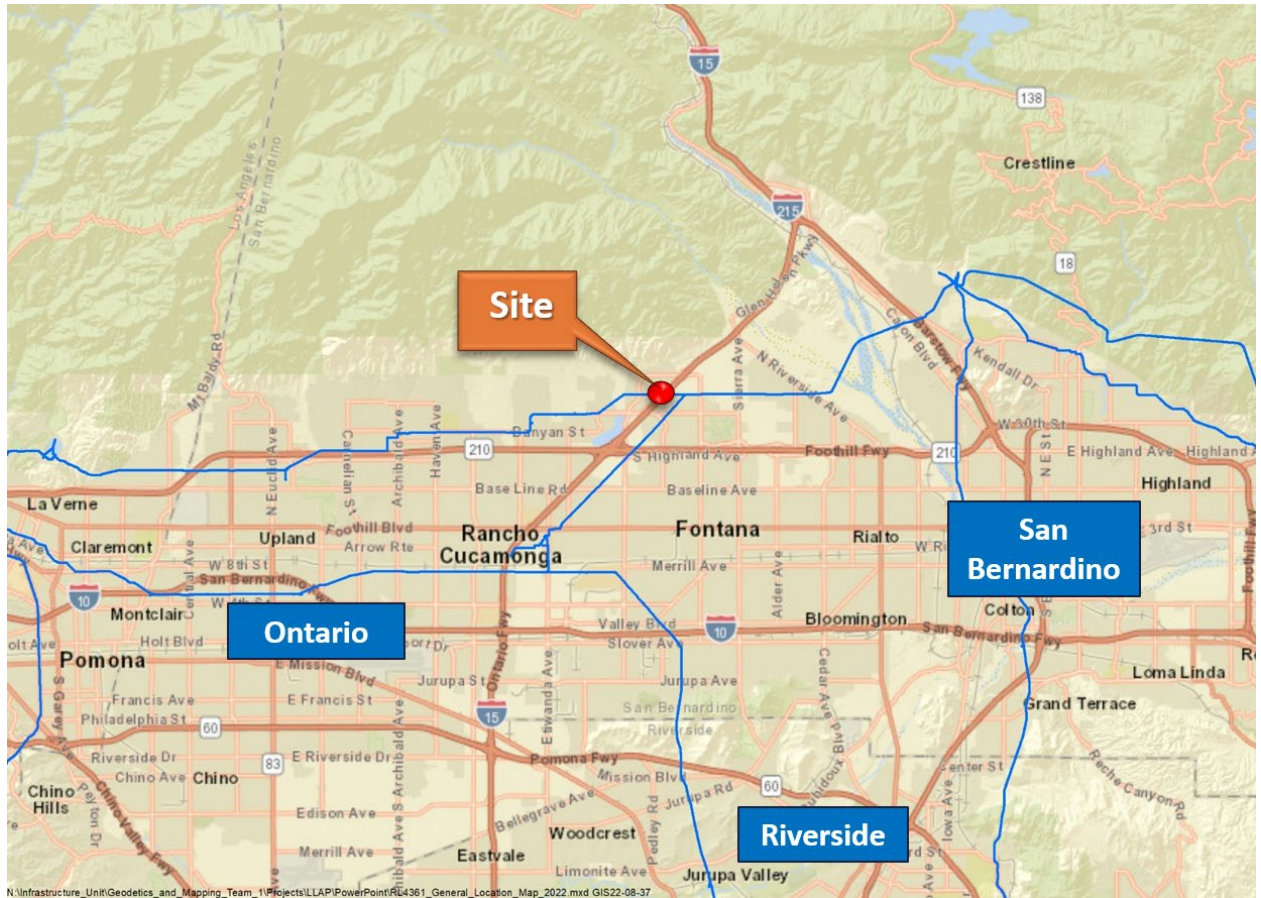
 2/22/2023  
Shane Chapman Date  
Asst. General Manager/Operations

 2/27/2023  
Adel Hagekhalil Date  
General Manager

## Attachment 1 – Location Map

Ref# FAIRP12685344

## Location Map







Finance, Audit, Insurance and, Real Property  
Committee

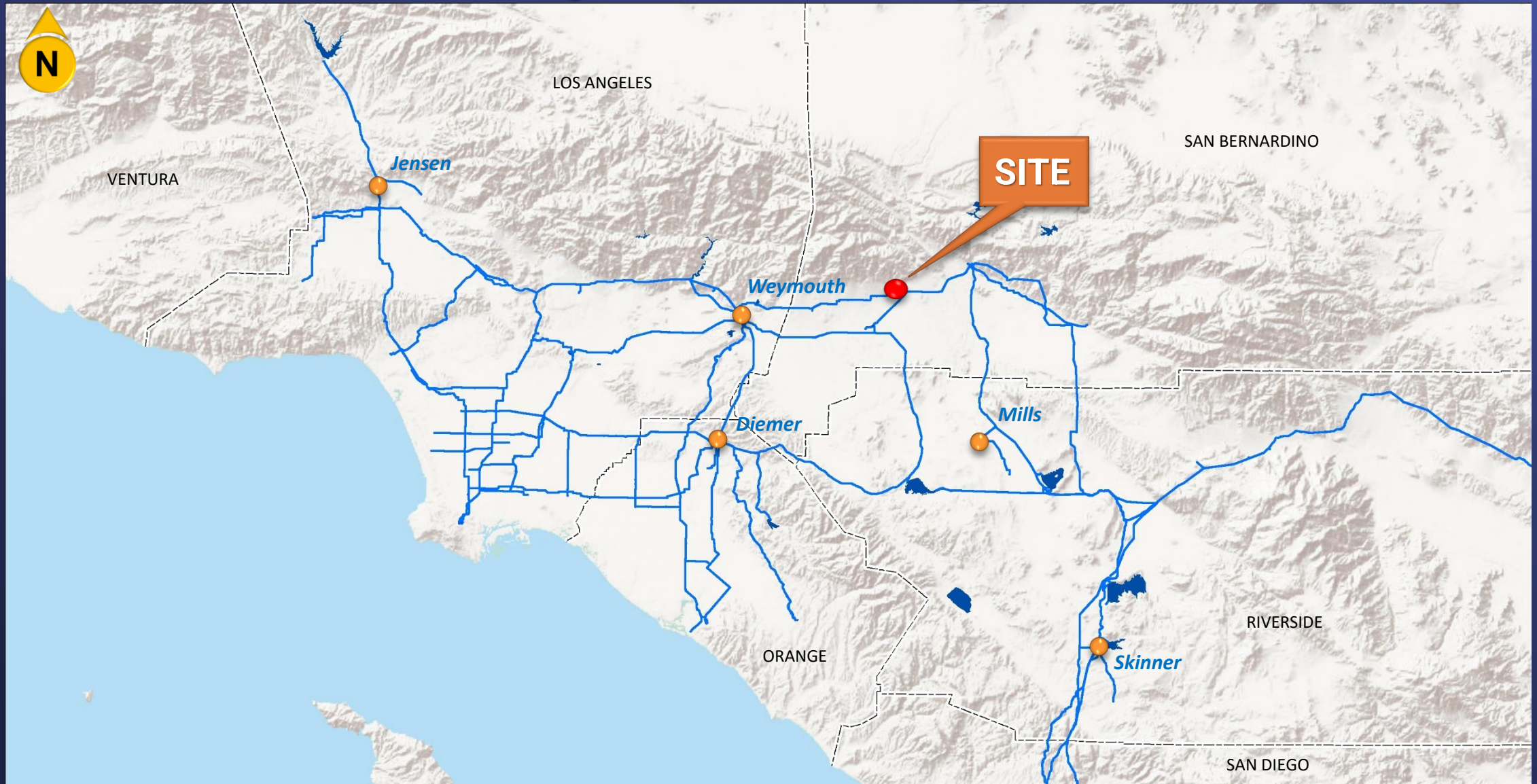
# Desert Xpress Enterprises, LLC (Brightline West) License Agreement

Item 7-2

March 13, 2023



# Distribution System Map





# General Location Map





# *brightline*<sup>®</sup>

- Brightline is the only privately owned and operated intercity passenger railroad in the U.S.
- Brightline West is a proposed high-speed rail route linking Las Vegas and Rancho Cucamonga
- Expected travel time is approx. 2 ¼ hours
- Zero-emission, electric train sets
- Expected top speed of 180 mph
- Generally located in median of interstate 15

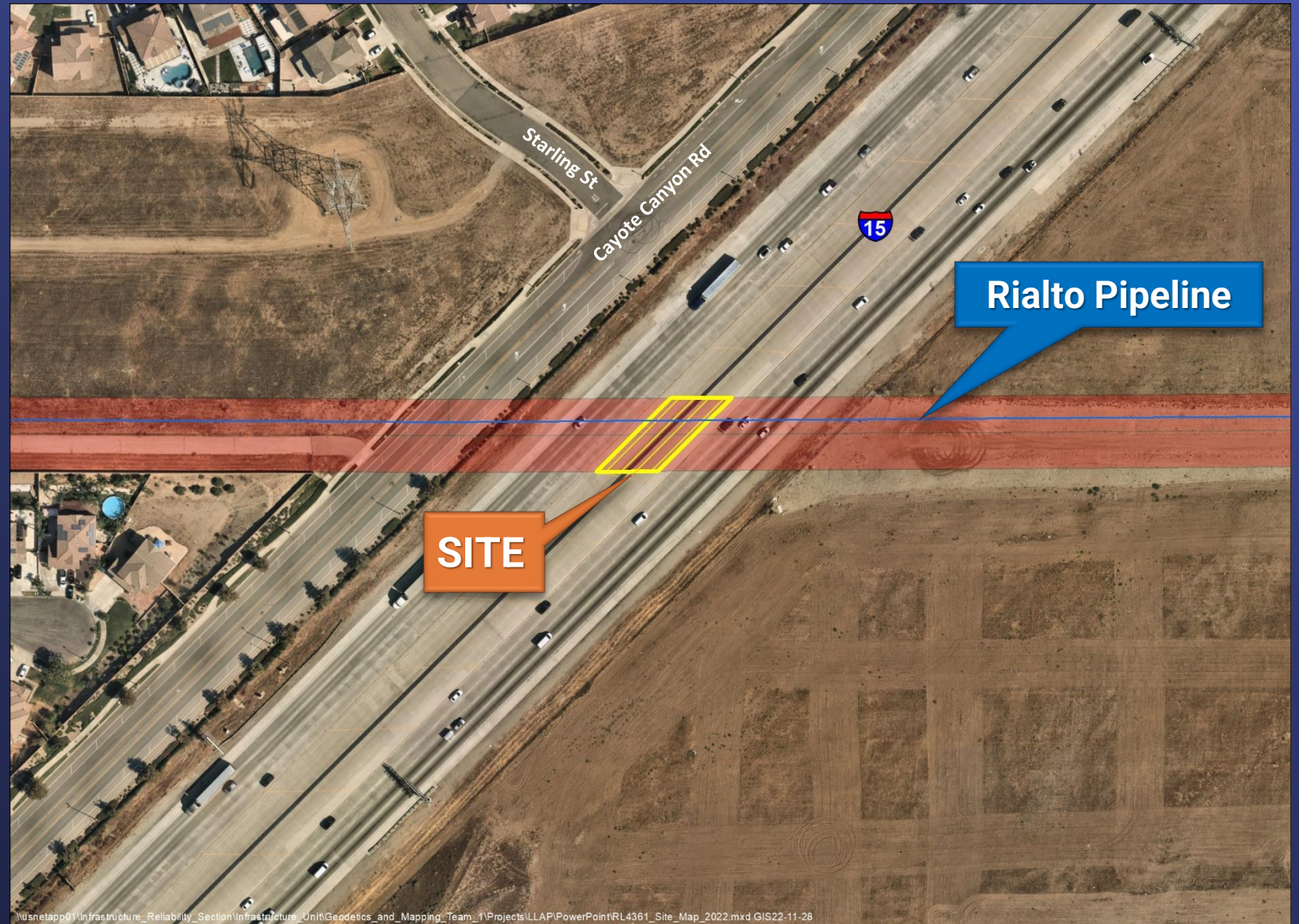


Fig. 1: Train Illustration (Courtesy Brightline) [gobrightline.com](https://gobrightline.com). Accessed 23 Feb. 2023

Fig. 2: Map (Courtesy Brightline) [gobrightline.com](https://gobrightline.com). Accessed 23 Feb. 2023



# Site Map



## Key Provisions

- Compatible use reservations and protection of Metropolitan's paramount rights
- Restricted to passenger rail use only
- Requires all permits and approvals to be in place prior to construction
- Insurance and indemnification protections for Metropolitan
- 50-year license with the option to extend up to an additional 50 years
- License Area of 5,300 to 7,000 square feet
- License fee of \$2,500 per year

# Board Options

## Option No. 1

- Authorize issuing a license agreement to Brightline West for an initial fifty-year term with options to extend totaling an additional fifty years.

## Option No. 2

- Do not authorize the license agreement.



# Board Options

## Staff Recommendation

- Option No. 1







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

3/14/2023 Board Meeting

7-3

**Subject**

Authorize agreement with Black & Veatch Corporation, Inc. in an amount not to exceed \$8 million for the preliminary design of conveyance Reach 1 of the Pure Water Southern California program; authorize agreement with HDR Engineering, Inc. in an amount not to exceed \$9 million for preliminary design of conveyance Reach 2 of the Pure Water Southern California program; and adopt a resolution to support a grant application to the U.S. Bureau of Reclamation for water recycling and desalination planning and authorize the General Manager to accept the grant if awarded; the General Manager has determined that the proposed actions are exempt or otherwise not subject to CEQA

**Executive Summary**

In December 2022, Metropolitan's Board authorized use of \$80 million in state funding to commence activities related to the initiation of the Pure Water Southern California program (Program), including the design of the initial conveyance pipeline segments through the cities of Carson, Long Beach, and Lakewood. Staff recommends the use of consultants to design the initial reaches of the conveyance system. The early start of these activities will allow Metropolitan to meet planned online dates for both early deliveries of water and the overall completion of the Program. This action authorizes a professional services agreement with Black & Veatch Corporation, Inc. (Black & Veatch) for preliminary design of Reach 1 of the conveyance system through the city of Carson, and a professional services agreement with HDR Engineering, Inc. (HDR) for preliminary design of Reach 2 of the conveyance system through the cities of Long Beach and Lakewood. This action also adopts a resolution supporting a \$5 million grant application to the U.S. Bureau of Reclamation (USBR) for WaterSMART: Water Recycling and Desalination Planning funding and authorizes the General Manager or a designated representative to accept the grant if awarded to support the Program.

**Details**

**Background**

The Program is a regional undertaking with primary leadership stemming from a partnership between Metropolitan and the Los Angeles County Sanitation Districts (Sanitation Districts). Since the formation of this partnership, additional public agencies in the region have also expressed interest in supporting the Program's development. The Program would reuse treated wastewater that is currently being discharged to the Pacific Ocean from the Sanitation Districts' Joint Water Pollution Control Plant (JWPCP) in the city of Carson. The treated wastewater would be further purified at a new advanced water purification facility at the JWPCP to produce approximately 150 million gallons per day (mgd) of purified water at full build-out. The purified water could be used to recharge regional groundwater basins through spreading facilities and injection wells, satisfy industrial demands that currently rely on imported water, and augment existing water supplies at two of Metropolitan's water treatment plants. In addition to the treatment facilities, new conveyance facilities would extend from Carson as far north as the city of Azusa, and potentially east to the city of La Verne to connect with Metropolitan's existing water treatment and distribution facilities.

In December 2022, Metropolitan's Board authorized use of \$80 million in state funding to commence activities related to the initiation of the Program. One of the key early activities includes the design of the initial conveyance pipeline segments starting from the JWPCP through the cities of Carson, Long Beach, and Lakewood. Commencement of early design will enable the Program to meet projected online dates for both early

deliveries of water as well as full-program completion. Staff recommends authorizing two new consulting agreements to provide design services for the initial conveyance pipeline segments and achieve these programmatic objectives. In accordance with the December 2022 action to use state funding to initiate the Program, funds received from the state for the work to be performed pursuant to this action will be managed separately from board-appropriated Capital Investment Plan (CIP) appropriations.

In addition to authorizing the two new agreements, staff recommends pursuing a \$5 million grant application to the USBR for WaterSMART: Water Recycling and Desalination Planning funding and authorizes the General Manager or a designated representative to accept the grant if awarded.

Additional information is provided below on each of this board action's recommendations.

### **Pure Water Southern California Pipeline Conveyance System Reach 1 and Reach 2 – Preliminary Design**

The Program's backbone conveyance system consists of over 40 miles of pipeline. The initial segments of the pipeline system include Reach 1 through the city of Carson and Reach 2 through the cities of Long Beach and Lakewood. The Reach 1 alignment is approximately six miles long, starting at the new advanced water purification facility at the JWPCP and continuing eastward and northward through the city of Carson. The Reach 2 alignment is approximately eight miles long, continuing from Reach 1 eastward and northward through the cities of Long Beach and Lakewood.

Planned preliminary design activities include: (1) review of investigations completed to date; (2) performing hydraulic analyses, pipeline sizing, surge analyses, and surge mitigation design; (3) performing alternative evaluations of various pipeline features to address specific project needs; (4) developing a construction implementation plan for sequence of work; (5) conducting field investigations of pipeline alignment and associated facilities to identify underground utilities and other structures along the alignment; (6) performing topographic survey and mapping; (7) performing field geotechnical exploration, utility investigations and potholing; (8) developing the final detailed pipeline alignment; (9) establishing detailed design criteria; (10) identifying equipment and materials with long lead time to be considered for pre-procurement; (11) identifying suitable contractor work and storage areas; (12) developing preliminary traffic control plans, restoration plans, and construction permit requirements with individual cities and other jurisdictions; (13) developing preliminary control schematics, system descriptions, process and instrumentation diagrams, and coordinating with Metropolitan's SCADA system; and (14) providing material selection and design of coating and cathodic protection systems.

A total of \$28,000,000 is required for this work. Allocated state grant funds include \$8,000,000 for Black & Veatch for preliminary design of Reach 1 and \$9,000,000 for HDR for preliminary design of Reach 2, under new agreements as described below. Allocated state funds for Metropolitan staff activities include \$5,800,000 for technical oversight, review of consultant's work, and providing input into the development of detailed design criteria; \$1,000,000 for surveying and mapping; \$2,800,000 for project management, permitting, right-of-way support, and regulatory agency coordination; and \$1,400,000 for remaining budget. Staff anticipates returning to the Board at a later date to authorize final design of each reach. **Attachment 1** provides the allocation of the required funds using state grant funds previously authorized in December 2022.

### **Pure Water Southern California Conveyance System Reach 1 Preliminary Design Services (Black & Veatch Corporation, Inc.) – New Agreement**

Black & Veatch is recommended to provide preliminary design services for the Reach 1 conveyance system through the city of Carson. Black & Veatch was selected through a competitive process via Request for Proposal No. 1334 based on: (1) the firm's qualifications; (2) record of past performance; (3) key personnel and staffing plan; (4) technical approach and methodology; and (5) fee proposal. Preliminary design activities are as described above.

This action authorizes an agreement with Black & Veatch for a not-to-exceed amount of \$8 million for preliminary design of Reach 1 of the conveyance system for Pure Water Southern California. For this agreement, Metropolitan has established a Small Business Enterprise (SBE) participation level of 25 percent. Black & Veatch has agreed to meet this level of participation. See **Attachment 2** for the listing of subconsultants.

**Pure Water Southern California Conveyance System Reach 2 Preliminary Design Services (HDR Engineering, Inc.) – New Agreement**

HDR is recommended to provide preliminary design services for Reach 2 through the cities of Long Beach and Lakewood. HDR was selected through a competitive process via Request for Proposal No. 1334 based on: (1) the firm's qualifications; (2) record of past performance; (3) key personnel and staffing plan; (4) technical approach and methodology; and (5) fee proposal. Preliminary design activities are as described above.

This action authorizes an agreement with HDR for a not-to-exceed amount of \$9 million for preliminary design of Reach 2 of the conveyance system for Pure Water Southern California. For this agreement, Metropolitan has established an SBE participation level of 25 percent. HDR has agreed to meet this level of participation. See **Attachment 2** for the listing of subconsultants.

**Pursuit of Federal Grant Funding for the Pure Water Southern California Program**

This action adopts a resolution supporting Metropolitan and the Sanitations Districts' pursuit of a \$5 million grant application to the USBR for WaterSMART: Water Recycling and Desalination Planning funding and authorizes the General Manager to accept the grant if awarded.

Large-scale water recycling construction projects, such as Metropolitan's Pure Water Southern California Program, are eligible for USBR funding under Section 40905 of the Bipartisan Infrastructure Law P.L. 117 58. A feasibility study must first be submitted to ensure that the project meets all the requirements specified in the Feasibility Study Directive and Standards. The USBR offers funding through WaterSMART for preparation of the feasibility study with funding available from October 2023 and October 31, 2025. If selected for the \$5 million grant, Metropolitan and the Sanitation Districts must jointly provide at least a 75 percent local cost-share (\$15 million) and incur the expenses before October 31, 2025. It is anticipated that both Metropolitan and the Sanitation Districts will provide matching funds to meet the overall grant requirements. Currently, staff anticipates potential use of this grant funding for: (1) completion of a large-scale water recycling construction project feasibility study for USBR review and approval; (2) preliminary design of the initial conveyance pipeline segments; and (3) preliminary design of treatment facilities at the JWPCP that would reduce the amount of nitrogen in the influent to the advanced water purification facility. Preliminary design of these treatment facilities at the JWPCP will be the responsibility of the Sanitation Districts, and the Sanitation Districts will provide any required matching funds for this portion of the work. The anticipated grant funding application for these three work activities is \$5 million.

**Alternatives Considered**

Alternatives considered for completing design activities for the Program's initial conveyance system included assessing the availability and capability of in-house Metropolitan staff to conduct 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) to use project-specific professional services agreements when resource needs exceed available in-house staffing or require specialized technical expertise to provide a concentrated engineering effort over an extended duration.

This strategy relies on the assumption that in-house engineering staff will handle the baseload of work on the Program, while professional services agreements are selectively utilized to handle activities above this baseload or where specialized needs are required. This strategy allows Metropolitan's staff to be strategically utilized on the Program to best maintain key engineering competencies and to address special needs or issues. After assessing the current workload for in-house staff and the relative priority of these initial conveyance reaches for the Program, staff recommends the use of professional services agreements for the subject design. Furthermore, due to the extent of work required to complete design for both reaches of the conveyance system, staff recommends using two consulting firms to complete the work rather than awarding both reaches to a single firm. This approach will allow for timely completion of program milestones. Metropolitan staff will manage and coordinate the activities of the design consultants to ensure the overall objectives of the program are achieved.

Staff also considered separating the actions related to preliminary design apart from the action to adopt a resolution in support of the federal grant application. However, bringing these actions together in one action item allows for streamlined board consideration. Staff altered the board options section of the letter to allow the board to consider different actions on the preliminary design work or the board resolution, as desired.

**Summary**

This action authorizes a new professional services agreement with Black & Veatch for preliminary design of Reach 1 of the conveyance system, and a new professional services agreement with HDR for preliminary design of Reach 2 of the conveyance system for Pure Water Southern California. This action also adopts a resolution supporting a grant application to the USBR for water recycling and desalination planning. See **Attachment 1** for the allocation of funds, **Attachment 2** for the listing of subconsultants, **Attachment 3** for the location map, and **Attachment 4** for the board resolution that supports the grant funding.

**Project Milestones**

October 2023 – Expected grant award notification from USBR

December 2023 – Completion of preliminary design for Reach 1 of the conveyance system

June 2024 – Completion of preliminary design for Reach 2 of the conveyance system

September 2024 – Board to consider certification of environmental documentation for the Program

**Policy**

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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

By Minute Item 52174, dated November 10, 2020, the Board authorized preparation of environmental documentation and technical studies, and public outreach activities for the Regional Recycled Water Program.

By Minute Item 52405, dated June 8, 2021, the Board adopted a resolution supporting the WaterSMART: Title XVI WIIN Reclamation and Reuse grant application and authorized the General Manager to accept funding and enter contract if awarded.

By Minute Item 53052, dated December 13, 2022, the Board authorized the General Manager to use \$80,000,000 in grant funding from the State Water Resources Control Board and to commence activities related to the initiation of the Pure Water Southern California program.

By Minute Item 53099, dated January 10, 2023, the Board authorized the General Manager an agreement with the joint venture of AECOM Technical Services, Inc. and Brown and Caldwell in an amount not to exceed \$25 million for program management services to support the Pure Water Southern California program.

**California Environmental Quality Act (CEQA)**

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**CEQA determination for Option #1:**

The proposed action is statutorily and categorically exempt under the provisions of CEQA and the State CEQA Guidelines. The proposed action involves only feasibility or planning studies for possible future actions which a public agency has not approved, adopted, or funded. In addition, the proposed action consists of basic data collection and resource evaluation activities which does not result in a serious or major disturbance to an environmental resource as part of a study leading to an action which a public agency has not yet approved, adopted, or funded. These proposed actions involve minor alterations in the condition of land, water, and/or vegetation which do not involve removal of healthy, mature, scenic trees. Accordingly, the proposed action qualifies under the feasibility and planning studies exemption (Section 15262 of the State CEQA Guidelines) and under the Class 4 and Class 6 categorical exemptions (Sections 15304 and 15306 of the State CEQA Guidelines).

**CEQA determination for Option #2:**

None required

## Board Options

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### Option #1

- a. Authorize agreement with Black & Veatch Corporation, Inc. in an amount not to exceed \$8 million for the preliminary design of conveyance Reach 1 of the Pure Water Southern California program.
- b. Authorize agreement with HDR Engineering, Inc. in an amount not to exceed \$9 million for preliminary design of conveyance Reach 2 of the Pure Water Southern California program.
- c. Adopt a resolution to support a grant application to the U.S. Bureau of Reclamation for water recycling and desalination planning and authorize the General Manager or a designated representative to accept the grant if awarded.

**Fiscal Impact:** Expenditure of \$28 million in state grant funds previously approved for use by Metropolitan's Board in December 2022. Funds received from the state for the work pursuant to this action will be managed separately from CIP Appropriations. If awarded, funds received from the federal grant would reduce Metropolitan's expenditures by \$4 million and Sanitation Districts' expenditures by \$1 million. Metropolitan's \$12 million federal grant matching funds will come from state grant funds previously approved for use by Metropolitan's Board in December 2022. An additional \$3 million in matching funds will be provided by the Sanitation Districts.

**Business Analysis:** This option would advance the delivery of new water sources in Southern California to augment regional supplies within Metropolitan's service area and facilitates completion of a feasibility study required for future federal construction funding.

### Option #2

- a. Choose to proceed or not proceed with one or both of the agreements at this time and/or;
- b. Choose to support or not support the USBR grant application.

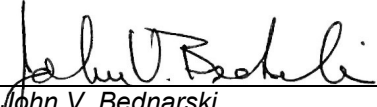

**Fiscal Impact:** None

**Business Analysis:** This option would forego the opportunity to accelerate the Program and to pursue potential Program construction funding and would delay development of a new water resource which is resilient to drought, climate change, and seismic risks.

## Staff Recommendation

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### Option #1

 John V. Bednarski Manager/Chief Engineer Engineering Services	2/23/2023 Date
 Adel Hagekhalil General Manager	2/27/2023 Date

**Attachment 1 – Allocation of Funds**

**Attachment 2 – Listing of Subconsultants**

**Attachment 3 – Location Map**

**Attachment 4 – Resolution for the WaterSMART: Water Recycling and Desalination Planning Grant Application**

### Allocation of Funds for Pure Water Southern California Preliminary Design of Reaches 1 and 2

	<b>Current Board Action (Mar. 2023)</b>
Labor	
Studies & Investigations (tech. oversight, surveying, mapping, etc.)	\$ 6,800,000
Final Design	-
Owner Costs (project mgmt., permitting, etc.)	2,800,000
Submittals Review & Record Drwgs.	-
Construction Inspection & Support	-
Metropolitan Force Construction	-
Materials & Supplies	-
Incidental Expenses	-
Professional/Technical Services	-
Black & Veatch Corporation, Inc.	8,000,000
HDR Engineering, Inc.	9,000,000
Right-of-Way	-
Equipment Use	-
Contracts	-
Remaining Budget	1,400,000
<b>Total</b>	<b>\$ 28,000,000</b>

In December 2022, Metropolitan's Board authorized use of an \$80 million grant from the State Water Resources Control Board (SWRCB) to commence activities related to the initiation of the Program. Funds received from the SWRCB for the work to be performed pursuant to this action will be managed separately from board-appropriated Capital Investment Plan (CIP) appropriations. The total estimated cost to complete the program is currently being updated. The updated program costs, which will provide the basis of the rate study and cost of service analysis, are anticipated to be completed later this year.



**The Metropolitan Water District of Southern California**  
**Subconsultants for Agreement with Black & Veatch Corporation, Inc.**

<b>Subconsultant and Location</b>	<b>Service Category; Specialty</b>
CDM Smith Inc. Los Angeles, CA	Trenchless/Tunnel Design
Delve Underground (Formerly McMillen Jacobs Associates) Pasadena, CA	Pipeline Design, Hazardous Materials
Aldea Services, Inc. Los Angeles, CA	Tunnel Design Peer Review, Risk Management
C Below, Inc. Chino, CA	Potholing, GPR
DRP Engineering, Inc. Monterey Park, CA	Drafting, Utility Research
GeoPentech Irvine, CA	Geotechnical
Harris Water Engineering, Inc. Durango, CO	SCADA, I&C
Scott Foster Engineering, Inc. La Cañada Flintridge, CA	Hydraulics
SC Solutions, Inc. Sunnyvale, CA	Pipeline Structural Design, Fault Crossings
Ruth Villalobos & Associates, Inc. Ontario, CA	Permitting
The Alliance Group Enterprise, Inc. Los Angeles, CA	Traffic Control, Utility Relocation

**The Metropolitan Water District of Southern California**  
**Subconsultants for Agreement with HDR Engineering, Inc.**

<b>Subconsultant and Location</b>	<b>Service Category; Specialty</b>
Brierley & Associates Woodland Hills, CA	Trenchless/Tunnel Design, Geotechnical
C Below, Inc. Chino, CA	Potholing, GPR
DRP Engineering, Inc. Monterey Park, CA	Drafting
Scott Foster Engineering, Inc. La Cañada Flintridge, CA	Surge Analysis
Guida Surveying, Inc. Irvine, CA	Surveying
Lettis Consultants International, Inc. Concord, CA	Seismic Analysis of Faults

## Pure Water Southern California – Preliminary Configuration



## Resolution for the WaterSMART: Water Recycling and Desalination Planning Grant Application

**RESOLUTION**

**RESOLUTION OF THE BOARD OF DIRECTORS  
OF THE METROPOLITAN WATER DISTRICT OF  
SOUTHERN CALIFORNIA  
IN SUPPORT OF ITS PROPOSAL FOR FUNDING  
UNDER THE WATERSMART: WATER RECYCLING AND DESALINATION  
PLANNING FUNDING ANNOUNCEMENT FOR THE METROPOLITAN  
WATER DISTRICT'S PURE WATER SOUTHERN CALIFORNIA LARGE  
SCALE WATER RECYCLING FEASIBILITY STUDY PROPOSAL**

WHEREAS, the U.S. Bureau of Reclamation (Reclamation) is requesting proposals from sponsors to facilitate project development under the Title XVI Program, The Desalination Construction Program, and the Large-Scale Water Recycling Program through the WaterSMART: Water Recycling and Desalination Planning December 2022 funding announcement R23AS00076; and

WHEREAS, the submittal of a proposal for grant funding by Metropolitan has been determined to be exempt from the California Environmental Quality Act (CEQA) under Section 15378(b)(4) of the State CEQA Guidelines.

NOW, THEREFORE, BE IT RESOLVED by the Board of Directors of The Metropolitan Water District of Southern California that the Board supports the proposal, the Metropolitan Water District's Large Scale Water Recycling Feasibility Study, under Reclamation's WaterSMART: Water Recycling and Desalination Planning December 2022 funding announcement R23AS00076.

BE IT FURTHER RESOLVED that Metropolitan's Board authorizes Metropolitan's General Manager or his/her designee to accept grant funding of up to \$5,000,000.

BE IT FURTHER RESOLVED that Metropolitan's Board delegates' legal authority to Metropolitan's General Manager to enter into an agreement with Reclamation, subject to the approval of the General Counsel, relevant to receipt of the requested Water Recycling and Desalination Planning grant.

BE IT FURTHER RESOLVED that Metropolitan is capable of providing the amount of funding and/or in-kind contributions specified in the funding plan.

BE IT FURTHER RESOLVED that if selected for funding, Metropolitan will work with Reclamation to meet established program deadlines.

I HEREBY CERTIFY that the foregoing is a full, true and correct copy of a resolution adopted by the Board of Directors of The Metropolitan Water District of Southern California at its meeting held March 14, 2023.

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Secretary of the Board of Directors  
of The Metropolitan Water District  
of Southern California



Engineering, Operations, & Technology Committee

# Pure Water Southern California Preliminary Design of Conveyance Reaches 1 & 2

Item 7-3

March 13, 2023

## Pure Water Southern California Conveyance Reaches 1 & 2

### Current Action

- Authorize agreement with Black & Veatch Corporation, Inc. in an amount not to exceed \$8 million for preliminary design of conveyance Reach 1
- Authorize agreement with HDR Engineering, Inc. in an amount not to exceed \$9 million for preliminary design of conveyance Reach 2
- Adopt a resolution to support a grant application to the U.S. Bureau of Reclamation for water recycling & desalination planning & authorize the General Manager to accept the grant if awarded



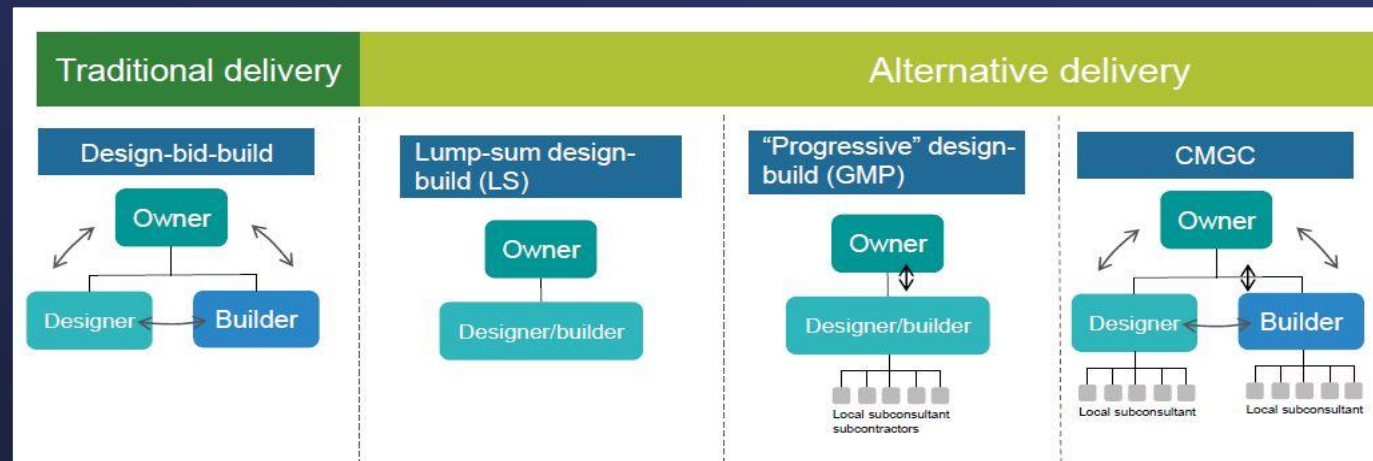
# Pure Water Southern California Conveyance Reaches 1 & 2

## Background

- November 2020 – Board authorized preparation of environmental documentation & technical studies
- December 2022 – Board authorized use of \$80 million in State funding for key activities
  - Initiation of program management team
  - Designs of initial pipeline reaches
  - Source of matching funds for USBR grant
- January 2023 – Board authorized agreement with joint venture of AECOM & Brown & Caldwell for program management services

# Approaches to Project Delivery for Pure Water

- Traditional project delivery approach
  - Design-Bid-Build
- Additional project delivery methods – available January 1, 2023
  - Design Build (DB)
  - Progressive Design Build (PDB)
  - Construction Manager / General Contractor (CM/GC)

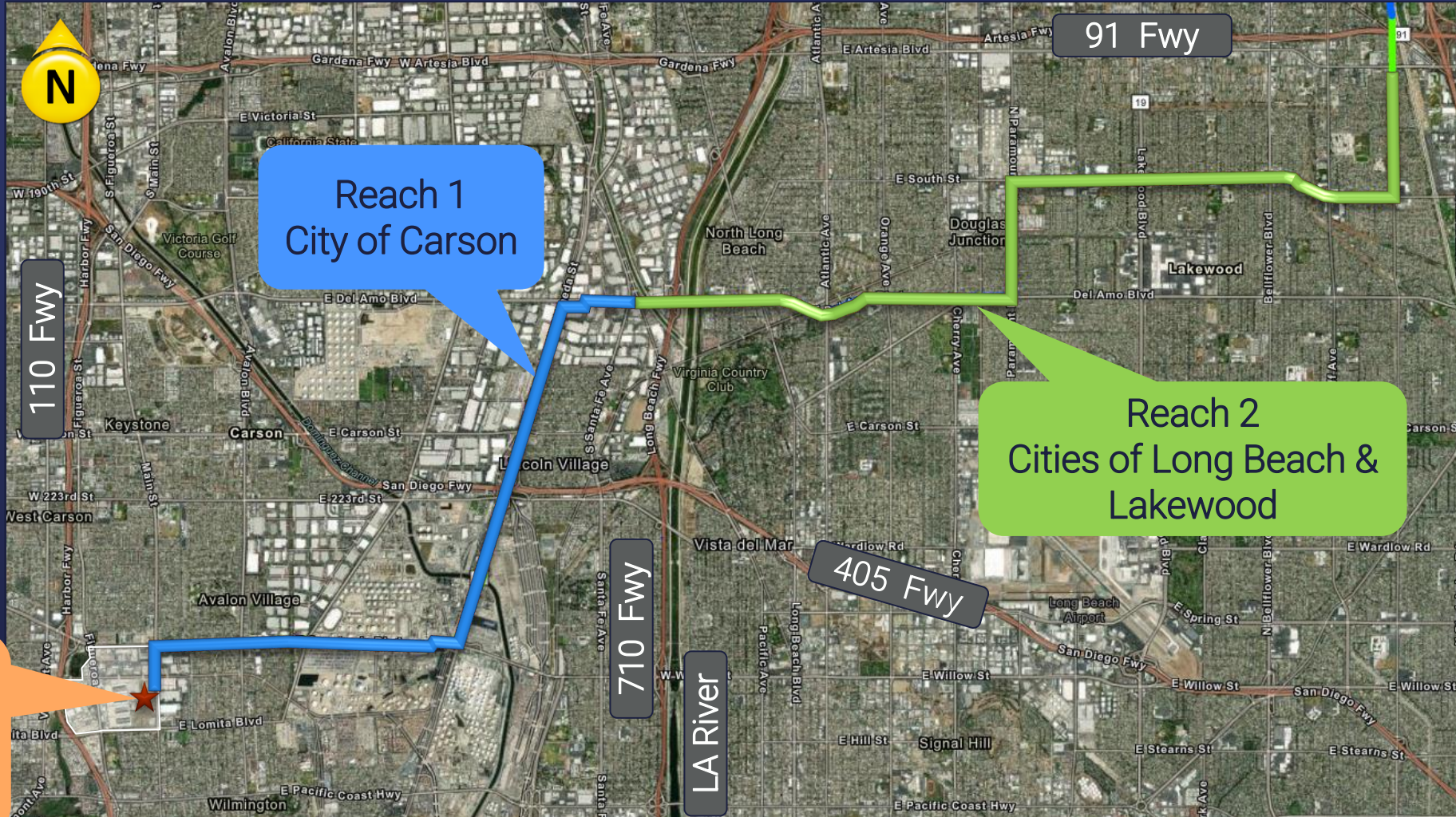


# Program Overview





# Background



Pure Water  
Southern  
California  
Conveyance  
Reaches 1 & 2

## Planned Work Under Agreements

- Preliminary Design Activities
  - Performing field geotechnical exploration, utility investigations & potholing
  - Developing the final pipeline alignment
  - Establishing design criteria
  - Developing preliminary traffic control plans & construction permit requirements
  - Performing hydraulic & surge analyses



Pure Water  
Southern  
California  
Conveyance  
Reaches 1 & 2

## Planned Work (continued)

- Preliminary Design Activities
  - Developing control schematics, system descriptions, & SCADA coordination
  - Providing material selection & design of coating & cathodic protection systems
  - Delivering preliminary design report & design drawings



Pure Water  
Southern  
California  
Conveyance  
Reach 1

## Black & Veatch Corporation, Inc. - New Agreement

- Selected under Request for Proposal No. 1334
- Scope of work
  - Preliminary design of Reach 1 (6 miles)
- NTE amount: \$8,000,000
- SBE participation level: 25%

Pure Water  
Southern  
California  
Conveyance  
Reach 2

## HDR Engineering, Inc. - New Agreement

- Selected under Request for Proposal No. 1334
- Scope of work
  - Preliminary design of Reach 2 (8 miles)
- NTE amount: \$9,000,000
- SBE participation level: 25%

Pure Water  
Southern  
California  
Conveyance  
Reaches 1 & 2

## Alternatives Considered - Staffing

- Utilize Metropolitan staff to perform all work
  - Assess current staff workload & availability
  - Use project-specific professional services agreements as required
- Selected Option
  - Utilize professional service agreements for subject design
  - Use two consulting firms to complete the work for timely completion of milestones

Pure Water  
Southern  
California  
Conveyance  
Reaches 1 & 2

## Metropolitan Scope

- Technical oversight & review of consultant's work
- Input into the development of detailed design criteria
- Survey & mapping
- Project management
- Permitting
- Right-of-way support
- Regulatory agency coordination

## Pure Water Southern California Federal Grant Funding

# WaterSMART: Water Recycling & Desalination Planning Grant

- Federal grant application for up to \$5 million from the U.S. Bureau of Reclamation (USBR)
  - \$4 million to Metropolitan, \$1 million to Los Angeles County Sanitation Districts, with \$15 million match required
- Planned use of grant funds include:
  - Completion of feasibility study to support future grants
  - Preliminary design of initial pipeline reaches
  - Preliminary design of Pure Water treatment facilities
- Funding period is October 2023 to October 2025

# Allocation of Funds

## Preliminary Design of Conveyance Reaches 1 & 2 for Pure Water Southern California

### Metropolitan Labor

Studies & Investigations (tech. oversight, surveying, mapping, etc.)	\$ 6,800,000
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Owners Costs (proj. mgmt., permitting, etc.)	2,800,000
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### Professional/Technical Services

Black & Veatch Corporation, Inc.	8,000,000
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HDR Engineering, Inc.	9,000,000
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Remaining Budget	1,400,000
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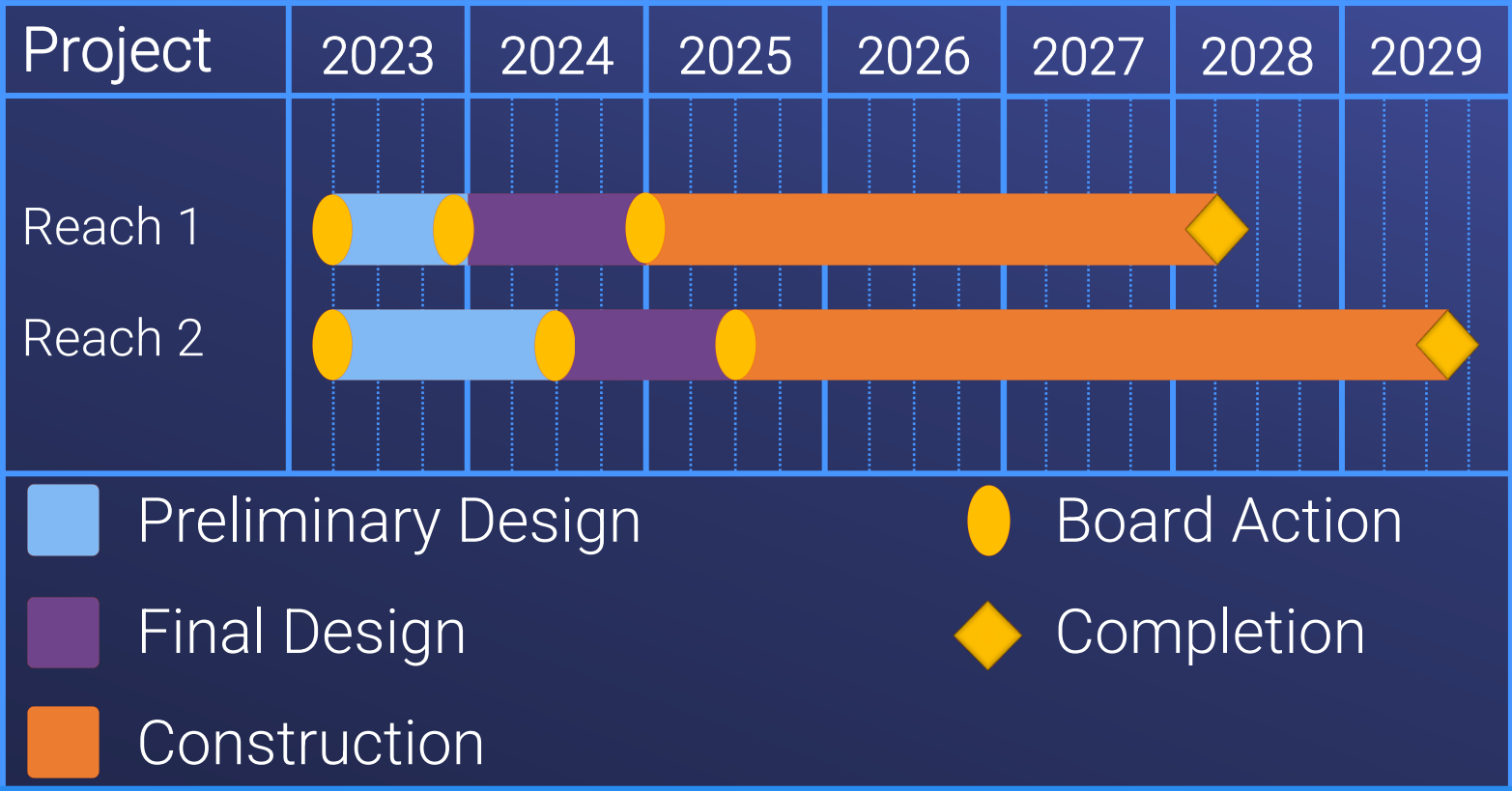
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Total*	\$ 28,000,000
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\*Total funds required for this work will be covered by the \$80 million State funding



# Project Schedule



# Board Options

- Option #1
  - a. Authorize agreement with Black & Veatch Corporation, Inc. in an amount not to exceed \$8 million for the preliminary design of conveyance Reach 1 of the Pure Water Southern California program.
  - b. Authorize agreement with HDR Engineering, Inc. in an amount not to exceed \$9 million for preliminary design of conveyance Reach 2 of the Pure Water Southern California program.
  - c. Adopt a resolution to support a grant application to the U.S. Bureau of Reclamation for water recycling and desalination planning and authorize the General Manager or a designated representative to accept the grant if awarded.

# Board Options

- Option #2
  - a. Choose to proceed or not proceed with one or both of the agreements at this time and/or;
  - b. Choose to support or not support the USBR grant application.

# Staff Recommendation

- Option #1





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

3/14/2023 Board Meeting

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**7-4**

**Subject**

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Authorize an increase of \$500,000 in change order authority for the contract to replace the overhead bridge cranes at the five Colorado River Aqueduct pumping plants; the General Manager has determined that the proposed action is exempt or otherwise not subject to CEQA

**Executive Summary**

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Metropolitan's construction contracts are typically completed with final change order amounts falling well within the General Manager's Administrative Code authority which is the greater of \$250,000 or five percent of the initial contract amount. In September 2020, Metropolitan's Board awarded a \$13,419,000 contract to replace the original overhead cranes at all five Colorado River Aqueduct (CRA) pumping plants. During construction, the contractor encountered several issues that caused additional labor and material costs to be incurred. Additionally, staff recommends changes to the original contract to increase the functionality and operational efficiency of the crane systems beyond that which was considered in the original design of the project. Based on current and anticipated field conditions, the extent of required extra work under the subject contract is projected to exceed the General Manager's current change order authority of \$670,950. Staff recommends that the General Manager's change order authority for this construction contract be increased by \$500,000 at this time so the contractor can complete the remaining work without delay and at the lowest overall cost.

**Details**

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**Background**

The CRA is a 242-mile-long conveyance system that transports water from the Colorado River to Lake Matthews. It consists of five pumping plants, 124 miles of tunnels, 63 miles of canals, and 55 miles of conduits, siphons, and reservoirs. The aqueduct was constructed in the late 1930s and was placed into service in 1941.

Each of Metropolitan's five pumping plants has one overhead bridge crane located on the main floor of the pump room. The existing cranes were installed during the original CRA construction. Each crane spans the width of the entire floor, running along tracks that are anchored to the building at a height of 45 feet above the ground floor. Each bridge assembly has two hoists, with ratings up to 45 tons for the main and 15 tons for the auxiliary. These ratings vary at the different pump houses based on the respective weights of the equipment. These cranes have performed well over the last 80 years; however, they show signs of deterioration and require frequent repair, and staff must custom fabricate many of the replacement parts since original or substitute off-the-shelf parts are no longer available.

Replacement of the overhead bridge cranes at the five CRA pumping plants is also an important precursor project to support a comprehensive, multi-year program to rehabilitate all 45 CRA main pumps and to perform maintenance activities as necessary. In September 2020, Metropolitan's Board awarded a \$13,419,000 contract to J. F. Shea Construction, Inc. to begin the overhead crane replacement work at all five CRA pumping plants. Construction is currently approximately 20 percent complete and is scheduled to be completed in fall 2023.

Metropolitan's Administrative Code authorizes the General Manager to execute change orders on construction contracts in an aggregate amount not to exceed five percent of the initial amount of the contract or \$250,000, whichever is greater. Change orders to construction contracts are issued for a variety of reasons, including: (1) owner-initiated changes because they increase the overall project quality and efficiency; (2) to address design



errors and/or omissions discovered after construction began; (3) to address field conditions that differ from those shown on the contract drawings and specifications; and (4) changes needed to benefit other related construction projects. Metropolitan staff negotiates the cost and schedule impacts of all change orders before they are formally authorized.

Metropolitan's construction contracts are typically completed with final change order amounts falling well within the General Manager's Administrative Code authority. Since the beginning of 2018, Metropolitan has completed 104 public works contracts with a total awarded amount of approximately \$440 million, and total earnings after net extra work of \$457 million. The average change order authority utilized over this period is 3.9 percent. All but three of the 104 contracts have stayed within their originally awarded change order authority amount.

For this contract, the original change order authority based on the construction contract amount is \$670,950. If changes occur on a construction contract that exceeds this total, additional authorization from the Board is required. At this time, the subject contract has experienced circumstances that were unforeseen when the contract was originally advertised for construction bids. Staff anticipates that the timely resolution of these issues will exceed the General Manager's Administrative Code authority.

### **CRA Overhead Crane Replacement – Increase in Change Order Authority (Contract No. 1946)**

The contract requires the new overhead cranes to be replaced sequentially within a six-week outage period at each of the pumping plants to minimize disruption to the plant's operations and ensure reliable water deliveries. This strategy also allows Metropolitan and the contractor to utilize lessons learned from the previous installation(s) and apply them to the next upcoming plant's replacement. The contractor has completed the first overhead crane installation at the Gene Pumping Plant, as required per the contract. As the testing and commissioning of the Gene Pumping Plant crane progressed, it became apparent that enhancements to the cranes, beyond those that were initially specified in the contract documents, would be necessary to optimize the operational functionality of the systems, improve the ability of staff to conduct maintenance activities with the cranes, and minimize equipment downtime during equipment installation. As a result, the contractor has incurred additional costs from the owner's directed enhancements and from differing site conditions encountered during the construction, as discussed below.

- **Radio control enhancements:** Each crane is equipped with a wireless radio control system that is used to operate the main and auxiliary hoists remotely. The current controller design allows the main and auxiliary hoists to operate individually or together in sync to lift and lower equipment, which is the current crane industry standard. During the testing and commissioning of the Gene Pumping Plant crane, staff realized the need for the main and auxiliary hoists to operate concurrently but not in sync with each other. For example, to lift a discharge valve actuator from the lower floor, the main hoist may be needed to lift while the auxiliary hoist lowers to fit the actuator through the opening in the pump house floor. Additionally, the new cranes have a third hoist that is part of an independent monorail attachment to the main crane. The hoist for this attachment currently operates independently from the other two hoists and has a separate controller. It is recommended that the operation of the three hoists be combined in one controller to enhance the functions of the hoists and provide the most flexibility to operations staff.
- **Pendant enhancements:** In addition to the crane's radio control features, each crane is also equipped with a pendant controller for the main and auxiliary hoists. The pendant controller provides for a local, hard-wired backup to the radio controllers. The pendant is centrally located on a reel mount to allow the crane operator to maintain visual contact with the hoists as the crane moves throughout the building. The reel for the pendant uses a manual retraction mechanism and is designed to clear the pumping plant equipment located below when the pendant is fully retracted. If the pendant is inadvertently left in a lowered position, it could damage equipment within the building. The pendant controller does not automatically retract when not in use. The crane manufacturer is proposing a design change from a centrally mounted reel to a festoon track for the pendant controller. This feature will provide for increased safety when operating the cranes by relocating the pendant controller away from all equipment and allowing the pendant to travel with the crane trolley as it moves throughout the building in a safe manner. The pendant modifications will also include hoist control changes that are necessary to match the radio controller enhancements.

In addition, as the contractor prepared for the Eagle Mountain Pumping Plant work, unanticipated field conditions were encountered that required additional work to be performed. To expedite the crane replacement, the contractor was requested to change the construction plan to accommodate the unforeseen changes as detailed below.

- **Eagle Mountain Pumping Plant differing site conditions:** During construction, the contractor encountered a deviation from the contract record drawings at Eagle Mountain Pumping Plant. The roof truss system in the pump house was expanded in the early 1990s as part of a seismic retrofit project. The seismic retrofit placed structural beams intermittently along the north portion of the longitudinal wall of the pump house. These beams will interfere with the new crane's movement. The presence of these structural beams was not disclosed to the contractor in the original set of design drawings. As a result, the contractor will need to reduce the crane's height by modifying crane girders, wheel sizes, and various ancillary features. The contract specifications required that the contractor field verify all measurements, and staff is currently negotiating the differing site condition with the contractor.
- **Electrification modifications:** During the testing and commissioning of the Gene Pumping Plant crane, staff discovered that the location of the crane's electrical system interfered with the main hoist's ability to reach the pump house's westernmost floor opening. These access openings are used to remove and install various equipment beneath the pump house's main floor. Modifying the crane's electrical system will enhance the safe operation of the cranes by providing the necessary space for the hoist to comfortably reach the far ends of the access openings to facilitate ease of maintenance activities.

The changes described above and other less significant changes to the contract have utilized most of the existing change order authority. Several months of work are required to implement the crane enhancements, complete fabrication, construction, start-up, and commissioning at the remaining four CRA pumping plants. Consequently, it is expected that there will be additional unanticipated changes to the construction contract. Therefore, it is recommended that the original change order authority be increased to accommodate these potential future issues in addition to the crane modifications listed above.

Per Metropolitan's Administrative Code, the General Manager has the authority to execute change orders for this contract up to a maximum of \$670,950. To date, approximately \$527,000 in charge orders have been executed. To fully resolve these issues and complete the fabrication, construction, testing, and commissioning of the overhead bridge cranes at all five CRA pumping plants, staff recommends that the change order authority be increased by \$500,000 for a new maximum amount of \$1,170,950. This increase will enable all remaining work to be performed expeditiously without delaying the contract completion.

This action authorizes an increase in the General Manager's authority to execute change orders from \$670,950 to an aggregate amount not to exceed \$1,170,950 for the overhead bridge crane replacement at all five CRA pumping plants.

### **Alternative Considered**

Staff investigated two approaches to address the additional work identified for the project. The first approach would complete contract changes generated through differing site conditions only. The radio control and pendant enhancements would be completed under a separate stand-alone contract. This approach would reduce the requested increase by approximately \$389,000 for a not-to-exceed limit of \$781,950, and a Board-authorized increase to the original change order authority would still be required to complete the project. With this approach, a separate future contract would be required. Furthermore, this change would increase the final overall costs of the project, delay the completion of all identified work, and potentially void the crane warranty. Additionally, staff would need to mobilize additional support equipment and personnel to safely perform the maintenance activities while the radio control and pendant enhancements are pending.

Use of the current contractor to complete owner's directed enhancements and from differing site conditions allows all identified work to be completed in a timely and cost-effective manner. Additional benefits to the recommended approach include eliminating the need for staff to learn two radio control systems and providing staff with the necessary equipment to perform their work efficiently as soon as possible.

**Summary**

This action authorizes an increase of \$500,000 in the General Manager's authority to execute change orders for Contract No. 1946 with J. F. Shea Construction, Inc. for unforeseen events during construction. See **Attachment 1** for the Financial Statement and **Attachment 2** for the Location Map.

**Project Milestone**

October 2023 – Construction completion

**Policy**

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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

By Minute Item 52113, dated September 15, 2020, the Board awarded a \$13,419,000 construction contract to J. F. Shea Construction, Inc. to replace the overhead bridge cranes at all five CRA pumping plants.

By Minute Item 21997, dated April 11, 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)**

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**CEQA determination for Option #1:**

The Overhead Bridge Cranes replacement was previously determined to be categorically exempt under Classes 1 and 2 (Sections 15301 and 15302) of the State CEQA Guidelines on September 15, 2020. With the current board action, there is no substantial change to the nature or scope of work proposed since the original project was first approved in 2020. Furthermore, the fiscal action of a change order is not subject to CEQA because it involves other government fiscal activities which do not involve any commitment to any specific project which may result in a potentially significant physical impact on the environment (Section 15378(b)(4) of the State CEQA Guidelines). Accordingly, no further CEQA documentation is necessary for the Board to act with regard to the proposed action.

**CEQA determination for Option #2:**

None required

**Board Options**

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**Option #1**

Authorize an increase of \$500,000 in change order authority for the contract to replace the overhead bridge cranes at the five Colorado River Aqueduct pumping plants.

**Fiscal Impact:** Expenditure of up to \$500,000 in capital funds. All costs will be incurred in the current biennium and have been previously authorized.

**Business Analysis:** This option will allow the timely completion of all remaining work for the replacement of the overhead bridge cranes at all five CRA pumping plants.

**Option #2**

Do not authorize an increase in change order authority.

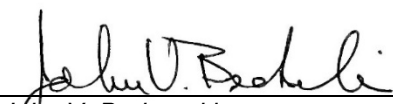
**Fiscal Impact:** Additional costs would likely be incurred in the future as an additional contract(s) will need to be authorized to complete the work that was planned in the original contract.

**Business Analysis:** This option is unlikely to result in lower costs for the extra work performed and would delay the project's completion.

**Staff Recommendation**

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Option #1



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John V. Bednarski  
Manager/Chief Engineer

2/21/2023  
Date



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Adel Hagekhalil  
General Manager

2/27/2023  
Date

**Attachment 1 – Allocation of Funds****Attachment 2 – Location Map**

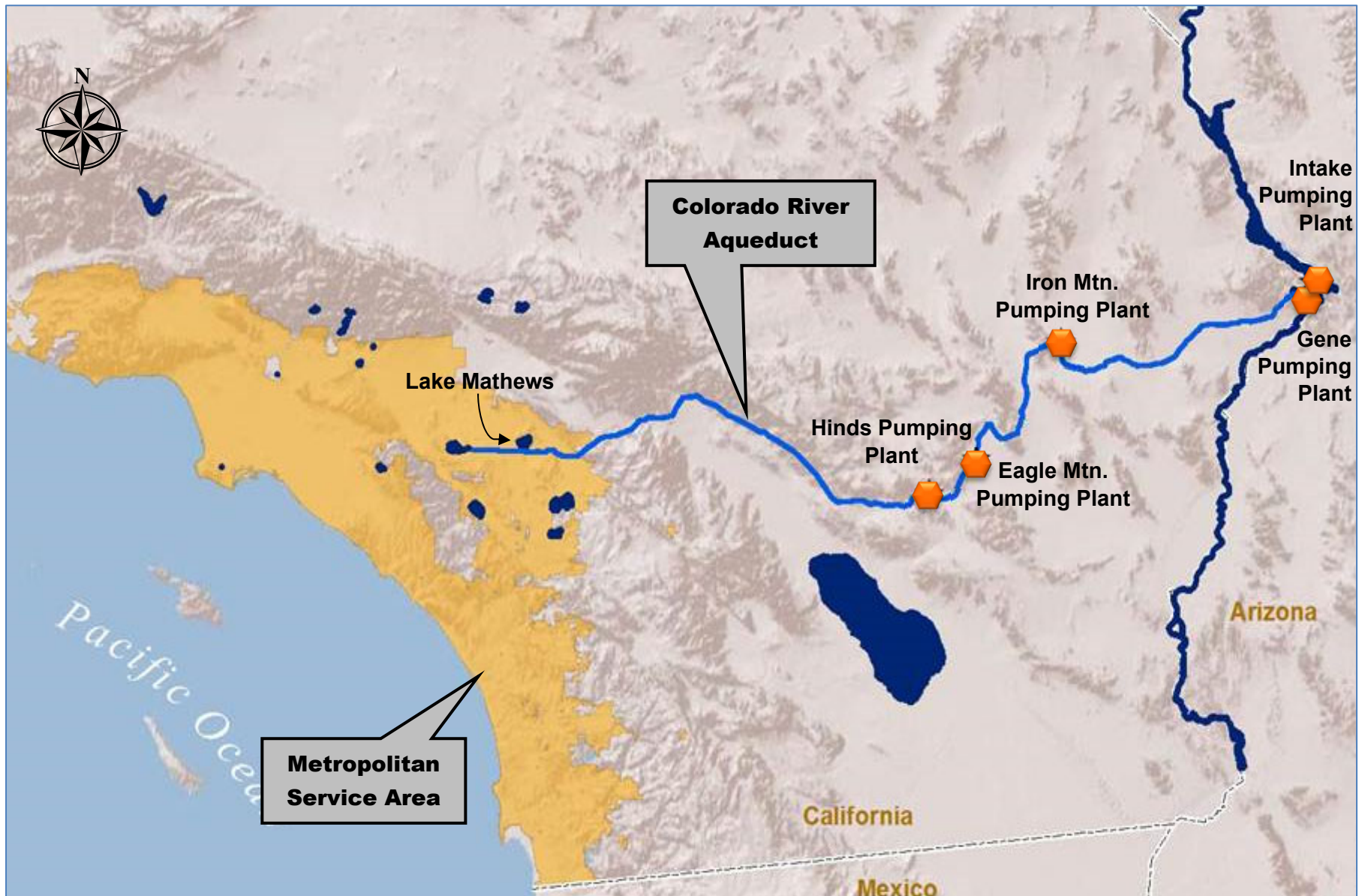
Ref# ES12694140

### Allocation of Funds for CRA Overhead Cranes Replacement Project

	<b>Current Board Action</b>
	<b>(Mar. 2023)</b>
Labor	
Studies & Investigations	\$ -
Final Design	-
Owner Costs (Program mgmt., envir. monitoring)	-
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	500,000
Remaining Budget	-
<b>Total</b>	<b>\$ 500,000</b>

The total amount expended to date to replace the CRA Overhead Cranes is approximately \$8.7 million. The total estimated cost to complete the CRA Overhead Cranes Replacement 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 \$20.3 million to \$20.8 million.

## Location Map







Engineering, Operations, & Technology Committee

# Change Order Authority Increase for CRA Overhead Bridge Cranes Project

Item 7-4

March 13, 2023

## Change Order Authority CRA Overhead Bridge Cranes Replacement

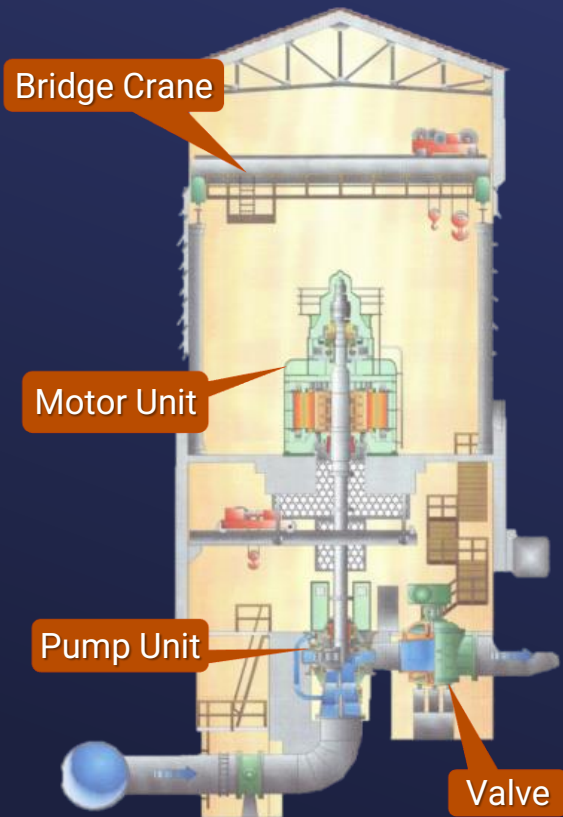
### Current Action

- Authorize an increase of \$500,000 in change order authority for the contract to replace the overhead bridge cranes at the five Colorado River Aqueduct pumping plants

# Location Map



# CRA Overhead Bridge Cranes Replacement



## Background

- Installed in the 1930s
- Single overhead bridge crane per plant
- Spans entire width of the plant
- Primary means to perform maintenance
- Cranes are deteriorated & require replacement
- Spare parts are not available
- Important precursor project to support CRA pump rehabilitation program



# CRA Overhead Bridge Cranes Replacement



Overhead Crane in Use

## Contract Scope

- Sept. 2020 - Contract awarded to J.F. Shea Const., Inc.
- Contract amount - \$13,419,000
- Contract scope
  - Remove & replace overhead bridge cranes at all five CRA pumping plants
  - Upgrade bridge crane electrical system
  - Structural retrofit of crane supports
  - 6-week outage period per pumping plant
    - Work completed sequentially by plant
      - Initial plant – Gene Pumping Plant
- Project is 36% complete

## Change Order Authority CRA Overhead Bridge Cranes Replacement

### Change Order Authority Limits

- Change order authority determined by Admin. Code (Section 8123)
  - GM authority to execute change orders is the larger of:
    - 5% of the original contract amount
    - \$250,000
  - Board approves any increase in authority
- Change Order Authority – CRA Cranes Project
  - Current authority : \$670,950
  - Current authority utilized: \$527,000



# Current Project Status

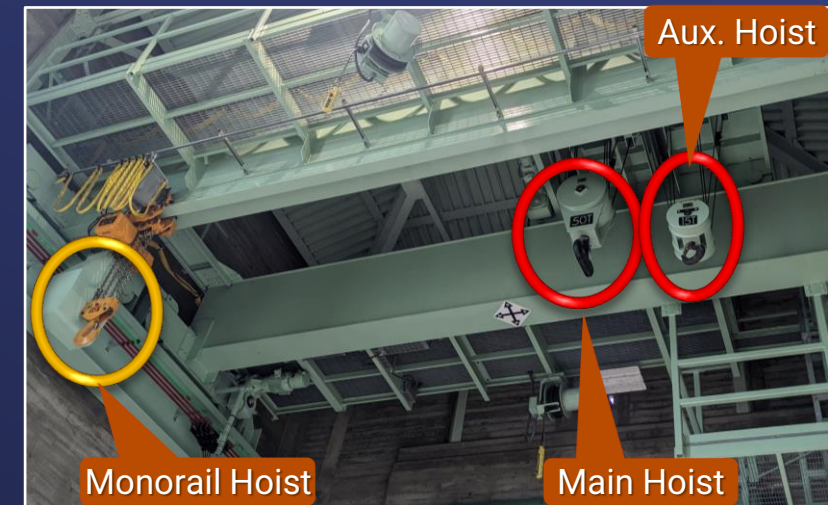
- October 2022 – New crane successfully installed at Gene Plant
  - Upon start-up & commissioning, a number of needed enhancements were identified
    - Resulted in owner-directed changes to increase functionality
    - Staff recommends including these enhancements at remaining four plants
- November 2022 – new crane delivered to Eagle Mtn Plant
  - Differing site conditions encountered during installation
  - Contractor directed to modify crane



New Crane Girder Installation @ Gene

# Wireless Radio Controllers

- Wireless radio controllers used to operate main & auxiliary hoists remotely
  - As designed - main & auxiliary hoists can be operated individually or in-sync with each other
    - Operations staff also needs ability to operate hoists concurrently but not in-sync
  - Auxiliary hoist was provided as part of separate monorail attachment
    - Currently operates independently with a separate controller
- Enhancements will:
  - Improve operational functionality of hoists to operate concurrently & provide additional flexibility
  - Allow operation of all three hoists from one controller



Main, Aux., & Monorail Hoists

## Pendant Controllers

- Pendant controllers serve as a hard-wired backup to radio controllers
  - Centrally located on a reel mount for manual retraction
  - Concerns with pendant snagging on equipment
- Enhancements will:
  - Relocate pendants away from equipment
  - Protect equipment
  - Increase safety



Pendant - Lowered Position



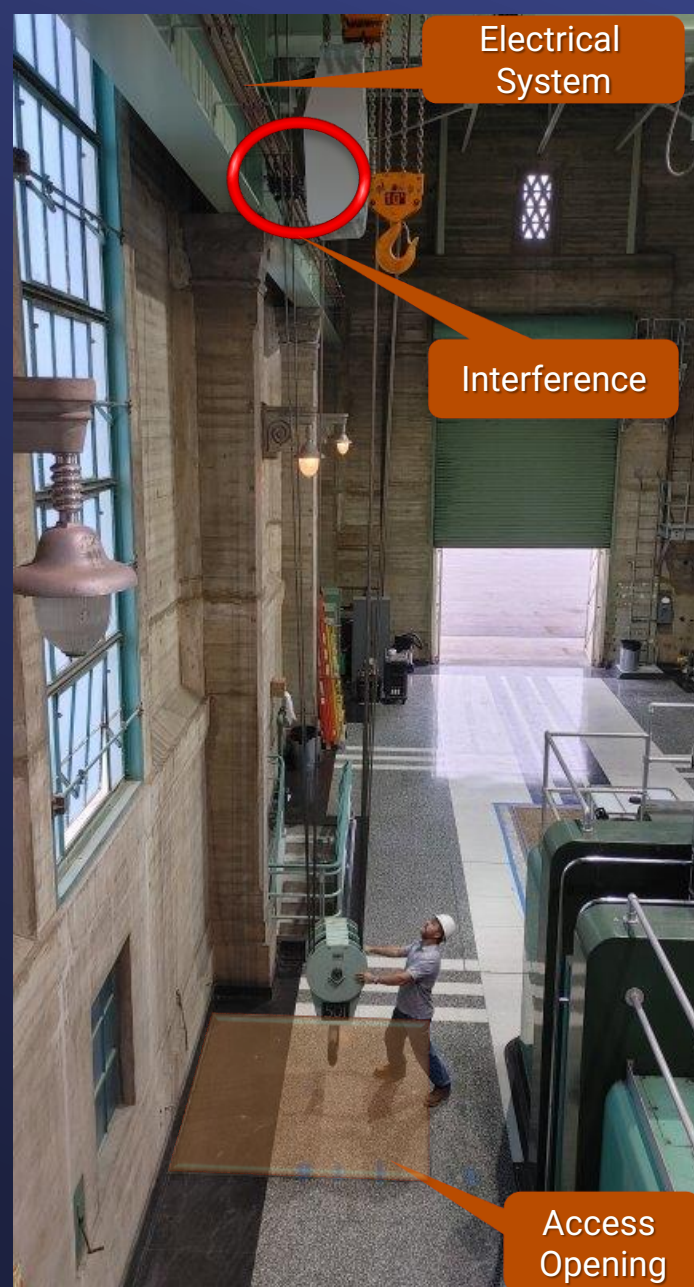
## Change Order Authority CRA Overhead Bridge Cranes Replacement

### Differing Site Conditions

- Condition exists at Eagle Mountain Pumping Plant only
  - Roof truss system expanded as part of seismic retrofit project in early 1990s
  - Structural beams interfere with new crane's movement
- Modify crane height to resolve conflict



Seismic Retrofit



Interference with Electrical System

March 13, 2023

# Electrical System Modifications

- Condition exists at all five plants
- Crane's electrical system interferes with hoist's ability to reach pump bay floor openings adjacent to one wall
- Changes will:
  - Modify electrical system to improve clearances
  - Enhances safe operations



Hoists Below Motor Room Floor

# Change Order Authority Increase

## Contract No. 1946

- Original contract value: \$13,419,000
- Current change order authority: \$670,950
- Change orders executed to date: \$527,000

## Requested Action

- Increase change order authority by: \$500,000
- New change order authority: \$1,170,950

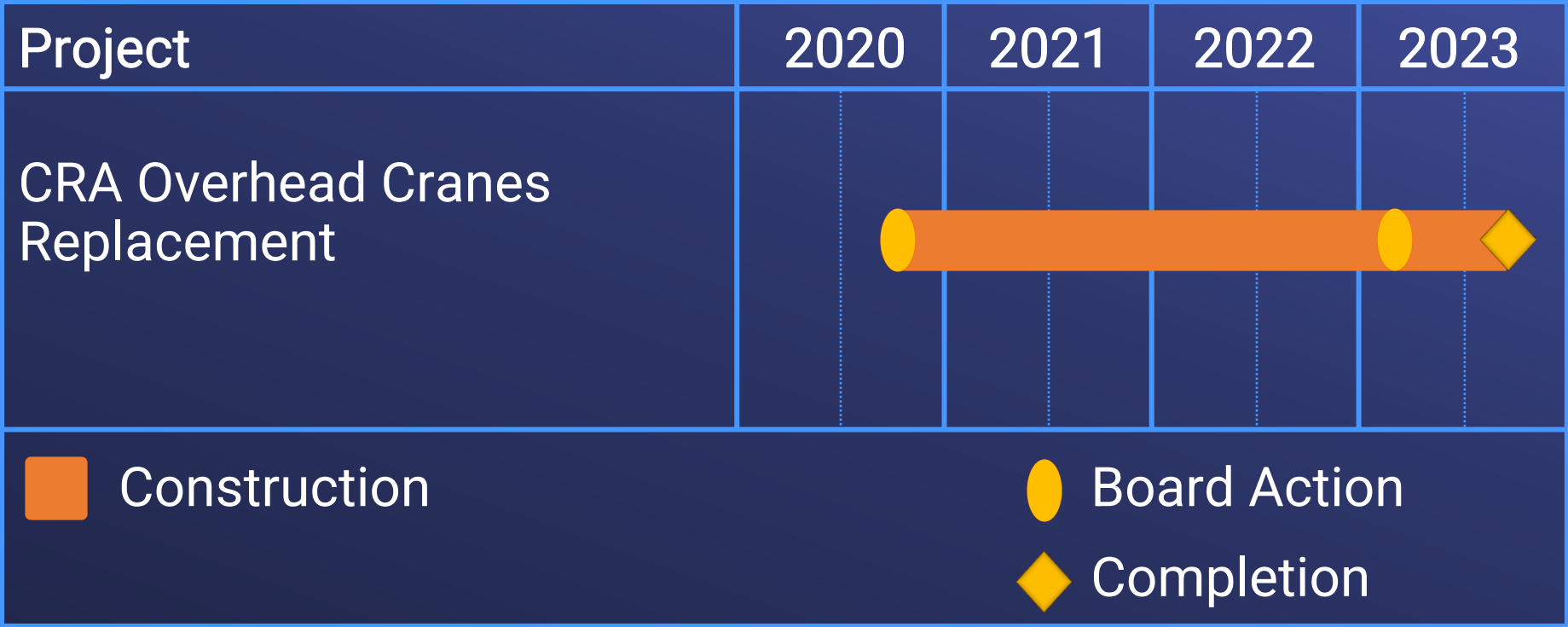


## Change Order Authority CRA Overhead Bridge Cranes Replacement

### Alternatives

- Complete only differing site conditions work
  - Change order authority increase request reduced to \$110,000
  - Complete enhancements & modifications under a separate stand-alone contract
    - Increases project costs, impacts maintenance
    - Potentially voids crane warranty and may pose safety risks
- Selected Alternative
  - Use current contractor to complete change order work
  - All work completed in a timely & cost-effective manner

# Project Schedule



# Board Options

- Option #1
  - Authorize an increase of \$500,000 in change order authority for the contract to replace the overhead bridge cranes at the five Colorado River Aqueduct pumping plants.
- Option #2
  - Do not authorize an increase in change order authority.

# Staff Recommendation

- Option #1





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

3/14/2023 Board Meeting

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**7-5**

**Subject**

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Authorize on-call agreements with Fugro USA Land, Inc., GeoPentech, Inc., Geosyntec Consultants, Inc., and Kleinfelder West, Inc., in amounts not to exceed \$3 million each, for a maximum of five years for geotechnical engineering services; the General Manager has determined that the proposed action is exempt or otherwise not subject to CEQA

**Executive Summary**

---

Staff's strategy for the management of capital and O&M work is to rely on in-house engineering staff to accomplish the base load of projects, while professional services agreements are selectively utilized to handle projects above this base load or where specialized services or equipment are required. This action authorizes four new professional services agreements to provide geotechnical engineering support for capital and O&M projects. The four new agreements will be the on-call type, which are typically used for shorter-term assignments, urgent projects, and projects with specialized technical needs. The recommended maximum amounts of these agreements are \$3 million each for Fugro USA Land, Inc., GeoPentech, Inc., Geosyntec Consultants, Inc., and Kleinfelder West, Inc. The maximum duration of these geotechnical engineering services agreements will be five years.

**Details**

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**Background**

The Capital Investment Plan (CIP) contains the programs and projects necessary for ensuring the reliability of Metropolitan's infrastructure, operating systems, and other assets. Additionally, a variety of technical work is conducted to support routine and urgent O&M activities. Staff's approach for the geotechnical support for capital and O&M projects is to use available in-house staff first, with professional consultant services used only where appropriate. This approach maintains a stable, responsive, and experienced in-house workforce, and is consistent with Metropolitan's succession planning efforts.

When resource needs exceed available in-house staffing or require specialized technical expertise, Metropolitan uses a combination of project-specific and on-call professional services agreements. Over the next several fiscal years, many CIP projects will require geotechnical services beyond the level that can be supported or provided by in-house staff. Supplemental support services will be needed in the areas of: (1) geological reconnaissance and mapping; (2) field exploration and testing; (3) laboratory testing; (4) geologic and seismic hazard evaluations; (5) geotechnical analysis and recommendations; (6) hydrogeological and groundwater evaluations; and (7) geotechnical post-construction instrumentation and monitoring.

In order to be considered for a consulting agreement, firms are competitively evaluated, resulting in a list from which both project-specific and on-call agreements are executed as capital project needs are identified. Project-specific agreements over \$250,000 are approved individually by the Board. By contrast, on-call agreements are multi-year with not-to-exceed amounts and provide a high degree of flexibility to respond to schedule or scope adjustments, allow quicker delivery times, and lower administrative costs for both Metropolitan and the consultants. For these types of agreements, consultants are assigned work only after specific tasks are identified by staff, up to the not-to-exceed amounts of the contracts. These agreements have been relied upon for over 15 years for the efficient execution of capital projects. Typically, Engineering Services has three on-call



agreements for geotechnical engineering services available for use at any one time and has utilized nearly 100 percent of the agreement capacities since inception.

With the approval of the current two-year operating budget, the planned expenditures for the CIP have been increased from \$500 million to \$600 million. At the same time, in-house staff levels available to work on the CIP have been held constant, with no anticipated increases in the current budget cycle. Consequently, staff recommends board authorization of four new multi-year agreements to replace agreements that have already expired or will soon expire in order to ensure the timely execution of the CIP over the next several years.

In support of Metropolitan's goal of increasing business opportunities for Small Business Enterprise (SBE) firms, staff establishes SBE participation levels for the vast majority of professional services agreements for capital projects. The only exceptions are for highly specialized areas of expertise, or for the uncommon occasions when sub-consulting opportunities are limited.

**Agreements for Geotechnical Engineering Services – Fugro USA Land, Inc., GeoPentech, Inc., Geosyntec Consultants, Inc., and Kleinfelder West, Inc.**

Request for Qualifications (RFQ) No. 1316 was issued in April 2022 to establish a pool of qualified consulting firms to support projects related to geotechnical and dam safety engineering services. The RFQ covered services in two categories: geotechnical engineering services and dam safety assessments. The consultants submitted Statements of Qualifications (SOQs) for one or both of these two categories. Twelve firms submitted SOQs, which were then evaluated based on qualifications, key personnel, experience related to planned projects, past performance, environmental sensitivity, and business outreach. Out of 12 firms, 11 firms were prequalified for geotechnical services, and five were prequalified for dam safety services. Prequalified firms will be eligible to submit proposals on project-specific agreements within the categories of work for which they were prequalified.

Planned engineering and technical services to be provided under the resulting agreements were identified in the RFQ and include conceptual assessments, preliminary and final design support for new facilities and rehabilitation of existing facilities; field investigations; planning studies; specialized technical analyses and reviews; cost estimating; and engineering support during bid, advertisement, and construction.

Four new on-call agreements for geotechnical engineering services are recommended to be awarded at this time based on staff's current assessment of technical resources needed for providing geotechnical support to CIP projects over the next several fiscal years. New agreements are recommended with Fugro USA Land, Inc., GeoPentech, Inc., Geosyntec Consultants, Inc., and Kleinfelder West, Inc. These firms received the highest evaluation scores based on the criteria described above. In December 2022, Metropolitan's Board awarded three agreements for dam engineering safety services.

This action authorizes on-call agreements with Fugro USA Land, Inc., GeoPentech, Inc., Geosyntec Consultants, Inc., and Kleinfelder West, Inc., each in an amount not to exceed \$3 million per agreement. The maximum duration of each agreement will be five years. Staff will return to the Board in the future to authorize additional agreements if a need for such work is identified.

Funding for the work to be assigned to the consultants under on-call agreements is available within Metropolitan's capital expenditure plan or O&M budget. No work is guaranteed to the consultants under these agreements. For each of the agreements, Metropolitan has established an SBE participation level of 25 percent of the amount of the agreement. All prequalified firms have committed to meet this level of participation.

**Alternatives Considered**

Alternatives considered for addressing geotechnical engineering included assessing the availability and capability of in-house Metropolitan staff to conduct 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) to utilize consultants when resource needs exceed available in-house staffing or require specialized technical expertise.

This strategy relies on the assumption that in-house engineering staff will handle the baseload of work on capital projects, while professional services agreements are selectively utilized to handle projects above this baseload or where specialized needs are required. Execution of the currently planned projects requires the support of external specialized engineering expertise and equipment, in addition to Metropolitan staff. External support is needed for

performing geological reconnaissance and mapping, field exploration and laboratory testing, geologic and seismic hazard evaluations, geotechnical analysis, hydrogeological and groundwater evaluations, and geotechnical post-construction instrumentation.

### Summary

This action authorizes on-call agreements for engineering services with Fugro USA Land, Inc., GeoPentech, Inc., Geosyntec Consultants, Inc., and Kleinfelder West, Inc. in an amount not to exceed \$3 million each per contract for a maximum duration of five years.

### Policy

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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

By Minute Item 52778, 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)

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#### CEQA determination for Option #1:

The proposed action is not subject to CEQA because it involves other government fiscal activities, which do not involve any commitment to any specific project which may result in a potentially significant physical impact on the environment (Section 15378(b)(4) of the State of CEQA Guidelines). In addition, the proposed action is not subject to CEQA because it involves organizational or administrative activities of governments that would not result in a direct or indirect physical change to the environment (Section 15378(b)(5) of the State of CEQA Guidelines).

#### CEQA determination for Option #2:

None required

### Board Options

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#### Option #1

Authorize on-call agreements with Fugro USA Land, Inc., GeoPentech, Inc., Geosyntec Consultants, Inc., and Kleinfelder West, Inc., in amounts not to exceed \$3 million each, for a maximum period of five years for geotechnical engineering services.

**Fiscal Impact:** None; funding for the work to be assigned to the consultants under on-call agreements and performed this biennium has been previously authorized. Future costs will be accounted for and appropriated under subsequent biennial budgets. In addition, no work is guaranteed to the consultants under these agreements.

**Business Analysis:** Contracting with multiple firms provides flexibility and an efficient means for Metropolitan to obtain needed technical services and to complete capital projects in accordance with board-adopted schedules.

#### Option #2

Do not authorize the consulting agreements at this time.

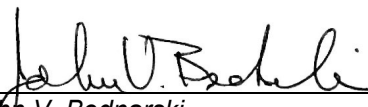
**Fiscal Impact:** None

**Business Analysis:** Under this option, Metropolitan staff would perform the engineering activities, or would request board authorization for agreements on a project-specific basis. This option would forego an opportunity to reduce administrative costs or address urgent projects promptly.

**Staff Recommendation**

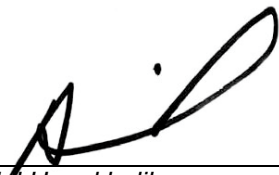
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Option #1

  
\_\_\_\_\_  
John V. Bednarski  
Chief Engineer/Manager  
Engineering Services Group

2/21/2023

*Date*

  
\_\_\_\_\_  
Adel Hagekhalil  
General Manager

2/27/2023

*Date*

Ref# es12689332



Engineering, Operations, & Technology Committee

# Agreements for Geotechnical Engineering Services

Item 7-5

March 13, 2023

## Professional Services Agreements – Geotechnical Engineering Services

### Current Action

- Authorize on-call agreements in amounts not to exceed \$3 million each, for a maximum of five years for engineering services
  - Fugro USA Land, Inc.
  - GeoPentech, Inc.
  - Geosyntec Consultants, Inc.
  - Kleinfelder West, Inc.

## Professional Services Agreements – Geotechnical Engineering Services

### Staffing Strategy for Capital and O&M Programs

- Rely on in-house labor to fullest extent possible
- Use consultants:
  - When capital resource needs exceed available staffing
  - For specialized technical expertise/skills
  - For independent/3rd party review
- Planned CIP expenditures for current biennium – \$600M
- Funding available within Metropolitan's capital expenditure plan
  - Work is not guaranteed to consultants



## Professional Services Agreements – Geotechnical Engineering Services

### Professional Services Agreements

- On-Call Agreements
  - Typically utilized for shorter-term assignments, urgent projects, etc.
  - Allows for flexibility, expedited project delivery
- Project Specific Agreements
  - Required for projects over extended duration, or larger project scopes
- Approved individually by the Board over \$250K

Professional  
Services  
Agreements –  
Geotechnical  
Engineering  
Services

## Example Projects

- Geotechnical Engineering & Design
  - Water Treatment Plants
  - Storage & Distribution Facilities



Weymouth Admin Building  
Seismic Upgrades



PCCP Rehabilitation Program



## Example Projects (continuation)

### Professional Services Agreements – Geotechnical Engineering Services



Diemer Basin 8 Slope Stability



Inland Feeder Surge Protection Facility



Water Quality Lab  
Upgrades



DVL Wave Attenuator  
Replacement

## Professional Services Agreements – Geotechnical Engineering Services

### Request for Qualifications (RFQ) 1316

- Issued April 2022 for on-call services
- Total of 12 firms responded
  - 11 firms pre-qualified for geotechnical engineering
- Four firms recommended for geotechnical engineering services

## Professional Services Agreements – Geotechnical Engineering Services

### Alternatives Considered

- Utilize on-call agreements as typically structured
  - Yearly annual limit
  - May require pausing consultant support if annual expenditure limit reached
- Selected Alternative – On-call agreements with a maximum expenditure for the term
  - Allows timely completion of work
  - Lowers administrative costs

## Professional Services Agreements – Geotechnical Engineering Services

### Agreements

- New on-call agreements for four pre-qualified firms for geotechnical engineering services
- Not-to-exceed amount of \$3 M per agreement
- Maximum duration of each agreement is five years
- Services to be provided include:
  - Field investigations & laboratory testing
  - Geotechnical analysis & recommendations
  - Geologic & seismic hazard evaluations
  - Hydrogeological & groundwater evaluations
- SBE participation: 25% of agreement amount



# Board Options

- Option #1
  - Authorize on-call agreements with Fugro USA Land, Inc., GeoPentech, Inc., Geosyntec Consultants, Inc., and Kleinfelder West, Inc., in amounts not to exceed \$3 million each, for a maximum period of five years for geotechnical engineering services.
- Option #2
  - Do not authorize the consulting agreements at this time.

# Staff Recommendation

- Option #1





**Board of Directors**

***Engineering, Operations, and Technology Committee***

3/14/2023 Board Meeting

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**7-6**

**Subject**

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Award a \$394,534 contract to Slater Waterproofing, Inc. to rehabilitate concrete walls within the ozone contactor structure at the Robert A. Skinner Water Treatment Plant; the General Manager has determined that the proposed action is exempt or otherwise not subject to CEQA

**Executive Summary**

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The ozone contactors at the Robert A. Skinner Water Treatment Plant (Skinner plant) consist of large concrete basins where the plant's influent water is mixed with ozone to disinfect the water. In recent years, expansion cracks have developed in the walls of the ozone contactor structure. Rehabilitation of the concrete walls of the Skinner ozone contactor structure is needed to prevent leakage of ozonated water and to maintain the long-term structural integrity of this water-bearing structure. This action awards a construction contract to repair expansion cracks on the concrete walls inside the Skinner plant's ozone contactor building and inlet channel.

**Details**

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**Background**

The Skinner plant commenced service in 1976 and currently has a capacity of 350 million gallons per day (mgd). It delivers a blend of waters from the Colorado River and State Water Project (SWP) to Eastern Municipal Water District, Western Municipal Water District of Riverside County, and the San Diego County Water Authority. The plant is located north of Temecula in Riverside County.

Ozone is used as the primary disinfectant at each of Metropolitan's five water treatment plants to substantially reduce the formation of disinfection by-products (DBPs) for compliance with the U. S. Environmental Protection Agency's Disinfectants/DBP rule, and to control taste-and-odor-causing compounds and algal toxins. The combination of these benefits allows Metropolitan to successfully treat blends of SWP and Colorado River Aqueduct supplies. The Skinner plant's ozone contactor structure was placed into service in 2010. The 62,700 square-foot concrete structure is comprised of six contactors, which are each 120-feet long, 38-feet wide, and 30-feet tall, as well as an inlet channel and instrumentation galleries. Ozone and water are mixed within the contactors for a calculated duration to meet state and federal disinfection requirements. Contactors 1-4 are actively in service, while Contactors 5 and 6 were decommissioned when the plant's treatment capacity was reduced from 630 mgd to 350 mgd through Metropolitan's Board authorization in July 2017.

Regular inspections conducted by staff under Metropolitan's preventive maintenance program revealed the existence of cracks on the concrete walls of the Skinner plant's contactor building. The cracks vary in length from two to 12 feet, and in aggregate are estimated to be 2,400 feet in length; the width of the cracks are typically less than 1/16 inches wide. Expansion cracking of reinforced concrete is a naturally occurring phenomenon throughout the lifespan of a water-retaining structure, and in many cases these cracks will typically seal themselves over time as the mineral content in the water calcifies. In some cases, the cracks do not self-seal, and this could lead to leakage of ozonated water from the contactor basins into the instrumentation galleries. In these cases, Metropolitan staff has developed a methodology to proactively repair the concrete walls at the plant's ozone contactor structure. The methodology includes the use of hydrophilic grout injection into the concrete cracks to inhibit the leaks. The concrete walls of Contactors 3 and 4 were rehabilitated with this method in July 2019, and further periodic inspections performed within the next three years confirmed the effectiveness of

this approach. Staff recommends using the same method to rehabilitate the concrete in Contactors 1 and 2 and the contactor inlet channel.

In accordance with the April 2022 action on the biennial budget for fiscal years 2022/23 and 2023/24, the General Manager authorized staff to proceed with construction of the Skinner Ozone Contactor Structure Rehabilitation, pending board award of the construction contract described below. Based on the current CIP expenditure forecast, funds for the work to be performed pursuant to the subject contracts during the current biennium are available within the CIP Appropriation for fiscal years 2022/23 and 2023/24 (Appropriation No. 15525). This project has been reviewed in accordance with Metropolitan's CIP prioritization criteria and was approved by Metropolitan's CIP evaluation team to be included in the Treatment Plant Reliability Program.

### **Skinner Ozone Contactor Structure Rehabilitation – Construction**

The scope of the construction contract consists of injecting hydrophilic grout into concrete walls at Contactors 1 and 2 and the inlet channel; protecting equipment in place while the work is being conducted; and placing a finish mortar coating on the concrete walls. Metropolitan forces will clear the work area and provide a contractor work staging area.

A total of \$598,000 is allocated for this work. In addition to the contract amount, other funds to be allocated include \$56,000 for construction management and inspection; \$18,000 for Metropolitan force work as described above; \$35,000 for contract administration, environmental monitoring support, and project management; \$50,000 for submittals reviews and preparation of record drawings; and \$44,466 for remaining budget.

**Attachment 1** provides the allocation of the required funds. The total estimated cost to complete the concrete rehabilitation of the Skinner plant's ozone contactor building and inlet channel structure, including the amount appropriated to date and funds allocated for the work described in this action, is \$673,000.

### ***Award of Construction Contract (Slater Waterproofing, Inc.)***

Specifications No. 2036 for the construction of the Skinner Ozone Concrete Rehabilitation were advertised on December 14, 2022. As shown in **Attachment 2**, five bids were received and opened on January 26, 2023. The low bid from Slater Waterproofing, Inc. in the amount of \$394,534 complies with the requirements of the specifications. The four higher bids ranged from \$498,776 to \$612,575, while the engineer's estimate for this contract was \$591,000. Of the four higher bids, one was withdrawn due to a clerical error. For this contract, Metropolitan established a Small Business Enterprise (SBE) participation level of at least 25 percent of the bid amount. Slater Waterproofing, Inc. is an SBE firm, and thus achieves 100 percent participation. No subcontractors are planned for this contract.

As described above, Metropolitan staff will perform construction management and inspection. The total cost of construction for this project is \$412,534, which includes the amount of the contract (\$394,534) and Metropolitan force activities (\$18,000). Engineering Services' performance metric target range for inspection of projects with construction less than \$3 million is 12 to 15 percent. For this project, the performance metric for inspection is 13.6 percent of the total construction cost.

### **Alternatives Considered**

Staff considered including the rehabilitation of decommissioned Contactors 5 and 6 in the contract. The alternative was not pursued because it would add unnecessary costs and logistical complexity to the project. Contactors 5 and 6 have been taken out of service, and there are no plans to recommission them in the foreseeable future. Contactors 5 and 6 would be rehabilitated in the future if plans to place them back into service materialize.

### **Summary**

This action awards a \$394,534 contract to Slater Waterproofing, Inc. to rehabilitate the concrete walls inside the Skinner plant's ozone contactor structure. See **Attachment 1** for the Allocation of Funds, **Attachment 2** for the Abstract of Bids, and **Attachment 3** for the Location Map.

### ***Project Milestone***

January 2024 – Completion of construction

## Policy

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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

By Minute Item 50886, dated July 12, 2017, the Board authorized the removal of Modules 4, 5, and 6 from service at the Skinner plant.

By Minute Item 52778, dated April 12, 2022, the Board appropriated a total of \$600 million for projects identified in the Capital Investment Plan for Fiscal Years 2022/2023 and 2023/2024.

## California Environmental Quality Act (CEQA)

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### CEQA determination for Option #1:

The proposed action is categorically exempt under the provisions of CEQA and the State CEQA Guidelines. In particular, the proposed action consists of the operation, repair, maintenance, permitting, leasing, licensing, or minor alteration of existing public or private structures, facilities, mechanical equipment, or topographical features, involving negligible or no expansion of existing or former use and no possibility of significantly impacting the physical environment. In addition, the proposed action will not have a significant effect on the environment. Accordingly, the proposed action qualifies as a Class 1 Categorical Exemption (Section 15301 of the State CEQA Guidelines).

### CEQA determination for Option #2:

None required

## Board Options

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### Option #1

Award a \$394,534 contract to Slater Waterproofing, Inc. to rehabilitate concrete walls within the ozone contactor structure at the Robert A. Skinner Water Treatment Plant.

**Fiscal Impact:** Expenditure of \$598,000 in capital funds. All costs will be incurred in the current biennium and have been previously authorized.

**Business Analysis:** This option will improve the operational reliability of the Skinner plant's ozonation facilities.

### Option #2

Do not proceed with the project at this time.

**Fiscal Impact:** None

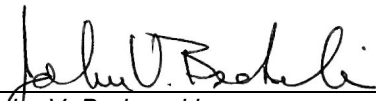
**Business Analysis:** This option would forego an opportunity to improve the reliability of the plant's ozonation facilities. Expansion cracks left unrepaired may lead to costly emergency repairs in the future.



**Staff Recommendation**

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Option #1

  
\_\_\_\_\_  
John V. Bednarski  
Chief Engineer/Manager  
Engineering Services

2/22/2023

Date

  
\_\_\_\_\_  
Adel Hagekhalil  
General Manager

2/27/2023

Date

**Attachment 1 – Allocation of Funds****Attachment 2 – Abstract of Bids****Attachment 3 – Location Map**

Ref# es12692921

### **Allocation of Funds for Skinner Ozone Contactor Structure Rehabilitation**

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	<b>Current Board Action (Mar. 2023)</b>
Labor	
Studies & Investigations	\$ -
Final Design	-
Owner Costs (Program mgmt., contract admin.)	35,000
Submittals Review & Record Drwgs.	50,000
Construction Inspection & Support	56,000
Metropolitan Force Construction	18,000
Materials & Supplies	-
Incidental Expenses	-
Professional/Technical Services	-
Right-of-Way	-
Equipment Use	-
Contracts	
Slater Waterproofing, Inc.	394,534
Remaining Budget	44,466
<b>Total</b>	<b>\$ 598,000</b>

The total amount expended to date to rehabilitate the Skinner plant's ozone contactor building and inlet channel structure is approximately \$75,000. The total estimated cost to complete the rehabilitation of the concrete, including the amount appropriated to date, and funds allocated for the work described in this action, is \$673,000.

**The Metropolitan Water District of Southern California**

**Abstract of Bids Received on January 26, 2023, at 2:00 P.M.**

**Specifications No. 2036**

**Robert A. Skinner Water Treatment Plant Ozone Contactors Rehabilitation**

The work includes injecting hydrophilic grout into existing concrete walls at Contactors 1 and 2 and inlet channel.

Engineer's estimate: \$591,000

<b>Bidder and Location</b>	<b>Total</b>	<b>SBE \$</b>	<b>SBE %</b>	<b>Met SBE<sup>1</sup></b>
Slater Waterproofing, Inc. Montclair, CA	<b>\$394,534</b>	<b>\$394,534</b>	<b>100</b>	<b>Yes</b>
Tharsos Inc La Mesa, CA	\$498,776	-	-	-
Eco Construction Los Angeles, CA	\$525,000	-	-	-
Houlla Enterprises, Ltd. Newport Beach, CA	\$612,575	-	-	-
Angelus Waterproofing & Restoration, Inc. Huntington Beach, CA	Withdrawn due to clerical error	-	-	-

<sup>1</sup> Small Business Enterprise (SBE) participation level established at 25% for this contract.





Engineering, Operations, & Technology Committee

# Skinner Ozone Contactor Structure Rehabilitation

Item 7-6

March 13, 2023

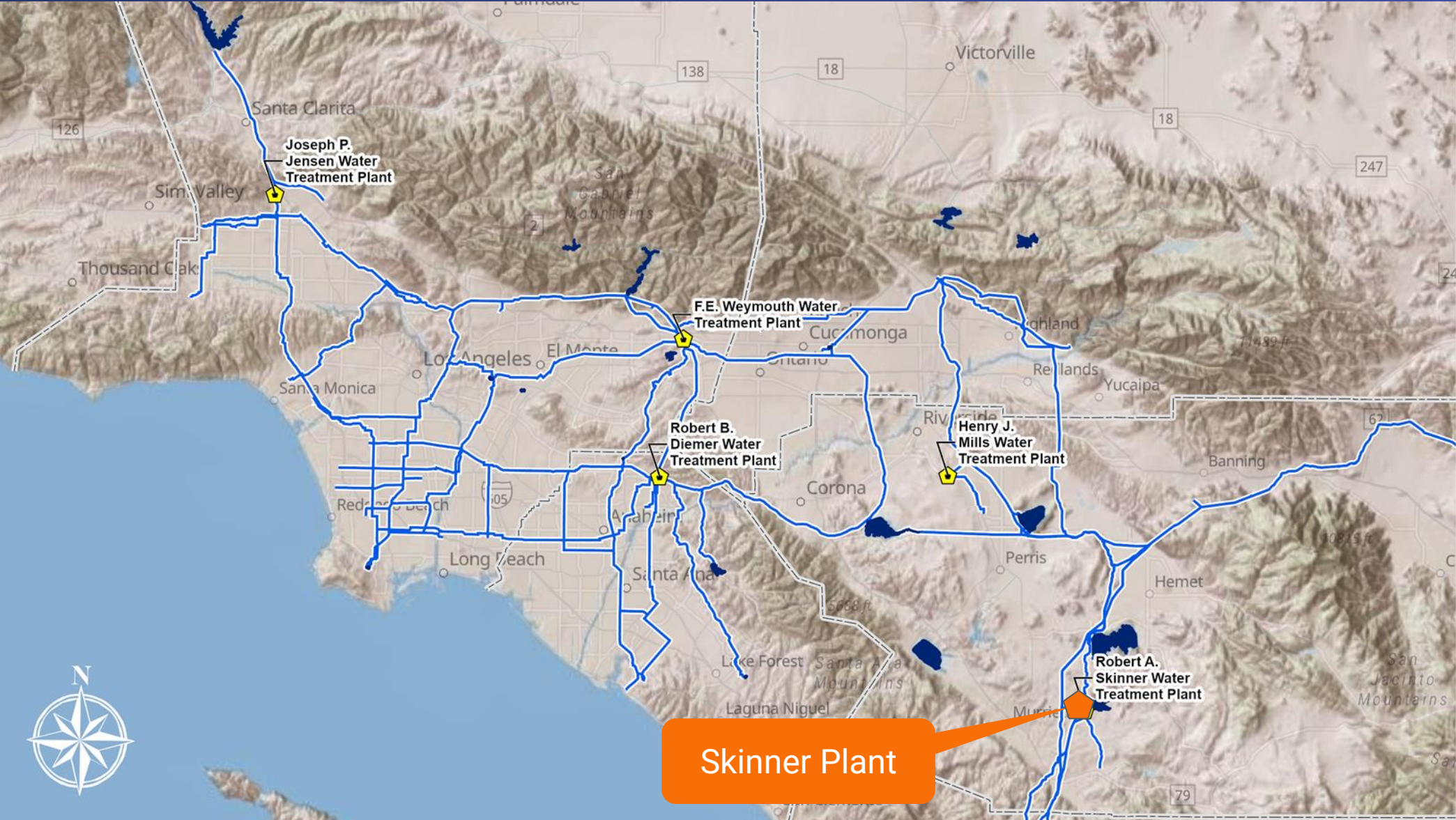
## Skinner Ozone Contactor Structure Rehabilitation

### Current Action

- Award a \$394,534 contract to Slater Waterproofing, Inc. for structure rehabilitation of the ozone contactor at the Robert A. Skinner Water Treatment Plant



# Distribution System



Skinner Plant



# Background - Skinner Ozone Contactor



- Plant capacity reduced to 350 MGD in July 2017 with Board Item 8-5
  - Contactors 5 & 6 decommissioned

- Six Ozone Contactors
  - Each 120 ft long, 38 ft wide, & 30 ft tall
  - Each treats 60 MGD to 125 MGD



## Skinner Ozone Contactor Structure Rehabilitation



Skinner Ozone Inlet  
Channel Wall

## Background

- 2,400 ft of cracks
- Approx. 1/16 in width
- Cracking in concrete is naturally occurring & can self-seal over time
- Sometimes cracks do not self-seal which leads to water leakage
- Unrepaired cracks could lead to:
  - Steel reinforcement exposed to water
  - Corrosion may further weaken the concrete



# Skinner Ozone Contactor Structure Rehabilitation

## Background

- Contactors 3 & 4 were rehabilitated with hydrophilic grout injection July 2019
- Contactors 1 & 2 and Influent Channel are subject to this action



Skinner Ozone Inlet  
Channel Wall



Close up of Leak on Contactor 1

## Skinner Ozone Contactor Structure Rehabilitation

### Alternatives Considered

- Include decommissioned Contactors 5 & 6
- Selected Alternative – Narrow scope to active portions of facility
  - Expeditiously addresses immediate need of existing contactors in use
  - Avoid complicated & costly process to rehabilitate decommissioned contactors

# Skinner Ozone Contactor Structure Rehabilitation

## Contractor Scope

- Rehabilitate the concrete walls on Contactors 1 & 2 and the Influent Channel
- Inject hydrophilic grout into existing cracks
- Place cementitious mortar as finish layer



Skinner Contactor 2 Wall



## Skinner Ozone Contactor Structure Rehabilitation

### Metropolitan Scope

- Force Construction
  - General support & logistics
- Conduct construction management & inspection
- Perform submittal reviews & prepare record drawings
- Provide project management, contract admin., & environmental monitoring

# Bid Results

## Specifications No. 2036

Bids Received	January 26, 2023
No. of Bidders*	5
Lowest Responsible Bidder	Slater Waterproofing, Inc.
Low Bid	\$394,534
Range of Other Bids	\$498,776 to \$612,575
Engineer's Estimate	\$591,000
SBE Participation**	100%

\*One bid withdrawn

\*\*SBE (Small Business Enterprise) participation level set at 25%

# Allocation of Funds

## Skinner Ozone Contactor Structure Rehabilitation

### Metropolitan Labor

Owners Costs (Proj. Mgmt., Contract Admin., Envir. Support)	\$ 35,000
Construction Inspection & Support	56,000
Force Construction	18,000
Submittals Review, Tech. Support, Record Dwgs.	50,000

### Contracts


Slater Waterproofing, Inc.	394,534
----------------------------	---------

Remaining Budget	44,466
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Total	\$ 598,000
-------	------------

# Project Schedule

Project	2023	2024
Skinner Ozone Contactor Structure Rehabilitation		
<div><div></div> Construction</div> <div><div></div> Board Action</div> <div><div></div> Completion</div>		

# Board Options

- Option #1
  - Award a \$394,534 contract to Slater Waterproofing, Inc. to rehabilitate concrete walls within the ozone contactor structure at the Robert A. Skinner Water Treatment Plant.
- Option #2
  - Do not proceed with the project at this time.

# Staff Recommendation

- Option #1







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

3/14/2023 Board Meeting

7-7

## Subject

Adopt Mitigated Negative Declaration for the Copper Basin Discharge Valve Replacement and Access Road Improvements Project and take related CEQA actions

## Executive Summary

In accordance with the California Environmental Quality Act (CEQA), this action adopts a Mitigated Negative Declaration (MND) to facilitate moving forward with the Copper Basin Discharge Valve Replacement and Access Road Improvements Project (Project). The Copper Basin Reservoir provides critical storage that enables flow rates along the Colorado River Aqueduct (CRA) to be stabilized and controlled. A concrete arch dam with a discharge structure at the base allows Metropolitan to quickly and safely drain the reservoir in the event of an emergency. The valves have been in operation for over 80 years and have exceeded their expected service life. The proposed Project includes replacing the discharge valve, rehabilitating the slide gate valve, replacing or rehabilitating appurtenant structures, and improving 1.66 miles of the existing access road to facilitate the construction and operation of the proposed Project.

## Details

### Background

The Copper Basin Reservoir, one of Metropolitan's four reservoirs along the CRA, is a critical hydraulic component of the CRA that enables Metropolitan to balance and control aqueduct flows. Copper Basin Reservoir was constructed in 1938 and holds approximately 24,200 acre-feet of water with a surface area of approximately 427 acres. Water from the Gene Pumping Plant is pumped to the Copper Basin Reservoir, and then flows by gravity to the Iron Mountain Pumping Plant, approximately 70 miles from Copper Basin Reservoir.

The Project replaces the discharge valve, rehabilitates the slide gate valve, replaces or rehabilitates appurtenant structures, and improves the existing access road to facilitate the construction and operation of the proposed Project. The two valves have been in operation for over 80 years and have exceeded their expected service life. The dam is under the jurisdiction of the California Division of Safety of Dams, which requires that the discharge valves be fully operational at all times. Additionally, segments of the approximately 1.66-mile-long dirt access road between the outlet structure at Copper Basin Reservoir and the canyon floor that leads to the base of Copper Basin Dam are too steep, are subject to frequent erosion, and would not support the types of construction equipment required to complete the proposed Project. See **Attachment 1** for the Location Map. Staff will return to the Board at a future date to award a construction contract(s) to perform the proposed work.

Staff prepared an MND in order to analyze the potential effects on the environment as a result of the proposed Project. Under CEQA, an MND is prepared when an initial study identifies that there are potentially significant environmental effects associated with a proposed project, but revisions to the project plan would avoid those effects or mitigate them to a point where no significant impacts would occur.

Several environmental permits are required for the Project. The permit application process takes approximately six to nine months to complete and cannot begin until the MND is adopted by the Board. This Project requires permits from the U.S. Army Corps of Engineers under Section 404 of the Clean Water Act, the Regional Water Quality Control Board under Section 401 of the Clean Water Act and the Porter-Cologne Water Quality Control Act, and the California Department of Fish and Wildlife under Section 1600-1617 of the California Fish and

Game Code. Construction will not begin until Metropolitan has received all required permits. The current schedule anticipates that the Board would award a construction contract in late 2023.

### **Adoption of the Mitigated Negative Declaration**

To comply with CEQA and the State CEQA Guidelines, Metropolitan as the CEQA Lead Agency, prepared an MND for the proposed Copper Basin Discharge Valve Replacement and Access Road Improvements Project (**Attachment 2**). On December 14, 2022, Metropolitan released a draft Initial Study and Mitigated Negative Declaration for a 30-day public review period as required by CEQA and the State CEQA Guidelines. Staff filed a Notice of Completion with the State Clearinghouse, and a Notice of Intent was posted to Metropolitan's website and mailed to contiguous property owners, and federal, state, and local agencies. The Initial Study and MND were also posted on Metropolitan's website, while hard copies were made available at Metropolitan's Headquarters Building in Los Angeles. **Attachment 3** contains comment letters received during the public review period, along with responses to those comments.

As stated in the State CEQA Guidelines (Section 15074), the Board is required to review and consider the MND, the Initial Study, and comments received during the public review period prior to adoption of the MND. Adoption of the MND is dependent on the finding by the Board that, based on the whole record before it, there is no substantial evidence that with the mitigation measures required by the MND, the proposed Project will have a significant impact on the environment, and that the MND reflects the CEQA Lead Agency's independent judgment and analysis. The Mitigation Monitoring and Reporting Program (MMRP) is required under CEQA (Section 21081.6 of the California Public Resources Code) and must also be adopted by the Board prior to project approval (**Attachment 4**). All of the above documentation, including other materials that constitute the record of proceedings upon which the Lead Agency decision is based, is on file at Metropolitan's Headquarters Building located at 700 North Alameda Street, Los Angeles, CA 90012.

### **Summary**

This action proposes adoption of the MND for the Copper Basin Discharge Valve Replacement and Access Road Improvements Project and adoption of the MMRP in accordance with CEQA.

### **Project Milestone**

December 2023 – Award a construction contract for the Copper Basin Discharge Valve Replacement and Access Road Improvements Project

### **Policy**

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Metropolitan Water District Administrative Code Section 11100: Environmental Matters

By Minute Item 50035, dated February 10, 2015, the Board authorized final design to rehabilitate the discharge structures at Copper Basin and Gene Wash Reservoirs.

By Minute Item 50663, dated December 13, 2016, the Board authorized awarding a \$599,730 contract to Integrated 8(a) Solutions to furnish fixed cone valves and actuators; and authorized preliminary design to improve access to Copper Basin and Gene Wash Reservoirs.

By Minute Item 52778, dated April 12, 2022, the Board appropriated a total of \$600 million for projects identified in the Capital Investment Plan for Fiscal Years 2022/2023 and 2023/2024.

### **California Environmental Quality Act (CEQA)**

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#### **CEQA determination for Option #1:**

Review and consider the information in the MND, Initial Study, and comments received during the public review period; find that based on the whole record before the Board, there is no substantial evidence that the proposed project will have a significant impact on the environment, and the MND reflects the Lead Agency's independent judgment and analysis; adopt the MND for the proposed project, and adopt the MMRP.

#### **CEQA determination for Option #2:**

None required

## Board Options

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### Option #1

Adopt the Mitigated Negative Declaration for the Copper Basin Discharge Valve Replacement and Access Road Improvements Project and take related CEQA actions

**Fiscal Impact:** None

**Business Analysis:** This option will ensure the Project can move forward in a timely manner to enhance CRA reliability and maintain compliance with the dam's operating permit.

### Option #2

Do not adopt the Mitigated Negative Declaration at this time



**Fiscal Impact:** None

**Business Analysis:** This option would delay the replacement of the discharge valve and would forego an opportunity to enhance reliability of the CRA.

## Staff Recommendation

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### Option #1

 Elizabeth K. Crosson Chief Sustainability, Resiliency & Innovation Officer	3/1/2023 Date
 Adel Hagekhalil General Manager	3/2/2023 Date

**Attachment 1 – Project 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# sri12687470



N:\Infrastructure\_Units\Geodetic and Mapping\_Team\_1\Projects\Special\_Requests\Daniel Cardoza\Copper\_Basin\_Dam\_PPT\_Exhibit.aprx [Printed 2/14/2023] Prepared by: Tom Bleicher (GMT) Requestor: Daniel Cardoza Job#: GIS23-02-15



# **The Metropolitan Water District of Southern California**

## **Copper Basin Discharge Valve Replacement and Access Road Improvements Project**

### **Proposed Draft Mitigated Negative Declaration**

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



Report No. 1663  
*December 2022*



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Copper Basin Discharge Valve Replacement and Access Road Improvements Project  
**PROPOSED MITIGATED NEGATIVE DECLARATION**

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- A. Construction Details and Air Quality Emission Estimate Calculations
- B. Biological Resources Technical Report and Jurisdictional Delineation Report
- C. Phase I Cultural Resources Assessment Report
- D. Historical Resources Technical Report

# **1. Project Description**

## **1.1 Background**

The Metropolitan Water District of Southern California (Metropolitan) is a regional water wholesaler that provides water for 26 public agency members that provide drinking water to approximately 19 million people 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.

Metropolitan owns, operates, and manages the Colorado River Aqueduct (CRA), which is a regional water conveyance system that consists of five pumping plants, 450 miles of high voltage power lines, one electric substation, four reservoirs, and 242 miles of aqueducts, siphons, canals, conduits, and pipelines terminating at Lake Mathews in Riverside County, California. In 1932, Congress provided Metropolitan with authority to acquire fee ownership of the CRA right-of-way (fee property) as well as additional land needed to support the operations and maintenance of the CRA. Metropolitan acquired ownership of the fee property roughly between 1932 and 1941. Metropolitan is responsible for operating, maintaining, rehabilitating, and repairing the CRA and its various components. The Copper Basin Reservoir, one of Metropolitan's four reservoirs along the CRA, is a critical hydraulic component of the CRA that enables Metropolitan to balance and control aqueduct flows. Copper Basin Reservoir was constructed in 1938 and holds approximately 24,200 acre-feet of water with a surface area of approximately 427 acres. Water from the Gene Pumping Plant is pumped to the Copper Basin Reservoir, and then flows by gravity to the Iron Mountain Pumping Plant, approximately 70 miles from Copper Basin Reservoir. Copper Basin Reservoir has a concrete arch dam with a discharge structure at the base that contains a debris rack, a 60-inch diameter outlet pipe, a 54-inch by 54-inch slide gate valve, and a 54-inch fixed cone (Howell-Bunger) discharge valve. The slide gate valve and discharge valve are used to drain the reservoir in the event of an emergency and are not used for maintaining reservoir levels.

## **1.2 Purpose and Need**

The purpose of the Copper Basin Discharge Valve Replacement and Access Road Improvements Project (proposed Project) is to replace the discharge valve, rehabilitate the slide gate valve, replace or rehabilitate appurtenant structures, and improve the existing access road to facilitate construction and operation of the proposed Project. The valves have been in operation for over 80 years and have passed their expected service life. Additionally, segments of the approximately 1.66-mile-long dirt access road between the outlet structure at Copper Basin Reservoir and the canyon floor that leads to the base of Copper Basin Dam are too steep, are subject to frequent erosion, and would not support the types of construction equipment required to complete the proposed Project.

## **1.3 Project Location and Land Use**

The proposed Project is located at Copper Basin Reservoir in the Colorado Desert, approximately 5 miles west of Parker Dam and the border between California and Arizona within unincorporated San Bernardino County. Land use surrounding the proposed Project site is undeveloped open space. Figure 1-1 provides an overview of the Project's regional location.

**Figure 1-1. Project Regional Location**

## 1.4 Proposed Project

The proposed Project would rehabilitate the slide gate valve and replace the discharge valve within the Copper Basin Dam valve house; install new conduit and electrical components within the valve house; install three new concrete pads and electrical components 250 feet southwest of the Copper Basin Dam; install and anchor-in-place approximately 250 feet of above-ground electrical conduit from the new concrete pads to Copper Basin Dam; replace the ladder on the dam face; install a new catwalk and stairs immediately downstream of and adjacent to the valve house; remove and reconstruct two existing concrete weirs approximately 125 feet downstream of Copper Basin Dam; and install electrical conduit and instrumentation from the two weirs along the catwalk to the valve house. Project staging is proposed at three existing staging/operations areas along the west side of the reservoir as noted in Figure 1-2. An existing road provides access below the dam.

The proposed Project would improve approximately 1.66 miles of the existing dirt access road around the perimeter of Copper Basin Reservoir to facilitate safe access to the base of Copper Basin Dam. Improvements to this existing dirt access road include re-grading the road; paving steep segments of road and installing metal beam guard railing for safety; constructing Arizona crossings at drainage crossing locations; installing v-ditches and riprap outlet structures along the access road to control runoff; and installing vehicle turn out areas and safety signs.

The proposed Project is discussed in greater detail in the following sections.



Copper Basin Discharge Valve Replacement and Access Road Improvements Project  
**PROPOSED MITIGATED NEGATIVE DECLARATION**

**Figure 1-2. Project Overview**



### 1.4.1 Slide Gate Valve and Discharge Valve Rehabilitation



*Photo 1. Existing valve house. The discharge valve is located in the lower floor of the valve house.*

The slide gate valve, discharge valve, and associated control equipment are located in a concrete structure with a low-pitched concrete roof, referred to as the valve house. The lower floor of the valve house is approximately 8 feet above the canyon floor and contains the slide gate valve and discharge valve. The 54-inch by 54-inch slide gate valve would be rehabilitated with new parts and the 54-inch discharge valve and actuator would be replaced in-kind with new structures. Portions of the concrete just below the discharge valve have also deteriorated and would be rehabilitated with reinforced steel and concrete. Photo 1 shows a photograph of the existing valve house.

Before the discharge valve can be replaced, an isolation device would be temporarily installed on the water-side inlet of the dam to prevent water from entering the discharge pipe. The discharge inlet is located approximately 165 feet below water level. Installation of the isolation device would require divers to remove the debris rack in order to install the plug. The divers would remove the plug after the discharge valve replacement work is complete. The discharge valve would be tested following completion of construction, which requires opening and closing the discharge valve.

### 1.4.2 Appurtenant Structures

#### Electrical Components

New conduits, wiring, and electrical components would be installed in the valve house to replace and upgrade the power dam monitoring systems, controls, and transmit signals to the supervisory control and data acquisition system. These components would also measure flows downstream of Copper Basin Dam and would connect to existing instrumentation at the two weirs approximately 125 feet downstream.

The existing transformer located approximately 250 feet southwest of Copper Basin Dam will be replaced with a new transformer and other associated electrical and telecommunication equipment. The equipment would be used to provide power, control of the discharge valve, slide gate valve, bypass valve, and telecommunication systems, and would be installed on three new concrete pads in



*Photo 2. Electrical concrete pad area with electrical and telecommunication equipment.*



Copper Basin Discharge Valve Replacement and Access Road Improvements Project  
**PROPOSED MITIGATED NEGATIVE DECLARATION**

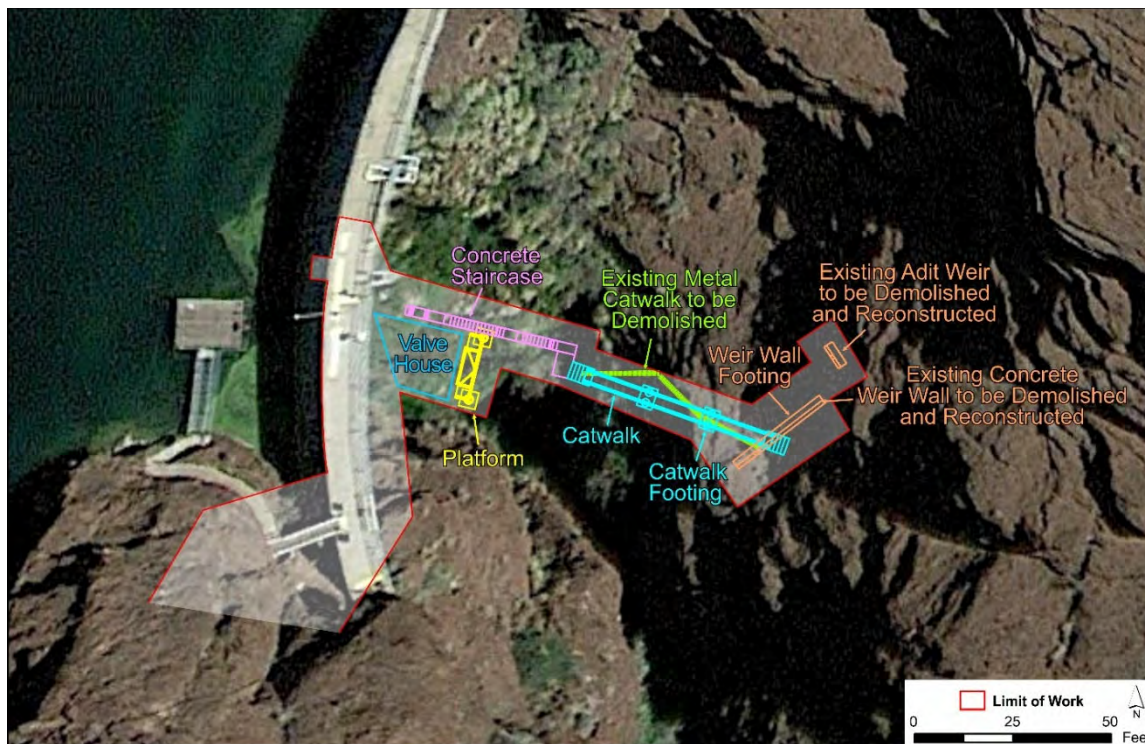
the same vicinity (see Photo 2). The six-inch thick concrete pads would measure approximately 90 inches by 128 inches, 86 inches by 132 inches, and 72 inches by 96 inches. Two 36-inch by 36-inch handhole boxes would also be installed adjacent to the concrete pads to provide access to subsurface equipment.

Approximately 250 feet of above-ground electrical conduit would be replaced to connect the equipment between the new concrete pads and the valve house. This equipment would be accessed via a 135-foot-long side road that would be constructed as part of the Project. The side road would traverse from the access road to the concrete pad containing the transformer and electrical equipment and would connect with the access road in two locations.

## Weirs

An existing weir (Weir 1) located approximately 125 feet downstream of Copper Basin Dam collects and measures water that leaks through the valves and the dam at the downstream end of the valve house foundation, which allows Metropolitan to obtain credit for water that leaks back into the Colorado River system. An additional weir (Weir 2) performs a similar function from an adjacent adit (i.e., a horizontal tunnel) that discharges seepage water, as noted in Figure 1-3. The two existing weirs would be demolished and reconstructed with concrete in the same location, followed by the installation of wiring, conduit, and instrumentation from the discharge valve structure along the catwalk to the two reconstructed weirs. Weir 1 would be approximately 26 feet wide by 2 feet tall by 1 foot thick and would contain a v-notch to allow water to pass through. Weir 2 would be approximately 56 inches wide by 30 inches tall by 12 inches thick. An existing road provides access below the dam.

**Figure 1-3. Dam Valve Structure Improvements**



## Ladder

The existing ladder would be replaced with a new galvanized steel ladderway system consisting of ladders, rest platforms, and a fence fall guard surrounding the entire ladderway heights, conforming to the Division of Occupational Safety and Health of California and Federal Occupational Safety and Health Administration standards. The new ladderways would follow the dam face contour and utilize the existing discharge valve house platforms as the termination point. Photo 3 shows the location of the existing ladder.



*Photo 3. Existing valve house with ladder to the upper right and catwalk to the bottom center. A new galvanized steel walkway would replace the catwalk, and a steel grate platform would be constructed in front of the valve house. The walkway would connect to the platform by a new concrete staircase.*

## Catwalk, Platform, and Concrete Staircase

The existing catwalk would be removed and replaced with an approximately 48-inch-wide galvanized steel walkway with steel guardrails that provides foot access from Weir 1 to the valve house (refer to Photo 3 and Figure 1-3). The new catwalk would be anchored in place using 24-inch diameter concrete piers or pilings, elevated approximately two feet above the surface water level and would include concrete steps at the entrance and exit points. Two boulders measuring approximately 7 feet in diameter within the stream channel would be relocated prior to the installation of the catwalk.

The upstream end of the catwalk would connect to a new 54-inch-wide concrete staircase with steel guardrails and would extend from the end of the catwalk to the north side of the valve house (see Figure 1-3). A new galvanized steel grate platform would be constructed in front of the valve house to provide access to the discharge valve. The platform would be anchored in place using 24-inch diameter concrete piers or pilings.

### 1.4.3 Access Road Improvements

The proposed Project would improve approximately 1.66 miles of a 10-foot-wide existing, unpaved access road, which is currently subject to frequent erosion and is too steep to support the types of construction equipment required to complete the proposed Project. Table 1-1 and Figure

1-2 provide the locations of access road improvements, including slope stability improvements, Arizona crossings, v-ditches, and outlet structures.

### **Grading**

In order to facilitate the improvements, the access road would first need to be graded. The grading would result in approximately 1,955 cubic yards of material that will not be used to construct the proposed Project. In order to accommodate the installation of the new v-ditch system, the limits of grading may extend outside of the existing roadway in some areas in order to keep a safe slope of 1.5:1 per geotechnical specifications.

### **Concrete Paving**

The 10-foot-wide access road would be graded and segments would be improved with a nine-inch-thick layer of gunite (a dry mixed form of sprayed concrete typically containing fine particles) along all areas of the access road where slopes are 20 percent or greater to create a roughened surface safe for vehicle access. The concrete segments would be reinforced with welded wire fabric and include 24-inch-deep rebar-reinforced concrete footings spaced at a maximum of every 12 feet.

### **Arizona Crossings**

Arizona crossings would be installed where natural drainage features cross the access road. The Arizona crossings consist of nine-inch-thick concrete crossings reinforced with welded wire fabric and 36-inch-thick riprap energy dissipation structures lined with geotextile fabric on the downstream side of the crossing. The crossings would match the upstream and downstream grade of the drainage feature.

### **V-ditches and Outlet Structures**

Concrete v-ditches would be constructed along the extent of the access road in order to capture and convey runoff to newly constructed outlet structures. The v-ditches would be 12-to-30 inches wide and 6-to-18 inches deep, depending on the size of the drainage area. The outlet structures would consist of a geotextile fabric liner and a 36-inch-thick layer of riprap to dissipate flows received from the v-ditch system.

**Table 1-1. Access Road Improvement Locations**

<b>Improvement Type</b>	<b>Station</b>	<b>Map Sheet</b>
Concrete Paving	0+27.00 to 1+76.00	Figure 1-4; Sheet 4 of 15
	3+75.00 to 4+60.00	Figure 1-4; Sheet 4 of 15
	7+45.00 to 7+81.00	Figure 1-4; Sheet 4 of 15
	42+58.00 to 43+04.00	Figure 1-4; Sheet 9 and 10 of 15
	45+52.80 to 45+95.00	Figure 1-4; Sheet 10 of 15
	52+24.00 to 52+54.00	Figure 1-4; Sheet 10 and 11 of 15
	54+73.00 to 55+16.00	Figure 1-4; Sheet 11 of 15
	55+75.00 to 56+59.00	Figure 1-4; Sheet 11 of 15
	60+07.00 to 60+54.00	Figure 1-4; Sheets 12 of 15

Copper Basin Discharge Valve Replacement and Access Road Improvements Project  
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**Table 1-1. Access Road Improvement Locations**

Improvement Type	Station	Map Sheet
	61+07.00 to 62+80.00	Figure 1-4; Sheet 12 of 15
	72+30.00 to 72+93.00	Figure 1-4; Sheet 13 of 15
	74+23.00 to 75+71.00	Figure 1-4; Sheet 14 of 15
	77+10.00 to 78+33.00	Figure 1-4; Sheet 14 and 15 of 15
	79+60.00 to 87+30.00	Figure 1-4; Sheet 15 of 15
Arizona Crossing	19+55.14 to 20+15.14	Figure 1-4; Sheet 7 of 15
	22+38.00 to 23+78.00	Figure 1-4; Sheet 7 and 8 of 15
	25+00.00 to 25+90.00	Figure 1-4; Sheet 7 and 8 of 15
	27+85.00 to 29+20.00	Figure 1-4; Sheet 8 and 9 of 15
	29+85.00 to 30+40.00	Figure 1-4; Sheet 8 and 9 of 15
	32+87.00 to 33+95.00	Figure 1-4; Sheet 8 and 9 of 15
	39+67.00 to 40+12.00	Figure 1-4; Sheet 9 of 15
	46+48.22 to 47+08.22	Figure 1-4; Sheet 10 of 15
	49+01.57 to 49+71.57	Figure 1-4; Sheet 10 of 15
	53+32.00 to 54+12.00	Figure 1-4; Sheet 11 of 15
	58+12.00 to 58+92.00	Figure 1-4; Sheet 11 of 15
Riprap Outlet/Drop Inlet Structure	2+82.00	Figure 1-4; Sheet 4 of 15
	6+24.00	Figure 1-4; Sheet 4 of 15
	12+34.00	Figure 1-4; Sheet 5 of 15
	14+48.50	Figure 1-4; Sheet 6 of 15
	18+28.00	Figure 1-4; Sheet 7 of 15
	32+12.00	Figure 1-4; Sheet 8 and 9 of 15
	36+93.00	Figure 1-4; Sheet 9 of 15
	38+53.00	Figure 1-4; Sheet 9 of 15
	42+10.00	Figure 1-4; Sheet 9 and 10 of 15
	48+03.00	Figure 1-4; Sheet 10 of 15
	63+63.90	Figure 1-4; Sheet 12 of 15



Copper Basin Discharge Valve Replacement and Access Road Improvements Project  
**PROPOSED MITIGATED NEGATIVE DECLARATION**





Copper Basin Discharge Valve Replacement and Access Road Improvements Project  
**PROPOSED MITIGATED NEGATIVE DECLARATION**





Copper Basin Discharge Valve Replacement and Access Road Improvements Project  
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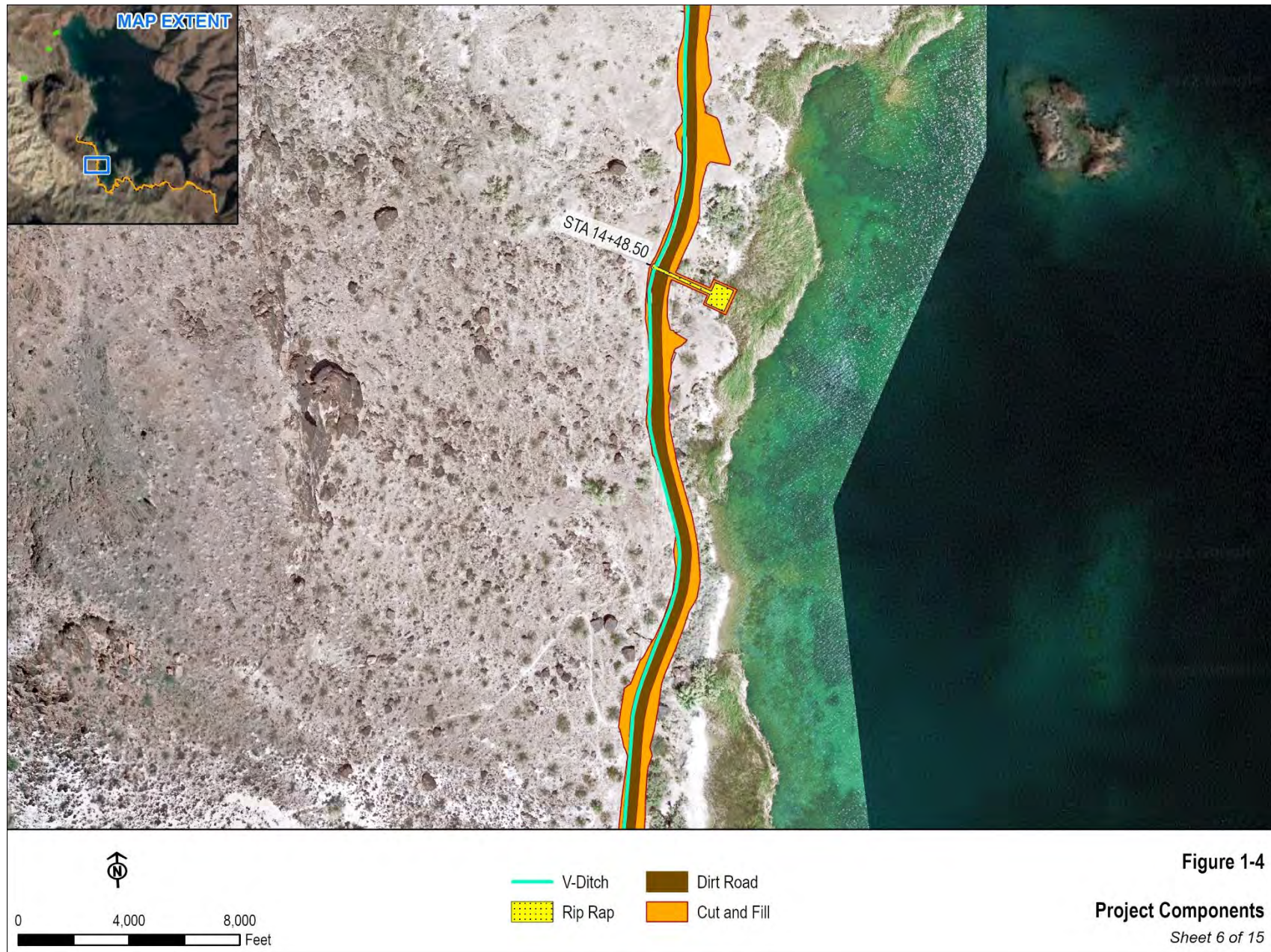


Copper Basin Discharge Valve Replacement and Access Road Improvements Project  
**PROPOSED MITIGATED NEGATIVE DECLARATION**





Copper Basin Discharge Valve Replacement and Access Road Improvements Project  
**PROPOSED MITIGATED NEGATIVE DECLARATION**



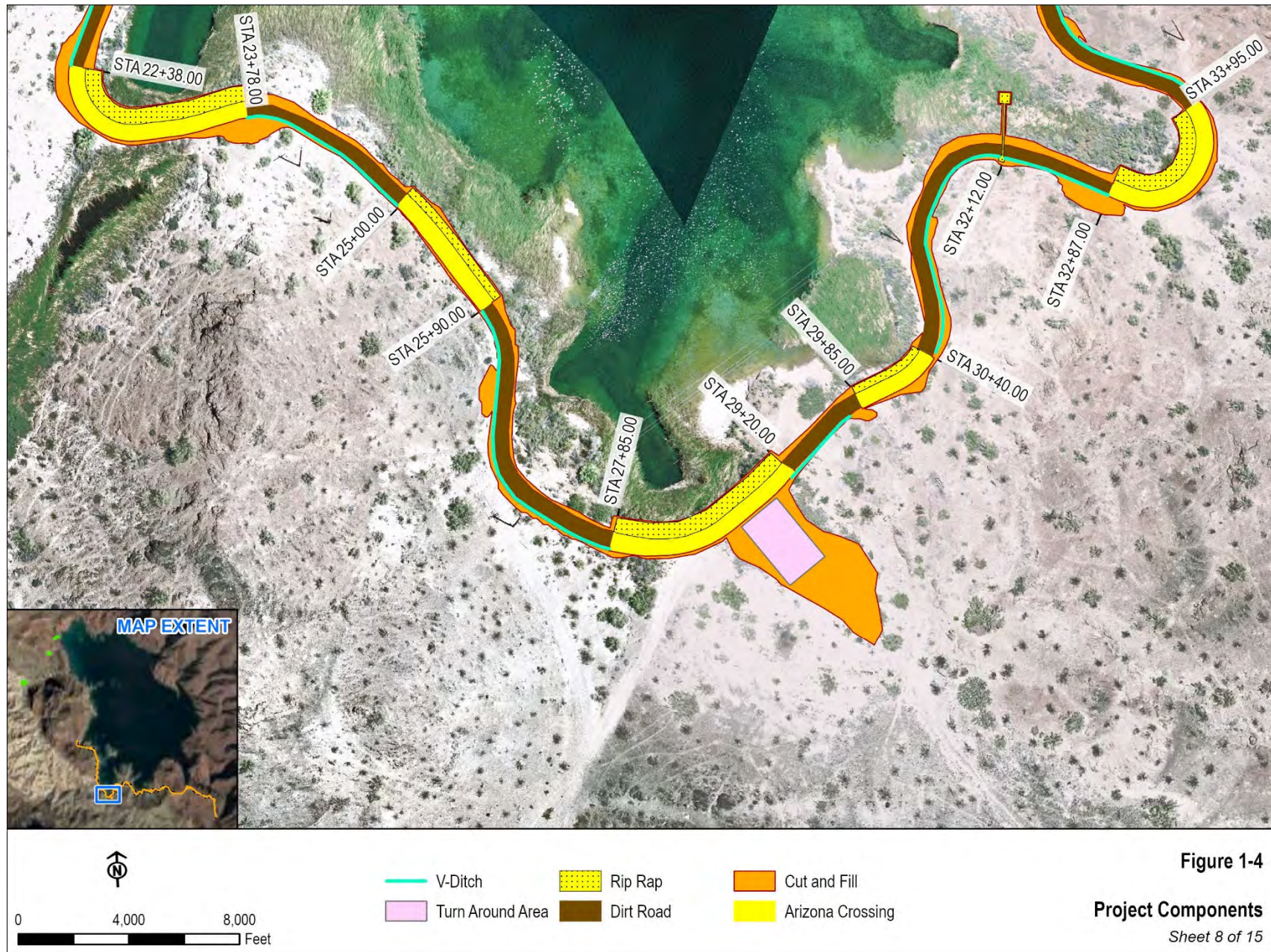


Copper Basin Discharge Valve Replacement and Access Road Improvements Project  
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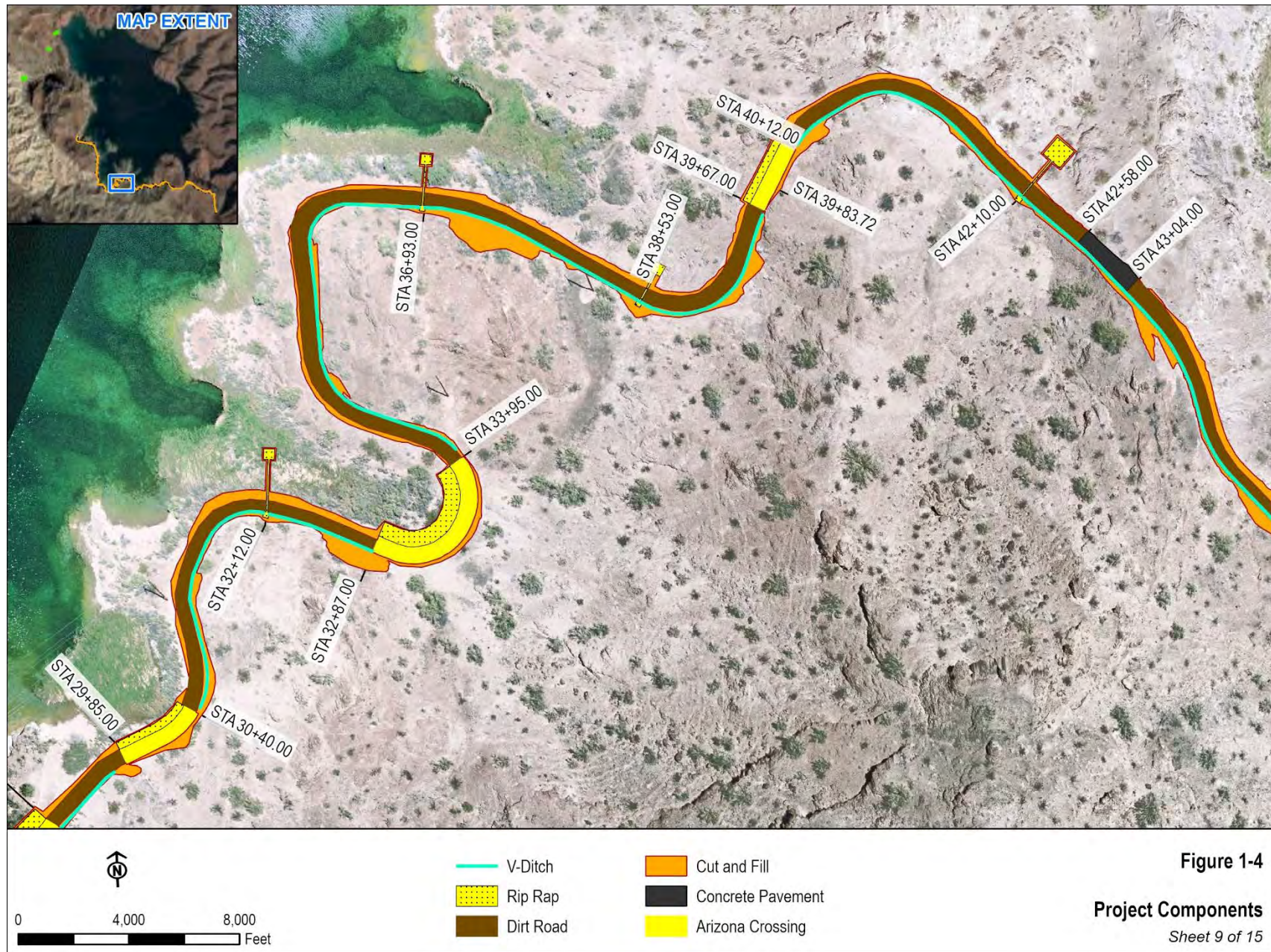


Copper Basin Discharge Valve Replacement and Access Road Improvements Project  
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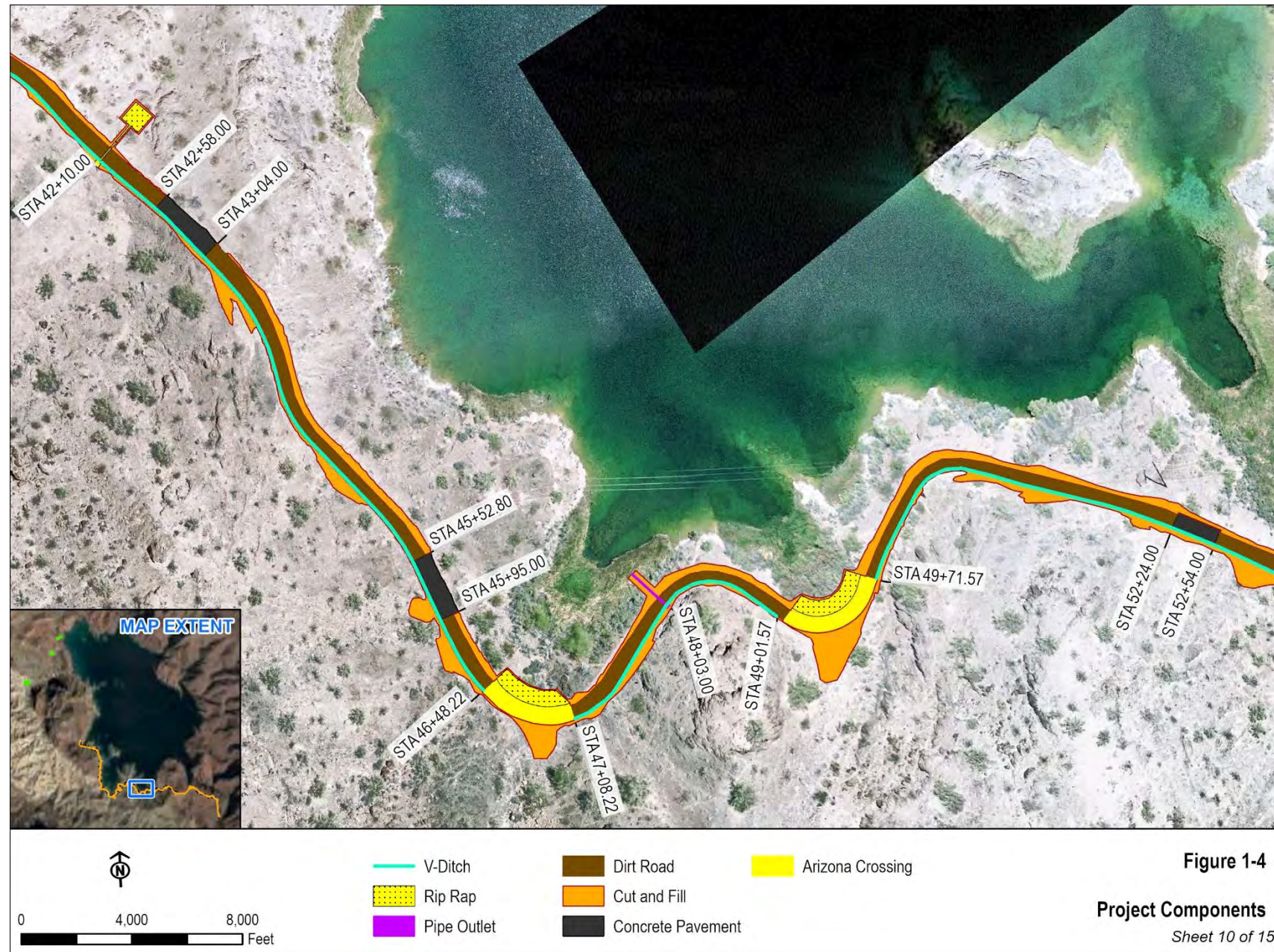


Copper Basin Discharge Valve Replacement and Access Road Improvements Project  
**PROPOSED MITIGATED NEGATIVE DECLARATION**



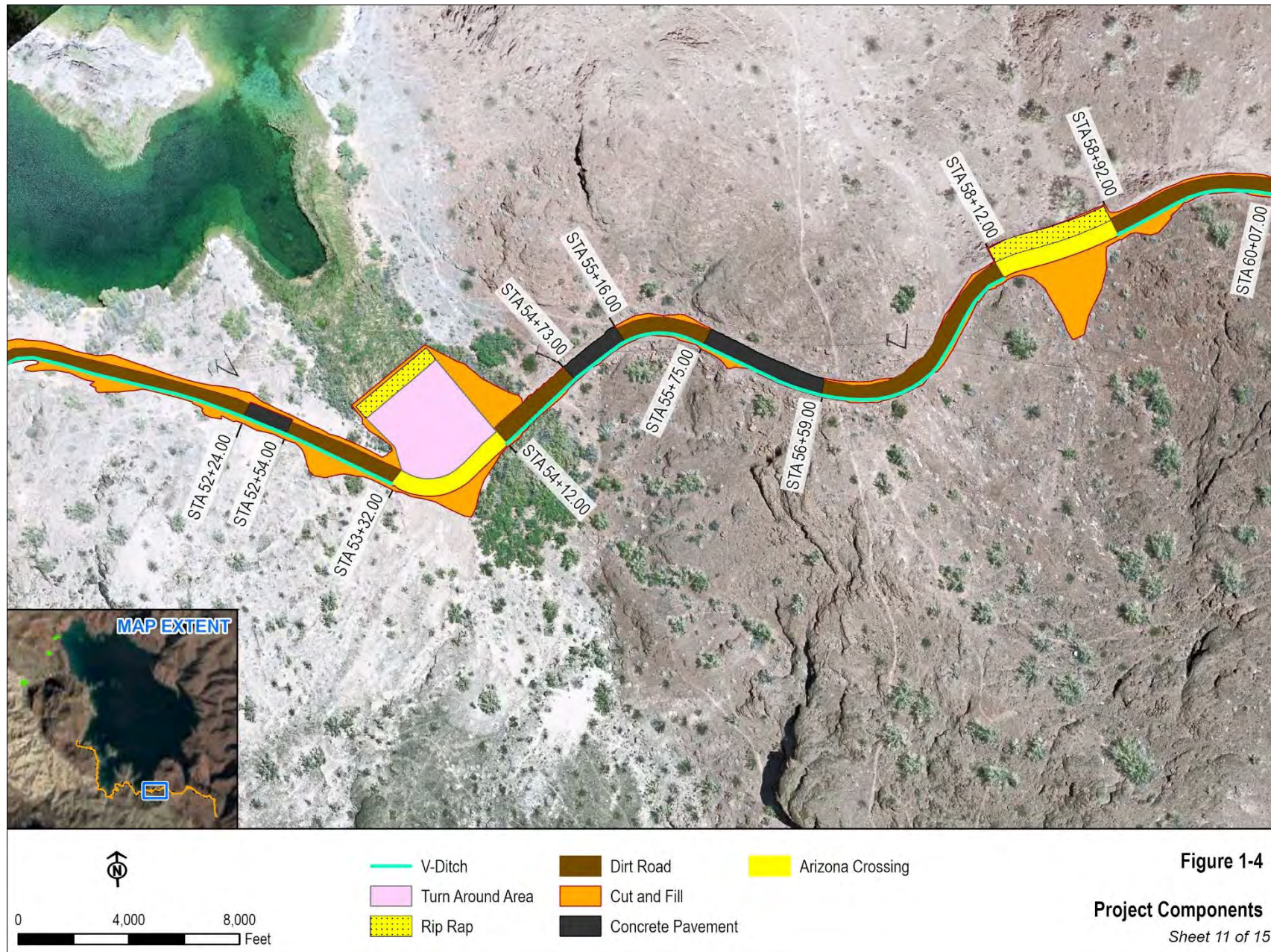


Copper Basin Discharge Valve Replacement and Access Road Improvements Project  
**PROPOSED MITIGATED NEGATIVE DECLARATION**



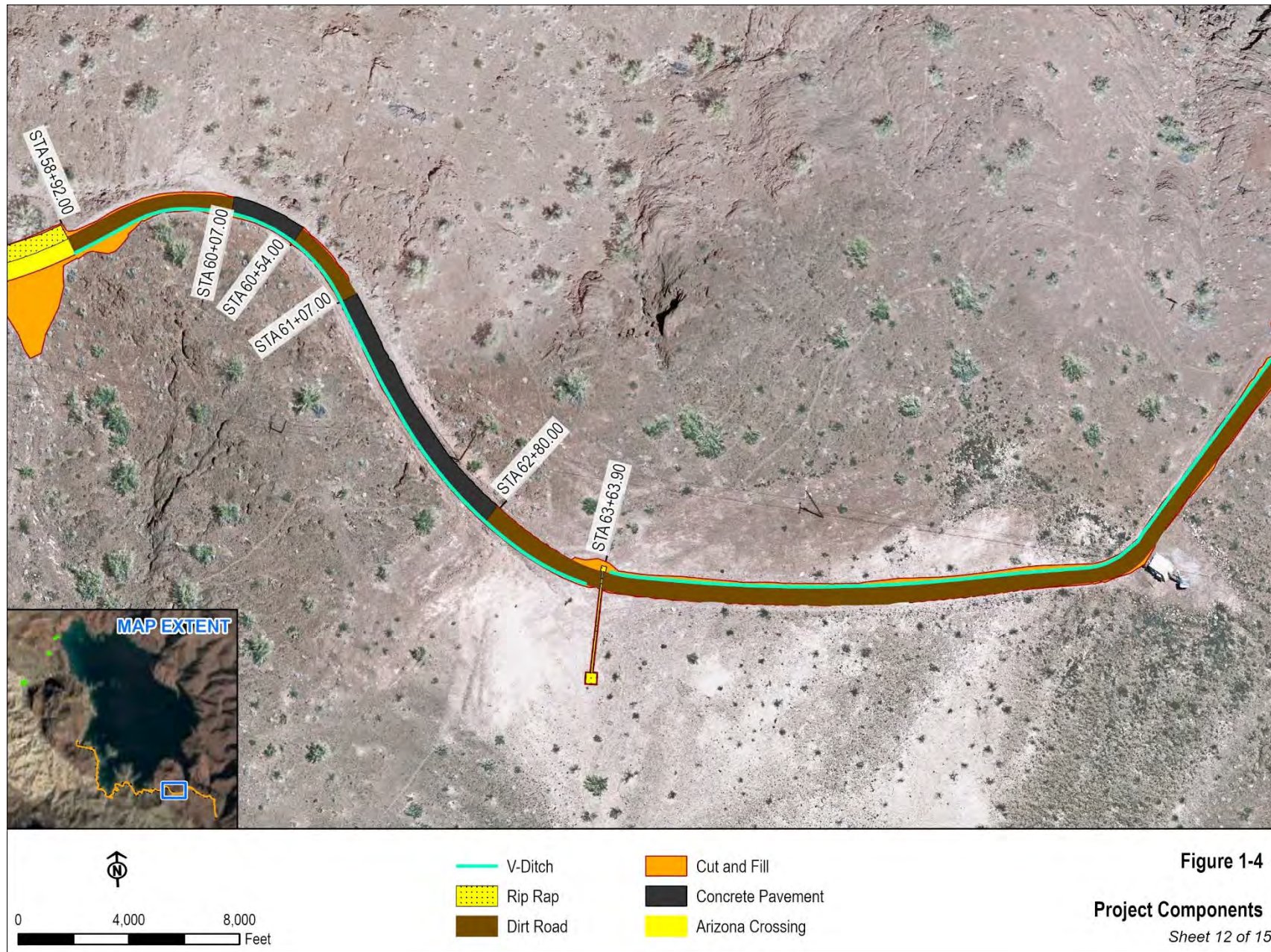


Copper Basin Discharge Valve Replacement and Access Road Improvements Project  
**PROPOSED MITIGATED NEGATIVE DECLARATION**



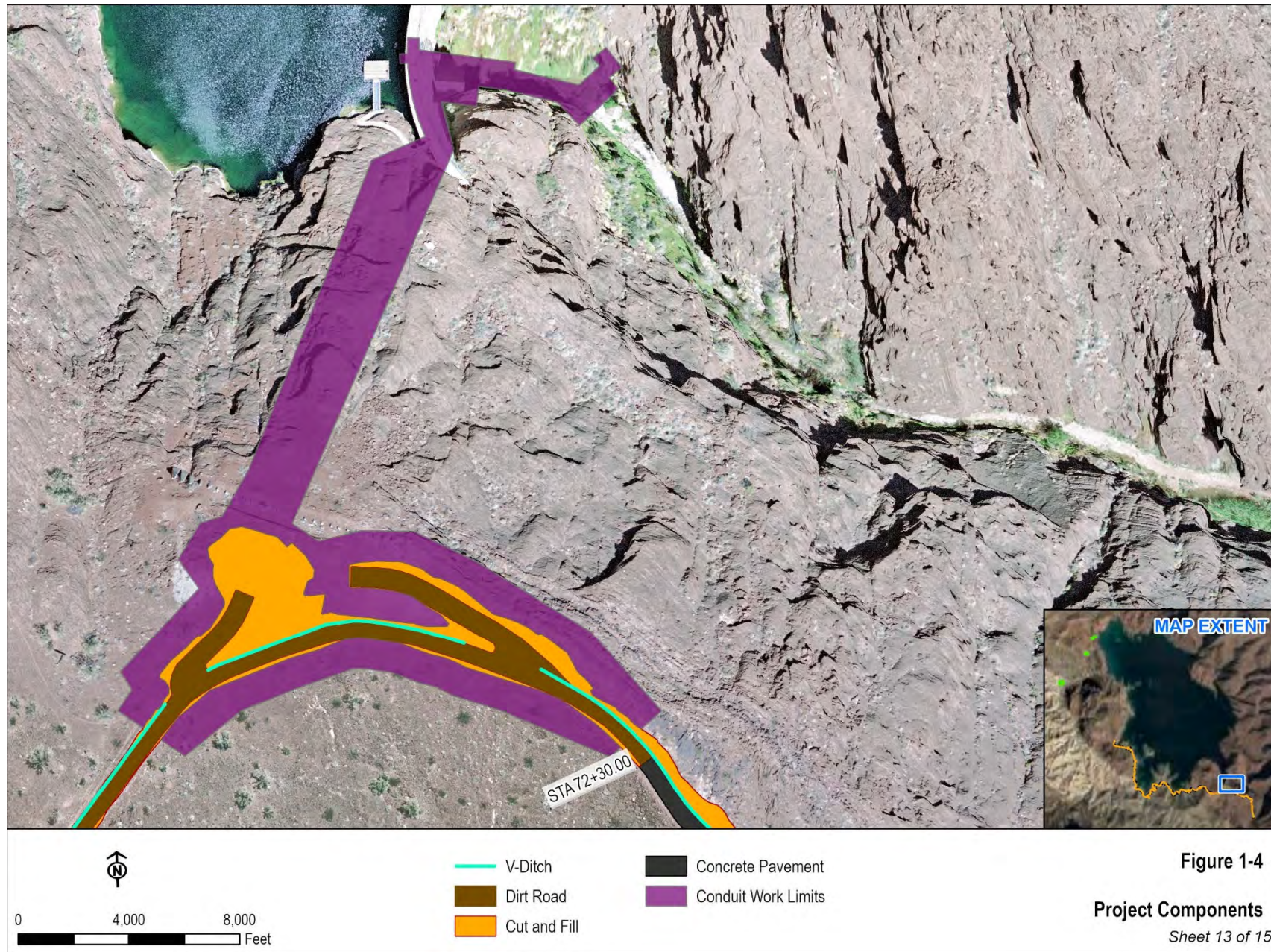


Copper Basin Discharge Valve Replacement and Access Road Improvements Project  
**PROPOSED MITIGATED NEGATIVE DECLARATION**



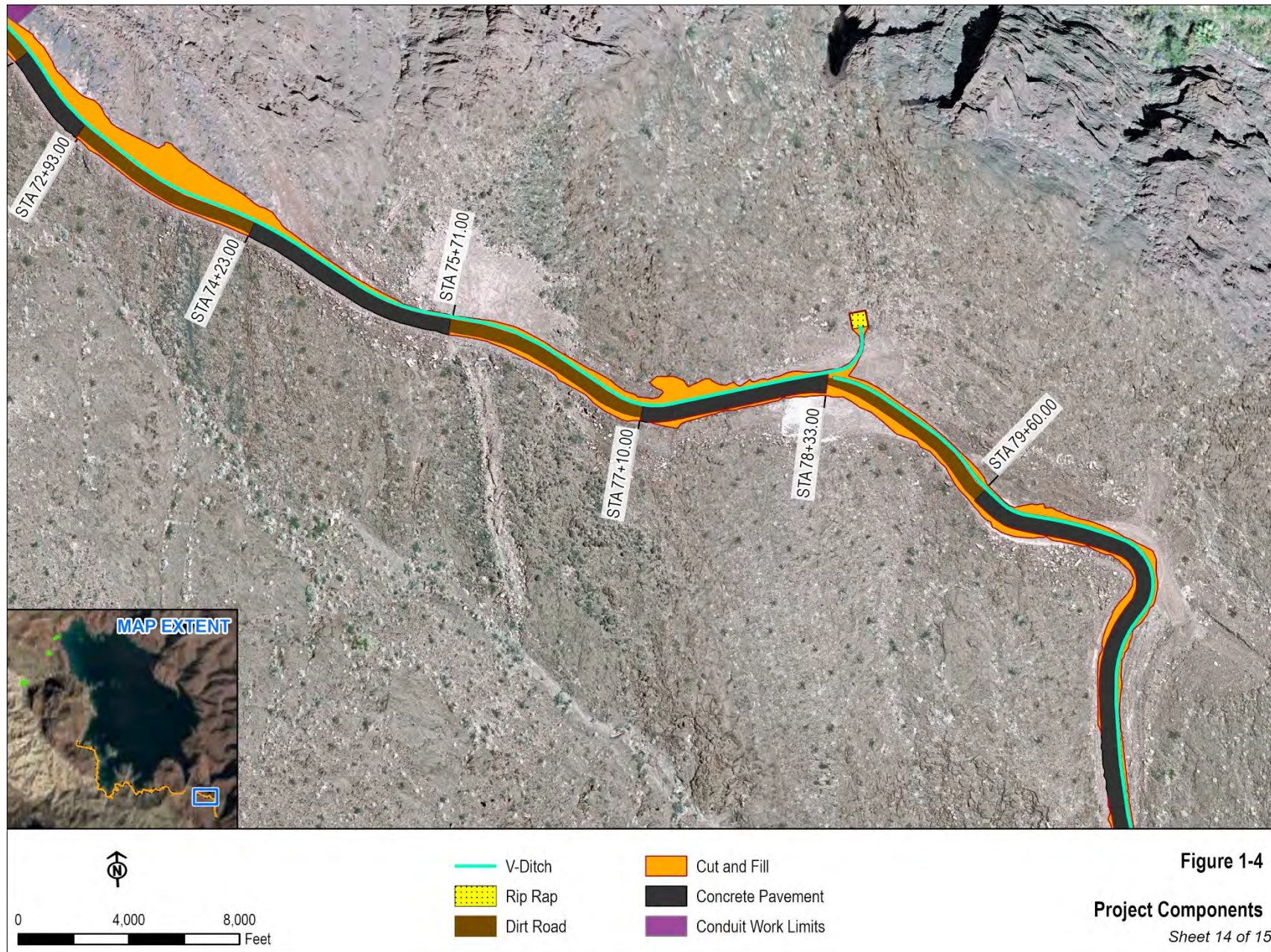


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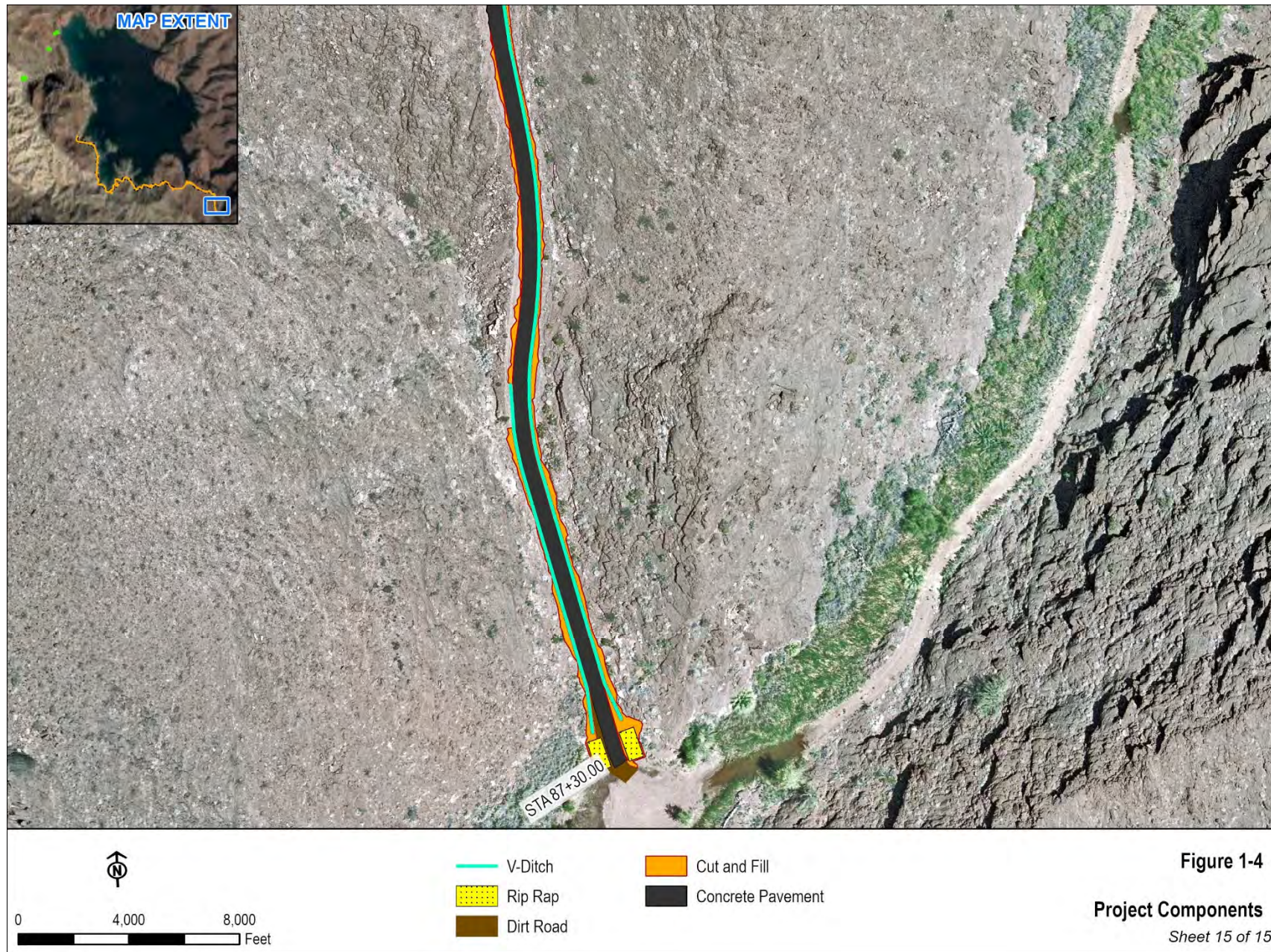


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#### **1.4.4 Construction Details**

Construction is expected to take approximately two years. Construction activities would occur Monday through Thursday between 6:00 a.m. and 8:00 p.m. Construction equipment and materials would be transported to three staging locations (see Figure 1-2 and Figure 1-4; Sheet 1 through 3 of 15). Access to the overall Project area would occur via State Route 62 and U.S. Route 95 (US 95). From US 95, access to the Project site would be via Parker Dam Road, MWD Road, and Trail End Camp Road.

Construction would include a crew of approximately 18 people. One temporary construction trailer would be located within one of the staging areas. A generator may be used to provide temporary power for the construction trailer. Typical construction equipment required for Project construction would include backhoes, loaders, excavators, concrete pumps, dump trucks, and water trucks. Table 1-2 provides the Project construction details including location, Project components, construction duration, equipment, imports, exports, construction workers, and total disturbance area.

Due to the difficult terrain of the existing access road, the construction contractor would have the option of using a barge on Copper Basin Reservoir to transport materials, equipment, and personnel to the Project site. Potential barge access routes are identified in Figure 1-2. Off-site refueling may not be feasible due to the remote location of the Project. As such, fuel may be stored at the staging areas, and refueling may be done on site.

The construction contractor would likely mix concrete on site at one of the staging areas to produce gunite, as it is infeasible to regularly travel to the nearest concrete plant, which is approximately two to three hours away from Copper Basin Reservoir.

#### **Standard Construction Practices**

As part of standard construction practice, Metropolitan would incorporate a variety of standard measures as part of the proposed Project. These measures, which are defined in the contractor specifications, are included in and implemented as part of all Metropolitan construction projects. These practices are relatively standardized and/or compulsory (i.e., regulatory requirement); they represent sound and proven methods to reduce potential effects of construction activities. Specific standard construction practices identified for the proposed Project are discussed throughout the document.

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**Table 1-2. Project Construction Details**

	Project Components	Construction Duration	Onsite Construction Equipment List	Imports	Exports	Construction Workers	Total Disturbance Area (Acres)
Access Road Improvements/ Laydown Areas	Vegetation Removal, Road Grading, Guniting, Arizona Crossings, V-ditches and Outlet Structures	6-12 months	1-Rubber Tire Front Loader 1-Skip Loader 1-Backhoe 1-Excavator 1-Skid Steer 1-Dump Truck 1-Water Truck 1-Truck-Mounted Concrete Pump 2-Compressors 1-Water Truck	<ul style="list-style-type: none"> <li>750 CY concrete</li> <li>9706 CY riprap</li> </ul>	<ul style="list-style-type: none"> <li>0</li> </ul>	10	4.66
Electrical Upgrades	Transformer, Concrete Pads, Conduit, and Electrical Equipment	4-6 months	1-Backhoe 1-Excavator 1-Skid Steer 1-Water Truck 1-Small Concrete Pump 1-Compressor 1-Generator	<ul style="list-style-type: none"> <li>60 CY concrete</li> </ul>	<ul style="list-style-type: none"> <li>145 CY earthen material</li> </ul>	6	0.63
Valve House	Discharge Structure Rehabilitation, Weirs, Catwalk, Staircase	6-12 months	1-Backhoe 1-Skid Steer 1-Extendable Boom Forklift 1-Barge Mounted Crane 1-Compressor 1-Generator	0	0	10	0.13
Field Office	Staging	1.5-2 years	1-Generator	0	0	N/A	N/A



### 1.4.5 Operation and Maintenance

Once the proposed Project is completed, California Division of Safety of Dams (DSOD) and Metropolitan would continue to conduct operations and maintenance (O&M) activities, including valve tests, at the Copper Basin Reservoir. Personnel required to support O&M activities would typically include approximately six to eight employees from Metropolitan and DSOD. Metropolitan would exercise the valve a maximum of twice per year. Valve testing is required by DSOD once every three years and consists of closing the slide gate valve and opening the discharge valve to exercise and discharge a small amount of water in the chamber between the two valves. These activities would require up to three vehicles utilizing the improved access road to reach Copper Basin Dam.

Weir measurements, which require one to two employees and one vehicle, would be taken at least one a month. Maintenance of the access road would be reduced after it is improved, as compared to the existing condition, because the proposed Project would minimize potential erosion issues. If the improved access road is damaged after a storm, loaders would be used to transport fill materials, and graders and scrapers would be used to smooth the roads.

## 1.5 Other Public Agency Approvals Required

Table 1-3 lists the anticipated permits and approvals which may be required for proposed Project-related activities.

**Table 1-3. Permits and Approvals Which May Be Required**

Agency / Department	Permit / Approval	Description
<b>Federal</b>		
U.S. Army Corps of Engineers (USACE)	Clean Water Act Section 404 Permit	Requires USACE to review impacts to “waters of the US” (bed, banks, channel, or associated riparian areas of a river, stream, or lake), including impacts to wildlife and vegetation from sediments, diversions, and other disturbances.
<b>State of California</b>		
California Department of Fish and Wildlife (CDFW)	Streambed Alteration Agreement	Requires CDFW to review impacts to “waters of the state” (bed, banks, channel, or associated riparian areas of a river, stream, or lake), including impacts to wildlife and vegetation from sediments, diversions, and other disturbances.
Regional Water Quality Control Board (RWQCB)	General Construction Permit, Waste Discharge Requirements, and Clean Water Act Section 401 Permit	Project proponents are required to submit a Notice of Intent to the RWQCB for coverage under the General Construction Permit for activities with disturbance over 1 acre. Waste Discharge Requirements are necessary when non-federal “waters of the state” are present. Section 401 permits are necessary when Section 404 permits are required.
<b>Regional</b>		
Mojave Desert Air Quality Management District (MDAQMD)	Fugitive Dust Control Plan	MDAQMD approval of Dust Control Plan consistent with requirements of MDAQMD Rule 403, which is applicable to construction activity or operations on disturbed surface areas.

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**Table 1-3. Permits and Approvals Which May Be Required**

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<b>Agency / Department</b>	<b>Permit / Approval</b>	<b>Description</b>
	Portable Equipment Registration or Air Quality Permit to Operate	Portable equipment subject to local air quality permitting requirements, such as generators or air compressors, must either be registered under the California Air Resources Board (CARB) Portable Equipment Registration Program (PERP) or obtain a local air quality permit to operate.

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## 2. Initial Study

This document is a proposed Initial Study and Mitigated Negative Declaration (IS/MND), which addresses the potential environmental effects resulting from the proposed Project.

### 2.1 Legal Authority and Findings

This Initial Study was prepared in accordance with the California Environmental Quality Act (CEQA) Guidelines and relevant provisions of CEQA of 1970, as amended.

**Initial Study.** Section 15063 of the CEQA Guidelines describes an Initial Study as a preliminary method for analyzing the potential environmental consequences of a project. The purposes of an Initial Study include:

- (1) Providing the Lead Agency with the necessary information to decide whether to prepare an Environmental Impact Report (EIR) or a Negative Declaration;
- (2) Enabling the Lead Agency to modify a project during the planning stage by mitigating adverse impacts prior to preparation of CEQA documentation, thus avoiding the need to prepare an EIR; and
- (3) Providing documentation of the factual basis for the finding in a Mitigated Negative Declaration that the significant environmental impacts of a project have been mitigated to a less-than significant level.

**Negative Declaration or Mitigated Negative Declaration.** Section 15070 of the CEQA Guidelines states that a public agency shall prepare a Negative Declaration or Mitigated Negative Declaration for a project subject to CEQA when:

- (a) The Initial Study shows that there is no substantial evidence, in light of the whole record before the agency, that the project may have a significant effect on the environment; or
- (b) The Initial Study identifies potentially significant effects but:
  1. Revisions in the project plans or proposals made by, or agreed to by the applicant before a proposed Mitigated Negative Declaration and Initial Study are released for public review would avoid the effects or mitigate the effects to a point where clearly no significant effects would occur; and
  2. There is no substantial evidence, in light of the whole record before the agency, that the project as revised may have a significant effect on the environment.

An IS/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 included herein.

### 2.2 Impact Analysis and Significance Classification

The following sections of this IS/MND provide discussions of the possible environmental effects of the proposed Project for specific issue areas as identified on the CEQA Environmental Checklist

Form in Appendix G of the CEQA Guidelines (as updated in December 2018). For each issue area, 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. A social or economic change related to a physical change 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**

- |  |   |
|--|---|
| a) Project Title:                      | Copper Basin Discharge Valve Replacement and Access Road Improvements Project<br>(proposed Project)   |
| b) Lead Agency Name and Address:       | The Metropolitan Water District of Southern California<br>700 North Alameda Street<br>Los Angeles, CA 90012   |
| c) Contact Person and Phone Number:    | Daniel Cardoza<br>Environmental Specialist<br>The Metropolitan Water District of Southern California<br>(213) 217-5602  |
| d) Project Location:                   | The proposed Project is located at Copper Basin Dam in the Colorado Desert, approximately 5 miles west of Parker Dam along the Colorado River and the border of between California and Arizona. The proposed Project is located within Metropolitan’s fee property in unincorporated San Bernardino County. Figure 1-1 provides an overview of the Project location and components. |
| e) Project Sponsor’s Name and Address: | The Metropolitan Water District of Southern California<br>700 North Alameda Street<br>Los Angeles, CA 90012   |

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- f) General Plan Designation: The Project is in the eastern portion of unincorporated San Bernardino County's North Desert Region. The General Plan Designation is RLM (Resource/Land Management) (San Bernardino County, 2020a).
- g) Zoning: The Project site is within the Resource Conservation Land Use Zoning District (San Bernardino County, 2022a).
- h) Description of Project: Refer to Section 1 (Project Description).
- i) Surrounding Land Uses and Setting: The proposed Project is in a remote area of the Colorado Desert predominantly surrounded by undeveloped open space. Public water supply infrastructure, including the Gene Pumping Plant and Gene Wash Reservoir, are approximately 3.3 miles northeast of Copper Basin Dam.
- j) Other Agencies Whose Approval May be Required: Refer to Table 1-3.
- k) 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? Metropolitan has conducted consultation pursuant to Public Resources Code Section 21080.3.1 and has made an impact determination. See Section 3.18.

## 2.4 Environmental Factors Potentially Affected

The environmental factors checked below would be potentially affected by this Project, requiring implementation of mitigation. These environmental factors are indicated by "Less Than Significant With Mitigation Incorporated" in the checklists throughout Section 3.

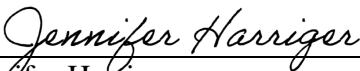
- |  |   |  |
|--|---|--|
| <input type="checkbox"/> Aesthetics                      | <input type="checkbox"/> Agriculture & Forestry Resources | <input type="checkbox"/> Air Quality                                   |
| <input checked="" type="checkbox"/> Biological Resources | <input type="checkbox"/> Cultural Resources               | <input type="checkbox"/> Energy  |
| <input type="checkbox"/> Geology/Soils                   | <input type="checkbox"/> Greenhouse Gas Emissions         | <input type="checkbox"/> Hazards & Hazardous Materials                 |
| <input type="checkbox"/> Hydrology/Water Quality         | <input type="checkbox"/> Land Use/Planning                | <input type="checkbox"/> Mineral Resources                             |
| <input type="checkbox"/> Noise                           | <input type="checkbox"/> Population/Housing               | <input type="checkbox"/> Public Services                               |
| <input type="checkbox"/> Recreation                      | <input type="checkbox"/> Transportation                   | <input type="checkbox"/> Tribal Cultural Resources                     |
| <input type="checkbox"/> Utilities/Service Systems       | <input type="checkbox"/> Wildfire                         | <input checked="" type="checkbox"/> 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 all potentially significant effects (a) have been analyzed adequately in an earlier EIR 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  
Manager, Environmental Planning Section

12-08-2022  
\_\_\_\_\_  
Date

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### 3. Evaluation of Environmental Impacts

The following discussion addresses impacts to various environmental resources, per the Environmental Checklist Form contained in Appendix G of the State CEQA Guidelines.

#### 3.1 Aesthetics

##### AESTHETICS

Except as provided in Public Resources Code Section 21099, would the project:

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Have a substantial adverse effect on a scenic vista?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) In non-urbanized areas, substantially degrade the existing visual character or quality of public views 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 and other regulations governing scenic quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Significance criteria established by CEQA Guidelines, Appendix G.

##### **Discussion. Would the project:**

##### *a. Have a substantial adverse effect on a scenic vista?*

**No Impact.** 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 proposed Project is located in undeveloped desert lands adjacent to Copper Basin Dam. A portion of Trail End Camp Road (approximately 2.7 miles northeast of the Project) and Parker Dam Road (approximately 3.3 miles southeast of the Project) are the closest public roads to the Project site. These roads include views of open desert landscapes and parts of the Colorado River. No other public vantagepoints such as residential areas are located within or near the Project site. Additionally, Copper Basin Dam is not accessible to the public for recreational uses.

During construction of the proposed Project, construction equipment and workers would temporarily be present along the approximately 1.66-mile-long portion of the access road and dam; however, they would not be visible to the public due to the Project's distance from these public roads. Once construction is complete, the overall visual appearance of the Project site would be similar to existing conditions. The Project includes surface-level improvements such as vegetation removal, grading work, concrete installation, drainage improvements, and riprap installation along the access road, as well as replacement and rehabilitation of existing structures at the dam's discharge valve. Due to the Project's remote location and distance from public roads, these activities would have no effect on views of the desert landscape.

Therefore, the proposed Project would not result in adverse effects on a scenic vista or degrade the existing visual character or quality of the site or its surroundings. No impact would occur.

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

**No Impact.** The nearest eligible State scenic highway to the proposed Project is State Route 62 from Interstate 10 to San Bernardino County line (Caltrans, 2022). This freeway segment is located approximately 8.7 miles southwest of the proposed Project.

Given the access road's remote location and distance from State Route 62, Project activities would not be visible from the eligible State scenic highway. Construction activities at the dam would also not be visible due to the varying terrain and distance from State Route 62. All Project components such as the paved access road, riprap, V-ditches, and discharge rehabilitation activities would result in similar visual conditions when construction is complete. The Project would not damage or alter existing views within a State scenic highway and no impacts would occur.

- c. In non-urbanized areas, substantially degrade the existing visual character or quality of public views 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 and other regulations governing scenic quality?*

**No Impact.** The proposed Project is located in a non-urbanized area and would not substantially degrade the existing visual character or quality of public views of the site and its surroundings. The nearest public roads to the Project site include a portion of Trail End Camp Road (approximately 2.7 miles northeast of the Project) and Parker Dam Road (approximately 3.3 miles southeast of the Project). These roads include views of open desert landscapes and parts of the Colorado River. Immediate views of the Project site are not accessible to the general public, as Copper Basin Reservoir is not open to the public for recreational uses. The proposed Project would temporarily introduce construction equipment to portions of the access road and at the dam. New components such as riprap, V-ditches, and gunite concrete paving would not substantially change or degrade the existing visual character of the access road, as these components would be at-grade, of natural colors, and unobtrusive. Dam valve replacement components would be similar to existing dam infrastructure. Given the distances of the Project to public viewsheds, the Project would not be visible when viewed from public roads. Therefore, the proposed Project would not degrade the visual character or quality of the site or its surroundings, and no impact would occur.

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

**Less than Significant Impact.** The proposed Project would not create a new source of substantial light or glare which would adversely affect day or nighttime views in the area. The proposed Project would not add or alter any permanent light sources. The Project may require temporary nighttime lighting for construction activities that may occur in the evening. However, the use of such lighting would be temporary, likely limited to the temporary construction trailer and work sites, and only required until 8:00 p.m., as needed. Once the Project is completed, no impacts from light sources would occur. No new structures with reflective surfaces would be constructed, and the Project would not generate new sources of daytime glare. As a result, impacts would be less than significant.

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### 3.2 Agricultural Resources

#### AGRICULTURE AND FORESTRY 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 Department 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:

	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) 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))?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Result in the loss of forest land or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Significance criteria established by CEQA Guidelines, Appendix G.

#### **Discussion. 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.** According to the California Department of Conservation (DOC), no Prime Farmland, Unique Farmland, or Farmland of Statewide Importance exist within the Project area (DOC, 2022). As such, no impacts 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.** The proposed Project would not conflict with existing zoning for agricultural use, or a Williamson Act contract. The proposed Project is within the County of San Bernardino's Resource Conservation Land Use Zoning District (San Bernardino County, 2022a). This zoning designation provides for open space and recreational activities, single-family homes on large parcels, and similar compatible uses (San Bernardino County, 2009); there is no zoning for agricultural use. Furthermore, the proposed Project does not contain any Williamson Act contract

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lands. Therefore, the proposed Project would not conflict with existing zoning designations for agricultural lands or Williamson Act contract lands, and no impacts 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))?*

**No Impact.** The proposed Project would not conflict with existing zoning for, or cause rezoning of forest land, timberland or timberland zoned Timberland Production. The proposed Project site is within the County of San Bernardino's Resource Conservation Land Use Zoning District (San Bernardino County, 2022a). The proposed Project does not contain a General Plan or zoning designation for forest land or timberland and is not located within a designated Timberland Production zone. Therefore, the proposed Project would not result in the loss of forest land, timberland, or timberland production areas since none exist within the site or in the surrounding areas. No impacts pertaining to zoning for forest land or timberland would occur.

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

**No Impact.** As discussed in Section 3.2.c, the Project site does not contain forest land; therefore, the proposed Project would not result in the conversion or loss of forest land. No impacts related to the loss of forest land or conversion of forest land to non-forest use 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.** As discussed in Sections 3.2.a through 3.2.c, the Project site does not contain farmland or forest land; therefore, the proposed Project would not result in the conversion or loss of agriculture or forest land. No impacts related to the conversion of farmland would occur.

### 3.3 Air Quality

#### AIR QUALITY

Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations. Would the project:

	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a) Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Significance criteria established by CEQA Guidelines, Appendix G.



**Discussion. Would the project:**

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

**Less than Significant Impact.** The proposed Project would not conflict with or obstruct implementation of the applicable air quality plan. The proposed Project is located within the Mojave Desert Air Basin (MDAB), which includes desert portions of San Bernardino County within the jurisdictional boundaries of the Mojave Desert Air Quality Management District (MDAQMD). The MDAQMD has developed federal attainment plans under the Federal Clean Air Act for ozone and PM10 (particulate matter 10 micrometers or less in diameter). The most recent attainment plans were adopted in 2004 and 2017 for nitrogen oxides (NOx) and volatile organic compound (VOC) emissions to meet federal eight- and one-hour ozone targets, respectively (MDAQMD, 2020).

The proposed Project does not include permanent stationary emissions sources regulated by MDAQMD, and therefore, regulations pertaining to permanent emission sources do not apply to the Project. The proposed Project would comply with all applicable MDAQMD rules and regulations pertaining to temporary construction emission sources, including Rule 403, which reduces fugitive dust emissions.

The proposed Project would not create new facilities and, therefore, would not directly or indirectly cause growth beyond the regional growth projections. Therefore, the proposed Project would not conflict with or obstruct the applicable air quality plan. The proposed Project would have less than significant impacts related to air quality plan compliance.

*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.** 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 proposed Project is located in the MDAB, which is in non-attainment for federal and state ozone and PM10 ambient air quality standards, as well as state annual PM2.5 (particulate matter 2.5 micrometers or less in diameter) standards. MDAQMD's CEQA Guidelines specifies emissions significance thresholds (MDAQMD, 2020).

The proposed Project would generate short-term air pollutant emissions during construction activities, which were calculated using the California Emissions Estimator Model (CalEEMod), which is recommended by the MDAQMD. The analysis was conducted in April 2022 and revised in July 2022. Table 1-2 in Section 1.4, Proposed Project, provides additional details and construction assumptions used in the Project's emission calculations.

Construction activities were grouped by activity for the air quality analysis and mass rates of emissions were reported for each year of activity with the maximum daily emissions. A breakdown of activities leading to maximum daily emissions is shown in Appendix A. Table 3.3-1 presents the estimated maximum daily air pollutant emissions for the year with the highest emissions, as calculated with CalEEMod prior to considering the dust control requirements of MDAQMD Rule 403.

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**Table 3.3-1. Construction Emissions, Uncontrolled (lbs/day)**

Construction Emissions	ROG	NO <sub>x</sub>	CO	SO <sub>x</sub>	PM10	PM2.5
Maximum Daily Construction Emissions	4.9	39.8	54.7	0.1	115.5	13.5
MDAQMD Significance Thresholds	137	137	548	137	82	65
<i>Significant (Exceeds Thresholds)?</i>	<i>NO</i>	<i>NO</i>	<i>NO</i>	<i>NO</i>	<i>YES</i>	<i>NO</i>

Notes: ROG (reactive organic gases), NO<sub>x</sub> (nitrogen oxides), CO (carbon monoxide), SO<sub>x</sub> (sulfur oxides), PM10 (particulate matter 10 micrometers or less in diameter), PM2.5 (particulate matter 2.5 micrometers or less in diameter).

Source: Appendix A; MDAQMD, 2020.

Worst-case, uncontrolled maximum-daily construction emissions shown in Table 3.3-1 would exceed the MDAQMD significance thresholds for PM10. However, separate emission calculations show the results of applying the mandatory dust controls in compliance with Rule 403. Table 3.3-2 shows the maximum-daily construction emissions after considering the dust control requirements of Rule 403, such as the use of dust suppressants or watering unpaved disturbed surface areas.

**Table 3.3-2. Construction Emissions, Controlled (lbs/day)**

Construction Emissions	ROG	NO <sub>x</sub>	CO	SO <sub>x</sub>	PM10	PM2.5
Maximum Daily Construction Emissions	4.9	39.8	54.7	0.1	54.5	7.5
MDAQMD Significance Thresholds	137	137	548	137	82	65
<i>Significant (Exceeds Thresholds)?</i>	<i>NO</i>	<i>NO</i>	<i>NO</i>	<i>NO</i>	<i>NO</i>	<i>NO</i>

Notes: ROG (reactive organic gases), NO<sub>x</sub> (nitrogen oxides), CO (carbon monoxide), SO<sub>x</sub> (sulfur oxides), PM10 (particulate matter 10 micrometers or less in diameter), PM2.5 (particulate matter 2.5 micrometers or less in diameter).

Source: Appendix A; MDAQMD, 2020.

The standard construction measures for the proposed Project would include compliance with MDAQMD Rule 403 to avoid and minimize visible fugitive dust emissions. The mandatory dust control measures for compliance with MDAQMD Rule 403 could include but would not be limited to:

- Use periodic watering for short-term stabilization of disturbed surface area to minimize visible fugitive dust emissions. Use of a water truck to maintain moist disturbed surfaces and actively spread water during visible dusting episodes shall be considered sufficient to maintain compliance;
- Take actions sufficient to prevent Project-related track-out onto paved surfaces;
- Cover loaded haul vehicles while operating on publicly maintained paved surfaces;
- Stabilize graded site surfaces upon completion of grading when subsequent development is delayed or expected to be delayed more than thirty days, except when such delay is due to precipitation that dampens the disturbed surface sufficiently to eliminate visible fugitive dust emissions;
- Cleanup Project-related track-out or spills on publicly maintained paved surfaces within twenty-four hours;
- Maintain the natural topography to the extent possible during grading and other earth movement;
- Cover or otherwise contain bulk material carried on haul trucks operating on paved roads; and
- Remove bulk material tracked onto paved road surfaces.

The construction contractor would have the option of using a barge on the Copper Basin Reservoir for material and equipment transport to avoid travel on the difficult terrain of the access road. If a barge is used, the contractor would likely avoid some diesel truck usage and other vehicle travel on the existing access road. As a result, barging would likely reduce overall on-road travel and related vehicular emissions. Barging would reduce NOx emissions and other combustion-related emissions and would avoid fugitive dust emissions from on-road truck travel. The emission calculations presented here include the use of a barge without quantifying the potential reductions in truck and vehicle travel. As a result, the emissions specified in Table 3.3-1 and Table 3.3-2 would be a conservative overestimate.

The proposed Project would not change existing operation and maintenance activities, so operational emissions have not been calculated. Therefore, the emissions associated with the proposed Project would not result in a cumulatively considerable net increase of any criteria pollutant with implementation of mandatory dust control measures in compliance with MDAQMD Rule 403, and impacts would be less than significant.

*c. Expose sensitive receptors to substantial pollutant concentrations?*

**No Impact.** The proposed Project would not expose sensitive receptors to substantial pollutant concentrations. The MDAQMD defines sensitive receptors as schools, playgrounds, childcare centers, long-term health care facilities, rehabilitation centers, convalescent homes, hospitals, retirement homes, and residences. Specified distances to a planned land used must be evaluated if it falls under any of the following categories: industrial project, distribution center, major transportation project, dry cleaner, or gasoline dispensing facility. The proposed Project does not fit into these categories and the nearest sensitive receptors are residences are located approximately 3.3 miles southeast of the Project site in the unincorporated community of Earp. In addition, as presented in Table 3.3-1, the proposed Project's daily emissions would be less than the MDAQMD's significance thresholds.

The proposed Project would produce toxic air contaminants (TAC) emissions, primarily in the form of diesel particulate matter, during the short-term construction period. However, the quantity of TAC emissions during construction would be minimal and limited only to the duration of construction and the nearest sensitive receptor is approximately 3.3 miles from the Project site. TACs would not be produced during operations and maintenance. Therefore, the proposed Project would not expose sensitive receptors to substantial pollutant concentrations and no impacts would occur.

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

**No Impact.** The proposed Project would not result in other emissions adversely affecting a substantial number of people. The proposed Project is located in a remote desert landscape within Metropolitan's fee property. The proposed Project would generate oil and diesel fuel odors from operating heavy equipment during construction activities. However, these odors would be localized, limited to the duration of the construction activities and would dissipate within a short distance. In addition, the nearest concentration of people are residences approximately 3.3 miles away. There would be no other emissions as a result of operations and maintenance. Accordingly, the proposed Project would not result in other emissions, such as those leading to odors, adversely affecting a substantial number of people, and no impact would occur.

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### 3.4 Biological Resources

#### BIOLOGICAL RESOURCES

Would the project:

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

Significance criteria established by CEQA Guidelines, Appendix G.

#### Overview of Biological Resources

The biological resources information presented below is summarized from the Biological Resources Technical Report and the Aquatic Resources Delineation Report (see Appendix B.1 and B.2). These reports document existing conditions and evaluate the potential for impacts to biological resources to occur during implementation of the proposed Project. Regulated or sensitive resources studied and analyzed herein include special-status plant and wildlife species, nesting birds and raptors, sensitive vegetation communities, jurisdictional waters and wetlands, wildlife movement, and locally protected resources, such as native and mature trees.

#### 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:

- United States Army Corps of Engineers (USACE) (wetlands and other waters of the United States as defined under Section 404 of the Clean Water Act [CWA]);
- Colorado River Basin Regional Water Quality Control Board (CRBRWQCB) (waters of the State as defined under Section 401 of the CWA);

- United States Fish and Wildlife Service (USFWS) (federally listed as threatened [FT] or endangered [FE] species, species afforded protection under the Bald and Golden Eagle Protection Act [BGEPA], and migratory birds receiving protection under the Migratory Bird Treaty Act [MBTA]); and
- California Department of Fish and Wildlife (CDFW) (riparian areas and other waters of the State as regulated under Sections 1600-1617 of the California Fish and Game Code; sensitive vegetation communities; state listed as threatened [ST], endangered [SE], or candidate [SC] species; species designated as Fully Protected [FP] under Sections 3511, 4700, 5050, or 5515 of the California Fish and Game Code; animals designated as Species of Special Concern [SSC]; and other Special Animals [SA] tracked by the California Natural Diversity Database [CNDDDB]).
- California Native Plant Society (CNPS) (plants designated as California Rare Plant Rank [CRPR] 1B or 2B).

Sensitive vegetation communities 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.

Listed species are those taxa that are formally designated as federally endangered or threatened by USFWS, pursuant to the Federal Endangered Species Act (FESA) or as state endangered, threatened, or rare (for plants only) by CDFW pursuant to the California Endangered Species Act (CESA) or the California Native Plant Protection Act. CDFW Fully Protected species are considered rare or facing possible extinction and receive additional protection under Sections 3511, 4700, 5050, or 5515 of the California Fish and Game Code while Species of Special Concern are those species, subspecies, or distinct populations of an animal native to California that are considered for protection by CDFW for a variety of reasons, such as population declines or range restrictions. "Special Animals" is a broad term used to refer to all the animal taxa tracked by the CNDDDB, regardless of their legal or protection status. The Special Animals list includes taxa that are biologically rare, very restricted in distribution, or declining throughout their range, but not currently threatened with extirpation. Some species are considered rare (but not formally listed) by resource agencies, organizations with biological interests/expertise (e.g., Audubon Society, The Wildlife Society, etc.), and the scientific community.

## **Methodology**

Biological conditions were evaluated by confirming applicable regulations, policies, and standards; reviewing biological literature and querying available databases relevant to the Project area and vicinity (within five miles for CDFW's CNDDDB and within the four topographic quadrangles that encompass the Project area or are located immediately adjacent for CNPS); and conducting reconnaissance-level and focused surveys at the three staging areas northwest of the reservoir and within a 50-foot to 300-foot survey area along the access road (width varied based on proposed activities and level of anticipated disturbance).

Prior to conducting field surveys, a review of existing literature sources, including a search of the CNPS Inventory of Rare and Endangered Plants of California, California Consortium of Herbariums, and the CNDDDB for the Cross Roads, Parker, Whipple Wash, and Gene Wash United



States Geological Survey (USGS) 7.5-minute topographic quadrangle maps, was performed (CNPS, 2021; CCH, 2021; CDFW, 2022a).

Reconnaissance-level biological surveys were conducted on March 29 and 30, 2021. These surveys focused on assessing the potential for the Project area to support special-status species, searching for any special-status plants and wildlife, and identifying any potential jurisdictional wetlands or other waters. Floristic surveys for special-status plants were performed on March 15 and 16, 2022. A delineation of federal and state waters was also conducted during this time. Protocol-level surveys for southwestern willow flycatcher (*Empidonax traillii extimus*) and Arizona Bell's vireo (*Vireo bellii arizonae*) were conducted between May and July and April and July 2022, respectively. Visual and acoustic surveys for special-status bats were completed between March and August 2022.

### **Existing Conditions**

The Project area is located within the Colorado Desert region, which is a subdivision of the larger Sonoran Desert. The Colorado Desert region covers approximately 7 million acres, which is a small portion of the Colorado River drainage that spans Arizona, Nevada, Utah, Wyoming, Colorado, New Mexico, and portions of northwestern Mexico. The region consists of rolling hills, steep ridges, mountain peaks, and numerous ephemeral drainages that convey flow towards the Colorado River. On a more local scale, the Project would be constructed at the Copper Basin Reservoir, a large manmade reservoir located on lands owned and managed by Metropolitan. Copper Basin is in the Whipple Mountains, a small mountain range located west of the Colorado River. The elevation of the Project area varies from 970 feet above mean sea level (amsl) below the reservoir in Copper Basin Wash, to approximately 1230 feet amsl along the access road.

The topography of the area is complex and includes alluvial plains, steep mountainous slopes, and rocky terrain. Below the reservoir is the Copper Basin Wash, a narrow canyon with nearly vertical walls. Access to the Project would occur along existing paved and unpaved roads including the Trail End Camp Road and a dirt road which runs from the west end of the reservoir to Copper Basin Wash. Trail End Camp Road is subject to daily vehicle and truck traffic to support operation of the Metropolitan facility.

Four native vegetation alliances and two additional land cover types were identified within the proposed Project area (see Figures 2a through 2e in Appendix B.1). The majority of the proposed Project area is characterized as saguaro – foothill palo verde-velvet mesquite desert scrub (*Carnegiea gigantea*-*Parkinsonia microphylla*-*Prosopis velutina* Provisional Shrubland Alliance). This habitat typically supports xeric desert vegetation dominated by yellow paloverde (*Parkinsonia microphylla*), creosote bush (*Larrea tridentata*), and various species of cactus. This community occurs along the access road or is growing on the steep rocky slopes surrounding the Project area. Vegetation in the Copper Basin Wash, located downstream of the dam, consists of Fremont cottonwood forest and woodland (*Populus fremontii*-*Fraxinus velutina*-*Salix gooddingii* Forest and Woodland Alliance) which is a mesic riparian community dominated by Fremont cottonwood (*Populus fremontii*), willows (*Salix* spp.), multiple species of palms (including *Phoenix canariensis* [Canary Island palm] and *Washingtonia filifera* [California fan palm]), and tamarisk (*Tamarix ramosissima*). A low-flow channel is dominated by arrow weed thickets (*Pluchea sericea* Shrubland Alliance) and cattail marshes (*Typha* [*angustifolia*, *domingensis*, *latifolia*] Herbaceous Alliance) and other species of hydrophytic vegetation. Additional land cover

types that were mapped in the proposed Project area include open water and developed/disturbed lands.

Drainage features are present throughout the Project area. Ephemeral desert dry washes occur along the access road along the western portion of the Project area. Below the dam is Copper Basin Wash, a narrow perennial feature that supports wetlands and riparian habitat (see Appendix B.2). This drainage is fed from seepage at the dam which is conveyed parallel to the road in a manmade channel. In addition, a small pool is present at the base of the dam that is crossed by a series of wooden catwalks. The ephemeral drainage features that typically occur in the Project area support surface flows only during or immediately after large rain events, whereas Copper Basin Wash, the only perennial drainage feature in the Project area, supports surface flows year-round due to seepage from the dam. An existing road provides access below the dam which may cross portions of the drainage.

No state or federally listed plants were observed during surveys and none are expected to occur in the proposed Project area. Focused surveys identified the presence of four non-listed special-status plants, including rough-stemmed forget-me-not (*Cryptantha [Johnstonella] holoptera*) (CRPR 4.3), Darlington's blazing star (*Mentzelia puberula*) (CRPR 2B.2), yellow paloverde (*Parkinsonia microphylla*) (CRPR 4.3), and desert beardtongue (*Penstemon pseudospectabilis* ssp. *pseudospectabilis*) (CRPR 2B.2) (see Figures 3-2a through 3-2i in Appendix B.1). Saguaro (*Carnegiea gigantea*) (CRPR 2B.2) was observed in adjacent upland habitat during the 2021 and 2022 field surveys, but not within the proposed Project area. The literature review identified an additional 23 special-status plant species that have been recorded within the four USGS 7.5-minute quads associated with the proposed Project area. Of these, 11 were determined to have the potential to occur (see Appendix B.1).

Common wildlife observed during the surveys primarily consisted of common invertebrate, fish, reptile, bird, and mammal species, including side-blotched lizard (*Uta stansburiana*), desert spiny lizard (*Sceloporus magister*), mourning dove (*Zenaida macroura*), greater roadrunner (*Geococcyx californianus*), common raven (*Corvus corax*), desert cottontail (*Sylvilagus audubonii*), gray fox (*Urocyon cinereoargenteus*), and bobcat (*Lynx rufus*), among several others (see Appendix B.1).

Based on the literature review, 39 special-status wildlife species have been documented within the four USGS 7.5-minute quads associated with the proposed Project area. A total of ten of these were observed or detected during the 2021 and 2022 reconnaissance and protocol level surveys. These include Costa's hummingbird (*Calypte costae*) (SA), willow flycatcher (*Empidonax traillii*) (SE), Lucy's warbler (*Leiothlypis lucae*) (SSC), loggerhead shrike (*Lanius ludovicianus*) (SSC), burrowing owl (*Athene cunicularia*) (SSC), American peregrine falcon (*Falco peregrinus anatum*) (FP), bald eagle (*Haliaeetus leucocephalus*) (BGEPA, SE, FP), double-crested cormorant (*Nannopterum auritum*) (SA), desert bighorn sheep (*Ovis canadensis*) (FP), and Yuma myotis (*Myotis yumanensis*) (SA) (see Figures 3a through 3i in Appendix B.1).

An additional 17 of these species were determined to have a moderate to high potential to occur (see Appendix B.1). These include federally and/or state listed species, such as Mojave desert tortoise (*Gopherus agassizii*) (FT, ST), Gila woodpecker (*Melanerpes uropygialis*) (SE), Yuma Ridgway's rail (*Rallus obsoletus yumanensis*) (FE, ST, FP), Arizona Bell's vireo (SE), and mountain lion (*Puma concolor*) (SC).

Special-status wildlife with a moderate to high potential to occur also include CDFW Fully Protected species, such as golden eagle (*Aquila chrysaetos*) (BGEPA, FP), ringtail (*Bassariscus astutus*) (FP), and desert kit fox (*Vulpes macrotis arsipus*) (FP).

Species of Special Concern and CDFW Special Animals that were not observed during surveys but have the potential to occur include banded Gila monster (*Heloderma suspectum cinctum*) (SSC), yellow-breasted chat (*Icteria virens*) (SSC), vermilion flycatcher (*Pyrocephalus rubinus*) (SSC), and American badger (*Taxidea taxus*) (SSC). In addition to Yuma myotis, discussed above, five other special-status bat species also could potentially occur in the proposed Project area, including pallid bat (*Antrozous pallidus*) (SSC), Townsend's big-eared bat (*Corynorhinus townsendii*) (SSC), western mastiff bat (*Eumops perotis californicus*) (SSC), California leaf-nosed bat (*Macrotus californicus*) (SSC), and cave myotis (*Myotis velifer*) (SSC).

Special-status plant and wildlife species and an analysis of their potential to occur within the proposed Project area are discussed in further detail below.

### **Metropolitan Standard Practices**

**Environmental Assessment.** As an internal practice, Metropolitan conducts Environmental Assessments or similar studies prior to Project commencement to determine if any resources have the potential to be present at each Project site. The Environmental Assessment evaluates the potential for impacts to all biological resources including, but not limited to special-status species, nesting birds, wildlife movement, sensitive plant communities/critical habitat, potentially jurisdictional features, and other resources, policies, plans, or ordinances, determined to be sensitive by local, state, and/or federal agencies. The Environmental Assessment also includes habitat assessments for special-status plants and wildlife and identifies avoidance measures or further technical studies, surveys, or consultations with state, federal, or local agencies that may be needed to reduce impacts to biological resources.

**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.

**Desert Tortoise Awareness Training.** Metropolitan conducts Desert Tortoise Awareness Training for all Metropolitan staff and contractors working at Metropolitan's desert facilities. 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.

**Nesting Bird Surveys.** To achieve compliance with the Migratory Bird Treaty Act and California Fish and Game Code Sections 3503, 3503.5, and 3513, Metropolitan routinely performs surveys for nesting birds on projects that occur during the bird breeding season. Nesting bird surveys will include burrowing owl, which shall follow the protocols set forth in the Staff Report on Burrowing Owl Mitigation (CDFW, 2012). Survey timeframes vary depending on a project's geographic location. For Project activities occurring during the nesting season in the Mojave Desert (from January 15 through August 31 for raptors and hummingbirds and from March 15 through August 31 for other bird species), surveys for nesting birds would be conducted by a monitoring biologist no more than 72 hours prior to vegetation removal or earth-moving activities.

The survey area for all nesting bird surveys includes the applicable Project site and an appropriate buffer, as determined by the monitoring biologist. If active nests (i.e., nests with eggs or chicks) are located, the monitoring biologist would establish an appropriate avoidance buffer based on the species' biology and the current and anticipated disturbance levels occurring in the vicinity of the nest. The size of the buffer may be influenced by the existing conditions and disturbance regime, relevant landscape characteristics, and the nature, timing and duration of the expected disturbance. All buffers would be marked with high-visibility flagging or fencing, and, unless approved by the monitoring biologist, no Project activities would be allowed within the buffers until the young have fledged from the nest or the nest fails. Documentation of nesting bird surveys and nest monitoring (if applicable) would be prepared prior to the start of Project activities.

**Temporary Work Area.** As a standard internal practice, Metropolitan staff implements measures to ensure that all construction-related temporary work areas associated with both capital projects and operations and maintenance activities are returned to pre-Project conditions following the completion of construction activities. These measures include, but are not limited to:

- The temporary work area shall be the minimum amount necessary to complete the Project.
- Vegetation within the temporary work area shall be avoided, when feasible.
- The temporary work area shall be returned to pre-construction contours.
- The temporary work area shall include appropriate BMPs and/or be revegetated following the completion of construction activities, if deemed necessary.

**Discussion. *Would the project:***

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

**Less than Significant Impact with Mitigation Incorporated.** The proposed Project would not 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 CDFW or USFWS with incorporation of mitigation measures.

### Special-Status Plant Species

No federal or state listed plant species were observed in the proposed Project area during the 2021 reconnaissance-level surveys and 2022 focused plant surveys and none are expected to occur. The literature search did not indicate that federal or state listed plants have been reported within the proposed Project area or surrounding vicinity (CNPS, 2021; CCH, 2021; CDFW, 2022a, CDFW, 2022a; CNPS, 2022; USFWS, 2022). There is no designated critical habitat for any federally-listed plants within the proposed Project area or the immediate vicinity. Therefore, impacts to federal or state listed plants would not occur.

Five non-listed special-status plant species were observed in or near the proposed Project area during the surveys. These include saguaro, Darlington's blazing star, and desert beardtongue, which are designated as CRPR 2B species. CRPR 2B species are plants that are considered rare, threatened, or endangered in California but more common elsewhere. Rough-stemmed forget-me-not and yellow paloverde were also observed during surveys; however, these species are designated as CRPR 4.3 and are not afforded protection under CEQA.

The field surveys were performed during the appropriate season in 2021 and 2022, but the area received lower than average annual precipitation for the rainfall year of 2022 (July 1 through June 30). Approximately 14 percent of normal rainfall was recorded within the vicinity of the proposed Project in 2021, and approximately 20 percent of normal rainfall has currently been recorded in 2022 (NOAA, 2022). In addition to the species observed during surveys, an additional six special-status plants were determined to have a moderate to high potential to occur based on the presence of suitable habitat and documented occurrences in the region. Of these, five are defined as CRPR 2B species. These include bare-stem larkspur (*Delphinium scaposum*), Graham fishhook cactus (*Mammillaria grahamii* var. *grahamii*), narrow-leaved psorothamnus (*Psorothamnus fremontii* var. *attenuatus*), Cove's cassia (*Senna covesii*), and desert germander (*Teucrium glandulosum*). Table 3.4-1 lists the special-status plant species, which are discussed further below, that were observed or have a moderate to high potential to occur within the proposed Project area.

Table 3.4-1 – Special-Status Plants with Potential to Occur in the Proposed Project Area		
Common Name	Scientific Name	Status
Saguaro	<i>Carnegiea gigantea</i>	CRPR 2B.2
Bare-stem larkspur	<i>Delphinium scaposum</i>	CRPR 2B.3
Graham fishhook cactus	<i>Mammillaria grahamii</i> var. <i>grahamii</i>	CRPR 2B.2
Darlington's blazing star	<i>Mentzelia puberula</i>	CRPR 2B.2
Desert beardtongue	<i>Penstemon pseudospectabilis</i> ssp. <i>pseudospectabilis</i>	CRPR 2B.2
Narrow-leaved psorothamnus	<i>Psorothamnus fremontii</i> var. <i>attenuatus</i>	CRPR 2B.3
Cove's cassia	<i>Senna covesii</i>	CRPR 2B.2
Desert germander	<i>Teucrium glandulosum</i>	CRPR 2B.3



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Notes: Ranks at each CRPR level also include a threat rank (e.g., 2B.2 or 2B.3) and are determined as follows: 0.1 = Seriously threatened in California (over 80% of occurrences threatened/high degree and immediacy of threat); 0.2 = Moderately threatened in California (20-80% occurrences threatened/moderate degree and immediacy of threat); 0.3 = Not very threatened in California (less than 20% of occurrences threatened/low degree of immediacy of threat or no current threats known).

Saguaro and Graham fishhook cactus are highly conspicuous, perennial species that are identifiable year-round. Each of these are typically associated with Sonoran desert scrub habitat with rocky substrates. Numerous saguaro individuals were observed in adjacent uplands during the 2021 and 2022 surveys, but none were identified within the proposed Project area. Suitable habitat for Graham fishhook cactus is present within and adjacent to the proposed Project area and the species has been documented along the Metropolitan Road between Gene Wash Reservoir and Copper Basin Reservoir (CDFW, 2022a; iNaturalist, 2021). Narrow-leaved psoralea is a perennial bush associated with granitic and volcanic soils and Cove's cassia is a perennial herb associated with dry, sandy desert washes and slopes. Each of these species are typically associated with Sonoran desert scrub habitats and there are several occurrence records for narrow-leaved psoralea and Cove's cassia from the Whipple Mountains within five miles east of Copper Basin Reservoir (CDFW, 2022a; iNaturalist, 2021). Although each of these conspicuous species are known from the area, none were observed within the proposed Project area during 2022 focused plant surveys. Consequently, direct impacts to these species are not anticipated to occur.

Approximately five Darlington's blazing star and ten desert beardtongue individual plants were observed along the access road downstream of the Copper Basin Dam (see Figures 3a through 3i in Appendix B.1). These plants were detected in adjacent uplands and except for one Darlington's blazing star that was found in the existing road, are not expected to be subject to direct impacts from vegetation clearing, road grading, or working in the riparian corridor below the Copper Basin Dam. These species were not detected in any other work areas. It is expected that individual annual plants in the roadbed would likely persist in the seedbank in areas not subject to ground-disturbance or would colonize the area following construction from adjacent occurrences.

As previously mentioned, annual precipitation levels were below average during the focused plant surveys conducted in 2022. Although bare-stem larkspur and desert germander were not observed during these surveys, they would be more likely to germinate or flower during years with higher levels of rainfall. Bare-stem larkspur is an underground perennial bulb that occurs in rocky substrates and desert washes within Sonoran desert scrub habitat. This species is known from the Whipple Mountains and has been documented along the Metropolitan Road between Gene Wash Reservoir and Copper Basin Reservoir. Desert germander is an annual herb that also occurs in rocky substrates within Sonoran desert scrub habitat. There are historic records located along the western edge of Copper Basin Reservoir and more recent records in the foothills of the Whipple Mountains less than two miles east of the reservoir (CDFW, 2022a). Based on the presence of suitable habitat in and near the proposed Project area and nearby occurrences, there is a moderate potential for these species to occur.

Special-status plants that are known to occur, including Darlington's blazing star and desert beardtongue, may be encountered if current populations expand into proposed Project work areas or if new occurrences of species, such as bare-stem larkspur and desert germander, are identified in proposed Project work areas following a year of adequate rainfall. However, it is not possible to determine if these species would be present.

If present, direct impacts to special-status plants could include trampling or crushing from heavy equipment, vehicles, or foot traffic, alterations to the native seed bank due to soil compaction, and

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modifications to existing hydrological conditions. Indirect impacts could include the disruption of native seed banks through soil alterations, the accumulation of fugitive dust, increased erosion and sediment transport, and the colonization of non-native, invasive plant species. Excessive dust can decrease or limit plant survivorship by decreasing photosynthetic output, reducing transpiration, and adversely affecting reproductive success. Because noxious weeds can permanently degrade rare plant and animal habitats, their proliferation could adversely affect sensitive plant species if they are present. Direct impacts may also occur during the initial valve testing when water is released below the reservoir into Copper Basin Wash.

The direct loss of single plants or small occurrences of these species would not be considered a significant impact and no mitigation is required. However, to ensure that potential impacts to new or expanded occurrences of special-status plant species are avoided or minimized, Metropolitan would implement its Standard Practices of Environmental Assessment and WEAP training to identify current site conditions at the time of proposed Project implementation and to educate workers on environmental sensitivities in the proposed Project area. Additionally, Mitigation Measures BIO-1 (Special-Status Plant Species Surveys), BIO-2 (Special-Status Plant Species Avoidance and Minimization), and BIO-3 (Special-Status Plant Species Revegetation) would be implemented to avoid potentially significant impacts should special-status plant species be identified in the proposed Project area. These measures would require identification of special-status plants that may be present and application of appropriate avoidance and/or minimization measures prior to construction activities. With implementation of these measures, impacts to special-status plants would be reduced to less-than-significant levels.

Operational activities are not expected to result in impacts to special-status plants. Vehicle use of the upgraded road would be consistent with the types and magnitude of activities that currently occur at the reservoir and impacts to special-status plants would be considered less than significant. Periodic testing of the valve is not expected to result in adverse impacts to special-status plants and would mimic natural rain events. Periodic scour of stream channels is a natural event and many species of plants and wildlife benefit from these events. Additionally, Metropolitan would continue to implement its Standard Practice of WEAP training during operational activities to educate all workers of sensitive biological resources in the proposed Project area.

### Special-Status Wildlife Species

Twenty-seven special-status wildlife species were either observed during 2021 and 2022 surveys or have a moderate to high potential to occur in or near the proposed Project area (see Table 3.4-2). The potential to occur and possible impacts to each of these species is discussed below.

<b>Table 3.4-2 – Special-Status Wildlife with Potential to Occur in the Proposed Project Area</b>		
<b>Common Name</b>	<b>Scientific Name</b>	<b>Status</b>
Mojave desert tortoise	<i>Gopherus agassizii</i>	FT, ST
Banded Gila monster	<i>Heloderma suspectum cinctum</i>	SSC
Golden eagle	<i>Aquila chrysaetos</i>	BGEPA, FP
Burrowing owl	<i>Athene cunicularia</i>	SSC
Costa's hummingbird	<i>Calypte costae</i>	SA

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<b>Table 3.4-2 – Special-Status Wildlife with Potential to Occur in the Proposed Project Area</b>		
<b>Common Name</b>	<b>Scientific Name</b>	<b>Status</b>
Willow flycatcher	<i>Empidonax traillii extimus</i>	SE
American peregrine falcon	<i>Falco peregrinus anatum</i>	FP
Bald eagle	<i>Haliaeetus leucocephalus</i>	BGEPA, SE, FP
Yellow-breasted chat	<i>Icteria virens</i>	SSC
Loggerhead shrike	<i>Lanius ludovicianus</i>	SSC
Lucy's warbler	<i>Leiothlypis lucae</i>	SSC
Gila woodpecker	<i>Melanerpes uropygialis</i>	SE
Double-crested cormorant	<i>Nannopterum auritum</i>	SA
Vermilion flycatcher	<i>Pyrocephalus rubinus</i>	SSC
Yuma Ridgway's rail	<i>Rallus obsoletus yumanensis</i>	FE, ST, FP
Arizona Bell's vireo	<i>Vireo bellii arizonae</i>	SE
Pallid bat	<i>Antrozous pallidus</i>	SSC
Ringtail	<i>Bassariscus astutus</i>	FP
Townsend's big-eared bat	<i>Corynorhinus townsendii</i>	SSC
Western mastiff bat	<i>Eumops perotis californicus</i>	SSC
California leaf-nosed bat	<i>Macrotus californicus</i>	SSC
Cave myotis	<i>Myotis velifer</i>	SSC
Yuma myotis	<i>Myotis yumanensis</i>	SA
Desert bighorn sheep	<i>Ovis canadensis nelson</i>	FP
Mountain lion	<i>Puma concolor</i>	SC
American badger	<i>Taxidea taxus</i>	SSC
Desert kit fox	<i>Vulpes macrotis arsipus</i>	FP

Notes: FT – Federally Threatened; ST- State Threatened; SE – State Endangered; BGEPA – Species protected under the federal Bald and Golden Eagle Protection Act; FP - CDFW Fully Protected; SSC – CDFW Species of Special Concern; SA – CNDDDB Special Animal

### ***Mojave Desert Tortoise and Banded Gila Monster***

The Mojave Desert tortoise is listed as threatened under FESA and CESA and banded Gila monster is designated as a CDFW SSC. Although no individual tortoises or suitable burrows were identified during surveys for the proposed Project or during biological monitoring at a nearby Metropolitan facility in 2019, this species has a low to moderate potential to occur in low densities due to the presence of suitable habitat in and adjacent to the proposed Project area. The closest recorded observations of desert tortoise are located approximately five miles south of the proposed Project area. Banded Gila monster was not observed during surveys; however, there is a historical record

from the Whipple Mountains and the proposed Project area is within the known range of the species (CDFW, 2022a). Therefore, there is a moderate potential for banded Gila monster to occur.

Construction of the Project has a very low potential to directly affect desert tortoise, banded Gila monster, or their habitat. Most work would occur along the existing access road, on the dam, along the riparian area below the dam, and along the margins of the reservoir. Impacts to these species are not expected to occur. However, if present, direct impacts could result from mortality due to collisions with vehicles or heavy equipment, harassment, fugitive dust, release of hazardous materials, and noise. Indirect impacts could include the introduction and spread of invasive weeds, providing predator subsidies, and increased human presence.

If present, direct and indirect impacts to desert tortoise would be significant. However, as part of the proposed Project, Metropolitan would implement its Standard Practices including an Environmental Assessment to determine site conditions at the time of proposed Project implementation and WEAP training to educate workers on environmental sensitivities in the proposed Project area. Furthermore, Metropolitan's Standard Practices regarding Desert Tortoise Avoidance Training, which include clearly delineating Project work limits, restricting access to designated existing travel routes, having a qualified biologist(s) onsite during construction activities, inspecting under vehicles and equipment prior to moving, and avoiding impacts to any known or identified tortoise or tortoise burrow, would be implemented. In addition to the above listed Standard Practices, implementation of Mitigation Measures BIO-4 (Special-Status Wildlife Species Surveys) and BIO-5 (Special-Status Wildlife Species Avoidance and Minimization) would further reduce potential impacts to desert tortoise and banded Gila monster should they occur. These measures would require identification of desert tortoise or banded Gila monster individuals that may be present within the proposed Project area and application of appropriate avoidance and/or minimization measures prior to construction activities. With the implementation of these measures, impacts to desert tortoise and banded Gila monster, if present, would be reduced to less-than-significant levels because direct impacts would be avoided and indirect impacts would be limited and not likely to impact the species' ability to persist once the proposed Project is complete.

Operational activities are not expected to result in impacts to desert tortoise and banded Gila monster, if present. Vehicle use of the upgraded road would be consistent with the types and magnitude of activities that currently occur at the reservoir and vehicles are required to maintain low vehicle speeds and remain on designated roads. Periodic testing of the valve is not expected to result in adverse impacts to desert tortoise, if present, as this species is not expected to occur within the dense riparian habitat at this location. Banded Gila monster, if present, can utilize desert riparian areas for foraging; however, periodic testing of the valve is not expected to result in adverse impacts to this species as these activities would mimic natural rain events. Additionally, Metropolitan would continue to implement its Standard Practice of WEAP training during operational activities to educate all workers of sensitive biological resources in the proposed Project area.

### ***Golden Eagle, Bald Eagle, and American Peregrine Falcon***

Golden and bald eagles are protected by the federal BGEPA and designated as a CDFW FP species. Bald eagle is listed as endangered under the CESA. The American peregrine falcon is a CDFW FP species.

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Although suitable nesting habitat occurs along the steep mountainous cliffs in the proposed Project area, golden eagles have a low potential to nest as these sites have been recently occupied by bald eagles. As recently as 2019, bald eagles had been documented nesting in a tree within the basin; however, this tree fell over during a windstorm in the fall of 2020. The bald eagle pair were subsequently observed nesting on a cliff approximately one-half mile southeast of the dam, but the nest was determined to be inactive during the most recent surveys for the proposed Project. American peregrine falcons require cliffs between 50 and 200 meters (164 to 656 feet) or suitable surrogates that are close to preferred foraging areas for breeding. Although no falcon nests were observed during surveys, suitable habitat is present and there is a moderate potential that falcons could nest in or near the proposed Project area.

Each of these species is a wide-ranging predator and the proposed Project area provides suitable foraging habitat. Bald eagle and peregrine falcon were observed in flight over the proposed Project area during surveys. Although no golden eagles were observed, there is a high potential for the species to occur and it is expected to forage throughout the proposed Project area and broader region throughout the year.

Direct impacts to eagles and peregrine falcon could include disruption of foraging activity or loss or degradation of foraging habitat due to increased dust, noise and disturbance, and the release of hazardous materials. Work conducted in proximity to active nests can also result in nest failure or added vigilance which may limit the foraging time of these species. Indirect impacts include the degradation of habitat due to the introduction and spread of invasive weeds and increased human presence.

During construction, vehicles and equipment would use the existing dirt road to gain access below the dam. If the bald eagle nests at or near the historic nest located above Copper Basin Wash, use of the road within Copper Basin Wash would come within 550 feet of the nest. In addition, one steep section of the road that would be graded and paved with concrete is approximately 990 feet from the nest. Other work areas, including the valve replacement area, would be located approximately 1,800 feet from the nest and are in a narrow slot canyon which shields the work from the nest. Metropolitan would attempt to perform work in these areas outside the breeding season. However, the duration of the Project is approximately two years, and it is possible eagles would nest at or near the old nest site.

Any disturbance to nesting eagles or peregrine falcons would be considered a significant impact without mitigation. Impacts from the disruption of foraging habitat is not anticipated to be significant as large areas of the reservoir would remain open to foraging and work would not preclude access to foraging habitat. Barge use, if utilized to support construction, is expected to be used only for moving large pieces of equipment to the face of the dam.

As part of the proposed Project, Metropolitan would implement its Standard Practice of Environmental Assessment to determine site conditions at the time of construction along with WEAP training to educate workers on the environmental sensitivities in the proposed Project area. Furthermore, Metropolitan's Standard Practices regarding nesting bird surveys would be implemented. In addition to the above listed Standard Practices, implementation of Mitigation Measures BIO-4 (Special-Status Wildlife Species Surveys) and BIO-5 (Special-Status Wildlife Avoidance and Minimization) would be required. These measures would require identification of golden and bald eagle and peregrine falcon individuals that may be present within the proposed Project area and application of appropriate avoidance and/or minimization measures prior to



proposed Project activities. With the implementation of these measures, impacts to eagles and peregrine falcon would be reduced to less-than-significant levels because direct impacts would be avoided and indirect impacts within suitable habitat would be limited and not likely to substantially reduce local populations or these species' ability to persist once the proposed Project.

Operational activities are not expected to result in impacts to eagles and peregrine falcons. Vehicle use of the upgraded road would be consistent with the types and magnitude of activities that currently occur at the reservoir and vehicles are required to maintain low vehicle speeds and always remain on designated roads. Periodic testing of the valve would occur outside the breeding season and is not expected to result in adverse impacts to these species. Additionally, Metropolitan would continue to implement its Standard Practice of WEAP training during operational activities to educate all workers of sensitive biological resources in the proposed Project area.

### ***Burrowing Owl***

Burrowing owl is a CDFW SSC and has a high potential to occur in or adjacent to the proposed Project area due to the detection of owl sign during 2021 reconnaissance surveys. The sign was observed in a naturally occurring rock cavity at a small canyon located approximately 200 feet from the existing access road. The cavity/burrow was inactive but the sign at the burrow indicates that it was likely occupied by a wintering or transient burrowing owl in the recent past. However, no burrowing owl or their sign were detected during the 2022 reconnaissance surveys or in any other areas along the access roads, laydown areas, or in Copper Basin Wash.

Road construction could affect burrowing owl should any individuals or active burrows occur on or near the Project site during construction. This could include the loss and degradation of habitat, mortality due to collisions with vehicles or heavy equipment, destruction of burrows, fugitive dust, release of hazardous materials, and increased noise and disturbance. Adult burrowing owls would generally shelter in their burrow rather than flee from disturbance, and construction, and could result in injury and mortality to adults, damage or destruction of burrows, and injury or mortality to eggs and nestlings. Indirect impacts include the introduction and spread of invasive weeds, providing predator subsidies, and increased human presence.

If burrowing owls occur in the Project area during construction, impacts would be considered significant without mitigation. As part of the proposed Project, Metropolitan would implement its Standard Practices of Environmental Assessment to determine site conditions prior to proposed Project activities and WEAP training to educate workers on environmental sensitivities in the proposed Project area. Additionally, Metropolitan's Standard Practices regarding nesting birds would be implemented. Furthermore, to avoid potentially significant impacts, implementation of Mitigation Measures BIO-4 (Special-Status Wildlife Species Surveys) and BIO-5 (Special-Status Wildlife Species Avoidance and Minimization) would be required. These measures would require identification of burrowing owl individuals or active burrows that may be present within the proposed Project area and application of appropriate avoidance or minimization measures prior to construction activities. With the implementation of these measures, impacts to burrowing owl, if present, would be reduced to less-than-significant levels because direct impacts would be avoided and indirect impacts within suitable habitat would be limited and not likely to substantially reduce local populations or their ability to persist once the proposed Project is complete.

Operational activities are not expected to result in impacts to burrowing owl, if present. Vehicle use of the upgraded road would be consistent with the types and magnitude of activities that

currently occur at the reservoir and vehicles are required to maintain low vehicle speeds and always remain on designated roads. Periodic testing of the valve would occur outside the breeding season and is not expected to result in adverse impacts to this species. Additionally, Metropolitan would continue to implement its Standard Practice of WEAP training during operational activities to educate all workers of sensitive biological resources in the proposed Project area.

***Costa's Hummingbird, Willow Flycatcher, Yellow-Breasted Chat, Loggerhead Shrike, Lucy's Warbler, Gila Woodpecker, Vermilion Flycatcher, Double-Crested Cormorant, Yuma Ridgway's Rail, Arizona Bell's Vireo, and Other Birds***

Willow flycatcher, Gila woodpecker, and Arizona Bell's vireo are listed as endangered under CESA. Yuma Ridgway's rail is listed as endangered under FESA, threatened under CESA, and is considered a CDFW FP species. Yellow-breasted chat, loggerhead shrike, Lucy's warbler, and vermilion flycatcher are considered CDFW SSC. Costa's hummingbird and double-crested cormorant are designated as CNDDDB Special Animals.

Willow flycatcher typically occurs in riparian woodland habitat that is characterized by a dense growth of willow (*Salix* spp.), cottonwood (*Populus* spp.), and sycamore (*Platanus* spp.) trees and mulefat (*Baccharis salicifolia*) with a herbaceous understory. Although two willow flycatcher (*E. traillii*) individuals were observed within the riparian habitat around the Copper Basin Reservoir during 2022 protocol-level surveys, they were detected prior to the nesting season. Since no nesting activity was identified during subsequent surveys, these individuals were determined to be migrants and not the federally listed southwestern willow flycatcher subspecies (*E. t. extimus*). Therefore, willow flycatcher and southwestern willow flycatcher are not expected to nest in or near the proposed Project area. Yuma Ridgway's rail inhabits freshwater marshes along the lower Colorado River. There are several occurrence records for this species along the river to the north and south of the proposed Project area (CDFW, 2022a). However, it was not observed during 2021 and 2022 focused bird surveys and marsh habitat around the Copper Basin Reservoir is limited. Therefore, there is a low potential for Yuma Ridgway's rail to nest in or near the proposed Project area. However, the proposed Project area supports suitable foraging habitat around Copper Basin Reservoir and the species may occasionally occur in or near the proposed Project area while foraging.

Gila woodpecker excavates cavity nests in large trees (mainly restricted to riparian habitats), saguaro cacti, and manmade structures (e.g., wooden power poles). There are several occurrence records along the Colorado River within five miles of the proposed Project area (CDFW, 2022a). Vermilion flycatcher typically nests in native riparian trees, such as willows, cottonwoods, and sycamores, especially in parks or near human habitation. This species has been recently documented south of Parker Dam and around Buckskin Mountain State Park approximately five miles southeast and south, respectively, from the proposed Project area (iNaturalist, 2021). Arizona Bell's vireo nests in riparian vegetation and mesquite thickets along the lower Colorado River and suitable habitat occurs in the canyon downstream from Copper Basin Dam. This species has been recently documented at numerous locations along the Colorado River within 20 miles southwest of the proposed Project area (CDFW, 2022a). Although the proposed Project area supports suitable breeding and foraging habitat for Gila woodpecker, vermilion flycatcher, and Arizona Bell's vireo, neither species were observed or detected during the 2021 and 2022 protocol-level surveys. Yellow-breasted chat is a migratory species that occurs in California only during the breeding season, which is typically between April and August. In California, it primarily breeds

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in the northern portion of the state and is scarce in the central and southern portions. It typically utilizes dense riparian thickets and brushy tangles near watercourses for breeding. Although not detected during the 2021 and 2022 focused bird surveys, they are known from upstream and downstream records within twenty miles of the proposed Project area and suitable foraging and breeding habitat is present (CDFW, 2022a).

One individual Costa's hummingbird was identified along the access road within the southern portion of the proposed Project area and there are numerous recent records in the vicinity of Parker Dam less than ten miles away (iNaturalist, 2021). There are several occurrence records for loggerhead shrike associated with lower elevations surrounding the Whipple Mountains (iNaturalist, 2021). One individual shrike was observed along the access road and may have been nesting within the vicinity of the proposed Project area. Lucy's warbler is a migratory songbird that breeds in desert riparian woodlands. Its breeding range extends through much of Arizona and parts of the eastern California deserts, throughout much of the lower Colorado Valley. This species typically nests in unoccupied woodpecker nests or other cavities in trees. Lucy's warbler was identified during the 2022 focused bird surveys in the canyon just below the dam and at the laydown area. It is a likely nester in the area. Double-crested cormorant was observed flying over the basin during surveys; however, the proposed Project area does not support suitable breeding habitat for this species.

Implementation of the proposed Project is not expected to result in impacts to willow flycatcher, Gila woodpecker, Yuma's Ridgway rail, Arizona Bell's vireo, or double-crested cormorant since these species were not identified nesting in the proposed Project area during the 2021 and 2022 focused bird surveys or the proposed Project area provides limited to no suitable nesting habitat. The proposed Project could impact Costa's hummingbird, yellow-breasted chat, loggerhead shrike, Lucy's warbler, vermilion flycatcher, and other nesting migratory birds, if present, should construction activities be conducted during the breeding season.

Implementation of the proposed Project would remove up to 0.62 acres of vegetation along the existing access road and along the margins of the reservoir where rock energy dissipators would be placed below the Arizona crossings. Vegetation is not expected to be removed from the riparian corridor below the dam as vehicles would use an existing access road. The removal of vegetation in other areas could result in the loss of nesting habitat for a variety of songbirds and shorebirds, particularly species that nest in dense stands of cattails. Nesting trees used by songbirds or eagles would not be removed. If work is conducted during the breeding season, construction activities could directly impact special-status and other nesting migratory bird species if nests or eggs are destroyed or if breeding behavior is disturbed resulting in nest abandonment or failure. Indirect impacts include the introduction and spread of invasive weeds, providing predator subsidies, and increased human presence.

Except for a few non-native birds such as European starling (*Sturnus vulgaris*) and house sparrow (*Passer domesticus*), the loss of any active bird nests or young is regulated by the MBTA and Fish and Game Code Section 3503 and would be considered a significant impact without mitigation. As part of the proposed Project, Metropolitan would implement its Standard Practices of Environmental Assessment to determine site conditions prior to proposed Project activities and WEAP training to educate workers on environmental sensitivities in the proposed Project area. Additionally, Metropolitan's Standard Practices regarding nesting birds would be implemented. Furthermore, to avoid potentially significant impacts should nesting birds be identified within the

proposed Project area, implementation of Mitigation Measures BIO-4 (Special-Status Wildlife Species Surveys) and BIO-5 (Special-Status Wildlife Species Avoidance and Minimization) would be required. These measures would require identification of nesting birds that may be present within the proposed Project area and application of appropriate avoidance or minimization measures prior to construction activities. With the implementation of these measures, impacts to special-status and other nesting migratory bird species, if present, would be reduced to less-than-significant levels because direct impacts would be avoided and indirect impacts within suitable habitat would be limited and not likely to substantially reduce local populations or their ability to persist once the proposed Project is complete.

Operational activities are not expected to result in impacts to these nesting birds. Vehicle use of the upgraded road would be consistent with the types and magnitude of activities that currently occur at the reservoir and vehicles are required to maintain low vehicle speeds and remain on designated roads. Periodic testing of the valve would occur outside the breeding season and is not expected to result in adverse impacts to nesting birds. Additionally, Metropolitan would continue to implement its Standard Practice of WEAP training during operational activities to educate all workers of sensitive biological resources in the proposed Project area.

### ***Ringtail, American Badger, and Desert Kit Fox***

Ringtail and desert kit fox are CDFW FP species and American badger is a CDFW SSC. Although none of these species were observed or detected in the proposed Project area during 2021 and 2022 surveys, there is a high potential for occurrence.

The nocturnal and highly secretive ringtail inhabit a variety of rocky habitats throughout the southwestern United States. This species has been reported by Metropolitan employees in and around the proposed Project area. American badgers utilize open, arid habitats, but are mostly found in grasslands, savannas, mountain meadows, and desert scrub (Stephenson and Calcarone, 1999). Basic requirements that have been identified for this species include sufficient food (burrowing rodents), friable soils, and relatively open, uncultivated ground (Williams, 1986). American badgers are most often solitary animals that are primarily nocturnal but have been reported occasionally foraging and dispersing during the daytime (Lindzey, 1978). Desert kit fox habitat includes open, arid scrublands, grasslands, and agricultural lands. Creosote bush scrub is the most common habitat association for desert kit fox in California (McGrew, 1979). Desert kit fox require friable soils for digging dens. Dens are used for cover, protection from predators and heat, and pup rearing. Suitable soil for dens may be a limited resource for kit fox distribution. These wide-ranging species could enter the Project area or occur in adjacent buffer areas that were not subject to extensive surveys, although American badger and desert kit fox are not likely to occur below the dam in the dense riparian area.

Direct impacts to these species could include injury or mortality to individual animals, disturbance or destruction of natal dens during the pup-rearing season, the loss of habitat, and exposure to hazardous materials. Indirect impacts would include degradation of habitat due to the introduction and proliferation of invasive or noxious weeds. If present, these impacts would be significant without mitigation.

Ringtail, American badger, and desert kit fox could occur almost anywhere in and around the proposed Project area. Should these species be present, injury or mortality of individuals during road improvements and access road use could occur. Animals could also become entrapped if they enter

the slot canyon below the dam prior to construction crews commencing work. Given the mobility and elusive nature of each of these species, it is likely that they would disperse into nearby habitat, avoiding human interactions during proposed Project activities. However, the proposed Project area and surrounding areas support suitable denning habitat and construction activities could result in disturbance to natal dens if performed during the pup-rearing season.

If any of these species occur in or near the proposed Project area during construction, impacts would be considered significant without mitigation. As part of the proposed Project, Metropolitan would implement its Standard Practice of Environmental Assessment to determine site conditions prior to proposed Project activities and WEAP training to educate workers on environmental sensitivities in the proposed Project area. In addition to the above listed Standard Practices, implementation of Mitigation Measure BIO-6 (Conduct Surveys and Avoidance for Ringtail, American Badger, and Desert Kit Fox) would further reduce potential impacts to ringtail, American badger, and desert kit fox should they occur. These measures would require identification of individuals or active dens that may be present within or near the proposed Project area and application of appropriate avoidance and/or minimization measures prior to construction activities. With the implementation of these measures, impacts to these species, if present, would be reduced to less-than-significant levels because direct impacts would be avoided and indirect impacts would be limited and not likely to impact the species' ability to persist once the proposed Project is complete.

Operational activities are not expected to result in adverse impacts to ringtail, American badger, and desert kit fox, if present. Vehicle use of the upgraded road would be consistent with the types and magnitude of activities that currently occur at the reservoir and vehicles are required to maintain low vehicle speeds and remain on designated roads. These species are highly mobile and would likely move into adjacent habitat when vehicles or Project personnel are using the access road or inspecting the valve below the dam. Periodic testing of the valve is not expected to result in adverse impacts to these species. Additionally, Metropolitan would continue to implement its Standard Practice of WEAP training during operational activities to educate all workers of sensitive biological resources in the proposed Project area.

### ***Desert Bighorn Sheep***

Desert bighorn sheep is a CDFW FP species. This species was observed and/or identified by sign, including tracks and scat, throughout the proposed Project area during surveys. Habitat for bighorn sheep is present in the general Project region; however, the proposed work sites do not provide suitable habitat for lambing which is the most critical time of year for bighorn sheep survival (February 1 through March 31).

Direct impacts to desert bighorn sheep are not anticipated because the species is large and highly visible and therefore can be easily avoided by equipment and personnel during proposed Project activities. Furthermore, bighorn sheep are likely to avoid entering the slot canyon as this area supports limited escape routes, a critical habitat component for the species, and ample access to water is available from other areas of the reservoir. Potential indirect impacts could include increased noise and vibrations and exposure to dust during construction activities. However, these impacts would be temporary in nature and bighorn sheep would likely move away from active work sites and into the abundant natural lands surrounding the Project area.



Nevertheless, impacts to desert bighorn sheep would be considered significant. As part of the proposed Project, Metropolitan would implement its Standard Practice of Environmental Assessment to determine site conditions at the time of construction and WEAP training to educate workers on environmental sensitivities in the proposed Project area. In addition to the above listed Standard Practices, implementation of Mitigation Measure BIO-7 (Construction Monitoring for Bighorn Sheep) would be required to avoid potential impacts to desert bighorn sheep. This measure would require ceasing construction activities if sheep enter work areas, implementing appropriate avoidance buffers if sheep are present within the vicinity of construction activities, and maintaining a reasonable speed limit on access roads to avoid collisions with sheep if they are present in the area. With the implementation of these Standard Practices and measures, impacts to desert bighorn sheep would be reduced to less-than-significant levels because direct impacts would be avoided and indirect impacts within suitable habitat would be limited and not likely to substantially reduce local populations or their ability to persist once the proposed Project is complete.

Operational activities are not expected to result in adverse impacts to desert bighorn sheep. Vehicle use of the upgraded road would be consistent with the types and magnitude of activities that currently occur at the reservoir and vehicles are required to maintain low vehicle speeds and remain on designated roads. This species is highly mobile and would likely move into adjacent habitat when vehicles or Project personnel are using the access road or inspecting the valve below the dam. Periodic testing of the valve is not expected to result in adverse impacts to this species. Additionally, Metropolitan would continue to implement its Standard Practice of WEAP training during operational activities to educate all workers of sensitive biological resources in the proposed Project area.

### ***Mountain Lion***

Mountain lion is a candidate for threatened or endangered status under CESA. Mountain lion has a moderate potential to occur within the proposed Project area because it is located within open desert habitat within the species' range. While the proposed Project site is too small to support long-term use by mountain lions, the entire Project area is likely used for foraging and denning.

Direct impacts to mountain lion are not anticipated because the species is large and highly visible and therefore can be easily avoided by equipment and personnel during proposed Project activities. Potential indirect impacts could include the disturbance to individual lions and/or denning sites, if present, from increased sound and vibration and exposure to dust. However, disturbance associated with proposed Project activities would be temporary in nature and individual lions would likely move away from active work sites and into the abundant natural lands surrounding the Project area.

Nevertheless, impacts to mountain lion individuals and/or denning sites, if present, would be considered significant. As part of the proposed Project, Metropolitan would implement its Standard Practice of Environmental Assessment to determine site conditions at the time of construction and WEAP training to educate workers on environmental sensitivities in the proposed Project area. In addition to the above listed Standard Practices, implementation of Mitigation Measure BIO-8 (Conduct Focused Surveys for Mountain Lion and Avoid Denning Areas) would be required to avoid potential impacts to desert bighorn sheep. This measure would require focused surveys prior to construction activities that could potentially disturb active dens and the implementation of appropriate avoidance buffers if active dens are identified in or near the proposed Project area. With the implementation of these Standard Practices and measures, impacts to mountain lion

would be reduced to less-than-significant levels because direct impacts would be avoided and indirect impacts within suitable habitat would be limited and not likely to substantially reduce local populations or their ability to persist once the proposed Project is complete.

Operational activities are not expected to result in adverse impacts to mountain lion, if present. Vehicle use of the upgraded road would be consistent with the types and magnitude of activities that currently occur at the reservoir and vehicles are required to maintain low vehicle speeds and remain on designated roads. This species is highly mobile and would likely move into adjacent habitat when vehicles or Project personnel are using the access road or inspecting the valve below the dam. Periodic testing of the valve is not expected to result in adverse impacts to this species. Additionally, Metropolitan would continue to implement its Standard Practice of WEAP training during operational activities to educate all workers of sensitive biological resources in the proposed Project area.

### ***Special-Status Bats***

Pallid bat, Townsend's big-eared bat, western mastiff bat, California leaf-nosed bat, and cave myotis are all designated as CDFW SSC while Yuma myotis is considered a CNDDB Special Animal.

Emergent and acoustic surveys for special-status bats were conducted to assess which species are roosting or foraging in the proposed Project area. Canyon bat (*Parastrellus hesperus*) was the most abundant species detected during the surveys. This species, along with other common bat species detected during the surveys, appear to move into the area to forage while roosting at other sites away from the proposed Project area. With the exception of Yuma myotis, no other special-status bat species were detected. Small numbers of Yuma myotis were identified day roosting in the valve house at the base of the dam. Common bats were detected foraging over the Project area but appear to move into the area from other areas.

Bat life histories vary widely. Some species hibernate during winter or migrate to warmer areas. During the breeding season, bats generally roost during the day, either alone or in communal roost sites, depending on species. Most special-status bats roost in rock crevices, caves, abandoned mine shafts, or old buildings. Others may roost in tree cavities, bark crevices, or foliage. Roost sites may be used seasonally (e.g., hibernacula) or daily (day roosts, used during inactive daylight hours). Maternity roosts (where female bats congregate to give birth and raise young) are particularly important. Each of the species listed above is insectivorous, catching their prey either on the wing or on the ground. Some forage over open shrublands or over open water, both of which can be found within the proposed Project area. The decline of bat populations is often due to loss of roost sites, roost site disturbance, and loss of foraging habitat.

California leaf-nosed bat, cave myotis, and Townsend's big-eared bat prefer to roost in caves and tunnels where thermal conditions are more stable, but they have been observed roosting under ledges and other structures. Pallid bat can roost in rock outcrops along with other bats and could occur near the dam. Bats can also use manmade structures such as valve boxes, adits (i.e., access tunnels both concrete and natural), and pipes.

Direct impacts to bats could include mortality or displacement of bats during ground-disturbing activities associated with work below the dam, road repair activities, increased noise levels from heavy equipment, human presence, and exposure to fugitive dust. Noise, vibration, and human activity could disrupt maternity roosts during the breeding season. Indirect effects could include

increased traffic, dust, and human presence in the proposed Project area that could result in bats abandoning their roosts or maternal colonies. For example, Townsend's big-eared bat is known to abandon young when disturbed. Based on emergent and acoustic studies completed for the proposed Project, the site does not support important nursery or roosting sites for large numbers of bats. However, it is possible that special-status bats could move into the area at some point to forage or roost.

Impacts to special-status bats, should they occur in the proposed Project area, would be considered significant without mitigation. As part of the proposed Project, Metropolitan would implement its Standard Practices of Environmental Assessment to determine site conditions at the time of construction and WEAP training to educate workers on environmental sensitivities in the proposed Project area. In addition to the above listed Standard Practices, implementation of Mitigation Measure BIO-9 (Survey for Maternity Colonies or Hibernaculum for Roosting Bats) would be required to avoid potential impacts to special-status bats. This measure would require preconstruction surveys for roosting bats prior to construction activities and the avoidance of maternity colonies or hibernaculum. It would also require the safe eviction of known day roosting sites for Yuma myotis and exclusion from the site during construction activities. With the implementation of these Standard Practices and measures, impacts to special-status bats would be reduced to less-than-significant levels because direct impacts would be avoided and indirect impacts within suitable habitat would be limited and not likely to substantially reduce local populations or their ability to persist once the proposed Project is complete.

Operational activities are not expected to result in adverse impacts to these species. Vehicle use of the upgraded road would be consistent with the types and magnitude of activities that currently occur at the reservoir and vehicles are required to maintain low vehicle speeds and remain on designated roads. These species are primarily nocturnal or active during crepuscular periods when typical operational activities are not conducted. Roosting habitat below the dam would not be disturbed and bats would be prevented from entering the new valve structure. Periodic testing of the valve is not expected to result in adverse impacts to bats. Additionally, Metropolitan would continue to implement its Standard Practice of WEAP training during operational activities to educate all workers of sensitive biological resources in the proposed Project area.

### ***Mitigation Measures***

**BIO-1 Special-Status Plant Species Surveys.** Prior to any ground disturbing activities that are initiated after the spring 2023 blooming season, Metropolitan shall conduct surveys for special-status plants in areas of suitable habitat. Surveys shall be conducted by a qualified botanist during the flowering season in suitable habitat located within proposed Project disturbance areas and a 50-foot buffer. All special-status plant species identified in the proposed Project area shall be mapped onto a site-specific aerial photograph and/or topographic map. Surveys shall be conducted in accordance with the most current protocols established by the CDFW and USFWS. If federally listed, state listed, or California Rare Plant Ranking 1B or 2B species are found, avoidance and minimization measures shall be implemented in accordance with Mitigation Measure BIO-2.

**BIO-2 Special-Status Plant Species Avoidance and Minimization.** If federally listed, state listed, or California Rare Plant Ranking 1B or 2B species are found during

special-status plant surveys conducted pursuant to Mitigation Measure BIO-1, then avoidance measures shall be implemented to avoid impacting these plant species. Rare plant occurrences that are not within the immediate disturbance footprint but are located within 50 feet of disturbance limits shall be protected at least 30 feet beyond their extent, or other distance as approved by a monitoring biologist, to protect them from harm. If avoidance of federally listed or state listed plant species is not feasible, impacts shall be fully offset through implementation of a restoration plan that results in no net loss in accordance with Mitigation Measure BIO-3.

**BIO-3 Special-Status Plant Species Revegetation.** If avoidance of federally listed, state listed, and/or California Rare Plant Rank 1B or 2B species is not feasible, the individuals shall be transplanted, and surrounding topsoil shall be salvaged to be incorporated into the revegetation process for the site. A special-status plant restoration plan shall be prepared and implemented that includes the following criteria at a minimum:

- The number of specimens affected for each species.
- Identification of onsite or offsite preservation location(s).
- Methods for restoration, enhancement, and/or transplanting, including topsoil salvage and planting seeds of the affected species.
- A replacement ratio of 1:1 per impacted specimen.

**BIO-4 Special-Status Wildlife Species Surveys.** For all proposed Project work areas, Metropolitan shall implement preconstruction wildlife surveys for special-status wildlife species with a moderate to high potential to occur. Surveys shall be conducted in areas of suitable habitat no more than 72 hours prior to the start of proposed Project activities. The survey area shall include the proposed Project area and all ingress/egress routes, plus a 100-foot buffer (unless otherwise defined by Mitigation Measures BIO-6, BIO-8, and BIO-9).

**BIO-5 Special-Status Wildlife Species Avoidance and Minimization.** Metropolitan shall develop and implement appropriate avoidance measures for special-status wildlife species occurring within or near the proposed Project area. Avoidance measures may include but are not limited to:

- Flagging or fencing of any special-status species burrows or nests by a monitoring biologist and establishing an appropriate buffer to ensure avoidance during proposed Project activities.
- Monitoring by a monitoring biologist during initial ground-disturbing activities. Once initial ground-disturbing activities have been completed, the biologist shall conduct preconstruction clearance surveys, as necessary.
- If at any time during proposed Project activities a special-status species enters work areas or otherwise may be impacted by construction, activities at the site where the find occurred shall cease until the individual has moved out of the work area and/or buffer on its own accord.

**BIO-6      Conduct Surveys and Avoidance for Ringtail, American Badger, and Desert Kit Fox.** Metropolitan shall conduct pre-construction surveys for ringtail, American badger, and desert kit fox no more than 15 days prior to initiation of construction activities. Surveys shall be conducted in areas that contain habitat for these species and shall include Project disturbance areas and access roads plus a 200-foot buffer surrounding these areas. If dens are detected, each den shall be classified as inactive, potentially active, active non-natal, or active natal.

Inactive dens that would be directly impacted by road grading shall be excavated either by hand or mechanized equipment under the direct supervision of the biologist and backfilled to prevent reuse by ringtails, badgers, or kit fox. Potentially and known active dens shall not be disturbed during the whelping/pupping season (February 1 – September 30). A den may be declared “inactive” after three days of monitoring via camera(s) or a tracking medium have shown no ringtail, badger, or kit fox activity.

Active dens shall be flagged and Project activities within 200 feet shall be avoided. Buffers may be modified by a qualified biologist. If active dens are found within Project disturbance areas and avoidance is not possible, Metropolitan shall take action as specified below.

**Active and potentially active non-natal dens.** Outside the breeding season, any potentially active dens that would be directly impacted by construction activities shall be monitored by a qualified biologist for three consecutive nights using a tracking medium (such as diatomaceous earth or fire clay) or infrared camera stations at the entrance. If no tracks are observed in the tracking medium or no photos of the target species are captured after three nights, the den may be excavated and backfilled by hand. If tracks are observed, the den may be progressively blocked with natural materials (rocks, dirt, sticks, and vegetation piled in front of the entrance) for the next three to five nights to discourage continued use. After verification that the den is no longer active, the den may be excavated and backfilled by hand.

**Active natal dens.** Active natal dens or any den active during the breeding season will not be excavated or passively relocated. The pup-rearing season is generally from February 1 through September 30. A 300-foot no-disturbance buffer shall be maintained around all active natal dens. A qualified biologist shall monitor the natal den until they determine that the pups have dispersed. Any disturbance to animals or activities that might disturb denning activities shall be prohibited within the buffer zone. Once the pups have dispersed, methods listed above for non-natal dens may be used to discourage den reuse. After verification that the den is unoccupied, it shall then be excavated by hand and backfilled to ensure that no animals are trapped in the den.

**BIO-7      Construction Monitoring for Bighorn Sheep.** If bighorn sheep are detected within 300 feet of project activities, construction shall cease until the bighorn sheep have moved a safe distance away from Project activities. If bighorn sheep become acclimated to any activity and the biologist determines that Project activities are unlikely to adversely affect the animals, then Project activities can proceed. If the



animals appear agitated, the biologist may increase the buffer distance and suspend Project construction.

**BIO-8 Conduct Surveys for Mountain Lion and Avoid Denning Areas.** If construction activities that could disturb potential denning sites (i.e., large trees, cavities, rock piles, pipes, or overhangs) will occur during the breeding season for mountain lions (April through September), a qualified biologist will conduct surveys for potential dens within 200 feet of all areas proposed for disturbance. Any active dens will be avoided and an appropriate disturbance-free buffer will be established. Once the young have left the den or the den is no longer active, construction activities can resume.

**BIO-9 Survey for Maternity Colonies or Hibernaculum for Roosting Bats.** Prior to the initiation of Project activities within suitable bat roosting habitat, Metropolitan shall retain a qualified biologist to conduct surveys for sensitive bats. Surveys shall be conducted no more than 15 days prior to the initiation of work near the base of the dam or near other structures that could support bats. Surveys shall also be conducted during the maternity season (March 1 to July 31) within 300 feet of Project activities, where safe access is possible. If active maternity roosts or hibernacula are found, the structure, tree, or feature occupied by the roost shall be avoided (i.e., not removed), if feasible. If avoidance of the maternity roost is not feasible the biologist will implement the following actions.

**Maternity Roosts.** If a maternity roost will be impacted/removed by the Project, and no alternative maternity roost exists in proximity, substitute roosting habitat for the maternity colony shall be provided in an adjacent area free from Project impacts. Alternative roost sites will be designed to meet the needs of the specific species. Alternative roost sites must be of comparable size and proximal in location to the impacted colony.

**Exclusion of bats prior to eviction from roosts.** If non-breeding bat hibernacula are found in trees or structures in the Project area, the individuals shall be safely evicted, under the direction of a qualified biologist, by opening the roosting area to allow airflow through the cavity or other means determined appropriate by the biologist (e.g., installation of one-way doors). In situations requiring one-way doors, a minimum of one week shall pass after doors are installed and temperatures should be sufficiently warm for bats to exit the roost. Roosts that need to be removed in situations where the use of one-way doors is not necessary shall first be disturbed by various means at the direction of the bat biologist at dusk to allow bats to escape during the darker hours.

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

**Less Than Significant Impact with Mitigation Incorporated.** The proposed Project would not 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 CDFW or USFWS.

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Natural communities with ranks of S1 (Critically Imperiled), S2 (Imperiled), or S3 (Vulnerable) are considered Sensitive Natural Communities by CDFW. Based on these rankings, three CDFW Sensitive Natural Communities were documented in the proposed Project area. These include Saguaro – foothill palo verde – velvet mesquite desert scrub (*Carnegiea gigantea* - *Parkinsonia microphylla* - *Prosopis velutina* Provisional Shrubland Alliance) (S2), Fremont cottonwood forest and woodland (*Populus fremontii* - *Fraxinus velutina* - *Salix gooddingii* Forest & Woodland Alliance) (S3), and arrow weed thickets (*Pluchea sericea* Alliance) (S3) (see Figures 2a through 2e in Appendix B.1).

A summary of the permanent and temporary impacts to all vegetation communities, including CDFW Sensitive Natural Communities, and other land cover types is presented in Table 3.4-3.

<b>Table 3.4-3 – Summary of Impacts to Vegetation Communities and Other Land Cover Types</b>				
<b>Vegetation Community or Other Land Cover Type</b>	<b>Total Acres in Survey Area</b>	<b>Total Acres in Project Area</b>	<b>Permanent Impacts (acres)</b>	<b>Temporary Impacts (acres)</b>
Saguaro – foothill palo verde – velvet mesquite desert scrub*	15.75	1.66	0.23	1.43
Fremont cottonwood forest and woodland*	0.18	0.00	0.00	0.00
Arrow weed thickets*	3.14	0.20	0.10	0.10
Cattail marshes	1.06	0.24	0.13	0.11
Disturbed or developed	7.76	3.32	0.87	2.45
Open water	0.21	0.002	0.001	0.002
<b>Total</b>	<b>28.10</b>	<b>5.42</b>	<b>1.33</b>	<b>4.09</b>

Notes: Total acres in survey area includes the proposed Project area and a 50-to-300-foot buffer.

\* CDFW Sensitive Natural Community

The proposed Project would result in permanent and temporary impacts to the riparian habitats and other CDFW Sensitive Natural Communities listed in Table 3.4-3. Direct impacts from implementation of the proposed Project would include removal of vegetation, altered soil conditions, and disturbance to native seed banks. In addition, use of the access road could result in impacts from exposure to fugitive dust. Indirect impacts could occur from the introduction or spread of non-native weeds. Most of the vegetation disturbance would occur in sparsely vegetated areas along the existing access road or along the margins of the reservoir within discontinuous habitat segments.

The proposed Project would result in temporary impacts of 1.43 acres to Saguaro – foothill palo verde – velvet mesquite desert scrub. Metropolitan would implement its Standard Practice of returning temporary work areas to similar conditions that existed prior to ground-disturbing activities. The proposed Project would also result in permanent impacts of 0.23 acre of Saguaro – foothill palo verde – velvet mesquite desert scrub. This habitat is abundant in the region and most impacts would occur along the margins of the previously disturbed access road. Therefore, the

impacts would not be expected to result in substantial adverse effects to the ecological function of the community and these impacts would be less than significant.

The proposed Project would result in temporary impacts of 0.10 acre to arrow weed thickets and 0.11 acre to cattail marsh. These communities are broadly distributed along the margin of the reservoir and based on the location of the habitat, they are expected to recover and naturally become re-established along the margin of the reservoir. Additionally, Metropolitan would implement its Standard Practice of returning temporary work areas to similar conditions that existed prior to ground-disturbing activities. Accordingly, temporary impacts would be considered less than significant. The proposed Project would also result in permanent impacts of 0.10 acre of arrow weed thickets and 0.13 acre of cattail marsh. Permanent impacts to riparian communities would be less than significant with the implementation of Mitigation Measure BIO-10 (Jurisdictional Waters Avoidance and Compensatory Mitigation).

Implementation of the proposed Project is not expected to result in the degradation or loss of riparian habitat or other CDFW Sensitive Natural Communities in downstream areas during initial valve testing. The impacts of controlled flows on seedling establishment and survival have been documented in many riparian systems. In some circumstances, the regulation of flow regimes can result in a loss of riparian vegetation along rivers and streams. However, potential scour from initial valve testing below the dam would more than likely enhance riparian habitat by providing substrate for the germination of new seedlings.

Operational activities are not expected to result in adverse impacts to native vegetation. Vehicle use of the upgraded road would be consistent with the types and magnitude of activities that currently occur at the reservoir and vehicles are required to maintain low vehicle speeds and remain on designated roads. Impacts to vegetation would be limited to herbaceous plants and saplings or to vegetation that has recruited into the access roads. Periodic testing of the valve is not expected to result in adverse impacts to native riparian vegetation as these activities would mimic natural rain events. Additionally, Metropolitan would continue to implement its Standard Practice of WEAP training during operational activities to educate all workers of sensitive biological resources in the proposed Project area.

### ***Mitigation Measure***

**BIO-10 Jurisdictional Waters Avoidance and Compensatory Mitigation.** Where feasible, jurisdictional areas shall be flagged or fenced for avoidance. Vegetation removal or trimming in jurisdictional areas shall be minimized. Temporary impact areas will be returned to similar conditions that existed prior to ground-disturbing activities. Compensatory mitigation at a 1:1 ratio for permanent impacts will occur through purchase of mitigation credits from an agency-approved mitigation bank, or through permittee-responsible mitigation, subject to applicable regulatory agency approval. Mitigation for temporary impacts to jurisdictional waters will occur through on-site restoration at a 1:1 ratio.

- c. Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?*

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**Less than Significant Impact with Mitigation Incorporated.** The proposed Project would not have a substantial adverse effect on state or federally protected wetlands through direct removal, filling, hydrological interruption, or other means with incorporation of mitigation measures.

A preliminary delineation of potential federal and state jurisdictional waters and wetlands was conducted in March 2022 (see Figures 4a through 4o in Appendix B.2). The delineation identified approximately 0.15 acre of non-wetland waters and 0.09 acre of wetlands under the jurisdiction of the USACE and the CRBRWQCB and approximately 5.55 acres of streambeds and riparian habitat under the jurisdiction of CDFW within the proposed Project area.

Manmade wetlands occur along the margins of the Copper Basin Reservoir and within portions of Copper Basin Wash below the dam. Implementation of the proposed Project would result in approximately 0.04 acre of permanent impacts and 0.11 acre of temporary impacts to non-wetland waters under USACE and CRBRWQCB jurisdiction. Permanent impacts of approximately 0.06 acre and temporary impacts of 0.02 acre of wetlands under the jurisdiction of the USACE and CRBRWQCB would also occur. In addition, the proposed Project would result in approximately 0.25 acre of permanent impacts and 0.29 acre of temporary impacts to streambeds and riparian habitat under the jurisdiction of CDFW. Table 3.4-4 provides a summary of permanent and temporary impacts to federal and state jurisdictional features.

<b>Table 3.4-4 – Summary of Impacts to Federal and State Waters and Wetlands</b>					
	<b>USACE Waters and Wetlands (acres)<sup>a</sup></b>		<b>CRBRWQCB Waters and Wetlands (acres)<sup>a</sup></b>		<b>CDFW Streambeds and Riparian Habitat (acres)</b>
	<b>Non-wetland Waters of the U.S.</b>	<b>Wetlands<sup>b</sup></b>	<b>Non-wetland Waters of the U.S.</b>	<b>Wetlands<sup>b</sup></b>	
Total in Survey Area	1.30	0.94	1.30	0.94	5.55
Total in Project Area	0.15	0.09	0.15	0.09	0.53
Permanent Impact Area	0.04	0.06	0.04	0.06	0.25
Temporary Impact Area	0.11	0.02	0.11	0.02	0.29

(a) Non-wetland waters of the U.S. and non-wetland waters of the state overlap; as such, jurisdictional acreages are not additive.

(b) Wetlands fall under the jurisdiction of the USACE, CRBRWQCB, and CDFW, each with separate extents that overlap; as such, wetland acreages are not additive.

Permanent impacts would occur from the construction of the Arizona crossings, rock riprap energy dissipaters, the replacement of two weirs, construction of the staircase and platform, and upgrading the existing catwalk. Wetland and riparian habitat have developed along the margin of the man-made reservoir. These areas are dominated by cattails and other riparian vegetation. It is likely that vegetation would become re-established in some of these areas following construction. Placement of the Arizona crossings and the energy dissipaters would not substantially alter the function and services of these areas or result in the loss of important nesting or foraging habitat. Most of the reservoir is ringed by wetland vegetation and numerous small bays have formed where the

ephemeral drainages flow into the reservoir. The drainages crossed by the access road are primarily characterized as ephemeral drainages that only flow during periods of heavy rainstorms. Riparian and wetland vegetation present in Copper Basin Wash is supported from seepage from the dam.

Temporary impacts to jurisdictional features would occur through the creation of temporary work areas to facilitate construction of the Arizona crossings, riprap energy dissipaters, weirs, catwalk, platform, and to accommodate the valve house activities. A small pool lacking riparian vegetation has formed from leakage below the dam. The pool in this area would be drained upon removal of Weir 1 and rock or other matting would be placed in this area during construction. Water located in this area would flow downstream through the existing channel that is located parallel to the existing access road. Rock may need to be placed on portions of the access road to accommodate heavy vehicle access. Some of the arrow weed and other riparian vegetation growing in this area may need to be trimmed. At the conclusion of construction, all temporary fills, diversions, and other construction related material would be removed.

Direct impacts to State and federal waters would include the removal of native riparian vegetation, the discharge of fill, placement of concrete structures including the two weirs and the footings required to support the catwalk, stairs, and platform. Indirect impacts could include alterations to the existing topographical and hydrological conditions and the introduction of non-native, invasive plant species. As required by law, Metropolitan would comply with the regulations regarding conducting Project activities in water bodies under the jurisdiction of the regulatory agencies and would obtain permits pursuant to Section 401 and 404 of the CWA, the Porter-Cologne Water Quality Control Act, and sections 1600-1617 of the California Fish and Game Code.

Because jurisdictional waters are considered sensitive by the regulatory agencies, these impacts would be considered significant. As part of the proposed Project, Metropolitan would implement its Standard Practice of WEAP training to educate workers of environmental sensitivities in the proposed Project area. In addition, implementation of Mitigation Measure BIO-10 (Jurisdictional Waters Avoidance and Compensatory Mitigation) would be required. This measure would be implemented to reduce impacts through flagging or fencing jurisdictional waters or wetland areas for avoidance and establishing a compensatory mitigation ratio. With the implementation of this measure, impacts to federal and state waters and wetlands and state streambed and riparian habitat would be reduced to less-than-significant levels.

Operational activities are not expected to result in adverse impacts to jurisdictional features. Vehicle use of the upgraded road would be consistent with the types and magnitude of activities that currently occur at the reservoir and vehicles are required to maintain low vehicle speeds and always remain on designated roads. Use of the road below the dam would continue and periodic road maintenance would continue to occur. Periodic testing of the valve is not expected to result in adverse impacts to jurisdictional features.

### ***Mitigation Measure***

#### **BIO-10 Jurisdictional Waters Avoidance and Compensatory Mitigation.**

- 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. Construction of the proposed Project would not result in permanent barriers to wildlife movement or disrupt native nursery sites.

Access for the proposed Project would occur on existing roads and improvements and repair work would primarily occur in previously developed areas (i.e., dam, existing weirs, and access roads). Bighorn sheep, mountain lion, ringtail, bats, and other wildlife species that occur in the proposed Project area would still be able to forage and move without disruption after the proposed Project is completed. There are no special linkages or essential connectivity areas that cross the proposed Project area or immediate vicinity (CDFW 2022b; Spencer et al. 2010). The CDFW has identified Areas of Conservation Emphasis based on the Terrestrial Connectivity dataset for the region (CDFW, 2022c). This dataset summarizes information on terrestrial connectivity through the presence of mapped corridors or linkages and the juxtaposition to large, contiguous natural areas (CDFW, 2022c). A Rank 2 area (e.g., a large natural habitat area where connectivity is generally intact) is located on the western half of the reservoir and a Rank 3 area (e.g., the area has not been identified as having connectivity importance but may be later identified to have crucial habitat linkages, species corridors, or channelized areas) occurs on the eastern half of the region.

The closest designated habitat connectivity/wildlife corridor to the proposed Project area is a portion of the California Desert Linkage Network, an area identified by the California Desert Connectivity Project to be of essential value to conserve the biological diversity of multiple desert species (Penrod et al. 2012). It is located approximately 4.3 miles east of the proposed Project area, and generally follows the Colorado River and the California-Arizona border. Approximately one mile north and 2.5 miles west of the proposed Project area are Landscape Blocks for the California Desert Linkage Network. As part of the California Essential Habitat Connectivity Project, Natural Landscape Blocks (natural habitat blocks that support native biodiversity) and Interstate Connections (habitat that supports crossing between two states, such as California and Arizona) are located just outside of the Project vicinity within the Whipple Mountains and greater Whipple Mountains Wilderness area (CDFW 2022c). However, none of these corridors or habitat blocks overlap or pass through the proposed Project area. Therefore, impacts related to interfering substantially with wildlife movement or designated movement corridors would be considered 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.** The proposed Project would not conflict with any local policies or ordinances protecting biological resources with mitigation incorporated.

The County of San Bernardino Desert Native Plant Protection ordinance protects certain desert native plants and does not allow the removal of the following plants with stems two inches or greater in diameter or six feet greater in height: smoketree (*Dalea spinosa*), Joshua tree (*Yucca brevifolia*), all species of the genus *Prosopis*, all species of the family Agavaceae, and creosote rings 10 feet or greater in diameter (San Bernardino County, 2007). In addition, any part of any of the following species, whether living or dead, may not be removed: desert ironwood (*Olneya tesota*), all species of the genus *Prosopis*, and all species of the genus *Cercidium*. During the 2021 and 2022 reconnaissance field surveys, multiple trees of the *Prosopis* and *Cercidium* (*Parkinsonia*)

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genera and smoketree were identified within and adjacent to the proposed Project area. Although mapping of these resources was not included in the 2021 and 2022 surveys, numerous *Cercidium* and *Prosopis* trees were observed within temporary and permanent impact areas. Trees of the genera *Prosopis* and *Cercidium* along with smoketrees were also observed downstream of the dam; however, not within any temporary and permanent impact areas.

As part of the proposed Project, Metropolitan would implement its Standard Practices of Environmental Assessment to determine site conditions at the time of construction, WEAP training to educate workers on environmental sensitivities in the proposed Project area and returning temporary work areas to similar conditions that existed prior to ground-disturbing activities. Should any protected plant species need to be removed, Metropolitan would coordinate with the appropriate officials to apply for a Tree or Plant Removal Permit pursuant to § 88.01.050 (Native Tree or Plant Removal Permits) of the San Bernardino County Desert Native Plant Protection ordinance (San Bernardino County, 2007).

Operational activities are not expected to result in conflicts to any tree preservation policies or ordinances, including the County of San Bernardino Desert Native Plant Protection ordinance. Vehicle use of the upgraded road would be consistent with the types and magnitude of activities that currently occur at the reservoir and vehicles are required to always remain on designated roads. Use of the road below the dam would continue and periodic road maintenance would continue to occur. Periodic testing of the valve is not expected to result in adverse impacts to resources covered under the San Bernardino Desert Native Plant Protection ordinance.

*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.** 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 proposed Project area is not located within any existing or proposed Habitat Conservation Plan or Natural Community Conservation Plan area. The nearest plan area to the proposed Project area is Reach 3 of the Lower Colorado River Multi-Species Conservation Program (LCR MSCP) (LCR MSCP, 2004). Reach 3 includes the segment of the Lower Colorado River from Davis Dam to Parker Dam, including Lake Havasu up to full-pool elevation of 450 feet. The proposed Project area is located approximately 4 miles southwest of the margins of Reach 3 before it enters Lake Havasu. Parker Dam Camp, a 200-acre Colorado River historic floodplain area, is the closest designated conservation area being considered for inclusion into the LCR MSCP and is located approximately 4.3 miles east of the proposed Project area. The Parker Dam Camp property is managed to support honey mesquite type III habitat for species covered in the LCR MSCP. The LCR MSCP does not intersect within the proposed Project area or immediate vicinity, and there is no honey mesquite III habitat within the proposed Project area or immediate vicinity. Therefore, the proposed Project would not conflict with a Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan and no impact would occur.

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### 3.5 Cultural Resources

#### CULTURAL RESOURCES

Would the project:

	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a) Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Disturb any human remains, including those interred outside of dedicated cemeteries?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Significance criteria established by CEQA Guidelines, Appendix G.

The cultural resources information presented below is summarized from the Phase I Cultural Resources Assessment Report for the Copper Basin Dam and Access Road Project, San Bernardino County, California, (Appendix C) and the Historic Resources Evaluation Report for Copper Basin Dam (Appendix D).

#### **Metropolitan Standard Practice**

##### **Unanticipated Discovery**

In the event unanticipated archaeological resources are discovered during Project reclamation, all work would cease within 50 feet of the discovery to protect the area until a qualified archaeologist can evaluate the discovery and recommend additional measures for the proper handling and treatment.

##### **Discussion. Would the project:**

- a. *Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?*

**Less than Significant Impact.** The proposed Project would not cause a substantial adverse change in the significance of a historical resource. As part of cultural resource studies, a cultural resource record search was conducted at the South Central Coastal Information Center in March 2022. The record search results did not identify any previously recorded cultural resources or studies within the Project Area or within the 0.25-mile records search radius except for the Colorado River Aqueduct (historical resource CA-SBR-10521; CRA Historic District). The CRA was determined eligible for the National Register of Historic Places (NRHP) and the California Register of Historical Resources in 2010. The Copper Basin Dam and Reservoir are contributors to the CRA Historic District and as such qualify as historical resources pursuant to CEQA.

As described in Section 1.4, the Project would repair aging components of Copper Basin Dam to allow for its continued use and overall function of the CRA. The Project would replace and rehabilitate the gate valve and Howell-Bunger discharge valve within the dam; install new conduit and electrical components; replace the main access ladderway on the dam face; install a new catwalk and stairs adjacent to the discharge valve structure and weir structures; remove and reconstruct two existing concrete weirs downstream of the dam; and install surface conduit and instrumentation from the discharge valve structure to the weirs. The Project would also improve

approximately 1.66 miles of the existing dirt access road around the perimeter of the reservoir, with approximately 13 segments of concrete paving and associated improvements.

The historic integrity and character-defining features of the dam would be retained, including the scale, setting, and location of the dam, its prominent concrete thin arch design, and board-form concrete fabric, as well as its feeling and association as an individually significant structure and within the CRA Historic District. Upgrades to safety proposed with the improved ladderway, addition of stairs and replaced catwalk to the valve house, as well as the upgrades to the electrical, communication, and mechanical systems, would allow for the continuous use of the dam and the overall CRA, and would not adversely impact character-defining features. The use of the dam would not change and would continue to function as a dam within the Copper Basin Reservoir, serving its originally intended function as part of the CRA system. Lastly, the valves would be replaced in-kind to match the existing valves in materials, dimensions, and use; care would be taken to avoid the destruction, obscuring, or removal of adjacent character-defining features. No new features or significantly different detailing would be added to the valves or dam that would change the overall character. Although the Howell-Bunger valve is large in scale, it is a comparatively small feature in relation to the scale of the dam itself. Additionally, Metropolitan regularly maintains access roads along the CRA to allow for maintenance of the CRA and associated infrastructure. The Project does not propose to change the use of the Copper Basin access roads and the grading of or modifying a small segment of the road to continue the function of the CRA does not change the significance of the road as a contributing feature to the larger historic district.

The Project complies with the Secretary of the Interior's Standards for the Treatment of Historic Properties (Secretary's Standards). Implementation of the proposed Project would not result in a significant adverse impact or material impairment. The historical resource would retain its historic integrity following Project implementation, and its status as a contributor to the CRA Historic District and as an individual historic resource. In addition, no indirect impacts would be expected to result to the larger CRA Historic District as a result of Project implementation. Therefore, impacts will be less than significant.

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

**No Impact.** The proposed Project would not cause a substantial adverse change in the significance of an archaeological resource. As part of cultural resource studies, a cultural resources record search was conducted at the South Central Coastal Information Center in March 2022. The record search results did not identify any previously recorded cultural resources or studies within the Project Area or within the 0.25-mile records search radius. A Sacred Lands File search was completed by the Native American Heritage Commission (NAHC) with negative results for the Project Area. As the CEQA Lead Agency, Metropolitan conducted outreach to all persons on the NAHC-provided contact list and detailed letters were sent describing the Project with maps and requested a reply with any questions or concerns. No comments were received. A pedestrian survey of the Project Area was conducted on March 8 and 30, 2022. Archaeologists surveyed 100 percent of the Project Area with 15-meter transects, or less. Ground visibility during the pedestrian survey was 90-100 percent. No archaeological resources were identified during the pedestrian survey.

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The possibility that previously undiscovered buried archaeological resources could be encountered during ground-disturbing activities associated with the Project is considered low. Furthermore, Metropolitan standard construction practices require that in the event unanticipated archaeological resources are discovered during Project construction, all work would cease within 50 feet of the discovery to protect the area until a qualified archaeologist can evaluate the discovery and recommend additional measures for proper handling and treatment. Therefore, there would be no impacts to archaeological resources.

*c. Disturb any human remains, including those interred outside of dedicated cemeteries?*

**Less than Significant Impact.** The proposed Project would not disturb any human remains, including those interred outside of dedicated cemeteries. The cultural resource record search and the intensive pedestrian field survey failed to find any potential for, or evidence of human remains. However, there is the possibility that previously undiscovered, buried remains could be encountered during ground-disturbing activities. Should human remains be encountered, Metropolitan would comply with the State of California's Health and Safety Code Section 7050.5, which states that no further disturbance will occur until the county coroner has made a determination of origin and disposition of the remains pursuant to Public Resources Code Section 5097.98. Adherence to State of California's Health and Safety Code Section 7050.5 would ensure that any unexpected buried human remains that are exposed during construction activities are properly handled and treated. Therefore, impacts will be less than significant.

### 3.6 Energy

Energy	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Significance criteria established by CEQA Guidelines, Appendix G.

**Discussion.** *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?*

**Less than Significant Impact.** The proposed Project would not result in potentially significant environmental impact due to wasteful, unnecessary consumption of energy resources, during Project construction or operation. Energy use associated with the proposed Project would be primarily in the form of diesel and gasoline consumption from on- and off-road vehicles and equipment used during construction. The Project's construction activities are necessary to ensure safe access and ongoing maintenance and inspection activities for Copper Basin Dam and Reservoir, a crucial component of the CRA. Construction would use standard methods and equipment to meet the Project goals and would not create a wasteful, inefficient, or unnecessary consumption of energy resources. The proposed Project would not add new energy requirements for continued maintenance of Copper Basin Dam.



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As shown in Appendix A, the proposed Project would emit approximately 1,418 metric tons of carbon dioxide equivalent (CO<sub>2</sub>e) per year. The volume of diesel consumed during the proposed Project can be estimated by using a general emission factor to gallons for diesel of 10.2 kilograms of CO<sub>2</sub> per gallon. Based on the mass of CO<sub>2</sub>e emissions, approximately 139,020 gallons or 3,310 barrels of diesel fuel would need to be used per year. Impacts would be less than significant.

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

**Less than Significant Impact.** The Project does not conflict with energy efficiency plans, restrict the development of renewable energy projects, or restrict the use of renewable energy. The proposed Project would rehabilitate and replace the discharge valve as a means of improving Colorado River Aqueduct conveyance reliability. Metropolitan's strategies for promoting renewable energy and energy efficiency are in the Metropolitan Water District Climate Action Plan (2022), which includes strategies to achieve carbon neutrality while providing co-benefits such as improved infrastructure reliability, increased energy resiliency, and decreased costs associated with energy procurement and maintenance. The Project does not include energy consumption sources that are directly subject to state or local energy efficiency plans. During operations, maintenance activities would be identical to existing conditions with no increase in energy use. Therefore, the Project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency. Impacts would be less than significant.

### 3.7 Geology and Soils

#### GEOLOGY AND SOILS

Would the project:

	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
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.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
ii) Strong seismic groundshaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iii) Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iv) Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Be located on geologic units 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Be located on expansive soil, as defined in Section 1803.5.3 of the California Building Code (2010), creating substantial direct or indirect risks to life or property?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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## GEOLOGY AND SOILS

Would the project:

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

Potentially  
Significant  
Impact

☐

Less than  
Significant  
With Mitigation  
Incorporated

☐

Less than  
Significant  
Impact

☒

No Impact

☐

Significance criteria established by CEQA Guidelines, Appendix G.

### **Discussion. 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.*

**No Impact.** The proposed Project would not 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 Zoning map. According to the California Department of Conservation (DOC) Earthquake Zones of Required Investigation, the Project is within an unevaluated area, and no fault zones are known exist within the Project site. Pinto Mountain Fault Zone is the closest fault zone, located approximately 100 miles west of the Project site in Twentynine Palms (DOC, 2022). Although there are no known fault zones within or near the Project site, Southern California is a seismically active region, and the Project may experience damage from a strong seismic event. Lurching or cracking of the access road and dam components is possible. However, the proposed Project would not exacerbate existing seismic risks or expose people to the risk of loss, injury, or death, as maintenance of the access road and valve structures would continue as it does under existing conditions. Additionally, no habitable structures would be constructed that would house occupants and expose them to the risk of loss, injury, or death during an earthquake. Therefore, the probability of damage and injury from distant surface fault rupture is considered low. There are no nearby structures that could be damaged, and the Project does not propose any manned facilities. O&M activities would remain the same as existing conditions. Therefore, the proposed Project would not expose people or structures to potential substantial adverse effects caused by the rupture of a known fault. No impact would occur.

ii) *Strong seismic groundshaking?*

**No Impact.** The proposed Project would not cause a substantial adverse impact, either directly or indirectly, from strong seismic ground shaking. Refer to Section 3.7.a(i) above. The Project site is not within or near any known fault zones, and the closest known fault zone is approximately 100 miles west of the Project (DOC, 2022). Therefore, the probability of damage to the proposed Project components from strong seismic ground shaking is considered low. Design of the proposed Project components would be in accordance with California Building Code standards for seismic stability. Conforming to these recommendations and all required building standards would minimize the risk of damage, injury, or death due to strong seismic ground shaking. There are no nearby structures that could be damaged, and the Project does not propose any manned facilities. Therefore, the proposed Project would not expose people or structures to potential substantial

adverse effects caused by strong seismic ground shaking. The proposed Project would result in no impact.

*iii) Seismic-related ground failure, including liquefaction?*

**No Impact.** The proposed Project would not cause a substantial adverse impact, directly or indirectly, from seismic-related ground failure, including liquefaction. Liquefaction typically occurs where the ground water is less than 30 feet from the surface and the soils are predominately of poorly compacted sand. The Project site is not within a known liquefaction zone (DOC, 2022). Therefore, the probability of damage to the proposed Project components from seismic-related ground failure or liquefaction is considered low. The proposed Project would be designed in accordance with California Building Code standards for seismic stability. Conforming to these recommendations and all required building standards would minimize the risk of damage, injury, or death due to strong seismic-related ground failure and liquefaction. The proposed Project would improve the existing access road to provide safe access for maintenance activities and rehabilitate the discharge valve and other dam components. There are no nearby structures that could be damaged, and the Project does not propose any manned facilities. Therefore, the proposed Project would not expose people or structures to potential substantial adverse effects caused by the rupture of a nearby fault that results in ground failure or liquefaction at the Project site. The proposed Project would result in no impact.

*iv) Landslides?*

**No Impact.** The proposed Project would not directly or indirectly cause a potential substantial adverse impact involving landslides. The Project site is not within a known landslide zone (DOC, 2022). Although the electrical components would be located on top of the hill adjacent to the dam, and steep rock walls are located on both sides of the bottom of the dam, no new large structures would be constructed on top of these steep areas. There are no nearby structures that could be damaged from new Project components, and the Project does not propose any manned facilities. The proposed Project is intended to facilitate safe maintenance of Copper Basin Dam. Therefore, the proposed Project would not expose people or structures to potential substantial adverse effects caused by landslides at the Project site. The proposed Project would result in no impact.

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

**Less than Significant Impact.** The proposed Project would not result in substantial soil erosion or the loss of topsoil. Access road improvements would require grading and the removal of some vegetation, which may result in disturbance of topsoil. However, the impact would be temporary because once operational, access road improvements would reduce erosion with the installation of paved gunite concrete sections, riprap, and V-ditches. These components would protect unpaved road sections from erosion and loss of topsoil. Because the Project components would all occur at grade, they would not result in significant changes to levels of topsoil and would not result in significant erosion from either wind or storm events. Furthermore, according to the County of San Bernardino General Plan Hazards Element, the Project site is not within a mapped wind erosion hazard zone (San Bernardino County, 2020b). The closest mapped wind erosion hazard zone is located approximately 1 mile west of the Project site and has a wind erosion potential of “Low” (San Bernardino County, 2020b). Therefore, the Project site is not expected to be affected by wind driven soil erosion. Therefore, the proposed Project would not result in substantial soil erosion or loss of topsoil. The proposed Project would result in a less-than-significant impact.

- c. *Be located on geologic units 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?*

**No Impact.** 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. Refer to Sections 3.7.a.(iii) and 3.7.a.(iv), above, regarding liquefaction and landslide, respectively. The Project site is not within a known liquefaction zone or known landslide zone (DOC, 2022). The proposed Project entails replacement of existing valves, upgrades to appurtenant structures and access road rehabilitation activities, and no adverse ground conditions would be created that would contribute to these types of ground failures. There are no nearby structures that could be damaged, and the Project does not propose any manned facilities. Therefore, the proposed Project would not expose people or structures to potential substantial adverse effects caused by a seismic event or other phenomena that create unstable ground. Given that the Project would not be situated in areas known to have unstable ground conditions and would not otherwise create such conditions, impacts related to unstable geologic units and soil would not occur, and the proposed Project would result in no impact.

- d. *Be located on expansive soil, as defined in Section 1803.5.3 of the California Building Code (2010), creating substantial direct or indirect risks to life or property?*

**No Impact.** The proposed Project would not be located on expansive soil as defined in Section 1803.5.3 of the California Building Code (2010), 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.

According to the Swelling Clays Map of the Coterminous United States (Olive, et al. 1989), soils in San Bernardino and Riverside counties contain little to no swelling clay. In addition, the Project sites are not currently 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, impacts related to expansive soils would not occur.

- 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.** The proposed Project does not include the use of septic tanks, nor does it include any features that require wastewater disposal or connection to the existing wastewater treatment system. Therefore, soil suitability for septic tanks or alternative wastewater disposal systems is not applicable in this case, and the proposed Project would have no impacts associated with septic systems. No impact would occur.

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

**Less than Significant Impact.** The Project will not directly or indirectly destroy a unique paleontological resource or site or unique geologic feature. The Society for Vertebrate Paleontology (SVP 2010) defines significant paleontologic resources as “fossils and fossiliferous deposits, here defined as consisting of identifiable vertebrate fossils, large or small, uncommon invertebrate, plant, and trace fossils, and other data that provide taphonomic, taxonomic, phylogenetic, paleoecologic, stratigraphic, and/or biochronologic information. Paleontological resources are considered to be older than recorded human history and/or older than middle Holocene (i.e., older than about 5,000 radiocarbon years).” Therefore, Metropolitan recognizes that any identifiable vertebrate fossil remains would be considered unique under CEQA, and direct or indirect impacts on such remains would be considered significant. Identifiable invertebrate and plant fossils would be considered unique if they meet the criteria presented above. Determinations would take into account the abundance and densities of fossil specimens or newly and previously recorded fossil localities in exposures of the rock units present at a Project site.

The Project Area is underlain by Holocene alluvium and stream gravels, Miocene nonmarine sedimentary (primarily sandstone with some conglomeritic sandstone) and mixed nonmarine sedimentary and volcanic rocks, and Precambrian gneisses and granitic rocks (NGMD, 2022; USGS, 1988). The San Bernardino Countywide Plan Draft EIR notes that while many Miocene nonmarine sedimentary units are well known for preserving significant vertebrate fossils, the deposits are likely to vary locally in their paleontological sensitivity; finer grained deposits are more likely to have high sensitivity, and coarse-grained deposits such as conglomerate or breccia, have low sensitivity. Therefore, the Miocene sedimentary deposits consisting primarily of sandstone would be classified as having moderate to high paleontological sensitivity. Precambrian gneisses and granitic rocks have low to no paleontologic sensitivity, and the Holocene alluvium and stream deposits have low sensitivity due to their young age.

The proposed Project Area is located primarily within previously disturbed areas at Copper Basin Reservoir and associated access roads and do not contain any surficial unique geologic features. Miocene sandstone with moderate to high paleontological sensitivity underlies portions of the existing access road, sections of the unpaved access road improvements, and the discharge structure rehabilitation area and associated structures. Proposed Project-related ground disturbance would occur primarily on previously disturbed areas and likelihood of encountering unique paleontological resources from Project construction is considered low. Should any unique paleontological resources be encountered, Metropolitan’s standard construction practices ensure that work would be stopped in the immediate area until a paleontologist could validate the discovery. Implementation Metropolitan standard construction practices would ensure that any previously unidentified unique paleontological resources encountered would be protected, therefore impacts are less than significant.

### 3.8 Greenhouse Gas Emissions

#### GREENHOUSE GAS EMISSIONS

Would the project:

Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
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a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Significance criteria established by CEQA Guidelines, Appendix G.

## **OVERVIEW OF CLIMATE CHANGE AND GREENHOUSE GASES**

Climate change is the observed increase in the average temperature of the Earth's atmosphere and oceans along with other substantial changes in climate (such as wind patterns, precipitation, and storms) over an extended period of time. Climate change is the result of numerous, cumulative sources of GHG emissions contributing to the "greenhouse effect," a natural occurrence that takes place in Earth's atmosphere and helps regulate the temperature of the planet. GHG emissions occur both naturally and as a result of human activities, such as fossil fuel burning, decomposition of landfill wastes, raising livestock, deforestation, and some agricultural practices. GHGs produced by human activities include carbon dioxide (CO<sub>2</sub>), methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. Different types of GHGs have varying global warming potentials. The global warming potential of a GHG is the potential of a gas or aerosol to trap heat in the atmosphere over a specified timescale (generally, 100 years). Because GHGs absorb different amounts of heat, a common reference gas (CO<sub>2</sub>) is used to relate the amount of heat absorbed to the amount of the gas emitted, referred to as "carbon dioxide equivalent" (CO<sub>2</sub>e), which is the amount of GHG emitted multiplied by its global warming potential. Carbon dioxide has a 100-year global warming potential of one. By contrast, methane has a global warming potential of 28, meaning its global warming effect is 28 times greater than CO<sub>2</sub> on a molecule per molecule basis (Intergovernmental Panel on Climate Change [IPCC] 2014).<sup>1</sup>

Anthropogenic activities since the beginning of the industrial revolution (approximately 250 years ago) are adding to the natural greenhouse effect by increasing the concentration of GHGs in the atmosphere that trap heat. Since the late 1700s, estimated concentrations of CO<sub>2</sub>, methane, and nitrous oxide in the atmosphere have increased by over 43 percent, 156 percent, and 17 percent, respectively, primarily due to human activity (USEPA 2021h). Emissions resulting from human activities are thereby contributing to an average increase in Earth's temperature. Potential climate change impacts in California may include loss of snowpack, sea level rise, more extreme heat days per year, more high ozone days, more large forest fires, and more drought years (State of California 2018).

## **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

<sup>1</sup> The IPCC's (2014) *Fifth Assessment Report* determined that methane has a GWP of 28. However, the 2017 Climate Change Scoping Plan published by the California Air Resources Board uses a GWP of 25 for methane, consistent with the IPCC's (2007) *Fourth Assessment Report*. Therefore, this analysis utilizes a GWP of 25.

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). As with the 2013 Scoping Plan Update, the 2017 Scoping Plan does not provide Project-level thresholds for land use development. Instead, it recommends local governments adopt policies and locally-appropriate quantitative thresholds consistent with a statewide per capita goal of six metric tons (MT) of CO<sub>2</sub>e by 2030 and two MT of CO<sub>2</sub>e by 2050 (CARB 2017).

The County of San Bernardino Regional Greenhouse Gas Emissions Reduction Plan (San Bernardino County, 2011; San Bernardino County 2015) has specific goals including reduce emissions to 15 percent below 2007 levels by 2020, provide estimated GHG reductions associated with the County's existing efforts, and approve a GHG reduction plan that satisfies the CEQA Guidelines requirements. In 2015 an update to the plan was prepared. This update set a review standard of 3,000 MTCO<sub>2</sub>e per year to identify projects large enough to utilize screening tables for quantifying and mitigating GHG emissions.

In May 2022, Metropolitan adopted a CAP and certified the associated Program EIR to analyze and mitigate GHG emissions associated with its activities. This plan meets the requirements of CEQA Guidelines Section 15183.5(b)(1) for a qualified GHG emissions reduction plan (Metropolitan 2022a). However, the CAP was not yet completed at the time this Project's GHG emissions analysis was conducted. Therefore, this Project continues the practice of referring to guidance from the San Bernardino County Regional Greenhouse Gas Reduction Plan when evaluating the significance of GHG emissions. Actual Project-related emissions associated with this activity would be quantified and reported in the CAP annual progress report.

**Discussion.** *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.** The proposed Project would not directly or indirectly generate GHG emissions that may have a significant impact on the environment. The proposed Project would generate greenhouse gas (GHG) emissions temporarily during construction activities. The GHG emissions were estimated using the MDAQMD approved CalEEMod program. As described in Section 3.3, Air Quality, the possible use of a barge was not included in the GHG emissions calculations, and this provides a conservatively high estimate of GHG emissions because using a barge for transport would avoid some diesel truck and other vehicle usage that is also included in the calculations. A summary of the proposed Project's construction carbon dioxide equivalent (CO<sub>2</sub>e) emissions estimates is shown in Table 3.8-1.

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**Table 3.8-1. Greenhouse Gas Emissions**

	<b>GHG Emissions (MT of CO<sub>2</sub>e)</b>
Construction GHG Emissions	1,418
<b>GHG Emissions Significance Threshold (metric tons per year)</b>	<b>3,000</b>
<i>Significant (Exceeds Thresholds)?</i>	<i>NO</i>

Source: Appendix A; San Bernardino County, 2015.

Note: MT of CO<sub>2</sub>e: Metric ton of carbon dioxide equivalent

As shown in Table 3.8-1, the GHG emissions estimate for the proposed Project is substantially below the San Bernardino County GHG emissions review standard of 3,000 metric tons (MT) of CO<sub>2</sub>e per year (San Bernardino County, 2015). The total one-time emissions during the construction period would be even lower, on a per-year basis, if amortized over the life of the Project. The proposed Project would not affect existing O&M activities; therefore, no emissions estimate has been completed for continuing operations. As a result, the quantity of GHG emissions caused by the Project would have a less than significant impact.

- b. Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases?*

**Less than Significant Impact.** The proposed Project would not conflict with an applicable plan, policy or regulation of an agency adopted for the purposes of reducing GHG emissions. As stated in the Regulatory Framework section above, Metropolitan adopted a CAP in May 2022, however it was not yet completed at the time this Project's GHG emissions analysis was conducted. Therefore, this discussion addresses whether these emissions would conflict with the GHG emissions reduction measures listed in the CARB (2017) Climate Change Scoping Plan or the County of San Bernardino Regional Greenhouse Gas Emissions Reduction Plan.

The AB32 Climate Change Scoping Plan includes emission reduction strategies to reach the state's GHG reduction target of 40 percent below 1990 levels by 2030 (CARB, 2017). Emissions reduction strategies include increasing renewable energy and fuels, increasing building efficiency, moving towards zero or near zero emission vehicles, and community design strategies such as walkable/bikeable communities with public transit. Most emission reduction strategies in the plan do not directly impact construction emissions, however, strategies involving vehicle standards and idling time, as well as waste reduction would apply to the Project's construction. Vehicles that access the Project site would be required to comply with the Vehicle Climate Change Standards and would be required to limit idling time for commercial vehicles. Solid Waste Reduction is another strategy of the plan that would apply to construction of the proposed Project. This State strategy was codified in 2012 under SB 1374 as the Construction and Demolition Waste Ordinance that requires jurisdictions to divert a minimum of 50 percent of their non-hazardous construction and demolition waste from landfills. Waste from the proposed Project would be minimal, and material excavated on site would be reused for infill on site. Additional GHG emissions reductions from construction would occur indirectly from other state-wide actions such as the low carbon fuel standard that is currently being implemented. The Project would not conflict with the state's GHG reduction target of 40 percent below 1990 levels by 2030 or conflict with the GHG emissions reduction measures listed in the CARB Climate Change Scoping Plan.

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The proposed Project would be consistent with the County of San Bernardino's GHG Reduction Plan. The proposed Project would temporarily generate a small amount of construction related GHG emissions (Table 3.8-1) and would not otherwise change current operational GHG emissions. The proposed Project would implement the County's required waste reduction measures to ensure compliance with applicable state and local GHG reduction measures. Therefore, the proposed Project would not conflict with applicable plans, policies, or regulations adopted for the purpose of reducing the emissions of GHGs, and this impact would be less than significant.

### 3.9 Hazards and Hazardous Materials

#### HAZARDS AND HAZARDOUS MATERIALS

Would the project:

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

Significance criteria established by CEQA Guidelines, Appendix G.

#### **Discussion. 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.** 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. There would be no permanent storage of hazardous materials (e.g., fuel, lubricants, etc.) on the Project sites. Construction of the proposed Project would include the temporary use and transport of hazardous materials in the form of fuels and lubricants required to operate construction vehicles and equipment as well as coal tar enamel coating at the dam valve structure. Minor spills or releases of hazardous materials could occur due to accidental handling and/or storage during construction

activities at the sites. The existing pipe and concrete valve house contain coal tar enamel coating that is assumed to contain polychlorinated biphenyls (PCBs) above the regulatory limit.

Metropolitan implements a Hazardous Materials/Waste Management Program (HM/WMP) as part of its standard construction practices that sets forth policies, requirements, and responsibilities for evaluation, handling, storage, disposal, transport, and source reduction of hazardous materials/wastes. The HM/WMP includes procedures for containment and cleanup of hazardous materials/waste spills and establishes hazardous waste contingency plans. These procedures would be included in Metropolitan's contractor specifications for the proposed Project. To avoid accidental leaks or spills, use and storage of hazardous materials in limited quantities, which is common for construction projects, would occur in compliance with all federal, state, and local laws and regulations, as well as in compliance with standard Metropolitan construction practices, which ensure that hazardous materials are stored safely. Potential impacts related to minor spills would be largely avoided by compliance with Metropolitan's standard construction practices, training construction personnel in the handling and storage of hazardous materials in compliance with California Occupational Safety and Health Administration standards, and compliance with Stormwater Pollution and Prevention Program (SWPPP) requirements (the Project would be required to obtain SWPPP approval from the Regional Water Quality Control Board). The proposed Project does not involve any changes to long-term use or storage of hazardous substances required for CRA operation and maintenance. 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.** The proposed Project would not 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. Refer to Section 3.9.a. Only minimal amounts of hazardous materials would be used such as petroleum-based fuels or hydraulic fluid used for construction equipment; therefore, the potential for an accidental release of significant quantities of hazardous materials that could affect the surrounding environment is low. Metropolitan's standard construction practices would ensure that all hazardous materials are stored safely within the Project footprint and within covered, leak-proof containers. Additionally, Metropolitan's standard contractor specifications for the Project would include provisions to address spills of fuel, hydraulic fluid, and other materials. Metropolitan's contractor specifications for the proposed Project would address the proper removal and disposal of concrete with coal tar coating. Finally, development and implementation of a SWPPP would be required during construction of the proposed Project and would comply with local, state, and federal regulations. There would be no operational impacts related to the creation of a significant hazard. For these reasons, accident conditions leading to the release of hazardous materials that could cause a significant hazard to the public or surrounding environment is unlikely. Therefore, impacts would be less than significant.



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- 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.** The proposed Project would not emit hazardous emissions, materials, substances, or waste within 0.25 mile of an existing or proposed school. The nearest school, Parker Dam Elementary School, is located approximately 4.3 miles east of the Project site. Therefore, no impact related to emitting or handling hazardous materials within 0.25 mile of an existing or proposed school 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.** The proposed Project site is not within any of the hazardous materials sites on lists compiled pursuant to Government Code Section 65962.5 (Cortese List). According to the California Department of Toxic Substances Control EnviroStor Database, the nearest site is the Gene Pumping Plant, located approximately 3.3 miles northeast of the site, which was cleaned in 2009. According to the State Water Resources Control Board GeoTracker database, the nearest leaking underground storage tank site is the U.S. Fish and Wildlife Parker Dam site, located approximately 3.3 miles southeast of the Project site. The site was cleaned, and the status is Case Closed as of November 14, 1989 (SWRCB, 2022). The Project would not be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5. Therefore, the Project would not create a significant hazard to the public or the environment related to hazardous materials 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 or excessive noise for people residing or working in the project area?*

**No Impact.** 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. No Project sites are located within two miles of a public airport or public use airport. The proposed Project is approximately 2.85 miles southwest of the Gene Wash Reservoir Airport, which is privately owned, and not within an airport land use plan (San Bernardino County, 2022b). Therefore, no impact would occur.

- f. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?*

**Less than Significant Impact.** The proposed Project would not impair implementation of or physically interfere with an adopted emergency plan or evacuation plan. The Project sites are all located on Metropolitan fee property. According to the County of San Bernardino's Personal and Property Protection Element, PP-2 Evacuation Routes map, the nearest evacuation route is State Route 62, located approximately 9 miles southwest of the Project site (San Bernardino County, 2020c). Local roads providing direct access to the Project site are not included in the County of San Bernardino's Evacuation Routes map. During construction, vehicles and large construction equipment would utilize the local roads to access the site. These trips may cause brief temporary delays on local roads providing direct access to the site. However, no public roadway or lane closures are expected during construction. Additionally, Metropolitan's contractor specifications identify traffic control measures for construction to reduce impacts to traffic and safety for motorists. In the

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event deliveries require any disruption to public roadways, flagmen would be present to ensure traffic flow, including emergency vehicle flow through the area. Once operational, the proposed Project would have no impact on access or movement to emergency service providers. Therefore, the Project would not impair implementation of or physically interfere with an adopted emergency response or evacuation plan, and no impact would occur.

- 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.** 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 site surrounding Copper Basin Reservoir and Dam is rural and largely undeveloped, with adjacent lands being desert landscape. According to the CAL FIRE Fire Hazard Severity Zone (FHSZ) Viewer, the Project site is not within a FHSZ, meaning the site has no potential for high fire hazard at either the State, Local, or Federal Responsibility Area level (CAL FIRE, 2022). As the Project site is not located in or near lands classified as High or Very High FHSZ, there is low risk of wildfire or uncontrolled spread of a wildfire.

To reduce fire risk during construction, the construction contractor would adhere to standard Metropolitan construction practices, which require fire containment and extinguishing equipment located onsite and include practices to avoid accidental ignition and leaking of fuels and other combustible materials. All gasoline-powered or diesel-powered machinery used during construction would be equipped with standard exhaust controls and muffling devices that will also act as spark arrestors. Once completed, the proposed Project would have no new potential for fire as maintenance activities at the Project site would be identical as those occurring under existing conditions. Additionally, the removal of vegetation along the improved access road would further reduce the risk of vehicles accidentally igniting dry vegetation along the road. Therefore, the Project would not expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires, and impacts would be less than significant.

### 3.10 Hydrology and Water Quality

HYDROLOGY AND WATER QUALITY				
Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a) Violate Regional Water Quality Control Board water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:				
i. Result in substantial erosion or siltation on or off site?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
ii. Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

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## HYDROLOGY AND WATER QUALITY

Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iv. Impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Significance criteria established by CEQA Guidelines, Appendix G.

### **Discussion. Would the project:**

- a. *Violate Regional Water Quality Control Board water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?*

**Less than Significant Impact.** The proposed Project would not violate RWQCB water quality standards or waste discharge requirements (WDRs) or otherwise substantially degrade surface or ground water quality. Section 303 of the federal CWA requires states to develop water quality standards to protect the beneficial uses of receiving waters. In accordance with California's Porter-Cologne Act, the RWQCBs of the State Water Resources Control Board are required to develop water quality objectives that ensure their region meets the requirements of Section 303 of the CWA. Metropolitan shall comply with the requirement to prepare a SWPPP specific to this Project for review and approval by the RWQCB. The requirements of the SWPPP would be implemented during construction to ensure any accidental release of chemicals and watering for dust control do not violate RWQCB water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality. The SWPPP would include BMPs for erosion and sediment control including, but not limited to, check dams, fiber rolls, sandbags, and siltation fences. Soil disturbance activities would be limited to the dry season, whenever possible. If construction occurs during the rainy season, erosion and sediment transport control measures would be implemented prior to disturbance of soil and vegetation (Metropolitan, 2021b).

Implementation of the proposed Project would require Metropolitan to obtain a CWA Section 401 Water Quality Certification and/or WDR from the RWQCB prior to construction. Adherence to the requirements of the 401 Water Quality Certification and/or WDR would ensure any accidental release of chemicals, watering for dust control, and alterations to existing jurisdictional drainages do not violate water quality standards, waste discharge requirements, or otherwise substantially degrade surface or ground water quality. Therefore, proposed Project impacts related to RWQCB water quality standards, waste discharge requirements, or surface or ground water quality 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?*

**Less than Significant Impact.** The proposed Project would not substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the Project

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may impede sustainable groundwater management of the basin. A project can result in a significant impact on groundwater supplies if it reduces groundwater recharge capacity, reduces groundwater yield, adversely changes the rate or direction of groundwater flow, or reduces a water utility's ability to use the groundwater basin for public water supplies.

The small amount of water that would be required during construction of the proposed Project (mainly for dust suppression and concrete preparation) would be obtained from the CRA or provided via local supplies trucked to the site through an agreement with a local municipality. The use of water for dust suppression would be limited to the construction contractor's staging yards. In addition, the Project would not install any groundwater wells. The Project would result in a nominal change to the amount of impermeable surface along the access road. Although portions of the access road would be paved with impermeable gunite concrete, the surrounding area consists of undeveloped desert land and would continue to allow water to naturally infiltrate the soil. Access road improvements would have a negligible impact on groundwater recharge. Stormwater would flow over the paved gunite concrete surfaces and continue to be absorbed by surrounding desert lands. Therefore, the access road improvements would not impede groundwater recharge.

Replacement of the dam valve and rehabilitation of appurtenant structures would not require groundwater pumping and would not create new impermeable surfaces that may interfere with groundwater recharge. Stormwater flowing over these small areas of concrete would continue to be absorbed by surrounding desert land. Therefore, the proposed Project would not substantially decrease groundwater supplies or interfere substantially with groundwater recharge and impacts would be less than significant.

- c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:*
  - i) Result in substantial erosion or siltation on or off site?*

**Less than Significant Impact.** The proposed Project would not substantially alter the existing drainage pattern of the site or area in a manner that would result in substantial erosion on or off site. The Project site consists of an access road and dam infrastructure. Copper Basin Dam outlets to Copper Basin Wash. Although there are no rivers or streams located adjacent to the access road, the existing access road is unpaved and has portions of varying steepness that are vulnerable to erosion and siltation during storm events and maintenance activities. The proposed Project would temporarily disturb the unpaved access road during construction and grading activities and transport of materials and equipment. However, during operations, erosion and siltation would be reduced with the addition of gunite concrete pavement along slopes 20 percent or greater and installation of riprap and V-ditches that would convey stormwater runoff away from unpaved portions of the road. Project activities would not substantially alter the drainage pattern along the access road or surrounding area and would not substantially alter surface absorption of water or drainage flows.

As discussed in Section 1.4, *Proposed Project*, Arizona crossings would be installed where the access road crosses drainage features. The low water crossings are designed to ensure adequate water flow and sediment transport during storm events. Additionally, as discussed under Section 3.10.(a), the Project would require preparation of a SWPPP for review by the RWQCB and require obtaining CWA Sections 401 and 404 permits/authorizations from the RWQCB and USACE,

respectively. Compliance with the requirements of the construction SWPPP and implementation of standard Metropolitan construction practices would reduce water quality impacts, including erosion and siltation, to the maximum extent practicable during construction. The proposed Project would not result in significant erosion or siltation impacts due to changes to drainage patterns. Therefore, the Project would result in a less-than-significant impact related to substantial erosion or siltation.

- ii) Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite?*

**Less than Significant Impact.** The proposed Project would not substantially alter the existing drainage pattern of the site or area in a manner that would substantially increase the rate or amount of surface runoff in a manner which would result in flooding on or off site. As discussed in Section 3.10.c.(i), the Project would involve relatively minor changes to the site's existing drainage patterns along the access road. As discussed in Section 1.4, *Proposed Project*, gunite concrete pavement would be installed along portions of the access road where slopes are 20 percent or greater. Although the concrete would be impervious, it would not substantially increase the rate or amount of surface runoff, as the remaining portions of the access road and surrounding areas would remain unpaved and pervious. The proposed Project would not substantially alter drainage courses, and existing conditions would remain nearly identical. Therefore, the Project would not result in, or contribute to, on- or off-site flooding and would have less-than-significant impacts related to increasing the rate or amount of surface runoff.

- 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?*

**Less than Significant Impact.** The proposed Project would not substantially alter the existing drainage pattern of the site or area in a manner that would create or contribute runoff water exceeding the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff water. The Project site is in a remote desert location and is not served by municipal stormwater drainage systems. As discussed in Section 3.10.c.(i), the Project would involve relatively minor changes to the site's existing drainage patterns along the access road and would not significantly increase runoff. As discussed under Section 3.10.(a), the Project would require preparation of a SWPPP and obtaining CWA Sections 401 and 404 permits/authorizations from the RWQCB and USACE, respectively. Compliance with these requirements would further reduce additional sources of polluted runoff during construction to the maximum extent practicable. During operation of the proposed Project, the improved access road would not contribute a substantial increase in runoff water, and stormwater would continue to flow to the surrounding unpaved or impervious areas. Therefore, the proposed Project would not create or contribute substantial amounts of runoff or provide substantial additional sources of polluted runoff. Impacts would be less than significant.

- iv) Impede or redirect flood flows?*

**Less than Significant Impact.** The proposed Project would not substantially alter the existing drainage pattern of the site or area in a manner that would impede or redirect flood flows. As discussed in Section 3.10.c.(i) and 3.10.c.(ii), the proposed Project would involve minor changes to the existing drainage patterns along the access road. It is expected that the drainage patterns



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along the access road following construction would be similar to existing conditions. The V-ditches and riprap would cause minor changes in drainage patterns along the site but would improve the conveyance of flows to avoid erosion along the unpaved access road. No large structures would be constructed that would impede or redirect flood flows in the Project site. Therefore, the proposed Project would not result in, or contribute to, impeding or redirecting flood flows. Because the Project involves minor alterations that would improve the site's drainage patterns to maintain safe access along the road, it would not impede or redirect flood flows. Therefore, the proposed Project would have a less-than-significant impact related to impeding or redirecting flood flows.

*d. In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?*

**Less than Significant Impact.** The Project site is located in the Colorado Desert and thus, is not subject to tsunami risks. It is, however, adjacent to Copper Basin Reservoir and may be affected by seiches or floods. According to the Federal Emergency Management Agency (FEMA) Flood Map, the Project is located in Zone D (Area with Flood Risk due to Levee) (FEMA, 2008). Negligible amounts of oil or lubricants from maintenance vehicles will be required during construction, and PCBs from rehabilitation of the concrete at the dam valve house, which contains coal tar enamel will be removed and disposed of in accordance with applicable laws and regulations. The SWPPP and construction contract would require measures such as preventing the storage of excess materials such as oil, petroleum products, and fuel from being deposited near surface water bodies or drainages. Once constructed, the Project would not contain any pollutants that could be released in the event of site flooding. Therefore, the proposed Project would have a less than significant impact from exposing people or structures to release of pollutants from a flood hazard, tsunami, or seiche zone.

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

**Less than Significant Impact.** The proposed Project would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan. As discussed under Section 3.10.a, the Project would require preparation of a SWPPP and obtaining CWA Sections 401 and 404 permits/authorizations issued by the RWQCB and USACE, respectively. Compliance with these requirements would ensure that the proposed Project would comply with all water quality control plan requirements. As discussed under Section 3.10.b, the proposed Project would not affect groundwater recharge or management. Less-than-significant impacts would occur related to conflicting with or obstructing implementation of a water quality control plan or sustainable groundwater management plan.

### 3.11 Land Use and Planning

LAND USE PLANNING				
Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a) Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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**Discussion. Would the project:**

*a. Physically divide an established community?*

**No Impact.** The proposed Project would not physically divide an established community. The proposed Project is located in the Colorado Desert within Metropolitan fee property. The Project site and access road are not located within or in the immediate vicinity of an established community and do not serve as a means of moving through or connecting a community or neighborhood. No residential development is located within or near the proposed Project. Access road improvements and refurbishment of the dam valve components would not physically divide a community. Therefore, the proposed Project would not physically divide an existing community, and no impact would occur.

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

**No Impact.** The 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 Metropolitan's fee property along the CRA. The primary land use planning document that governs the Project site and adjacent areas is the San Bernardino Countywide Plan Land Use Element. The Project area is within the Resource Conservation Zoning District, which is zoned for open space and recreational activities, single-family homes on large parcels, and similar compatible uses (San Bernardino County, 2009). The proposed Project would improve the existing access road to Copper Basin Dam and replace existing discharge components. It would not introduce a new incompatible use to the area or require changes to the existing zoning or General Plan designation. Furthermore, the Project is located within Metropolitan-controlled fee property. Therefore, the proposed Project would not conflict with a land use plan, policy, or regulation, and no impact would occur.

### 3.12 Mineral Resources

MINERAL RESOURCES	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the State?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Significance criteria established by CEQA Guidelines, Appendix G.

**Discussion. 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?*

**Less than Significant Impact.** There would be no loss of availability of a known mineral resource that would be of value to the region and the residents of the State. Based on the County of San Bernardino General Plan Natural Resources Element, the Project site is located within Mineral

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Resource Zone (MRZ) 3 (moderate potential or possible location) for hydrothermal deposits (San Bernardino County, 2020e). According to the County's Natural Resources Element Goal NR-6 (Mineral Resources), Policy NR-6.1 (Mineral resource areas), the County prohibits or discourages development of land that would substantially preclude the future development of mining facilities in areas classified as MRZ 2a, 2b, or 3a (San Bernardino County, 2020f). Although the Project would be located within MRZ 3, no active mining operations exist at the proposed Project site, and all Project activities would occur within the limits of Metropolitan fee property. Impacts related to the loss of a known mineral resource of value to the region or residents of the State would be less than significant.

- 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.** The Project would not 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. As discussed in Section 13.12.(a), although the Project is located within MRZ 3, the Project site is not used or zoned for mineral resource recovery, and Project activities would have no impact related to the loss of a known mineral resource of local importance.

### 3.13 Noise

NOISE				
Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Generation of excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Significance criteria established by CEQA Guidelines, Appendix G.

**Discussion. Would the project:**

- 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?*

**No Impact.** The proposed Project would not generate a substantial temporary or permanent increase in ambient noise levels in excess of applicable standards.

**County of San Bernardino General Plan Hazards Element.** The Riverside County General Plan Hazards Element (San Bernardino County, 2020e) Policy HZ-2.8, *Proximity to noise generating uses*, limits or restricts new noise sensitive land uses near existing noise generating uses. Noise sensitive land uses (i.e., sensitive receptors) are typically residences, hospitals, schools, daycares, and religious institutions. Other policies address noise in the context of being located near other

development that could disturb people. The proposed Project is located in a remote desert setting with no nearby residential uses or other sensitive receptors. The nearest residences are located approximately 3.3 miles southeast of the Project site in the unincorporated community of Earp. As such, the Project would be consistent with the General Plan Hazards Element. No impact would occur.

San Bernardino County Code of Ordinances. San Bernardino County Code of Ordinances Section 83.01.080 establishes standards concerning acceptable noise levels for both noise-sensitive land uses and for noise-generating land uses in the County. Pursuant to San Bernardino County noise and vibration regulations under San Bernardino County Code Sections 83.01.080(g)(3) and 83.01.090(c)(2), noise and vibrations generated from temporary construction between the hours of 7:00 am and 7:00 pm, Monday through Saturday are exempt. Nevertheless, noise impacts are further analyzed herein for the purposes of CEQA.

The proposed Project is a capital improvement project funded by a government agency for the purposes of maintenance and repair of critical infrastructure to ensure the safe and reliable delivery of water. The proposed Project would generate temporary noise from construction activities. Construction equipment would include heavy equipment such as loaders, backhoes, excavators, and dump trucks. Periodic temporary noise from maintenance activities of the CRA occurs under existing conditions at each site, and the proposed Project would not generate new sources of permanent noise. There are no noise-sensitive land uses located within or near the proposed Project. The nearest residences are located approximately 3.3 miles southeast of the Project site. Temporary construction noise would dissipate over this distance, and sensitive receptors would not be exposed to changes in ambient noise levels. No impact would occur from the proposed Project generating substantial temporary or permanent noise levels in the vicinity of the Project in excess of established standards.

*b. Generation of excessive groundborne vibration or groundborne noise levels?*

**Less than Significant Impact.** The proposed Project would not generate excessive groundborne vibration or noise levels. Pursuant to San Bernardino County noise and vibration regulations under San Bernardino County Code Sections 83.01.080(g)(3) and 83.01.090(c)(2), noise and vibrations generated from temporary construction between the hours of 7:00 am and 7:00 pm, Monday through Saturday are exempt. Nevertheless, groundborne vibration or groundborne noise are further analyzed herein for the purposes of CEQA.

Heavy equipment used during construction of the proposed Project has the potential to generate groundborne vibration and noise. Additionally, heavy truck haul trips may produce short-term groundborne vibration. Typically, groundborne vibrations generated by construction activities attenuate rapidly with distance from the source. The nearest sensitive receptors to the Project site are approximately 3.3 miles southeast of the Project site. Temporary construction vibration would attenuate over this distance and would not affect sensitive receptors. Temporary construction vibration at the sites would have less-than-significant impacts.

Heavy truck haul trips during the temporary construction period would utilize existing roads such as Parker Dam Road and US 95, which are designated for allowable weight and use to access the construction site. Vibration on paved surfaces is typically minimal, and residential and other structures located near these roads are already subject to any momentary vibration from normally occurring trips not associated with Project construction. No residences are located near the

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unpaved road segment that requires improvements. Therefore, heavy truck trips on unpaved roads would not generate vibration to any sensitive receptors or buildings. Once constructed, the proposed Project would not generate vibration outside of routine maintenance and repairs that occur during existing conditions. Therefore, groundborne vibration or noise impacts during construction activities would be less than significant.

- 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.** The proposed Project is not within the vicinity of an airport land use plan. The proposed Project is approximately 2.85 miles southwest of the Gene Wash Reservoir Airport, which is not within an airport land use plan (San Bernardino County, 2022b). The Gene Wash Reservoir Airport is owned by Metropolitan and not used by the public. Furthermore, the nearest residential area is over 3 miles southwest of the Project site. As such, the proposed Project would not expose people residing or working in the Project area to excessive noise levels. No impacts would occur.

### 3.14 Population and Housing

POPULATION AND HOUSING				
Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Significance criteria established by CEQA Guidelines, Appendix G.

**Discussion. Would the project:**

- a. Induce substantial unplanned 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)?*

**No Impact.** The proposed Project would not induce substantial unplanned growth in an area. The proposed Project involves improvements to an existing access road and dam infrastructure to ensure safe access and maintenance of Copper Basin Dam within Metropolitan's fee property. The proposed Project would not include residences and would only require temporary construction workers to complete the Project. Thus, construction and operation of the proposed Project would not require extending or improving infrastructure in a manner that would facilitate new population growth. Accordingly, the proposed Project would not induce substantial unplanned population growth in an area, either directly or indirectly, and no impact would occur.



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

**No Impact.** The proposed Project would not displace substantial numbers of existing people or housing, necessitating the construction of replacement housing. The proposed Project involves improvements to an existing access road and dam infrastructure to ensure safe access and maintenance of Copper Basin Dam within Metropolitan's fee property. The proposed Project does not contain any existing residential uses and would not displace any persons or housing. The nearest residence is approximately 3.3 miles from the Project site. Therefore, no additional construction of replacement housing elsewhere is required. The proposed Project would have no impact related to displacement of persons or housing.

### 3.15 Public Services

#### PUBLIC SERVICES

Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:

	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a) Fire protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Significance criteria established by CEQA Guidelines, Appendix G.

***Discussion.*** *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:*

- a. Fire protection?*

**No Impact.** The proposed Project would not result in substantial adverse physical impacts to any fire protection services.

The need for new or expanded fire protection facilities is typically associated with a permanent population increase that is large enough to cause new or expanded fire protection facilities to be constructed. As discussed in Section 3.14 (Population and Housing), the Project would not induce population growth or develop structures that may require additional public services. The proposed temporary construction activities and ongoing maintenance of Copper Basin Dam would not affect or result in a need for new or altered fire protection services. Therefore, the construction and operation of the proposed Project would not result in the need for additional new or altered fire

protection services and would not alter acceptable service ratios or response times. No impact to fire protection service levels would occur from the proposed Project.

*b. Police protection?*

**No Impact.** The proposed Project would not result in substantial adverse physical impacts to any police protection services. The need for new or expanded police protection facilities is typically associated with a permanent population increase that is large enough to cause new or expanded police protection facilities to be constructed. The proposed Project involves improvements to an existing access road and dam infrastructure to ensure safe access and maintenance of Copper Basin Dam within Metropolitan's fee property. As discussed in Section 3.14 (Population and Housing), the Project would not induce population growth or develop structures that may require public service response.

Therefore, the construction and operation of the proposed Project would not result in the need for additional new or altered police protection services and would not alter acceptable service ratios or response times. No impact to police protection service levels would occur from the proposed Project.

*c. Schools?*

**No Impact.** The proposed Project would not result in substantial adverse physical impacts to any schools. The need for new or expanded school facilities is typically associated with a permanent population increase that generates an increase in enrollment large enough to cause new schools to be constructed. The nearest school, Parker Dam Elementary School, is located approximately 4.3 miles east of the Project site. The proposed PAs discussed in Section 3.14 (Population and Housing), the proposed Project would not induce population growth or develop structures that may impact school capacities, and operation of the project would not require new or permanent employees. Therefore, no impacts related to the need for new or expanded school facilities would occur.

*d. Parks?*

**No Impact.** The proposed Project would not result in substantial adverse physical impacts to any parks. The need for new or expanded park facilities is typically associated with a permanent population increase that generates the need for new or expanded park facilities. The nearest park is Buckskin Mountain State Park, located approximately 4 miles southeast of the Project site. The proposed Project involves improvements to an existing access road and dam infrastructure to ensure safe access and maintenance of Copper Basin Dam within Metropolitan's fee property. As discussed in Section 3.14 (Population and Housing), the proposed Project would not induce population growth or develop structures that may impact park service ratios, and operation of the project would not require new or permanent employment. Therefore, no impacts related to the need for new or expanded park facilities would occur.

*e. Other public facilities?*

**No Impact.** The need for new or expanded public facilities (libraries, etc.) is typically associated with a permanent population increase that generates the need for new or expanded public facilities to be constructed. Other public facilities, such as libraries and hospitals, are located over 10 miles away from the Project site. Parker Public Library is located approximately 10 miles southeast, and

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Parker Indian Hospital is approximately 10.2 miles southeast. The proposed Project involves improvements to an existing access road and dam infrastructure to ensure safe access and maintenance of Copper Basin Dam within Metropolitan's fee property. As discussed in Section 3.14 (Population and Housing), the proposed Project would not induce population growth or develop structures that may affect public facility use, and operation of the Project would not require new or permanent employment. Therefore, no impacts related to the need for any other new or expanded public facilities would occur.

### 3.16 Recreation

#### RECREATION

Would the project:

	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Significance criteria established by CEQA Guidelines, Appendix G.

#### **Discussion. Would the project:**

- 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?*

**No Impact.** The proposed Project would not increase the use of existing neighborhood and regional parks or other recreational facilities. The nearest park is Buckskin Mountain State Park, located approximately 4 miles southeast of the Project site. An increased use of an existing neighborhood, park, or recreational facility is typically associated with a permanent population increase. As discussed in Section 3.14 (Population and Housing), the proposed Project involves improvements to an existing access road and dam infrastructure within Metropolitan's fee property and would not induce population growth. Operation and maintenance of the Project would not require new or permanent employment. Therefore, 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, and no impact would occur.

- 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?*

**No Impact.** The proposed Project does not include recreational facilities or require the construction or expansion of recreational facilities. As discussed in Section 3.14 (Population and Housing), the proposed Project involves improvements to an existing access road and dam infrastructure within Metropolitan's fee property and does not include recreational facilities or require the construction or expansion of recreational facilities. Operation and maintenance of the Project would not require new or permanent employment. Therefore, the proposed Project does not involve the development of recreational facilities that would have an adverse effect on the environment. No impacts would occur.

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### 3.17 Transportation

#### TRANSPORTATION

Would the project:

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a) Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Would the project conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Substantially increase hazards due to a geometric design feature (5.g., sharp curves or dangerous intersections) or incompatible uses (5.g., farm equipment)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Significance criteria established by CEQA Guidelines, Appendix G.

#### OVERVIEW OF TRANSPORTATION

##### *San Bernardino County*

The County of San Bernardino (2020b) County Policy Plan Transportation and Mobility Element identifies goals and policies related to the transportation system, including roadway capacity, road design standards, and vehicle miles traveled (VMT). Goal TM-1 identifies minimum levels of service (LOS) standards for various regions within the county. The LOS standard for the North and East Desert Regions, in which the San Bernardino County Project sites are located, is LOS C (County of San Bernardino 2020b). The San Bernardino County Transportation Authority is the designated Congestion Management Agency responsible for the development and implementation of the Congestion Management Plan (CMP) in San Bernardino County. According to the current CMP, none of the roadways in the vicinity of the Project sites in San Bernardino County operate below the County's LOS standard of LOS C for the North and East Desert Regions (San Bernardino Associated Governments 2016).

##### ***Discussion. Would the project:***

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

**Less than Significant Impact.** The Project would not conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities. The proposed Project is located in a remote area within Metropolitan's fee property and would require temporary vehicle trips during construction. Construction worker trips would occur between 6:00 a.m. and 8:00 a.m. Truck trips associated with materials and equipment deliveries to the project site would likely be distributed throughout the workday. Temporary construction trips are assumed to come from the local area or from the greater San Bernardino County area. Appendix A provides details on the predicted number of trips for the proposed Project, with the maximum number of trips being approximately 20 per day. While vehicle trips would occur on local roads that connect to the unpaved access road at the Project site, these trips would be temporary, and the Project would not impact any county program, plan, ordinance, or policy related to transit, bicycle, or pedestrian facilities in the vicinity of the site or along local roadways.

Once constructed, the Project would not generate any permanent vehicle trips. Operation and maintenance of the Project would be identical to that occurring under existing conditions. As a result, the Project would not impact any County program, plan, ordinance, or policy related to transit, roadway, bicycle, or pedestrian facilities in the vicinity of the Project area, and no impact would occur.

- b. Would the project conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)?*

**Less than Significant Impact.** The proposed Project would not conflict with or be inconsistent with CEQA Guidelines Section 15064.3(b). As discussed in CEQA Guidelines Section 15064.3(b)(3), a qualitative analysis of construction traffic vehicle miles travelled (VMT) may be appropriate. Temporary construction worker commute trips are assumed to be generated from the local area or from the greater San Bernardino County area. As presented in Appendix A, it is assumed a worst-case average that Project trips may be up to 35 miles each direction. This distance is primarily due to the remote location of the Project site. Some truck trips associated with delivery of specialized materials and equipment may require longer distances. Although construction requires somewhat high VMT to access the Project site (35 miles or greater in each direction), these trips would be temporary and only in volumes necessary for the construction workforce and to deliver specialized equipment and materials to the site (a maximum of 20 trips per day). Such construction-related trips are not considered to be transit-friendly trips, meaning workers and equipment cannot utilize public transportation in efforts to reduce overall VMT of the Project.

According to the County of San Bernardino Transportation Impact Study Guidelines, projects generating less than 110 daily vehicle trips are not required to complete a VMT assessment (San Bernardino County, 2019). The proposed Project would generate with a daily maximum of 20 employee vehicle trips (see Appendix A). Although the proposed Project would include temporary construction trips, some with high VMT due to the remote location of the Project site, to deliver specialized materials and equipment, they would be temporary and cease upon completion of construction. Once constructed, the Project would not generate any new permanent vehicle trips. Operation and maintenance of Copper Basin Dam would be identical to that occurring under existing conditions. The Project would not generate any new long-term trips and would have no effect on existing VMT in the area. Therefore, the proposed Project would not affect existing transit uses or corridors and would result in a less-than-significant impact with respect to CEQA Guidelines Section 15064.3(b)(3).

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

**Less than Significant Impact.** The proposed Project would not substantially increase hazards due to a geometric design feature or incompatible uses. All construction disturbance would be limited to the Project site and within the existing Metropolitan fee property. The access road would be graded and paved and would not be realigned. The Project would not modify any public roadways or driveways outside of the Project limits. During construction, oversize truck trips may be required to deliver large pieces of construction equipment and materials to the site. Any necessary oversized truck trips would require obtaining permits from Caltrans and local jurisdictions, as needed. The construction contractor would follow all rules and requirements of such permits,



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which would ensure no hazards to motorists or others utilizing the public roadway system occur. Impacts would be less than significant.

*d. Result in inadequate emergency access?*

**No Impact.** The proposed Project would not result in inadequate emergency access. All construction vehicles and equipment would be staged away from public roads and would not block emergency access routes, and no road closures are proposed. The proposed Project would not impede existing emergency response plans for residential, commercial, industrial, or other land uses in the vicinity of the Project site. No impact would occur.

### 3.18 Tribal Cultural Resources

TRIBAL CULTURAL RESOURCES				
Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a) 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:				
i. 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)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
ii. 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**Discussion. Would the project:**

- a. *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:*
  - i) *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)?*
  - ii) *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?*

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**No Impact.** The proposed Project would not cause a substantial adverse change in the significance of Tribal Cultural Resources listed or eligible for listing in the California Register of Historical Resources (CRHR), nor were any resources determined by Metropolitan as Lead Agency.

On June 30, 2022, Metropolitan sent a consultation request letter via certified mail to 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 those tribes. The only tribe whose geographic area is traditionally and culturally affiliated with the Project area and previously informed Metropolitan to be notified to consult is the Twenty-Nine Palms Band of Mission Indians. Metropolitan did not receive any formal request for tribal cultural resource consultation from the Twenty-Nine Palms Band of Mission Indians. Additionally, Metropolitan's cultural resource and archaeological resource identification efforts did not identify the presence of any prehistoric archaeological resources or resources eligible for or listed on the CRHR or local register within the Project Area, except for the CRA itself. Because no tribal cultural resources have been identified on or near the Project Area, the Project would not cause a substantial adverse change in the significance of a tribal cultural resource as defined, and no impact would occur.

### 3.19 Utilities and Service Systems

UTILITIES AND SERVICE SYSTEMS				
Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a) 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 construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Significance criteria established by CEQA Guidelines, Appendix G.

**Discussion.** *Would the project:*

- a. *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 construction of which could cause significant environmental effects?*

**Less than Significant Impact.** 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 consists of improvements to an existing access road and dam valve infrastructure upgrades to ensure safe

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access to and proper maintenance of an existing reservoir. A new transformer, electrical equipment, wiring, cables, and conduits would be installed at the dam valve house. Although these electrical components would be new, they would not require expanded facilities, as these components would replace existing electrical infrastructure and would not increase demand for electricity. The proposed Project would not result in the construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunication facilities. Impacts would be less than significant.

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

**Less than Significant Impact.** There would be sufficient water supplies available to serve the Project. The small amount of water that would be required during construction of the proposed Project (mainly for dust suppression and concrete preparation) would be obtained from local supplies (e.g., the CRA) or trucked to the site through an agreement with a local municipality or provider. This use of water would be temporary and would not impact long-term water supplies. Once completed, the proposed Project would not utilize or require water. Impacts to water supplies would be less than significant.

- 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.** There are no wastewater treatment facilities in the Project area. The proposed Project consists of improvements to ensure safe access to and maintenance of Copper Basin Dam. The project would not result in population growth or require the construction of sewer systems requiring connection to a wastewater treatment plant. No new demand on an existing wastewater treatment provider would occur as a result of the proposed Project. No impact 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.** 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 Project is anticipated to generate approximately 1,955 cubic yards of cut soil, and construction activities may generate small amounts of inert and domestic wastes. Upon completion of the proposed Project, no permanent increase in solid waste generation would occur, as operation and maintenance of the dam and valves would occur in the same capacity as existing conditions. The limited amount of waste generated during construction is expected to be adequately served by nearby landfills with sufficient permitted capacity. The closest municipal landfill to the Project site is Lake Havasu City Landfill (3251 East Chenoweth Drive, Lake Havasu, Arizona 86404), located approximately 19 miles northwest. Lake Havasu City Landfill has a permitted capacity of approximately 6.7 million cubic yards (ADEQ, 2022). The amount of solid waste generated by the proposed Project would be nominal compared to the permitted capacity of this landfill. Therefore, less-than-significant impacts would occur related to generating substantial amounts of solid waste or meeting solid waste reduction goals.

- e. Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?*

**No Impact.** The proposed Project would comply with all federal, state, and local laws and regulations for reduction of solid waste. As discussed in Section 3.8.b, SB 1374 (Construction and Demolition Waste Ordinance) requires jurisdictions to divert a minimum of 50 percent of their non-hazardous construction and demolition waste from landfills. Waste from the proposed Project would be minimal, and material excavated on site would be reused for infill on site. No impacts from the proposed Project would occur related to compliance with federal, state, and local management and reduction statutes and regulations related to solid waste.

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### 3.20 Wildfire

#### Wildfire

If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

**Discussion. 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?*

**Less than Significant Impact.** The proposed Project would not substantially impair an adopted response plan or emergency evacuation plan; exacerbate wildfire risks and thereby expose Project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire; 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; or 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. The Project site is in a remote, relatively undeveloped area surrounded by desert landscape. According to the CAL FIRE FHSZ Viewer, the Project site is not within a Fire Hazard Severity Zone (FHSZ), meaning the site has no potential for high fire hazard at either the State, Local, or Federal Responsibility Area level (CAL FIRE, 2022). As the Project site is not located in or near lands classified as High or Very High FHSZ,



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there is low risk of wildfire or uncontrolled spread of a wildfire. All proposed Project construction disturbance would occur within existing Metropolitan fee property. Improvement of the unpaved access road leading to Copper Basin Dam would facilitate on-site circulation of maintenance vehicles only. The Project does not include the modifications to any public roadways or driveways. During construction, oversize truck trips may be required to deliver large pieces of construction equipment and materials to the site. Any necessary oversized truck trips would require obtaining permits from Caltrans and local jurisdictions, as needed. The construction contractor would follow all rules and requirements of such permits, which would ensure motorists access and use to the public roadway system. Therefore, the Project would not impact roadways or access routes that could be utilized for emergency response or emergency evacuation. Impacts would be less than significant related to substantial impairment of an adopted emergency response plan or emergency evacuation plan from the proposed Project.

As discussed above, the Project site is in a remote, relatively undeveloped area surrounded by desert landscape and is not within a FHSZ, meaning the site has no potential for high fire hazard at either the State, Local, or Federal Responsibility Area level (CAL FIRE, 2022). As the Project site is not located in or near lands classified as High or Very High FHSZ, there is low risk of wildfire or uncontrolled spread of a wildfire. Construction vehicles and other equipment would use fuels that could temporarily increase the risk of localized fire during construction. To reduce fire risk during construction, the construction contractor would adhere to standard Metropolitan construction practices, which require fire containment and extinguishing equipment located onsite and include practices to avoid accidental ignition and leaking of fuels and other combustible materials. All gasoline-powered or diesel-powered machinery used during construction would be equipped with standard exhaust controls and muffling devices that will also act as spark arrestors.

Once completed, the proposed Project would have no associated potential for fire as maintenance activities at the Project site would be identical to existing conditions. Additionally, the removal of vegetation along the improved access road would further reduce the risk of vehicles accidentally igniting dry vegetation along the road. Impacts related to exposing persons or structures to wildland fires would be less than significant. Once constructed, the Project would have no new potential for fire as maintenance activities at the Project site would be identical as those occurring under existing conditions. Impacts related to exposing Project occupants to pollutant concentrations from a wildfire or uncontrolled spread of a wildfire would be less than significant.

The Project does not include the modifications to any public roadways or driveways. The project would require installation of a new 75kVA, 2400V-480V transformer and new electrical equipment and wiring at the dam valve house. However, these would not exacerbate fire risk, as they would replace existing electrical equipment. Furthermore, the Project site is not located within a High or Very High FHSZ and does not require fire breaks. Impacts related to installing new infrastructure that could exacerbate fire risks would be less than significant.

As discussed above, the Project site is not located within a High or Very High FHSZ. Therefore, the Project and adjacent areas are not susceptible to post-wildfire conditions. The Project would involve minor changes to the site's drainage patterns by installing concrete pavement, riprap, and V-ditches that would convey stormwater runoff away from the road. Although the topography of the access road varies and includes steep sections where the slopes are 20 percent or greater, there are no structures or development nearby that would be exposed to downslope flooding, landslides, or post-fire slope instability or drainage changes. The addition of impervious gunite concrete

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surface would not substantially contribute to flooding. The stormwater drainage features would improve stormwater conveyance, and gunite concrete pavement would stabilize steep portions of the access road. The Project would not increase the potential for landslide or ground instability impacts. Lastly, the Project site is unmanned, and the nearest residential area is over 3 miles southwest of the Project site. Since the Project would not substantially alter the existing on-site drainage patterns, and post-development runoff discharge rates would not exceed existing rates, the proposed Project does not have the potential to expose people or structures to significant risks due to post-wildfire flooding or ground instability. The proposed Project would result in a less-than-significant impact related to exposing persons or structures to significant post-fire risks.

### 3.21 Mandatory Findings of Significance

#### MANDATORY FINDINGS OF SIGNIFICANCE

Would the project:

	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
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, substantially 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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Does the project have impacts that are individually limited, but cumulatively considerable? ( <i>Cumulatively considerable</i> 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.)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Does the project have environmental effects that would cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Significance criteria established by CEQA Guidelines, Appendix G.

#### Discussion:

- 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, substantially 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 Impact with Mitigation.** The proposed Project would not 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, substantially 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. Based on the analysis provided in Section 3.4 (Biological Resources) and Appendix B.1 (Biological Resources Technical Report) and Appendix B.2 (Aquatic Resources Delineation Report), potential impacts to threatened, endangered, candidate,

or special status species would be mitigated to a less-than-significant level with implementation of Mitigation Measures BIO-1 through BIO-10. Therefore, with mitigation incorporated, the proposed Project would not have the potential to substantially reduce the habitat of fish and wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, eliminate a plant or animal community, or reduce the number or restrict the range of a rare or endangered plant or animal. In addition, as discussed in Section 3.5 (Cultural Resources), the Project would not have the potential to substantially adversely affect previously unidentified archaeological resources 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.)*

**Less than Significant Impact.** The proposed Project does not have impacts that are individually limited, but cumulatively considerable. Based on the analysis contained in this Initial Study, the proposed Project would not result in any significant and unmitigable impacts in any environmental category. In all cases, impacts associated with the Project would be limited to the Project area or are of such a negligible degree that they would not result in a significant contribution to any cumulative impacts. This is largely due to the fact that Project construction activities would be temporary, and after construction is completed, Project operations would be identical to those occurring under existing baseline conditions.

Cumulative impacts could occur if construction of other projects occurs at the same time as the proposed Project and in the same geographic scope, such that the effects of similar impacts of multiple projects combine to create greater levels of impact than would occur at the Project level. For example, if the construction of other projects in the area occurs at the same time as construction activities associated with the proposed Project, combined noise and transportation impacts may be greater than at the project level. However, the Project area is in a remote, isolated area surrounded by desert landscape within Metropolitan fee property with no cumulative projects expected in the vicinity, other than ongoing minor Metropolitan operations and maintenance activities pertaining to the CRA. Given that the Project site is located more than 1,000 feet from the nearest residences and communities, the Project's impacts during construction and operation activities would not combine with the impacts of other Metropolitan projects to create cumulative activity-related impacts in areas such as air quality, noise, and transportation. Furthermore, upon completion, Project operations would be identical to those occurring under existing baseline conditions. Therefore, the incremental effects of the proposed Project would not be considerable when viewed in connection with the effects of past, current, and probably future projects, and cumulative impacts would be less than significant.

- c. Does the project have environmental effects that would cause substantial adverse effects on human beings, either directly or indirectly?*

**Less than Significant Impact.** Based on the analysis contained in this Initial Study, the proposed Project does not exceed any significance thresholds or result in significant impact in the environmental categories typically associated with indirect or direct effects to human beings, such as aesthetics, air quality, geology and soils, hazards and hazardous materials, hydrology and water quality, noise, public services, or transportation. As discussed in Sections 3.1 (Aesthetics), 3.3 (Air

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Quality), 3.7 (Geology and Soils), 3.9 (Hazards and Hazardous Materials), 3.10 (Hydrology and Water Quality), 3.13 (Noise), 3.15 (Public Services), and 3.17 (Transportation) of 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. Therefore, the proposed Project does not have a Mandatory Finding of Significance due to environmental effects that could cause substantial adverse effects on humans.

## 4. List of Mitigation Measures

- BIO-1      **Special-Status Plant Species Surveys.**** Prior to any ground disturbing activities that are initiated after the spring 2023 blooming season, Metropolitan shall conduct surveys for special-status plants in areas of suitable habitat. Surveys shall be conducted by a qualified botanist during the flowering season in suitable habitat located within proposed Project disturbance areas and a 50-foot buffer. All special-status plant species identified in the proposed Project area shall be mapped onto a site-specific aerial photograph and/or topographic map. Surveys shall be conducted in accordance with the most current protocols established by the CDFW and USFWS. If federally listed, state listed, or California Rare Plant Ranking 1B or 2B species are found, avoidance and minimization measures shall be implemented in accordance with Mitigation Measure BIO-2.
- BIO-2      **Special-Status Plant Species Avoidance and Minimization.**** If federally listed, state listed, or California Rare Plant Ranking 1B or 2B species are found during special-status plant surveys conducted pursuant to Mitigation Measure BIO-1, then avoidance measures shall be implemented to avoid impacting these plant species. Rare plant occurrences that are not within the immediate disturbance footprint but are located within 50 feet of disturbance limits shall be protected at least 30 feet beyond their extent, or other distance as approved by a monitoring biologist, to protect them from harm. If avoidance of federally listed or state listed plant species is not feasible, impacts shall be fully offset through implementation of a restoration plan that results in no net loss in accordance with Mitigation Measure BIO-3.
- BIO-3      **Special-Status Plant Species Revegetation.**** If avoidance of federally listed, state listed, and/or California Rare Plant Rank 1B or 2B species is not feasible, the individuals shall be transplanted, and surrounding topsoil shall be salvaged to be incorporated into the revegetation process for the site. A special-status plant restoration plan shall be prepared and implemented that includes the following criteria at a minimum:
- The number of specimens affected for each species.
  - Identification of onsite or offsite preservation location(s).
  - Methods for restoration, enhancement, and/or transplanting, including topsoil salvage and planting seeds of the affected species.
  - A replacement ratio of 1:1 per impacted specimen.
- BIO-4      **Special-Status Wildlife Species Surveys.**** For all proposed Project work areas, Metropolitan shall implement preconstruction wildlife surveys for special-status wildlife species with a moderate to high potential to occur. Surveys shall be conducted in areas of suitable habitat no more than 72 hours prior to the start of proposed Project activities. The survey area shall include the proposed Project area and all ingress/egress routes, plus a 100-foot buffer (unless otherwise defined by Mitigation Measures BIO-6, BIO-8, and BIO-9).



**BIO-5 Special-Status Wildlife Species Avoidance and Minimization.** Metropolitan shall develop and implement appropriate avoidance measures for special-status wildlife species occurring within or near the proposed Project area. Avoidance measures may include but are not limited to:

- Flagging or fencing of any special-status species burrows or nests by a monitoring biologist and establishing an appropriate buffer to ensure avoidance during proposed Project activities.
- Monitoring by a monitoring biologist during initial ground-disturbing activities. Once initial ground-disturbing activities have been completed, the biologist shall conduct preconstruction clearance surveys, as necessary.
- If at any time during proposed Project activities a special-status species enters work areas or otherwise may be impacted by construction, activities at the site where the find occurred shall cease until the individual has moved out of the work area and/or buffer on its own accord.

**BIO-6 Conduct Surveys and Avoidance for Ringtail, American Badger, and Desert Kit Fox.** Metropolitan shall conduct pre-construction surveys for ringtail, American badger, and desert kit fox no more than 15 days prior to initiation of construction activities. Surveys shall be conducted in areas that contain habitat for these species and shall include Project disturbance areas and access roads plus a 200-foot buffer surrounding these areas. If dens are detected, each den shall be classified as inactive, potentially active, active non-natal, or active natal.

Inactive dens that would be directly impacted by road grading shall be excavated either by hand or mechanized equipment under the direct supervision of the biologist and backfilled to prevent reuse by ringtails, badgers, or kit fox. Potentially and known active dens shall not be disturbed during the whelping/pupping season (February 1 – September 30). A den may be declared “inactive” after three days of monitoring via camera(s) or a tracking medium have shown no ringtail, badger, or kit fox activity.

Active dens shall be flagged and Project activities within 200 feet shall be avoided. Buffers may be modified by a qualified biologist. If active dens are found within Project disturbance areas and avoidance is not possible, Metropolitan shall take action as specified below.

**Active and potentially active non-natal dens.** Outside the breeding season, any potentially active dens that would be directly impacted by construction activities shall be monitored by a qualified biologist for three consecutive nights using a tracking medium (such as diatomaceous earth or fire clay) or infrared camera stations at the entrance. If no tracks are observed in the tracking medium or no photos of the target species are captured after three nights, the den may be excavated and backfilled by hand. If tracks are observed, the den may be progressively blocked with natural materials (rocks, dirt, sticks, and vegetation piled in front of the entrance) for the next three to five nights to discourage continued use. After verification that the den is no longer active, the den may be excavated and backfilled by hand.

**Active natal dens.** Active natal dens or any den active during the breeding season will not be excavated or passively relocated. The pup-rearing season is generally from February 1 through September 30. A 300-foot no-disturbance buffer shall be maintained around all active natal dens. A qualified biologist shall monitor the natal den until they determine that the pups have dispersed. Any disturbance to animals or activities that might disturb denning activities shall be prohibited within the buffer zone. Once the pups have dispersed, methods listed above for non-natal dens may be used to discourage den reuse. After verification that the den is unoccupied, it shall then be excavated by hand and backfilled to ensure that no animals are trapped in the den.

**BIO-7 Construction Monitoring for Bighorn Sheep.** If bighorn sheep are detected within 300 feet of Project activities, construction shall cease until the bighorn sheep have moved a safe distance away from project activities. If bighorn sheep become acclimated to any activity and the biologist determines that Project activities are unlikely to adversely affect the animals, then Project activities can proceed. If the animals appear agitated, the biologist may increase the buffer distance and suspend Project construction.

**BIO-8 Conduct Surveys for Mountain Lion and Avoid Denning Areas.** If construction activities that could disturb potential denning sites (i.e., large trees, cavities, rock piles, pipes, or overhangs) will occur during the breeding season for mountain lions (April through September), a qualified biologist will conduct surveys for potential dens within 200 feet of all areas proposed for disturbance. Any active dens will be avoided and an appropriate disturbance-free buffer will be established. Once the young have left the den or the den is no longer active, construction activities can resume.

**BIO-9 Survey for Maternity Colonies or Hibernaculum for Roosting Bats.** Prior to the initiation of Project activities within suitable bat roosting habitat, Metropolitan shall retain a qualified biologist to conduct surveys for sensitive bats. Surveys shall be conducted no more than 15 days prior to the initiation of work near the base of the dam or near other structures that could support bats. Surveys shall also be conducted during the maternity season (March 1 to July 31) within 300 feet of project activities, where safe access is possible. If active maternity roosts or hibernacula are found, the structure, tree, or feature occupied by the roost shall be avoided (i.e., not removed), if feasible. If avoidance of the maternity roost is not feasible the biologist will implement the following actions.

**Maternity Roosts.** If a maternity roost will be impacted/removed by the Project, and no alternative maternity roost exists in proximity, substitute roosting habitat for the maternity colony shall be provided in an adjacent area free from project impacts. Alternative roost sites will be designed to meet the needs of the specific species. Alternative roost sites must be of comparable size and proximal in location to the impacted colony.

**Exclusion of bats prior to eviction from roosts.** If non-breeding bat hibernacula are found in trees or structures in the Project area, the individuals shall be safely evicted, under the direction of a qualified biologist, by opening the roosting area

to allow airflow through the cavity or other means determined appropriate by the biologist (e.g., installation of one-way doors). In situations requiring one-way doors, a minimum of one week shall pass after doors are installed and temperatures should be sufficiently warm for bats to exit the roost. Roosts that need to be removed in situations where the use of one-way doors is not necessary shall first be disturbed by various means at the direction of the bat biologist at dusk to allow bats to escape during the darker hours.

**BIO-10 Jurisdictional Waters Avoidance and Compensatory Mitigation.** Where feasible, jurisdictional areas shall be flagged or fenced for avoidance. Vegetation removal or trimming in jurisdictional areas shall be minimized. Temporary impact areas will be returned to similar conditions that existed prior to ground-disturbing activities. Compensatory mitigation at a 1:1 ratio for permanent impacts will occur through purchase of mitigation credits from an agency-approved mitigation bank, or through permittee-responsible mitigation, subject to applicable regulatory agency approval. Mitigation for temporary impacts to jurisdictional waters will occur through on-site restoration at a 1:1 ratio.

## 5. List of Acronyms and Abbreviations

AB	Assembly bill
BGEPA	Bald and Golden Eagle Protection Act
CalEEMod	California Emissions Estimator Model
CAP	Climate Action Plan
CARB	California Air Resources Board
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CMP	Congestion Management Plan
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CO	Carbon monoxide
CO <sub>2</sub>	Carbon dioxide
CO <sub>2</sub> e	Carbon dioxide equivalent
CRA	Colorado River Aqueduct
CRBRWQCB	Colorado River Basin Regional Water Quality Control Board
CRHR	California Register of Historical Resources
CRPR	California Rare Plant Rank
CWA	Clean Water Act
DOC	Department of Conservation
DSOD	California Division of Safety of Dams
EIR	Environmental Impact Report
FEMA	Federal Emergency Management Agency
FESA	Federal Endangered Species Act
FHSZ	Fire Hazard Severity Zone
GHG	Greenhouse gas
HCP	Habitat Conservation Plan
HM/WMP	Hazardous Materials/Waste Management Program
HRA	Health Risk Assessment
IS/MND	Initial Study/Mitigated Negative Declaration
kVA	Kilovolt amp
LOS	Level of service
MBTA	Migratory Bird Treaty Act
MDAB	Mojave Desert Air Basin
MDAQMD	Mojave Desert Air Quality Management District
MRZ	Mineral Resource Zone
MT	Metric tons

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NAHC	Native American Heritage Commission
NCCP	Natural Communities Conservation Plan
NO <sub>x</sub>	Nitrogen oxides
O&M	Operations and maintenance
PCB	Polychlorinated biphenyls
PERP	Portable Equipment Registration Program
PM	Particulate Matter
PM <sub>10</sub>	Particulate matter less than or equal to 10 microns in diameter
PM <sub>2.5</sub>	Particulate matter less than or equal to 2.5 microns in diameter
ROG	Reactive organic gas
RWQCB	Regional Water Quality Control Board
SB	Senate bill
SO <sub>x</sub>	Sulfur oxide
SWPPP	Stormwater Pollution and Prevention Program
TAC	Toxic air contaminants
USACE	U.S. Army Corps of Engineers
USEPA	United States Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VOC	Volatile organic compound
VMT	Vehicle miles traveled
WDR	Waste discharge requirement
WEAP	Worker Environmental Awareness Program
WSO	Water System Operations



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## 6. List of Preparers

**Table 6-1. CEQA Lead Agency: The Metropolitan Water District of Southern California**

Diane Doesserich	Team Manager, Environmental Planning Section
Michelle Morrison	Senior Environmental Specialist
Daniel Cardoza	Environmental Specialist

**Table 6-2. Consultant Team; Aspen Environmental Group**

<b>Name</b>	<b>Project Role</b>
Stanley Yeh	Project Manager
Stephanie Tang	Deputy Project Manager, Aesthetics, Agricultural Resources, Energy, Geology and Soils, Hazards and Hazardous Materials, Hydrology and Water Quality, Land Use and Planning, Mineral Resources, Population and Housing, Public Services, Recreation, Transportation, Utilities and Services Systems, Wildfire
Brewster Birdsall, PE, QEP	Air Quality, Greenhouse Gas Emissions, Noise
Rachael Dal Porto	Air Quality, Greenhouse Gas Emissions, Noise
Chris Huntley	Biological Resources
Justin Wood	Biological Resources
Jamison Miner	Biological Resources
Brigit Harvey	Biological Resources
Lauren DeOliveira, RPA	Cultural Resources
Elliot D'Antin	Cultural Resources
Jose Reyes	GIS
Kati Simpson	Graphics, Document/Production Coordinator

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## **Appendix A**

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### **Construction Details and Air Quality Emission Estimate Calculations**



# **Attachment 1**

## **AQ/GHG Emissions Summary**

**Air Quality Maximum Daily Emissions****Unmitigated Construction**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total
Year	lb/day									
2022	3.0486	25.1144	28.8346	0.0666	78.5393	1.1444	79.6836	8.1694	1.0793	9.2487
2023	4.9128	39.8454	54.7385	0.1125	113.6665	1.8188	115.4854	11.8205	1.7275	13.5480
2024	2.9449	23.0350	34.2398	0.0643	60.5680	1.0442	61.6122	6.2941	0.9954	7.2895
<b>Maximum</b>	<b>4.9128</b>	<b>39.8454</b>	<b>54.7385</b>	<b>0.1125</b>	<b>113.6665</b>	<b>1.8188</b>	<b>115.4854</b>	<b>11.8205</b>	<b>1.7275</b>	<b>13.5480</b>
<b>MDAQMD Threshold</b>	<b>137</b>	<b>137</b>	<b>548</b>	<b>137</b>			<b>82</b>			<b>65</b>

**Mitigated Construction**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total
Year	lb/day									
2022	3.0486	25.1144	28.8346	0.0666	36.4347	1.1444	37.5790	3.9679	1.0793	5.0472
2023	4.9128	39.8454	54.7385	0.1125	52.7235	1.8188	54.5423	5.7392	1.7275	7.4666
2024	2.9449	23.0350	34.2398	0.0643	28.0836	1.0442	29.1278	3.0526	0.9954	4.0480
<b>Maximum</b>	<b>4.9128</b>	<b>39.8454</b>	<b>54.7385</b>	<b>0.1125</b>	<b>52.7235</b>	<b>1.8188</b>	<b>54.5423</b>	<b>5.7392</b>	<b>1.7275</b>	<b>7.4666</b>
<b>MDAQMD Threshold</b>	<b>137</b>	<b>137</b>	<b>548</b>	<b>137</b>			<b>82</b>			<b>65</b>

**GHG Yearly Emissions****Unmitigated Construction**

	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	MT/yr					
2022	0.0000	460.6095	460.6095	0.0741	0.0148	466.8787
2023	0.0000	758.1940	758.1940	0.1206	0.0134	765.2113
2024	0.0000	184.8701	184.8701	0.0243	1.5500e-003	185.9408
<b>Total</b>	<b>0.0000</b>	<b>1403.6736</b>	<b>1403.6736</b>	<b>0.2190</b>	<b>0.0282</b>	<b>1418.0308</b>
<b>County of San Bernardino Threshold</b>						<b>3000</b>

**Mitigated Construction**

	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	MT/yr					
2022	0.0000	460.6091	460.6091	0.0741	0.0148	466.8784
2023	0.0000	758.1934	758.1934	0.1206	0.0134	765.2107
2024	0.0000	184.8699	184.8699	0.0243	1.5500e-003	185.9407
<b>Total</b>	<b>0.0000</b>	<b>1403.6724</b>	<b>1403.6724</b>	<b>0.2190</b>	<b>0.0282</b>	<b>1418.0298</b>
<b>County of San Bernardino Threshold</b>						<b>3000</b>

## **Attachment 2**

### **AQ/GHG Input Summary**

Phases	Start Date	End Date	Days	Equipment	Quantity	Hours of Use/Day	Employee Vehicles (one way per day)	Water Truck Trips (one way per day)	Heavy Haul (total one way trips)	Cement Truck Trips (total one way trips)
Road Grading	2022/06/01	2023/06/01	262	rubber tire front loader	1	7	20	2	2220	200.6
			262	skip loader	1	7	20	2		
			262	backhoe	1	7	20	2		
			262	excavator	1	7	20	2		
			262	skid steer	1	7	20	2		
			262	dump truck	1	7	20	2		
			262	water truck	1	7	20	2		
Gunnite Paving	2022/06/01	2023/06/01	262	truck mounted concrete pump	1	7	20	2	40	0
			262	compressors	2	7	20	2		
			262	water truck	1	7	20	2		
Electrical Pad and Equipment	2023/06/01	2024/01/01	153	backhoe	1	7	12	2	40	0
			153	excavator	1	7	12	2		
			153	skid steer	1	7	12	2		
			153	water truck	1	7	12	2		
			153	small concrete pump	1	7	12	2		
			153	compressor	1	7	12	2		
			153	generator	1	7	12	2		
DV Activites	2023/06/02	2024/06/01	261	backhoe	1	7	20	2	40	0
			261	skid steer	1	7	20	2		
			261	extendable boom fork lift	1	7	20	2		
			261	barge mounted crane	1	7	20	2		
			261	compressor	1	7	20	2		
			261	generator	1	7	20	2		
Field Office	2022/06/01	2024/06/01	523	generator	1	7	20	2	40	0

2421 cement and haul  
2581 total trips

*	Concrete Pavement								
	Station	+ Station	Feet at STA start	Station	+ Station	Feet at STA end	Total Feet of Paved Segment Length		
	0	27	27	1	76	176	149		
	3	75	375	4	60	460	85		
	7	45	745	7	81	781	36		
	42	58	4258	43	4	4304	46		
	52	24	5224	52	54	5254	30		
	54	73	5473	55	16	5516	43		
	55	75	5575	56	59	5659	84		
	60	7	6007	60	54	6054	47		
	61	7	6107	62	80	6280	173		
	72	30	7230	72	93	7293	63		
	74	23	7423	75	71	7571	148		
	77	10	7710	78	33	7833	123		
	79	60	7960	87	30	8730	770		
							Total Length of Paved Segment (ft)	Width of Paved Segment (ft)	Depth of Paved Segment (ft)
							9' Paved C	1797	10
							Arizona	760	11
							CF to CY		
							0.037		
							Road	Arizona Crossing	V ditches
							Paved Segment (cf)	Paved Segment (cf)	
								13477.5	6270
							Paved Segment (CY)	Paved Segment (CY)	Concrete (CY)
								499	231.99
							Total Concrete Trucks at 9 CY per truck	Total Concrete Trucks at 9 CY per truck	Total Concrete Trucks at 9 CY per truck
								55	25.7766667
							Total one way concrete trips	Total one way concrete trips	Total one way concrete trips
								111	51.55333333
									38
							Total One-Way Concrete Trips for Entire Project		
							201		
							Total Rip Rap	9700 CY	
								1940 One way rip rap trips	
References									
* Access Road Plan and Profile - Phase 2 Final Design									
** Grading Limits for Access Road Exhibit February 2022									



# **Attachment 3**

## **CalEEMod Outputs**

MWD Copper Basin - San Bernardino-Mojave Desert County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

MWD Copper Basin  
San Bernardino-Mojave Desert County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Heavy Industry	1,000.00	1000sqft	22.96	1,000,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.6	Precipitation Freq (Days)	32
Climate Zone	10			Operational Year	2024
Utility Company					
CO2 Intensity (lb/MW hr)	0	CH4 Intensity (lb/MW hr)	0	N2O Intensity (lb/MW hr)	0

1.3 User Entered Comments & Non-Default Data

- Project Characteristics -
- Land Use -
- Construction Phase - Construction Schedule
- Off-road Equipment - 50hp barge
- Off-road Equipment - summary input sheet
- Off-road Equipment - small concrete pump
- Off-road Equipment - input summary
- Off-road Equipment - concrete pump
- Off-road Equipment - summary input sheet
- Trips and VMT - lake havasu city
- On-road Fugitive Dust - 2 percent unpaved
- Grading -

MWD Copper Basin - San Bernardino-Mojave Desert County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

Vehicle Trips - no operational

Road Dust -

Consumer Products - no operational changes

Area Coating - no operational changes

Energy Use - no operational changes

Water And Wastewater - no operational changes

Solid Waste - no operational changes

Construction Off-road Equipment Mitigation - soil stabilizer or watering reqd by Rule 403

Area Mitigation - no paint

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_EF_Nonresidential_Exterior	250	0
tblAreaCoating	Area_EF_Nonresidential_Interior	250	0
tblAreaCoating	Area_EF_Parking	250	0
tblAreaCoating	Area_EF_Residential_Exterior	250	0
tblAreaCoating	Area_EF_Residential_Interior	250	0
tblAreaCoating	Area_Nonresidential_Exterior	500000	0
tblAreaCoating	Area_Nonresidential_Interior	1500000	0
tblAreaCoating	ReapplicationRatePercent	10	0
tblConstDustMitigation	WaterUnpavedRoadMoistureContent	0	0.5
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	40
tblConstructionPhase	NumDays	10.00	262.00
tblConstructionPhase	NumDays	10.00	523.00
tblConstructionPhase	NumDays	10.00	523.00
tblConstructionPhase	NumDays	35.00	262.00
tblConstructionPhase	NumDays	10.00	262.00
tblConstructionPhase	NumDays	35.00	153.00
tblConsumerProducts	ROG_EF	2.14E-05	0
tblConsumerProducts	ROG_EF_Degreaser	3.542E-07	0

MWD Copper Basin - San Bernardino-Mojave Desert County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

tblConsumerProducts	ROG_EF_PesticidesFertilizers	5.152E-08	0
tblEnergyUse	LightingElect	2.93	0.00
tblEnergyUse	NT24E	5.02	0.00
tblEnergyUse	NT24NG	17.13	0.00
tblEnergyUse	T24E	1.97	0.00
tblEnergyUse	T24NG	15.20	0.00
tblOffRoadEquipment	HorsePower	172.00	50.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOffRoadEquipment	UsageHours	8.00	7.00
tblOffRoadEquipment	UsageHours	8.00	7.00
tblOffRoadEquipment	UsageHours	8.00	7.00
tblOffRoadEquipment	UsageHours	8.00	7.00
tblOffRoadEquipment	UsageHours	8.00	7.00
tblOffRoadEquipment	UsageHours	8.00	7.00
tblOnRoadDust	HaulingPercentPave	100.00	98.00
tblOnRoadDust	HaulingPercentPave	100.00	98.00
tblOnRoadDust	HaulingPercentPave	100.00	98.00
tblOnRoadDust	HaulingPercentPave	100.00	98.00
tblOnRoadDust	HaulingPercentPave	100.00	98.00
tblOnRoadDust	HaulingPercentPave	100.00	98.00
tblOnRoadDust	VendorPercentPave	100.00	98.00
tblOnRoadDust	VendorPercentPave	100.00	98.00
tblOnRoadDust	VendorPercentPave	100.00	98.00
tblOnRoadDust	VendorPercentPave	100.00	98.00

MWD Copper Basin - San Bernardino-Mojave Desert County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

tblOnRoadDust	VendorPercentPave	100.00	98.00
tblOnRoadDust	VendorPercentPave	100.00	98.00
tblOnRoadDust	WorkerPercentPave	100.00	98.00
tblOnRoadDust	WorkerPercentPave	100.00	98.00
tblOnRoadDust	WorkerPercentPave	100.00	98.00
tblOnRoadDust	WorkerPercentPave	100.00	98.00
tblOnRoadDust	WorkerPercentPave	100.00	98.00
tblOnRoadDust	WorkerPercentPave	100.00	98.00
tblSolidWaste	SolidWasteGenerationRate	1,240.00	0.00
tblTripsAndVMT	HaulingTripLength	20.00	35.00
tblTripsAndVMT	HaulingTripLength	20.00	35.00
tblTripsAndVMT	HaulingTripLength	20.00	35.00
tblTripsAndVMT	HaulingTripLength	20.00	35.00
tblTripsAndVMT	HaulingTripLength	20.00	35.00
tblTripsAndVMT	HaulingTripLength	20.00	35.00
tblTripsAndVMT	HaulingTripNumber	0.00	40.00
tblTripsAndVMT	HaulingTripNumber	0.00	40.00
tblTripsAndVMT	HaulingTripNumber	0.00	4.00
tblTripsAndVMT	HaulingTripNumber	0.00	2,421.00
tblTripsAndVMT	HaulingTripNumber	0.00	40.00
tblTripsAndVMT	HaulingTripNumber	0.00	40.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	WorkerTripLength	10.80	35.00
tblTripsAndVMT	WorkerTripLength	10.80	35.00
tblTripsAndVMT	WorkerTripLength	10.80	35.00
tblTripsAndVMT	WorkerTripLength	10.80	35.00



MWD Copper Basin - San Bernardino-Mojave Desert County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

tblTripsAndVMT	WorkerTripLength	10.80	35.00
tblTripsAndVMT	WorkerTripLength	10.80	35.00
tblTripsAndVMT	WorkerTripNumber	8.00	20.00
tblTripsAndVMT	WorkerTripNumber	3.00	20.00
tblTripsAndVMT	WorkerTripNumber	5.00	4.00
tblTripsAndVMT	WorkerTripNumber	13.00	20.00
tblTripsAndVMT	WorkerTripNumber	13.00	20.00
tblTripsAndVMT	WorkerTripNumber	15.00	12.00
tblVehicleTrips	CC_TL	7.30	0.00
tblVehicleTrips	CNW_TL	7.30	0.00
tblVehicleTrips	CW_TL	9.50	0.00
tblVehicleTrips	ST_TR	6.42	0.00
tblVehicleTrips	SU_TR	5.09	0.00
tblVehicleTrips	WD_TR	3.93	0.00
tblWater	ElectricityIntensityFactorForWastewaterTreatment	1,911.00	0.00
tblWater	ElectricityIntensityFactorToDistribute	1,272.00	0.00
tblWater	ElectricityIntensityFactorToSupply	9,727.00	0.00
tblWater	ElectricityIntensityFactorToTreat	111.00	0.00
tblWater	IndoorWaterUseRate	231,250,000.00	0.00

## 2.0 Emissions Summary

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MWD Copper Basin - San Bernardino-Mojave Desert County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**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					
2022	3.0486	25.1144	28.8346	0.0666	78.5393	1.1444	79.6836	8.1694	1.0793	9.2487	0.0000	6,608.659 6	6,608.659 6	1.0675	0.2122	6,698.593 5
2023	4.9128	39.8454	54.7385	0.1125	113.6665	1.8188	115.4854	11.8205	1.7275	13.5480	0.0000	11,072.93 01	11,072.93 01	1.8018	0.2365	11,188.45 13
2024	2.9449	23.0350	34.2398	0.0643	60.5680	1.0442	61.6122	6.2941	0.9954	7.2895	0.0000	6,259.668 3	6,259.668 3	0.9823	0.0460	6,297.929 2
Maximum	4.9128	39.8454	54.7385	0.1125	113.6665	1.8188	115.4854	11.8205	1.7275	13.5480	0.0000	11,072.93 01	11,072.93 01	1.8018	0.2365	11,188.45 13

**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					
2022	3.0486	25.1144	28.8346	0.0666	36.4347	1.1444	37.5790	3.9679	1.0793	5.0472	0.0000	6,608.659 6	6,608.659 6	1.0675	0.2122	6,698.593 5
2023	4.9128	39.8454	54.7385	0.1125	52.7235	1.8188	54.5423	5.7392	1.7275	7.4666	0.0000	11,072.93 01	11,072.93 01	1.8018	0.2365	11,188.45 13
2024	2.9449	23.0350	34.2398	0.0643	28.0836	1.0442	29.1278	3.0526	0.9954	4.0480	0.0000	6,259.668 3	6,259.668 3	0.9823	0.0460	6,297.929 2
Maximum	4.9128	39.8454	54.7385	0.1125	52.7235	1.8188	54.5423	5.7392	1.7275	7.4666	0.0000	11,072.93 01	11,072.93 01	1.8018	0.2365	11,188.45 13

MWD Copper Basin - San Bernardino-Mojave Desert County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

	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
Percent Reduction	0.00	0.00	0.00	0.00	53.62	0.00	52.78	51.45	0.00	44.95	0.00	0.00	0.00	0.00	0.00	0.00

MWD Copper Basin - San Bernardino-Mojave Desert County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**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	9.4100e-003	9.3000e-004	0.1019	1.0000e-005		3.6000e-004	3.6000e-004		3.6000e-004	3.6000e-004		0.2189	0.2189	5.7000e-004		0.2331
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	0.0000
<b>Total</b>	<b>9.4100e-003</b>	<b>9.3000e-004</b>	<b>0.1019</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>3.6000e-004</b>	<b>3.6000e-004</b>	<b>0.0000</b>	<b>3.6000e-004</b>	<b>3.6000e-004</b>		<b>0.2189</b>	<b>0.2189</b>	<b>5.7000e-004</b>	<b>0.0000</b>	<b>0.2331</b>

**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	9.4100e-003	9.3000e-004	0.1019	1.0000e-005		3.6000e-004	3.6000e-004		3.6000e-004	3.6000e-004		0.2189	0.2189	5.7000e-004		0.2331
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	0.0000
<b>Total</b>	<b>9.4100e-003</b>	<b>9.3000e-004</b>	<b>0.1019</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>3.6000e-004</b>	<b>3.6000e-004</b>	<b>0.0000</b>	<b>3.6000e-004</b>	<b>3.6000e-004</b>		<b>0.2189</b>	<b>0.2189</b>	<b>5.7000e-004</b>	<b>0.0000</b>	<b>0.2331</b>

## MWD Copper Basin - San Bernardino-Mojave Desert County, Winter

## EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	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
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	Gunnite	Site Preparation	6/1/2022	6/1/2023	5	262	
2	Field Office	Site Preparation	6/1/2022	6/1/2024	5	523	
3	Barge Use	Site Preparation	6/1/2022	6/1/2024	5	523	
4	Road Grading	Grading	6/1/2022	6/1/2023	5	262	
5	Dam Valve Activites	Site Preparation	6/1/2023	6/1/2024	5	262	
6	Electrical Pad and QuiPMENT	Grading	6/1/2023	1/1/2024	5	153	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

#### OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Gunnite	Air Compressors	2	7.00	78	0.48
Gunnite	Other Construction Equipment	1	7.00	172	0.42
Field Office	Generator Sets	1	7.00	84	0.74
Barge Use	Cranes	1	7.00	231	0.29
Barge Use	Other Construction Equipment	1	7.00	50	0.42



MWD Copper Basin - San Bernardino-Mojave Desert County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

Road Grading	Excavators	1	7.00	158	0.38
Road Grading	Rubber Tired Loaders	1	7.00	203	0.36
Road Grading	Skid Steer Loaders	1	7.00	65	0.37
Road Grading	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Road Grading	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Dam Valve Activites	Aerial Lifts	1	7.00	63	0.31
Dam Valve Activites	Air Compressors	1	7.00	78	0.48
Dam Valve Activites	Generator Sets	1	7.00	84	0.74
Dam Valve Activites	Skid Steer Loaders	1	7.00	65	0.37
Dam Valve Activites	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Electrical Pad and Quipment	Air Compressors	1	7.00	78	0.48
Electrical Pad and Quipment	Excavators	1	7.00	158	0.38
Electrical Pad and Quipment	Generator Sets	1	7.00	84	0.74
Electrical Pad and Quipment	Other Construction Equipment	1	7.00	172	0.42
Electrical Pad and Quipment	Skid Steer Loaders	1	7.00	65	0.37
Electrical Pad and Quipment	Tractors/Loaders/Backhoes	1	7.00	97	0.37

**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
Gunnite	3	20.00	2.00	40.00	35.00	7.30	35.00	LD_Mix	HDT_Mix	HHDT
Field Office	1	20.00	0.00	40.00	35.00	7.30	35.00	LD_Mix	HDT_Mix	HHDT
Barge Use	2	4.00	0.00	4.00	35.00	7.30	35.00	LD_Mix	HDT_Mix	HHDT
Road Grading	5	20.00	2.00	2,421.00	35.00	7.30	35.00	LD_Mix	HDT_Mix	HHDT
Dam Valve Activites	5	20.00	2.00	40.00	35.00	7.30	35.00	LD_Mix	HDT_Mix	HHDT
Electrical Pad and Quipment	6	12.00	2.00	40.00	35.00	7.30	35.00	LD_Mix	HDT_Mix	HHDT

**3.1 Mitigation Measures Construction**

MWD Copper Basin - San Bernardino-Mojave Desert County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

Use Soil Stabilizer

Water Exposed Area

**3.2 Gunnite - 2022**

**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					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.8062	6.6247	7.7495	0.0123		0.3649	0.3649		0.3509	0.3509		1,180.2520	1,180.2520	0.2121		1,185.5540
<b>Total</b>	<b>0.8062</b>	<b>6.6247</b>	<b>7.7495</b>	<b>0.0123</b>	<b>0.0000</b>	<b>0.3649</b>	<b>0.3649</b>	<b>0.0000</b>	<b>0.3509</b>	<b>0.3509</b>		<b>1,180.2520</b>	<b>1,180.2520</b>	<b>0.2121</b>		<b>1,185.5540</b>

MWD Copper Basin - San Bernardino-Mojave Desert County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**3.2 Gunnite - 2022**

**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	8.3000e-004	0.0356	7.5700e-003	1.5000e-004	0.1619	3.8000e-004	0.1623	0.0170	3.6000e-004	0.0173		16.7134	16.7134	7.2000e-004	2.6500e-003	17.5209
Vendor	3.4600e-003	0.0957	0.0339	3.9000e-004	0.4431	1.1000e-003	0.4442	0.0467	1.0600e-003	0.0478		42.1495	42.1495	1.1300e-003	6.2400e-003	44.0370
Worker	0.1530	0.1192	1.4631	4.4000e-003	21.1262	2.6500e-003	21.1289	2.1948	2.4400e-003	2.1972		447.1859	447.1859	8.9900e-003	0.0110	450.7003
<b>Total</b>	<b>0.1573</b>	<b>0.2505</b>	<b>1.5046</b>	<b>4.9400e-003</b>	<b>21.7312</b>	<b>4.1300e-003</b>	<b>21.7354</b>	<b>2.2585</b>	<b>3.8600e-003</b>	<b>2.2623</b>		<b>506.0488</b>	<b>506.0488</b>	<b>0.0108</b>	<b>0.0199</b>	<b>512.2582</b>

**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					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.8062	6.6247	7.7495	0.0123		0.3649	0.3649		0.3509	0.3509	0.0000	1,180.2520	1,180.2520	0.2121		1,185.5540
<b>Total</b>	<b>0.8062</b>	<b>6.6247</b>	<b>7.7495</b>	<b>0.0123</b>	<b>0.0000</b>	<b>0.3649</b>	<b>0.3649</b>	<b>0.0000</b>	<b>0.3509</b>	<b>0.3509</b>	<b>0.0000</b>	<b>1,180.2520</b>	<b>1,180.2520</b>	<b>0.2121</b>		<b>1,185.5540</b>

MWD Copper Basin - San Bernardino-Mojave Desert County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**3.2 Gunnite - 2022**

**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	8.3000e-004	0.0356	7.5700e-003	1.5000e-004	0.0754	3.8000e-004	0.0758	8.3300e-003	3.6000e-004	8.6900e-003		16.7134	16.7134	7.2000e-004	2.6500e-003	17.5209
Vendor	3.4600e-003	0.0957	0.0339	3.9000e-004	0.2067	1.1000e-003	0.2078	0.0232	1.0600e-003	0.0242		42.1495	42.1495	1.1300e-003	6.2400e-003	44.0370
Worker	0.1530	0.1192	1.4631	4.4000e-003	9.7943	2.6500e-003	9.7970	1.0640	2.4400e-003	1.0664		447.1859	447.1859	8.9900e-003	0.0110	450.7003
<b>Total</b>	<b>0.1573</b>	<b>0.2505</b>	<b>1.5046</b>	<b>4.9400e-003</b>	<b>10.0764</b>	<b>4.1300e-003</b>	<b>10.0806</b>	<b>1.0955</b>	<b>3.8600e-003</b>	<b>1.0993</b>		<b>506.0488</b>	<b>506.0488</b>	<b>0.0108</b>	<b>0.0199</b>	<b>512.2582</b>

**3.2 Gunnite - 2023**

**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					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.7521	6.0484	7.7282	0.0123		0.3218	0.3218		0.3093	0.3093		1,180.1911	1,180.1911	0.2086		1,185.4059
<b>Total</b>	<b>0.7521</b>	<b>6.0484</b>	<b>7.7282</b>	<b>0.0123</b>	<b>0.0000</b>	<b>0.3218</b>	<b>0.3218</b>	<b>0.0000</b>	<b>0.3093</b>	<b>0.3093</b>		<b>1,180.1911</b>	<b>1,180.1911</b>	<b>0.2086</b>		<b>1,185.4059</b>

MWD Copper Basin - San Bernardino-Mojave Desert County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**3.2 Gunnite - 2023**

**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	4.6000e-004	0.0284	6.8700e-003	1.5000e-004	0.1619	3.1000e-004	0.1622	0.0170	2.9000e-004	0.0173		15.9816	15.9816	6.9000e-004	2.5300e-003	16.7537
Vendor	2.2200e-003	0.0768	0.0308	3.8000e-004	0.4431	5.6000e-004	0.4437	0.0467	5.3000e-004	0.0473		40.4835	40.4835	1.0500e-003	5.9800e-003	42.2917
Worker	0.1419	0.1042	1.3350	4.2500e-003	21.1262	2.5000e-003	21.1287	2.1948	2.3000e-003	2.1971		435.4325	435.4325	7.9800e-003	0.0101	438.6394
<b>Total</b>	<b>0.1446</b>	<b>0.2094</b>	<b>1.3727</b>	<b>4.7800e-003</b>	<b>21.7312</b>	<b>3.3700e-003</b>	<b>21.7346</b>	<b>2.2585</b>	<b>3.1200e-003</b>	<b>2.2616</b>		<b>491.8975</b>	<b>491.8975</b>	<b>9.7200e-003</b>	<b>0.0186</b>	<b>497.6848</b>

**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					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.7521	6.0484	7.7282	0.0123		0.3218	0.3218		0.3093	0.3093	0.0000	1,180.1911	1,180.1911	0.2086		1,185.4059
<b>Total</b>	<b>0.7521</b>	<b>6.0484</b>	<b>7.7282</b>	<b>0.0123</b>	<b>0.0000</b>	<b>0.3218</b>	<b>0.3218</b>	<b>0.0000</b>	<b>0.3093</b>	<b>0.3093</b>	<b>0.0000</b>	<b>1,180.1911</b>	<b>1,180.1911</b>	<b>0.2086</b>		<b>1,185.4059</b>

MWD Copper Basin - San Bernardino-Mojave Desert County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**3.2 Gunnite - 2023**

**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	4.6000e-004	0.0284	6.8700e-003	1.5000e-004	0.0754	3.1000e-004	0.0757	8.3300e-003	2.9000e-004	8.6200e-003		15.9816	15.9816	6.9000e-004	2.5300e-003	16.7537
Vendor	2.2200e-003	0.0768	0.0308	3.8000e-004	0.2067	5.6000e-004	0.2073	0.0232	5.3000e-004	0.0237		40.4835	40.4835	1.0500e-003	5.9800e-003	42.2917
Worker	0.1419	0.1042	1.3350	4.2500e-003	9.7943	2.5000e-003	9.7968	1.0640	2.3000e-003	1.0663		435.4325	435.4325	7.9800e-003	0.0101	438.6394
<b>Total</b>	<b>0.1446</b>	<b>0.2094</b>	<b>1.3727</b>	<b>4.7800e-003</b>	<b>10.0764</b>	<b>3.3700e-003</b>	<b>10.0798</b>	<b>1.0955</b>	<b>3.1200e-003</b>	<b>1.0986</b>		<b>491.8975</b>	<b>491.8975</b>	<b>9.7200e-003</b>	<b>0.0186</b>	<b>497.6848</b>

**3.3 Field Office - 2022**

**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					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.2887	2.5622	3.2165	5.7600e-003		0.1285	0.1285		0.1285	0.1285		545.1553	545.1553	0.0259		545.8028
<b>Total</b>	<b>0.2887</b>	<b>2.5622</b>	<b>3.2165</b>	<b>5.7600e-003</b>	<b>0.0000</b>	<b>0.1285</b>	<b>0.1285</b>	<b>0.0000</b>	<b>0.1285</b>	<b>0.1285</b>		<b>545.1553</b>	<b>545.1553</b>	<b>0.0259</b>		<b>545.8028</b>



MWD Copper Basin - San Bernardino-Mojave Desert County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**3.3 Field Office - 2022**

**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	4.2000e-004	0.0178	3.7900e-003	8.0000e-005	0.0811	1.9000e-004	0.0813	8.5000e-003	1.8000e-004	8.6800e-003		8.3727	8.3727	3.6000e-004	1.3300e-003	8.7772
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
Worker	0.1530	0.1192	1.4631	4.4000e-003	21.1262	2.6500e-003	21.1289	2.1948	2.4400e-003	2.1972		447.1859	447.1859	8.9900e-003	0.0110	450.7003
<b>Total</b>	<b>0.1534</b>	<b>0.1370</b>	<b>1.4669</b>	<b>4.4800e-003</b>	<b>21.2073</b>	<b>2.8400e-003</b>	<b>21.2102</b>	<b>2.2033</b>	<b>2.6200e-003</b>	<b>2.2059</b>		<b>455.5586</b>	<b>455.5586</b>	<b>9.3500e-003</b>	<b>0.0124</b>	<b>459.4775</b>

**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					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.2887	2.5622	3.2165	5.7600e-003		0.1285	0.1285		0.1285	0.1285	0.0000	545.1553	545.1553	0.0259		545.8028
<b>Total</b>	<b>0.2887</b>	<b>2.5622</b>	<b>3.2165</b>	<b>5.7600e-003</b>	<b>0.0000</b>	<b>0.1285</b>	<b>0.1285</b>	<b>0.0000</b>	<b>0.1285</b>	<b>0.1285</b>	<b>0.0000</b>	<b>545.1553</b>	<b>545.1553</b>	<b>0.0259</b>		<b>545.8028</b>

MWD Copper Basin - San Bernardino-Mojave Desert County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**3.3 Field Office - 2022**

**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	4.2000e-004	0.0178	3.7900e-003	8.0000e-005	0.0378	1.9000e-004	0.0380	4.1700e-003	1.8000e-004	4.3500e-003		8.3727	8.3727	3.6000e-004	1.3300e-003	8.7772
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
Worker	0.1530	0.1192	1.4631	4.4000e-003	9.7943	2.6500e-003	9.7970	1.0640	2.4400e-003	1.0664		447.1859	447.1859	8.9900e-003	0.0110	450.7003
<b>Total</b>	<b>0.1534</b>	<b>0.1370</b>	<b>1.4669</b>	<b>4.4800e-003</b>	<b>9.8321</b>	<b>2.8400e-003</b>	<b>9.8349</b>	<b>1.0681</b>	<b>2.6200e-003</b>	<b>1.0708</b>		<b>455.5586</b>	<b>455.5586</b>	<b>9.3500e-003</b>	<b>0.0124</b>	<b>459.4775</b>

**3.3 Field Office - 2023**

**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					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.2676	2.3761	3.2107	5.7600e-003		0.1122	0.1122		0.1122	0.1122		545.1553	545.1553	0.0240		545.7548
<b>Total</b>	<b>0.2676</b>	<b>2.3761</b>	<b>3.2107</b>	<b>5.7600e-003</b>	<b>0.0000</b>	<b>0.1122</b>	<b>0.1122</b>	<b>0.0000</b>	<b>0.1122</b>	<b>0.1122</b>		<b>545.1553</b>	<b>545.1553</b>	<b>0.0240</b>		<b>545.7548</b>

MWD Copper Basin - San Bernardino-Mojave Desert County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**3.3 Field Office - 2023**

**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	2.3000e-004	0.0142	3.4400e-003	7.0000e-005	0.0811	1.5000e-004	0.0813	8.5000e-003	1.5000e-004	8.6400e-003		8.0061	8.0061	3.4000e-004	1.2700e-003	8.3929
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
Worker	0.1419	0.1042	1.3350	4.2500e-003	21.1262	2.5000e-003	21.1287	2.1948	2.3000e-003	2.1971		435.4325	435.4325	7.9800e-003	0.0101	438.6394
<b>Total</b>	<b>0.1422</b>	<b>0.1184</b>	<b>1.3385</b>	<b>4.3200e-003</b>	<b>21.2073</b>	<b>2.6500e-003</b>	<b>21.2100</b>	<b>2.2033</b>	<b>2.4500e-003</b>	<b>2.2057</b>		<b>443.4385</b>	<b>443.4385</b>	<b>8.3200e-003</b>	<b>0.0114</b>	<b>447.0322</b>

**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					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.2676	2.3761	3.2107	5.7600e-003		0.1122	0.1122		0.1122	0.1122	0.0000	545.1553	545.1553	0.0240		545.7548
<b>Total</b>	<b>0.2676</b>	<b>2.3761</b>	<b>3.2107</b>	<b>5.7600e-003</b>	<b>0.0000</b>	<b>0.1122</b>	<b>0.1122</b>	<b>0.0000</b>	<b>0.1122</b>	<b>0.1122</b>	<b>0.0000</b>	<b>545.1553</b>	<b>545.1553</b>	<b>0.0240</b>		<b>545.7548</b>

MWD Copper Basin - San Bernardino-Mojave Desert County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**3.3 Field Office - 2023**

**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	2.3000e-004	0.0142	3.4400e-003	7.0000e-005	0.0378	1.5000e-004	0.0379	4.1700e-003	1.5000e-004	4.3200e-003		8.0061	8.0061	3.4000e-004	1.2700e-003	8.3929
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
Worker	0.1419	0.1042	1.3350	4.2500e-003	9.7943	2.5000e-003	9.7968	1.0640	2.3000e-003	1.0663		435.4325	435.4325	7.9800e-003	0.0101	438.6394
<b>Total</b>	<b>0.1422</b>	<b>0.1184</b>	<b>1.3385</b>	<b>4.3200e-003</b>	<b>9.8321</b>	<b>2.6500e-003</b>	<b>9.8347</b>	<b>1.0681</b>	<b>2.4500e-003</b>	<b>1.0706</b>		<b>443.4385</b>	<b>443.4385</b>	<b>8.3200e-003</b>	<b>0.0114</b>	<b>447.0322</b>

**3.3 Field Office - 2024**

**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					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.2494	2.2265	3.2059	5.7600e-003		0.0969	0.0969		0.0969	0.0969		545.1553	545.1553	0.0221		545.7068
<b>Total</b>	<b>0.2494</b>	<b>2.2265</b>	<b>3.2059</b>	<b>5.7600e-003</b>	<b>0.0000</b>	<b>0.0969</b>	<b>0.0969</b>	<b>0.0000</b>	<b>0.0969</b>	<b>0.0969</b>		<b>545.1553</b>	<b>545.1553</b>	<b>0.0221</b>		<b>545.7068</b>

MWD Copper Basin - San Bernardino-Mojave Desert County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**3.3 Field Office - 2024**

**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	2.3000e-004	0.0143	3.4600e-003	7.0000e-005	0.0811	1.5000e-004	0.0813	8.5000e-003	1.5000e-004	8.6400e-003		7.8668	7.8668	3.3000e-004	1.2500e-003	8.2467
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
Worker	0.1326	0.0919	1.2401	4.1300e-003	21.1262	2.4000e-003	21.1286	2.1948	2.2100e-003	2.1970		426.1976	426.1976	7.1800e-003	9.3100e-003	429.1516
<b>Total</b>	<b>0.1328</b>	<b>0.1062</b>	<b>1.2436</b>	<b>4.2000e-003</b>	<b>21.2073</b>	<b>2.5500e-003</b>	<b>21.2099</b>	<b>2.2033</b>	<b>2.3600e-003</b>	<b>2.2056</b>		<b>434.0644</b>	<b>434.0644</b>	<b>7.5100e-003</b>	<b>0.0106</b>	<b>437.3983</b>

**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					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.2494	2.2265	3.2059	5.7600e-003		0.0969	0.0969		0.0969	0.0969	0.0000	545.1553	545.1553	0.0221		545.7068
<b>Total</b>	<b>0.2494</b>	<b>2.2265</b>	<b>3.2059</b>	<b>5.7600e-003</b>	<b>0.0000</b>	<b>0.0969</b>	<b>0.0969</b>	<b>0.0000</b>	<b>0.0969</b>	<b>0.0969</b>	<b>0.0000</b>	<b>545.1553</b>	<b>545.1553</b>	<b>0.0221</b>		<b>545.7068</b>

## MWD Copper Basin - San Bernardino-Mojave Desert County, Winter

## EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

## 3.3 Field Office - 2024

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	2.3000e-004	0.0143	3.4600e-003	7.0000e-005	0.0378	1.5000e-004	0.0379	4.1700e-003	1.5000e-004	4.3200e-003		7.8668	7.8668	3.3000e-004	1.2500e-003	8.2467
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
Worker	0.1326	0.0919	1.2401	4.1300e-003	9.7943	2.4000e-003	9.7967	1.0640	2.2100e-003	1.0662		426.1976	426.1976	7.1800e-003	9.3100e-003	429.1516
<b>Total</b>	<b>0.1328</b>	<b>0.1062</b>	<b>1.2436</b>	<b>4.2000e-003</b>	<b>9.8321</b>	<b>2.5500e-003</b>	<b>9.8346</b>	<b>1.0681</b>	<b>2.3600e-003</b>	<b>1.0705</b>		<b>434.0644</b>	<b>434.0644</b>	<b>7.5100e-003</b>	<b>0.0106</b>	<b>437.3983</b>

## 3.4 Barge Use - 2022

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					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.6244	5.1978	3.3304	6.8100e-003		0.2647	0.2647		0.2436	0.2436		660.4738	660.4738	0.2136		665.8140
<b>Total</b>	<b>0.6244</b>	<b>5.1978</b>	<b>3.3304</b>	<b>6.8100e-003</b>	<b>0.0000</b>	<b>0.2647</b>	<b>0.2647</b>	<b>0.0000</b>	<b>0.2436</b>	<b>0.2436</b>		<b>660.4738</b>	<b>660.4738</b>	<b>0.2136</b>		<b>665.8140</b>



MWD Copper Basin - San Bernardino-Mojave Desert County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**3.4 Barge Use - 2022**

**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	4.0000e-005	1.7800e-003	3.8000e-004	1.0000e-005	8.1100e-003	2.0000e-005	8.1300e-003	8.5000e-004	2.0000e-005	8.7000e-004		0.8373	0.8373	4.0000e-005	1.3000e-004	0.8777
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
Worker	0.0306	0.0238	0.2926	8.8000e-004	4.2253	5.3000e-004	4.2258	0.4390	4.9000e-004	0.4394		89.4372	89.4372	1.8000e-003	2.2100e-003	90.1401
<b>Total</b>	<b>0.0306</b>	<b>0.0256</b>	<b>0.2930</b>	<b>8.9000e-004</b>	<b>4.2334</b>	<b>5.5000e-004</b>	<b>4.2339</b>	<b>0.4398</b>	<b>5.1000e-004</b>	<b>0.4403</b>		<b>90.2745</b>	<b>90.2745</b>	<b>1.8400e-003</b>	<b>2.3400e-003</b>	<b>91.0178</b>

**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					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.6244	5.1978	3.3304	6.8100e-003		0.2647	0.2647		0.2436	0.2436	0.0000	660.4738	660.4738	0.2136		665.8140
<b>Total</b>	<b>0.6244</b>	<b>5.1978</b>	<b>3.3304</b>	<b>6.8100e-003</b>	<b>0.0000</b>	<b>0.2647</b>	<b>0.2647</b>	<b>0.0000</b>	<b>0.2436</b>	<b>0.2436</b>	<b>0.0000</b>	<b>660.4738</b>	<b>660.4738</b>	<b>0.2136</b>		<b>665.8140</b>

MWD Copper Basin - San Bernardino-Mojave Desert County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**3.4 Barge Use - 2022**

**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	4.0000e-005	1.7800e-003	3.8000e-004	1.0000e-005	3.7800e-003	2.0000e-005	3.8000e-003	4.2000e-004	2.0000e-005	4.4000e-004		0.8373	0.8373	4.0000e-005	1.3000e-004	0.8777
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
Worker	0.0306	0.0238	0.2926	8.8000e-004	1.9589	5.3000e-004	1.9594	0.2128	4.9000e-004	0.2133		89.4372	89.4372	1.8000e-003	2.2100e-003	90.1401
<b>Total</b>	<b>0.0306</b>	<b>0.0256</b>	<b>0.2930</b>	<b>8.9000e-004</b>	<b>1.9626</b>	<b>5.5000e-004</b>	<b>1.9632</b>	<b>0.2132</b>	<b>5.1000e-004</b>	<b>0.2137</b>		<b>90.2745</b>	<b>90.2745</b>	<b>1.8400e-003</b>	<b>2.3400e-003</b>	<b>91.0178</b>

**3.4 Barge Use - 2023**

**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					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.5881	4.8276	3.2494	6.8200e-003		0.2436	0.2436		0.2241	0.2241		660.5147	660.5147	0.2136		665.8553
<b>Total</b>	<b>0.5881</b>	<b>4.8276</b>	<b>3.2494</b>	<b>6.8200e-003</b>	<b>0.0000</b>	<b>0.2436</b>	<b>0.2436</b>	<b>0.0000</b>	<b>0.2241</b>	<b>0.2241</b>		<b>660.5147</b>	<b>660.5147</b>	<b>0.2136</b>		<b>665.8553</b>

MWD Copper Basin - San Bernardino-Mojave Desert County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**3.4 Barge Use - 2023**

**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	2.0000e-005	1.4200e-003	3.4000e-004	1.0000e-005	8.1100e-003	2.0000e-005	8.1300e-003	8.5000e-004	1.0000e-005	8.6000e-004		0.8006	0.8006	3.0000e-005	1.3000e-004	0.8393
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
Worker	0.0284	0.0208	0.2670	8.5000e-004	4.2253	5.0000e-004	4.2258	0.4390	4.6000e-004	0.4394		87.0865	87.0865	1.6000e-003	2.0200e-003	87.7279
<b>Total</b>	<b>0.0284</b>	<b>0.0223</b>	<b>0.2674</b>	<b>8.6000e-004</b>	<b>4.2334</b>	<b>5.2000e-004</b>	<b>4.2339</b>	<b>0.4398</b>	<b>4.7000e-004</b>	<b>0.4403</b>		<b>87.8871</b>	<b>87.8871</b>	<b>1.6300e-003</b>	<b>2.1500e-003</b>	<b>88.5672</b>

**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					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.5881	4.8276	3.2494	6.8200e-003		0.2436	0.2436		0.2241	0.2241	0.0000	660.5147	660.5147	0.2136		665.8553
<b>Total</b>	<b>0.5881</b>	<b>4.8276</b>	<b>3.2494</b>	<b>6.8200e-003</b>	<b>0.0000</b>	<b>0.2436</b>	<b>0.2436</b>	<b>0.0000</b>	<b>0.2241</b>	<b>0.2241</b>	<b>0.0000</b>	<b>660.5147</b>	<b>660.5147</b>	<b>0.2136</b>		<b>665.8553</b>

MWD Copper Basin - San Bernardino-Mojave Desert County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**3.4 Barge Use - 2023**

**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	2.0000e-005	1.4200e-003	3.4000e-004	1.0000e-005	3.7800e-003	2.0000e-005	3.7900e-003	4.2000e-004	1.0000e-005	4.3000e-004		0.8006	0.8006	3.0000e-005	1.3000e-004	0.8393
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
Worker	0.0284	0.0208	0.2670	8.5000e-004	1.9589	5.0000e-004	1.9594	0.2128	4.6000e-004	0.2133		87.0865	87.0865	1.6000e-003	2.0200e-003	87.7279
<b>Total</b>	<b>0.0284</b>	<b>0.0223</b>	<b>0.2674</b>	<b>8.6000e-004</b>	<b>1.9626</b>	<b>5.2000e-004</b>	<b>1.9632</b>	<b>0.2132</b>	<b>4.7000e-004</b>	<b>0.2137</b>		<b>87.8871</b>	<b>87.8871</b>	<b>1.6300e-003</b>	<b>2.1500e-003</b>	<b>88.5672</b>

**3.4 Barge Use - 2024**

**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					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.5585	4.5279	3.1836	6.8200e-003		0.2264	0.2264		0.2083	0.2083		660.4623	660.4623	0.2136		665.8025
<b>Total</b>	<b>0.5585</b>	<b>4.5279</b>	<b>3.1836</b>	<b>6.8200e-003</b>	<b>0.0000</b>	<b>0.2264</b>	<b>0.2264</b>	<b>0.0000</b>	<b>0.2083</b>	<b>0.2083</b>		<b>660.4623</b>	<b>660.4623</b>	<b>0.2136</b>		<b>665.8025</b>

MWD Copper Basin - San Bernardino-Mojave Desert County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**3.4 Barge Use - 2024**

**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	2.0000e-005	1.4300e-003	3.5000e-004	1.0000e-005	8.1100e-003	2.0000e-005	8.1200e-003	8.5000e-004	1.0000e-005	8.6000e-004		0.7867	0.7867	3.0000e-005	1.2000e-004	0.8247
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
Worker	0.0265	0.0184	0.2480	8.3000e-004	4.2253	4.8000e-004	4.2257	0.4390	4.4000e-004	0.4394		85.2395	85.2395	1.4400e-003	1.8600e-003	85.8303
<b>Total</b>	<b>0.0265</b>	<b>0.0198</b>	<b>0.2484</b>	<b>8.4000e-004</b>	<b>4.2334</b>	<b>5.0000e-004</b>	<b>4.2339</b>	<b>0.4398</b>	<b>4.5000e-004</b>	<b>0.4403</b>		<b>86.0262</b>	<b>86.0262</b>	<b>1.4700e-003</b>	<b>1.9800e-003</b>	<b>86.6550</b>

**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					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.5585	4.5279	3.1836	6.8200e-003		0.2264	0.2264		0.2083	0.2083	0.0000	660.4623	660.4623	0.2136		665.8025
<b>Total</b>	<b>0.5585</b>	<b>4.5279</b>	<b>3.1836</b>	<b>6.8200e-003</b>	<b>0.0000</b>	<b>0.2264</b>	<b>0.2264</b>	<b>0.0000</b>	<b>0.2083</b>	<b>0.2083</b>	<b>0.0000</b>	<b>660.4623</b>	<b>660.4623</b>	<b>0.2136</b>		<b>665.8025</b>

MWD Copper Basin - San Bernardino-Mojave Desert County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**3.4 Barge Use - 2024**

**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	2.0000e-005	1.4300e-003	3.5000e-004	1.0000e-005	3.7800e-003	2.0000e-005	3.7900e-003	4.2000e-004	1.0000e-005	4.3000e-004		0.7867	0.7867	3.0000e-005	1.2000e-004	0.8247
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
Worker	0.0265	0.0184	0.2480	8.3000e-004	1.9589	4.8000e-004	1.9593	0.2128	4.4000e-004	0.2132		85.2395	85.2395	1.4400e-003	1.8600e-003	85.8303
<b>Total</b>	<b>0.0265</b>	<b>0.0198</b>	<b>0.2484</b>	<b>8.4000e-004</b>	<b>1.9626</b>	<b>5.0000e-004</b>	<b>1.9631</b>	<b>0.2132</b>	<b>4.5000e-004</b>	<b>0.2137</b>		<b>86.0262</b>	<b>86.0262</b>	<b>1.4700e-003</b>	<b>1.9800e-003</b>	<b>86.6550</b>

**3.5 Road Grading - 2022**

**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					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.7812	7.9466	9.3183	0.0173		0.3519	0.3519		0.3237	0.3237		1,669.9801	1,669.9801	0.5401		1,683.4828
<b>Total</b>	<b>0.7812</b>	<b>7.9466</b>	<b>9.3183</b>	<b>0.0173</b>	<b>0.0000</b>	<b>0.3519</b>	<b>0.3519</b>	<b>0.0000</b>	<b>0.3237</b>	<b>0.3237</b>		<b>1,669.9801</b>	<b>1,669.9801</b>	<b>0.5401</b>		<b>1,683.4828</b>



MWD Copper Basin - San Bernardino-Mojave Desert County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**3.5 Road Grading - 2022**

**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	0.0502	2.1552	0.4585	9.2900e-003	9.7981	0.0231	9.8211	1.0265	0.0221	1.0485		1,011.581 2	1,011.581 2	0.0437	0.1603	1,060.449 3
Vendor	3.4600e-003	0.0957	0.0339	3.9000e-004	0.4431	1.1000e-003	0.4442	0.0467	1.0600e-003	0.0478		42.1495	42.1495	1.1300e-003	6.2400e-003	44.0370
Worker	0.1530	0.1192	1.4631	4.4000e-003	21.1262	2.6500e-003	21.1289	2.1948	2.4400e-003	2.1972		447.1859	447.1859	8.9900e-003	0.0110	450.7003
<b>Total</b>	<b>0.2067</b>	<b>2.3700</b>	<b>1.9555</b>	<b>0.0141</b>	<b>31.3674</b>	<b>0.0268</b>	<b>31.3942</b>	<b>3.2679</b>	<b>0.0256</b>	<b>3.2935</b>		<b>1,500.916 6</b>	<b>1,500.916 6</b>	<b>0.0538</b>	<b>0.1776</b>	<b>1,555.186 6</b>

**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					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.7812	7.9466	9.3183	0.0173		0.3519	0.3519		0.3237	0.3237	0.0000	1,669.980 1	1,669.980 1	0.5401		1,683.482 8
<b>Total</b>	<b>0.7812</b>	<b>7.9466</b>	<b>9.3183</b>	<b>0.0173</b>	<b>0.0000</b>	<b>0.3519</b>	<b>0.3519</b>	<b>0.0000</b>	<b>0.3237</b>	<b>0.3237</b>	<b>0.0000</b>	<b>1,669.980 1</b>	<b>1,669.980 1</b>	<b>0.5401</b>		<b>1,683.482 8</b>

MWD Copper Basin - San Bernardino-Mojave Desert County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**3.5 Road Grading - 2022**

**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	0.0502	2.1552	0.4585	9.2900e-003	4.5625	0.0231	4.5855	0.5040	0.0221	0.5261		1,011.581 2	1,011.581 2	0.0437	0.1603	1,060.449 3
Vendor	3.4600e-003	0.0957	0.0339	3.9000e-004	0.2067	1.1000e-003	0.2078	0.0232	1.0600e-003	0.0242		42.1495	42.1495	1.1300e-003	6.2400e-003	44.0370
Worker	0.1530	0.1192	1.4631	4.4000e-003	9.7943	2.6500e-003	9.7970	1.0640	2.4400e-003	1.0664		447.1859	447.1859	8.9900e-003	0.0110	450.7003
<b>Total</b>	<b>0.2067</b>	<b>2.3700</b>	<b>1.9555</b>	<b>0.0141</b>	<b>14.5635</b>	<b>0.0268</b>	<b>14.5903</b>	<b>1.5911</b>	<b>0.0256</b>	<b>1.6167</b>		<b>1,500.916 6</b>	<b>1,500.916 6</b>	<b>0.0538</b>	<b>0.1776</b>	<b>1,555.186 6</b>

**3.5 Road Grading - 2023**

**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					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.7236	7.1219	9.2886	0.0173		0.3024	0.3024		0.2782	0.2782		1,670.642 7	1,670.642 7	0.5403		1,684.150 7
<b>Total</b>	<b>0.7236</b>	<b>7.1219</b>	<b>9.2886</b>	<b>0.0173</b>	<b>0.0000</b>	<b>0.3024</b>	<b>0.3024</b>	<b>0.0000</b>	<b>0.2782</b>	<b>0.2782</b>		<b>1,670.642 7</b>	<b>1,670.642 7</b>	<b>0.5403</b>		<b>1,684.150 7</b>

MWD Copper Basin - San Bernardino-Mojave Desert County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**3.5 Road Grading - 2023**

**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	0.0278	1.7201	0.4160	8.8700e-003	9.7981	0.0186	9.8167	1.0265	0.0178	1.0443		967.2834	967.2834	0.0416	0.1533	1,014.0172
Vendor	2.2200e-003	0.0768	0.0308	3.8000e-004	0.4431	5.6000e-004	0.4437	0.0467	5.3000e-004	0.0473		40.4835	40.4835	1.0500e-003	5.9800e-003	42.2917
Worker	0.1419	0.1042	1.3350	4.2500e-003	21.1262	2.5000e-003	21.1287	2.1948	2.3000e-003	2.1971		435.4325	435.4325	7.9800e-003	0.0101	438.6394
<b>Total</b>	<b>0.1719</b>	<b>1.9011</b>	<b>1.7819</b>	<b>0.0135</b>	<b>31.3674</b>	<b>0.0217</b>	<b>31.3891</b>	<b>3.2679</b>	<b>0.0207</b>	<b>3.2886</b>		<b>1,443.1994</b>	<b>1,443.1994</b>	<b>0.0506</b>	<b>0.1694</b>	<b>1,494.9483</b>

**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					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.7236	7.1219	9.2886	0.0173		0.3024	0.3024		0.2782	0.2782	0.0000	1,670.6427	1,670.6427	0.5403		1,684.1507
<b>Total</b>	<b>0.7236</b>	<b>7.1219</b>	<b>9.2886</b>	<b>0.0173</b>	<b>0.0000</b>	<b>0.3024</b>	<b>0.3024</b>	<b>0.0000</b>	<b>0.2782</b>	<b>0.2782</b>	<b>0.0000</b>	<b>1,670.6427</b>	<b>1,670.6427</b>	<b>0.5403</b>		<b>1,684.1507</b>

MWD Copper Basin - San Bernardino-Mojave Desert County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**3.5 Road Grading - 2023**

**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	0.0278	1.7201	0.4160	8.8700e-003	4.5624	0.0186	4.5811	0.5040	0.0178	0.5218		967.2834	967.2834	0.0416	0.1533	1,014.0172
Vendor	2.2200e-003	0.0768	0.0308	3.8000e-004	0.2067	5.6000e-004	0.2073	0.0232	5.3000e-004	0.0237		40.4835	40.4835	1.0500e-003	5.9800e-003	42.2917
Worker	0.1419	0.1042	1.3350	4.2500e-003	9.7943	2.5000e-003	9.7968	1.0640	2.3000e-003	1.0663		435.4325	435.4325	7.9800e-003	0.0101	438.6394
<b>Total</b>	<b>0.1719</b>	<b>1.9011</b>	<b>1.7819</b>	<b>0.0135</b>	<b>14.5635</b>	<b>0.0217</b>	<b>14.5852</b>	<b>1.5911</b>	<b>0.0207</b>	<b>1.6118</b>		<b>1,443.1994</b>	<b>1,443.1994</b>	<b>0.0506</b>	<b>0.1694</b>	<b>1,494.9483</b>

**3.6 Dam Valve Activites - 2023**

**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					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.7109	6.4632	9.4438	0.0152		0.2949	0.2949		0.2869	0.2869		1,455.1086	1,455.1086	0.2317		1,460.9017
<b>Total</b>	<b>0.7109</b>	<b>6.4632</b>	<b>9.4438</b>	<b>0.0152</b>	<b>0.0000</b>	<b>0.2949</b>	<b>0.2949</b>	<b>0.0000</b>	<b>0.2869</b>	<b>0.2869</b>		<b>1,455.1086</b>	<b>1,455.1086</b>	<b>0.2317</b>		<b>1,460.9017</b>

MWD Copper Basin - San Bernardino-Mojave Desert County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**3.6 Dam Valve Activites - 2023**

**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	4.6000e-004	0.0284	6.8700e-003	1.5000e-004	0.1619	3.1000e-004	0.1622	0.0170	2.9000e-004	0.0173		15.9816	15.9816	6.9000e-004	2.5300e-003	16.7537
Vendor	2.2200e-003	0.0768	0.0308	3.8000e-004	0.4431	5.6000e-004	0.4437	0.0467	5.3000e-004	0.0473		40.4835	40.4835	1.0500e-003	5.9800e-003	42.2917
Worker	0.1419	0.1042	1.3350	4.2500e-003	21.1262	2.5000e-003	21.1287	2.1948	2.3000e-003	2.1971		435.4325	435.4325	7.9800e-003	0.0101	438.6394
<b>Total</b>	<b>0.1446</b>	<b>0.2094</b>	<b>1.3727</b>	<b>4.7800e-003</b>	<b>21.7312</b>	<b>3.3700e-003</b>	<b>21.7346</b>	<b>2.2585</b>	<b>3.1200e-003</b>	<b>2.2616</b>		<b>491.8975</b>	<b>491.8975</b>	<b>9.7200e-003</b>	<b>0.0186</b>	<b>497.6848</b>

**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					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.7109	6.4632	9.4438	0.0152		0.2949	0.2949		0.2869	0.2869	0.0000	1,455.1086	1,455.1086	0.2317		1,460.9017
<b>Total</b>	<b>0.7109</b>	<b>6.4632</b>	<b>9.4438</b>	<b>0.0152</b>	<b>0.0000</b>	<b>0.2949</b>	<b>0.2949</b>	<b>0.0000</b>	<b>0.2869</b>	<b>0.2869</b>	<b>0.0000</b>	<b>1,455.1086</b>	<b>1,455.1086</b>	<b>0.2317</b>		<b>1,460.9017</b>

MWD Copper Basin - San Bernardino-Mojave Desert County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**3.6 Dam Valve Activites - 2023**

**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	4.6000e-004	0.0284	6.8700e-003	1.5000e-004	0.0754	3.1000e-004	0.0757	8.3300e-003	2.9000e-004	8.6200e-003		15.9816	15.9816	6.9000e-004	2.5300e-003	16.7537
Vendor	2.2200e-003	0.0768	0.0308	3.8000e-004	0.2067	5.6000e-004	0.2073	0.0232	5.3000e-004	0.0237		40.4835	40.4835	1.0500e-003	5.9800e-003	42.2917
Worker	0.1419	0.1042	1.3350	4.2500e-003	9.7943	2.5000e-003	9.7968	1.0640	2.3000e-003	1.0663		435.4325	435.4325	7.9800e-003	0.0101	438.6394
<b>Total</b>	<b>0.1446</b>	<b>0.2094</b>	<b>1.3727</b>	<b>4.7800e-003</b>	<b>10.0764</b>	<b>3.3700e-003</b>	<b>10.0798</b>	<b>1.0955</b>	<b>3.1200e-003</b>	<b>1.0986</b>		<b>491.8975</b>	<b>491.8975</b>	<b>9.7200e-003</b>	<b>0.0186</b>	<b>497.6848</b>

**3.6 Dam Valve Activites - 2024**

**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					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.6711	6.0993	9.4415	0.0152		0.2573	0.2573		0.2502	0.2502		1,455.3459	1,455.3459	0.2287		1,461.0641
<b>Total</b>	<b>0.6711</b>	<b>6.0993</b>	<b>9.4415</b>	<b>0.0152</b>	<b>0.0000</b>	<b>0.2573</b>	<b>0.2573</b>	<b>0.0000</b>	<b>0.2502</b>	<b>0.2502</b>		<b>1,455.3459</b>	<b>1,455.3459</b>	<b>0.2287</b>		<b>1,461.0641</b>



MWD Copper Basin - San Bernardino-Mojave Desert County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**3.6 Dam Valve Activites - 2024**

**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	4.5000e-004	0.0285	6.9000e-003	1.4000e-004	0.1619	3.0000e-004	0.1622	0.0170	2.9000e-004	0.0173		15.7035	15.7035	6.7000e-004	2.4900e-003	16.4619
Vendor	2.1700e-003	0.0775	0.0303	3.7000e-004	0.4431	5.5000e-004	0.4436	0.0467	5.3000e-004	0.0473		39.9270	39.9270	1.0100e-003	5.9000e-003	41.7096
Worker	0.1326	0.0919	1.2401	4.1300e-003	21.1262	2.4000e-003	21.1286	2.1948	2.2100e-003	2.1970		426.1976	426.1976	7.1800e-003	9.3100e-003	429.1516
<b>Total</b>	<b>0.1352</b>	<b>0.1979</b>	<b>1.2773</b>	<b>4.6400e-003</b>	<b>21.7312</b>	<b>3.2500e-003</b>	<b>21.7345</b>	<b>2.2585</b>	<b>3.0300e-003</b>	<b>2.2615</b>		<b>481.8281</b>	<b>481.8281</b>	<b>8.8600e-003</b>	<b>0.0177</b>	<b>487.3231</b>

**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					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.6711	6.0993	9.4415	0.0152		0.2573	0.2573		0.2502	0.2502	0.0000	1,455.3459	1,455.3459	0.2287		1,461.0641
<b>Total</b>	<b>0.6711</b>	<b>6.0993</b>	<b>9.4415</b>	<b>0.0152</b>	<b>0.0000</b>	<b>0.2573</b>	<b>0.2573</b>	<b>0.0000</b>	<b>0.2502</b>	<b>0.2502</b>	<b>0.0000</b>	<b>1,455.3459</b>	<b>1,455.3459</b>	<b>0.2287</b>		<b>1,461.0641</b>

MWD Copper Basin - San Bernardino-Mojave Desert County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**3.6 Dam Valve Activites - 2024**

**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	4.5000e-004	0.0285	6.9000e-003	1.4000e-004	0.0754	3.0000e-004	0.0757	8.3300e-003	2.9000e-004	8.6200e-003		15.7035	15.7035	6.7000e-004	2.4900e-003	16.4619
Vendor	2.1700e-003	0.0775	0.0303	3.7000e-004	0.2067	5.5000e-004	0.2073	0.0232	5.3000e-004	0.0237		39.9270	39.9270	1.0100e-003	5.9000e-003	41.7096
Worker	0.1326	0.0919	1.2401	4.1300e-003	9.7943	2.4000e-003	9.7967	1.0640	2.2100e-003	1.0662		426.1976	426.1976	7.1800e-003	9.3100e-003	429.1516
<b>Total</b>	<b>0.1352</b>	<b>0.1979</b>	<b>1.2773</b>	<b>4.6400e-003</b>	<b>10.0764</b>	<b>3.2500e-003</b>	<b>10.0797</b>	<b>1.0955</b>	<b>3.0300e-003</b>	<b>1.0985</b>		<b>481.8281</b>	<b>481.8281</b>	<b>8.8600e-003</b>	<b>0.0177</b>	<b>487.3231</b>

**3.7 Electrical Pad and Quipment - 2023**

**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					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	1.1506	10.3597	14.8411	0.0237		0.5097	0.5097		0.4845	0.4845		2,273.8876	2,273.8876	0.4965		2,286.3010
<b>Total</b>	<b>1.1506</b>	<b>10.3597</b>	<b>14.8411</b>	<b>0.0237</b>	<b>0.0000</b>	<b>0.5097</b>	<b>0.5097</b>	<b>0.0000</b>	<b>0.4845</b>	<b>0.4845</b>		<b>2,273.8876</b>	<b>2,273.8876</b>	<b>0.4965</b>		<b>2,286.3010</b>

MWD Copper Basin - San Bernardino-Mojave Desert County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**3.7 Electrical Pad and Quipment - 2023**

**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	7.9000e-004	0.0487	0.0118	2.5000e-004	0.2772	5.3000e-004	0.2777	0.0290	5.0000e-004	0.0296		27.3671	27.3671	1.1800e-003	4.3400e-003	28.6893
Vendor	2.2200e-003	0.0768	0.0308	3.8000e-004	0.4431	5.6000e-004	0.4437	0.0467	5.3000e-004	0.0473		40.4835	40.4835	1.0500e-003	5.9800e-003	42.2917
Worker	0.0852	0.0625	0.8010	2.5500e-003	12.6757	1.5000e-003	12.6772	1.3169	1.3800e-003	1.3182		261.2595	261.2595	4.7900e-003	6.0600e-003	263.1836
<b>Total</b>	<b>0.0882</b>	<b>0.1880</b>	<b>0.8436</b>	<b>3.1800e-003</b>	<b>13.3960</b>	<b>2.5900e-003</b>	<b>13.3986</b>	<b>1.3926</b>	<b>2.4100e-003</b>	<b>1.3951</b>		<b>329.1101</b>	<b>329.1101</b>	<b>7.0200e-003</b>	<b>0.0164</b>	<b>334.1647</b>

**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					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	1.1506	10.3597	14.8411	0.0237		0.5097	0.5097		0.4845	0.4845	0.0000	2,273.8876	2,273.8876	0.4965		2,286.3010
<b>Total</b>	<b>1.1506</b>	<b>10.3597</b>	<b>14.8411</b>	<b>0.0237</b>	<b>0.0000</b>	<b>0.5097</b>	<b>0.5097</b>	<b>0.0000</b>	<b>0.4845</b>	<b>0.4845</b>	<b>0.0000</b>	<b>2,273.8876</b>	<b>2,273.8876</b>	<b>0.4965</b>		<b>2,286.3010</b>

MWD Copper Basin - San Bernardino-Mojave Desert County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**3.7 Electrical Pad and Quipment - 2023**

**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	7.9000e-004	0.0487	0.0118	2.5000e-004	0.1291	5.3000e-004	0.1296	0.0143	5.0000e-004	0.0148		27.3671	27.3671	1.1800e-003	4.3400e-003	28.6893
Vendor	2.2200e-003	0.0768	0.0308	3.8000e-004	0.2067	5.6000e-004	0.2073	0.0232	5.3000e-004	0.0237		40.4835	40.4835	1.0500e-003	5.9800e-003	42.2917
Worker	0.0852	0.0625	0.8010	2.5500e-003	5.8766	1.5000e-003	5.8781	0.6384	1.3800e-003	0.6398		261.2595	261.2595	4.7900e-003	6.0600e-003	263.1836
<b>Total</b>	<b>0.0882</b>	<b>0.1880</b>	<b>0.8436</b>	<b>3.1800e-003</b>	<b>6.2124</b>	<b>2.5900e-003</b>	<b>6.2150</b>	<b>0.6758</b>	<b>2.4100e-003</b>	<b>0.6782</b>		<b>329.1101</b>	<b>329.1101</b>	<b>7.0200e-003</b>	<b>0.0164</b>	<b>334.1647</b>

**3.7 Electrical Pad and Quipment - 2024**

**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					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	1.0889	9.6759	14.8534	0.0237		0.4548	0.4548		0.4318	0.4318		2,274.2497	2,274.2497	0.4936		2,286.5892
<b>Total</b>	<b>1.0889</b>	<b>9.6759</b>	<b>14.8534</b>	<b>0.0237</b>	<b>0.0000</b>	<b>0.4548</b>	<b>0.4548</b>	<b>0.0000</b>	<b>0.4318</b>	<b>0.4318</b>		<b>2,274.2497</b>	<b>2,274.2497</b>	<b>0.4936</b>		<b>2,286.5892</b>

MWD Copper Basin - San Bernardino-Mojave Desert County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**3.7 Electrical Pad and Quipment - 2024**

**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	7.8000e-004	0.0489	0.0118	2.5000e-004	0.2772	5.2000e-004	0.2777	0.0290	5.0000e-004	0.0295		26.8909	26.8909	1.1400e-003	4.2600e-003	28.1897
Vendor	2.1700e-003	0.0775	0.0303	3.7000e-004	0.4431	5.5000e-004	0.4436	0.0467	5.3000e-004	0.0473		39.9270	39.9270	1.0100e-003	5.9000e-003	41.7096
Worker	0.0795	0.0551	0.7441	2.4800e-003	12.6757	1.4400e-003	12.6772	1.3169	1.3300e-003	1.3182		255.7186	255.7186	4.3100e-003	5.5900e-003	257.4909
<b>Total</b>	<b>0.0825</b>	<b>0.1815</b>	<b>0.7862</b>	<b>3.1000e-003</b>	<b>13.3960</b>	<b>2.5100e-003</b>	<b>13.3986</b>	<b>1.3926</b>	<b>2.3600e-003</b>	<b>1.3950</b>		<b>322.5364</b>	<b>322.5364</b>	<b>6.4600e-003</b>	<b>0.0158</b>	<b>327.3902</b>

**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					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	1.0889	9.6759	14.8534	0.0237		0.4548	0.4548		0.4318	0.4318	0.0000	2,274.2497	2,274.2497	0.4936		2,286.5892
<b>Total</b>	<b>1.0889</b>	<b>9.6759</b>	<b>14.8534</b>	<b>0.0237</b>	<b>0.0000</b>	<b>0.4548</b>	<b>0.4548</b>	<b>0.0000</b>	<b>0.4318</b>	<b>0.4318</b>	<b>0.0000</b>	<b>2,274.2497</b>	<b>2,274.2497</b>	<b>0.4936</b>		<b>2,286.5892</b>

MWD Copper Basin - San Bernardino-Mojave Desert County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**3.7 Electrical Pad and Quipment - 2024**

**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	7.8000e-004	0.0489	0.0118	2.5000e-004	0.1291	5.2000e-004	0.1296	0.0143	5.0000e-004	0.0148		26.8909	26.8909	1.1400e-003	4.2600e-003	28.1897
Vendor	2.1700e-003	0.0775	0.0303	3.7000e-004	0.2067	5.5000e-004	0.2073	0.0232	5.3000e-004	0.0237		39.9270	39.9270	1.0100e-003	5.9000e-003	41.7096
Worker	0.0795	0.0551	0.7441	2.4800e-003	5.8766	1.4400e-003	5.8780	0.6384	1.3300e-003	0.6397		255.7186	255.7186	4.3100e-003	5.5900e-003	257.4909
<b>Total</b>	<b>0.0825</b>	<b>0.1815</b>	<b>0.7862</b>	<b>3.1000e-003</b>	<b>6.2124</b>	<b>2.5100e-003</b>	<b>6.2149</b>	<b>0.6758</b>	<b>2.3600e-003</b>	<b>0.6782</b>		<b>322.5364</b>	<b>322.5364</b>	<b>6.4600e-003</b>	<b>0.0158</b>	<b>327.3902</b>



## MWD Copper Basin - San Bernardino-Mojave Desert County, Winter

## EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

## 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	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

## 4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Heavy Industry	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
General Heavy Industry	0.00	0.00	0.00	59.00	28.00	13.00	92	5	3

## 4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Heavy Industry	0.540566	0.056059	0.172680	0.136494	0.026304	0.007104	0.011680	0.017449	0.000554	0.000251	0.025076	0.000954	0.004830

MWD Copper Basin - San Bernardino-Mojave Desert County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

## 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					
General Heavy Industry	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
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

MWD Copper Basin - San Bernardino-Mojave Desert County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.2 Energy by Land Use - Natural Gas

Mitigated

	Natural Gas 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					
General Heavy Industry	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
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

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	9.4100e-003	9.3000e-004	0.1019	1.0000e-005		3.6000e-004	3.6000e-004		3.6000e-004	3.6000e-004		0.2189	0.2189	5.7000e-004		0.2331
Unmitigated	9.4100e-003	9.3000e-004	0.1019	1.0000e-005		3.6000e-004	3.6000e-004		3.6000e-004	3.6000e-004		0.2189	0.2189	5.7000e-004		0.2331

MWD Copper Basin - San Bernardino-Mojave Desert County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**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	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	9.4100e-003	9.3000e-004	0.1019	1.0000e-005		3.6000e-004	3.6000e-004		3.6000e-004	3.6000e-004		0.2189	0.2189	5.7000e-004		0.2331
<b>Total</b>	<b>9.4100e-003</b>	<b>9.3000e-004</b>	<b>0.1019</b>	<b>1.0000e-005</b>		<b>3.6000e-004</b>	<b>3.6000e-004</b>		<b>3.6000e-004</b>	<b>3.6000e-004</b>		<b>0.2189</b>	<b>0.2189</b>	<b>5.7000e-004</b>		<b>0.2331</b>

MWD Copper Basin - San Bernardino-Mojave Desert County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**6.2 Area by SubCategory**

**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	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	9.4100e-003	9.3000e-004	0.1019	1.0000e-005		3.6000e-004	3.6000e-004		3.6000e-004	3.6000e-004		0.2189	0.2189	5.7000e-004		0.2331
<b>Total</b>	<b>9.4100e-003</b>	<b>9.3000e-004</b>	<b>0.1019</b>	<b>1.0000e-005</b>		<b>3.6000e-004</b>	<b>3.6000e-004</b>		<b>3.6000e-004</b>	<b>3.6000e-004</b>		<b>0.2189</b>	<b>0.2189</b>	<b>5.7000e-004</b>		<b>0.2331</b>

**7.0 Water Detail**

**7.1 Mitigation Measures Water**

MWD Copper Basin - San Bernardino-Mojave Desert County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**8.0 Waste Detail**

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**8.1 Mitigation Measures Waste**

**9.0 Operational Offroad**

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Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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**10.0 Stationary Equipment**

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**Fire Pumps and Emergency Generators**

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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**Boilers**

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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**User Defined Equipment**

Equipment Type	Number
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**11.0 Vegetation**

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**MWD Copper Basin**

**San Bernardino-Mojave Desert County, Annual**

**1.0 Project Characteristics**

**1.1 Land Usage**

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Heavy Industry	1,000.00	1000sqft	22.96	1,000,000.00	0

**1.2 Other Project Characteristics**

Urbanization	Urban	Wind Speed (m/s)	2.6	Precipitation Freq (Days)	32
Climate Zone	10			Operational Year	2024
Utility Company					
CO2 Intensity (lb/MWhr)	0	CH4 Intensity (lb/MWhr)	0	N2O Intensity (lb/MWhr)	0

**1.3 User Entered Comments & Non-Default Data**

Project Characteristics -

Land Use -

Construction Phase - Construction Schedule

Off-road Equipment - 50hp barge

Off-road Equipment - summary input sheet

Off-road Equipment - small concrete pump

Off-road Equipment - input summary

Off-road Equipment - concrete pump

Off-road Equipment - summary input sheet

Trips and VMT - lake havasu city

On-road Fugitive Dust - 2 percent unpaved

Grading -

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

Vehicle Trips - no operational

Road Dust -

Consumer Products - no operational changes

Area Coating - no operational changes

Energy Use - no operational changes

Water And Wastewater - no operational changes

Solid Waste - no operational changes

Construction Off-road Equipment Mitigation - soil stabilizer or watering reqd by Rule 403

Area Mitigation - no paint

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_EF_Nonresidential_Exterior	250	0
tblAreaCoating	Area_EF_Nonresidential_Interior	250	0
tblAreaCoating	Area_EF_Parking	250	0
tblAreaCoating	Area_EF_Residential_Exterior	250	0
tblAreaCoating	Area_EF_Residential_Interior	250	0
tblAreaCoating	Area_Nonresidential_Exterior	500000	0
tblAreaCoating	Area_Nonresidential_Interior	1500000	0
tblAreaCoating	ReapplicationRatePercent	10	0
tblConstDustMitigation	WaterUnpavedRoadMoistureContent	0	0.5
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	40
tblConstructionPhase	NumDays	10.00	262.00
tblConstructionPhase	NumDays	10.00	523.00
tblConstructionPhase	NumDays	10.00	523.00
tblConstructionPhase	NumDays	35.00	262.00
tblConstructionPhase	NumDays	10.00	262.00
tblConstructionPhase	NumDays	35.00	153.00
tblConsumerProducts	ROG_EF	2.14E-05	0
tblConsumerProducts	ROG_EF_Degreaser	3.542E-07	0

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

tblConsumerProducts	ROG_EF_PesticidesFertilizers	5.152E-08	0
tblEnergyUse	LightingElect	2.93	0.00
tblEnergyUse	NT24E	5.02	0.00
tblEnergyUse	NT24NG	17.13	0.00
tblEnergyUse	T24E	1.97	0.00
tblEnergyUse	T24NG	15.20	0.00
tblOffRoadEquipment	HorsePower	172.00	50.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOffRoadEquipment	UsageHours	8.00	7.00
tblOffRoadEquipment	UsageHours	8.00	7.00
tblOffRoadEquipment	UsageHours	8.00	7.00
tblOffRoadEquipment	UsageHours	8.00	7.00
tblOffRoadEquipment	UsageHours	8.00	7.00
tblOffRoadEquipment	UsageHours	8.00	7.00
tblOnRoadDust	HaulingPercentPave	100.00	98.00
tblOnRoadDust	HaulingPercentPave	100.00	98.00
tblOnRoadDust	HaulingPercentPave	100.00	98.00
tblOnRoadDust	HaulingPercentPave	100.00	98.00
tblOnRoadDust	HaulingPercentPave	100.00	98.00
tblOnRoadDust	HaulingPercentPave	100.00	98.00
tblOnRoadDust	VendorPercentPave	100.00	98.00
tblOnRoadDust	VendorPercentPave	100.00	98.00
tblOnRoadDust	VendorPercentPave	100.00	98.00
tblOnRoadDust	VendorPercentPave	100.00	98.00

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

tblOnRoadDust	VendorPercentPave	100.00	98.00
tblOnRoadDust	VendorPercentPave	100.00	98.00
tblOnRoadDust	WorkerPercentPave	100.00	98.00
tblOnRoadDust	WorkerPercentPave	100.00	98.00
tblOnRoadDust	WorkerPercentPave	100.00	98.00
tblOnRoadDust	WorkerPercentPave	100.00	98.00
tblOnRoadDust	WorkerPercentPave	100.00	98.00
tblOnRoadDust	WorkerPercentPave	100.00	98.00
tblSolidWaste	SolidWasteGenerationRate	1,240.00	0.00
tblTripsAndVMT	HaulingTripLength	20.00	35.00
tblTripsAndVMT	HaulingTripLength	20.00	35.00
tblTripsAndVMT	HaulingTripLength	20.00	35.00
tblTripsAndVMT	HaulingTripLength	20.00	35.00
tblTripsAndVMT	HaulingTripLength	20.00	35.00
tblTripsAndVMT	HaulingTripLength	20.00	35.00
tblTripsAndVMT	HaulingTripNumber	0.00	40.00
tblTripsAndVMT	HaulingTripNumber	0.00	40.00
tblTripsAndVMT	HaulingTripNumber	0.00	4.00
tblTripsAndVMT	HaulingTripNumber	0.00	2,421.00
tblTripsAndVMT	HaulingTripNumber	0.00	40.00
tblTripsAndVMT	HaulingTripNumber	0.00	40.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	WorkerTripLength	10.80	35.00
tblTripsAndVMT	WorkerTripLength	10.80	35.00
tblTripsAndVMT	WorkerTripLength	10.80	35.00
tblTripsAndVMT	WorkerTripLength	10.80	35.00

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

tblTripsAndVMT	WorkerTripLength	10.80	35.00
tblTripsAndVMT	WorkerTripLength	10.80	35.00
tblTripsAndVMT	WorkerTripNumber	8.00	20.00
tblTripsAndVMT	WorkerTripNumber	3.00	20.00
tblTripsAndVMT	WorkerTripNumber	5.00	4.00
tblTripsAndVMT	WorkerTripNumber	13.00	20.00
tblTripsAndVMT	WorkerTripNumber	13.00	20.00
tblTripsAndVMT	WorkerTripNumber	15.00	12.00
tblVehicleTrips	CC_TL	7.30	0.00
tblVehicleTrips	CNW_TL	7.30	0.00
tblVehicleTrips	CW_TL	9.50	0.00
tblVehicleTrips	ST_TR	6.42	0.00
tblVehicleTrips	SU_TR	5.09	0.00
tblVehicleTrips	WD_TR	3.93	0.00
tblWater	ElectricityIntensityFactorForWastewaterTreatment	1,911.00	0.00
tblWater	ElectricityIntensityFactorToDistribute	1,272.00	0.00
tblWater	ElectricityIntensityFactorToSupply	9,727.00	0.00
tblWater	ElectricityIntensityFactorToTreat	111.00	0.00
tblWater	IndoorWaterUseRate	231,250,000.00	0.00

## 2.0 Emissions Summary

MWD Copper Basin - San Bernardino-Mojave Desert County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**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					
2022	0.2300	1.9245	2.2239	5.1100e-003	5.4920	0.0875	5.5795	0.5730	0.0826	0.6556	0.0000	460.6095	460.6095	0.0741	0.0148	466.8787
2023	0.3854	3.0991	4.1883	8.5100e-003	8.1084	0.1437	8.2521	0.8456	0.1365	0.9821	0.0000	758.1940	758.1940	0.1206	0.0134	765.2113
2024	0.0967	0.7303	1.0386	2.0900e-003	2.3775	0.0325	2.4101	0.2478	0.0311	0.2789	0.0000	184.8701	184.8701	0.0243	1.5500e-003	185.9408
Maximum	0.3854	3.0991	4.1883	8.5100e-003	8.1084	0.1437	8.2521	0.8456	0.1365	0.9821	0.0000	758.1940	758.1940	0.1206	0.0148	765.2113

**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					
2022	0.2300	1.9245	2.2239	5.1100e-003	2.5534	0.0875	2.6409	0.2798	0.0826	0.3624	0.0000	460.6091	460.6091	0.0741	0.0148	466.8784
2023	0.3854	3.0991	4.1883	8.5100e-003	3.7688	0.1437	3.9124	0.4125	0.1365	0.5490	0.0000	758.1934	758.1934	0.1206	0.0134	765.2107
2024	0.0967	0.7303	1.0386	2.0900e-003	1.1047	0.0325	1.1372	0.1208	0.0311	0.1519	0.0000	184.8699	184.8699	0.0243	1.5500e-003	185.9407
Maximum	0.3854	3.0991	4.1883	8.5100e-003	3.7688	0.1437	3.9124	0.4125	0.1365	0.5490	0.0000	758.1934	758.1934	0.1206	0.0148	765.2107



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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

	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
Percent Reduction	0.00	0.00	0.00	0.00	53.52	0.00	52.65	51.21	0.00	44.52	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	6-1-2022	8-31-2022	0.9209	0.9209
2	9-1-2022	11-30-2022	0.9138	0.9138
3	12-1-2022	2-28-2023	0.8479	0.8479
4	3-1-2023	5-31-2023	0.8335	0.8335
5	6-1-2023	8-31-2023	0.9146	0.9146
6	9-1-2023	11-30-2023	0.8994	0.8994
7	12-1-2023	2-29-2024	0.6308	0.6308
8	3-1-2024	5-31-2024	0.4908	0.4908
9	6-1-2024	8-31-2024	0.0053	0.0053
		Highest	0.9209	0.9209

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**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	8.5000e-004	8.0000e-005	9.1700e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.0179	0.0179	5.0000e-005	0.0000	0.0190
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
<b>Total</b>	<b>8.5000e-004</b>	<b>8.0000e-005</b>	<b>9.1700e-003</b>	<b>0.0000</b>	<b>0.0000</b>	<b>3.0000e-005</b>	<b>3.0000e-005</b>	<b>0.0000</b>	<b>3.0000e-005</b>	<b>3.0000e-005</b>	<b>0.0000</b>	<b>0.0179</b>	<b>0.0179</b>	<b>5.0000e-005</b>	<b>0.0000</b>	<b>0.0190</b>

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**2.2 Overall Operational**

**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	8.5000e-004	8.0000e-005	9.1700e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.0179	0.0179	5.0000e-005	0.0000	0.0190
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
<b>Total</b>	<b>8.5000e-004</b>	<b>8.0000e-005</b>	<b>9.1700e-003</b>	<b>0.0000</b>	<b>0.0000</b>	<b>3.0000e-005</b>	<b>3.0000e-005</b>	<b>0.0000</b>	<b>3.0000e-005</b>	<b>3.0000e-005</b>	<b>0.0000</b>	<b>0.0179</b>	<b>0.0179</b>	<b>5.0000e-005</b>	<b>0.0000</b>	<b>0.0190</b>

	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
<b>Percent Reduction</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

**3.0 Construction Detail**

**Construction Phase**

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Gunnite	Site Preparation	6/1/2022	6/1/2023	5	262	
2	Field Office	Site Preparation	6/1/2022	6/1/2024	5	523	
3	Barge Use	Site Preparation	6/1/2022	6/1/2024	5	523	

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

4	Road Grading	Grading	6/1/2022	6/1/2023	5	262
5	Dam Valve Activites	Site Preparation	6/1/2023	6/1/2024	5	262
6	Electrical Pad and Quipment	Grading	6/1/2023	1/1/2024	5	153

**Acres of Grading (Site Preparation Phase): 0****Acres of Grading (Grading Phase): 0****Acres of Paving: 0****Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)****OffRoad Equipment**

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Gunnite	Air Compressors	2	7.00	78	0.48
Gunnite	Other Construction Equipment	1	7.00	172	0.42
Field Office	Generator Sets	1	7.00	84	0.74
Barge Use	Cranes	1	7.00	231	0.29
Barge Use	Other Construction Equipment	1	7.00	50	0.42
Road Grading	Excavators	1	7.00	158	0.38
Road Grading	Rubber Tired Loaders	1	7.00	203	0.36
Road Grading	Skid Steer Loaders	1	7.00	65	0.37
Road Grading	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Road Grading	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Dam Valve Activites	Aerial Lifts	1	7.00	63	0.31
Dam Valve Activites	Air Compressors	1	7.00	78	0.48
Dam Valve Activites	Generator Sets	1	7.00	84	0.74
Dam Valve Activites	Skid Steer Loaders	1	7.00	65	0.37
Dam Valve Activites	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Electrical Pad and Quipment	Air Compressors	1	7.00	78	0.48
Electrical Pad and Quipment	Excavators	1	7.00	158	0.38

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

Electrical Pad and Quipment	Generator Sets	1	7.00	84	0.74
Electrical Pad and Quipment	Other Construction Equipment	1	7.00	172	0.42
Electrical Pad and Quipment	Skid Steer Loaders	1	7.00	65	0.37
Electrical Pad and Quipment	Tractors/Loaders/Backhoes	1	7.00	97	0.37

**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
Gunnite	3	20.00	2.00	40.00	35.00	7.30	35.00	LD_Mix	HDT_Mix	HHDT
Field Office	1	20.00	0.00	40.00	35.00	7.30	35.00	LD_Mix	HDT_Mix	HHDT
Barge Use	2	4.00	0.00	4.00	35.00	7.30	35.00	LD_Mix	HDT_Mix	HHDT
Road Grading	5	20.00	2.00	2,421.00	35.00	7.30	35.00	LD_Mix	HDT_Mix	HHDT
Dam Valve Activites	5	20.00	2.00	40.00	35.00	7.30	35.00	LD_Mix	HDT_Mix	HHDT
Electrical Pad and Quipment	6	12.00	2.00	40.00	35.00	7.30	35.00	LD_Mix	HDT_Mix	HHDT

**3.1 Mitigation Measures Construction**

Use Soil Stabilizer

Water Exposed Area

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**3.2 Gunnite - 2022**

**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					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0617	0.5068	0.5928	9.4000e-004		0.0279	0.0279		0.0268	0.0268	0.0000	81.9091	81.9091	0.0147	0.0000	82.2770
<b>Total</b>	<b>0.0617</b>	<b>0.5068</b>	<b>0.5928</b>	<b>9.4000e-004</b>	<b>0.0000</b>	<b>0.0279</b>	<b>0.0279</b>	<b>0.0000</b>	<b>0.0268</b>	<b>0.0268</b>	<b>0.0000</b>	<b>81.9091</b>	<b>81.9091</b>	<b>0.0147</b>	<b>0.0000</b>	<b>82.2770</b>

**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	6.0000e-005	2.7500e-003	5.7000e-004	1.0000e-005	0.0113	3.0000e-005	0.0114	1.1900e-003	3.0000e-005	1.2200e-003	0.0000	1.1596	1.1596	5.0000e-005	1.8000e-004	1.2156
Vendor	2.7000e-004	7.3400e-003	2.5500e-003	3.0000e-005	0.0310	8.0000e-005	0.0311	3.2800e-003	8.0000e-005	3.3600e-003	0.0000	2.9234	2.9234	8.0000e-005	4.3000e-004	3.0543
Worker	0.0107	9.6000e-003	0.1177	3.4000e-004	1.4772	2.0000e-004	1.4774	0.1539	1.9000e-004	0.1541	0.0000	31.6573	31.6573	6.4000e-004	8.0000e-004	31.9101
<b>Total</b>	<b>0.0110</b>	<b>0.0197</b>	<b>0.1208</b>	<b>3.8000e-004</b>	<b>1.5195</b>	<b>3.1000e-004</b>	<b>1.5199</b>	<b>0.1584</b>	<b>3.0000e-004</b>	<b>0.1587</b>	<b>0.0000</b>	<b>35.7403</b>	<b>35.7403</b>	<b>7.7000e-004</b>	<b>1.4100e-003</b>	<b>36.1801</b>



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**3.2 Gunnite - 2022**

**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	0.0617	0.5068	0.5928	9.4000e-004		0.0279	0.0279		0.0268	0.0268	0.0000	81.9090	81.9090	0.0147	0.0000	82.2769
<b>Total</b>	<b>0.0617</b>	<b>0.5068</b>	<b>0.5928</b>	<b>9.4000e-004</b>	<b>0.0000</b>	<b>0.0279</b>	<b>0.0279</b>	<b>0.0000</b>	<b>0.0268</b>	<b>0.0268</b>	<b>0.0000</b>	<b>81.9090</b>	<b>81.9090</b>	<b>0.0147</b>	<b>0.0000</b>	<b>82.2769</b>

**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	6.0000e-005	2.7500e-003	5.7000e-004	1.0000e-005	5.2900e-003	3.0000e-005	5.3200e-003	5.9000e-004	3.0000e-005	6.2000e-004	0.0000	1.1596	1.1596	5.0000e-005	1.8000e-004	1.2156
Vendor	2.7000e-004	7.3400e-003	2.5500e-003	3.0000e-005	0.0145	8.0000e-005	0.0146	1.6400e-003	8.0000e-005	1.7200e-003	0.0000	2.9234	2.9234	8.0000e-005	4.3000e-004	3.0543
Worker	0.0107	9.6000e-003	0.1177	3.4000e-004	0.6863	2.0000e-004	0.6865	0.0750	1.9000e-004	0.0752	0.0000	31.6573	31.6573	6.4000e-004	8.0000e-004	31.9101
<b>Total</b>	<b>0.0110</b>	<b>0.0197</b>	<b>0.1208</b>	<b>3.8000e-004</b>	<b>0.7061</b>	<b>3.1000e-004</b>	<b>0.7064</b>	<b>0.0772</b>	<b>3.0000e-004</b>	<b>0.0775</b>	<b>0.0000</b>	<b>35.7403</b>	<b>35.7403</b>	<b>7.7000e-004</b>	<b>1.4100e-003</b>	<b>36.1801</b>

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**3.2 Gunnite - 2023**

**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					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0410	0.3296	0.4212	6.7000e-004		0.0175	0.0175		0.0169	0.0169	0.0000	58.3505	58.3505	0.0103	0.0000	58.6083
<b>Total</b>	<b>0.0410</b>	<b>0.3296</b>	<b>0.4212</b>	<b>6.7000e-004</b>	<b>0.0000</b>	<b>0.0175</b>	<b>0.0175</b>	<b>0.0000</b>	<b>0.0169</b>	<b>0.0169</b>	<b>0.0000</b>	<b>58.3505</b>	<b>58.3505</b>	<b>0.0103</b>	<b>0.0000</b>	<b>58.6083</b>

**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	3.0000e-005	1.5600e-003	3.7000e-004	1.0000e-005	8.0700e-003	2.0000e-005	8.0800e-003	8.5000e-004	2.0000e-005	8.6000e-004	0.0000	0.7898	0.7898	3.0000e-005	1.3000e-004	0.8279
Vendor	1.3000e-004	4.1700e-003	1.6500e-003	2.0000e-005	0.0221	3.0000e-005	0.0221	2.3400e-003	3.0000e-005	2.3700e-003	0.0000	1.9989	1.9989	5.0000e-005	3.0000e-004	2.0882
Worker	7.0400e-003	5.9800e-003	0.0765	2.4000e-004	1.0524	1.4000e-004	1.0525	0.1097	1.3000e-004	0.1098	0.0000	21.9590	21.9590	4.0000e-004	5.2000e-004	22.1234
<b>Total</b>	<b>7.2000e-003</b>	<b>0.0117</b>	<b>0.0785</b>	<b>2.7000e-004</b>	<b>1.0825</b>	<b>1.9000e-004</b>	<b>1.0827</b>	<b>0.1129</b>	<b>1.8000e-004</b>	<b>0.1130</b>	<b>0.0000</b>	<b>24.7477</b>	<b>24.7477</b>	<b>4.8000e-004</b>	<b>9.5000e-004</b>	<b>25.0395</b>

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**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	0.0410	0.3296	0.4212	6.7000e-004		0.0175	0.0175		0.0169	0.0169	0.0000	58.3504	58.3504	0.0103	0.0000	58.6083
<b>Total</b>	<b>0.0410</b>	<b>0.3296</b>	<b>0.4212</b>	<b>6.7000e-004</b>	<b>0.0000</b>	<b>0.0175</b>	<b>0.0175</b>	<b>0.0000</b>	<b>0.0169</b>	<b>0.0169</b>	<b>0.0000</b>	<b>58.3504</b>	<b>58.3504</b>	<b>0.0103</b>	<b>0.0000</b>	<b>58.6083</b>

**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	3.0000e-005	1.5600e-003	3.7000e-004	1.0000e-005	3.7700e-003	2.0000e-005	3.7800e-003	4.2000e-004	2.0000e-005	4.4000e-004	0.0000	0.7898	0.7898	3.0000e-005	1.3000e-004	0.8279
Vendor	1.3000e-004	4.1700e-003	1.6500e-003	2.0000e-005	0.0103	3.0000e-005	0.0104	1.1700e-003	3.0000e-005	1.2000e-003	0.0000	1.9989	1.9989	5.0000e-005	3.0000e-004	2.0882
Worker	7.0400e-003	5.9800e-003	0.0765	2.4000e-004	0.4890	1.4000e-004	0.4891	0.0534	1.3000e-004	0.0536	0.0000	21.9590	21.9590	4.0000e-004	5.2000e-004	22.1234
<b>Total</b>	<b>7.2000e-003</b>	<b>0.0117</b>	<b>0.0785</b>	<b>2.7000e-004</b>	<b>0.5031</b>	<b>1.9000e-004</b>	<b>0.5032</b>	<b>0.0550</b>	<b>1.8000e-004</b>	<b>0.0552</b>	<b>0.0000</b>	<b>24.7477</b>	<b>24.7477</b>	<b>4.8000e-004</b>	<b>9.5000e-004</b>	<b>25.0395</b>

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**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					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0221	0.1960	0.2461	4.4000e-004		9.8300e-003	9.8300e-003		9.8300e-003	9.8300e-003	0.0000	37.8336	37.8336	1.8000e-003	0.0000	37.8785
<b>Total</b>	<b>0.0221</b>	<b>0.1960</b>	<b>0.2461</b>	<b>4.4000e-004</b>	<b>0.0000</b>	<b>9.8300e-003</b>	<b>9.8300e-003</b>	<b>0.0000</b>	<b>9.8300e-003</b>	<b>9.8300e-003</b>	<b>0.0000</b>	<b>37.8336</b>	<b>37.8336</b>	<b>1.8000e-003</b>	<b>0.0000</b>	<b>37.8785</b>

**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	3.0000e-005	1.3800e-003	2.9000e-004	1.0000e-005	5.6700e-003	1.0000e-005	5.6900e-003	6.0000e-004	1.0000e-005	6.1000e-004	0.0000	0.5809	0.5809	3.0000e-005	9.0000e-005	0.6090
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	0.0107	9.6000e-003	0.1177	3.4000e-004	1.4772	2.0000e-004	1.4774	0.1539	1.9000e-004	0.1541	0.0000	31.6573	31.6573	6.4000e-004	8.0000e-004	31.9101
<b>Total</b>	<b>0.0107</b>	<b>0.0110</b>	<b>0.1180</b>	<b>3.5000e-004</b>	<b>1.4829</b>	<b>2.1000e-004</b>	<b>1.4831</b>	<b>0.1545</b>	<b>2.0000e-004</b>	<b>0.1547</b>	<b>0.0000</b>	<b>32.2382</b>	<b>32.2382</b>	<b>6.7000e-004</b>	<b>8.9000e-004</b>	<b>32.5191</b>

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**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	0.0221	0.1960	0.2461	4.4000e-004		9.8300e-003	9.8300e-003		9.8300e-003	9.8300e-003	0.0000	37.8335	37.8335	1.8000e-003	0.0000	37.8785
<b>Total</b>	<b>0.0221</b>	<b>0.1960</b>	<b>0.2461</b>	<b>4.4000e-004</b>	<b>0.0000</b>	<b>9.8300e-003</b>	<b>9.8300e-003</b>	<b>0.0000</b>	<b>9.8300e-003</b>	<b>9.8300e-003</b>	<b>0.0000</b>	<b>37.8335</b>	<b>37.8335</b>	<b>1.8000e-003</b>	<b>0.0000</b>	<b>37.8785</b>

**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	3.0000e-005	1.3800e-003	2.9000e-004	1.0000e-005	2.6500e-003	1.0000e-005	2.6600e-003	2.9000e-004	1.0000e-005	3.1000e-004	0.0000	0.5809	0.5809	3.0000e-005	9.0000e-005	0.6090
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	0.0107	9.6000e-003	0.1177	3.4000e-004	0.6863	2.0000e-004	0.6865	0.0750	1.9000e-004	0.0752	0.0000	31.6573	31.6573	6.4000e-004	8.0000e-004	31.9101
<b>Total</b>	<b>0.0107</b>	<b>0.0110</b>	<b>0.1180</b>	<b>3.5000e-004</b>	<b>0.6890</b>	<b>2.1000e-004</b>	<b>0.6892</b>	<b>0.0753</b>	<b>2.0000e-004</b>	<b>0.0755</b>	<b>0.0000</b>	<b>32.2382</b>	<b>32.2382</b>	<b>6.7000e-004</b>	<b>8.9000e-004</b>	<b>32.5191</b>

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**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					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0348	0.3089	0.4174	7.5000e-004		0.0146	0.0146		0.0146	0.0146	0.0000	64.2924	64.2924	2.8300e-003	0.0000	64.3631
<b>Total</b>	<b>0.0348</b>	<b>0.3089</b>	<b>0.4174</b>	<b>7.5000e-004</b>	<b>0.0000</b>	<b>0.0146</b>	<b>0.0146</b>	<b>0.0000</b>	<b>0.0146</b>	<b>0.0146</b>	<b>0.0000</b>	<b>64.2924</b>	<b>64.2924</b>	<b>2.8300e-003</b>	<b>0.0000</b>	<b>64.3631</b>

**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	3.0000e-005	1.8600e-003	4.4000e-004	1.0000e-005	9.6400e-003	2.0000e-005	9.6600e-003	1.0100e-003	2.0000e-005	1.0300e-003	0.0000	0.9437	0.9437	4.0000e-005	1.5000e-004	0.9893
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	0.0168	0.0143	0.1825	5.6000e-004	2.5103	3.2000e-004	2.5106	0.2616	3.0000e-004	0.2619	0.0000	52.3793	52.3793	9.6000e-004	1.2400e-003	52.7714
<b>Total</b>	<b>0.0168</b>	<b>0.0161</b>	<b>0.1830</b>	<b>5.7000e-004</b>	<b>2.5199</b>	<b>3.4000e-004</b>	<b>2.5203</b>	<b>0.2626</b>	<b>3.2000e-004</b>	<b>0.2629</b>	<b>0.0000</b>	<b>53.3230</b>	<b>53.3230</b>	<b>1.0000e-003</b>	<b>1.3900e-003</b>	<b>53.7607</b>



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**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	0.0348	0.3089	0.4174	7.5000e-004		0.0146	0.0146		0.0146	0.0146	0.0000	64.2923	64.2923	2.8300e-003	0.0000	64.3630
<b>Total</b>	<b>0.0348</b>	<b>0.3089</b>	<b>0.4174</b>	<b>7.5000e-004</b>	<b>0.0000</b>	<b>0.0146</b>	<b>0.0146</b>	<b>0.0000</b>	<b>0.0146</b>	<b>0.0146</b>	<b>0.0000</b>	<b>64.2923</b>	<b>64.2923</b>	<b>2.8300e-003</b>	<b>0.0000</b>	<b>64.3630</b>

**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	3.0000e-005	1.8600e-003	4.4000e-004	1.0000e-005	4.5000e-003	2.0000e-005	4.5200e-003	5.0000e-004	2.0000e-005	5.2000e-004	0.0000	0.9437	0.9437	4.0000e-005	1.5000e-004	0.9893
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	0.0168	0.0143	0.1825	5.6000e-004	1.1663	3.2000e-004	1.1666	0.1275	3.0000e-004	0.1278	0.0000	52.3793	52.3793	9.6000e-004	1.2400e-003	52.7714
<b>Total</b>	<b>0.0168</b>	<b>0.0161</b>	<b>0.1830</b>	<b>5.7000e-004</b>	<b>1.1708</b>	<b>3.4000e-004</b>	<b>1.1711</b>	<b>0.1280</b>	<b>3.2000e-004</b>	<b>0.1283</b>	<b>0.0000</b>	<b>53.3230</b>	<b>53.3230</b>	<b>1.0000e-003</b>	<b>1.3900e-003</b>	<b>53.7607</b>

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**3.3 Field Office - 2024**

**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					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0137	0.1225	0.1763	3.2000e-004		5.3300e-003	5.3300e-003		5.3300e-003	5.3300e-003	0.0000	27.2006	27.2006	1.1000e-003	0.0000	27.2281
<b>Total</b>	<b>0.0137</b>	<b>0.1225</b>	<b>0.1763</b>	<b>3.2000e-004</b>	<b>0.0000</b>	<b>5.3300e-003</b>	<b>5.3300e-003</b>	<b>0.0000</b>	<b>5.3300e-003</b>	<b>5.3300e-003</b>	<b>0.0000</b>	<b>27.2006</b>	<b>27.2006</b>	<b>1.1000e-003</b>	<b>0.0000</b>	<b>27.2281</b>

**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	7.9000e-004	1.9000e-004	0.0000	4.0800e-003	1.0000e-005	4.0900e-003	4.3000e-004	1.0000e-005	4.4000e-004	0.0000	0.3923	0.3923	2.0000e-005	6.0000e-005	0.4113
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	6.6300e-003	5.3200e-003	0.0717	2.3000e-004	1.0621	1.3000e-004	1.0622	0.1107	1.2000e-004	0.1108	0.0000	21.6894	21.6894	3.6000e-004	4.8000e-004	21.8421
<b>Total</b>	<b>6.6400e-003</b>	<b>6.1100e-003</b>	<b>0.0719</b>	<b>2.3000e-004</b>	<b>1.0661</b>	<b>1.4000e-004</b>	<b>1.0663</b>	<b>0.1111</b>	<b>1.3000e-004</b>	<b>0.1112</b>	<b>0.0000</b>	<b>22.0817</b>	<b>22.0817</b>	<b>3.8000e-004</b>	<b>5.4000e-004</b>	<b>22.2534</b>

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**3.3 Field Office - 2024**

**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	0.0137	0.1225	0.1763	3.2000e-004		5.3300e-003	5.3300e-003		5.3300e-003	5.3300e-003	0.0000	27.2006	27.2006	1.1000e-003	0.0000	27.2281
<b>Total</b>	<b>0.0137</b>	<b>0.1225</b>	<b>0.1763</b>	<b>3.2000e-004</b>	<b>0.0000</b>	<b>5.3300e-003</b>	<b>5.3300e-003</b>	<b>0.0000</b>	<b>5.3300e-003</b>	<b>5.3300e-003</b>	<b>0.0000</b>	<b>27.2006</b>	<b>27.2006</b>	<b>1.1000e-003</b>	<b>0.0000</b>	<b>27.2281</b>

**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	7.9000e-004	1.9000e-004	0.0000	1.9000e-003	1.0000e-005	1.9100e-003	2.1000e-004	1.0000e-005	2.2000e-004	0.0000	0.3923	0.3923	2.0000e-005	6.0000e-005	0.4113
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	6.6300e-003	5.3200e-003	0.0717	2.3000e-004	0.4934	1.3000e-004	0.4936	0.0539	1.2000e-004	0.0540	0.0000	21.6894	21.6894	3.6000e-004	4.8000e-004	21.8421
<b>Total</b>	<b>6.6400e-003</b>	<b>6.1100e-003</b>	<b>0.0719</b>	<b>2.3000e-004</b>	<b>0.4953</b>	<b>1.4000e-004</b>	<b>0.4955</b>	<b>0.0541</b>	<b>1.3000e-004</b>	<b>0.0543</b>	<b>0.0000</b>	<b>22.0817</b>	<b>22.0817</b>	<b>3.8000e-004</b>	<b>5.4000e-004</b>	<b>22.2534</b>

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**3.4 Barge Use - 2022**

**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					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0478	0.3976	0.2548	5.2000e-004		0.0203	0.0203		0.0186	0.0186	0.0000	45.8366	45.8366	0.0148	0.0000	46.2073
<b>Total</b>	<b>0.0478</b>	<b>0.3976</b>	<b>0.2548</b>	<b>5.2000e-004</b>	<b>0.0000</b>	<b>0.0203</b>	<b>0.0203</b>	<b>0.0000</b>	<b>0.0186</b>	<b>0.0186</b>	<b>0.0000</b>	<b>45.8366</b>	<b>45.8366</b>	<b>0.0148</b>	<b>0.0000</b>	<b>46.2073</b>

**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	1.4000e-004	3.0000e-005	0.0000	5.7000e-004	0.0000	5.7000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.0581	0.0581	0.0000	1.0000e-005	0.0609
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	2.1400e-003	1.9200e-003	0.0235	7.0000e-005	0.2954	4.0000e-005	0.2955	0.0308	4.0000e-005	0.0308	0.0000	6.3315	6.3315	1.3000e-004	1.6000e-004	6.3820
<b>Total</b>	<b>2.1400e-003</b>	<b>2.0600e-003</b>	<b>0.0236</b>	<b>7.0000e-005</b>	<b>0.2960</b>	<b>4.0000e-005</b>	<b>0.2961</b>	<b>0.0308</b>	<b>4.0000e-005</b>	<b>0.0309</b>	<b>0.0000</b>	<b>6.3895</b>	<b>6.3895</b>	<b>1.3000e-004</b>	<b>1.7000e-004</b>	<b>6.4429</b>

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**3.4 Barge Use - 2022**

**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	0.0478	0.3976	0.2548	5.2000e-004		0.0203	0.0203		0.0186	0.0186	0.0000	45.8366	45.8366	0.0148	0.0000	46.2072
<b>Total</b>	<b>0.0478</b>	<b>0.3976</b>	<b>0.2548</b>	<b>5.2000e-004</b>	<b>0.0000</b>	<b>0.0203</b>	<b>0.0203</b>	<b>0.0000</b>	<b>0.0186</b>	<b>0.0186</b>	<b>0.0000</b>	<b>45.8366</b>	<b>45.8366</b>	<b>0.0148</b>	<b>0.0000</b>	<b>46.2072</b>

**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	1.4000e-004	3.0000e-005	0.0000	2.6000e-004	0.0000	2.7000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0581	0.0581	0.0000	1.0000e-005	0.0609
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	2.1400e-003	1.9200e-003	0.0235	7.0000e-005	0.1373	4.0000e-005	0.1373	0.0150	4.0000e-005	0.0150	0.0000	6.3315	6.3315	1.3000e-004	1.6000e-004	6.3820
<b>Total</b>	<b>2.1400e-003</b>	<b>2.0600e-003</b>	<b>0.0236</b>	<b>7.0000e-005</b>	<b>0.1375</b>	<b>4.0000e-005</b>	<b>0.1376</b>	<b>0.0150</b>	<b>4.0000e-005</b>	<b>0.0151</b>	<b>0.0000</b>	<b>6.3895</b>	<b>6.3895</b>	<b>1.3000e-004</b>	<b>1.7000e-004</b>	<b>6.4429</b>

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**3.4 Barge Use - 2023**

**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					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0765	0.6276	0.4224	8.9000e-004		0.0317	0.0317		0.0291	0.0291	0.0000	77.8972	77.8972	0.0252	0.0000	78.5270
<b>Total</b>	<b>0.0765</b>	<b>0.6276</b>	<b>0.4224</b>	<b>8.9000e-004</b>	<b>0.0000</b>	<b>0.0317</b>	<b>0.0317</b>	<b>0.0000</b>	<b>0.0291</b>	<b>0.0291</b>	<b>0.0000</b>	<b>77.8972</b>	<b>77.8972</b>	<b>0.0252</b>	<b>0.0000</b>	<b>78.5270</b>

**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	1.9000e-004	4.0000e-005	0.0000	9.6000e-004	0.0000	9.7000e-004	1.0000e-004	0.0000	1.0000e-004	0.0000	0.0944	0.0944	0.0000	1.0000e-005	0.0989
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	3.3600e-003	2.8500e-003	0.0365	1.1000e-004	0.5021	6.0000e-005	0.5021	0.0523	6.0000e-005	0.0524	0.0000	10.4759	10.4759	1.9000e-004	2.5000e-004	10.5543
<b>Total</b>	<b>3.3600e-003</b>	<b>3.0400e-003</b>	<b>0.0365</b>	<b>1.1000e-004</b>	<b>0.5030</b>	<b>6.0000e-005</b>	<b>0.5031</b>	<b>0.0524</b>	<b>6.0000e-005</b>	<b>0.0525</b>	<b>0.0000</b>	<b>10.5702</b>	<b>10.5702</b>	<b>1.9000e-004</b>	<b>2.6000e-004</b>	<b>10.6532</b>



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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**3.4 Barge Use - 2023**

**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	0.0765	0.6276	0.4224	8.9000e-004		0.0317	0.0317		0.0291	0.0291	0.0000	77.8971	77.8971	0.0252	0.0000	78.5269
<b>Total</b>	<b>0.0765</b>	<b>0.6276</b>	<b>0.4224</b>	<b>8.9000e-004</b>	<b>0.0000</b>	<b>0.0317</b>	<b>0.0317</b>	<b>0.0000</b>	<b>0.0291</b>	<b>0.0291</b>	<b>0.0000</b>	<b>77.8971</b>	<b>77.8971</b>	<b>0.0252</b>	<b>0.0000</b>	<b>78.5269</b>

**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	1.9000e-004	4.0000e-005	0.0000	4.5000e-004	0.0000	4.5000e-004	5.0000e-005	0.0000	5.0000e-005	0.0000	0.0944	0.0944	0.0000	1.0000e-005	0.0989
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	3.3600e-003	2.8500e-003	0.0365	1.1000e-004	0.2333	6.0000e-005	0.2333	0.0255	6.0000e-005	0.0256	0.0000	10.4759	10.4759	1.9000e-004	2.5000e-004	10.5543
<b>Total</b>	<b>3.3600e-003</b>	<b>3.0400e-003</b>	<b>0.0365</b>	<b>1.1000e-004</b>	<b>0.2337</b>	<b>6.0000e-005</b>	<b>0.2338</b>	<b>0.0255</b>	<b>6.0000e-005</b>	<b>0.0256</b>	<b>0.0000</b>	<b>10.5702</b>	<b>10.5702</b>	<b>1.9000e-004</b>	<b>2.6000e-004</b>	<b>10.6532</b>

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**3.4 Barge Use - 2024**

**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					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0307	0.2490	0.1751	3.7000e-004		0.0125	0.0125		0.0115	0.0115	0.0000	32.9539	32.9539	0.0107	0.0000	33.2203
<b>Total</b>	<b>0.0307</b>	<b>0.2490</b>	<b>0.1751</b>	<b>3.7000e-004</b>	<b>0.0000</b>	<b>0.0125</b>	<b>0.0125</b>	<b>0.0000</b>	<b>0.0115</b>	<b>0.0115</b>	<b>0.0000</b>	<b>32.9539</b>	<b>32.9539</b>	<b>0.0107</b>	<b>0.0000</b>	<b>33.2203</b>

**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	8.0000e-005	2.0000e-005	0.0000	4.1000e-004	0.0000	4.1000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.0392	0.0392	0.0000	1.0000e-005	0.0411
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	1.3300e-003	1.0600e-003	0.0143	5.0000e-005	0.2124	3.0000e-005	0.2124	0.0221	2.0000e-005	0.0222	0.0000	4.3379	4.3379	7.0000e-005	1.0000e-004	4.3684
<b>Total</b>	<b>1.3300e-003</b>	<b>1.1400e-003</b>	<b>0.0144</b>	<b>5.0000e-005</b>	<b>0.2128</b>	<b>3.0000e-005</b>	<b>0.2129</b>	<b>0.0222</b>	<b>2.0000e-005</b>	<b>0.0222</b>	<b>0.0000</b>	<b>4.3771</b>	<b>4.3771</b>	<b>7.0000e-005</b>	<b>1.1000e-004</b>	<b>4.4096</b>

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**3.4 Barge Use - 2024**

**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	0.0307	0.2490	0.1751	3.7000e-004		0.0125	0.0125		0.0115	0.0115	0.0000	32.9538	32.9538	0.0107	0.0000	33.2203
<b>Total</b>	<b>0.0307</b>	<b>0.2490</b>	<b>0.1751</b>	<b>3.7000e-004</b>	<b>0.0000</b>	<b>0.0125</b>	<b>0.0125</b>	<b>0.0000</b>	<b>0.0115</b>	<b>0.0115</b>	<b>0.0000</b>	<b>32.9538</b>	<b>32.9538</b>	<b>0.0107</b>	<b>0.0000</b>	<b>33.2203</b>

**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	8.0000e-005	2.0000e-005	0.0000	1.9000e-004	0.0000	1.9000e-004	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0392	0.0392	0.0000	1.0000e-005	0.0411
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	1.3300e-003	1.0600e-003	0.0143	5.0000e-005	0.0987	3.0000e-005	0.0987	0.0108	2.0000e-005	0.0108	0.0000	4.3379	4.3379	7.0000e-005	1.0000e-004	4.3684
<b>Total</b>	<b>1.3300e-003</b>	<b>1.1400e-003</b>	<b>0.0144</b>	<b>5.0000e-005</b>	<b>0.0989</b>	<b>3.0000e-005</b>	<b>0.0989</b>	<b>0.0108</b>	<b>2.0000e-005</b>	<b>0.0108</b>	<b>0.0000</b>	<b>4.3771</b>	<b>4.3771</b>	<b>7.0000e-005</b>	<b>1.1000e-004</b>	<b>4.4096</b>

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**3.5 Road Grading - 2022**

**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					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0598	0.6079	0.7129	1.3200e-003		0.0269	0.0269		0.0248	0.0248	0.0000	115.8960	115.8960	0.0375	0.0000	116.8331
<b>Total</b>	<b>0.0598</b>	<b>0.6079</b>	<b>0.7129</b>	<b>1.3200e-003</b>	<b>0.0000</b>	<b>0.0269</b>	<b>0.0269</b>	<b>0.0000</b>	<b>0.0248</b>	<b>0.0248</b>	<b>0.0000</b>	<b>115.8960</b>	<b>115.8960</b>	<b>0.0375</b>	<b>0.0000</b>	<b>116.8331</b>

**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	3.9100e-003	0.1665	0.0347	7.1000e-004	0.6854	1.7600e-003	0.6871	0.0721	1.6900e-003	0.0738	0.0000	70.1856	70.1856	3.0300e-003	0.0111	73.5763
Vendor	2.7000e-004	7.3400e-003	2.5500e-003	3.0000e-005	0.0310	8.0000e-005	0.0311	3.2800e-003	8.0000e-005	3.3600e-003	0.0000	2.9234	2.9234	8.0000e-005	4.3000e-004	3.0543
Worker	0.0107	9.6000e-003	0.1177	3.4000e-004	1.4772	2.0000e-004	1.4774	0.1539	1.9000e-004	0.1541	0.0000	31.6573	31.6573	6.4000e-004	8.0000e-004	31.9101
<b>Total</b>	<b>0.0149</b>	<b>0.1834</b>	<b>0.1550</b>	<b>1.0800e-003</b>	<b>2.1936</b>	<b>2.0400e-003</b>	<b>2.1956</b>	<b>0.2293</b>	<b>1.9600e-003</b>	<b>0.2312</b>	<b>0.0000</b>	<b>104.7662</b>	<b>104.7662</b>	<b>3.7500e-003</b>	<b>0.0124</b>	<b>108.5407</b>

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**3.5 Road Grading - 2022**

**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	0.0598	0.6079	0.7129	1.3200e-003		0.0269	0.0269		0.0248	0.0248	0.0000	115.8959	115.8959	0.0375	0.0000	116.8330
<b>Total</b>	<b>0.0598</b>	<b>0.6079</b>	<b>0.7129</b>	<b>1.3200e-003</b>	<b>0.0000</b>	<b>0.0269</b>	<b>0.0269</b>	<b>0.0000</b>	<b>0.0248</b>	<b>0.0248</b>	<b>0.0000</b>	<b>115.8959</b>	<b>115.8959</b>	<b>0.0375</b>	<b>0.0000</b>	<b>116.8330</b>

**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	3.9100e-003	0.1665	0.0347	7.1000e-004	0.3200	1.7600e-003	0.3217	0.0356	1.6900e-003	0.0373	0.0000	70.1856	70.1856	3.0300e-003	0.0111	73.5763
Vendor	2.7000e-004	7.3400e-003	2.5500e-003	3.0000e-005	0.0145	8.0000e-005	0.0146	1.6400e-003	8.0000e-005	1.7200e-003	0.0000	2.9234	2.9234	8.0000e-005	4.3000e-004	3.0543
Worker	0.0107	9.6000e-003	0.1177	3.4000e-004	0.6863	2.0000e-004	0.6865	0.0750	1.9000e-004	0.0752	0.0000	31.6573	31.6573	6.4000e-004	8.0000e-004	31.9101
<b>Total</b>	<b>0.0149</b>	<b>0.1834</b>	<b>0.1550</b>	<b>1.0800e-003</b>	<b>1.0208</b>	<b>2.0400e-003</b>	<b>1.0228</b>	<b>0.1122</b>	<b>1.9600e-003</b>	<b>0.1142</b>	<b>0.0000</b>	<b>104.7662</b>	<b>104.7662</b>	<b>3.7500e-003</b>	<b>0.0124</b>	<b>108.5407</b>

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**3.5 Road Grading - 2023**

**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					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0394	0.3881	0.5062	9.4000e-004		0.0165	0.0165		0.0152	0.0152	0.0000	82.5992	82.5992	0.0267	0.0000	83.2671
<b>Total</b>	<b>0.0394</b>	<b>0.3881</b>	<b>0.5062</b>	<b>9.4000e-004</b>	<b>0.0000</b>	<b>0.0165</b>	<b>0.0165</b>	<b>0.0000</b>	<b>0.0152</b>	<b>0.0152</b>	<b>0.0000</b>	<b>82.5992</b>	<b>82.5992</b>	<b>0.0267</b>	<b>0.0000</b>	<b>83.2671</b>

**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	1.5700e-003	0.0945	0.0225	4.8000e-004	0.4883	1.0200e-003	0.4893	0.0513	9.7000e-004	0.0523	0.0000	47.7995	47.7995	2.0600e-003	7.5800e-003	50.1090
Vendor	1.3000e-004	4.1700e-003	1.6500e-003	2.0000e-005	0.0221	3.0000e-005	0.0221	2.3400e-003	3.0000e-005	2.3700e-003	0.0000	1.9989	1.9989	5.0000e-005	3.0000e-004	2.0882
Worker	7.0400e-003	5.9800e-003	0.0765	2.4000e-004	1.0524	1.4000e-004	1.0525	0.1097	1.3000e-004	0.1098	0.0000	21.9590	21.9590	4.0000e-004	5.2000e-004	22.1234
<b>Total</b>	<b>8.7400e-003</b>	<b>0.1046</b>	<b>0.1007</b>	<b>7.4000e-004</b>	<b>1.5627</b>	<b>1.1900e-003</b>	<b>1.5639</b>	<b>0.1633</b>	<b>1.1300e-003</b>	<b>0.1645</b>	<b>0.0000</b>	<b>71.7575</b>	<b>71.7575</b>	<b>2.5100e-003</b>	<b>8.4000e-003</b>	<b>74.3206</b>



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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**3.5 Road Grading - 2023**

**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	0.0394	0.3881	0.5062	9.4000e-004		0.0165	0.0165		0.0152	0.0152	0.0000	82.5991	82.5991	0.0267	0.0000	83.2670
<b>Total</b>	<b>0.0394</b>	<b>0.3881</b>	<b>0.5062</b>	<b>9.4000e-004</b>	<b>0.0000</b>	<b>0.0165</b>	<b>0.0165</b>	<b>0.0000</b>	<b>0.0152</b>	<b>0.0152</b>	<b>0.0000</b>	<b>82.5991</b>	<b>82.5991</b>	<b>0.0267</b>	<b>0.0000</b>	<b>83.2670</b>

**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	1.5700e-003	0.0945	0.0225	4.8000e-004	0.2279	1.0200e-003	0.2290	0.0254	9.7000e-004	0.0263	0.0000	47.7995	47.7995	2.0600e-003	7.5800e-003	50.1090
Vendor	1.3000e-004	4.1700e-003	1.6500e-003	2.0000e-005	0.0103	3.0000e-005	0.0104	1.1700e-003	3.0000e-005	1.2000e-003	0.0000	1.9989	1.9989	5.0000e-005	3.0000e-004	2.0882
Worker	7.0400e-003	5.9800e-003	0.0765	2.4000e-004	0.4890	1.4000e-004	0.4891	0.0534	1.3000e-004	0.0536	0.0000	21.9590	21.9590	4.0000e-004	5.2000e-004	22.1234
<b>Total</b>	<b>8.7400e-003</b>	<b>0.1046</b>	<b>0.1007</b>	<b>7.4000e-004</b>	<b>0.7272</b>	<b>1.1900e-003</b>	<b>0.7284</b>	<b>0.0800</b>	<b>1.1300e-003</b>	<b>0.0811</b>	<b>0.0000</b>	<b>71.7575</b>	<b>71.7575</b>	<b>2.5100e-003</b>	<b>8.4000e-003</b>	<b>74.3206</b>

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**3.6 Dam Valve Activites - 2023**

**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					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0540	0.4912	0.7177	1.1600e-003		0.0224	0.0224		0.0218	0.0218	0.0000	100.3240	100.3240	0.0160	0.0000	100.7234
<b>Total</b>	<b>0.0540</b>	<b>0.4912</b>	<b>0.7177</b>	<b>1.1600e-003</b>	<b>0.0000</b>	<b>0.0224</b>	<b>0.0224</b>	<b>0.0000</b>	<b>0.0218</b>	<b>0.0218</b>	<b>0.0000</b>	<b>100.3240</b>	<b>100.3240</b>	<b>0.0160</b>	<b>0.0000</b>	<b>100.7234</b>

**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	4.0000e-005	2.1800e-003	5.2000e-004	1.0000e-005	0.0113	2.0000e-005	0.0113	1.1800e-003	2.0000e-005	1.2100e-003	0.0000	1.1013	1.1013	5.0000e-005	1.7000e-004	1.1545
Vendor	1.7000e-004	5.8200e-003	2.3000e-003	3.0000e-005	0.0308	4.0000e-005	0.0308	3.2600e-003	4.0000e-005	3.3000e-003	0.0000	2.7875	2.7875	7.0000e-005	4.1000e-004	2.9120
Worker	9.8200e-003	8.3300e-003	0.1067	3.3000e-004	1.4676	1.9000e-004	1.4678	0.1529	1.7000e-004	0.1531	0.0000	30.6218	30.6218	5.6000e-004	7.2000e-004	30.8510
<b>Total</b>	<b>0.0100</b>	<b>0.0163</b>	<b>0.1095</b>	<b>3.7000e-004</b>	<b>1.5096</b>	<b>2.5000e-004</b>	<b>1.5099</b>	<b>0.1574</b>	<b>2.3000e-004</b>	<b>0.1576</b>	<b>0.0000</b>	<b>34.5105</b>	<b>34.5105</b>	<b>6.8000e-004</b>	<b>1.3000e-003</b>	<b>34.9175</b>

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**3.6 Dam Valve Activites - 2023**

**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	0.0540	0.4912	0.7177	1.1600e-003		0.0224	0.0224		0.0218	0.0218	0.0000	100.3239	100.3239	0.0160	0.0000	100.7233
<b>Total</b>	<b>0.0540</b>	<b>0.4912</b>	<b>0.7177</b>	<b>1.1600e-003</b>	<b>0.0000</b>	<b>0.0224</b>	<b>0.0224</b>	<b>0.0000</b>	<b>0.0218</b>	<b>0.0218</b>	<b>0.0000</b>	<b>100.3239</b>	<b>100.3239</b>	<b>0.0160</b>	<b>0.0000</b>	<b>100.7233</b>

**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	4.0000e-005	2.1800e-003	5.2000e-004	1.0000e-005	5.2500e-003	2.0000e-005	5.2800e-003	5.8000e-004	2.0000e-005	6.1000e-004	0.0000	1.1013	1.1013	5.0000e-005	1.7000e-004	1.1545
Vendor	1.7000e-004	5.8200e-003	2.3000e-003	3.0000e-005	0.0144	4.0000e-005	0.0145	1.6300e-003	4.0000e-005	1.6700e-003	0.0000	2.7875	2.7875	7.0000e-005	4.1000e-004	2.9120
Worker	9.8200e-003	8.3300e-003	0.1067	3.3000e-004	0.6818	1.9000e-004	0.6820	0.0745	1.7000e-004	0.0747	0.0000	30.6218	30.6218	5.6000e-004	7.2000e-004	30.8510
<b>Total</b>	<b>0.0100</b>	<b>0.0163</b>	<b>0.1095</b>	<b>3.7000e-004</b>	<b>0.7015</b>	<b>2.5000e-004</b>	<b>0.7018</b>	<b>0.0767</b>	<b>2.3000e-004</b>	<b>0.0770</b>	<b>0.0000</b>	<b>34.5105</b>	<b>34.5105</b>	<b>6.8000e-004</b>	<b>1.3000e-003</b>	<b>34.9175</b>

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**3.6 Dam Valve Activites - 2024**

**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					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0369	0.3355	0.5193	8.4000e-004		0.0142	0.0142		0.0138	0.0138	0.0000	72.6147	72.6147	0.0114	0.0000	72.9000
<b>Total</b>	<b>0.0369</b>	<b>0.3355</b>	<b>0.5193</b>	<b>8.4000e-004</b>	<b>0.0000</b>	<b>0.0142</b>	<b>0.0142</b>	<b>0.0000</b>	<b>0.0138</b>	<b>0.0138</b>	<b>0.0000</b>	<b>72.6147</b>	<b>72.6147</b>	<b>0.0114</b>	<b>0.0000</b>	<b>72.9000</b>

**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	3.0000e-005	1.5800e-003	3.8000e-004	1.0000e-005	8.1400e-003	2.0000e-005	8.1600e-003	8.6000e-004	2.0000e-005	8.7000e-004	0.0000	0.7831	0.7831	3.0000e-005	1.2000e-004	0.8210
Vendor	1.2000e-004	4.2500e-003	1.6400e-003	2.0000e-005	0.0223	3.0000e-005	0.0223	2.3600e-003	3.0000e-005	2.3900e-003	0.0000	1.9895	1.9895	5.0000e-005	2.9000e-004	2.0783
Worker	6.6300e-003	5.3200e-003	0.0717	2.3000e-004	1.0621	1.3000e-004	1.0622	0.1107	1.2000e-004	0.1108	0.0000	21.6894	21.6894	3.6000e-004	4.8000e-004	21.8421
<b>Total</b>	<b>6.7800e-003</b>	<b>0.0112</b>	<b>0.0737</b>	<b>2.6000e-004</b>	<b>1.0925</b>	<b>1.8000e-004</b>	<b>1.0927</b>	<b>0.1139</b>	<b>1.7000e-004</b>	<b>0.1140</b>	<b>0.0000</b>	<b>24.4620</b>	<b>24.4620</b>	<b>4.4000e-004</b>	<b>8.9000e-004</b>	<b>24.7414</b>

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**3.6 Dam Valve Activites - 2024**

**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	0.0369	0.3355	0.5193	8.4000e-004		0.0142	0.0142		0.0138	0.0138	0.0000	72.6146	72.6146	0.0114	0.0000	72.8999
<b>Total</b>	<b>0.0369</b>	<b>0.3355</b>	<b>0.5193</b>	<b>8.4000e-004</b>	<b>0.0000</b>	<b>0.0142</b>	<b>0.0142</b>	<b>0.0000</b>	<b>0.0138</b>	<b>0.0138</b>	<b>0.0000</b>	<b>72.6146</b>	<b>72.6146</b>	<b>0.0114</b>	<b>0.0000</b>	<b>72.8999</b>

**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	3.0000e-005	1.5800e-003	3.8000e-004	1.0000e-005	3.8000e-003	2.0000e-005	3.8200e-003	4.2000e-004	2.0000e-005	4.4000e-004	0.0000	0.7831	0.7831	3.0000e-005	1.2000e-004	0.8210
Vendor	1.2000e-004	4.2500e-003	1.6400e-003	2.0000e-005	0.0104	3.0000e-005	0.0105	1.1800e-003	3.0000e-005	1.2100e-003	0.0000	1.9895	1.9895	5.0000e-005	2.9000e-004	2.0783
Worker	6.6300e-003	5.3200e-003	0.0717	2.3000e-004	0.4934	1.3000e-004	0.4936	0.0539	1.2000e-004	0.0540	0.0000	21.6894	21.6894	3.6000e-004	4.8000e-004	21.8421
<b>Total</b>	<b>6.7800e-003</b>	<b>0.0112</b>	<b>0.0737</b>	<b>2.6000e-004</b>	<b>0.5077</b>	<b>1.8000e-004</b>	<b>0.5079</b>	<b>0.0555</b>	<b>1.7000e-004</b>	<b>0.0557</b>	<b>0.0000</b>	<b>24.4620</b>	<b>24.4620</b>	<b>4.4000e-004</b>	<b>8.9000e-004</b>	<b>24.7414</b>

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**3.7 Electrical Pad and Quipment - 2023**

**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					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0875	0.7873	1.1279	1.8000e-003		0.0387	0.0387		0.0368	0.0368	0.0000	156.7755	156.7755	0.0342	0.0000	157.6314
<b>Total</b>	<b>0.0875</b>	<b>0.7873</b>	<b>1.1279</b>	<b>1.8000e-003</b>	<b>0.0000</b>	<b>0.0387</b>	<b>0.0387</b>	<b>0.0000</b>	<b>0.0368</b>	<b>0.0368</b>	<b>0.0000</b>	<b>156.7755</b>	<b>156.7755</b>	<b>0.0342</b>	<b>0.0000</b>	<b>157.6314</b>

**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	6.0000e-005	3.7300e-003	8.9000e-004	2.0000e-005	0.0193	4.0000e-005	0.0193	2.0300e-003	4.0000e-005	2.0600e-003	0.0000	1.8859	1.8859	8.0000e-005	3.0000e-004	1.9770
Vendor	1.7000e-004	5.8200e-003	2.3000e-003	3.0000e-005	0.0308	4.0000e-005	0.0308	3.2600e-003	4.0000e-005	3.3000e-003	0.0000	2.7875	2.7875	7.0000e-005	4.1000e-004	2.9120
Worker	5.8900e-003	5.0000e-003	0.0640	2.0000e-004	0.8805	1.1000e-004	0.8807	0.0918	1.0000e-004	0.0919	0.0000	18.3731	18.3731	3.4000e-004	4.3000e-004	18.5106
<b>Total</b>	<b>6.1200e-003</b>	<b>0.0146</b>	<b>0.0672</b>	<b>2.5000e-004</b>	<b>0.9306</b>	<b>1.9000e-004</b>	<b>0.9308</b>	<b>0.0970</b>	<b>1.8000e-004</b>	<b>0.0972</b>	<b>0.0000</b>	<b>23.0464</b>	<b>23.0464</b>	<b>4.9000e-004</b>	<b>1.1400e-003</b>	<b>23.3996</b>



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**3.7 Electrical Pad and Quipment - 2023**

**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	0.0875	0.7873	1.1279	1.8000e-003		0.0387	0.0387		0.0368	0.0368	0.0000	156.7754	156.7754	0.0342	0.0000	157.6312
<b>Total</b>	<b>0.0875</b>	<b>0.7873</b>	<b>1.1279</b>	<b>1.8000e-003</b>	<b>0.0000</b>	<b>0.0387</b>	<b>0.0387</b>	<b>0.0000</b>	<b>0.0368</b>	<b>0.0368</b>	<b>0.0000</b>	<b>156.7754</b>	<b>156.7754</b>	<b>0.0342</b>	<b>0.0000</b>	<b>157.6312</b>

**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	6.0000e-005	3.7300e-003	8.9000e-004	2.0000e-005	8.9900e-003	4.0000e-005	9.0300e-003	1.0000e-003	4.0000e-005	1.0400e-003	0.0000	1.8859	1.8859	8.0000e-005	3.0000e-004	1.9770
Vendor	1.7000e-004	5.8200e-003	2.3000e-003	3.0000e-005	0.0144	4.0000e-005	0.0145	1.6300e-003	4.0000e-005	1.6700e-003	0.0000	2.7875	2.7875	7.0000e-005	4.1000e-004	2.9120
Worker	5.8900e-003	5.0000e-003	0.0640	2.0000e-004	0.4091	1.1000e-004	0.4092	0.0447	1.0000e-004	0.0448	0.0000	18.3731	18.3731	3.4000e-004	4.3000e-004	18.5106
<b>Total</b>	<b>6.1200e-003</b>	<b>0.0146</b>	<b>0.0672</b>	<b>2.5000e-004</b>	<b>0.4325</b>	<b>1.9000e-004</b>	<b>0.4327</b>	<b>0.0473</b>	<b>1.8000e-004</b>	<b>0.0475</b>	<b>0.0000</b>	<b>23.0464</b>	<b>23.0464</b>	<b>4.9000e-004</b>	<b>1.1400e-003</b>	<b>23.3996</b>

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**3.7 Electrical Pad and Quipment - 2024**

**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					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.4000e-004	4.8400e-003	7.4300e-003	1.0000e-005		2.3000e-004	2.3000e-004		2.2000e-004	2.2000e-004	0.0000	1.0316	1.0316	2.2000e-004	0.0000	1.0372
<b>Total</b>	<b>5.4000e-004</b>	<b>4.8400e-003</b>	<b>7.4300e-003</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>2.3000e-004</b>	<b>2.3000e-004</b>	<b>0.0000</b>	<b>2.2000e-004</b>	<b>2.2000e-004</b>	<b>0.0000</b>	<b>1.0316</b>	<b>1.0316</b>	<b>2.2000e-004</b>	<b>0.0000</b>	<b>1.0372</b>

**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	2.0000e-005	1.0000e-005	0.0000	1.3000e-004	0.0000	1.3000e-004	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0122	0.0122	0.0000	0.0000	0.0128
Vendor	0.0000	4.0000e-005	1.0000e-005	0.0000	2.0000e-004	0.0000	2.0000e-004	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0181	0.0181	0.0000	0.0000	0.0189
Worker	4.0000e-005	3.0000e-005	3.9000e-004	0.0000	5.7900e-003	0.0000	5.7900e-003	6.0000e-004	0.0000	6.0000e-004	0.0000	0.1183	0.1183	0.0000	0.0000	0.1191
<b>Total</b>	<b>4.0000e-005</b>	<b>9.0000e-005</b>	<b>4.1000e-004</b>	<b>0.0000</b>	<b>6.1200e-003</b>	<b>0.0000</b>	<b>6.1200e-003</b>	<b>6.3000e-004</b>	<b>0.0000</b>	<b>6.3000e-004</b>	<b>0.0000</b>	<b>0.1486</b>	<b>0.1486</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.1508</b>

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**3.7 Electrical Pad and Quipment - 2024**

**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	5.4000e-004	4.8400e-003	7.4300e-003	1.0000e-005		2.3000e-004	2.3000e-004		2.2000e-004	2.2000e-004	0.0000	1.0316	1.0316	2.2000e-004	0.0000	1.0372
<b>Total</b>	<b>5.4000e-004</b>	<b>4.8400e-003</b>	<b>7.4300e-003</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>2.3000e-004</b>	<b>2.3000e-004</b>	<b>0.0000</b>	<b>2.2000e-004</b>	<b>2.2000e-004</b>	<b>0.0000</b>	<b>1.0316</b>	<b>1.0316</b>	<b>2.2000e-004</b>	<b>0.0000</b>	<b>1.0372</b>

**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	2.0000e-005	1.0000e-005	0.0000	6.0000e-005	0.0000	6.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0122	0.0122	0.0000	0.0000	0.0128
Vendor	0.0000	4.0000e-005	1.0000e-005	0.0000	9.0000e-005	0.0000	1.0000e-004	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0181	0.0181	0.0000	0.0000	0.0189
Worker	4.0000e-005	3.0000e-005	3.9000e-004	0.0000	2.6900e-003	0.0000	2.6900e-003	2.9000e-004	0.0000	2.9000e-004	0.0000	0.1183	0.1183	0.0000	0.0000	0.1191
<b>Total</b>	<b>4.0000e-005</b>	<b>9.0000e-005</b>	<b>4.1000e-004</b>	<b>0.0000</b>	<b>2.8400e-003</b>	<b>0.0000</b>	<b>2.8500e-003</b>	<b>3.1000e-004</b>	<b>0.0000</b>	<b>3.1000e-004</b>	<b>0.0000</b>	<b>0.1486</b>	<b>0.1486</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.1508</b>

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## 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
General Heavy Industry	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
General Heavy Industry	0.00	0.00	0.00	59.00	28.00	13.00	92	5	3

### 4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Heavy Industry	0.540566	0.056059	0.172680	0.136494	0.026304	0.007104	0.011680	0.017449	0.000554	0.000251	0.025076	0.000954	0.004830

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## 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

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**5.2 Energy by Land Use - Natural Gas**

**Unmitigated**

	Natural Gas 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					
General Heavy Industry	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
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

**Mitigated**

	Natural Gas 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					
General Heavy Industry	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
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>



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**5.3 Energy by Land Use - Electricity**

**Unmitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Heavy Industry	0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

**Mitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Heavy Industry	0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

**6.0 Area Detail**

**6.1 Mitigation Measures Area**

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	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	8.5000e-004	8.0000e-005	9.1700e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.0179	0.0179	5.0000e-005	0.0000	0.0190
Unmitigated	8.5000e-004	8.0000e-005	9.1700e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.0179	0.0179	5.0000e-005	0.0000	0.0190

**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	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	8.5000e-004	8.0000e-005	9.1700e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.0179	0.0179	5.0000e-005	0.0000	0.0190
<b>Total</b>	<b>8.5000e-004</b>	<b>8.0000e-005</b>	<b>9.1700e-003</b>	<b>0.0000</b>		<b>3.0000e-005</b>	<b>3.0000e-005</b>		<b>3.0000e-005</b>	<b>3.0000e-005</b>	<b>0.0000</b>	<b>0.0179</b>	<b>0.0179</b>	<b>5.0000e-005</b>	<b>0.0000</b>	<b>0.0190</b>

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**6.2 Area by SubCategory**

**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	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	8.5000e-004	8.0000e-005	9.1700e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.0179	0.0179	5.0000e-005	0.0000	0.0190
<b>Total</b>	<b>8.5000e-004</b>	<b>8.0000e-005</b>	<b>9.1700e-003</b>	<b>0.0000</b>		<b>3.0000e-005</b>	<b>3.0000e-005</b>		<b>3.0000e-005</b>	<b>3.0000e-005</b>	<b>0.0000</b>	<b>0.0179</b>	<b>0.0179</b>	<b>5.0000e-005</b>	<b>0.0000</b>	<b>0.0190</b>

**7.0 Water Detail**

**7.1 Mitigation Measures Water**

MWD Copper Basin - San Bernardino-Mojave Desert County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

	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			
General Heavy Industry	0 / 0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

MWD Copper Basin - San Bernardino-Mojave Desert County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**7.2 Water by Land Use**

**Mitigated**

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Heavy Industry	0 / 0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

**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

MWD Copper Basin - San Bernardino-Mojave Desert County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**8.2 Waste by Land Use**

**Unmitigated**

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Heavy Industry	0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

**Mitigated**

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Heavy Industry	0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

**9.0 Operational Offroad**

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
----------------	--------	-----------	-----------	-------------	-------------	-----------



MWD Copper Basin - San Bernardino-Mojave Desert County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

## 10.0 Stationary Equipment

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### 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
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## 11.0 Vegetation

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## **Appendix B**

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### **Biological Resources Technical Report and Jurisdictional Delineation Report**

# BIOLOGICAL TECHNICAL REPORT

## Copper Basin Discharge Valve Replacement and Access Road Improvements Project

*Prepared for*



**Metropolitan Water District  
of Southern California**

700 North Alameda Street  
Los Angeles, CA 90012-2944

*Submitted by*



**December 2022**

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## EXECUTIVE SUMMARY

This report was prepared under contract to the Metropolitan Water District of Southern California (Metropolitan) to describe potential biological resources at the Copper Basin Discharge Valve Replacement and Copper Basin Access Road Repair Project (proposed Project) in San Bernardino County, California. Metropolitan is evaluating options to repair approximately two miles of access roads along the southern edge of the Copper Basin Reservoir to gain access to the base of Copper Basin Dam. The current access road is drivable but needs repairs and may need to be modified to allow access for heavy equipment. In some areas the road is unsafe and is only passible by four-wheel drive vehicles. Copper Basin Dam was completed in 1941 as part of Metropolitan's Colorado River Aqueduct (CRA) system to provide water to southern California. The original discharge valve at the base of the dam needs to be replaced and Metropolitan is evaluating several options to access and replace the valve.

No federally or State listed plants were observed during focused surveys and none are expected to occur in the proposed Project area. Surveys did identify the presence of four non-listed special-status plants, including rough-stemmed forget-me-not (*Cryptantha [Johnstonella] holoptera*) (CRPR 4.3), Darlington's blazing star (*Mentzelia puberula*) (CRPR 2B.2), yellow palo verde (*Parkinsonia microphylla*) (CRPR 4.3), and desert beardtongue (*Penstemon pseudospectabilis*) (CRPR 2B.2). Saguaro (*Carnegiea gigantea*) (CRPR 2B.2) was observed in adjacent upland habitat, but not within the proposed Project area. The literature review identified an additional 23 special-status plant species that have been recorded within the four USGS 7.5-minute quadrants associated with the proposed Project area. Of these, 11 were determined to have a moderate to high potential to occur.

One State listed species, bald eagle (*Haliaeetus leucocephalus*), is known to nest on a steep cliff adjacent to the proposed Project area. Southwestern willow flycatcher (*Empidonax traillii extimus*), a State and federally listed species was detected at the Copper Basin Reservoir and likely nests in the area. A single unoccupied cavity in a rock face with recent sign of burrowing owl (*Athene cunicularia*) was detected along an access road. American peregrine falcon (*Falco peregrinus anatum*), loggerhead shrike (*Lanius ludovicianus*), Lucy's warbler (*Oreothlypis luciae*), yellow-breasted chat (*Icteria virens*), ringtail (*Bassariscus astutus*), mountain lion (*Puma concolor*), and desert bighorn sheep (*Ovis canadensis nelson*) were also detected or are known to occur in the region.

Two additional State listed species have a potential to be present and include Gila woodpecker (*Melanerpes uropygialis*) and Arizona Bell's vireo (*Vireo bellii arizonae*). They were not detected during focused and protocol surveys at the Reservoir or within the Copper Basin Wash. Golden eagle (*Aquila chrysaetos*) was not observed but has a potential to occur. Desert tortoise (*Gopherus agassizii*) are known from the region but are considered to have a low to moderate potential to occur at the Copper Basin Reservoir.

Several special-status plants were observed or have the potential to be present in the Survey Area. These include saguaro (*Carnegiea gigantea*), Darlington's blazing star (*Mentzelia puberula*), desert beardtongue (*Penstemon pseudospectabilis* ssp. *pseudospectabilis*), narrow-leaved psorothamnus (*Psorothamnus fremontii* var. *attenuatus*), rough stemmed forget-me-not [*Cryptantha (Johnstonella) holoptera*], and yellow paloverde (*Parkinsonia microphylla*).

Three sensitive natural communities are also present within the Survey Area and include saguaro - foothill palo verde - velvet mesquite desert scrub, Fremont cottonwood forest and woodland, and arrow weed thickets. Nesting birds and wildlife movement within the Survey Area may also be impacted by the proposed Project. Wetlands are also present along the margin of the Reservoir and within portions of the Copper Basin Wash below the Reservoir. Waters under the jurisdiction of U.S. Army Corps of Engineers, Colorado River Regional Water Quality Control Board, and California Department of Fish & Wildlife are present within the proposed Project area.

## 1. INTRODUCTION

The Metropolitan Water District's (Metropolitan) Copper Basin Discharge Valve Replacement and Access Road Improvements Project (proposed Project) would include replacement of the discharge valve at the Copper Basin Dam and improvements to portions of the existing unpaved Copper Basin Access Road from the Copper Basin Chlorine Tank Farm to the base of Copper Basin Dam.

This Biological Resources Technical Report is being prepared to provide a review of the proposed Project in sufficient detail as to determine to what extent it may affect sensitive biological resources. For the purposes of this analysis, sensitive biological resources include:

- Listed as a threatened or endangered species under the federal Endangered Species Act (FESA)
- Listed or candidates for listing as a threatened or endangered species under the California Endangered Species Act (CESA)
- Bald and golden eagles protected under the Bald and Golden Eagle Protection Act (BGEPA)
- Species designated as Fully Protected (FP) by the California Department of Fish and Wildlife (CDFW)
- Animals designated as Species of Special Concern (SSC) by CDFW
- Animals included in the CDFW "Special Animals" (SA) list
- Plants assigned a California Rare Plant Rank (CRPR) of 1 or 2 by the California Native Plant Society (CNPS)
- Plants listed as rare under the California Native Plant Protection Act (CNPPA)
- Vegetation types designated as Sensitive Natural Communities by CDFW
- Features meeting the requirements of jurisdictional waters or wetlands of the United States Army Corps of Engineers (USACE), Regional Water Quality Control Board (RWQCB), and/or CDFW

## 2. PROPOSED PROJECT LOCATION

The proposed Project would be constructed at the Copper Basin Reservoir (Reservoir), a large manmade feature located on lands owned and managed by Metropolitan (see Figure 1). Copper Basin is situated within the Whipple Mountains, a small range located west of the Colorado River in the southwestern portion of the U.S. Geological Survey's (USGS) Gene Wash 7.5-minute topographic quadrangle (quad). Copper Basin Wash, a narrow canyon with nearly vertical walls, is located below the Reservoir.

The Survey Area and immediately adjacent lands primarily consists of undeveloped open space owned by Metropolitan. The topography in the general area is complex and includes alluvial plains, steep mountainous slopes, and rocky terrain. Elevations in the proposed Project area vary from 970 feet above mean sea level (amsl) below the Reservoir to approximately 1,230 feet amsl along the access road.

The region is characterized by a desert climate that experiences extreme fluctuations of daily temperatures, strong seasonal winds, and low rainfall. The average annual high temperature is about 86.2°F and the average annual low is about 62.1°F (WRCC, 2022). Precipitation in the region occurs mainly between November and April, with monsoonal rains in August and September (SWRCB, 2019). The mean seasonal precipitation for Parker Reservoir, approximately five miles west of the Project is 5.5 inches (WRCC, 2022). Rainfall was below average in the region during the 2021-2022 rainfall year (July 1 through June 30). Approximately 20 percent of normal rainfall has been recorded in southeastern portions of California during that period (NOAA, 2022).

Access to the Project would occur along existing paved and unpaved roads including Trail End Camp Road and an unnamed dirt road which runs from the west end of the Reservoir to Copper Basin Wash. Trail End Camp Road is subject to daily vehicle and truck traffic to support operation of the Metropolitan facility.



Currently, an average of 1,148 gallons of water per minute seeps from the Copper Basin Dam, creating perennial water flow through portions of Copper Basin Wash. Typically, this flow does not provide connectivity to the Colorado River.

Throughout this report, the “proposed Project area” refers to the access roads repair and the discharge valve replacement under consideration at Copper Basin Reservoir and Copper Basin Dam, while “Survey Area” refers to the proposed Project area and a 50-foot to 300-foot buffer.

**Figure 1. Project Overview**

### **3. REGULATORY FRAMEWORK**

#### **3.1. Federal Regulations**

##### **Endangered Species Act**

The FESA and its subsequent amendments protect plants and wildlife (and their habitats) listed as endangered or threatened by the United States Fish and Wildlife Service (USFWS). Section 9 of the FESA specifically prohibits the taking of FESA-protected wildlife and lists prohibited actions. The FESA defines take as “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in such conduct (50 Code of Federal Regulations [CFR] 17.3). The FESA also governs the removal, possession, malicious damage, or destruction of endangered plants on federal land. Pursuant to the requirements of the FESA, an agency proposing a project or reviewing a proposed project within its jurisdiction (action agency) must determine whether any federally listed species may be present in the proposed Project area and determine whether the proposed Project will have a significant effect upon such species or its habitat.

##### **Migratory Bird Treaty Act**

The Migratory Bird Treaty Act (MBTA) implements international treaties between the United States and other nations to protect migratory birds and their parts, eggs, and nests from activities such as hunting, pursuing, capturing, killing, selling, and shipping, unless expressly authorized by regulation or permit. Regulations governing migratory bird permits are found in 50 CFR 13 – General Permit Procedures and 50 CFR 21 – Migratory Bird Permits.

##### **Bald and Golden Eagle Protection Act**

Bald and golden eagles are protected under the BGEPA, originally passed in 1940 and amended in 1962. The BGEPA prohibits the take, possession, sale, purchase, barter, offer to sell, transport, export, or import of any bald or golden eagle, alive or dead, including any part, nest, egg, unless allowed by permit (15 U.S.C. 668[a]; 50 CFR 22). The USFWS regulates activities that may take bald eagles or golden eagles. Take is defined as “pursuing, shooting, shooting at, poisoning, wounding, killing, capturing, trapping, collecting, molesting, and disturbing” bald or golden eagles, and as activities causing: “(1) injury to an eagle, (2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or (3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior” (USFWS 2007).

##### **Federal Clean Water Act Section 404**

The purpose of the federal Clean Water Act (CWA) is to “restore and maintain the chemical, physical, and biological integrity of the nation’s waters.” Section 404 of the CWA regulates the discharge of dredged material, placement of fill material, or certain types of excavation within waters of the United States (excluding de minimis incidental fallback of material) and authorizes the Secretary of the Army, through the Chief of Engineers, to issue permits for such actions. Permits can be issued for individual projects (individual permits) or for general categories of projects (general permits). Waters of the United States may include rivers, streams, estuaries, territorial seas, ponds, lakes, and wetlands. Wetlands are defined as those areas “that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support and that are under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions (33 CFR 328.7b).

##### **Federal Clean Water Act Section 401**

Section 401 of the CWA requires that any applicant, for a federal permit for activities that involve a discharge to “waters of the state”, shall provide the federal permitting agency a certification (from the

state in which the discharge is proposed) that states that the discharge will comply with the applicable provisions under the CWA. Therefore, before the United States Army Corps of Engineers (USACE) may issue a Section 404 permit, a permittee must apply for and receive a Section 401 Water Quality Certification from the applicable Regional Water Quality Control Board (RWQCB). The RWQCB may add conditions to its certification to remove or mitigate potential impacts to water quality standards. Such conditions must ultimately be included in the federal Section 404 permit.

### **3.2. State Regulations**

#### **California Environmental Quality Act**

The California Environmental Quality Act (CEQA) requires state agencies, local governments, and special districts to evaluate and disclose impacts from projects in the state. Section 15380 of the CEQA Guidelines clearly indicates that plant and wildlife species designated by the CDFW as FP or SSC should be included in an analysis of project impacts if they can be shown to meet the criteria of sensitivity outlined therein.

#### **California Endangered Species Act**

The CESA provides that certain species of plants and wildlife that are of ecological, educational, historical, recreational, aesthetic, economic, and scientific value to the people of California are of statewide concern and should be conserved, protected, and enhanced along with their habitats. The CESA establishes policy that state agencies should not approve projects that would jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of habitat essential to the continued existence of those species if there are reasonable and prudent alternatives consistent with conserving the species or its habitat that would prevent jeopardy.

#### **Fully Protected Designations**

California Fish and Game Code (FGC) Sections 3511, 4700, 5050, and 5515 designate 36 fish and wildlife species as FP from take, including hunting, harvesting, and other activities. The FGC sections dealing with FP species state that these species "...may not be taken or possessed at any time and no provisions of this code or any other law shall be construed to authorize the issuance of permits or licenses to take any fully protected species". Most of the species on these lists have been subsequently listed under the FESA or CESA.

#### **Native Bird Protections**

FGC Sections 3503, 3503.3, and 3513 prohibit take, possession, or needless destruction of birds, nests, or eggs except as otherwise provided by the FGC. Section 3513 provides for the adoption of the MBTA's provisions (see Section 3.1).

#### **Furbearing Mammal Protections**

FGC Section 251.1 prohibits the harassment of any furbearing mammal. Harass is defined as an intentional act which disrupts an animal's normal behavior patterns, which includes, but is not limited to, breeding, feeding or sheltering.

#### **California Code of Regulations Title 14**

Title 14 Cal. Code of Regulations § 460 states that fisher, marten, river otter, desert kit fox and red fox may not be taken at any time. Cal. Code Regs. Tit. 14, § 362 - Nelson Bighorn Sheep regulates the taking of Nelsons Bighorn Sheep.

### California Native Plant Protection Act

The CNPPA of 1977 (FGC Sections 1900-1913) was created with the intent to “preserve, protect, and enhance rare and endangered plants in California”. The NPPA is administered by CDFW while the Fish and Game Commission has the authority to designate native plants as “endangered” or “rare” and to protect endangered and rare plants from take.

### California Streambed Alteration Notification/Agreement

Section 1602 of the FGC requires that a streambed alteration application be submitted to CDFW for “any activity that may substantially divert or obstruct the natural flows or substantially change the bed, channel, or bank of any river, stream, or lake.” The CDFW reviews the proposed actions and, if necessary, submits to the applicant a proposal for measures to protect affected fish and wildlife resources.

## 3.3. Local Regulations

### County of San Bernardino Desert Native Plant Protection Ordinance

The County of San Bernardino Desert Native Plant Protection ordinance protects certain desert native plants and does not allow the removal of the following plants with stems two inches or greater in diameter or six feet greater in height: smoketree (*Dalea spinosa*), Joshua tree (*Yucca brevifolia*), all species of the genus *Prosopis*, all species of the family Agavaceae, and creosote rings 10 feet or greater in diameter (San Bernardino County, 2007). In addition, any part of any of the following species, whether living or dead, may not be removed: desert ironwood (*Olneya tesota*), all species of the genus *Prosopis*, and all species of the genus *Cercidium*. During the 2021 and 2022 reconnaissance field surveys, multiple trees of the *Prosopis* and *Cercidium* (*Parkinsonia*) genera and smoketree were identified within and adjacent to the proposed Project area. Although mapping of these resources was not included in the 2021 and 2022 surveys, numerous *Cercidium* and *Prosopis* trees were observed within temporary and permanent impact areas. Trees of the genera *Prosopis* and *Cercidium* along with smoketrees were also observed downstream of the dam; however, not within any temporary and permanent impact areas.

## 4. METHODS

Prior to the site visit a literature search was conducted to identify sensitive biological resources, including sensitive natural communities and special-status plants and wildlife species, known from the vicinity of the proposed Project area. This included a review of the California Natural Diversity Database (CNDDDB) (CDFW, 2022a) for the USGS 7.5-minute topographic quads where the Survey Area is located and those adjacent quads within five miles, including Cross Roads, Parker, Whipple Wash, and Gene Wash. The USFWS Information for Planning and Conservation (IPaC) program was also reviewed utilizing an approximately five-mile buffer surrounding the proposed Project area. The results of the CNDDDB and IPaC searches can be found in Attachment 2. Additional data regarding the potential occurrence of sensitive biological resources was obtained from the following sources:

- CNPS Inventory of Rare and Endangered Vascular Plants of California (CNPS, 2022)
- Consortium of California Herbaria (CCH) records for San Bernardino County (CCH, 2022)
- iNaturalist online sources for the Copper Basin region (iNaturalist, 2022)
- eBird online sources for the Copper Basin region (eBird, 2022)

Reconnaissance-level biological surveys were conducted on March 29 and 30, 2021. These surveys focused on mapping vegetation within the proposed Project area, assessing the potential for the proposed Project area to support special-status species, searching for any special-status plants and wildlife, and identifying any potential jurisdictional wetlands or other waters. Floristic surveys for special-status plants

were performed on March 15 and 16, 2022. A delineation of federal and state waters was also conducted during this time. Protocol-level surveys for southwestern willow flycatcher (*Empidonax traillii extimus*) and Arizona Bell's vireo (*Vireo bellii arizonae*) were conducted between May and July and April and July 2022, respectively. Visual and acoustic surveys for special-status bats were completed between March and August 2022.

During the field surveys, all plant and wildlife species observed were recorded in field notes and are listed in Attachment 3. General notes were also recorded on the vegetation within the proposed Project area. Vegetation within the expansion area is further described below using the names and descriptions in *A Manual of California Vegetation* (Sawyer et al., 2009). Plants that could not be identified in the field were collected and later identified using keys, descriptions, and illustrations in Baldwin et al. (2012).

## 5. RESULTS

### 5.1. Vegetation

Vegetation and habitat along the access road is dominated by xeric desert communities, which are characterized by species such as yellow paloverde (*Parkinsonia microphylla*), creosote bush (*Larrea tridentata*), and various species of cactus that grow on the steep rocky slopes. Downstream of Copper Basin Dam, the vegetation changes rapidly to a mesic riparian woodland dominated by Fremont cottonwood (*Populus fremontii*), willows (*Salix* spp.), tamarisk (*Tamarix ramosissima*), and a broad low-flow channel dominated by cattails (*Typha domingensis*) and other species of hydrophytic vegetation. Four native vegetation alliances and two additional land cover types were identified within the Survey Area.

CDFW evaluates Natural Communities using the Heritage Methodology, the same system used to assign global and state rarity ranks for plant and animal species in the CNDDb. Natural communities with ranks of S1 (Critically Imperiled), S2 (Imperiled), or S3 (Vulnerable) are considered Sensitive Natural Communities by CDFW. CDFW has stated that Sensitive Natural Communities should be addressed in the CEQA environmental review process (CDFW 2022b). Based on these rankings, three Sensitive Natural Communities were documented in the Survey Area. These include saguaro – foothill palo verde – velvet mesquite desert scrub (*Carnegiea gigantea* - *Parkinsonia microphylla* - *Prosopis velutina* Provisional Shrubland Alliance) (S2), Fremont cottonwood forest and woodland (*Populus fremontii* - *Fraxinus velutina* - *Salix gooddingii* Forest & Woodland Alliance) (S3), and arrow weed thickets (*Pluchea sericea* Alliance) (S3).

Vegetation types within the Survey Area are described in further detail below. The acreages of vegetation types and cover areas are shown below in Table 1 and Figure 2.

**Table 1. Summary of Vegetation and Cover Types in Survey Area**

Vegetation and Land Cover Types	Type	Total Acres	Percentage of Total Acreage (%)
Saguaro - foothill palo verde - velvet mesquite desert scrub*	Upland	15.75	54.7
Fremont cottonwood forest and woodland*	Riparian	0.18	0.6
Arrow weed thickets*	Riparian	3.14	11.2
Cattail marsh	Riparian	1.06	4.9
<b>Other Cover Types**</b>			
Developed and Disturbed	N/A	7.76	27.8
Open Water	N/A	0.21	0.8

Vegetation and Land Cover Types	Type	Total Acres	Percentage of Total Acreage (%)
Total	--	28.10	100

\*These communities are designated as "Sensitive Natural Communities" by CDFW.

\*\*These communities/land cover types are not defined in Sawyer et al. (2009) or Holland (1986) but are included in this table for acreage calculation purposes.

**Saguaro - foothill palo verde - velvet mesquite desert scrub (*Carnegiea gigantea* - *Parkinsonia microphylla* - *Prosopis velutina* Provisional Shrubland Alliance).** This vegetation is characterized by the presence of yellow paloverde which dominates the uplands throughout the Survey Area. Other species such as creosote bush, white bursage (*Ambrosia dumosa*), chollas (*Cylindropuntia* spp.), and brittlebush (*Encelia farinosa*) are also present in low numbers. Saguaro (*Carnegiea gigantea*) are also present in low numbers just beyond the limits of the Survey Area. This vegetation matches the description of Arizonan woodland in Holland (1986). This vegetation has a State rank of S2 and is considered a Sensitive Natural Community in California (CDFW, 2022b).

**Fremont cottonwood forest and woodland (*Populus fremontii* - *Fraxinus velutina* - *Salix gooddingii* Forest & Woodland Alliance).** This vegetation is characterized by the presence of Fremont cottonwood (*Populus fremontii*) and Gooding's black willow (*Salix gooddingii*). These species form a high overstory above species such as arrow weed (*Pluchea sericea*), umbrella plant (*Cyperus involucratus*), and narrowleaf willow (*Salix exigua*). This vegetation matches the description of Sonoran cottonwood-willow riparian forest in Holland (1986). This vegetation has a State rank of S3 and is considered a Sensitive Natural Community in California (CDFW, 2022b).

**Arrow weed thickets (*Pluchea sericea* Shrubland Alliance).** This vegetation is dominated by arrow weed, narrowleaf willow, tamarisk, and other lower growing vegetation. It is present in the canyon bottom downstream of Copper Basin Dam and is also present along the margins on Copper Basin Reservoir. This vegetation matches the description of arrow weed scrub in Holland (1986). This vegetation has a State rank of S3 and is considered to be a Sensitive Natural Community in California (CDFW, 2022b).

**Cattail marshes [*Typha (angustifolia, domingensis, latifolia)* Herbaceous Alliance].** This vegetation community is dominated by cattails (*Typha* spp.), umbrella plant, and numerous other herbaceous species. It is present in the wettest portions of the canyon bottom downstream of Copper Basin Dam and along the margins on Copper Basin Reservoir. It should also be noted that this vegetation is mapped immediately below the dam which is in fact only dominated by umbrella plant on the channel bottom and Venus hair (*Adiantum capillus-veneris*) and yellow monkey flower (*Erythranthe guttata*) on the canyon walls. This vegetation matches the description of arrow weed scrub in Holland (1986). This vegetation has a State rank of S5 and is not considered a Sensitive Natural Community in California (CDFW, 2022b).

**Developed and Disturbed.** Developed and disturbed lands are those portions of the Survey Area with human-dominated land uses, including the existing communications facility, a small development, and the unpaved access roads. Vegetation, where present, is dominated by native and non-native ruderal (weedy) species.

**Open Water.** Open water are those portions of the survey area located within the Reservoir. Vegetation, where present, is dominated by native aquatic species.

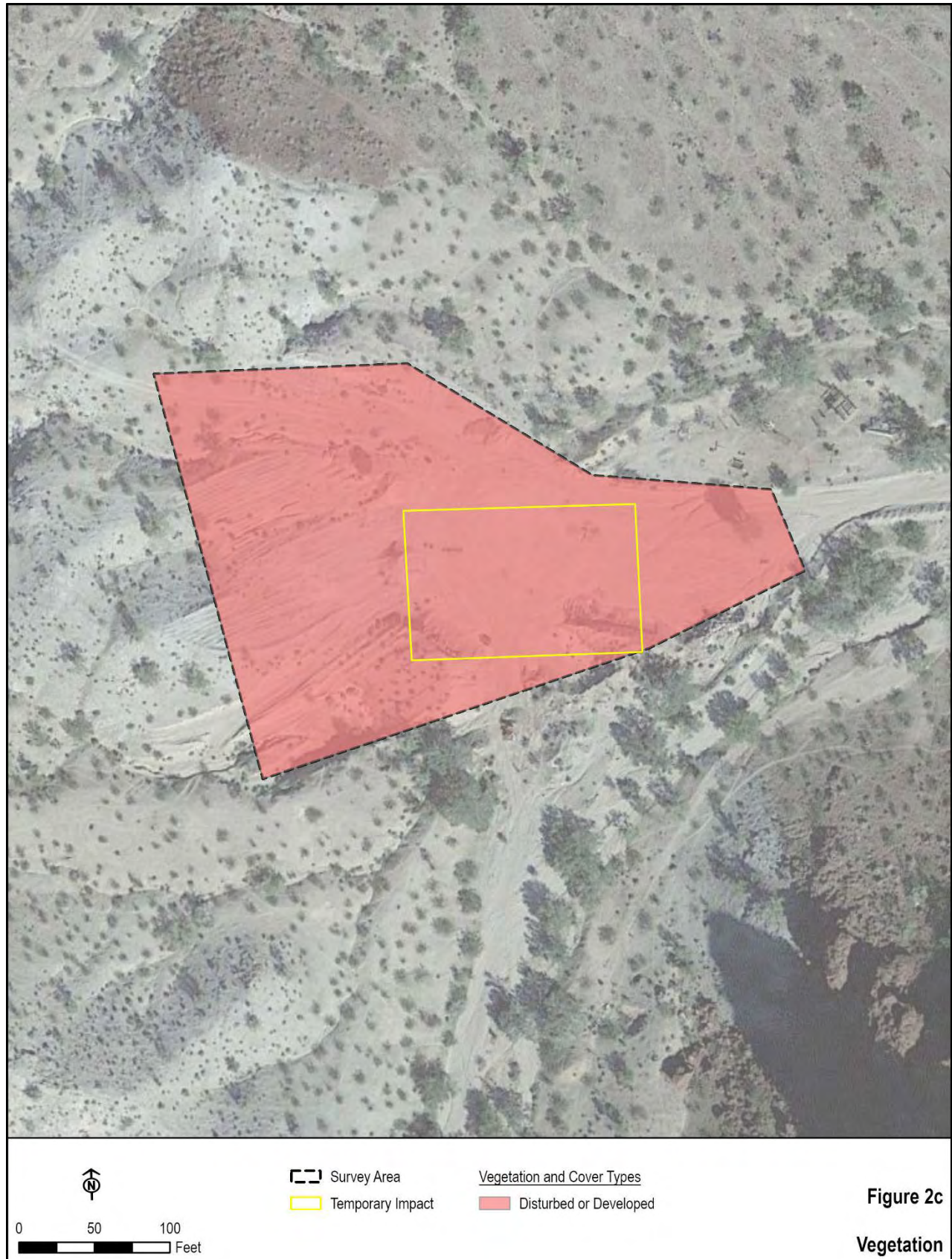


**Figure 2. Vegetation**

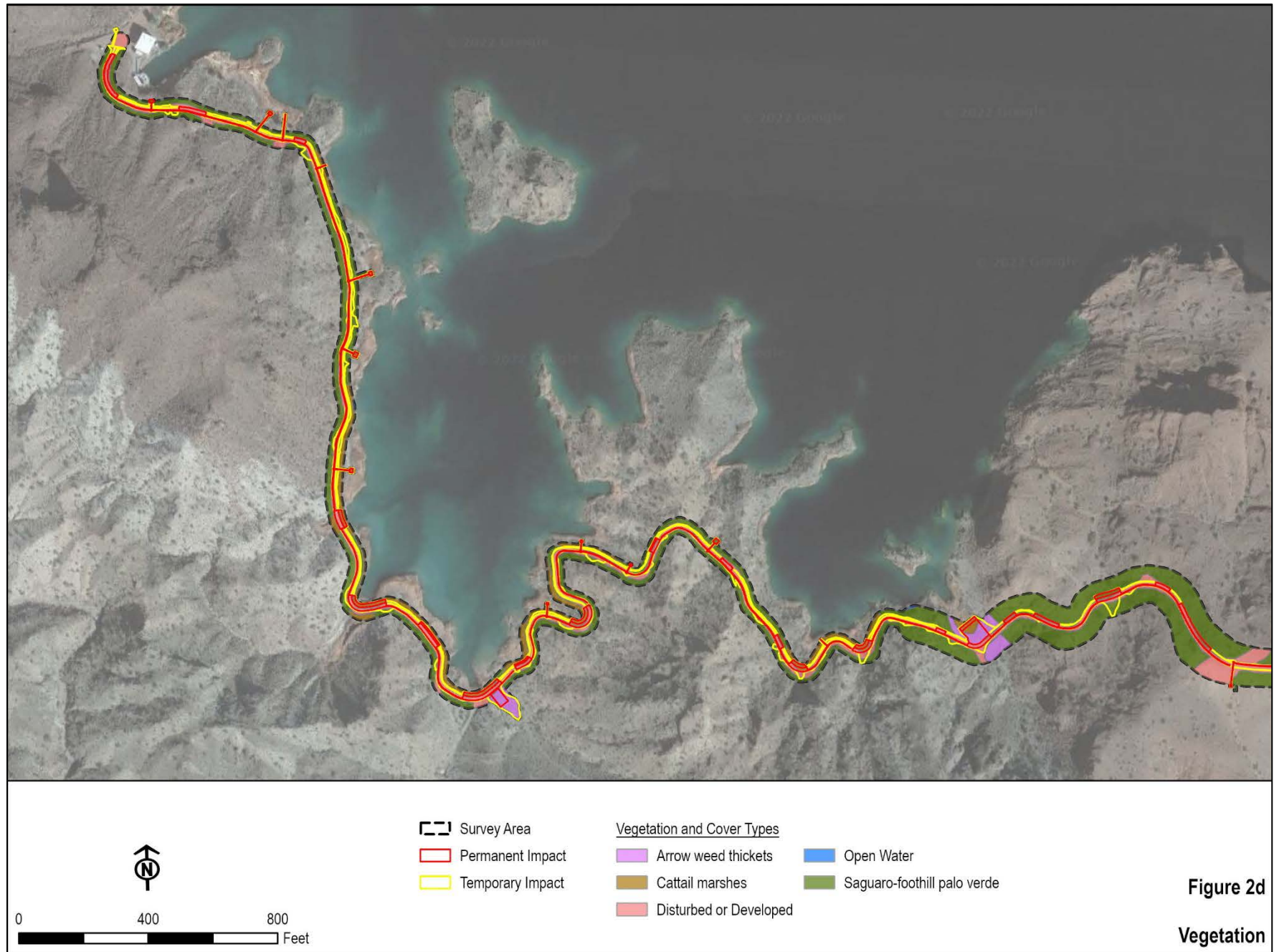


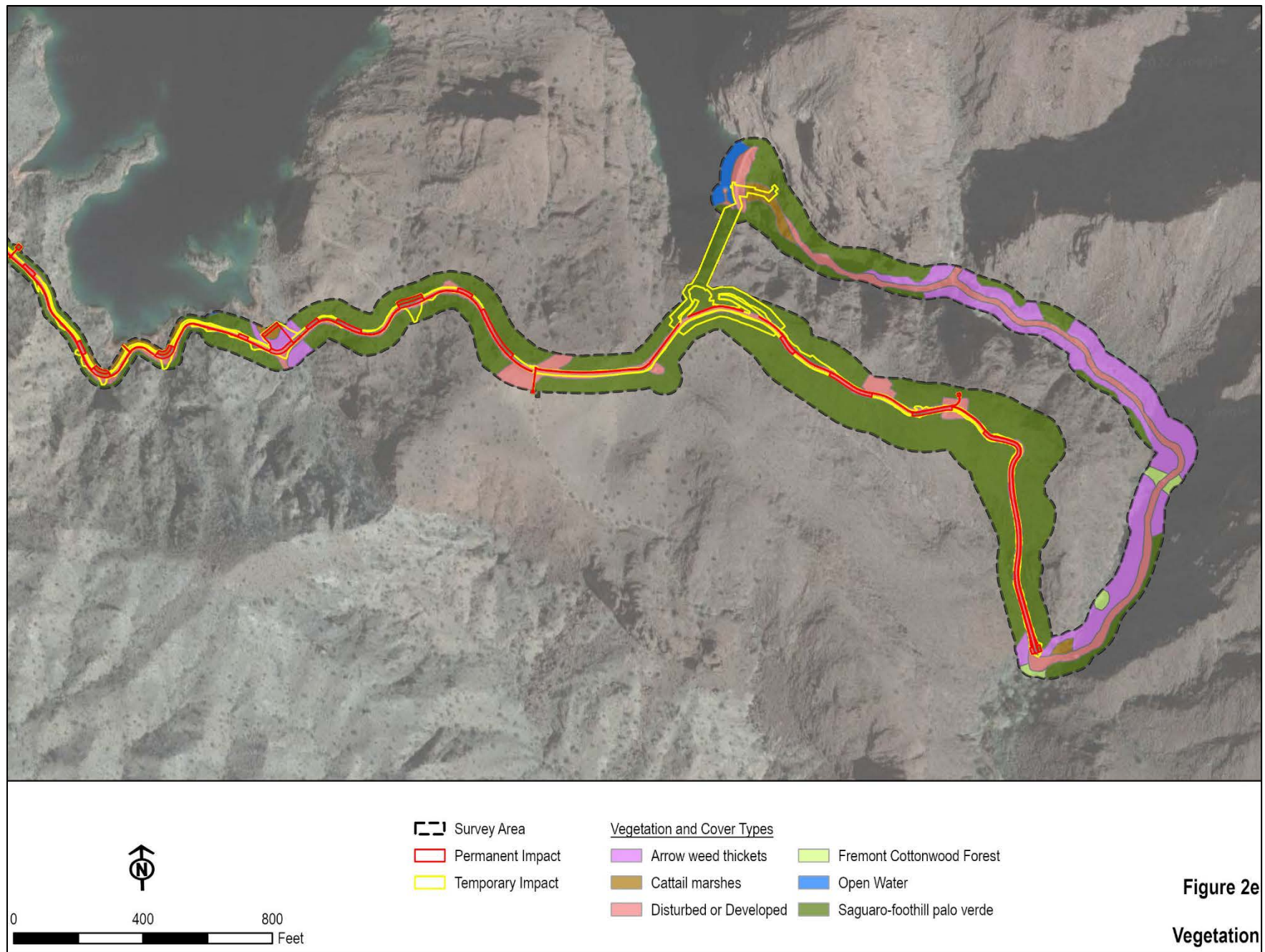














## 5.2. Special-Status Species

Plants or wildlife may be ranked as special-status species due to declining populations, vulnerability to habitat change, or restricted distributions. These include listed species that have been formally designated as federally endangered or threatened by USFWS, pursuant to the FESA or as state endangered, threatened, or rare (for plants only) by CDFW pursuant to the CESA or the NPPA. CDFW FP species are considered rare or facing possible extinction and receive additional protection under Sections 3511, 4700, 5050, or 5515 of the California FGC while Species of Special Concern are those species, subspecies, or distinct populations of an animal native to California that are considered for protection by CDFW for a variety of reasons, such as population declines or range restrictions. “Special Animals” is a broad term used to refer to all the animal taxa tracked by the CNDDDB, regardless of their legal or protection status. The Special Animals list includes taxa that are biologically rare, very restricted in distribution, or declining throughout their range, but not currently threatened with extirpation. Some species are considered rare (but not formally listed) by resource agencies, organizations with biological interests/expertise (e.g., Audubon Society, The Wildlife Society, etc.), and the scientific community.

Table 2 includes species that were identified during the literature search but are not expected to be present because of a lack of suitable habitat, distance to geographic or elevation range of the species, or other notes as provided below. These species are not addressed further in this report.

**Table 2. Special-Status Species with No Potential to be Present**

Latin Name	Common Name	Reason for Exclusion
<b>PLANTS</b>		
<i>Androstephium breviflorum</i>	Small-flowered androstephium	No suitable sand dune or sand field habitat.
<i>Berberis harrisoniana</i>	Kofa Mountain barberry	Well below the species elevation range.
<i>Bouteloua trifida</i>	Three-awned grama	Well below the species elevation range.
<i>Coryphantha chlorantha</i>	Desert pincushion	Well outside of species geographic range.
<i>Erigeron oxyphyllus</i>	Wand-like fleabane daisy	Well below the species elevation range.
<i>Euphorbia abramsiana</i>	Abrams’ spurge	No suitable sand flat habitat.
<i>Lycium exsertum</i>	Arizona desert-thorn	Well outside of species geographic range.
<i>Mentzelia tridentata</i>	Creamy blazing star	Well outside of species geographic range.
<i>Nemacaulis denudate var. gracilis</i>	Slender cottonheads	No suitable sand dune or sand field habitat.
<i>Petalonyx linearis</i>	Narrow-leaf sandpaper-plant	Well outside of species geographic range.
<i>Phacelia anelsonii</i>	Aven Nelson’s phacelia	Well outside of species geographic range.
<i>Pholistoma auritum var. arizonicum</i>	Arizona pholistoma	No suitable sand dune or sand field habitat.
<b>FISHES</b>		
<i>Catostomus latipinnis</i>	Flannelmouth sucker	Known from Colorado River upstream of Lake Havasu, unlikely to enter the CRA intake and reach Gene and Copper Basins.
<i>Gila elegans</i>	Bonytail chub	Known from Colorado River upstream of Lake Havasu, unlikely to enter the CRA intake and reach Gene and Copper Basins.
<i>Xyrauchen texanus</i>	Razorback sucker	Known from Colorado River upstream of Lake Havasu, unlikely to enter the CRA intake and reach Gene and Copper Basins.

Latin Name	Common Name	Reason for Exclusion
<b>MAMMALS</b>		
<i>Sigmodon arizonae plenus</i>	Colorado River cotton rat	Known from one historic (1934) record near Parker, unlikely to reach Copper Basin because of discontinuous habitat.

Table 3 summarizes geographic range, habitat, and conservation status for all special-status species with a potential to occur in the Survey Area.

**Table 3. Special-Status Species with a Potential to be Present**

Species Name	Habitat and Distribution	Conservation Status	Occurrence Potential
<b>PLANTS</b>			
<i>Carnegiea gigantea</i> <b>Saguaro</b>	Cactus; rocky Sonoran Desert scrub; about 150-5000 ft. elev.; San Bernardino and Imperial Cos., east into AZ and south into Mex.; May-Jun.	FED: None CA: S1, CRPR 2B.2	<b>High</b> ; numerous saguaros observed within about 200 feet of the Survey Area, including one dead individual within the Survey Area.
<i>Castela emoryi</i> <b>Emory's crucifixion-thorn</b>	Shrub; widespread but rare, Calif. deserts to Ariz., Baja and Sonora; fine sand or silt, washes, plains, non-saline bottomlands, about 350-2100 ft. elev.; June-July.	FED: None CA: S2S3, CRPR 2B.2	<b>Low</b> : suitable habitat is largely absent from the Survey Area, large conspicuous plant not observed during survey.
<i>Chylismia arenaria</i> <b>Sand evening-primrose</b>	Annual or short-lived perennial; rocky or sandy Sonoran Desert scrub; about 200-3000 ft. elev.; San Bernardino, Riverside, and Imperial Cos. east to AZ; Nov-May.	FED: None CA: S2S3, CRPR 2B.2	<b>Low</b> : suitable habitat is present but all records in the vicinity are along the Colorado River floodplain more than 3 miles to the southeast.
<i>Cryptantha (Johnstonella) holoptera</i> <b>Rough stemmed forget-me-not</b>	Annual; Mojavean and Sonoran Desert scrub; about 300-4500 ft. elev.; San Bernardino, San Diego, Inyo, Imperial, and Riverside Cos. east to AZ, NV, and south to Mex.; Mar-Apr.	FED: None CA: S4, CRPR 4.3	<b>Present</b> : one individual observed along the access road in the canyon downstream of the dam.
<i>Delphinium scaposum</i> <b>Bare-stem larkspur</b>	Perennial herb; rocky areas and washes in Sonoran Desert scrub; about 600-3500 ft. elev.; San Bernardino Co. east to NM, CO, and UT; Mar-Apr.	FED: None CA: S1, CRPR 2B.3	<b>Moderate</b> : suitable habitat is present; known from recent records near Gene Wash about 2.7 miles to the northwest.
<i>Ditaxis claryana</i> <b>Glandular ditaxis</b>	Perennial herb; sandy soils below about 350 ft. elev.; or rocky uplands & sandy washes to 3000 ft.; widely scattered, Sonoran Desert, CA to AZ and mainland Mex.; Oct-Mar.	FED: None CA: S2, CRPR 2B.2	<b>Low</b> : suitable habitat is present but all records in the vicinity are along the Colorado River floodplain more than 3 miles to the southeast.
<i>Hymenoxys odorata</i> <b>Bitter hymenoxys</b>	Annual; sandy soils in riparian scrub and Sonoran Desert scrub; about 150-500 ft. elev.; San Bernardino, Riverside, and Imperial Cos., east to CO and TX; Feb-Nov.	FED: None CA: S2, CRPR 2B.1	<b>Low</b> : suitable habitat is present but all records in the vicinity are along the Colorado River floodplain more than 3 miles to the southeast.
<i>Mammillaria grahamii</i> <i>var. grahamii</i> <b>Graham fishhook cactus</b>	Cactus; gravelly or rocky soils in Sonoran Desert scrub; about 900-2000	FED: None CA: S2, CRPR 2B.2	<b>Moderate</b> : suitable habitat is present; known from numerous recent records within 3 miles.



Species Name	Habitat and Distribution	Conservation Status	Occurrence Potential
	ft. elev.; San Bernardino County east to TX.; Apr-Sept.		
<i>Matelea parvifolia</i> <b>Spear-leaf matelea</b>	Low twining vine; rocky sites in desert shrublands, central and eastern deserts and Anza-Borrego State Park; NV and TX south into Mex.; about 1400-3600 ft. elev.; Mar-May.	FED: None CA: S2, CRPR 2B.2	<b>Low:</b> suitable habitat is present, one record from within about 7 miles to the west.
<i>Mentzelia puberula</i> <b>Darlington's blazing star</b>	Perennial herb; sandy or rocky soils in Sonoran Desert scrub; about 300-3000 ft. elev.; San Bernardino, Riverside, and Imperial Cos., east to UT and south to Mex.; Mar-May.	FED: None CA: S2, CRPR 2B.2	<b>Present:</b> approx. 5 plants observed along the access road in the canyon below the dam, more plants are likely to be present.
<i>Parkinsonia microphylla</i> <b>Yellow paloverde</b>	Tree; rocky areas in Mojavean Desert scrub; about 150-3500 ft. elev.; San Bernardino Co. east to AZ and south to Mex.; Apr-May.	FED: None CA: S3, CRPR 4.3	<b>Present:</b> hundreds of trees present within the Survey Area.
<i>Penstemon pseudospectabilis</i> ssp. <i>pseudospectabilis</i> <b>Desert beardtongue</b>	Perennial herb; washes and rocky soils in Mojavean Desert and Sonoran Desert scrub; about 300-6000 ft. elev.; San Bernardino, Riverside, and Imperial Cos., east to AZ.; Jan-May.	FED: None CA: S3, CRPR 2B.2	<b>Present:</b> approx. 10 plants observed on the north-facing canyon wall above the access road below the dam, more plants are likely to be present.
<i>Psoralea argophylla</i> var. <i>attenuata</i> <b>Narrow-leaved psoralea</b>	Perennial herb; granitic and volcanic soils in Sonoran Desert scrub; about 1100-3000 ft. elev.; San Bernardino Co., east to AZ and NV.; Apr.	FED: None CA: S3, CRPR 2B.3	<b>High:</b> approx. 3 plants observed along the margins of the Survey Area, additional plants are likely to be present.
<i>Senna covesii</i> <b>Cove's cassia</b>	Perennial herb; dry desert washes and slopes in Sonoran Desert scrub; below about 2000 ft. elev.; San Bernardino, Riverside, and Imperial Cos., east to AZ, NV, and south to Mex.; Jan-May.	FED: None CA: S3, CRPR 2B.2	<b>Moderate:</b> suitable habitat is present; known from numerous recent records within 3 miles.
<i>Tetradlea hallii</i> <b>Holly leaved spurge</b>	Shrub; Mojavean and Sonoran Desert scrub; below about 3500 ft. elev.; San Bernardino, Riverside, and Imperial Cos. east to NV and AZ, south to Mex.; Jan-May.	FED: None CA: S4, CRPR 4.3	<b>Moderate:</b> suitable habitat is present; known from within 5 miles in Copper Basin Wash.
<i>Teucrium glandulosum</i> <b>Desert germander</b>	Perennial herb; dry desert washes in Sonoran Desert scrub; below about 1300 ft. elev.; San Bernardino Co., east to AZ and south to Mex.; Apr-May.	FED: None CA: S2, CRPR 2B.3	<b>Moderate:</b> suitable habitat is present; known from numerous recent records within 2 miles.
<b>INVERTEBRATES</b>			
<i>Oliarces clara</i> <b>Cheeseweed owlfly</b>	Insect; lower Colorado River floodplain in Sonoran Desert scrub; adults present in years with above average rainfall.	FED: None CA: S2	<b>Low:</b> marginally suitable habitat is present; known from recent records within 5 miles.
<b>AMPHIBIANS and REPTILES</b>			
<i>Scaphiopus couchii</i> <b>Couch's spadefoot</b>	In addition to summer rain pools, and backwater areas, Couch's spadefoot requires soft, sandy soils for burrowing and generally is found at the edges of	FED: None CA: SSC, S2	<b>Low:</b> marginally suitable habitat is present; known from records along the Colorado River.

Species Name	Habitat and Distribution	Conservation Status	Occurrence Potential
	arroyos or in open soil around the bases of shrub.		
<i>Gopherus agassizii</i> <b>Mojave desert tortoise</b>	Terrestrial tortoise; desert shrublands where soil suitable for burrows; Mojave and Sonoran des. (E CA, S NV, W AZ, and south to Mex.; spring-fall.	FED: <b>THR</b> CA: <b>THR</b> , S2	<b>Low to Moderate:</b> suitable habitat is present; known from recent records in the eastern Whipple Mountains 10 miles east of the Survey Area. No burrows detected during the surveys. May occur in adjacent lands in low densities.
<i>Heloderma suspectum cinctum</i> <b>Banded Gila monster</b>	Lizard; rocky outcrops in desert shrubland; scarce in scattered eastern mountain ranges of CA deserts; to S NV, W AZ, and Mex.; warm Seasons.	FED: None CA: SSC, S1	<b>Low to Moderate:</b> suitable habitat is present; known from a single historic record presumably from within the Whipple Mountains and Survey Area, within the range of this species.
<b>BIRDS</b>			
<i>Aquila chrysaetos</i> <b>Golden eagle</b>	Nests in remote trees and cliffs; forage over shrublands and grasslands; breeds throughout western North America, winters to east coast; year-round.	FED: BGEPA CA: FP, S3	<b>Low (nesting):</b> suitable nest sites occupied by bald eagles. <b>High (foraging):</b> expected to forage throughout the Survey Area.
<i>Athene cunicularia</i> <b>Burrowing owl</b>	Nests mainly in rodent burrows, usually in open grassland or shrubland; forages in open habitat; increasingly uncommon in S CA; occurs through W US and Mex.; year-around.	FED: None CA: SSC, S3	<b>High (nesting and foraging):</b> one unoccupied burrow with burrowing owl sign was observed approximately 60 feet beyond the Survey Area.
<i>Calypte costae</i> <b>Costa's hummingbird</b>	Forages and nests in the arid habitats of central CA, southern NV, UT, NM, CA, and Mex. Nests in a variety of trees and shrubs usually along canyons and washes near other nesting conspecifics.	FED: None CA: SA, S4	<b>High (nesting):</b> suitable nesting habitat is present; however, no nests observed during surveys. <b>Present (foraging):</b> observed within Survey Area.
<i>Coccyzus americanus occidentalis</i> <b>Western yellow-billed cuckoo</b>	Large patches of riparian forest and woodland, usually near surface water; historically common in floodplain habitats. Nests in riparian vegetation with willows, cottonwoods, and understories of grape, nettles, and blackberries;	FED: <b>THR</b> CA: <b>END</b> , S1	<b>Low (nesting and foraging):</b> marginal riparian habitat is present downstream of Copper Basin dam, nearest records about 10 miles south.
<i>Colaptes chrysoides</i> <b>Gilded flicker</b>	Saguaro woodlands and riparian woodlands in the low deserts of southern AZ, Mex., and eastern CA; year-round.	FED: None CA: <b>END</b> , S1	<b>Low (nesting and foraging):</b> marginal habitat is present in an around the Survey Area, nearest records about ten miles south.
<i>Dendroica petechia sonorana</i> <b>Sonoran yellow warbler</b>	Breeds in willow and cottonwood riparian habitat in the lower Colorado River Valley; winters Mexico to S America.	FED: None CA: SSC, S2	<b>Low (nesting and foraging):</b> marginal habitat present; known from within about 5 miles of the Survey Area.
<i>Empidonax traillii</i> <b>Willow flycatcher</b>	Consists of three subspecies in California; however, species is protected at state level; breeds in	FED: None CA: <b>END</b> , S1	<b>Low (nesting):</b> although the Survey Area supports suitable nesting habitat, this species was

Species Name	Habitat and Distribution	Conservation Status	Occurrence Potential
	thickets of deciduous trees and shrubs, especially willows; species is widespread throughout California.		not observed nesting during 2022 protocol-level surveys. <b>Present (foraging):</b> Two individual migrants observed during 2022 protocol-level surveys.
<i>Empidonax traillii extimus</i> <b>Southwestern willow flycatcher</b>	Subspecies of willow flycatcher (above); breeds in dense riparian forests & shrublands; scattered locations in AZ, CA, and North Baja; near sea level to about 8000 ft. elevation; winters in Central America; summer	FED: <b>END</b> CA: <b>END</b> , S1	<b>Low (nesting and foraging):</b> although suitable riparian habitat is present downstream of Copper Basin dam, subspecies not identified during 2022 protocol-level surveys.
<i>Falco peregrinus anatum</i> <b>American peregrine falcon</b>	Raptor; breed in open landscapes with cliffs or man-made structures for nest sites; nest on cliffs from 25 – 1,300 ft. elev. and can use abandoned nests in places without cliffs; scattered distribution in N America; typically transient but can be present year-around.	FED: None CA: FP, S3S4	<b>Moderate (nesting):</b> suitable cliff for nesting present in and around the Survey Area; however, no nests observed during surveys. <b>Present (foraging):</b> observed flying over lower canyon within Survey Area.
<i>Haliaeetus leucocephalus</i> <b>Bald eagle</b>	Raptor; breed in large trees, usually near major rivers or lakes; winters more widely; scattered distribution in N America; esp. coastal regions.	FED: BGEPA CA: <b>END</b> , FP, S3	<b>High (nesting):</b> has been recently documented nesting in the Survey Area; however, most recent surveys indicated known nest site was inactive. <b>Present (foraging):</b> observed flying over reservoir and perching on high cliffs.
<i>Icteria virens</i> <b>Yellow-breasted chat</b>	Riparian forests and woodlands, typically in dense thickets; summer resident of so. CA. and scattered locations in northern CA.; typically, below above 4,500 ft. elev.	FED: None CA: SSC, S3	<b>Moderate (nesting and foraging):</b> suitable nesting and foraging habitat is present downstream of Copper Basin dam, several records within 20 miles of the Survey Area.
<i>Lanius ludovicianus</i> <b>Loggerhead shrike</b>	Woodlands, shrublands, open areas with scattered perch sites; not dense forest; widespread in N America; valley floors to about 7000 ft. elev.; year-around.	FED: None CA: SSC, S4	<b>High (nesting):</b> suitable nesting habitat present; however, no nests observed during surveys. <b>Present (foraging):</b> observed along access road, suitable foraging habitat is present throughout the Survey Area.
<i>Leiothlypis lucae</i> <b>Lucy's warbler</b>	Breeds in desert riparian woodlands through the lower Colorado River Valley; winters on Pacific Coast of mainland Mexico.	FED: None CA: SSC, S2S3	<b>High (nesting):</b> suitable nesting habitat present; however, no nests observed during surveys. <b>Present (foraging):</b> observed foraging in the Survey Area during 2022 surveys.
<i>Melanerpes uropygialis</i> <b>Gila woodpecker</b>	Saguaro woodlands, sometimes other woodlands; cavity nester in trees,	FED: None CA: <b>END</b> , S1	<b>Moderate (nesting and foraging):</b> suitable foraging and nesting habitat present; known

Species Name	Habitat and Distribution	Conservation Status	Occurrence Potential
	cactus, and man-made structures; SE CA, S AZ, W Mex.		from numerous occurrences within about 3 miles of Survey Area.
<i>Microthene whitneyi</i> <b>Elf owl</b>	Desert woodland and cactus stands; cavity nester in trees, cactus, and man-made structures; forages over surrounding area; breeds SE CA, S AZ, and Mex.; winters in Mex.	FED: None CA: <b>END</b> , S1	<b>Low (nesting and foraging):</b> marginal nesting and foraging habitat is present; known from one occurrence within about 8 miles of the Survey Area.
<i>Nannopterum auritum</i> <b>Double-crested cormorant</b>	Large aquatic bodies with suitable fish stock to support their diet; nests and breeds in smaller lagoons or ponds within 40 miles of larger bodies of water; winters and migrates through SE CA; year-round along the Colorado River.	FED: None CA: SA (nesting colony), S4	<b>Not Expected (nesting):</b> no suitable nesting habitat present. <b>Present (foraging):</b> observed in reservoir and known from within 5 miles of the Survey Area in suitable habitat.
<i>Pyrocephalus rubinus</i> <b>Vermilion flycatcher</b>	Desert riparian woodlands and shrublands; SE Calif., east through S Texas, and S through Mexico; winters in Mexico; spring-summer.	FED: None CA: SSC, S2S3	<b>Moderate (nesting and foraging):</b> suitable foraging and nesting habitat present; known from several occurrences within about 5 miles of the Survey Area.
<i>Rallus obsoletus yumanensis</i> <b>Yuma Ridgway's rail</b>	Marshlands along the lower Colorado River and tributaries in Arizona, California, Nevada, and Utah.	FED: <b>END</b> CA: <b>THR</b> , FP, S1S2	<b>Low (nesting):</b> marginal nesting habitat present along margins of Copper Basin Reservoir. <b>Moderate (foraging):</b> suitable foraging habitat present and known from several records along the river to the north and south of the Survey Area.
<i>Vireo bellii arizonae</i> <b>Arizona Bell's vireo</b>	Willow and mesquite riparian; Sonoran desert along lower Colorado River; Spring-summer.	FED: None CA: <b>END</b> , S1S2	<b>Moderate (nesting and foraging):</b> suitable foraging and nesting habitat present downstream of Copper Basin Dam, several records within 20 miles of the Survey Area.
<b>MAMMALS</b>			
<i>Antrozous pallidus</i> <b>Pallid bat</b>	Bat; roost in rock outcrops in shrublands, mostly below about 6000 ft. elev.; forages on insects which are captured on the ground; CA, SW N America through interior OR and WA; does not migrate; hibernates in winter.	FED: None CA: SSC, S3	<b>High (roosting and foraging):</b> suitable roosting and foraging habitat present; known to occur near Parker less than ten miles south of Survey Area; not detected during acoustic and emergent bat surveys.
<i>Bassariscus astutus</i> <b>Ringtail</b>	Many habitats throughout CA and W N Amer.; primarily nocturnal and highly secretive.	FED: None CA: FP	<b>High:</b> multiple observations by Metropolitan staff in vicinity of the Survey Area.
<i>Corynorhinus townsendii</i> <b>Townsend's big-eared bat</b>	Many habitats throughout CA and W N Amer., scattered populations in E; day roosts in caves, tunnels, mines; feed primarily on moths.	FED: None CA: SSC, S2	<b>High (roosting and foraging):</b> suitable roosting and foraging habitat present; recorded approximately two miles north

Species Name	Habitat and Distribution	Conservation Status	Occurrence Potential
			of Reservoir; not detected during acoustic and emergent bat surveys.
<i>Eumops perotis californicus</i> <b>Western mastiff bat</b>	Lowlands (with rare exceptions); cent. and S CA, S AZ, NM, SW TX, N Mex.; roost in deep rock crevices, forage over wide area	FED: None CA: SSC, S3S4	<b>High (roosting and foraging):</b> suitable roosting and foraging habitat present; record near Buckskin State Park approximately three miles southeast of Survey Area; not detected during acoustic and emergent bat surveys.
<i>Macrotus californicus</i> <b>California leaf-nosed bat</b>	Arid lowlands, S CA, S and W AZ, south to Mex.; roost in mineshafts, forage over open shrub-lands.	FED: None CA: SSC, S3	<b>Low (roosting):</b> no suitable mine-shafts present. <b>High (foraging):</b> suitable foraging habitat present; not detected during acoustic and emergent bat surveys.
<i>Myotis velifer</i> <b>Cave myotis</b>	Mex. through AZ to Colorado River area, also SE US. In CA, restricted to desert along Colorado Riv.; gen. roosts in caves; feeds over water or riparian veg.	FED: None CA: SSC, S1	<b>High (roosting and foraging):</b> suitable roosting and foraging habitat present. Not detected during acoustic and emergent bat surveys.
<i>Myotis yumanensis</i> <b>Yuma myotis</b>	W N. America, British Columbia to cent. Mex.; in the US, mostly the Pacific states; roost in buildings, bridges, caves, mines; feed over open water.	FED: None CA: SA, S4	<b>Present (roosting and foraging):</b> suitable roosting and foraging habitat present; species detected in Survey Area during acoustic and emergent bat surveys.
<i>Neotoma albigula venusta</i> <b>Colorado Valley woodrat</b>	Desert shrublands; SE CA, SW AZ, S NV, and Mex.; closely associated with beavertail or mesquite thickets; year-around.	FED: None CA: SA, S1S2	<b>Low:</b> suitable habitat is present in the Survey Area, nearest record is 9 miles to the south.
<i>Ovis canadensis nelsoni</i> <b>Desert bighorn sheep</b>	Open shrublands and conifer forest, remote mountains; scattered populations in desert mountains and surrounding ranges; year-round.	FED: None CA: Title 14	<b>Present:</b> herd of about 10 animals observed within the Survey Area, suitable habitat throughout the Survey Area.
<i>Puma concolor</i> <b>Mountain lion</b>	Mountain lions are known from virtually all ecosystems including desert scrub, riparian, scrub, chaparral, grassland, and woodland habitats. Known also from the urban wilderness interface.	FED: None CA: <b>CAN</b>	<b>High (denning and foraging):</b> suitable foraging habitat includes mule deer and desert bighorn sheep. Access to perennial water and numerous cavities within the Whipple Mountains; if present, likely occurs in low densities.
<i>Taxidea taxus</i> <b>American badger</b>	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats with friable soils; require sufficient food source, friable soils, and open, uncultivated ground; prey on burrowing rodents.	FED: None CA: SSC, S3	<b>Moderate:</b> suitable habitat is present along the Reservoir; however friable soils are limited. Not detected during surveys.

Species Name	Habitat and Distribution	Conservation Status	Occurrence Potential
<i>Vulpes macrotis arsipus</i> <b>Desert kit fox</b>	Open, arid scrublands, grasslands, and agricultural lands. Creosote bush scrub is the most common habitat association for desert kit fox in California (McGrew, 1979). Desert kit fox require friable soils for digging dens.	FED: None CA: Title 14	<b>High:</b> suitable habitat is present along the Reservoir; however friable soils are limited. Not detected during surveys.

General references: American Ornithologists' Union, 1998; Baldwin et al. 2012; CDFW, 2022a; CDFW, 2022c; Feldhamer et al, 2003; Harvey et al, 1999; Jepson Flora Project. 2021; and Zeiner, et al, 1990.

#### Conservation Status

Federal designations: (federal ESA, USFWS)

END: Federally listed, endangered

THR: Federally listed, threatened

BGEPA: Bald and Golden Eagle Protection Act

DE: Delisted

State designations: (CESA, CDFW)

END: State listed, endangered

THR: State listed, threatened

CAN: State Candidate for listing

SSC: California species of special concern. Considered vulnerable to extinction due to declining numbers, limited geographic ranges, or ongoing threats.

FP: Fully protected. May not be taken or possessed without permit from CDFG.

FGC: Fish and Game Code. Species regulated under California Fish and Game Code.

Title 14: Cal. Code Regs. Tit. 14, § 460 states that fisher, marten, river otter, desert kit fox and red fox may not be taken at any time.

DE: Delisted

CDFW Natural Diversity Data Base Designations: Applied to special-status plants and sensitive plant communities; where correct category is uncertain, CDFW uses two categories or question marks

S1: Fewer than 6 occurrences or fewer than 1000 individuals or less than 2000 acres

S1.1: Very threatened

S1.2: Threatened

S1.3: No current threats known

S2: 6-20 occurrences or 1000-3000 individuals or 2000-10,000 acres (decimal suffixes same as above)

S3: 21-100 occurrences or 3000-10,000 individuals or 10,000-50,000 acres (decimal suffixes same as above)

CDFW Natural Diversity Data Base Designations: Applied to special-status wildlife; where correct category is uncertain, CDFW uses two categories or question marks

S1: Critically Imperiled – At high risk of extirpation in state due to restricted range, very few population occurrences, very steep declines, severe threats, or other factors

S2: Imperiled – At high risk of extirpation in state due to the above causes

S3: Vulnerable – At moderate risk of extirpation in state due to the above causes

S4: Apparently Secure – At a fairly low risk of extirpation in the state due to an extensive range and/or many populations or occurrences, but with possible cause for some concern as a result of local recent declines, threats, or other factors

S5: Secure – At very low risk of extirpation in the state

California Native Plant Society (CNPS) Rare Plant Rank designations. Note: According to CNPS

(<http://www.cnps.org/cnps/rareplants/ranking.php>), plants ranked as CRPR 1A, 1B, and 2 meet definitions as threatened or endangered and are eligible for state listing. That interpretation of the state Endangered Species Act is not in general use.

1A: Plants presumed extinct in California

1B: Plants rare and endangered in California and throughout their range

2: Plants rare, threatened or endangered in California but more common elsewhere in their range

3: Plants about which we need more information; a review list

4: Plants of limited distribution; a watch list

California Rare Plant Rank Threat designations:

.1 Seriously endangered in California (over 80% of occurrences threatened / high degree and immediacy of threat)

.2 Fairly endangered in California (20-80% occurrences threatened)

.3 Not very endangered in California (<20% of occurrences threatened or no current threats known)

**Definitions of occurrence probability:** Estimated occurrence probabilities-based literature sources cited earlier and field surveys and habitat analyses reported here.

Present: Observed on the site during the surveys

High: Habitat is a type often utilized by the species and the site is within the known range of the species

Moderate: Site is within the known range of the species and habitat on the site is a type occasionally used

Low: Site is within the species' known range but habitat is rarely used, or the species was not found during focused surveys covering less than 100% of potential habitat or completed in marginal seasons

### 5.2.1. Special-Status Plants

#### Listed Threatened or Endangered Plants

No federal or state plants listed as threatened or endangered have been reported from the USGS 7.5-minute topo quads surrounding the Survey Area and none are expected to be present.

#### CRPR 2B Plants

CRPR 2B species are plants that are considered rare, threatened, or endangered in California but more common elsewhere. Three CRPR 2 plant species were observed within the Survey Area during the surveys, including saguaro, Darlington's blazing star, and desert beardtongue. An additional five CRPR 2B species have a moderate to high potential to occur. These include bare-stem larkspur, Graham fishhook cactus, narrow-leaved psorothamnus, Cove's cassia, and desert germander. The paragraphs below provide additional information about the CRPR 2B plant species observed within the Survey Area or with a moderate to high potential to occur.

**Saguaro (*Carnegiea gigantea*).** Saguaro is a large species of cactus that can reach as much as 16 meters (Baldwin et al 2012). Saguaro is common in Arizona and south into Mexico but has a limited range in California which is restricted to the Whipple Mountains of San Bernardino County, Palo Verde Mountains of Riverside County and further south into portions of Imperial County (CNPS, 2021). Saguaro lives in rocky mountainous terrain and has been impacted by human activities such as off-roading and shooting. Many saguaros were observed in the hills around the Survey Area and one dead saguaro was observed within the Survey Area.

**Bare-stem larkspur (*Delphinium scaposum*).** Bare-stem larkspur is a perennial herb that is found in rocky substrates and within washes within Sonoran Desert scrub. Although not observed during surveys, this species is known from the Whipple Mountains and has been recorded along the Metropolitan access road between Copper Basin and Gene Wash Reservoirs within two miles of the proposed Project area (CNPS, 2022; CDFW, 2022c).

**Graham fishhook cactus (*Mammillaria grahamii* var. *grahamii*).** Graham fishhook cactus is a perennial stem that occurs in gravelly and rocky habitats within Sonoran Desert scrub. CNPS identifies road maintenance activities as a potential threat to this species (CNPS, 2022). This species is known from several records in the Whipple Mountains and along the Metropolitan access road between Copper Basin and Gene Wash Reservoirs within two miles of the proposed Project area; however, it was not observed during surveys (CNPS, 2022; CDFW, 2022c).

**Darlington's blazing star (*Mentzelia puberula*).** Darlington's blazing star is a short-lived perennial herb. It grows in a variety of rocky and sandy soils in Mojavean and Sonoran Desert scrub in scattered locations around San Bernardino, Riverside, and Imperial Counties including the Whipple Mountains. A small patch of approximately five Darlington's blazing star was observed during field survey along the access road downstream of Copper Basin Dam.

**Desert beardtongue (*Penstemon pseudospectabilis* ssp. *Pseudospectabilis*).** Desert beardtongue is a perennial herb that grows in sandy washes and more frequently on rocky canyon walls. It grows in scattered locations around San Bernardino, Riverside, and Imperial Counties including the Whipple Mountains. A patch of approximately ten desert beardtongue plants was observed during the field survey along the access road just downstream of Copper Basin Dam.

**Narrow-leaved psorothamnus (*Psorothamnus fremontii* var. *attenuatus*).** Narrow-leaved psorothamnus is a rare variety of a common plant known to occur throughout much of the Mojave Desert. Narrow-leaved psorothamnus has much more narrow leaves and occurs along the eastern edge of California from the



Whipple Mountains north towards Needles, California. Approximately three narrow-leaved psoralea plants were observed just beyond the limits of the Survey Area.

**Cove's cassia (*Senna covesii*).** Cove's cassia is a perennial herb that is most often found within dry, sandy washes and slopes in Sonoran Desert scrub habitat. CNPS identifies road maintenance activities and road use as a primary threat to this species. Cove's cassia was not observed during surveys; however, this species has been recorded within the Whipple Mountains approximately five miles east of the proposed Project area (CDFW, 2022c).

**Desert germander (*Teucrium glandulosum*).** Desert germander is a perennial herb that occurs on rocky substrates in Sonoran Desert scrub habitat. Although not observed during surveys, this species has been documented along the western shore of Copper Basin Reservoir among several records from the Whipple Mountains (CDFW, 2022c).

#### CRPR 4 Plants

Plants defined as CRPR 4 are of limited distribution or infrequent throughout a broader area in California; however, these species are not afforded protection under CEQA. Two CRPR 4 species were observed in the Survey Area during surveys, including rough-stemmed forget-me-not and yellow palo verde. One additional CRPR 4 plant, holly leaved spurge, has a moderate potential to occur.

#### 5.2.2. Special-Status Wildlife

Table 3 lists the special-status wildlife species reported within the USGS 7.5-minute quads surrounding the Survey Area and others known from the region that have a potential to be present. The paragraphs below provide additional information about the special-status species observed or with a moderate to high potential to occur.

#### Listed Threatened, Endangered or Candidate Wildlife

Eleven federal and/or state listed as threatened or endangered wildlife species have been reported from the USGS 7.5-minute topo quad surrounding the Survey Area or were identified during the literature review. Seven of these species, including desert tortoise, willow flycatcher, bald eagle, Gila woodpecker, Yuma Ridgway's rail, Arizona Bell's vireo, and mountain lion are present or have at least a moderate potential to be present and are discussed below.

**Desert tortoise (*Gopherus agassizii*).** The desert tortoise is a state and federally threatened species (CDFW, 2022a). It is a large, long-lived, herbivorous reptile that can feed on a variety of herbaceous annual grasses, forbes, and flowers. In addition, desert tortoise can occur in nearly every desert habitat. For example, they can occupy creosote bush scrub dominated by creosote bush and white bursage (*Ambrosia dumosa*) at lower elevations to rocky slopes in blackbrush scrub and juniper woodland ecotones at higher elevations. However, tortoises are more likely to occur in habitats with friable, well-drained, sandy soils to allow for burrow and nest excavation (USFWS, 1994). These preferred habitats also typically provide sufficient cover, as desert tortoises will burrow beneath shrubs, rock formations, or manmade objects. Desert tortoises are also known to excavate burrows in the open. Although desert tortoises do require access to freestanding water, adult tortoises can survive for more than a year without it.

There is a low to moderate potential for desert tortoise to occur in the proposed Project area. This species has been recorded within the eastern Whipple Mountains approximately ten miles east of the proposed Project area (CDFW, 2022c; iNaturalist, 2022). However, it was not observed during 2021 and 2022 surveys or during monitoring of a nearby facility in 2019 and is not expected to occur below the dam.

**Willow flycatcher (*Empidonax extimus*).** The willow flycatcher is listed as state endangered under CESA (CDFW, 2022a). It nests primarily within willow thickets along streams in broad valleys, canyon bottoms, mountainside seepages, and at the margins of lakes and pools (Sedgewick, 2000; Gaines, 2005). Willow flycatchers can also be found within bushes, brushy fields, and upland stands of trees near streams or marshes. The current California breeding range of this species is predominantly northern California within the Sierra Nevada and Cascade Mountains region, ranging from southern Shasta County to northern Kern County and along the lower Colorado River (Sedgewick, 2000).

Although two willow flycatcher individuals were observed within the riparian habitat around the Copper Basin Reservoir during 2022 protocol-level surveys, they were detected prior to the nesting season. Since no nesting activity was identified during subsequent surveys, these individuals were determined to be migrants and not the federally listed southwestern willow flycatcher subspecies (*E. t. extimus*). Therefore, willow flycatcher and southwestern willow flycatcher are not expected to nest in or near the proposed Project area.

**Bald eagle (*Haliaeetus leucocephalus*).** The bald eagle has been a state listed endangered species in California since 1971 (CDFW, 2022a). It was federally listed as endangered in 1978, then relisted as threatened in 1995, and delisted in 2007 (USFWS, 1978, 2007a, and 2007b). It is also protected under the BGEPA. The bald eagle is an opportunistic, generalized predator and scavenger adapted to hunting and foraging over aquatic habitats. Breeding bald eagles require relatively large bodies of water containing resident populations of suitable-sized fish. Most bald eagles in California breed near reservoirs or lakes. They typically nest in large trees near large bodies of water and may occasionally nest on large powerline structures, and steep cliff faces.

Bald eagles are year-round residents throughout most of their range in eastern California along the Colorado River. In recent years, they have expanded their breeding range and have regularly nested at Copper Basin Reservoir. As recently as 2019, bald eagles had been documented nesting in a tree within the basin; however, this tree fell over during a windstorm in the fall of 2020. The bald eagle pair were subsequently observed nesting on a cliff approximately one-half mile southeast of the dam. The nest was determined to be inactive during the most recent 2021 and 2022 surveys for the proposed Project. There is a high potential that this species could reestablish nesting in or near the proposed Project area and for purposes of this analysis, nesting is assumed present. Bald eagles are regularly observed foraging throughout the region, and one was identified flying over the Copper Basin Reservoir during the 2022 surveys.

**Gila woodpecker (*Melanerpes uropygialis*).** Gila woodpecker is listed as endangered under the CESA. It excavates cavity nests in large trees (mainly restricted to riparian habitats), saguaro cacti, and manmade structures (i.e., wooden power pole). This species feeds on insects and cacti fruits (Rosenberg et al. 1991). Its primary habitat is cottonwood-willow riparian woodland, but it also uses thickets of other desert trees (e.g., desert ironwood), and upland habitats, especially outside the breeding season (McCreedy, 2008). No Gila woodpeckers or active woodpecker cavities were observed in the Survey Area during recent 2021 and 2022 field surveys, but suitable habitat is present. There are dozens of records of Gila woodpecker along the Colorado River and one near Gene Wash within about 3 miles of the Survey Area (CDFW, 2022c). Therefore, there is a moderate potential for Gila woodpecker to breed and forage in or near the proposed Project area.

**Yuma Ridgway's rail (*Rallus obsoletus yumanensis*).** Yuma Ridgway's rail is a federally endangered, state threatened, and CDFW FP species. It lives in freshwater marshes dominated by cattail and bulrush (*Scirpus* spp.) with a mix of riparian tree and shrub species (*Salix exigua*, *S. gooddingii*, *Tamarix* sp., *Tessaria serica*, and *Baccharis* sp.) along the shoreline of the marsh. It is endemic to freshwater marshes along the lower Colorado River, Gila River, and the Salton Sea. Nest site selection involves a compromise between higher sites with less cover, to avoid flooding, and lower-lying sites with tall grasses and better concealment from

predators. The birds (usually the males) build their nests in clumps of vegetation or in shrubs, from just above ground level to about 4 feet off the ground (AAB, 2022). There are several occurrence records for this species along the river to the north and south of the proposed Project area (CDFW, 2022c). Although this species was not observed during 2020 and 2021 surveys, there is a moderate potential for this species to occur as a forager in the proposed Project area. However, the proposed Project area only supports very limited suitable nesting habitat and the potential for the Yuma Ridgway's rail to establish nests is low.

**Arizona Bell's vireo (*Vireo bellii arizonae*).** Arizona Bell's vireo is listed as endangered under the CESA. It is a small songbird that nests in riparian vegetation and mesquite thickets along the lower Colorado River. Arizona Bell's vireo were once widespread along the Colorado River, but their range has been greatly reduced due to parasitism by brown-headed cowbirds (*Molothrus ater*) concurrent with agricultural development. Although not observed during protocol-level surveys in 2022, suitable riparian habitat for Arizona Bell's vireo is present along the canyon's riparian edges downstream of Copper Basin Dam and there are several records along the lower Colorado River within 20 miles of the proposed Project area. Therefore, there is a moderate potential for this species to breed and forage in or near the proposed Project area.

**Mountain lion (*Puma concolor*).** The mountain lion is a State Candidate for listing and is a large solitary felid that is considered both nocturnal and crepuscular but has been observed during daylight hours (Dickson and Beier 2006). During daylight hours, mountain lions are frequently found in riparian habitats, suggesting that they prefer to rest in areas with dense understory vegetation for cover (Dickson and Beier 2006). During the evening hours, mountain lions will utilize many habitats within their range to hunt including riparian, scrub, chaparral, grassland, and woodland habitats (Dickson et al. 2005). While hunting, mountain lions prefer to stalk and pursue their prey along canyon bottoms and gentle slopes (Dickson and Beier 2006). Mountain lions are opportunistic hunters and will also feed on other ungulates (such as bighorn sheep, pronghorns, deer, and domestic livestock), bobcats, coyotes, fox, skunks, raccoons, squirrels, rabbits, rodents, and insects (Spalding and Lesowski, 1971; Currier, 1983).

Mountain lions can be found in a variety of habitat types between sea level and 10,000 feet in elevation and are expected to occur near the region. This species is expected to forage on bighorn sheep and other local species and is a likely visitor to the riparian corridor below Copper Basin. Mountain lion habitat, population numbers, and genetic diversity have been declining rapidly, especially within Southern California populations (Yap et al. 2019) and this species is currently being evaluated by the State of California for listing.

Mountain lions were not observed during surveys; however, the proposed Project area provides suitable foraging habitat and a prey base including mule deer (*Odocoileus hemionus*) and desert bighorn sheep and access to perennial water. The Whipple Mountains provide numerous cavities for denning. Therefore, there is a high potential for mountain lions to occur.

### Other Special-Status Wildlife

A total of seven non-listed special-status wildlife were observed during the 2021 and 2022 surveys and an additional twenty have a moderate to high potential to occur. These are discussed below.

**Banded Gila monster (*Heloderma suspectum cinctum*).** The banded Gila monster is recognized as a CDFW Species of Special Concern. The banded Gila monster's range extends from the southwest corner of Utah south through southeastern Nevada into eastern Riverside and San Bernardino Counties in California, south through Arizona to southwestern New Mexico and south into Sonora Mexico (Nafis, 2022). They inhabit the lower slopes of rocky canyons and arroyos with deeply incised topography and are associated with large and relatively high mountain ranges but are also found on desert flats among scrub and succulents. They prefer rocky areas in desert scrub and semi-desert grassland. Found in lower mountain

slopes, rocky bajadas, canyon bottoms, and arroyos (Nafis, 2022). Eggs are laid in soil in excavated nest in sandy or friable soils.

Banded Gila monster was not observed during surveys; however, there is a historical record from the Whipple Mountains and the proposed Project area is within the known range of the species (CDFW, 2022a). Therefore, there is a low to moderate potential for banded Gila monster to occur.

**Golden eagle (*Aquila chrysaetos*).** In addition to being a BGEPA protected species, the golden eagle is also a CDFW FP species. Golden eagles are year-around residents throughout most of their range in the western United States. In the Southwest, they are more common during winter months. They breed from late January through August (Pagel et al., 2010). In the desert, they generally nest in steep, rugged terrain, often on sites with overhanging ledges, cliffs or large trees as cover. Golden eagles are wide-ranging predators, especially outside of the nesting season, when they have no need to return daily to eggs or young at their nests.

The nearest known golden eagle nest sites are in the Whipple Mountains, approximately 5 miles west of the Survey Area (BLM data cited by WRI 2010). Suitable nesting habitat is present immediately adjacent to the Survey Area on steep cliffs already occupied by bald eagles and discussed below. Golden eagles may nest in the Survey Area and are expected to forage in the Survey Area during the nesting season. If bald eagles are nesting in or adjacent to the Survey Area, the potential for golden eagles to be present is significantly decreased due to competition. Wintering golden eagles, or unmated golden eagles in nesting season, are likely to forage occasionally in the proposed Project area. No golden eagles were observed during the field surveys in 2021 or 2022.

**Burrowing owl (*Athene cunicularia*).** The burrowing owl is a CDFW Species of Special Concern and a Bird of Conservation Concern (CDFW, 2022). In the deserts, burrowing owls are generally uncommon, but they can be found in much higher densities near agricultural lands or riparian habitats where rodent and insect prey tend to be more abundant. They typically use the burrows of ground squirrels and other rodents for shelter and nesting. They forage in open areas, including agricultural fields, disturbed lands, grasslands, and other open habitats.

During the 2021 field surveys, one inactive burrow with owl sign was located about 60 feet outside of the Survey Area. The burrow was inactive at the time but sign at the burrow indicates that it was likely occupied by a wintering or transient burrowing owl in the recent past. No burrowing owl or their sign were detected during the 2022 field surveys. There is a high potential for burrowing owls to occur.

**Costa's hummingbird (*Calypte costae*).** The Costa's hummingbird is a Bird of Conservation Concern (CDFW, 2022). Costa's hummingbirds generally breed and forage in arid habitats on the southwest including desert wash, desert riparian edges, coastal scrub, desert scrub, low-elevation chaparral, and palm oases. Costa's hummingbirds will typically nest in a wide variety of trees such as cacti, shrubs, woody forbs, and vines along canyons and washes. During the 2022 field survey, one individual was detected within the southern portion of the Survey Area. Suitable nesting and foraging habitat is present throughout the proposed Project area. Therefore, there is a high potential for Costa's hummingbird to occur.

**American peregrine falcon (*Falco peregrinus anatum*).** The American peregrine falcon was state and federally delisted in 1999. Currently, it is a California Fully Protected Species and a USFWS Bird of Conservation Concern (CDFW, 2022). The peregrine falcon has a patchy distribution within North America but can be found world-wide. In California, the American peregrine falcon is an uncommon breeder or winter migrant, but it may occur almost anywhere that suitable habitat is present (USACE and CDFC, 2010). Generally, peregrine falcons use a variety of open habitats for foraging, including tundra, marshes, seacoasts, savannahs, grasslands, meadows, open woodlands, and agricultural areas, frequently near rivers, or lakes. Riparian areas support year-round habitat for this species. Peregrine falcons

predominately breed in woodland, forest, and coastal habitats (Zeiner et al, 1990a; and CDFC, 2010). Peregrine falcons primarily hunt pigeon-sized birds but will also feed on rodents. Nests are typically located in prominent cliffs (164 to 656 ft tall), but can also be founding nesting in trees, small outcrops, or man-made structures like transmission towers, tall buildings, or bridges (USACE and CDFC, 2010). In the Project area, no American peregrine falcon nests were detected. However, one individual was observed flying over the lower canyon within the Project area during the March 2022 field surveys. Although no falcon nests were observed during surveys, suitable habitat is present and there is a moderate potential that falcons could nest in or near the proposed Project area.

**Yellow-breasted chat (*Icteria virens*).** The yellow-breasted chat is a CDFW Species of Special Concern (CDFW, 2022). It is a migratory species, occurring in California only during the breeding season, typically between April and August. In California, it primarily breeds in the northern portion of the state and is scarce in the central and southern portions. It typically utilizes dense riparian thickets and brushy tangles near watercourses for breeding (CDFW, 2021a). The Survey Area is within the breeding range for this species. No yellow-breasted chats were detected during the reconnaissance-level survey, but they are known within about 4 miles of the Survey Area (eBird, 2021) and have a moderate potential to nest or forage within the proposed Project area.

**Loggerhead shrike (*Lanius ludovicianus*).** The loggerhead shrike is a CDFW Species of Special Concern (CDFW, 2022). They forage in a variety of open habitats including agricultural fields and desert shrublands where they use perch sites, at least two feet off the ground, to scan for potential prey (CDFW, 2021a). They feed on insects and small vertebrates such as lizards and snakes. They typically nest in dense vegetation but also may nest in isolated shrubs and trees near agricultural fields (Ehrlich et al. 1988). Suitable nesting habitat and perch sites are present throughout much of the Survey Area. One loggerhead shrike was observed along the access road and may be nesting within the vicinity of the Project area. Other loggerhead shrikes have been reported several times in the riparian vegetation near where Copper Basin Wash enters Copper Basin Reservoir along the shoreline, about 0.8 miles north of the Survey Area (ebird.org, 2021). The loggerhead shrike has a high potential to nest and forage within the proposed Project area.

**Lucy's warbler (*Oreothlypis luciae*).** The Lucy's warbler is a CDFW Species of Special Concern and USFWS Bird of Conservation Concern (CDFW, 2022). Lucy's warbler is a migratory songbird that breeds in desert riparian woodlands and winters on Pacific Coast of mainland Mexico. Its breeding range extends through much of Arizona, and parts of the eastern California deserts. Lucy's warblers' nest throughout much of the lower Colorado River Valley. They are a cavity-nesting species (i.e., it generally nests in unoccupied woodpecker nests or other cavities in trees). In the lower Colorado River Valley, its primary nesting habitat is honey mesquite thickets, but native riparian trees, screwbean mesquite, and salt cedar are also used (Rosenberg et al. 1991). The riparian vegetation within the Survey Area is suitable nesting habitat for Lucy's warbler. Lucy's warbler was identified during the 2022 focused bird surveys in the canyon just below the dam and at the laydown area. In addition, Lucy's warbler has been reported several times in the riparian vegetation where Copper Basin Wash enters Copper Basin Reservoir along the shoreline, about 0.8 miles north of the Survey Area (eBird, 2022). Therefore, there is a high potential for this species to breed and forage in or near the proposed Project area.

**Double-crested cormorant (*Nannopterum auritum*).** The double crested cormorant is a CDFW Watch List species and a CDFW Special Animal (CDFW, 2022). Double-crested cormorants are colonial waterbirds that seek aquatic bodies large enough to support their mostly fish diet. They may roost and form breeding colonies on smaller lagoons or ponds and fly up to 40 miles within a feeding area. They eat a wide variety of fish, but can also consume some insects, crustaceans, and amphibians. During the 2022 field survey, one individual was seen within the Copper Basin Reservoir. Suitable foraging habitat is present within the

reservoir. There is high potential for the species to forage within the proposed Project area; however, double crested cormorants are not expected to nest in the proposed Project area.

**Vermilion flycatcher (*Pyrocephalus rubinus*).** The vermilion flycatcher is designated by CDFW as a California Species of Special Concern. In California, the vermilion flycatcher was formerly considered a more common and widespread breeder along the lower Colorado River, Imperial Valley, Coachella Valley, upper Mojave River drainage, and San Diego County (Grinnell and Miller, 1944), but its breeding range has declined throughout this area. Currently, in California, there are some isolated breeding populations in the lowlands in the south central and southeast portions of the state, including San Bernardino, Riverside, San Diego, Santa Barbara, Ventura, and Kern counties. Zeiner et al. (1990) state that there are sporadic breeding populations in desert oases west and north of the Morongo Valley and Mojave Narrows in San Bernardino County. This species is found in riparian thickets near open, mesic habitats. It breeds in cottonwood, willow, mesquite, oak, sycamore, and other vegetation in desert riparian communities that are located adjacent to irrigated fields, irrigated ditches, or pastures (Zeiner et al., 1990).

This species has been recently documented south of Parker Dam and around Buckskin Mountain State Park approximately five miles southeast and south, respectively, from the proposed Project area (iNaturalist, 2022). Suitable nesting and foraging habitat is present within the proposed Project area, and the species has moderate potential to occur.

**Ringtail (*Bassariscus astutus*).** Ringtail are recognized by CDFW as Fully Protected species under the state Fish and Game Code (CDFW, 2022a). Ring-tailed cats are nocturnal and high-secretive animals that inhabit a variety of rocky habitats throughout the southwestern United States. Suitable denning and foraging habitat is present in the dense riparian portions of the Study Area. Ringtail have been reported by Metropolitan employees in and around the Survey Area although none were observed during the recent reconnaissance-level survey. Ringtail has a high potential to occur within the proposed Project area.

**Desert bighorn sheep (*Ovis canadensis nelson*).** Desert bighorn sheep live in mountains of California, Nevada, northern Arizona, and Utah deserts. Populations in the Peninsular Ranges (the Santa Rosa and San Jacinto Mountains, and southward into Baja California) are federally listed as a threatened distinct vertebrate population segment. However, populations in eastern San Bernardino County have no CESA or ESA listing status. They are, however, recognized by CDFW as Fully Protected under the state Fish and Game Code and Title 14 (CDFW, 2022a). A herd of desert bighorn sheep were observed during the 2021 and 2022 field surveys within the Survey Area and are known to frequent the area around Copper Basin Dam. The proposed Project area provides suitable foraging habitat and a source of perennial water, and the species has a high potential to occur.

**American badger (*Taxidea taxus*).** The American badger is a CDFW Species of Special Concern. American badgers exploit a wide variety of open, arid habitats, but are mostly found in grasslands, savannas, mountain meadows, and open areas of desert scrub (Stephenson and Calcarone, 1999). Basic requirements that have been identified for this species appear to be sufficient food (burrowing rodents), friable soils, and relatively open, uncultivated ground (Williams, 1986). American badgers are most often solitary animals that are primarily nocturnal but have been reported occasionally foraging and dispersing during the daytime (Lindzey, 1978; Messick and Hornocker, 1981). This species was not detected within the proposed Project area during the 2021 and 2022 reconnaissance surveys, but suitable habitat is present; however friable soils are limited. No burrows or other sign was detected. These wide-ranging species could enter the Project area or occur in adjacent buffer areas that were not subject to extensive surveys. American badgers have a moderate potential to occur.

**Desert kit fox (*Vulpes macrotis arsipus*).** The desert kit fox is a California Protected Furbearing Mammal. Desert kit fox habitat includes open, arid scrublands, grasslands, and agricultural lands. Creosote bush scrub is the most common habitat association for desert kit fox in California (McGrew, 1979). Desert kit

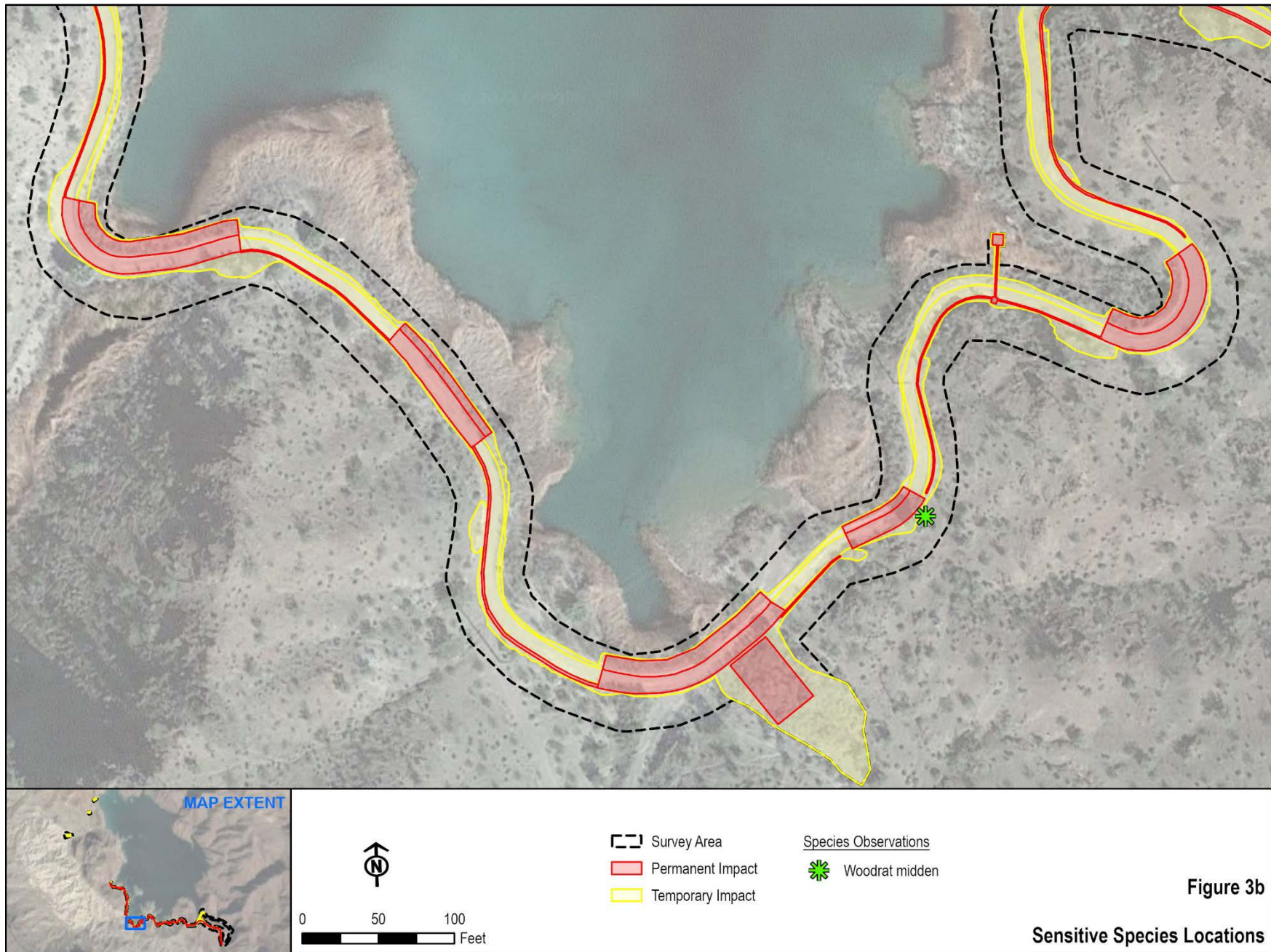
fox require friable soils for digging dens. Dens are used for cover, protection from predators and heat, and pup rearing. Suitable soil for dens may be a limited resource for kit fox distribution. This species was not detected within the Project area during the 2021 and 2022 reconnaissance field surveys, but suitable habitat is present. No burrows or other sign was detected. These wide-ranging species could enter the Project area or occur in adjacent buffer areas that were not subject to extensive surveys. There is a high potential for desert kit fox to occur.

**Bats.** Six special-status bat species have a high potential to forage over the Survey Area including pallid bat (*Antrozous pallidus*), Townsend's big-eared bat (*Corynorhinus townsendii*), Western mastiff bat (*Eumops perotis californicus*), California leaf-nosed bat (*Macrotus californicus*), cave myotis (*Myotis velifer*), and Yuma myotis (*Myotis yumanensis*). Most of these bat's roost in caves, rock crevices, rock overhangs, and dead tree snags which are all present in or adjacent to the Survey Area and bats. All special-status regional bats are insectivorous, catching their prey either on the wing or on the ground. Some species forage over open shrublands such as those found throughout the Survey Area and others forage over open water, which is also present in the Survey Area. Other special-status bats, not identified in the literature review, may occasionally fly over or forage on insects within the Survey Area. Acoustic bat surveys were included in the survey efforts within the Survey Area on March 15, 2022. One special-status bat species, Yuma myotis, was detected within the Survey Area. Special-status bats have a moderate to high potential to occur.

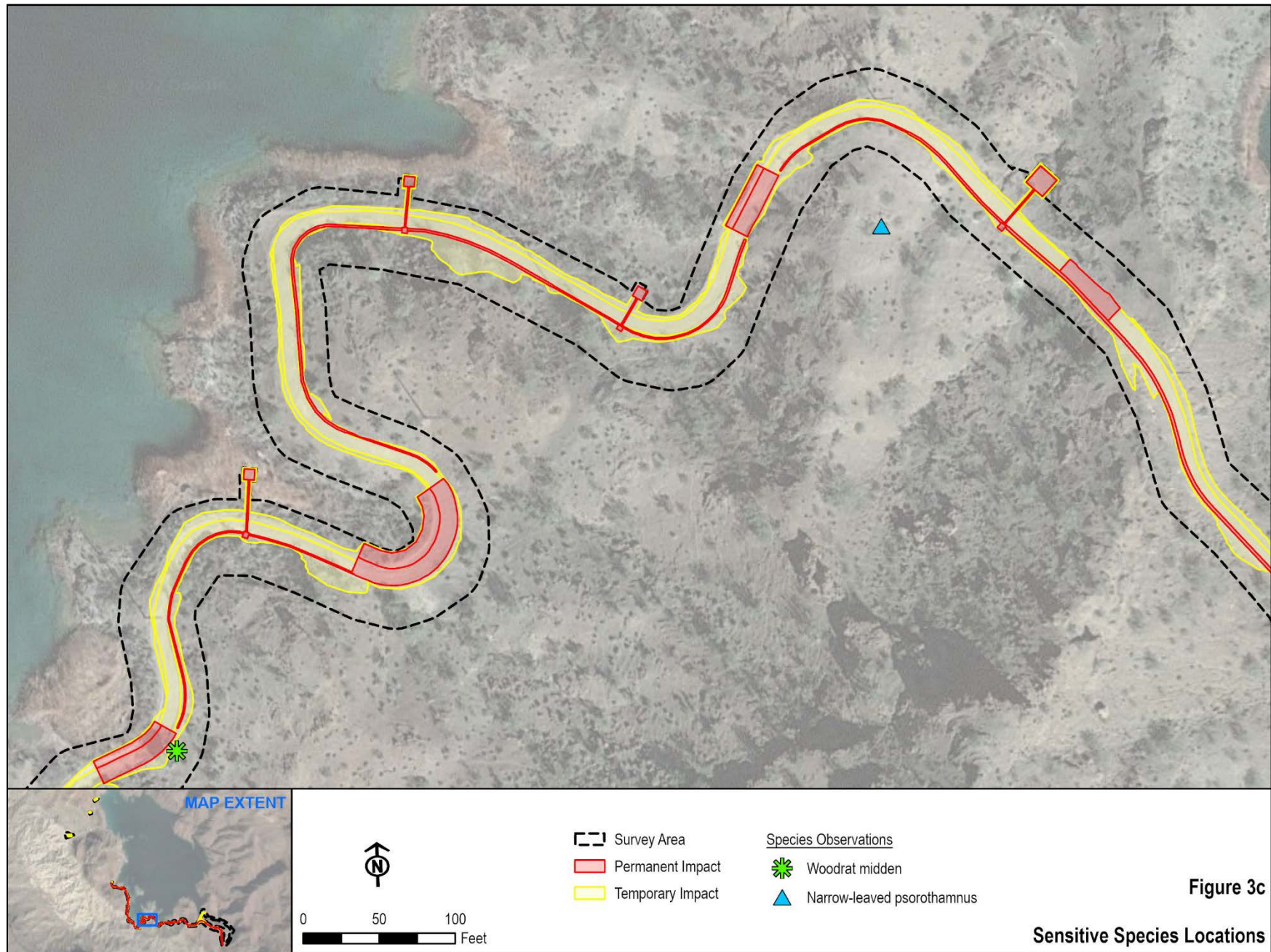


**Figure 3. Sensitive Species Locations**

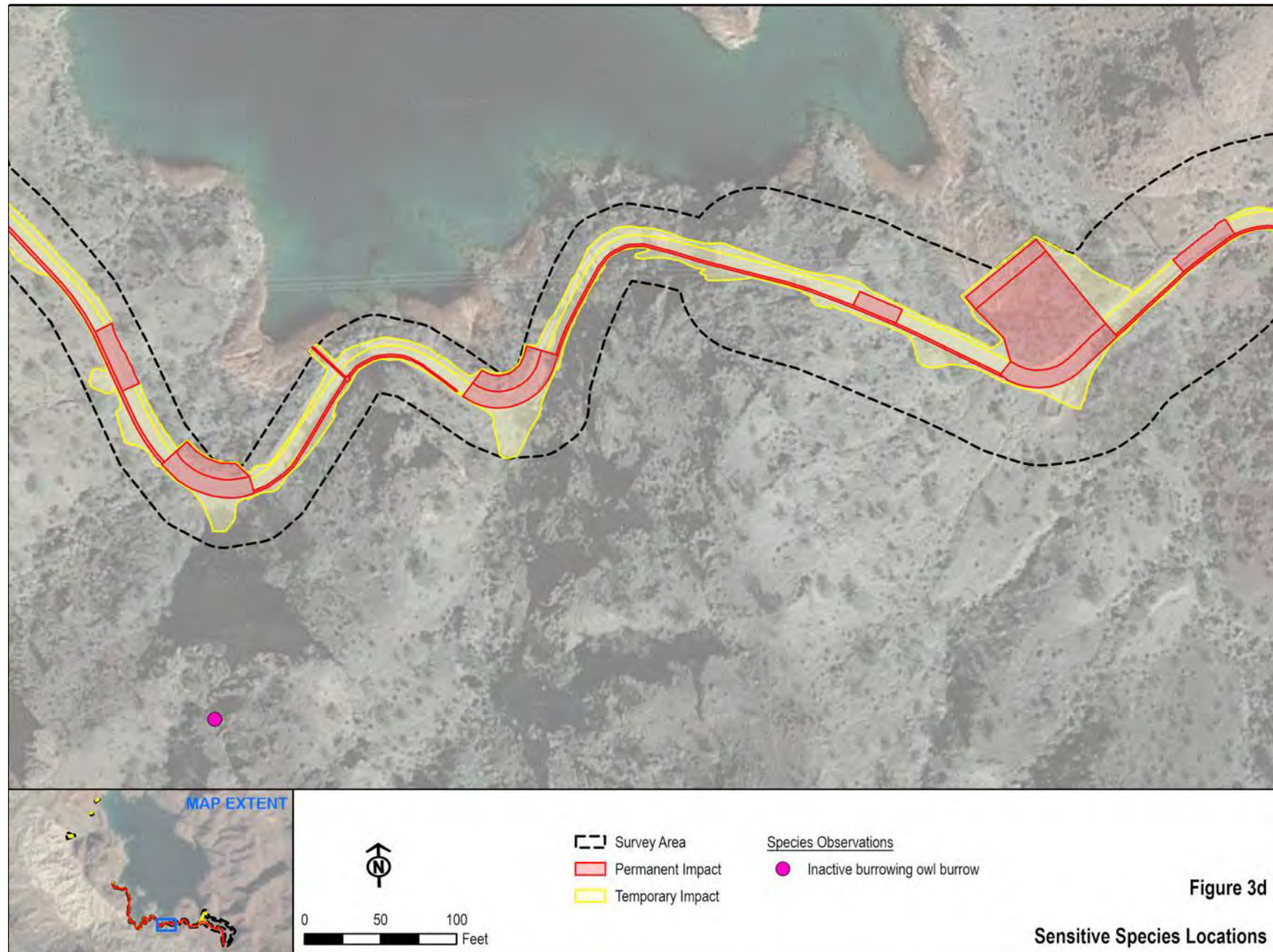




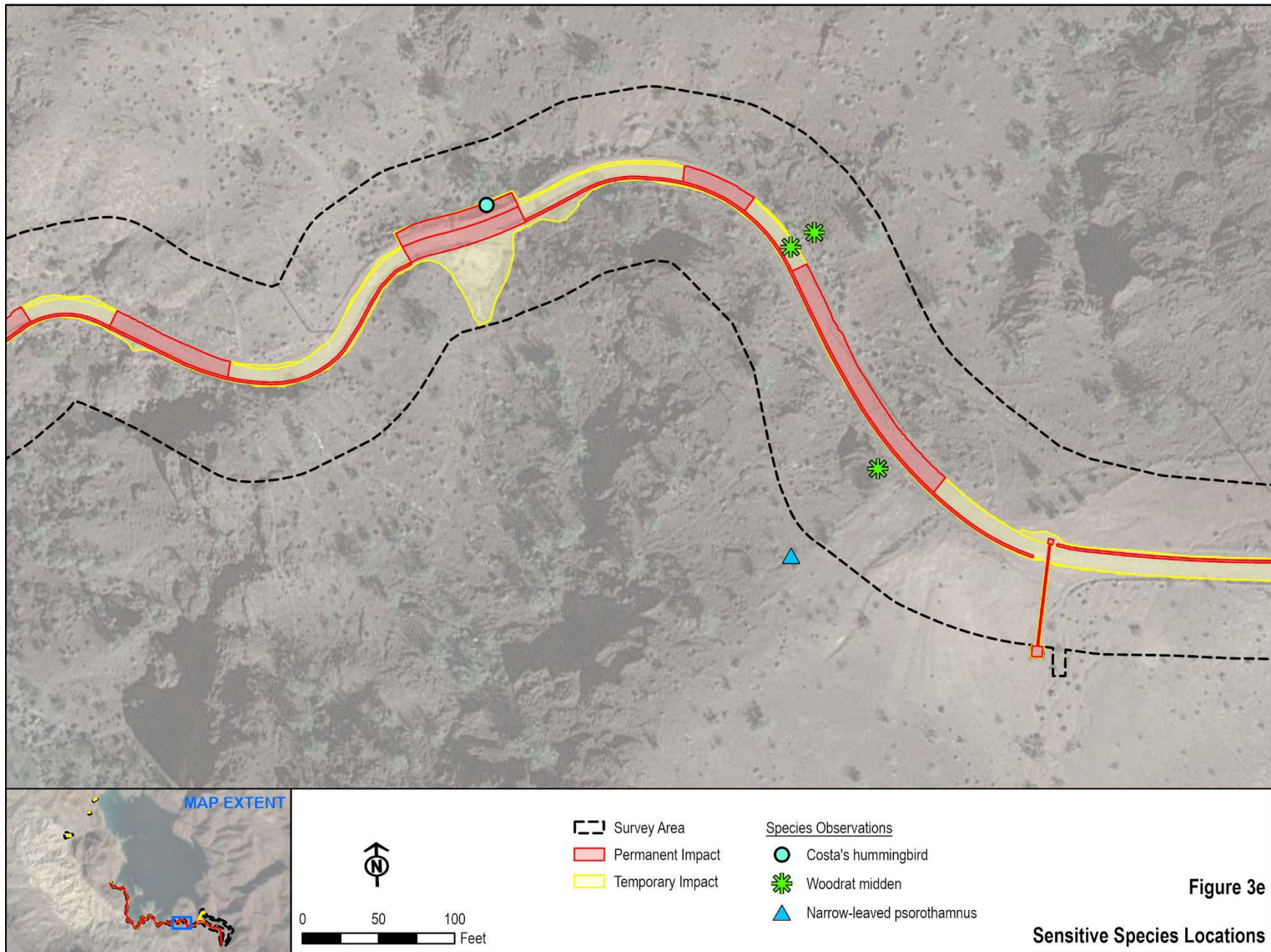


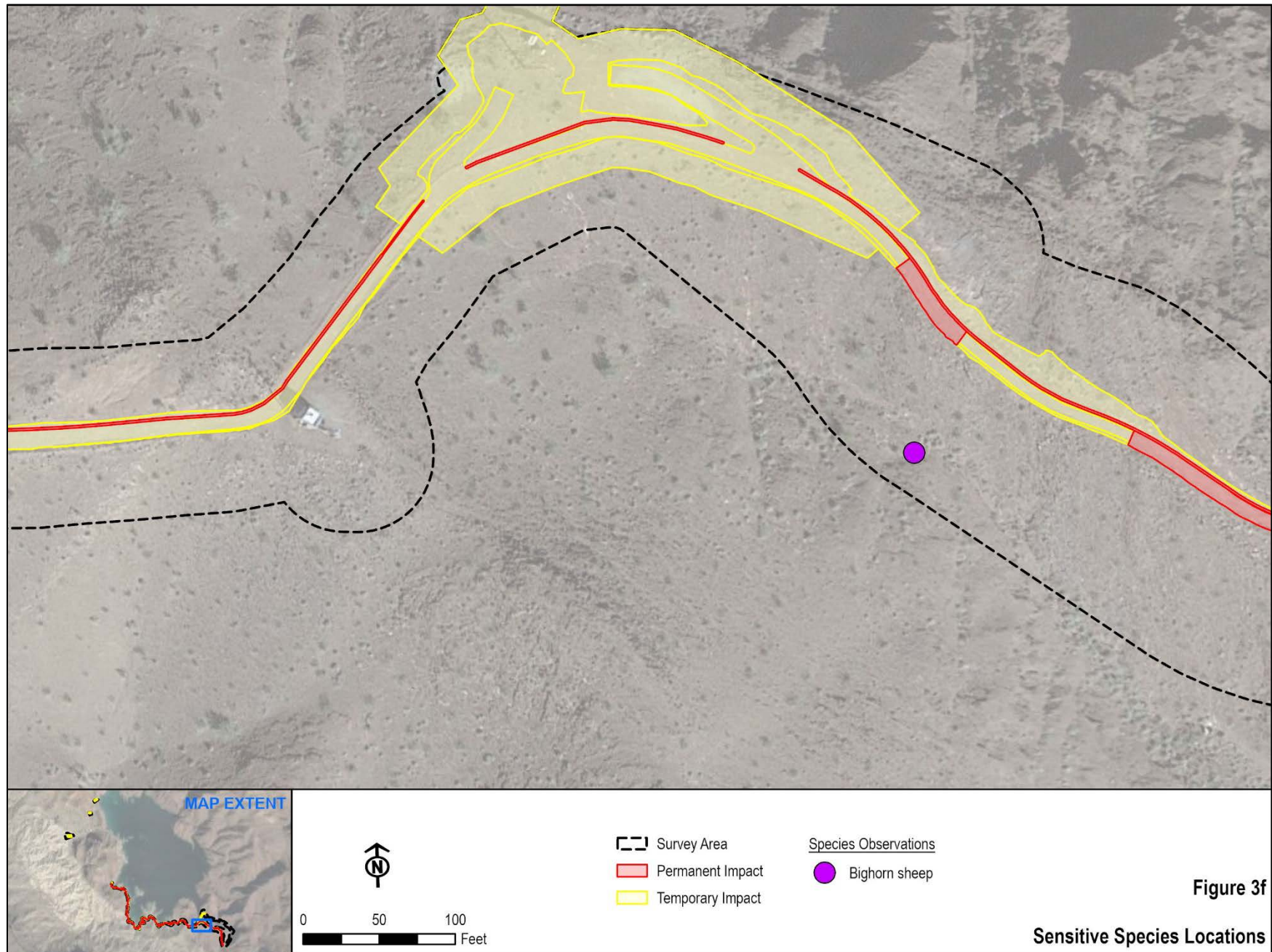




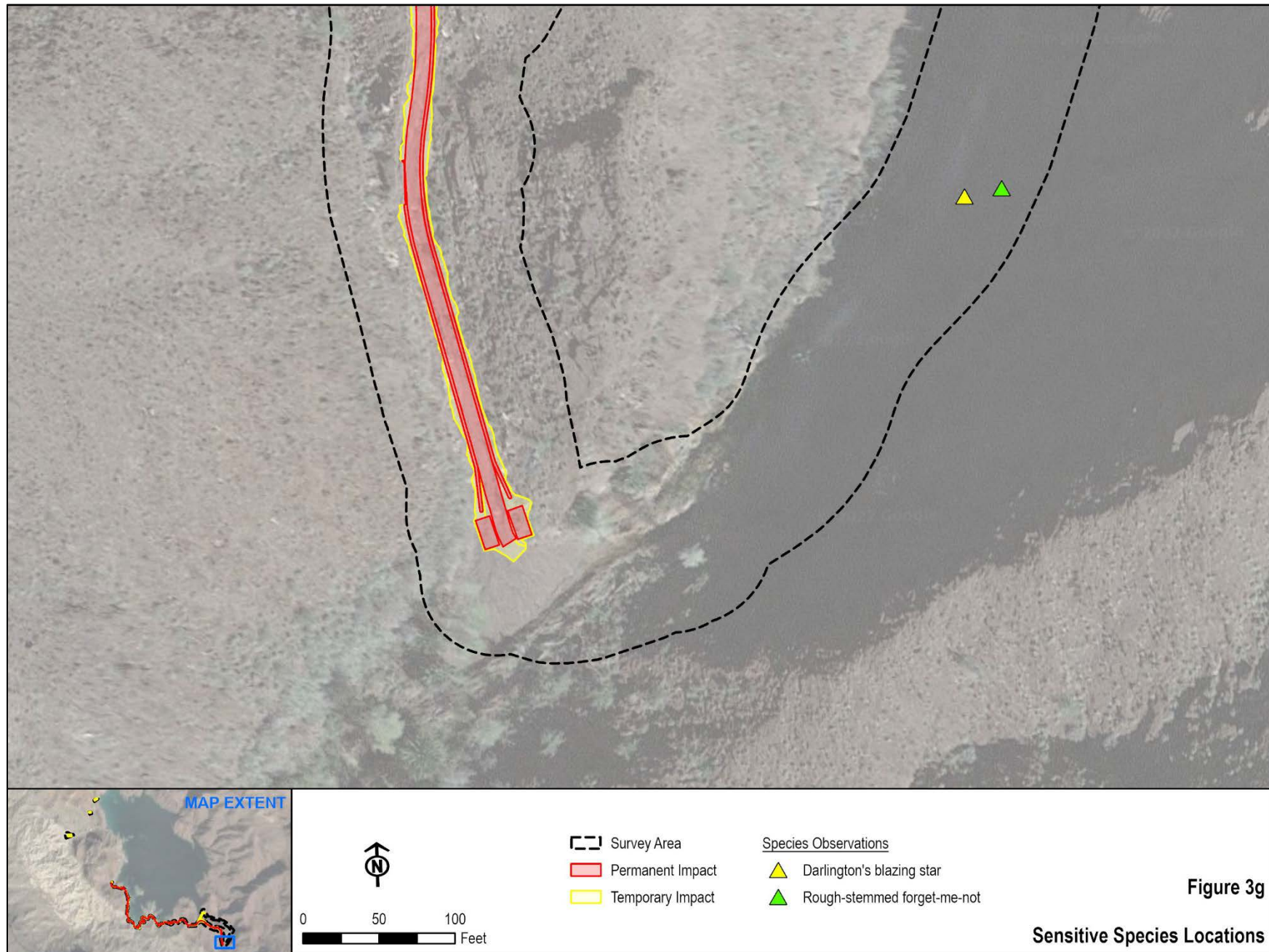




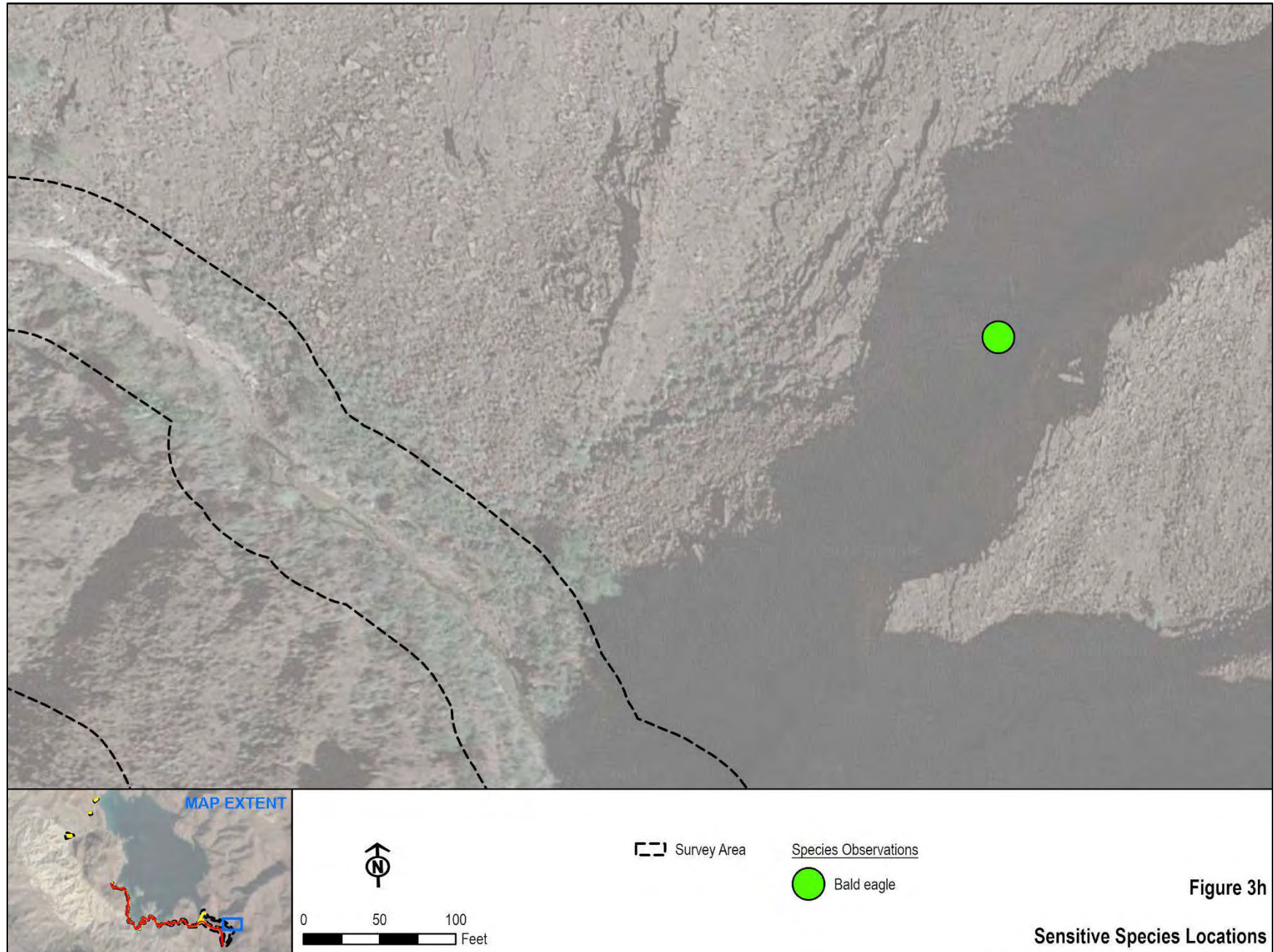




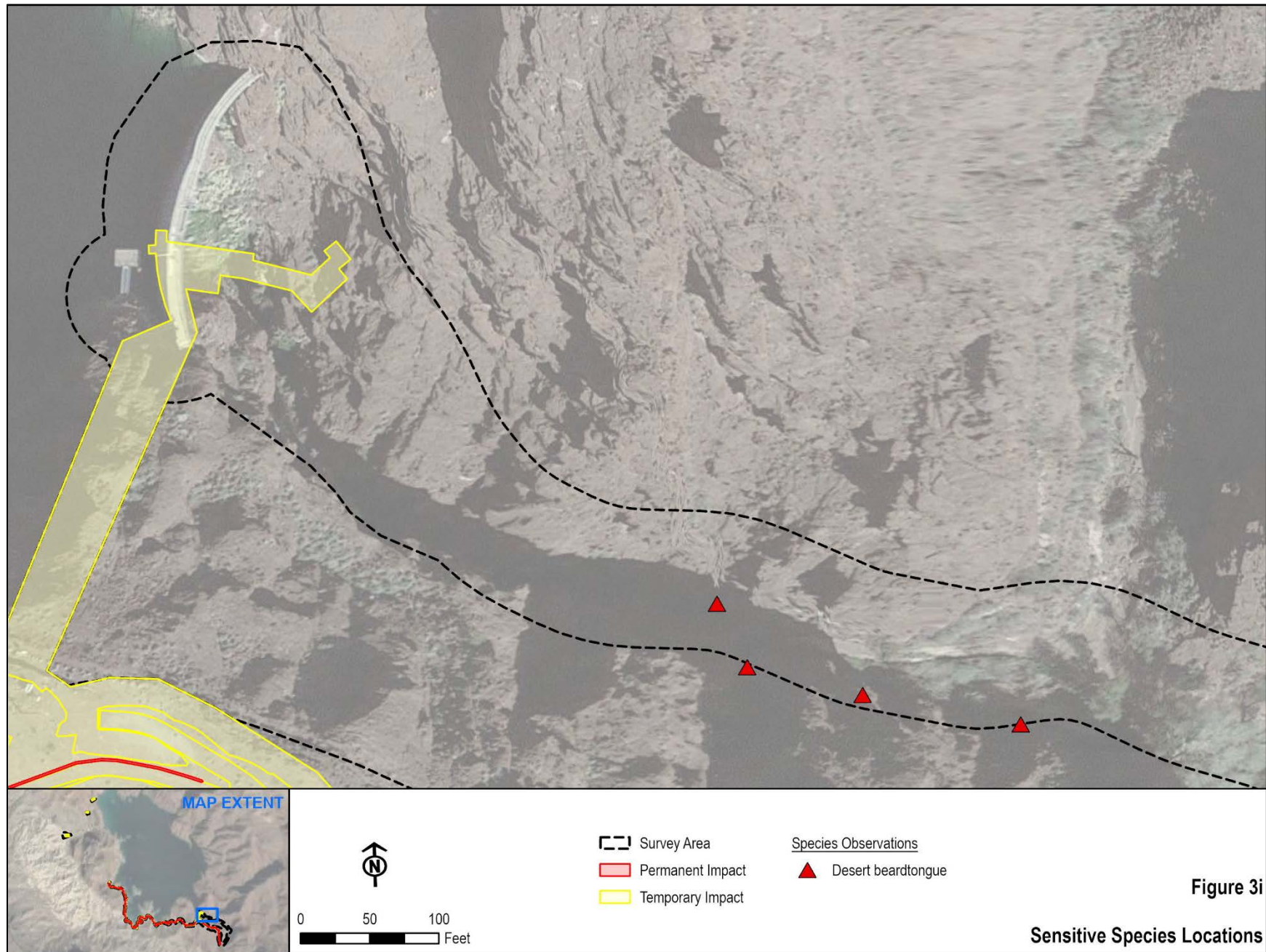












### 5.3. Wildlife Habitat

The term habitat refers to the environment and ecological conditions where a species is found. Wildlife habitat is often described in terms of vegetation, though a more thorough explanation includes detail such as availability or proximity to water, suitable nesting or denning sites, shade, foraging perches, cover sites to escape from predators, soils that are suitable for burrowing or hiding, proximity of noise and disturbance, and other factors that are unique to each species. For many wildlife species, vegetation reflects important components of habitat, including regional climate, physical structure, and biological productivity and food resources. Thus, the vegetation descriptions in Section 4.1 are useful overarching descriptors for wildlife habitat.

**Wildlife Movement.** The ability for wildlife to move freely among populations and habitat areas is important to long-term genetic variation and demography. Fragmentation and isolation of natural habitat may cause loss of native species diversity in fragmented habitats. In the short term, wildlife movement may also be important to the individual animal's ability to occupy their home ranges, if their ranges extend across a potential movement barrier. These considerations are especially important for rare, threatened, or endangered species, and wide-ranging species such as large mammals, which exist in low population densities.

The Proposed Project is in a remote and largely undeveloped mountain range in the eastern deserts of San Bernardino County. The Survey Area is likely utilized as a wildlife movement corridor for many species moving up and down the canyon or around the perimeter of the reservoir.

### 5.4. Waters

The jurisdictional features present within the Survey Area are summarized below in Table 4. A complete discussion of the jurisdictional features within the Survey Area is provided in the aquatic resource delineation report as Attachment 4.

**Table 4. Summary of Federal and State Waters and Wetlands within the Project area**

	USACE Waters and Wetlands (acres) <sup>a</sup>		CRBRWQCB Waters and Wetlands (acres) <sup>a</sup>		CDFW Streambeds and Riparian Habitat (acres)
	Non-wetland Waters of the U.S.	Wetlands	Non-wetland Waters of the State	Wetlands	
Total Survey Area	1.30	0.94	1.30	0.94	5.55

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# **Attachment 1**

## **PHOTO EXHIBIT**



Photo 1: West-facing view of the Copper Basin valve at the base of the dam



Photo 2: North-facing overview of Copper Basin Reservoir



Photo 3: West-facing view of wetland areas  
along Copper Basin Wash



Photo 4: Southeast-facing view of the Copper Basin access  
road adjacent to Copper Basin Reservoir





Photo 5: North-facing view of the access road adjacent to Copper Basin Wash downstream of the dam



Photo 6: Southeast-facing view of the access road leading down into Copper Basin Wash



Photo 7: North-facing view of the access road along Copper Basin Wash, downstream of the dam



Photo 8: Northwest-facing view of the access road leading down into Copper Basin Wash

## **Attachment 2**

### **CALIFORNIA NATURAL DIVERSITY DATABASE AND IPAC RESULTS**





## Selected Elements by Scientific Name

## California Department of Fish and Wildlife

## California Natural Diversity Database



**Query Criteria:** Quad<span style='color:Red'> IS </span>(Gene Wash (3411432)<span style='color:Red'> OR </span>Whipple Wash (3411433)<span style='color:Red'> OR </span>Parker (3411423)<span style='color:Red'> OR </span>Cross Roads (3411422))

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
<b><i>Androstephium breviflorum</i></b> small-flowered androstephium	PMLIL06010	None	None	G4	S2?	2B.2
<b><i>Antrozous pallidus</i></b> pallid bat	AMACC10010	None	None	G4	S3	SSC
<b><i>Arizonan Woodland</i></b> Arizonan Woodland	CTT75400CA	None	None	G3	S1.2	
<b><i>Berberis harrisoniana</i></b> Kofa Mountain barberry	PDBER02030	None	None	G2	S1	1B.2
<b><i>Bouteloua trifida</i></b> three-awned grama	PMPOA100L0	None	None	G4G5	S3	2B.3
<b><i>Carnegiea gigantea</i></b> saguaro	PDCAC12010	None	None	G5	S1	2B.2
<b><i>Castela emoryi</i></b> Emory's crucifixion-thorn	PDSIM03030	None	None	G3G4	S2S3	2B.2
<b><i>Catostomus latipinnis</i></b> flannelmouth sucker	AFCJC02110	None	None	G3G4	S1	
<b><i>Chylismia arenaria</i></b> sand evening-primrose	PDONA03020	None	None	G4?	S2S3	2B.2
<b><i>Coccyzus americanus occidentalis</i></b> western yellow-billed cuckoo	ABNRB02022	Threatened	Endangered	G5T2T3	S1	
<b><i>Colaptes chrysoides</i></b> gilded flicker	ABNYF10040	None	Endangered	G5	S1	
<b><i>Corynorhinus townsendii</i></b> Townsend's big-eared bat	AMACC08010	None	None	G4	S2	SSC
<b><i>Coryphantha chlorantha</i></b> desert pincushion	PDCAC040J0	None	None	G4	S3	2B.1
<b><i>Delphinium scaposum</i></b> bare-stem larkspur	PDRAN0B1M0	None	None	G5	S1	2B.3
<b><i>Ditaxis claryana</i></b> glandular ditaxis	PDEUP080L0	None	None	G3G4	S2	2B.2
<b><i>Erigeron oxyphyllus</i></b> wand-like fleabane daisy	PDAST3M2Z0	None	None	G4	S2	2B.3
<b><i>Eumops perotis californicus</i></b> western mastiff bat	AMACD02011	None	None	G4G5T4	S3S4	SSC
<b><i>Euphorbia abramsiana</i></b> Abrams' spurge	PDEUP0D010	None	None	G4	S2	2B.2
<b><i>Gila elegans</i></b> bonytail	AFCJB13100	Endangered	Endangered	G1	SH	



## Selected Elements by Scientific Name

## California Department of Fish and Wildlife

## California Natural Diversity Database



Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
<b><i>Haliaeetus leucocephalus</i></b> bald eagle	ABNKC10010	Delisted	Endangered	G5	S3	FP
<b><i>Heloderma suspectum cinctum</i></b> banded Gila monster	ARACE01011	None	None	G4T4	S1	SSC
<b><i>Hymenoxys odorata</i></b> bitter hymenoxys	PDAST530E0	None	None	G5	S2	2B.1
<b><i>Icteria virens</i></b> yellow-breasted chat	ABPBX24010	None	None	G5	S3	SSC
<b><i>Lanius ludovicianus</i></b> loggerhead shrike	ABPBR01030	None	None	G4	S4	SSC
<b><i>Lycium exsertum</i></b> Arizona desert-thorn	PDSOL0G090	None	None	G4G5	S1	2B.1
<b><i>Macrotus californicus</i></b> California leaf-nosed bat	AMACB01010	None	None	G3G4	S3	SSC
<b><i>Mammillaria grahamii</i> var. <i>grahamii</i></b> Graham fishhook cactus	PDCAC0A021	None	None	G4T4	S2	2B.2
<b><i>Matelea parvifolia</i></b> spear-leaf matelea	PDASC0A0J0	None	None	G5	S3	2B.3
<b><i>Melanerpes uropygialis</i></b> Gila woodpecker	ABNYF04150	None	Endangered	G5	S1	
<b><i>Mentzelia puberula</i></b> Darlington's blazing star	PDLOA031F0	None	None	G5	S2	2B.2
<b><i>Mentzelia tridentata</i></b> creamy blazing star	PDLOA031U0	None	None	G3	S3	1B.3
<b><i>Micrathene whitneyi</i></b> elf owl	ABNSB09010	None	Endangered	G5	S1	
<b><i>Myotis velifer</i></b> cave myotis	AMACC01050	None	None	G4G5	S1	SSC
<b><i>Myotis yumanensis</i></b> Yuma myotis	AMACC01020	None	None	G5	S4	
<b><i>Nemacaulis denudata</i> var. <i>gracilis</i></b> slender cottonheads	PDPGN0G012	None	None	G3G4T3?	S2	2B.2
<b><i>Neotoma albigula venusta</i></b> Colorado Valley woodrat	AMAFF08031	None	None	G5T3T4	S1S2	
<b><i>Oliarces clara</i></b> cheeseweed owlfly (cheeseweed moth lacewing)	IINEU04010	None	None	G1G3	S2	
<b><i>Penstemon pseudospectabilis</i> ssp. <i>pseudospectabilis</i></b> desert beardtongue	PDSCR1L562	None	None	G4G5T4	S3	2B.2
<b><i>Petalonyx linearis</i></b> narrow-leaf sandpaper-plant	PDLOA04010	None	None	G4	S3?	2B.3
<b><i>Phacelia anelsonii</i></b> Aven Nelson's phacelia	PDHYD0C060	None	None	G3	S2	2B.3





## Selected Elements by Scientific Name

## California Department of Fish and Wildlife

## California Natural Diversity Database



Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
<b><i>Pholistoma auritum</i> var. <i>arizonicum</i></b> Arizona pholistoma	PDHYD0D011	None	None	G5T4?	S3	2B.3
<b><i>Psorothamnus fremontii</i> var. <i>attenuatus</i></b> narrow-leaved psorothamnus	PDFAB3C031	None	None	G5T4?	S3	2B.3
<b><i>Pyrocephalus rubinus</i></b> vermillion flycatcher	ABPAE36010	None	None	G5	S2S3	SSC
<b><i>Rallus obsoletus yumanensis</i></b> Yuma Ridgway's rail	ABNME0501A	Endangered	Threatened	G3T3	S1S2	FP
<b><i>Senna covesii</i></b> Cove's cassia	PDFAB491X0	None	None	G5	S3	2B.2
<b><i>Sigmodon arizonae plenus</i></b> Colorado River cotton rat	AMAFF07022	None	None	G5T2T3	S1S2	SSC
<b><i>Teucrium glandulosum</i></b> desert germander	PDLAM20040	None	None	G4	S2	2B.3
<b><i>Vireo bellii arizonae</i></b> Arizona Bell's vireo	ABPBW01111	None	Endangered	G5T4	S1S2	
<b><i>Xyrauchen texanus</i></b> razorback sucker	AFCJC11010	Endangered	Endangered	G1	S1S2	FP

Record Count: 49

# IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

## Location

San Bernardino County, California



## Local office

Carlsbad Fish And Wildlife Office

☎ (760) 431-9440

📍 (760) 431-5901

2177 Salk Avenue - Suite 250  
Carlsbad, CA 92008-7385

<http://www.fws.gov/carlsbad/>

NOT FOR CONSULTATION

# Endangered species

**This resource list is for informational purposes only and does not constitute an analysis of project level impacts.**

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species<sup>1</sup> and their critical habitats are managed by the [Ecological Services Program](#) of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries<sup>2</sup>).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact [NOAA Fisheries](#) for [species under their jurisdiction](#).

1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the [listing status page](#) for more information. IPaC only shows species that are regulated by USFWS (see FAQ).



2. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

## Birds

NAME	STATUS
<b>Southwestern Willow Flycatcher</b> <i>Empidonax traillii extimus</i> Wherever found There is <b>final</b> critical habitat for this species. The location of the critical habitat is not available. <a href="https://ecos.fws.gov/ecp/species/6749">https://ecos.fws.gov/ecp/species/6749</a>	Endangered
<b>Yuma Ridgway's Rail</b> <i>Rallus obsoletus yumanensis</i> Wherever found No critical habitat has been designated for this species. <a href="https://ecos.fws.gov/ecp/species/3505">https://ecos.fws.gov/ecp/species/3505</a>	Endangered

## Fishes

NAME	STATUS
<b>Bonytail</b> <i>Gila elegans</i> Wherever found There is <b>final</b> critical habitat for this species. The location of the critical habitat is not available. <a href="https://ecos.fws.gov/ecp/species/1377">https://ecos.fws.gov/ecp/species/1377</a>	Endangered
<b>Razorback Sucker</b> <i>Xyrauchen texanus</i> Wherever found There is <b>final</b> critical habitat for this species. The location of the critical habitat is not available. <a href="https://ecos.fws.gov/ecp/species/530">https://ecos.fws.gov/ecp/species/530</a>	Endangered

## Insects

NAME	STATUS
<b>Monarch Butterfly</b> <i>Danaus plexippus</i> Wherever found No critical habitat has been designated for this species. <a href="https://ecos.fws.gov/ecp/species/9743">https://ecos.fws.gov/ecp/species/9743</a>	Candidate

## Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

## Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act<sup>1</sup> and the Bald and Golden Eagle Protection Act<sup>2</sup>.

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described [below](#).

1. The [Migratory Birds Treaty Act](#) of 1918.
2. The [Bald and Golden Eagle Protection Act](#) of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern <https://www.fws.gov/program/migratory-birds/species>
- Measures for avoiding and minimizing impacts to birds <https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds>
- Nationwide conservation measures for birds <https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf>

The birds listed below are birds of particular concern either because they occur on the [USFWS Birds of Conservation Concern](#) (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ [below](#). This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the [E-bird data mapping tool](#) (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found [below](#).



For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME

BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)

Gila Woodpecker *Melanerpes uropygialis*

Breeds Apr 1 to Aug 31

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

<https://ecos.fws.gov/ecp/species/5960>

## Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

### Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is  $0.25/0.25 = 1$ ; at week 20 it is  $0.05/0.25 = 0.2$ .
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

### Breeding Season (■)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

### Survey Effort (|)

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

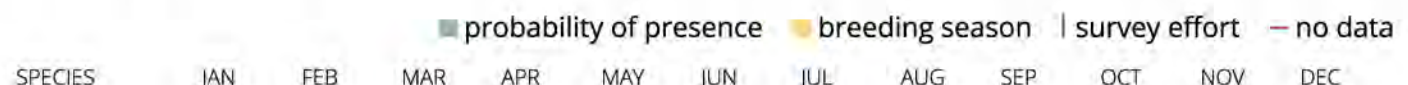
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

### No Data (—)

A week is marked as having no data if there were no survey events for that week.

### Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.





Gila  
Woodpecker  
BCC - BCR (This  
is a Bird of  
Conservation  
Concern (BCC)  
only in  
particular Bird  
Conservation  
Regions (BCRs)  
in the  
continental  
USA)



**Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.**

[Nationwide Conservation Measures](#) describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. [Additional measures](#) or [permits](#) may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

**What does IPaC use to generate the migratory birds potentially occurring in my specified location?**

The Migratory Bird Resource List is comprised of USFWS [Birds of Conservation Concern \(BCC\)](#) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the [AKN Phenology Tool](#).

**What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?**

The probability of presence graphs associated with your migratory bird list are based on data provided by the [Avian Knowledge Network \(AKN\)](#). This data is derived from a growing collection of [survey, banding, and citizen science datasets](#).

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.



## How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: [The Cornell Lab of Ornithology All About Birds Bird Guide](#), or (if you are unsuccessful in locating the bird of interest there), the [Cornell Lab of Ornithology Neotropical Birds guide](#). If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

## What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are [Birds of Conservation Concern](#) (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the [Eagle Act](#) requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

## Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the [Northeast Ocean Data Portal](#). The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the [NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf](#) project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the [Diving Bird Study](#) and the [nanotag studies](#) or contact [Caleb Spiegel](#) or [Pam Loring](#).

## What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to [obtain a permit](#) to avoid violating the Eagle Act should such impacts occur.

## Proper Interpretation and Use of Your Migratory Bird Report



The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

## Facilities

### National Wildlife Refuge lands

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS AT THIS LOCATION.

### Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

### Wetlands in the National Wetlands Inventory

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

WETLAND INFORMATION IS NOT AVAILABLE AT THIS TIME

This can happen when the National Wetlands Inventory (NWI) map service is unavailable, or for very large projects that intersect many wetland areas. Try again, or visit the [NWI map](#) to view wetlands at this location.

#### **Data limitations**

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

#### **Data exclusions**

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tubercid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

#### **Data precautions**

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.



## **Attachment 3**

### **SPECIES OBSERVED**

Latin Name	Common Name
<b>VASCULAR PLANTS</b>	
<b>DICOTYLEDONS</b>	
<b>FILICALES</b>	<b>FERN FAMILIES (SEVERAL INCLUDED TOGETHER)</b>
<i>Adiantum capillus-veneris</i>	Venus hair
<i>Cheilanthes parryi</i>	Parry's lip fern
<b>APOCYNACEAE</b>	<b>DOGBANE FAMILY</b>
<i>Asclepias albicans</i>	White-stemmed milkweed, wax milkweed
<b>ASTERACEAE</b>	<b>ASTER FAMILY</b>
<i>Ambrosia dumosa</i>	White bur-sage, burrobrush
<i>Ambrosia salsola</i>	Common burrobrush, cheesebush
<i>Baccharis salicifolia</i>	Mule fat
<i>Baccharis sergiloides</i>	Desert baccharis, waterweed
<i>Bebbia juncea</i> var. <i>aspera</i>	Sweetbush
<i>Chaenactis carphoclinia</i>	Pebble pincushion
<i>Encelia actoni</i>	Acton brittlebush
<i>Encelia farinosa</i>	Brittlebush
<i>Gnaphalium palustre</i>	Meadow everlasting, lowland cudweed
<i>Perityle emoryi</i>	Emory's rock daisy
<i>Peucephyllum schottii</i>	Pygmy-cedar
<i>Pleurocoronis pluriseta</i>	Arrowleaf
<i>Pluchea sericea</i>	Arrow-weed
<i>Psathrotes ramosissima</i>	Turtleback, velvet rosettes
* <i>Pulicaria paludosa</i>	Spanish sunflower
<i>Senecio mohavensis</i>	Mojave ragwort, Mojave groundsel
* <i>Sonchus oleraceus</i>	Common sow thistle
<i>Stephanomeria pauciflora</i>	Wire-lettuce, desert straw
<i>Trixis californica</i> var. <i>californica</i>	California trixis
<i>Xanthisma spinulosum</i> var. <i>gooddingii</i>	Goodding's aster
<b>BORAGINACEAE</b>	<b>BORAGE OR WATERLEAF FAMILY</b>
<i>Cryptantha angustifolia</i>	Narrow-leaved cryptantha
<i>Cryptantha barbiger</i>	Bearded cryptantha
<i>Cryptantha holoptera</i>	Winged cryptantha
<i>Phacelia crenulata</i>	Heliotrope phacelia
<b>BRASSICACEAE</b>	<b>MUSTARD FAMILY</b>
* <i>Brassica tournefortii</i>	Sahara mustard, wild turnip
<i>Lepidium lasiocarpum</i>	Sand peppergrass
<b>CACTACEAE</b>	<b>CACTUS FAMILY</b>
** <i>Carnegiea gigantea</i>	Saguaro
<i>Cylindropuntia acanthocarpa</i>	Buckhorn cholla
<i>Cylindropuntia bigelovii</i>	Teddy-bear cholla
<i>Cylindropuntia echinocarpa</i>	Silver cholla
<i>Echinocactus polycephalus</i>	Clustered barrel cactus, cottontop cactus
<i>Mammillaria tetrancistra</i>	Common fishhook cactus
<i>Opuntia basilaris</i> var. <i>basilaris</i>	Beavertail cactus

Latin Name	Common Name
CHENOPODIACEAE	GOOSEFOOT FAMILY
<i>Atriplex polycarpa</i>	Allscale saltbush
EUPHORBIACEAE	SPURGE FAMILY
<i>Euphorbia polycarpa</i>	Smallseed sandmat
FABACEAE	LEGUME FAMILY, PEA FAMILY
<i>Dalea mollis</i>	Silk dalea
<i>Lupinus arizonicus</i>	Arizona lupine
<i>Marina parryi</i>	Parry dalea
<i>Parkinsonia florida</i>	Blue palo verde
<i>Parkinsonia microphylla</i>	Little-leaved palo verde
<i>Prosopis glandulosa</i> var. <i>torreyana</i>	Honey mesquite, mesquite
<i>Prosopis pubescens</i>	Screw bean
<i>**Psorothamnus fremontii</i> var. <i>attenuatus</i>	Fremont's indigo bush
<i>Psorothamnus fremontii</i>	Fremont's dalea
<i>Senegalia greggii</i>	Catclaw, catclaw acacia
FOUQUIERIACEAE	OCOTILLO FAMILY
<i>Fouquieria splendens</i> ssp. <i>splendens</i>	Ocotillo
GENTIANACEAE	GENTIAN FAMILY
<i>Eustoma exaltatum</i> ssp. <i>exaltatum</i>	Catchfly gentian
KRAMERIACEAE	RHATANY FAMILY, KRAMERIA FAMILY
<i>Krameria bicolor</i>	White rhatany
LAMIACEAE	MINT FAMILY
<i>Condea emoryi</i>	Desert lavender
<i>Salvia columbariae</i>	Chia
<i>Salvia mohavensis</i>	Mohave sage
LOASACEAE	LOASA FAMILY, STICK-LEAF FAMILY
<i>Eucnide urens</i>	Desert rocknettle
<i>Mentzelia puberula</i>	Argus blazing star
MALVACEAE	MALLOW FAMILY
<i>Hibiscus denudatus</i>	Pale face
<i>Sphaeralcea ambigua</i>	Globemallow, desert mallow
NYCTAGINACEAE	FOUR O'CLOCK FAMILY
<i>Mirabilis laevis</i>	Wishbone bush
PAPAVERACEAE	POPPY FAMILY
<i>Argemone munita</i>	Chicalote, prickly poppy
<i>Eschscholzia minutiflora</i>	Small-flowered poppy
PLANTAGINACEAE	PLANTAIN FAMILY
<i>**Penstemon pseudospectabilis</i> ssp. <i>pseudospectabilis</i>	Desert beardtongue
<i>Plantago ovata</i>	Desert plantain
POLEMONIACEAE	PHLOX FAMILY
<i>Gilia</i> sp.	Unid. annual
<i>Linanthus jonesii</i>	Jones linanthus
PHRYMACEAE	LOPSEED FAMILY
<i>Mimulus guttatus</i>	Seep monkeyflower

Latin Name	Common Name
<b>POLYGONACEAE</b>	<b>BUCKWHEAT FAMILY</b>
<i>Eriogonum fasciculatum</i>	California buckwheat
<i>Eriogonum inflatum</i>	Desert trumpet
<i>Eriogonum thomasi</i>	Thomas' wild buckwheat
<b>RUTACEAE</b>	<b>RUE FAMILY, CITRUS FAMILY</b>
<i>Thamnosma montana</i>	Turpentine-broom
<b>SALICACEAE</b>	<b>WILLOW FAMILY</b>
<i>Populus fremontii</i>	Fremont cottonwood
<i>Salix exigua</i>	Narrow-leaf willow, sandbar willow
<i>Salix gooddingii</i>	Goodding's black willow
<b>SOLANACEAE</b>	<b>NIGHTSHADE FAMILY</b>
<i>Lycium andersonii</i>	Anderson thornbush
<i>Nicotiana obtusifolia</i>	Desert tobacco
<i>Physalis crassifolia</i>	Thick-leaf ground-cherry
<i>Solanum americanum</i>	White nightshade
<b>TAMARICACEAE</b>	<b>TAMARISK FAMILY</b>
<i>*Tamarix ramosissima</i>	Saltcedar, tamarisk
<b>URTICACEAE</b>	<b>NETTLE FAMILY</b>
<i>Parietaria hespera (P. floridana)</i>	Pellitory
<b>VISCACEAE</b>	<b>MISTLETOE FAMILY</b>
<i>Phoradendron californicum</i>	Desert mistletoe
<b>ZYGOPHYLLACEAE</b>	<b>CALTROP FAMILY</b>
<i>Fagonia laevis</i>	Smooth-stem fagonia
<i>Larrea tridentata</i>	Creosote bush
<b>MONOCOTYLEDONS</b>	
<b>ARECACEAE</b>	<b>PALM FAMILY</b>
<i>*Phoenix canariensis</i>	Canary Island palm
<i>Washingtonia filifera</i>	California fan palm
<b>CYPERACEAE</b>	<b>SEDGE FAMILY</b>
<i>*Cyperus involucratus</i>	Umbrella sedge
<i>Schoenoplectus americanus</i>	Olney's three-square bulrush
<b>POACEAE</b>	<b>GRASS FAMILY</b>
<i>Aristida purpurea</i>	Three-awn grass
<i>*Cynodon dactylon</i>	Bermuda grass
<i>Distichlis spicata</i>	Salt grass
<i>Festuca octoflora</i>	Sixweeks grass, slender fescue
<i>*Pennisetum setaceum</i>	Crimson fountain grass, African fountain grass
<b>TYPHACEAE</b>	<b>CATTAIL FAMILY</b>
<i>Typha domingensis</i>	Southern cattail, slender cattail
<b>INVERTEBRATES</b>	
<b>CAMBARIDAE</b>	<b>FRESHWATER CRAYFISH</b>
<i>*Procambarus clarkii</i>	Red swamp crayfish

Latin Name	Common Name
<b>VERTEBRATES</b>	
<b>AMPHIBIA</b>	<b>AMPHIBIANS</b>
BUFONIDAE	TRUE TOADS
<i>Bufo punctatus</i>	Red-spotted toad
ACTINOPTERYGII	RAY-FINNED FISHES
CENTRARCHIDAE	SUNFISHES
<i>Micropterus salmoides</i>	Largemouth bass
ICTALURIDAE	CAT FISHES
<i>Ictalurus punctatus</i>	Channel catfish
CICHLIDAE	CICHLIDS
<i>Tilapia ssp.</i>	Tilapia
<b>REPTILIA</b>	<b>REPTILES</b>
IGUANIDAE	IGUANID LIZARDS
<i>Sauromalus obesus</i>	Common chuckwalla
<i>Uta stansburiana</i>	Side-blotched lizard
TEIIDAE	WHIPTAILS
<i>Cnemidophorus tigris</i>	Western whiptail
PHRYNOSOMATIDAE	HORNED LIZARDS
<i>Sceloporus magister</i>	Desert spiny lizard
EUBLEPHARIDAE	GECKOS
<i>Coleonyx variegatus</i>	Western banded gecko
<b>AVES</b>	<b>BIRDS</b>
ANATIDAE	DUCKS, GEESE, and SWANS
<i>Anas carolinensis</i>	Green-winged teal
<i>Anas platyrhynchos</i>	Mallard
<i>Bucephala clangula</i>	Common goldeneye
ODONTOPHORIDAE	NEW WORLD QUAILS
<i>Callipepla gambelii</i>	Gambel's quail
PHALACROCORACIDAE	CORMORANTS AND SHAGS
<i>**Nannopterum auritum</i>	Double-crested cormorant
PODICIPEDIDAE	GREBES
<i>Podilymbus podiceps</i>	Pied-billed grebe
CATHARTIDAE	VULTURES
<i>Cathartes aura</i>	Turkey vulture
ACCIPITRIDAE	EAGLES, HAWKS, KITES, OSPREY
<i>**Haliaeetus leucocephalus</i>	Bald eagle
FALCONIDAE	FALCONS
<i>**Falco peregrinus anatum</i>	American peregrine falcon
RALLIDAE	CRACKS, COOTS, and GALLINULES
<i>Fulica americana</i>	American coot
COLUMBIDAE	PIGEONS AND DOVES
<i>Zenaida macroura</i>	Mourning dove

Latin Name	Common Name
CUCULIDAE	CUCKOOS
<i>Geococcyx californianus</i>	Greater roadrunner
STRIGIDAE	OWLS
<i>**Athene cunicularia</i>	Burrowing owl
<i>Bubo virginianus</i>	Great horned owl
APODIDAE	SWIFTS
<i>Aeronautes saxatalis</i>	White-throated swift
TROCHILIDAE	HUMMINGBIRDS
<i>Calypte anna</i>	Anna's hummingbird
<i>**Calypte costae</i>	Costa's hummingbird
PICIDAE	WOODPECKERS
<i>Dryobates scalaris</i>	Ladder-backed woodpecker
TYRANNIDAE	TYRANT FLYCATCHERS
<i>Myiarchus cinerascens</i>	Ash-throated flycatcher
<i>Sayornis saya</i>	Say's phoebe
LANIIDAE	SHRIKES
<i>**Lanius ludovicianus</i>	Loggerhead shrike
CORVIDAE	CROWS AND JAYS
<i>Corvus corax</i>	Common raven
REGULIDAE	KINGLETS
<i>Regulus calendula</i>	Ruby-crowned kinglet
REMIZIDAE	VERDINS
<i>Auriparus flavipes</i>	Verdin
HIRUNDINIDAE	SWALLOWS, MARTINS, and SAW-WINGS
<i>Tachycineta thalassina</i>	Violet-green swallow
PTILOGONATIDAE	SILKY FLYCATCHERS
<i>Phainopepla nitens</i>	Phainopepla
TROGLODYTIDAE	WRENS
<i>Catherpes mexicanus</i>	Canyon wren
<i>Salpinctes obsoletus</i>	Rock wren
PASSERELLIDAE	NEW WORLD SPARROWS
<i>Amphispiza bilineata</i>	Black-throated sparrow
<i>Melospiza lincolnii</i>	Lincoln's sparrow
<i>Melospiza melodia</i>	Song sparrow
<i>Spizella passerina</i>	Chipping sparrow
<i>Zonotrichia leucophrys</i>	White-crowned sparrow
FRINGILLIDAE	FINCHES
<i>Carduelis psaltria</i>	Lesser goldfinch
<i>Haemorhous mexicanus</i>	House finch
EMBERIZIDAE	SPARROWS, WARBLERS, TANAGERS
<i>Dendroica coronata</i>	Yellow-rumped warbler
<i>Dendroica nigrescens</i>	Black-throated gray warbler
PARULIDAE	NEW WORLD WARBLERS
<i>Cardellina pusilla</i>	Wilson's warbler



Latin Name	Common Name
<b>MAMMALIA</b>	<b>MAMMALS</b>
EQUIDAE	HORSES, BURROS AND ZEBRAS
* <i>Equus asinus</i>	Feral donkey
BOVIDAE	SHEEP AND GOATS
** <i>Ovis canadensis</i>	Desert bighorn sheep
CANIDAE	DOGS and FOXES
<i>Urocyon cinereoargenteus</i>	Gray fox
FELIDAE	CATS
<i>Lynx rufus</i>	Bobcat
LEPORIDAE	RABBITS and HARES
<i>Sylvilagus audubonii</i>	Desert cottontail
VESPERTILIONIDAE	VESPER BATS (EVENING BATS)
** <i>Myotis yumanensis</i>	Yuma myotis
<i>Parastrellus hesperus</i>	Canyon bat
MOLOSSIDAE	FREE-TAILED BATS
<i>Tadarida brasiliensis</i>	Mexican free-tailed bat

\* Nonnative or invasive species

\*\* Special-status species

## **Attachment 4**

### **AQUATIC RESOURCES DELINEATION REPORT**

# AQUATIC RESOURCES DELINEATION REPORT

## Copper Basin Discharge Valve Replacement and Access Road Improvements Project

*Prepared for*



**Metropolitan Water District  
of Southern California**

700 North Alameda Street  
Los Angeles, CA 90012-2944

*Submitted by*



**September 2022**

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**LIST OF ATTACHMENTS**

- Attachment A Figures
- Attachment B Photo Exhibit
- Attachment C Wetland Delineation Forms
- Attachment D Federal Non-Wetland/Wetland Waters Indicator Information
- Attachment E Aquatic Resource Table (USACE)
- Attachment F Impacts to CDFW and RWQCB Jurisdictional Resources

## 1. INTRODUCTION

The Metropolitan Water District of Southern California (Metropolitan) proposes to conduct repairs at the Copper Basin Reservoir (Reservoir), which is one of four reservoirs located along the Colorado River Aqueduct (CRA). This report presents the findings of an investigation of jurisdictional features conducted by Aspen Environmental Group (Aspen) for the Copper Basin Discharge Valve Replacement and Access Road Improvements Project (proposed Project). The proposed Project is located west of Parker Dam and north of Parker Strip in southeastern San Bernardino County, California (Figure 1 in Attachment A).

Field surveys were conducted by Aspen Senior Biologist Justin Wood on March 15 and 16, 2022. The assessment was conducted to determine the extent of resources under the jurisdiction of the U.S. Army Corps of Engineers (USACE), California Department of Fish and Wildlife (CDFW), and Colorado River Basin Regional Water Quality Control Board (CRBRWQCB).

Throughout this report, the “proposed Project area” refers to the access roads repair and the discharge valve replacement under consideration at Copper Basin Reservoir and Copper Basin Dam, while “Survey Area” refers to the proposed Project area and a 25-foot buffer along the western half of the access road and a 50-foot buffer along the eastern half of the access road and dam infrastructure.

### 1.1. Project Description

The proposed Project is located along a four-mile-long dirt access road between the base of Copper Basin Dam and Echo Weir near Parker Dam Road in San Bernardino County, California. The road runs through Copper Basin Wash, a tributary to the Colorado River.

The proposed Project would rehabilitate the slide gate valve and replace the discharge valve within the Copper Basin Dam valve house; install new conduit and electrical components within the valve house; install three new concrete pads and electrical components 250 feet southwest of the Copper Basin Dam; install and anchor-in-place approximately 250 feet of above-ground electrical conduit from the new concrete pads to Copper Basin Dam; replace the ladder on the dam face; install a new catwalk and stairs immediately downstream of and adjacent to the valve house; remove and reconstruct two existing concrete weirs approximately 125 feet downstream of Copper Basin Dam, and; install electrical conduit and instrumentation from the two weirs, along the catwalk, to the valve house. Material and equipment staging is proposed at three existing staging/operations areas along the west side of the Reservoir as noted in Figure 1.

The proposed Project would improve approximately 1.66 miles of the existing dirt access road around the perimeter of the Reservoir to facilitate safe access to the base of Copper Basin Dam. Improvements to this existing dirt access road include re-grading the road; paving steep segments of road and installing metal beam guard railing for safety; constructing Arizona crossings at drainage crossing locations; installing v-ditches and riprap outlet structures along the access road to control runoff, and installing vehicle turn out areas and safety signs.

### 1.2. Lead Agency and Contact Information

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### 1.3. Site Access

Driving directions to the Survey Area are provided below in Table 1.

**Table 1. Driving Directions to Survey Area**

From The Greater Los Angeles Area of Southern California:
Take Interstate 10 east towards Desert Center.
Take SR-177 (Rice Road) north from Desert Center towards Parker.
Turn right and continue east of SR-62 towards Parker.
Continue straight on Parker Dam Road and head northeast along the Colorado River.
Turn left at METROPOLITAN Road and head west.
Turn left on Copper Basin Road and reach locked gate.
Enter gate with METROPOLITAN escort for access to Copper Basin Dam.

## 2. EXISTING CONDITIONS

### 2.1. Topography and Surrounding Land Uses

The Survey Area is located in the southwestern portion of the U.S. Geological Survey's (USGS) Gene Wash 7.5-minute topographic quadrangle. The Survey Area occurs in the Whipple Mountains, a small mountain range located along the Colorado River near the transition between the Mojave and Sonoran Deserts. The topography of the Survey Area varies from around 970 feet above mean sea level (msl) below the Reservoir, to approximately 1230 feet above msl along the access road. The topography of the Survey Area is very steep with many vertical canyon walls, steep slopes, and rocky terrain. The Survey Area and the immediate surrounding land is undeveloped open space owned by Metropolitan.

### 2.2. Vegetation

During the field surveys, all plant and wildlife species noted were recorded in field notes and plants that could not be identified in the field were collected and later identified using keys, descriptions, and illustrations in Baldwin et al. (2002, 2012). General notes were also recorded on the vegetation within the Survey Area. Vegetation within the Survey Area is further described below using the names and descriptions in *A Manual of California Vegetation* (Sawyer et al., 2009).

Vegetation and habitat in the Survey Area along the access road supports xeric desert communities dominated by yellow paloverde (*Parkinsonia microphylla*), creosote bush (*Larrea tridentata*) and various species of cactus that are growing on the steep rocky slopes. Downstream of Copper Basin Dam the vegetation changes rapidly to a mesic riparian woodland dominated by arrow weed (*Pluchea sericea*), Fremont cottonwood (*Populus fremontii*), willows (*Salix* spp.), and tamarisk (*Tamarix ramosissima*). A broad low-flow channel occurs in this area dominated by cattails (*Typha domingensis*) and other hydrophytic vegetation. Vegetation within the Survey Area is described below and shown on Figures 2a through 2e in Attachment A.

**Table 2. Summary of Vegetation and Cover Types in Survey Area**

Vegetation and Land Cover Types	Type	Total Acres	Percentage of Total Acreage (%) <sup>1</sup>
Saguaro - foothill palo verde - velvet mesquite desert scrub*	Upland	15.75	56.2
Fremont cottonwood forest and woodland*	Riparian	0.18	0.6

## COPPER BASIN DISCHARGE VALVE REPLACEMENT AND ACCESS ROAD IMPROVEMENTS PROJECT

<b>Vegetation and Land Cover Types</b>	<b>Type</b>	<b>Total Acres</b>	<b>Percentage of Total Acreage (%)<sup>1</sup></b>
Arrow weed thickets*	Riparian	3.14	11.1
Cattail marsh	Riparian	1.06	3.8
<b>Other Cover Types**</b>			
Developed and Disturbed	N/A	7.76	27.5
Open Water	N/A	0.21	0.8
<b>Total</b>	<b>--</b>	<b>28.10</b>	<b>100</b>

\* These communities are designated as "Sensitive Natural Communities" by CDFW.

\*\* These communities/cover types are not defined in Sawyer et al. (2009) or Holland (1986) but are included in this table for acreage calculation purposes.

**Saguaro - foothill palo verde - velvet mesquite desert scrub (*Carnegiea gigantea* - *Parkinsonia microphylla* - *Prosopis velutina* Provisional Shrubland Alliance).** This vegetation is characterized by the presence of yellow paloverde which dominates the uplands throughout the Survey Area. Other species such as creosote bush, white bursage (*Ambrosia dumosa*), chollas (*Cylindropuntia* spp.), and brittlebush (*Encelia farinosa*) are also present in low numbers. Saguaro (*Carnegiea gigantea*) are also present in low numbers just beyond the limits of the Survey Area. This vegetation matches the description of Arizonan woodland in Holland (1986). This vegetation has a state rank of S2.2 and is considered a sensitive natural community in California (CDFW, 2020).

**Fremont cottonwood forest and woodland (*Populus fremontii* - *Fraxinus velutina* - *Salix gooddingii* Forest & Woodland Alliance).** This vegetation is characterized by the presence of Fremont (*Populus fremontii*) and Goodding's black willow (*Salix gooddingii*). These species form a high overstory above species such as arrow weed (*Pluchea sericea*), umbrella plant (*Cyperus involucreatus*), narrowleaf willow (*Salix exigua*). This vegetation matches the description of Sonoran cottonwood-willow riparian forest in Holland (1986). This vegetation has a state rank of S3.2 and is considered a sensitive natural community in California (CDFW, 2020).

**Arrow weed thickets (*Pluchea sericea* Shrubland Alliance).** This vegetation is dominated by arrow weed, narrowleaf willow, tamarisk, and other lower growing vegetation. It is present in the canyon bottom downstream of Copper Basin Dam and is also present along the margins on the Reservoir. This vegetation matches the description of arrow weed scrub in Holland (1986). This vegetation has a State rank of S3 and is considered to be a Sensitive Natural Community in California (CDFW, 2022).

**Cattail marshes [*Typha (angustifolia, domingensis, latifolia)* Herbaceous Alliance].** This vegetation community is dominated by cattails (*Typha* spp.), umbrella plant, and numerous other herbaceous species. It is present in the wettest portions of the canyon bottom downstream of Copper Basin Dam and also along the margins on the Reservoir. It should also be noted that this vegetation is mapped immediately below the dam which is in fact only dominated by umbrella plant on the channel bottom and Venus hair (*Adiantum capillus-veneris*) and yellow monkey flower (*Erythranthe guttata*) on the canyon walls. This vegetation matches the description of arrow weed scrub in Holland (1986). This vegetation has a State rank of S5 and is not considered a Sensitive Natural Community in California (CDFW, 2022).

**Developed and Disturbed.** Developed and disturbed lands are those portions of the Survey Area with human-dominated land uses, including the existing communications facility, a small development, and the unpaved access roads. Vegetation, where present, is dominated by native and non-native ruderal (weedy) species.

**Open Water.** Open water are those portions of the Survey Area located within the Reservoir. Vegetation, where present, is dominated by native aquatic species.

## 2.3. Climate

The region is characterized by a desert climate that experiences extreme fluctuations of daily temperatures, strong seasonal winds, and low rainfall. The average annual high temperature is about 86.4°F and the average annual low is about 62.1°F (WRCC, 2022). Precipitation in the region occurs mainly between November and April, with monsoonal rains in August and September (SWRCB, 2019). The mean seasonal precipitation for Parker Reservoir, approximately 5 miles west of the proposed Project is 5.5 inches (WRCC, 2022). Rainfall was below average in the region during both the 2020-2021 and 2021-2022 rainfall years (July 1 through June 30). Approximately 20 percent of normal rainfall has been recorded in the southeastern portion of California during that period (NOAA, 2022).

## 2.4. Hydrology, Geology and Geomorphology

The Survey Area is located within the East Colorado River Planning Area of the Colorado River Basin. This area is composed of deep alluvial deposits of silt, clay, and sand from previous alignments of the Colorado River. The mountains in the region generally run along northwest trending faults that have largely influenced the area's northwest-oriented valleys, mountains, and dry lakes. These mountains predominantly consist of metamorphic and igneous rocks from pre-Cambrian to Tertiary era (SWRCB, 2019). Currently, an average of 1,148 gallons of water per minute seep from the Copper Basin Dam, creating perennial water flow through Copper Basin Wash. Typically, this flow does not provide connectivity to the Colorado River.

The Colorado River Basin region in southeastern California covers approximately 13 million miles, which is only a small portion of the total Colorado River drainage. The Colorado River drainage spans additional states of Arizona, Nevada, Utah, Wyoming, Colorado, New Mexico, and portions of northwestern Mexico. The Colorado River flows for 230 miles within California. Several dams, including the nearby Parker Dam, are located within the East Colorado River Planning Area and water is diverted to Metropolitan facilities for export through the California Aqueduct to coastal counties (SWRCB, 2019).

## 2.5. Soils

Aspen used soil data from the Natural Resources Conservation Service (NRCS) historic mapping projects to determine if and where hydric soils could be present in the Survey Area (NRCS, 2022). Figures 3a through 3d in Attachment A illustrate the location of these mapped soil types in relation to the Survey Area. Table 3 describes the soils within the Survey Area. The mapped soil types are well-drained and are not prone to flooding. In general, the descriptions of soil types within the Survey Area indicate that hydric soil conditions are not expected. It is possible that the mapped soils below may include small pockets of other soil types that were not captured within the NRCS mapping scale but that were assessed as part of the field work.

**Table 3. Soil Units Occurring in the Survey Area**

Map Unit Symbol	Map Unit Name	Description	Acres
s1126	Tecopa-Rock outcrop-Lithic Torriorthents	A well-drained soil generally found on steep slopes; parent material consists of colluvium weathered from quartzite and gneiss; not prone to flooding.	15.54
s1129	Rositas-Beeline-Badland	A well-drained soil: parent material consists of mixed alluvium and eolian sands; not prone to flooding.	10.28

Map Unit Symbol	Map Unit Name	Description	Acres
--	Not Mapped	These areas have not been previously mapped and soil data is not available.	2.28
<b>Total</b>			<b>28.10</b>

### 3. REGULATORY BACKGROUND

Jurisdictional waters, wetlands, and riparian habitat are regulated by the USACE, CRRWCQB, and CDFW. The USACE Regulatory Program regulates activities pursuant to Section 404 of the CWA; the CDFW regulates activities under California Fish and Game Code Section 1600-1607; and the SWRCB regulates activities under Section 401 of the CWA and the California Porter-Cologne Water Quality Control Act. Additional details on regulatory authorities and background are provided below.

#### 3.1. Section 404 of the Clean Water Act (CWA)

Section 404 of the CWA regulates the discharge of dredged material, placement of fill material, or certain types of excavation within “Waters of the U.S.” (resulting in more than incidental fallback of material) and authorizes the Secretary of the Army, through the Chief of Engineers, to issue permits for such actions. Permits can be issued for individual projects (individual permits) or for general categories of projects (general permits). “Waters of the U.S.” are defined by the CWA as “rivers, creeks, streams, and lakes extending to their headwaters and any associated wetlands.” Wetlands are defined by the CWA as “areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support a prevalence of vegetation typically adapted for life in saturated soil conditions.” USACE has adopted several revisions to their regulations in order to more clearly define “Waters of the U.S.” Until the beginning of 2001, “Waters of the U.S.” included, among other things, isolated wetlands and lakes, intermittent streams, prairie potholes, and other waters that are not part of a tributary system to interstate waters or to navigable “Waters of the U.S.”

The jurisdictional extent of USACE regulation changed with the 2001 SWANCC (Solid Waste Agency of Northern Cook County) ruling. The U.S. Supreme Court held that the USACE could not apply Section 404 of the CWA to extend their jurisdiction over an isolated quarry pit. The Court ruled that the CWA does not extend Federal regulatory jurisdiction over non-navigable, isolated, intra-state waters. However, the Court made it clear that non-navigable wetlands adjacent to navigable waters are still subject to USACE jurisdiction.

In 2020, the U.S. Environmental Protection Agency (EPA) updated the CWA and their definition of navigable waters (USACE and USEPA, 2020). The Navigable Waters Protection Rule regulates the nation’s navigable waters and the core tributary systems that provide perennial or intermittent flows into these systems. As such, “Waters of the U.S.” encompass traditional navigable waters; perennial and intermittent tributaries that contribute surface waters flow to such waters; certain lakes, ponds, and impoundments of jurisdictional waters; and wetlands adjacent to other jurisdictional waters. Based on this ruling, ephemeral waters were not mapped as “Waters of the U.S.” In 2021, the EPA and USACE were directed by the Biden Administration and the U.S. District Court to vacate the 2020 Navigable Waters Protection Rule and revert back to the pre-2020 rule. This revision of the Waters of the U.S. rule meant that ephemeral drainages were once again being treated as Waters of the U.S.

On April 6, 2022, the U.S. Supreme Court issued a stay of the 2021 order by the U.S. District Court for the Northern District of California that vacated the EPA’s 2020 Clean Water Act Section 401 Certification Rule.

Therefore, the CWA section 401 certification process is once again governed by the CWA section 401 certification regulations promulgated by EPA in 2020 (40 CFR 121). On June 1, 2022, the EPA Administrator signed a proposed rule to improve the CWA section 401 certification process. The proposed rule would replace and update the existing regulations at 40 CFR 121, to be more consistent with the statutory text of the 1972 CWA and clarify elements of section 401 certification practice that has evolved over the 50 years since the 1971 regulation was promulgated. On June 9, 2022, the proposed rule was published in the Federal Register (EPA, 2022). Based on a high degree of uncertainty and on-going changes in policy, ephemeral drainages are treated as jurisdictional Waters of the U.S. in this report.

### **3.2. Porter Cologne Water Quality Control Act and Section 401 of the Clean Water Act**

The RWQCBs regulate activities affecting 'Waters of the State' according to the Porter-Cologne Water Quality Control Act and Section 401 of the CWA. The Porter-Cologne Act defines Waters of the State as all surface and subsurface waters. The RWQCBs may issue permits (called Waste Discharge Requirements or WDRs) or may issue a waiver for a given application. In addition, the California Water Resources Control Board (CWRCB) has started to implement a new regulatory program for all Waters of the state in 2020 (CWRCB 2019). For non-wetland Waters of the state, CWRCB procedures and guidelines recognize the ordinary high-water mark (OHWM) as defined by federal guidelines (CWRCB 2019, 2020; see also USACE 2008a, 2008b) as the limits of jurisdiction. However, Waters of the State include isolated waters and need not have downstream surface connection to federally jurisdictional waters. The new program uses the soils, hydrology, and vegetation criteria to identify wetlands, but may define certain unvegetated sites (e.g., mud flats or playas) as wetlands based on only the soils and hydrology criteria. The Survey Area is within the jurisdictional boundaries of the Colorado River RWQCB.

Section 401 of the CWA requires that:

*...any applicant for a Federal permit for activities that involve a discharge to "Waters of the State," shall provide the Federal permitting agency a certification from the State in which the discharge is proposed that states that the discharge will comply with the applicable provisions under the Federal Clean Water Act.*

Therefore, before the USACE may issue a Section 404 permit, a permittee must apply for and receive a Section 401 Water Quality Certification from the RWQCB, Colorado River Region. The RWQCB may add conditions to their certification to remove or mitigate potential impacts to water quality standards.

On April 2, 2019, the State Water Resources Control Board (SWRCB) adopted a State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State. The adopted definitions and procedure allow for the presence of hydric substrates as a criterion for wetland identification (not just wetland soils) and wetland hydrology for an area devoid of vegetation (less than 5% cover) to be considered a wetland. Waters of the State were delineated based on the OHWM in the field.

### **3.3. Section 1602 of the California Fish and Game Code**

Section 1602 of the California Fish and Game Code requires any person, State or local governmental agency, or public utility which proposes a project that will substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake, or use materials from a streambed, or result in the disposal or deposition of debris, waste, or other material containing crumbled, flaked, or ground pavement where it can pass into any river, stream, or lake, to first notify the CDFW of the proposed project. Notification is generally required for any project that will take place in or in the vicinity of a river, stream, lake, or their tributaries. This includes rivers or streams that flow at least

periodically or permanently through a bed or channel with banks that support fish or other aquatic life and watercourses having a surface or subsurface flow that support or have supported riparian vegetation. Based on the notification materials submitted, the CDFW will determine if the proposed project may impact fish or wildlife resources.

If the CDFW determines that a proposed project may substantially adversely affect existing fish or wildlife resources, a Lake or Streambed Alteration Agreement (SAA) will be required. A completed CEQA document must be submitted to CDFW before a SAA will be issued.

#### **4. WATERS DELINEATION METHODOLOGY**

This section describes the methods used by Aspen during surveys conducted in March 2022 to determine the extent of potentially jurisdictional waters and/or wetlands that occur in the Survey Area. Prior to conducting the field assessment, Aspen reviewed current and historic aerial photographs; previous delineations conducted in the area; hydrological studies; detailed topographic maps (1-foot intervals); historical Soil Surveys (NRCS); CDFW guidelines for dryland watersheds, and the local and state hydric soil list to evaluate the potential active channels and wetland features that occur in the Survey Area. During the field assessment, hydrology was mapped using a Bad Elf GPS unit and identified on aerial photographs on a tablet (see Figures 4a through 4o in Attachment A). In a few locations, photographs were taken to document areas that were not drainages but may appear as drainages on aerial photographs (see Attachment B). Field maps were digitized using Geographic Information System (GIS) and the total jurisdiction area for each jurisdiction was calculated.

##### **4.1. Federal Waters/Wetlands**

Federally jurisdictional non-wetland “Waters of the U.S.” were delineated based on the limits of the OHWM, as determined by changes in physical and biological features, such as bank erosion, vegetation, or debris wrack. This is consistent with methods described in the USACE Wetland Delineation Manual (1987) and the Arid West Supplement (2008). Federal wetlands were delineated based on three wetland parameters: hydrophytic vegetation, wetland hydrology, and hydric soils.

##### **4.2. CRBRWQCB Wetlands/Waters**

The SWRCB issued new procedures which went into effect in May 2020 (SWRCB, 2020). These procedures expanded the definition of wetlands to include areas that may not meet the definition of a wetland based on the USACE Wetland Delineation Manual and Regional Supplements. Areas that may be included as wetlands per the new procedures include areas that are unvegetated but otherwise meet the criteria of federal wetlands, any natural wetlands, wetlands created by a modification to Waters of the state, and wetlands that have formed as a result of historic human activity. Jurisdictional non-wetland Waters of the state were delineated based on the limits of the OHWM as determined by changes in physical and biological features, such as bank erosion, deposited vegetation or debris, and vegetative characteristics.

##### **4.3. CDFW Jurisdiction**

CDFW jurisdiction was delineated to the top of the banks of the channel and/or to the highest level of confinement that could be reasonably identified, and in the southern portion of the Survey Area it was also mapped to the edge of any riparian vegetation. Due to the presence of human disturbances such as roads, remnant channels that continue to collect water and function as swales were also mapped.



## 5. RESULTS

Five types of jurisdictional features were documented within the Survey Area: USACE wetland Waters of the U.S., USACE non-wetland Waters of the U.S., CRBRWQCB wetland Waters of the State, CRBRWQCB non-wetland Waters of the State, and CDFW streambeds and vegetation (see Figures 4a through 4o in Attachment A; Attachment C; Attachment D). The jurisdictional features are summarized in Table 4, and descriptions of the drainages follow the table. A complete aquatic resource table for USACE jurisdiction is provided as Attachment E and impacts to CRBRWQCB and CDFW are summarized in Attachment F.

**Table 4. Jurisdictional Wetlands, Waters, and Streambeds Within the Survey Area**

	USACE Waters and Wetlands (Acres) <sup>a</sup>		CRBRWQCB Waters and Wetlands (Acres) <sup>a</sup>		CDFW Jurisdictional Habitat (Acres) <sup>b</sup>
	Non-wetland Waters of U.S.	Wetlands <sup>b</sup>	Non-wetland Waters of U.S.	Wetlands <sup>b</sup>	
Total Survey Area	1.30	0.94	1.30	0.94	5.55
Total Project Area	0.15	0.09	0.15	0.09	0.53
Permanent Impact Area	0.04	0.06	0.04	0.06	0.25
Temporary Impact Area	0.11	0.02	0.11	0.02	0.29

(a) Non-wetland Waters of the United States and Non-wetland Waters of the State overlap; as such, jurisdictional acreages are not additive.

(b) Wetlands fall under the jurisdiction of the USACE, SWRCB, and CDFW, each with separate extents that overlap; as such, wetland acreages are not additive.

Additional details on the drainages mapped within the Survey Area are provided below. Several of these categorized into sub-drainages (i.e., 1a, 1b, etc.) in the aquatic resources table (Attachment E) and CRBRWQCB and CDFW impact summary table (Attachment F); however, for the purpose of this summary each drainage is discussed as single feature.

- **Drainages 9, 11, 12, 15, 16, 18, 19, 21--23, 25, 26, 30, 31, 33, 34, 36, 38, 47, 49, 50, 54, and 55.** These drainages are located where ephemeral features connect with the Reservoir. Most of these drainages are wetlands along the margins of the Reservoir, just beyond the defined OHWM. They are primarily vegetated by cattail marsh with some areas of arrow weed thickets also present. The wetlands are mapped as Freshwater Forested/Shrub Wetland (PSS1C) and Freshwater Emergent Wetland (PEM1C) in the National Wetlands Inventory (USFWS, 2022). These drainages make up a large portion of the USACE wetland water of the U.S. and CRBRWQCB wetlands of the state within the Survey Area. They also fall under CDFW jurisdiction. Most of these drainages will be avoided during construction of the proposed Project.
- **Drainage 1-8, 10, 13, 14, 17, 26-28, 32, 35-37, 39-46, 48, 51-53, and 56-67.** These drainages make up a series of ephemeral washes and channels that enter the Reservoir from the south and west. Drainages 1 and 2 flow east through the staging area and eventually enter the Reservoir. The remaining drainages flow onto or off the unpaved access road and eventually enter the Reservoir from the south. These ephemeral drainages are largely unvegetated or vegetated by upland vegetation such as saguaro - foothill palo verde - velvet mesquite desert scrub. The drainages are not mapped in the National Wetlands Inventory (USFWS, 2022).
- **Drainage 68.** This drainage is the largest drainage within the Survey Area and includes Copper Basin Wash downstream of the Reservoir. Drainage 64 includes USACE wetland Waters of the U.S., CRBRWQCB wetlands of the state, USACE non-wetland Waters of the U.S., CRBRWQCB non-wetland Waters of the State, and CDFW streambeds and vegetation. Vegetation along drainage 64 is a diverse

matrix of saguaro – foothill palo verde – velvet mesquite desert scrub, Fremont cottonwood forest and woodland, arrow weed thickets, and cattail marsh. The wetlands along this drainage are primarily mapped as Freshwater Forested/Shrub Wetland (PSS1B) in the National Wetlands Inventory (USFWS, 2022). The OHWM downstream of the Reservoir does not span the entire canyon bottom and is therefore flanked by federally jurisdictional wetlands.

- **Drainage 69.** This drainage includes the Reservoir, a large deep reservoir located within the Survey Area which is mapped as USACE Waters of the U.S. It is also expected to be considered CRBRQWCB non-wetland Waters of the State and CDFW jurisdictional lakebed. Drainage 65 is mapped as Lake (L1UBH) in the National Wetlands Inventory (USFWS, 2022).

## 5.1. Wetland Waters of the U.S.

Based on the field assessment, including the wetland sample locations, federal wetlands were determined to be present within the Survey Area (see Figures 4a through 4o in Attachment A). The assessment determined that hydrology, hydric soils, and hydrophytic vegetation were all present in portions of drainages 9, 11, 12, 15, 16, 18, 19, 21–23, 25, 26, 30, 31, 33, 34, 36, 38, 47, 49, 50, 54, and 55. These wetlands were all present at or above the OHWM of the Reservoir and Copper Basin Wash. Wetland hydrology, included the presence of surface water and a high ground-water table. Hydric soils were present as indicated by a strong hydrogen sulfur odor and a sandy gleied-matrix. A dominance of hydrophytic vegetation was also present and included several wetland and riparian plant species. The Wetland Determination Data Forms for the Arid West Region are included in Attachment B. All impacts to wetland Waters of the U.S. are quantified in Attachment E.

## 5.2. Non-wetland Waters of the U.S.

Based on this assessment of OHWMs and Aspen's professional opinion, non-wetland Waters of the U.S. as outlined in 33 CFR Part 328, were determined to be present within the Survey Area (Table 4 and Figure 4 of Attachment A). This includes drainage 1-8, 10, 13, 14, 17, 26-28, 32, 35-37, 39-46, 48, 51-53, and 56-67, and portions of drainage 68. Some of the key hydrology indicators noted during the delineation included the indicators listed below. See Tables 3-1 and 3-2 in Attachment D for additional information. All impacts to non-wetland Waters of the U.S. are quantified in Attachment E.

- |  |   |
|--|---|
| ■ A11 – Scour holes downstream of obstructions | ■ B10 – Exposed root hairs below intact soil layer      |
| ■ A16 – Desiccation/mud cracks                 | ■ B11 – Silt deposits                                   |
| ■ B3 – Benches                                 | ■ B12 – Litter (organic debris, small twigs and leaves) |
| ■ B6 – Break in bank slope                     | ■ B13 – Drift (organic debris, larger than twigs)       |
| ■ B8 – Change in particle size distribution    | ■ C8 – Soil development                                 |

## 5.3. Wetlands of the State

Based on a field assessment, including wetland sample locations, and Aspen's professional opinion, wetlands of the State are present in the Survey Area (Table 4 and Figure 4 of Attachment A). This includes portions of drainages 9, 11, 12, 15, 16, 18, 19, 21–23, 25, 26, 30, 31, 33, 34, 36, 38, 47, 49, 50, 54, and 55, and 68. These wetlands were all present along the margins of the Reservoir and Copper Basin Wash. Wetland hydrology, hydric soils, and hydrophytic vegetation are all discussed above on Section 5.1. A summary of all impacts to CRBRWQCB jurisdictional features are summarized in Attachment F.

## 5.4. Waters of the State

Based on this assessment of OHWMs and Aspen's professional opinion, Waters of the State are present within the Survey Area (Table 4 and Figure 4 of Attachment A). This includes drainage 1-8, 10, 13, 14, 17, 26-28, 32, 35-37, 39-46, 48, 51-53, 56-67, 69 and portions of 68. . The limits of the Waters of the State match the limits of the Waters of the U.S. described above in Section 5.2. A summary of all impacts to CRBRWQCB jurisdictional features are summarized in Attachment F.

## 5.5. CDFW Jurisdictional Waters

Based on the field assessment and Aspen's professional opinion, CDFW jurisdictional streambeds and adjacent jurisdictional vegetation are present in the Survey Area (Table 4 and Figure 4 of Attachment A). This includes portions of Drainages 1 through 65 and is based on the presence of bed and bank and riparian vegetation. A summary of all impacts to CDFW jurisdictional features are summarized in Attachment F.

## 6. SUMMARY AND CONCLUSIONS

All of the potentially jurisdictional features mapped in the western portions of the Survey Area are characterized as ephemeral desert dry washes, whereas the drainage in the eastern portion of the Survey Area, below the Dam is characterized as perennial and supports jurisdictional wetlands. The dry washes in the western half of the Survey Area exhibited field indicators of linear deposits of sediment and/or plant debris, bank scour, and erosion. The wetlands in the eastern half of the Survey Area exhibited hydric soils, hydrophytic vegetation, and hydrology. It was determined that the Survey Area supports the following jurisdictional features:

- 0.94 acre of wetlands under the jurisdiction of the USACE and CRBRWQCB, including 0.02 acre that will be temporarily impacted and 0.06 acre that will be permanently impacted.
- 1.30 acres of Waters of the U.S./Waters of the State fall under the jurisdiction of the USACE and CRBRWQCB, including 0.11 acre that will be temporarily impacted and 0.04 acre that will be permanently impacted.
- 5.55 acres of streambeds and riparian habitat under the jurisdiction of CDFW, including 0.29 acres that will be temporarily impacted and 0.25 acres that will be permanently impacted.

The presence and locations of these features should help guide Metropolitan with the development of the project designs and reduce potential impacts or the need to obtain regulatory permits. The conclusions presented above represent Aspen's professional opinion based on knowledge and experience with the Corps, the SWRCB, and the CDFW, including regulatory guidance documents and manuals. The Corps, CRBRWQCB, and CDFW have final authority in determining the status and presence and extent of jurisdictional wetlands/waters.

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# **Attachment A**

## **FIGURES**





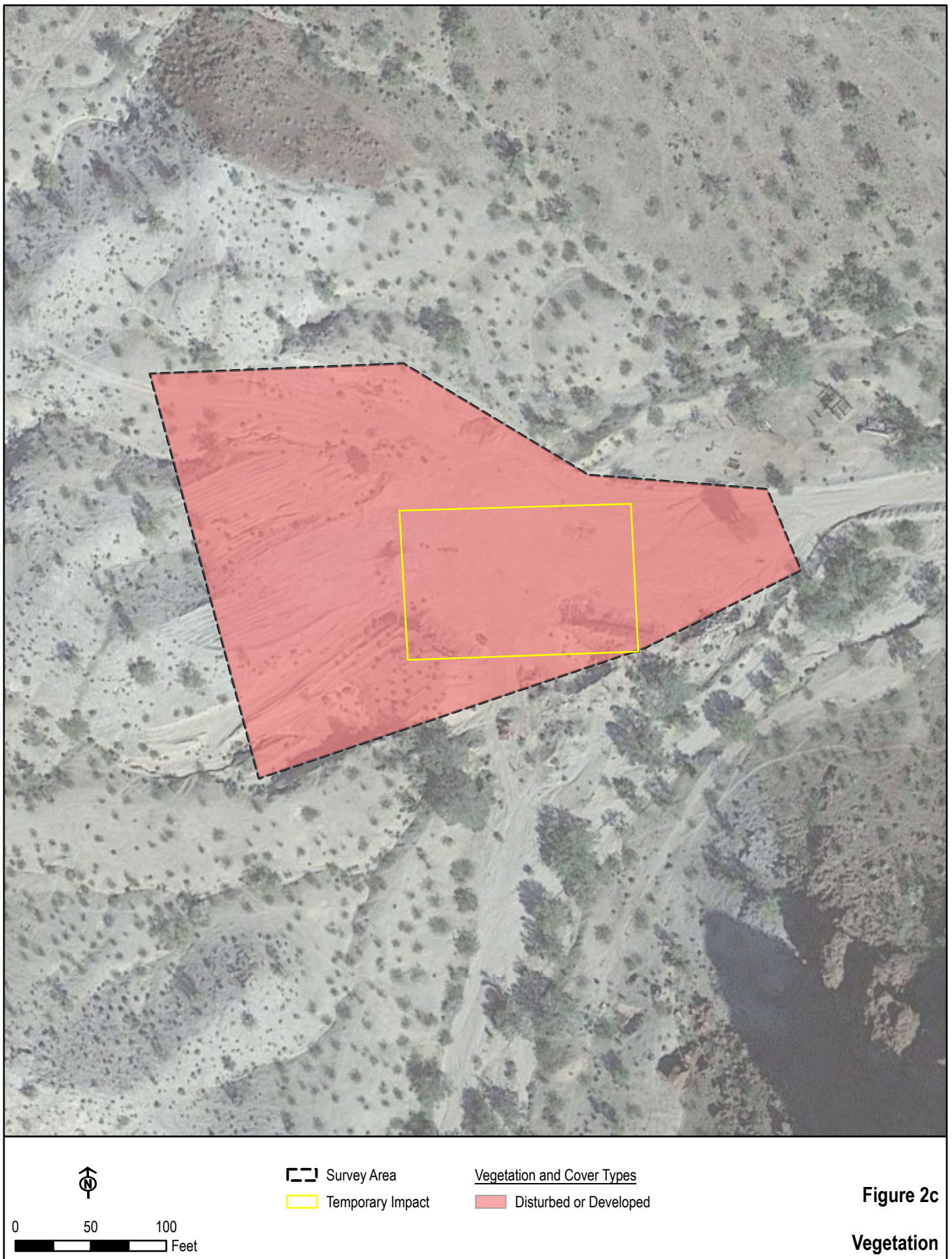






**Figure 2b****Vegetation**





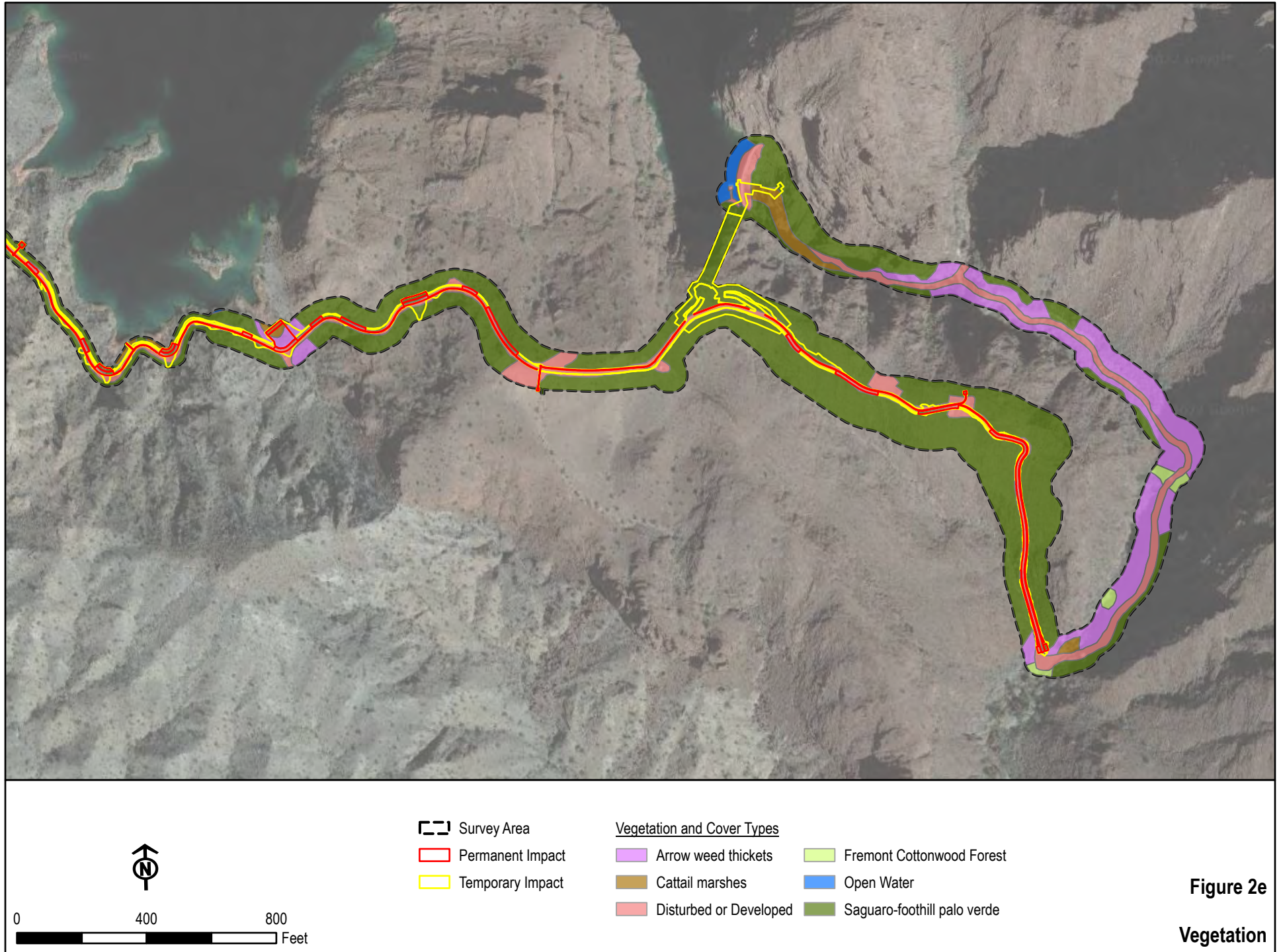




**Figure 2d**

**Vegetation**















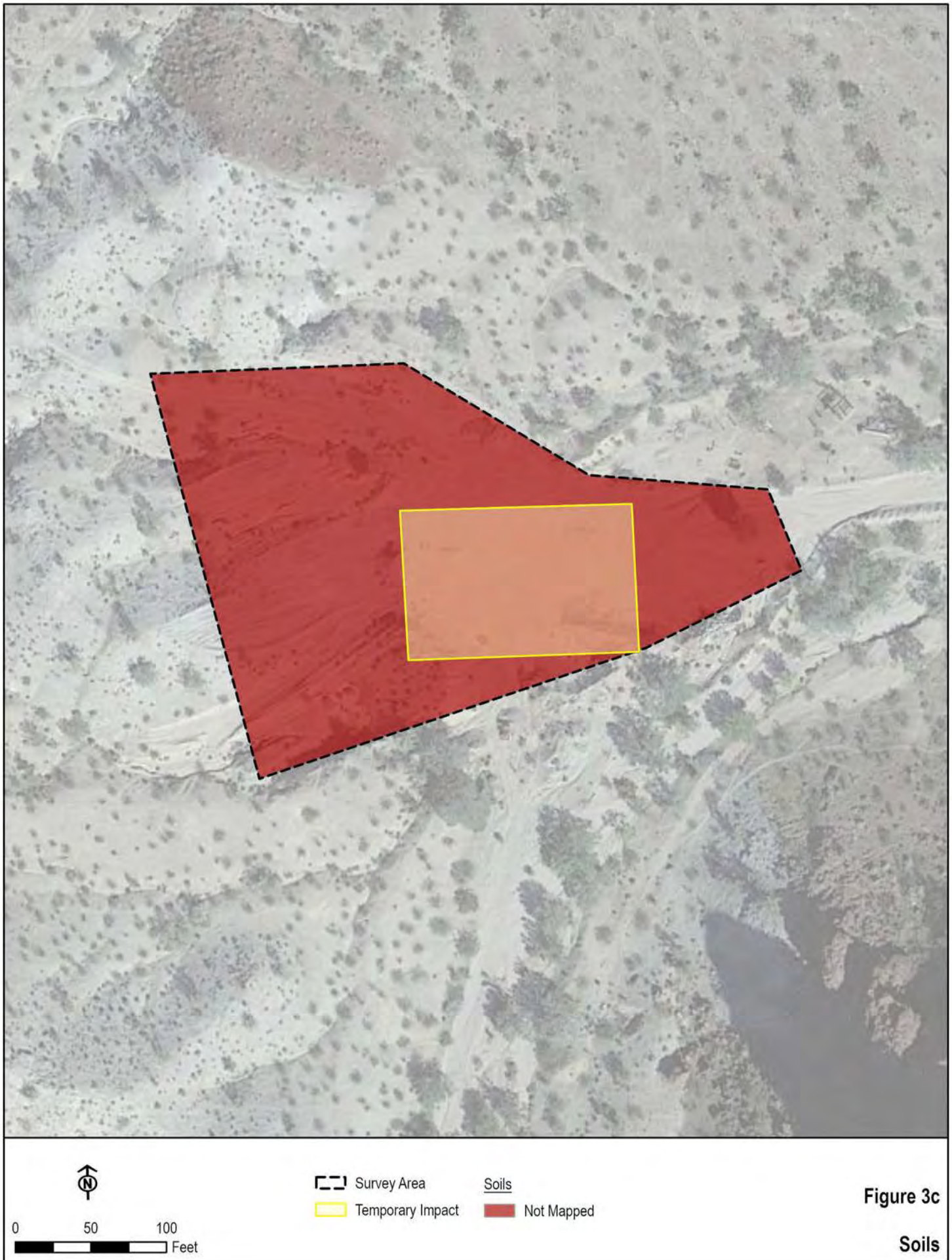
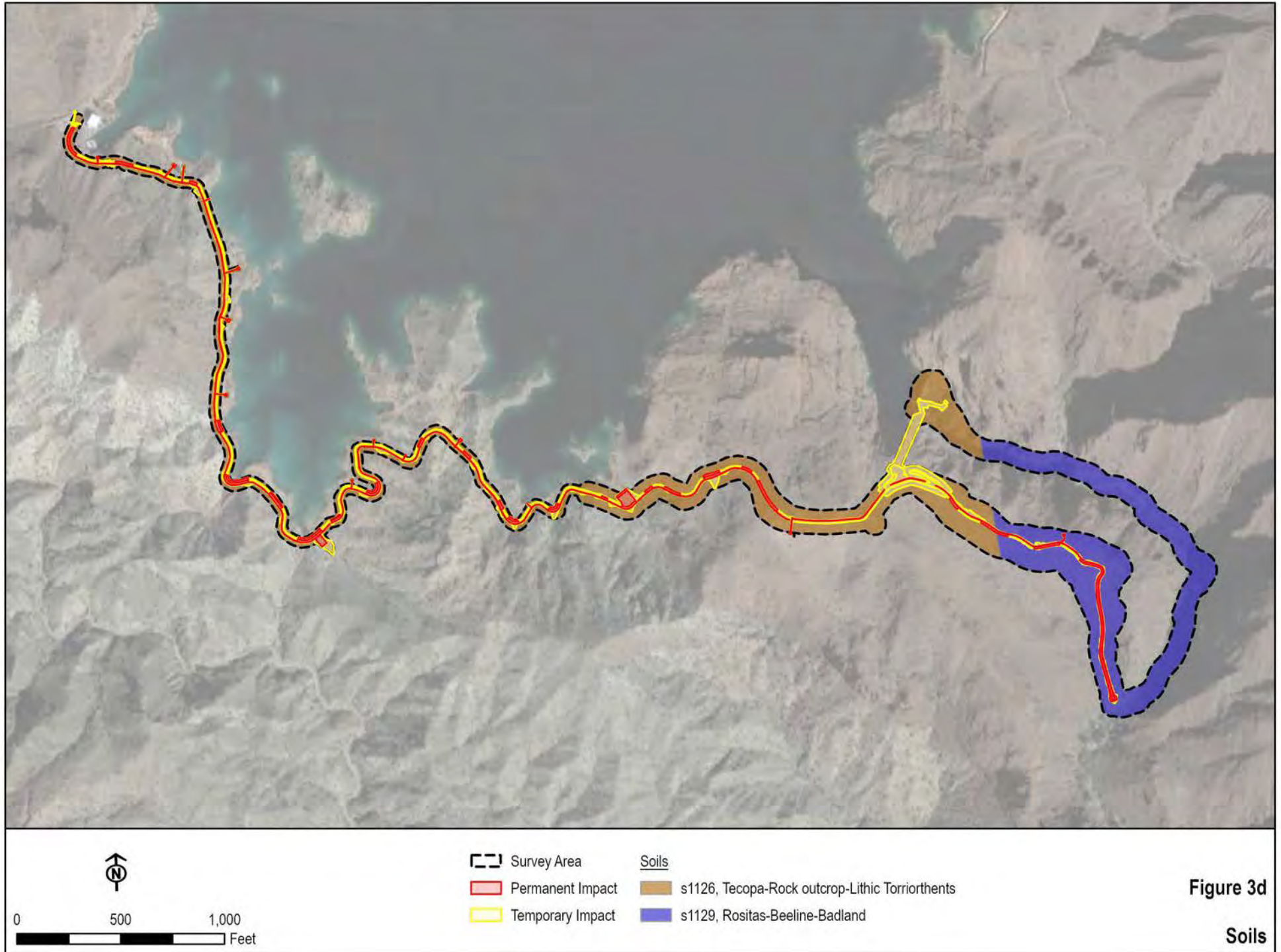


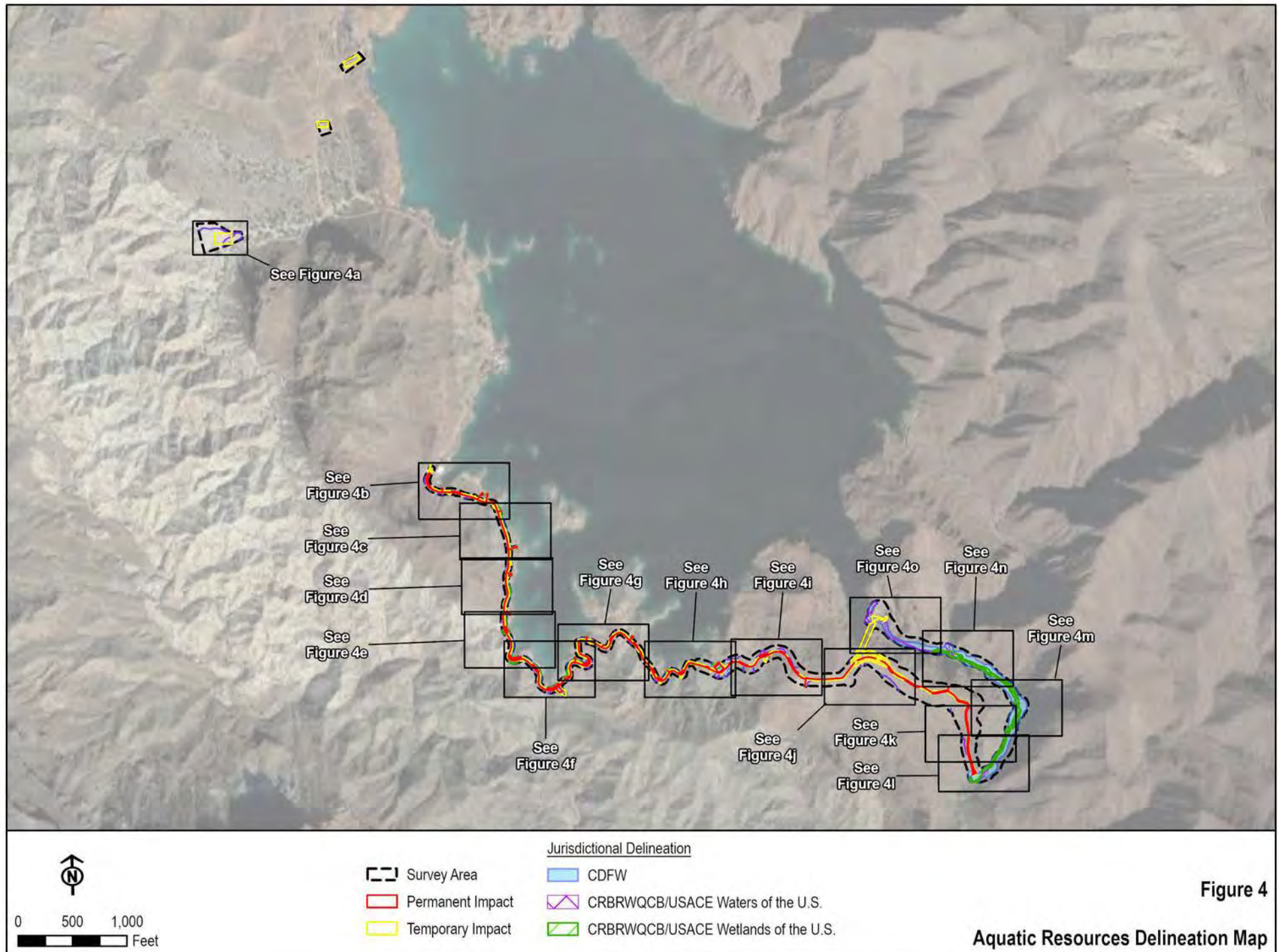
Figure 3c

Soils

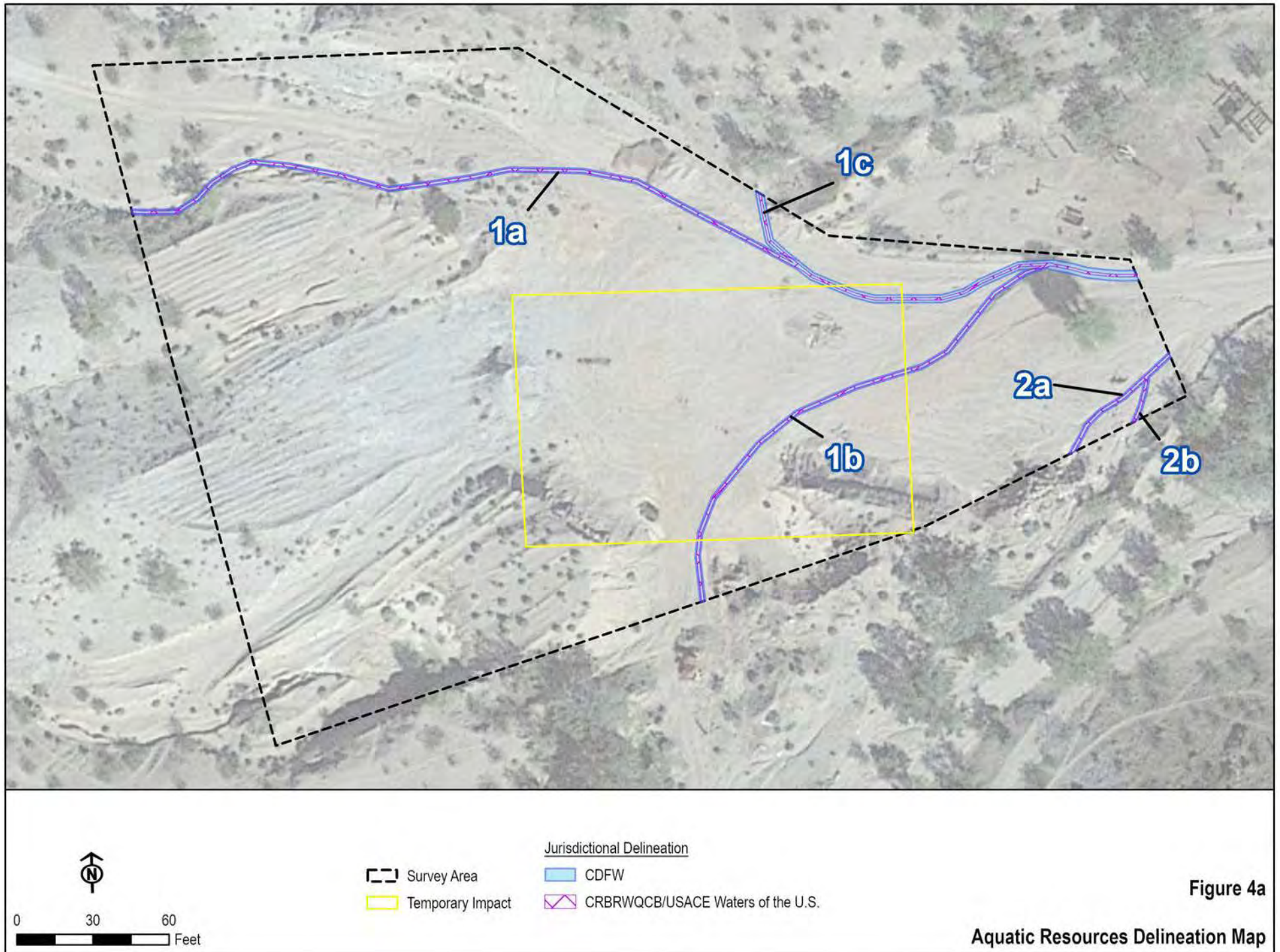














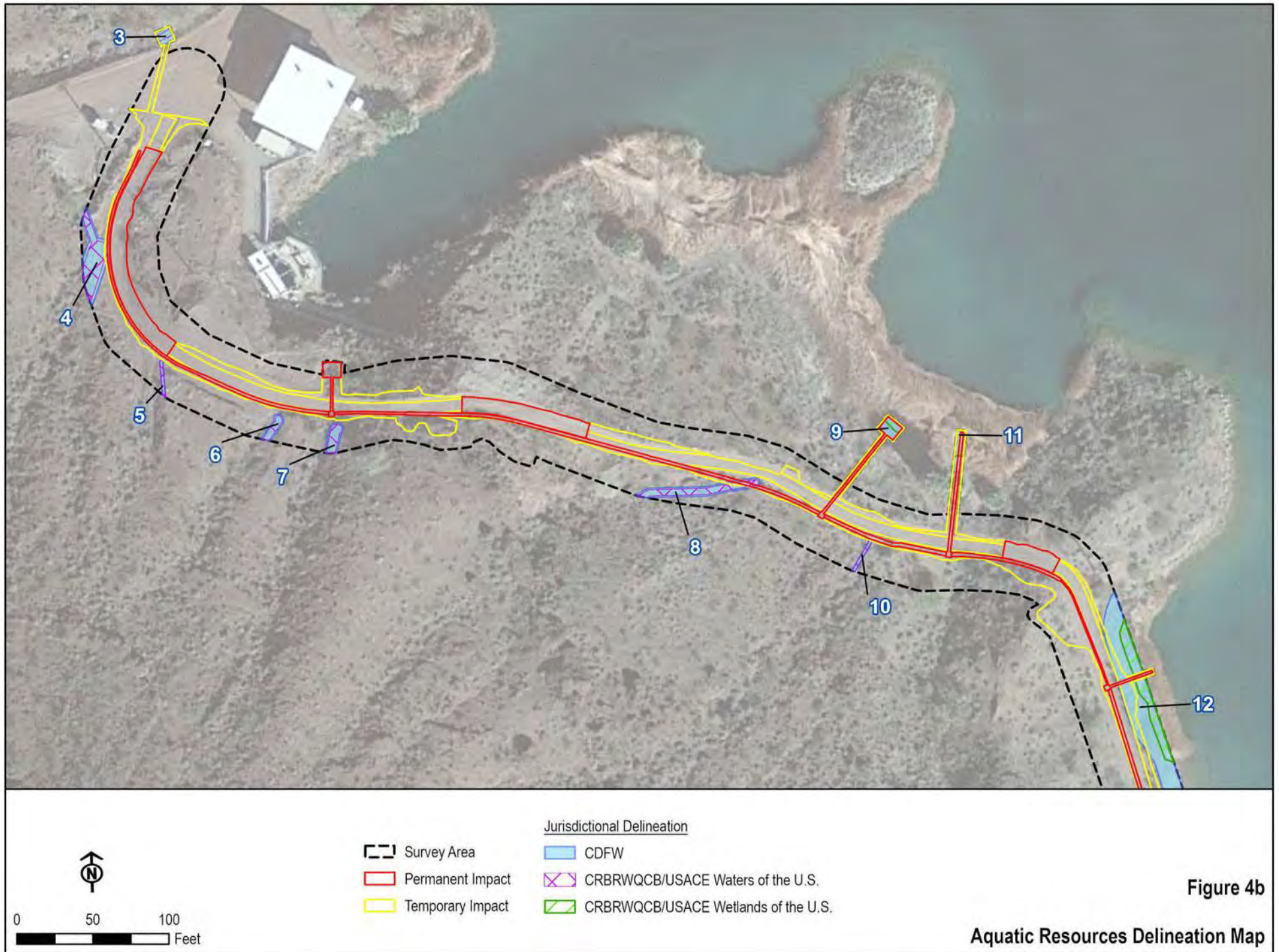
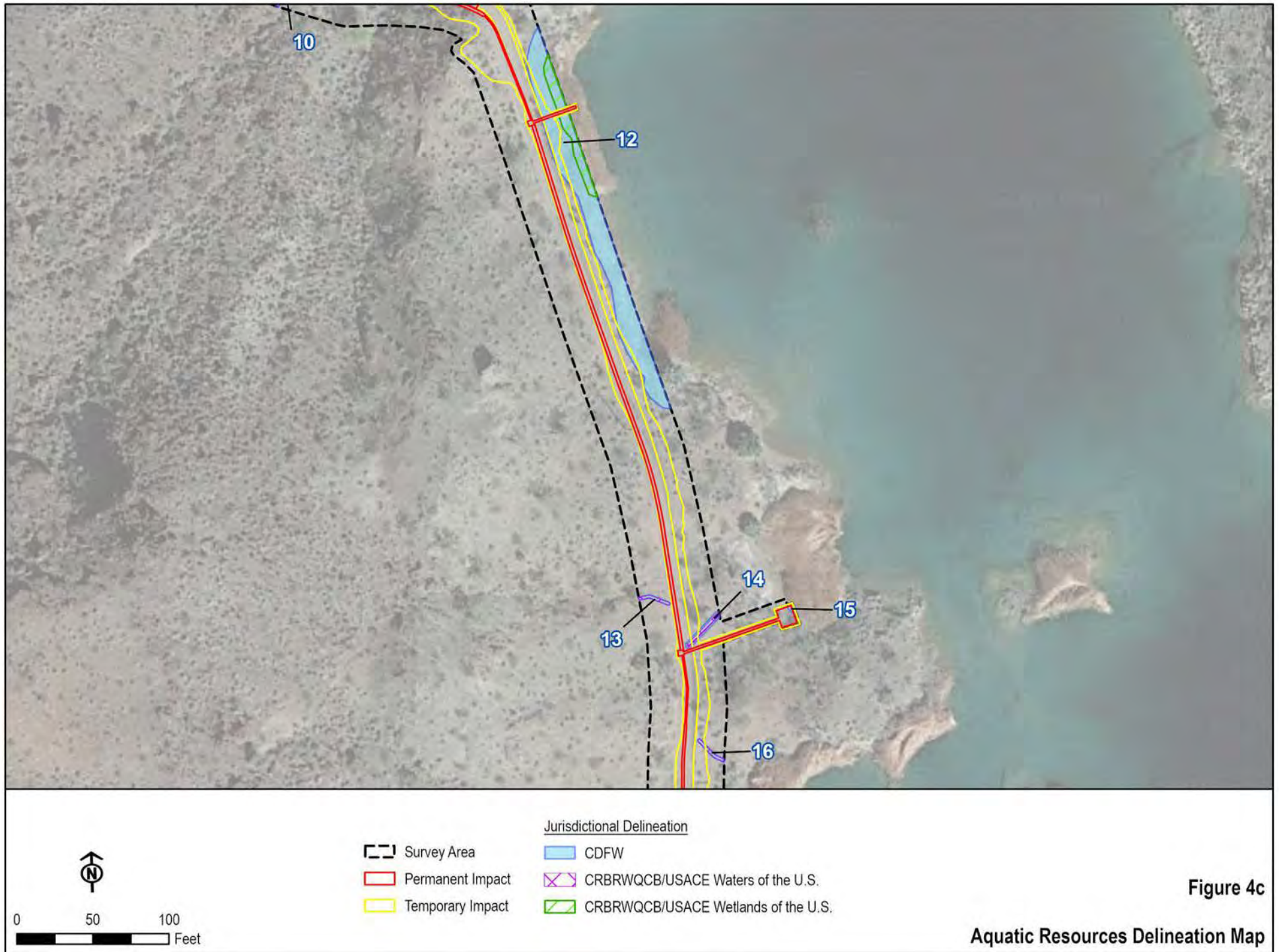


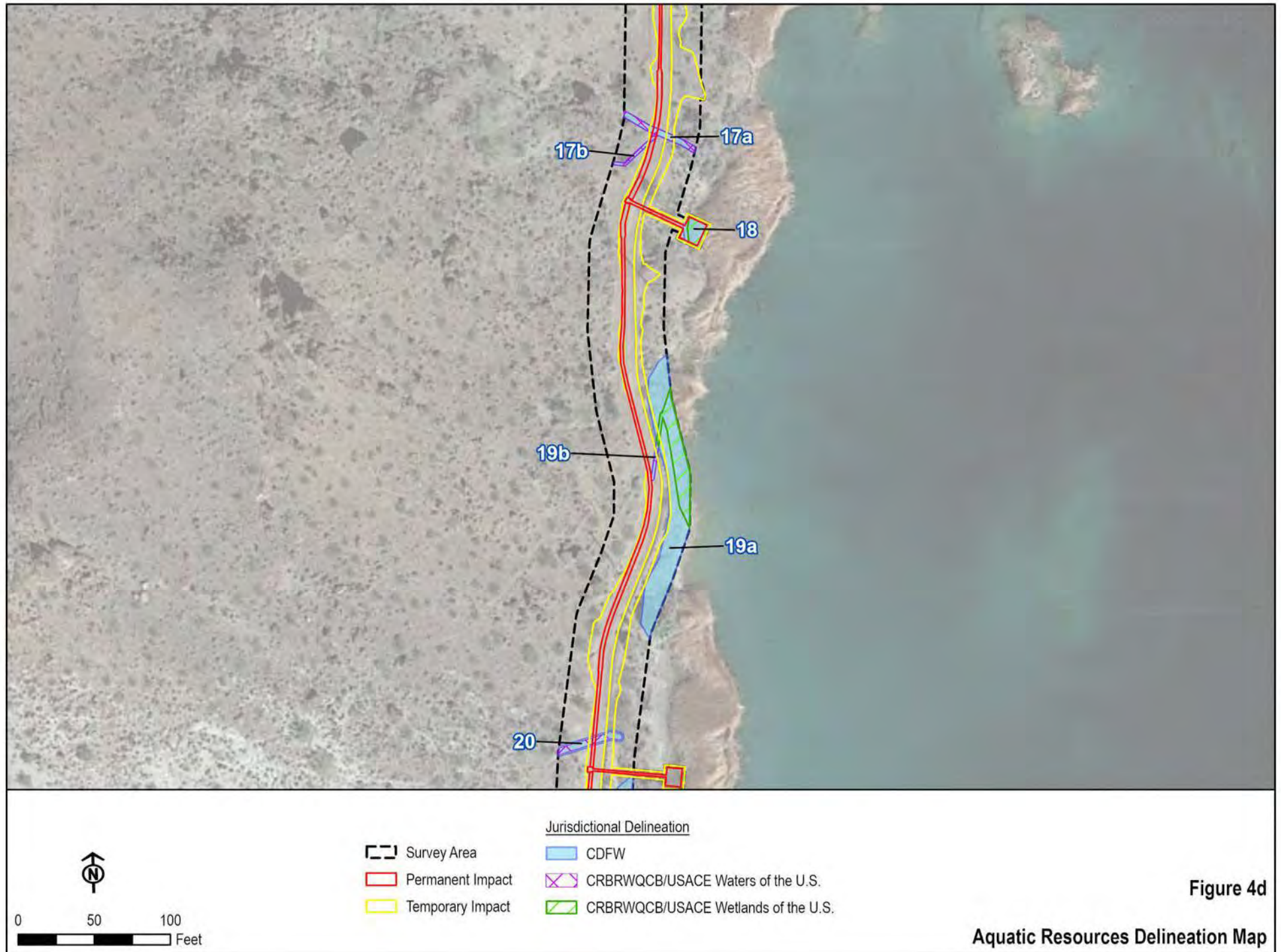
Figure 4b

Aquatic Resources Delineation Map

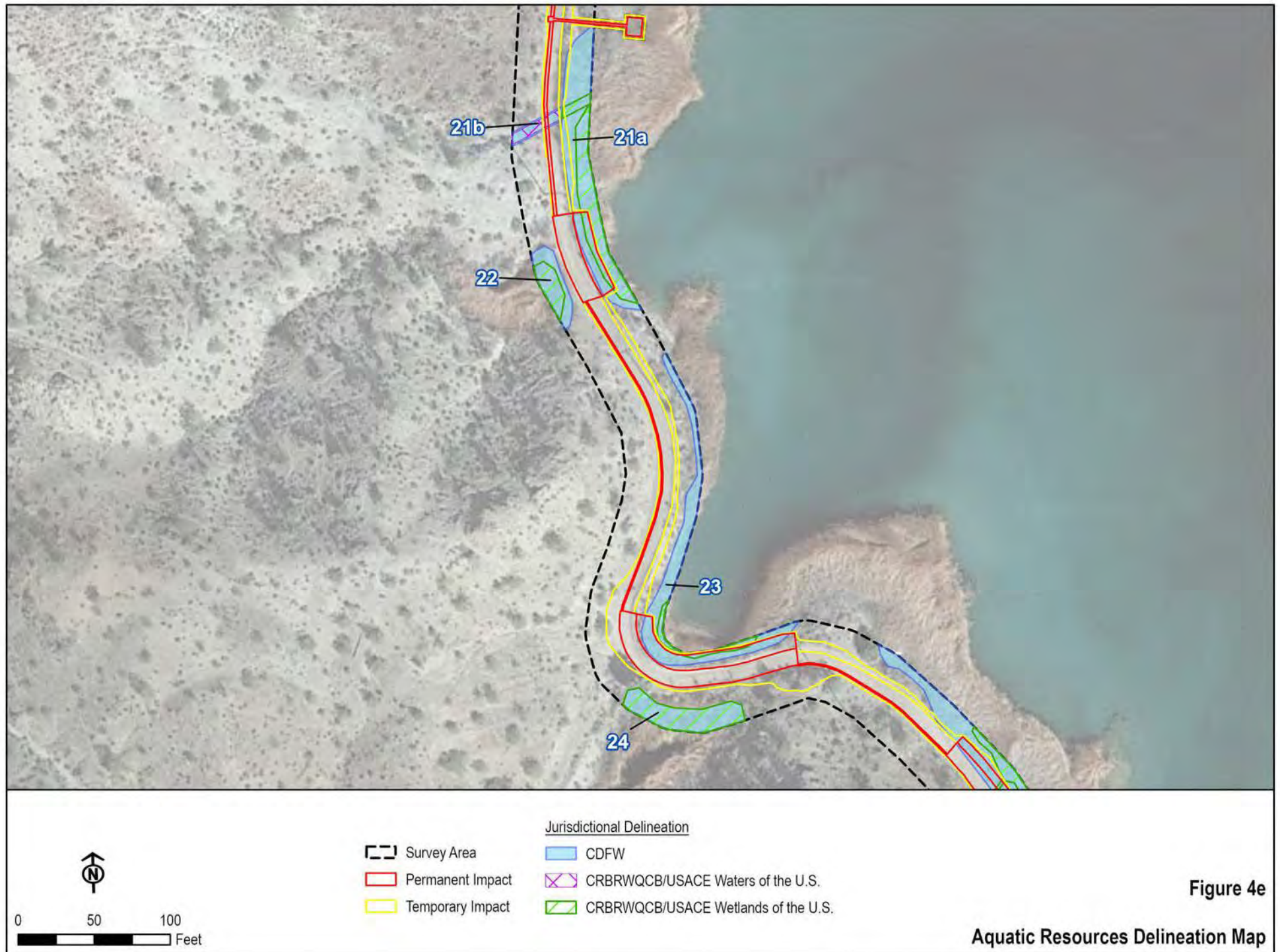




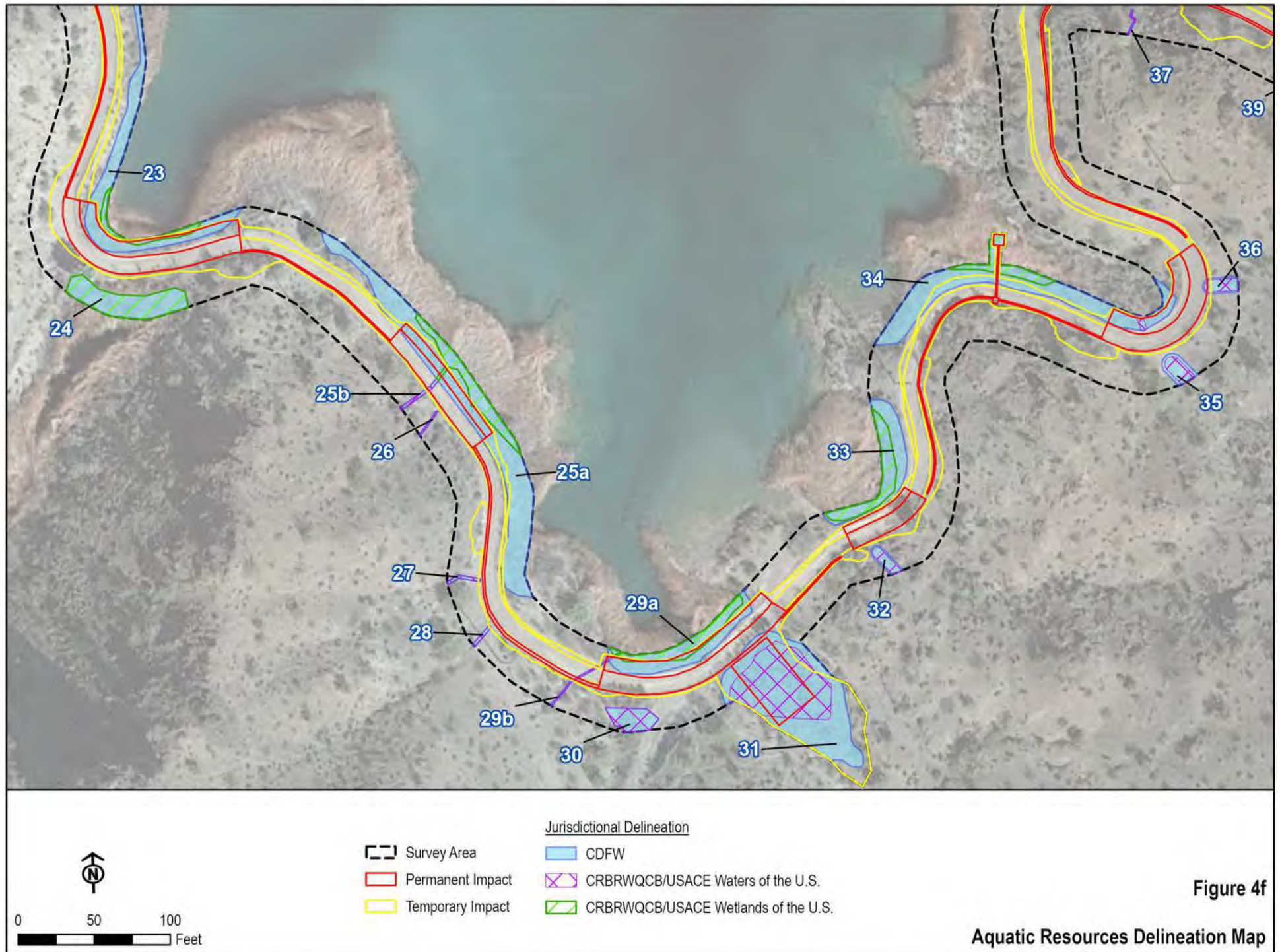




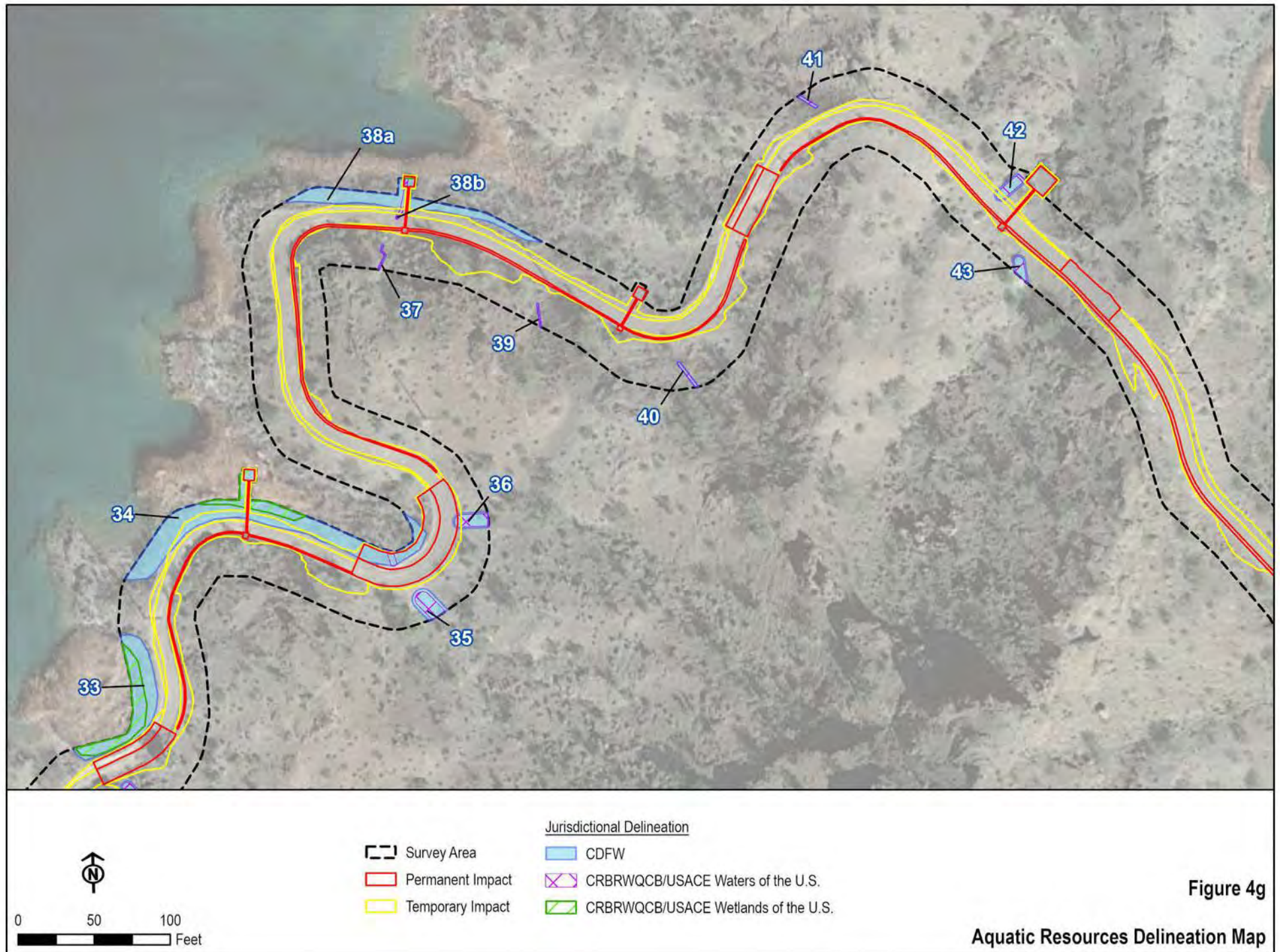




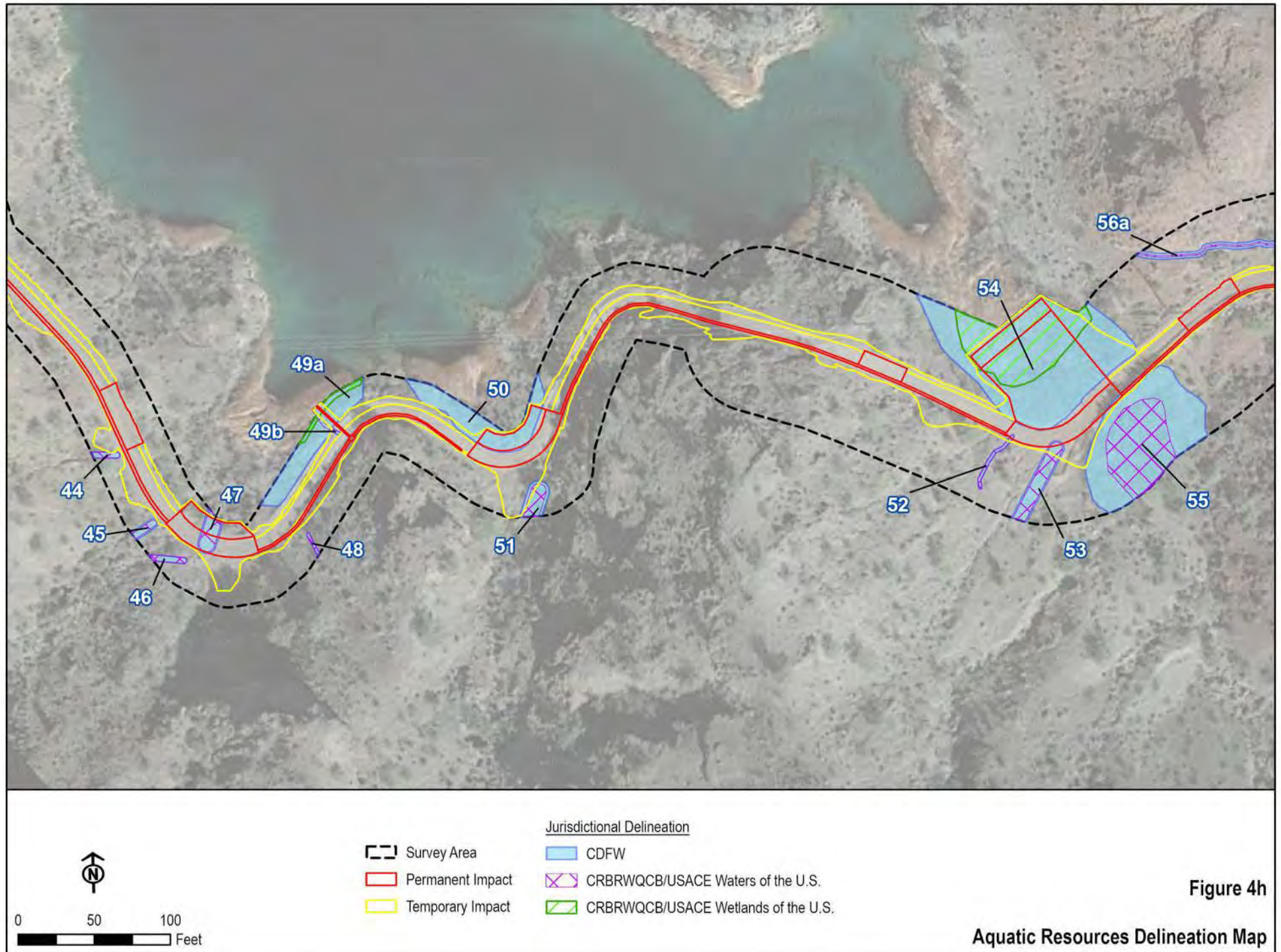




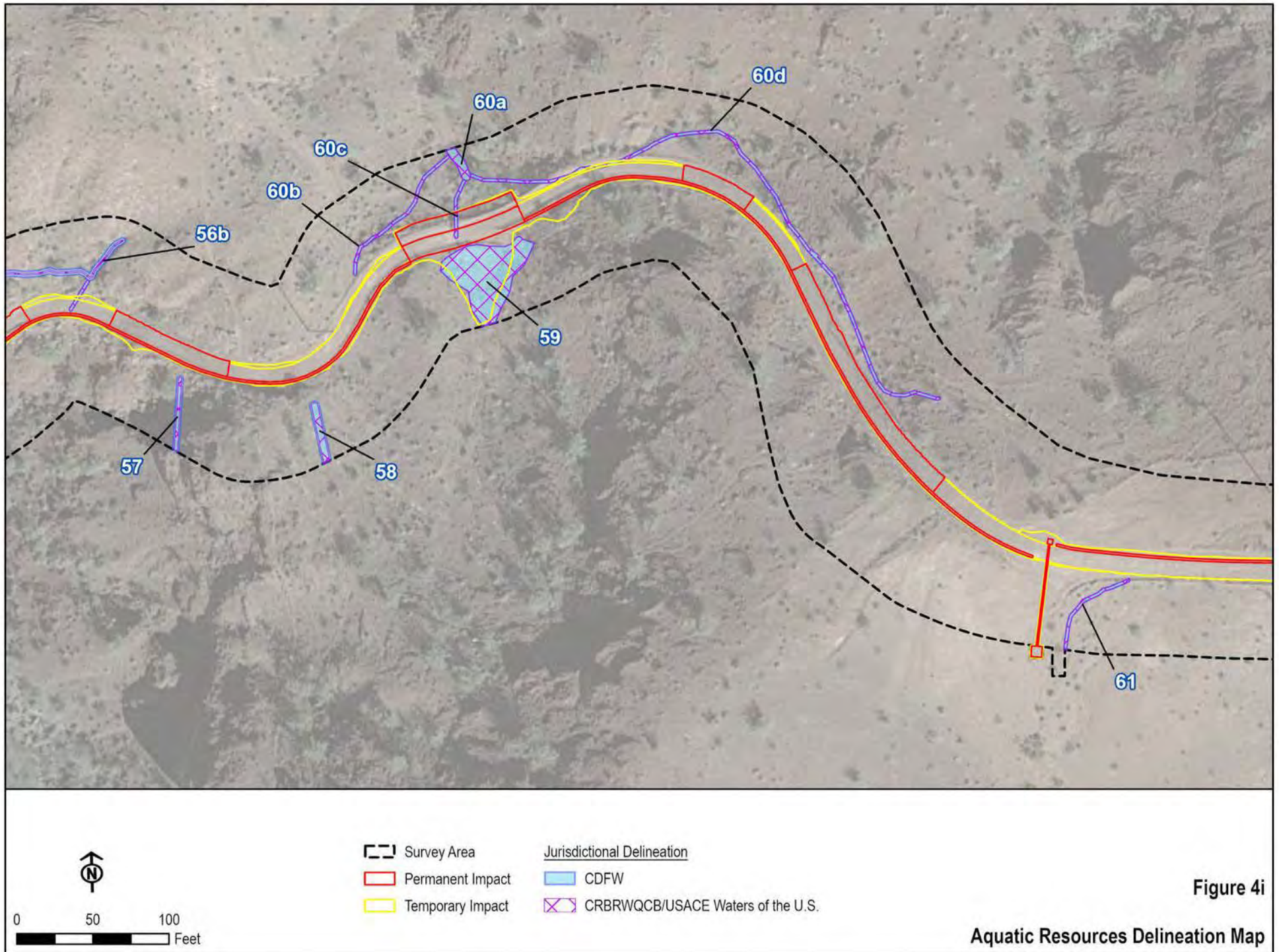




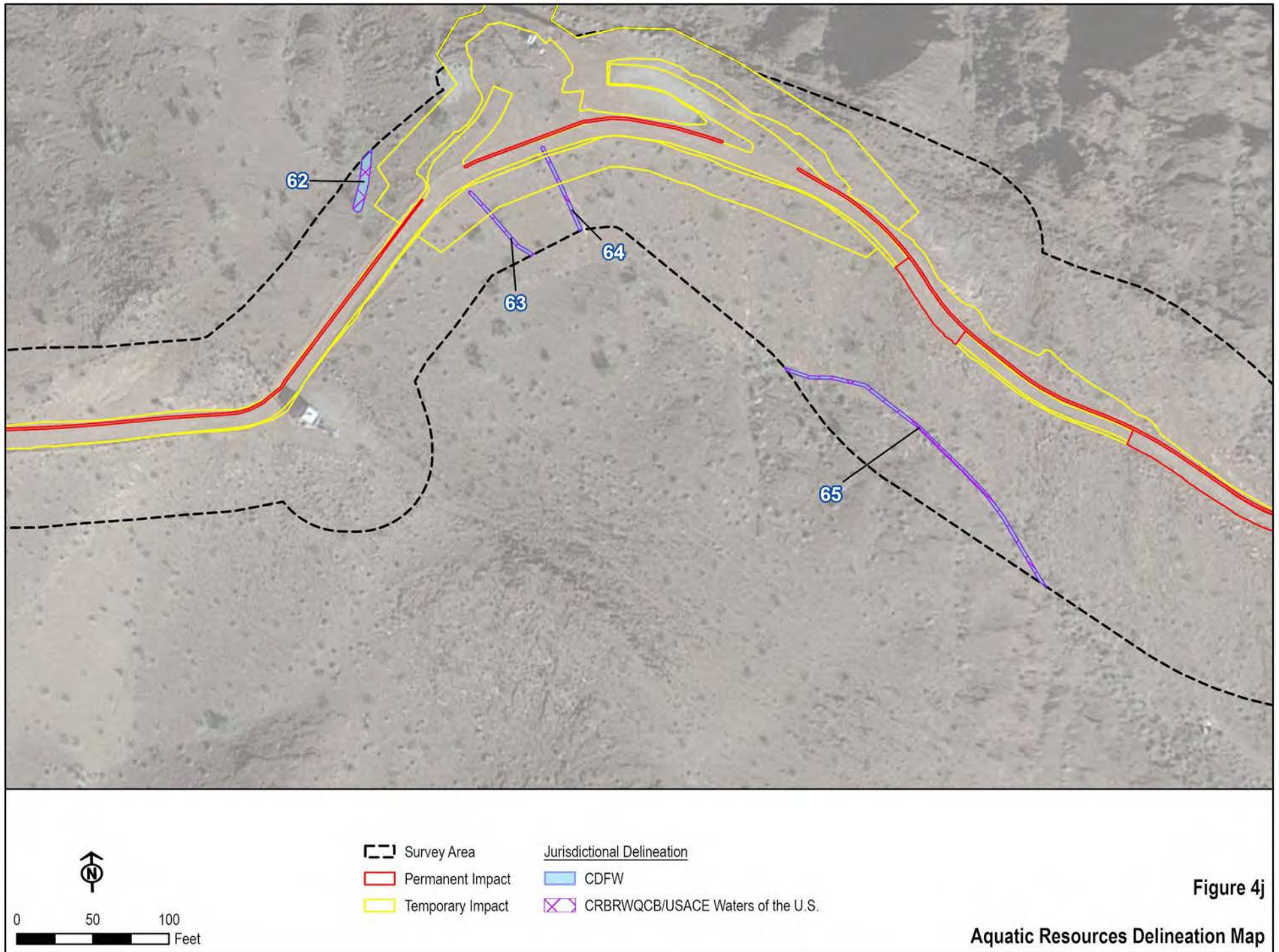




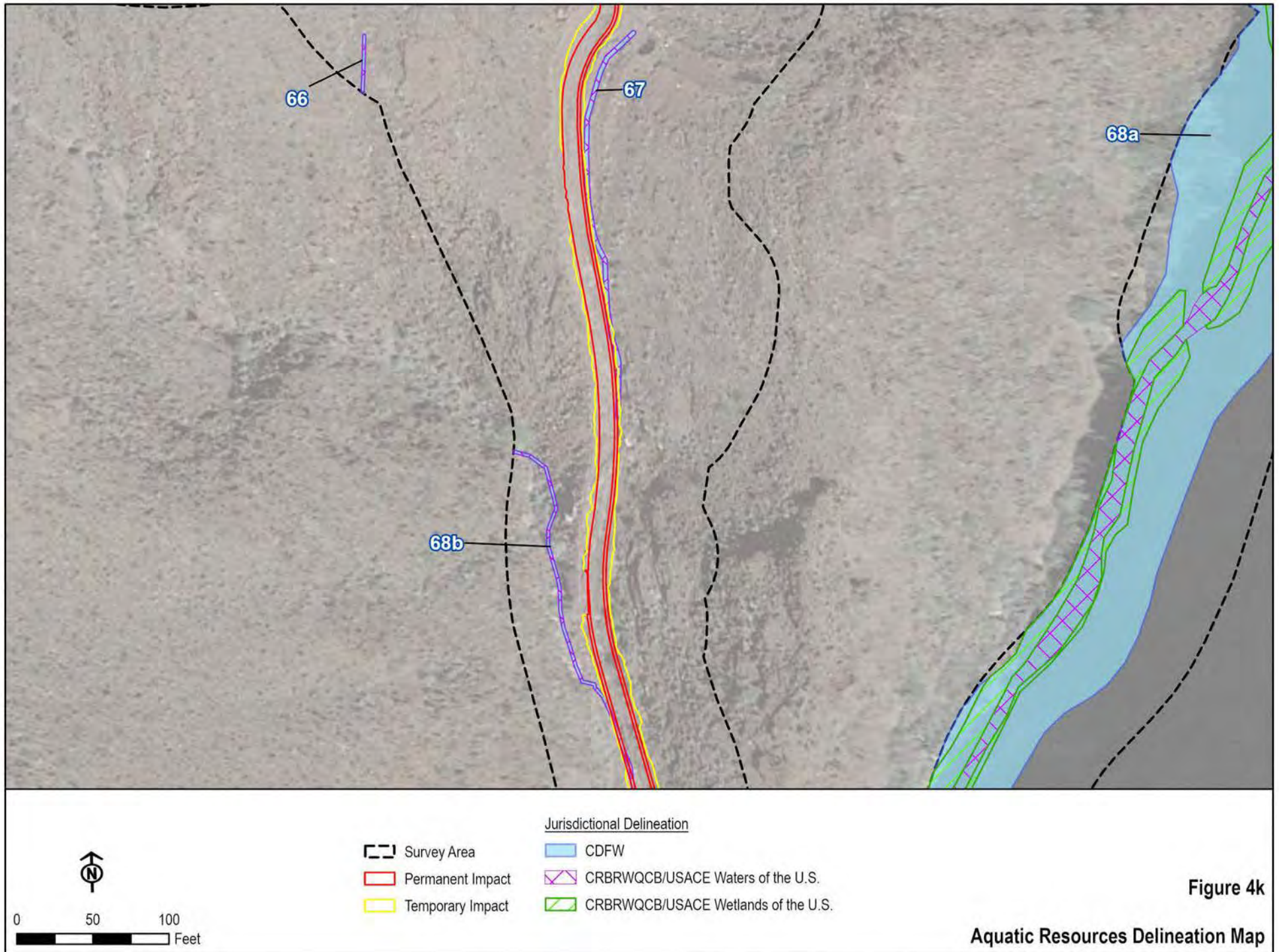




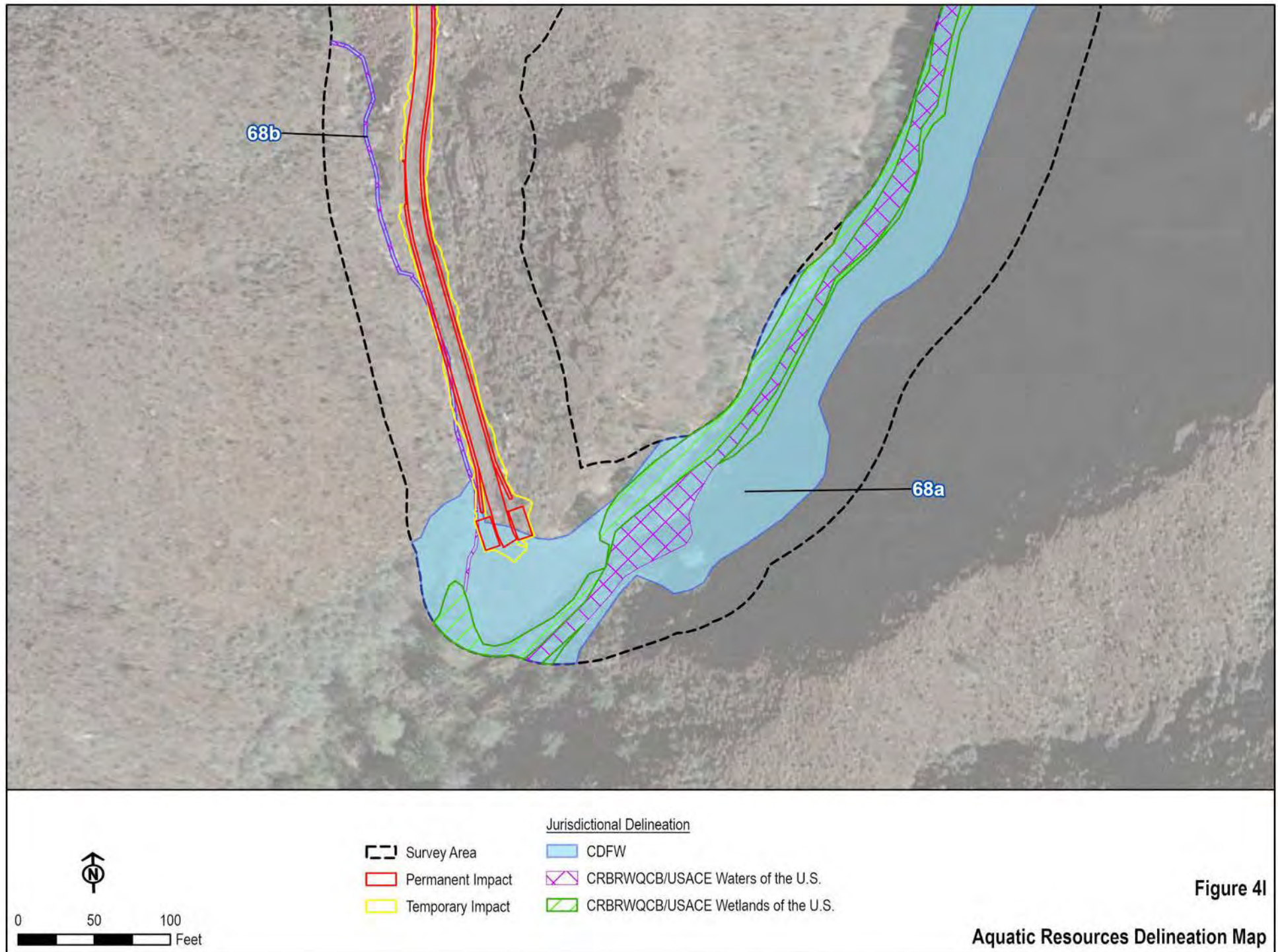




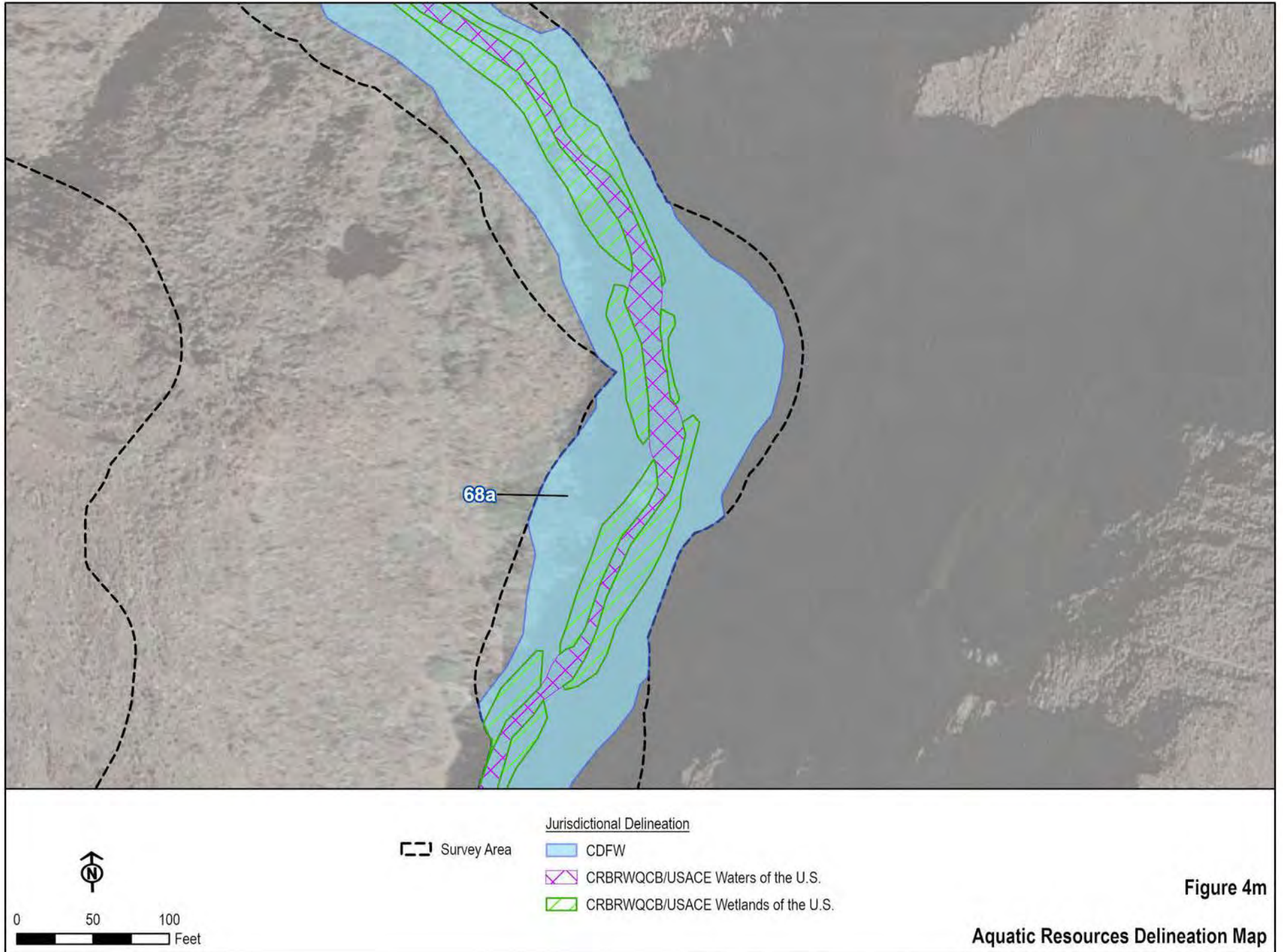




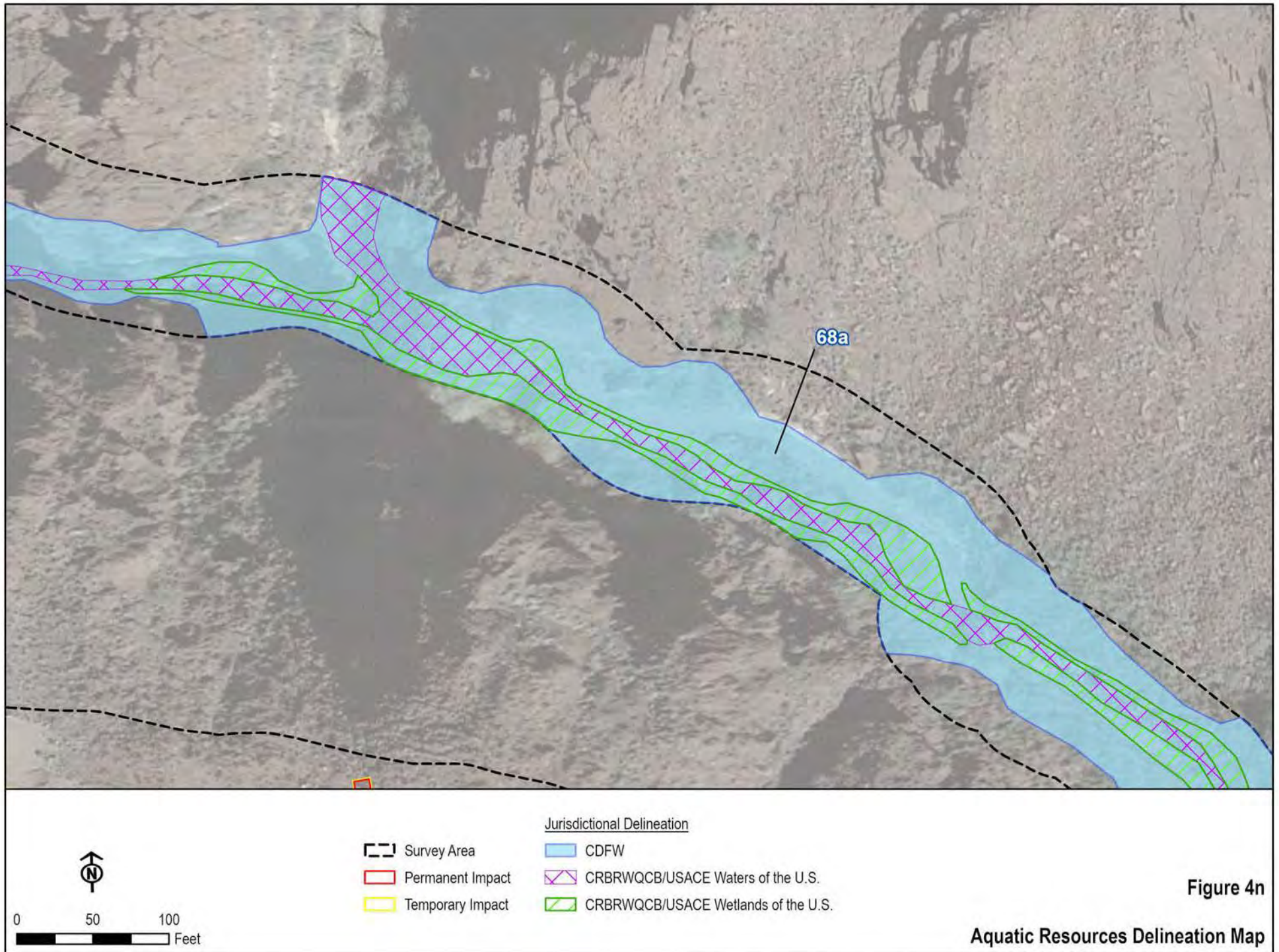




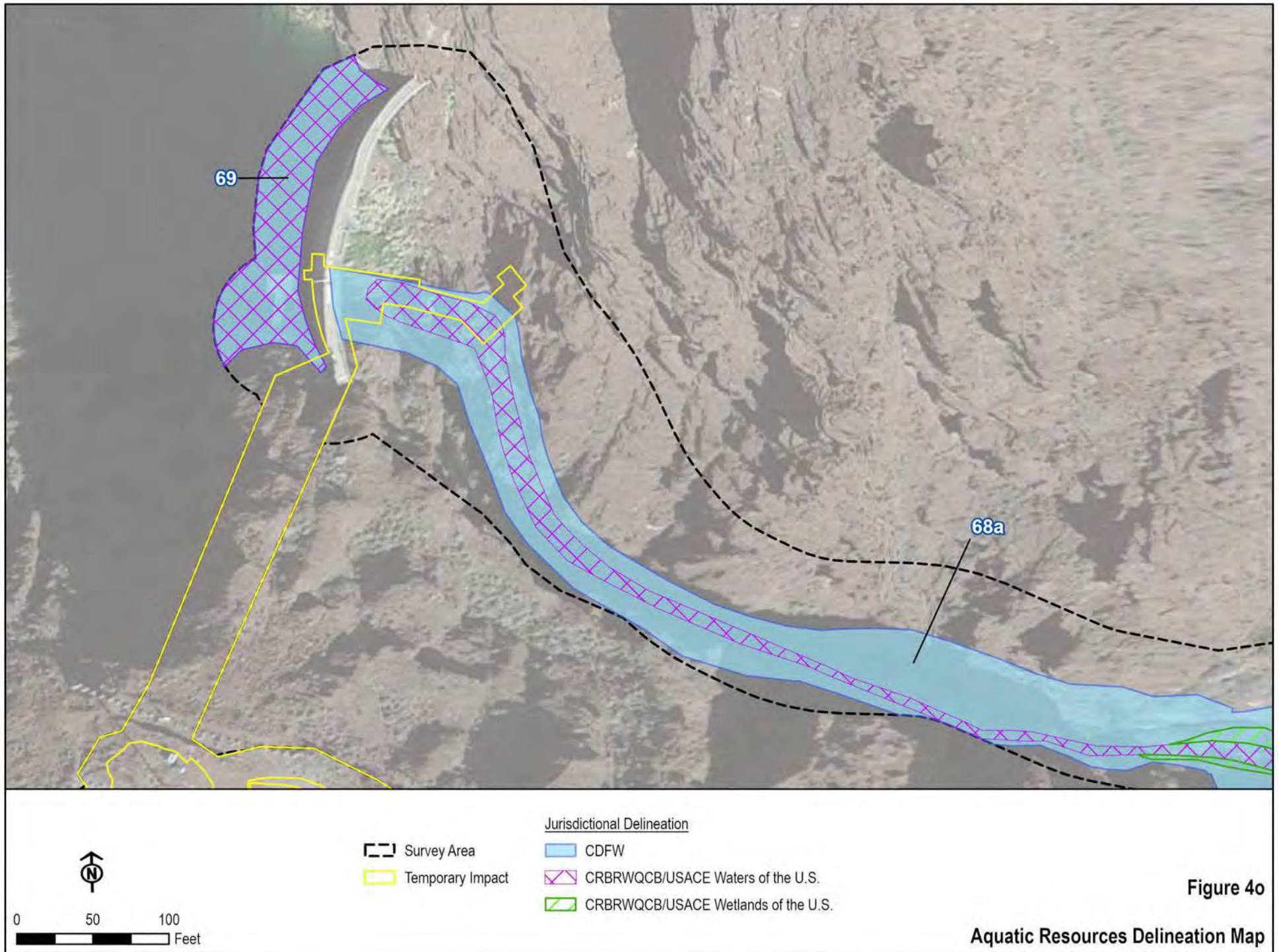












# **Attachment B**

## **PHOTO EXHIBIT**



## COPPER BASIN DISCHARGE VALVE REPLACEMENT AND ACCESS ROAD IMPROVEMENT PROJECT



Photo 1: West-facing view of the Copper Basin valve up the upper terminus of drainage 64a.



Photo 2: East-facing view of Copper Basin Wash (drainage 64a) from the downstream-side of the dam in.



Photo 3: West-facing view of wetland areas along Copper Basin Wash (drainage 64a).



Photo 4: West-facing view of upstream portion of Copper Basin Wash (drainage 64a).



## COPPER BASIN DISCHARGE VALVE REPLACEMENT AND ACCESS ROAD IMPROVEMENT PROJECT



Photo 5: North-facing view of the access road adjacent to Copper Basin Wash (drainage 64b), downstream of the dam.



Photo 6: Southeast-facing view of the access road leading down into Copper Basin Wash (drainage 64b).



Photo 7: North-facing view of the access road along Copper Basin Wash (drainage 64b), downstream of the dam.



Photo 8: Northwest-facing view of the access road leading down into Copper Basin Wash (drainage 64b) with drainage 64b shown on the left side of the road.



## COPPER BASIN DISCHARGE VALVE REPLACEMENT AND ACCESS ROAD IMPROVEMENT PROJECT



Photo 9: North-facing overview of Copper Basin Reservoir, near drainage 6.



Photo 10: Northeast-facing view of wetlands along the margins of Copper Basin Reservoir, near drainage 15.



Photo 11: Northeast-facing view of drainage 21, adjacent to the Copper Basin access road.



Photo 12: East-facing view of wetlands along the margins of Copper Basin Reservoir, near drainage 20.



## COPPER BASIN DISCHARGE VALVE REPLACEMENT AND ACCESS ROAD IMPROVEMENT PROJECT



Photo 13: Southeast-facing view of the Copper Basin access road adjacent to Copper Basin Reservoir (drainage 22a).



Photo 14: South-facing view of ephemeral drainage 3 along the Copper Basin access road.



Photo 15: Northwest-facing view ephemeral drainage 60, near the Copper Basin access road.



Photo 16: Northwest-facing view of the Copper Basin access road adjacent to ephemeral drainage 63.

# **Attachment C**

## **WETLAND DELINEATION FORMS**

**WETLAND DETERMINATION DATA FORM – Arid West Region**

Project/Site: Copper Basin City/County: Earp/San Bernardino Sampling Date: 3/31/2021  
 Applicant/Owner: MWD State: CA Sampling Point: 1  
 Investigator(s): Justin Wood, Chris Huntely Section, Township, Range: S11, T2N, R26E  
 Landform (hillslope, terrace, etc.): Canyon bottom Local relief (concave, convex, none): concave Slope (%): 0-1  
 Subregion (LRR): West Range Lat: 34° 16' 41" Long: 114° 13' 15" Datum: NAD84  
 Soil Map Unit Name: Not mapped NWI classification: Riverine  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)  
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐  
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>			
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>			
Remarks:					

**VEGETATION – Use scientific names of plants.**

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A)  Total Number of Dominant Species Across All Strata: <u>3</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B)  Prevalence Index = B/A = _____
<b>Sapling/Shrub Stratum</b> (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				
<b>Herb Stratum</b> (Plot size: <u>1-m x 1-m</u> )				<b>Hydrophytic Vegetation Indicators:</b> <input checked="" type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>Adiantum capillus-veneris</u>	<u>30</u>	<u>Yes</u>	<u>FACW</u>	
2. <u>Cyperus involucratus</u>	<u>20</u>	<u>Yes</u>	<u>FACW</u>	
3. <u>Pulicaria paludosa</u>	<u>20</u>	<u>Yes</u>	<u>FAC</u>	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
_____ = Total Cover				
<b>Woody Vine Stratum</b> (Plot size: _____)				<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____				
Remarks:				

**SOIL**Sampling Point: 1**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-2	7.5YR 4/2	100					Sandy loam	
2-18	GLE1 5/10Y	100					Sandy loam	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.<sup>2</sup>Location: PL=Pore Lining, M=Matrix.**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

- ☐ Histosol (A1)  
☐ Histic Epipedon (A2)  
☐ Black Histic (A3)  
☐ Hydrogen Sulfide (A4)  
☐ Stratified Layers (A5) (**LRR C**)  
☐ 1 cm Muck (A9) (**LRR D**)  
☐ Depleted Below Dark Surface (A11)  
☐ Thick Dark Surface (A12)  
☐ Sandy Mucky Mineral (S1)  
☒ Sandy Gleyed Matrix (S4)

- ☐ Sandy Redox (S5)  
☐ Stripped Matrix (S6)  
☐ Loamy Mucky Mineral (F1)  
☐ Loamy Gleyed Matrix (F2)  
☐ Depleted Matrix (F3)  
☐ Redox Dark Surface (F6)  
☐ Depleted Dark Surface (F7)  
☐ Redox Depressions (F8)  
☐ Vernal Pools (F9)

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- ☐ 1 cm Muck (A9) (**LRR C**)  
☐ 2 cm Muck (A10) (**LRR B**)  
☐ Reduced Vertic (F18)  
☐ Red Parent Material (TF2)  
☐ Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type: \_\_\_\_\_

Depth (inches): \_\_\_\_\_

**Hydric Soil Present?** Yes ☒ No ☐

Remarks:

**HYDROLOGY****Wetland Hydrology Indicators:**

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)  
☒ High Water Table (A2)  
☐ Saturation (A3)  
☐ Water Marks (B1) (**Nonriverine**)  
☐ Sediment Deposits (B2) (**Nonriverine**)  
☐ Drift Deposits (B3) (**Nonriverine**)  
☐ Surface Soil Cracks (B6)  
☐ Inundation Visible on Aerial Imagery (B7)  
☒ Water-Stained Leaves (B9)

- ☐ Salt Crust (B11)  
☐ Biotic Crust (B12)  
☒ Aquatic Invertebrates (B13)  
☒ Hydrogen Sulfide Odor (C1)  
☐ Oxidized Rhizospheres along Living Roots (C3)  
☐ Presence of Reduced Iron (C4)  
☐ Recent Iron Reduction in Tilled Soils (C6)  
☐ Thin Muck Surface (C7)  
☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)  
☐ Sediment Deposits (B2) (**Riverine**)  
☐ Drift Deposits (B3) (**Riverine**)  
☐ Drainage Patterns (B10)  
☐ Dry-Season Water Table (C2)  
☐ Crayfish Burrows (C8)  
☐ Saturation Visible on Aerial Imagery (C9)  
☐ Shallow Aquitard (D3)  
☐ FAC-Neutral Test (D5)

**Field Observations:**Surface Water Present? Yes ☐ No ☒ Depth (inches): \_\_\_\_\_Water Table Present? Yes ☒ No ☐ Depth (inches): 2Saturation Present? Yes ☐ No ☐ Depth (inches): \_\_\_\_\_  
(includes capillary fringe)**Wetland Hydrology Present?** Yes ☒ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:



**WETLAND DETERMINATION DATA FORM – Arid West Region**

Project/Site: Copper Basin City/County: Earp/San Bernardino Sampling Date: 3/31/2021  
 Applicant/Owner: MWD State: CA Sampling Point: 2  
 Investigator(s): Justin Wood, Chris Huntely Section, Township, Range: S10, T2N, R26E  
 Landform (hillslope, terrace, etc.): Canyon bottom Local relief (concave, convex, none): concave Slope (%): 0-1  
 Subregion (LRR): West Range Lat: 34° 16' 41" Long: 114° 14' 00" Datum: NAD84  
 Soil Map Unit Name: Not mapped NWI classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)  
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐  
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Remarks:	

**VEGETATION – Use scientific names of plants.**

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)  Total Number of Dominant Species Across All Strata: <u>1</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B)  Prevalence Index = B/A = _____
<u>Sapling/Shrub Stratum</u> (Plot size: _____)	_____	_____	_____	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	<b>Hydrophytic Vegetation Indicators:</b> <input checked="" type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
_____ = Total Cover				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
<u>Herb Stratum</u> (Plot size: <u>1-m x 1-m</u> )	_____	_____	_____	
1. <u>Typha sp.</u>	<u>50</u>	<u>Yes</u>	<u>OBL</u>	<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
2. <u>Distichlis spicata</u>	<u>5</u>	<u>No</u>	<u>FAC</u>	
3. _____	_____	_____	_____	<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
8. _____	_____	_____	_____	
_____ = Total Cover				<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
<u>Woody Vine Stratum</u> (Plot size: _____)	_____	_____	_____	
1. _____	_____	_____	_____	<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
2. _____	_____	_____	_____	
_____ = Total Cover				<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____	_____	_____	_____	
Remarks:				



**SOIL**Sampling Point: 2**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-4	2.5YR 5/6	100					Silty loam	
4-16	GLE2 7/5PB	100					Silty loam	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.<sup>2</sup>Location: PL=Pore Lining, M=Matrix.**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

- ☐ Histosol (A1)  
☐ Histic Epipedon (A2)  
☐ Black Histic (A3)  
☐ Hydrogen Sulfide (A4)  
☐ Stratified Layers (A5) (**LRR C**)  
☐ 1 cm Muck (A9) (**LRR D**)  
☐ Depleted Below Dark Surface (A11)  
☐ Thick Dark Surface (A12)  
☐ Sandy Mucky Mineral (S1)  
☒ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)  
☐ Stripped Matrix (S6)  
☐ Loamy Mucky Mineral (F1)  
☒ Loamy Gleyed Matrix (F2)  
☐ Depleted Matrix (F3)  
☐ Redox Dark Surface (F6)  
☐ Depleted Dark Surface (F7)  
☐ Redox Depressions (F8)  
☐ Vernal Pools (F9)

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- ☐ 1 cm Muck (A9) (**LRR C**)  
☐ 2 cm Muck (A10) (**LRR B**)  
☐ Reduced Vertic (F18)  
☐ Red Parent Material (TF2)  
☐ Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type: \_\_\_\_\_

Depth (inches): \_\_\_\_\_

**Hydric Soil Present?** Yes ☒ No ☐

Remarks:

**HYDROLOGY****Wetland Hydrology Indicators:**

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)  
☒ High Water Table (A2)  
☒ Saturation (A3)  
☐ Water Marks (B1) (**Nonriverine**)  
☐ Sediment Deposits (B2) (**Nonriverine**)  
☐ Drift Deposits (B3) (**Nonriverine**)  
☐ Surface Soil Cracks (B6)  
☐ Inundation Visible on Aerial Imagery (B7)  
☒ Water-Stained Leaves (B9)
- ☒ Salt Crust (B11)  
☐ Biotic Crust (B12)  
☒ Aquatic Invertebrates (B13)  
☒ Hydrogen Sulfide Odor (C1)  
☐ Oxidized Rhizospheres along Living Roots (C3)  
☐ Presence of Reduced Iron (C4)  
☐ Recent Iron Reduction in Tilled Soils (C6)  
☐ Thin Muck Surface (C7)  
☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)  
☐ Sediment Deposits (B2) (**Riverine**)  
☐ Drift Deposits (B3) (**Riverine**)  
☐ Drainage Patterns (B10)  
☐ Dry-Season Water Table (C2)  
☐ Crayfish Burrows (C8)  
☐ Saturation Visible on Aerial Imagery (C9)  
☐ Shallow Aquitard (D3)  
☐ FAC-Neutral Test (D5)

**Field Observations:**Surface Water Present? Yes ☐ No ☒ Depth (inches): \_\_\_\_\_Water Table Present? Yes ☒ No ☐ Depth (inches): 4Saturation Present? Yes ☒ No ☐ Depth (inches): 4  
(includes capillary fringe)**Wetland Hydrology Present?** Yes ☒ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

# **Attachment D**

## **FEDERAL NON-WETLAND/WETLAND WATERS INDICATOR INFORMATION**

## COPPER BASIN DISCHARGE VALVE REPLACEMENT AND ACCESS ROAD IMPROVEMENT PROJECT

**Table 1. Potential Geomorphic Indicators of Ordinary High Water Marks for the Arid West**

(A) Below OHW	(B) At OHW	(C) Above OHW
1. In-stream dunes	1. Valley flat	1. Desert pavement
2. Crested ripples	2. Active floodplain	2. Rock varnish
3. Flaser bedding	3. Benches: low, mid, most prominent	3. Clast weathering
4. Harrow marks	4. Highest surface of channel bars	4. Salt splitting
5. Gravel sheets to rippled sands	5. Top of point bars	5. Carbonate etching
6. Meander bars	6. Break in bank slope	6. Depositional topography
7. Sand tongues	7. Upper limit of sand-sized particles	7. Caliche rubble
8. Muddy point bars	8. Change in particle size distribution	8. Soil development
9. Long gravel bars	9. Staining of rocks	9. Surface color/tone
10. Cobble bars behind obstructions	10. Exposed root hairs below intact soil layer	10. Drainage development
11. Scour holes downstream of obstructions	11. Silt deposits	11. Surface relief
12. Obstacle marks	12. Litter (organic debris, small twigs and leaves)	12. Surface rounding
13. Stepped-bed morphology in gravel	13. Drift (organic debris, larger than twigs)	
14. Narrow berms and levees		
15. Streaming lineations		
16. Desiccation/mud cracks		
17. Armored mud balls		
18. Knick Points		

**Table 2. Potential Vegetation Indicators of Ordinary High Water Marks for the Arid West**

	(D) Below OHW	(E) At OHW	(F) Above OHW
Hydroriparian indicators	1. Herbaceous marsh species	1. Annual herbs, hydromesic ruderals	1. Annual herbs, xeric ruderals
	2. Pioneer tree seedlings	2. Perennial herbs, hydromesic clonals	2. Perennial herbs, non-clonal
	3. Sparse, low vegetation	3. Pioneer tree seedlings	3. Perennial herbs, clonal and non-clonal co-dominant
	4. Annual herbs, hydromesic ruderals	4. Pioneer tree saplings	4. Mature pioneer trees, no young trees
	5. Perennial herbs, hydromesic clonals		5. Mature pioneer trees w/upland species
Mesoriparian Indicators			6. Late-successional species
	6. Pioneer tree seedlings	5. Sparse, low vegetation	7. Xeroriparian species
	7. Sparse, low vegetation	6. annual herbs, hydromesic ruderals	8. Annual herbs, xeric ruderals
	8. Pioneer tree saplings	7. Perennial herbs, hydromesic clonals	9. Perennial herbs, non-clonal
	9. Xeroriparian species	8. Pioneer tree seedlings	10. Perennial herbs, clonal and non-clonal codominant
		9. Pioneer tree saplings	11. Mature pioneer trees, no young trees
Xeroriparian indicators		10. Xeroriparian species	12. Mature pioneer trees, xeric understory
		11. Annual herbs, xeric ruderals	13. Mature pioneer trees w/upland species
	10. Sparse, low vegetation		14. Late-successional species
	11. Xeroriparian species	12. Sparse, low vegetation	15. Upland species
	12. Annual herbs, xeric ruderals	13. Xeroriparian species	16. Annual herbs, xeric ruderals
		14. Annual herbs, xeric ruderals	17. Mature pioneer trees w/upland species
			18. Upland species

## COPPER BASIN DISCHARGE VALVE REPLACEMENT AND ACCESS ROAD IMPROVEMENT PROJECT

**Table 3. Summary of Wetland Indicator Status**

Category		Probability
Obligate Wetland	OBL	Almost always occur in wetlands (estimated probability >99%)
Facultative Wetland	FACW	Usually occur in wetlands (estimated probability of 67–99%)
Facultative	FAC	Equally likely to occur in wetlands/non-wetlands (estimated probability of 34–66%)
Facultative Upland	FACU	Usually occur in non-wetlands (estimated probability 67–99%)
Obligate Upland	UPL	Almost always occur in non-wetlands (estimated probability >99%)
Non-Indicator	NI	No indicator status has been assigned

Source: Reed, 1988; USFWS, 1997; USACE, 2012.

**Table 4. Wetland Hydrology Indicators\***

Primary Indicators	Secondary Indicators
Watermarks	Oxidized Rhizospheres Associated with Living Roots
Water-Borne Sediment Deposits	FAC-Neutral Test
Drift Lines	Water-Stained Leaves
Drainage Patterns Within Wetlands	Local Soil Survey Data

\*Table adapted from 1987 USACE Manual and Related Guidance Documents.

**Table 5. Wetland Hydrology Indicators for the Arid West\***

	Primary Indicator (any one indicator is sufficient to make a determination that wetland hydrology is present)	Secondary Indicator (two or more indicators are required to make a determination that wetland hydrology is present)
<b>Group A – Observation of Surface Water or Saturated Soils</b>		
A1 – Surface Water	X	
A2 – High Water Table	X	
A3 – Saturation	X	
<b>Group B – Evidence of Recent Inundation</b>		
B1 – Water Marks	X (Non-riverine)	X (Riverine)
B2 – Sediment Deposits	X (Non-riverine)	X (Riverine)
B3 – Drift Deposits	X (Non-riverine)	X (Riverine)
B6 – Surface Soil Cracks	X	
B7 – Inundation Visible on Aerial Imagery	X	
B9 – Water-Stained Leaves	X	
B10 – Drainage	X	X
B11 – Salt Crust	X	
B12 – Biotic Crust	X	
B13 – Aquatic Invertebrates	X	
<b>Group C – Evidence of Current or Recent Soil Saturation</b>		
C1 – Hydrogen Sulfide Odor	X	
C2 – Dry-Season Water Table		X

**Table 5. Wetland Hydrology Indicators for the Arid West\***

	Primary Indicator (any one indicator is sufficient to make a determination that wetland hydrology is present)	Secondary Indicator (two or more indicators are required to make a determination that wetland hydrology is present)
C3 – Oxidized Rhizospheres along Living Roots	X	
C4 – Presence of Reduced Iron	X	
C6 – Recent Iron Reduction in Tilled Soils	X	
C7 – Thin Muck Surface	X	
C8 – Crayfish Burrows		X
C9 – Saturation Visible on Aerial Imagery		X
<b>Group D – Evidence from other Site Conditions or Data</b>		
D3 – Shallow Aquitard		X
D5 – FAC-Neutral Test		X

\*Table adapted from Regional Supplement to the USACE of Engineers Wetland Delineation Manual: Arid West Region, Version 2.0.

**Table 6. Field Indicators of Hydric Soil Conditions\***

1. Indicators of Historical Hydric Soil Conditions	2. Indicators of Current Hydric Soil Conditions
a. Histosols b. Histic epipedons; c. Soil colors (e.g., gleyed or low-chroma colors, soils with bright mottles (Redoximorphic features) and/or depleted soil matrix d. High organic content in surface of sandy soils e. Organic streaking in sandy soils f. Iron and manganese concretions g. Soil listed on county hydric soils list	a. Aquic or peraquic moisture regime (inundation and/or soil saturation for *7 continuous days) b. Reducing soil conditions (inundation and/or soil saturation for *7 continuous days) c. Sulfidic material (rotten egg smell)

\*Table adapted from 1987 USACE Manual and Related Guidance Documents.

**Table 7. Hydric Soil Indicators for the Arid West\***

Hydric Soil Indicators			Hydric Soil Indicators for Problem Soils**
All Soils	Sandy Soils	Loamy and Clay Soils	
A1 – Histosol	S1 – Sandy Mucky Mineral	F1 – Loamy Mucky Mineral	A9 – 1 cm Muck
A2 – Histic Epipedon	S4 – Sandy Gleyed Matrix	F2 – Loamy Gleyed Matrix	A10 – 2 cm Muck
A3 – Black Histic	S5 – Sandy Redox	F3 – Depleted Matrix	F18 – Reduced Verti
A4 – Hydrogen Sulfide	S6 – Stripped Matrix	F6 – Redox Dark Surface	TF2 – Red Parent Material
A5 – Stratified Layers	—	F7 – Depleted Dark Surface	Other (See Section 5 of Regional Supplement, Version 2.0)
A9 – 1 cm Muck	—	F8 – Redox Depressions	—
A11 – Depleted Below Dark Surface	—	F9 – Vernal Pools	—
A12 – Thick Dark Surface	—	—	—

\* Table adapted from Regional Supplement to the USACE of Engineers Wetland Delineation Manual: Arid West Region, Version 2.0.

\*\* Indicators of hydrophytic vegetation and wetland hydrology must be present.



## **Attachment E**

### **AQUATIC RESOURCE TABLE (USACE)**

## COPPER BASIN DISCHARGE VALVE REPLACEMENT AND ACCESS ROAD IMPROVEMENT PROJECT

Waters Name	State	Cowardin Code	HGM Code	Meas Type	Impact_Type				Units	Waters Type	Latitude	Longitude	Local Waterway
					Wetlands		Waters						
					Perm	Temp	Perm	Temp					
1a	CA	R4SB	RIVERINE	AREA	-	-	-	27	SQ_FT	NRPW	2345895.196	594025.7321	COPPER_BASIN_WASH
1b	CA	R4SB	RIVERINE	AREA	-	-	-	111	SQ_FT	NRPW	2345912.612	594003.9859	COPPER_BASIN_WASH
3	CA	R4SB	RIVERINE	AREA	-	-	-	44	SQ_FT	NRPW	2346483.783	593375.9682	COPPER_BASIN_WASH
4	CA	R4SB	RIVERINE	AREA	-	0	-	9	SQ_FT	NRPW	2346470.012	593331.2952	COPPER_BASIN_WASH
8	CA	R4SB	RIVERINE	AREA	-	20	-	31	SQ_FT	NRPW	2346591.9	593286.3361	COPPER_BASIN_WASH
9	CA	L2AB	LACUSTRINE	AREA	48	-	19	-	SQ_FT	RPW	2346629.737	593298.8588	COPPER_BASIN_WASH
10	CA	R4SB	RIVERINE	AREA	-	-	-	1	SQ_FT	NRPW	2346624.518	593273.4825	COPPER_BASIN_WASH
11	CA	L2AB	LACUSTRINE	AREA	30	-	70	-	SQ_FT	RPW	2346643.736	593294.5179	COPPER_BASIN_WASH
12	CA	L2AB	LACUSTRINE	AREA	19	-	36	-	SQ_FT	RPW	2346685.831	593230.2742	COPPER_BASIN_WASH
14	CA	R4SB	RIVERINE	AREA	-	-	-	19	SQ_FT	NRPW	2346709.267	593146.3479	COPPER_BASIN_WASH
15	CA	L2AB	LACUSTRINE	AREA	-	-	-	13	SQ_FT	RPW	2346711.069	593122.1716	COPPER_BASIN_WASH
16	CA	R4SB	RIVERINE	AREA	-	12	-	57	SQ_FT	NRPW	2346705.605	593092.5169	COPPER_BASIN_WASH
17a	CA	R4SB	RIVERINE	AREA	-	10	-	5	SQ_FT	NRPW	2346701.017	593088.4403	COPPER_BASIN_WASH
17b	CA	R4SB	RIVERINE	AREA	150	-	63	-	SQ_FT	NRPW	2346712.875	593072.9084	COPPER_BASIN_WASH
18	CA	L2AB	LACUSTRINE	AREA	-	-	12	-	SQ_FT	RPW	2346707.919	593020.3926	COPPER_BASIN_WASH
19a	CA	L2AB	LACUSTRINE	AREA	-	0	-	48	SQ_FT	RPW	2346705.373	593026.6801	COPPER_BASIN_WASH
19b	CA	R4SB	RIVERINE	AREA	-	9	-	59	SQ_FT	NRPW	2346693.033	592970.4152	COPPER_BASIN_WASH
20	CA	L2AB	LACUSTRINE	AREA	195	-	69	-	SQ_FT	RPW	2346700.667	592934.318	COPPER_BASIN_WASH
21a	CA	L2AB	LACUSTRINE	AREA	-	13	-	73	SQ_FT	RPW	2346690.533	592943.5012	COPPER_BASIN_WASH
21b	CA	R4SB	RIVERINE	AREA	69	-	45	-	SQ_FT	NRPW	2346722.523	592853.1345	COPPER_BASIN_WASH
23	CA	L2AB	LACUSTRINE	AREA	21	-	9	-	SQ_FT	RPW	2346788.954	592803.844	COPPER_BASIN_WASH
25a	CA	L2AB	LACUSTRINE	AREA	-	18	-	3	SQ_FT	RPW	2346779.988	592807.947	COPPER_BASIN_WASH
25b	CA	R4SB	RIVERINE	AREA	-	-	-	2	SQ_FT	NRPW	2346788.977	592771.1952	COPPER_BASIN_WASH
27	CA	R4SB	RIVERINE	AREA	-	-	-	1	SQ_FT	NRPW	2346792.874	592759.8412	COPPER_BASIN_WASH
28	CA	R4SB	RIVERINE	AREA	74	4	47	1	SQ_FT	NRPW	2346833.509	592758.5256	COPPER_BASIN_WASH
29a	CA	L2AB	LACUSTRINE	AREA	-	5	-	22	SQ_FT	RPW	2346812.119	592751.0714	COPPER_BASIN_WASH
29b	CA	R4SB	RIVERINE	AREA	-	1282	-	991	SQ_FT	NRPW	2346855.32	592748.5916	COPPER_BASIN_WASH
31	CA	R4SB	RIVERINE	AREA	68	33	59	2	SQ_FT	NRPW	2346898.231	592829.238	COPPER_BASIN_WASH
34	CA	L2AB	LACUSTRINE	AREA	-	10	-	20	SQ_FT	RPW	2346940.182	592831.4976	COPPER_BASIN_WASH
36	CA	R4SB	RIVERINE	AREA	9	10	9	5	SQ_FT	NRPW	2346924.992	592894.9468	COPPER_BASIN_WASH
38a	CA	L2AB	LACUSTRINE	AREA	-	-	-	14	SQ_FT	RPW	2346925.14	592892.6866	COPPER_BASIN_WASH

## COPPER BASIN DISCHARGE VALVE REPLACEMENT AND ACCESS ROAD IMPROVEMENT PROJECT

Waters Name	State	Cowardin Code	HGM Code	Meas Type	Impact_Type				Units	Waters Type	Latitude	Longitude	Local Waterway
					Wetlands		Waters						
					Perm	Temp	Perm	Temp					
38b	CA	R4SB	RIVERINE	AREA	-	-	-	22	SQ_FT	NRPW	2347047.269	592899.1754	COPPER_BASIN_WASH
42	CA	R4SB	RIVERINE	AREA	-	-	-	1	SQ_FT	NRPW	2347110.701	592798.9039	COPPER_BASIN_WASH
44	CA	L2AB	LACUSTRINE	AREA	-	212	-	6	SQ_FT	RPW	2347131.62	592783.4754	COPPER_BASIN_WASH
47	CA	R4SB	RIVERINE	AREA	6	-	31	0	SQ_FT	NRPW	2347152.379	592802.4225	COPPER_BASIN_WASH
49a	CA	L2AB	LACUSTRINE	AREA	-	-	-	13	SQ_FT	RPW	2347156.586	592804.0967	COPPER_BASIN_WASH
49b	CA	R4SB	RIVERINE	AREA	-	-	-	25	SQ_FT	NRPW	2347196.785	592790.8623	COPPER_BASIN_WASH
50	CA	L2AB	LACUSTRINE	AREA	-	5	-	5	SQ_FT	RPW	2347288.202	592799.7285	COPPER_BASIN_WASH
51	CA	R4SB	RIVERINE	AREA	-	11	-	52	SQ_FT		2347297.513	592795.5532	COPPER_BASIN_WASH
52	CA	R4SB	RIVERINE	AREA	2115	-	445	-	SQ_FT	NRPW	2347296.134	592820.4987	COPPER_BASIN_WASH
53	CA	R4SB	RIVERINE	AREA	-	-	-	22	SQ_FT	NRPW	2347347.157	592838.9202	COPPER_BASIN_WASH
54	CA	L2AB	LACUSTRINE	AREA	-	-	-	1382	SQ_FT	RPW	2347428.764	592843.9191	COPPER_BASIN_WASH
56b	CA	R4SB	RIVERINE	AREA	-	35	-	1	SQ_FT	NRPW	2347422.692	592857.0693	COPPER_BASIN_WASH
59	CA	R4SB	RIVERINE	AREA	-	-	-	40	SQ_FT	NRPW	2347692.581	592830.2735	COPPER_BASIN_WASH
60c	CA	R4SB	RIVERINE	AREA	-	-	-	54	SQ_FT	NRPW	2347704.877	592837.6423	COPPER_BASIN_WASH
63	CA	R4SB	RIVERINE	AREA	-	24	-	171	SQ_FT	NRPW	2347997.45	592674.9744	COPPER_BASIN_WASH
64	CA	R4SB	RIVERINE	AREA	-	5	-	1345	SQ_FT	NRPW	2348019.695	592752.3594	COPPER_BASIN_WASH
67	CA	R4SB	RIVERINE	AREA	-	99	-	72	SQ_FT	NRPW	2347995.909	592585.0149	COPPER_BASIN_WASH
68a	CA	R4SB	RIVERINE	AREA	-	-	-	58	SQ_FT	NRPW	2347720.428	592975.2111	COPPER_BASIN_WASH
68b	CA	R4SB	RIVERINE	AREA	-	-	-	27	SQ_FT	NRPW	2345895.196	594025.7321	COPPER_BASIN_WASH
69	CA	L2AB	LACUSTRINE	AREA	-	-	-	111	SQ_FT	RPW	2345912.612	594003.9859	COPPER_BASIN_WASH

# **Attachment F**

## **IMPACTS TO CDFW AND RWQCB JURISDICTIONAL RESOURCES**

## COPPER BASIN DISCHARGE VALVE REPLACEMENT AND ACCESS ROAD IMPROVEMENT PROJECT

Order	Drainage ID	Easting	Northing	Temp Impacted Length (Ft) (CDFW and RWQCB)	Temp Impact Area (SqFt) (CDFW)	Perm Impacted Length (Ft) (CDFW and RWQCB)	Perm Impact Area (SqFt) (CDFW)	Temp Impact Area Waters (SqFt) (RWQCB)	Perm Impact Area Waters (SqFt) (RWQCB)	Temp Impact Area Wetlands (SqFt) (RWQCB)	Perm Impact Area Wetlands (SqFt) (RWQCB)
1	1a	2345895.196	594025.7321	22	82	-	-	27	-	-	-
2	1b	2345912.612	594003.9859	109	221	-	-	111	-	-	-
3	1c	2345904.126	594026.3251	-	-	-	-	-	-	-	-
4	2a	2345946.176	594005.8963	-	-	-	-	-	-	-	-
5	2b	2345949.021	594005.9714	-	-	-	-	-	-	-	-
6	3	2346483.783	593375.9682	10	103	-	-	44	-	-	-
7	4	2346470.012	593331.2952	17	23	10	606	9	0	-	-
8	5	2346484.016	593307.4854	-	-	-	-	-	-	-	-
9	6	2346506.355	593297.7937	-	-	-	-	-	-	-	-
10	7	2346518.458	593295.8445	-	-	-	-	-	-	-	-
11	8	2346591.9	593286.3361	28	51	13	468	31	20	-	-
12	9	2346629.737	593298.8588	53	50	14	177	-	-	19	48
13	10	2346624.518	593273.4825	2	1	-	-	1	-	-	-
14	11	2346643.736	593294.5179	58	114	26	165	-	-	70	30
15	12	2346685.831	593230.2742	148	503	23	3634	-	-	36	19
16	13	2346699.512	593152.4615	-	-	-	-	-	-	-	-
17	14	2346709.267	593146.3479	8	43	-	-	19	-	-	-
18	15	2346727.036	593150.8567	10	17	4	26	-	-	-	-
19	16	2346711.069	593122.1716	4	13	-	-	13	-	-	-
20	17a	2346705.605	593092.5169	13	57	3	209	57	12	-	-
21	17b	2346701.017	593088.4403	2	5	3	71	5	10	-	-
22	18	2346712.875	593072.9084	47	81	14	267	-	-	63	150
23	19a	2346707.919	593020.3926	92	122	-	-	-	-	12	-
24	19b	2346705.373	593026.6801	24	48	1	48	48	0	-	-
25	20	2346693.033	592970.4152	13	89	4	264	59	9	-	-
26	21a	2346700.667	592934.318	177	359	57	3121	-	-	69	195
27	21b	2346690.533	592943.5012	14	97	7	296	73	13	-	-
28	22	2346694.033	592911.975	-	-	-	-	-	-	-	-
29	23	2346722.523	592853.1345	112	101	115	2211	-	-	45	69
30	24	2346721.046	592826.1658	-	-	-	-	-	-	-	-
31	25a	2346788.954	592803.844	181	373	92	4249	-	-	9	21
32	25b	2346779.988	592807.947	1	3	7	61	3	18	-	-
33	26	2346781.739	592802.283	-	-	-	-	-	-	-	-
34	27	2346788.977	592771.1952	2	2	-	-	2	-	-	-
35	28	2346792.874	592759.8412	2	1	-	-	1	-	-	-



## COPPER BASIN DISCHARGE VALVE REPLACEMENT AND ACCESS ROAD IMPROVEMENT PROJECT

36	29a	2346833.509	592758.5256	97	81	106	1424	1	4	47	74
37	29b	2346812.119	592751.0714	20	22	2	49	22	5	-	-
38	30	2346823.186	592743.5037	-	-	-	-	-	-	-	-
39	31	2346855.32	592748.5916	183	2555	79	4395	991	1282	-	-
40	32	2346873.522	592775.7919	-	-	-	-	-	-	-	-
41	33	2346872.527	592795.0549	3	0	-	-	-	-	-	-
42	34	2346898.231	592829.238	258	576	83	2879	2	33	59	68
43	35	2346931.683	592814.6611	-	-	-	-	-	-	-	-
44	36	2346940.182	592831.4976	11	25	10	225	20	10	-	-
45	37	2346921.767	592884.0508	-	-	-	-	-	-	-	-
46	38a	2346924.992	592894.9468	59	55	20	1223	5	10	9	9
47	38b	2346925.14	592892.6866	7	14	-	-	14	-	-	-
48	39	2346953.335	592872.7235	-	-	-	-	-	-	-	-
49	40	2346983.197	592861.1302	-	-	-	-	-	-	-	-
50	41	2347006.664	592916.0317	-	-	-	-	-	-	-	-
51	42	2347047.269	592899.1754	8	36	-	-	22	-	-	-
52	43	2347049.649	592883.2757	-	-	-	-	-	-	-	-
53	44	2347110.701	592798.9039	1	1	-	-	1	-	-	-
54	45	2347118.723	592784.2899	1	0	-	-	-	-	-	-
55	46	2347123.424	592778.2435	-	-	-	-	-	-	-	-
56	47	2347131.62	592783.4754	13	11	22	287	6	212	-	-
57	48	2347152.354	592781.5779	-	-	-	-	-	-	-	-
58	49a	2347152.379	592802.4225	33	104	16	1294	0	-	31	6
59	49b	2347156.586	592804.0967	7	13	-	-	13	-	-	-
60	50	2347186.158	592807.0954	82	142	49	1470	-	-	-	-
61	51	2347196.785	592790.8623	26	76	-	-	25	-	-	-
62	52	2347288.202	592799.7285	2	5	1	87	5	5	-	-
63	53	2347297.513	592795.5532	10	65	8	568	52	11	-	-
64	54	2347296.134	592820.4987	192	1286	91	7049	-	-	445	2115
65	55	2347318.105	592804.5191	78	116	30	4609	-	-	-	-
66	56a	2347337.814	592843.4253	-	-	-	-	-	-	-	-
67	56b	2347347.157	592838.9202	9	22	-	-	22	-	-	-
68	57	2347367.168	592815.4493	-	-	-	-	-	-	-	-
69	58	2347395.705	592812.051	-	-	-	-	-	-	-	-
70	59	2347428.764	592843.9191	61	1382	-	-	1382	-	-	-
71	60a	2347423.066	592866.0464	-	-	-	-	-	-	-	-
72	60b	2347410.829	592855.9089	-	-	-	-	-	-	-	-
73	60c	2347422.692	592857.0693	2	1	15	79	1	35	-	-
74	60d	2347477.604	592853.3688	30	56	-	-	56	-	-	-

## COPPER BASIN DISCHARGE VALVE REPLACEMENT AND ACCESS ROAD IMPROVEMENT PROJECT

75	61	2347549.849	592778.5794	-	-	-	-	-	-	-	-
76	62	2347665.105	592838.3968	-	-	-	-	-	-	-	-
77	63	2347692.581	592830.2735	18	40	-	-	40	-	-	-
78	64	2347704.877	592837.6423	25	54	-	-	54	-	-	-
79	65	2347779.268	592785.1035	-	-	-	-	-	-	-	-
80	66	2347949.218	592705.6498	-	-	-	-	-	-	-	-
81	67	2347997.45	592674.9744	132	171	30	802	171	24	-	-
82	68a	2348019.695	592752.3594	242	2863	34	175391	1345	5	-	-
83	68b	2347995.909	592585.0149	59	72	49	657	72	99	-	-
84	69	2347720.428	592975.2111	7	58	-	-	58	-	-	-

# **Appendix C**

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## **Phase I Cultural Resources Assessment Report**

# **Copper Basin Dam and Access Road Project San Bernardino County, California**

## **PHASE I CULTURAL RESOURCES ASSESSMENT REPORT**

### **Prepared for:**

Metropolitan Water District  
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July 2022

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**Date:** July 7, 2022

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San Bernardino County, California

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**Keywords:** San Bernardino County, Copper Basin Dam, Yuman Speakers, Colorado River, Phase I Survey, CEQA.



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## Executive Summary

On behalf of the Metropolitan Water District of Southern California, Aspen Environmental Group conducted archaeological literature reviews and record searches, as well as an intensive field survey in support of the Copper Basin Dam and Access Road Project in March 2022. The main goal of this investigation was to gather and analyze the information needed to determine if the Project would impact cultural resources.

The purpose of the Project is to replace an existing valve located at the base of the Copper Basin Dam and install a new ladder system on the face of the dam that is an essential requirement for the safe operation of the dam. That portion of Copper Basin Access Road leading from the outlet structure to the base of the dam is steep and hazardous for most vehicles and will not support the type of construction vehicles required to complete the proposed Project. Various improvements are, therefore, required to Copper Basin Access Road.

On March 8 and 30, 2022 an intensive archaeological survey was conducted in support of the Project. Elliot D'Antin, Cultural Resource Specialist, B.S., and Christina Peterson, M.A, RPA of Aspen Environmental Group conducted the pedestrian survey of the Project area. Mr. D'Antin and Ms. Peterson have in-depth familiarity with the prehistoric and historic period cultural resources of San Bernardino County. The survey crew utilized intuitive survey methods covering 100% Project area, with transects spaced 15-meters apart, or less. Ground visibility was high (90-100%).

No new prehistoric or historic archaeological resources were identified in the Project area. Two historic-aged built environment features were identified during the survey, Copper Basin Dam Access Road and Copper Basin Dam and Reservoir. Both resources have been previously determined to be eligible for the National Register of Historic Places and the California Register of Historical Resources as contributing features of the Colorado River Aqueduct Historic District. A Project impact analysis was conducted for Copper Basin Access Road only as part of this study. A separate technical document is being prepared for an analysis of Copper Basin Dam.

In summary, Copper Basin Dam Access Road is recommended as individually not eligible for either the national or state register. Additionally, it was concluded that the Project would not impact the integrity of Copper Basin Access Road as a contributor to the Colorado River Aqueduct Historic District, nor would the integrity of the district as whole be impacted by the Project.

## Introduction

At the request of the Metropolitan Water District (Metropolitan), Aspen Environmental Group (Aspen) performed a cultural resources records search and pedestrian survey for the proposed Copper Basin Dam and Access Road Project (Project). These investigations are designed to meet the requirements for consideration of cultural resources under state, and local regulations. The Project area is located in unincorporated San Bernardino County, California.

To identify any previously recorded cultural or tribal cultural resources eligible for the California Register of Historical Resources (CRHR), Aspen conducted a cultural resources records search at the California Historical Resources Information System (CHRIS), South Central Coastal Information Center (SCCIC), at California State University, Fullerton; reviewed ethnographic literature; completed historical background research; and conducted a pedestrian survey of the Project area. Native American outreach was also conducted with State-recognized tribal groups that may have traditional or cultural ties to the Project area or surrounding areas.

The following report is a full account of the methods and results of research, the conclusions of the study, and recommendations for the treatment of cultural and tribal cultural resources potentially affected by the Project.

## Project Location and Description

### Project Location

Copper Basin Access Road extends from its intersection with Trail End Camp Road in a general westerly, then southerly, and then easterly direction to the base of the Copper Basin Dam. It consists of an unpaved and graded dirt road. The section of Copper Basin Access Road from Trail End Camp Road through Bandit Pass to the gate at the outlet structure is approximately 4.22 miles long and it varies in width from 18' to 27' wide. This section of Copper Basin Access Road is not part of the Project.

The section of Copper Basin Access Road within the Project area extends from the outlet structure gate southerly and easterly to the base of the dam, and is approximately 1.66 miles long. This section of the access road varies in width from 10' to 12' wide.

The Project area also consists of three staging areas totaling 2.21 acres. The northernmost staging area (Staging Area 1) measures 0.39 acres, the middle staging area (Staging Area 2) measures 0.23 acres, and the southernmost (Staging Area 3) measures 1.59 acres. The 0.23 acre staging area is located directly adjacent to Copper Basin Access Road. The 0.4 acre and 1.59 acre staging area require a short access road to enter, however, these spur access roads were not surveyed as they are regularly used, maintained, and in good condition not requiring alteration (Figure 1).

## **Project Description**

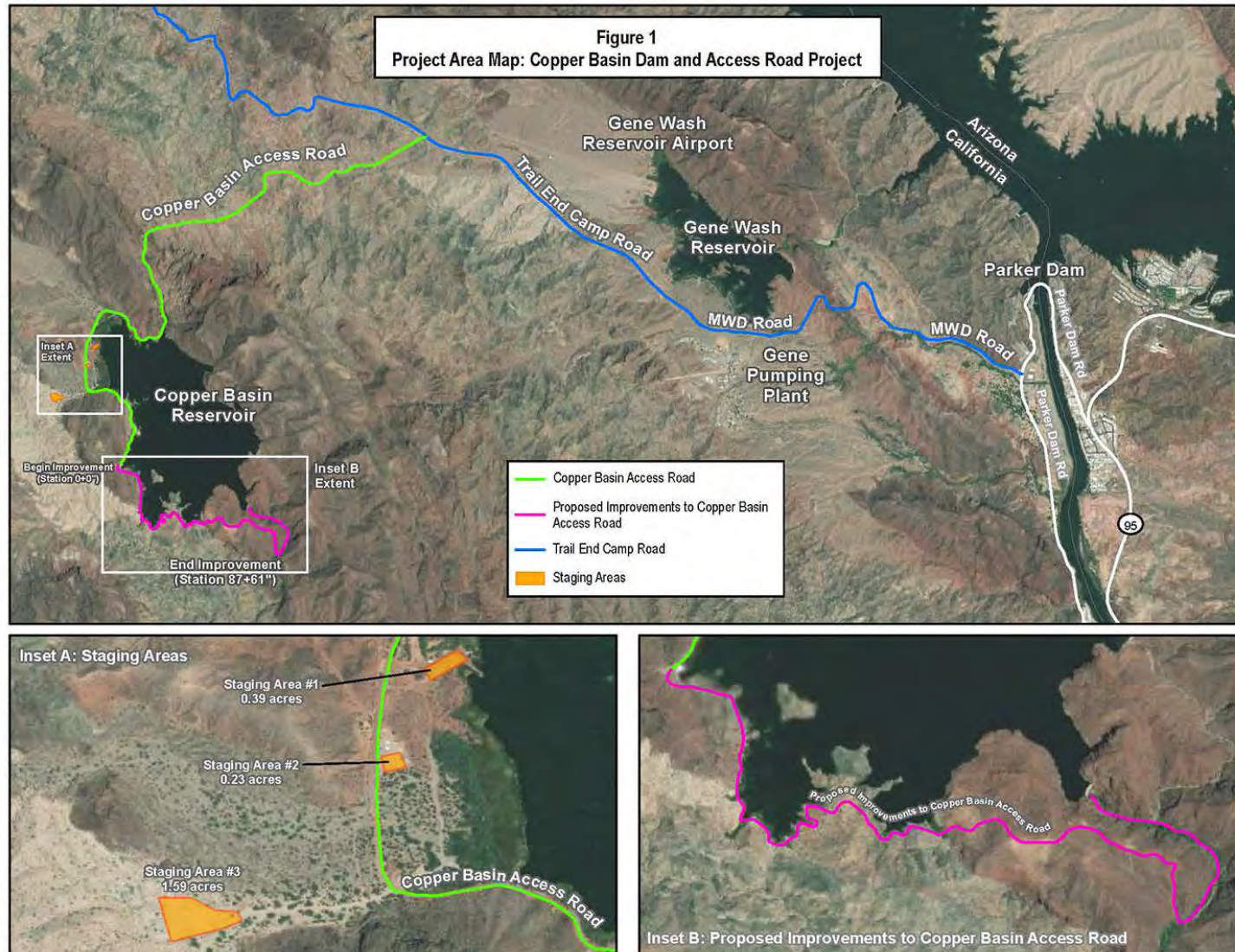
Metropolitan proposes to replace an existing valve located at the base of the Copper Basin Dam and install a new ladder system on the face of the dam that is an essential requirement for the safe operation of the dam. That portion of Copper Basin Access Road leading from the outlet structure to the base of the dam is steep and hazardous for most vehicles and will not support the type of construction vehicles required to complete the proposed Project. Various improvements are, therefore, required to Copper Basin Access Road.

Vegetation within the approximately 1.66-mile-long existing unpaved Copper Basin Access Road that leads from the outlet structure to the base of Copper Basin Dam would be removed to allow for construction work and vehicle access during operation and maintenance (O&M). Portions of the access road would then be graded and paved with gunite concrete (i.e., a dry mixed form of sprayed concrete typically containing fine particles) including pavement along all areas of the access road where slopes are 20 percent or greater. A grader or other similar type of equipment would be used for grading activities. The construction contractor would likely mix concrete on site to produce gunite, as it is infeasible to regularly travel to the nearest concrete plant, which is approximately two to three hours away from Copper Basin. The amounts of cut and fill associated with grading are estimated to be approximately 2,120 cubic yards and approximately 728 cubic yards, respectively. No fill material would be imported. Approximately 222 cubic yards of riprap (large-sized rock and gravel measuring 7 to 12 inches) would be imported and placed at the end of the storm drainpipe, V-ditch outlets, and Arizona crossings.



Copper Basin Dam and Access Road Project  
Phase I Cultural Resources Assessment Report

Figure 1. Project Area Map



## Regulatory Framework

Numerous laws, ordinances, regulations, and standards on federal, state, and local levels seek to protect and manage cultural resources. The primary state regulation governing significant cultural resources is the California Environmental Quality Act (CEQA).

### State

The primary regulation used in evaluating significant historic and cultural resources for a project is the California Environmental Quality Act (CEQA). Applicable State of California regulations include Public Resources Code (PRC) Sections 21000 et seq., Section 5024, Section 5024.5; and California Code of Regulations (CCR) Title 14, Chapter 3, Sections 15000 et seq.

CEQA (1970) (PRC Sections 21000 et seq., Section 5024, Section 5024.5; CCR Title 14, Chapter 3, Sections 15000 et seq.) establishes that historical and archaeological resources must be afforded consideration and protection (14 CCR Section 21083.2, 14 CCR Section 15064).

A historical resource is a “resource listed in, or determined to be eligible by the State Historical Resources Commission, for listing in the California Register of Historic Resources (CRHR);” or “a resource listed in a local register of historical resources or identified as significant in a historical resources survey meeting the requirements of Section 5024.1(g) of the Public Resources Code;” or “any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California, provided the agency’s determination is supported by substantial evidence in light of the whole record” (14 CCR Section 15064.5[a][3]).

Historical resources automatically listed in the California Register include California cultural resources listed in or formally determined eligible for the National Register. Locally listed resources are entitled to a presumption of significance unless a preponderance of evidence in the record indicates otherwise.

Under CEQA, a resource is generally considered historically significant if it meets the criteria for listing in the CRHR. A resource must meet at least one of the following criteria (PRC 5024.1; 14 CCR Section 15064.5[a][3]):

- 1. Is associated with events that have made a significant contribution to the broad patterns of California’s history and cultural heritage. Title 14, CCR Section 4852(b)(1) adds, “is associated with events that have made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States.”*
- 2. Is associated with the lives of persons important in our past. Title 14, CCR Section 4852(b)(2) adds, “is associated with the lives of persons important to local, California, or national history.”*
- 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. Title 14, CCR 4852(b)(3) allows a resource to be CRHR eligible if it represents the work of a master.*
- 4. Has yielded, or may be likely to yield, information important in prehistory or history. Title 14, CCR 4852(b)(4) specifies that importance in prehistory or history can be defined at the scale of “the local area, California, or the nation.”*

Historical resources must also possess integrity of location, design, setting, materials, workmanship, feeling, and association (14 CCR 4852[c]).

Finally, the discussion of Project impacts is in accordance with CEQA Guidelines Section 15126.4(b)(1).

Where maintenance, repair, stabilization, rehabilitation, restoration, preservation, conservation or reconstruction of the historical resource will be conducted in a manner consistent with the Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings (1995), Weeks and Grimmer, the project's impact on historical resources shall generally be considered mitigated below a level of significance and thus is not significant.

Specifically, *The Secretary of the Interior's Standards for the Treatment of Historic Properties* and in accordance with the Secretary's Standards for Rehabilitation (§67.7) are applied herein.

## Local

This report has also been prepared in accordance with the County of San Bernardino General Plan (General Plan).

### **Cultural Resources Goal CO 3:**

The County will preserve and promote its historic and prehistoric cultural heritage.

#### ***Policies***

**CO 3.1-** Identify and protect important archaeological and historic cultural resources in areas of the County that have been determined to have known cultural resource sensitivity.

**CO 3.2-** Identify and protect important archaeological and historic cultural resources in all lands that involves disturbance of previously undisturbed ground.

## Environmental Setting

### **Geography and Geology**

The location of the Project area is situated within the Whipple Mountains near the eastern boundary of the Mojave Desert, comprising the southwestern quadrant of the Basin and Range physiographic province. This province is characterized by its vast region which is dominated by rugged mountain ranges and alluvium filled basins (Rojo 2009). Abutted to the east and south is the Colorado Desert.

Geologically within the higher elevations, Quarternary alluvium or Pleistocene marine rock comprise the soils near streams and the Colorado River. Small systems of stabilized sand dunes are near the Colorado River. Desert pavement is common in the bajadas and plains around the mountains (De Groot 2007). Another prominent geological feature is desert varnish or rock varnish, created by bacteria that live on rock surfaces which interact with the natural occurring oxidizing manganese and iron oxide as well as clay minerals, which in turn forms a coating over the rocks. Elevations in the Project area vary between 754 feet (230 meters [m]) and 1407 feet (429 m) above mean sea level (AMSL).

## Climate and Vegetation

Conditions of the Mojave vary and are characterized by extreme variation in daily temperature as well as more arid conditions than other desert regions in the United States. Precipitation averages in the region are less than 12 centimeters but can be highly variable from year to year. In the higher elevation regions, freezing temperatures occur during winter, and summers are usually dry, windy, and hot. Intense summer thunderstorms are rare, but occasionally occur in the region (Rojo 2009). Vegetation typical to the Mojave include ironwood, blue palo verde, chuparosa, spiny menodora, and desert senna.

## Cultural Setting

### Prehistoric Overview

While the Project area is at a transitional boundary between geographic deserts, the cultural tradition is well within the influential sphere associated with the Colorado Desert. An accepted chronology of the Colorado Desert includes: Paleoindian/ San Dieguito, Archaic/ Pinto & Amargosa, Late Prehistoric/ Patayan, Ethnohistoric, and Historic Euro-American. Date ranges are presented in years before present (B.P.).

### Paleoindian/San Dieguito Period (12,000–7,000 cal BP)

The San Dieguito Period marks some of the oldest cultural material remnants in the Colorado Desert, however, absolute dates for particular sites remain elusive (Schaefer 1994). To understand the context of San Dieguito artifacts and features, archaeologists rely on a large area with similarly identified San Dieguito material to ascertain possible dates and significance, stretching as far as the San Diego coast. Within the desert, sites typically consist of cleared circles, rock rings, geoglyphs, and heavily varnished simple stone tools (Roger 1966). These tools included bifacially and unifacially reduced choppers, concave scrapers, bilateral-notched pebbles, scraper planes, blades, and relatively smaller bifacial points. In later years, pressure flaked blades, projectile points, crescentics, and elongated bifacial knives appear (Schaefer et al. 1997). Stratified sites were discovered along the coast (Warren 1966; Carrico et al. 1991), and in Arizona (Haury 1950) which allowed some insight into a chronology of San Dieguito sites.

### Archaic Period/Pinto & Amargosa Complexes (7,000–1,500 cal BP)

As with the San Dieguito Period, archaeologists must rely on a vast area to ascertain context for Archaic sites, or lack of sites, near the Project area including portions of the Great Basin, Mohave Desert, and Sonoran Desert east of the Colorado River (Schaefer et al. 1997). The Pinto and Amargosa Complex can be characterized as specializations within the already existing hunter-gatherer lifestyles established during the San Dieguito Period (Schaefer et al. 1997). Few substantial, subsurface discoveries have been made in the Colorado Desert dating to the Archaic Period, with data implying a reliance on hunting and gathering settlement-subsistence strategy that relied heavily on food storage, and strategically stored food processing equipment for mobile peoples (Bean et al. 1995; Love 1996 McDonald 1992; Schaefer et al. 1997). However, no subsurface Archaic sites have been discovered near the Project area.

A defining feature of the Pinto and Amargosa Complexes is the Elko Series Projectile Points. Although, recorded in relative abundance at the Indian Hill Rockshelter site - 140 miles southwest of the Project area - these tools are largely unrecorded in the Colorado Desert of California (Schaefer 1994). This has led some to believe that an environmental change labeled the Altithermal (7,000 to 4,000 B.P.) forced mobile people to relocate to more hospitable locations such as springs, tanks, lakes, and rivers (Antevs 1948,

1952; Crabtree 1981; Weide 1976). However, Schaefer (1994) states that evidence of the Altithermal, or other severe environmental change is lacking in the Colorado Desert. Regardless of an environmental anomaly, or lack of one, it is likely the Colorado Desert was a marginally used area, with the bulk of undiscovered sites either buried under Colorado River alluvium or obscured by later settlements (Schaefer 1994; Weide 1976).

### **Late Prehistoric/Patayan Period (1,500 - 450 cal BP)**

The Patayan era is marked by strong regional cultural developments, especially in the southern California desert regions, which were heavily influenced by the Patayan culture of the lower Colorado River area (Warren 1984). Specifically, turquoise mining and long-distance trade networks appear to have attracted both the Anasazi and Patayan peoples into the California deserts from the east as evidenced by the introduction of Buff and Brown Ware pottery, and Cottonwood and Desert Side-notched projectile points. Brown and Buff Ware pottery, first appearing on the lower Colorado River at about 1,200 B.P., started to diffuse across the California deserts by about 1,100 B.P. Associated with the diffusion of this pottery were Desert Side-notched and Cottonwood Triangular arrow points dating to about 800 to 850 B.P., suggesting a continued spread of Patayan influences.

Trade along the Mojave River also expanded resulting in middlemen between coastal and Colorado River populations. The Patayan influence in coastal and inland southern California regions appears to have diminished during the late Protohistoric period when the extensive trade networks along the Mojave River and in Antelope Valley appear to have broken down, and large village sites were abandoned (Warren 1984). Evidence presented by Jones et al. (1999) points to the apparent concordance between the reduction in use of the interior desert and the Medieval Climatic Anomaly. This period, lasting from approximately 1,100 to 450 B.P., was typified by increased aridity here as elsewhere in the southwest (Stine 1994; Warren 1984). This dry period may have led to the withdrawal of southwestern Native populations, such as the Anasazi, from marginal desert areas. Warren (1984) also suggests that the apparent disruption in trade networks may have been caused by the movement of Chemehuevi populations southward across the trade routes during late Prehistoric times.

### **Ethnohistoric (450 - 100 BP)**

At the time of contact the Native American inhabitants in the vicinity of the Project area were Yuman-speaking people, primarily living along the Colorado River. The earliest accounts by Spanish explorers provide insight into how territory was divided and/or shared amongst the Yuman cultures. In 1605 when Juan de Oñate traveled from Mexico up the east side of the river to the relative vicinity of the Project area it was presumed the Mohave people laid claim over the area, but their primary population was within the Mohave Valley to the north (Schaefer et al. 1997). Abutted against the Mohave to the south were the Quechan, and further south were the Halchidhoma. At some point between 1605 and 1776 during the Anza Expeditions, the Halchidhoma had moved northward between the Mohave and Quechan (Underwood 2005).

Historical accounts and Yuman oral traditions tell that the Halchidhoma constantly were at war with the Quechan and Mohave alliance. Eventually the Halchidhoma moved eastward to join with the Maricopa along the Gila River over a very gradual time, and by 1840 all Halchidhoma had moved away from the Colorado River. A detailed ethnography of the Halchidhoma during their Colorado River occupation could never be completed as they were well assimilated into the Maricopa before a study could be made. As a result of their migration, the Quechan and Mohave filled the gap made in their absence until the Chemehuevi appeared.



The Chemehuevi people are the most southern group of the Southern Paiute Indians, who are linguistically related to the greater Uto-Aztecan language family. The name Chemehuevi was given by the Mohave, a name they used for all Southern Paiute people (Stewart 1968). The Chemehuevi call themselves *Numu*, meaning “People”. The Chemehuevi likely entered the river area between 1833 and 1859 and made an alliance with the Mohave which allowed them plots of land to cultivate within Mohave territory (Kelly and Fowler 1986). Chemehuevi belief even held that Southern Fox, and “the woman with whom the Sun conceived twin sons” called the Whipple Mountains home (Laird 1976 and 1984).

Traditionally the Chemehuevi were seasonal hunter gatherers who ranged over the eastern half of the Mojave Desert. Small family groups would migrate hunting small game and gathering wild plants. Kroeber (1925) suggested that some Chemehuevi came from mountain and desert areas to the north.

The Quechans, Mohaves, and Chemehuevi shared similar dwellings. Their earth lodges, or winter houses, were built in shallow, excavated pits, which were surrounded by beams and poles, covered with a flat roof, and coated with earth and mud. Shapes varied from round to oblong and rectangular. They also constructed separate sweat lodges. Their pottery resembled that of the Colorado River Yumans (Hovens and Herlaar 2004).

## Historic Overview

Schaefer et al. (1997) provide a coherent overview of Spanish exploration into the general lower Colorado Area:

Díaz and Alarcón were the first to sail up the Colorado River as far as Yuma in 1540 as the nautical element of the Coronado expedition. Oñate made the first entrada up the river in 1604 and reached Mohave territory before heading up the Bill Williams River toward the Hopi. Almost a century passed until Jesuit missionary Eusebio Francisco Kino’s 1700 and 1701 visits to the juncture of the Gila and Colorado Rivers. The Yuma crossing area was again visited by the 1774 Anza expedition bringing settlers from Sonora to California. During the second Anza Expedition of 1775-1776, Franciscan missionary Francisco Garcés left the expedition at Yuma and explored the Colorado River as far north and east as the Hopi mesas. Garcés was the first to be guided along the so-called Mohave trail that proceeds north from Pilot Knob on the western side of the Cargo Muchacho Mountains and the Big Maria Mountains, within the southern half of the project area, as well as routes along the river. His are some of the first detailed descriptions of the Halchidhoma and Mohave.

The Spanish era ended in 1821 and was followed by the Mexican occupation of the area, although, the Mexican government hardly found use, or reason to venture deep into the desert. After one particular expedition from Los Angeles to the Colorado River via the San Geronimo Pass in 1825 it was decided the route was impractical and Mexicans largely left the lower Colorado River area alone (Hoyt 1948; Johnston 1977; Nordland 1977).

The California Gold Rush ushered in numerous Euro-Americans in the mid-19<sup>th</sup> century, and the discovery of gold at La Paz stimulated high interest in the general vicinity of the Project area. As with other Native American groups across the U.S. that were affected by Manifest Destiny, the tribes of the Colorado River found themselves at odds with these new emigrants. As a result of ensuing hostilities between Native Americans and Euro-Americans, the U.S. Government established Fort Yuma and Fort Mohave as a way to provide resources and protection to its citizens. A number of reservations were subsequently created along the Colorado River.

Small to large mining operations would follow in the general vicinity of the Project area including the Ironwood Mining District, U.S. Gypsum, the Bendigo District, and the Calzona Mines Company. (Vredenburg et al. 1981; E. Warren et al. 1981). Particular to the Whipple Mountains were mines owned and operated by the Copper Basin mine, the Crescent mine, New American Eagle mine, the Turk Silver mine, and at least seven other patented mines (Sherman et al. 1988), but this does not include the numerous prospect mines that dot the landscape. These operations noted by Sherman et al. (1988) mined for manganese, copper, gold, and decorative rock for building, but the most successful venture was from the Bessie and Independence mines that extracted gold from the Whipple Mountains (Gudde 2004). Product from mines were shipped by stagecoach and steamboat in the early days of the 19<sup>th</sup> century, but with the construction of Laguna Dam in 1908 steamboat travel to Yuma ceased. In 1910 with completion of the Atchison, Topeka, & Santa Fe Railway Cadiz Cutoff (now BNSF Railway) from Cadiz to Earp through Vidal, transportation of mining products began to take a more modern route by railway and automobiles (Robertson 1998).

One of the many prospectors of the region was Wyatt Earp. Earp and his third wife, Josephine Marcus Earp, owned property in Vidal. They would spend winters there while Earp prospected for gold in the Whipple Mountains, as well as in Vidal Valley. The town of Earp would forever memorialize Wyatt Earp's name in the landscape by naming their community after him (Gudde 2004).

## **History of Colorado River Aqueduct and Copper Basin Dam and Reservoir**

The following text is quoted from the 2021 Copper Basin Dam Historical Resources Technical Report by Annie McCausland and Debi Howell-Ardila. Key elements of interest in the below quoted text are that Copper Basin Dam and Reservoir are contributing features to the CRA NRHP & CRHR eligible district.

The Copper Basin Dam and Reservoir are contributors to the Colorado River Aqueduct Historic District, a multi-resource district determined eligible for the National Register of Historic Places (NRHP), the California Register of Historical Resources (CRHR) through the Section 106 process, and formal concurrence with the California State Historic Preservation Officer (SHPO) (Caltrans 2010). Therefore, the Copper Basin Dam and Reservoir are listed in the California Historic Resources Inventory with a "2D2" California Historic Resources Status Code; this code indicates SHPO concurrence on NRHP eligibility and automatic listing on the CRHR. As a CRHR-listed property, the Copper Basin Dam and Reservoir qualify as historical resources pursuant to the California Environmental Quality Act (McCausland 2021: ES-1).

### **Copper Basin Dam**

The Copper Basin Dam was constructed in 1938 as an integral part of the CRA system. Though smaller than its counterpart, Lake Havasu, the Copper Basin Reservoir remains a key facility in maintaining water levels and removing silt from the CRA system. Water in the reservoir is received from Gene Wash Reservoir via a tunnel. A concrete ogee spillway is located on the southeast side of the reservoir, and an outlet structure to the CRA Whipple Mountain Tunnel is located on the southwest side of the reservoir. The Copper Basin Dam is located on the southeast side of the reservoir, south of the spillway. The Copper Basin dam was constructed by the J. F. Shea Company, which also built the CRA Gene Dam and Parker Dam (Chasteen 2016). Because of the proximity of the dam sites to the company's already-existing construction camp near Parker Dam, no additional living quarters were necessary (Gruen 1998).

Concrete aggregate for the construction of Copper Basin Dam came from the aggregate plant at the Parker Dam construction site. Trucks transported the aggregate to the dam construction site, where it was mixed with cement and then placed in buckets dangled from a high-line cable system strung across the rocks before pouring began (McCausland 2021: 10-11).

## **Copper Basin Dam Access Road Construction History**

On February 12, 1937, Metropolitan issued a notice inviting bids for the Construction of Gene Wash and Copper Basin Dams and Appurtenant Works. This highly detailed document references roads and roads rights of way in some detail. Specifically,

**Construction roads.** Existing roads in the vicinity of the work are shown on the drawings. The Contractor shall at his own cost and expense provide, construct, and maintain all other roads necessary to be provided, constructed, and maintained to reach the various parts of the work, and for the transportation thereto of materials of construction and other necessary materials from railroad stations or other points of delivery, and from borrow pits and quarries. Construction roads for hauling cement or steel shall be constructed over the shortest practicable routes as determined by the Engineer, and shall be maintained in reasonably good condition for the class and amount of traffic to be carried; Roads may be constructed by the Contractor on lands owned or controlled by the District near the site of the work, and the District will provide rights of way for roads required to reach sand pits, gravel pits, or quarries as provided in Section 77. Any rights of way for roads other than as herein specifically provided shall be obtained by the Contractor at his own expense (Metropolitan 1937: 52-53).

The Metropolitan 1938 Historical Record, Contract Number 308, detailing the construction of Gene Wash and Copper Basin Dams, clearly records the condition of roads in the vicinity of the Project area immediately prior to construction. The report reads,

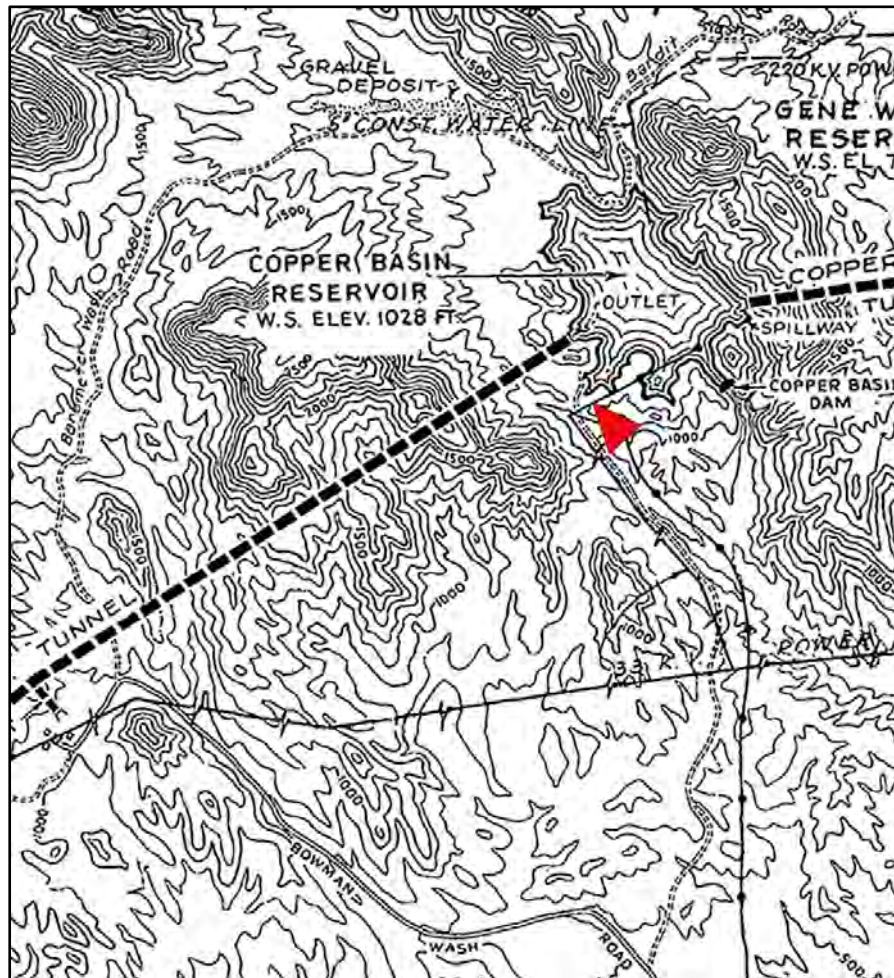
At the time the contract was let, there were no suitable construction roads to the various features of the work except the District highway from Earp, California, to Division No. 1, and the contractor was forced to undertake the widening and straightening of about 10 miles of old survey trails and prospector's roads, so that the hauling of construction materials could be accomplished without unnecessary cost. At the present time there are good earthen roads from the District highway to all features of both dams (Metropolitan 1938: 15).

The historical chronology presented in the Metropolitan 1938 Historical Record notes that work was started on Copper Basin Dam on March 29, 1937, and that work was completed on August 15, 1938, indicating that all road improvements related specifically to the construction of Copper Basin Dam were made prior to September of 1938 (Metropolitan 1938: 16).

Additional consultation of historic maps and aerials completes our understanding of the construction history of today's Copper Basin Access Road, which is detailed below.

A map prepared on September 22, 1936, entitled *Gene Wash & Copper Basin Reservoirs Vicinity Map*, depicts various road improvements, powerlines, and telephone lines in the vicinity of the Gene Wash and Copper Basin Dams project prior to construction (Figure 2). Three historic named roads, an unnamed trail, two powerlines and one telephone line existed near the Copper Basin construction site. The named roads were Bandit Wash Road, Barometer Wash Road, and Bowman Wash Road. Bandit Wash Road comprises a small portion of today's Copper Basin Access Road, as does a portion of the unnamed trail leading from Bowmans Wash Road to just south of today's outlet structure.

Figure 2. Historic 1936 Image



1936 Metropolitan Map Detail Depicting Bandit Wash Road, Barometer Wash Road, Bowman Wash Road, and an Unnamed Trail Leading to Future Jeep Trail Intersection.

Following construction of the Copper Basin Dam the initial maintenance access road system in the immediate vicinity of the Project area is depicted on a 1947 historic aerial (Figure 3). Note especially, the north-south access trail splitting off from Bowmans Wash Road. This trail ends approximately where today's Jeep Trail cuts off to the east.

**Figure 3. Historic 1947 Aerial**

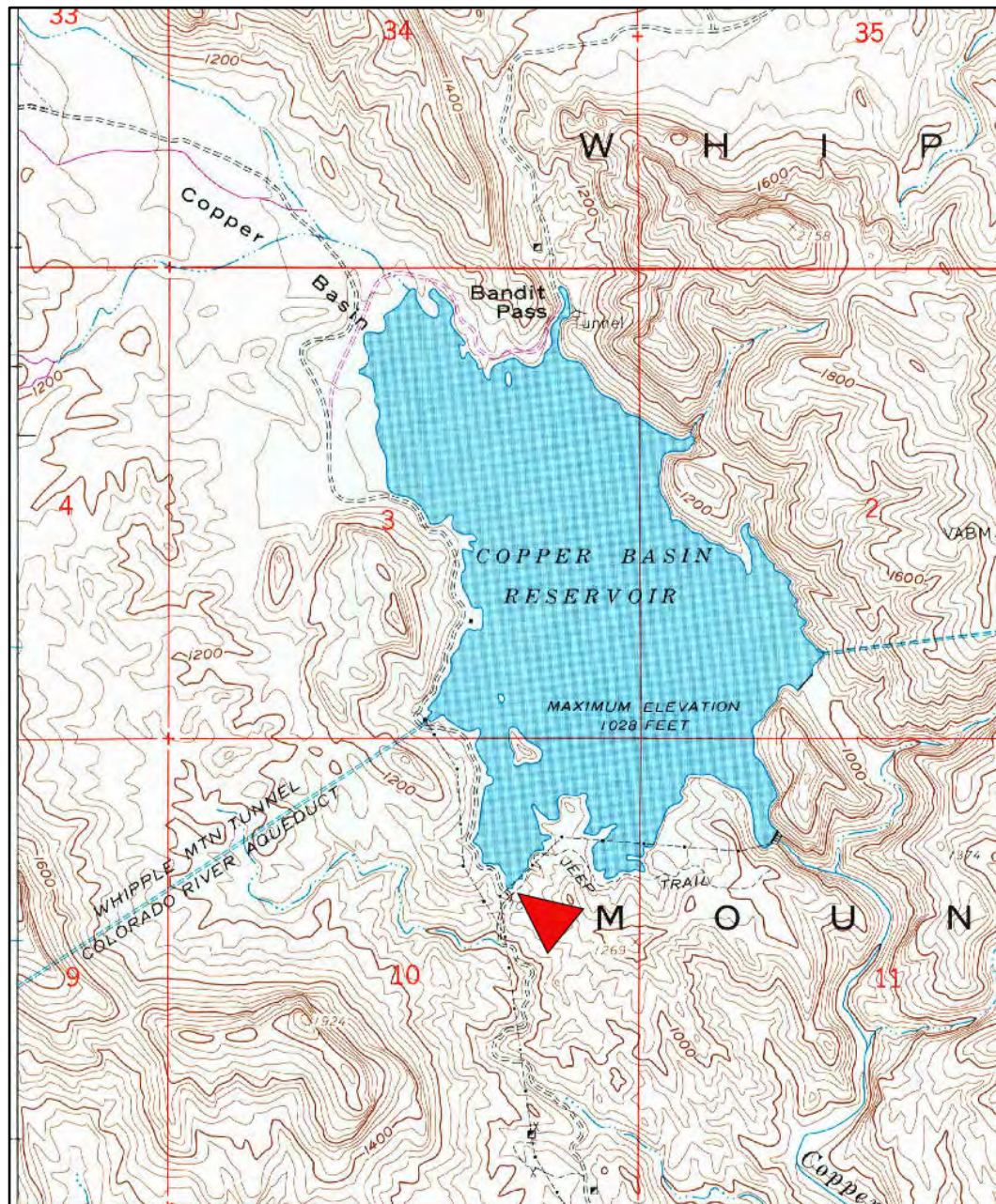
**1947 Historic Aerial Depicting Colorado River Aqueduct Outlet Structure in Top Left Corner of Image and a Portion of Copper Basin Access Road in Project area Leading Southerly to Future Intersection of the Jeep Trail. See RED Arrow**

The above 1947 historic aerial depicts the Outlet Structure near the extreme northern end of the Project area in the upper left-hand corner of the image. Note, however, that the Jeep Trail comprising a key portion of the Project area is not depicted as cutting off to the east from the older historic north-south access road depicted on Figure 2. This aerial was used to prepare the 1950 edition Parker Dam Area USGS 15 Minute topographic map that was field checked in 1949 prior to publication in 1950. This indicates that the Jeep Trail, currently comprising the southerly and easterly portion of Copper Basin Access Road in the Project area depicted on Figure 4 below, was not built until after 1949.



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**Figure 4. Historic 1954 Gene Wash USGS Map**



**1959 Historic Gene Wash (Photo-Revised in 1979) USGS Map Depicting Historic Jeep Trail**

The above 1959 USGS map, prepared from data based on a 1955 aerial depicts the Jeep Trail that comprises much of today's Project area. Compared to the 1947 historic aerial (Figure 3 above), and with the knowledge that the Jeep Trail does not appear on a 1950 Parker Dam Area USGS map field checked in 1949, the 1959 USGS map leads to the conclusion that the Jeep Trail portion of the Project area was constructed between 1949 and 1955. In addition, Figure 4 depicts a minor realignment of Copper Basin Access Road (see purple line near Bandit Pass) was made at some point between 1959 and 1979 when this map was photo revised. Consultation of a 1969 historic aerial available at [www.historicaerials.com](http://www.historicaerials.com) shows that this roadway segment was, in fact, realigned prior to 1969.

In review, that portion of today's Copper Basin Access Road within the Project area is comprised of various historic and much newer road segments. From the Outlet Structure at the extreme north end of the Project area, Copper Basin Access Road leads southerly for approximately one-quarter mile. This section of road did not exist prior to 1936 and was likely built from 1937 to 1938. A very small segment of Copper Basin Access Road within the Project area is depicted on a 1911 historic USGS map. The remaining portion of Copper Basin Access Road within the Project area, the "Jeep Trail" was built at some point between 1949 and 1955. Therefore, the entire portion of Copper Basin Access Road within the Project area was built prior to 1955. This is important as the Period Significance for contributing features to the *DPR 523D Colorado River Aqueduct District Record (CA-RIV-6726H/CA-SBR-105121H)* extends from 1923 to 1972 (Chasteen 2016: 1).

## Background Research: Methods and Results

A cultural resources records search was conducted by Aspen's archaeologist Albert Knight, B.A. at the CHRIS South Central Coastal Information Center (SCCIC) at California State University, Fullerton, California, on February 8, 2022, and included a search of the Project area and a surrounding 0.25-mile buffer area. The SCCIC is the official repository for all cultural resources site records and reports for San Bernardino County.

The records search did not identify any previously recorded cultural resources or archaeological studies within the Project area or the 0.25-mile records search buffer. However, one previously recorded cultural resource is known to exist, and this is the Colorado River Aqueduct which includes all associated appurtenant features essential for the operation of the aqueduct and for conveying water to southern California. This NRHP/CRHR eligible cultural resource is recorded on a DPR 523 District Record as follows in Table 1.

**Table 1. Cultural Resources Previously Recorded within 0.25- Miles of the Project Area**

Primary No.	Trinomial	Age	Name	NRHP/CRHR Criteria	Recorded
33-11265	CA-RIV-6726H	Historic	Colorado River Aqueduct	A/1; B/2; C/3; D/4	8-8-2016
36-010521	CA-SBR-10521H	Historic	Colorado River Aqueduct	A/1; B/2; C/3; D/4	8-8-2016

## Colorado River Aqueduct Previous Determination of Significance

The CRA has previously been determined as NRHP eligible in a *DPR 523D Colorado River Aqueduct District Record (CA-RIV-6726H/CA-SBR-105121H)*, under Criteria A, B, C, and D thus making the resource eligible to the CRHR. This document also concludes that various features of the CRA are eligible to the NRHP and CRHR in accordance. It also lays out guidelines for evaluating various engineering features such as dams, siphons, tunnels, access roads and other CRA district contributing features (Chasteen 2016).

## CRA District Record Referencing Access Roads

The following text referencing CRA access roads is taken from Chasteen's *DPR 523D Colorado River Aqueduct District Record*. Key elements of interest in the below quoted text are that access roads were among the first constructed of many CRA appurtenant features, that right-of-way generally extended out 150 feet from the centerline of access roads, and that desert drainage channels were frequently crossed by paved dips.

As defined here, the “Colorado River Aqueduct (CRA) system” is the canal system, including many appurtenant features, such as access roads and power transmission lines, essential for the operation of the aqueduct and conveying water to Southern California.

Generally, the district boundaries are drawn one-half mile out from the centerline of the aqueduct and 150 feet from the centerlines of roads, wasteways, and transmission lines. (Chasteen 2016: 1-4).

Infrastructure construction came first: roads, water, electric power, and telephones. The contractors often started work on the aqueduct as soon as the infrastructure was completed, or as soon as there were usable roads and power.

#### Infrastructure

Before the aqueduct construction could proceed, four infrastructure elements were needed: roads, water, power, and communication. On January 1, 1933, District forces began work on these systems; some of the work was put out for bid.

The main roads were paved or oiled; these connected to the state highways and to the division camps. These roads were 20 feet wide with shoulder widths of 2 to 6 feet, paved with oilcake (Metropolitan 1939:142–143). “A few timber bridges, corrugated-iron culverts, and occasional timber culverts were used, but in general desert drainage channels were crossed by paved dips with easy vertical curves. The lower side of each dip was protected against scour, in case of flood, by a concrete cut-off wall extending the length of the dip.” The roads could be built independently, based on the existing roads, and the aqueduct and camp locations (Chasteen 2016: 1-4).

Additionally, elements of interest in the below quoted text are that CRA access roads are district linear features, that the historic district boundary encompasses the entire CRA, that historic grading does not cause a loss of integrity, and that access roads that retain their integrity of location, design, setting, materials, workmanship, feeling, and association still contribute to the CRA Historic District.

The district includes many structures that are linear features, such as the aqueduct itself, transmission lines, and roads; buildings, such as the pumping plants and their associated villages; and historic sites, such as the construction camps. The historic district boundary encompasses the entire CRA, including all water conveyance, power transmission, access, and telecommunications facilities, as well as historic sites, buildings, structures, and objects no longer in use but related to earlier surveys and construction of the CRA.

Access Roads. Metropolitan maintains dirt roads to access points along the CRA. These roads are graded at least once a year. This does not cause a loss of integrity of the roadway or grade. The roads retain their integrity of location, design, setting, materials, workmanship, feeling, and association and still contribute to the CRA Historic District (Chasteen 2016: 27-29).

The access roads are simple, 20-foot wide dirt roads located throughout the entire CRA water conveyance system to allow for maintenance of the canal, transmission lines, microwave towers, and other associated infrastructure (Chasteen 2016: 59).

## **Native American Heritage Commission Sacred Lands File Search**

On April 26, 2022, Aspen requested that the Native American Heritage Commission (NAHC) complete a search of its Sacred Lands File (SLF) to determine if resources significant to Native Americans have been recorded within the Project footprint. On May 27, 2022, Aspen received a response from the NAHC stating that the search of its Sacred Lands File was negative for the presence of resources within the Project area or surrounding vicinity. The NAHC also provided their contact list of Native American tribal governments to contact for additional information regarding resources in the area.

On June 13, 2022, Aspen sent out Tribal outreach letters via USPS Certified mail representatives of the Chemehuevi Indian Tribe, Colorado Indian River Tribes, Fort Mojave Indian Tribe, Quechan Tribe of the Fort Yuma Reservation, and the Twenty-Nine Palms Band of Mission Indians (Appendix 1).

On June 30, 2022, Aspen received a email from Jill McCormick, Historic Preservation Officer of the Quechan Indian Tribe, saying the tribe had no comments on this Project. No other responses have been received as of the date of this report.

## **Survey Methods and Results**

### **Archaeological Pedestrian Survey Methods and Results**

On March 8, 2022, Aspen Cultural Resources Field Operations Lead, Elliot D'Antin, B.S., and Cultural Resources Specialist, Christina Peterson, M.S., RPA (Survey Crew), surveyed a 100-foot wide corridor along the approximately 1.66-mile-long portion of Copper Basin Access Road within the Project area. The ground visibility was high (90%) for a majority of the 1.66-mile portion of the Project area allowing for an intensive survey utilizing 15 meter transects. Finally, 0.66 miles of the Copper Basin Access Road within Copper Basin Wash was opportunistically surveyed due to dense vegetation, and ground visibility being less than 50%.

On March 30, 2022, Mr. D'Antin surveyed an additional 2.21-acres of land for the three staging areas, which had 100% ground visibility, allowing for an intensive survey utilizing 15 meter transects. Staging areas 1 and 2 are currently in use housing maintenance equipment regularly used by Metropolitan. Staging area 3 has also been used previously and extensively as an area to store soil spoils, and extract minerals in modern times (Figure 5).

For prehistoric resources, the Survey Crew examined the ground surface searching visually for evidence of cultural material, which typically includes fragments of economically important stone materials used in the production of cutting and hunting tools (e.g., chert, rhyolite, quartzite, obsidian), stone tools used for grinding/pounding plants or animals (e.g., metates, manos, pestles, bedrock milling surfaces), evidence of rock art, remains of dietary materials that may have been consumed in the past (e.g., fragments of bone), and features such as shelters, trails, cleared circles, and geoglyphs.

The ground surfaces surveyed were also inspected for elements of historic uses, including aged roadbeds, barbed wire fencing, standing or fallen wooden posts, structural remains of buildings, cairns, wells, prospects, and metal or tin debris (e.g., tin cans, abandoned machinery or vehicles) as well as mining features.

The archaeological survey did not identify any historic-aged archaeological or prehistoric archaeological resources in the Project area (Figure 6).

### **Built Environment Survey Methods and Results**

Two built environment surveys of Copper Basin Access Road were conducted by Elliot D'Antin in March 2022. Photographs were taken at various locations. The portion of Copper Basin Access Road within the Project area was surveyed on March 8, 2022. The northerly portion of Copper Basin Access Road was surveyed on March 30, 2022, under the direction of Roger Hatheway, Aspen's Architectural Historian and built environment specialist. Mr. Hatheway subsequently conducted research sufficient to evaluate impacts to Copper Basin Access Road in compliance with the Secretary of the Interior's Standards for the Treatment of Historic Properties (Secretary's Standards).

The built environment survey identified two historic-aged resources within or immediately adjacent to the Project area. Copper Basin Access Road and Copper Basin Reservoir and Dam which be have previously been determined as eligible to the NRHP and CRHR as contributing features of the *Colorado River Aqueduct District Record (CA-RIV-6726H/CA-SBR-105121H)*.

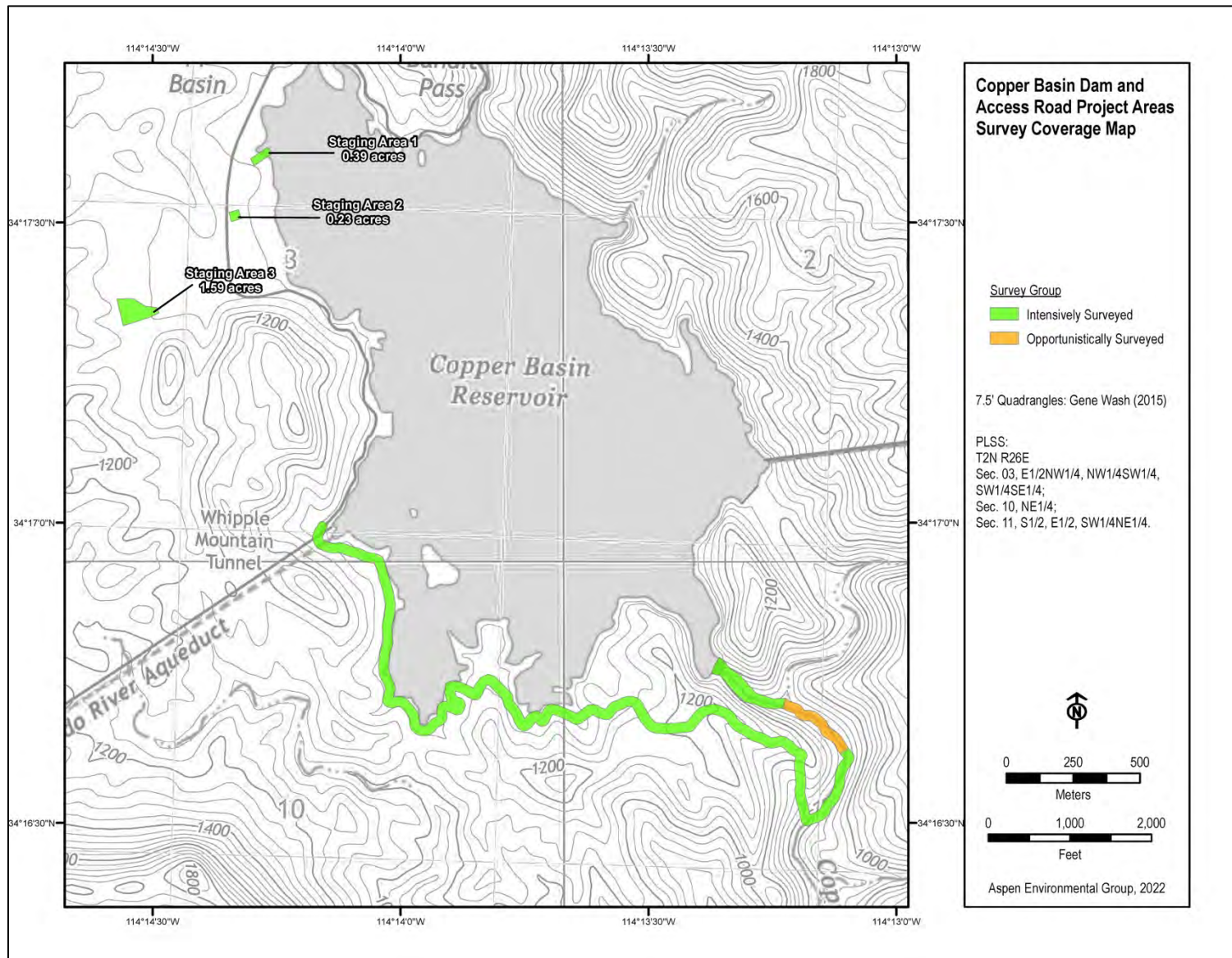
## **NRHP and CRHR Evaluation**

Copper Basin Access Road and Copper Basin Dam have previously been determined as eligible to the NRHP and CRHR as contributing features of the *Colorado River Aqueduct District Record (CA-RIV-6726H/CA-SBR-105121H)*. Based on in-depth historic research and field studies conducted during preparation of this report, Aspen recommends that the entirety of Copper Basin Access Road from its intersection with Trail End Camp Road to the base of Copper Basin Dam should remain a contributing feature to the NRHP/CRHR eligible *Colorado River Aqueduct District Record*.

The entirety of Copper Basin Access Road is comprised of various component parts including the following: historic roads and trails that existed prior to 1911; roadway segments that were built during construction of Copper Basin Dam from 1937-1938; a Jeep Trail in the Project area built at some point between 1949 and 1955; and minor realignments outside of the Project area made at some point between 1959 and 1969. Therefore, Aspen recommends that Copper Basin Access Road, including the portion within the Project area, is not individually eligible to the NRHP or CRHR. There are no singular historic events or individuals associated with all the component parts of Copper Basin Access Road extending from Trail End Camp Road to the base of Copper Basin Dam, it lacks singular construction integrity having been built and/or modified during the period of time extending from at least 1911 to circa 1969, and it has no unusual design or engineering features.

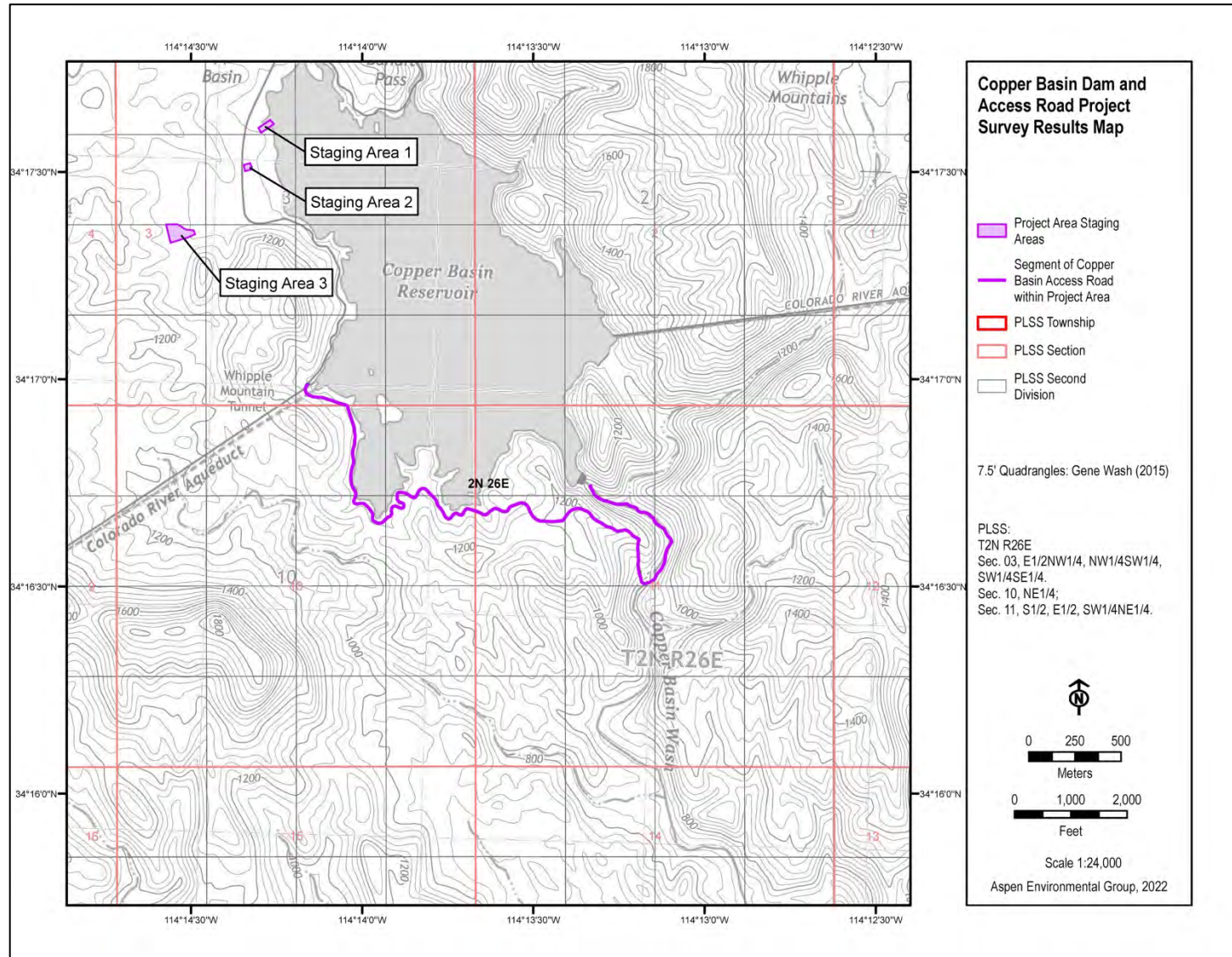
Accordingly, Project related impacts to Copper Basin Access Road are evaluated below.



**Copper Basin Dam and Access Road Project  
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**Copper Basin Dam and Access Road Project  
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**Figure 6. Survey Results Map**



## Discussion of Impacts to Historical Resources

The following discussion of Project impacts regarding the Copper Basin Access Road is in accordance with CEQA Guidelines Section 15126.4(b)(1). Specifically,

Where maintenance, repair, stabilization, rehabilitation, restoration, preservation, conservation or reconstruction of the historical resource will be conducted in a manner consistent with the Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings (SOI 1995), Weeks and Grimmer, the project's impact on historical resources shall generally be considered mitigated below a level of significance and thus is not significant.

It should be noted that Project impacts to Copper Basin Dam are not analyzed here, but rather will be analyzed in a separate technical document.

### Summary Statement: Secretary of the Interior's Standards

In consideration of the above, the following determinations are made relative to the Project in accordance with The Secretary of the Interior's Standards for the Treatment of Historic Properties and in accordance with the Secretary's Standards for Rehabilitation (§67.7).

**Standard 1: A property will be used as it was historically or be given a new use that requires minimal change.**

Project is consistent. The use of the Copper Basin Access Road will not be changed.

**Standard 2: The historic character of a property will be retained and preserved.**

Project is consistent. The essential historic character of the Copper Basin Access Road as assembled from component parts originally built before 1911 and extending to circa 1969 will be retained and preserved. The Project does include minor modifications to the historic fabric of the road, but these alterations will allow the roadway to continue to perform much in its original design capacity as a Copper Basin Dam maintenance access road.

**Standard 3: Each property will be recognized as a physical record of its time, place, and use.**

Project is consistent. Proposed modifications to the Copper Basin Access Road will not introduce a false sense of history through conjectural features or elements. The proposed improvements are not conjectural. The Project would make minor modifications to the original historic fabric, and all new proposed construction would be for safety reasons.

**Standard 4: Changes to a property that have acquired historic significance will be retained and preserved.**

Project is consistent. Copper Basin Access Road has no known elements or changes that have acquired significance over time outside of the period of significance for the CRA as extending from 1923-1972. The Project would not impact the eligibility of any previously eligible NRHP or CRHR resource.

**Standard 5: Distinctive materials, features, finishes, and construction techniques or examples of craftsmanship that characterize a property will be preserved.**

Project is consistent. The Project would preserve the great majority of distinctive features, finishes, and construction techniques that characterize Copper Basin Access Road.

**Standard 6: Deteriorated historic features will be repaired rather than replaced.**

Project is consistent. Proposed modifications to the Copper Basin Access Road will consist primarily of repair with minor new construction, and the access road will retain its overall appearance.

**Standard 7: Chemical or physical treatments, if appropriate, will be undertaken using the gentlest means possible.**

Project is consistent. No damage to historic fabric through chemical or physical treatments would take place during implementation of the Project.

**Standard 8: Archaeological resources will be protected and preserved in place.**

Project is consistent. Archeological resources will be protected and preserved in place. No significant archaeological resources were identified during the field survey of Copper Basin Access Road from the gate near the Outlet Structure to the base of the dam.

**Standard 9: New additions, exterior alterations, or related new construction shall not destroy historic materials that characterize the property.**

Project is consistent. Proposed modifications to the Copper Basin Access Road will not destroy historic materials that characterize the property.

**Standard 10: New additions and adjacent new construction shall be undertaken such that, if removed in the future, the essential form/integrity of historic property would be unimpaired.**

Project is consistent. Project construction would include minor alterations, but all new construction is being undertaken for either safety or maintenance reasons. The essential form of the Copper Basin Access Road and its character-defining features will remain intact and unimpaired.

Finally, in evaluating impacts of the proposed Project on Copper Basin Access Road, the following aspects of integrity have been examined in accordance with the 1997 bulletin How to Apply the National Register Criteria of Evaluation, and in accordance with criteria applied by Carrie Chasteen in the 2016 DPR 523D Colorado River Aqueduct District Record.

**Location:** Copper Basin Access Road in the Project area will remain almost entirely in its existing footprint, and it will retain integrity of location.

**Design:** Copper Basin Access Road in the Project area will retain the majority of its existing design.

**Setting:** The setting of the Copper Basin Access Road in the Project area has not substantially changed since it was completed in stages between 1937 and 1969 and it will retain its integrity of setting following completion of the Project.



**Materials:** Copper Basin Access Road in the Project area retains integrity of materials. It was built as a graded dirt Jeep trail/road and will remain an almost entirely graded dirt access road with minor gunite surfaces following implementation of minor project related improvements.

**Workmanship:** Copper Basin Access Road in the Project area is a simple graded roadway alignment, and it will retain integrity of workmanship following implementation of minor project related improvements.

**Feeling:** Copper Basin Access Road in the Project area will retain integrity of feeling as a functioning access maintenance road following implementation of minor project related improvements.

**Association:** Copper Basin Access Road in the Project area will retain integrity of association as a functioning access maintenance road within the larger CRA system of NRHP eligible contributing features, following implementation of minor project related improvements.

## Discussion of Substantial Adverse Change to Historical Resources

According to CEQA guidelines, a project with an effect that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment.

**Substantial adverse change** in the significance of an historical resource means physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired.

The significance of an historical resource is **materially impaired** according to CEQA Guidelines Section 15064.5(4)(b)(2) when a project:

- A. Demolishes or materially alters in an adverse manner those physical characteristics of an historic resource that convey its historic significance and that justify its inclusion in, or eligibility for, inclusion in the California Register of Historical Resources; or
- B. Demolishes or materially alters in an adverse manner those physical characteristics that account for its inclusion in a local register of historical resources pursuant to section 5020.1(k) of the Public Resources Code or its identification in an historic resources survey meeting the requirements of section 5024.1(g) of the Public Resources Code, unless the public agency reviewing the effects of the project establishes by a preponderance of the evidence that the resource is not historically or culturally significant; or
- C. Demolishes or materially alters in an adverse manner those physical characteristics of a historical resource that convey its historic significance and that justify its eligibility for inclusion in the California Register of Historical Resources as determined by a lead agency for purposes of CEQA.

### **Answers to the above items A-C are as follows:**

The Project would not materially alter, to any significant degree, the physical characteristics that convey the historic significance of Copper Basin Access Road. The proposed Project minimally alters Copper Basin Access Road in a manner that appears as generally consistent with the Secretary of the Interior's guidelines, and the proposed alterations to Copper Basin Access Road would not compromise its continued eligibility as a NRHP contributor or for inclusion in the CRHR.



Finally, the Project is within “a responsible preservation context.” Or, in accordance with Preservation Brief #14 that asks the following questions.

1. Does the proposed addition preserve significant historic materials and features?
  - a. **YES** – The proposed Project would preserve the great majority of significant historic materials and features of Copper Basin Access Road. The great majority of all proposed repairs are minor.
2. Does the proposed addition preserve the historic character?
  - a. **YES** – The proposed Project would preserve the essential historic character of Copper Basin Access Road. As previously discussed, the proposed Project would make minor modifications to the original historic fabric for safety reasons, while preserving the essential historic nature and character of Copper Basin Access Road.
3. Does the proposed addition protect the historical significance by making a visual distinction between old and new?
  - a. **YES** – The Project will add gunite at select and minor locations. The current alignment is a graded dirt road and there will be a clear visual distinction between old and new.

## Summary and Recommendations

Aspen conducted archaeological literature reviews and record searches, as well as an intensive field survey in support of the Project in March 2022. The main goal of this investigation was to gather and analyze the information needed to determine if cultural resources are present within the Project area and if they would be impacted.

The record search and archival research did not reveal any previously documented resources within the Project area. Additionally, the record search revealed that no cultural resource investigations had been conducted previously that encompassed all or a portion of the Project area. Also, the NAHC sent results of its Sacred Lands File search on May 27, 2022, which were negative. Aspen completed a field survey of the Project area on March 8 and March 30, 2022, that determined there are no new prehistoric or historic archaeological resources in the Project area. Therefore, no further archaeological investigations are recommended.

The use of Copper Basin Access Road will not change, and the grading of or modifying a small segment of the road in the Project area to allow it to function as a CRA maintenance road does not change the significance of the road or the CRA as NRHP or CRHR eligible resources. The CRA Historic District would still be associated with broad patterns of CA history, associated with Metropolitan/CRA founders (important persons of the past), and continue to represent distinct construction methods. Therefore, implementation of the proposed Project is not expected to result in a significant adverse impact or material impairment to the historic integrity of Copper Basin Access Road and following Project implementation it would retain its status as a contributor to the CRA Historic District. Finally, no indirect Project related impacts are expected to result to the larger CRA Historic District (*CA-RIV-6726H/CA-SBR-105121H*) in implementing the Project. Therefore, no recommendations for additional studies or treatment are made for built environment resources.

In the unlikely event cultural materials are encountered during future Project construction, Aspen recommends the following:

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1. **Inadvertent Discovery of Cultural Resources.** A professional archaeologist meeting the Secretary of Interior qualifications should be available on-call to identify and evaluate previously unidentified cultural resources discovered during construction activities. Upon inadvertent discovery of a potential resource, avoidance measures will be implemented by construction crews. These should include halting construction work within 100 feet of the find and directing construction away from the discovery until the archaeologist assesses the significance of the resource. The archaeologist will consult with the appropriate responsible public agency regarding necessary plans for treatment of the find(s), and for the evaluation and mitigation of impacts if the finds are thought to be potentially eligible for the CRHR or may qualify as a unique archaeological resource under CEQA Section 21083.2.
2. **Inadvertent Discovery of Human Remains.** In the event that human remains, or potential human remains are discovered, construction activities within 100-feet of the find shall be immediately halted. The construction Project Manager shall immediately notify the appropriate responsible public agency and the County Coroner. The County Coroner will make a determination as to the origin of the remains and, if determined to be of Native American origin, will contact the Native American Heritage Commission (NAHC) by telephone within 24 hours. If the remains are not of Native American origin, the County Coroner will make a determination as to the disposition of the remains. Once contacted by the County Coroner, the NAHC shall immediately identify and notify the Most Likely Descendant (MLD). The MLD has 48 hours to make recommendations to the landowner for treatment or disposition of the human remains. If the descendant does not make recommendations within 48 hours, the appropriate responsible public agency shall reinter the remains in an area of the property secure from further disturbance. If the responsible public agency does not accept the descendant's recommendations, the appropriate responsible public agency or the descendant may request mediation by the NAHC. Construction may continue once compliance with all relevant sections of the California Health and Safety Code have been addressed and authorization to proceed is issued by the County Coroner and the responsible public agency.

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**Copper Basin Dam and Access Road Project  
Phase I Cultural Resources Assessment Report**

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**Copper Basin Dam and Access Road Project  
Phase I Cultural Resources Assessment Report**

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California Register of Historical Resources. Public Resources Code 5020.1(a); 5020.4(a)(8); 5024.1; 5024.6(b)(m); 5028; 5029; 5079.20(a); 21084.1; Executive Order W-26-92.

### **Maps**

1936: September 22, 1936, Gene Wash & Copper Basin Reservoirs Vicinity Map, Colorado River Aqueduct Specifications No. 190, Construction of Gene Wash and Copper Basin Dams and Appurtenant Works, Notice of Inviting Bids, Metropolitan Water District of Southern California, February 12, 1937.

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# Appendix 1

## NAHC and Tribal Correspondence



STATE OF CALIFORNIA

Gavin Newsom, Governor

## NATIVE AMERICAN HERITAGE COMMISSION

May 27, 2022

Elliot D'Antin  
Aspen Environmental Group

Via Email to: [edantin@aspeneg.com](mailto:edantin@aspeneg.com)

CHAIRPERSON  
Laura Miranda  
Luiseño

VICE CHAIRPERSON  
Reginald Pagaling  
Chumash

PARLIAMENTARIAN  
Russell Attebery  
Karuk

SECRETARY  
Sara Dutschke  
Miwok

COMMISSIONER  
William Mungary  
Paiute/White Mountain  
Apache

COMMISSIONER  
Isaac Bojorquez  
Ohlone-Costanoan

COMMISSIONER  
Buffy McQuillen  
Yokayo Pomo, Yuki,  
Nomlaki

COMMISSIONER  
Wayne Nelson  
Luiseño

COMMISSIONER  
Stanley Rodriguez  
Kumeyaay

EXECUTIVE SECRETARY  
Raymond C.  
Hitchcock  
Miwok/Nisenan

NAHC HEADQUARTERS  
1550 Harbor Boulevard  
Suite 100  
West Sacramento,  
California 95691  
(916) 373-3710  
[nahc@nahc.ca.gov](mailto:nahc@nahc.ca.gov)  
[NAHC.ca.gov](http://NAHC.ca.gov)

Re: Copper Basin Dam and Access Road Project, San Bernardino County

Dear Mr. D'Antin:

A record search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) was completed for the information you have submitted for the above referenced project. The results were negative. However, the absence of specific site information in the SLF does not indicate the absence of cultural resources in any project area. Other sources of cultural resources should also be contacted for information regarding known and recorded sites.

Attached is a list of Native American tribes who may also have knowledge of cultural resources in the project area. This list should provide a starting place in locating areas of potential adverse impact within the proposed project area. I suggest you contact all of those indicated; if they cannot supply information, they might recommend others with specific knowledge. By contacting all those listed, your organization will be better able to respond to claims of failure to consult with the appropriate tribe. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call or email to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from tribes, please notify me. With your assistance, we can assure that our lists contain current information.

If you have any questions or need additional information, please contact me at my email address: [Andrew.Green@nahc.ca.gov](mailto:Andrew.Green@nahc.ca.gov).

Sincerely,

Andrew Green  
Cultural Resources Analyst

Attachment

**Native American Heritage Commission  
Native American Contact List  
San Bernardino County  
5/27/2022**

**Chemehuevi Indian Tribe**

Sierra Pencille, Chairperson  
P.O. Box 1976 1990 Palo Verde Chemehuevi  
Drive  
Havasupai Lake, CA, 92363  
Phone: (760) 858 - 4219  
Fax: (760) 858-5400  
chairman@cit-nsn.gov

**Twenty-Nine Palms Band of  
Mission Indians**

Anthony Madrigal, Tribal Historic  
Preservation Officer  
46-200 Harrison Place Chemehuevi  
Coachella, CA, 92236  
Phone: (760) 775 - 3259  
amadriral@29palmsbomi-nsn.gov

**Colorado River Indian Tribes**

Rebecca Loudbear, Attorney  
General  
26600 Mohave Road Chemehuevi  
Parker, AZ, 85344 Mojave  
Phone: (928) 669 - 1271  
Fax: (928) 669-5675  
rloudbear@critdoj.com

**Twenty-Nine Palms Band of  
Mission Indians**

Darrell Mike, Chairperson  
46-200 Harrison Place Chemehuevi  
Coachella, CA, 92236  
Phone: (760) 863 - 2444  
Fax: (760) 863-2449  
29chairman@29palmsbomi-nsn.gov

**Fort Mojave Indian Tribe**

Timothy Williams, Chairperson  
500 Merriman Ave Mojave  
Needles, CA, 92363  
Phone: (760) 629 - 4591  
Fax: (760) 629-5767  
lindaotero@fortmojave.com

**Quechan Tribe of the Fort Yuma  
Reservation**

Jill McCormick, Historic  
Preservation Officer  
P.O. Box 1899 Quechan  
Yuma, AZ, 85366  
Phone: (760) 572 - 2423  
historicpreservation@quechantribe.com

**Quechan Tribe of the Fort Yuma  
Reservation**

Manfred Scott, Acting Chairman  
Kw'its'an Cultural Committee  
P.O. Box 1899 Quechan  
Yuma, AZ, 85366  
Phone: (928) 750 - 2516  
scottmanfred@yahoo.com

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed Copper Basin Dam and Access Road Project, San Bernardino County.





5020 Chesebro Road, Suite 200  
Agoura Hills, CA 91301  
(818) 597-3407  
[www.aspeneg.com](http://www.aspeneg.com)

June 13, 2022

Attorney General Rebecca Loudbear

Colorado River Indian Tribes  
26600 Mohave Road  
Parker, AZ, 85344

RE: Copper Basin Dam and Access Road Project- Tribal Outreach

Dear Attorney General Loudbear,

On April 28, 2022, Aspen Environmental Group (Aspen) requested the Native American Heritage Commission to conduct a Sacred Lands File search for the Copper Basin Dam and Access Road Project (Project). The proposed Project will replace an existing valve located at the base of the Copper Basin Dam, and that portion of Copper Basin Access Road leading from the outlet structure to the base of the dam is steep and too hazardous for most vehicles and will not support the type of construction vehicles required to complete the proposed Project. As such, the proposed Project will involve improvements to approximately 1.66 miles of Copper Basin Access Road at the extreme southern end of the alignment, beginning at the outlet structure and extending to the base of the dam. These improvements would involve clearing vegetation and grading the access road and paving it with gunite in steep areas. The Project site is located in San Bernardino County north of the community of Earp, California (location map attached).

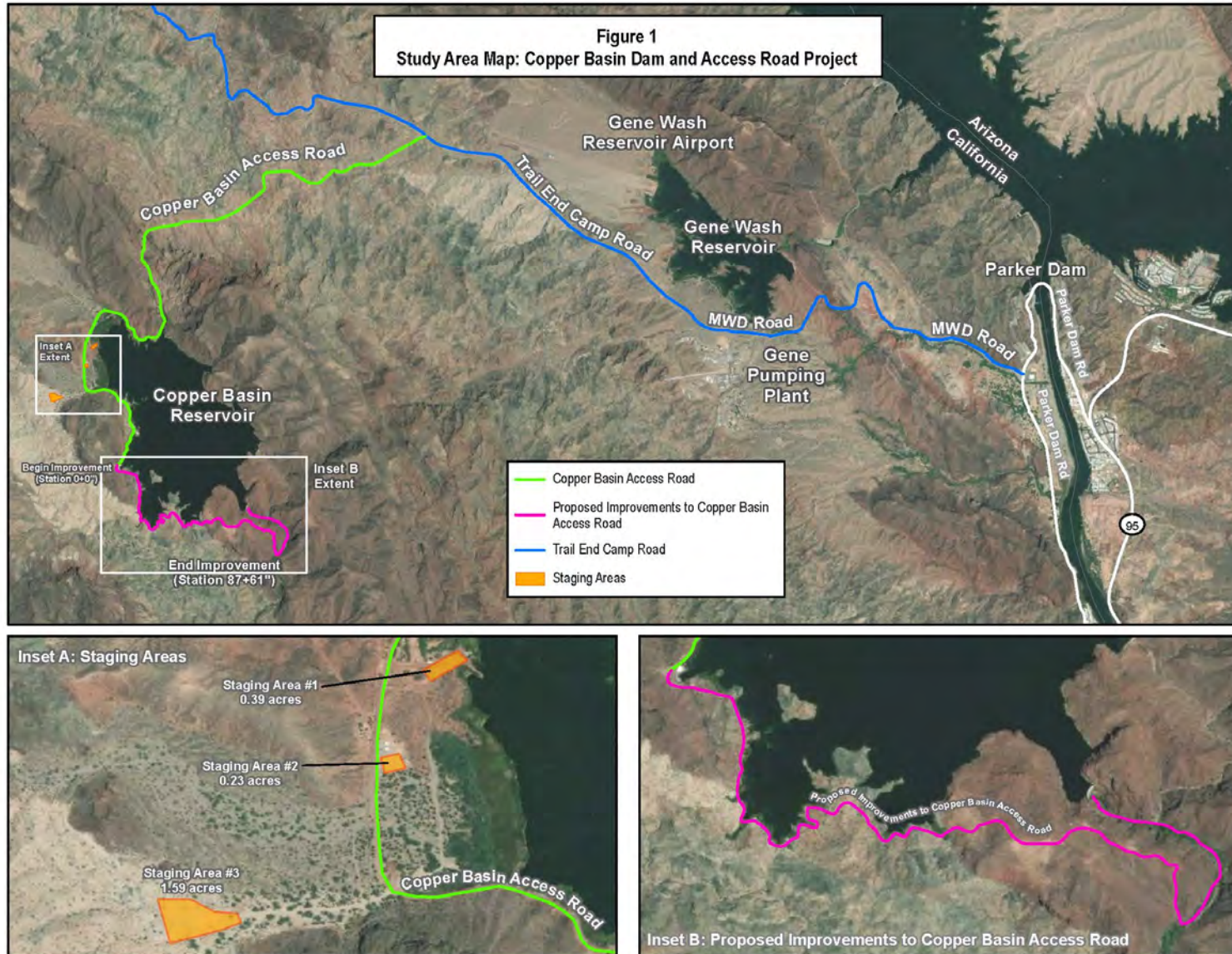
On May 27, 2022, Aspen received the results of the file search for the Project. The results were negative. The NAHC provided a list of interested Native Americans who might provide additional information on cultural resources or sacred tribal areas within the Project area. As the Colorado River Indian Tribes were included in the NAHC list, I am writing to request any additional information you may be willing to share about important Tribal cultural resource sites and issues. Please let me know if you need any additional information.

If you could provide your comments in writing to my attention via mail, to the address above, or e-mail at [ldoliveira@aspeneg.com](mailto:ldoliveira@aspeneg.com), I'll be sure the comments are provided to our client as part of this Project. We would appreciate a response within 30 days. Please feel free to contact me on my office line, (818) 338-6625, or via e-mail with any questions.

Sincerely,

A handwritten signature in dark ink, appearing to read "Ld", is positioned above the typed name of the sender.

Lauren DeOliveira, M.S., RPA  
Senior Cultural Resources Specialist





5020 Chesebro Road, Suite 200  
Agoura Hills, CA 91301  
(818) 597-3407  
[www.aspeneg.com](http://www.aspeneg.com)

June 13, 2022

Chairperson Darrell Mike

Twenty-Nine Palms Band of Mission Indians  
46-200 Harrison Place  
Coachella, CA, 92236

RE: Copper Basin Dam and Access Road Project- Tribal Outreach

Dear Chairperson Mike,

On, April 28, 2022, Aspen Environmental Group (Aspen) requested the Native American Heritage Commission to conduct a Sacred Lands File search for the Copper Basin Dam and Access Road Project (Project). The proposed Project will replace an existing valve located at the base of the Copper Basin Dam, and that portion of Copper Basin Access Road leading from the outlet structure to the base of the dam is steep and too hazardous for most vehicles and will not support the type of construction vehicles required to complete the proposed Project. As such, the proposed Project will involve improvements to approximately 1.66 miles of Copper Basin Access Road at the extreme southern end of the alignment, beginning at the outlet structure and extending to the base of the dam. These improvements would involve clearing vegetation and grading the access road and paving it with gunite in steep areas. The Project site is located in San Bernardino County north of the community of Earp, California (location map attached).

On May 27, 2022, Aspen received the results of the file search for the Project. The results were negative. The NAHC provide a list of interested Native Americans who might provide additional information on cultural resources or sacred tribal areas within the Project area. As the Twenty-Nine Palms Band of Mission Indians was included in the NAHC list, I am writing to request any information you may be willing to share about important Tribal cultural resource sites and issues. Please let me know if you need any additional information.

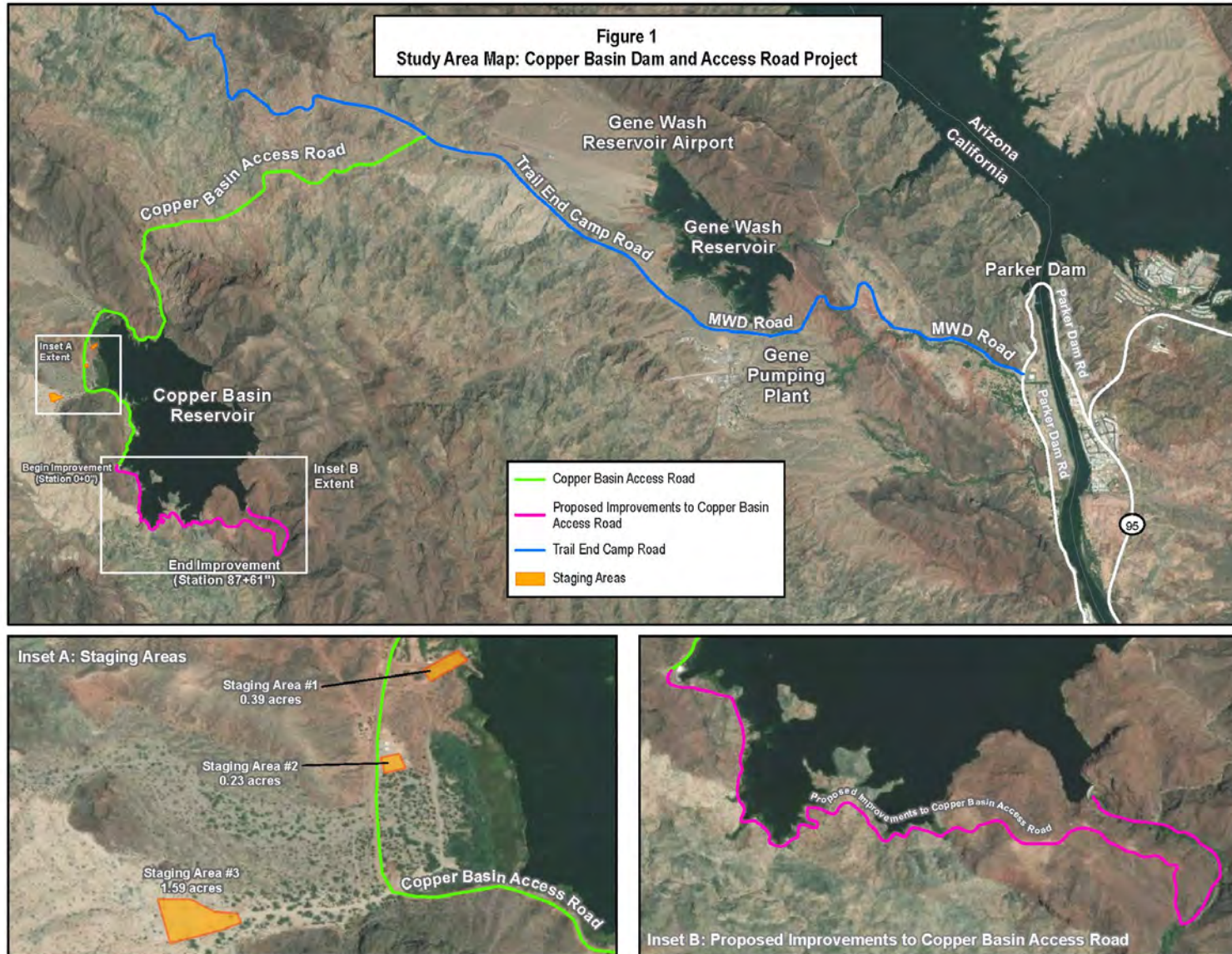
If you could provide your comments in writing to my attention via mail, to the address above, or e-mail at [ldoliveira@aspeneg.com](mailto:ldoliveira@aspeneg.com), I'll be sure the comments are provided to our client as part of this Project. We would appreciate a response within 30 days. Please feel free to contact me on my office line, (818) 338-6625, or via e-mail with any questions.

Sincerely,

A handwritten signature in dark ink, appearing to read "Ld", is positioned above the typed name of the sender.

Lauren DeOliveira, M.S., RPA  
Senior Cultural Resources Specialist







5020 Chesebro Road, Suite 200  
Agoura Hills, CA 91301  
(818) 597-3407  
[www.aspeneg.com](http://www.aspeneg.com)

June 13, 2022

Chairperson Sierra Pencille,

Chemehuevi Indian Tribe  
P.O. Box 1976  
1990 Palo Verde Drive  
Havasupai Lake, CA, 92363

RE: Copper Basin Dam and Access Road Project- Tribal Outreach

Dear Chairperson Pencille,

On April 28, 2022, Aspen Environmental Group (Aspen) requested the Native American Heritage Commission to conduct a Sacred Lands File search for the Copper Basin Dam and Access Road Project (Project). The proposed Project will replace an existing valve located at the base of the Copper Basin Dam, and that portion of Copper Basin Access Road leading from the outlet structure to the base of the dam is steep and too hazardous for most vehicles and will not support the type of construction vehicles required to complete the proposed Project. As such, the proposed Project will involve improvements to approximately 1.66 miles of Copper Basin Access Road at the extreme southern end of the alignment, beginning at the outlet structure and extending to the base of the dam. These improvements would involve clearing vegetation and grading the access road and paving it with gunite in steep areas. The Project site is located in San Bernardino County north of the community of Earp, California (location map attached).

On May 27, 2022, Aspen received the results of the file search for the Project. The results were negative. The NAHC provide a list of interested Native Americans who might provide additional information on cultural resources or sacred tribal areas within the Project area. As the Chemehuevi Indian Tribe was included in the NAHC list, I am writing to request any information you may be willing to share about important Tribal cultural resource sites and issues. Please let me know if you need any additional information.

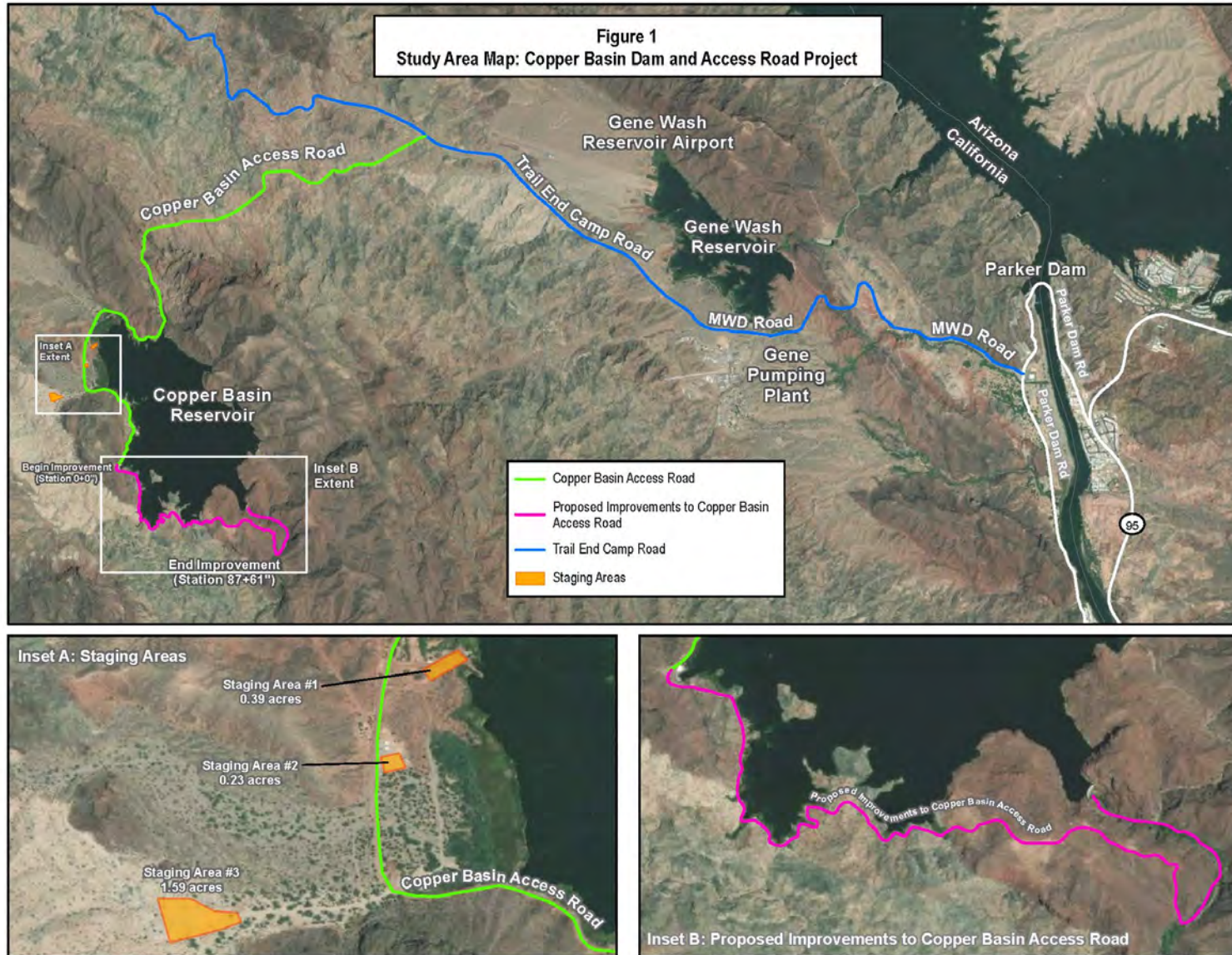
If you could provide your comments in writing to my attention via mail, to the address above, or e-mail at [ldoliveira@aspeneg.com](mailto:ldoliveira@aspeneg.com), I'll be sure the comments are provided to our client as part of this Project. We would appreciate a response within 30 days. Please feel free to contact me on my office line, (818) 338-6625, or via e-mail with any questions.

Sincerely,

A handwritten signature in black ink, appearing to read "LD", written over a light blue horizontal line.

Lauren DeOliveira, M.S., RPA  
Senior Cultural Resources Specialist







5020 Chesebro Road, Suite 200  
Agoura Hills, CA 91301  
(818) 597-3407  
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June 13, 2022

Acting Chairperson Manfred Scott

Quechan Tribe of the Fort Yuma Reservation  
P.O. Box 1899  
Yuma, AZ, 85366

RE: Copper Basin Dam and Access Road Project

Dear Chairperson Scott,

On April 28, 2022, Aspen Environmental Group (Aspen) requested the Native American Heritage Commission to conduct a Sacred Lands File search for the Copper Basin Dam and Access Road Project (Project). The proposed Project will replace an existing valve located at the base of the Copper Basin Dam, and that portion of Copper Basin Access Road leading from the outlet structure to the base of the dam is steep and too hazardous for most vehicles and will not support the type of construction vehicles required to complete the proposed Project. As such, the proposed Project will involve improvements to approximately 1.66 miles of Copper Basin Access Road at the extreme southern end of the alignment, beginning at the outlet structure and extending to the base of the dam. These improvements would involve clearing vegetation and grading the access road and paving it with gunite in steep areas. The Project site is located in San Bernardino County north of the community of Earp, California (location map attached).

On May 27, 2022, Aspen received the results of the file search for the Project. The results were negative. The NAHC provide a list of interested Native Americans who might provide additional information on cultural resources or sacred tribal areas within the Project area. As the Quechan Tribe was included in the NAHC list, I am writing to request any information you may be willing to share about important Tribal cultural resource sites and issues. Please let me know if you need any additional information.

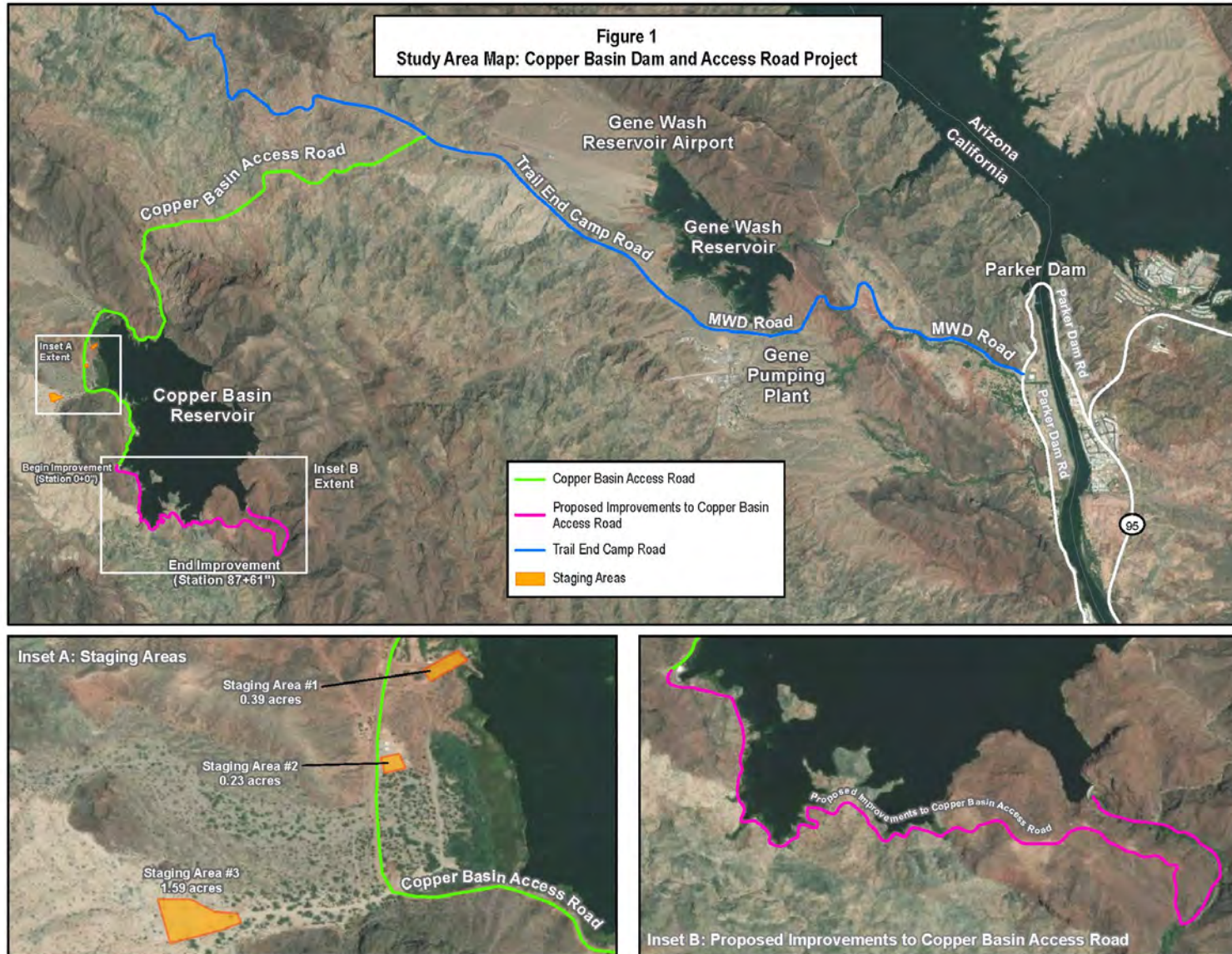
If you could provide your comments in writing to my attention via mail, to the address above, or e-mail at [ldoliveira@aspeneg.com](mailto:ldoliveira@aspeneg.com), I'll be sure the comments are provided to our client as part of this Project. We would appreciate a response within 30 days. Please feel free to contact me on my office line, (818) 338-6625, or via e-mail with any questions.

Sincerely,

A handwritten signature in dark ink, appearing to read "LD", is positioned above the typed name of the sender.

Lauren DeOliveira, M.S., RPA  
Senior Cultural Resources Specialist







5020 Chesebro Road, Suite 200  
Agoura Hills, CA 91301  
(818) 597-3407  
[www.aspeneg.com](http://www.aspeneg.com)

June 13, 2022

Chairperson Timothy Williams,

Fort Mojave Indian Tribe  
500 Merriman Avenue  
Needles, CA, 92363

RE: Copper Basin Dam and Access Road Project- Tribal Outreach

Dear Chairperson Williams,

On April 28, 2022, Aspen Environmental Group (Aspen) requested the Native American Heritage Commission to conduct a Sacred Lands File search for the Copper Basin Dam and Access Road Project (Project). The proposed Project will replace an existing valve located at the base of the Copper Basin Dam, and that portion of Copper Basin Access Road leading from the outlet structure to the base of the dam is steep and too hazardous for most vehicles and will not support the type of construction vehicles required to complete the proposed Project. As such, the proposed Project will involve improvements to approximately 1.66 miles of Copper Basin Access Road at the extreme southern end of the alignment, beginning at the outlet structure and extending to the base of the dam. These improvements would involve clearing vegetation and grading the access road and paving it with gunite in steep areas. The Project site is located in San Bernardino County north of the community of Earp, California (location map attached).

On May 27, 2022, Aspen received the results of the file search for the Project. The results were negative. The NAHC provide a list of interested Native Americans who might provide additional information on cultural resources or sacred tribal areas within the Project area. As the Fort Mojave Indian Tribe was included in the NAHC list, I am writing to request any information you may be willing to share about important Tribal cultural resource sites and issues. Please let me know if you need any additional information.

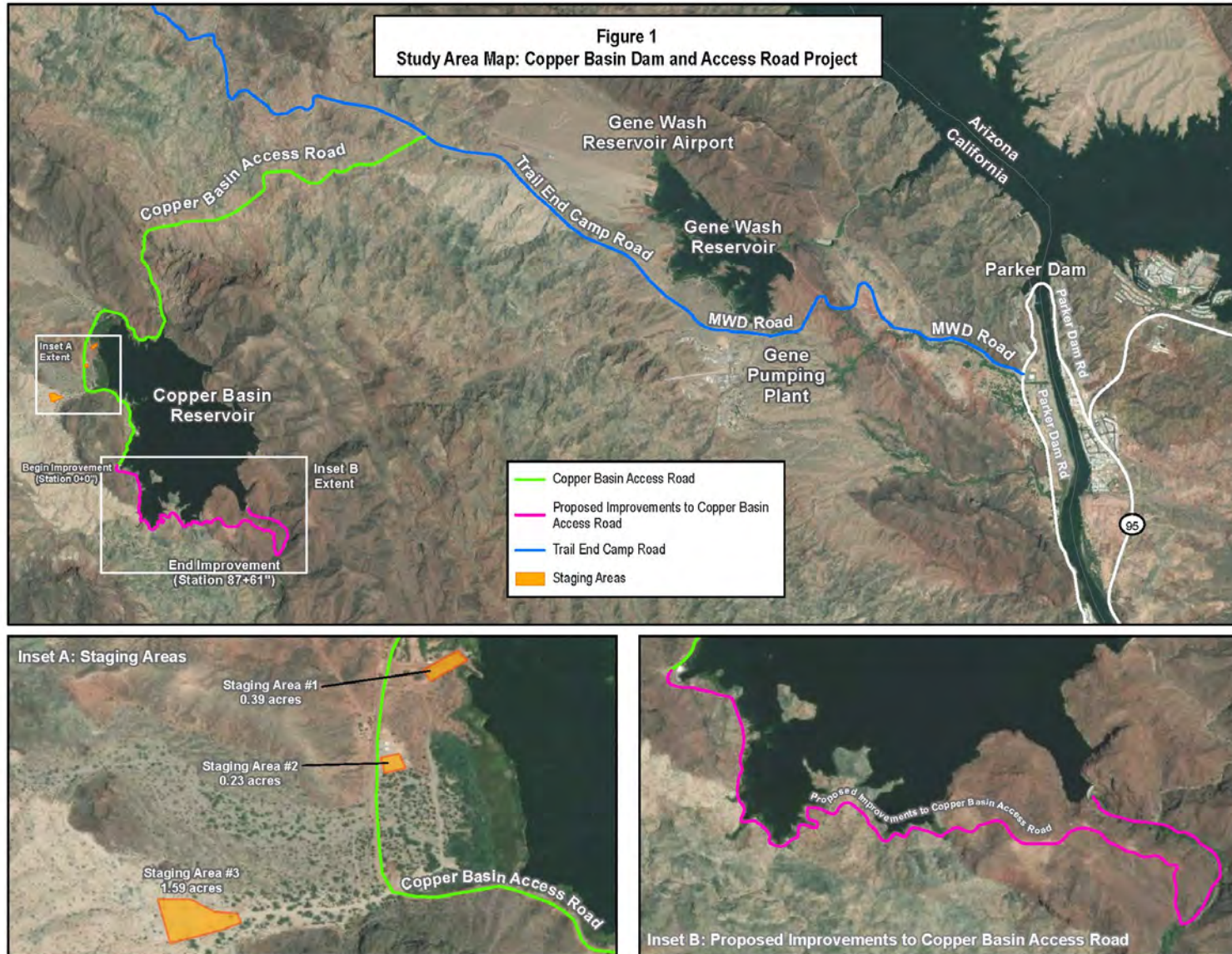
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Sincerely,

A handwritten signature in dark ink, appearing to read "Ld", is positioned above the typed name of the sender.

Lauren DeOliveira, M.S., RPA  
Senior Cultural Resources Specialist









5020 Chesebro Road, Suite 200  
Agoura Hills, CA 91301  
(818) 597-3407  
[www.aspeneg.com](http://www.aspeneg.com)

June 13, 2022

Historic Preservation Officer Jill McCormick

Quechan Tribe of the Fort Yuma Reservation  
P.O. Box 1899  
Yuma, AZ, 85366

RE: Copper Basin Dam and Access Road Project- Tribal Outreach

Dear Ms. McCormick,

On April 28, 2022, Aspen Environmental Group (Aspen) requested the Native American Heritage Commission to conduct a Sacred Lands File search for the Copper Basin Dam and Access Road Project (Project). The proposed Project will replace an existing valve located at the base of the Copper Basin Dam, and that portion of Copper Basin Access Road leading from the outlet structure to the base of the dam is steep and too hazardous for most vehicles and will not support the type of construction vehicles required to complete the proposed Project. As such, the proposed Project will involve improvements to approximately 1.66 miles of Copper Basin Access Road at the extreme southern end of the alignment, beginning at the outlet structure and extending to the base of the dam. These improvements would involve clearing vegetation and grading the access road and paving it with gunite in steep areas. The Project site is located in San Bernardino County north of the community of Earp, California (location map attached).

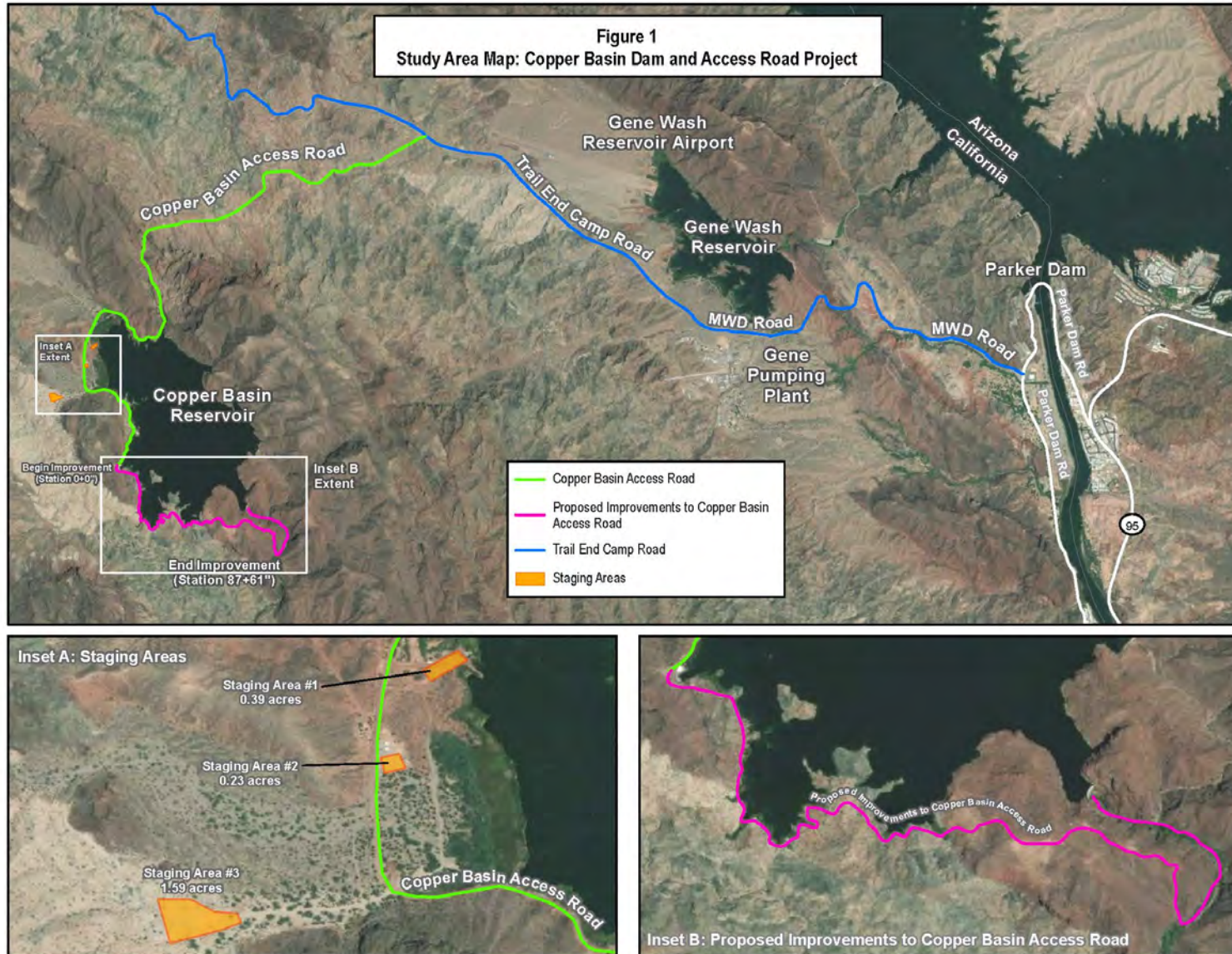
On May 27, 2022, Aspen received the results of the file search for the Project. The results were negative. The NAHC provide a list of interested Native Americans who might provide additional information on cultural resources or sacred tribal areas within the Project area. As the Quechan Tribe was included in the NAHC list, I am writing to request any information you may be willing to share about important Tribal cultural resource sites and issues. Please let me know if you need any additional information.

If you could provide your comments in writing to my attention via mail, to the address above, or e-mail at [ldoliveira@aspeneg.com](mailto:ldoliveira@aspeneg.com), I'll be sure the comments are provided to our client as part of this Project. We would appreciate a response within 30 days. Please feel free to contact me on my office line, (818) 338-6625, or via e-mail with any questions.

Sincerely,

A handwritten signature in dark ink, appearing to read "Ld", is positioned above the typed name of the sender.

Lauren DeOliveira, M.S., RPA  
Senior Cultural Resources Specialist





5020 Chesebro Road, Suite 200  
Agoura Hills, CA 91301  
(818) 597-3407  
[www.aspeneg.com](http://www.aspeneg.com)

June 13, 2022

Tribal Historic Preservation Officer Anthony Madrigal

Twenty-Nine Palms Band of Mission Indians  
46-200 Harrison Place  
Coachella, CA, 92236

RE: Copper Basin Dam and Access Road Project- Tribal Outreach

Dear Mr. Madrigal,

On, April 28, 2022, Aspen Environmental Group (Aspen) requested the Native American Heritage Commission to conduct a Sacred Lands File search for the Copper Basin Dam and Access Road Project (Project). The proposed Project will replace an existing valve located at the base of the Copper Basin Dam, and that portion of Copper Basin Access Road leading from the outlet structure to the base of the dam is steep and too hazardous for most vehicles and will not support the type of construction vehicles required to complete the proposed Project. As such, the proposed Project will involve improvements to approximately 1.66 miles of Copper Basin Access Road at the extreme southern end of the alignment, beginning at the outlet structure and extending to the base of the dam. These improvements would involve clearing vegetation and grading the access road and paving it with gunite in steep areas. The Project site is located in San Bernardino County north of the community of Earp, California (location map attached).

On May 27, 2022, Aspen received the results of the file search for the Project. The results were negative. The NAHC provide a list of interested Native Americans who might provide additional information on cultural resources or sacred tribal areas within the Project area. As the Twenty-Nine Palms Band of Mission Indians was included in the NAHC list, I am writing to request any information you may be willing to share about important Tribal cultural resource sites and issues. Please let me know if you need any additional information.

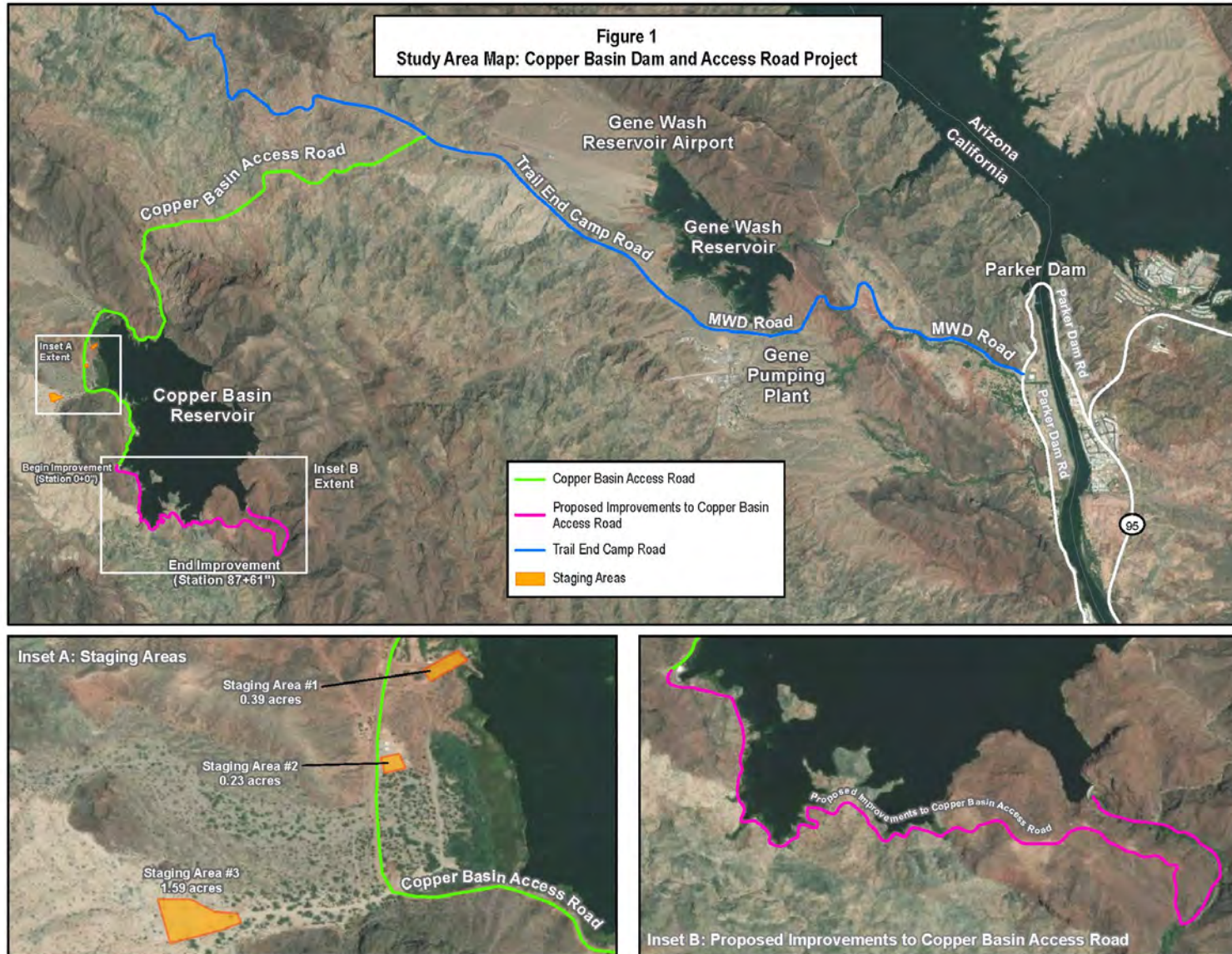
If you could provide your comments in writing to my attention via mail, to the address above, or e-mail at [ldoliveira@aspeneg.com](mailto:ldoliveira@aspeneg.com), I'll be sure the comments are provided to our client as part of this Project. We would appreciate a response within 30 days. Please feel free to contact me on my office line, (818) 338-6625, or via e-mail with any questions.

Sincerely,

A handwritten signature in dark ink, appearing to read "LD", is positioned above the typed name of the sender.

Lauren DeOliveira, M.S., RPA  
Senior Cultural Resources Specialist





## Appendix 2

### Copper Basin Access Road DPR 523 Form



State of California — The Resources Agency  
DEPARTMENT OF PARKS AND RECREATION  
**PRIMARY RECORD**

Primary # 33-11265/36/010521

HRI #

Trinomial CA-RIV-6726H/CA-SBR-10521H

NRHP Status Code A/1; B/2; C/3; D/4

## Other Listings:

Review Code

Reviewer

Date

Page 1 of 5

\*Resource Name or #: Copper Basin Access Road

P1. Other Identifier:

\*P2. Location: ☐ Not for Publication ☒ Unrestricted

\*a. County: San Bernardino

and (P2b and P2c or P2d. Attach a Location Map as necessary.)

\*b. USGS 7.5' Quad: *Gene Wash* Date: 1959 Photo-Rev., 1975 T2N; R26E; Por. Secs 3, 10, 11 San Bernardino B.M.

c. Address: 158000 MWD Road

City: Parker Dam

Zip: 92267

d. UTM: Nad83 Zone: 11N; 754459mE 3796969mN (G.P.S.) – Copper Basin Dam Access Road Near Outlet Structure Gate

e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, etc., as appropriate) Elevation:

\*P3a. Description: (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)

Copper Basin Access Road extends from its intersection with Trail End Camp Road in a general westerly, then southerly, then easterly direction to the base of the Copper Basin Dam. It consists of an unpaved and graded dirt road. That section of Copper Basin Access Road from Trail End Camp Road through Bandit Pass to the gate at the outlet structure is approximately 4.22 miles long and it varies in width from 18' to 27' wide. That section of Copper Basin Access Road from the outlet structure gate southerly and easterly to the base of the dam is approximately 1.66 miles long and it varies in width from 10' to 12' wide. This section of roadway has steep grades and dip crossings. It is depicted and labelled as "Jeep Trail" on the USGS Gene Wash 1959/Rev.1975 Quad. map. The proposed Project Area extends from the outlet structure gate to the base of the dam. Therefore, the proposed project impacts only a small portion of the overall 5.88 length of Copper Basin Access Road.

\*P3b. Resource Attributes: (List attributes and codes) HP37. Highway/trail NRHP A/1; B/2; C/3; D/4

\*P4. Resources Present: ☐ Building ☐ Structure ☐ Object ☐ Site ☐ District ☒ Element of District ☐ Other (Isolates, etc.)

P5a. Photo or Drawing (Photo required for buildings, structures, and objects.)

View Looking Easterly. UTM Zone 11; 754549.00 mE, 3796941.00 mN.



Typical View Copper Basin Access Road in Project Area

P5b. Description of Photo:

March 8, 2022: Typical view of Copper Basin Access Road in Project Area.

\*P6. Date Constructed/Age and

Sources: 1937-1955 ☒ Historic

Altered: Yearly Grading

☐ Prehistoric ☐ Both

\*P7. Owner and Address:

Metropolitan Water District

700 North Alameda Street

Los Angeles, CA 90054-0153

\*P8. Recorded by: (Name, affiliation, and address)

Roger Hatheway

Aspen Environmental Group

5020 Cheseboro Road, Suite 200

Agoura Hills, CA 91301

\*P9. Date Recorded: 4/1/2022

\*P10. Survey Type: Pedestrian

\*P11. Report Citation: *Cultural Resources Record Search and Pedestrian Survey for the Copper Basin Dam and Access Road Project,*

Aspen Environmental, Prepared for: Metropolitan Water District, Prepared by Aspen Environmental Group, June 2022.

\*Attachments: ☐ NONE ☒ Location Map ☐ Sketch Map ☐ Continuation Sheet ☒ Building, Structure, and Object Record☐ Archaeological Record ☐ District Record ☒ Linear Feature Record ☐ Milling Station Record ☐ Rock Art Record☐ Artifact Record ☐ Photograph Record ☐ Other

DPR 523A (1/95)

\*Required information

**State of California — The Resources Agency  
DEPARTMENT OF PARKS AND RECREATION**

**Primary #** 33-11265/36/010521  
**HRI#**

**BUILDING, STRUCTURE, AND OBJECT RECORD**

Page 2 of 5

**\*NRHP Status Code** A/1; B/2; C/3; D/4

**\*Resource Name or #:** Copper Basin Access Road

B1. Historic Name: Copper Basin Access Road

B2. Common Name: Copper Basin Access Road

B3. Original Use: Road

B4. Present Use: Road

**\*B5. Architectural Style:** N/A

**\*B6. Construction History:** (Construction date, alterations, and date of alterations) Pre-1911 to Circa 1969

**\*B7. Moved?** ☒ No ☐ Yes ☐ Unknown **Date:** 1934 - 1969 **Original Location:** Road built by and/or for Metropolitan Water District from 1937-1969. There have several road additions and one minor realignment.

**\*B8. Related Features:** Copper Basin Dam and Reservoir

B9a. Architect/Engineer: N/A b. Builder: Built by Contractor for and/or by Metropolitan Water District

**\*B10. Significance: Theme:** Colorado River Aqueduct – Access Roads **Area:** High Desert – Colorado River Aqueduct

**Period of Significance:** 1923-1972 **Property Type:** Highway/Trail **Applicable Criteria:** NRHP A/1; B/2; C/3; D/4

Copper Basin Access Road and Copper Basin Dam have previously been determined as eligible to the NRHP as contributing features of the *Colorado River Aqueduct District Record (CA-RIV-6726H/CA-SBR-105121H)*.

Based on in-depth historical research and field studies conducted during preparation of the 2022 *Cultural Resources Record Search and Pedestrian Survey for the Copper Basin Dam and Access Road Project* report, Aspen recommends that the entirety of Copper Basin Access road from its intersection with Trail End Camp Road to the base of Copper Basin Dam should remain as a contributing feature to the NRHP eligible *Colorado River Aqueduct District Record*. However, the entirety of Copper Basin Access Road is comprised of various component parts including the following: historic roads and trails that existed prior to 1911; roadway segments that were built during construction of Copper Basin Dam from 1937-1938; a Jeep Trail in the Project Area built at some point between 1949 and 1955; and minor realignments outside of the Project Area made between 1959 and 1969. Aspen recommends, therefore, that Copper Basin Access Road, including that portion within the Project Area, is not individually eligible to the NRHP. There are no singular historic events or individuals associated with all the component parts of Copper Basin Access Road extending from Trail End Camp Road to the base of Copper Basin Dam, it lacks singular construction integrity having been built and/or modified during the period of time extending from at least 1911 to circa 1969, and it has no unusual design or engineering features.

**B11. Additional Resource Attributes: (List attributes and codes)**

RESOURCE ATTRIBUTE CODE(S):

HP37. Highway/trail

**B12. References:**

See *Cultural Resources Record Search and Pedestrian Survey for the Copper Basin Dam and Access Road Project*, Aspen Environmental, Prepared for: Metropolitan Water District, Prepared by Aspen Environmental Group, June 2022.

**B13. Remarks:**

Historical and Transportation Context developed in report entitled *Phase I Cultural Resource Assessment for the Stagecoach Solar Project, Northern Lucerne Valley, San Bernardino County, California*, Prepared for: California Lands Commission, Prepared by: Aspen Environmental Group, Inc., 2020.

**\*B14. Evaluator:** Roger Hatheway, Aspen Environmental Group, 5020 Cheseboro Road, Suite 200, Agoura Hills, CA 91301

**\*Date of Evaluation:** June 26, 2022

(Sketch Map with north arrow required.)

**Please see Location Maps  
DPR 523 Pages 4 and 5**

(This space reserved for official comments.)

State of California — The Resources Agency  
DEPARTMENT OF PARKS AND RECREATION  
**LINEAR FEATURE RECORD**

Primary #

HRI #

Trinomial

Page 3 of 5

Resource Name or #: Copper Basin Access Road

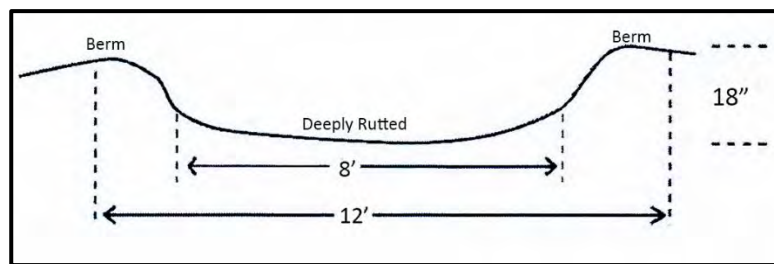
**L1. Historic and/or Common Name:** Copper Basin Access Road**L2a. Portion Described:** ☒ Entire Resource ☐ Segment ☐ Point Observation **Designation:** Named Used by MWD Staff**b. Location of point or segment:** Typical in Project Area: See Location Maps – DPR 523 Pages 4 and 5.USGS 7.5' Quad: 7.5' USGS Gene Wash 7.5' USGS CA **Date:** 1959 Photo-Rev 1979**L3. Description:** (Describe construction details, materials, and artifacts found at this segment/point. Provide plans/sections as appropriate.)

Copper Basin Access Road extends from its intersection with Trail End Camp Road in a general westerly, then southerly, the easterly direction to the base of the Copper Basin Dam. It consists of an unpaved and graded dirt road. That section of Copper Basin Access Road from Trail End Camp Road through Bandit Pass to the gate at the outlet structure is approximately 4.22 miles long and it varies in width from 18' to 27' wide. That section of Copper Basin Access Road from the outlet structure gate southerly and easterly to the base of the dam is approximately 1.66 miles long and it varies in width from 8' to 12' wide. This section of roadway has steep grades and dip crossings. It is depicted and labelled as "Jeep Trail" on the USGS Gene Wash 1959/Rev.1975 Quad. map. The proposed project Study Area extends from the outlet structure gate to the base of the dam. Therefore, the proposed project impacts only a small portion of the overall 5.88 length of Copper Basin Access Road.

**L4. Dimensions:** (In feet for historic features and meters for prehistoric features)**a. Top Width:** Varies – 12.0 to 27.0 Feet**b. Bottom Width:** Varies - 10.0 to 18.0 Feet**c. Height or Depth:** Varies – 1.0 to 2.0 Feet**d. Length of Segment:** Approx. 5.88 Miles**L5. Associated Resources:** Copper Basin Dam and Reservoir.**L6. Setting:** Desert/Remote**L7. Integrity Considerations:****L8b. Description of Photo, Map, or Drawing**

There are no drawings or profiles of this private road. Aspen field crews surveyed the alignment and prepared the L4e Sketch.

**L4e. Sketch of Average Cross-Section in 1.66 Mile-Long Project Area - Actual Sections Along Entire 5.66 Mile Length Vary Widely**



**L9. Remarks:** See Historical context and evaluation developed in report entitled *Cultural Resources Record Search and Pedestrian Survey for the Copper Basin Dam and Access Road Project*, Aspen Environmental, Prepared for: Metropolitan Water District, Prepared by Aspen Environmental Group, June 2022.

**L10. Form Prepared by:** Roger Hatheway, Aspen Environmental Group, 5020 Cheeseboro Road, Suite 200, Agoura Hills, CA 91301**L11. Date:** 6/26/2022**L8a. 3/8/2022 Typical View of Copper Basin Access Road in Project Area**

Looking Easterly. UTM Zone 11; 754549.00 mE, 3796941.00 mN.



State of California — The Resources Agency  
DEPARTMENT OF PARKS AND RECREATION  
**LOCATION MAP**

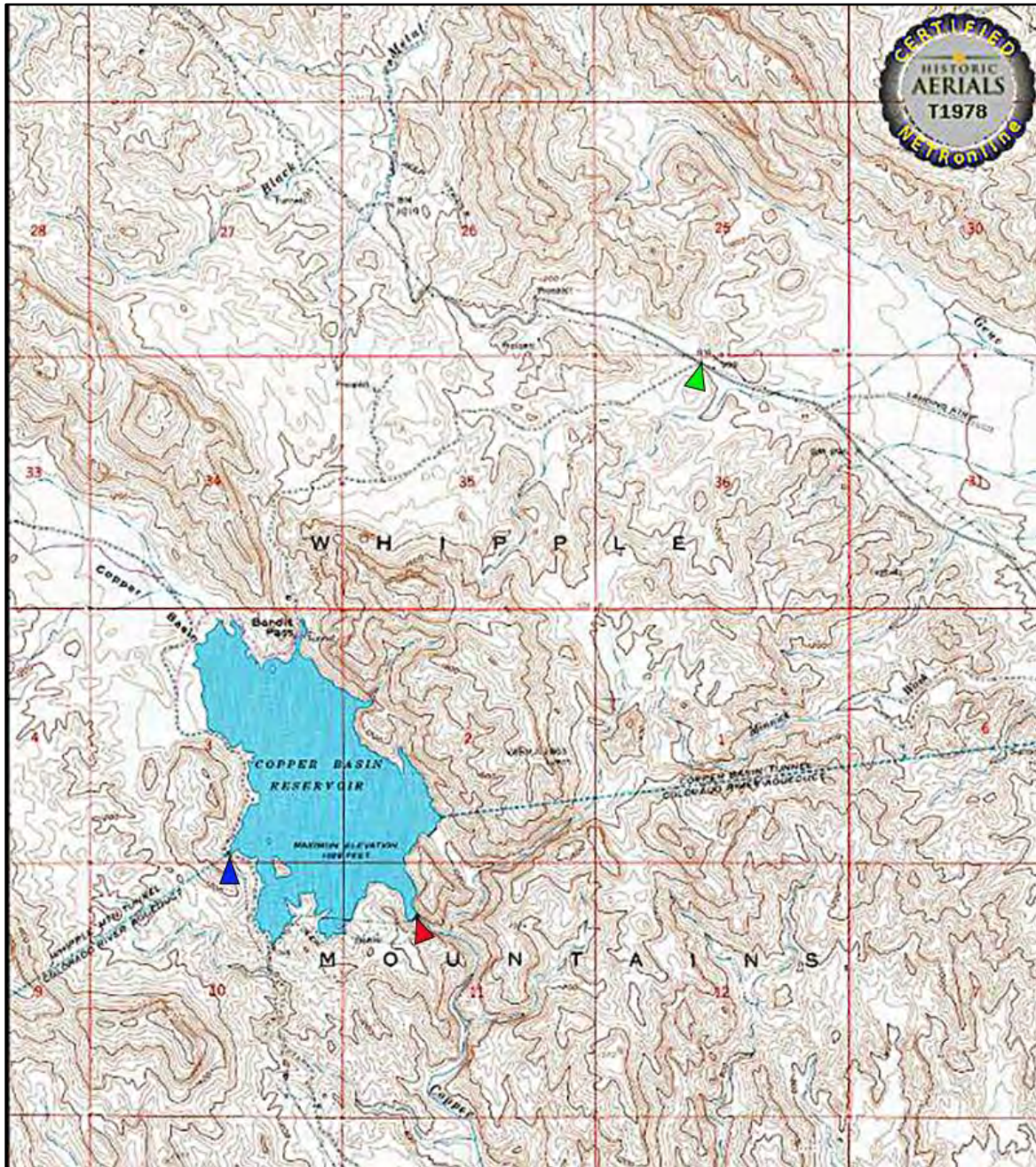
Primary # 33-11265/36/010521

HRI#

Trinomial CA-RIV-6726H/CA-SBR-10521H

Page 4 of 5

\*Resource Name or #: Copper Basin Access Road

\*Map Name: 7.5' USGS Gene Wash \*Scale: 1: 24,000 \*Date of Map: 1978 - [www.historicaerials.com](http://www.historicaerials.com)

**Gene Wash, USGS Quadrangle Map, Original Scale: 1:24,000  
Depicting Entire Length of Copper Basin Access Road**

**Entire Length of Copper Basin Access Road Data as Depicted on Map**

- This map depicts the 5.88-mile length of Copper Basin Access Road from its intersection with Trail End Camp Road to the base of Copper Basin Dam.

**GREEN ARROW** = Copper Basin Access Road at Intersection with Trail End Camp Road.

**BLUE ARROW** = Copper Basin Access Road at Outlet Structure Gate (Northwesterly End of Project Study Area).

**RED ARROW** = Copper Basin Access Road at Base of Copper Basin Dam (Southeasterly End of Project Study Area).

DPR 523J (1/95)

\*Required information



State of California — The Resources Agency  
DEPARTMENT OF PARKS AND RECREATION  
**LOCATION MAP**

Primary # 33-11265/36/010521

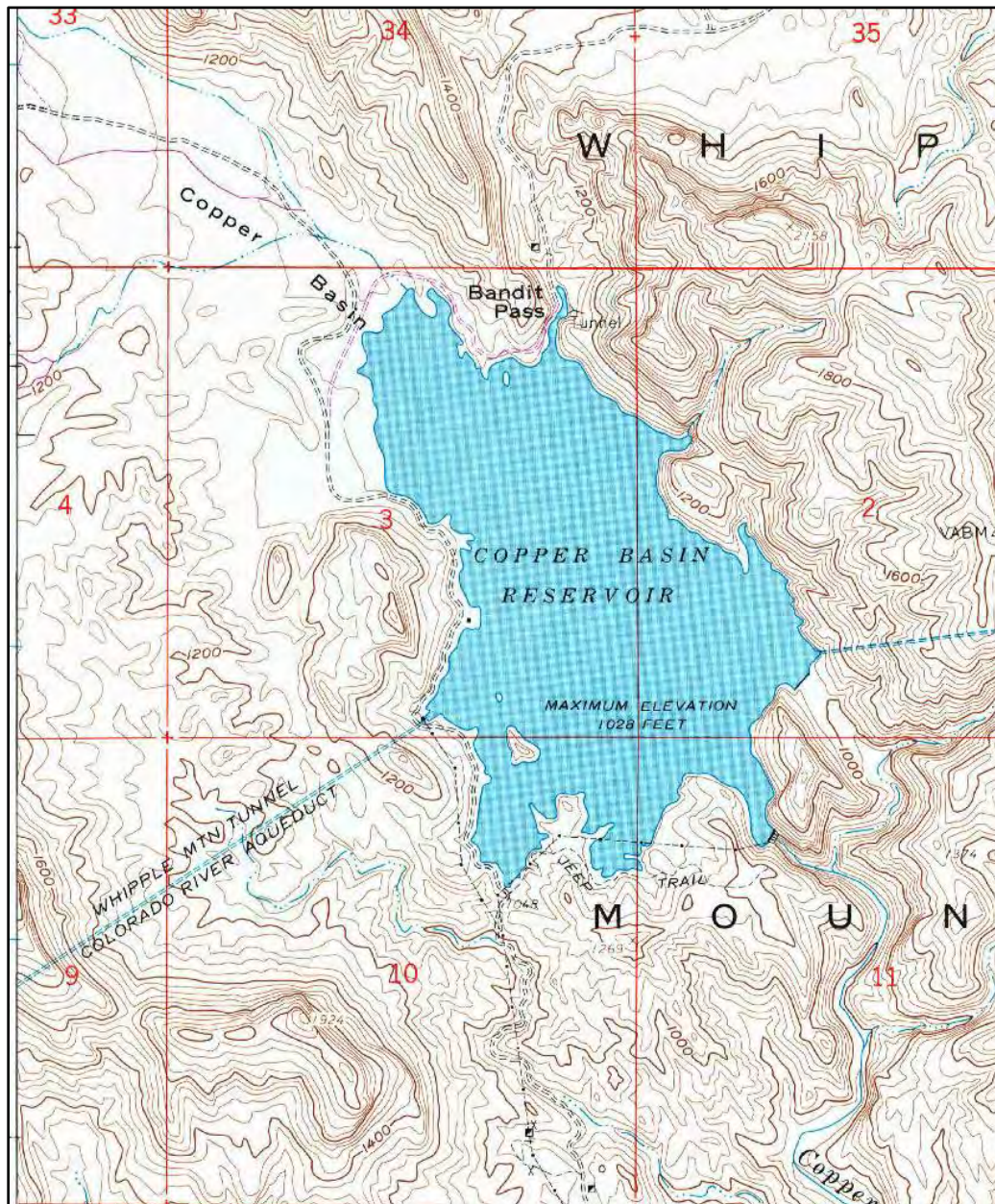
HRI#

Trinomial CA-RIV-6726H/CA-SBR-10521H

Page 5 of 5

\*Resource Name or #: Copper Basin Access Road

\*Map Name: 7.5' USGS Gene Wash \*Scale: Original = 1: 24,000 \*Date of Map: 1959 Photo-Revised 1979



DETAIL: 1959 *Gene Wash*, Calif.-Ariz., USGS Quadrangle Map (Photo-Revised 1979) Original Scale: 1:24,000

**Relevant Copper Basin Access Road Data Depicted on Detail Map**

This 1959 USGS map, prepared from data based on a 1955 aerial depicts the Jeep Trail that comprises the majority of today's Project Area. This Jeep Trail does not appear on a 1950 Parker Dam Area USGS map field checked in 1949, the 1959 USGS map, leading to the conclusion that the Jeep Trail portion of the Project Area was constructed between 1949 and 1955. In addition, the 1959 map depicts a minor realignment of Copper Basin Access Road (see purple line near Bandit Pass) made at some point between 1959 and 1979 when this map was photo revised. Consultation of a 1969 historic aerial available at [www.historicaerials.com](http://www.historicaerials.com) shows that this roadway segment was, in fact, realigned prior to 1969.

DPR 523J (1/95)

\*Required information



# **Appendix D**

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## **Historical Resources Technical Report**



# Copper Basin Dam Valve Replacement Project

## Historical Resources Technical Report

August 2022 | 00501.00050.006

*Prepared for:*

Metropolitan Water District of Southern California  
P.O. Box 54153  
Los Angeles, CA 90054

*Prepared by:*

A handwritten signature in black ink, appearing to read "Stacie Wilson", written over a horizontal line.

Stacie Wilson  
Senior Archaeologist

HELIX Environmental Planning, Inc.  
7578 El Cajon Boulevard  
La Mesa, CA 91942

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**National Archaeological Database Information**

Authors: Debi Howell-Ardila, M.H.P., Annie McCausland, M.A., Teri Delcamp, M.A.

Firm: HELIX Environmental Planning, Inc.

Client/Project: Metropolitan Water District of Southern California / Copper Basin Dam Valve Replacement Project

Report Date: August 2022

Report Title: Historical Resources Technical Report for the Copper Basin Dam Valve Replacement Project, San Bernardino County, California

Prepared for: Metropolitan Water District of Southern California

Type of Study: Historical Resources Technical Report

New Sites: None

Updated Sites: P- 33-11265 and P-36-010521

USGS Quad: Parker 7.5' Quadrangle

Key Words: Howell-Bunger valve; Colorado River Aqueduct Historic District; Copper Basin Dam; San Bernardino County; Township 2 North, Range 26 East, Section 11

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## ACRONYMS AND ABBREVIATIONS

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ASCE	American Society of Civil Engineers
Cal/OSHA	California Division of Occupational Safety and Health
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CRA	Colorado River Aqueduct
CRHR	California Register of Historical Resources
DPR	California Department of Parks and Recreation
DSOD	California Division of Safety of Dams
HAER	Historic American Engineering Record
HELIX	HELIX Environmental Planning, Inc.
HRTR	Historical Resources Technical Report
Metropolitan	Metropolitan Water District of Southern California
NPS	National Park Service
NRHP	National Register of Historic Places
OSHA	Occupational Safety and Health Administration
PRC	Public Resources Code
project	Copper Basin Dam Valve Replacement Project
Reclamation	U.S. Bureau of Reclamation
SHPO	State Historic Preservation Officer
USGS	U.S. Geological Survey

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# EXECUTIVE SUMMARY

## PURPOSE AND SCOPE

The Metropolitan Water District of Southern California (Metropolitan) contracted HELIX Environmental Planning, Inc. (HELIX) to prepare a Historical Resources Technical Report (HRTR) in support of the Copper Basin Dam Valve Replacement Project (project) in the unincorporated community of Parker Dam, San Bernardino County, California. This technical study provides Metropolitan with the substantial evidence necessary to confirm the historical resource status of the dam and to assess the potential impacts from the proposed project.

The Copper Basin Dam and Reservoir are contributors to the Colorado River Aqueduct Historic District, a multi-resource district determined eligible for the National Register of Historic Places (NRHP) and the California Register of Historical Resources (CRHR) through the Section 106 process via formal concurrence by the California State Historic Preservation Officer (SHPO) (Caltrans 2010). Therefore, the Copper Basin Dam and Reservoir are listed in the California Historic Resources Inventory with a “2D2” California Historic Resources Status Code; this code indicates SHPO concurrence on NRHP eligibility and automatic listing on the CRHR. In 2016, Metropolitan retained Applied EarthWorks, Inc. (Æ) to record the entirety of the Colorado River Aqueduct (CRA), including the pumping plants, reservoirs, dams and appurtenant features, and structures as a continuous historic district. As a CRHR-listed property, the Copper Basin Dam and Reservoir qualify as historical resources pursuant to the California Environmental Quality Act (CEQA).

Due to site access issues at the time of the resource’s documentation in 2016, the Copper Basin Dam was not documented in detail. Furthermore, the dam has not been previously evaluated for individual historical significance. This report and accompanying Department of Parks and Recreation (DPR) Series 523 form update provide the necessary additional analysis and detail to evaluate the dam’s individual historical significance, characterize the resource and its character-defining features, and assess potential impacts.

The project proposes minor maintenance upgrades to various equipment and features associated with the dam. The project involves the in-kind replacement of an extant, large-scale water discharge valve known as the “Howell-Bunger” valve (described in more detail below). The Howell-Bunger valve was originally installed on the Copper Basin Dam in 1938, at the time of the dam’s construction. After more than 75 years of continuous service, the valve is in need of replacement. Other associated work includes the replacement of the main ladder that provides access to the existing valve house from the top of the dam, replacement of the main weir, adit weir and catwalk panels located downstream of the dam, installation of concrete steps from the existing valve house to the new catwalk system, and electrical and mechanical upgrades. This study examines the proposed project and the potential impacts to the dam as a historical resource. The project components are described and examined for compliance with the *Secretary of the Interior’s Standards for the Treatment of Historic Properties (Secretary’s Standards)*.

All activities were conducted in accordance with the requirements of the Public Resources Code (PRC), CEQA, as well as the applicable best practices and regulations. Metropolitan is the lead agency under CEQA.



## DATES OF INVESTIGATION

In June 2021, HELIX Architectural Historian Annie McCausland completed a literature review, primary- and secondary-source research, and a desktop inspection of the Copper Basin Dam, its overall design, construction methods, materials, features, and setting. Metropolitan staff conducted a site visit and provided detailed photographs of the resource. HELIX Senior Architectural Historian, Debi Howell-Ardila, MHP, served as the principal author of the draft report and provided senior review and QA/QC. Following completion of the draft report in 2022, HELIX Architectural Historian Teri Delcamp completed a literature review, primary- and secondary-source research, and a field survey to record and photograph the Copper Basin Dam and the additional associated features not previously described in the project scope. HELIX Cultural Resources Manager, Mary Robbins-Wade, and Senior Cultural Resources Project Manager, Stacie Wilson, provided QA/QC and strategic oversight for the project. Resumes for key staff follow this report as Appendix A.

This intensive-level analysis included a detailed physical description, integrity evaluation, identification of character-defining features, an evaluation of the dam as an individual historical resource per NRHP and CRHR criteria, and an impacts analysis relative to the dam's historical status. An updated set of DPR Series 523 forms was prepared; the compiled set follows this report as Appendix B.

## SUMMARY OF FINDINGS

This intensive-level analysis confirms the previous finding of eligibility for the Copper Basin Dam as a contributor to the CRA Historic District and concludes that the dam is eligible for inclusion in the NRHP and CRHR as an individually significant historical resource. This analysis also defines the dam's character-defining features, which include the dam's sluiceway system.

The proposed project would replace, in-kind, one of the original components of the Copper Basin Dam sluiceway system, an extant Howell-Bunger valve and gate valve installed at the time of the dam's construction in 1938. In addition, other related components will be replaced to meet California Division of Occupational Safety and Health (Cal/OSHA) and federal Occupational Safety and Health Administration (OSHA) safety standards that will become effective in 2036 (Hazen and Sawyer 2020). Lastly, the project includes upgrades to electrical, communication, and mechanical systems. All of these project components will allow for the continuing operation of the dam within the larger CRA.

Although the Howell-Bunger valve and gate valve are large in scale, they are comparatively small features when compared with the scale of the dam itself. As currently envisioned, the project proposes to replace the valves, in-kind, to match the existing valves in materials, dimensions, and use, and care will be taken to avoid the destruction or obstruction of adjacent character-defining features. The two weir structures will be replaced with reinforced concrete structures of essentially the same design and dimensions in their current locations. Other project components involve access and safety features, including the replacement of the main access ladderway, metal landing platforms and non-historic catwalk panels, as well as the installation of concrete stairs to access the new catwalk system from the valve house. While the project will somewhat alter the appearance of the valve house area when viewed from downstream, the changes are associated with appurtenances connected to the valve house and do not change the structure of the valve house itself. These alterations are insignificant to the larger dam structure; the project does not propose any significant changes to the dam, and the use of the dam will not change.

Therefore, the project complies with the *Secretary of the Interior's Standards for the Treatment of Historic Properties (Secretary's Standards)*. Implementation of the proposed project would not be expected to result in a significant adverse impact or material impairment. The historical resource would retain its historic integrity following project implementation, and its status as a contributor to the CRA Historic District and as an individual historic resource. In addition, no indirect impacts would be expected to result to the larger CRA Historic District as a result of project implementation.

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## 1.0 INTRODUCTION

The Metropolitan Water District of Southern California (Metropolitan) contracted HELIX Environmental Planning, Inc. (HELIX) to prepare a Historical Resources Technical Report (HRTR) in support of the Copper Basin Dam Valve Replacement Project (project) in the unincorporated community of Parker Dam, San Bernardino County, California. This technical study provides Metropolitan with the substantial evidence necessary to confirm the historical resource status of the dam and to assess the potential impacts from the proposed project.

The Copper Basin Dam and Reservoir are contributors to the Colorado River Aqueduct (CRA) Historic District, a multi-resource district determined eligible for the National Register of Historic Places (NRHP) and the California Register of Historical Resources (CRHR) through the Section 106 process via formal concurrence by the California State Historic Preservation Officer (SHPO) (Caltrans 2010). Therefore, the Copper Basin Dam and Reservoir are listed in the California Historic Resources Inventory with a “2D2” California Historic Resources Status Code; this code indicates SHPO concurrence on NRHP eligibility and automatic listing on the CRHR. In 2016, Metropolitan retained Applied EarthWorks, Inc. (Æ) to record the entirety of the CRA, including the pumping plants, reservoirs, dams and appurtenant features and structures as a continuous historic district. As a CRHR-listed property, the Copper Basin Dam and Reservoir qualify as historical resources pursuant to the California Environmental Quality Act (CEQA).

Due to site access issues at the time of the resource’s documentation in 2016, the Copper Basin Dam was not documented in detail. Furthermore, the dam has not been previously evaluated for individual historical significance. This report and accompanying Department of Parks and Recreation (DPR) Series 523 form update provide the necessary additional analysis and detail to evaluate the dam’s individual historical significance, characterize the resource and its character-defining features and assess potential impacts.

The project proposes relatively minor maintenance upgrades to various equipment and features associated with the dam. The project involves the in-kind replacement of an extant, large-scale water discharge valve known as the “Howell-Bunger” valve (described in more detail below). The Howell-Bunger valve was originally installed on the Copper Basin Dam in 1938, at the time of the dam’s construction. After more than 75 years of continuous service, the valve is in need of replacement. Other associated work includes the replacement of the ladderway that accesses the existing valve house, installation of a new platform grate on the valve house in front of the valve, replacement of the main weir, adit weir and catwalk panels located downstream of the dam, and installation of concrete steps from the existing valve house to the new catwalk system. This study examines the proposed project and its potential impacts to the dam as a historical resource. The project components are described and examined for compliance with the *Secretary of the Interior’s Standards for the Treatment of Historic Properties* (*Secretary’s Standards*).

All activities were conducted in accordance with the requirements of the Public Resources Code (PRC), CEQA, as well as the applicable best practices and regulations. The Metropolitan Water District of Southern California is the lead agency under CEQA.

This report includes the following sections: (1) Introduction; (2) Regulatory Framework; (3) Methods; (4) Historic Context and Setting; (5) Architectural Description; (6) Evaluation, including an assessment of the dam’s individual historical significance as well as its historic integrity and character-defining

features; (7) Project Impacts Analysis, including an overview of the project and its compliance with the *Secretary's Standards*; (8) Conclusion; and (9) References.

## 1.1 PROJECT LOCATION

The project is located in the unincorporated community of Parker Dam, San Bernardino County, California (Figure 1, *Regional Location*). The project site is part of the CRA system located within the southeastern portion of the Mojave Desert. The dam is located within Section 11 of Township 2 North, Range 26 East, on the U.S. Geological Survey (USGS) 7.5' Parker quadrangle (Figure 2, *USGS Topography*). The project intends to replace the valve on the downstream portion of the dam, located south of the Copper Basin Wash (Figure 3, *Aerial Photograph*).

## 1.2 PROJECT BACKGROUND AND DESCRIPTION

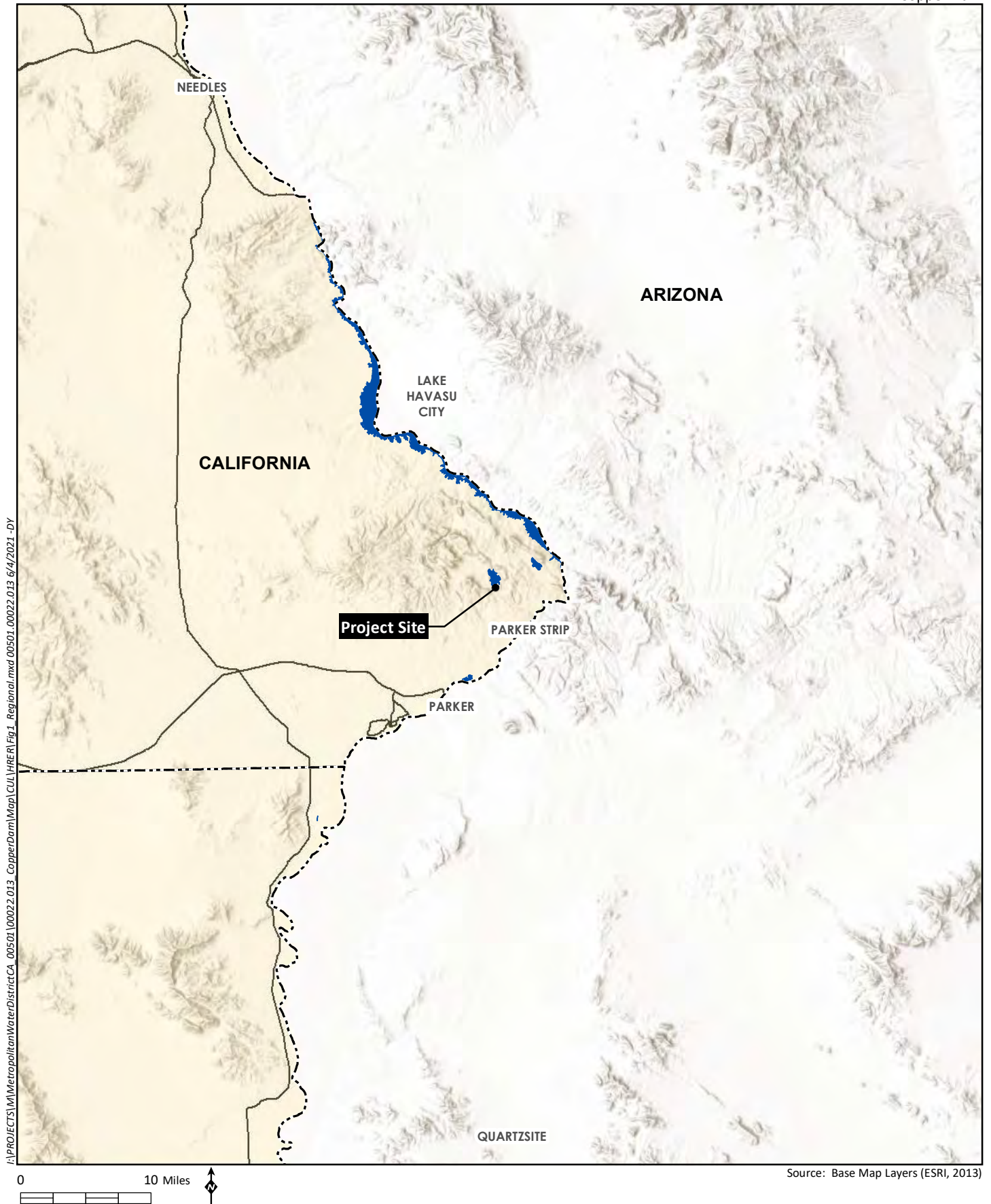
The Colorado River Aqueduct is a regional water conveyance system that consists of five pumping plants, 450 miles of high voltage power lines, one electric substation, four regulating reservoirs, and 242 miles of aqueduct, siphons, canals, conduits, and pipelines from Lake Havasu to Lake Mathews in Riverside County. Metropolitan owns, operates, and manages the CRA and is responsible for operating, maintaining, rehabilitating, and repairing its various components. The entire CRA was completed in 1941, and a planned expansion was completed in 1959.

The Copper Basin Reservoir, one of Metropolitan's four reservoirs along the CRA, is a critical hydraulic component of the CRA that enables Metropolitan to balance and control aqueduct flows. The Copper Basin Reservoir is located approximately 4.5 miles west of Lake Havasu (i.e., the Colorado River). Water arrives at Copper Basin via the Gene Wash Reservoir, which receives its water directly from the Colorado River through an intake pumping plant. From the basin the water flows through an underground tunnel into the aqueduct system and is eventually delivered to the metropolitan areas of Southern California via additional pumping plants along the way.

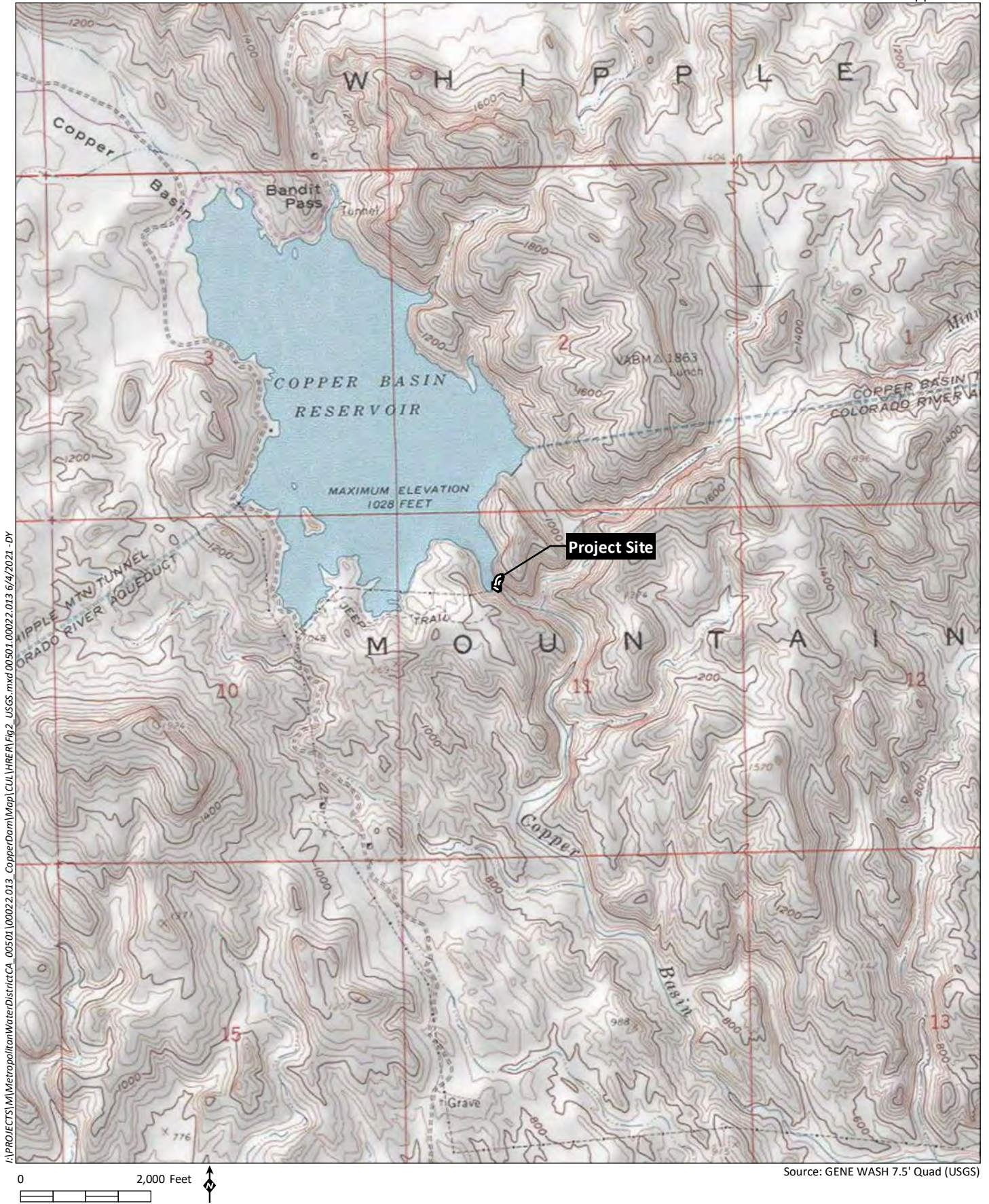
The Copper Basin Reservoir was constructed with a thin arch concrete dam, outlet tower and emergency spillway; reservoir water levels are maintained and controlled with the dam and outlet tower gates and valves. The reservoir holds approximately 24,200 acre-feet of water with a surface area of approximately 427 acres. The construction of the dam, which included the extant sluiceway system, access ladderway and valve house, was completed in 1938. The sluiceway system is a discharge structure at the base of the dam that contains a debris rack, a four-foot diameter outlet pipe, a shutoff gate valve, and a fixed cone (Howell-Bunger) discharge valve. The gate valve and fixed cone valve function to rapidly drain the reservoir in the event of an emergency. Also associated with the dam are a weir and an adit weir downstream of the dam, and two access ladderways on the downstream face of the dam. As of 2022, much of the original mechanical equipment within the sluiceway system and valve house, as well as the access ladderways and weirs, remain in use. Metropolitan and the California Division of Safety of Dams (DSOD) staff regularly perform gate valve and fixed cone valve tests to ensure that the valves are functional and in adequate condition. After more than 75 years of continuous service and regular maintenance, the equipment in the discharge structure has become unreliable during operation.

The purpose of the project is to replace the existing Copper Basin Dam valve components to continue proper operations of the dam and the larger CRA infrastructure. The proposed project includes the replacement and rehabilitation of certain dam components to enhance operations and to meet OSHA

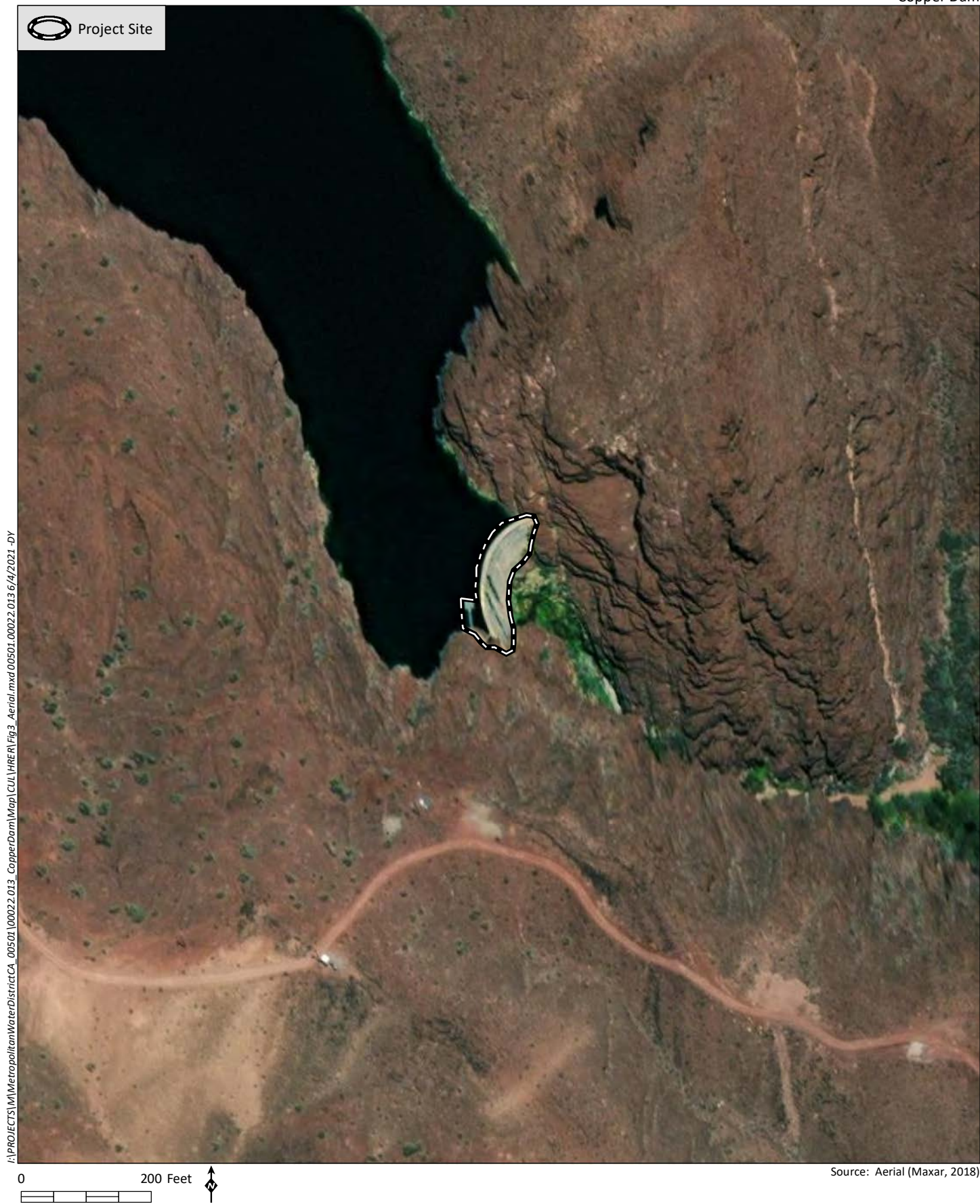












safety requirements (Moffatt & Nichol 2017; Hazen and Sawyer 2020). The project will replace and rehabilitate the gate valve and Howell-Bunger discharge valve within the dam; install new conduit and electrical components within the valve structure; install a new concrete pad and transformer and approximately 250 feet of electrical conduit from the transformer to the valve structure; replace the main access ladderway on the dam face; install a new catwalk and stairs adjacent to the discharge valve structure and weir structures; remove and reconstruct two existing concrete weirs approximately 100 feet downstream of the dam; and install surface conduit and instrumentation from the discharge valve structure, along the catwalks, to the two weirs. Project staging is proposed at three existing staging/operations areas along the west side of the reservoir. The majority of this work will take place in or in the immediate vicinity of the existing dam with minimal excavation and/or soil disturbance. The project will also improve approximately 1.66 miles of the existing dirt access road around the perimeter of the reservoir, with approximately 13 segments of concrete paving and associated improvements.

The project proposes the following specific improvements and upgrades to the Copper Basin Dam and sluiceway system that are addressed in this report:

- plug the existing 60-inch discharge pipe;
- protect in place the trash rack on the upstream dam face;
- remove the existing discharge plug;
- install new custom discharge plug in order to facilitate valve replacement work downstream;
- remove the Howell-Bunger valve (cone valve);
- remove the actuator and stem of the slide gate replacement;
- install new Howell-Bunger valve;
- replace existing steel doors in opening above Howell-Bunger valve and metal platform extending from valve house below the valve;
- remove and replace ladderway extending from crest of dam to valve house;
- update mechanical systems, electrical systems, and communication systems inside of the valve house;
- replace the extant concrete main weir and adit weir structures located downstream of the dam with newly designed but similar weir structures in their existing locations;
- remove existing catwalk panels on the canyon floor to the weir;
- install a new ladderway, concrete stairs, and new catwalk system to access the weir; and
- conduct post-installation testing.

A modular crane may be used to install the new upstream plug and provide any lifting services during the duration of the project. Rockfall protection may also be provided inside the gorge.

## 2.0 REGULATORY FRAMEWORK

### 2.1 FEDERAL

#### 2.1.1 National Register of Historic Places

The National Register of Historic Places (NRHP) was established by the National Historic Preservation Act of 1966 as “an authoritative guide to be used by Federal, State, and local governments, private groups and citizens to identify the Nation’s cultural resources and to indicate what properties should be considered for protection from destruction or impairment” (36 CFR 60.2). The NRHP recognizes properties that are significant at the national, state, and local levels. To be eligible for listing in the NRHP, a resource must be significant in American history, architecture, archaeology, engineering, or culture. A property is eligible for the NRHP if it:

- Criterion A** Is associated with events that have made a significant contribution to the broad patterns of our history; or
- Criterion B** Is associated with the lives of persons significant in our past; or
- Criterion C** Embodies the distinctive characteristics of a type, period, or method of installation, or represents the work of a master, possesses high artistic values, or represents a significant and distinguishable entity whose components may lack individual distinction; or
- Criterion D** Has yielded, or may be likely to yield, information important in prehistory or history.

In addition to meeting these criteria, a property must retain historic integrity, which is defined in National Register Bulletin 15 as the “ability of a property to convey its significance” (NPS 1997). In order to assess integrity, the National Park Service recognizes seven aspects or qualities that, considered together, define historic integrity.

To retain integrity, a property must possess several, if not all, of these seven qualities, which are defined in the following manner in National Register Bulletin 15:

1. **Location.** The place where the historic property was constructed, or the place where the historic event occurred.
2. **Design.** The combination of elements that created the form, plan, space, structure, and style of a property.
3. **Setting.** The physical environment of a historic property.
4. **Materials.** The physical elements that were combined or deposited during a particular period of time and in a particular pattern or configuration to form a historic property.
5. **Workmanship.** The physical evidence of the crafts of a particular culture or people during any given period in history or prehistory.



6. **Feeling.** A property's expression of the aesthetic or historic sense of a particular period of time.
7. **Association.** The direct link between an important historic event or person and a historic property.

Some aspects of integrity may be accorded more weight than others, depending on the type of resource being evaluated and the applicable eligibility criteria. Integrity can be assessed only after it has been concluded that a resource is significant.

#### 2.1.2 Secretary of the Interior's Standards for Rehabilitation

In accordance with the National Park Service and CEQA Guidelines, projects that comply with the *Secretary's Standards for the Treatment of Historic Properties* and the *Secretary's Standards for Rehabilitation (Secretary's Standards)* are projects that retain the historic integrity of the resource. According to CEQA Guidelines, a project that complies with the *Secretary's Standards* is generally considered to be a project that will not cause a significant adverse impact to a historical resource.

The goal of the *Secretary's Standards* is to outline treatment approaches that allow for the retention of and/or sensitive changes to the distinctive materials and features that lend a historical resource its significance. The *Secretary's Standards* and Guidelines offer general recommendations for preserving, maintaining, repairing, and replacing historical materials and features, as well as designing new additions or making alterations. These standards also provide guidance on new construction adjacent to historic districts and properties in order to ensure that there are no indirect adverse impacts to historic properties.

Rehabilitation is the most flexible treatment approach of the *Secretary's Standards*. The ten *Secretary's Standards for Rehabilitation* are:

1. A property shall be used for its historic purpose or be placed in a new use that requires minimal change to the defining characteristics of the building and its site and environment.
2. The historic character of a property shall be retained and preserved. The removal of historic materials or alteration of features and spaces that characterize a property shall be avoided.
3. Each property shall be recognized as a physical record of its time, place, and use. Changes that create a false sense of historical development, such as adding conjectural features or architectural elements from other buildings, shall not be undertaken.
4. Most properties change over time; those changes that have acquired historic significance in their own right shall be retained and preserved.
5. Distinctive features, finishes, and construction techniques or examples of craftsmanship that characterize a property shall be preserved.
6. Deteriorated historic features shall be repaired rather than replaced. Where the severity of deterioration requires the replacement of a distinctive feature, the new feature shall match the old in design, color, texture, and other visual qualities and, where possible, materials. Replacement of missing features shall be substantiated by documentary, physical, or pictorial evidence.

7. Chemical or physical treatments, such as sandblasting, that cause damage to historic materials shall not be used. The surface cleaning of structures, if appropriate, shall be undertaken using the gentlest means possible.
8. Significant archeological resources affected by a project shall be protected and preserved. If such resources must be disturbed, mitigation measures shall be undertaken.
9. New additions, exterior alterations, or related new construction shall not destroy the historic materials that characterize the property. The new work shall be differentiated from the old, and shall be compatible with the massing, size, scale, and architectural features to protect the historic integrity of the property and its environment.
10. New additions and adjacent or related new construction shall be undertaken in such a manner that, if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.

The *Secretary's Standards and Guidelines* offer general recommendations for preserving, maintaining, repairing, and replacing historical materials and features, as well as designing new additions or making alterations. The *Secretary's Standards for Rehabilitation* also provide guidance on new construction adjacent to historic districts and properties, in order to ensure that there are no adverse indirect impacts to integrity as a result of a change in setting. Applying the *Secretary's Standards* to new construction adjacent to historic resources helps ensure avoidance of indirect impacts and also ensures the retention of the setting and feeling of the historic resource and its surrounding environment.

*Secretary's Standards* compliance begins with the identification and documentation of the "character-defining," or historically significant, features of the historical resource. According to Preservation Brief 17, *Architectural Character: Identifying the Visual Aspects of Historic Buildings as an Aid to Preserving Their Character*, there is a three-step process to identifying character-defining features (Nelson, 1982). Step 1 involves assessing the physical aspects of the building exterior as a whole, including its setting, shape and massing, orientation, roof and roof features, projections, and openings. Step 2 looks at the building more closely—at materials, trim, secondary features, and craftsmanship. Step 3 encompasses the interior, including individual spaces, relations or sequences of spaces (floor plan), surface finishes and materials, exposed structure, and interior features and details. Alterations and replacement of character-defining features over time can impair a historic property's integrity and result in a loss of historic status. Therefore, to ensure that a historic property remains eligible after the implementation of projects, character-defining features should be identified and preserved.

## 2.2 STATE

The policies of the National Historic Preservation Act are implemented at the state level by the California Office of Historic Preservation, a division of the California Department of Parks and Recreation. The Office of Historic Preservation is also tasked with carrying out the duties described in the PRC and maintaining the California Historic Resources Inventory and the CRHR. The state-level regulatory framework also includes CEQA, which requires the identification and mitigation of substantial adverse impacts that may affect the significance of eligible historical and archeological resources.

### 2.2.1 California Register of Historical Resources

Created in 1992 and implemented in 1998, the CRHR is “an authoritative guide in California to be used by state and local agencies, private groups, and citizens to identify the state’s historical resources and to indicate what properties are to be protected, to the extent prudent and feasible, from substantial adverse change” (PRC Sections 21083.2 and 21084.1). Certain properties, including those listed in or formally determined eligible for listing on the NRHP and California Historical Landmarks, numbered 770 and higher, are automatically included on the CRHR.

According to PRC Section 5024.1(c), a resource, either an individual property or a contributor to a historic district, may be listed in the CRHR if the State Historical Resources Commission determines that it meets one or more of the following criteria, which are modeled on NRHP criteria:

- Criterion 1:** It is associated with events that have made a significant contribution to the broad patterns of California’s history and cultural heritage
- Criterion 2:** It is associated with the lives of persons important in our past
- Criterion 3:** It 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
- Criterion 4:** Has yielded, or may be likely to yield, information important in prehistory or history

Properties that do not retain sufficient integrity for NRHP listing can still qualify for listing in the CRHR. Historical resources eligible for listing in the California Register must meet one of the criteria of significance described above and retain enough of their historic character or appearance to be recognizable as historical resources and to convey the reasons for their significance.

### 2.2.2 California Environmental Quality Act

CEQA requires a lead agency to analyze whether historic and/or archaeological resources may be adversely impacted by a proposed project. Under the CEQA Statutes, “A project that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment” (PRC Section 21084.1). The first step in this analysis is to determine if the proposed project involves cultural resources, and then to determine whether there are eligible or listed historical resources. According to CEQA, the fact that a resource is not listed in or determined eligible for listing in the California Register or is not included in a local register or survey shall not preclude the lead agency from determining that the resource may be a historical resource (PRC Section 5024.1). If historical resources are present, the proposed project must be analyzed for its potential to cause a “substantial adverse change in the significance” of the resource.

According to CEQA Guidelines Section 15064.5, historical resources are:

1. A resource listed in, or formally determined eligible for listing in, the California Register of Historical Resources (PRC 5024.1, Title 14 CCR, Section 4850 et seq);

2. A resource included in a local register of historical resources, as defined in PRC Section 5020.1(k), or identified as significant in a historic resources survey meeting the requirements of PRC Section 5024.1(g);
3. Any building, structure, object, site, or district that the lead agency determines eligible for national, state, or local landmark listing; generally, a resource shall be considered by the lead agency to be historically significant (and therefore a historic resource under CEQA) if the resource meets the criteria for listing on the California Register (as defined in PRC Section 5024.1, Title 14 CCR, Section 4852).

Resources nominated to the CRHR must retain enough of their historic character or appearance to convey the reasons for their significance. Resources whose historic integrity (as defined in the previous section) does not meet NRHP criteria may still be eligible for listing in the CRHR.

CEQA Guidelines specify that “substantial adverse change in the significance of an historical resource means physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired” (CEQA Guidelines, Section 15064.5). Material impairment occurs when a project alters in an adverse manner or demolishes “those physical characteristics of an historical resource that convey its historical significance and that justify its inclusion” or eligibility for inclusion in the NRHR, CRHR, or local register. In addition, pursuant to CEQA Guidelines Section 15126.2, the “direct and indirect significant effects of the project on the environment shall be clearly identified and described, giving due consideration to both the short-term and long-term effects.”

In order to avoid direct and indirect impacts to historical resources, “Generally, a project that follows the Secretary of the Interior’s Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings or the Secretary of the Interior’s Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings (1995), Weeks and Grimmer, shall be considered as mitigated to a level of less than a significant impact on the historical resource” (CEQA Guidelines, Section 15064.5(b)(3)).

Metropolitan is not subject to the County of Riverside or the County of San Bernardino Municipal Codes. Therefore, there are no local regulatory requirements that apply to the project.

## 3.0 METHODS

### 3.1 PREVIOUS HISTORIC RESOURCE STUDIES

As noted previously, the Copper Basin Dam is a contributor to the CRA Historic District, a multi-property resource previously found eligible for the NRHP and CRHR (P-33-11265/P-36-010521). The CRA as a whole has been recorded multiple times by various agencies. The CRA was first recorded as a historic site in 2000 (Goodman and Neves 2000) and again in 2001 (Dice 2001). Portions of the CRA were visited in 2003 (Boggs et al 2003), 2005 (Beedle 2005), 2007 (Cannon 2007) and 2008 (Beedle 2008). In 2010, a portion of the CRA at Metropolitan’s Eagle Mountain Pumping Plant was recorded as part of the BLM’s solar farm project (Chandler et al 2010). Also, in that year, Caltrans prepared a determination of the CRA’s eligibility for listing in the NRHP and CRHR as part of the State Route 79 realignment project. As a result, the CRA Historic District was formally determined NRHP and CRHR eligible through SHPO concurrence and the Section 106 process (Caltrans 2010). Properties listed or formally determined

eligible for listing in the NRHP as part of the Section 106 process/SHPO concurrence are automatically listed in the CRHR. Therefore, Copper Basin Dam is listed on the CRHR. Then, during a due diligence effort in 2016, Metropolitan retained Æ to record the entirety of the CRA, including the pumping plants, reservoirs, dams and appurtenant features, and structures as a continuous historic district. The intent of that effort was to update the CRA Historic District Record by accurately recording the various features associated with CRA's construction since previous records by others were varied, piecemeal, and included some inaccurate information.

The CRA was also selected in 1955 as one of the "Seven Modern Civil Engineering Wonders" by the American Society of Civil Engineers for the "project's unprecedented length, cost, pumping rate, lift, and severe climate and terrain" (ASCE 2020). In 1970, the Los Angeles Section of the ASCE designated the CRA as an outstanding historic civil engineering landmark in the Los Angeles Section region. As a result, the CRA was designated a National Historic Engineering Landmark by the ASCE in 1994 (ASCE 2020; Chasteen 2016). Historic American Engineering Record (HAER) photographs were taken of Copper Basin Dam in 1968 (Lowe 1968). Several of those photographs are figures in this report. In addition, additional HAER documentation, including written data, measured drawings, and photographs, was completed in 1998 (Gruen 1998).

### 3.2 FIELD SURVEY

On February 24, 2021, Malinda Stalvey, Senior Environmental Specialist with Metropolitan, conducted a field survey of the Copper Basin Dam on behalf of HELIX to photograph the dam, including its valve house on the ground floor of the downstream side of the dam. Annie McCausland, Architectural Historian with HELIX, completed a desk review of the photographs in conjunction with historic plans, aeriels and other archival materials to document the dam's historic materials including concrete and steel, visual and construction characteristics. On July 14, 2022, Teri Delcamp, Architectural Historian with HELIX, conducted a follow-up field survey to record and photograph the Copper Basin Dam and the additional associated character-defining features not described in the project scope in 2021, including the access ladderway, weirs, and catwalk panels. A DPR 523 form update was completed for the Copper Basin Dam. The compiled DPR set, including the original forms and 2022 update by HELIX, follow this report as Appendix B.

### 3.3 ARCHIVAL RESEARCH AND LITERATURE REVIEW

HELIX reviewed previous studies and documents provided by Metropolitan in order to ascertain and characterize the historic resource status of the Copper Basin Dam; these materials included historic as-built drawings, photographs, previous studies, as well as the 2016 DPR form prepared for the CRA Historic District. These materials were supplemented with additional research where needed.

### 3.4 PROJECT PERSONNEL

HELIX Architectural Historian Annie McCausland, MA, completed a literature review, primary- and secondary-source research, and a desktop inspection of the Copper Basin Dam, its overall design, construction methods, materials, features, and setting. HELIX Architectural Historian Teri Delcamp completed a literature review, primary- and secondary-source research, and a field survey to record and photograph the Copper Basin Dam and additional associated features not previously described in the project scope. Ms. McCausland and Ms. Delcamp also served as co-authors of the report. Metropolitan staff conducted a site visit and provided detailed photographs of the resource. HELIX Senior



Architectural Historian, Debi Howell-Ardila, MHP, served as the principal author of this report and provided senior review and QA/QC. HELIX Cultural Resources Manager, Mary Robbins-Wade, and Senior Cultural Resources Project Manager, Stacie Wilson, provided QA/QC and strategic oversight for the project. Resumes for key staff follow this report as Appendix A. Ms. McCausland, Ms. Delcamp, and Ms. Howell-Ardila meet and exceed the Secretary of the Interior's Professional Qualification Standards for architectural history and history, as codified in 36 CFR Part 61.

## 4.0 HISTORIC CONTEXT AND SETTING

In accordance with best practice and National Park Service (NPS) guidance, properties must be evaluated within their historic context to ensure a thorough application of the eligibility criteria. The National Register defines context as “those patterns or trends in history by which a specific occurrence, property or site is understood and its meaning (and ultimately its significance) within history or prehistory is made clear.”<sup>1</sup> Theme, place, and time are the basic elements that define the historic context (NPS 1997). The context statement incorporates stages of physical development, including the evolution of building forms and architectural style, as well as highlighting facets of industries or events.

Historic context is also linked to the built environment through the concept of property type. A property type is “a grouping of individual properties characterized by common physical and/or associative attributes (NPS 1999). Physical attributes include style, structural type, size, scale, proportions, design, architectural details, method of construction, orientation, spatial arrangement or plan, materials, workmanship, artistry, and environmental relationships. Associative attributes include the property's relationship to important persons, activities, and events, based on information such as dates, functions, cultural affiliations, and relationship to important research topics.”<sup>2</sup> Historic contexts, therefore, become useful tools for gauging the relative importance and integrity of properties. In order to provide a contextual framework for this intensive-level evaluation of the Copper Basin Dam, this section provides the historic setting and context for the property.

### 4.1 COLORADO RIVER AQUEDUCT

The CRA was constructed between 1933 and 1941 to convey water to Southern California.<sup>3</sup> The construction of the aqueduct employed more than 30,000 people. William Mulholland conceived the aqueduct during his early explorations of the Mojave Desert. In 1929, Frank E. Weymouth was contracted by the City of Los Angeles as the Chief Engineer and charged with designing a way to harness the Colorado River as a new water source for Southern California (Chasteen 2016).

The construction of the aqueduct system significantly changed the landscape of the southwest through the addition of open canals, covered conduits, siphons, tunnels, and pumping plants that carried water from the desert to the coastal regions of Southern California. In addition, several temporary camps and roads were created to support the construction of the aqueduct system and provide housing for more than 10,000 contractors. After the aqueduct was completed, the construction camps were largely obliterated, leaving only concrete slab foundations, street layouts, and some refuse sites. However, the

<sup>1</sup> United States Department of the Interior, *National Register Bulletin 15: How to Apply the National Register Criteria for Evaluation*, (Washington, DC: National Park Service, rev. 1997): 7.

<sup>2</sup> United States Department of the Interior, *National Register Bulletin 16B: How to Complete the National Register Multiple Property Documentation Form*, (Washington, DC: National Park Service, rev. 1999), p. 14.

<sup>3</sup> For the complete historic context of the CRA, see Chasteen, 2016.

area was reinvigorated during the early years of World War II, when General George Patton established the Desert Training Center within the Mojave and Sonoran Deserts of California and Arizona.

The end of World War II led to significant economic and population growth within Los Angeles County. By the late 1950s, the aqueduct required expansion to increase the overall capacity of the aqueduct. Construction on the expansion of the aqueduct started in the 1950s, with the installation of new motors and pipes, as well as second barrels on double siphons, to bring the pumping plants to full capacity. In the existing pumping plant villages, new community buildings and housing were added as needed, but the overall layouts of the sites were unchanged. In recent years, Metropolitan has upgraded the aqueduct, including mechanizing older manual functions, and changing instruments and equipment throughout the CRA system from analog to digital.

#### 4.1.1 Reservoirs and Dams

The CRA has four reservoirs with associated structures, including the Copper Basin reservoir and dam. Unlike many reservoirs and dams, the CRA structures west of Parker Dam were not built to individually impound and divert an existing flow of water from a river, creek, or watershed. Rather, the reservoirs and dams located along the aqueduct were part of the CRA's design to lift, store and convey water from the Colorado River to the terminal reservoir at Lake Mathews in western Riverside County. From there, water is conveyed to urban and coastal regions of Southern California via pipelines (Chasteen 2016).

The dams in the CRA system are non-overflow dams that maintain water levels and remove silt from water transported through the system. As such, the structures in the CRA system are connected to each other as part of a single, complex distribution system. The Copper Basin reservoir holds water transported to it from the Gene Wash reservoir via a tunnel. Likewise, water is then transported from the Copper Basin reservoir to the Iron Mountain pumping plant, then on to the Eagle Mountain and Julian Hinds pumping plants via open canals, inverted siphons, tunnels, and conduits. The pumping plants raise the water by more than 1,600 feet across the length of the CRA (Chasteen 2016).

The Gene Wash and Copper Basin dams were built under the same contract during 1937 and 1938. They are both designed as concrete thin arch dams and have associated spillways and inlet and outlet structures. Although the construction of thin arch dams rarely occurred in the late 1800s, they were more common in the early to the middle parts of the 20<sup>th</sup> century, especially after the establishment of the U.S. Bureau of Reclamation (Reclamation). One of the first thin arch dams built in the region was the Upper Otay Dam in San Diego, patterned after the Bear Valley Dam in the San Bernardino Mountains. Construction on the Upper Otay Dam began in 1896 and was completed in 1902. Its thin arch design was considered to be novel at the time (Murray 2020). Several thin arch dams were built by or are under the control of Reclamation. These include Warm Springs and Gerber Dams in Oregon, completed in 1919 and 1925, respectively. Three dams constructed in Arizona were thin arch dams and completed between 1927 and 1930—Mormon Flat, Horse Mesa, and Stewart Mountain Dams (Scott et al. 2008).

The dams within these various locations are part of regional water and/or energy distribution systems and were critical for the development of those areas. Especially in Southern California, by the early 20<sup>th</sup> century, the burgeoning population meant water was a critical need for the social and economic development of the area. Reclamation's efforts to harness the Colorado River through the passage of the Boulder Canyon Act were assisted by Metropolitan's agreement in 1928 to purchase more than a third of the power generated by the Boulder Canyon (Hoover) Dam. In that same year bonds were passed for the construction of the CRA.

The significant growth of the Los Angeles metropolitan region would not have been possible without the CRA. The CRA's dams were built within rocky canyons to create reservoirs for storing and conveying diverted Colorado River water through the aqueduct system. As such, the CRA dams and reservoirs are engineered structures and constructed water features that together created new panoramic vistas. They are examples of humans deliberately changing the character of the land for a purpose and are reflective of important cultural landscapes (NPS 2021a).

#### 4.1.2 Copper Basin Dam

The Copper Basin Reservoir was completed in 1938 as an integral part of the CRA system and remains a key facility in maintaining water levels and removing silt. Water in the reservoir is received from Gene Wash Reservoir via a tunnel. A concrete ogee spillway is located on the southeast side of the Copper Basin Reservoir and an outlet structure to the CRA Whipple Mountain Tunnel is located on the southwest side of the reservoir (Figure 4 and Figure 5). Because the Copper Basin Dam is a non-overflow dam, the purpose of the spillway is to enable the reduction of the reservoir's water level quickly in an emergency. The spillway ensures water does not overtop the dam and damage or destroy it. The Copper Basin spillway is uncontrolled and only utilizes the height of the spillway crest to control the water. Its curved ogee shape allows water to flow more naturally over it and maintain contact with the spillway. The outlet structure controls water leaving the reservoir via the raising or lowering of gates. The proposed project does not involve the spillway or the outlet structure. The Copper Basin Dam is located on the southeast side of the reservoir, south of the spillway, as illustrated in Figure 6. Additional features associated with the dam are a boat dock and submerged trash rack on the upstream side, a modern metal catwalk leading to a concrete weir located across the canyon downstream from the dam's discharge valve, and an adit weir located at the entrance to a cave in the canyon wall near the downstream side of the dam. The Copper Basin Dam was constructed by the J. F. Shea Company, which also built the CRA Gene Dam and Parker Dam (Chasteen 2016). Because of the proximity of the dam sites to the company's already-existing construction camp near Parker Dam, no additional living quarters were necessary (Gruen 1998).

Concrete aggregate for the construction of Copper Basin Dam was sourced from pits on the Bill Williams River two miles east of Parker Dam and came to the dam site from the aggregate batching plant at the Parker Dam construction site. Trucks transported the aggregate to the dam construction site, where it was mixed with cement and then placed in buckets dangled from a high-line cable system strung across the rocks before pouring began. Concrete was placed within block sections in a series of some 5-foot, but mostly 10-foot, concrete lifts between horizontal construction joints. In order to prepare the concrete for grouting the construction joints, the concrete needed to be cooled to 50 degrees after being poured. To cool the concrete, refrigerated water was pumped through one-inch diameter, thin-walled steel cooling coils placed horizontally every five feet. Finished concrete surfaces were painted with coal tar pitch and a final layer of whitewash (Metropolitan 1938a).

Copper Basin Dam consists of a massive concrete arch, rising approximately 184 feet and with a crest length spanning 265 feet (Hazen and Sawyer 2020). The dam design included a sluiceway system with an intake trash rack on the upstream face of the dam attached via a cast-iron discharge pipe to a concrete valve house and valve system on the downstream face (Figure 7 and Figure 8). The valve used was a Howell-Bunger valve, which represented cutting-edge technology in the 1930s. The valve was invented and patented by two Reclamation engineers, C.H. Howell and Howard P. Bunger (Ball and Hebert 1948). The valve offered a balanced design and lightweight construction (Figure 9 and Figure 10). The innovative design for the Howell-Bunger valve was first manufactured by the S. Morgan Smith Company,

which manufactured the valve used on Copper Basin Dam. Metropolitan utilized the Howell-Bunger valve for several dams constructed for the CRA project.



*Figure 4. Copper Basin Reservoir concrete ogee spillway, 1938. Source: Metropolitan*



Figure 5. Copper Basin Reservoir outlet structure, 1938. Source: Metropolitan



Figure 6. Map from the Historical Record of Gene Wash and Copper Basin Dams, 1937-1938.  
Source: Metropolitan



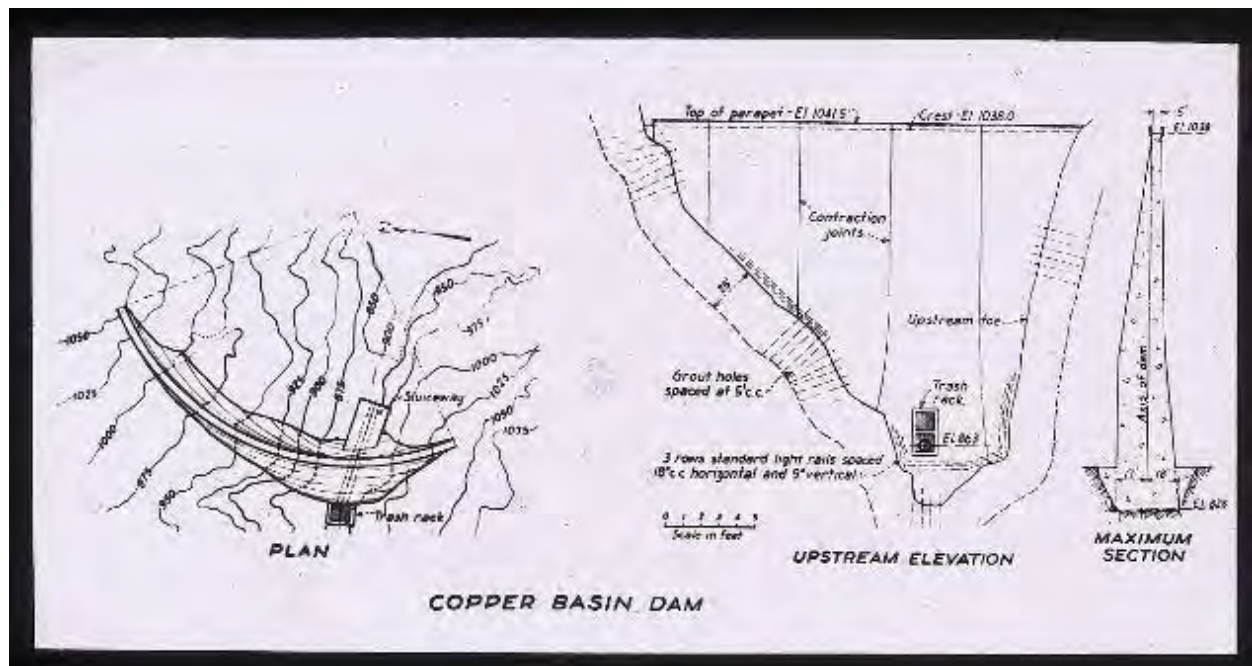


Figure 7. Copper Basin Dam Building Plan, circa 1938. Source: Metropolitan

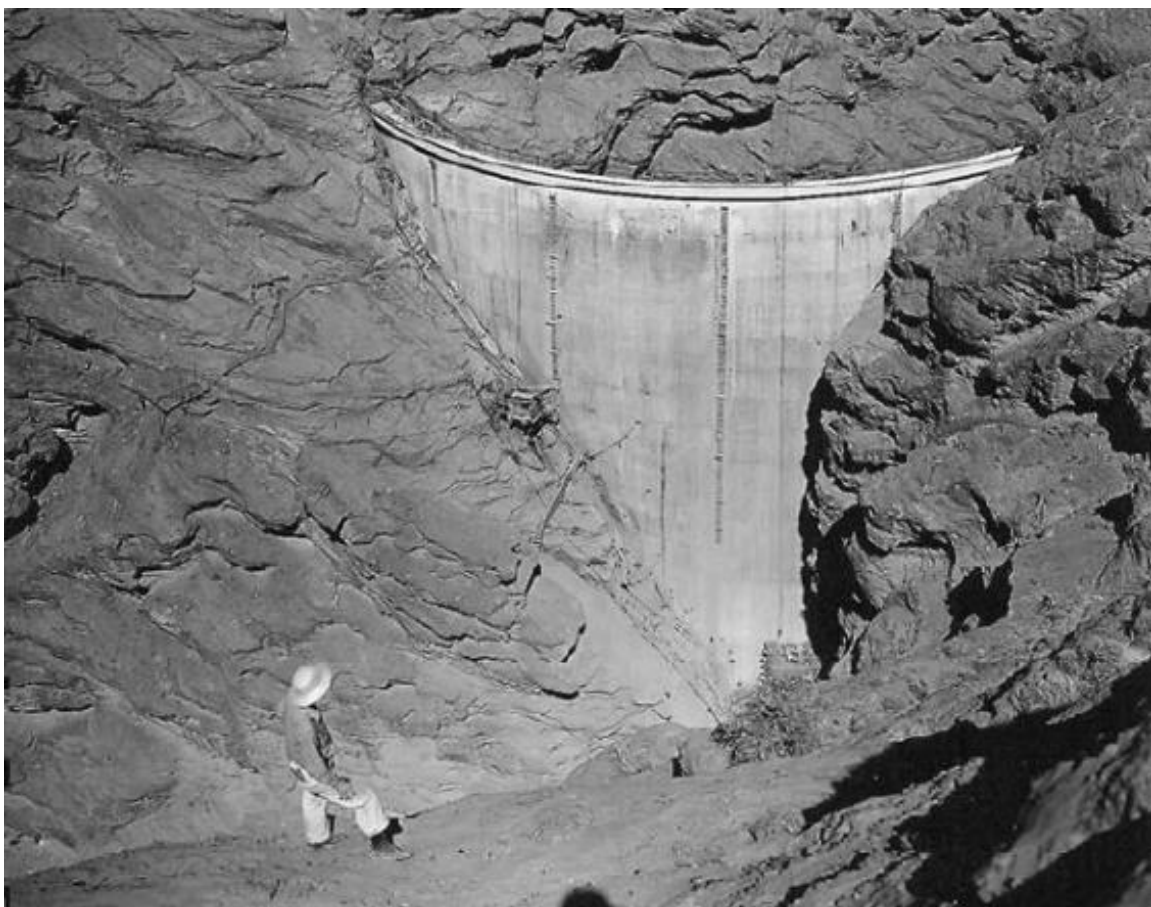


Figure 8. Copper Basin Dam, upstream dam face with ladder and trash rack, 1938. Source: Metropolitan

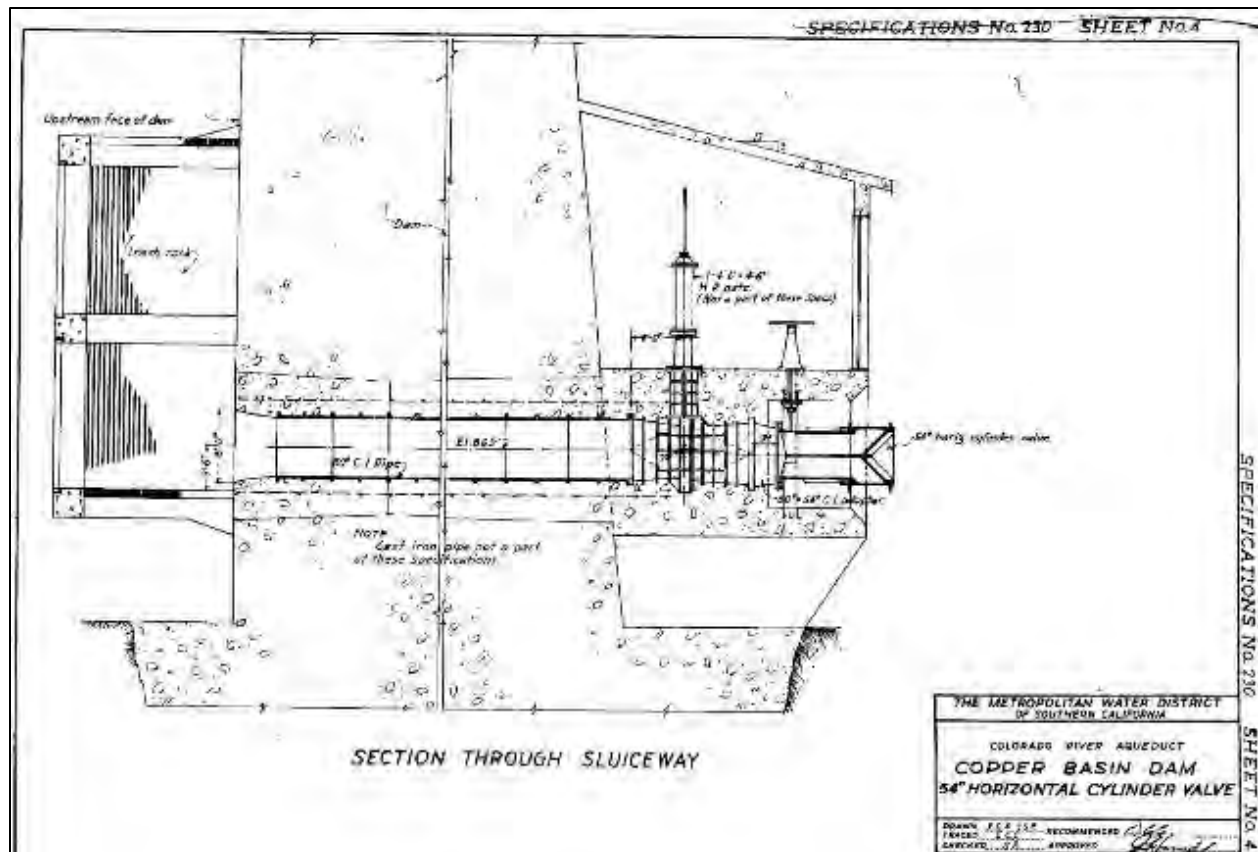


Figure 9. "Copper Basin Dam 54" Horizontal Cylinder Valve," 1937. Source: Metropolitan

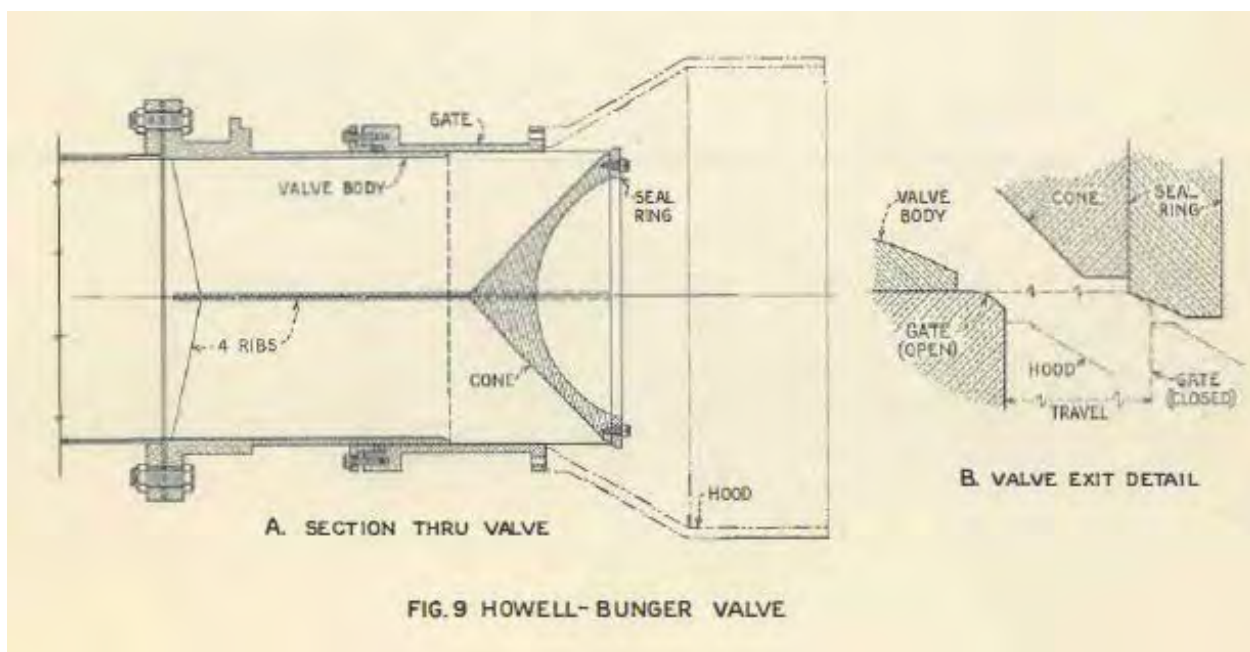


Figure 10. Howell-Bunger valve schematic (Ball and Hebert 1948)

## 5.0 ARCHITECTURAL DESCRIPTION

Copper Basin Dam was previously recorded at the reconnaissance level by Æ in 2016 and determined to be a contributing resource within the CRA Historic District (P-33-11265/P-36-010521) (Chasteen 2016). However, the dam has not been previously evaluated for its individual historical significance. The following section provides an intensive-level description of the dam and its features, including the Howell-Bunger valve, ladderways, weirs, and catwalk proposed for replacement by the project, and associated structures as well as artifacts related to the dam's construction.

### 5.1.1 Copper Basin Dam

Located in the Mojave Desert, west of Parker Dam, California, the Copper Basin Dam has regulated water levels in the associated Copper Basin Reservoir since its construction in the late 1930s. As part of the CRA system, the Copper Basin Dam and its adjacent, 22,000-acre-foot reservoir are located just over two miles from the Gene Pumping Plant in San Bernardino County, California.

The focal point of the Copper Basin Dam is a prominent, cast-concrete, unreinforced arch that rises approximately 184 feet and has a crest length that spans 265 feet (Hazen and Sawyer 2020). The dam is a thin arch design, which is most appropriate for locations in narrow canyons like Copper Basin (Figure 13). The convex surface of the arch faces the water, and the concave surface faces downstream. An arch dam is designed to use its shape and the weight of the water behind it as part of its strength, since concrete is strong when it is being pushed in compression. The base section of the dam is approximately 33 feet wide, narrowing to approximately five feet wide at the crest of the dam. Steel reinforcement is only in the foundation and north and south abutments of the dam. The dam includes various associated features and structures (Hazen and Sawyer 2020; Metropolitan 1938a).

#### 5.1.1.1 Deck and Ladders

Along the top (crest) of the structure, a deck framed with a concrete parapet extending 3.5 feet above the crest on the upstream side and an original metal railing along the downstream side provides pedestrian access (Figure 14). The railing consists of two horizontal pipe rails with posts spaced every 10 feet. Gates in the railing access two ladderways on the downstream side, and a ladderway on the upstream side that extends to the trash rack. Minor modifications have been made to the deck area, including the installation circa 2000 of five lifeline/fall protection anchors spaced 20 to 69 feet apart under the handrail along the cantilevered downstream edge of the dam (Metropolitan 2000).

The downstream side displays two caged ladderways with periodic landings/rest platforms and fence fall guards (Figure 15); one longer ladderway of approximately 168 feet that connects the crest of the dam to the discharge valve house and another that partially extends about 76 feet down the face of the dam (Metropolitan 1942, 2022). The shorter ladderway was installed in 1942 to house a plumb line to monitor dam movement (Metropolitan 1942). The longer ladderway is original to the dam's construction and is configured in eight staggered ladderways between landings (Figure 16). The distances between landings were planned to be approximately 21 feet, but in actuality are mostly 23 to 24 feet apart, with the distance to the landing above the bottom ladderway section being approximately 30 feet (Metropolitan 1937; Hazen and Sawyer 2020).

The ladderways are constructed of galvanized carbon steel, with the ladderway sections and bracket-framed landings mounted to the face of the dam with embedded anchors that were cast into the

concrete during the dam's construction. The ladderways are also braced with angle bars anchored into the dam face. Each of the landings extends approximately three feet out from the face of the dam and are about 4.5 feet wide; the uppermost landing extends about 4.5 feet out to account for the cantilevered design under the crest of the dam. Landing floors are constructed of open triangular mesh steel, and the fence fall guard panels are of triangular woven galvanized steel wire. The anchors attaching the ladderways and platforms to the dam appear to be embedded by about 5 to 6 inches; the distance between attachment anchors varies anywhere from 6 feet to 10 feet apart (Metropolitan 1937; Hazen and Sawyer 2020).

#### 5.1.1.2 Sluiceway System

Starting at the upstream side of the dam, a sluiceway system extends from the trash rack located below the water line on the upstream side to the discharge valve house located on the downstream side of the dam. The Howell-Bunger valve is described previously in this report. The gate and discharge valves within the valve house are not used to regulate water levels in the reservoir but are for an emergency or sluicing event. The valve house is attached to the downstream side of the dam. It is a two-story concrete structure raised and supported by a concrete beam footing and a pair of concrete legs resting on the floor of the downstream gorge. Due to the uneven gorge floor, the structure tilts to the east.

The primary elevation (on the east) displays paired steel doors with louvers on the upper floor and the outlet end of the Howell-Bunger valve on the lower floor (Figure 17). The structure is capped with a concrete shed roof. On the north elevation, a square concrete platform on the upper floor leads to paired doors providing access to the valve mechanisms. The platform also connects to the longer ladderway leading to the crest of the dam. The south elevation is a solid concrete surface, with the exception of a small window opening on the upper floor.

The lower floor of the valve house contains the slide gate valve and the Howell-Bunger valve. The Howell-Bunger valve is set within a rectangular beveled opening and mounted to a bolt ring with bolts, nuts, and washers. Two metal platforms supported by angle brackets with guardrails connected by a chain extend out from each corner of the opening below the Howell-Bunger valve. An unprotected modern ladderway is attached to the north side of the valve house just forward of the concrete platform and extends down toward the gorge floor (Figure 18). The wall next to this ladder shows anchor holes from the rungs installed with the original construction (Metropolitan 1938b).

#### 5.1.1.3 Weirs

Two concrete weir structures about 100 feet downstream from the valve house collect and measure the water that leaks or is released through the dam and valves. Weirs are generally designed to be perpendicular to the flow of water. As a result of the uneven gorge floor, the main weir is set diagonally relative to the downstream face of the dam (Figure 17). This weir has a square top that is approximately one foot deep, 26 feet wide, and extends one foot above grade on the downstream side. A smaller weir is located across an adit to a cave part way up the canyon wall at the north end of the main weir (Figure 19). It is of the same design as the main weir but is approximately 8 inches deep, 6 feet wide, and extends one foot above grade. Each weir has a rectangular opening in the concrete that has a metal plate with a V-notch to allow water to trickle through. Both weirs are constructed in an "L" shape, with the footing serving as the base of the "L" (Metropolitan 2022).

#### 5.1.1.4 Catwalk

A series of steel grating panels extend from near the base of the valve house toward the weirs as a catwalk. The catwalk consists of three pairs of panels placed end to end, giving them an angled and haphazard appearance (Figure 17). They are overlapped at the ends rather than being connected and do not have guardrails. They are periodically supported by, but not affixed to, concrete pads that were submerged in water at the time of the 2022 field survey. The first set of catwalk panels extending from near the valve house is approximately 20 feet long, and the second and final sets are approximately 16 feet long (Metropolitan 2022). The catwalk panels are of modern materials and are not historic or character-defining. There are several prior panels dotted along the gorge floor further downstream that apparently were washed out in a previous discharge event.

#### 5.1.1.5 Associated Structures

As mentioned previously, other structures are associated with the reservoir, including the ogee spillway and the outlet tower (Figure 20 and Figure 21). These structures were observed and photographed but are not affected by the project and are not included in the evaluation of the dam's historical significance.

#### 5.1.1.6 Dam Construction Artifacts

Various artifacts were identified along and on top of the canyon walls rising from the dam that are remnants of the dam's construction. These artifacts include iron spikes, posts, rings and cables, a winch pulley, and concrete posts (Figure 22 and Figure 23). These historic objects were used during the dam's original construction and are associated resources to the dam.

The following figures illustrate Copper Basin Dam.



Figure 11. Copper Basin Reservoir and Dam looking northwest, HAER CA-243. Source: Library of Congress





*Figure 12. Copper Basin, looking west-northwest, HAER CA-243. Source: Library of Congress*



*Figure 13. Copper Basin Dam and Reservoir, looking northwest. Source: HELIX*



*Figure 14. Pedestrian deck and handrail on the crest of Copper Basin Dam, looking northeast.  
Source: Metropolitan*



*Figure 15. Downstream face of Copper Basin Dam, with attached main ladder (left) and plumb line ladder (right), looking southwest. Source: Metropolitan*





*Figure 16. Ladder ascent on the downstream face of dam. Source: Metropolitan*



*Figure 17. Valve with the Howell-Bunger valve, louvred doors and metal platforms, and main weir and catwalk panels in foreground, looking west. Source: HELIX*





*Figure 18. North side of valve house with modern ladder extending down in front of concrete platform.  
Source: HELIX*



*Figure 19. Adit weir looking north-northwest into cave. Source: HELIX*





*Figure 20. Construction-era posts and cable artifacts on canyon wall east of dam, looking north.  
Source: HELIX*



*Figure 21. Construction-era reinforced concrete post artifacts adjacent to access road south of dam in background, looking northwest. Source: HELIX*





*Figure 22. Northern end of ogee spillway structure looking north-northeast. Source: HELIX*



*Figure 23. Upstream side of outlet tower structure, looking south-southwest. Source: HELIX*

## 6.0 EVALUATION

### 6.1 NRHP/CRHR

Resources that are found to be significant under one or more of the NRHP and/or CRHR significance criteria must also be evaluated for integrity. If a resource is not found to be historically significant under any of the criteria, then an integrity evaluation is not applicable. The following NRHP/CRHR evaluation adheres to the NPS guidelines for evaluation as provided in National Register Bulletin 15: How to Apply the National Register Criteria for Evaluation (NPS 1997).

This section provides (1) a summary of the historical significance of the Copper Basin Dam within the larger CRA Historic District and (2) an evaluation of the potential individual historic significance of the Copper Basin Dam per the NRHP and CRHR. The historic integrity of the structure is also assessed, and character-defining features are described.

### 6.2 COLORADO RIVER AQUEDUCT HISTORIC DISTRICT (P-33-11265/P-36-010521)

As originally documented, the CRA Historic District consists of a variety of contributing buildings, structures, sites, and objects, including diversion structures, conduits, flow-control devices, sand traps, pumping plant villages, dikes/ditches, fencing, access roads, and infrastructure and construction features (Chasteen 2016). The historic district boundary encompasses the entire CRA system, including historic sites, buildings, structures, and objects no longer in use but related to earlier surveys and construction of the CRA.

The 2016 DPR form describes the CRA Historic District boundary in the following way:

the district spans a one-mile-wide corridor extending from the Whitsett Pumping Plant to the eastern edge of Lake Mathews including the western adit of the San Jacinto, Bernasconi, and Valverde tunnels and the Casa Loma Siphon. Generally, the district boundaries are drawn one-half mile out from the centerline of the aqueduct and 150 feet from the centerlines of roads, wasteways, and transmission lines. This buffer includes the canal structure, the pumping stations, power lines, access roads, pumping plant villages, and other associated infrastructure that allowed the CRA to be constructed and maintained over the course of time. As defined here, the “CRA system” begins at the Whitsett Intake Pumping Plant on the western (i.e., California) side of Lake Havasu, and extends westward across the desert to the aqueduct terminus at Lake Mathews--a distance of approximately 242 miles. Approximately 237 miles of 230kV transmission lines extend south from the Hoover Dam to the five CRA pump plants to provide the necessary power for the operation of the CRA (Chasteen 2016).

The CRA Historic District has been formally determined NRHP eligible and listed on the CRHR under multiple criteria of significance: Criteria A/1 (as an exemplification of an institutional infrastructure advancement that allowed the American Southwest to grow and flourish in the twentieth century); Criteria B/2 (for its association with Frank E. Weymouth); and under Criteria C/3 (for its design as a unique, distinctive civil engineering landmark). The district was also formally determined NRHP eligible and is CRHR listed under Criteria D/4 (for its potential to yield information about living and working conditions during the time of survey and construction).

The period of significance defined for the CRA Historic District begins in 1923, with the initial planning and surveying process for the CRA, and ends in 1972, signaling the 45-year threshold for consideration as of the 2016 evaluation. Any changes and additions made to the CRA since 1972 may have since acquired significance in their own right, and therefore, may be considered contributors and/or character-defining; as those additions surpass the 45-year threshold typically used to warrant an evaluation, it is recommended that subsequent evaluations be completed (Chasteen 2016). One of the contributing elements to the Historic District is the CRA's diversion structures, which include the dams and pumping plants. The district record acknowledges that the diversion structures have had some modifications over time, but they generally retain their integrity of location, design, setting, feeling and association, as well as workmanship and most of their materials. Based on the analysis in this report, the Copper Basin Dam retains its integrity, as discussed below, and continues to be a contributor to the CRA Historic District.

### 6.3 COPPER BASIN DAM EVALUATION

#### 6.3.1 Significance Criteria A/1

**NRHP Criterion A:** Is associated with events that have made a significant contribution to the broad patterns of our history

**Criterion 1:** It is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage

The subject property **does appear individually eligible** under Criteria A/1. Criteria A/1 is related not only to broad patterns of history but also to historic cultural landscapes. As defined by the National Park Service, a historically significant cultural landscape is *"a geographic area, including both cultural and natural resources and the wildlife or domestic animals therein, associated with a historic event, activity, or person, or exhibiting other cultural or aesthetic values"* (NPS 2021b). Cultural landscapes can be associated with a method of construction and include not only designed and rural landscapes and vegetation but also historic buildings and structures, vistas, circulation systems, and sites of cultural traditions and practices. In particular, they can include engineered structures and constructed water features such as dams and reservoirs. Within the context of historic cultural landscapes, Copper Basin Dam is an engineered structure constructed through monumental human effort within a natural gorge setting. As demonstrated in Figure 13, the dam is set against the backdrop of the reservoir that the dam's construction created. The dam would not have been built if not for the construction of the overall CRA, but likewise, the CRA system could not exist without the dam. The dam's construction by humans within a natural canyon setting irrevocably changed the landscape in a significant way, while it also made significant contributions to the development patterns of the Southwest. In this way, Copper Basin Dam is historically significant in its own right as part of a cultural landscape, for its important role in the CRA system, and thus in its significant contributions to California's history.

Therefore, the subject property **does appear eligible** under Criteria A/1.

### 6.3.2 Significance Criteria B/2

**NRHP Criterion B:** Is associated with the lives of persons significant in our past

**Criterion 2:** It is associated with the lives of persons important in our past

The subject property **does not appear individually eligible** under Criteria B/2. Copper Basin Dam is historically significant as an intrinsic part of the overall CRA Historic District, which is significant for its association with F.E. Weymouth as well as Julian Hinds. However, even though Metropolitan constructed the dam under specifications issued under F.E. Weymouth, with construction drawings approved by Julian Hinds, there is no evidence that the dam's design engineer(s) were important individuals who made significant contributions at the state or national level. The importance of the dam's association with Weymouth and Hinds is further discussed under Criteria C/3.

Therefore, the subject property **does not appear eligible** under Criteria B/2.

### 6.3.3 Significance Criteria C/3

**NRHP Criterion C:** Embodies the distinctive characteristics of a type, period, or method of installation, or represents the work of a master, possesses high artistic values, or represents a significant and distinguishable entity whose components may lack individual distinction

**Criterion 3:** It 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

The subject property **does appear individually eligible** under Criteria C/3. Copper Basin Dam is historically significant not only as an intrinsic part of the overall CRA Historic District but also individually as an excellent and intact example of an early twentieth-century concrete dam constructed by the J.F. Shea Company. The dam was constructed under Metropolitan Specifications No. 190 issued under F.E. Weymouth, and most of the construction drawings were approved by Julian Hinds. Weymouth and Hinds were important individuals in the history of water conveyance systems and structures, specifically the CRA, with responsibility for overall construction decisions and designs. Copper Basin Dam embodies the distinctive characteristics of a thin arch concrete dam design, a design that was ultimately decided upon and approved by Weymouth and Hinds. Even though it was not the first of the type to be constructed, it was the ideal type of dam to build within a narrow gorge setting. The use of the Howell-Bunger valve was also ideal for this setting, where it is intended for emergency water discharge. Metropolitan and other agencies continued to use the valve within the sluiceway systems of additional similar dams, including the CRA's Gene Wash Dam. The dam continues to function and operate in the same manner today as it did 75 years ago, with its original design and virtually all of its original materials intact.

Therefore, the subject property **does appear eligible** under Criteria C/3.



#### 6.3.4 Significance Criteria D/4

**NRHP Criterion D:** It has yielded, or may be likely to yield, information important in prehistory or history

**Criterion 4:** It has yielded, or has the potential to yield, information important to the prehistory or history of the local area, California, or the nation

The subject property **does not appear individually eligible** under Criterion D/4. The history and importance of the CRA, and the Copper Basin Dam within that context, are well-documented. There does not appear to be any evidence that the dam on its own has yielded, or has the potential to yield, additional information important in the state's or nation's prehistory or history.

Therefore, the subject property **does not appear eligible** under Criterion D/4.

### 6.4 HISTORIC INTEGRITY ANALYSIS

Copper Basin Dam is a contributing structure within the CRA Historic District, and is, therefore, considered a historical resource/historic property for the purposes of CEQA and Section 106 of the National Historic Preservation Act.

As noted above, "integrity" is the ability of a historic resource to convey the reasons for its significance, through the retention of character-defining features, materials, and components. Historic integrity is weighed through a consideration of seven aspects of integrity: location, design, setting, materials, workmanship, feeling, and association. This section provides an analysis of the historic integrity of the Copper Basin Dam.

**Location:** Copper Basin Dam sits in its original footprint and retains integrity of location.

**Design:** Copper Basin Dam retains its original 1937/1938 design. No major changes or additions have been made to the dam since its initial construction. Therefore, design integrity of the dam is retained.

**Setting:** The setting of Copper Basin Dam has not changed since its construction. The dam is located within a narrow red rock canyon. Therefore, the dam retains integrity of setting.

**Materials:** Copper Basin Dam retains integrity of materials. Most of the materials extant are original, including concrete and metal.

**Workmanship:** Copper Basin Dam retains integrity of workmanship, as illustrated in the extensive and intact concrete work completed by J. F. Shea Company.

**Feeling:** The Copper Basin Dam retains integrity of feeling as a functioning dam and reservoir cultural landscape within the CRA system because it retains physical characteristics that evoke the historic scene dating to the late 1930s.



**Association:** The Copper Basin Dam retains integrity of association as a functioning dam and reservoir cultural landscape that retains its original materials and design within the CRA system dating to the late 1930s.

## 6.5 CHARACTER-DEFINING FEATURES

The following list identifies the character-defining features of Copper Basin Dam:

- Adjacency to the Copper Basin Reservoir; prominent, large-scale thin arch design and massing
- Board-form concrete construction and features
- Sluiceway system, including the trash rack on the upstream face through to the valve house on the downstream face
- Presence of attached, sheltered metal ladderways to access the valve house and enclose the plumb line
- Pedestrian deck on dam crest with parapet and metal railings
- Presence of concrete weir and adit weir in the current locations
- Remote setting and location, within a red rock gorge
- Detached concrete ogee spillway and CRA outlet tower
- Construction-era remnants, including iron spikes and posts, iron hoops, winch/pulley wheel, and reinforced concrete posts on and on top of the red rock gorge abutments

## 7.0 PROJECT IMPACTS ANALYSIS

As noted in Section 2, projects in compliance with the *Secretary's Standards* generally avoid adverse impacts to historical resources (CEQA Guidelines Section 15064.5(b)(3)). The goal of the *Secretary's Standards* is to outline treatment approaches that allow for the retention of and/or sensitive changes to the distinctive materials and features that lend a historical resource its significance. Of the four treatment approaches defined in the *Secretary's Standards*, rehabilitation is the most flexible approach. Rehabilitation is the appropriate treatment for the proposed project, which involves relatively minor maintenance upgrades to the dam's sluiceway system, access ladderways, weirs, and electrical and mechanical systems. The following section provides an analysis of the project's compliance with the *Secretary's Standards*:

**Table 1**  
**PROJECT CONSISTENCY WITH SECRETARY OF THE INTERIOR'S STANDARDS FOR REHABILITATION**

Standard for Rehabilitation	SOIS Consistency Determination
<b>Standard 1:</b> A property will be used as it was historically or be given a new use that requires minimal change.	Consistent. The use of the resource will not be changed.
<b>Standard 2:</b> The historic character of a property will be retained and preserved.	Consistent. The project does not alter the thin arch dam structure, parapet, railing, or valve house. The existing valve will be replaced like-for-like. The trash rack will be protected or reinstalled in its original location after the gate and discharge valves are replaced. The replacement ladderway will be in substantially the same location and of the same materials and design, with only minor changes necessary to meet safety requirements. The weirs will be replaced in the same locations and of substantially the same materials and dimensions. The catwalk panels are not character-defining features of the dam but will be replaced in the same locations with a similar but improved and safer design. While the addition of concrete steps leading from the valve house to the new catwalk will alter the appearance of that area of the gorge, they represent a safer and better way to access the weirs than the existing method of climbing down rocks and across haphazard catwalk panels. All of these changes are minor in relation to the size and significance of the dam structure. The historic character of the dam will be retained and preserved by the project.
<b>Standard 3:</b> Each property will be recognized as a physical record of its time, place, and use.	Consistent. The new valve will not introduce a false sense of history through conjectural features or elements. The replacement ladderway and two weirs will be in the same locations and of substantially the same designs and materials as the original. The new concrete stairs at the base of the valve house and the new catwalk will be clearly modern and will not create a false sense of history.
<b>Standard 4:</b> Changes to a property that have acquired historic significance will be retained and preserved.	Consistent. There are no known changes to the dam or associated structures that have acquired historic significance.
<b>Standard 5:</b> Distinctive materials, features, finishes, and construction techniques or examples of craftsmanship that characterize a property will be preserved.	Consistent. The project retains the distinctive materials/features that characterize the property.

Standard for Rehabilitation	SOIS Consistency Determination
<b>Standard 6:</b> Deteriorated historic features will be repaired rather than replaced.	Consistent. The concrete dam structure, trash rack, valve house, pedestrian railing, and plumb line ladderway will continue to be repaired rather than replaced. The project will replace components that are too deteriorated or parts that are unavailable for repair. The valve will be replaced in-kind in materials, function, and overall appearance within the existing valve house. The existing catwalk panels are not historic. The ladderway will be replaced, but in the same location and of substantially the same materials and design, but with an improved design for safety purposes. The weirs have deteriorated to an extent they need to be replaced, but again will be replaced in the same locations and of substantially the same designs and materials as the original weirs.
<b>Standard 7:</b> Chemical or physical treatments, if appropriate, will be undertaken using the gentlest means possible.	Consistent. The valve replacement will be undertaken to avoid damage to adjacent materials and features, including protection or reinstallation of the trash rack. No chemical or physical treatments are proposed to the concrete arch dam.
<b>Standard 8:</b> Archeological resources will be protected and preserved in place.	Consistent. Part of the project includes the placement of the concrete stairs and the removal of boulders on the canyon floor to accommodate the replacement catwalk to the weirs. These improvements occur within areas previously disturbed during the original construction of the dam and weirs.
<b>Standard 9:</b> New additions, exterior alterations, or related new construction shall not destroy historic materials that characterize the property.	Consistent. The valve replacement will not destroy historic materials that characterize the property because the new valve will be a like-for-like replacement. The replacement ladderway and weirs will be in the same location and of substantially the same design and materials in terms of the property's character. The new catwalk will not affect character-defining features of the dam. The concrete stairs will be adjacent to the valve house extending along the canyon floor to the catwalk and will not affect historic materials.
<b>Standard 10:</b> New additions and adjacent new construction shall be undertaken such that, if removed in the future, the essential form/integrity of historic property would be unimpaired.	Consistent. The essential form of the Copper Basin Dam and its character-defining features will remain intact and unimpaired. Any future removal of new additions, such as the catwalk and concrete stairs, would leave the essential form, integrity, and function of the historic dam intact and unimpaired.

## 8.0 IMPACTS DISCUSSION AND CONCLUSION

As currently envisioned, the proposed plans for the replacement of the gate valve and Howell-Bunger discharge valve, the main access ladderway, main weir, adit weir and the catwalk, as well as the addition of concrete stairs between the valve house and new catwalk and other system upgrades and modernization comply with the *Secretary's Standards*.

The historic integrity and character-defining features of the dam will be retained, including the scale, setting, and location of the dam, its prominent concrete thin arch design, and board-form concrete fabric, as well as its feeling and association as an individually significant structure and within the CRA Historic District context. In addition, upgrades to safety proposed with the improved ladderway, addition of stairs and replaced catwalk to the weirs, as well as the upgrades to the electrical, communication, and mechanical systems, would allow for the continuous historical use of the dam and the overall CRA, and would not adversely impact character-defining features. The use of the dam will not change and will continue to function as a dam within the Copper Basin reservoir, serving its originally intended function as part of the CRA system.

As discussed in the previous section, the valves will be replaced in-kind to match the existing valves in materials, dimensions, and use; care will be taken to avoid the destruction, obscuring, or removal of adjacent character-defining features. No new conjectural features or significantly different detailing will be added to the valves or dam that would change the overall character. Although the Howell-Bunger valve is large in scale, it is a comparatively small feature in relation to the scale of the dam itself. The existing trash rack will be protected in place during construction. The deck of the dam has had electrical and other equipment and conduit added over time as necessary for the continued operation of the dam; the proposed upgrades are designed in an organized manner along the dam, deck, and parapet in a similar location as existing. The main access ladderway and weir character-defining features are historic more for their function and location than for their specific design, but they are essentially proposed to be replaced like for like. A new main access ladderway in substantially the same location and of substantially the same, but safer, design will replace the original main ladder. The weir and adit weir will be replaced in substantially the same location and of the same materials and design. The existing catwalk is not historic but necessary for safety, and an intentionally designed new catwalk will replace the existing one so safe access to the weirs is maintained. The only other entirely new feature to be added by the project is a set of concrete stairs which are a minor but necessary addition for safe access to the catwalk from the valve house. The stairs are of similar materials to those used for the dam but are clearly a new feature, and although unlikely, they could be removed in the future and leave the essential form and integrity of the dam intact. The plans do not propose any changes, grading, or construction that would affect the character-defining artifacts visible on the red rock gorge abutments to the dam, including no impacts to the concrete posts adjacent to the access road improvements south of the dam.

Therefore, the project complies with the *Secretary's Standards* and implementation of the proposed project would not be expected to result in a significant adverse impact to the historical resource and its character-defining features. The historical resource would retain its historic integrity, following project implementation, and retain its status as an individually historically significant structure and as a contributor to the CRA Historic District.

In addition, no indirect impacts would be expected to result to the larger historic district.

In conclusion, as designed, the proposed project would not be expected to cause a significant adverse impact or material impairment to the Copper Basin Dam or the larger CRA Historic District, and no further CEQA analysis is required.

## 9.0 REFERENCES

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Chasteen, Carrie

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Goodman, J. and J. Neeves

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Gruen, Philip J.

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## Lowe, Jet

- 1968 *Copper Basin Reservoir & Dam, HAER CA-243*. Photographs, Historic American Engineering Record, National Park Service, U.S. Department of the Interior. From Prints and Photographs Division, Library of Congress.

## Metropolitan Water District of Southern California (Metropolitan)

- 1937 “Colorado River Aqueduct: Gene Wash and Copper Basin Dams Ladderways.” As-built drawings on file with Metropolitan.
- 1938a “Historical Record of Gene Wash and Copper Basin Dams, 1937-1938.” Report on file with Metropolitan.
- 1938b “Colorado River Aqueduct: Copper Basin Dam Valve House Sections & Details.” As-built drawings on file with Metropolitan.
- 1942 “Copper Basin Dam: Details of Plumblin Ladderway.” As-built drawings on file with Metropolitan.
- 2000 “Gene and Copper basin Dam Fall Protection Anchor: Anchor Location Plan.” As-built drawings on file with Metropolitan.
- 2022 *Copper Basin and Gene Wash Dams Ladder Replacement Preliminary Design Report*. On file with Metropolitan.

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## Appendix A

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### Resumes of Key Personnel

## Teri Delcamp

### Architectural Historian



#### Summary of Qualifications

Ms. Delcamp is a qualified historian/architectural historian who meets the Secretary of the Interior's standards for her profession. Ms. Delcamp has more than 20 years of professional experience in preparing history and architectural history studies in California. She has served as Principal Planner for the City of Carlsbad, Senior Planner (Historic Preservation) for the City of Riverside, Historic Preservation Manager for the City of San Juan Capistrano, and Senior Planner for the cities of San Diego, Oceanside, and San Clemente. Ms. Delcamp's experience includes a wide range of study types, from the preparation of historic context studies to historic built environment evaluations.

#### Selected Project Experience

**Tijuana River Valley Regional Park Brown Fill Property (2022).** Architectural Historian for a cultural resources study in support of a potential restoration project at the Brown Fill Property within the Tijuana River Valley Regional Park in San Diego County. Assisted in the preparation of the technical report and DPR Form in compliance with state and federal regulations. Project scope included a cultural resources records search, literature review and archival research, review of historic maps and aerials, field survey, historic significance evaluation and preparation of a technical report. Work performed for the County of San Diego Department of Parks and Recreation.

**Shady View Residential Project Environmental Impact Report (2022)** Architectural Historian for a cultural resources study in support of the proposed development of 159 single-family homes, open space and recreational amenities, and associated street, utility/infrastructure, and drainage improvements in the City of Chino Hills in San Bernardino County. Assisted in the preparation of the technical report and DPR Form in compliance with state and federal regulations. Project scope included a cultural resources records search, literature review and archival research, review of historic maps and aerials, field survey, historic significance evaluation and preparation of a technical report in support of the Project EIR. Work performed for the City of Chino Hills.

**Marysville Parks & Open Space Master Plan (2021)** Senior Architectural Historian for the City of Marysville Parks and Open Space Master Plan project, which proposes minor upgrades to Ellis Lake Park, including rerouting and widening a three-foot path to six feet and adding a series of benches, exercise stations, a playground, and an event stage. The project includes in-depth historical research and preparing a Historic Resource Evaluation Report for Ellis Lake Park. Work performed for the City of Marysville.

#### Education

Master of Arts,  
History, California  
State University  
San Marcos, 2015

Bachelor of Arts,  
Liberal Studies  
(History), California  
State University  
Long Beach, 1986

#### Professional Affiliations

American Planning  
Association

National Trust for  
Historic Preservation

California  
Preservation  
Foundation

#### Awards

Association of  
Environmental  
Professionals, Merit  
Award, Carlsbad  
Tribal, Cultural and  
Paleontological  
Resources  
Guidelines, 2018

American Institute of  
Architects  
San Diego Chapter,  
Divine Detail Award,  
Montanez Adobe,  
San Juan  
Capistrano, CA,  
2010

**Coachella Canal Midline Storage Project** (2021 - 2022). Architectural Historian for a project in the City of Niland proposing an inline reservoir on the Coachella Canal that will be formed by removing the existing embankment between the existing lined canal with the original earthen canal to form a single wide trapezoidal section. Responsible for reviewing extant data on the historicity of the National Register of Historic Places (NRHP)-eligible Canal, surveying the project, and completing an impacts/effects analysis utilizing the data from the survey and the literature review. Work performed as a subconsultant to Harvey Consulting Group, with Coachella Valley Water District and U.S. Bureau of Reclamation as the lead agencies.

### Previous Experience

**Principal Planner, City of Carlsbad** (2015 - 2020). Manage the current planning and customer service sections supervising 11 employees, including senior planners, associate planners and planning technicians. Review the most complex development projects ranging across the full spectrum of land uses and entitlements. Make CEQA determinations for both sections; provide cultural resource CEQA significance determinations for section development projects and provide internal peer review of cultural resource studies. Conduct CEQA analyses including preparation of initial studies and mitigated negative declarations. Implement and administer a variety of local land use regulations including Tribal, Cultural & Paleontological Resources Guidelines; Local Coastal Program; Habitat Management Plan and Airport Land Use Compatibility Plan. Prepare and present reports to Commissions and Council. Respond to inquiries and meet with community members to provide information and discuss land use-related concerns.

**Carlsbad Tribal, Cultural, and Paleontological Resources Guidelines** (2015 - 2020). Senior Planner for the update to cultural resources guidelines for the City of Carlsbad. Oversaw consultant contract, oversaw tribal consultation, collaborated and edited draft and final document, and achieved City Council adoption. Work performed for the City of Carlsbad.

**City of Carlsbad Cultural Resource CEQA Determinations for Development Projects** (2015 - 2020). Senior Planner for determining the need for cultural resources/historical reports for numerous projects including single family homes, historic theater, historic school campus buildings, churches, commercial and institutional sites. Work performed for the City of Carlsbad.

**City of Carlsbad Tribal Consultation Projects** (2015 - 2020). Senior Planner for leading or assisting City colleagues conducting AB 52 and SB 18 tribal consultations for numerous development projects, General Plan Amendments and Specific Plan Amendments. Work performed for the City of Carlsbad.

**City of Riverside Historic Preservation Senior Planner** (2011 - 2015). Manage and oversee day-to-day operation of historic preservation section within the Neighborhood Engagement Division. Detailed analysis and presentation of planning cases to decision-makers. Manage projects and consultant contracts for various surveys and CEQA documents. Acting Historic Preservation Officer for Administrative Certificates of Appropriateness. Prepare and secure grants and prepare progress reports and annual reports in conjunction with the Certified Local Government program. Write and review cultural resource reports submitted in support of designation, historical significance evaluations and/or in accordance with the California Environmental Quality Act. Supervise Associate Planner and Assistant



Planner. Partner with community preservation organizations and other departments to achieve preservation goals. Provide customer service via public counter, telephone and email regarding land uses, development standards and historic preservation. Work performed for the City of Riverside.

**City of Riverside Consultant Contract Management** (2011 - 2015). Senior Planner focused on Historic Preservation in the City of Riverside. Prepared Requests for Proposals and managed professional consultant contracts for preparation of Environmental Impact Report and Mitigated Negative Declaration for historic resource demolition and area-wide Utility Department infrastructure improvements, respectively. Prepared Requests for Proposals and managed professional consultant contracts for preparation of historic surveys for grant funded work and Specific Plan updates. Work performed for the City of Riverside.

**City of Riverside Historic Preservation Ambassador Training Program** (2011 - 2015). Prepared Request for Proposals and managed consultant for new training manual and workshop series to create cohort of community preservation leaders to assist city in preservation education and advocacy. Work performed for the City of Riverside.

**Relocation of the Cooper House** (2011 - 2015). As Senior Planner, prepared a Cultural Resources Report and Evaluation of Impacts for the Cooper House. Work performed for the City of Riverside.

**4135 Market Street, Structure of Merit Designation** (2011 - 2015). Senior Planner for the preparation of a Historic Evaluation & DPR Form for a significant structure located at 4135 Market Street in Riverside.

**Historic Evaluation & DPR Form Recordation for the James & Jessie Shaw Residence** (2011 - 2015). Senior Planner for preparation of a historic evaluation and landmark designation for a private residence at 8410 Cleveland Avenue. Work performed for the City of Riverside.

**Historic Evaluation & DPR Form Recordation for the Frank and Katherine Wells-Patsy O'Toole House** (2011 - 2015). Senior Planner for the preparation of a historic evaluation, DPR form and landmark designation for a private residence at 1945 Arroyo Drive. Work performed for the City of Riverside.

**Historic Evaluation & DPR Form Recordation for the Mackey House** (2011 - 2015). Senior Planner for the preparation of a historic evaluation, DPR form and landmark designation for a private residence at 6140 Tiburon Drive. Work performed for the City of Riverside.

**Cultural Resources Report and Evaluation of Impacts, Demolition of 11134 and 11144 Pierce Street** (2011 - 2015). Senior Planner for the preparation of a cultural resources report prior to the demolition of properties located at 11134 and 11144 Pierce Street. Work performed for the City of Riverside.

**Riverside Mid-Century Modern Building Survey Certified Local Government Grant** (2011 - 2015). Grant writer and contract and project manager for a survey and inventory of mid-century modern buildings in Riverside. Work performed for the City of Riverside.

**Riverside Mid-Century Modern Subdivision Oral Histories Certified Local Government Grant**, (2011 - 2015). Grant writer and contract and project manager for preparation of oral histories surrounding mid-century modern buildings in Riverside. Work performed for the City of Riverside.

**American Recovery and Reinvestment Act (ARRA) Surveys** (2011 - 2015). Senior Planner for the completion of historical contexts and preparation of a multiple property DPR form. Work performed for the City of Riverside.

**Management of Certificates of Appropriateness** (2011 - 2015). Senior Planner for the analysis, preparation for Board and Council consideration, and supervision or approval of numerous planning applications for master plans, additions, adaptive re-use, relocation and/or restoration of historic commercial, industrial, educational and residential landmarks and district contributors, including commercial offices/stores, train depots, packing houses, individual homes and college campus landmarks, etc. Work performed for the City of Riverside.

**Historic Preservation Fund Grant Program** (2011 - 2015). Senior Planner for the management of bi-annual General Fund competitive grant program for historic preservation projects including staff to Council-created committee for award of grants. Work performed for the City of Riverside.

**Historic Preservation Manager, City of San Juan Capistrano** (2005 - 2011). Solely responsible for management and administration of the City's historic preservation program. Staffed City's Cultural Heritage Commission. Reviewed complex development projects affecting designated historic sites. Managed planning, design, bid and construction phases of 7year Capital Improvement Program for City-owned historic sites (approximate budget \$1.3 million). Developed and administered Historic Preservation section's annual budget and coordinated annual historic building maintenance budget and priorities with Public Works. Wrote and presented reports to Commissions, Council, community organizations and public. Coordinated with other departments and state and federal agencies on historic preservation issues and projects. Prepared, supervised and/or reviewed National Register, California Register and local nominations. Conducted historic preservation public outreach including events and workshops.

**Forster Mansion Exclusive Events Conditional Use Permit** (2005 - 2011). Historic Preservation Manager for controversial, complex case for outdoor special events within mixed use residential and commercial area. Work performed for the City of San Juan Capistrano.

**Zoomars on Los Rios Conditional Use Permit** (2005 - 2011). Historic Preservation Manager for the management of a complex expansion of non-conforming use case for petting zoo in residential historic district. Work performed for City of San Juan Capistrano.

**Montanez Adobe Restoration and Seismic Repair** (2005 - 2011). Historic Preservation Manager for the preparation of RFPs and managed contracts; managed design, bid and construction. Montanez Adobe project received state award 2012. Work performed for the City of San Juan Capistrano.

**7-Year Capital Improvement Program for City-Owned Historic Structures** (2005 - 2011). Contract & Project Manager for bid and construction projects including Harrison House Repair & Restoration, Roger Williams/Swanner House Historic Paint Restoration, Roger Williams /Swanner House and Water Tower

Foundation Repairs, Roger Williams/Swanner House Interior Repairs Joel Congdon House Repairs, and Blas Aguilar Adobe Repairs. Work performed for the City of San Juan Capistrano.

**Seven-Year Capital Improvement Program for City-Owned Historic Structures (2005 - 2011).**

Contract & Project Manager for Design RFP, Bid & Construction, including Montanez Adobe Restoration & Seismic Repair, Joel Congdon House ADA Improvements, Joel Congdon House Water Tower Restoration, Parra Adobe Seismic Repair and Restoration Historic Structure Report. Work performed for the City of San Juan Capistrano.

**Seven-Year Capital Improvement Program for City-Owned Historic Structures (2005 - 2011).**

Contract & Project Manager for RFP for Historic Structure Report and Rehabilitation Plans, including Parra Adobe Save America's Treasures Grant, The Ecology Center at the Congdon House, Blas Aguilar Adobe Repair and Native Education Facility, Mission San Juan Capistrano: Rectory Garden; Entry Restoration and Gift Shop projects, Historic Evaluation Report, Nick's Café, 26755 Verdugo Street, SB18 Tribal Consultation for General Plan and Specific Plan projects, and management of Historic Preservation Week 2006, 2007, 2008, 2009. Work performed for the City of San Juan Capistrano.

**Senior Planner, City of Oceanside (2004 - 2005).** Under direction of City Planner, supervised the current planning and customer service section. Supervised Associate Planners and Assistant Planners, including completion of performance evaluations. Reviewed complex development projects ranging across the full spectrum of land uses and entitlements, including CEQA initial studies and documents. Implemented Local Coastal Program. Wrote and presented reports to Commission and Council. Work performed for the City of Oceanside.

**Senior Planner, Historic Preservation, City of San Diego (2002 - 2004).** Staffed Old Town Community group and Design Review Board; evaluated and presented planning cases to both. Managed and administered City's historic preservation program and supervised staff including Administrative Interns, Secretary and Senior Planners on team. Conducted detailed review of historic resource reports and surveys for designation. Oversaw and participated in historic resource surveys. Reviewed projects for consistency with Secretary of the Interior's Standards. Staffed Historical Resources Board. Participated in Section 106 consultation and managed MOU and PA compliance, coordinating with Port Authority, Navy Region Southwest and various historic preservation organizations, etc. Fulfilled Certified Local Government duties. Wrote and presented reports to Board, Commissions, Council, community organizations and public. Conducted historic preservation public outreach including events, training, and workshops.

**Naval Training Center Historic District Plancheck Drawings (2002 - 2004).** Senior Planner for an evaluation of the Liberty Station Re-Use plans for consistency with Secretary of the Interior's Standards. Work performed for the City of San Diego.

**Secretary of the Interior's Standards Consistency Determinations (2002 - 2004).** Senior Planner for the San Diego Zoo/Balboa Park expansion; Salk Institute Expansion; SDG&E Station A adaptive re-use; Santa Fe Depot/Museum of Contemporary Art; Coronado Belt Line bike trail; Hard Rock Hotel/Depot re-use; various rehabilitation and re-use projects in Gaslamp Historic District, Old Town San Diego, etc. Work performed for the City of San Diego.

**US Navy, US Marine Corps and San Diego Airport Authority Section 106 Programmatic Agreement (PA) Compliance** (2002 - 2004). Senior Planner to review proposals for consistency with the PA. Met with agency representatives and property owners.

**La Jolla Intensive Historic District Survey** (2002 - 2004). Senior Planner on a survey team for the La Jolla Historic District. Work performed for the City of San Diego.

**Burlingame and Islenair Historic Districts** (2002 - 2004). Senior Planner for the supervision of the preparation of historic contexts and historic district nominations. Work performed for the City of San Diego.

**East Village, Warehouse, and African American Historic District Surveys** (2002-2004). Outreach team member for inventories of historic districts in the East Village, Warehouse District, and the historic African American district of San Diego. Work performed for the City of San Diego.

**Individual Historic Designations and Mills Act Program** (2002 - 2004). Reviewed all historic designation requests and referrals, prepared staff reports, supervised staff and managed Mills Act contract program comprising 80-100 property evaluations per year; worked with Deputy Director, community, preservation stakeholders and Land Use Committee to develop methodology for implementing new fees for designations and Mills Act contracts.

**Senior Planner, City of San Clemente** (2002). As Senior Planner, supervised the current planning and customer service section. Supervised Associate Planners and Assistant Planners, including completion of performance evaluations. Reviewed complex development projects ranging across the full spectrum of land uses and entitlements, including CEQA initial studies and documents. Supervised consultant contracts on various projects including General Plan amendments, Specific Plans and implementing entitlements, grants and CEQA documents. Served as Air Quality Planner and LOSSAN rail corridor technical advisory committee member. Managed and administered Planning Commissions and Design Review Subcommittee. Fulfilled Certified Local Government duties. Wrote and presented reports to Commissions, Council, community organizations and public. Established and implemented Mills Act incentive program. Conducted public outreach including community workshops and training.

**Marblehead Coastal Project** (1990 - 2002). Managed mid-1990s re-activation of 117 acre, 400+ dwelling unit and 61 acre regional commercial project; supervised and coordinated consultants for General Plan Amendment, Specific Plan and EIR; managed all associated entitlements including tentative tract, site plan review, conditional use permits, design review; coordinated weekly meetings with developer team, and meetings and reviews with other agencies including Coastal Commission and Department of Fish and Game; coordinated all revised project documentation and reports through numerous public hearings; processed project through to approval by Planning Commission and City Council.

**San Clemente Metrolink Station**(1990 - 2002). Managed city portion of award-winning project adjacent to National Register community building; liaised with OCTA consultant; supervised separate design consultant for ancillary "depot" building; coordinated staff and community meetings; developed ancillary

building budget and design priorities; completed shared parking analysis, coordinated Coastal Commission's acceptance of methodology, and conducted required monitoring.

**City of San Clemente Certified Local Government** (1990 - 2002). Assisted in preparation of application, program, ordinance, etc., to obtain CLG status; prepared grant application; managed OHP and consultant contracts for grant; conducted research, outreach, workshops and public hearings to adopt updated survey; conducted workshops with CLG grant consultant; planned, prepared and obtained approval for City of San Clemente's first Mills Act Contract program.

**City of San Clemente Downtown/Business Park Economic Development Achievements and Housing Balance** (1990 - 2002). Managed numerous retail, office and industrial from discretionary entitlements through plancheck to permit issuance for 200,000+ square feet in new projects including DeNaults Hardware; Sav-On; Rip-Curl; Rancho San Clemente Plaza Pacifica; Rancho San Clemente Industrial Park; Talega Business Park; Rancho San Clemente Business Park; as well as residential subdivisions for 500+ dwelling units throughout Forster Ranch and Rancho San Clemente Specific Plan areas, Cross Hill, and numerous individual home developments.

**City of San Clemente Advanced Planning** (1990 - 2002). Prepared SCAQMD AQMP baseline analysis for City as representative to Orange County Air Quality Technical Advisory Committee; wrote Zoning Code for amended site plan review process and historic preservation incentives; member of staff advisory committee for Citywide General Plan and comprehensive Zoning Code updates, and new Urban Design Guidelines; represented City on LOSSAN rail corridor technical advisory committee which resulted in new Metrolink Station; prepared grant applications for transportation enhancement projects.



## Debi Howell-Ardila, MHP

Senior Architectural Historian

**HELIX**  
Environmental Planning

### Summary of Qualifications

Ms. Howell-Ardila is an award-winning architectural historian and historic preservation professional with 15 years of experience in environmental compliance, historic resource assessments, survey, and documentation. She has extensive experience in researching and writing about architectural history, as well as applying the regulatory framework of its diverse cities to the built environment.

Ms. Howell-Ardila's project experience has included oversight and completion of a variety of project types, including Secretary of the Interior's Standards project review, preparation of environmental compliance studies, federal and local landmark nominations, Mills Act applications, and Historic American Buildings Survey documentation. She has conducted site investigations and led historic resource surveys and evaluations throughout California, with an emphasis on Southern California. Her experience includes preparation of environmental compliance studies and documentation in support of the California Environmental Quality Act (CEQA) and contributions to studies in support of the National Environmental Policy Act (NEPA) and the National Historic Preservation Act (NHPA). Ms. Howell-Ardila meets and exceeds requirements in the Secretary of the Interior's Professional Qualification Standards in Architectural History and History.

### Selected Project Experience

#### **Contract Planning Project Review for South Pasadena (2020 - 2021).**

Preservation Planner and Project Manager for project review, permit processing, and preservation planning support to the City of South Pasadena Planning and Building Department. Duties included preparing historic resource evaluations, assessing projects for compliance with the City's Municipal Code, design guidelines, and the Secretary of the Interior's Standards, and preparing and presenting staff reports to the Cultural Heritage Commission. Work performed for the City of South Pasadena Planning and Building Department.

#### **John Hinkel Park Historic Resources Evaluation and Amphitheater**

**Improvements Project (2018).** Principal Author/Investigator and Project Manager for a historic resources evaluation of John Hinkel Park in the City of Berkeley, in support of park upgrades and improvement projects. The evaluation informed preservation project review of proposed upgrades to the park facilities, as well as new construction, to ensure compliance with the Secretary of the Interior's Standards for the Treatment of Historic Properties. Recommendations were made to the City of Berkeley and project architect in order to facilitate compliance with the Secretary's Standards, to avoid adverse impacts to historic resources, and to streamline environmental compliance review. Work performed for the City of Berkeley.

### Education

Masters of Historic Preservation,  
University of Southern California,  
Los Angeles

Bachelor of Arts,  
German and Architectural History,  
University of California, Berkeley

### Registrations/ Certifications

Meets/exceeds Secretary of the Interior's Professional Qualification Standards in Architectural History and History

### Awards

California Preservation Foundation, Preservation Design Award (Riverside Latino Historic Context Statement, 2019; City of San Gabriel Historic Preservation Ordinance Update, 2018; and LAUSD Historic Context Statement, 2014) Los Angeles Conservancy, Preservation Award (City of San Gabriel Historic Preservation Ordinance Update, 2018; and LAUSD Historic Context Statement, 2015)

## Debi Howell-Ardila, MHP

### Senior Architectural Historian

**Riverside Latino Historic Context Statement** (2018). Principal Author/Investigator and Project Manager for preparation of a Latino Historic Context Statement, which explored over a century of history and culture of Riverside's Latino community. The Historic Context Statement provided a comprehensive framework for assessing properties associated with the Latino community. This effort was recognized with an award from the California Preservation Foundation in 2019. Work performed for the City of Riverside and the California Office of Historic Preservation (OHP).

**University of California, Riverside Campus-wide Historic Resources Survey Report** (2019 - 2021). Author and Project Manager for a campus-wide historic resources survey of the University of California, Riverside. The resulting Historic Resources Survey Report, along with a focused historic context statement and ArcGIS maps, offered the University an accurate, comparative baseline of historic resources and University assets, in support of master planning and upgrades projects. Work performed for the University of California, Riverside.

**California State University, Fullerton Master Plan EIR Historic Resources Survey Report** (2019 - 2020). Principal Author and Project Manager for a campus-wide historic resources survey of California State University, Fullerton (CSUF). The resulting Historic Resources Survey Report, along with a focused historic context statement and ArcGIS maps, offered the University an accurate, comparative baseline of historic resources and University assets, in support of master planning and upgrades projects. In addition, the survey results provided a sound basis for an analysis of historic resource impacts, alternatives, and mitigation measures for the CSUF Master Plan EIR. Work performed for the California State University, Fullerton.

**Long Beach Grant Neighborhood Historic Context Statement and Survey** (2018 - 2019). Principal Author/Investigator and Project Manager for preparation of a historic context statement and conducting a survey of Long Beach's Grant Neighborhood. As a result of the project, Grant Neighborhood's first historic district was identified and designated by City Council in 2018. Work performed for the City of Long Beach.

**Anacapa Courts/Top Hat Rehabilitation Project Secretary of the Interior's Standards Project Review** (2017). Principal Author and Investigator for Secretary of the Interior's Standards project review for the Anacapa Courts/Top Hat Rehabilitation Project in the City of Ventura. Project plans, including architectural drawings, site plans, and elevations, were analyzed for compliance with the Secretary of the Interior's Standards. Recommendations were made for project modifications and refinements aimed at facilitating compliance with the standards. Work performed for the City of San Buenaventura.

**250 Mills Road Rehabilitation Project Secretary of the Interior's Standards Project Review** (2017). Principal Author and Investigator for Secretary of the Interior's Standards project review for the 250 Mills Road Rehabilitation Project in the City of Ventura. Project plans, including architectural drawings, site plans, and elevations, were analyzed for compliance with the Secretary of the Interior's Standards. Recommendations were made for project modifications and refinements aimed at facilitating compliance with the standards. Work performed for the City of San Buenaventura.

## Annie McCausland

### Architectural Historian



### Summary of Qualifications

Ms. McCausland meets the Secretary of the Interior's Professional Qualification Standards for Architectural History and History. Her expertise includes the Secretary of the Interior's Standards for the Treatment of Historic Properties, archival research, historic contexts, significance evaluations, and historic district documentation. She has completed numerous studies for residential, agricultural, military, rural, commercial, and industrial properties across California. She has prepared numerous technical reports including Historical Resources Evaluation Reports (HRER), Historic Property Survey Reports (HPSR), Historic Building Assessment Reports, Rehabilitation Reports, and Cultural Resources Phase I and II Reports, to satisfy compliance requirements under National Historic Preservation Act (NHPA) Section 106, California Environmental Quality Act (CEQA), and local government preservation ordinances. Ms. McCausland has worked extensively under the California Department of Transportation (Caltrans) Districts 5 and 8, as well as the U.S. Army Corps of Engineers (USACE), Bureau of Land Management (BLM), and the Bureau of Reclamation (BOR), as well as many local governments.

### Selected Project Experience

**One Alexandria Square Environmental Consulting** (2020). Architectural Historian preparing a historic built-environment resources memo report for a proposed mixed-use development in the University City community of the City of San Diego. Work was conducted for Alexandria Real Estate Equities, with the City of San Diego as the lead agency.

**Dam Maintenance Program** (2019 - ongoing). Architectural Historian for Dam Maintenance Program at 13 dams across San Diego County. Led effort to survey, document, research, and evaluate historical resources within the 13 project areas, including a previously documented City of San Diego Water System discontinuous historic district. Lead Author for the Historical Resources Assessment Report and Co-author for the Cultural Resources Assessment Report. Historic contexts, evaluations, and DPR 523 forms were prepared utilizing archival sources. Work performed for the City of San Diego Public Utilities Department.

**Sycamore Drive Bridge Project** (2020 - 2021). Architectural Historian for a bridge project located on the boundary of the City of San Marcos and unincorporated community of Twin Oaks within unincorporated San Diego County. The proposed project consists of replacing the existing timber box culvert bridge over San Marcos Creek with a new bridge designed to meet current standards and convey the 100-year storm event and may involve realignment of Sycamore Drive in the vicinity of the bridge to improve the substandard curve at the bridge's southern approach. Conducted survey for historic built-environment resources within the APE.

### Education

Master of Arts, Public History, California State University, Sacramento, California, 2015  
Bachelor of Arts, History, Chapman University, Orange, California, 2010

### Registrations/ Certifications

Huntington Library San Marino, Registered Reader,

### Professional Affiliations

California Council for the Promotion of History  
American Association for State and Local History  
National Council on Public History  
California Preservation Foundation  
Los Angeles Conservancy  
Society of Architectural Historians

**Buckman Springs Road Bridge Widening Technical Studies** (2020 - ongoing). Architectural Historian for the rehabilitation and widening of the existing Cottonwood Creek Bridge crossing of Buckman Springs Road over Cottonwood Creek, located in eastern San Diego County. The project proponent was the County of San Diego Department of Public Works, with local assistance funding from the FHWA. Responsibilities included review records search material; field survey; and preparation of an Historical Resources Evaluation Report (HRER), Historic Property Survey Report (HPSR), consistent with Caltrans format and content requirements. Duties also included the direction and oversight of the completion of a draft Finding of No Adverse Effect and Secretary of Interior's Standards Action Plan for the Cottonwood Creek Bridge, a contributing feature of Buckman Springs Road. Work performed under the County of San Diego Department of Public Works as-needed environmental services contract and completed for Caltrans review and oversight for the completion of the environmental review process.

**Sycuan/Sloane Canyon Trail IS/MND** (2019 - 2020). Architectural Historian for environmental documentation addressing an approximately five-mile-long proposed trail, in the unincorporated Crest-Dehesa community of eastern San Diego County, which crosses lands owned by the County, San Diego National Wildlife Refuge, Sycuan Band of the Kumeyaay Nation, and lands owned by the Kumeyaay Diegueño Land Conservancy, and includes bridge crossings of Harbison Canyon Creek and the Sweetwater River. Reviewed records search results, conducted archival research, and produced a project area historic context to be included in the study. Work performed for the County of San Diego Department of Parks and Recreation under an as-needed environmental services contract.

**Downtown Riverside Metrolink Station Track & Platform Project** (2019). Architectural Historian conducting historic and archaeological record search for this project to construct an additional platform, extended bridge and elevator, and associated tracks on the south side of the station, which will allow for two trains to service the station off the BNSF Railway (BNSF) mainline. Work performed as a subconsultant to HNTB, with Riverside County Transportation Commission and Federal Transit Authority as the lead agencies for CEQA and NEPA, respectively.

**Padre Dam Municipal Water District East County Advanced Water Purification Program Year 3** (2019 - ongoing). Architectural Historian preparing appropriate State of California Department of Parks and Recreation (DPR) 523 forms for three historic resources: Ray Stoyer Wastewater Treatment Facility, Chet Harritt Dam, and Monte Tunnel (San Diego Flume). Evaluated the individual significance and eligibility of the resources for listing in the NRHP/CRHR. Responsibilities also include the preparation of the El Monte Tunnel Rehabilitation Plan, which provided preliminary rehabilitation guidelines for the Monte Tunnel which is eligible for the NRHP and the CRHR as a remaining extant feature of the San Diego Flume. The DPR forms and rehabilitation plan were prepared to supplement the Environmental Package component of the Financial Assistance Application for the State Water Resources Control Board (SWRCB) Clean/Drinking Water State Revolving Fund.

**Pure Water San Diego Conveyance Project** (2019 - ongoing). Architectural Historian providing support for environmental compliance under the Construction Management contract for Phase 1 (also referred to as the North City Project) of the San Diego Pure Water Program. Responsibilities include preparation of a Cultural Resources Monitoring and Treatment Plan and a Site Protection and Stabilization Plan for a stone wall associated with a 1930s residence and providing environmental compliance monitoring

oversight and reporting during construction. Work performed as subconsultant, with the City of San Diego as lead agency.

**San Diego High School Whole Site Modernization and Long-Range Facilities Master Plan**

**EIR** (2020 - 2021). Architectural Historian to evaluate potential impacts to historic resources associated with near- and long-term project components as part of campus master plan at San Diego High School in downtown San Diego. A total of 10 historic built environment resources were identified for further evaluation as part of environmental review. Specific tasks consisted of directing a cultural resources historic evaluation with the support of a subconsultant. The historic evaluation is comprised of archival research, a historic built-environment survey (including photo documentation, architectural descriptions, character-defining feature identification and integrity notes), and completion of forms from the Department of Parks and Recreation. The results of the historic evaluation will be presented in a CEQA Cultural Resources Technical Report and summarized in the forthcoming EIR. Work performed for San Diego Unified School District.

**San Diego High School Whole Site Modernization Cultural Resources Evaluation and Technical Report** (2020 - 2021).

Architectural Historian to evaluate potential impacts to historic resources associated with near- and long-term project components as part of campus master plan at San Diego High School in downtown San Diego. A total of 10 historic built environment resources were identified for further evaluation as part of environmental review. Specific tasks consisted of directing a cultural resources historic evaluation with the support of a subconsultant. The historic evaluation is comprised of archival research, a historic built-environment survey (including photo documentation, architectural descriptions, character-defining feature identification and integrity notes), and completion of forms from the Department of Parks and Recreation. The results of the historic evaluation will be presented in a CEQA Cultural Resources Technical Report and summarized in the forthcoming EIR. Work performed for San Diego Unified School District.

**Learn and Play Montessori School Project** (2021 - ongoing). Architectural Historian performing a built-environment survey, archival research, and preparing DPR 523 forms, historic contexts, significance and eligibility evaluations, and report for a historic Minimal Traditional house in Union City, Alameda County. The house will be evaluated for eligibility for listing in the CRHR and as a local City Landmark. Work performed for Union City with Union City as the lead agency.

**Escondido Centre City Pkwy Condominium** (2020 - 2021). Architectural Historian performing a built-environment survey, archival research, and preparing DPR 523 forms, historic contexts, significance evaluations, and report including several historic resources within five properties in the City of Escondido. The resources were evaluated for eligibility for listing in the CRHR and as a local City Landmark. Work performed for Warmington Residential, with City of Escondido as the lead agency.

**Aramis Solar Energy Generation and Storage Project EIR** (2020). Architectural Historian performing built-environment survey, archival research, and preparing DPR 523 forms, historic contexts, and significance and eligibility evaluation for an active historic ranch in east Alameda County. The ranch features a post and beam barn and shed and is owned and managed by the same family since circa 1869. The resource was recommended eligible for listing in the NRHP, CRHR and the Alameda County



Register of Historic Resources. Ms. McCausland also identified the potential for a larger historic landscape and/or historic district in this portion of eastern Alameda County. Work performed for Intersect Power, with the County of Alameda as the CEQA lead agency.

**7-Eleven at 43 Middle Rincon Road** (2020 - ongoing). Architectural Historian performing built-environment survey, archival research, and preparing historic contexts, DPR 523 forms, and significance and eligibility evaluations for listing the CRHR and as a local City of Santa Rosa Landmark. Work performed for TAIT & Associates, with City of Santa Rosa as the lead agency.

### Previous Project Experience

**196 San Miguel and 379 Second Street Historic Evaluation Report** (2019). Architectural Historian preparing a Historic Evaluation Report including built-environment survey, site record, historic contexts, and significance evaluation for a 1940s vernacular beach cottage located in the community of Avila Beach, San Luis Obispo County. The study found the cottage eligible for the National Register of Historic Place (NRHP) and California Register of Historical Resources (CRHR) at the local level. Work performed for private developer, Sullivan & Associates, with San Luis Obispo County as lead agency.

**Sonoma Valley Historical Society** (2016 - 2017). Archivist and Collections Registrar with the Sonoma Valley Historical Society managing both the Marcy House Archives and Research Center, and the Society's analog and digital collections. Advised the Society's Board of Directors and served as chair of both the Acquisitions and Archives Committees. The management of the Archives and Research Center encompassed the creation and implementation of standing collection and research policies and procedures, oversight of collection organization, storage, and accessibility between six facilities, the management of all collection-related contracts and agreements, as well as the coordination and oversight of all intern training and scheduling, volunteer training, grant proposals, and outreach events. The management of the analog and digital collections encompassed the creation and oversight of Society-wide database systems. Acquired the California Revealed Grant through the California State Library, which allowed the digitization of the last remaining copies of the *Sonoma Valley Expositor* newspaper.

**De la Vina Street Bridge Replacement** (2018 - 2019). Architectural Historian preparing the Caltrans HRER, HPSR, and City Memo for a bridge replacement project in the City of Santa Barbara. Nine properties were included in the study and one property was found eligible as a local historic landmark. Presented findings to the City of Santa Barbara Historic Landmarks Commission, who approved the local designation. Work performed for Bengal Engineering, Inc. with the City of Santa Barbara as the lead agency in consultation with Caltrans District 5.

**Chuckwalla Valley Road Bridge Replacements** (2019). Architectural Historian preparing the Caltrans HRER for the replacement of four historic bridges on NRHP/California Register of Historic Places (CRHR) eligible Chuckwalla Valley Road, near Desert Center in Riverside County. The bridges were found eligible for listing as character defining features of Chuckwalla Valley Road (Highway 60/70). Work performed for Riverside County in consultation with Caltrans District 8.

**East Mountain Drive Water Crossing Replacement** (2018 - 2019). Architectural Historian preparing the Caltrans HRER for a water crossing replacement project in the community of Montecito. The study recommended a property eligible for the NRHP and the CRHR. Work performed for the design engineer in consultation with the County of Santa Barbara and Caltrans District 5.

**Montecito Creek Bridge Emergency Replacement (2018).** Architectural Historian preparing the Caltrans HRER for emergency replacement of a NRHP/CRHR eligible bridge in the community of Montecito. The bridge no longer retained integrity after the 2018 mudslide event and was found not eligible for listing in the NRHP/CRHR prior to its emergency demolition. Work performed for Santa Barbara County in consultation with Caltrans District 5.

**Railroad Avenue Bridge (2019).** Architectural Historian preparing the Caltrans HRER for the replacement of two historic bridges on Railroad Avenue located in Riverside County. The bridges were recommended not eligible for listing in any register. A segment of the Pacific Crest Trail was documented and found eligible for listing in the NRHP and the CRHR. Work performed for Riverside County in consultation with Caltrans District 8.

**Historic Building Assessment at 250 South Tustin Street (2018).** Architectural Historian preparing a Historic Building Assessment for an early twentieth century craftsman house in the City of Orange. Work performed for private developer, Klassic Engineering and Construction, Inc., with the City of Orange as lead agency.

**Avila Beach Schoolhouse Conversion (2018 - 2019).** Architectural Historian consulting with contractor on the rehabilitation of a schoolhouse in San Luis Obispo County, into a bed and breakfast, adhering to the Secretary of the Interior's Standards for the Treatment of Historic Properties. Work performed for private developer, Hodge Company, with County of San Luis Obispo as the lead agency.

**Brea Dam Electrical Modernization (2018 - 2019).** Architectural Historian consulting with contractors on the electrical and utility rehabilitation of the NRHP and CRHR eligible Brea Dam, a USACE property in the City of Fullerton. Prepared a Historic Property Rehabilitation Report and monitored removal and positioning of historic features. Work performed for Power Pro Plus, Inc. in consultation with USACE Los Angeles District as lead agency.

**Port of Long Beach Master Plan Update (2018 - 2019).** Architectural Historian producing the cultural resource chapter of a Programmatic Environmental Impact Report (EIR) for the Port of Long Beach, as well as a technical survey and evaluation report. Conducted intensive and windshield surveys for historic built environment resources within the entire Port of Long Beach. Work performed as a subconsultant in consultation with the Port of Long Beach.

**1121 Montalban Street (2019).** Architectural Historian preparing the Historic Building Assessment for a private developer in the City of San Luis Obispo. The assessment included two properties and a 1920s Spanish Colonial Revival house. The study found the properties and dwelling not eligible for listing in the CRHR or the city register. Work performed for CoVelop, Inc., with the City of San Luis Obispo as the lead agency.

**Tranquillity Irrigation District Southeast Service Area Water Conservation and Conveyance Improvement (2018).** Architectural Historian implementing the built environment study for a Cultural Resource Inventory and Evaluation in Fresno County. Work performed for Provost & Pritchard Consulting Group, with U.S. Bureau of Reclamation as the lead agency.

**Gordon Acres Water Company Water System Improvements (2018).** Architectural Historian implementing the built environment survey and preparation of architectural resources investigation report for water system improvements in the town of Lucerne Valley. Work performed for NV5, with California State Water Resources Control Board as the lead agency.

**Bloomington Commerce Center (2018).** Architectural Historian implementing the built environment survey and preparation of cultural resources assessment report for a 56.6-acre commercial site in the community of Bloomington, San Bernardino County. Work performed for Howard Industrial Partners, with San Bernardino County as the lead agency.

**Prologis Trailer Parking Expansion (2018).** Architectural Historian implementing the built environment survey and preparation of cultural resources assessment report for expansion of a trailer parking area near the City of Redlands, San Bernardino County. Work performed for Albert A. Webb Associates, with San Bernardino County as the lead agency.

**Interstate 215 and University Parkway Interchange Improvements (2018).** Architectural Historian preparing the Caltrans HRER for improvements to the I-215 interchange in the City of San Bernardino. Work performed for HDR in consultation with the City of San Bernardino and Caltrans District 8.

**Interstate 10/Monroe Street Interchange Improvements (2018).** Architectural Historian preparing the Caltrans HRER for interchange improvements in the City of Indio. Work performed for Michael Baker in consultation with the City of Indio and Caltrans District 8.

**Biola Community Services District Recycled Water Improvements Feasibility Study (2018).** Architectural Historian implementing the built environment survey and preparation of architectural resources investigation report for recycled water improvements in Fresno County. Work performed for Crawford & Bowen Planning, Inc., with U.S. Bureau of Reclamation as the lead agency.

**Athos Renewable Energy Project (2018 - 2019).** Architectural Historian implementing the built environment survey and preparation of historic contexts and resource evaluations for a 2,848-acre solar facility, a 6-mile-long transmission line corridor, and a surrounding 5-mile-wide buffer in Riverside County. Resources documented are associated with Desert Training Center, a designated multi-property historic district. Work performed for IP Athos, LLC and Aspen Environmental Group, with BLM as the lead agency.

**Blythe Airport Fence Project (2018).** Architectural Historian implementing the built environment survey and preparation of Phase-I Cultural Report for an improvement project within the Blythe Army Air Base Historic District. Contributing features to the historic district were newly identified and documented including runways. The overall significance evaluation of the Blythe Army Air Base Historic District was also updated as a historic district contributing to the Desert Training Center/California-Arizona Maneuver Area Multiple Property Historic District. Work performed as a subconsultant for Mead & Hunt, with the Federal Aviation Administration (FAA) as the lead agency.

**University of California Riverside Plant Growth Facility (2018).** Architectural Historian implementing the built environment survey and preparation of a Historic Building Assessment report for a campus facility expansion project in the City of Riverside. Work performed for Albert A. Webb Associates, with University of California Riverside as the lead agency.

**Victorville Water District Distribution System Phase I Cultural Resource Assessment (2017).** Architectural Historian preparing site records, significance evaluations, and historic contexts for a water distribution system project in the City of Victorville. Work performed for Meridian Consultants, LLC., with City of Victorville as the lead agency.

**Cultural Resource Study: 196 San Miguel and 379 Second Street Avila Beach, San Luis Obispo County, California** (2019). Architectural Historian preparing a built-environment survey, site record, historic contexts, and significance evaluation for a 1940s vernacular beach cottage located in the community of Avila Beach. The study found the cottage eligible for the NRHP and CRHR at the local level. Work performed for private developer, Sullivan & Associates, with San Luis Obispo County as the lead agency.

**Alabama and Palmetto Project Phase 1 Cultural Resources Assessment** (2019). Architectural Historian preparing a built-environment survey, site records, historic contexts, and significance evaluations for a development project in San Bernardino County. Work completed for Albert A. Webb Associates with County of San Bernardino as lead agency.

**Sierra Avenue Widening Project Cultural Resources Assessment Revision** (2018). Architectural Historian preparing a built-environment survey, site record, historic context, and significance evaluation for a street widening project in the City of Fontana. Work completed for HDR, with the City of Fontana as lead agency.

**City of Orange Cove Water Treatment Improvement Project Historic Property Identification Report** (2019). Architectural Historian preparing a Historic Property Identification Report in the City of Orange Cove in Fresno and Tulare counties. Work performed for Crawford & Bowen Planning Inc. with the City of Orange Cove as lead agency.

**LA Waterwheel Project Cultural Resources Assessment Report** (2019). Architectural Historian preparing a built-environment survey, site record, historic context, and significance evaluation for a portion of the Los Angeles River Channel in the City of Los Angeles. Work performed for Ruth Villalobos & Associates, Inc. with the City of Los Angeles as lead agency.

**Southern California Logistics Airport Cultural Resources Assessment Report** (2019). Architectural Historian preparing a site record update for George Airforce Base in the City of Victorville, California. Work performed for Michael Baker and Associates with the City of Victorville as lead agency.

**Fort Visalia Historic Review** (2018). Architectural Historian assisting with research and preparing historic contexts for the Fort Visalia site investigation. Work performed for the City of Visalia who is working to preserve the city's early history as the location of a fort in the mid-19th century.

## Appendix B

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Department of Parks and Recreation  
Series 523 Forms



**State of California — The Resources Agency**  
**DEPARTMENT OF PARKS AND RECREATION**  
**CONTINUATION SHEET**

Primary # 33-11265/36-010521

HRI # \_\_\_\_\_

Trinomial \_\_\_\_\_

Page 1 of 6Resource Name or #: Copper Basin Dam

\*Recorded by: Debi Howell-Ardila, Annie McCausland, and Teri Delcamp | HELIX Environmental Planning \*Date: July 2022 ☑ Update

**\*P3a. Description**

This DPR update describes the Copper Basin Dam, located at 158000 MWD Road, in Parker Dam, San Bernardino County, California.

Located in the Mojave Desert, west of Parker Dam, California, the Copper Basin Dam has regulated water levels in the associated Copper Basin Reservoir since its construction in the late 1930s. As part of the CRA system, the Copper Basin Dam and its adjacent, 22,000-acre-feet reservoir are two miles west of the Gene Pump Plant in San Bernardino County, California.

The focal point of the Copper Basin Dam is a prominent, cast-concrete, unreinforced arch that rises approximately 184 feet and spans 265 feet. Steel reinforcement is only present in the foundation and north and south abutments of the dam. Along the top of the structure, a deck framed with a parapet and original metal railing provide pedestrian access. At the upstream side of the dam, a sluiceway connects from the trash rack to the discharge valve house on the downstream side of the dam. The downstream side displays two caged ladderways, one built with the dam's original construction in 1938 that connects the crest of the dam to the valve house and another added in 1942 that partially extends down the face of the dam and encloses a plumb line that monitors dam movement. The valve house is attached to the downstream side of the dam. It is a two-story concrete structure raised and supported by a concrete beam footing and a pair of concrete legs resting on the floor of the downstream gorge. Due to the uneven gorge floor, the structure tilts to the east. The lower floor of the valve house contains the slide gate valve and the Howell-Bunger valve. The structure is capped with a concrete shed roof.

The primary elevation (on the east) displays paired steel doors with louvers on the upper floor and the outlet end of the Howell-Bunger valve on the lower floor. The Howell-Bunger valve is set within a rectangular beveled opening and mounted to a bolt ring with bolts, nuts, and washers. Two metal platforms supported by angle brackets with guardrails connected by a chain extend out from each corner of the opening below the Howell-Bunger valve.

On the north elevation, a square concrete platform on the upper floor leads to paired doors providing access to the valve mechanisms. The platform also connects to a ladder leading to the crest of the dam and gives access to a modern ladder on the side of the valve house that extends down toward the gorge floor. A concrete weir structure and adit weir structure within the downstream gorge, near the valve house, measure the water that leaks through the dam and valves. Three sets of modern catwalk panels occur at angles to each other along the gorge floor east of the valve house and provide access to the weirs.

The Copper Basin Dam retains its integrity of location, design, setting, materials, workmanship, feeling and association and is individually eligible for inclusion in the NRHP and CRHR, and is a contributing structure within the CRA Historic District.

Character-defining features of the dam include:

- Adjacency to the Copper Basin Reservoir; prominent, large-scale thin arch design and massing
- Board-form concrete construction and features
- Sluiceway system, including the trash rack on upstream face through to the valve house on downstream face
- Presence of attached, sheltered metal ladderways; pedestrian deck on dam crest with parapet and metal railings
- Presence of concrete weir and adit weir in current locations
- Remote setting and location, within a red rock gorge
- Detached concrete ogee spillway and CRA outlet tower
- Construction-era remnants including iron spikes and posts, iron hoops, winch/pulley wheel and reinforced concrete posts on and on top of the red rock gorge abutments

State of California — The Resources Agency  
DEPARTMENT OF PARKS AND RECREATION  
**CONTINUATION SHEET**

Primary # 33-11265/36-010521

HRI # \_\_\_\_\_

Trinomial \_\_\_\_\_

Page 2 of 6Resource Name or #: Copper Basin Dam

\*Recorded by: Debi Howell-Ardila, Annie McCausland, and Teri Delcamp | HELIX Environmental Planning \*Date: July 2022 ☒ Update

\*P5b. Photograph or Drawing



Figure 1. Copper Basin Reservoir and Dam looking northwest, HAER CA-243, after 1968, Source: Library of Congress

State of California — The Resources Agency  
DEPARTMENT OF PARKS AND RECREATION  
**CONTINUATION SHEET**

Primary # 33-11265/36-010521

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Page 3 of 6Resource Name or #: Copper Basin Dam

\*Recorded by: Debi Howell-Ardila, Annie McCausland, and Teri Delcamp | HELIX Environmental Planning \*Date: July 2022 ☒ Update



Figure 2. Copper Basin, looking west-northwest, HAER CA-243, after 1968, Source: Library of Congress



Figure 3. Pedestrian deck on the crest of Copper Basin Dam, looking northeast. Source: Metropolitan



State of California — The Resources Agency  
DEPARTMENT OF PARKS AND RECREATION  
**CONTINUATION SHEET**

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Page 4 of 6Resource Name or #: Copper Basin Dam

\*Recorded by: Debi Howell-Ardila, Annie McCausland, and Teri Delcamp | HELIX Environmental Planning \*Date: July 2022 ☒ Update



Figure 4. Downstream face of Copper Basin Dam, with attached ladders, looking southwest. Source: Metropolitan



Figure 5. Ladder ascent on the downstream face of dam. Source: Metropolitan





Figure 6. Valve with the Howell-Bunger valve, louvred doors and metal platforms, and main weir and catwalk panels in foreground, looking west. Source: HELIX



Figure 7. Adit weir looking north-northwest into cave. Source: HELIX





Figure 8. Construction-era posts and cable artifacts on canyon wall east of dam, looking north. Source: HELIX

**\*P11. Report Citation:**

Howell-Ardila, Debi, Annie McCausland, and Teri Delcamp, 2022, *Historical Resources Technical Report for the Copper Basin Dam Valve Replacement Project*, HELIX Environmental Planning, Inc., La Mesa, CA. Prepared for Metropolitan Water District of Southern California.

State of California — The Resources Agency  
DEPARTMENT OF PARKS AND RECREATION  
**PRIMARY RECORD**

Primary #  
HRI #  
Trinomial  
NRHP Status Code

Other Listings  
Review Code

Reviewer

Date

Page 1 of 14

\*Resource Name or #: Copper Basin Dam

**P1. Other Identifier:**

\*P2. Location: ☒ Not for Publication ☐ Unrestricted

\*a. County: San Bernardino County

and (P2b and P2c or P2d. Attach a Location Map as necessary.)

\*b. USGS 7.5' Quad: Gene Wash

Date: 1978 T 2N; R 26E; NE ¼ of NW ¼ of Sec 11; S.B.B.M.

c. Address:

City:

Zip:

d. UTM Zone: 11S; 755696 mE/ 3796641 mN (Northern Extent; G.P.S.)

UTM Zone: 11S; 755681 mE/ 3796582 mN (Southern Extent; G.P.S.)

e. Other Locational Data:

The dam is located at the south end of the Copper Basin Reservoir, two miles southwest of the Gene Pumping Plant and approximately five miles west of Parker, Arizona. Elevation: 990 to 1050 ft amsl.

**\*P3a. Description:**

The Copper Basin Dam, completed in 1938, is an arched, cast concrete dam used to maintain water levels in the 22,000-acre-foot Copper Basin Reservoir. The dam rises approximately 184 feet from the base of the narrow canyon, and spans 265 feet at the crest. The dam is approximately 33 feet wide at the base and about five feet wide at the crest. Steel reinforcement is located in the foundation and north and south abutments of the dam. (See Continuation Sheet.)

\*P3b. Resource Attributes: (HP21)--Dam

\*P4. Resources Present: ☐ Building ☒ Structure ☐ Object ☐ Site ☐ District ☐ Element of District ☐ Other



**P5b. Description of Photo:**

Overview of dam from south, view to the north northwest.

IMG\_084158435

**\*P6. Date Constructed/Age and Sources:**

☒ Historic ☐ Prehistoric ☐ Both

Completed in 1938.

**\*P7. Owner and Address:**

Metropolitan Water District of Southern California

P.O. Box 54153

Los Angeles, CA 90054

**\*P8. Recorded by:**

Teri Delcamp, M.A.

HELIX Environmental

7578 El Cajon Boulevard

La Mesa, CA 91942

**\*P9. Date Recorded:**

July 22, 2022

**\*P10. Survey Type:**

Intensive Pedestrian

**\*P11. Report Citation:**

Howell-Ardila, Debi, Annie McCausland, and Teri Delcamp. 2022. Historical Resources Technical Report for the Copper Basin Dam Valve Replacement Project, San Bernardino County, California

\*Attachments: ☐ NONE ☒ Location Map ☐ Sketch Map ☒ Continuation Sheet ☒ Building, Structure, and Object Record  
☐ Archaeological Record ☐ District Record ☐ Linear Feature Record ☐ Milling Station Record ☐ Rock Art Record  
☐ Artifact Record ☐ Photograph Record ☐ Other (List):



State of California - The Resources Agency  
DEPARTMENT OF PARKS AND RECREATION

## LOCATION MAP

Primary #:

HRI #

Trinomial:

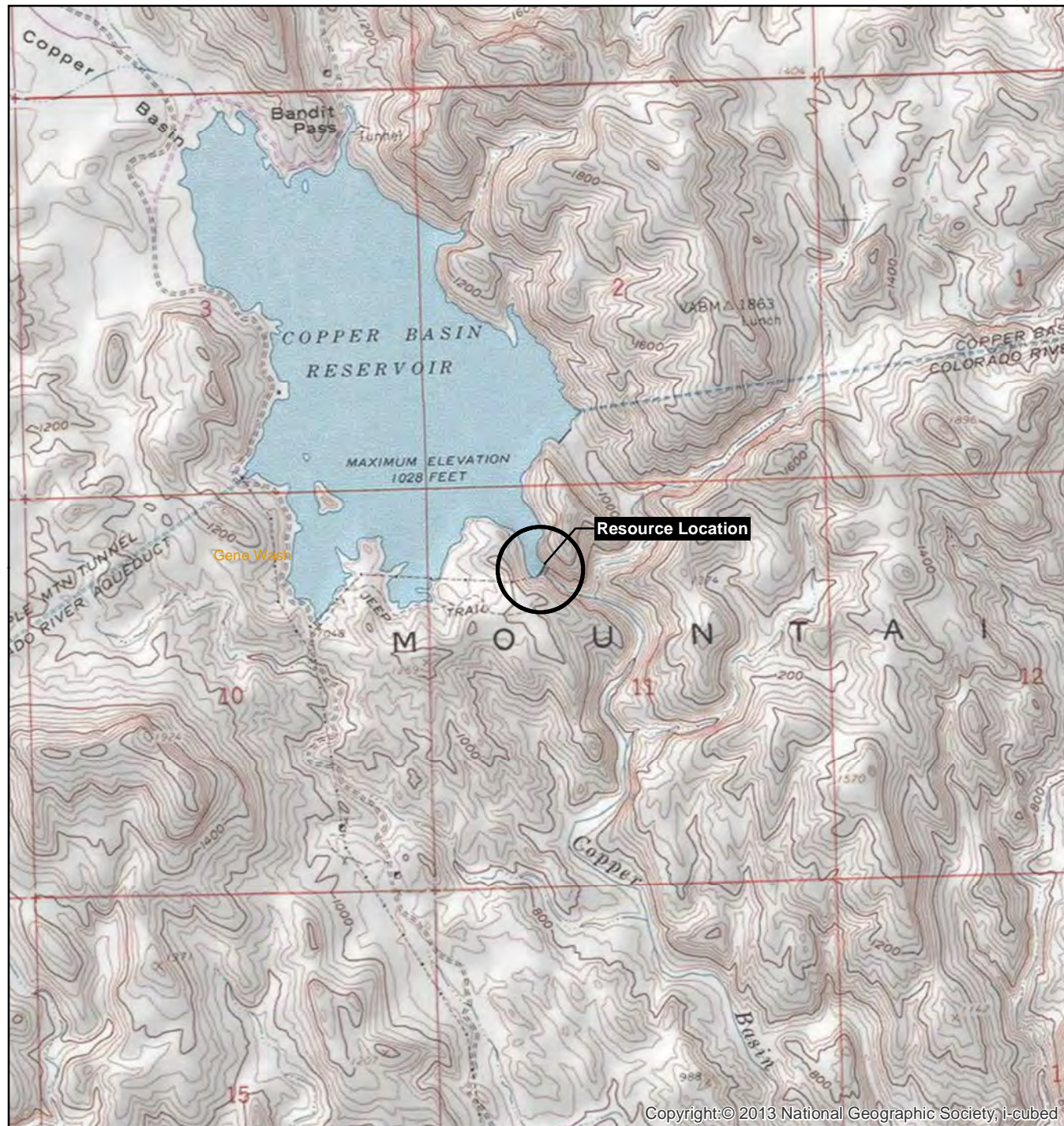
Page 2 of 14

\*Resource Name or #: Copper Basin Dam

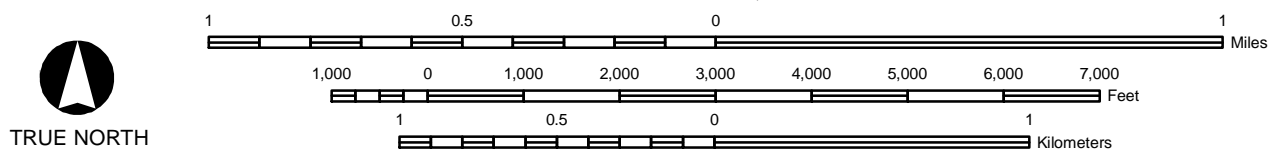
\*Map Name: Gene Wash

\*Scale: 1:24,000

\*Date: 1978



SCALE 1:24,000



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\*NRHP Status Code 3B

\*Resource Name or #: Copper Basin Dam

B1. Historic Name: Copper Basin Dam

B2. Common Name: Copper Basin Dam

B3. Original Use: Dam

B4. Present Use: Same

\*B5. Architectural Style: Thin Arch Concrete Dam

\*B6. Construction History:

See Continuation Sheet

\*B7. Moved? ☒ No ☐ Yes ☐ Unknown Date:

Original Location: N/A

\*B8. Related Features:

Additional features associated with the dam are a boat dock and submerged trash rack on the upstream side, discharge valve house containing a Howell-Bunger valve on the downstream side, 168-ft access ladderway from the dam crest to the valve house and 76-ft plumbline ladderway on the downstream side, modern metal catwalk leading to a concrete weir located across the canyon downstream from the dam's discharge valve, and an adit weir located at the entrance to a cave in the canyon wall above the north end of the main weir.

B9a. Architect: N/A

b. Builder: J. F. Shea Company

\*B10. Significance: Theme: Water Conveyance

Area: Colorado River Aqueduct

Period of Significance: 1938 - 1977

Property Type: Dam

Applicable Criteria: A/1, C/3

See Continuation Sheet.

B11. Additional Resource Attributes: (HP11)—Engineering Structure

\*B12. References:

See Continuation Sheet.

B13. Remarks:

\*B14. Evaluator: Teri Delcamp, M.A.

\*Date of Evaluation: July 2022

(This space reserved for official comments.)



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**\*P3a. Description (continued):**

Located in the Mojave Desert, west of Parker Dam, California, the Copper Basin Dam has regulated water levels in the associated Copper Basin Reservoir since its construction in the late 1930s (Chasteen 2016). As part of the CRA system, the Copper Basin Dam and its adjacent, 22,000-acre-foot reservoir are located just over two miles from the Gene Pumping Plant in San Bernardino County, California. Water in the reservoir is received from Gene Wash Reservoir via a tunnel, and exits via another tunnel to be conveyed to Iron Mountain Pumping Plant.

The focal point of the Copper Basin Dam is a prominent, cast-concrete, unreinforced arch that rises approximately 184 feet and has a crest length that spans 265 feet (Hazen and Sawyer 2020). The Copper Basin Dam is located on the southeast side of the reservoir. The dam is a thin arch design, which is most appropriate for locations in narrow canyons like Copper Basin. The convex surface of the arch faces the water, and the concave surface faces downstream. An arch dam is designed to use its shape and the weight of the water behind it as part of its strength, since concrete is strong when it is being pushed in compression. Concrete aggregate for the construction of Copper Basin Dam was sourced from pits on the Bill Williams River two miles east of Parker Dam and came to the dam site from the aggregate batching plant at the Parker Dam construction site. Trucks transported the aggregate to the dam construction site, where it was mixed with cement and then placed in buckets dangled from a high-line cable system strung across the rocks before pouring began. Concrete was placed within block sections in a series of some five-foot, but mostly 10-foot, concrete lifts between horizontal construction joints. In order to prepare the concrete for grouting the construction joints, the concrete needed to be cooled to 50 degrees after being poured. To cool the concrete, refrigerated water was pumped through one-inch diameter, thin-walled steel cooling coils placed horizontally every five feet. Finished concrete surfaces were painted with coal tar pitch and a final layer of whitewash (Metropolitan 1938a). The base section of the dam is approximately 33 feet wide, narrowing to approximately five feet wide at the crest of the dam. Steel reinforcement is only in the foundation and north and south abutments of the dam (Figure 1).

The dam design includes a sluiceway system with an intake trash rack on the upstream face of the dam attached via a cast-iron discharge pipe to a concrete valve house and valve system on the downstream face. Additional features related to the dam are a non-historic boat dock on the upstream side, a submerged trash rack on the upstream side that is part of the sluiceway system, a modern metal catwalk leading to a concrete weir located across the canyon downstream from the dam's discharge valve, and an adit weir located at the entrance to a cave in the canyon wall near the downstream side of the dam. Features and structures related to the dam are described below.

**Deck and Ladders**

Along the top (crest) of the dam, a deck framed with a concrete parapet extending 3.5 feet above the crest on the upstream side and an original metal railing along the downstream side provides pedestrian access (**Error! Reference source not found.2**). The railing consists of two horizontal pipe rails with posts spaced every 10 feet. Gates in the railing access two ladderways on the downstream side, and a ladderway on the upstream side that extends to the trash rack. The railings are original and have been maintained and sealed with regular applications of silver paint. Five lifeline/fall protection anchors spaced 20' to 69' apart under the handrail along the cantilevered downstream edge of the dam were installed in 2000 (Metropolitan 2000).

The downstream side of the dam displays two caged ladderways with periodic landings/rest platforms and fence fall guards (**Error! Reference source not found.3**); one longer ladderway of approximately 168 feet that connects the crest of the dam to the discharge valve house and another that partially extends about 76 feet down the face of the dam (Metropolitan 1942, 2022). The shorter ladderway was installed in 1942 to house a plumb line to monitor dam movement (Metropolitan 1942). The longer ladderway is original to the dam's construction and is configured in eight staggered ladderways between landings (**Error! Reference source not found.4**). The distances between landings were planned to be approximately 21 feet, but in actuality are mostly 23 to 24 feet apart, with the distance to the



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landing above the bottom ladderway section being approximately 30 feet (Metropolitan 1937; Hazen and Sawyer 2020).

The ladderways are constructed of galvanized carbon steel, with the ladderway sections and bracket-framed landings mounted to the face of the dam with embedded anchors that were cast into the concrete during the dam's construction. The ladderways are also braced with angle bars anchored into the dam face. Each of the landings extends approximately three feet out from the face of the dam and are about 4.5 feet wide; the uppermost landing extends about 4.5 feet out to account for the cantilevered design under the crest of the dam. Landing floors are constructed of open triangular mesh steel, and the fence fall guard panels are of triangular woven galvanized steel wire. The anchors attaching the ladderways and platforms to the dam appear to be embedded by about five to six inches; the distance between attachment anchors varies anywhere from 6 feet to 10 feet apart (Metropolitan 1937; Hazen and Sawyer 2020).

**Sluiceway System**

Starting at the upstream side of the dam, the sluiceway system extends from the trash rack located below the water line on the upstream side to the discharge valve house located on the downstream side of the dam. The valve is a Howell-Bunger valve, which represented cutting-edge technology in the 1930s. The valve was invented and patented by two Reclamation engineers, C. H. Howell and Howard P. Bunger (Ball and Hebert 1948). The valve offered a balanced design and lightweight construction. The innovative design for the Howell-Bunger valve was first manufactured by the S. Morgan Smith Company, which manufactured the valve used on Copper Basin Dam. Metropolitan utilized the Howell-Bunger valve for several dams constructed for the CRA project (Hazen and Sawyer 2020; Metropolitan 1938a). The gate and discharge valves within the valve house are not used to regulate water levels in the reservoir but are for an emergency or sluicing event.

The valve house is attached to the downstream side of the dam. It is a two-story concrete structure raised and supported by a concrete beam footing and a pair of concrete legs resting on the floor of the downstream gorge. Due to the uneven gorge floor, the structure tilts to the east. The primary elevation (on the east) displays paired steel doors with louvers on the upper floor and the outlet end of the Howell-Bunger valve on the lower floor (Figure 5). The structure is capped with a concrete shed roof. On the north elevation, a square concrete platform on the upper floor leads to paired doors providing access to the valve mechanisms. The platform also connects to the longer ladderway leading to the crest of the dam. The south elevation is a solid concrete surface, with the exception of a small window opening on the upper floor.

The lower floor of the valve house contains the slide gate valve and the Howell-Bunger valve. The Howell-Bunger valve is set within a rectangular beveled opening and mounted to a bolt ring with bolts, nuts, and washers. Two metal platforms supported by angle brackets with guardrails connected by a chain extend out from each corner of the opening below the Howell-Bunger valve. An unprotected modern ladderway is attached to the north side of the valve house just forward of the concrete platform and extends down toward the gorge floor (Figure 6). The wall next to this ladder shows anchor holes from the rungs installed with the original construction that were removed and replaced at some point in time with the current ladder (Metropolitan 1938b).

**Weirs**

Two concrete weir structures about 100 feet downstream from the valve house collect and measure the water that leaks or is released through the dam and valves. Weirs are generally designed to be perpendicular to the flow of water. As a result of the uneven gorge floor, the main weir is set diagonally relative to the downstream face of the dam (Figure 5). This weir has a square top that is approximately one foot deep, 26 feet wide, and extends one foot above grade on the downstream side. A smaller weir is located across an adit to a cave part way up the canyon wall at the north end of the main weir (Figure 7). It is of the same design as the main weir but is approximately eight

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inches deep, six feet wide, and extends one foot above grade. Each weir has a rectangular opening in the concrete that has a metal plate with a V-notch to allow water to trickle through. Both weirs are constructed in an "L" shape, with the footing serving as the base of the "L" (Metropolitan 2022).

### Catwalk

A series of steel grating panels extend from near the base of the valve house toward the weirs as a catwalk. The catwalk consists of three pairs of panels placed end to end, giving them an angled and haphazard appearance (Figure 5). They are overlapped at the ends rather than being connected and do not have guardrails. They are periodically supported by, but not affixed to, concrete pads that were submerged in water at the time of the 2022 field survey. The first set of catwalk panels extending from near the valve house is approximately 20 feet long, and the second and final sets are approximately 16 feet long (Metropolitan 2022). The catwalk panels are of modern materials and are not historic or character-defining. There are several prior panels dotted along the gorge floor further downstream that apparently were washed out in a previous discharge event.

### Dam Construction Artifacts

Various artifacts were identified along and on top of the canyon walls rising from the dam that are remnants of the dam's construction. These artifacts include iron spikes, posts, rings and cables, a winch pulley, and concrete posts (Figure 8 and Figure 9). These historic objects were used during the dam's original construction and are associated resources to the dam.

### Reservoir Structures

Other structures are associated with the reservoir and dam include the ogee spillway and the outlet tower (Figure 10 and Figure 11). The concrete ogee spillway is located on the southeast side of the Copper Basin reservoir and the outlet structure to the CRA Whipple Mountain Tunnel is located on the southwest side of the reservoir. Because the Copper Basin Dam is a non-overflow dam, the purpose of the spillway is to enable the reduction of the reservoir's water level quickly in an emergency. The spillway ensures water does not overtop the dam and damage or destroy it. The Copper Basin spillway is uncontrolled and only utilizes the height of the spillway crest to control the water. Its curved ogee shape allows water to flow more naturally over it and maintain contact with the spillway. The outlet structure controls water leaving the reservoir via the raising or lowering of gates. These structures were observed and photographed but are not affected by the project and are not included in the evaluation of the dam's historical significance.

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### P5b. Photographs (continued)



Figure 1. Copper Basin Reservoir and Dam looking northwest, HAER CA-243. Source: Library of Congress



Figure 2. Pedestrian deck and handrail on the crest of Copper Basin Dam, looking northeast.  
Source: Metropolitan

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Figure 3. Downstream face of Copper Basin Dam, with attached main ladder (left) and plumb line ladder (right), looking southwest. Source: Metropolitan



Figure 4. Ladder ascent on the downstream face of dam. Source: Metropolitan



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Figure 5. Valve with the Howell-Bunger valve, louvred doors and metal platforms, and main weir and catwalk panels in foreground, looking west. Source: HELIX



Figure 6. North side of valve house, modern ladder extending down in front of concrete platform. Source: HELIX



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Figure 7. Adit weir looking north-northwest into cave. Source: HELIX



Figure 8. Construction-era posts and cable artifacts on canyon wall east of dam, looking north.  
Source: HELIX



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Figure 9. Construction-era reinforced concrete post artifacts adjacent to access road south of dam in background, looking northwest. Source: HELIX



Figure 10. Northern end of ogee spillway structure looking north-northeast. Source: HELIX



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Figure 11. Upstream side of outlet tower structure, looking south-southwest. Source: HELIX

### \*B6. Construction History:

1937-1938 – Dam constructed by the J. F. Shea Company

1942 - Plumblines and ladderway added on the downstream face of the dam

2000 - Five lifeline anchors added at the cantilevered edge of the dam deck

### \*B10. Significance:

The Copper Basin Dam and Reservoir are contributors to the Colorado River Aqueduct (CRA) Historic District, a multi-resource district determined eligible for the National Register of Historic Places (NRHP) and the California Register of Historical Resources (CRHR) through the Section 106 process via formal concurrence by the California State Historic Preservation Officer (SHPO) (Caltrans 2010). Therefore, the Copper Basin Dam and Reservoir are listed in the California Historic Resources Inventory with a "2D2" California Historic Resources Status Code; this code indicates SHPO concurrence on NRHP eligibility and automatic listing on the CRHR.

This current evaluation documents Copper Basin Dam's individual historical significance per the NRHP and CRHR, and evaluates the integrity of the historic resource.

**NRHP Criterion A/CRHR Criterion1:** The subject property does appear eligible under Criteria A/1 within the context of historic cultural landscapes which are defined by the National Park Service as "a geographic area, including both cultural and natural resources and the wildlife or domestic animals therein, associated with a historic event, activity, or person, or exhibiting other cultural or aesthetic values" (NPS 2021b). Copper Basin Dam is an engineered structure constructed through monumental human effort within a natural gorge setting. The dam would not have

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been built if not for the construction of the overall CRA, but likewise, the CRA system could not exist without the dam. The dam's construction by humans within a natural canyon setting irrevocably changed the landscape in a significant way, while it also made significant contributions to the development patterns of the Southwest. In this way, Copper Basin Dam is historically significant in its own right as part of a cultural landscape, for its important role in the CRA system, and thus in its significant contributions to California's history.

**NRHP Criterion B/CRHR Criterion 2:** The subject property does not appear eligible under Criteria B/2. Copper Basin Dam is historically significant as an intrinsic part of the overall CRA Historic District, which is significant for its association with F.E. Weymouth as well as Julian Hinds. However, even though Metropolitan constructed the dam under specifications issued under F. E. Weymouth, with construction drawings approved by Julian Hinds, there has been no information available about the dam's design engineer(s) or evidence that the dam's design engineer(s) were important individuals who made significant contributions at the state or national level.

**NRHP Criterion C/CRHR Criterion 3:** The subject property does appear eligible under Criteria C/3. Copper Basin Dam is historically significant not only as an intrinsic part of the overall CRA Historic District but also individually as an excellent and intact example of an early twentieth-century concrete dam constructed by the J.F. Shea Company. The dam was constructed under Metropolitan Specifications No. 190 issued under F. E. Weymouth, and most of the construction drawings were approved by Julian Hinds. Weymouth and Hinds were important individuals in the history of water conveyance systems and structures, specifically the CRA, with responsibility for overall construction decisions and designs. Copper Basin Dam embodies the distinctive characteristics of a thin arch concrete dam design, a design that was ultimately decided upon and approved by Weymouth and Hinds. Even though it was not the first of the type to be constructed, it was the ideal type of dam to build within a narrow gorge setting. The use of the Howell-Bunger valve was also ideal for this setting, where it is intended for emergency water discharge. Metropolitan and other agencies continued to use the valve within the sluiceway systems of additional similar dams, including the CRA's Gene Wash Dam. The dam continues to function and operate in the same manner today as it did 75 years ago, with its original design and virtually all of its original materials intact.

**NRHP Criterion D/CRHR Criterion 4:** The subject property does not appear eligible under Criterion D/4. The history and importance of the CRA, and the Copper Basin Dam within that context, are well-documented. There does not appear to be any evidence that the dam on its own has yielded, or has the potential to yield, additional information important in the state's or nation's prehistory or history.

**Integrity Analysis:** Copper Basin Dam sits in its original footprint and retains integrity of location. Copper Basin Dam retains its original 1937/1938 design. No major changes or additions have been made to the dam since its initial construction, so it retains design integrity. The setting of Copper Basin Dam within a narrow red rock canyon has not changed since its construction, so it retains integrity of setting. Virtually all of the dam's extant materials are original, including concrete and metal, and illustrate the extensive and intact work completed by J. F. Shea Company, so the dam retains integrity of materials and workmanship. The Copper Basin Dam is a functioning dam and reservoir cultural landscape that retains its original materials, design and physical characteristics that evoke the historic scene dating to the late 1930s so the dam retains integrity of feeling and association within the CRA system dating to the late 1930s. Therefore, Copper Basin Dam retains its integrity of location, design, setting, materials, workmanship, feeling and association and is individually eligible for inclusion in the NRHP and CRHR.

Character-defining features of the dam include:

- Adjacency to the Copper Basin Reservoir; prominent, large-scale thin arch design and massing
- Board-form concrete construction and features
- Sluiceway system, including the trash rack on upstream face through to the valve house on downstream face

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- Presence of attached, sheltered metal ladderways; pedestrian deck on dam crest with parapet and metal railings
- Presence of concrete weir and adit weir in current locations
- Remote setting and location, within a red rock gorge
- Detached concrete ogee spillway and CRA outlet tower
- Construction-era remnants including iron spikes and posts, iron hoops, winch/pulley wheel and reinforced concrete posts on and on top of the red rock gorge abutments

**B12. References:**

Ball, J.W. and D.J. Hebert

1948 *The Development of High-Head Outlet Valves*. United States Department of the Interior, Bureau of Reclamation.

Chasteen, Carrie

2016 DPR Form for the Colorado River Aqueduct (CRA) System (P-33-11265/P-36-010521). Applied EarthWorks, Inc., Hemet, CA. Form on file at the South Central Coastal Information Center, California State University Fullerton, and the Eastern Information Center, University of California Riverside.

Hazen and Sawyer

2020 *Copper Basin and Gene Wash Dams Ladder Replacement – Study*. Los Angeles, CA. On file with Metropolitan.

Metropolitan Water District of Southern California (Metropolitan)

1937 "Colorado River Aqueduct: Gene Wash and Copper Basin Dams Ladderways." As-built drawings on file with Metropolitan.

1938a "Historical Record of Gene Wash and Copper Basin Dams, 1937-1938." Report on file with Metropolitan.

1938b "Colorado River Aqueduct: Copper Basin Dam Valve House Sections & Details." As-built drawings on file with Metropolitan.

1942 "Copper Basin Dam: Details of Plumblin Ladderway." As-built drawings on file with Metropolitan.

2000 "Gene and Copper basin Dam Fall Protection Anchor: Anchor Location Plan." As-built drawings on file with Metropolitan.

2022 *Copper Basin and Gene Wash Dams Ladder Replacement Preliminary Design Report*. On file with Metropolitan.



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# **Copper Basin Discharge Valve Replacement and Access Road Improvements Project**

## **Responses to Comments Received**

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



Report No. 1663

*February 2023*

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# **CHAPTER 1**

## **RESPONSES TO COMMENTS RECEIVED**

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### **Responses to Comments**

This section includes comments received during public circulation of the Draft Initial Study/Mitigated Negative Declaration (IS/MND) prepared for the proposed Copper Basin Discharge Valve Replacement and Access Road Improvements Project. This document includes a copy of the one comment letter submitted during the 33-day public review period for the Draft IS/MND, which was submitted by the California Department of Fish and Wildlife (CDFW), along with The Metropolitan Water District of Southern California's (Metropolitan) responses to this comment letter. Although not required by the California Environmental Quality Act (CEQA) or the CEQA Guidelines, Metropolitan is voluntarily providing written responses to comments received on the Draft IS/MND. In accordance with the requirements of CEQA Guidelines Section 15073(e), Metropolitan will provide notification in writing to CDFW of the Board of Directors meeting to be held for the proposed Project.

All written comments received have been coded to facilitate identification and tracking. The one comment letter received during the public review period was reviewed and divided into individual comments, with each comment containing a single theme, issue, or concern. Individual comments were bracketed and numbered, and the responses were assigned corresponding numbers (Response 1, for example, indicates that the response is for the first issue raised in the comment letter). To aid the readers and commenter, comments have been reproduced in this chapter together with the corresponding responses.

As a general introduction, the Draft IS/MND's conclusions on the character and significance level of the Project's potential to cause environmental impacts are supported by substantial evidence, which is presented in the Draft IS/MND, Mitigation Monitoring and Reporting Plan (MMRP), and Appendices, and further clarified in this document. The commenter may disagree with the analyses and conclusions in the Draft IS/MND. Consistent with the intent of CEQA and the CEQA Guidelines for its implementation, this Final IS/MND also includes the differing opinions and statements presented by the commenter.



State of California – Natural Resources Agency  
 DEPARTMENT OF FISH AND WILDLIFE  
 Inland Deserts Region  
 3602 Inland Empire Blvd, Suite C-220  
 Ontario, CA 91764  
 www.wildlife.ca.gov

GAVIN NEWSOM, Governor  
 CHARLTON H. BONHAM, Director



January 18, 2023  
 Sent via e-mail

Daniel Cardoza  
 Environmental Specialist  
 Metropolitan Water District of Southern California  
 700 N. Alameda Street  
 Los Angeles, CA 90012

COPPER BASIN DISCHARGE VALVE REPLACEMENT AND ACCESS ROAD  
 IMPROVEMENTS PROJECT (PROJECT)  
 MITIGATED NEGATIVE DECLARATION (MND)  
 SCH# 2022120316

Dear Mr. Cardoza:

The California Department of Fish and Wildlife (CDFW) received a Notice of Intent to Adopt an MND from the Metropolitan Water District of Southern California for the Project pursuant the California Environmental Quality Act (CEQA) and CEQA Guidelines.<sup>1</sup>

Thank you for the opportunity to provide comments and recommendations regarding those activities involved in the Project that may affect California fish and wildlife. Likewise, we appreciate the opportunity to provide comments regarding those aspects of the Project that CDFW, by law, may be required to carry out or approve through the exercise of its own regulatory authority under the Fish and Game Code.

#### CDFW ROLE

CDFW is California's **Trustee Agency** for fish and wildlife resources and holds those resources in trust by statute for all the people of the State. (Fish & G. Code, §§ 711.7, subd. (a) & 1802; Pub. Resources Code, § 21070; CEQA Guidelines § 15386, subd. (a).) CDFW, in its trustee capacity, has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants, and habitat necessary for biologically sustainable populations of those species. (*Id.*, § 1802.) Similarly, for purposes of CEQA, CDFW is charged by law to provide, as available, biological expertise during public agency environmental review efforts, focusing specifically on projects and related activities that have the potential to adversely affect fish and wildlife resources.

1-1

CDFW is also submitting comments as a **Responsible Agency** under CEQA. (Pub. Resources Code, § 21069; CEQA Guidelines, § 15381.) CDFW expects that it may need to exercise regulatory authority as provided by the Fish and Game Code. As proposed, for example, the Project may be subject to CDFW's lake and streambed alteration regulatory authority. (Fish & G. Code, § 1600 et seq.) Likewise, to the extent implementation of the Project as proposed may result in "take" as defined by State law of any species protected under the California Endangered Species Act (CESA) (Fish & G. Code, § 2050 et seq.), the project proponent may seek related take authorization as provided by the Fish and Game Code.

#### PROJECT DESCRIPTION SUMMARY

**Proponent:** The Metropolitan Water District of Southern California

**Objective:** The objective of the Project is to conduct repairs to the discharge structure of the Copper Basin Dam, which will involve the following Project components: access road improvements/laydown areas, electrical upgrades, valve house repairs/rehabilitation, and staging. The 1.66-mile dirt access road (10 feet wide) between the outlet structure at Copper Basin Reservoir and the base of Copper Basin Dam will be improved to support

1-2

<sup>1</sup> CEQA is codified in the California Public Resources Code in section 21000 et seq. The "CEQA Guidelines" are found in Title 14 of the California Code of Regulations, commencing with section 15000.



Daniel Cardoza, Environmental Specialist  
 Metropolitan Water District of Southern California  
 January 18, 2023  
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construction for the discharge structure repairs. Project activities for the access road repairs include vegetation removal, road grading, paving steep segments, installing a safety guard rail, constructing Arizona crossings at drainage locations, installing v-ditches and riprap outlet structures, and installing vehicle turnouts. Electrical upgrades involve installation of new conduits and components in the valve house, replacement of existing transformer and installation of three new concrete pads 250 feet southwest of the Copper Basin Dam, construction of a 135-foot side road from the access road to the concrete pads/transformer, installation of 250 feet of above-ground electrical conduit from the concrete pads to the dam, and conduit/instrumentation from the two weirs along the catwalk to the valve house. Project activities associated with the valve house include replacing the discharge valve, rehabilitating the slide gate valve, and replacing or rehabilitating appurtenant structures including the dam's catwalk, ladder, and two existing weirs. The Project will be staged from three existing staging areas on the west side of the reservoir. Concrete will be mixed at one of the staging areas. Construction materials, equipment, and workers will be transported by barge on the Copper Basin Reservoir. Fuel for the barge will be stored in the staging areas, and refueling will take place on-site.

1-2,  
cont.

**Location:** The Project is located on land owned by Metropolitan Water District of Southern California at Copper Basin Reservoir, approximately 5 miles west of Parker Dam and the California-Arizona border. Land use surrounding the Project site is undeveloped open space. The project is within unincorporated San Bernadino County. GPS coordinates for project area are: 34.277885987807856, -114.22850405850038.

**Timeframe:** Construction is anticipated to take approximately 2 years beginning in 2023. Daily construction activity will occur between 6:00 a.m. and 8:00 p.m.

#### COMMENTS AND RECOMMENDATIONS

CDFW has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants, and habitat necessary for biologically sustainable populations of those species (i.e., biological resources). CDFW offers the comments and recommendations below to assist the Metropolitan Water District of Southern California in adequately identifying and/or mitigating the Project's significant, or potentially significant, direct and indirect impacts on fish and wildlife (biological) resources. The MND has not adequately identified and disclosed the Project's impacts (i.e., direct, indirect, and cumulative) on biological resources and whether those impacts are less than significant. Moreover, CDFW is concerned that an MND may not appropriate for the Project given the high number of special-status species, including CESA-listed and Fully Protected species, that occur or have high potential to occur on the Project site. CDFW's comments and recommendations on the MND are explained in greater detail below and summarized here.

1-3

#### Existing Environmental Setting

Compliance with CEQA is predicated on a complete and accurate description of the environmental setting that may be affected by the proposed Project. CDFW is concerned that the assessment of the existing environmental setting has not been adequately analyzed in the MND. CDFW is concerned that without a complete and accurate description of the existing environmental setting, the MND likely provides an incomplete or inaccurate analysis of Project-related environmental impacts and whether those impacts have been mitigated to a level that is less than significant.

1-4

The MND bases its analysis of impacts to biological resources on reconnaissance-level surveys conducted on March 29 and 30, 2021; focused surveys for special-status plants conducted on March 15 and 16, 2022; protocol-level surveys for southwestern willow flycatcher (*Empidonax traillii extimus*) and Arizona Bell's vireo (*Vireo bellii arizonae*) conducted in May–July 2022 and April–July 2022, respectively; and visual and acoustic surveys for special-status bats conducted between March and August 2022. CDFW generally considers biological field assessments for wildlife to be valid for a one-year period, and assessments for rare plants may be considered valid for a period of up to three years.

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CDFW is concerned that focused surveys for special-status plants did not follow the standard protocol involving multiple visits to the Project area (e.g., in early, mid, and late season) to capture the floristic diversity at a level necessary to determine if special status plants are present (see "Special-Status Plants" below). Furthermore, the MND indicates that suitable habitat was found on the Project site for mountain lion (*Puma concolor*), desert tortoise (*Gopherus agassizii*), burrowing owl (*Athene cunicularia*), and bald eagle (*Haliaeetus leucocephalus*); however, no focused, protocol-level surveys were conducted for these species. The MND cites Metropolitan Water District of Southern California's "Standard Practices of Environmental Assessment" (which are not provided for review) throughout the MND for assessing "site conditions at the time of construction" (p. 50) for special-status species. CDFW is concerned that deferring this assessment does not reduce impacts to less than significant. Additional focused surveys should be conducted at the appropriate time of year, using standard protocols, to detect the presence of these special-status and to inform appropriate avoidance, minimization, and mitigation measures (see sections below), prior to adoption of the MND. CDFW recommends that a revised MND include the results of additional focused surveys and analysis of impacts based on those results. The MND also lacks an analysis of artificial nighttime lighting and its impacts on bats, migratory birds, and other wildlife. CDFW recommends that an analysis of the impacts of artificial nighttime lighting on wildlife be included in a revised MND. Absent this information, CDFW cannot conclude that the Project will not have a significant effect on fish and wildlife resources.

1-4,  
cont.

#### Mitigation Measures

The MND reports that the following special-status species were observed during the reconnaissance and protocol-level surveys or were determined to have moderate to high potential to occur in the Project area:

**Plants**—bare-stem larkspur (*Delphinium scaposum*), Cove's cassia (*Senna covesii*), Darlington's blazing star (*Mentzelia puberula*), desert beardtongue (*Penstemon pseudospectabilis* ssp. *pseudospectabilis*), desert gemander (*Teucrium glandulosum*), Graham fishhook cactus (*Mammillaria grahamii* var. *grahamii*), holly leaved spurge (*Tetracoccus hallii*), narrow-leaved psoraleum (*Psoraleum fremontii* var. *attenuatum*), rough stemmed forget-me-not [*Cryptantha (Johnstonella) holoptera*], saguaro (*Carnegiea gigantea*), yellow paloverde (*Parkinsonia microphylla*)

**Birds**—American peregrine falcon (*Falco peregrinus anatum*), Arizona Bell's vireo (*Vireo bellii arizonae*), bald eagle (*Haliaeetus leucocephalus*), burrowing owl (*Athene cunicularia*), Costa's hummingbird (*Calypte costae*), double-crested cormorant (*Nannopterum auritum*), Gila woodpecker (*Melanerpes uropygialis*), golden eagle (*Aquila chrysaetos*), loggerhead shrike (*Lanius ludovicianus*), Lucy's warbler (*Leiothlypis lucae*), vermilion flycatcher (*Pyrocephalus rubinus*), willow flycatcher (*Empidonax traillii*), yellow-breasted chat (*Icteria virens*), Yuma Ridgway's rail (*Rallus obsoletus yumanensis*)

**Reptiles**—Gila monster (*Heloderma suspectum cinctum*), Mojave desert tortoise (*Gopherus agassizii*)

**Mammals**—American badger (*Taxidea taxus*), California leaf-nosed bat (*Macrotus californicus*), cave myotis (*Myotis velifer*), desert bighorn sheep (*Ovis canadensis nelsoni*), desert kit fox (*Vulpes macrotis arsipus*), mountain lion (*Puma concolor*), pallid bat (*Antrozous pallidus*), ringtail (*Bassariscus astutus*), Townsend's big-eared bat (*Corynorhinus townsendii*), western mastiff bat (*Eumops perotis californicus*), Yuma myotis (*Myotis yumanensis*)

1-5

CDFW is concerned about the potential for many special-status species, including CESA-listed species, Fully Protected species, and California Species of Special Concern to occur in the Project area. The MND concludes that generalized pre-construction surveys (mitigation measures BIO-4) and avoidance and minimization (BIO-5) are sufficient to detect and mitigate impacts to special-status species. However, CDFW is concerned that waiting to assess the Project site for the presence of special-status species until the time of construction will not reduce impacts to less than significant, particularly for species including, but not limited to, bald eagle, desert tortoise, and burrowing owl. In addition, mitigation measures BIO-6 to BIO-9 are not sufficient in timing and scope to protect

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special-status species. CDFW recommends revising mitigation measures BIO-6 through BIO-9 and including additional species-specific measures as described in the sections below. CDFW is also concerned that depending on the timing of Project construction, protocol-level surveys may need to be repeated for southwestern willow flycatcher and Arizona Bell's vireo to ensure that impacts are reduced to a level less than significant. However, no provision is included in the MND for additional focused surveys for these species to ensure that impacts are less than significant.

1-5,  
cont.

### Assessment of Impacts to Biological Resources

#### California Endangered Species Act (CESA)

Species protected under CESA have the potential to occur within the Project site including, but not limited to, desert tortoise, mountain lion, willow flycatcher, Gila woodpecker, and Arizona Bell's vireo. CESA prohibits the take (under Fish & G. Code, § 86, "take" means to hunt, pursue, catch, capture, or kill, or to attempt to hunt, pursue, catch, capture, or kill) of any endangered, threatened, or candidate species that results from a proposed project, except as authorized by state law (Fish & G. Code, §§ 2080, 2085). Consequently, if Project construction or any Project-related activity during the life of the proposed Project would result in take of a CESA-listed species, CDFW recommends that the Project applicant seek appropriate take authorization under CESA prior to implementing the proposed Project. Appropriate authorization from CDFW may include an Incidental Take Permit (ITP), a consistency determination, or other permitting options (Fish and G. Code, §§ 2080.1, 2081, subds. (b), (c)). CDFW encourages early consultation, as significant modification to the proposed Project and avoidance, minimization, and mitigation measures may be necessary to obtain a CESA ITP. Proposed avoidance, minimization, and mitigation measures must be sufficient for CDFW to conclude that the Project's impacts are fully mitigated. CESA ITPs are issued to conserve protect, enhance, and restore state-listed CESA species and their habitats. More information on ITPs can be found at: <https://wildlife.ca.gov/Conservation/CESA/Permitting/Incidental-Take-Permits>.

1-6

#### Bald Eagle (*Haliaeetus leucocephalus*) and Golden Eagle (*Aquila chrysaetos*)

Consistent with CEQA Guidelines, Section 15380, the status of the bald eagle as an endangered species under the California Endangered Species Act (Fish & G. Code, § 2050 *et seq.*) and the bald eagle and golden eagle as Fully Protected species (Fish & G. Code, § 3511) qualify these species as endangered, rare, or threatened species under CEQA.

Vegetation removal may impact eagles that use large trees for nesting and cover (Zeiner et al. 1990). Additionally, vegetation clearing can cause habitat loss, fragmentation, and create edge effects that permeate far beyond the Project site (Harris 1988, Murcia 1995). Roads can be a source of mortality for raptors, and they have also been shown to decrease reproductive success of eagles (Anthony and Isaacs 1989, Varland et al. 1993, Trombulak and Frissell 2000). Noise from road use, generators, and other equipment may be disruptive to nesting and hunting eagles, and exposure to vehicle noise has been shown to increase stress hormone levels in some raptor species. The level of impact depends on how close the road is to nest site, how much use it gets, and how accustomed any particular breeding pair is to road noise. Artificial light may attract or disorient nesting eagles (Longcore and Rich 2004). It can also suppress the immune system of birds. Therefore, Project impacts on bald eagle and golden eagle would be potentially significant.

1-7

The CEQA document acknowledges that recent bald eagle nesting habitat has been identified and that foraging bald eagles have been observed in the Project area. The Biological Technical Report indicates: "There is a high potential that this species could reestablish nesting in or near the proposed Project area and for purposes of this analysis, nesting is assumed present. Bald eagles are regularly observed foraging throughout the region, and one was identified flying over the Copper Basin Reservoir during the 2022 surveys" (p. 25). The MND indicates that golden eagle also has high potential to occur in the Project area.



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The MND defers assessment of the Project site for bald eagle and golden eagle until the time of construction with a "Standard Practice Environmental Assessment" and refers to mitigation measures BIO-4 and 5 to address Project impacts to eagles (p. 50). However, CDFW is concerned that the timing and scope of these mitigation measures are insufficient to reduce impacts to a level less than significant. Fully Protected species may not be taken or possessed at any time, and no licenses or permits may be issued for their take except for collecting these species for necessary scientific research, relocation of the bird species for protection of livestock, or if they are a covered species provided for in a Natural Community Conservation Plan. To ensure avoidance of impacts to these Fully Protected species, CDFW recommends that focused breeding surveys be conducted for nesting eagles in the Project area using appropriate protocols: USFWS golden eagle protocol (Pagel et al. 2010; <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=83940>) and CDFW's Bald Eagle Nesting Territory Survey Form and Instructions (2010; <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=83706&inline>). CDFW recommends inclusion of the following mitigation measure:

**BIO-[A]: Bald Eagle and Golden Eagle Breeding Surveys**

Prior to adoption of the CEQA document and prior to Project activities, a qualified biologist shall conduct focused breeding surveys for bald eagle and golden eagle, following appropriate protocols: CDFW's Bald Eagle Nesting Territory Survey Form and Instructions (2010) and USFWS Interim Golden Eagle Inventory and Monitoring Protocols (Pagel et al. 2010). If nesting eagles are detected during the focused surveys, the qualified biologist and Metropolitan Water District of Southern California shall coordinate with CDFW to develop avoidance and minimization measures to be reviewed by CDFW. Project disturbances will not occur within 0.5 mile of the active nest sites during breeding season (December 30 through July 1) or any disturbance if that action is shown to disturb the nesting eagles. The 0.5 mile no disturbance buffer will be maintained throughout the breeding season or until the young have fledged and are no longer dependent on the nest or parental care for survival.

1-7,  
cont.

Burrowing Owl (*Athene cunicularia*)

Burrowing owl is a California Species of Special Concern. Take of individual burrowing owls and their nests is defined by Fish and Game Code section 86, and prohibited by sections 3503, 3503.5, and 3513. Fish and Game Code section 3513 makes it unlawful to take or possess any migratory nongame bird except as provided by rules and regulations adopted by the Secretary of the Interior under provisions of the Migratory Bird Treaty Act of 1918, as amended (16 U.S.C. § 703 et seq.).

The MND indicates that burrowing owls have high potential to nest and forage on the Project site due to previous signs of burrowing owl inhabitation detected in the 2021 reconnaissance survey. However, no focused surveys were conducted for this special-status species. The MND defers assessment of the Project site for burrowing owl until the time of construction, citing the "Standard Practice Environmental Assessment" and nesting bird surveys (p. 44). CDFW recommends that burrowing owl surveys be conducted separately from other nesting bird surveys and using the protocols discussed below. CDFW is concerned that deferring assessment until the time of construction may not reduce impacts to less than significant.

Although the MND includes mitigation measures BIO-4 and BIO-5 for all wildlife, the timing and scope are insufficient to protect burrowing owls. CDFW recommends that prior to adoption of the MND, a focused survey for burrowing owl following the recommendations and guidelines provided in the Staff Report on Burrowing Owl Mitigation (CDFG 2012 or most recent version) should be conducted by a qualified biologist. The Staff Report on Burrowing Owl Mitigation specifies that project impact evaluations include the following steps: (1) habitat assessment, (2) surveys, and (3) an impact assessment. The three progressive steps are effective in evaluating whether a project will result in impacts to burrowing owls. CDFW recommends the revised IS/MND include specific avoidance and

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minimization measures to ensure that impacts to burrowing owls do not occur. As a result, CDFW recommends adding the following mitigation measure, which includes both focused and pre-activity surveys:

#### **BIO-[B]: Burrowing Owl Surveys**

Suitable burrowing owl habitat has been confirmed on the site; therefore, pre-construction focused burrowing owl surveys shall be conducted by a qualified biologist in accordance with the *Staff Report on Burrowing Owl Mitigation* (2012 or most recent version) prior to adoption of the CEQA document. If burrowing owls are detected during the focused surveys, the qualified biologist and Project Applicant shall prepare a Burrowing Owl Plan that shall be submitted to CDFW for review and approval prior to commencing Project activities. The Burrowing Owl Plan shall describe proposed avoidance, monitoring, relocation, minimization, and/or mitigation actions. The Burrowing Owl Plan shall include the number and location of occupied burrow sites, acres of burrowing owl habitat that will be impacted, details of site monitoring, and details on proposed buffers and other avoidance measures if avoidance is proposed. If impacts to occupied burrowing owl habitat or burrow cannot be avoided, the Burrowing Owl Plan shall also describe minimization and compensatory mitigation actions that will be implemented. Proposed implementation of burrow exclusion and closure should only be considered as a last resort, after all other options have been evaluated as exclusion is not in itself an avoidance, minimization, or mitigation method and has the possibility to result in take. The Burrowing Owl Plan shall identify compensatory mitigation for the temporary or permanent loss of occupied burrow(s) and habitat consistent with the "Mitigation Impacts" section of the 2012 Staff Report and shall implement CDFW-approved mitigation prior to initiation of Project activities. If impacts to occupied burrows cannot be avoided, information shall be provided regarding adjacent or nearby suitable habitat available to owls. If no suitable habitat is available nearby, details regarding the creation and funding of artificial burrows (numbers, location, and type of burrows) and management activities for relocated owls shall also be included in the Burrowing Owl Plan. The Permittee shall implement the Burrowing Owl Plan following CDFW review and approval.

Pre-construction burrowing owl surveys shall be conducted no less than 14 days prior to the start of Project-related activities and within 24 hours prior to ground disturbance, in accordance with the *Staff Report on Burrowing Owl Mitigation* (2012 or most recent version). Pre-construction surveys should be performed by a qualified biologist following the recommendations and guidelines provided in the *Staff Report on Burrowing Owl Mitigation*. If the pre-construction surveys confirm occupied burrowing owl habitat, Project activities shall be immediately halted. The qualified biologist shall coordinate with CDFW and USFWS to conduct an impact assessment to develop avoidance, minimization, and mitigation measures to be approved by CDFW prior to commencing Project activities.

#### Nesting Birds

It is the Project proponent's responsibility to comply with all applicable laws related to nesting birds and birds of prey. Fish and Game Code sections 3503, 3503.5, and 3513 afford protective measures as follows: section 3503 states that it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by Fish and Game code or any regulation made pursuant thereto. Fish and Game Code section 3503.5 makes it unlawful to take, possess, or destroy any birds in the orders Falconiformes or Strigiformes (birds of prey) or to take, possess, or destroy the nest or eggs of any such bird except otherwise provided by Fish and Game Code or any regulation adopted pursuant thereto. Fish and Game Code section 3513 makes it unlawful to take or possess any migratory nongame bird except as provided by rules and regulations adopted by the Secretary of the Interior under provisions of the Migratory Bird Treaty Act of 1918, as amended (16 U.S.C. § 703 et seq.)

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1-8



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CDFW is concerned about impacts to nesting birds from vegetation removal on the Project site and from road improvements and general construction activities (e.g., noise/light disturbance). The MND indicates the Project site has high potential for occurrence of many state- or federally listed and other special-status nesting bird species, including the species listed on p.18-20 of the MND's Biological Technical Report. Although the MND includes a section on nesting bird surveys (p. 44) and general mitigation measures BIO-4 and BIO-5, the timing and scope are insufficient to protect nesting birds on the Project site. CDFW recommends that the revised MND include nesting bird specific avoidance and minimization measures to ensure that potential impacts are mitigated. Project-specific avoidance and minimization measures may include, but are not limited to, Project phasing and timing (avoiding peak breeding season), monitoring of Project-related noise (where applicable), sound walls, and buffers, where appropriate. CDFW recommends that disturbance of occupied nests of migratory birds and raptors within the Project site be avoided **any time birds are nesting onsite**. Pre-construction nesting bird surveys shall be performed within 3 days prior to Project activities to determine the presence and location of nesting birds. CDFW recommends the following mitigation measure be included in a revised MND:

**BIO-[C]: Nesting Bird Avoidance**

Nesting bird surveys shall be conducted by a qualified avian biologist no more than three (3) days prior to vegetation clearing or ground-disturbing activities. Pre-construction surveys shall focus on both direct and indirect evidence of nesting, including nest locations and nesting behavior. The qualified avian biologist will make every effort to avoid potential nest predation as a result of survey and monitoring efforts. If active nests are found during the pre-construction nesting bird surveys, a qualified biologist shall establish an appropriate nest buffer to be marked on the ground. Nest buffers are species specific and should be at least 300 feet for passerines and 500 feet for raptors. A smaller or larger buffer may be determined by the qualified biologist familiar with the nesting phenology of the nesting species and based on nest and buffer monitoring results. Established buffers should remain on-site until a qualified biologist determines the young have fledged or the nest is no longer active. Active nests and adequacy of the established buffer distance shall be monitored daily by the qualified biologist until the qualified biologist has determined the young have fledged or the Project has been completed. The qualified biologist has the authority to stop work if nesting pairs exhibit signs of disturbance.

1-8,  
cont.

Desert Tortoise (*Gopherus agassizii*)

The MND indicates that suitable habitat is present for desert tortoise in the Project area. Desert tortoise was not observed during the reconnaissance-level surveys conducted on March 29 and 30, 2021, and no focused surveys were conducted for desert tortoise. Chapter 4 of the Desert Tortoise (Mojave Population) Field Manual indicates that "surveys should be conducted during the desert tortoise's most active periods (April through May or September through October)" (USFWS 2009, p. 4-8). CDFW is concerned that the timing and scope of the surveys were insufficient to determine the presence of desert tortoise on the Project site.

The MND defers assessment of the Project site for desert tortoise to the time of construction, citing the "Standard Practice Environmental Assessment." CDFW is concerned that deferring assessment until the time of construction may not reduce impacts to less than significant. Although the MND includes general mitigation measures BIO-4 and BIO-5, CDFW is concerned that these measures are not sufficient to protect desert tortoise if it is found on the Project site. CDFW recommends that the following mitigation measure, which includes both focused and pre-construction surveys, be included in a revised MND:

**BIO-[D]: Desert Tortoise**

1-9

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Prior to adoption of the CEQA document, a focused survey for desert tortoise shall be conducted by a qualified biologist, according to protocols in chapter 4 of the Desert Tortoise (Mojave Population) Field Manual (USFWS 2009 or most recent version), during the species' most active periods (April through May or September through October). CDFW recommends working with USFWS and CDFW concurrently to ensure a consistent and adequate approach to planning survey work and that biologists retained to complete desert tortoise protocol-level surveys submit their qualifications to CDFW and USFWS prior to initiation of surveys.

No more than 14 calendar days prior to start of Project activities, a qualified biologist shall conduct pre-construction surveys for desert tortoise as described in the USFWS Desert Tortoise (Mojave Population) Field Manual. Pre-construction surveys shall be completed using perpendicular survey routes within the Project area and 50-foot buffer zone. Pre-construction surveys cannot be combined with other surveys conducted for other species while using the same personnel. Project activities cannot start until two negative results from consecutive surveys using perpendicular survey routes for desert tortoise are documented. Should desert tortoise presence be confirmed during the survey, the qualified biologist shall immediately notify CDFW to determine appropriate avoidance, minimization, and mitigation measures.

1-9,  
cont.

#### Special-Status Plants

Plant species with California Rare Plant Rank of 2B have the potential to occur in the Project area. California Rare Plant Rank 2B indicates plants that are rare, threatened, or endangered in California but more common elsewhere. Impacts to these species must be analyzed during preparation of environmental documents relating to CEQA because they meet the definition of rare or endangered under CEQA Guidelines §15125 (c) and/or §15380.

The MND indicates that Project activities will involve the removal of vegetation and that direct and indirect impacts could occur to special-status plants. Floristic surveys for special-status plants were performed on March 15 and 16, 2022. Eleven special-status plants were either observed during protocol-level surveys or were determined to have moderate to high potential to occur in the Project area.

CDFW is concerned that the focused surveys for special-status plants did not follow CDFW's standard protocols involving multiple visits to the Project area (e.g., in early, mid, and late season) to capture the floristic diversity at a level necessary to determine if special status plants are present. In addition, the MND indicates that rainfall was lower than average in 2022, which may have affected whether all special-status species were detected. Although the MND includes mitigation measures BIO-1, BIO-2, and BIO-3 for special-status plants, the timing and scope are insufficient to protect special-status plants. CDFW recommends replacing BIO-1, BIO-2, and BIO-3 with the following measure in a revised MND:

1-10

#### **BIO-[E]: Special-Status Plants**

Prior to adoption of the CEQA document, a thorough floristic-based assessment of special-status plants and natural communities, following CDFW's Protocols for Surveying and Evaluating Impacts to Special-Status Native Plant Populations and Natural Communities (CDFW 2018 or most recent version) shall be performed by a qualified biologist. Should any state-listed plant species be present in the Project area, the Project proponent shall obtain an Incidental Take Permit for those species prior to the start of Project activities. Should other special-status plants or natural communities be present in the Project area, a qualified restoration specialist shall assess whether perennial species may be successfully transplanted to an appropriate natural site or whether onsite or off-site conservation is warranted to mitigate Project impacts. If successful transplantation of perennial species is determined by a

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qualified restoration specialist, the receiver site shall be identified, and transplantation shall occur at the appropriate time of year. Additionally, the qualified restoration specialist shall perform seed collection and dispersal from special-status annual plant species to a natural site as a conservation strategy to minimize and mitigate Project impacts. If these measures are implemented, monitoring of plant populations shall be conducted annually for 5 years to assess the mitigation's effectiveness. The performance standard for mitigation shall be no net reduction in the size or viability of the local population.

1-10,  
cont.

Desert Kit Fox (*Vulpes macrotis arsipus*), American Badger (*Taxidea taxus*), and Ringtail (*Bassariscus astutus*)

Desert kit fox is protected as a fur-bearing mammal under Title 14 of the California Code of Regulations (Chap. 5, § 460) and may not be taken at any time. Because desert kit fox has high fidelity to natal dens, it is crucial to adequately assess whether desert kit fox is present on the Project site well in advance of commencing Project activities. If desert kit fox is found onsite during breeding season, it could delay Project activities for the length of the breeding season. American badgers are a California Species of Special Concern. American badgers are nocturnal, and it is necessary to assess whether they are present on the Project site well in advance of commencing Project activities. Consistent with CEQA Guidelines, Section 15380, the status of the ringtail as a Fully Protected species (Fish & G. Code § 4700) qualifies it as an endangered, rare, or threatened species under CEQA. The MND indicates that ringtail has been observed in the Project area and that suitable habitat is present for desert kit fox and American badger. The MND (p. 54-55) states that these species "could occur almost anywhere in and around the proposed Project area" and that "construction activities could result in disturbance to natal dens if performed during the pup-rearing season."

The MND indicates that reconnaissance-level wildlife surveys were last conducted on March 29 and 30, 2021. CDFW generally considers biological field assessments for wildlife to be valid for a one-year period. CDFW recommends that updated focused surveys for desert kit fox, American badger, and ringtail are conducted and findings are included in a revised MND. In addition to the avoidance and minimization measures in mitigation measure BIO-6, CDFW recommends that the Metropolitan Water District of Southern California also indicates in a revised MND the anticipated acres of impact to suitable habitat for each of these species. For unavoidable impacts to these species or their suitable habitat, onsite habitat restoration and/or enhancement, and preservation should be evaluated and discussed in detail in a revised MND.

1-11

CDFW recommends that the Metropolitan Water District of Southern California incorporate into a revised MND the following revisions to mitigation measure BIO-6 to avoid and minimize impacts to desert kit fox, American badger, and ringtail (additions are in **bold** and removals in ~~strike through~~):

**BIO-6 Conduct Surveys and Avoidance for Ringtail, American Badger, and Desert Kit Fox.** ~~Metropolitan shall conduct pre construction surveys for ringtail, American badger, and desert kit fox no more than 15 days prior to initiation of construction activities. Surveys shall be conducted in areas that contain habitat for these species and shall include Project disturbance areas and access roads plus a 200-foot buffer surrounding these areas. If dens are detected, each den shall be classified as inactive, potentially active, active non natal, or active natal. Inactive dens that would be directly impacted by road grading shall be excavated either by hand or mechanized equipment under the direct supervision of the biologist and backfilled to prevent reuse by ringtails, badgers, or kit fox. Potentially and known active dens shall not be disturbed during the whelping/pupping season (February 1 – September 30). A den may be declared "inactive" after three days of monitoring via camera(s) or a tracking medium have shown no ringtail, badger, or kit fox activity.~~

Active dens shall be flagged and Project activities within 200 feet shall be avoided. Buffers may be modified by a qualified biologist. If active dens are found within

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~~Project disturbance areas and avoidance is not possible. Metropolitan shall take action as specified below.~~

~~**Active and potentially active non natal dens.** Outside the breeding season, any potentially active dens that would be directly impacted by construction activities shall be monitored by a qualified biologist for three consecutive nights using a tracking medium (such as diatomaceous earth or fire clay) or infrared camera stations at the entrance. If no tracks are observed in the tracking medium or no photos of the target species are captured after three nights, the den may be excavated and backfilled by hand. If tracks are observed, the den may be progressively blocked with natural materials (rocks, dirt, sticks, and vegetation piled in front of the entrance) for the next three to five nights to discourage continued use. After verification that the den is no longer active, the den may be excavated and backfilled by hand.~~

~~**Active natal dens.** Active natal dens or any den active during the breeding season will not be excavated or passively relocated. The pup rearing season is generally from February 1 through September 30. A 300 foot no disturbance buffer shall be maintained around all active natal dens. A qualified biologist shall monitor the natal den until they determine that the pups have dispersed. Any disturbance to animals or activities that might disturb denning activities shall be prohibited within the buffer zone. Once the pups have dispersed, methods listed above for non natal dens may be used to discourage den reuse. After verification that the den is unoccupied, it shall then be excavated by hand and backfilled to ensure that no animals are trapped in the den.~~

**Desert Kit Fox Surveys:**

No more than 14 days prior to the beginning of ground disturbance and/or Project activities, a qualified biologist shall conduct pre-construction surveys to determine if potential desert kit fox burrows/dens are present in the Project area. Pre-construction surveys should include 100-percent visual coverage of the Project area and cannot be combined with other surveys conducted for other species while using the same personnel. If the pre-construction surveys confirm occupied desert kit fox habitat, Project activities shall be immediately halted, and the qualified biologist shall notify CDFW and USFWS to develop avoidance, minimization, and mitigation measures. No disturbance of active dens shall take place when juvenile desert kit fox may be present and dependent on parental care.

**American Badger Surveys:**

No more than 30 days prior to the beginning of ground disturbance and/or construction activities, a qualified biologist shall conduct a survey to determine if potential American badger burrows are present in the Project area. If potential burrows are located, they shall be monitored using the best judgement of the qualified biologist. If the burrow is determined to be active, the qualified biologist shall flag and create a 50-foot buffer around the den. If impacts to the den are unavoidable, the qualified biologist will verify there are suitable burrows in avoided habitat within the Project area or outside of the Project area prior to undertaking passive relocation actions. If no suitable burrows are located, artificial burrows shall be created at least 14 days prior to passive relocation. The qualified biologist shall block the entrance of the active burrow with soil, sticks, and debris for 3-5 days to discourage the use of the burrow prior to Project activities. The entrance shall be blocked to an incrementally greater degree over the 3- to 5-day period. After the qualified biologist has determined there are no active burrows, the burrows shall be hand-excavated to prevent re-use. No disturbance of active dens shall take place when juvenile American badgers may be present and dependent on parental care. A qualified biologist shall determine appropriate buffers and maintain connectivity to adjacent habitat should natal burrows be present. Any relocation of American badgers shall take place after consultation and approval with CDFW.

1-11,  
cont.



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#### Ringtail Surveys:

No more than 30 days prior to the beginning of ground disturbance and/or construction activities, a qualified biologist shall conduct a survey to determine if potential ringtail burrows are present in the Project Area. If potential burrows are located, they shall be monitored by the qualified biologist. If the burrow is determined to be active, the qualified biologist shall flag and create a 200-foot buffer around the den. If avoidance of occupied ringtail dens is not possible, denning ringtail shall be safely evicted under the direction of a qualified biologist. No disturbance of active dens shall take place when juveniles may be present and dependent on parental care. Any relocation of ringtails shall take place after consultation and approval with CDFW.

1-11,  
cont.

#### Desert Bighorn Sheep (*Ovis canadensis nelsoni*)

Desert bighorn sheep is a Fully Protected species (Fish & G. Code § 4700), which qualifies it as an endangered, rare, or threatened species under CEQA. The MND indicates that desert bighorn sheep occur in the Project area. The MND's Biological Technical Report notes (p.29) that during the 2021 and 2022 field surveys, a herd of desert bighorn sheep was observed and that desert bighorn sheep are known to frequent the Copper Basin Dam area. Given the 2-year-long anticipated construction period, CDFW is concerned about avoiding disturbance to bighorn sheep during lambing season, such as that from unpredictable loud noise, which may elicit a startle response even at a substantial distance from construction activity. Lambing season is highly variable, depending on patterns of precipitation, and could be from November through May in this area. CDFW is also concerned that activities that could impede desert bighorn sheep access to water sources are avoided.

Desert bighorn sheep are unable to survive long periods of hot, arid conditions without water (Campbell and Remington, 1981). Research on desert bighorn sheep populations suggests that bighorn sheep will modify their water-use activity patterns in response to disturbance from construction activities (Campbell and Remington, 1981; Leslie and Douglas 1980). Sheep were observed changing their water visits to the short period between dawn and the start of the workday, or postponing water use until the end of the workday (Campbell and Remington, 1981). Additionally, sheep shifted from frequent opportunistic water use to brief, infrequent use of water amidst construction activities (Campbell and Remington, 1981). Bighorn sheep have also been observed to change water-sourcing locations due to construction activity when multiple water sources are available. These behavior changes may cause resulting changes in energy expenditure, which could be especially impactful during lambing and amid any other population stressors.

1-12

The MND indicates that reconnaissance-level wildlife surveys were last conducted on March 29 and 30, 2021. CDFW generally considers biological field assessments for wildlife to be valid for a one-year period. CDFW recommends that a revised MND include updated, focused surveys for desert bighorn sheep to identify and map potential lambing areas within the Project area and areas where desert bighorn sheep access water. Appropriate avoidance and minimization measures based on focused survey results should also be included in a revised MND to ensure impacts are less than significant.

Mitigation Measure BIO-7 addresses construction monitoring for bighorn sheep. However, CDFW is concerned that the measure is not sufficient in timing and scope to ensure that impacts to desert bighorn sheep are less than significant. CDFW recommends revising BIO-7 as follows (additions are shown in **bold** and deletions are shown with a ~~strike through~~):

**BIO-7: Surveys and Construction Monitoring for Desert Bighorn Sheep.** ~~If bighorn sheep are detected within 300 feet of Project activities, construction shall cease until the bighorn sheep have moved a safe distance away from Project activities. If bighorn sheep become acclimated to any activity and the biologist determines that Project activities are unlikely to adversely affect the animals, then Project activities can proceed. If the animals appear agitated, the biologist may increase the buffer distance and suspend Project construction.~~ Prior to adoption of the CEQA



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document, a qualified biologist will conduct focused surveys to identify potential lambing areas and areas where desert bighorn sheep access water within and adjacent to the Project area. Surveys should be conducted at the time(s) of day when the species is most likely to be detected. Survey results including negative findings should be submitted to CDFW in a report that includes a map of potential lambing areas and water access areas, as well as measures to avoid impacts to lambing areas and desert bighorn sheep in the area.

No more than 14 days prior to Project implementation, and once a week during construction activities, a CDFW-approved biologist should conduct a survey for bighorn sheep lambing areas within and adjacent to the Project area. CDFW should be notified within 24 hours upon location of a lambing area. If an active lambing area is located during construction activities, all work should cease. The qualified biologist should coordinate with CDFW to determine appropriate avoidance measures.

In the event that bighorn sheep abandon the use of one or more water developments as a result of disturbance associated with the Project, Metropolitan shall create additional water development(s) after consulting with appropriate agency personnel (CDFW and USFWS) to select location(s) and provide assistance in establishing additional water development(s). Metropolitan shall ensure that any existing water developments, as well as any created, are maintained in good operating condition for the duration of the project. Sound pressure levels from construction shall not exceed a Time Weighted Average (TWA) of 85 dB measured at 50 ft from the noise source.

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cont.

#### Mountain Lion (*Puma concolor*)

Mountain lion is a specially protected mammal in the State (Fish and G. Code, § 4800). In addition, on April 21, 2020, the California Fish and Game Commission accepted a petition to list the Southern California/Central Coast ESU of mountain lion as threatened under CESA (CDFW 2020). As a CESA candidate species, mountain lion is granted full protection of a threatened species under CESA.

The MND indicates that impacts are not expected because this species is "large and highly visible"; however, mountain lions are cryptic and denning sites may not be detected without focused surveys. The MND (p. 56) acknowledges that "the entire Project area is likely used for foraging and denning" by mountain lions. However, no focused surveys to determine presence/absence and potential for natal dens have been conducted. The MND defers this assessment until the time of construction, citing the "Standard Practices of Environmental Assessment" (which are not provided for review) and mitigation measure BIO-8. CDFW is concerned that the timing and scope of these measures is insufficient to reduce impacts to this CESA-listed species to less than significant. Due to potential habitat within the Project area, CDFW recommends that a revised MND include the results of focused surveys to determine presence/absence and potential for natal dens. Caves and other natural cavities, and thickets in brush and timber provide cover and are used for denning. Females may be in estrus at any time of the year, but in California, most births probably occur in spring. Surveys should be conducted when the species is most likely to be detected, during crepuscular periods at dawn and dusk. If potential habitat for natal dens is identified, CDFW recommends fully avoiding potential impacts to mountain lions, especially during spring, to protect vulnerable cubs. CDFW recommends that BIO-8 be revised as follows (additions are shown in **bold** and deletions are shown with a ~~strike through~~):

1-13

BIO-8 Conduct Surveys for Mountain Lion and Avoid Denning Areas. ~~If construction activities that could disturb potential denning sites (i.e., large trees, cavities, rock piles, pipes, or overhangs) will occur during the breeding season for mountain lions (April through September), a qualified biologist will conduct surveys for potential dens within 200 feet of all areas proposed for disturbance. Any active dens will be avoided~~

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and an appropriate disturbance-free buffer will be established. Once the young have left the den or the den is no longer active, construction activities can resume. Prior to adoption of the CEQA document, a CDFW-approved biologist will conduct focused surveys to determine presence/absence of mountain lions and potential for natal dens within the construction footprint and buffer of 2,000 feet (or the limits of the property line) of the Project disturbance boundaries. Surveys should be conducted when the species is most likely to be detected, during crepuscular periods at dawn and dusk. Survey results including negative findings should be submitted to CDFW in a report that includes a map of potential denning sites and measures to avoid impacts to mountain lions that may be in the area as well as dens and cubs, if necessary.

Two weeks prior to Project implementation, and once a week during construction activities, a CDFW-approved biologist should conduct a survey for mountain lion natal dens. The survey area should include the construction footprint and the area within 2,000 feet (or the limits of the property line) of the Project disturbance boundaries. CDFW should be notified within 24 hours upon location of a natal den. If an active natal den is located, during construction activities, all work should cease. No work should occur within a 2,000-foot buffer from a natal den. A qualified biologist should notify CDFW to determine the appropriate course of action. CDFW should also be consulted to determine an appropriate setback from the natal den that would not adversely affect the successful rearing of the cubs. No construction activities or human intrusion should occur within the established setback until mountain lion cubs have been successfully reared; the mountain lions have left the area; or as determined in consultation with CDFW. If avoidance is not feasible, the Metropolitan Water District of Southern California shall obtain appropriate take authorization from CDFW pursuant to Fish and Game Code section 2081 subdivision (b) prior to any ground-disturbing activities.

1-13,  
cont.

#### Special-Status Bat Species

According to the MND's Biological Technical Report (p. 30), six special-status bat species have a high potential to occur in the Project area due to suitable roosting and foraging habitat, including pallid bat (*Antrozous pallidus*), Townsend's big-eared bat (*Corynorhinus townsendii*), Western mastiff bat, (*Eumops perotis californicus*), California leaf-nosed bat (*Macropterus californicus*), cave myotis (*Myotis velifer*), and Yuma myotis (*Myotis yumanensis*). Yuma myotis was detected within the survey area "day roosting in the valve house at the base of the dam" (p. 57). The MND identifies (p. 57) project impacts to bat species displacement of bats during ground-disturbing activities associated with work below the dam, road repair activities, increased noise levels from equipment and human presence, and exposure to dust. The MND also notes that noise, vibration, and human activity could disrupt maternity roosts during the breeding season.

Visual and acoustic surveys for special-status bats were completed between March and August 2022; however, protocols were not specified in the MND. Mitigation measure BIO-9 is included in the MND to address impacts to special-status bats; however, CDFW is concerned that this measure is not sufficient in timing and scope and does not reduce impacts to less than significant. Alternative roosting habitat is frequently unsuccessful, and maternity roosts should not be evicted, excluded, removed, or disturbed. CDFW suggests revising Mitigation Measure BIO-9 as follows (additions are shown in **bold** and deletions are shown with a ~~strike through~~):

1-14

**BIO-9: Surveys for Daytime, Nighttime, Wintering (Hibernacula), and Maternity Colonies or Hibernaculum for Roosting Sites for Bats**

Prior to the initiation of Project activities within suitable bat roosting habitat, Metropolitan Water District of Southern California shall retain a qualified biologist to conduct focused surveys to determine presence of daytime, nighttime, wintering (hibernacula), and maternity roost sites. Two spring surveys (April through June) and two winter surveys (November through January) shall be

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performed by qualified biologists. Surveys shall be conducted no more than 15 days prior to the initiation of work near the base of the dam or near other structures that could support bats. Surveys shall be conducted during favorable weather conditions only. Each survey shall consist of one dusk emergence survey (start one hour before sunset and last for three hours), followed by one pre-dawn re-entry survey (start one hour before sunrise and last for two hours), and one daytime visual inspection of all potential roosting habitat on the Project site. Surveys shall be conducted within one 24-hour period. Visual inspections shall focus on the identification of bat sign (i.e., individuals, guano, urine staining, corpses, feeding remains, scratch marks and bats squeaking and chattering). Bat detectors, bat call analysis, and visual observation shall be used during all dusk emergence and pre-dawn re-entry surveys. Surveys shall also be conducted during the maternity season (March 1 to July 31) within 300 feet of Project activities, where safe access is possible. If active maternity roosts or hibernacula are found, the structure, tree, or feature occupied by the roost shall be avoided (i.e., not removed), if feasible. If avoidance of the maternity roost is not feasible the biologist will implement the following actions:

If active hibernacula or maternity roosts are identified in the work area or 500 feet extending from the work area during preconstruction surveys, for maternity roosts, Project construction will only occur between October 1 and February 28, outside of the maternity roosting season when young bats are present but are not yet ready to fly out of the roost. Maternity roosts shall not be evicted, excluded, removed, or disturbed.

A minimum 500-foot no-work buffer shall be provided around hibernacula. The buffer shall not be reduced. Project-related construction and activities shall not occur within 500 feet of or directly under or adjacent to hibernacula. Buffers shall be left in place until the end of Project construction and activities or until a qualified bat biologist determines that the hibernacula are no longer active. Project-related construction and activities shall not occur between 30 minutes before sunset and 30 minutes after sunrise. Hibernacula roosts shall not be evicted, excluded, removed, or disturbed. If avoidance of a hibernacula is not feasible, the Project Biologist will prepare a relocation plan to remove the hibernacula and provide for construction of an alternative bat roost outside of the work area. A bat roost relocation plan shall be submitted for CDFW review prior to construction activities. The qualified biologist will implement the relocation plan and new roost sites shall be in place before the commencement of any ground-disturbing activities that will occur within 500 feet of the hibernacula. New roost sites shall be in place prior to the initiation of Project-related activities to allow enough time for bats to relocate. Removal of roosts will be guided by accepted exclusion and deterrent techniques. The Metropolitan Water District of Southern California shall compensate no less than 2:1 for permanent impacts to roosting habitat.

**Maternity Roosts.** If a maternity roost will be impacted/removed by the Project, and no alternative maternity roost exists in proximity, substitute roosting habitat for the maternity colony shall be provided in an adjacent area free from Project impacts. Alternative roost sites will be designed to meet the needs of the specific species. Alternative roost sites must be of comparable size and proximal in location to the impacted colony.

**Exclusion of bats prior to eviction from roosts.** If non-breeding bat hibernacula are found in trees or structures in the Project area, the individuals shall be safely evicted, under the direction of a qualified biologist, by opening the roosting area to allow airflow through the cavity or other means determined appropriate by the biologist (e.g., installation of one-way doors). In situations requiring one-way doors, a minimum of one week shall pass after doors are installed and temperatures should be sufficiently warm for bats to exit the roost. Roosts that need to be removed in situations where the use of one-way doors is not necessary shall first be disturbed by

1-14,  
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~~various means at the direction of the bat biologist at dusk to allow bats to escape during the darker hours.~~

1-14,  
cont.

#### Minimizing Impacts to Other Species

Because of the potential for previously undetected wildlife to occur on the Project site, CDFW recommends inclusion of the following mitigation measure to allow non-listed, non-special-status terrestrial wildlife to leave or be moved out of harm's way:

#### **MM BIO-[F]: Minimizing Impacts to Other Species**

To avoid impacts to terrestrial wildlife, a qualified biologist shall be on-site prior to and during all ground- and habitat-disturbing activities to inspect the Project area prior to any Project activities. Individuals of any wildlife species found shall not be harassed and shall be allowed to leave the project area unharmed. If needed, a qualified biologist may guide, handle, or capture an individual non-listed, non-special-status wildlife species to move it to a nearby safe location within nearby refugium, or it shall be allowed to leave the project site of its own volition. Capture methods may include hand, dip net, lizard lasso, snake tongs, and snake hook. If the wildlife species is discovered or is caught in any pits, ditches, or other types of excavations, the qualified biologist shall release it into the most suitable habitat nearby the site of capture. Movement of wildlife out of harm's way should be limited to only those individuals that would otherwise be injured or killed, and individuals should be moved only as far as necessary to ensure their safety. Measures shall be taken to prevent wildlife from re-entering the Project site. Only biologists with appropriate authorization by CDFW shall move CESA-listed or other special-status species.

1-15

#### Artificial Light

Artificial nighttime lighting often results in light pollution, which has the potential to significantly and adversely affect fish and wildlife. Artificial lighting alters ecological processes including, but not limited to, the temporal niches of species; the repair and recovery of physiological function; the measurement of time through interference with the detection of circadian, lunar, and seasonal cycles; and the detection of resources, natural enemies, and navigation (Gatson et al. 2013). Many species use photoperiod cues for communication (e.g., bird song; Miller 2006), determining when to begin foraging (Stone et al. 2009), behavior thermoregulation (Beiswenger 1977), and migration (Longcore and Rich 2004). Photaxis, a phenomenon which results in attraction and movement towards light, can disorient, entrap, and temporarily blind wildlife species that experience it (Longcore and Rich 2004).

The MND indicates (p. 33) that the Project may require temporary nighttime lighting for construction activities "likely limited to the temporary construction trailer and work sites, and only required until 8:00 p.m., as needed" (p. 33). However, impacts to biological resources are not analyzed, and no mitigation measures are proposed. The direct and indirect impacts of artificial nighttime lighting on biological resources including migratory birds that fly at night, bats, and other nocturnal and crepuscular wildlife should be analyzed, and appropriate avoidance and minimization measures should be included in the MND. Because of the potential for artificial nighttime lighting to impact biological resources, CDFW recommends that the MND be revised to include the following mitigation measure:

1-16

#### **BIO-[G]: Artificial Light**

During Project construction and operation, the Metropolitan Water District of Southern California shall eliminate all nonessential lighting throughout the Project area and avoid or limit the use of artificial light during the hours of dawn and dusk when many wildlife species are most active. The Metropolitan Water District of Southern California shall ensure that lighting for Project activities is shielded, cast downward, and does not spill over onto other



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properties or upward into the night sky (see the International Dark-Sky Association standards at <http://darksky.org/>). Use LED lighting with a correlated color temperature of 3,000 Kelvins or less, properly dispose of hazardous waste, and recycle lighting that contains toxic compounds with a qualified recycler.

1-16,  
cont.

#### Construction Noise

Construction may result in a substantial amount of noise through road use, equipment, and other project-related activities. This may adversely affect wildlife species in several ways as wildlife responses to noise can occur at exposure levels of only 55 to 60 decibels (Barber et al. 2009). Anthropogenic noise can disrupt the communication of many wildlife species including frogs, birds, and bats (Sun and Narins 2005, Patricelli and Blickley 2006, Gillam and McCracken 2007, Slabbekoorn and Ripmeester 2008). Noise can also affect predator-prey relationships as many nocturnal animals such as bats and owls primarily use auditory cues (i.e., hearing) to hunt. Additionally, many prey species increase their vigilance behavior when exposed to noise because they need to rely more on visual detection of predators when auditory cues may be masked by noise (Rabin et al. 2006, Quinn et al. 2017). Noise has also been shown to reduce the density of nesting birds (Francis et al. 2009) and cause increased stress that results in decreased immune responses (Kight and Swaddle 2011).

The MND acknowledges (p. 89) that the Project would generate temporary construction noise from the use of heavy equipment such as loaders, backhoes, excavators, and dump trucks. However, the noise level is not quantified, and the MND includes no analysis of the impacts of construction noise on biological resources. Because of the potential for construction noise to negatively impact wildlife, CDFW recommends that a revised MND include both an analysis of impacts of construction noise on wildlife and the following mitigation measure:

1-17

#### **BIO-[H]: Noise**

**Restrict use of equipment to hours least likely to disrupt wildlife (e.g., not at night or in early morning). Do not use generators except for temporary use in emergencies. Power to sites can be provided by solar PV (photovoltaic) systems, cogeneration systems (natural gas generator), small micro-hydroelectric systems, or small wind turbine systems. Consider use of noise suppression devices such as mufflers or enclosure for generators. Sounds generated from any means must be below the 55-60 dB range within 50-feet from the source.**

#### CDFW's Lake and Streambed Alteration Program

Fish and Game Code section 1602 requires an entity to notify CDFW prior to commencing any activity that may do one or more of the following: substantially divert or obstruct the natural flow of any river, stream, or lake; substantially change or use any material from the bed, channel or bank of any river, stream, or lake; or deposit debris, waste or other materials that could pass into any river, stream or lake. Please note that "any river, stream or lake" includes those that are episodic (i.e., those that are dry for periods of time) as well as those that are perennial (i.e., those that flow year-round). This includes ephemeral streams, desert washes, and watercourses with a subsurface flow. It may also apply to work undertaken within the flood plain of a body of water. Upon receipt of a complete notification, CDFW determines if the proposed project activities may substantially adversely affect existing fish and wildlife resources and whether a Lake and Streambed Alteration (LSA) Agreement is required. An LSA Agreement includes measures necessary to protect existing fish and wildlife resources. CDFW may suggest ways to modify the Project that would eliminate or reduce harmful impacts to fish and wildlife resources.

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CDFW's issuance of an LSA Agreement is a "project" subject to CEQA (see Pub. Resources Code § 21065). To facilitate issuance of an LSA Agreement, if necessary, the MND should fully identify the potential impacts to the lake, stream, or riparian resources,



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and provide adequate avoidance, mitigation, and monitoring and reporting commitments. Early consultation with CDFW is recommended since modification of the proposed project may be required to avoid or reduce impacts to fish and wildlife resources. To submit a Lake or Streambed Alteration notification, visit:  
<https://wildlife.ca.gov/Conservation/Environmental-Review/LSA>.

The MND indicates that the project will result in both permanent and temporary impacts to streambeds and riparian habitat. This includes impacts to Copper Basin Wash (Drainage 68), and numerous ephemeral features outlined in Table 4 of the MND's Aquatic Resources Delineation Report. Specifically, the Project's access road improvements will include improving slope stability, adding Arizona crossings at drainage locations, installing v-ditches and riprap outlet structures to control run off. These activities all have the potential to substantially impact existing ephemeral drainages and the perennial Copper Basin Wash drainage. Fish and Game Code section 1602 requires an entity to notify CDFW prior to commencing any activity that may adversely impact any river, stream, or lake. CDFW recommends adding the following mitigation measure to a revised MND:

**MM BIO-[ ]: Lake and Stream Alteration (LSA) Program**

**Prior to construction and issuance of any grading permit, the Project Sponsor shall obtain written correspondence from the California Department of Fish and Wildlife (CDFW) stating that notification under section 1602 of the Fish and Game Code is not required for the Project, or the Project Sponsor should obtain a CDFW-executed Lake and Streambed Alteration Agreement, authorizing impacts to Fish and Game Code section 1602 resources associated with the Project.**

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cont

In addition, CDFW recommends revising mitigation measure BIO-10 to reflect that compensatory mitigation measures will be determined with regulatory agency approval (additions are shown in **bold** and deletions are shown with a ~~strike through~~):

BIO-10 Jurisdictional Waters Avoidance and Compensatory Mitigation. Where feasible, jurisdictional areas shall be flagged or fenced for avoidance. Vegetation removal or trimming in jurisdictional areas shall be minimized. Temporary impact areas will be returned to similar conditions that existed prior to ground-disturbing activities. Compensatory mitigation at a **minimum 1:1 or other ratio determined in coordination with regulatory agencies** for permanent impacts will occur through purchase of mitigation credits from an agency-approved mitigation bank, or through permittee-responsible mitigation, subject to applicable regulatory agency approval. Mitigation for temporary impacts to jurisdictional waters will occur through on-site restoration at a **minimum 1:1 or other ratio determined in coordination with regulatory agencies**.

**ENVIRONMENTAL DATA**

CEQA requires that information developed in environmental impact reports and negative declarations be incorporated into a database which may be used to make subsequent or supplemental environmental determinations. (Pub. Resources Code, § 21003, subd. (e).) Accordingly, please report any special-status species and natural communities detected during Project surveys to the California Natural Diversity Database (CNDDDB). The CNDDDB field survey form can be filled out and submitted online at the following link: <https://wildlife.ca.gov/Data/CNDDDB/Submitting-Data>. The types of information reported to CNDDDB can be found at the following link: <https://www.wildlife.ca.gov/Data/CNDDDB/Plants-and-Animals>.

1-19

**ENVIRONMENTAL DOCUMENT FILING FEES**

The Project, as proposed, would have an impact on fish and/or wildlife, and assessment of environmental document filing fees is necessary. Fees are payable upon filing of the Notice of Determination by the Lead Agency and serve to help defray the cost of environmental review by CDFW. Payment of the environmental document filing fee is

1-20

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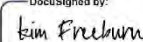
required in order for the underlying project approval to be operative, vested, and final. (Cal. Code Regs. tit. 14, § 753.5; Fish & G. Code, § 711.4; Pub. Resources Code, § 21089.)

## CONCLUSION

CDFW appreciates the opportunity to comment on the MND to assist the Metropolitan Water District of Southern California in identifying and mitigating Project impacts on biological resources. CDFW concludes that the MND does not adequately identify or mitigate the Project's significant, or potentially significant, impacts on biological resources. CDFW recommends that prior to the adoption of the MND, the Metropolitan Water District of Southern California revise the document to include a more complete assessment of the Project's potential impacts on biological resources, as well as appropriate avoidance, minimization, and mitigation measures. If the revised MND cannot demonstrate that impacts to biological resources are mitigated to a level that is less than significant, CDFW recommends that an Environmental Impact Report be prepared by the Metropolitan Water District of Southern California.

CDFW personnel are available for consultation regarding biological resources and strategies to minimize impacts. Questions regarding this letter or further coordination should be directed to Claire Sullivan, Environmental Scientist, at [claire.sullivan@wildlife.ca.gov](mailto:claire.sullivan@wildlife.ca.gov).

Sincerely,

DocuSigned by:  
  
BAF02FFEEFD74C8

Kim Freeburn  
Environmental Program Manager

cc: Heather Brashear, Senior Environmental Scientist (Supervisor), CDFW  
[Heather.Brashear@Wildlife.ca.gov](mailto:Heather.Brashear@Wildlife.ca.gov)

Office of Planning and Research, State Clearinghouse, Sacramento  
[State.clearinghouse@opr.ca.gov](mailto:State.clearinghouse@opr.ca.gov)

**Attachment 1:** MMRP for CDFW-Proposed Mitigation Measures

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#### ATTACHMENT 1: MITIGATION MONITORING AND REPORTING PROGRAM (MMRP)

Biological Resources (BIO)		
Mitigation Measure (MM) Description	Implementation Schedule	Responsible Party
<b>BIO-[A]: BIO-[A]: Bald Eagle and Golden Eagle Breeding Surveys</b> Prior to adoption of the CEQA document and prior to Project activities, a qualified biologist shall conduct focused breeding surveys for bald eagle and golden eagle, following appropriate protocols: CDFW's Bald Eagle Nesting Territory Survey Form and Instructions (2010) and USFWS Interim Golden Eagle Inventory and Monitoring Protocols (Page et al. 2010). If nesting eagles are detected during the focused surveys, the qualified biologist and Metropolitan Water District of Southern California shall coordinate with CDFW to develop avoidance and minimization measures to be reviewed by CDFW. Project disturbances will not occur within 0.5 mile of the active nest sites during breeding season (December 30 through July 1) or any disturbance if that action is shown to disturb the nesting eagles. The 0.5 mile no disturbance buffer will be maintained throughout the breeding season or until the young have fledged and are no longer dependent on the nest or parental care for survival.	Prior to adoption of the CEQA document and Project activities.	Metropolitan Water District of Southern California
<b>BIO-[B]: Burrowing Owl Surveys</b> Suitable burrowing owl habitat has been confirmed on the site; therefore, pre-construction focused burrowing owl surveys shall be conducted by a qualified biologist in accordance with the <i>Staff Report on Burrowing Owl Mitigation</i> (2012 or most recent version) prior to adoption of the CEQA document. If burrowing owls are detected during the	<b>Focused surveys:</b> Prior to adoption of the CEQA document. <b>Pre-constructions surveys:</b> no less than 14 days prior	Metropolitan Water District of Southern California

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<p>focused surveys, the qualified biologist and Project Applicant shall prepare a Burrowing Owl Plan that shall be submitted to CDFW for review and approval prior to commencing Project activities. The Burrowing Owl Plan shall describe proposed avoidance, monitoring, relocation, minimization, and/or mitigation actions. The Burrowing Owl Plan shall include the number and location of occupied burrow sites, acres of burrowing owl habitat that will be impacted, details of site monitoring, and details on proposed buffers and other avoidance measures if avoidance is proposed. If impacts to occupied burrowing owl habitat or burrow cannot be avoided, the Burrowing Owl Plan shall also describe minimization and compensatory mitigation actions that will be implemented. Proposed implementation of burrow exclusion and closure should only be considered as a last resort, after all other options have been evaluated as exclusion is not in itself an avoidance, minimization, or mitigation method and has the possibility to result in take. The Burrowing Owl Plan shall identify compensatory mitigation for the temporary or permanent loss of occupied burrow(s) and habitat consistent with the "Mitigation Impacts" section of the 2012 Staff Report and shall implement CDFW-approved mitigation prior to initiation of Project activities. If impacts to occupied burrows cannot be avoided, information shall be provided regarding adjacent or nearby suitable habitat available to owls. If no suitable habitat is available nearby, details regarding the creation and funding of artificial burrows (numbers, location, and type of burrows) and management activities for relocated owls shall also be included in the Burrowing Owl Plan. The Permittee shall implement the Burrowing Owl Plan following CDFW review and approval.</p> <p>Pre-construction burrowing owl surveys shall be conducted no less than 14 days prior to the start of Project-related activities and within 24 hours prior to ground disturbance, in accordance with the Staff Report on Burrowing Owl Mitigation (2012 or most recent version). Pre-construction surveys should be performed by a qualified biologist following the recommendations and guidelines provided in the Staff Report on Burrowing Owl Mitigation. If the pre-construction surveys confirm occupied burrowing owl habitat, Project activities shall be immediately halted. The qualified biologist shall coordinate with CDFW and USFWS to conduct an impact assessment to develop avoidance, minimization, and mitigation measures to be approved by CDFW prior to commencing Project activities.</p>	<p>to the start of Project-related activities and within 24 hours prior to ground disturbance.</p>	
<p><b>BIO-[C]: Nesting Bird Avoidance</b> Nesting bird surveys shall be conducted by a qualified avian biologist no more than three (3) days prior to vegetation clearing or ground-disturbing activities. Pre-construction surveys shall focus on both direct and indirect evidence of nesting, including nest locations and nesting behavior. The qualified avian biologist will make every effort to avoid potential nest predation as a result of survey and monitoring efforts. If active nests are found during the pre-construction nesting bird surveys, a qualified biologist shall establish an appropriate nest</p>	<p>No more than 3 days prior to vegetation clearing or ground clearing activities</p>	<p>Metropolitan Water District of Southern California</p>

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<p>buffer to be marked on the ground. Nest buffers are species specific and should be at least 300 feet for passerines and 500 feet for raptors. A smaller or larger buffer may be determined by the qualified biologist familiar with the nesting phenology of the nesting species and based on nest and buffer monitoring results. Established buffers should remain on-site until a qualified biologist determines the young have fledged or the nest is no longer active. Active nests and adequacy of the established buffer distance shall be monitored daily by the qualified biologist until the qualified biologist has determined the young have fledged or the Project has been completed. The qualified biologist has the authority to stop work if nesting pairs exhibit signs of disturbance.</p>		
<p><b>BIO-[D]: Desert Tortoise</b> Prior to adoption of the CEQA document, a focused survey for desert tortoise shall be conducted by a qualified biologist, according to protocols in chapter 4 of the Desert Tortoise (Mojave Population) Field Manual (USFWS 2009 or most recent version), during the species' most active periods (April through May or September through October). CDFW recommends working with USFWS and CDFW concurrently to ensure a consistent and adequate approach to planning survey work and that biologists retained to complete desert tortoise protocol-level surveys submit their qualifications to CDFW and USFWS prior to initiation of surveys.</p> <p>No more than 14 calendar days prior to start of Project activities, a qualified biologist shall conduct pre-construction surveys for desert tortoise as described in the USFWS Desert Tortoise (Mojave Population) Field Manual. Pre-construction surveys shall be completed using perpendicular survey routes within the Project area and 50-foot buffer zone. Pre-construction surveys cannot be combined with other surveys conducted for other species while using the same personnel. Project activities cannot start until two negative results from consecutive surveys using perpendicular survey routes for desert tortoise are documented. Should desert tortoise presence be confirmed during the survey, the qualified biologist shall immediately notify CDFW to determine appropriate avoidance, minimization, and mitigation measures.</p>	<p><b>Focused surveys:</b> Prior to adoption of the CEQA document. <b>Pre-construction surveys:</b> no more than 14 days prior to start of Project activities</p>	<p>Metropolitan Water District of Southern California</p>
<p><b>BIO-[E]: Special-Status Plants</b> Prior to adoption of the CEQA document, a thorough floristic-based assessment of special-status plants and natural communities, following CDFW's Protocols for Surveying and Evaluating Impacts to Special-Status Native Plant Populations and Natural Communities (CDFW 2018 or most recent version) shall be performed by a qualified biologist. Should any state-listed plant species be present in the Project area, the Project proponent shall obtain an Incidental Take Permit for those species prior to the start of Project activities. Should other special-status plants or natural communities be present in the Project area, a qualified restoration specialist shall assess whether perennial species may be successfully transplanted to an appropriate natural site or whether onsite or off-site conservation is warranted to mitigate Project impacts. If successful transplantation of perennial</p>	<p>Prior to adoption of the CEQA document.</p>	<p>Metropolitan Water District of Southern California</p>



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<p>species is determined by a qualified restoration specialist, the receiver site shall be identified, and transplantation shall occur at the appropriate time of year. Additionally, the qualified restoration specialist shall perform seed collection and dispersal from special-status annual plant species to a natural site as a conservation strategy to minimize and mitigate Project impacts. If these measures are implemented, monitoring of plant populations shall be conducted annually for 5 years to assess the mitigation's effectiveness. The performance standard for mitigation shall be no net reduction in the size or viability of the local population.</p>		
<p><b>BIO-6 Conduct Surveys and Avoidance for Ringtail, American Badger, and Desert Kit Fox.</b> Desert Kit Fox Surveys: No more than 14 days prior to the beginning of ground disturbance and/or Project activities, a qualified biologist shall conduct pre-construction surveys to determine if potential desert kit fox burrows/dens are present in the Project area. Pre-construction surveys should include 100-percent visual coverage of the Project area and cannot be combined with other surveys conducted for other species while using the same personnel. If the pre-construction surveys confirm occupied desert kit fox habitat, Project activities shall be immediately halted, and the qualified biologist shall notify CDFW and USFWS to develop avoidance, minimization, and mitigation measures. No disturbance of active dens shall take place when juvenile desert kit fox may be present and dependent on parental care.</p> <p>American Badger Surveys: No more than 30 days prior to the beginning of ground disturbance and/or construction activities, a qualified biologist shall conduct a survey to determine if potential American badger burrows are present in the Project area. If potential burrows are located, they shall be monitored using the best judgement of the qualified biologist. If the burrow is determined to be active, the qualified biologist shall flag and create a 50-foot buffer around the den. If impacts to the den are unavoidable, the qualified biologist will verify there are suitable burrows in avoided habitat within the Project area or outside of the Project area prior to undertaking passive relocation actions. If no suitable burrows are located, artificial burrows shall be created at least 14 days prior to passive relocation. The qualified biologist shall block the entrance of the active burrow with soil, sticks, and debris for 3-5 days to discourage the use of the burrow prior to Project activities. The entrance shall be blocked to an incrementally greater degree over the 3- to 5-day period. After the qualified biologist has determined there are no active burrows, the burrows shall be hand-excavated to prevent re-use. No disturbance of active dens shall take place when juvenile American badgers may be present and dependent on parental care. A qualified biologist shall determine appropriate buffers and maintain connectivity to adjacent habitat should natal burrows be present. Any relocation of American badgers shall take place after consultation and approval with CDFW.</p>	<p><b>Desert kit fox:</b> no more than 14 days prior to the start of Project activities <b>American badger and ringtail:</b> No more than 30 days prior to the beginning of ground disturbance.</p>	<p>Metropolitan Water District of Southern California</p>

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<p><b>Ringtail Surveys:</b> No more than 30 days prior to the beginning of ground disturbance and/or construction activities, a qualified biologist shall conduct a survey to determine if potential ringtail burrows are present in the Project Area. If potential burrows are located, they shall be monitored by the qualified biologist. If the burrow is determined to be active, the qualified biologist shall flag and create a 200-foot buffer around the den. If avoidance of occupied ringtail dens is not possible, denning ringtail shall be safely evicted under the direction of a qualified biologist. No disturbance of active dens shall take place when juveniles may be present and dependent on parental care. Any relocation of ringtails shall take place after consultation and approval with CDFW.</p>		
<p><b>BIO-7: Surveys and Construction Monitoring for Desert Bighorn Sheep</b> Prior to adoption of the CEQA document, a qualified biologist will conduct focused surveys to identify potential lambing areas and areas where desert bighorn sheep access water within and adjacent to the Project area. Surveys should be conducted at the time(s) of day when the species is most likely to be detected. Survey results including negative findings should be submitted to CDFW in a report that includes a map of potential lambing areas and water access areas, as well as measures to avoid impacts to lambing areas and desert bighorn sheep in the area.</p> <p>No more than 14 days prior to Project implementation, and once a week during construction activities, a CDFW-approved biologist should conduct a survey for bighorn sheep lambing areas within and adjacent to the Project area. CDFW should be notified within 24 hours upon location of a lambing area. If an active lambing area is located during construction activities, all work should cease. The qualified biologist should coordinate with CDFW to determine appropriate avoidance measures.</p> <p>In the event that bighorn sheep abandon the use of one or more water developments as a result of disturbance associated with the Project, Metropolitan shall create additional water development(s) after consulting with appropriate agency personnel (CDFW and USFWS) to select location(s) and provide assistance in establishing additional water development(s). Metropolitan shall ensure that any existing water developments, as well as any created, are maintained in good operating condition for the duration of the project. Sound pressure levels from construction shall not exceed a Time Weighted Average (TWA) of 85 dB measured at 50 ft from the noise source.</p>	<p><b>Focused surveys:</b> Prior to adoption of the CEQA document. <b>Pre-construction surveys:</b> no less than 14 days prior to the start of Project-related activities and once a week during construction activities.</p>	Metropolitan Water District of Southern California
<p><b>BIO-8 Conduct Surveys for Mountain Lion and Avoid Denning Areas</b> Prior to adoption of the CEQA document, a CDFW-approved biologist will conduct focused surveys to determine presence/absence of mountain lions and potential for natal dens within the construction footprint and buffer of 2,000 feet (or the limits of the property line) of the Project disturbance boundaries. Surveys should be conducted when the species is</p>	<p><b>Focused surveys:</b> Prior to adoption of the CEQA document. <b>Pre-construction surveys:</b> two weeks prior to the start of Project-related activities</p>	

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<p>most likely to be detected, during crepuscular periods at dawn and dusk. Survey results including negative findings should be submitted to CDFW in a report that includes a map of potential denning sites and measures to avoid impacts to mountain lions that may be in the area as well as dens and cubs, if necessary.</p> <p>Two weeks prior to Project implementation, and once a week during construction activities, a CDFW-approved biologist should conduct a survey for mountain lion natal dens. The survey area should include the construction footprint and the area within 2,000 feet (or the limits of the property line) of the Project disturbance boundaries. CDFW should be notified within 24 hours upon location of a natal den. If an active natal den is located, during construction activities, all work should cease. No work should occur within a 2,000-foot buffer from a natal den. A qualified biologist should notify CDFW to determine the appropriate course of action. CDFW should also be consulted to determine an appropriate setback from the natal den that would not adversely affect the successful rearing of the cubs. No construction activities or human intrusion should occur within the established setback until mountain lion cubs have been successfully reared; the mountain lions have left the area; or as determined in consultation with CDFW. If avoidance is not feasible, the Metropolitan Water District of Southern California shall obtain appropriate take authorization from CDFW pursuant to Fish and Game Code section 2081 subdivision (b) prior to any ground-disturbing activities.</p>	<p>and once a week during construction activities.</p>	
<p><b>BIO-9: Surveys for Daytime, Nighttime, Wintering (Hibernacula), and Maternity Roosting Sites for Bats</b></p> <p>Prior to the initiation of Project activities within suitable bat roosting habitat, Metropolitan Water District of Southern California shall retain a qualified biologist to conduct focused surveys to determine presence of daytime, nighttime, wintering (hibernacula), and maternity roost sites. Two spring surveys (April through June) and two winter surveys (November through January) shall be performed by qualified biologists. Surveys shall be conducted during favorable weather conditions only. Each survey shall consist of one dusk emergence survey (start one hour before sunset and last for three hours), followed by one pre-dawn re-entry survey (start one hour before sunrise and last for two hours), and one daytime visual inspection of all potential roosting habitat on the Project site. Surveys shall be conducted within one 24-hour period. Visual inspections shall focus on the identification of bat sign (i.e., individuals, guano, urine staining, corpses, feeding remains, scratch marks and bats squeaking and chattering). Bat detectors, bat call analysis, and visual observation shall be used during all dusk emergence and pre-dawn re-entry surveys.</p> <p>If active hibernacula or maternity roosts are identified in the work area or 500 feet extending from the work area during preconstruction surveys, for maternity roosts, Project construction will only occur between October 1 and February 28, outside</p>	<p>Prior to the start of Project activities</p>	<p>Metropolitan Water District of Southern California</p>

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<p>of the maternity roosting season when young bats are present but are not yet ready to fly out of the roost. Maternity roosts shall not be evicted, excluded, removed, or disturbed.</p> <p>A minimum 500-foot no-work buffer shall be provided around hibernacula. The buffer shall not be reduced. Project-related construction and activities shall not occur within 500 feet of or directly under or adjacent to hibernacula. Buffers shall be left in place until the end of Project construction and activities or until a qualified bat biologist determines that the hibernacula are no longer active. Project-related construction and activities shall not occur between 30 minutes before sunset and 30 minutes after sunrise. Hibernacula roosts shall not be evicted, excluded, removed, or disturbed. If avoidance of a hibernacula is not feasible, the Project Biologist will prepare a relocation plan to remove the hibernacula and provide for construction of an alternative bat roost outside of the work area. A bat roost relocation plan shall be submitted for CDFW review prior to construction activities. The qualified biologist will implement the relocation plan and new roost sites shall be in place before the commencement of any ground-disturbing activities that will occur within 500 feet of the hibernacula. New roost sites shall be in place prior to the initiation of Project-related activities to allow enough time for bats to relocate. Removal of roosts will be guided by accepted exclusion and deterrent techniques. The Metropolitan Water District of Southern California shall compensate no less than 2:1 for permanent impacts to roosting habitat.</p>		
<p><b>MM BIO-[F]: Minimizing Impacts to Other Species</b> To avoid impacts to terrestrial wildlife, a qualified biologist shall be on-site prior to and during all ground- and habitat-disturbing activities to inspect the Project area prior to any Project activities. Individuals of any wildlife species found shall not be harassed and shall be allowed to leave the project area unharmed. If needed, a qualified biologist may guide, handle, or capture an individual non-listed, non-special-status wildlife species to move it to a nearby safe location within nearby refugium, or it shall be allowed to leave the project site of its own volition. Capture methods may include hand, dip net, lizard lasso, snake tongs, and snake hook. If the wildlife species is discovered or is caught in any pits, ditches, or other types of excavations, the qualified biologist shall release it into the most suitable habitat nearby the site of capture. Movement of wildlife out of harm's way should be limited to only those individuals that would otherwise be injured or killed, and individuals should be moved only as far as necessary to ensure their safety. Measures shall be taken to prevent wildlife from re-entering the Project site. Only biologists with appropriate authorization by CDFW shall move CESA-listed or other special-status species.</p>	<p>Prior and during ground- and habitat-disturbing activities.</p>	<p>Metropolitan Water District of Southern California</p>
<p><b>BIO-[G]: Artificial Light</b> During Project construction and operation, the Metropolitan Water District of Southern California shall eliminate all nonessential lighting throughout the Project area and avoid or limit the use of artificial light during the hours of dawn and dusk</p>	<p>During construction</p>	<p>Metropolitan Water District of Southern California</p>

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when many wildlife species are most active. The Metropolitan Water District of Southern California shall ensure that lighting for Project activities is shielded, cast downward, and does not spill over onto other properties or upward into the night sky (see the International Dark-Sky Association standards at <a href="http://darksky.org/">http://darksky.org/</a> ). Use LED lighting with a correlated color temperature of 3,000 Kelvins or less, properly dispose of hazardous waste, and recycle lighting that contains toxic compounds with a qualified recycler.		
<b>BIO-[H]: Noise</b> Restrict use of equipment to hours least likely to disrupt wildlife (e.g., not at night or in early morning). Do not use generators except for temporary use in emergencies. Power to sites can be provided by solar PV (photovoltaic) systems, cogeneration systems (natural gas generator), small micro-hydroelectric systems, or small wind turbine systems. Consider use of noise suppression devices such as mufflers or enclosure for generators. Sounds generated from any means must be below the 55-60 dB range within 50-feet from the source.	During construction	Metropolitan Water District of Southern California
<b>MM BIO-[I]: Lake and Stream Alteration (LSA) Program</b> Prior to construction and issuance of any grading permit, the Project Sponsor shall obtain written correspondence from the California Department of Fish and Wildlife (CDFW) stating that notification under section 1602 of the Fish and Game Code is not required for the Project, or the Project Sponsor should obtain a CDFW-executed Lake and Streambed Alteration Agreement, authorizing impacts to Fish and Game Code section 1602 resources associated with the Project.	Prior to construction and issuance of any grading permit	Metropolitan Water District of Southern California
<b>BIO-10 Jurisdictional Waters Avoidance and Compensatory Mitigation.</b> Where feasible, jurisdictional areas shall be flagged or fenced for avoidance. Vegetation removal or trimming in jurisdictional areas shall be minimized. Temporary impact areas will be returned to similar conditions that existed prior to ground-disturbing activities. Compensatory mitigation at a minimum 1:1 or other ratio determined in coordination with regulatory agencies for permanent impacts will occur through purchase of mitigation credits from an agency-approved mitigation bank, or through permittee-responsible mitigation, subject to applicable regulatory agency approval. Mitigation for temporary impacts to jurisdictional waters will occur through on-site restoration at a minimum 1:1 or other ratio determined in coordination with regulatory agencies.	Prior to and during construction	Metropolitan Water District of Southern California



## Response to Comment Letter 1

**COMMENTER:** Kim Freeburn, Environmental Program Manager, Inland Deserts Region, CDFW

**DATE:** January 18, 2023

### Response 1-1

The commenter provides an introduction to the comment letter and states CDFW's role as a trustee and responsible agency under CEQA.

The commentor's role as a trustee and responsible agency under CEQA is noted.

### Response 1-2

The commenter provides a summary of the proposed Project objectives, description, location, and timing.

This comment is noted.

### Response 1-3

The commenter states they are offering comments and recommendations to assist Metropolitan in identifying and mitigating the proposed Project's potential impacts to biological resources. The commenter suggests that the IS/MND has not adequately identified and disclosed the proposed Project's impacts to biological resources and that an IS/MND may not be the appropriate CEQA document for the proposed Project because of the difficulty of determining impacts and whether those impacts have been mitigated to a less-than-significant level.

Metropolitan disagrees that the baseline environmental setting is inadequate. Pursuant to CEQA Guidelines Sections 15125(a)(1) Metropolitan, as the CEQA Lead Agency, described the existing baseline consistent with CEQA and based on substantial evidence in the record. The baseline setting for the proposed Project was developed over a two-year period and included numerous surveys for special status plants and wildlife and a literature search to identify sensitive natural communities and special-status plants and wildlife species, known from the vicinity of the proposed Project area. This included a review of the California Natural Diversity Database (CNDDB), United States Fish and Wildlife (USFWS) Information for Planning and Conservation (IPaC) program, the Consortium of California Herbaria (CCH), iNaturalist, and ebird.

Based on surveys and background literature review, Metropolitan disclosed the common and sensitive plants and wildlife that were detected during the biological surveys or that have the potential to occur in the proposed Project area in the Biological Resources Technical Report and the IS/MND. This included State listed and State fully protected species. The IS/MND evaluated potential impacts to these species and provided avoidance and minimization measures to reduce those impacts to a less-than-significant level where potential significant impacts were identified. As a result, an IS/MND is the appropriate CEQA document for the proposed Project. Please refer to Responses 1-4 through 1-21 for responses to the specific comments and recommendations provided by the commenter.

### Response 1-4

The commenter states an opinion that the existing environmental setting has not been adequately analyzed in the IS/MND. The commenter states an opinion that the field assessments are outdated and were not conducted at appropriate times of the year or using standard protocols to detect all special status species on site. The commenter asserts that surveys for wildlife are only valid for a period of one year and that

botanical surveys are valid for up to three years. The commenter states an opinion that the assessment of impacts to sensitive biological resources is lacking and is deferred to a later date by use of Metropolitan's standard practices of Environmental Assessment. The commenter requests the IS/MND be revised to include the results of a complete, recent inventory of rare, threatened, endangered, and other sensitive species and include an analysis of impacts from artificial lighting.

Metropolitan disagrees that the baseline environmental setting is inadequate or that the surveys are out of date or inappropriate to evaluate potential impacts from the proposed Project to sensitive plants and wildlife. As described in response to comment 1-3, the baseline setting for the proposed Project was developed over a two-year period (e.g., 2021 to 2022), well within the one-to-three-year time referenced by the commenter and included numerous surveys for special status plants and wildlife. This also included a literature search and review of the CNDDDB, USFWS IPaC program, the CCH, iNaturalist, and ebird. Further, Metropolitan ensured that the biologists who conducted the surveys were highly experienced and possessed direct knowledge of the region. The paragraphs below describe Metropolitan's thorough approach to developing the baseline setting and ensuring that all sensitive species were evaluated in the IS/MND.

Initial biological surveys of the Project area were conducted on March 29 and 30, 2021. These surveys focused on mapping vegetation, assessing the potential for special-status species, searching for special-status plants and wildlife (including nests, burrows, cavities, and other wildlife sign), and identifying potential jurisdictional features. The commenter states that protocol surveys for desert tortoise, burrowing owl, golden eagle or other species were not conducted. However, the biological surveys were conducted by qualified desert tortoise biologists and botanists with extensive knowledge of eagles, desert kit fox, American badger, and other desert wildlife. All sensitive wildlife or their sign that was detected during these surveys was recorded and a list of recommended surveys was developed to ensure that baseline conditions were fully evaluated.

Metropolitan ensured that biological resource surveys covered all areas that could be impacted by the proposed project. For example, during the rare plant surveys conducted in 2021 and 2022, the biologists completed 100 percent cover surveys of proposed disturbance areas. This allowed the biologists to also note the presence of any important soil features, burrows, or other wildlife sign. For the proposed Project, each of the biologists who completed the botanical surveys were qualified botanists and desert tortoise biologists. During the surveys they searched for burrows or sign of desert tortoise, desert kit fox, and American badger. The surveys met the requirements for protocol desert tortoise surveys and burrowing owls and are appropriate for a small linear project. Should any potential desert tortoise, American badger, or desert kit fox burrows have been detected, supplemental surveys would have been conducted. One potential burrowing owl burrow was detected during surveys. Supplemental surveys were not conducted because the burrow did not appear to be active and the project would not impact the burrow. Metropolitan concluded the species may be present in the proposed Project area at some time in the future and included adequate mitigation measures to ensure that impacts to the species would be avoided or minimized should it be identified to be present in the future.

Protocol surveys were not conducted for mountain lions as there are no prescribed protocols codified by the CDFW. However, this species is known to occur in the proposed Project area and Metropolitan inspected potential denning areas during the 2021 and 2022 surveys.

Baseline conditions for avian species were developed through a variety of focused and protocol surveys. In addition, knowledge of existing avian use was available from previous biological monitoring and coordination with Metropolitan biologists who routinely work in the area. Protocol-level surveys for southwestern willow flycatcher were conducted according to the July 11, 2000, revised protocol for project-related surveys and the general guidelines described by Sogge et al. (2010). There is no published protocol for Arizona Bell's vireo. All suitable habitat and riparian areas that could support southwestern willow flycatcher were surveyed five times. One visit was conducted during Period 1 (May 15 to

May 31), two visits during Period 2 (June 1 to June 24), and two visits during Period 3 (June 25 to July 17). Each visit was at least 5 days apart. Surveys of the sites were conducted during morning hours (prior to 10:30 a.m.) and when the temperature exceeded 13° C (55 °F). Less than 3 km of habitat were surveyed per day. During this period all bird species were recorded with an emphasis on special status species, including Arizona Bell's vireo. At the completion of the morning surveys the biologist searched the proposed Project area for other signs of sensitive wildlife.

Bald eagles have historically nested at the Copper Basin Reservoir and Metropolitan monitors the nest site. However, the biologist inspected the adjacent hillsides within line of sight of the proposed project using binoculars for other avian species including bald and golden eagles. Two bald eagle nests were identified during the visual surveys; however, they were inactive during both surveys. Please see Response 1-7 (Bald Eagle, Golden Eagle, and Burrowing Owl) for additional information on the protocols used to identify bald and golden eagles nest locations.

Visual and acoustic surveys for special-status bats were completed by a qualified bat expert between March and August 2022. Surveys for bats included the use of night vision devices and binoculars to detect bat emergence from trees, rocks, or other structures. During the surveys, it was determined that bats were flying into the Project area to forage and not emerging from local areas. An Ana-bat system was used to identify individual bat species from their characteristic calls.

Metropolitan completed numerous surveys over a two-year period to develop baseline biological conditions in the proposed Project area and disagrees with the commenter's opinion that the IS/MND is inadequate and should be revised. Based on the resources that occur in the region and their life histories, the surveys were adequate and were conducted within a reasonable time period to support the CEQA process. Conducting additional biological technical studies or biological field surveys at this time, as requested by CDFW, is unnecessary and would be an inappropriate use of public funds, as adequate survey efforts to establish the existing conditions and environmental baseline have been conducted, and additional studies would not provide additional knowledge of the distribution of sensitive wildlife in the Project area. As described in the IS/MND, Metropolitan's standard practice of conducting an Environmental Assessment prior to construction is intended to verify the findings of the extensive baseline survey efforts, as well as identify any potential impacts based on species present just prior to construction. Mitigation measures BIO-1 through BIO-9 would avoid/minimize or mitigate to less than significant any potential impacts identified at the time of construction. As described herein, the Draft IS/MND has adequately identified and mitigated to less than significant the proposed Project's impacts to biological resources. Refer to Responses 1-5 through 1-21 for responses to the specific comments and recommendations provided by the commenter. Please see Response 1-16 (Artificial Light) for a discussion of potential impacts from nighttime lighting.

## **Response 1-5**

The commenter provides a summary of the sensitive species that were observed or have a moderate to high potential to occur in the Project area. The commenter states an opinion that the assessment of impacts to sensitive biological resources is lacking and is deferred to a later date by use of Metropolitan's standard practices of Environmental Assessment. The commenter states an opinion that mitigation measures BIO-6 through BIO-9 are not sufficient in timing and scope to protect special status species. The commenter states an opinion that the IS/MND does not include any provisions to conduct additional focused surveys for southwestern willow flycatcher and Arizona Bell's vireo to ensure that impacts are less than significant.

Metropolitan disagrees that the analysis in the IS/MND is deferred through the use of Metropolitan's standard practice of conducting an Environmental Assessment. As described in response to comment 1-4, Metropolitan conducted extensive biological surveys and a thorough literature search to develop baseline

conditions in compliance with CEQA. In addition, the impact analysis in the IS/MND disclosed and identified specific mitigation measures to reduce project impacts to less than significant levels. Metropolitan's standard practice of conducting an Environmental Assessment is required for all projects completed by Metropolitan to protect sensitive resources and ensure compliance with environmental regulations. It does not defer the analysis but provides an additional mechanism for field verification. Metropolitan's standard practice of conducting an Environmental Assessment and mitigation measures BIO-1 through BIO-9 are in place to ensure adequate surveys are conducted prior to construction and appropriate avoidance, minimization, and mitigation is in place prior to the actual start of the proposed Copper Basin Discharge Valve Replacement and Access Road Improvements Project.

Other Metropolitan standard practices, described on Pages 43 and 44 of the IS/MND, include compliance with the Migratory Bird Treaty Act (MBTA) and California Fish and Game Code (CFGF) Sections 3503, 3503.5, and 3513, Desert Tortoise Awareness Training, and a Worker Environmental Awareness Protections Training. These practices are implemented for all Metropolitan projects to avoid/minimize impacts. As required by law, Metropolitan would comply with the MBTA, Bald and Golden Eagle Protection Act (BGEPA), and CFGF Sections 3503, 3503.3, and 3513 that prohibit take, possession, or needless destruction of birds, nests, or eggs). In addition, Metropolitan would implement mitigation measures BIO-4 (Special-Status Wildlife Species Surveys) and BIO-5 (Special-Status Wildlife Avoidance and Minimization) to protect sensitive wildlife. These measures would require identification of golden and bald eagle nest sites and cavities used by burrowing owl that may be present within the proposed Project area and provide appropriate avoidance and/or minimization measures during Project activities. No additional mitigation measures are required to reduce impacts to these species.

Finally, Metropolitan acknowledges that impacts to waters of the United States/state or take of federal Endangered Species Act (ESA) or California ESA (CESA) protected species would require permits from regulatory agencies and acknowledges that the resource agencies may require additional surveys and mitigation as part of the regulatory permitting process. Metropolitan would obtain any necessary permits and/or authorizations at the time that proposed Project activities would occur.

As described herein, the Draft IS/MND has adequately identified, disclosed, and mitigated the proposed Project's impacts to biological resources to less-than-significant levels. The mitigation measures presented in Section 3.4 (Biological Resources) have an essential nexus between the mitigation measure and the significant impact (*Nollan v. California Coastal Commission*, 483 U.S. 825 [1987]), and the mitigation measures are "roughly proportional" to the significant impacts of the proposed Project (*Dolan v. City of Tigard*, 27576 October 2020 2-10 512 U.S. 374 [1994]). Specifically, the proposed Project includes mitigation measures (MM-BIO-1 through MM-BIO-9) to protect CESA-listed species for all proposed Project activities).

### **Response 1-6**

The commenter provides a summary of CESA, CDFW's role in implementing CESA, and the requirements for obtaining an Incidental Take Permit.

The comment is noted. As required by law, Metropolitan would comply with regulatory permitting requirements.

### **Response 1-7**

The commenter states an opinion that the assessment of impacts to bald eagles, golden eagles, and burrowing owl has been deferred until the time of construction when Metropolitan would implement a standard Environmental Assessment. The commenter states an opinion that mitigation measures in the

IS/MND are insufficient to reduce impacts to a level less than significant and proposes that new mitigation measures should be adopted in the IS/MND. The commenter requests that the IS/MND be revised to include the results of new surveys for bald and golden eagles and burrowing owls using established protocols.

To support the CEQA process, surveys were conducted over two years at the project site. During these surveys, Metropolitan identified two bald eagle nests located on a hillside southeast of the Project area. These nest sites were inactive, and no bald or golden eagles were detected nesting in the proposed Project area. Surveys of potential nest sites including ledges, mountains, and large trees were also conducted in surrounding habitat. The surveys were adequate to assess potential nesting sites for golden and bald eagles within the line of site and within the proposed CDFW one-half mile buffer. Conducting additional surveys or protocol nest monitoring of the Project area would not have provided additional information on the distribution of bald eagles in the proposed Project area. The nest sites were inactive and no other nest sites were detected within line of sight of the proposed Project area. Conducting nest monitoring of an inactive nest would not benefit the bald eagles or provide additional data required to support the CEQA document. Helicopter surveys for golden eagles were not conducted as the roadwork and valve replacement are not expected to result in adverse impacts to bald or golden eagle foraging habitat. In addition, the proposed Project is located at an existing facility subject to routine traffic and maintenance activities and the proposed Project would not result in the introduction of new threats or hazards to these species. Conducting additional surveys is not warranted for the scale of the proposed Project.

To assess potential impacts to burrowing owls, Metropolitan completed an evaluation of burrowing owl habitat in the Project area in 2021. As described in the IS/MND, suitable habitat for this species was detected. In addition, qualified biologists completed 100 percent coverage of all areas that would be subject to project disturbance in 2021 and 2022. During these surveys, the biologists searched for potential burrows, cavities, and other features that could be used by burrowing owls. One rock cavity containing burrowing owl sign was observed. No burrowing owls or other burrowing owl signs were detected. During 2021 and 2022, an inactive burrow was detected outside the project area during the breeding period and showed no evidence of recent use. The surveys were consistent with the 2012 burrowing owl guidelines recommended by CDFW; however the distance was reduced to accommodate the steep terrain and the proximity to the Copper Basin Reservoir. Additional surveys to assess if the burrow is active are not required at this time. For the purposes of the CEQA and out of an abundance of caution, Metropolitan considers the burrow to be potentially active and mitigation measures have been proposed in the IS/MND to reduce or avoid impacts to breeding birds, including burrowing owls, should they be present during construction of the proposed Project.

As described therein, the Draft IS/MND has adequately evaluated the proposed Project's impacts to bald eagles, golden eagles, and burrowing owl and presented mitigation measures to reduce potential significant impacts to these species to less-than-significant levels. Metropolitan would also comply with the provisions of the Bald and Golden Eagle Protection Act and nesting bird laws which prohibit the take of these species. Updated field surveys are not necessary to provide an adequate assessment of the proposed Project's impacts for the purposes of CEQA.

### **Response 1-8**

The commenter provides a summary of the regulatory requirements of the CFGC and MBTA pertaining to the protection of nesting birds and birds of prey. The commenter states an opinion that mitigation measures BIO-4 and BIO-5 are insufficient to protect nesting birds and provides a suggested mitigation measure for nesting birds.

Metropolitan is committed to complying with CFGC and MBTA during the implementation of the proposed Project. As part of Metropolitan's standard environmental practices, which are identified on page 44 of the IS/MND, pre-construction for nesting birds and monitoring of active nests is required for



all projects. In addition, mitigation measures BIO-4 and BIO-5 require pre-construction surveys and the implementation of non-disturbance buffers to protect nesting birds. Therefore, the IS/MND provides adequate measures for the protection of nesting birds and the recommended mitigation measures are not required.

### **Response 1-9**

The commenter states an opinion that the surveys for desert tortoise were inadequate and the assessment of impacts to this species has been deferred until the time of construction when Metropolitan would conduct an Environmental Assessment. The commenter states an opinion that mitigation measures in the IS/MND are insufficient to reduce impacts to a level less than significant and proposes that new mitigation measures be adopted in the IS/MND. The commenter requests that the IS/MND be revised to include the results of new surveys and the proposed mitigation measures for desert tortoises.

Metropolitan disagrees with CDFW that the document defers the analysis of impacts to this species and that additional surveys are required. Metropolitan conducted 100 percent coverage surveys of all potential disturbance areas and a 50-foot buffer, which is adequate to identify if desert tortoise is present in or near proposed work areas. The buffers were limited based on the topography of the site and the proximity to the Copper Basin Reservoir. The surveys were conducted by qualified desert tortoise biologists at a time when desert tortoises would be active. No desert tortoise or their burrows were detected. Adequate surveys were conducted for a linear project to assess potential impacts to this species. In addition, pre-construction survey requirements conducted as part of Metropolitan's standard environmental practices, which are identified on page 43 of the IS/MND, would identify if any desert tortoise burrows are in or near proposed disturbance areas.

As described therein, additional biological resources survey and studies are unnecessary at this time, and the IS/MND has adequately evaluated the proposed Project's impacts to desert tortoise. In addition, the IS/MND has adequately mitigated to less-than-significant levels the proposed Project's potential significant impacts to desert tortoise.

### **Response 1-10**

The commenter indicates that plant species with California Rare Plant Rank (CRPR) 2B have the potential to occur in the Project area. The commenter notes that floristic surveys were conducted on March 15 and March 16, 2022 and is concerned that the focused surveys did not follow CDFW's standard protocols involving multiple visits to the Project area (i.e., early, mid, and late season) to capture the floristic diversity needed to determine if special status plants are present. The commenter states an opinion that the mitigation measures to protect special status plants identified in the IS/MND are inadequate and recommends replacing mitigation measures BIO-1 through BIO-3 in a revised IS/MND.

To assess potential impacts to sensitive plants, Metropolitan conducted surveys of the Project area on March 29 and 30, 2021. During this survey, the botanist identified several CRPR 2B species in the Project area. Additional botanical surveys of the Project area were conducted on March 15 and 16, 2022 to ensure that all sensitive plants were identified. Late season surveys of this area were not conducted because the botanists did not identify any emerging species that had the potential to be rare or sensitive. The botanists who conducted the surveys are experts in desert ecology with over 20 years of experience working in the Mojave and Colorado deserts and determined that additional late season surveys were not warranted for this location.

Based on site conditions and the plants that have the potential to occur in the proposed Project area, additional botanical surveys are unnecessary at this time. The IS/MND has adequately evaluated the proposed Project's impacts to sensitive plants and provided adequate mitigation measures to reduce impacts to sensitive plants to less-than-significant levels. As described in the IS/MND, mitigation measures BIO-1 (Special-Status Plant Species Surveys), BIO-2 (Special-Status Plant Species Avoidance

and Minimization), and BIO-3 (Special-Status Plant Species Revegetation) would be implemented to avoid significant impacts should special-status plant species be identified in the proposed Project area during preconstruction surveys conducted as part of Metropolitan's standard practice. Therefore, the IS/MND provides adequate measures for the protection of sensitive plants and the recommended mitigation measures are not required.

### **Response 1-11**

The commenter provides a summary of the regulatory requirements of the CFGC pertaining to Title 14 of the California Code of Regulations for desert kit fox and the status of ringtail as a State Fully Protected Species. The commenter expresses an opinion that biological assessments for wildlife are only valid for one year and that additional surveys should be conducted and incorporated into a revised MND. The commenter also expresses an opinion that mitigation measures BIO-6 should be revised and provides recommended language in the comment letter.

Surveys for sensitive wildlife were completed over a two-year period in the Project area by qualified biologists. The surveys did not detect any burrows that could support desert kit fox or American badger. Ringtail was not observed but has been documented in the Project area by Metropolitan. The surveys were adequate to detect the presence of these species for the purposes of CEQA, and mitigation measures have been included to ensure these species are detected and protected should they occur in the proposed project area during construction. As described therein, the IS/MND has adequately evaluated the proposed Project's impacts to desert kit fox, American badger, and ringtail and updated field surveys are not necessary to provide an adequate assessment of the proposed Project's impacts for the purposes of CEQA. In addition, the IS/MND has proposed adequate mitigation measures to reduce to less-than-significant levels the proposed Project's impacts to desert kit fox, American badger, and ringtail and the recommended mitigation measures are not required.

### **Response 1-12**

The commenter provides a summary of the status of desert big horn sheep as a State Fully Protected Species. The commenter provides information on the life history of the species and how desert big horn sheep may alter their movement patterns to water sources when exposed to construction related activities including noise. The commenter expresses an opinion that biological assessments for wildlife are only valid for one year and that additional surveys should be conducted to map potential lambing areas and the locations where big horn sheep access water. The commenter recommends this information be incorporated into a revised MND. The commenter also expresses an opinion that mitigation measure BIO-7 should be revised and provides recommended language in the comment letter.

Desert big horn sheep are permanent residents of the Whipple Mountains and routine visitors to the Copper Basin Reservoir. The Copper Basin Reservoir is an existing Metropolitan facility that is subject to daily vehicle and truck traffic, routine inspections, and human presence. In some areas the desert big horn sheep have become acclimated to traffic and loiter along existing access roads. During the biological surveys desert big horn sheep and their lambs continued to graze as the biologists walked and drove along the access road.

During construction, desert big horn sheep and their lambs will maintain access to water at the reservoir and in canyon bottoms outside the Project area. There are multiple areas where desert big horn sheep have access to water where small bays exist outside of proposed work areas and access roads. Many of these are screened by vegetation. As described in the IS/MND, desert big horn sheep are likely to be affected by noise and other human disturbance. However, the proposed project will not prevent sheep from gaining access to water or substantially decrease their access to foraging habitat in the Whipple Mountains.

Metropolitan disagrees with CDFW that additional surveys or studies are required for this occurrence of big horn sheep. The species are common at the reservoir and were observed during many of the biological

surveys. Surveys for wildlife were completed over a two-year period by qualified biologists. The area was documented to be used by desert big horn sheep and their lambs. As described therein, the IS/MND has adequately evaluated the proposed Project's impacts to desert big horn sheep and updated field surveys are not necessary to provide an adequate assessment of impacts for the purposes of CEQA. In addition, the IS/MND has proposed adequate measures including mitigation measure BIO-8 to reduce to less-than-significant levels the proposed Project's impacts to desert big horn sheep and the recommended mitigation measures are not required.

### **Response 1-13**

The commenter provides a summary of the regulatory requirements of the CFGC pertaining to mountain lions and identifies the species is currently a candidate for state listing under the CESA. The commenter states an opinion that the surveys for mountain lions were inadequate and the assessment of impacts to this species has been deferred until the time of construction when Metropolitan would implement a standard Environmental Assessment. The commenter states an opinion that mitigation measures in the IS/MND are insufficient to reduce impacts to a level less than significant and proposes that new language for mitigation measure BIO-8 be adopted in a revised IS/MND.

As described in the IS/MND, while the proposed Project site is too small to support long-term use by mountain lions, the entire Project area is likely used for foraging and denning. Mountain lions have been detected by Metropolitan staff and are expected to occur within the Whipple Mountains. However, they are not expected to den near Metropolitan facilities including the narrow gorge below the Copper Basin Reservoir. The Copper Basin Reservoir is an existing Metropolitan facility that is subject to daily vehicle and truck traffic, routine inspections, and human presence. While mountain lions are known to frequent the area, denning would not be expected near proposed disturbance areas as this species generally avoids denning in areas that are frequented by humans. In addition, because these species are motile and generally avoid humans, the surveys focused on areas within the line of site of the proposed Project. The biologists physically inspected cavities looking for all animal signs during the general wildlife, avian, and bat surveys, and used field glasses to search caves and overhangs in the adjacent mountains. Surveys were not conducted in areas of steep topography where conditions were considered unsafe for the biologists.

As described therein, the IS/MND has adequately evaluated the proposed Project's impacts to mountain lion and updated field surveys are not necessary to provide an adequate assessment of impacts for the purposes of CEQA. In addition, the IS/MND has proposed adequate mitigation measures to reduce to less-than-significant levels the proposed Project's impacts to mountain lion and updated field surveys are not necessary to provide an adequate assessment of impacts for the purposes of CEQA and the recommended mitigation measures are not required.

### **Response 1-14**

The commenter provides a summary of the bat species identified in the IS/MND as having a potential to occur in the Project area. The commenter notes that visual and acoustic surveys for special status bats were completed; however, the commenter states the specific protocols were not specified in the MND. The commenter states an opinion that mitigation measure BIO-9 in the IS/MND is insufficient to reduce impacts to a level less than significant and proposes that new language for mitigation measure BIO-9 be adopted in a revised IS/MND.

As described in the IS/MND and the Biological Technical Report, the Project area provides foraging and potential roosting habitat for a variety of common and sensitive bats. To determine what species of bats are present in the proposed Project area and to evaluate how bats use the area, Metropolitan conducted visual emergence surveys and acoustic monitoring using an Ana-bat system. These protocols follow general procedures for determining the presence of use of an area by bats. These surveys were conducted to search for potential bat roosts within the canyon and structures at the dam. The biologists also searched

for signs indicating bat presence including guano, noise, staining, and other diagnostic features. It was during these physical inspections that small numbers of Yuma myotis were detected day roosting in a valve box at the base of the dam. No other special status bat species were detected. Common bats were detected foraging over the Project area but appear to move into the area from other areas. Therefore, impacts to hibernaculum and or maternity sites is not expected.

As described therein, the IS/MND has adequately evaluated the proposed Project's impacts to sensitive bats and updated field surveys are not necessary to provide an adequate assessment of the proposed Project's impacts for the purposes of CEQA. In addition, the IS/MND has proposed adequate mitigation measures to reduce the proposed Project's impacts to bats to less-than-significant levels and the recommended mitigation measures are not required.

### **Response 1-15**

The commenter indicates that other previously undetected species have the potential to occur in the Project area during construction and recommends inclusion of a new mitigation measure to allow non-listed non-special status terrestrial wildlife to leave or be moved out of harm's way.

Threshold IV(a) of the CEQA Guidelines Appendix G checklist requires evaluation of whether a project would result in a substantial adverse effect on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by CDFW or the USFWS. Non-listed, non-special status wildlife species are not required to be evaluated under this threshold and are not regulated species. Therefore, any potential impact to other species would be less than significant and inclusion of a specific mitigation measure for these species in the IS/MND is not warranted. Nonetheless, implementation of preconstruction surveys conducted as part of Metropolitan's standard practice would benefit non-special status wildlife species, as well as special status wildlife species.

### **Response 1-16**

The commenter provides background information on the effects of artificial lighting on various species of wildlife. The commenter indicates that an analysis of the potential impacts from artificial lighting to wildlife was not included in the IS/MND and that no mitigation measures were included to reduce these impacts to a less than significant level.

Nighttime lighting is currently present along the reservoir at the Reservoir keeper's house and near existing facilities such as the outlet structure and chlorination station where the reservoir enters the pipeline to the Colorado River Aqueduct. Work hours may extend to 8:00p.m. during summer months to accommodate seasonal differences in sunlight; however, Metropolitan does not intend to conduct any nighttime construction activities. Nighttime lighting, if used, would be limited to the trailer site to comply with Occupational Safety and Health Administration (OSHA) requirements. Metropolitan would ensure that any trailer lighting would be downturned and of low intensity as required in Metropolitan's standard contractor specifications. Therefore, impacts from artificial light would be less than significant and inclusion of a specific mitigation measure for lighting impacts in the IS/MND is not warranted. The IS/MND has adequately evaluated the proposed Project's impacts from artificial light to wildlife for the purposes of CEQA.

### **Response 1-17**

The commenter provides background information on the effects of noise on various species of wildlife. The commenter states an opinion that the IS/MND does not include an analysis of noise impacts on wildlife and recommends additional analysis and a new mitigation measure be included in a revised IS/MND.

The IS/MND included a discussion of potential impacts to wildlife from exposure to construction noise; no permanent noise impacts have been identified as a result of the proposed Project's operation. Section 3.13 (Noise) of the IS/MND discloses sources of noise that could occur during construction of the proposed Project. Section 3.4 (Biological Resources) of the IS/MND identifies that special status wildlife could be subject to impacts from noise. Specifically, potential impacts to sensitive wildlife from exposure to construction noise are discussed on page 49 (Mojave Desert Tortoise and Banded Gila Monster), page 50 (Golden Eagle, Bald Eagle, and American Peregrine Falcon), page 51 (Burrowing Owl), page 55 and 56 (Desert Bighorn Sheep and Mountain Lion), and page 57 (Special Status Bats) of the IS/MND.

Impacts from construction noise to sensitive wildlife would be reduced to less than significant with the implementation of Metropolitan's standard practices and mitigation measures BIO-4 through BIO-9. In addition, noise reduction measures, some of which are included in the commentor's proposed mitigation measure, are included as part of Metropolitan's contractor specifications, and will reduce construction noise levels as part of standard practice. Therefore, the inclusion of a specific mitigation measure for impacts to wildlife from noise in the IS/MND is not warranted and revisions are not necessary.

### **Response 1-18**

The commenter provides a summary of CFGC Section 1602. The commenter notes that proposed Project activities may require a Lake and Streambed Alteration Agreement. The commenter recommends the IS/MND fully identify potential impacts to jurisdictional lake, stream, and riparian resources and provide adequate avoidance, mitigation, monitoring, and reporting commitments to facilitate issuance of a Lake and Streambed Alteration Agreement. The commenter provides a suggested mitigation measure related to the issuance of a Lake and Streambed Alteration Agreement.

As a matter of law, Metropolitan would comply with the requirements of CFGC Section 1602 regarding Lake and Streambed Alteration Agreements; therefore, this is not considered to be mitigation and a new mitigation measure regarding Lake and Streambed Alteration Agreements is not warranted. Metropolitan completed a preliminary Aquatic Assessment Report of potentially jurisdictional features of the proposed Project area in 2021 and 2022 and the IS/MND discloses potential impacts to jurisdictional features. Mitigation measures are included to reduce or avoid impacts to these jurisdictional features. Metropolitan also acknowledges that compensatory mitigation and/or restoration mitigation ratios may require negotiation as part of the Lake and Streambed Alteration Agreement issuance process. No additional mitigation measures or revisions to existing mitigation measures are warranted.

### **Response 1-19**

The commenter requests any special status species and natural communities detected during proposed Project-related surveys be reported to the CNDDB.

In accordance with the requirements of Public Resources Code Section 21003(e), special status species and natural communities detected during Project-related surveys would be reported to the CNDDB.

### **Response 1-20**

The commenter states CDFW's environmental document filing fee requirements.

The comment is noted. Metropolitan would be required by law to pay all CDFW filing fees as necessary and appropriate.

### **Response 1-21**

The commenter provides a summary of their comments. The commenter states an opinion that the IS/MND does not adequately identify and mitigate the proposed Project's impacts to biological resources and that an IS/MND may not be the appropriate CEQA document for the proposed Project. The



commenter suggests that if the IS/MND cannot demonstrate impacts to biological resources are mitigated to a less-than-significant level, an Environmental Impact Report should be prepared.

Refer to Responses 1-4 through 1-20 for responses to the specific comments and recommendations provided by the commenter. As described therein, the IS/MND has adequately characterized baseline conditions, analyzed potential impacts from the proposed Project, and included mitigation measures to reduce to less-than-significant levels the proposed Project's impacts to biological resources. As a result, an IS/MND is the appropriate level of CEQA documentation for the proposed Project.

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# **Copper Basin Discharge Valve Replacement and Access Road Improvements Project**

## **Mitigation Monitoring and Reporting Program**

**The Metropolitan Water District of Southern California**

700 North Alameda Street

Los Angeles, CA 90012



Report No. 1663

*February 2023*

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## Mitigation Monitoring and Reporting Program

The Mitigation Monitoring and Reporting Program (MMRP) for the proposed Copper Basin Discharge Valve Replacement and Access Road 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. Metropolitan makes the finding that the measures included in the MMRP constitute changes or alterations that avoid or substantially lessen the potentially significant environmental effects of the proposed Project on the environment.

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 Measures:** 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
<b>Biological Resources</b>					
<b>BIO-1 Special Status Plant Species Surveys</b>					
Prior to any ground disturbing activities that are initiated after the spring 2023 blooming season, Metropolitan shall conduct surveys for special-status plants in areas of suitable habitat. Surveys shall be conducted by a qualified botanist during the flowering season in suitable habitat located within proposed Project disturbance areas and a 50-foot buffer. All special-status plant species identified in the proposed Project area shall be mapped onto a site-specific aerial photograph and/or topographic map. Surveys shall be conducted in accordance with the most current protocols established by the CDFW and USFWS. If federally listed, state listed, or California Rare Plant Ranking 1B or 2B species are found, avoidance and minimization measures shall be implemented in accordance with Mitigation Measure BIO-2.	Metropolitan	Implement during appropriate blooming period and prior to commencement of construction activities.	Metropolitan Qualified biologist		
<b>BIO-2 Special Status Plant Species Avoidance and Minimization</b>					
If federally listed, state listed, or California Rare Plant Ranking 1B or 2B species are found during special-status plant surveys conducted pursuant to Mitigation Measure BIO-1, then avoidance measures shall be implemented to avoid impacting these plant species. Rare plant occurrences that are not within the immediate disturbance footprint but are located within 50 feet of disturbance limits shall be protected at least 30 feet beyond their extent, or other distance as approved by a monitoring biologist, to protect them from harm. If avoidance of federally listed or state listed plant species is not feasible, impacts shall be fully offset through implementation of a restoration plan that results in no net loss in accordance with Mitigation Measure BIO-3.	Metropolitan	Implement prior to commencement of construction activities.	Metropolitan Qualified biologist		



Mitigation Measure	Responsible Party	Timing of Implementation	Implementation Party	Comments	Initials/Date
<b>BIO-3 Special Status Plant Species Revegetation</b>					
<p>If avoidance of federally listed, state listed, and/or California Rare Plant Rank 1B or 2B species is not feasible, the individuals shall be transplanted, and surrounding topsoil shall be salvaged to be incorporated into the revegetation process for the site. A special-status plant restoration plan shall be prepared and implemented that includes the following criteria at a minimum:</p> <ul style="list-style-type: none"> <li>■ The number of specimens affected for each species</li> <li>■ Identification of on-site or off-site preservation location(s)</li> <li>■ Methods for restoration, enhancement, and/or transplanting, including topsoil salvage and planting seeds of the affected species</li> <li>■ A replacement ratio of 1:1 per impacted specimen</li> </ul>	Metropolitan	<p>Prepare special status plant restoration plan prior to commencement of construction activities.</p> <p>Implement transplant and topsoil salvage during construction activities.</p> <p>Implement special status plant restoration plan following completion of construction activities.</p>	Metropolitan Qualified biologist		
<b>BIO-4 Special Status Wildlife Species Surveys</b>					
<p>For all proposed Project work areas, Metropolitan shall implement preconstruction wildlife surveys for special-status wildlife species with a moderate to high potential to occur. Surveys shall be conducted in areas of suitable habitat no more than 72 hours prior to the start of proposed Project activities. The survey area shall include the proposed Project area and all ingress/egress routes, plus a 100-foot buffer (unless otherwise defined by Mitigation Measures BIO-6, BIO-8, and BIO-9).</p>	Metropolitan	<p>Implement pre-construction surveys not more than 72 hours prior to start of construction activities.</p>	Metropolitan Qualified biologist		
<b>BIO-5 Special Status Wildlife Species Avoidance and Minimization</b>					
<p>Metropolitan shall develop and implement appropriate avoidance measures for special-status wildlife species occurring within or near the proposed Project area. Avoidance measures may include but are not limited to:</p> <ul style="list-style-type: none"> <li>■ Flagging or fencing of any special-status species burrows or nests by a monitoring biologist and establishing an</li> </ul>	Metropolitan	<p>Implement prior to and during construction activities.</p>	Metropolitan Qualified biologist		

Mitigation Measure	Responsible Party	Timing of Implementation	Implementation Party	Comments	Initials/Date
<b>BIO-5 Special Status Wildlife Species Avoidance and Minimization (continued)</b>					
<p>appropriate buffer to ensure avoidance during proposed Project activities.</p> <ul style="list-style-type: none"> <li>■ Monitoring by a monitoring biologist during initial ground-disturbing activities. Once initial ground-disturbing activities have been completed, the biologist shall conduct preconstruction clearance surveys, as necessary.</li> <li>■ If at any time during proposed Project activities a special-status species enters work areas or otherwise may be impacted by construction, activities at the site where the find occurred shall cease until the individual has moved out of the work area and/or buffer on its own accord.</li> </ul>					
<b>BIO-6 Conduct Surveys and Avoidance for Ringtail, American Badger, and Desert Kit Fox</b>					
<p>Metropolitan shall conduct pre-construction surveys for ringtail, American badger, and desert kit fox no more than 15 days prior to initiation of construction activities. Surveys shall be conducted in areas that contain habitat for these species and shall include Project disturbance areas and access roads plus a 200-foot buffer surrounding these areas. If dens are detected, each den shall be classified as inactive, potentially active, active non-natal, or active natal.</p> <p>Inactive dens that would be directly impacted by road grading shall be excavated either by hand or mechanized equipment under the direct supervision of the biologist and backfilled to prevent reuse by ringtails, badgers, or kit fox. Potentially and known active dens shall not be disturbed during the whelping/pupping season (February 1 – September 30). A den may be declared "inactive" after three days of monitoring via camera(s) or a tracking medium have shown no ringtail, badger, or kit fox activity.</p> <p>Active dens shall be flagged and Project activities within 200 feet shall be avoided. Buffers may be modified by a qualified biologist. If active dens are found within Project disturbance areas and avoidance is not possible, Metropolitan shall take</p>	Metropolitan	<p>Implement pre-construction surveys not more than 15 days prior to start of construction activities.</p> <p>Implement den avoidance measures prior to and during construction activities.</p>	Metropolitan Qualified biologist		

Mitigation Measure	Responsible Party	Timing of Implementation	Implementation Party	Comments	Initials/Date
<b>BIO-6 Conduct Surveys and Avoidance for Ringtail, American Badger, and Desert Kit Fox (continued)</b>					
<p>action as specified below.</p> <p><b>Active and potentially active non-natal dens.</b> Outside the breeding season, any potentially active dens that would be directly impacted by construction activities shall be monitored by a qualified biologist for three consecutive nights using a tracking medium (such as diatomaceous earth or fire clay) or infrared camera stations at the entrance. If no tracks are observed in the tracking medium or no photos of the target species are captured after three nights, the den may be excavated and backfilled by hand. If tracks are observed, the den may be progressively blocked with natural materials (rocks, dirt, sticks, and vegetation piled in front of the entrance) for the next three to five nights to discourage continued use. After verification that the den is no longer active, the den may be excavated and backfilled by hand.</p> <p><b>Active natal dens.</b> Active natal dens or any den active during the breeding season will not be excavated or passively relocated. The pup-rearing season is generally from February 1 through September 30. A 300 foot no-disturbance buffer shall be maintained around all active natal dens. A qualified biologist shall monitor the natal den until they determine that the pups have dispersed. Any disturbance to animals or activities that might disturb denning activities shall be prohibited within the buffer zone. Once the pups have dispersed, methods listed above for non-natal dens may be used to discourage den reuse. After verification that the den is unoccupied, it shall then be excavated by hand and backfilled to ensure that no animals are trapped in the den.</p>					
<b>BIO-7 Construction Monitoring for Bighorn Sheep</b>					
If bighorn sheep are detected within 300 feet of Project activities, construction shall cease until the bighorn sheep have moved a safe distance away from project activities. If bighorn sheep become acclimated to any activity and the biologist determines that Project activities are unlikely to adversely affect the animals,	Metropolitan	Implement monitoring during construction activities.	Metropolitan Qualified biologist		

Mitigation Measure	Responsible Party	Timing of Implementation	Implementation Party	Comments	Initials/Date
<b>BIO-7 Construction Monitoring for Bighorn Sheep (continued)</b>					
then Project activities can proceed. If the animals appear agitated, the biologist may increase the buffer distance and suspend Project construction.					
<b>BIO-8 Conduct Surveys for Mountain Lion and Avoid Denning Areas</b>					
If construction activities that could disturb potential denning sites (i.e., large trees, cavities, rock piles, pipes, or overhangs) will occur during the breeding season for mountain lions (April through September), a qualified biologist will conduct surveys for potential dens within 200 feet of all areas proposed for disturbance. Any active dens will be avoided and an appropriate disturbance-free buffer will be established. Once the young have left the den or the den is no longer active, construction activities can resume.	Metropolitan	Implement pre-construction surveys prior to commencement of construction activities.	Metropolitan Qualified biologist		
<b>BIO-9 Survey for Maternity Colonies or Hibernaculum for Roosting Bats</b>					
Prior to the initiation of Project activities within suitable bat roosting habitat, Metropolitan shall retain a qualified biologist to conduct surveys for sensitive bats. Surveys shall be conducted no more than 15 days prior to the initiation of work near the base of the dam or near other structures that could support bats. Surveys shall also be conducted during the maternity season (March 1 to July 31) within 300 feet of project activities, where safe access is possible. If active maternity roosts or hibernacula are found, the structure, tree, or feature occupied by the roost shall be avoided (i.e., not removed), if feasible. If avoidance of the maternity roost is not feasible the biologist will implement the following actions.  <b>Maternity Roosts.</b> If a maternity roost will be impacted/removed by the Project, and no alternative maternity roost exists in proximity, substitute roosting habitat for the maternity colony shall be provided in an adjacent area free from project impacts. Alternative roost sites will be designed to meet the needs of the specific species. Alternative roost sites must be of comparable	Metropolitan	Implement pre-construction surveys not more than 15 days prior to start of construction activities.  Implement roost avoidance measures prior to and during construction activities.  Implement exclusion methods at least one week prior to the commencement of construction activities.	Metropolitan Qualified biologist		

Mitigation Measure	Responsible Party	Timing of Implementation	Implementation Party	Comments	Initials/Date
<b>BIO-9 Survey for Maternity Colonies or Hibernaculum for Roosting Bats (continued)</b>					
<p>size and proximal in location to the impacted colony.</p> <p><b>Exclusion of bats prior to eviction from roosts.</b> If non-breeding bat hibernacula are found in trees or structures in the Project area, the individuals shall be safely evicted, under the direction of a qualified biologist, by opening the roosting area to allow airflow through the cavity or other means determined appropriate by the biologist (e.g., installation of one-way doors). In situations requiring one-way doors, a minimum of one week shall pass after doors are installed and temperatures should be sufficiently warm for bats to exit the roost. Roosts that need to be removed in situations where the use of one-way doors is not necessary shall first be disturbed by various means at the direction of the bat biologist at dusk to allow bats to escape during the darker hours.</p>					
<b>BIO-10 Jurisdictional Waters Avoidance and Compensatory Mitigation</b>					
Where feasible, jurisdictional areas shall be flagged or fenced for avoidance. Vegetation removal or trimming in jurisdictional areas shall be minimized. Temporary impact areas will be returned to similar conditions that existed prior to ground-disturbing activities. Compensatory mitigation at a 1:1 ratio for permanent impacts will occur through purchase of mitigation credits from an agency-approved mitigation bank, or through permittee-responsible mitigation, subject to applicable regulatory agency approval. Mitigation for temporary impacts to jurisdictional waters will occur through on-site restoration at a 1:1 ratio.	Metropolitan	Implement avoidance measures prior to and during construction activities.  Implement temporary impact recontouring following completion of construction activities.	Metropolitan Qualified biologist		



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Engineering, Operations, & Technology Committee

# Adopt Mitigated Negative Declaration for Copper Basin Discharge Valve Replacement and Access Road Improvements Project

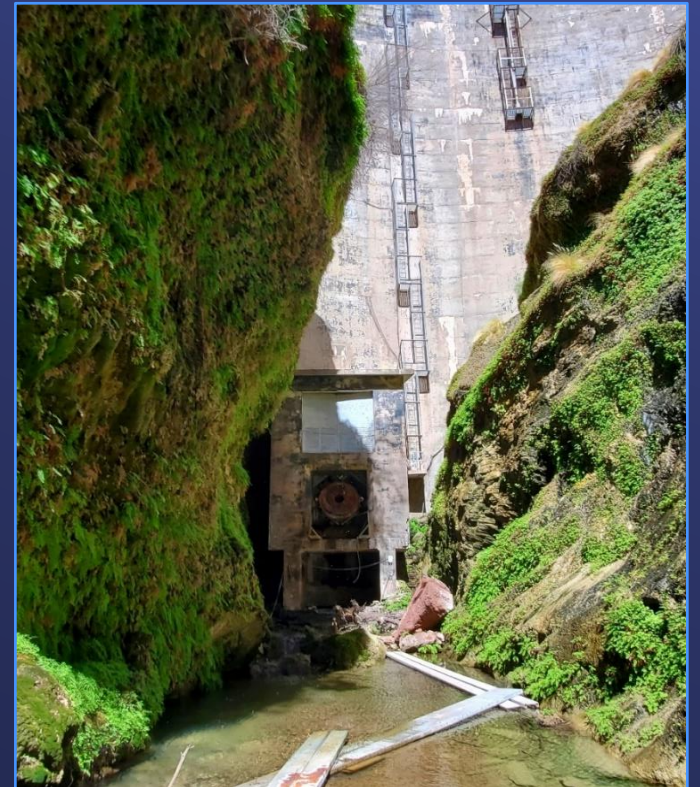
Item 7-7

March 13, 2023

# Copper Basin Discharge Valve Replacement and Access Road Improvements Project

## Current Action

- Adopt Mitigated Negative Declaration for Copper Basin Discharge Valve Replacement and Access Road Improvements Project
- No funds required





# Project Location



# Copper Basin Discharge Valve Replacement and Access Road Improvements Project

## Background

- Original 1930s construction
- Concrete –arch dam
  - 210 ft high
- Fixed cone valve used for emergency dewatering
  - Valve corroded & leaking
- Ladders and catwalks corroded
- Electrical systems deteriorated
- Access road steep & eroded

Copper Basin



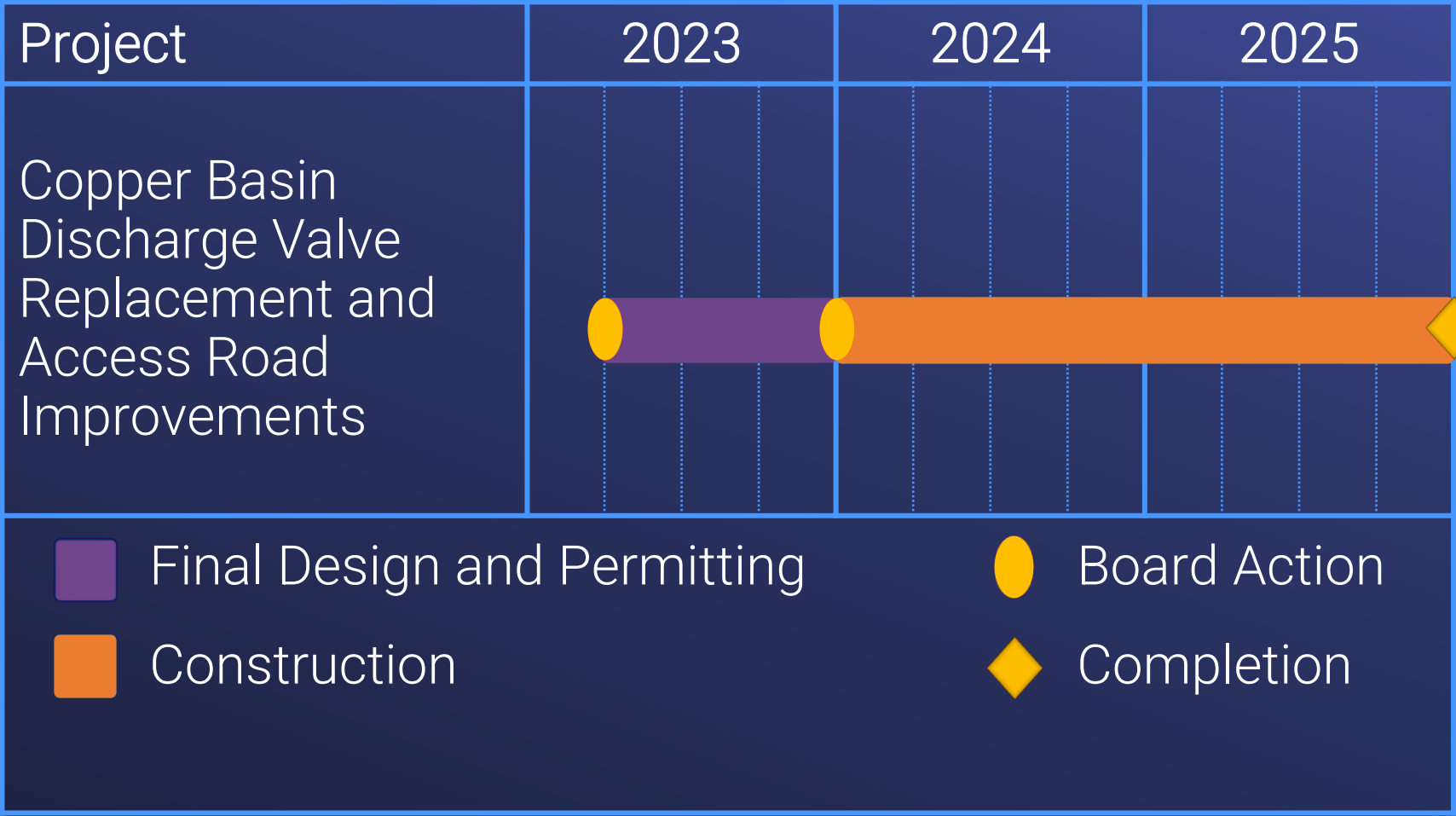


## Copper Basin Discharge Valve Replacement and Access Road Improvements Project

### Adopt Mitigated Negative Declaration

- Evaluated activities
  - Discharge valve replacement
  - Slide gate rehabilitation
  - Appurtenant structure upgrades
  - Access road improvements
- One potentially significant impact category
  - Biological resources
- All impacts less than significant with mitigation

# Project Schedule



# Board Options

- Option #1
  - Adopt Mitigated Negative Declaration for the Copper Basin Discharge Valve Replacement and Access Road Improvements Project and take related CEQA actions
- Option #2
  - Do not adopt the Mitigated Negative Declaration at this time

# Staff Recommendation

- Option #1







● **Board of Directors**  
***One Water and Stewardship Committee***

3/14/2023 Board Meeting

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7-8

**Subject**

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Authorize the General Manager to enter into an agreement with Western Municipal Water District, Rubidoux Community Services District, West Valley Water District, and San Bernardino Valley Municipal Water District to provide Rubidoux Community Services District assistance with water deliveries: the General Manager has determined that the proposed action is exempt or otherwise not subject to CEQA

**Executive Summary**

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This letter seeks authorization for an agreement with Western Municipal Water District (Western), Rubidoux Community Services District (Rubidoux), West Valley Water District (West Valley), and San Bernardino Valley Municipal Water District (Valley District) (the “Parties”) to assist Rubidoux with water deliveries. Under the proposed agreement, Metropolitan would provide up to 2,000 acre-feet of water per year (AFY) to Rubidoux through Valley District’s connection on the San Gabriel Valley Devil Canyon – Azusa Pipeline (Azusa Pipeline), provided there is available capacity. Water delivered under this agreement would only be used by Rubidoux within Western’s service area.

**Details**

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**Background**

Rubidoux is a retail water agency within the service area of Western that serves approximately 40,000 customers and the city of Rubidoux qualifies as a disadvantaged community (DAC). As part of Western’s service area, property owners in Rubidoux pay ad valorem property taxes and standby charges to Metropolitan every year. Currently, Rubidoux relies fully on local groundwater and has no connection to imported supplies. Rubidoux’s groundwater has high ambient total dissolved solids (TDS) levels, and after customer use, Rubidoux’s wastewater exceeds the city of Riverside’s National Pollutant Discharge Elimination System permit limits for TDS for effluent that is discharged to the Santa Ana River. As a result, Rubidoux requested delivery of Metropolitan’s imported supplies to blend with their local groundwater prior to use for municipal and industrial purposes. The proposed agreement would provide Rubidoux access to imported supplies which they have been supporting through Metropolitan’s property tax and standby charges.

Metropolitan has capacity rights in the Azusa Pipeline as part of an existing exchange agreement with San Gabriel Valley Municipal Water District (San Gabriel Valley). San Gabriel Valley owns and operates the Azusa Pipeline, which delivers its State Water Project (SWP) supplies from the Devil Canyon turnout on the East Branch of the SWP. Valley District has an existing connection at Lytle Creek Station on the Azusa Pipeline. West Valley can accept Metropolitan’s SWP supplies through Valley District’s connection. Rubidoux’s service area is located immediately south of West Valley. West Valley has treatment facilities and infrastructure in place to deliver treated water to Rubidoux. Western does not currently have the infrastructure in place to deliver Metropolitan’s imported water to Rubidoux.

In April 2022, the Parties requested a similar agreement for Metropolitan to provide up to 2,000 AFY to Rubidoux to blend with their groundwater supplies for consumption and ensure compliance with water quality standards identified in permits related to discharges to the Santa Ana River. The Santa Ana River is an important groundwater basin recharge facility for downstream agencies in Orange County. Staff recommended that the Board authorize the General Manager to enter into a long-term agreement with the Parties to provide Rubidoux

assistance with water deliveries. However, the Board authorized only a one-year agreement and requested that staff return and report after assessing alternatives for Rubidoux. Metropolitan staff and the Parties assessed alternatives, including desalination and a connection to Western's distribution system. However, the estimated costs far exceed the cost of purchasing water from Metropolitan and would have placed an excessive burden on an already underserved community.

Subsequent to the Board's action, Rubidoux did not construct the required interconnection to accept water deliveries from West Valley due to the uncertainty of long-term supplies with a one-year agreement. Therefore, the Parties did not enter into a one-year agreement and respectfully request board reconsideration of a long-term agreement.

### **Proposed Agreement**

The Parties are requesting a long-term agreement to provide up to 2,000 AFY to Rubidoux. Metropolitan would provide the requested water to Rubidoux through unused capacity in the Azusa Pipeline. Valley District would deliver Metropolitan's imported supplies on behalf of Metropolitan to West Valley off of Valley District's Lytle Creek connection on the Azusa Pipeline. West Valley would treat and deliver the requested water to Rubidoux. Western would pay Metropolitan's full-service rate in effect at the time of the delivery to Rubidoux, and Rubidoux would reimburse Western. The delivery would be subject to the capacity charge, readiness-to-serve charge, and all volumetric water rates. Metropolitan staff evaluated the capacity of the Azusa Pipeline and determined that the needs of both West Valley and Rubidoux can be met.

Staff recommends that the Board authorize the General Manager to enter into an agreement with the Parties consistent with the terms outlined in **Attachment 1**. These terms also address questions that were raised by the Board when this item was first considered in April 2022. Specifically, the terms include acknowledgment that deliveries are not guaranteed and face reduction requirements in times of drought. General terms include:

1. Agreement termination of November 4, 2035.
2. Maximum delivery amount is 2,000 AF per calendar year.
3. Metropolitan water deliveries under this Agreement will be used solely within Western's service area.
4. Deliveries are not guaranteed and are limited to Metropolitan's unused capacity in the Azusa Pipeline.
5. When the Department of Water Resources is administering SWP allocations pursuant to Article 18a of the Water Supply Contracts, or during a time when Metropolitan's Board of Directors has declared that a regional shortage is in effect, the same guidelines, procedures, and limitations that Metropolitan applies to its Member Agencies will apply to deliveries made pursuant to this Agreement.

Although it is not a component of this proposed agreement, there is an additional benefit that a new interconnection between West Valley and Rubidoux would provide to Metropolitan's service area. Western owns 6,000 AF of low-TDS groundwater supplies within the boundaries of Valley District. If the interconnection between West Valley and Rubidoux is constructed, Western would be able to deliver 6,000 AF of additional supplies to Rubidoux within Metropolitan's service area.

### **Policy**

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Metropolitan Water District Administrative Code, Division IV, Section 4209: Contracts

Metropolitan Water District Administrative Code, Division IV, Section 4401-4403: Rates; Readiness-to-Serve Charge; Capacity Charge

Metropolitan Water District Administrative Code, Division XI, Section 11104: Delegation of Responsibilities

By Minute Item 30524, dated September 17, 1974, the Board authorized a cooperative water exchange agreement to eliminate the overdraft condition in the western portion of the Main San Gabriel Basin; as part of this agreement, Metropolitan is granted conveyance rights to the unused capacity in San Gabriel Valley Municipal Water District's Devil Canyon-Azusa pipeline.

By Minute Item 52783, dated April 12, 2022, the Board authorized the General Manager to enter into a one-year agreement with Western Municipal Water District, Rubidoux Community Services District, West Valley Water District, and San Bernardino Valley Municipal Water District to provide Rubidoux assistance with water deliveries, subject to a possible extension if approved by the Board following a review by the General Manager on alternative means of addressing Rubidoux's needs, as amended at Committee and set forth in Agenda Item 7-10 board letter.

## **California Environmental Quality Act (CEQA)**

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### **CEQA determination for Option #1:**

The proposed action is not defined as a project under CEQA (Public Resources Code Section 21065, State CEQA Guidelines Section 15378) because the proposed action will not cause either a direct physical change in the environment or a reasonably foreseeable indirect physical change in the environment and involves continuing administrative activities, such as general policy and procedure making (Section 15378(b)(2) of the State CEQA Guidelines). 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 which do not involve any commitment to any specific project which may result in a potentially significant physical impact on the environment (Section 15378(b)(4) of the State CEQA Guidelines). The delivery of water is exempt from CEQA as it consists of the operation, repair, maintenance, permitting, leasing, licensing, or minor alteration of existing public or private structures, facilities, mechanical equipment, or topographical features, involving negligible or no expansion of existing or former use (Section 15301 of the State CEQA Guidelines).

### **CEQA determination for Option #2:**

None required

## **Board Options**

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### **Option #1**

Authorize the General Manager to enter into an agreement with Western Municipal Water District, Rubidoux Community Services District, West Valley Water District, and San Bernardino Valley Municipal Water District to provide Rubidoux Community Services District assistance with water deliveries.

**Fiscal Impact:** None. Metropolitan would receive revenue from the full-service sale of water that is delivered water under this agreement.

**Business Analysis:** Provides water supply reliability to an area of Metropolitan's service area that does not currently receive Metropolitan water supplies.

### **Option #2**

Do not authorize the General Manager to enter into an agreement with Western Municipal Water District, Rubidoux Community Services District, West Valley Water District, and San Bernardino Valley Municipal Water District to provide Rubidoux assistance with water deliveries.

**Fiscal Impact:** None.

**Business Analysis:** Would not provide water supply reliability to an area of Metropolitan's service area that does not currently receive Metropolitan water supplies.

**Staff Recommendation**

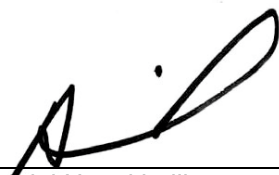
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Option #1

  
\_\_\_\_\_  
Brad Coffey  
Manager, Water Resource Management

2/24/2023

Date

  
\_\_\_\_\_  
Adel Hagekhalil  
General Manager

2/27/2023

Date

**Attachment 1 – Term Sheet for the Agreement to Provide the Rubidoux Community Services  
District Assistance with Water Deliveries**

Ref# wrm12694179

**Term Sheet for the Agreement to Provide the Rubidoux Community Services District  
Assistance with Water Deliveries**

**Agreement Overview**

- Parties: The Rubidoux Community Services District (Rubidoux), West Valley Water District (West Valley), Western Municipal Water District (Western), San Bernardino Valley Municipal Water District (Valley District), and The Metropolitan Water District of Southern California (Metropolitan)
- Effective Date: Upon agreement execution
- Termination Date: November 4, 2035, provided that any party may cancel with 30 days written notice
- Maximum Delivery Amount: 2,000 AF per calendar year

**Key Terms**

- Metropolitan water deliveries under this Agreement will be used within Western's service area.
- Rubidoux may request water deliveries at any time and will coordinate with Western on monthly water requests.
- Western will request delivery of water from Metropolitan on behalf of Rubidoux.
- Metropolitan will request Valley District to deliver Metropolitan supplies equal to Rubidoux's requested amount to West Valley at Valley District's connection (Lytle Creek, Station, 1747+00) on the San Gabriel Valley Devil Canyon – Azusa Pipeline.
- West Valley will treat and deliver Rubidoux's requested amount to Rubidoux for use only by Rubidoux within Metropolitan's service area.
- Western will pay Metropolitan's full-service untreated rate in effect at the time of delivery. The delivery is subject to the capacity charge, readiness-to-serve charge, and all volumetric water rates in the same manner as deliveries made to Western through Metropolitan's distribution system and connections.
- Rubidoux will reimburse Western for all payments made by Western to Metropolitan under this agreement.
- Valley District or West Valley shall have no responsibility for the cost of water delivered to Valley District's connection for use within Western's service area by Rubidoux.
- Metropolitan will be responsible for any Department of Water Resources charges for the State Water Project supplies delivered to Rubidoux through Valley District's connection.
- The delivery of water by Metropolitan is not guaranteed and is limited to the unused capacity in the San Gabriel Valley Devil Canyon-Azusa Pipeline.
- During a time when the Department of Water Resources is administering SWP allocations pursuant to Article 18a of the Water Supply Contracts, or during a time when Metropolitan's Board of Directors has declared that a regional shortage is in effect, the same guidelines, procedures, and limitations that Metropolitan applies to its Member Agencies will apply to deliveries made pursuant to this Agreement.





## One Water and Stewardship Committee

Authorize the General Manager to enter into an agreement with Western Municipal Water District, Rubidoux Community Services District, West Valley Water District, and San Bernardino Valley Municipal Water District to provide Rubidoux Community Services District assistance with water deliveries

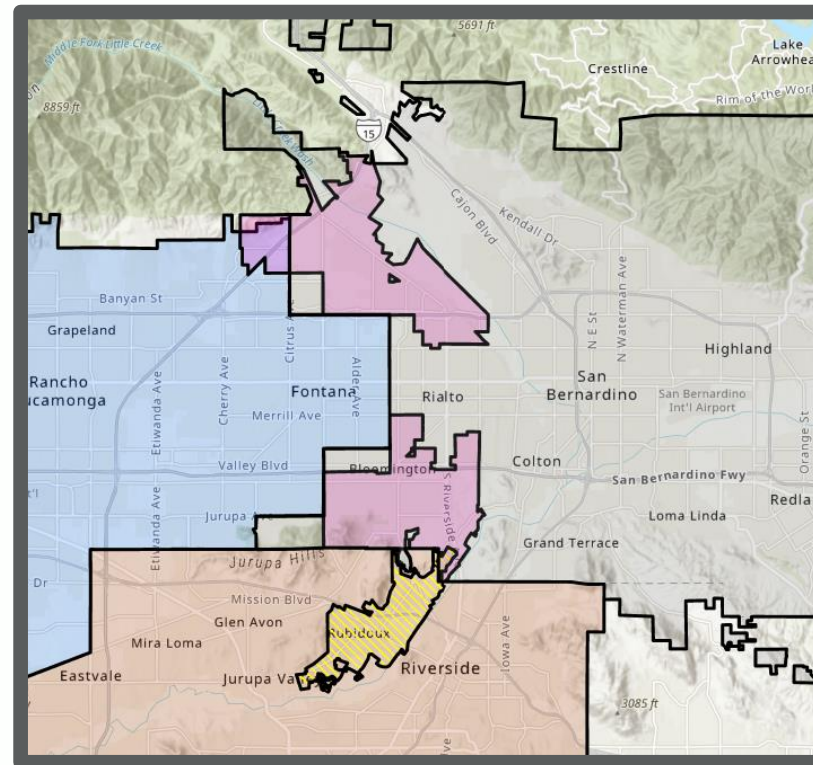
Item 7-8

March 14, 2023

Agreement to provide Rubidoux assistance with water deliveries-

## 2022 Board Action

# April 2022 Board Action



### Staff Request

- Long-term agreement
- 2,000 AFY of imported water deliveries
- Blend deliveries with local GW for water quality purposes

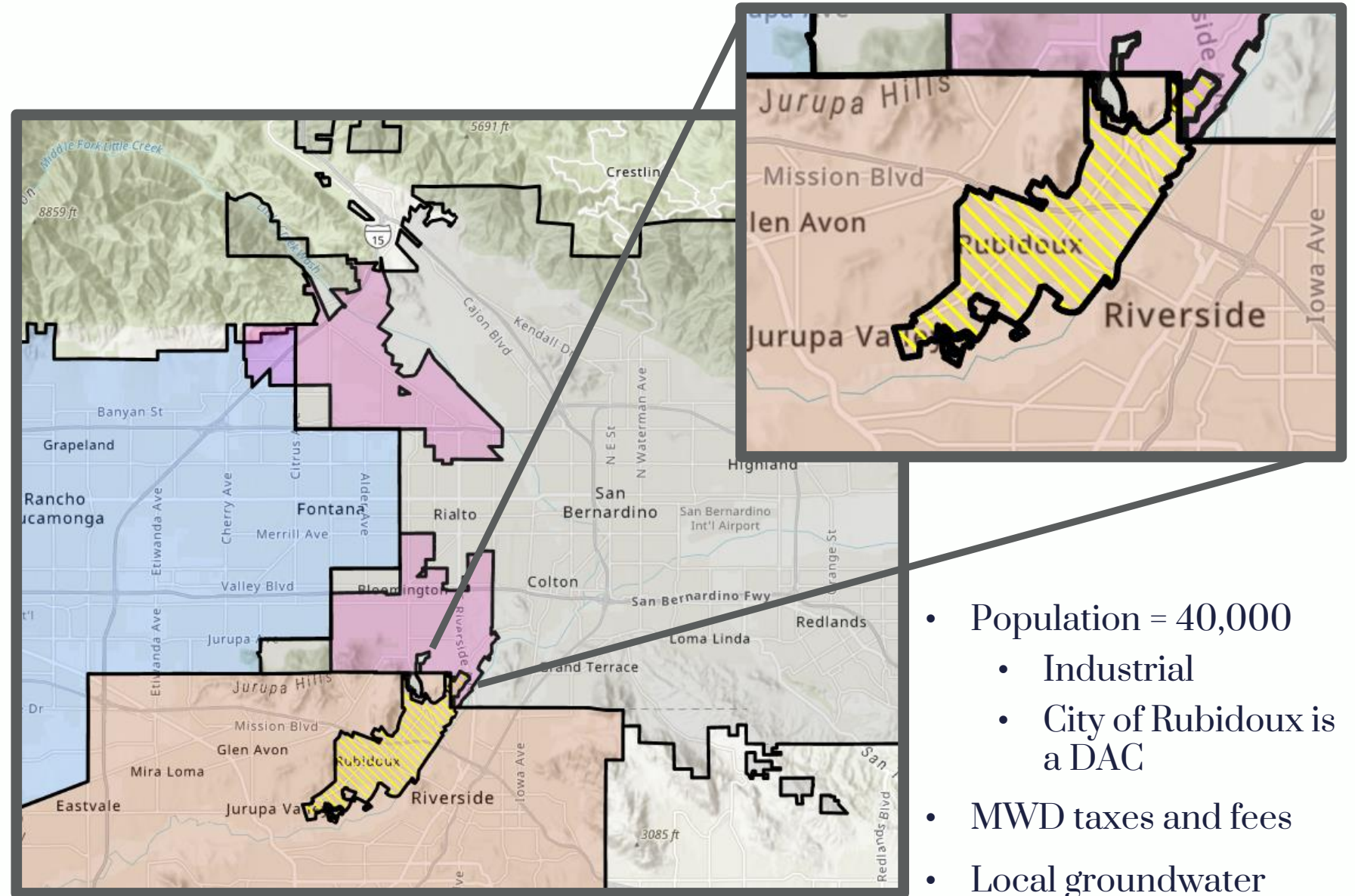
### Board Direction

- Execute a one-year agreement
- 2,000 AF of water deliveries
- Explore alternative solutions
- Return to Board

Agreement to provide Rubidoux assistance with water deliveries-

# Background

Rubidoux is a member of Western Municipal Water District



- Population = 40,000
  - Industrial
  - City of Rubidoux is a DAC
- MWD taxes and fees
- Local groundwater supplies

# Challenge



- Raw groundwater supplies have water quality issues



- Need for imported supplies to blend down a contaminant in their raw water supplies



- Total Dissolved Solids (TDS) led to a lawsuit with the wastewater treatment plant



- Improving the water quality of Rubidoux will benefit downstream users of the Santa Ana River

Agreement to provide Rubidoux assistance with water deliveries-

## Background



Agreement to provide Rubidoux assistance with water deliveries-

# Background: Agreement

Water conveyance would be through the Azusa Pipeline

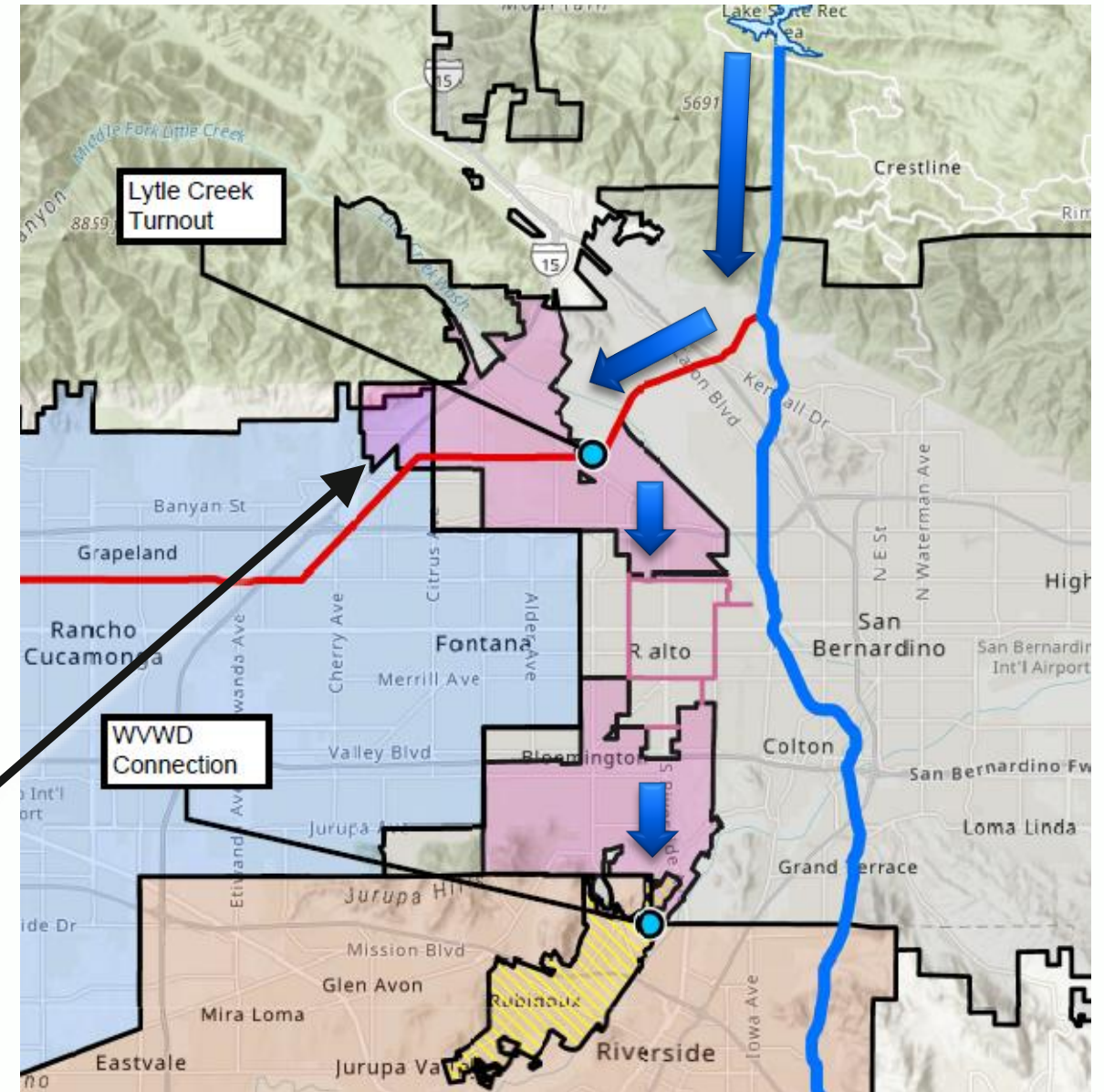
## Legend

- State Water Project - East Branch
- Devil Canyon Azusa Pipeline
- WWWD Distribution
- Connections

## Agency

- West Valley Water District
- San Bernardino Valley Municipal Water District
- Inland Empire Utilities Agency
- Rubidoux Community Service District
- Western Municipal Water District

July 2021: Delivery agreement for West Valley & IEUA

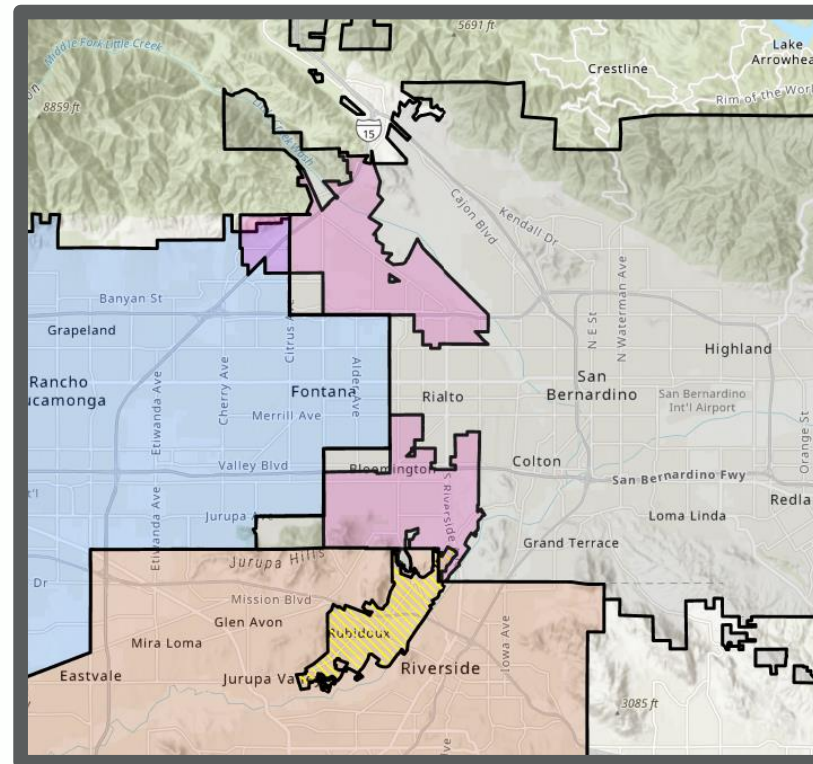




Agreement to provide Rubidoux assistance with water deliveries-

## 2022 Board Action

# April 2022 Board Action



### Staff Request

- Long-term agreement
- 2,000 AFY of imported water deliveries
- Blend deliveries with local GW for water quality purposes

### Board Direction

- ~~Execute a one year agreement~~
- ~~2,000 AF of water deliveries~~
- Explore alternative solutions
- Return to Board

Agreement to provide Rubidoux  
assistance with water deliveries-

## Board Concerns

Proposed agreement to  
provide water deliveries to  
Rubidoux Community  
Services District

### Blending Location

- Imported supplies will be blended with Rubidoux's potable supplies prior to customer use

### Time Limit

- Long-term agreement needed to justify interconnection costs

### Impacts with or without agreement

- Deliveries to Western for Rubidoux subject to same guidelines, procedures, and limitations that MWD applies to its Member Agencies in times of shortages
- Rubidoux would continue to face water quality issues

Agreement to provide Rubidoux  
assistance with water deliveries-

## Alternatives

Proposed agreement to  
provide water deliveries to  
Rubidoux Community  
Services District

# Desalination

- Groundwater treatment
  - Recent GAC / IOX treatment upgrades
  - Evaluated but too costly
  - Would require an extension to the IE Brine Line
  - Could be incentivized under LRP if eligible
- Riverside Water Quality Control Plant upgrades
  - Provides tertiary water for Santa Ana River
- Connection to Arlington Desalter
  - Location is about 10 miles away from Rubidoux

Agreement to provide Rubidoux  
assistance with water deliveries-

## Alternatives

Proposed agreement to  
provide water deliveries to  
Rubidoux Community  
Services District

# Connect to Western

- Connection to City of Riverside's distribution system
  - New 3-mile pipeline needed
  - Mission Blvd Bridge
  - Generally 100% GW, also high TDS



Agreement to provide Rubidoux  
assistance with water deliveries-

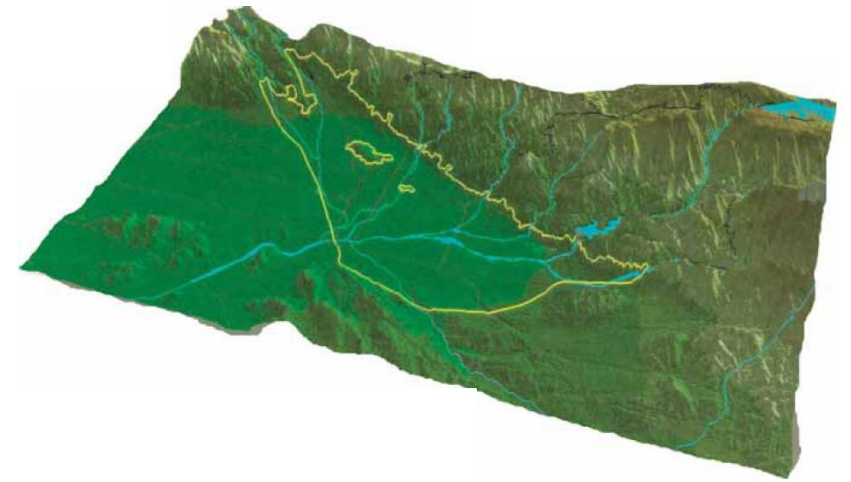
## Alternatives

Proposed agreement to  
provide water deliveries to  
Rubidoux Community  
Services District

# Utilize another Groundwater Source

- Bunker Hill Groundwater Basin: SBVMWD
- Western purchased 6,000 AF of replenishment water from MWD
- Low TDS levels
- Provides 3 full years of Rubidoux's request

**Bunker Hill Groundwater Basin**





Agreement to provide Rubidoux  
assistance with water deliveries-

## Proposed Solution

# Metropolitan Water Deliveries

- Authorize proposed agreement for 2,000 AFY
- The new interconnection would also allow Western to use Bunker Hill groundwater supplies during times of shortages

Agreement to provide Rubidoux  
assistance with water deliveries-

# Proposed Agreement

Proposed agreement to  
provide water deliveries to  
Rubidoux Community  
Services District

## Agreement Terms

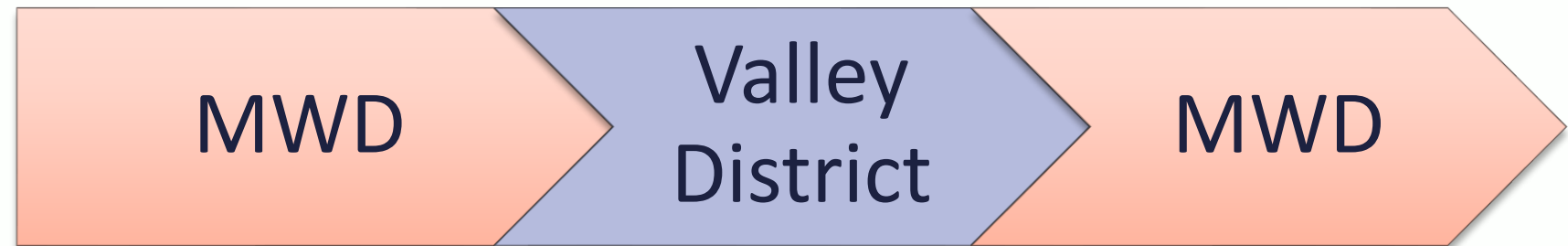
- Maximum Delivery Amount of 2,000 AFY
- Terminates November 4, 2035
- Water deliveries to be used within Western's service area
- The delivery of water by Metropolitan is not guaranteed and is limited to the unused capacity in the Azusa Pipeline
- Deliveries to Western for Rubidoux are subject to the same guidelines, procedures, and limitations that Metropolitan applies to its Member Agencies in times of shortages
- Western will pay Metropolitan's full service untreated water rate in effect at the time of the delivery, including Capacity Charge and Readiness-to-Serve Charge

Agreement to provide Rubidoux  
assistance with water deliveries-

# Board Action

## Why is Board Action needed?

- New service connections don't need Board approval
- No cost to Metropolitan



- Deliveries pass outside of Metropolitan's service area
- Outside agency cooperation required through an agreement

Agreement to provide Rubidoux  
assistance with water deliveries-

## Summary

# Justification and Benefits

- Rubidoux residents pay Metropolitan property taxes and standby charges
- Customer service to a DAC
- Similar to growth elsewhere in Metropolitan's service area
- Benefits to downstream Santa Ana River users
- Added revenues
- Approved West Valley delivery agreement (2021)
- Would allow construction of interconnection
  - Bunker Hill supplies can be brought into Metropolitan
- Any limitations or guidelines on other Member Agencies would apply to Western for Rubidoux deliveries

## Option #1

- Authorize the General Manager to enter into an agreement with WMWD, Rubidoux, West Valley, and Valley District to provide Rubidoux assistance with water deliveries.

## Option #2

- Do not authorize the General Manager to enter into an agreement with WMWD, Rubidoux, West Valley, and Valley District to provide Rubidoux assistance with water deliveries.

Agreement to provide Rubidoux assistance with water deliveries-

## Board Options



# Option #1

Agreement to provide Rubidoux  
assistance with water deliveries-

## Staff Recommendations





- **Board of Directors**  
***One Water and Stewardship Committee***

3/14/2023 Board Meeting

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**7-9**

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**Subject**

Consider changes to the Water Shortage Emergency Condition and the Emergency Water Conservation Program for the State Water Project Dependent Area and reaffirm the Regional Drought Emergency for all member agencies; the General Manager has determined that the proposed action is exempt or otherwise not subject to CEQA

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**Executive Summary**

In April 2022, the Board declared a Water Shortage Emergency Condition in the State Water Project (SWP) Dependent Area because of severe drought conditions and infrastructure constraints that severely limited the delivery of SWP supplies. Associated with the Water Shortage Emergency Condition, the Board also approved an Emergency Water Conservation Program (EWCP) that imposed stringent outdoor watering restrictions or volumetric limits on SWP water supply deliveries to six member agencies.

In January 2023, California experienced one of the wettest three-week periods on record, yielding a snowpack that was at 205 percent of average on February 1, 2023 and adding more than 1.3 million acre-feet to Lake Oroville since December 2022. In response to the improved hydrologic conditions, the California Department of Water Resources (DWR) increased the SWP allocation from five to 30 percent on January 26, 2023 and then again to 35 percent on February 22, 2023. This increased allocation provides adequate water supplies to meet SWP Dependent Area demands. As a result, the conditions necessitating a Water Shortage Emergency Condition and the EWCP no longer exist and staff recommends removing them effective immediately.

In contrast to the short-term improvement in supply from the SWP, the Colorado River watershed remains in a 23-year drought, the most serious in 1,200 years. On average, 25 percent of Southern California's water supply comes from the Colorado River. On-going negotiations with the Basin States and potential changes to the 2007 Interim Guidelines initiated by the U.S. Bureau of Reclamation warrant continuing the Regional Drought Emergency declared by the Board in December 2022. Further, though the most restrictive and mandatory conservation measures of the EWCP can now be lifted, all counties in Metropolitan's service area remain in a statewide drought emergency and must still seek demand response actions outlined in their Water Shortage Contingency Plans for a shortage level of up to 20 percent. As such, the emergency authorities provided to the General Manager and the call to conserve water issued in the December 13, 2022 Board resolution remain.

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**Details**

**Regional Drought Emergency and Statewide Drought Declaration Remain in Effect**

Staff's recommendation to remove the Water Shortage Emergency Condition and terminate the EWCP would not affect the other drought emergency declarations adopted by the Board during 2021 and 2022. This includes the November 2021 resolution declaring that specified emergency conditions within the Metropolitan service area as well as the Board's December 2022 resolution declaring a Regional Drought Emergency for all member agencies and calling upon all member agencies to voluntarily reduce use of both SWP and Colorado River supplies. Also unaffected would be the Board's October 2022 resolution that strongly recommended cities and water agencies across Southern California pass ordinances permanently prohibiting the installation and irrigation of non-functional turf.

The December 2022 Regional Drought Emergency resolution reaffirmed authorities delegated to the General Manager under the November 2021 resolution to take certain actions, enter agreements, and secure permits and approvals necessary to address the drought emergency conditions. Consistent with the December 2022 Regional Drought Emergency resolution, which remains in effect, the duration of the delegation of authority to the General Manager will continue until further Board action and is not affected by the action to remove the Water Shortage Emergency Condition in the SWP Dependent Area and to terminate the EWCP.

On August 16, 2022, Metropolitan's Board adopted a resolution affirming a Call to Action and a Commitment to Regional Reliability for All Member Agencies. This resolution directed the General Manager to identify a portfolio of projects and programs in coordination with the member agencies to address the need to connect and serve each member agency with more than one supply source. Collaboration and progress on the portfolio of reliability actions will continue and are not affected by the action to remove the Water Shortage Emergency Condition in the SWP Dependent Area and to terminate the EWCP.

### **Emergency Water Conservation Program Was Implemented to Address an Acute Water Shortage in the SWP Dependent Area**

Beginning in the fall of 2019, the SWP watersheds received very low precipitation and runoff. SWP Table A allocations for 2020, 2021, 2022 were only 20, 5, and 5 percent, respectively. Despite substantial precipitation in October and December 2021, precipitation in Northern California from January through March 2022 fell to the driest levels on record. Deteriorating hydrologic conditions led DWR to reduce the SWP Table A allocation for 2022 from 15 to five percent of contract amounts on March 18, 2022. In 2022, the DWR for the first time used a provision of the SWP Contract (Article 18(a)) to allocate water on a basis other than Table A to meet minimum demands of contractors for domestic supply, fire protection, or sanitation during the year. Contractors that received these human health and safety (HH&S) deliveries must pay back to DWR future Table A water within five calendar years.

Despite extraordinary efforts by Metropolitan to maximize available resources through operational drought actions, it became apparent that there would not be sufficient SWP supply available to meet normal demands in the SWP Dependent Area for the remainder of 2022. Following a public hearing held on April 26, 2022, Metropolitan's Board issued a resolution declaring that a Water Shortage Emergency Condition existed in the SWP Dependent Area and adopting a framework for the new EWCP aimed at preserving SWP supplies. These actions were taken pursuant to Water Code section 350 et seq., Water Code section 375 et seq., and other applicable authorities.

The EWCP adaptively preserves supplies by reducing non-essential uses of water delivered to the SWP Dependent Area. The EWCP began implementation on June 1, 2022, and was authorized through June 30, 2023. Six member agencies currently take restricted delivery of SWP water under the program. The impacted agencies include Calleguas Municipal Water District, Inland Empire Utilities Agency, Las Virgenes Municipal Water District, the City of Los Angeles, Three Valleys Municipal Water District, and Upper San Gabriel Valley Municipal Water District. The EWCP allowed two paths for compliance involving either enforced restrictions on outdoor watering or adherence to agency-specific volumetric limits subject to monetary penalties of \$2,000 per acre-foot for SWP water use over their limits.

Staff provided the Board with monthly reports on program status and current hydrologic conditions. From June through December 2022, the affected agencies took mandatory water supply cuts from their SWP use by an average of 35 percent from average dry-year usage, with some facing reductions of up to 73 percent. As a result of the exceptional conservation response by the SWP Dependent Area, the program successfully reduced demands to stay within the severely limited SWP supply available for 2022. No penalties were issued in 2022.

On December 1, 2022, DWR announced an initial 2023 allocation for the SWP at only five percent of contract amounts. DWR also provisionally allocated additional HH&S water to ensure that the SWP contractors could meet their HH&S needs during the year. A SWP allocation of less than 15 percent was insufficient to meet normal potable demands in the SWP Dependent Area.

In January 2023, SWP Dependent Area agencies received new volumetric limits for second phase of program from January through June 2023. Unlike the volumetric limits for 2022, the volumetric limits during the first half

of 2023 were subject to fluctuation due to uncertainties in the available water supplies at the beginning of the year. For these reasons, Metropolitan staff regularly revaluated the volumetric limits to incorporate changes.

### **Improving SWP Supply Conditions Alleviate the SWP Dependent Area Shortage**

Metropolitan's supply outlook from the SWP in 2023 has improved significantly with the arrival of nine atmospheric rivers during December 2022 and January 2023. Of the nine atmospheric rivers, five were of strong or greater magnitude. On January 26, 2023, DWR increased the SWP annual Table A allocation from 5 percent to 30 percent based on observed runoff and storage gains in Lake Oroville and San Luis Reservoir. This 30 percent SWP allocation matched the combined previous three years of SWP Table A allocations. On February 22, 2023, DWR increased the SWP allocation yet again to 35 percent. Additional increases to the allocation are expected when DWR's later studies begin to incorporate forecasted runoff from snowpack and updated San Joaquin River flow projections. At the current 35 percent SWP allocation, DWR no longer needs to allocate HH&S supplies, and Metropolitan will not accrue any new HH&S payback obligations for 2023. At the same time, wholesale demands on Metropolitan's imported supply are trending lower than earlier projections due to a synergistic combination of conservation drought response by the member agencies and a boost to local supplies from the recent wet weather. Both of these factors allow Metropolitan to put water in storage to help protect the SWP Dependent Area against future dry years.

In summary, there is no longer an acute water shortage for the SWP Dependent Area. With a 35 percent SWP allocation, available supplies exceed the estimated demands for the SWP Dependent Area. As shown in **Attachment 1**, water use under the EWCP is tracking well below the volumetric limits under the current 35 percent SWP allocation. To date, cumulative SWP use during 2023 is trending 83 percent under the total January-June 2023 volumetric limit. This trend, combined with the expectation of further increases in SWP supply, indicates that the critical shortage has abated and that Metropolitan can resume its role of providing reliable water service to the member agencies in the SWP Dependent Area.

### **Recommended Action: Remove the Water Shortage Emergency Condition in the SWP Dependent Area and Terminate the EWCP**

The April 26, 2022, board letter stated that "the Emergency Water Conservation Program shall continue through June 30, 2023, unless the Board of Directors lifts the action before that date." Due to the improved SWP water supply conditions that alleviate the acute water supply shortage in the SWP Dependent Area, staff recommends that the Board take action at this time to remove the Water Shortage Emergency Condition and terminate the EWCP, given that Metropolitan is now able to meet the needs of the SWP dependent member agencies. Terminating the EWCP would end restrictions on the use of SWP water by the SWP Dependent Area, effective immediately, and waive any penalties related to EWCP volumetric limits accrued to date (no penalties had been assessed through December 2022). Terminating the EWCP would also lift any mandatory requirements from Metropolitan concerning enforced outdoor watering restrictions. Monthly reporting and tracking on EWCP performance and compliance would be discontinued.

Under the action that authorized the EWCP, Member Agency Administered Program (MAAP) funding was made fully available to affected member agencies for enforcement activities beginning on July 1, 2022. Consistent with the April 26, 2022, board letter, upon termination of the EWCP, the MAAP funding and procedures will revert to previously established guidelines. Funding for existing approved tasks would be honored, but no new applications for this temporary funding mechanism would be accepted.

Removing the Water Shortage Emergency Condition for the SWP Dependent Area and terminating the EWCP removes the most stringent and mandatory requirements that were needed to deal with the acute emergency. But, it in no way lessens the importance of continued conservation and local supply investment by agencies in the SWP Dependent Area or in any other part of the region. California is still under a statewide drought emergency, and the expectation is that Metropolitan's service area and its member agencies will continue to comply with the Governor's executive order on the statewide drought emergency.

### **Alternatives Considered**

In developing the recommendation to remove the Water Shortage Emergency Condition and terminate the EWCP, staff considered several alternatives. First, staff considered delaying the action until more information was known about SWP hydrologic conditions. DWR's latest Table A allocation is still highly conservative at 35 percent.



However, staff's assessment is that sufficient snowpack and projected runoff exists to expect future increases in the allocation even if dry conditions return.

Second, staff considered whether the current hydrologic conditions warranted a suspension of the Regional Drought Emergency declared in December 2022. Although the improved SWP supplies in 2023 allow for an easing of the immediate emergency this year, there are still ongoing water supply challenges. With the current experience of extreme year-to-year variation of SWP supply, Metropolitan must replenish storage reserves, as well as anticipate possible constraints on Colorado River diversions. The ongoing decades-long drought in the Southwest has plunged the Colorado River system's reservoirs to record low elevations. The federal government has called for significant cutbacks in water diversions from the Colorado River as soon as 2023. Metropolitan intends to minimize the delivery of water from Intentionally Created Surplus to support Lake Mead's elevation and mitigate deeper shortages that could require additional contributions under the 2019 Drought Contingency Plan. As a result, Metropolitan is not planning to have a full Colorado River Aqueduct during 2023 or in subsequent years through 2026. For these reasons, staff believes it is prudent to maintain the current Regional Drought Emergency declaration.

Consistent with staff's recommendation to reaffirm the Regional Drought Emergency, Governor Newsom has taken similar action. On February 13, 2023, Governor Newsom signed Executive Order N-3-23 that maintains almost all of the drought-response actions of his prior drought-related proclamations and executive orders. Executive Order N-3-23 ordered state agencies to submit their views on whether any existing provisions in the Governor's drought proclamations and executive orders are no longer needed. The state agencies will submit their recommendations to the Governor no later than April 28, 2023. Metropolitan staff will monitor the statewide discussions on easing any drought orders and emergency regulations now in effect.

Finally, staff considered the need to move the region beyond the Regional Drought Emergency and to adopt a regional Water Supply Allocation Plan (WSAP) for fiscal year 2023-2024. The December 13, 2022, Board resolution declaring the Regional Drought Emergency had resolved that, should drought conditions persist or worsen in the coming months, the Board would consider implementing a regionwide supply allocation in March 2023. Drought conditions overall have not worsened in 2023 and are significantly improved in the SWP watershed. Based on hydrologic conditions to date, SWP water supply conditions are projected to improve even more in the coming months. These changed conditions are further enhanced by increases in local agency supplies, and demand-response effectiveness of the actions already taken by the member agencies in response to the Governor's call for conservation. Due to these improved conditions, staff does not anticipate a need for a regionwide supply allocation during fiscal year 2023-24. Staff continues to evaluate supply and demand conditions as they develop.

## **Policy**

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Metropolitan Water District Administrative Code Section 11104: Delegation of Responsibilities

Metropolitan Water District Administrative Code Section 4512: Sales Subject to System and Water Availability

Metropolitan Water District Administrative Code Section 6410: Powers and Duties

By Minute Item 43514, dated April 13, 1999, the Board adopted the Water Surplus and Drought Management Plan.

By Minute Item 47393, dated February 12, 2008, the Board adopted the Water Supply Allocation Plan.

By Minute Item 52481, dated August 17, 2021, the Board adopted a "Condition 2 – Water Supply Alert" resolution.

By Minute Item 52581, dated November 9, 2021, the Board adopted a resolution as modified recognizing a statewide drought emergency, declaring specified emergency conditions within the Metropolitan service area, and directing specified actions.

By Minute Item 52802, dated April 26, 2022, the Board declared a Water Shortage Emergency Condition, authorized the Emergency Water Conservation Program, and expressed support for the Governor's Executive Order N-7-22.

By Minute Item 52946, dated August 16, 2022, the Board adopted a resolution committing to regional reliability for all member agencies.

By Minute Item 53015, dated October 11, 2022, the Board adopted a resolution encouraging action to eliminate irrigation of non-functional turf with potable water.

By Minute Item 53061, dated December 13, 2022, the Board adopted a resolution declaring a Regional Drought Emergency.

## **California Environmental Quality Act (CEQA)**

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### **CEQA Determination for Options #1 & 2:**

The proposed actions are not defined as a project under CEQA (Public Resources Code Section 21065, State CEQA Guidelines Section 15378) because they involve continuing administrative or maintenance activities and/or general policy and procedure making that will not cause either a direct physical change in the environment or a reasonably foreseeable indirect physical change in the environment (Section 15378(b)(2) of the State CEQA Guidelines). In addition, the proposed actions are not defined as a project under CEQA because they involve organizational or administrative activities of governments that will not result in direct or indirect physical changes in the environment (Section 15378(b)(5) of the state CEQA Guidelines).

## **Board Options**

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### **Option #1**

Remove the Water Shortage Emergency Condition declared on April 26, 2022, for the SWP Dependent Area, terminate the Emergency Water Conservation Program and application of any penalties accrued, and reaffirm the Regional Drought Emergency declared on December 13, 2022.

**Fiscal Impact:** No negative fiscal impact. Upon terminating the Emergency Water Conservation Program, revenues from water transactions may increase if member agencies increase purchases of Metropolitan water. Expenditures for Emergency Water Conservation Program enforcement activities under Member Agency Administered Program may decrease as funding and procedures revert to the previously established guidelines.

**Business Analysis:** Making sufficient SWP supplies available to address the reliability needs of the SWP Dependent Area member agencies in 2023 is consistent with the Board's intent for Metropolitan to provide equitable reliability across the service area.

### **Option #2**

Continue the Water Shortage Emergency Condition declared on April 26, 2022, for the SWP Dependent Area, continue the Emergency Water Conservation Program, and reaffirm the Regional Drought Emergency declared on December 13, 2022.

**Fiscal Impact:** By continuing the Emergency Water Conservation Program, revenues from water transactions will likely decrease as member agencies reduce water demands. At the March 22, 2022, budget workshop, staff presented a scenario with 100,000 acre-feet fewer transactions each year. This scenario—realistic in the magnitude of the needed demand management activity—could reduce revenues by approximately \$100 million in fiscal year 2022/23.

**Business Analysis:** The Emergency Water Conservation Program would continue until June 30, 2023. Restricting SWP supplies available to agencies within the SWP Dependent Area may not be consistent with the Board's intent for equitable reliability across Metropolitan's service area.

**Staff Recommendation**

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Option #1

  
\_\_\_\_\_  
Brad Coffey  
Manager, Water Resource Management

2/22/2023

Date

  
\_\_\_\_\_  
Adel Hagekhalil  
General Manager

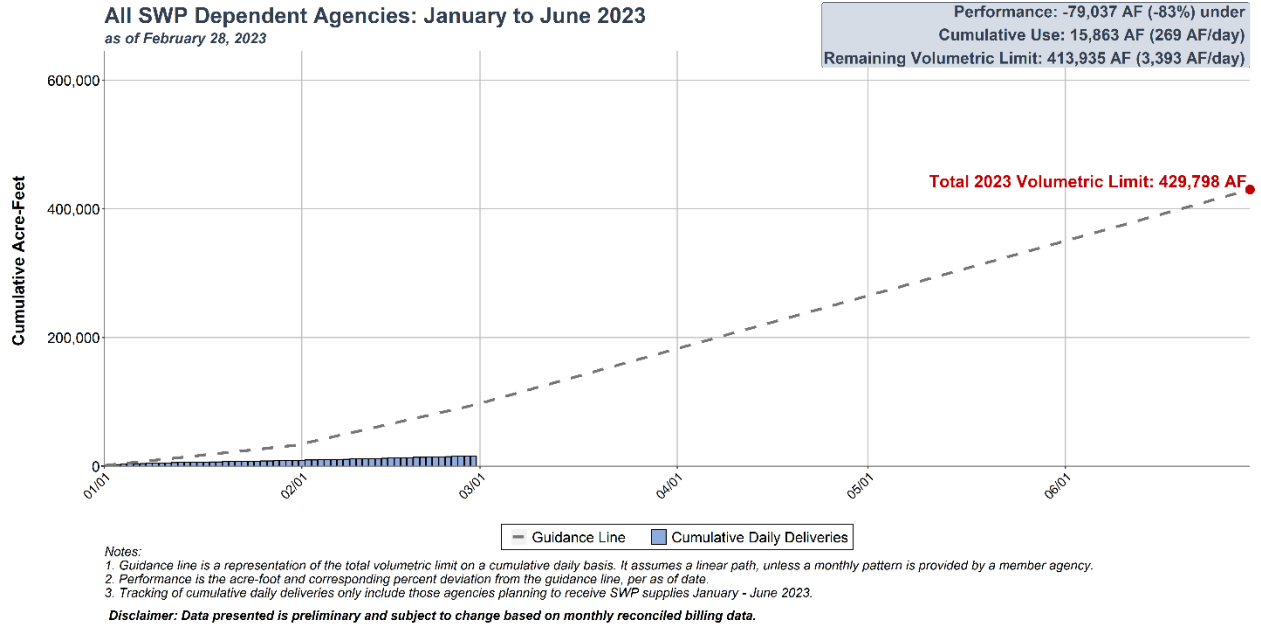
2/27/2023

Date

**Attachment 1 – Emergency Water Conservation Program Performance**

Ref# wrm12689889

## Emergency Water Conservation Program Performance





## One Water and Stewardship Committee

Consider Changes to the  
Water Shortage Emergency Condition  
for the SWP Dependent Area and  
Reaffirm the Regional Drought  
Emergency for all Member Agencies

Item 7-9

March 14, 2023



# Current Status of Drought & Shortage Emergency Actions

## Entire Service Area:

- Subject to Governor's Statewide Drought Emergency Declaration & Executive Order N-7-22
- Regional Drought Emergency declared Dec. 2022

## SWP Dependent Area:

- Water Shortage Emergency Condition declared April 2022
- Emergency Water Conservation Program (EWCP) began June 2022

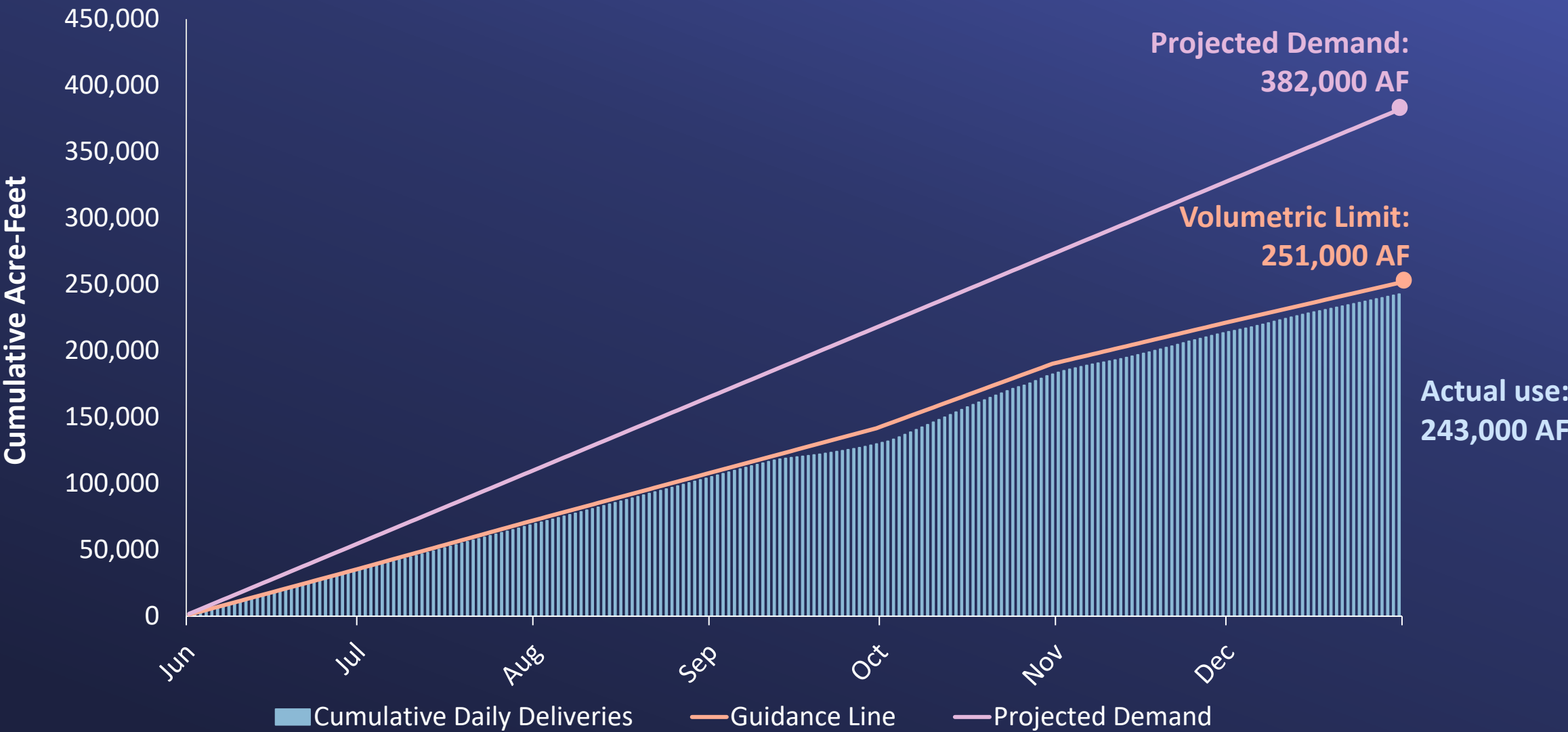
# Agencies Responded to the Need

2022 EWCP  
(June – December)

- SWP Dependent Area agencies faced severe mandatory requirements to reduce water use
  - Targeted 35% (on average) and up to 73% reduction from projected demands on MWD
  - Required complying with volumetric limits or strict one-day-per week watering limits
  - \$2,000/AF volumetric penalty if not in compliance
- SWP Dependent Area agencies collectively exceeded reductions required by EWCP objective
  - SWP water use reduced by 36% despite a record heat wave
  - No penalties assessed

# All SWP Dependent Agencies Water Use Tracking: Jun. to Dec. 2022

As of 12/31/2022



# Improved Conditions for SWP Dependent Area

Acute Shortage  
Conditions are  
Alleviated

- SWP allocation increased from initial 5% to 35%
  - Hydrology improved beginning in late December
  - Allocation exceeds unmet Human Health & Safety need
  - Storage of SWP supplies now planned
- Member Agency demands on Metropolitan lower than earlier projections
  - Conservation increase from drought actions and wet weather
  - Local supply boosted by current hydrologic conditions
- Acute water shortage for the SWP Dependent Area is alleviated at a 35% SWP allocation

# Board Consideration to End Most Severe Restrictions

Measured  
Response to  
Improved 2023  
Conditions

- Remove Water Shortage Emergency Condition currently declared for the SWP Dependent Area
- Remove Emergency Water Conservation Program (EWCP) for the SWP Dependent Area
  - Mandatory outdoor restrictions and enforcement
  - Penalty-enforced volumetric limits on supply
  - MAAP funding and procedures will revert to established guidelines
- Reaffirm the Regional Drought Emergency for all member agencies
  - Colorado River watershed remains in a 23-year drought
  - Future year SWP supplies remains uncertain
  - All counties in Metropolitan's service area remain under the Governor's statewide drought emergency declaration



# Regionwide Actions Remain in Place

Regional Drought  
Emergency  
Resolution  
(December 13, 2022)

- Reduce use of imported water supplies and immediately enhance and intensify conservation actions
- Implement demand response actions outlined in State-mandated Water Shortage Contingency Plans for a shortage level of up to 20 percent
- Emergency authorities delegated to the General Manager to address ongoing drought conditions

## Alternatives Considered to Recommended Action

- Delay the action to remove the Water Shortage Emergency Condition and terminate the EWCP until future SWP allocation increases
- Suspend the Regional Drought Emergency declared in December 2022
- Move beyond the current requirements and actions specified in the Regional Drought Emergency and implement a regionwide supply allocation for FY 2023-24 (Water Supply Allocation Plan)

# Water Supply Allocation Plan (WSAP)

## Update & Outlook

- Ongoing coordination with Member Agencies to discuss WSAP updates and potential implementation
- Considerations for implementation include
  - Hydrologic conditions
  - Imported supply outlook
  - Projected demands on Metropolitan
  - Projected end-of-year storage levels
- Under current and projected supply and demand conditions, staff does not anticipate a need for a regionwide WSAP supply allocation during fiscal year 2023-24

# Keeping the Public Engaged

## Continuing Drought & the Need to Conserve

- Messages
  - California vulnerable to extreme, variable weather
  - Need to adapt how we manage, invest in our water systems
  - Need to continue to use water wisely, Metropolitan and local water agencies are here to help with rebates and water saving tips
- Strategies
  - Multi-lingual messaging on current water conditions through earned media, community outreach, member agency support
  - Promote rebates, landscape transformations, and other water-saving actions for businesses, homes
  - Expand community partnerships and collaborations with Save Our Water, ACWA, other agencies

## Board Options

### Option #1

- Remove the Water Shortage Emergency Condition declared on April 26, 2022, for the SWP Dependent Area, terminate the Emergency Water Conservation Program and application of any penalties accrued, and reaffirm the Regional Drought Emergency declared on December 13, 2022.

### Option #2

- Continue the Water Shortage Condition declared on April 26, 2022, for the SWP Dependent Area, continue the Emergency Water Conservation Program, and reaffirm the Regional Drought Emergency declared on December 13, 2022.



Staff  
Recommendation

Option #1





• **Board of Directors**  
***Ethics, Organization, and Personnel Committee***

3/14/2023 Board Meeting

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**7-10**

**Subject**

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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**

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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.

**Details**

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**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 the 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:

- The Metropolitan Water District of Southern California Salary Schedule effective June 26, 2022  
**(Attachment 1)**

The approval of this salary schedule 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.

## Policy

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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

## California Environmental Quality Act (CEQA)

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### CEQA determination for Option #1:

The proposed action is not defined as a project under CEQA (Public Resources Code Section 21065, State CEQA Guidelines Section 15378) because the proposed action will not cause either a direct physical change in the environment or a reasonably foreseeable indirect physical change in the environment and involves continuing administrative activities, such as general policy and procedure making (Section 15378(b)(2) of the State CEQA Guidelines). 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 which do not involve any commitment to any specific project which may result in a potentially significant physical impact on the environment (Section 15378(b)(4) of the State CEQA Guidelines).

### CEQA determination for Option #2:

None required

## Board Options

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### Option #1

Approve to adopt the attached salary schedule to ensure compliance with California Code of Regulations, Section 570.5, and the negotiated MOUs.

**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 schedules.

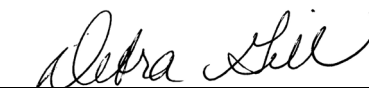
**Fiscal Impact:** None

**Business Analysis:** If not approved, Metropolitan will not be in compliance with California Code of Regulations, Section 570.5, and the negotiated MOUs.

## Staff Recommendation

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### Option #1



Debra Gill

Interim Human Resources Group Manager

3/7/2023

Date



Adel Hagekhalil

General Manager

3/8/2023

Date

## Attachment 1 – The Metropolitan Water District of Southern California Salary Schedule effective June 26, 2022

Metropolitan Water District of Southern California  
SALARY SCHEDULE

Report ID: MHR828

Page No. 1

Run Date 02/10/2023

Run Time 18:40:03

Effective Date: 06/26/2022

Classification Code	Title	Salary Grade	Hourly Range	Monthly Range	Annual Range	Unit Code
YA01	Accountant	038	\$ 35.83- 47.13	\$ 6,211- 8,169	\$ 74,526- 98,030	02
VA01	Accounting Tech I	029	\$ 27.97- 36.83	\$ 4,848- 6,384	\$ 58,178- 76,606	02
VA02	Accounting Tech II	034	\$ 32.12- 42.23	\$ 5,567- 7,320	\$ 66,810- 87,838	02
Z27	* Accounts Payable Administrator	053	\$ 54.12- 70.89	\$ 9,381-12,288	\$112,570-147,451	04
Z69	* Accounts Receivable Adminstr	053	\$ 54.12- 70.89	\$ 9,381-12,288	\$112,570-147,451	04
YA04	Admin Analyst	044	\$ 42.23- 55.62	\$ 7,320- 9,641	\$ 87,838-115,690	02
YC01	Admin Analyst I (C)	039	\$ 36.83- 48.43	\$ 6,384- 8,395	\$ 76,606-100,734	05
YC02	Admin Analyst II (C)	042	\$ 39.97- 52.66	\$ 6,928- 9,128	\$ 83,138-109,533	05
YC03	* Admin Analyst III (C)	045	\$ 43.42- 57.19	\$ 7,526- 9,913	\$ 90,314-118,955	05
VA04	Admin Assistant I	031	\$ 29.54- 38.88	\$ 5,120- 6,739	\$ 61,443- 80,870	02
VC01	Admin Assistant I (C)	031	\$ 29.54- 38.88	\$ 5,120- 6,739	\$ 61,443- 80,870	05
VA05	Admin Assistant II	035	\$ 33.05- 43.42	\$ 5,729- 7,526	\$ 68,744- 90,314	02
VC02	Admin Assistant II (C)	035	\$ 33.05- 43.42	\$ 5,729- 7,526	\$ 68,744- 90,314	05
VA06	Admin Assistant III	039	\$ 36.83- 48.43	\$ 6,384- 8,395	\$ 76,606-100,734	02
VC03	Admin Assistant III (C)	039	\$ 36.83- 48.43	\$ 6,384- 8,395	\$ 76,606-100,734	05
UA04	Admin Secretary	037	\$ 34.86- 45.88	\$ 6,042- 7,953	\$ 72,509- 95,430	02
PM034	* Agricultural Liaison	060	\$ 65.42- 85.49	\$11,339-14,818	\$136,074-177,819	04
937	Aircraft Pilot	046	\$ 43.30- 57.04	\$ 7,505- 9,887	\$ 90,064-118,643	03
TA12	Aqueduct & Power Dispatcher	045	\$ 43.42- 57.19	\$ 7,526- 9,913	\$ 90,314-118,955	02
T11	Aqueduct Pump Specialist	046	\$ 44.60- 58.75	\$ 7,731-10,183	\$ 92,768-122,200	02
YC62	* Assistant Ethics Officer	063	\$ 70.89- 92.68	\$12,288-16,065	\$147,451-192,774	05
YA08	Assoc Biologist	043	\$ 41.11- 54.12	\$ 7,126- 9,381	\$ 85,509-112,570	02
YA16	Assoc Chemist	043	\$ 41.11- 54.12	\$ 7,126- 9,381	\$ 85,509-112,570	02
YC18	* Assoc Dpty General Counsel (C)	060	\$ 65.42- 85.49	\$11,339-14,818	\$136,074-177,819	05
YA26	Assoc Engineer	050	\$ 49.83- 65.42	\$ 8,637-11,339	\$103,646-136,074	02
YA30	Assoc Environmental Specialist	048	\$ 47.13- 61.99	\$ 8,169-10,745	\$ 98,030-128,939	02
YA51	Assoc IT Proj Contr Specialist	039	\$ 36.83- 48.43	\$ 6,384- 8,395	\$ 76,606-100,734	02
YA71	Assoc Limnologist	043	\$ 41.11- 54.12	\$ 7,126- 9,381	\$ 85,509-112,570	02
YA76	Assoc Microbiologist	043	\$ 41.11- 54.12	\$ 7,126- 9,381	\$ 85,509-112,570	02
YA84	Assoc Proj Controls Specialist	038	\$ 35.83- 47.13	\$ 6,211- 8,169	\$ 74,526- 98,030	02
YA97	Assoc Resource Specialist	049	\$ 48.43- 63.71	\$ 8,395-11,043	\$100,734-132,517	02
WC02	Assoc Security Specialist (C)	049	\$ 48.43- 63.71	\$ 8,395-11,043	\$100,734-132,517	05
YA100	Assoc Water Quality Specialist	043	\$ 41.11- 54.12	\$ 7,126- 9,381	\$ 85,509-112,570	02
YA07	Asst Biologist	038	\$ 35.83- 47.13	\$ 6,211- 8,169	\$ 74,526- 98,030	02
YC63	* Asst Board Administrator	056	\$ 58.75- 76.85	\$10,183-13,321	\$122,200-159,848	05
YA15	Asst Chemist	038	\$ 35.83- 47.13	\$ 6,211- 8,169	\$ 74,526- 98,030	02
YA24	Asst Engineer I	043	\$ 41.11- 54.12	\$ 7,126- 9,381	\$ 85,509-112,570	02
YA25	Asst Engineer II	046	\$ 44.60- 58.75	\$ 7,731-10,183	\$ 92,768-122,200	02
YA28	Asst Env Specialist I	038	\$ 35.83- 47.13	\$ 6,211- 8,169	\$ 74,526- 98,030	02
YA29	Asst Env Specialist II	043	\$ 41.11- 54.12	\$ 7,126- 9,381	\$ 85,509-112,570	02
Z12	* Asst GM Strategic Wtr Initiatv	093	\$123.02-168.07	\$21,323-29,132	\$255,882-349,586	01
985	* Asst General Auditor	081	\$ 88.84-121.39	\$15,399-21,041	\$184,787-252,491	01
032	* Asst General Counsel	086	\$101.73-138.97	\$17,633-24,088	\$211,598-289,058	01
Z55	* Asst General Counsel (C)	078	\$105.98-138.97	\$18,370-24,088	\$220,438-289,058	05
024	* Asst General Manager/CAO	093	\$123.02-168.07	\$21,323-29,132	\$255,882-349,586	01
Z14	* Asst General Manager/CEAO	093	\$123.02-168.07	\$21,323-29,132	\$255,882-349,586	01
006	* Asst General Manager/CFO	093	\$123.02-168.07	\$21,323-29,132	\$255,882-349,586	01
002	* Asst General Manager/COO	094	\$126.36-172.71	\$21,902-29,936	\$262,829-359,237	01
Z02	* Asst Group Manager	085	\$ 99.01-135.25	\$17,162-23,443	\$205,941-281,320	01
YA50	Asst IT Proj Contrl Specialist	033	\$ 31.21- 41.11	\$ 5,410- 7,126	\$ 64,917- 85,509	02
YC66	* Asst Legislative Representative	048	\$ 47.13- 61.99	\$ 8,169-10,745	\$ 98,030-128,939	05
YA70	Asst Limnologist	038	\$ 35.83- 47.13	\$ 6,211- 8,169	\$ 74,526- 98,030	02
YA75	Asst Microbiologist	038	\$ 35.83- 47.13	\$ 6,211- 8,169	\$ 74,526- 98,030	02
YA83	Asst Proj Controls Specialist	033	\$ 31.21- 41.11	\$ 5,410- 7,126	\$ 64,917- 85,509	02
YA95	Asst Resource Specialist I	042	\$ 39.97- 52.66	\$ 6,928- 9,128	\$ 83,138-109,533	02
YA96	Asst Resource Specialist II	045	\$ 43.42- 57.19	\$ 7,526- 9,913	\$ 90,314-118,955	02
Z04C	* Asst Section Manager II (C)	067	\$ 78.89-103.14	\$13,674-17,878	\$164,091-214,531	05
TA15	Asst System Operator	041	\$ 38.88- 51.16	\$ 6,739- 8,868	\$ 80,870-106,413	02
Z95	* Asst Treasurer	057	\$ 60.36- 78.89	\$10,462-13,674	\$125,549-164,091	04
Z52	* Asst Unit Mgr-Conveyance&Distr	064	\$ 72.78- 95.16	\$12,615-16,494	\$151,382-197,933	04
YA99	Asst Water Quality Specialist	038	\$ 35.83- 47.13	\$ 6,211- 8,169	\$ 74,526- 98,030	02
UM001	* AsstContrl/Unit Mgr-Accounting	066	\$ 76.85-100.32	\$13,321-17,389	\$159,848-208,666	04
UM039	* AsstContrl/Unit Mgr-FinclRptng	066	\$ 76.85-100.32	\$13,321-17,389	\$159,848-208,666	04
Z32	* Audit Administrator	073	\$ 71.55- 97.72	\$12,402-16,938	\$148,824-203,258	01
Z68	* Bay-Delta InitiativesPolicyMgr	085	\$ 99.01-135.25	\$17,162-23,443	\$205,941-281,320	01
YA09	Biologist	048	\$ 47.13- 61.99	\$ 8,169-10,745	\$ 98,030-128,939	02
Z64	* Board Administrator	072	\$ 69.64- 95.16	\$12,071-16,494	\$144,851-197,933	01
Z78	* Board Executive Officer	088	\$107.40-146.73	\$18,616-25,433	\$223,392-305,198	01
U04	* Board Executive Secretary	066	\$ 59.40- 80.99	\$10,296-14,038	\$123,552-168,459	01
YC06	* Board Specialist (C)	045	\$ 43.42- 57.19	\$ 7,526- 9,913	\$ 90,314-118,955	05



Metropolitan Water District of Southern California  
SALARY SCHEDULE

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Classification Code	Title	Salary Grade	Hourly Range	Monthly Range	Annual Range	Unit Code
Z65	* Budget and Treasury Manager	081	\$ 88.84-121.39	\$15,399-21,041	\$184,787-252,491	01
Z09	* Business Outreach Manager	060	\$ 65.42- 85.49	\$11,339-14,818	\$136,074-177,819	04
YA12	Buyer I	038	\$ 35.83- 47.13	\$ 6,211- 8,169	\$ 74,526- 98,030	02
YA13	Buyer II	043	\$ 41.11- 54.12	\$ 7,126- 9,381	\$ 85,509-112,570	02
YA17	Chemist	048	\$ 47.13- 61.99	\$ 8,169-10,745	\$ 98,030-128,939	02
SA06	Chief Cook	024	\$ 24.33- 32.12	\$ 4,217- 5,567	\$ 50,606- 66,810	02
Y08	* Chief Deputy General Counsel	085	\$ 99.01-135.25	\$17,162-23,443	\$205,941-281,320	01
YC21	* Chief Dpty General Counsel (C)	074	\$ 95.16-124.68	\$16,494-21,611	\$197,933-259,334	05
YC65	* Chief EEO Investigator	077	\$ 79.68-108.89	\$13,811-18,874	\$165,734-226,491	01
Z71	* Chief EEO Officer	085	\$ 99.01-135.25	\$17,162-23,443	\$205,941-281,320	01
XA47	Chief Photographer	048	\$ 47.13- 61.99	\$ 8,169-10,745	\$ 98,030-128,939	02
XA65	Chief Videographer	048	\$ 47.13- 61.99	\$ 8,169-10,745	\$ 98,030-128,939	02
122	Chief of Party	053	\$ 52.54- 68.83	\$ 9,107-11,931	\$109,283-143,166	03
Z73	* ChiefDvrstyEqty&InclsnOfficer	085	\$ 99.01-135.25	\$17,162-23,443	\$205,941-281,320	01
Z72	* ChiefSustRslncy&InnovOfficer	085	\$ 99.01-135.25	\$17,162-23,443	\$205,941-281,320	01
Z42	* Class & Comp Manager	064	\$ 72.78- 95.16	\$12,615-16,494	\$151,382-197,933	05
SA04	Commercial Truck Driver A	037	\$ 34.86- 45.88	\$ 6,042- 7,953	\$ 72,509- 95,430	02
SA05A	Commercial Truck Driver B	037	\$ 34.86- 45.88	\$ 6,042- 7,953	\$ 72,509- 95,430	02
XA01A	Construction Inspector I	038	\$ 35.83- 47.13	\$ 6,211- 8,169	\$ 74,526- 98,030	02
XA02A	Construction Inspector II	043	\$ 41.11- 54.12	\$ 7,126- 9,381	\$ 85,509-112,570	02
XA03A	Construction Inspector III	048	\$ 47.13- 61.99	\$ 8,169-10,745	\$ 98,030-128,939	02
XA04A	Construction Inspector IV	053	\$ 54.12- 70.89	\$ 9,381-12,288	\$112,570-147,451	02
XA05A	Construction Inspector V	056	\$ 58.75- 76.85	\$10,183-13,321	\$122,200-159,848	02
Z36	* Controller	072	\$ 90.20-118.13	\$15,635-20,476	\$187,616-245,710	05
T04	Conveyance&Distrbtn Specialist	047	\$ 45.88- 60.36	\$ 7,953-10,462	\$ 95,430-125,549	02
XA06	Crane Certification Tech I	038	\$ 35.83- 47.13	\$ 6,211- 8,169	\$ 74,526- 98,030	02
XA07	Crane Certification Tech II	043	\$ 41.11- 54.12	\$ 7,126- 9,381	\$ 85,509-112,570	02
XA09	Cross Connection Technician	043	\$ 41.11- 54.12	\$ 7,126- 9,381	\$ 85,509-112,570	02
PM030	* Debt Management Specialist	060	\$ 65.42- 85.49	\$11,339-14,818	\$136,074-177,819	04
YA20	Deputy Auditor I	031	\$ 29.54- 38.88	\$ 5,120- 6,739	\$ 61,443- 80,870	02
YA21	Deputy Auditor II	036	\$ 33.97- 44.60	\$ 5,888- 7,731	\$ 70,658- 92,768	02
YA22	Deputy Auditor III	045	\$ 43.42- 57.19	\$ 7,526- 9,913	\$ 90,314-118,955	02
Z77	* Deputy Chief DE&I Officer	080	\$ 86.42-118.13	\$14,979-20,476	\$179,754-245,710	01
Z75	* Deputy Chief EEO Officer	080	\$ 86.42-118.13	\$14,979-20,476	\$179,754-245,710	01
Z57	* Deputy General Auditor	077	\$ 79.68-108.89	\$13,811-18,874	\$165,734-226,491	01
YC19	* Deputy General Counsel (C)	066	\$ 76.85-100.32	\$13,321-17,389	\$159,848-208,666	05
VA07	Deputy Treasurer	048	\$ 47.13- 61.99	\$ 8,169-10,745	\$ 98,030-128,939	02
XA11	Designer I	032	\$ 30.40- 39.97	\$ 5,269- 6,928	\$ 63,232- 83,138	02
XA12	Designer II	035	\$ 33.05- 43.42	\$ 5,729- 7,526	\$ 68,744- 90,314	02
XA13	Designer III	039	\$ 36.83- 48.43	\$ 6,384- 8,395	\$ 76,606-100,734	02
Z41	* Director of Info Tech Services	072	\$ 90.20-118.13	\$15,635-20,476	\$187,616-245,710	04
T14	Diver-Inland Commercial	047	\$ 45.88- 60.36	\$ 7,953-10,462	\$ 95,430-125,549	02
YC61	* DptyEthicsOfcr Adv,Comp&Policy	060	\$ 65.42- 85.49	\$11,339-14,818	\$136,074-177,819	05
YC60	* DptyEthicsOfcr Inv,Outrch&Educ	060	\$ 65.42- 85.49	\$11,339-14,818	\$136,074-177,819	05
Z25	* EEO Manager	068	\$ 80.99-105.98	\$14,038-18,370	\$168,459-220,438	05
YC25	EHS Field Specialist I (C)	043	\$ 41.11- 54.12	\$ 7,126- 9,381	\$ 85,509-112,570	05
YC26	EHS Field Specialist II (C)	045	\$ 43.42- 57.19	\$ 7,526- 9,913	\$ 90,314-118,955	05
YC27	EHS Field Specialist III (C)	050	\$ 49.83- 65.42	\$ 8,637-11,339	\$103,646-136,074	05
T12	Electrical Specialist	048	\$ 47.13- 61.99	\$ 8,169-10,745	\$ 98,030-128,939	02
168	* Electronic Tech Supervisor	055	\$ 55.52- 72.54	\$ 9,623-12,574	\$115,482-150,883	03
YC42	* Employee Relations Specialist	051	\$ 51.16- 67.21	\$ 8,868-11,650	\$106,413-139,797	05
YA27	Engineer	056	\$ 58.75- 76.85	\$10,183-13,321	\$122,200-159,848	02
XA20A	Engineering Tech I	038	\$ 35.83- 47.13	\$ 6,211- 8,169	\$ 74,526- 98,030	02
XA21A	Engineering Tech II	043	\$ 41.11- 54.12	\$ 7,126- 9,381	\$ 85,509-112,570	02
XA22A	Engineering Tech III	048	\$ 47.13- 61.99	\$ 8,169-10,745	\$ 98,030-128,939	02
YA31	Environmental Specialist	053	\$ 54.12- 70.89	\$ 9,381-12,288	\$112,570-147,451	02
Z59	* Equal Emp Compliance&Policy Co	066	\$ 76.85-100.32	\$13,321-17,389	\$159,848-208,666	05
Z16	* Ethics Officer	FR			\$290,014	00
YC35	* Ethics Policy Analyst	060	\$ 65.42- 85.49	\$11,339-14,818	\$136,074-177,819	05
002A	* ExecOff&AsstGM/WaterResources	094	\$126.36-172.71	\$21,902-29,936	\$262,829-359,237	01
VC04	Executive Assistant I (C)	044	\$ 42.23- 55.62	\$ 7,320- 9,641	\$ 87,838-115,690	05
VC05	Executive Assistant II (C)	048	\$ 47.13- 61.99	\$ 8,169-10,745	\$ 98,030-128,939	05
VC13	* Executive Assistant to the GC	051	\$ 51.16- 67.21	\$ 8,868-11,650	\$106,413-139,797	05
VC14	* Executive Assistant to the GM	051	\$ 51.16- 67.21	\$ 8,868-11,650	\$106,413-139,797	05
021	* Executive Legislative Rep	081	\$ 88.84-121.39	\$15,399-21,041	\$184,787-252,491	01
Z56	* Executive Legislative Rep (C)	073	\$ 92.68-121.39	\$16,065-21,041	\$192,774-252,491	05
Z74	* Executive Office Manager	067	\$ 60.92- 83.20	\$10,559-14,421	\$126,714-173,056	01
061	* Executive Secretary	051	\$ 51.16- 67.21	\$ 8,868-11,650	\$106,413-139,797	04
017	* Executive Strategist	073	\$ 92.68-121.39	\$16,065-21,041	\$192,774-252,491	05
SA07	Facilities Maint Assistant	029	\$ 27.97- 36.83	\$ 4,848- 6,384	\$ 58,178- 76,606	02

## Metropolitan Water District of Southern California

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## SALARY SCHEDULE

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Classification Code	Title	Salary Grade	Hourly Range	Monthly Range	Annual Range	Unit Code
TA14	Facilities Maint Mechanic	037	\$ 34.86- 45.88	\$ 6,042- 7,953	\$ 72,509- 95,430	02
YA32	Fleet Coordinator	048	\$ 47.13- 61.99	\$ 8,169-10,745	\$ 98,030-128,939	02
VA17	Fleet Dispatch Coordinator	035	\$ 33.05- 43.42	\$ 5,729- 7,526	\$ 68,744- 90,314	02
VA16	Fleet Dispatcher	031	\$ 29.54- 38.88	\$ 5,120- 6,739	\$ 61,443- 80,870	02
041	* General Auditor	FR			\$265,013	00
031	* General Counsel	FR			\$369,117	00
706	General Maintenance Asst	021	\$ 22.43- 29.54	\$ 3,888- 5,120	\$ 46,654- 61,443	02
001	* General Manager	FR			\$465,962	00
YC22	* Government&Regional Aff Rep(C)	052	\$ 52.66- 68.99	\$ 9,128-11,958	\$109,533-143,499	05
YA37	Graphic Arts Designer	048	\$ 47.13- 61.99	\$ 8,169-10,745	\$ 98,030-128,939	02
XA24	Graphic Technician I	034	\$ 32.12- 42.23	\$ 5,567- 7,320	\$ 66,810- 87,838	02
XA25	Graphic Technician II	038	\$ 35.83- 47.13	\$ 6,211- 8,169	\$ 74,526- 98,030	02
XA26	Graphic Technician III	043	\$ 41.11- 54.12	\$ 7,126- 9,381	\$ 85,509-112,570	02
SA08	Grounds Maintenance Worker	029	\$ 27.97- 36.83	\$ 4,848- 6,384	\$ 58,178- 76,606	02
Z01	* Group Manager	086	\$101.73-138.97	\$17,633-24,088	\$211,598-289,058	01
Z29	* Group Manager-Bay Delta Intivs	086	\$101.73-138.97	\$17,633-24,088	\$211,598-289,058	01
Z60	* Group Manager-Engineering Svcs	089	\$110.31-150.81	\$19,120-26,140	\$229,445-313,685	01
Z58	* Group Manager-External Affairs	086	\$101.73-138.97	\$17,633-24,088	\$211,598-289,058	01
Z76	* Group Manager-Finance	086	\$101.73-138.97	\$17,633-24,088	\$211,598-289,058	01
Z54	* Group Manager-Human Resources	086	\$101.73-138.97	\$17,633-24,088	\$211,598-289,058	01
Z66	* Group Manager-Info Technology	088	\$107.40-146.73	\$18,616-25,433	\$223,392-305,198	01
Z61	* Group Manager-Real Property	086	\$101.73-138.97	\$17,633-24,088	\$211,598-289,058	01
Z62	* Group Manager-Water Resrc Mgmt	088	\$107.40-146.73	\$18,616-25,433	\$223,392-305,198	01
Z63	* Group Manager-Water System Ops	089	\$110.31-150.81	\$19,120-26,140	\$229,445-313,685	01
VC06	HR Assistant I (C)	031	\$ 29.54- 38.88	\$ 5,120- 6,739	\$ 61,443- 80,870	05
VC07	HR Assistant II (C)	035	\$ 33.05- 43.42	\$ 5,729- 7,526	\$ 68,744- 90,314	05
VC08	HR Assistant III (C)	039	\$ 36.83- 48.43	\$ 6,384- 8,395	\$ 76,606-100,734	05
UMA03	* HR Strategic Partner	066	\$ 76.85-100.32	\$13,321-17,389	\$159,848-208,666	05
Z40	* HRIS Manager	063	\$ 70.89- 92.68	\$12,288-16,065	\$147,451-192,774	05
YC30	Human Resources Analyst I (C)	039	\$ 36.83- 48.43	\$ 6,384- 8,395	\$ 76,606-100,734	05
YC31	Human Resources Analyst II (C)	042	\$ 39.97- 52.66	\$ 6,928- 9,128	\$ 83,138-109,533	05
YC32	* Human Resources Analyst III(C)	045	\$ 43.42- 57.19	\$ 7,526- 9,913	\$ 90,314-118,955	05
VC09	Human Resources Coordinator	041	\$ 38.88- 51.16	\$ 6,739- 8,868	\$ 80,870-106,413	05
Z22	* Human Resources Manager I	075	\$ 75.46-103.14	\$13,080-17,878	\$156,957-214,531	01
Z23	* Human Resources Manager II	078	\$ 81.85-111.85	\$14,187-19,387	\$170,248-232,648	01
Z24	* Human Resources Manager III	081	\$ 88.84-121.39	\$15,399-21,041	\$184,787-252,491	01
Z03D	* Human Resources Section Mgr	080	\$ 86.42-118.13	\$14,979-20,476	\$179,754-245,710	01
T08	Hydroelectric Specialist I	042	\$ 39.97- 52.66	\$ 6,928- 9,128	\$ 83,138-109,533	02
T05	Hydroelectric Specialist II	048	\$ 47.13- 61.99	\$ 8,169-10,745	\$ 98,030-128,939	02
530	* Hydroelectric Supervisor	058	\$ 60.18- 78.63	\$10,431-13,629	\$125,174-163,550	03
Y12	* IT Architect-Enterprs Software	063	\$ 70.89- 92.68	\$12,288-16,065	\$147,451-192,774	04
YA106	IT Business Analyst I	037	\$ 34.86- 45.88	\$ 6,042- 7,953	\$ 72,509- 95,430	02
YA107	IT Business Analyst II	042	\$ 39.97- 52.66	\$ 6,928- 9,128	\$ 83,138-109,533	02
YA108	IT Business Analyst III	047	\$ 45.88- 60.36	\$ 7,953-10,462	\$ 95,430-125,549	02
XA27A	IT Communication Tech I	038	\$ 35.83- 47.13	\$ 6,211- 8,169	\$ 74,526- 98,030	02
XA28A	IT Communication Tech II	043	\$ 41.11- 54.12	\$ 7,126- 9,381	\$ 85,509-112,570	02
XA29A	IT Communication Tech III	047	\$ 45.88- 60.36	\$ 7,953-10,462	\$ 95,430-125,549	02
YA38	IT Enterprise App Analyst I	037	\$ 34.86- 45.88	\$ 6,042- 7,953	\$ 72,509- 95,430	02
YA39	IT Enterprise App Analyst II	042	\$ 39.97- 52.66	\$ 6,928- 9,128	\$ 83,138-109,533	02
YA40	IT Enterprise App Analyst III	047	\$ 45.88- 60.36	\$ 7,953-10,462	\$ 95,430-125,549	02
YA33	IT GIS Analyst I	037	\$ 34.86- 45.88	\$ 6,042- 7,953	\$ 72,509- 95,430	02
YA34	IT GIS Analyst II	042	\$ 39.97- 52.66	\$ 6,928- 9,128	\$ 83,138-109,533	02
YA35	IT GIS Analyst III	047	\$ 45.88- 60.36	\$ 7,953-10,462	\$ 95,430-125,549	02
YA42	IT Infrastructure Adminstr I	037	\$ 34.86- 45.88	\$ 6,042- 7,953	\$ 72,509- 95,430	02
YA43	IT Infrastructure Adminstr II	042	\$ 39.97- 52.66	\$ 6,928- 9,128	\$ 83,138-109,533	02
YA44	IT Infrastructure Adminstr III	047	\$ 45.88- 60.36	\$ 7,953-10,462	\$ 95,430-125,549	02
YA46	IT Network Engineer I	037	\$ 34.86- 45.88	\$ 6,042- 7,953	\$ 72,509- 95,430	02
YA47	IT Network Engineer II	042	\$ 39.97- 52.66	\$ 6,928- 9,128	\$ 83,138-109,533	02
YA48	IT Network Engineer III	047	\$ 45.88- 60.36	\$ 7,953-10,462	\$ 95,430-125,549	02
YA52	IT Project Controls Specialist	044	\$ 42.23- 55.62	\$ 7,320- 9,641	\$ 87,838-115,690	02
YA54	IT Quality Analyst I	037	\$ 34.86- 45.88	\$ 6,042- 7,953	\$ 72,509- 95,430	02
YA55	IT Quality Analyst II	042	\$ 39.97- 52.66	\$ 6,928- 9,128	\$ 83,138-109,533	02
YA56	IT Quality Analyst III	047	\$ 45.88- 60.36	\$ 7,953-10,462	\$ 95,430-125,549	02
PM032	* IT Service Manager	064	\$ 72.78- 95.16	\$12,615-16,494	\$151,382-197,933	04
YA58	IT Software Developer I	037	\$ 34.86- 45.88	\$ 6,042- 7,953	\$ 72,509- 95,430	02
YA59	IT Software Developer II	042	\$ 39.97- 52.66	\$ 6,928- 9,128	\$ 83,138-109,533	02
YA60	IT Software Developer III	047	\$ 45.88- 60.36	\$ 7,953-10,462	\$ 95,430-125,549	02
Y05	* IT Specialist -Disaster Recvry	058	\$ 61.99- 80.99	\$10,745-14,038	\$128,939-168,459	04
XA31A	IT Support Analyst I	037	\$ 34.86- 45.88	\$ 6,042- 7,953	\$ 72,509- 95,430	02
XA32A	IT Support Analyst II	042	\$ 39.97- 52.66	\$ 6,928- 9,128	\$ 83,138-109,533	02

Metropolitan Water District of Southern California  
SALARY SCHEDULE

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Classification Code	Title	Salary Grade	Hourly Range	Monthly Range	Annual Range	Unit Code
XA33A	IT Support Analyst III	047	\$ 45.88- 60.36	\$ 7,953-10,462	\$ 95,430-125,549	02
YA62	IT System Administrator I	037	\$ 34.86- 45.88	\$ 6,042- 7,953	\$ 72,509- 95,430	02
YA63	IT System Administrator II	042	\$ 39.97- 52.66	\$ 6,928- 9,128	\$ 83,138-109,533	02
YA64	IT System Administrator III	047	\$ 45.88- 60.36	\$ 7,953-10,462	\$ 95,430-125,549	02
Y18	* Info Gov&Ent Content Mgmt Spec	059	\$ 63.71- 83.20	\$11,043-14,421	\$132,517-173,056	04
YC11	Info Tech Analyst I (C)	037	\$ 34.86- 45.88	\$ 6,042- 7,953	\$ 72,509- 95,430	05
YC12	Info Tech Analyst II (C)	042	\$ 39.97- 52.66	\$ 6,928- 9,128	\$ 83,138-109,533	05
YC13	* Info Tech Analyst III (C)	047	\$ 45.88- 60.36	\$ 7,953-10,462	\$ 95,430-125,549	05
Y14	* Info Technology Architect	064	\$ 72.78- 95.16	\$12,615-16,494	\$151,382-197,933	04
Y06	* Inland Feeder Projects Admintr	058	\$ 61.99- 80.99	\$10,745-14,038	\$128,939-168,459	04
Y10	* Inspection Trip Manager	061	\$ 67.21- 87.79	\$11,650-15,217	\$139,797-182,603	04
Y17	* Inspection Trip Specialist	058	\$ 61.99- 80.99	\$10,745-14,038	\$128,939-168,459	04
184	Inspector IV	050	\$ 48.38- 63.51	\$ 8,386-11,008	\$100,630-132,101	03
XA16	Instrumnt&Cntrl Tech I	035	\$ 33.05- 43.42	\$ 5,729- 7,526	\$ 68,744- 90,314	02
XA17	Instrumnt&Cntrl Tech II	039	\$ 36.83- 48.43	\$ 6,384- 8,395	\$ 76,606-100,734	02
XA18	Instrumnt&Cntrl Tech III	044	\$ 42.23- 55.62	\$ 7,320- 9,641	\$ 87,838-115,690	02
XA19	Instrumnt&Cntrl Tech Specialst	047	\$ 45.88- 60.36	\$ 7,953-10,462	\$ 95,430-125,549	02
716	Inventory Coordinator	044	\$ 41.00- 54.00	\$ 7,107- 9,360	\$ 85,280-112,320	03
PM033	* Investment Mgmt Specialist	060	\$ 65.42- 85.49	\$11,339-14,818	\$136,074-177,819	04
XA35A	Lab Info Systems Specialist I	042	\$ 39.97- 52.66	\$ 6,928- 9,128	\$ 83,138-109,533	02
XA36A	Lab Info Systems Specialist II	048	\$ 47.13- 61.99	\$ 8,169-10,745	\$ 98,030-128,939	02
UA16	Laboratory Assistant I	025	\$ 25.08- 33.05	\$ 4,347- 5,729	\$ 52,166- 68,744	02
UA17	Laboratory Assistant II	029	\$ 27.97- 36.83	\$ 4,848- 6,384	\$ 58,178- 76,606	02
XA40	Laboratory Technologist I	034	\$ 32.12- 42.23	\$ 5,567- 7,320	\$ 66,810- 87,838	02
XA41	Laboratory Technologist II	036	\$ 33.97- 44.60	\$ 5,888- 7,731	\$ 70,658- 92,768	02
YA110	Land Surveyor	053	\$ 54.12- 70.89	\$ 9,381-12,288	\$112,570-147,451	02
705	Landscape Maint Coordinator	044	\$ 41.00- 54.00	\$ 7,107- 9,360	\$ 85,280-112,320	03
XA42A	Landscape Maintenance Tech I	038	\$ 35.83- 47.13	\$ 6,211- 8,169	\$ 74,526- 98,030	02
XA43A	Landscape Maintenance Tech II	043	\$ 41.11- 54.12	\$ 7,126- 9,381	\$ 85,509-112,570	02
VA08	Law Clerk	029	\$ 27.97- 36.83	\$ 4,848- 6,384	\$ 58,178- 76,606	02
Z30	* Law Office Administrator (C)	060	\$ 65.42- 85.49	\$11,339-14,818	\$136,074-177,819	05
YA67	Legal Analyst	044	\$ 42.23- 55.62	\$ 7,320- 9,641	\$ 87,838-115,690	02
VA09	Legal Assistant I	033	\$ 31.21- 41.11	\$ 5,410- 7,126	\$ 64,917- 85,509	02
VA10	Legal Assistant II	037	\$ 34.86- 45.88	\$ 6,042- 7,953	\$ 72,509- 95,430	02
VA11	Legal Assistant III	041	\$ 38.88- 51.16	\$ 6,739- 8,868	\$ 80,870-106,413	02
UC01	Legal Secretary I (C)	028	\$ 27.16- 35.83	\$ 4,708- 6,211	\$ 56,493- 74,526	05
UC02	Legal Secretary II (C)	035	\$ 33.05- 43.42	\$ 5,729- 7,526	\$ 68,744- 90,314	05
YA104	Legal Technology Specialist	047	\$ 45.88- 60.36	\$ 7,953-10,462	\$ 95,430-125,549	02
Y09	* Legislative Representative	053	\$ 54.12- 70.89	\$ 9,381-12,288	\$112,570-147,451	05
YA72	Limnologist	048	\$ 47.13- 61.99	\$ 8,169-10,745	\$ 98,030-128,939	02
T06	Lineman	046	\$ 44.60- 58.75	\$ 7,731-10,183	\$ 92,768-122,200	02
SA09	Lodging Assistant I	029	\$ 27.97- 36.83	\$ 4,848- 6,384	\$ 58,178- 76,606	02
SA10	Lodging Assistant II	033	\$ 31.21- 41.11	\$ 5,410- 7,126	\$ 64,917- 85,509	02
UA08	Mailroom Assistant I	016	\$ 19.57- 25.75	\$ 3,392- 4,463	\$ 40,706- 53,560	02
UA09	Mailroom Assistant II	021	\$ 22.43- 29.54	\$ 3,888- 5,120	\$ 46,654- 61,443	02
UA10	Mailroom Assistant III	026	\$ 25.75- 33.97	\$ 4,463- 5,888	\$ 53,560- 70,658	02
620	Maintenance Mechanic I	037	\$ 34.86- 45.88	\$ 6,042- 7,953	\$ 72,509- 95,430	02
612	Maintenance Worker I	025	\$ 25.08- 33.05	\$ 4,347- 5,729	\$ 52,166- 68,744	02
613	Maintenance Worker II	029	\$ 27.97- 36.83	\$ 4,848- 6,384	\$ 58,178- 76,606	02
614	Maintenance Worker III	033	\$ 31.21- 41.11	\$ 5,410- 7,126	\$ 64,917- 85,509	02
Z39	* Manager of Admin Services	070	\$ 85.49-111.85	\$14,818-19,387	\$177,819-232,648	05
Z70	* Manager of Bay-Delta Programs	082	\$ 91.22-124.68	\$15,811-21,611	\$189,738-259,334	01
Z33	* Manager of Colo RiverResources	086	\$101.73-138.97	\$17,633-24,088	\$211,598-289,058	01
Z35	* Manager of Financial Services	072	\$ 90.20-118.13	\$15,635-20,476	\$187,616-245,710	05
SM020	* Manager of Treasury&Debt Mgmt	072	\$ 90.20-118.13	\$15,635-20,476	\$187,616-245,710	04
M81	* Mgt Pr Admin Analyst	055	\$ 57.19- 74.72	\$ 9,913-12,951	\$118,955-155,418	04
YA77	Microbiologist	048	\$ 47.13- 61.99	\$ 8,169-10,745	\$ 98,030-128,939	02
186	* Microcomputer Technology Supv	059	\$ 61.85- 80.78	\$10,721-14,002	\$128,648-168,022	03
636	* O & M Supervisor	055	\$ 55.52- 72.54	\$ 9,623-12,574	\$115,482-150,883	03
S03	+ O&M Tech I	028	\$ 27.16- 35.83	\$ 4,708- 6,211	\$ 56,493- 74,526	02
S03A	+ O&M Tech I	027	\$ 26.44- 34.86	\$ 4,583- 6,042	\$ 54,995- 72,509	02
S03P	+ O&M Tech I	028	\$ 27.16- 35.83	\$ 4,708- 6,211	\$ 56,493- 74,526	02
S02	+ O&M Tech II	032	\$ 30.40- 39.97	\$ 5,269- 6,928	\$ 63,232- 83,138	02
S02A	+ O&M Tech II	031	\$ 29.54- 38.88	\$ 5,120- 6,739	\$ 61,443- 80,870	02
S02P	+ O&M Tech II	032	\$ 30.40- 39.97	\$ 5,269- 6,928	\$ 63,232- 83,138	02
T10	+ O&M Tech III	036	\$ 33.97- 44.60	\$ 5,888- 7,731	\$ 70,658- 92,768	02
T10A	+ O&M Tech III	035	\$ 33.05- 43.42	\$ 5,729- 7,526	\$ 68,744- 90,314	02
T10P	+ O&M Tech III	036	\$ 33.97- 44.60	\$ 5,888- 7,731	\$ 70,658- 92,768	02
T03	+ O&M Tech IV	042	\$ 39.97- 52.66	\$ 6,928- 9,128	\$ 83,138-109,533	02
T03A	+ O&M Tech IV	041	\$ 38.88- 51.16	\$ 6,739- 8,868	\$ 80,870-106,413	02

## Metropolitan Water District of Southern California

Report ID: MHR828

## SALARY SCHEDULE

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Run Date 02/10/2023

Effective Date: 06/26/2022

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Classification Code	Title	Salary Grade	Hourly Range	Monthly Range	Annual Range	Unit Code
T03FS	+ O&M Tech IV	042	\$ 39.97- 52.66	\$ 6,928- 9,128	\$ 83,138-109,533	02
YA80	Oc Health Safety Specialist I	031	\$ 29.54- 38.88	\$ 5,120- 6,739	\$ 61,443- 80,870	02
YA81	Oc Health Safety Specialist II	038	\$ 35.83- 47.13	\$ 6,211- 8,169	\$ 74,526- 98,030	02
YA82	Oc Health Safety Specialist III	043	\$ 41.11- 54.12	\$ 7,126- 9,381	\$ 85,509-112,570	02
927	* Occ Safety & Health Spec	054	\$ 55.62- 72.78	\$ 9,641-12,615	\$115,690-151,382	04
UA11	Office Assistant	026	\$ 25.75- 33.97	\$ 4,463- 5,888	\$ 53,560- 70,658	02
Z53	* Operations Program Manager	067	\$ 78.89-103.14	\$13,674-17,878	\$164,091-214,531	04
SA11	Ops and Maintenance Assistant	021	\$ 22.43- 29.54	\$ 3,888- 5,120	\$ 46,654- 61,443	02
Z44	* Org Develop & Training Manager	064	\$ 72.78- 95.16	\$12,615-16,494	\$151,382-197,933	05
Z28	* Payroll Administrator	053	\$ 54.12- 70.89	\$ 9,381-12,288	\$112,570-147,451	04
XA45	Photographer I	035	\$ 33.05- 43.42	\$ 5,729- 7,526	\$ 68,744- 90,314	02
XA46	Photographer II	041	\$ 38.88- 51.16	\$ 6,739- 8,868	\$ 80,870-106,413	02
XA48	Planner Scheduler	043	\$ 41.11- 54.12	\$ 7,126- 9,381	\$ 85,509-112,570	02
139	* Plant Laboratory Supervisor	055	\$ 55.52- 72.54	\$ 9,623-12,574	\$115,482-150,883	03
519	* Plant Operations Supervisor	058	\$ 60.18- 78.63	\$10,431-13,629	\$125,174-163,550	03
Y20	* Postdoctoral Research Assoc	046	\$ 44.60- 58.75	\$ 7,731-10,183	\$ 92,768-122,200	04
PM028	* Power Planning Specialist	066	\$ 76.85-100.32	\$13,321-17,389	\$159,848-208,666	04
YA03	Pr Accountant	049	\$ 48.43- 63.71	\$ 8,395-11,043	\$100,734-132,517	02
YA06	Pr Admin Analyst	055	\$ 57.19- 74.72	\$ 9,913-12,951	\$118,955-155,418	02
YC56	* Pr Admin Analyst	066	\$ 59.40- 80.99	\$10,296-14,038	\$123,552-168,459	01
YC05	* Pr Admin Analyst (C)	056	\$ 58.75- 76.85	\$10,183-13,321	\$122,200-159,848	05
Y16	* Pr Architect	064	\$ 72.78- 95.16	\$12,615-16,494	\$151,382-197,933	04
216	* Pr Auditor	058	\$ 61.99- 80.99	\$10,745-14,038	\$128,939-168,459	04
YC44	* Pr Benefits Analyst (C)	056	\$ 58.75- 76.85	\$10,183-13,321	\$122,200-159,848	05
YA11	Pr Biologist	058	\$ 61.99- 80.99	\$10,745-14,038	\$128,939-168,459	02
245	* Pr Buyer	055	\$ 57.19- 74.72	\$ 9,913-12,951	\$118,955-155,418	04
YA19	Pr Chemist	058	\$ 61.99- 80.99	\$10,745-14,038	\$128,939-168,459	02
YC50	* Pr Class & Comp Analyst (C)	056	\$ 58.75- 76.85	\$10,183-13,321	\$122,200-159,848	05
XA15	Pr Designer	048	\$ 47.13- 61.99	\$ 8,169-10,745	\$ 98,030-128,939	02
YC48	* Pr EEO Analyst (C)	056	\$ 58.75- 76.85	\$10,183-13,321	\$122,200-159,848	05
YC40	* Pr Emp Relations Specialist	060	\$ 65.42- 85.49	\$11,339-14,818	\$136,074-177,819	05
115	* Pr Engineer	064	\$ 72.78- 95.16	\$12,615-16,494	\$151,382-197,933	04
165	* Pr Engineering Technician	058	\$ 61.99- 80.99	\$10,745-14,038	\$128,939-168,459	04
925	* Pr Environmental Spec	063	\$ 70.89- 92.68	\$12,288-16,065	\$147,451-192,774	04
YC24	* Pr Government&Region AffRep(C)	060	\$ 65.42- 85.49	\$11,339-14,818	\$136,074-177,819	05
YC52	* Pr HR Training Specialist (C)	055	\$ 57.19- 74.72	\$ 9,913-12,951	\$118,955-155,418	05
YC46	* Pr HRIS Analyst (C)	056	\$ 58.75- 76.85	\$10,183-13,321	\$122,200-159,848	05
231	* Pr Info Tech Analyst	056	\$ 58.75- 76.85	\$10,183-13,321	\$122,200-159,848	04
YC15	* Pr Info Tech Analyst (C)	056	\$ 58.75- 76.85	\$10,183-13,321	\$122,200-159,848	05
YC64	* Pr Info Tech Network Engineer	058	\$ 61.99- 80.99	\$10,745-14,038	\$128,939-168,459	04
Y07	* Pr Land Surveyor	059	\$ 63.71- 83.20	\$11,043-14,421	\$132,517-173,056	04
YA69	Pr Legal Analyst	055	\$ 57.19- 74.72	\$ 9,913-12,951	\$118,955-155,418	02
022	* Pr Legislative Representative	062	\$ 68.99- 90.20	\$11,958-15,635	\$143,499-187,616	05
YA74	Pr Limnologist	058	\$ 61.99- 80.99	\$10,745-14,038	\$128,939-168,459	02
YA79	Pr Microbiologist	058	\$ 61.99- 80.99	\$10,745-14,038	\$128,939-168,459	02
YA105	Pr Project Controls Specialist	056	\$ 58.75- 76.85	\$10,183-13,321	\$122,200-159,848	02
289	* Pr Public Affairs Rep	058	\$ 61.99- 80.99	\$10,745-14,038	\$128,939-168,459	04
275	* Pr Real Estate Rep	053	\$ 54.12- 70.89	\$ 9,381-12,288	\$112,570-147,451	04
YC54	* Pr Recruitment Specialist (C)	056	\$ 58.75- 76.85	\$10,183-13,321	\$122,200-159,848	05
933	* Pr Resource Specialist	063	\$ 70.89- 92.68	\$12,288-16,065	\$147,451-192,774	04
223	* Pr Systems Analyst	054	\$ 55.62- 72.78	\$ 9,641-12,615	\$115,690-151,382	04
YC17	* Pr Training Administrator (C)	056	\$ 58.75- 76.85	\$10,183-13,321	\$122,200-159,848	05
YC10	* Pr Training Specialist (C)	056	\$ 58.75- 76.85	\$10,183-13,321	\$122,200-159,848	05
YA103	Pr Water Quality Specialist	058	\$ 61.99- 80.99	\$10,745-14,038	\$128,939-168,459	02
S01	Pre-Apprentice	017	\$ 20.14- 26.44	\$ 3,491- 4,583	\$ 41,891- 54,995	02
PM031	* Prgrm Mgr-Audit	065	\$ 74.72- 97.72	\$12,951-16,938	\$155,418-203,258	04
PM021	* Prgrm Mgr-Bay-Delta Initiative	066	\$ 76.85-100.32	\$13,321-17,389	\$159,848-208,666	04
PM002	* Prgrm Mgr-Business Continuity	060	\$ 65.42- 85.49	\$11,339-14,818	\$136,074-177,819	04
PM027	* Prgrm Mgr-Business Outreach	060	\$ 65.42- 85.49	\$11,339-14,818	\$136,074-177,819	04
PMA02	* Prgrm Mgr-Community Relations	066	\$ 76.85-100.32	\$13,321-17,389	\$159,848-208,666	05
PM004	* Prgrm Mgr-Corporate Resources	060	\$ 65.42- 85.49	\$11,339-14,818	\$136,074-177,819	04
PM029	* Prgrm Mgr-Creative Design	063	\$ 70.89- 92.68	\$12,288-16,065	\$147,451-192,774	04
PM005	* Prgrm Mgr-Dam Safety Initiativs	071	\$ 87.79-114.98	\$15,217-19,930	\$182,603-239,158	04
PM006	* Prgrm Mgr-Emergency Management	063	\$ 70.89- 92.68	\$12,288-16,065	\$147,451-192,774	04
PM026	* Prgrm Mgr-Engineering	067	\$ 78.89-103.14	\$13,674-17,878	\$164,091-214,531	04
PM001	* Prgrm Mgr-Finance	066	\$ 76.85-100.32	\$13,321-17,389	\$159,848-208,666	04
PM007	* Prgrm Mgr-Fleet	060	\$ 65.42- 85.49	\$11,339-14,818	\$136,074-177,819	04
PM009	* Prgrm Mgr-Info Technology	066	\$ 76.85-100.32	\$13,321-17,389	\$159,848-208,666	04
PM035	* Prgrm Mgr-Innovation	063	\$ 70.89- 92.68	\$12,288-16,065	\$147,451-192,774	04
PM013	* Prgrm Mgr-Power Sched&Trading	060	\$ 65.42- 85.49	\$11,339-14,818	\$136,074-177,819	04

Metropolitan Water District of Southern California  
SALARY SCHEDULE

Report ID: MHR828

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Effective Date: 06/26/2022

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Classification Code	Title	Salary Grade	Hourly Range	Monthly Range	Annual Range	Unit Code
PM014	* Prgrm Mgr-Press Office	066	\$ 76.85-100.32	\$13,321-17,389	\$159,848-208,666	04
PM015	* Prgrm Mgr-Pure Wtr So Califor	071	\$ 87.79-114.98	\$15,217-19,930	\$182,603-239,158	04
PM022	* Prgrm Mgr-Real Property	060	\$ 65.42- 85.49	\$11,339-14,818	\$136,074-177,819	04
PM023	* Prgrm Mgr-Safety&RegCompliance	066	\$ 76.85-100.32	\$13,321-17,389	\$159,848-208,666	04
PM017	* Prgrm Mgr-Water Resource	066	\$ 76.85-100.32	\$13,321-17,389	\$159,848-208,666	04
PM019	* Prgrm Mgr-Web	063	\$ 70.89- 92.68	\$12,288-16,065	\$147,451-192,774	04
XA50	Production Planner	048	\$ 47.13- 61.99	\$ 8,169-10,745	\$ 98,030-128,939	02
Z13D	* Program Manager I	068	\$ 62.59- 85.49	\$10,849-14,818	\$130,187-177,819	01
Z13E	* Program Manager II	071	\$ 67.80- 92.68	\$11,752-16,065	\$141,024-192,774	01
Z13F	* Program Manager III	074	\$ 73.53-100.32	\$12,745-17,389	\$152,942-208,666	01
YA85	Project Controls Specialist	045	\$ 43.42- 57.19	\$ 7,526- 9,913	\$ 90,314-118,955	02
TA23	Property Maintenance Tech	041	\$ 38.88- 51.16	\$ 6,739- 8,868	\$ 80,870-106,413	02
YA87	Public Affairs Rep I	038	\$ 35.83- 47.13	\$ 6,211- 8,169	\$ 74,526- 98,030	02
YA88	Public Affairs Rep II	043	\$ 41.11- 54.12	\$ 7,126- 9,381	\$ 85,509-112,570	02
TA21	Pump Plant Maint Operator I	032	\$ 30.40- 39.97	\$ 5,269- 6,928	\$ 63,232- 83,138	02
TA22	Pump Plant Maint Operator II	036	\$ 33.97- 44.60	\$ 5,888- 7,731	\$ 70,658- 92,768	02
T01	Pump Plant Specialist	048	\$ 47.13- 61.99	\$ 8,169-10,745	\$ 98,030-128,939	02
YA90	Quality Assurance Officer	056	\$ 58.75- 76.85	\$10,183-13,321	\$122,200-159,848	02
YA91	Real Estate Representative I	037	\$ 34.86- 45.88	\$ 6,042- 7,953	\$ 72,509- 95,430	02
YA92	Real Estate Representative II	042	\$ 39.97- 52.66	\$ 6,928- 9,128	\$ 83,138-109,533	02
YA93	Real Estate Representative III	046	\$ 44.60- 58.75	\$ 7,731-10,183	\$ 92,768-122,030	02
UA12	Reprographics Technician I	023	\$ 23.71- 31.21	\$ 4,110- 5,410	\$ 49,317- 64,917	02
UA13	Reprographics Technician II	028	\$ 27.16- 35.83	\$ 4,708- 6,211	\$ 56,493- 74,526	02
UA14	Reprographics Technician III	031	\$ 29.54- 38.88	\$ 5,120- 6,739	\$ 61,443- 80,870	02
YA98	Resource Specialist	055	\$ 57.19- 74.72	\$ 9,913-12,951	\$118,955-155,418	02
Z03B	* Section Manager I (C)	067	\$ 78.89-103.14	\$13,674-17,878	\$164,091-214,531	05
Z03C	* Section Manager II (C)	069	\$ 83.20-108.89	\$14,421-18,874	\$173,056-226,491	05
SM005	* Section Mgr-Business Outreach	068	\$ 80.99-105.98	\$14,038-18,370	\$168,459-220,438	04
SM014	* Section Mgr-Conveyance&Distrbn	073	\$ 92.68-121.39	\$16,065-21,041	\$192,774-252,491	04
SM002	* Section Mgr-Customer&Comm Svcs	068	\$ 80.99-105.98	\$14,038-18,370	\$168,459-220,438	04
SM015	* Section Mgr-Engineering Svcs	073	\$ 92.68-121.39	\$16,065-21,041	\$192,774-252,491	04
SM009	* Section Mgr-Environ Planning	072	\$ 90.20-118.13	\$15,635-20,476	\$187,616-245,710	04
SM003	* Section Mgr-Legislative Svcs	068	\$ 80.99-105.98	\$14,038-18,370	\$168,459-220,438	04
SM004	* Section Mgr-Media Services	068	\$ 80.99-105.98	\$14,038-18,370	\$168,459-220,438	04
SM006	* Section Mgr-MembrSvc&PubOutrch	068	\$ 80.99-105.98	\$14,038-18,370	\$168,459-220,438	04
SM010	* Section Mgr-Ops Safety&Reg Srv	072	\$ 90.20-118.13	\$15,635-20,476	\$187,616-245,710	04
SM011	* Section Mgr-Ops Support Svcs	072	\$ 90.20-118.13	\$15,635-20,476	\$187,616-245,710	04
SM012	* Section Mgr-Power Ops&Planning	072	\$ 90.20-118.13	\$15,635-20,476	\$187,616-245,710	04
SM018	* Section Mgr-Real Property	071	\$ 87.79-114.98	\$15,217-19,930	\$182,603-239,158	04
SM007	* Section Mgr-Rev, Rates & Budget	068	\$ 80.99-105.98	\$14,038-18,370	\$168,459-220,438	04
SM019	* Section Mgr-Revenue & Budget	072	\$ 90.20-118.13	\$15,635-20,476	\$187,616-245,710	04
SM013	* Section Mgr-Water Ops&Planning	072	\$ 90.20-118.13	\$15,635-20,476	\$187,616-245,710	04
SM016	* Section Mgr-Water Quality	073	\$ 92.68-121.39	\$16,065-21,041	\$192,774-252,491	04
SM008	* Section Mgr-Water Resource Mgt	072	\$ 90.20-118.13	\$15,635-20,476	\$187,616-245,710	04
SM017	* Section Mgr-Water Treatment	073	\$ 92.68-121.39	\$16,065-21,041	\$192,774-252,491	04
WC01	Security Specialist (C)	051	\$ 51.16- 67.21	\$ 8,868-11,650	\$106,413-139,797	05
V02	* Special Asst to the GM	072	\$ 69.64- 95.16	\$12,071-16,494	\$144,851-197,933	01
Z16A	* Special Projects Manager	072	\$ 90.20-118.13	\$15,635-20,476	\$187,616-245,710	05
YA02	Sr Accountant	045	\$ 43.42- 57.19	\$ 7,526- 9,913	\$ 90,314-118,955	02
VA03	Sr Accounting Tech	039	\$ 36.83- 48.43	\$ 6,384- 8,395	\$ 76,606-100,734	02
YA05	Sr Admin Analyst	049	\$ 48.43- 63.71	\$ 8,395-11,043	\$100,734-132,517	02
YC04	* Sr Admin Analyst (C)	049	\$ 48.43- 63.71	\$ 8,395-11,043	\$100,734-132,517	05
Y01	* Sr Architect	059	\$ 63.71- 83.20	\$11,043-14,421	\$132,517-173,056	04
YC43	* Sr Benefits Analyst (C)	049	\$ 48.43- 63.71	\$ 8,395-11,043	\$100,734-132,517	05
YA10	Sr Biologist	053	\$ 54.12- 70.89	\$ 9,381-12,288	\$112,570-147,451	02
YC07	* Sr Board Specialist (C)	050	\$ 49.83- 65.42	\$ 8,637-11,339	\$103,646-136,074	05
YA14	Sr Buyer	048	\$ 47.13- 61.99	\$ 8,169-10,745	\$ 98,030-128,939	02
YA18	Sr Chemist	053	\$ 54.12- 70.89	\$ 9,381-12,288	\$112,570-147,451	02
YC49	* Sr Class & Comp Analyst (C)	049	\$ 48.43- 63.71	\$ 8,395-11,043	\$100,734-132,517	05
XA08	Sr Crane Certification Tech	048	\$ 47.13- 61.99	\$ 8,169-10,745	\$ 98,030-128,939	02
XA10	Sr Cross Connection Tech	048	\$ 47.13- 61.99	\$ 8,169-10,745	\$ 98,030-128,939	02
Z11	* Sr Dep Gen Counsel Lbr Reltns	079	\$ 84.12-114.98	\$14,581-19,930	\$174,970-239,158	01
YA23	Sr Deputy Auditor	052	\$ 52.66- 68.99	\$ 9,128-11,958	\$109,533-143,499	02
XA14	Sr Designer	043	\$ 41.11- 54.12	\$ 7,126- 9,381	\$ 85,509-112,570	02
YC20	* Sr Dpty General Counsel (C)	071	\$ 87.79-114.98	\$15,217-19,930	\$182,603-239,158	05
YC47	* Sr EEO Analyst (C)	049	\$ 48.43- 63.71	\$ 8,395-11,043	\$100,734-132,517	05
YC28	* Sr EHS Field Specialist (C)	055	\$ 57.19- 74.72	\$ 9,913-12,951	\$118,955-155,418	05
YC41	* Sr Emp Relations Specialist	054	\$ 55.62- 72.78	\$ 9,641-12,615	\$116,690-151,382	05
114	* Sr Engineer	060	\$ 65.42- 85.49	\$11,339-14,818	\$136,074-177,819	04
XA23A	Sr Engineering Technician	053	\$ 54.12- 70.89	\$ 9,381-12,288	\$112,570-147,451	02



Metropolitan Water District of Southern California  
SALARY SCHEDULE

Report ID: MHR828

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Effective Date: 06/26/2022

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Classification Code	Title	Salary Grade	Hourly Range	Monthly Range	Annual Range	Unit Code
924	* Sr Environmental Specialist	059	\$ 61.85- 80.78	\$10,721-14,002	\$128,648-168,022	03
YC04A	* Sr Financial Analyst (C)	051	\$ 51.16- 67.21	\$ 8,868-11,650	\$106,413-139,797	05
YC23	* Sr Government&Region AffRep(C)	057	\$ 60.36- 78.89	\$10,462-13,674	\$125,549-164,091	05
YC51	* Sr HR Training Specialist (C)	048	\$ 47.13- 61.99	\$ 8,169-10,745	\$ 98,030-128,939	05
YC45	* Sr HRIS Analyst (C)	049	\$ 48.43- 63.71	\$ 8,395-11,043	\$100,734-132,517	05
YA109	Sr IT Business Analyst	052	\$ 52.66- 68.99	\$ 9,128-11,958	\$109,533-143,499	02
XA30A	Sr IT Communication Technician	050	\$ 49.83- 65.42	\$ 8,637-11,339	\$103,646-136,074	02
YA41	Sr IT Enterprise App Analyst	052	\$ 52.66- 68.99	\$ 9,128-11,958	\$109,533-143,499	02
YA36	Sr IT GIS Analyst	052	\$ 52.66- 68.99	\$ 9,128-11,958	\$109,533-143,499	02
YA45	Sr IT Infrastructure Adminstr	052	\$ 52.66- 68.99	\$ 9,128-11,958	\$109,533-143,499	02
YA49	Sr IT Network Engineer	053	\$ 54.12- 70.89	\$ 9,381-12,288	\$112,570-147,451	02
YA53	Sr IT Proj Controls Specialist	049	\$ 48.43- 63.71	\$ 8,395-11,043	\$100,734-132,517	02
YA57	Sr IT Quality Analyst	052	\$ 52.66- 68.99	\$ 9,128-11,958	\$109,533-143,499	02
YA61	Sr IT Software Developer	052	\$ 52.66- 68.99	\$ 9,128-11,958	\$109,533-143,499	02
XA34A	Sr IT Support Analyst	051	\$ 51.16- 67.21	\$ 8,868-11,650	\$106,413-139,797	02
YA65	Sr IT System Administrator	052	\$ 52.66- 68.99	\$ 9,128-11,958	\$109,533-143,499	02
201	* Sr Info Systems Auditor	055	\$ 57.19- 74.72	\$ 9,913-12,951	\$118,955-155,418	04
YC14	* Sr Info Tech Analyst (C)	052	\$ 52.66- 68.99	\$ 9,128-11,958	\$109,533-143,499	05
XA37A	Sr Lab Info Systems Specialist	053	\$ 54.12- 70.89	\$ 9,381-12,288	\$112,570-147,451	02
YA66	Sr Land Surveyor	056	\$ 58.75- 76.85	\$10,183-13,321	\$122,200-159,848	02
XA44A	Sr Landscape Maintenance Tech	048	\$ 47.13- 61.99	\$ 8,169-10,745	\$ 98,030-128,939	02
YA68	Sr Legal Analyst	049	\$ 48.43- 63.71	\$ 8,395-11,043	\$100,734-132,517	02
UC03	Sr Legal Secretary (C)	040	\$ 37.84- 49.83	\$ 6,559- 8,637	\$ 78,707-103,646	05
YC67	* Sr Legislative Representative	058	\$ 61.99- 80.99	\$10,745-14,038	\$128,939-168,459	05
YA73	Sr Limmologist	053	\$ 54.12- 70.89	\$ 9,381-12,288	\$112,570-147,451	02
YA78	Sr Microbiologist	053	\$ 54.12- 70.89	\$ 9,381-12,288	\$112,570-147,451	02
928	* Sr Occup Safety & Health Spec	058	\$ 61.99- 80.99	\$10,745-14,038	\$128,939-168,459	04
XA49	Sr Planner Scheduler	048	\$ 47.13- 61.99	\$ 8,169-10,745	\$ 98,030-128,939	02
YA86	Sr Project Controls Specialist	050	\$ 49.83- 65.42	\$ 8,637-11,339	\$103,646-136,074	02
YA89	Sr Public Affairs Rep	048	\$ 47.13- 61.99	\$ 8,169-10,745	\$ 98,030-128,939	02
YA94	Sr Real Estate Representative	050	\$ 49.83- 65.42	\$ 8,637-11,339	\$103,646-136,074	02
YC53	* Sr Recruitment Specialist (C)	049	\$ 48.43- 63.71	\$ 8,395-11,043	\$100,734-132,517	05
UA15	Sr Reprographic Technician	034	\$ 32.12- 42.23	\$ 5,567- 7,320	\$ 66,810- 87,838	02
155	* Sr Research Chemist	058	\$ 60.18- 78.63	\$10,431-13,629	\$125,174-163,550	03
932	* Sr Resource Specialist	059	\$ 61.85- 80.78	\$10,721-14,002	\$128,648-168,022	03
WC03	Sr Security Specialist	054	\$ 55.62- 72.78	\$ 9,641-12,615	\$115,690-151,382	05
XA56	Sr System Operations Tech	053	\$ 54.12- 70.89	\$ 9,381-12,288	\$112,570-147,451	02
TA17	Sr System Operator	048	\$ 47.13- 61.99	\$ 8,169-10,745	\$ 98,030-128,939	02
XA62A	Sr Technical Writer	053	\$ 54.12- 70.89	\$ 9,381-12,288	\$112,570-147,451	02
YC16	* Sr Training Administrator (C)	051	\$ 51.16- 67.21	\$ 8,868-11,650	\$106,413-139,797	05
YC09	* Sr Training Specialist (C)	050	\$ 49.83- 65.42	\$ 8,637-11,339	\$103,646-136,074	05
YA102	Sr Water Quality Specialist	053	\$ 54.12- 70.89	\$ 9,381-12,288	\$112,570-147,451	02
XA69	Sr Water Quality Technician	048	\$ 47.13- 61.99	\$ 8,169-10,745	\$ 98,030-128,939	02
V01	* Staff Assistant to the GM	072	\$ 69.64- 95.16	\$12,071-16,494	\$144,851-197,933	01
Z43	* Staffing Manager	062	\$ 68.99- 90.20	\$11,958-15,635	\$143,499-187,616	05
VA12	Storekeeper I	026	\$ 25.75- 33.97	\$ 4,463- 5,888	\$ 53,560- 70,658	02
VA13	Storekeeper II	031	\$ 29.54- 38.88	\$ 5,120- 6,739	\$ 61,443- 80,870	02
VA14	Storekeeper III	035	\$ 33.05- 43.42	\$ 5,729- 7,526	\$ 68,744- 90,314	02
Y19	* Strategic Comm&Policy Advisor	081	\$ 88.84-121.39	\$15,399-21,041	\$184,787-252,421	01
PMA01	* Strategic Program Mgr, HR	066	\$ 76.85-100.32	\$13,321-17,389	\$159,848-208,666	05
Y13	Student Intern	022	\$ 17.89- 24.33	\$ 3,101- 4,217	\$ 37,211- 50,606	01
S04	Student Intern Desert	010	\$ 16.60- 21.82	\$ 2,877- 3,782	\$ 34,528- 45,386	02
UA18	Student Youth Intern	014	\$ 14.34- 19.57	\$ 2,486- 3,392	\$ 29,827- 40,706	01
260	* Supervising Admin Analyst	049	\$ 47.02- 61.85	\$ 8,150-10,721	\$ 97,802-128,648	03
XA51A	Survey and Mapping Tech I	036	\$ 33.97- 44.60	\$ 5,888- 7,731	\$ 70,658- 92,768	02
XA52A	Survey and Mapping Tech II	040	\$ 37.84- 49.83	\$ 6,559- 8,637	\$ 78,707-103,646	02
XA53A	Survey and Mapping Tech III	048	\$ 47.13- 61.99	\$ 8,169-10,745	\$ 98,030-128,939	02
XA54A	Survey and Mapping Tech IV	053	\$ 54.12- 70.89	\$ 9,381-12,288	\$112,570-147,451	02
XA55	System Operations Technician	048	\$ 47.13- 61.99	\$ 8,169-10,745	\$ 98,030-128,939	02
TA16	System Operator	045	\$ 43.42- 57.19	\$ 7,526- 9,913	\$ 90,314-118,955	02
Z06A	* Team Manager I	055	\$ 55.52- 72.54	\$ 9,623-12,574	\$115,482-150,883	03
Z06B	* Team Manager II	056	\$ 57.04- 74.61	\$ 9,887-12,932	\$118,643-155,189	03
Z06C	* Team Manager III	058	\$ 60.18- 78.63	\$10,431-13,629	\$125,174-163,550	03
Z06D	* Team Manager IV	059	\$ 61.85- 80.78	\$10,721-14,002	\$128,648-168,022	03
Z06R	* Team Manager IV (C)	058	\$ 61.99- 80.99	\$10,745-14,038	\$128,939-168,459	05
Z06E	* Team Manager V	060	\$ 63.51- 83.00	\$11,008-14,387	\$132,101-172,640	03
Z06S	* Team Manager V (C)	060	\$ 65.42- 85.49	\$11,339-14,818	\$136,074-177,819	05
Z06F	* Team Manager VI	064	\$ 70.66- 92.39	\$12,248-16,014	\$146,973-192,171	03
Z06G	* Team Manager VII	065	\$ 72.54- 94.87	\$12,574-16,444	\$150,883-197,330	03
TM001	* Team Mgr-Admin Svcs Bus Mgmt	059	\$ 63.71- 83.20	\$11,043-14,421	\$132,517-173,056	04

## Metropolitan Water District of Southern California

Report ID: MHR828

## SALARY SCHEDULE

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Classification Code	Title	Salary Grade	Hourly Range	Monthly Range	Annual Range	Unit Code
TM080	* Team Mgr-Budget	062	\$ 68.99- 90.20	\$11,958-15,635	\$143,499-187,616	04
TM002	* Team Mgr-Business Applications	063	\$ 70.89- 92.68	\$12,288-16,065	\$147,451-192,774	04
TM061	* Team Mgr-Business Intel System	063	\$ 70.89- 92.68	\$12,288-16,065	\$147,451-192,774	04
TM084	* Team Mgr-Capital Invstmnt Plan	066	\$ 76.85-100.32	\$13,321-17,389	\$159,848-208,666	04
TM003	* Team Mgr-Chemistry	064	\$ 72.78- 95.16	\$12,615-16,494	\$151,382-197,933	04
TM079	* Team Mgr-Community Relations	063	\$ 70.89- 92.68	\$12,288-16,065	\$147,451-192,774	04
TM005	* Team Mgr-Construction Mgmt I	060	\$ 65.42- 85.49	\$11,339-14,818	\$136,074-177,819	04
TM004	* Team Mgr-Construction Mgmt II	066	\$ 76.85-100.32	\$13,321-17,389	\$159,848-208,666	04
TM064	* Team Mgr-ConstructionContracts	066	\$ 76.85-100.32	\$13,321-17,389	\$159,848-208,666	04
TM006	* Team Mgr-Control Systems Apps	064	\$ 72.78- 95.16	\$12,615-16,494	\$151,382-197,933	04
TM007	* Team Mgr-Corrosion Control	064	\$ 72.78- 95.16	\$12,615-16,494	\$151,382-197,933	04
TM078	* Team Mgr-Creative Design	063	\$ 70.89- 92.68	\$12,288-16,065	\$147,451-192,774	04
TM008	* Team Mgr-Database	063	\$ 70.89- 92.68	\$12,288-16,065	\$147,451-192,774	04
TM009	* Team Mgr-Design	066	\$ 76.85-100.32	\$13,321-17,389	\$159,848-208,666	04
TM073	* Team Mgr-Design Support	057	\$ 60.36- 78.89	\$10,462-13,674	\$125,549-164,091	04
TM072	* Team Mgr-Design Technology	059	\$ 63.71- 83.20	\$11,043-14,421	\$132,517-173,056	04
TM081	* Team Mgr-Education	063	\$ 70.89- 92.68	\$12,288-16,065	\$147,451-192,774	04
TM013	* Team Mgr-Eng Compliance	066	\$ 76.85-100.32	\$13,321-17,389	\$159,848-208,666	04
TM012	* Team Mgr-Engineering Administr	064	\$ 72.78- 95.16	\$12,615-16,494	\$151,382-197,933	04
TM014	* Team Mgr-Enterprise Apps	064	\$ 72.78- 95.16	\$12,615-16,494	\$151,382-197,933	04
TM022	* Team Mgr-Enterprise GIS & CAD	062	\$ 68.99- 90.20	\$11,958-15,635	\$143,499-187,616	04
TM015	* Team Mgr-EnterprsrWaterSysPrgrm	065	\$ 74.72- 97.72	\$12,951-16,938	\$155,418-203,258	04
TM065	* Team Mgr-Environ Planning	065	\$ 74.72- 97.72	\$12,951-16,938	\$155,418-203,258	04
TM016	* Team Mgr-Environ Prgrm Support	066	\$ 76.85-100.32	\$13,321-17,389	\$159,848-208,666	04
TM011	* Team Mgr-Ext Affairs Bus Mgmt	059	\$ 63.71- 83.20	\$11,043-14,421	\$132,517-173,056	04
TM019	* Team Mgr-Facility Operations	059	\$ 63.71- 83.20	\$11,043-14,421	\$132,517-173,056	04
TM018	* Team Mgr-Facility Planning	066	\$ 76.85-100.32	\$13,321-17,389	\$159,848-208,666	04
TM020	* Team Mgr-Field Survey	065	\$ 74.72- 97.72	\$12,951-16,938	\$155,418-203,258	04
TM033	* Team Mgr-FinanceRpt&PlantAsset	059	\$ 63.71- 83.20	\$11,043-14,421	\$132,517-173,056	04
TM021	* Team Mgr-Geodetics and Mapping	065	\$ 74.72- 97.72	\$12,951-16,938	\$155,418-203,258	04
TM023	* Team Mgr-Graphic Design	058	\$ 61.99- 80.99	\$10,745-14,038	\$128,939-168,459	04
TMA01	* Team Mgr-HR Business Support	058	\$ 61.99- 80.99	\$10,745-14,038	\$128,939-168,459	05
TM024	* Team Mgr-Health&SafetyPrgrmSup	064	\$ 72.78- 95.16	\$12,615-16,494	\$151,382-197,933	04
TM025	* Team Mgr-Hydraulics&SysMdlng	066	\$ 76.85-100.32	\$13,321-17,389	\$159,848-208,666	04
TM026	* Team Mgr-Hydroelectric	066	\$ 76.85-100.32	\$13,321-17,389	\$159,848-208,666	04
TM027	* Team Mgr-IT Administration	062	\$ 68.99- 90.20	\$11,958-15,635	\$143,499-187,616	04
TM074	* Team Mgr-IT Business Analysis	061	\$ 67.21- 87.79	\$11,650-15,217	\$139,797-182,603	04
TM077	* Team Mgr-IT Client Systems Spt	060	\$ 65.42- 85.49	\$11,339-14,818	\$136,074-177,819	04
TM082	* Team Mgr-IT Network Systems	063	\$ 70.89- 92.68	\$12,288-16,065	\$147,451-192,774	04
TM066	* Team Mgr-IT Prgrm Project Sppt	065	\$ 74.72- 97.72	\$12,951-16,938	\$155,418-203,258	04
TM028	* Team Mgr-IT Quality Assurance	061	\$ 67.21- 87.79	\$11,650-15,217	\$139,797-182,603	04
TM010	* Team Mgr-IT Service Desk	060	\$ 65.42- 85.49	\$11,339-14,818	\$136,074-177,819	04
TM055	* Team Mgr-IT Telecommunication	063	\$ 70.89- 92.68	\$12,288-16,065	\$147,451-192,774	04
TM067	* Team Mgr-Info Security	061	\$ 67.21- 87.79	\$11,650-15,217	\$139,797-182,603	04
TM046	* Team Mgr-InternalCnt&WaterInv	059	\$ 63.71- 83.20	\$11,043-14,421	\$132,517-173,056	04
TM029	* Team Mgr-Inventory Control	056	\$ 58.75- 76.85	\$10,183-13,321	\$122,200-159,848	04
TM075	* Team Mgr-Laboratory Support	056	\$ 57.04- 74.61	\$ 9,887-12,932	\$118,643-155,189	03
TM068	* Team Mgr-LandPlanning&Managemt	063	\$ 70.89- 92.68	\$12,288-16,065	\$147,451-192,774	04
TM031	* Team Mgr-Maint Engineering	066	\$ 76.85-100.32	\$13,321-17,389	\$159,848-208,666	04
TM032	* Team Mgr-Materials&Metallurgy	060	\$ 65.42- 85.49	\$11,339-14,818	\$136,074-177,819	04
TM034	* Team Mgr-Microbiology	064	\$ 72.78- 95.16	\$12,615-16,494	\$151,382-197,933	04
TM035	* Team Mgr-Operations App Svcs	063	\$ 70.89- 92.68	\$12,288-16,065	\$147,451-192,774	04
TM036	* Team Mgr-Operations Compliance	066	\$ 76.85-100.32	\$13,321-17,389	\$159,848-208,666	04
TM076	* Team Mgr-Operations Planning	064	\$ 72.78- 95.16	\$12,615-16,494	\$151,382-197,933	04
TM037	* Team Mgr-Ops Control Center	064	\$ 72.78- 95.16	\$12,615-16,494	\$151,382-197,933	04
TM060	* Team Mgr-Power Ops& Scheduling	064	\$ 72.78- 95.16	\$12,615-16,494	\$151,382-197,933	04
TM038	* Team Mgr-Procurement	059	\$ 63.71- 83.20	\$11,043-14,421	\$132,517-173,056	04
TM039	* Team Mgr-Prof Contracting Svcs	059	\$ 63.71- 83.20	\$11,043-14,421	\$132,517-173,056	04
TM040	* Team Mgr-Program Management	066	\$ 76.85-100.32	\$13,321-17,389	\$159,848-208,666	04
TM041	* Team Mgr-Project Support	060	\$ 65.42- 85.49	\$11,339-14,818	\$136,074-177,819	04
TM063	* Team Mgr-Property Management	063	\$ 70.89- 92.68	\$12,288-16,065	\$147,451-192,774	04
TM042	* Team Mgr-Pump Plant	061	\$ 67.21- 87.79	\$11,650-15,217	\$139,797-182,603	04
TM043	* Team Mgr-QltyAsrn&CompSampling	064	\$ 72.78- 95.16	\$12,615-16,494	\$151,382-197,933	04
TM044	* Team Mgr-Real Prop Bus Mgmt	059	\$ 63.71- 83.20	\$11,043-14,421	\$132,517-173,056	04
TM045	* Team Mgr-RecordsMgt&ImagingSvc	059	\$ 63.71- 83.20	\$11,043-14,421	\$132,517-173,056	04
TM030	* Team Mgr-Reservoir Management	064	\$ 72.78- 95.16	\$12,615-16,494	\$151,382-197,933	04
TM069	* Team Mgr-Resource Development	064	\$ 72.78- 95.16	\$12,615-16,494	\$151,382-197,933	04
TM070	* Team Mgr-Resource Planning	064	\$ 72.78- 95.16	\$12,615-16,494	\$151,382-197,933	04
TM062	* Team Mgr-Right of Way Acquistn	063	\$ 70.89- 92.68	\$12,288-16,065	\$147,451-192,774	04
TM047	* Team Mgr-Safety of Dams&Geotch	066	\$ 76.85-100.32	\$13,321-17,389	\$159,848-208,666	04

Metropolitan Water District of Southern California  
SALARY SCHEDULE

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Classification Code	Title	Salary Grade	Hourly Range	Monthly Range	Annual Range	Unit Code
TM017	* Team Mgr-Safety&RegSvcSiteSupt	064	\$ 72.78- 95.16	\$12,615-16,494	\$151,382-197,933	04
TMA02	* Team Mgr-SafetyRegTechTraining	060	\$ 65.42- 85.49	\$11,339-14,818	\$136,074-177,819	05
TM048	* Team Mgr-Security Management	064	\$ 72.78- 95.16	\$12,615-16,494	\$151,382-197,933	04
TM049	* Team Mgr-Server Administration	064	\$ 72.78- 95.16	\$12,615-16,494	\$151,382-197,933	04
TM050	* Team Mgr-Substructures	064	\$ 72.78- 95.16	\$12,615-16,494	\$151,382-197,933	04
TM051	* Team Mgr-Supply Acquisition	064	\$ 72.78- 95.16	\$12,615-16,494	\$151,382-197,933	04
TM053	* Team Mgr-Technical Control	065	\$ 74.72- 97.72	\$12,951-16,938	\$155,418-203,258	04
TM054	* Team Mgr-Technical Writing	058	\$ 61.99- 80.99	\$10,745-14,038	\$128,939-168,459	04
TM071	* Team Mgr-Treasury Operations	059	\$ 63.71- 83.20	\$11,043-14,421	\$132,517-173,056	04
TM058	* Team Mgr-WRM Business Mgmt	059	\$ 63.71- 83.20	\$11,043-14,421	\$132,517-173,056	04
TM059	* Team Mgr-WSO Business Mgmt	059	\$ 63.71- 83.20	\$11,043-14,421	\$132,517-173,056	04
TM056	* Team Mgr-Warehouse	056	\$ 58.75- 76.85	\$10,183-13,321	\$122,200-159,848	04
TM057	* Team Mgr-Water Efficiency	064	\$ 72.78- 95.16	\$12,615-16,494	\$151,382-197,933	04
TM083	* Team Mgr-WaterReuse&ProcessDev	066	\$ 76.85-100.32	\$13,321-17,389	\$159,848-208,666	04
XA57	Technical Illustrator I	038	\$ 35.83- 47.13	\$ 6,211- 8,169	\$ 74,526- 98,030	02
XA58	Technical Illustrator II	043	\$ 41.11- 54.12	\$ 7,126- 9,381	\$ 85,509-112,570	02
XA59A	Technical Writer I	038	\$ 35.83- 47.13	\$ 6,211- 8,169	\$ 74,526- 98,030	02
XA60A	Technical Writer II	043	\$ 41.11- 54.12	\$ 7,126- 9,381	\$ 85,509-112,570	02
XA61A	Technical Writer III	048	\$ 47.13- 61.99	\$ 8,169-10,745	\$ 98,030-128,939	02
YC55	* Training Administrator	045	\$ 43.42- 57.19	\$ 7,526- 9,913	\$ 90,314-118,955	05
VC10	Training Assistant I	030	\$ 28.77- 37.84	\$ 4,987- 6,559	\$ 59,842- 78,707	05
VC11	Training Assistant II	034	\$ 32.12- 42.23	\$ 5,567- 7,320	\$ 66,810- 87,838	05
VC12	Training Assistant III	038	\$ 35.83- 47.13	\$ 6,211- 8,169	\$ 74,526- 98,030	05
Y15	* Training Logistics Specialist	059	\$ 61.85- 80.78	\$10,721-14,002	\$128,648-168,022	03
YC08	* Training Specialist (C)	045	\$ 43.42- 57.19	\$ 7,526- 9,913	\$ 90,314-118,955	05
ASM01	* Treasurer	066	\$ 76.85-100.32	\$13,321-17,389	\$159,848-208,666	04
VA15	Treasury Administrator	039	\$ 36.83- 48.43	\$ 6,384- 8,395	\$ 76,606-100,734	02
Z05E	* Unit Manager V	066	\$ 76.85-100.32	\$13,321-17,389	\$159,848-208,666	04
Z05J	* Unit Manager V (C)	066	\$ 76.85-100.32	\$13,321-17,389	\$159,848-208,666	05
UM002	* Unit Mgr-Application Services	067	\$ 78.89-103.14	\$13,674-17,878	\$164,091-214,531	04
UM003	* Unit Mgr-Apprentice&TechTrain	064	\$ 72.78- 95.16	\$12,615-16,494	\$151,382-197,933	04
UM004	* Unit Mgr-Audit	065	\$ 74.72- 97.72	\$12,951-16,938	\$155,418-203,258	04
UMA01	* Unit Mgr-Benefits Services	066	\$ 76.85-100.32	\$13,321-17,389	\$159,848-208,666	05
UM031	* Unit Mgr-Budget	066	\$ 76.85-100.32	\$13,321-17,389	\$159,848-208,666	04
UM030	* Unit Mgr-Chemistry	068	\$ 80.99-105.98	\$14,038-18,370	\$168,459-220,438	04
UMA02	* Unit Mgr-ClassComp&Recruitment	066	\$ 76.85-100.32	\$13,321-17,389	\$159,848-208,666	05
UM005	* Unit Mgr-Construction Services	068	\$ 80.99-105.98	\$14,038-18,370	\$168,459-220,438	04
UM006	* Unit Mgr-Contracting Services	066	\$ 76.85-100.32	\$13,321-17,389	\$159,848-208,666	04
UM007	* Unit Mgr-Conveyance&Distribtn	068	\$ 80.99-105.98	\$14,038-18,370	\$168,459-220,438	04
UM008	* Unit Mgr-Document Services	064	\$ 72.78- 95.16	\$12,615-16,494	\$151,382-197,933	04
UM009	* Unit Mgr-Education	066	\$ 76.85-100.32	\$13,321-17,389	\$159,848-208,666	04
UM010	* Unit Mgr-Engineering Services	069	\$ 83.20-108.89	\$14,421-18,874	\$173,056-226,491	04
UM038	* Unit Mgr-Environmental Plng	069	\$ 83.20-108.89	\$14,421-18,874	\$173,056-226,491	04
UM011	* Unit Mgr-Facility Management	067	\$ 78.89-103.14	\$13,674-17,878	\$164,091-214,531	04
UM012	* Unit Mgr-Fleet Services	065	\$ 74.72- 97.72	\$12,951-16,938	\$155,418-203,258	04
UM016	* Unit Mgr-IT Infrastructure	068	\$ 80.99-105.98	\$14,038-18,370	\$168,459-220,438	04
UM033	* Unit Mgr-IT Program Mgt Office	069	\$ 83.20-108.89	\$14,421-18,874	\$173,056-226,491	04
UM017	* Unit Mgr-IT Project Planning	066	\$ 76.85-100.32	\$13,321-17,389	\$159,848-208,666	04
UM032	* Unit Mgr-IT Security	068	\$ 80.99-105.98	\$14,038-18,370	\$168,459-220,438	04
UM013	* Unit Mgr-Implemnt Proj&Studies	068	\$ 80.99-105.98	\$14,038-18,370	\$168,459-220,438	04
UM014	* Unit Mgr-Imported Supply	068	\$ 80.99-105.98	\$14,038-18,370	\$168,459-220,438	04
UM015	* Unit Mgr-Info Security Svcs	066	\$ 76.85-100.32	\$13,321-17,389	\$159,848-208,666	04
UM037	* Unit Mgr-Laboratory Services	068	\$ 80.99-105.98	\$14,038-18,370	\$168,459-220,438	04
UM023	* Unit Mgr-Land Management	067	\$ 78.89-103.14	\$13,674-17,878	\$164,091-214,531	04
UM018	* Unit Mgr-Manufacturing Svcs	068	\$ 80.99-105.98	\$14,038-18,370	\$168,459-220,438	04
UM029	* Unit Mgr-Microbiology	068	\$ 80.99-105.98	\$14,038-18,370	\$168,459-220,438	04
UM019	* Unit Mgr-Ops Planning&Program	068	\$ 80.99-105.98	\$14,038-18,370	\$168,459-220,438	04
UM036	* Unit Mgr-Ops Proj & Asset Mgmt	069	\$ 83.20-108.89	\$14,421-18,874	\$173,056-226,491	04
UM021	* Unit Mgr-Planning and Acquistn	067	\$ 78.89-103.14	\$13,674-17,878	\$164,091-214,531	04
UM020	* Unit Mgr-Power&EquipReliability	068	\$ 80.99-105.98	\$14,038-18,370	\$168,459-220,438	04
UM040	* Unit Mgr-PowerCompl&Programs	068	\$ 80.99-105.98	\$14,038-18,370	\$168,459-220,438	04
UM035	* Unit Mgr-Rates,Charges&FinPlan	066	\$ 76.85-100.32	\$13,321-17,389	\$159,848-208,666	04
UM024	* Unit Mgr-Risk Management	065	\$ 74.72- 97.72	\$12,951-16,938	\$155,418-203,258	04
UM041	* Unit Mgr-Safety&Environ Svcs	068	\$ 80.99-105.98	\$14,038-18,370	\$168,459-220,438	04
UM034	* Unit Mgr-Security	068	\$ 80.99-105.98	\$14,038-18,370	\$168,459-220,438	04
UM025	* Unit Mgr-System Analysis	069	\$ 83.20-108.89	\$14,421-18,874	\$173,056-226,491	04
UM026	* Unit Mgr-System Operations	068	\$ 80.99-105.98	\$14,038-18,370	\$168,459-220,438	04
UM027	* Unit Mgr-Water Purification	068	\$ 80.99-105.98	\$14,038-18,370	\$168,459-220,438	04
UM028	* Unit Mgr-Water Treatment Plant	068	\$ 80.99-105.98	\$14,038-18,370	\$168,459-220,438	04
XA63	Videographer I	035	\$ 33.05- 43.42	\$ 5,729- 7,526	\$ 68,744- 90,314	02

Metropolitan Water District of Southern California  
SALARY SCHEDULE

Report ID: MHR828

Page No. 10

Run Date 02/10/2023

Run Time 18:40:03

Effective Date: 06/26/2022

Classification Code	Title	Salary Grade	Hourly Range	Monthly Range	Annual Range	Unit Code
XA64	Videographer II	041	\$ 38.88- 51.16	\$ 6,739- 8,868	\$ 80,870-106,413	02
YA101	Water Quality Specialist	048	\$ 47.13- 61.99	\$ 8,169-10,745	\$ 98,030-128,939	02
XA66	Water Quality Technician I	033	\$ 31.21- 41.11	\$ 5,410- 7,126	\$ 64,917- 85,509	02
XA67	Water Quality Technician II	038	\$ 35.83- 47.13	\$ 6,211- 8,169	\$ 74,526- 98,030	02
XA68	Water Quality Technician III	043	\$ 41.11- 54.12	\$ 7,126- 9,381	\$ 85,509-112,570	02
XA70A	Water Sampling Field Tech	033	\$ 31.21- 41.11	\$ 5,410- 7,126	\$ 64,917- 85,509	02
Z38	* Workers Compensation Manager	066	\$ 76.85-100.32	\$13,321-17,389	\$159,848-208,666	05
T13	Wtr Treatment Plant Specialist	048	\$ 47.13- 61.99	\$ 8,169-10,745	\$ 98,030-128,939	02
TA18	Wtr Trtment Plant Operator I	035	\$ 33.05- 43.42	\$ 5,729- 7,526	\$ 68,744- 90,314	02
TA19	Wtr Trtment Plant Operator II	040	\$ 37.84- 49.83	\$ 6,559- 8,637	\$ 78,707-103,646	02
TA20	Wtr Trtment Plant Operator III	045	\$ 43.42- 57.19	\$ 7,526- 9,913	\$ 90,314-118,955	02

Metropolitan Water District of Southern California  
SALARY SCHEDULE

Report ID: MHR828

Page No. 11

Run Date 02/10/2023

Run Time 18:40:03

Effective Date: 06/26/2022

Classification Code	Title	Salary Grade	Hourly Range	Monthly Range	Annual Range	Unit Code
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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&amp;M Tech Titles

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- + 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 7-10

March 13, 2023

## 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 2022

- Implements changes from the Board-approved MOUs
- 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.





- **Board of Directors**

***Ethics, Organization, and Personnel Committee***

3/14/2023 Board Meeting

7-11

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**Subject**

Adopt CalPERS Resolutions for Paying and Reporting the Value of Employer-Paid Member Contributions; the General Manager has determined that the proposed action is exempt or otherwise not subject to CEQA

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**Executive Summary**

CalPERS requires that resolutions be approved by the Board of Directors in order to reflect any changes as required to comply with current Memoranda of Understandings (MOUs) and Administrative Codes including any updates identified by their compliance staff. The Metropolitan Water District of Southern California (Metropolitan) is currently paying the employee's 7 percent normal contributions to PERS according to California Government Code 20691 for all eligible Represented employees as outlined in the current MOUs executed between Metropolitan and the Employees Association groups, AFSCME Local 1902 (AFSCME), Association of Confidential Employees (ACE), MAPA/AFSCME Local 1001 (MAPA), Supervisors Association (SA), and all eligible Unrepresented employees according to Administrative Code 6521. The MOUs and the Administrative Code 6521 specifically state the value of employer-paid member contributions (EPMC) will be reported to CalPERS as compensation earnable and applied as additional compensation for calculating monthly pension allowances. PERS' compliance staff following Job No: 3P20-049 audit recently identified Resolution 9129 approved by the Board on November 8, 2011, did not indicate unrepresented staff would remain under the rules of Resolution 8740, nor included language for reporting the value of EPMC as reflected in its original Resolutions, 8722 approved on December 12, 2000, and 8740 approved on May 15, 2001; and now require two new Resolutions be approved by the Board with the added language to remain compliant with the California Government Codes and Code of Regulations.

**Timing and Urgency**

Two new resolutions must be received by CalPERS no later than April 2023 to ensure all retirees' pension payments are not impacted by the 7 percent value of EPMC being reported as compensation earnable and included in the monthly salary for calculating the pension allowance.

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**Details**

**Background**

The current MOUs executed between Metropolitan and the Employees Association groups, AFSCME, ACE, MAPA, and SA, establish a two-tier system of payment of the required PERS employees' contribution effective January 1, 2012, and states Metropolitan will continue to pay the 7 percent PERS employees' contribution for current employees according to California Government Code 20691, but employees hired on or after January 1, 2012, will pay the 7 percent employees' share of PERS contribution themselves to the extent permitted by law. Under Government Code Section 20636(e)(1), and as specifically authorized in Title 2, California Code of Regulations Section 569, this system is authorized under what is known as the time-in-grade exception. Currently, PERS limits the time-in-grade exception for newly hired employees to the first five years of employment. The MOUs also state Metropolitan will report the value of the normal contribution as additional compensation according to Government Code Section 20691. When an employee retires, this additional compensation will be used in the final compensation calculation for an employee's retirement allowance. Section 20636 requires a signed resolution by the public agency and that the employer's labor policy or agreement

specifically provides that the employer-paid member contributions will be reported as additional compensation. A resolution (**Attachment 1**) is necessary to ensure the existing system, the new two-tier system effective January 1, 2012, and the reportable value of EPMC remains in place and corrects Resolution 9129 approved on November 8, 2011.

Metropolitan is currently paying the employee's 7 percent normal contribution to PERS for all Unrepresented employees as outlined in Administrative Code 6521 and according to California Government Code 20636(c)(4) and 20691. Administrative Code 6521 also states that Metropolitan will report the value of the normal contribution as additional compensation according to Government Code Section 20636 (c)(4). When an employee retires, this additional compensation will be used in the final compensation calculation for an employee's retirement allowance. Section 20636 requires a signed resolution by the public agency and Administrative Code 6521 specifically provides that the EPMC will be reported as additional compensation. A resolution (**Attachment 2**) is necessary to ensure the existing system remains in place as stated under Resolution 8740 approved on May 15, 2001.

Neither resolution, if approved, will provide an expansion of retirement benefits for any individual or group of individuals.

## Policy

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Current authorized Memoranda of Understanding between Metropolitan and the Employees Association/ AFSCME Local 1902, MAPA/AFSCME 1001, Supervisors Association (SA), and the Association of Confidential Employees (ACE) and Metropolitan Water District Administrative Code Section 6521: Retirement

Metropolitan Water District Administrative Code Section 11104: Delegation of Responsibilities

## California Environmental Quality Act (CEQA)

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### CEQA determination for Option #1:

The proposed action is not defined as a project under CEQA (Public Resources Code Section 21065, State CEQA Guidelines Section 15378) because the proposed action will not cause either a direct physical change in the environment or a reasonably foreseeable indirect physical change in the environment and involves organizational or continuing administrative activities (Sections 15378(b)(2) and 15378(b)(5) of the State CEQA Guidelines).

### CEQA determination for Option #2:

None required

## Board Options

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### Option #1

Adopt two new Resolutions to ensure compliance with the current Memoranda of Understandings and Administrative Code 6521 according to Government Code Sections 20636, 20691, and California Code of Regulations Section 569.

**Fiscal Impact:** None. The current budget for FY 22/23 and FY 23/24 includes estimated costs and the fiscal impact will be absorbed in the current and future budgets.

**Business Analysis:** Revised resolutions are required to continue the current administration in place based on the current authorized Memoranda of Understandings and Administrative Code 6521 to provide benefits to Metropolitan retirees.

### Option #2

Do not adopt new Resolutions which will result in noncompliance with the current Memoranda of Understandings and Administrative Code 6521.

**Fiscal Impact:** Unknown

**Business Analysis:** This option would require revising Administrative Code 6521, and a renegotiation of the current MOUs and may result in an unfair labor practice for not complying with the existing MOUs.

**Staff Recommendation**

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Option #1

  
\_\_\_\_\_  
Debra Gill  
Interim Human Resources Group Manager

3/9/2023

Date

  
\_\_\_\_\_  
Adel Hagekhalil  
General Manager

3/9/2023

Date

**Attachment 1 – Resolution For Employer-Paid Member Contributions with Time-in-Grade Exceptions**

**Attachment 2 – Resolution For Paying and Reporting The value of Employer-Paid Member Contribution**

Ref# hr12688527



CalPERS ID: 4104962804

**RESOLUTION \_\_\_\_\_****RESOLUTION FOR EMPLOYER-PAID MEMBER CONTRIBUTIONS  
WITH TIME-IN-GRADE EXCEPTIONS**

WHEREAS, the governing body of The Metropolitan Water District of Southern California has elected\* to pay all or a part of the normal member contributions to the California Public Employees' Retirement System (CalPERS) pursuant to Government Code Section 20691, and applicable labor policies or agreements;

WHEREAS, the governing body of The Metropolitan Water District of Southern California may elect a time-in-grade Exception to said Employer-Paid Member Contributions (EPMC) within a given group or class of employees as defined in Government Code Section 20636(e)(1) and as specifically authorized in Title 2, California Code of Regulations Section 569;

WHEREAS, the governing body of The Metropolitan Water District of Southern California has identified the following conditions for the application of said Exception:

- This exception shall apply to all employees of AFSCME Local 1902, Association of Confidential Employees (ACE), MAPA/AFSCME Local 1001, and Supervisors Association (SA).\*\*
- The Metropolitan Water District of Southern California elects to pay seven (7) percent for all current employees.
- For employees hired after January 1, 2012, The Metropolitan Water District of Southern California will pay EPMC according to the following time-in-grade schedule:  
Year 1 through 5 at 0%.
- Once a newly hired employee accrues five (5) years of total service (either on a continuous or cumulative basis), s/he shall be entitled to payment of EPMC on the same terms that apply to all other employees in the group or class. In so resolving, the governing body of The Metropolitan Water District of Southern California agrees to abide by Section 569, the terms of which are incorporated-by-reference as if fully set forth herein.
- This benefit shall consist of paying seven (7) Percent of the normal contributions as EPMC, and reporting the same percent (value) of compensation earnable\*\* {excluding Government Code Section 20636(c)(4)} as additional compensation.
- The effective date of this Resolution shall remain as January 1, 2012, which corrects and updates Resolution 9129.

**NOW, THEREFORE, BE IT RESOLVED** that the governing body of The Metropolitan Water District of Southern California elects a time-in-grade Exception as set forth above.

**PASSED AND ADOPTED** by the governing body of The Metropolitan Water District of Southern California this 14th day of March 2023.

SIGNED: \_\_\_\_\_  
Adán Ortega Jr., Chairman of The Board

ATTEST: \_\_\_\_\_  
Rickita Hudson, Interim Board Administrator

CalPERS ID: 4104962804

**RESOLUTION \_\_\_\_\_****RESOLUTION FOR PAYING AND REPORTING THE VALUE  
OF EMPLOYER-PAID MEMBER CONTRIBUTION**

WHEREAS, the governing body of The Metropolitan Water District of Southern California has the authority to implement Government Code Section 20636(c) (4) pursuant to Section 20691;

WHEREAS, the governing body of The Metropolitan Water District of Southern California has a written labor policy or agreement which specifically provides for the normal member contributions to be paid by the employer, and reported as additional compensation;

WHEREAS, one of the steps in the procedures to implement Section 20691 is the adoption by the governing body of The Metropolitan Water District of Southern California of a Resolution to commence paying and reporting the value of said Employer-Paid Member Contributions (EPMC);

WHEREAS, the governing body of The Metropolitan Water District of Southern California has identified the following conditions for the purpose of its election to pay EPMC;

- This benefit shall apply to all Unrepresented employees as indicated in the original Resolution 8740.
- This benefit shall consist of paying seven (7) percent of the normal contributions as EPMC, and reporting the same percent (value) of compensation earnable {excluding Government Code Section 20636(c)(4)} as additional compensation.
- The effective date of this Resolution shall remain as May 27, 2001.

**NOW, THEREFORE, BE IT RESOLVED that the governing body of The Metropolitan Water District of Southern California** elects to pay and report the value of EPMC, as set forth above.

**PASSED AND ADOPTED** by the governing body of The Metropolitan Water District of Southern California this 14<sup>th</sup> day of March 2023.

SIGNED: \_\_\_\_\_  
Adán Ortega Jr., Chairman of The Board

ATTEST: \_\_\_\_\_  
Rickita Hudson, Interim Board Administrator



● **Board of Directors**

***Ethics, Organization, and Personnel Committee***

3/14/2023 Board Meeting

**7-12**

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**Subject**

Approve proposed amendment to Administrative Code Section 6471 to increase the amount of the Ethics Officer's authority to obtain professional services for external investigations from \$50,000 to \$100,000; the General Manager has determined that the proposed action is exempt or otherwise not subject to CEQA

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**Executive Summary**

In 2018, the Board approved an increase to the amount of the Ethics Officer's authority to obtain professional services to conduct external investigations from \$40,000 to \$50,000 per contract per year. Since 2018, the Board has approved additional changes to the Administrative Code which give the Ethics Officer responsibilities for conducting certain Equal Employment Opportunity (EEO) and ethics investigations through outside investigators. Further, the Board has since adopted new deadlines for resolution of ethics investigations, 180 days, and internal procedures established by the EEO Office set a new timeframe for investigations, 90 days.

This action, therefore, requests that the Board approve an increase to the amount of the Ethics Officer's authority to obtain outside investigators from \$50,000 to \$100,000 to account for the added investigation responsibilities, recently established investigation timeframes, and caseload management.

**Timing and Urgency**

A delay in approval would likely impact the office's ability to meet the 90- and 180-day timeframes for investigations.

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**Details**

**Background**

In 2018, the Board approved a package of ethics-related amendments to the Administrative Code which included an increase in the authorized contract amount for the Ethics Officer to obtain consulting services, including outside investigation firms, from \$40,000 to \$50,000 per contract per year. Prior to approval, members of the Audit and Ethics Committee engaged in discussions about the appropriate maximum amount to authorize. Ultimately, the Committee proposed \$50,000 with acknowledgment that the Board could further amend the amount if it ultimately proved insufficient for future needs.

As detailed below, a need to increase the amount of authorized funds for outside investigation services has arisen due to recent Administrative Code and internal amendments increasing the Ethics Officer's use of outside investigators. These include newly-delegated responsibilities of overseeing outside investigations of certain EEO complaints, recent mandates requiring the use of outside firms to investigate ethics complaints involving directors and department heads, and the recent adoption of investigation deadlines for ethics and EEO investigations.

**Recent Administrative Code Changes Requiring Outside Investigations Managed by Ethics Officer**

In 2021, the Board approved a package of ethics-related amendments to the Administrative Code which included a requirement that ethics investigations involving directors and direct reports (department heads) be managed by the Ethics Office but investigated by outside firms, as opposed to internal Ethics Office staff.

Subsequently, at its November 2022 meeting, the Board approved amendments to EEO investigation procedures delegating to the Ethics Officer the responsibility of managing certain EEO investigations of directors and the

General Manager through outside firms if, in the judgment of the EEO Officer, a matter should be handled outside of the EEO Office to avoid real or perceived conflicts of interest, bias, or threats to impartiality. Recently updated internal procedures for EEO investigations of employees similarly delegate this investigative responsibility to the Ethics Officer through the use of an external investigator.

In addition to added investigation responsibilities delegated to the Ethics Officer since 2018, new investigation procedures also require that these investigations generally be resolved more quickly. In 2021, the Board approved a 180-day deadline for most ethics investigations; EEO investigations are expected to be completed within 90 days.

### **August 2022 Ethics-Related Amendments to the Administrative Code**

In August 2022, the Board approved an amendment to the Administrative Code giving authority to the Ethics Officer to enter into contracts for outside, independent legal counsel in the amount of \$100,000 per contract. This proposal was in response to the California State Auditor's recommendation that the Ethics Officer be granted authority to obtain outside counsel for purposes of receiving independent legal advice. However, the amount authorized for contracts for outside investigation services remained at \$50,000 for the Ethics Officer. By comparison, the General Counsel is currently authorized to expend up to \$100,000 for special counsel and investigators retained to advise or assist the office in representing Metropolitan. The EEO Office is currently authorized to expend up to the General Manager's contracting authority, or \$250,000.

### **Need for Increase in Authorized Contract Amount for Outside Investigation Services**

This request is intended to address the following:

- 2021 amendments to the Administrative Code requiring the use of external investigators for ethics investigations of directors and department heads;
- 2022 amendments to the Administrative Code delegating to the Ethics Officer responsibility to investigate EEO complaints involving directors and direct reports through external investigators when the EEO Office has a conflict, and internal procedures delegating this responsibility for EEO complaints involving employees when the EEO Office has a conflict;
- 2021 amendments to the Administrative Code requiring that ethics investigations generally be completed and resolved within 180 days, and internal procedures adopted in 2022 indicating that EEO investigations are expected to be completed within 90 days;
- Board and staff resources involved in seeking Board authority to increase individual contracts on a case-by-case basis, each time an outside investigator may near the \$50,000 contract limit. This option would require halting investigations until additional funding is approved.

Further, with only one internal investigator reviewing complaints, conducting ethics investigations, and managing contracts with outside investigation firms, an increased contract limit would also give the Ethics Officer flexibility to hire external firms to investigate routine ethics investigations as needed to avoid a backlog. Although in recent years, the Ethics Office has been able to conduct all routine ethics investigations internally, a steady increase in the number of complaints from 2018 to the present, and the additional responsibility for overseeing outside investigations, may ultimately require the use of outside firms for some routine ethics investigations:

#### **Year/Number of Complaints**

2018 – 28

2019 – 29

2020 – 28

2021 – 32

2022 – 72

See **Attachment 1** for the redlined version of the proposed Administrative Code amendment.



**Conclusion**

In summary, Board approval of an increase to the maximum allowable contract amount for outside investigation firms would address the increased demand for outside investigation services and the Board's expectation of timely investigations.

**Policy**

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Metropolitan Water District Administrative Code Section 11104: Delegation of Responsibilities.

Metropolitan Water District Administrative Code Section 6471: Authority to Obtain Professional Services.

**California Environmental Quality Act (CEQA)**

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**CEQA determination for Option #1:**

The proposed action is not defined as a project under CEQA (Public Resources Code Section 21065, State CEQA Guidelines Section 15378) because the proposed action will not cause either a direct physical change in the environment or a reasonably foreseeable indirect physical change in the environment and involves continuing administrative activities, such as general policy and procedure making (Section 15378(b)(2) of the State CEQA Guidelines). In addition, the proposed action is not defined as a project under CEQA because it involves government funding mechanisms or other government fiscal activities which do not involve any commitment to any specific project which may result in a potentially significant physical impact on the environment (Section 15378(b)(4) of the State CEQA Guidelines).

**CEQA determination for Option #2:**

None required

**Board Options**

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**Option #1**

Approve proposed amendment to Administrative Code Section 6471 to increase the amount of the Ethics Officer's authority to obtain professional services for external investigations from \$50,000 to \$100,000.

**Fiscal Impact:** Up to \$50,000 per contract per year

**Business Analysis:** This option will help avoid unnecessary delays in resolving investigations.

**Option #2**

Do not approve recommended amendment to the Administrative Code.

**Fiscal Impact:** None

**Business Analysis:** This option may impact the ability to resolve investigations in a timely manner.

**Staff Recommendation**

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Option #1



Abel Salinas  
Ethics Officer

2/22/2023

Date

**Attachment 1 – Redline Version, Proposed Administrative Code Amendment**

Ref# e12691461

**§6471. Authority to Obtain Professional Services.**

(a) The Ethics Officer is authorized to contract for independent legal counsel as they deem necessary in fulfilling duties and responsibilities of the Ethics Office. The Ethics Officer may contract with one or more attorneys or law firms depending on the areas of expertise needed. The amount to be expended in fees, costs and expenses under any one contract in any one-year period shall not exceed \$100,000. The General Counsel shall review such contracts solely for consistency with Metropolitan's contract requirements. The General Counsel shall not have the authority to deny the Ethics Officer's ability to contract with any given party.

(b) The Ethics Officer is authorized to contract for the professional services of outside investigators and investigation firms to conduct investigations under the Ethics Officer's purview. The amount to be expended in fees, costs, and expenses under any one contract in any one-year period shall not exceed \$100,000.

~~(c)~~ The Ethics Officer is authorized to employ the services of other professional or technical consultants for advice and assistance in performing the duties assigned as may be required or as deemed necessary, provided that the amount to be expended in fees, costs and expenses under any one contract in any one year shall not exceed \$50,000.

~~(d)~~ The Ethics Officer shall inform the Ethics, Organization and Personnel Committee whenever the authority granted under this section is exercised, and shall further report quarterly on activities concerning any agreements entered into under this section. Any such contracts shall be consistent with Metropolitan contract requirements and shall be reviewed by the General Counsel.

M. I. 45285 - April 8, 2003; amended by M. I. 46064 – January 11, 2005; amended by M.I. 46983 - February 13, 2007; amended by M. I. 47636 - September 9, 2008; renumbered from Section 6472 to 6471 and amended same by M.I. 51391 - November 6, 2018; added paragraph numbering to Section, added new paragraph (a) by M.I. 52941- August 16, 2022; amended paragraph (a) by M.I. 53014 – October 11, 2022; amended paragraphs (a) and (c) by M.I. 53064 – December 13, 2022.

## Ethics, Organization, and Personnel Committee



# Ethics Officer contracting authority for outside investigations

Item 7-12

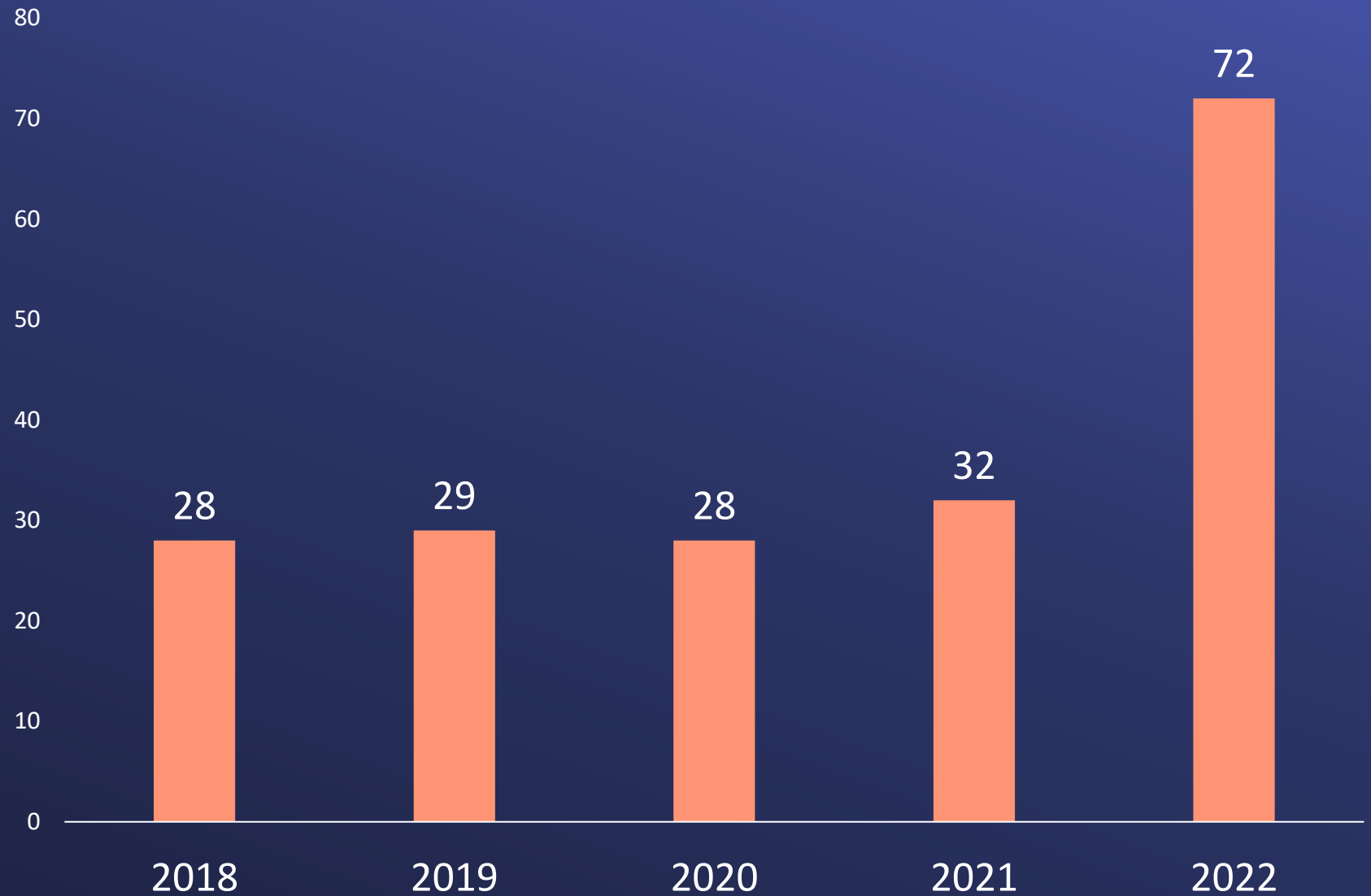
March 13, 2023

## Background

### Increased Responsibilities

- 2021: Outside investigator for all Directors or Dept Head cases
- 2022: EEO investigations in cases involving EEO Office conflicts
- 2021 & 2022: Shorter timeframes for completing investigations

# Ethics Complaints



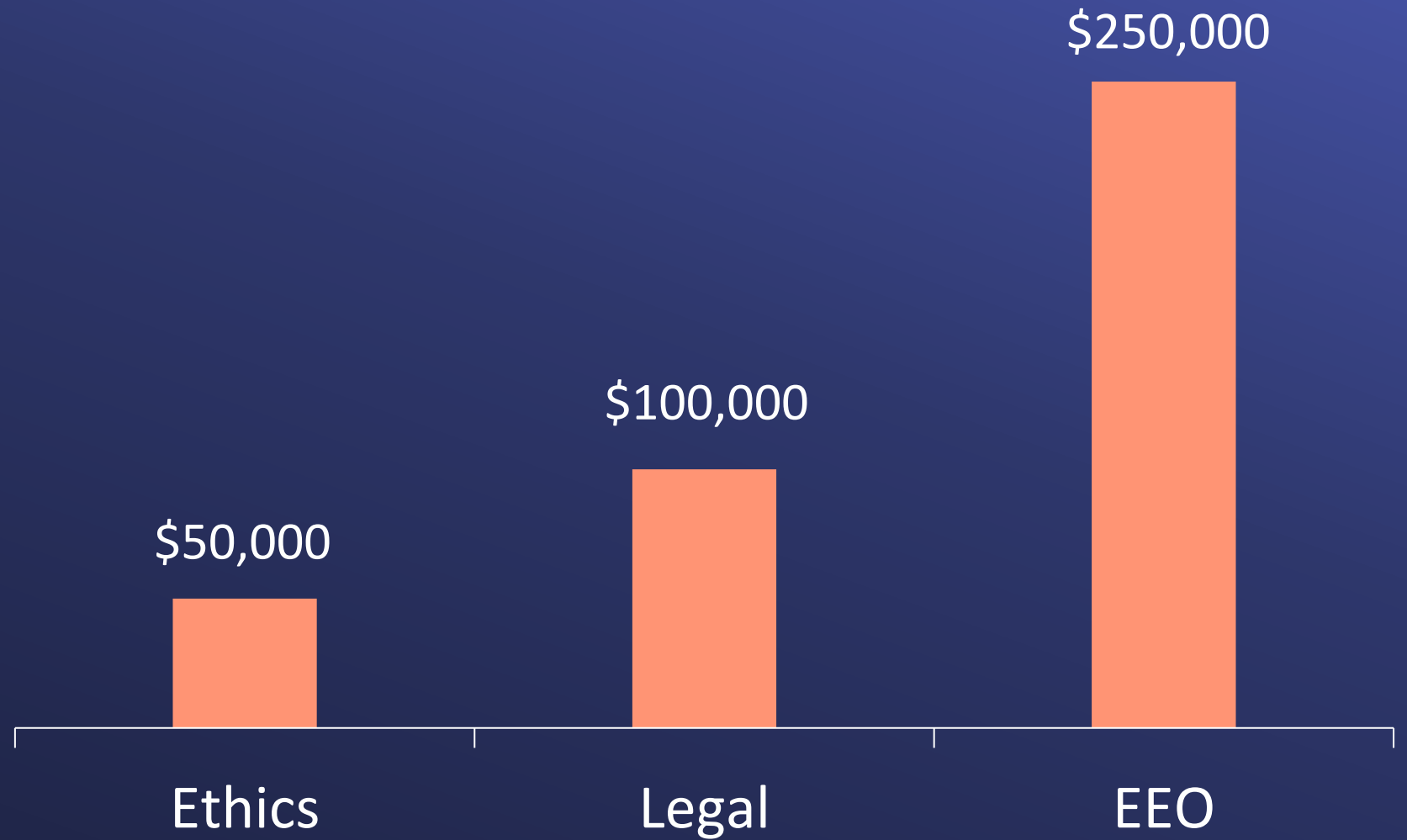


# Ethics Officer Contracting Authority

## Prior Board Actions

- 2008: \$40,000
- 2021: \$50,000
- 2022: \$100,000 for Legal Advice

# Contracting Authority for Outside Investigations



## Board Options

### Option #1

Increase Ethics Officer's authority to obtain outside investigation services from \$50,000 to \$100,000 per contract.

### Option #2

Do not approve increased contracting authority at this time.





• **Board of Directors**  
***Legal and Claims Committee***

3/14/2023 Board Meeting

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**7-13**

**Subject**

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Authorize an increase in the maximum amount payable under contract with Burke, Williams & Sorensen, LLP for legal services related to general real estate and leasing law issues by \$100,000 to a maximum amount payable of \$200,000; the General Manager has determined that the proposed action is exempt or otherwise not subject to CEQA

**Executive Summary**

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In August 2019, Burke Williams & Sorensen, LLP (Burke Williams) began providing Metropolitan with legal advice and support services for specialty real estate and right-of-way matters. The General Counsel's Office authorized a not-to-exceed contract amount of \$100,000, but the need for general and specialized advice in real estate and leasing, telecommunications site licensing, and general permitting issues is ongoing and will require additional funds exceeding the General Counsel's authority. To continue support of these critical and ongoing efforts, staff requests Board authorization to increase the maximum amount payable under the existing contract to \$200,000.

**Details**

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**Background**

The Burke Williams law firm has special expertise in general real estate and eminent domain matters. Such expertise is helpful in the acquisition, disposition, and management of Metropolitan rights of way, public works facilities, easements, and operational lands. Specialized commercial leasing and land management expertise is also needed in order to provide assistance in drafting leases and agreements to encourage water-efficient farming, water supply preservation, and water quality. The Burke Williams law firm also assists Metropolitan with the creation and implementation of protocols to deal with illegal encampments and encroachments on Metropolitan land and the siting and management of telecommunication sites and other secondary uses of Metropolitan property.

**Policy**

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Metropolitan Water District Administrative Code Section 6431: Authority to Obtain Expert Assistance

Metropolitan Water District Administrative Code Section 11104: Delegation of Responsibilities

**California Environmental Quality Act (CEQA)**

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**CEQA determination for Option #1:**

The proposed action is not defined as a project under CEQA (Public Resources Code Section 21065, State CEQA Guidelines Section 15378) because the proposed action involves fiscal decisions that will not cause either a direct physical change in the environment or a reasonably foreseeable indirect physical change in the environment. Additionally, where it can be seen with certainty that there is no possibility that the proposed action in question may have a significant effect on the environment, the proposed action is not subject to CEQA (Section 15061(b)(3) of the State CEQA Guidelines).



**CEQA determination for Option #2:**

None required

**Board Options**

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**Option #1**

Authorize an increase in the maximum amount payable under contract with Burke, Williams & Sorensen, LLP for general real estate legal services by \$100,000 to a maximum amount payable of \$200,000

**Fiscal Impact:** \$100,000, authorized legal services funded within the FY 2022/23 budget

**Business Analysis:** Expert special counsel will assist staff in general and specialized real estate transactions, right-of-way issues, licenses, leases, and other matters.

**Option #2**

Do not authorize the contract increase

**Fiscal Impact:** Unknown

**Business Analysis:** Without expert special counsel, the legal support of real property acquisitions, dispositions, and management could be more uncertain.

**Staff Recommendation**

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Option #1

  
\_\_\_\_\_  
Marcia Scully  
General Counsel

3/1/2023

Date

Ref# 12686369



## Legal & Claims Committee

# Request to Authorize Increase in Special Counsel Contract for General Real Estate and Leasing Law Support

March 13, 2023

## Specialized Legal Support

- Complex Land Purchases and Sales
- Specialized Licensing, Leasing and Permitting Issues
- Property Management and Landowner Regulatory Compliance
- Condemnation and Eminent Domain Matters

## Staff Recommendation

### Option I

Authorize the General Counsel to amend the agreement with Burke Williams & Sorensen to increase the maximum amount payable by Metropolitan by \$100,000 to an amount not to exceed \$200,000



# Questions







● **Board of Directors**  
***Legal and Claims Committee***

3/14/2023 Board Meeting

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**7-14**

**Subject**

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Authorize increase of \$100,000, to a maximum amount payable of \$400,000, for existing General Counsel contract with Olson Remcho LLP to provide general government law advice related to the Political Reform Act, the Fair Political Practices Commission regulations, conflict of interest law and other legislative and ethics matters; the General Manager has determined the proposed action is exempt or otherwise not subject to CEQA

**Executive Summary**

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The General Counsel entered into a contract with the law firm of Olson Hagel & Fishburn LLP (Olson Hagel) on July 1, 2014, for \$50,000 to provide Metropolitan with general government law advice related to the Political Reform Act (PRA), the Fair Political Practices Commission (FPPC) regulations, conflict of interest law and other legislative and ethics matters. The firm focuses on election and political law, campaign reporting, conflicts of interest, ethics, lobbying and other public law matters. In 2020 the name of the firm was changed to Olson Remcho LLP. Lance Olson continues to perform most of the work under the contract.

Under this contract, the firm provides valuable advice and assistance to Legal on an as-requested basis. As part of the contract, the firm serves as Metropolitan's designated agent for the required electronic filing of Lobbyist Reports under the PRA, and regularly reviews and files these reports with the FPPC for Metropolitan. The firm also provides the General Counsel advice regarding the interpretation and requirements of the PRA and related laws applicable to public agencies and officials. The firm provided Brown Act training to the Board in January 2021 and assisted in responding to additional questions from the Board regarding the training and related matters.

The agreement was amended on November 1, 2016, to increase the maximum amount payable to \$100,000; in August 2018 by \$100,000 to a maximum amount payable of \$200,000; and in July 2021 by \$100,000 to a maximum amount payable of \$300,000. The expenditures are approaching the \$300,000 maximum. This letter requests an increase of \$100,000 to a maximum of \$400,000 so that Olson Remcho LLP can continue to provide these legal services for Metropolitan. This agreement remains in effect until terminated. While the rate of expenditure is subject to the number and nature of the matters requiring assistance from the firm, it is anticipated that the increase will be adequate for at least an additional year.

**Policy**

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Metropolitan Water District Administrative Code Section 6430: General Counsel's employment of attorneys to render special counsel services

Metropolitan Water District Administrative Code Section 11104: Delegation of Responsibilities

## California Environmental Quality Act (CEQA)

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### CEQA determination for Option #1:

The proposed action is not defined as a project under CEQA (Public Resources Code Section 21065, State CEQA Guidelines Section 15378) because the proposed action will not cause either a direct physical change in the environment, or a reasonably foreseeable indirect physical change in the environment and involves continuing administrative activities, such as general policy and procedure making (Section 15378(b)(2) of the State CEQA Guidelines). In addition, the proposed action is not defined as a project under CEQA because it involves the creation of government funding mechanisms or other governmental fiscal activities which do not involve any commitment to any specific project which may result in a potentially significant physical impact on the environment (Section 15378(b)(4) of the State CEQA Guidelines).

### CEQA determination for Option #2:

None required

## Board Options

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### Option #1

Authorize the General Counsel to increase the amount payable under its agreement with Olson Remcho LLP by \$100,000 to a maximum amount payable of \$400,000.

**Fiscal Impact:** The sum of \$100,000 is added to this agreement for the provision of the authorized legal services, funded within the FY 2022/23 budget

### Option #2

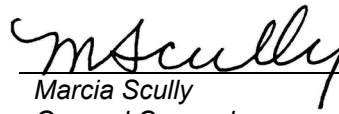
Do not authorize an increase in the maximum amount payable under this agreement with Olson Remcho LLP, effectively terminating this contract when the current funds are exhausted.

**Fiscal Impact:** No known fiscal impact, but Metropolitan will not have access to the valuable expertise and assistance provided by this law firm

## Staff Recommendation

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Option #1

  
\_\_\_\_\_  
Marcia Scully  
General Counsel

3/2/2023  
\_\_\_\_\_  
Date

Ref# I12689135



## Legal & Claims Committee

# Request to Authorize Increase in Special Counsel Contract for General Government Law Advice

March 13, 2023

## Special Counsel

### Request for Additional Funds for Special Counsel

- To increase existing contract with Olson Remcho LLP by \$100,000 to an amount not-to-exceed \$400,000
- First retained in 2014
- Increased contract maximum authorized in 2016, 2018 and 2021



## Specialized Legal Support

- Political Reform Act (PRA)
- Fair Political Practices Commission (FPPC) Regulations
- Conflict of Interest Law
- Lobbying Reports
- Other Legislative and Ethics Matters

## Board Options

- Option #1  
Authorize the General Counsel to increase the amount payable under its agreement with Olson Remcho LLP by \$100,000 to a maximum amount payable of \$400,000.
- Option #2  
Do not authorize an increase in the maximum amount payable under this agreement with Olson Remcho LLP, effectively terminating this contract when the current funds are exhausted.

## Staff Recommendation

### Option 1

Authorize the General Counsel to increase the amount payable under its agreement with Olson Remcho LLP by \$100,000 to a maximum amount payable of \$400,000



# Questions









• **Board of Directors**  
***Legal and Claims Committee***

3/14/2023 Board Meeting

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**7-15**

**Subject**

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Approve amendments to the Metropolitan Water District Administrative Code to provide for the implementation of new legislation authorizing the use of alternative project delivery methods; adopt an organizational conflict-of-interest policy governing the solicitation of a design-build or progressive design-build project; and authorize an increase in the maximum amount payable under contract with Hanson Bridgett LLP, for legal services related to implementation of new legislation, by \$150,000 for an amount not to exceed \$250,000; the General Manager has determined the proposed action is exempt or otherwise not subject to CEQA

**Executive Summary**

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This board action would implement alternative project delivery (APD) methods authorized by recent legislation for Pure Water Southern California and other water infrastructure projects. In addition to amending the Metropolitan Administrative Code to authorize the APD methods of design-build (DB), progressive design-build (PDB), and construction manager/general contractor, the action would adopt an organizational conflict-of-interest policy for APD projects, as mandated by legislation, and provide additional funding for outside counsel to provide legal advice with respect to the APD solicitation process and contract documents.

**Details**

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**Background**

In October of 2021, the Board authorized the General Manager to propose legislation that would enable Metropolitan to utilize APD methods to expedite the design and construction of Pure Water Southern California and drought-related projects. Metropolitan proposed such legislation, and it was introduced, via Assembly Bill (AB) 1845 (Calderon), in February of 2022. Following extensive negotiations with stakeholders and legislative staff, legislative hearings, and approval by the California Assembly and Senate, the Governor signed the legislation on September 13, 2022, and it became effective on January 1, 2023. The Governor also signed Senate Bill (SB) 991 (Newman), which provides local agencies, including Metropolitan, additional authority for PDB projects.

AB 1845 authorizes Metropolitan, upon approval of its governing body, to use the DB, PDB, and construction manager/general contractor (CM/GC) project delivery methods to construct up to 15 capital outlay projects prior to January 1, 2028. Authorized projects include a regional recycled water project and other water infrastructure projects undertaken to alleviate water supply shortages attributable to drought or climate change. The legislation also requires entities performing work on APD projects to commit to using a skilled and trained workforce, which can be achieved through a project labor agreement. In addition, the legislation mandates that Metropolitan perform construction inspection services for all APD projects and develop guidelines for an organizational conflict-of-interest policy to cover all DB and PDB projects.

In addition to drafting proposed Administrative Code amendments to implement AB 1845 and the required conflict-of-interest policy, Metropolitan staff have been developing conceptual design documents, a request for qualifications, and contract documents for the Sepulveda Feeder Pumping Stations project, which will utilize the PDB project delivery method. Staff have been assisted in this effort by Metropolitan's owner representative, Carollo Engineers, Inc. (Carollo), for whom the Board authorized an increase in an existing contract amount in

September of 2022, and Metropolitan's outside counsel, Hanson Bridgett LLP, who are currently performing work under a \$100,000 contract awarded under the General Counsel's authority.

### **Amendments to the Administrative Code**

Currently, Metropolitan's Administrative Code only authorizes the solicitation and award of design-bid-build construction projects. As summarized below, the bulk of the amendments proposed in this action are necessary to codify and formalize the solicitation and contracting requirements for APD methods specified in AB 1845. The proposed amendments are set forth in **Attachment 1**, with overstrikes reflecting deletions and underlining reflecting additions. **Attachment 2** sets forth the sections as they will appear in the Code if the changes are approved.

- **Design-Build**—The DB method is distinct from PDB and CM/GC in that the selection process results in a contract with a fixed price for design, preconstruction, and construction services. In the simplest terms, it merges the design and construction components of a project, which are typically performed by unrelated entities under separate contracts. The procurement process involves Metropolitan's release of project-related information sufficient to enable a design-build entity (DBE) to respond to both a request for qualifications (RFQ), which results in a shortlist of prequalified DBEs and a request for proposals (RFP), which results in a fixed-price contract award. Metropolitan may select a DBE based on either low bid or best value.
- **Progressive Design-Build**—In contrast to the DB method, the PDB method facilitates a collaborative relationship between Metropolitan and the DBE. Metropolitan will select the DBE based on qualifications alone through an RFQ process and enter into a DB contract that prices design work with a not-to-exceed amount. Once the DBE has sufficiently completed design activities, it will propose a guaranteed maximum price (GMP). If the parties agree to a GMP, they will amend the DB contract to include this price, and the DBE will complete remaining design activities and construction. The DBE will be paid for neither the costs in excess of the GMP, nor the differential between actual costs and the GMP, absent an agreement to share these proceeds. If the parties cannot agree on a GMP, either
  - (1) Metropolitan will require the DBE to finish the design work and will bid out the construction work,
  - (2) Metropolitan will award a contract to another DBE to finish design and construction, or
  - (3) Metropolitan will complete some or all of the remaining work with its own forces.
- **Construction Manager/General Contractor**—The CM/GC method differs from DB and PDB in that it does not include design activities. Rather, it enables a general contractor to expedite project delivery by enabling the GC, serving as a construction manager, to perform preconstruction activities, such as early procurement, prior to commencement of the construction phase of the project. Selection of the CM/GC for contract award is qualifications-based through an RFQ process. Once preconstruction activities are completed, Metropolitan will attempt to negotiate a GMP or fixed price for construction activities. If the parties cannot agree to a GMP or fixed price, Metropolitan will either bid out the construction work or perform it with its own forces.

The remaining proposed amendments pertain largely to the early procurement of equipment or materials. Since a primary goal of APD is to expedite project completion, a number of proposed amendments are designed to facilitate the early procurement of equipment or materials, by either Metropolitan, a DBE, or a CM/GC. The proposed amendments to Section 8123(a) increase the General Manager's change order authority for public works purchasing contracts to the greater of \$250,000 or 5% of the contract amount. The proposed amendments to Sections 8140(1) and 8148(d)(1) would permit a DBE or CM/GC to procure equipment or materials prior to construction without further board approval, provided that the procured items are specified in the existing contract, within the authorized contract, and procured utilizing either low bid or best value.

### **Organizational Conflict-of-Interest Policy**

AB 1845, as codified in Section 21568.1 of the California Public Contract Code, requires Metropolitan to develop guidelines for a standard organizational conflict-of-interest policy, consistent with applicable law, regarding the ability of an entity to submit a proposal to Metropolitan for a DB or PDB project. The proposed Metropolitan organizational conflict-of-interest policy provided in **Attachment 3**, developed in collaboration with the Ethics Office, is consistent with the policies of other California public agencies. The proposed policy contains the

following elements: (1) a description of the types of conflicts that prohibit a DBE from participating in a solicitation process or entering into a contract; (2) specific examples of conflicts on DB and PDB projects; (3) a description of conflict-related obligations for both proposers and entities awarded contracts; (4) a list of safeguards and other measures to mitigate conflicts; and (5) remedial measures.

#### Increase in Contract Amount for Outside Counsel

In July of 2022, the General Counsel issued an RFP seeking outside counsel to assist with the implementation of AB 1845 and legal issues associated with Pure Water California. The General Counsel received proposals on APD from 12 law firms, and the firms deemed most qualified were interviewed. Hanson Bridgett LLP was selected and awarded a contract in November of 2022 in an amount not to exceed \$100,000. The selection was based both on the firm's extensive experience working with other public agencies on APD solicitations and contracts and their demonstrated ability to work collaboratively with in-house counsel, consultants, and project staff.

Hanson Bridgett LLP has assisted the General Counsel's Office in drafting contract documents for the Sepulveda Feeder Pumping Stations project, which will serve as a template for future PDB contracts. The firm has also collaborated with the General Counsel's Office, Engineering staff, and Carollo on the development of the PDB solicitation process in compliance with AB 1845. The General Counsel is seeking a \$150,000 increase in Hanson Bridgett LLP's contract amount for a new not-to-exceed amount of \$250,000. This increase will enable the firm to continue assisting Metropolitan on the solicitation and contracting process for the Sepulveda Feeder Pumping Stations project after the release of the RFQ, as well as on upcoming projects utilizing PDB or other alternative delivery methods.

### Policy

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California Public Contract Code Article 121.1, Sections 21568 through 21568.11: Metropolitan Water District of Southern California-Alternative Project Delivery Program

Metropolitan Water District Administrative Code Section 6430: General Counsel's special counsel authority

Metropolitan Water District Administrative Code Section 8100: General Provisions, Definitions

Metropolitan Water District Administrative Code Section 8123: Authority to Contract

Metropolitan Water District Administrative Code Sections 8140, 8141, 8144, 8148 through 8151: Award of Contracts

Metropolitan Water District Administrative Code Section 11104: Delegation of Responsibilities

By Minute Item 52546, dated October 12, 2021, the Board authorized the General Manager to seek legislation for Metropolitan to utilize alternative project delivery methods for construction of the Regional Recycled Water Program and drought-related projects.

### California Environmental Quality Act (CEQA)

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#### CEQA determination for Option #1:

The proposed action is not defined as a project under CEQA (Public Resources Code Section 21065, State CEQA Guidelines Section 15378) because the proposed action will not cause either a direct physical change in the environment or a reasonably foreseeable indirect physical change in the environment and involves continuing administrative activities, such as general policy and procedure making (Section 15378(b)(2) of the State CEQA Guidelines). In addition, the proposed action is not defined as a project under CEQA because it involves government funding mechanisms or other government fiscal activities which do not involve any commitment to any specific project which may result in a potentially significant physical impact on the environment (Section 15378(b)(4) of the State CEQA Guidelines).

#### CEQA determination for Option #2:

None required

## Board Options

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### Option #1

- a. Approve amendments to the Metropolitan Water District Administrative Code, as shown in **Attachment 2**, to provide for the implementation of new legislation authorizing the use of alternative project delivery methods.
- b. Adopt an organizational conflict-of-interest policy, as shown in **Attachment 3**, governing the solicitation of a design-build or progressive design-build project.
- c. Authorize an increase in the maximum amount payable under contract with Hanson Bridgett LLP for legal services related to implementation of new legislation by \$150,000 to an amount not to exceed \$250,000.

**Fiscal Impact:** \$150,000 in CIP funds; Sepulveda Feeder Pump Stations Project, a CIP Project included in the budget for FYs 2022/23 and 2023/24

**Business Analysis:** Approval will permit Metropolitan to implement alternative project delivery legislation, comply with the legislation's mandate to adopt an organizational conflict-of-interest policy, and enable the General Counsel and staff to utilize the assistance of outside counsel for upcoming design-build, progressive design-build, and construction manager/general contractor projects.

### Option #2

Do not approve amendments to the Administrative Code, adopt an organizational conflict-of-interest policy, or approve a contract increase for outside counsel.

**Fiscal Impact:** None

**Business Analysis:** This option will limit Metropolitan's project delivery alternatives to the design-bid-build option currently permitted by Metropolitan's Administrative Code.

## Staff Recommendation

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### Option #1

  
\_\_\_\_\_  
Marcia Scully  
General Counsel

3/8/2023  
\_\_\_\_\_  
Date

**Attachment 1 – The Administrative Code of The Metropolitan Water District of Southern California (with changes marked)**

**Attachment 2 – The Administrative Code of The Metropolitan Water District of Southern California (clean version)**

**Attachment 3 – Conflict-of-Interest Policy for Alternative Project Delivery of The Metropolitan Water District of Southern California**

## Article 1

### GENERAL PROVISIONS

#### § 8100. Definitions.

The definitions contained in this section govern the interpretation of this chapter:

(a) Best Value – “Best value” means a value determined by evaluation of objective criteria that relate to price, features, functions, life-cycle costs, experience, and past performance.

(b) Best Value Procurement – “Best value procurement” means a competitive procurement method where factors in addition to price are considered in order to award a contract that provides the best overall value to the District.

(~~bc~~) Change Order – “Change order” means an amendment modifying the terms of an existing contract.

(d) Construction Manager/General Contractor – “Construction manager/general contractor” means a project delivery method for a public works project in which a construction manager is procured to provide preconstruction services during the design phase of the project and construction services during the construction phase of the project.

(~~ee~~) Contract – “Contract” means any written agreement, including purchase orders, to which the District is a party.

(~~df~~) Construction – “Construction” includes erection, demolition, alteration, repair, and relocation.

(g) Design-Build – “Design-build” means a project delivery method for a public works project in which both the design and construction of a project are procured from a single entity selected through a process involving both a request for qualifications and a request for proposals at the earliest feasible stage of the project.

(h) Design-Build Entity – “Design-build entity” means a corporation, limited liability company, partnership, joint venture, or other legal entity that is able to provide appropriately licensed contracting, architectural, and engineering services as needed pursuant to a design-build contract.

(~~ei~~) Form of Agreement – “Form of agreement” is the document evidencing the contractual relationship of the District and the successful bidder.

(j) Guaranteed Maximum Price – “Guaranteed maximum price” means the maximum payment amount agreed upon by the District and the design-build entity or the construction manager/general contractor for the design-build entity or the construction manager/general



contractor to finish all remaining design, preconstruction, and/or construction activities to complete and close out the project.

(~~fk~~) Notice Inviting Bids. - "Notice inviting bids" means a notice inviting proposals for entering into a contract upon the terms of contract documents incorporated in said notice by reference.

(~~gl~~) Professional and Technical Services – “Professional and technical services” mean a specialized personal service rendered by an independent contractor who has specialized knowledge, skill and expertise in an area generally recognized to be practiced exclusively by such contractors.

(m) Progressive Design-Build – “Progressive design-build” means a project delivery method utilizing design-build for a public work project in which both the design and construction of a project are procured from a single design-build entity that is selected through a qualifications-based process at the earliest feasible stage of the project.

(~~hn~~) Proposal. – “Proposal” means the prospective contractor’s offer to enter into a contract upon the terms set forth therein or in the contract documents.

(~~io~~) Public Works – “Public works” mean contracting for the erection, construction, alteration, repair, or improvement, including demolition and installation work, of any public structure, building, road, or other public improvement of any kind. Public works does not include work done by the District’s force account, work not paid for out of public funds, or contracting for the purchase of finished products, materials, or supplies.

(~~jp~~) Purchase Order – “Purchase order” means an authorization under which the party designated therein as contractor is to provide materials or services for which the District agrees to pay pursuant to the terms contained thereon or in a separate contract.

(~~kq~~) Purchasing – “Purchasing” means the procurement of goods or services other than Professional and Technical Services.

(~~lr~~) Request for Proposals – “Request for proposals” means documents, whether attached or incorporated by reference, used for soliciting technical proposals.

(~~ms~~) Request for Qualifications – “Request for qualifications” means all documents, whether attached or incorporated by reference, used for soliciting qualifications statements for the purpose of evaluating and pre-qualifying prospective contractors for a proposed contract or specified kinds of work or, where appropriate, selecting the most qualified contractor for a particular contract.

Ords. 114 and 144; repealed by Ord. 146; Section 451.1, Section 451.6 and Section 451.4 added, as amended, by M.I. 32690 - April 10, 1979. Section 451.1 repealed and Section 8100 adopted, Section 451.6 repealed and Section 8100(d) adopted, Section 451.4 repealed and Section 8100(h) adopted by M.I. 36464 - January 13, 1987, effective April 1, 1987; New paragraphs (a), (b), (i) added, old paragraph (f) deleted, and remaining paragraphs renumbered and amended by M. I. 46371 - September 13, 2005; added new paragraph (k), renumbered and amended paragraph (l), and renumbered paragraph (m) by M.I. 51930 – March 10, 2020.

## Article 2

### AUTHORITY TO CONTRACT

#### § 8123. Authority of the General Manager to Amend Contracts.

(a) The General Manager may authorize change orders for Public Works Contracts awarded pursuant to Section 8142 or Section 8148, or Purchasing Contracts associated with a Public Works Contract, without Board approval to increase the amount payable of the initial contract by the greater of (i) an aggregate amount of \$250,000 per contract or (ii) an aggregate amount not to exceed 5 percent of the initial amount of the contract.

(b) The General Manager may authorize change orders for Purchasing Contracts without Board approval to increase the amount payable of the initial contract by an aggregate amount of \$250,000 per contract.

(c) Change orders for Professional and Technical Services Contracts may not be executed by the General Manager in an amount that would increase the total payable amount under the initial contract to an amount exceeding \$250,000 without prior Board approval.

Former §8115(d) Change Orders – moved to new §8123 renumbered paragraphs (a) and (b) and amended by M.I. 46371 - September 13, 2005; paragraphs (a) and (b) amended by M. I. 46838 – October 10, 2006; deleted former paragraph (a), renumbered and amended paragraph (a), and added new paragraphs (b) and (c) by M.I. 51930 – March 10, 2020.

### **Article 3**

#### **AWARD OF CONTRACTS**

##### **§ 8140. Competitive Procurement**

1. All Purchasing Contracts and Professional and Technical Services Contracts in the amount of \$75,000 or more shall be made upon a competitive procurement method of either competitive sealed bidding or best value procurement as provided in this Chapter, except:

(a) Contracts for miscellaneous services, such as telephone, telegraph, light, power and water, where rates or prices are fixed by legislation or by federal, state, county or municipal regulations.

(b) Contracts deemed to be for an emergency under the procedures set forth in §8122(b) and in accordance with Public Contract Code Section 21567.

(c) Contracts executed in lieu of bringing an action in eminent domain, to reimburse an owner for the owner's costs of relocating or protecting facilities affected by District construction projects.

(d) If 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. Prior to award of contract, the General Manager's designee proposing such contract shall certify that the contract is exempt from competitive procurement and shall set forth in the certificate reasons for that determination.

(e) If, within six months previous to the date of execution of a proposed contract, advertising or posting for identical articles, or articles of the same general character, has failed to secure responsive proposals and, in the opinion of the General Manager, further advertising or posting will not alter this result.

(f) If the purchase is of used equipment which, in the opinion of the General Manager, is satisfactory for the work of the District.

(g) If the contract is with any governmental agency.

(h) Contracts for insurance or for services of a professional, artistic, scientific, or technical character.

(i) Change orders.

(j) Contracts for the handling of District airline ticketing, lodging, automobile rental reservations, and miscellaneous travel-related services.

(k) Contracts to buy or sell non-firm power on an hour-to-hour basis and other contracts of durations up to one year to furnish power or transmission capability to the District or dispose of power or transmission capability available to the District.

(l) Transactions pursuant to contracts secured by other public corporations which, in the opinion of the General Counsel, substantially comply with the competitive procurement requirements of this Chapter.

~~(h)(m)~~ Procurement of equipment or materials by a design-build entity or construction manager/general contractor pursuant to Section 8148(d)(1).

2. A designated product, material, thing, or service by a specific brand or trade name may be exclusively requested, either as a sole source or for competitive procurement, for any of the following purposes:

(a) If the articles wanted are patented, copyrighted, or otherwise unique.

(b) In order that a field test or experiment may be made to determine the designated product's suitability for future use.

(c) For replacement parts or for equipment where replacement parts or components from another supplier could compromise the safety or reliability of the product, or would void or invalidate a manufacturer's warranty or guarantee, as set forth in the certificate provided below.

(d) For replacement parts or components of equipment, where parts or components obtained from another supplier, if available, will not perform the same function in the equipment as the part or component to be replaced, as set forth in the certificate provided below.

(e) For upgrades, enhancement or additions to hardware or for enhancements or additions to software, where equipment or software from different manufacturers or developers will not be as compatible as equipment or software from the original manufacturer(s) or developer(s), as set forth in the certificate provided below.

When such an article is to be purchased, the General Manager's designee preparing the request for bids or proposals shall certify that the particular article will best serve the purpose of the District, and reasons for such conclusion shall be set forth.

**[FORMER §8103 Competitive Bids]** Ords. 29, 113, 114 and 144; repealed by Ord. 146; Section 451.9 added, as amended, by M.I. 32690 - April 10, 1979; paragraph (j) [formerly Section 451.9.10] amended by M.I. 33286 - June 10, 1980; paragraph (f) [formerly Section 451.9.6] amended by M.I. 34180 - April 13, 1982; paragraph (g) [formerly Section 451.9.7] amended by M.I. 34493 - December 7, 1982; paragraph (j) amended by M.I. 35350 - October 9, 1984; paragraph (k) [formerly Section 451.25] added by M.I. 34303 - July 13, 1982 and renumbered Section 451.24 - June 3, 1985; paragraph (b) [formerly Section 451.9.2] amended by M.I. 35992 - March 11, 1986. Sections 451.9 and 451.24 repealed and Section 8103 adopted by M.I. 36464 - January 13, 1987, effective April 1, 1987; paragraph (l) added by M.I. 36681 - June 9, 1987; paragraph (1) amended by M.I. 37096 - April 12, 1988; amended by M.I. 37575 - March 14, 1989.; paragraphs (b), (f), (g), and (k) amended and paragraph (m) added by M. I. 44582 – August 20, 2001.

Former §8103 renumbered and renamed §8140 Competitive Procurement, paragraphs (b) (d) (e) (k) and (m) amended by M.I. 46371 - September 13, 2005; Numbered the first introductory paragraph as 1, repealed paragraph (d), renumbered paragraphs (e) through (m), added paragraph 2 by M.I. 48877 – November 8, 2011; amended paragraph 1 by M.I. 50322 - December 8, 2015; amended paragraph 1 by M.I. 51930 – March 10, 2020.

**§ 8141. Competitive Sealed Bidding.**

(a) Except as otherwise provided in Sections 8140 and 8148, all contracts for public works estimated to cost \$25,000 or more shall be made upon competitive sealed bidding.

(b) For contracts other than public works contracts and for contracts estimated to cost less than \$75,000, the General Manager may prescribe the procedure for contracting, which may include competitive bidding as provided in this Article or as modified in the General Manager's discretion.

M.I. 46371 - September 13, 2005. Former §8110(c) Contracts Estimated to Cost Less Than \$25,000 remembered (b) amended and moved to new §8141 by M. I. 46371 - September 13, 2005; amended paragraph (b) by M.I. 50322 - December 8, 2015.

**§8144. Posting and Advertising for Competitive Sealed Bidding.**

(a) General. - No notice inviting bids for any contract required to be let upon competitive bidding shall be posted or advertised unless there is first prepared a complete set of contract documents detailing the terms of the agreement and the work to be performed, which set shall be available to any interested party.

(b) Public Works Contracts Estimated to Cost \$25,000 or More. - Whenever a contract required to be let upon competitive bidding is estimated to cost \$25,000 or more, a notice inviting bids shall published no less than once within an online bidding platform designated by the General Manager at least five days, exclusive of Saturday, Sunday and holidays, before the time for opening bids; provided, however, that the foregoing requirement shall not apply when bids will be considered only from bidders determined to be pre-qualified or whose technical proposal is determined to be responsive to the District's specifications, as determined under the procedure set forth in Section 8142.

(c) Other Notices. - A notice requesting pre-qualification information or a notice inviting technical proposals pursuant to Section 8142 shall be posted and advertised in the manner required for the notice inviting bids for the proposed contract for which prospective bidders or prospective lower-tier contractors will be required to be pre-qualified or for which a technical proposal is requested; provided, however, that a notice inviting technical proposals need not be posted or advertised where bidding is restricted to bidders determined to be pre-qualified under the procedure set forth in Section 8142. Posting and advertising shall take place sufficiently in advance of the date of posting and advertising of the notice inviting bids to permit the General Manager to fully evaluate the information submitted in response thereto and to make a determination.

[FORMER §8110 Posting and Advertising] Ords. 23, 113, 114 and 144; repealed by Ord. 146; Section 451.10 added, as amended, by M.I. 32690 - April 10, 1979; paragraphs (b), (c) and (d) [formerly Sections 451.10.2 through 451.10.4] amended by M.I. 34619 - March 8, 1983. Section 451.10 repealed and Section 8110 adopted by M.I. 36464 - January 13, 1987, effective April 1, 1987; paragraph (b) and (d) amended, paragraphs (c)(1) and (c)(2) deleted, and paragraph (c)(3) renumbered and amended by M.I. 44582 - August 20, 2001.



Former §8110 renumbered and renamed §8144, paragraph (b) amended, paragraph (c) moved to §8141, and paragraph (d) renumbered (c) and amended by M.I. 46371 - September 13, 2005; amended paragraph (b) by M.I. 51930 – March 10, 2020.

### **§8148. Alternative Project Delivery**

In lieu of the public works procurement process described in Section 8142, the District may utilize the following three alternative project delivery methods for a public works project: design-build, progressive design-build, or construction manager/general contractor.

(a) The design-build procurement process shall proceed as follows:

- (1) The District shall prepare documents setting forth the scope and estimated price of the project. The documents shall indicate the size, type, and desired design character of the project and the performance specifications covering the quality of project materials, equipment, workmanship, preliminary plans, or building layouts, along with other information deemed necessary to describe adequately the District's needs.
- (2) The District shall issue a request for qualifications containing, at a minimum, the following elements:
  - i. A thorough description of the project, including an expected cost range and the procurement process to be utilized;
  - ii. A listing of significant factors that the District will consider in evaluating qualifications, including technical design and construction expertise, as well as the relative importance or weight of each factor; and
  - iii. A template requiring respondents to demonstrate relevant experience, an acceptable safety record and program, and the necessary licenses, registrations, credentials, financial and bonding capacity, and insurance coverage to complete the project.
- (3) The District shall shortlist the respondents meeting the qualification standards established in the request for qualifications.
- (4) Based on the documents prepared pursuant to (a)(1) above, the District shall prepare a request for proposals that invites shortlisted entities to submit competitive sealed proposals in the manner prescribed by the District. The request for proposals shall identify the scope of the project and its estimated cost, whether the contract will be awarded on the basis of low bid or best value, significant factors that the District expects to consider in evaluating proposals, and the relative importance or weight assigned to each factor.
- (5) For those projects utilizing low bid, the competitive bidding process shall result

in lump-sum bids by shortlisted design-build entities, and contract award shall be made to the design-build entity that is the lowest responsible bidder. For those projects utilizing best value, the selection process shall proceed as follows:

- i. Competitive proposals shall be evaluated by the criteria specified in the request for proposals, including price, technical design, construction expertise, and life-cycle costs over 15 years or more.
- ii. The District may hold discussions or negotiations with respondents utilizing a process described in the request for proposals.
- iii. When the District's evaluation is complete, respondents shall be ranked based on a determination of value provided.
- iv. Contract award shall be made to the responsible design-build entity whose proposal is determined by the District to offer the best value to the public.

(b) The progressive design-build procurement process shall proceed as follows:

- (1) The District shall select a design-build entity based solely on qualifications following the issuance of a request for qualifications containing, at a minimum, the elements listed in subsection (a)(2).
- (2) The District may enter into a contract with the most-qualified design-build entity to begin design and preconstruction activities sufficient to establish a guaranteed maximum price for remaining project work.
- (3) If the District and the design-build entity agree on a guaranteed maximum price, the District may, at its sole discretion, amend the contract to permit the design-build entity to complete the remaining design, preconstruction, and construction activities necessary to complete the project.
- (4) If the costs for completing the remaining design, preconstruction, and construction activities exceed the guaranteed maximum price, the excess costs shall be the responsibility of the design-build entity. If the costs for these activities are less than the guaranteed maximum price, the design-build entity shall not be entitled to the differential between the costs and the guaranteed maximum price unless there is a prior written agreement concerning the sharing of these proceeds.
- (5) If the District and the design-build entity do not agree on a guaranteed maximum price, or the District otherwise elects not to amend the contract to complete the remaining work, the District may (i) select another design-build entity to complete all remaining work, (ii) complete the remaining design work utilizing District forces or a design consultant and award a construction contract

pursuant to Section 8142, (iii) require the original design-build entity to complete the remaining design work at a negotiated price and award a construction project pursuant to Section 8142, or (iv) complete all remaining work utilizing District forces.

(c) The construction manager/general contractor procurement process shall proceed as follows:

(1) The District shall select a construction manager based solely on qualifications following the issuance of a request for qualifications containing, at a minimum, the elements listed in subsection (a)(2), and soliciting the following information:

- i. Any prior serious or willful violations of the California Occupational Safety and Health Act of 1973 or the federal Occupational Safety and Health Act of 1970, settled against the construction manager or any of its member;
- ii. Debarment, disqualification, or removal from a federal, state, or local government public works project, as well as any instance in which a construction manager, or any of its members, submitted a bid on a public works project and was found to be not responsive or not responsible by an awarding body;
- iii. Any instance in which the construction manager, or any of its members, defaulted on a construction contract;
- iv. Any violations of the Contractors State License Law, excluding alleged violations of federal or state laws including the payment of wages, benefits, apprenticeship requirements, or personal income tax withholding, or of the Federal Insurance Contributions Act withholding requirements against the construction manager, or any of its members;
- v. Bankruptcy or receivership by the construction manager, or any of its members, including information concerning any work completed by a surety; and
- vi. All settled adverse claims, disputes, or lawsuits between the owner of a public works project and the construction manager, or any of its members, during the five years preceding submission of a bid pursuant to this section, in which the claim, settlement, or judgment exceeds fifty thousand dollars (\$50,000).

(2) The District shall enter into negotiations for a contract for preconstruction services with the highest qualified construction manager for each contract identified in the request for qualifications. If the District is unable to negotiate a satisfactory contract with the highest qualified construction manager, the District

shall terminate negotiations and undertake negotiations with the next most qualified construction manager in sequence until an agreement is reached or a determination is made to reject all construction managers.

(3) A contract for construction services shall be awarded to the construction manager/general contractor after construction documents have been sufficiently developed and either a fixed price or a guaranteed maximum price has been successfully negotiated. In the event a fixed price or a guaranteed maximum price is not negotiated, the District shall not award the contract for construction services to the construction manager/general contractor and may either award a construction contract pursuant to Section 8142 or complete all remaining work utilizing District forces.

(d) For projects utilizing the progressive design-build or construction manager/general contractor method, the District may elect to do any or all of the following in order to expedite project delivery and/or facilitate contract negotiations:

(1) Permit the design-build entity or construction manager/general contractor to procure equipment or materials prior to the establishment of a fixed price or guaranteed maximum price, provided that the equipment or materials are identified in an existing contract, their cost is within the contract amount, and the design-build entity or construction manager/general contractor utilizes a low bid or best value procurement process as provided in the contract.

(2) Include terms and conditions in the initial contract that pertain to design, preconstruction, or construction activities not covered by the contract amount, provided that the District has the authority to terminate the contract prior to the initiation of such activities if the parties do not negotiate a fixed price or guaranteed maximum price covering the activities or the District elects to terminate the contract for other reasons.

(3) Require the design-build entity or construction manager/general contractor to submit fee proposals for design, preconstruction, or construction activities in response to the request for qualifications, provided that such proposals are not factored into the selection process.

(e) For design-build and progressive design-build projects, the District may identify specific types of subcontractors that shall be listed in the design-build entity's statement of qualifications. Following the award of any contract pursuant to this section, except for those construction subcontractors previously listed in response to a request for qualifications, all construction subcontracts with a value exceeding one-half of one percent of the contract price allocable to construction work shall be awarded either on a best value basis or to the lowest responsible bidder, as determined by the District.

(f) In the event that the General Manager determines that a design-build entity or construction manager/general contractor (i) is not responsible or no longer responsible after

previously having been determined responsible, (ii) has submitted a statement of qualifications, proposal, or bid that is not responsive to the contract documents, or (iii) has failed to comply with a condition precedent, the General Manager shall set forth the determination in writing together with the reasons therefore and shall serve a copy of the determination and reasons on the design-build entity or construction manager/general contractor.

#### **§81488149. Hearings on Substitution of Subcontractors.**

(a) A prime contractor, design-build entity, or construction manager/general contractor may request that the General Manager consent to substitution of a subcontractor listed in the original bid or statement or qualifications or selected pursuant to Section 8148(e) if it believes that the subcontractor is not, or is no longer, a responsible contractor.

(b) Prior to giving consent for a substitution, the General Manager shall give written notice to the listed subcontractor of the prime contractor's, design-build entity's, or construction manager/general contractor's request.

(c) The listed subcontractor shall have five business days to object in writing to the requested substitution and request a hearing. If the subcontractor does not object to the substitution in a timely manner, the General Manager may consent to the requested substitution upon determining that one or more of the nine grounds for substitution listed in Public Contracts Code Section 4107(a) has been established.

(d) If the listed subcontractor objects to the substitution in a timely manner, the General Manager shall give notice of a hearing, conduct the hearing, and issue a decision in accordance with Public Contract Code Section 4107. The decision of the General Manager made pursuant to this section shall be final.

(e) Any power delegated to the General Manager pursuant to this section may be re- delegated by the General Manager to any officer or employee of the District.

**[FORMER §8119 Delegation of Hearing Power.]** Section 451.17 based on Res. 7656 - December 9, 1975; renumbered Section 451.17.1 through 451.17.3 by M.I. 32690 - April 10, 1979; paragraph (a) renumbered [formerly Sections 451.3.5 and 451.3.6, renumbered 451.17.1.1 and 451.17.1.2] and amended and paragraph (b) renumbered [formerly Sections 451.17.1 through 451.17.3, renumbered 451.17.2.1 through 451.17.2.3] by M.I. 36365 - November 18, 1986. Section 451.17 repealed and Section 8119 adopted by M.I. 36464 - January 13, 1987, effective April 1, 1987; paragraph (a)(2) amended by M.I. 39314 - November 19, 1991; paragraphs (a)(1) and (2) deleted and remainder of section renumbered by M.I. 40004 - January 12, 1993; paragraphs (a) and (b) amended by M.I. 41652 - November 14, 1995; Former §8119 renumbered §8148, and paragraph (c) amended by M.I. 46371 - September 13, 2005; Renamed section title, amended paragraphs (a) – (c), and added paragraphs (d) and (e) by M.I. 51930 – March 10, 2020.

#### **§81498150. Best Value Procurement.**

(a) Application – Whenever a contract other than a contract for public works is required to be competitively procured, but it is considered impractical or not advantageous to use the competitive sealed bidding method, a contract may be awarded by the best value method of procurement as provided in this Section. The Executive Officer or designee shall determine in writing that the best value method of procurement is practical or advantageous for a particular procurement prior to using this method.



(b) Posting and Advertising – Proposals shall be solicited through a request for proposals which shall be posted and advertised in a manner that provides adequate public notice of the request as determined by the Executive Officer.

(c) Evaluation Factors – The evaluation factors to be used in the determination of award and the numerical weighting for each factor shall be stated in the request for proposals.

(1) Contract cost must be a factor in the determination of the award.

(2) Evaluation factors may be defined to include, but are not limited to, the following:

- (i) Operational and other future costs and risks that the District would incur if the proposal is accepted;
- (ii) Quality and benefits of the product or service or its technical competency;
- (iii) Quality and effectiveness of management approach and controls;
- (iv) Qualifications of personnel and management team;
- (v) Financial stability of the prospective contractor;
- (vi) Past performance and past experience; and
- (vii) Furtherance of the District's Business Outreach Program goals.

(d) Evaluation of Proposals

(1) Proposals shall be evaluated on the basis of the criteria stated in the request for proposals and by adhering to the weighting as assigned. Award will be made to the bidder whose proposal is determined to be the most advantageous to the District, except that the Executive Officer may reject all proposals received.

(2) Where the best value proposal is not the lowest price proposal from a responsive, responsible bidder, that selection shall be based on a written determination, applying the criteria provided in the request for proposals, by the Executive Officer or designee that the selected proposal is most advantageous to Metropolitan.

M.I. 46371 - September 13, 2005; amended paragraph (d)(2) by M.I. 51930 – March 10, 2020.

### **§81508151. Protests.**

(a) Public Works Contracts. – Within five days after service of the General Manager's determination under Section 8142(d) or 8148(f), or within five days of ~~the a~~ bid opening or a determination made pursuant to a request for qualification or request for proposals, a bidder or respondent may file a protest with the General Manager pursuant to procedures developed and administered by the Chief Engineer. If the General Manager denies the protest, in whole or in part, the bidder may file a notice of appeal of the protest

denial with the Board Executive Secretary within five days of such denial. A hearing on the appeal by the Engineering, Operations and Technology Committee shall be conducted in accordance with Section 2431(b).

(b) Purchasing and Professional and Technical Services Contracts – Within five days after the occurrence of an event subject to a protest under procedures developed and administered by the Contracting Services Manager, a respondent, or potential respondent, to a solicitation may file a protest with the General Manager pursuant to those procedures. Upon the General Manager's final determination on the protest, the respondent, or potential respondent, may file a notice of appeal of the determination with the Board Executive Secretary within five days of such determination. A hearing on the appeal by the Executive Committee shall be conducted in accordance with Section 2416(f)(3).

(c) Any hearing body that conducts a protest hearing pursuant to this section shall give proper notice thereof, receive evidence and rule upon its admissibility, prepare a record of the proceedings, submit a written decision setting forth the bases for the decision, and cause a copy of the decision to be served upon the appellant.

(d) In the event that a decision on a protest is made less than 20 days before the date set for bid opening or submittal of a proposal or statement of qualifications, such opening or submittal shall be postponed to a date not less than 20 days after the date of decision.

(e) There shall be no right to protest an approval or ratification of a contract by the Executive Committee pursuant to Section 2416(f)(1).

(f) Any power delegated to the General Manager pursuant to this section may be re-delegated by the General Manager to any officer or employee of the District.

M.I. 51930 – March 10, 2020; paragraph (a) amended by M.I. 53064 – December 13, 2022.

## **Article 1**

### **GENERAL PROVISIONS**

#### **§ 8100. Definitions.**

The definitions contained in this section govern the interpretation of this chapter:

(a) Best Value – “Best value” means a value determined by evaluation of objective criteria that relate to price, features, functions, life-cycle costs, experience, and past performance.

(b) Best Value Procurement – “Best value procurement” means a competitive procurement method where factors in addition to price are considered in order to award a contract that provides the best overall value to the District.

(c) Change Order – “Change order” means an amendment modifying the terms of an existing contract.

(d) Construction Manager/General Contractor – “Construction manager/general contractor” means a project delivery method for a public works project in which a construction manager is procured to provide preconstruction services during the design phase of the project and construction services during the construction phase of the project.

(e) Contract – “Contract” means any written agreement, including purchase orders, to which the District is a party.

(f) Construction – “Construction” includes erection, demolition, alteration, repair, and relocation.

(g) Design-Build – “Design-build” means a project delivery method for a public works project in which both the design and construction of a project are procured from a single entity selected through a process involving both a request for qualifications and a request for proposals at the earliest feasible stage of the project.

(h) Design-Build Entity – “Design-build entity” means a corporation, limited liability company, partnership, joint venture, or other legal entity that is able to provide appropriately licensed contracting, architectural, and engineering services as needed pursuant to a design-build contract.

(i) Form of Agreement – “Form of agreement” is the document evidencing the contractual relationship of the District and the successful bidder.

(j) Guaranteed Maximum Price – “Guaranteed maximum price” means the maximum payment amount agreed upon by the District and the design-build entity or the construction manager/general contractor for the design-build entity or the construction manager/general

contractor to finish all remaining design, preconstruction, and/or construction activities to complete and close out the project.

(k) Notice Inviting Bids. - "Notice inviting bids" means a notice inviting proposals for entering into a contract upon the terms of contract documents incorporated in said notice by reference.

(l) Professional and Technical Services – “Professional and technical services” mean a specialized personal service rendered by an independent contractor who has specialized knowledge, skill and expertise in an area generally recognized to be practiced exclusively by such contractors.

(m) Progressive Design-Build – “Progressive design-build” means a project delivery method utilizing design-build for a public work project in which both the design and construction of a project are procured from a single design-build entity that is selected through a qualifications-based process at the earliest feasible stage of the project.

(n) Proposal. – “Proposal” means the prospective contractor’s offer to enter into a contract upon the terms set forth therein or in the contract documents.

(o) Public Works – “Public works” mean contracting for the erection, construction, alteration, repair, or improvement, including demolition and installation work, of any public structure, building, road, or other public improvement of any kind. Public works does not include work done by the District’s force account, work not paid for out of public funds, or contracting for the purchase of finished products, materials, or supplies.

(p) Purchase Order – “Purchase order” means an authorization under which the party designated therein as contractor is to provide materials or services for which the District agrees to pay pursuant to the terms contained thereon or in a separate contract.

(q) Purchasing – “Purchasing” means the procurement of goods or services other than Professional and Technical Services.

(r) Request for Proposals – “Request for proposals” means documents, whether attached or incorporated by reference, used for soliciting technical proposals.

(s) Request for Qualifications – “Request for qualifications” means all documents, whether attached or incorporated by reference, used for soliciting qualifications statements for the purpose of evaluating and pre-qualifying prospective contractors for a proposed contract or specified kinds of work or, where appropriate, selecting the most qualified contractor for a particular contract.

Ords. 114 and 144; repealed by Ord. 146; Section 451.1, Section 451.6 and Section 451.4 added, as amended, by M.I. 32690 - April 10, 1979. Section 451.1 repealed and Section 8100 adopted, Section 451.6 repealed and Section 8100(d) adopted, Section 451.4 repealed and Section 8100(h) adopted by M.I. 36464 - January 13, 1987, effective April 1, 1987; New paragraphs (a), (b), (i) added, old paragraph (f) deleted, and remaining paragraphs renumbered and amended by M. I. 46371 - September 13, 2005; added new paragraph (k), renumbered and amended paragraph (l), and renumbered paragraph (m) by M.I. 51930 – March 10, 2020.

## **Article 2**

### **AUTHORITY TO CONTRACT**

#### **§ 8123. Authority of the General Manager to Amend Contracts.**

(a) The General Manager may authorize change orders for Public Works Contracts awarded pursuant to Section 8142 or Section 8148, or Purchasing Contracts associated with a Public Works Contract, without Board approval to increase the amount payable of the initial contract by the greater of (i) an aggregate amount of \$250,000 per contract or (ii) an aggregate amount not to exceed 5 percent of the initial amount of the contract.

(b) The General Manager may authorize change orders for Purchasing Contracts without Board approval to increase the amount payable of the initial contract by an aggregate amount of \$250,000 per contract.

(c) Change orders for Professional and Technical Services Contracts may not be executed by the General Manager in an amount that would increase the total payable amount under the initial contract to an amount exceeding \$250,000 without prior Board approval.

Former §8115(d) Change Orders – moved to new §8123 renumbered paragraphs (a) and (b) and amended by M.I. 46371 - September 13, 2005; paragraphs (a) and (b) amended by M. I. 46838 – October 10, 2006; deleted former paragraph (a), renumbered and amended paragraph (a), and added new paragraphs (b) and (c) by M.I. 51930 – March 10, 2020.

## **Article 3**

### **AWARD OF CONTRACTS**

#### **§ 8140. Competitive Procurement**

1. All Purchasing Contracts and Professional and Technical Services Contracts in the amount of \$75,000 or more shall be made upon a competitive procurement method of either competitive sealed bidding or best value procurement as provided in this Chapter, except:

(a) Contracts for miscellaneous services, such as telephone, telegraph, light, power and water, where rates or prices are fixed by legislation or by federal, state, county or municipal regulations.

(b) Contracts deemed to be for an emergency under the procedures set forth in §8122(b) and in accordance with Public Contract Code Section 21567.

(c) Contracts executed in lieu of bringing an action in eminent domain, to reimburse an owner for the owner's costs of relocating or protecting facilities affected by District construction projects.



(d) If 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. Prior to award of contract, the General Manager's designee proposing such contract shall certify that the contract is exempt from competitive procurement and shall set forth in the certificate reasons for that determination.

(e) If, within six months previous to the date of execution of a proposed contract, advertising or posting for identical articles, or articles of the same general character, has failed to secure responsive proposals and, in the opinion of the General Manager, further advertising or posting will not alter this result.

(f) If the purchase is of used equipment which, in the opinion of the General Manager, is satisfactory for the work of the District.

(g) If the contract is with any governmental agency.

(h) Contracts for insurance or for services of a professional, artistic, scientific, or technical character.

(i) Change orders.

(j) Contracts for the handling of District airline ticketing, lodging, automobile rental reservations, and miscellaneous travel-related services.

(k) Contracts to buy or sell non-firm power on an hour-to-hour basis and other contracts of durations up to one year to furnish power or transmission capability to the District or dispose of power or transmission capability available to the District.

(l) Transactions pursuant to contracts secured by other public corporations which, in the opinion of the General Counsel, substantially comply with the competitive procurement requirements of this Chapter.

(m) Procurement of equipment or materials by a design-build entity or construction manager/general contractor pursuant to Section 8148(d)(1).

2. A designated product, material, thing, or service by a specific brand or trade name may be exclusively requested, either as a sole source or for competitive procurement, for any of the following purposes:

(a) If the articles wanted are patented, copyrighted, or otherwise unique.

(b) In order that a field test or experiment may be made to determine the designated product's suitability for future use.

(c) For replacement parts or for equipment where replacement parts or components from another supplier could compromise the safety or reliability of the product, or would void or invalidate a manufacturer's warranty or guarantee, as set forth in the certificate provided below.

(d) For replacement parts or components of equipment, where parts or components obtained from another supplier, if available, will not perform the same function in the equipment as the part or component to be replaced, as set forth in the certificate provided below.

(e) For upgrades, enhancement or additions to hardware or for enhancements or additions to software, where equipment or software from different manufacturers or developers will not be as compatible as equipment or software from the original manufacturer(s) or developer(s), as set forth in the certificate provided below.

When such an article is to be purchased, the General Manager's designee preparing the request for bids or proposals shall certify that the particular article will best serve the purpose of the District, and reasons for such conclusion shall be set forth.

**[FORMER §8103 Competitive Bids]** Ords. 29, 113, 114 and 144; repealed by Ord. 146; Section 451.9 added, as amended, by M.I. 32690 - April 10, 1979; paragraph (j) [formerly Section 451.9.10] amended by M.I. 33286 - June 10, 1980; paragraph (f) [formerly Section 451.9.6] amended by M.I. 34180 - April 13, 1982; paragraph (g) [formerly Section 451.9.7] amended by M.I. 34493 - December 7, 1982; paragraph (j) amended by M.I. 35350 - October 9, 1984; paragraph (k) [formerly Section 451.25] added by M.I. 34303 - July 13, 1982 and renumbered Section 451.24 - June 3, 1985; paragraph (b) [formerly Section 451.9.2] amended by M.I. 35992 - March 11, 1986. Sections 451.9 and 451.24 repealed and Section 8103 adopted by M.I. 36464 - January 13, 1987, effective April 1, 1987; paragraph (l) added by M.I. 36681 - June 9, 1987; paragraph (1) amended by M.I. 37096 - April 12, 1988; amended by M.I. 37575 - March 14, 1989.; paragraphs (b), (f), (g), and (k) amended and paragraph (m) added by M. I. 44582 – August 20, 2001.

Former §8103 renumbered and renamed §8140 Competitive Procurement, paragraphs (b) (d) (e) (k) and (m) amended by M.I. 46371 - September 13, 2005; Numbered the first introductory paragraph as 1, repealed paragraph (d), renumbered paragraphs (e) through (m), added paragraph 2 by M.I. 48877 – November 8, 2011; amended paragraph 1 by M.I. 50322 - December 8, 2015; amended paragraph 1 by M.I. 51930 – March 10, 2020.

## **§ 8141. Competitive Sealed Bidding.**

(a) Except as otherwise provided in Sections 8140 and 8148, all contracts for public works estimated to cost \$25,000 or more shall be made upon competitive sealed bidding.

(b) For contracts other than public works contracts and for contracts estimated to cost less than \$75,000, the General Manager may prescribe the procedure for contracting, which may include competitive bidding as provided in this Article or as modified in the General Manager's discretion.

M.I. 46371 - September 13, 2005. Former §8110(c) Contracts Estimated to Cost Less Than \$25,000 remembered (b) amended and moved to new §8141 by M. I. 46371 - September 13, 2005; amended paragraph (b) by M.I. 50322 - December 8, 2015.

## **§8144. Posting and Advertising for Competitive Sealed Bidding.**

(a) General. - No notice inviting bids for any contract required to be let upon competitive bidding shall be posted or advertised unless there is first prepared a complete set of contract documents detailing the terms of the agreement and the work to be performed, which set shall be available to any interested party.

(b) Public Works Contracts Estimated to Cost \$25,000 or More. - Whenever a contract required to be let upon competitive bidding is estimated to cost \$25,000 or more, a notice inviting bids shall published no less than once within an online bidding platform designated by the General Manager at least five days, exclusive of Saturday, Sunday and holidays, before the time for opening bids; provided, however, that the foregoing requirement shall not apply when bids will be considered only from bidders determined to be pre-qualified or whose technical proposal is determined to be responsive to the District's specifications, as determined under the procedure set forth in Section 8142.

(c) Other Notices. - A notice requesting pre-qualification information or a notice inviting technical proposals pursuant to Section 8142 shall be posted and advertised in the manner required for the notice inviting bids for the proposed contract for which prospective bidders or prospective lower-tier contractors will be required to be pre-qualified or for which a technical proposal is requested; provided, however, that a notice inviting technical proposals need not be posted or advertised where bidding is restricted to bidders determined to be pre-qualified under the procedure set forth in Section 8142. Posting and advertising shall take place sufficiently in advance of the date of posting and advertising of the notice inviting bids to permit the General Manager to fully evaluate the information submitted in response thereto and to make a determination.

**[FORMER §8110 Posting and Advertising]** Ords. 23, 113, 114 and 144; repealed by Ord. 146; Section 451.10 added, as amended, by M.I. 32690 - April 10, 1979; paragraphs (b), (c) and (d) [formerly Sections 451.10.2 through 451.10.4] amended by M.I. 34619 - March 8, 1983. Section 451.10 repealed and Section 8110 adopted by M.I. 36464 - January 13, 1987, effective April 1, 1987; paragraph (b) and (d) amended, paragraphs (c)(1) and (c)(2) deleted, and paragraph (c)(3) renumbered and amended by M.I. 44582 - August 20, 2001.

Former §8110 renumbered and renamed §8144, paragraph (b) amended, paragraph (c) moved to §8141, and paragraph (d) renumbered (c) and amended by M.I. 46371 - September 13, 2005; amended paragraph (b) by M.I. 51930 - March 10, 2020.

## **§8148. Alternative Project Delivery**

In lieu of the public works procurement process described in Section 8142, the District may utilize the following three alternative project delivery methods for a public works project: design-build, progressive design-build, or construction manager/general contractor.

(a) The design-build procurement process shall proceed as follows:

- (1) The District shall prepare documents setting forth the scope and estimated price of the project. The documents shall indicate the size, type, and desired design character of the project and the performance specifications covering the quality of project materials, equipment, workmanship, preliminary plans, or building layouts, along with other information deemed necessary to describe adequately the District's needs.
- (2) The District shall issue a request for qualifications containing, at a minimum, the following elements:

- i. A thorough description of the project, including an expected cost range and the procurement process to be utilized;
  - ii. A listing of significant factors that the District will consider in evaluating qualifications, including technical design and construction expertise, as well as the relative importance or weight of each factor; and
  - iii. A template requiring respondents to demonstrate relevant experience, an acceptable safety record and program, and the necessary licenses, registrations, credentials, financial and bonding capacity, and insurance coverage to complete the project.
- (3) The District shall shortlist the respondents meeting the qualification standards established in the request for qualifications.
- (4) Based on the documents prepared pursuant to (a)(1) above, the District shall prepare a request for proposals that invites shortlisted entities to submit competitive sealed proposals in the manner prescribed by the District. The request for proposals shall identify the scope of the project and its estimated cost, whether the contract will be awarded on the basis of low bid or best value, significant factors that the District expects to consider in evaluating proposals, and the relative importance or weight assigned to each factor.
- (5) For those projects utilizing low bid, the competitive bidding process shall result in lump-sum bids by shortlisted design-build entities, and contract award shall be made to the design-build entity that is the lowest responsible bidder. For those projects utilizing best value, the selection process shall proceed as follows:
- i. Competitive proposals shall be evaluated by the criteria specified in the request for proposals, including price, technical design, construction expertise, and life-cycle costs over 15 years or more.
  - ii. The District may hold discussions or negotiations with respondents utilizing a process described in the request for proposals.
  - iii. When the District's evaluation is complete, respondents shall be ranked based on a determination of value provided.
  - iv. Contract award shall be made to the responsible design-build entity whose proposal is determined by the District to offer the best value to the public.
- (b) The progressive design-build procurement process shall proceed as follows:
- (1) The District shall select a design-build entity based solely on qualifications following the issuance of a request for qualifications containing, at a minimum, the elements listed in subsection (a)(2).

- (2) The District may enter into a contract with the most-qualified design-build entity to begin design and preconstruction activities sufficient to establish a guaranteed maximum price for remaining project work.
- (3) If the District and the design-build entity agree on a guaranteed maximum price, the District may, at its sole discretion, amend the contract to permit the design-build entity to complete the remaining design, preconstruction, and construction activities necessary to complete the project.
- (4) If the costs for completing the remaining design, preconstruction, and construction activities exceed the guaranteed maximum price, the excess costs shall be the responsibility of the design-build entity. If the costs for these activities are less than the guaranteed maximum price, the design-build entity shall not be entitled to the differential between the costs and the guaranteed maximum price unless there is a prior written agreement concerning the sharing of these proceeds.
- (5) If the District and the design-build entity do not agree on a guaranteed maximum price, or the District otherwise elects not to amend the contract to complete the remaining work, the District may (i) select another design-build entity to complete all remaining work, (ii) complete the remaining design work utilizing District forces or a design consultant and award a construction contract pursuant to Section 8142, (iii) require the original design-build entity to complete the remaining design work at a negotiated price and award a construction project pursuant to Section 8142, or (iv) complete all remaining work utilizing District forces.

(c) The construction manager/general contractor procurement process shall proceed as follows:

- (1) The District shall select a construction manager based solely on qualifications following the issuance of a request for qualifications containing, at a minimum, the elements listed in subsection (a)(2), and soliciting the following information:
  - i. Any prior serious or willful violations of the California Occupational Safety and Health Act of 1973 or the federal Occupational Safety and Health Act of 1970, settled against the construction manager or any of its member;
  - ii. Debarment, disqualification, or removal from a federal, state, or local government public works project, as well as any instance in which a construction manager, or any of its members, submitted a bid on a public works project and was found to be not responsive or not responsible by an awarding body;



- iii. Any instance in which the construction manager, or any of its members, defaulted on a construction contract;
- iv. Any violations of the Contractors State License Law, excluding alleged violations of federal or state laws including the payment of wages, benefits, apprenticeship requirements, or personal income tax withholding, or of the Federal Insurance Contributions Act withholding requirements against the construction manager, or any of its members;
- v. Bankruptcy or receivership by the construction manager, or any of its members, including information concerning any work completed by a surety; and
- vi. All settled adverse claims, disputes, or lawsuits between the owner of a public works project and the construction manager, or any of its members, during the five years preceding submission of a bid pursuant to this section, in which the claim, settlement, or judgment exceeds fifty thousand dollars (\$50,000).

(2) The District shall enter into negotiations for a contract for preconstruction services with the highest qualified construction manager for each contract identified in the request for qualifications. If the District is unable to negotiate a satisfactory contract with the highest qualified construction manager, the District shall terminate negotiations and undertake negotiations with the next most qualified construction manager in sequence until an agreement is reached or a determination is made to reject all construction managers.

(3) A contract for construction services shall be awarded to the construction manager/general contractor after construction documents have been sufficiently developed and either a fixed price or a guaranteed maximum price has been successfully negotiated. In the event a fixed price or a guaranteed maximum price is not negotiated, the District shall not award the contract for construction services to the construction manager/general contractor and may either award a construction contract pursuant to Section 8142 or complete all remaining work utilizing District forces.

(d) For projects utilizing the progressive design-build or construction manager/general contractor method, the District may elect to do any or all of the following in order to expedite project delivery and/or facilitate contract negotiations:

- (1) Permit the design-build entity or construction manager/general contractor to procure equipment or materials prior to the establishment of a fixed price or guaranteed maximum price, provided that the equipment or materials are identified in an existing contract, their cost is within the contract amount, and the design-build entity or construction manager/general contractor utilizes a low bid or best value procurement process as provided in the contract.

(2) Include terms and conditions in the initial contract that pertain to design, preconstruction, or construction activities not covered by the contract amount, provided that the District has the authority to terminate the contract prior to the initiation of such activities if the parties do not negotiate a fixed price or guaranteed maximum price covering the activities or the District elects to terminate the contract for other reasons.

(3) Require the design-build entity or construction manager/general contractor to submit fee proposals for design, preconstruction, or construction activities in response to the request for qualifications, provided that such proposals are not factored into the selection process.

(e) For design-build and progressive design-build projects, the District may identify specific types of subcontractors that shall be listed in the design-build entity's statement of qualifications. Following the award of any contract pursuant to this section, except for those construction subcontractors previously listed in response to a request for qualifications, all construction subcontracts with a value exceeding one-half of one percent of the contract price allocable to construction work shall be awarded either on a best value basis or to the lowest responsible bidder, as determined by the District.

(f) In the event that the General Manager determines that a design-build entity or construction manager/general contractor (i) is not responsible or no longer responsible after previously having been determined responsible, (ii) has submitted a statement of qualifications, proposal, or bid that is not responsive to the contract documents, or (iii) has failed to comply with a condition precedent, the General Manager shall set forth the determination in writing together with the reasons therefore and shall serve a copy of the determination and reasons on the design-build entity or construction manager/general contractor.

#### **§8149. Hearings on Substitution of Subcontractors.**

(a) A prime contractor, design-build entity, or construction manager/general contractor may request that the General Manager consent to substitution of a subcontractor listed in the original bid or statement of qualifications or selected pursuant to Section 8148(e) if it believes that the subcontractor is not, or is no longer, a responsible contractor.

(b) Prior to giving consent for a substitution, the General Manager shall give written notice to the listed subcontractor of the prime contractor's, design-build entity's, or construction manager/general contractor's request.

(c) The listed subcontractor shall have five business days to object in writing to the requested substitution and request a hearing. If the subcontractor does not object to the substitution in a timely manner, the General Manager may consent to the requested substitution upon determining that one or more of the nine grounds for substitution listed in Public Contracts Code Section 4107(a) has been established.

(d) If the listed subcontractor objects to the substitution in a timely manner, the General Manager shall give notice of a hearing, conduct the hearing, and issue a decision in accordance with Public Contract Code Section 4107. The decision of the General Manager made pursuant to this section shall be final.

(e) Any power delegated to the General Manager pursuant to this section may be re-delegated by the General Manager to any officer or employee of the District.

**[FORMER §8119 Delegation of Hearing Power.]** Section 451.17 based on Res. 7656 - December 9, 1975; renumbered Section 451.17.1 through 451.17.3 by M.I. 32690 - April 10, 1979; paragraph (a) renumbered [formerly Sections 451.3.5 and 451.3.6, renumbered 451.17.1.1 and 451.17.1.2] and amended and paragraph (b) renumbered [formerly Sections 451.17.1 through 451.17.3, renumbered 451.17.2.1 through 451.17.2.3] by M.I. 36365 - November 18, 1986. Section 451.17 repealed and Section 8119 adopted by M.I. 36464 - January 13, 1987, effective April 1, 1987; paragraph (a)(2) amended by M.I. 39314 - November 19, 1991; paragraphs (a)(1) and (2) deleted and remainder of section renumbered by M.I. 40004 - January 12, 1993; paragraphs (a) and (b) amended by M.I. 41652 - November 14, 1995; Former §8119 renumbered §8148, and paragraph (c) amended by M.I. 46371 - September 13, 2005; Renamed section title, amended paragraphs (a) – (c), and added paragraphs (d) and (e) by M.I. 51930 – March 10, 2020.

### **§8150. Best Value Procurement.**

(a) Application – Whenever a contract other than a contract for public works is required to be competitively procured, but it is considered impractical or not advantageous to use the competitive sealed bidding method, a contract may be awarded by the best value method of procurement as provided in this Section. The Executive Officer or designee shall determine in writing that the best value method of procurement is practical or advantageous for a particular procurement prior to using this method.

(b) Posting and Advertising – Proposals shall be solicited through a request for proposals which shall be posted and advertised in a manner that provides adequate public notice of the request as determined by the Executive Officer.

(c) Evaluation Factors – The evaluation factors to be used in the determination of award and the numerical weighting for each factor shall be stated in the request for proposals.

(1) Contract cost must be a factor in the determination of the award.

(2) Evaluation factors may be defined to include, but are not limited to, the following:

- (i) Operational and other future costs and risks that the District would incur if the proposal is accepted;
- (ii) Quality and benefits of the product or service or its technical competency;
- (iii) Quality and effectiveness of management approach and controls;
- (iv) Qualifications of personnel and management team;
- (v) Financial stability of the prospective contractor;
- (vi) Past performance and past experience; and
- (vii) Furtherance of the District's Business Outreach Program goals.

(d) Evaluation of Proposals

(1) Proposals shall be evaluated on the basis of the criteria stated in the request for proposals and by adhering to the weighting as assigned. Award will be made to the bidder whose proposal is determined to be the most advantageous to the District, except that the Executive Officer may reject all proposals received.

(2) Where the best value proposal is not the lowest price proposal from a responsive, responsible bidder, that selection shall be based on a written determination, applying the criteria provided in the request for proposals, by the Executive Officer or designee that the selected proposal is most advantageous to Metropolitan.

M.I. 46371 - September 13, 2005; amended paragraph (d)(2) by M.I. 51930 – March 10, 2020.

**§8151. Protests.**

(a) Public Works Contracts. – Within five days after service of the General Manager's determination under Section 8142(d) or 8148(f), or within five days of a bid opening or a determination made pursuant to a request for qualification or request for proposals, a bidder or respondent may file a protest with the General Manager pursuant to procedures developed and administered by the Chief Engineer. If the General Manager denies the protest, in whole or in part, the bidder may file a notice of appeal of the protest denial with the Board Executive Secretary within five days of such denial. A hearing on the appeal by the Engineering, Operations and Technology Committee shall be conducted in accordance with Section 2431(b).

(b) Purchasing and Professional and Technical Services Contracts – Within five days after the occurrence of an event subject to a protest under procedures developed and administered by the Contracting Services Manager, a respondent, or potential respondent, to a solicitation may file a protest with the General Manager pursuant to those procedures. Upon the General Manager's final determination on the protest, the respondent, or potential respondent, may file a notice of appeal of the determination with the Board Executive Secretary within five days of such determination. A hearing on the appeal by the Executive Committee shall be conducted in accordance with Section 2416(f)(3).

(c) Any hearing body that conducts a protest hearing pursuant to this section shall give proper notice thereof, receive evidence and rule upon its admissibility, prepare a record of the proceedings, submit a written decision setting forth the bases for the decision, and cause a copy of the decision to be served upon the appellant.

(d) In the event that a decision on a protest is made less than 20 days before the date set for bid opening or submittal of a proposal or statement of qualifications, such opening or submittal shall be postponed to a date not less than 20 days after the date of decision.

(e) There shall be no right to protest an approval or ratification of a contract by the Executive Committee pursuant to Section 2416(f)(1).

(f) Any power delegated to the General Manager pursuant to this section may be re- delegated by the General Manager to any officer or employee of the District.

M.I. 51930 – March 10, 2020; paragraph (a) amended by M.I. 53064 – December 13, 2022.



## **Metropolitan Water District of Southern California Organizational Conflict-of-Interest Policy for Alternative Project Delivery**

(Adopted March 14, 2023)

### **I. Purpose**

This policy establishes the organizational conflict-of-interest guidelines applicable to all design-build and progressive design-build contracts awarded by Metropolitan Water District of Southern California (Metropolitan) pursuant to Section 8148 of Metropolitan's Administrative Code.

### **II. Background**

Assembly Bill (AB) 1845 (Calderon), codified at Sections 21565 to 21568.11 of the California Public Contract Code (PCC), was signed into law on September 13, 2022, permitting Metropolitan to utilize the alternative project delivery methods of design-build (DB), progressive design-build (PDB), and construction manager/general contractor (CM/GC) for up to 15 capital outlay projects.

A requirement of AB 1845, codified at PCC 21568.1(d), is that Metropolitan "shall develop guidelines for a standard organizational conflict-of-interest policy, consistent with applicable law, regarding the ability of a person or entity that performs services for the district relating to the solicitation of a design-build or progressive design-build project to submit a proposal as a design-build entity, or to join a design-build team." A design-build entity (DBE) is defined by the PCC and Metropolitan's Administrative Code as "a corporation, limited liability company, partnership, joint venture, or other legal entity that is able to provide appropriately licensed contracting, architectural, and engineering services as needed pursuant to a design-build contract."

This policy applies to DBEs that have entered into, or seek as proposers to enter into, contracts with Metropolitan to perform DB or PDB work, and the policy shall be incorporated by reference into all DB and PDB contracts executed by Metropolitan. An authorized representative of each DBE seeking to participate in a DB or PDB contract must attest, in a form prescribed by Metropolitan, that the representative has reviewed and accepted this policy. The policy is supplemental to any existing conflict-of-interest policies found in the Metropolitan Administrative Code or otherwise approved by the Metropolitan Board of Directors and is intended to supplement, and be consistent with, applicable conflict-of-interest laws.

### **III. Policy**

No DBE with an organizational conflict of interest with respect to a Metropolitan DB or PDB project may perform work, or respond to a solicitation, related to that project unless it discloses the conflict to Metropolitan in writing and Metropolitan determines, in its sole discretion, that the conflict can be avoided or adequately mitigated.

Organizational conflicts of interest, which may be actual, potential, or perceived, are created by circumstances arising out of a DBE's existing or past activities, business or financial interests, familial relationships, contractual relationships, or organizational structure (e.g. parent entities and their subsidiaries and affiliates) that result in: (1) an unfair competitive advantage with respect to Metropolitan's procurement or contracting process or (2) the impairment or potential impairment of the DBE's ability to render impartial assistance or advice to Metropolitan.

Metropolitan, acting through authorized representatives of its Offices of the General Manager, the General Counsel, and Ethics, retains the sole discretion to determine, on a case-by-case basis, whether an actual, perceived, or potential conflict of interest exists with respect to a DBE's participation in any solicitation process or contract. While this policy neither purports to address every circumstance that may give rise to

a conflict nor mandates a particular determination by Metropolitan, an organizational conflict of interest may exist in the following situations:

- a. A DBE (Firm A) performs consulting work related to a DB or PDB project (Project X) prior to submitting a statement of qualifications or proposal with respect to Project X. However, a sub-consultant (Firm B) that has not yet performed work under Firm A's agreement may participate as a DBE in Project X if Firm B terminates its existing agreement with Firm A having performed no work under that agreement with respect to Project X.
- b. A DBE has assisted Metropolitan in the management of Project X prior to submitting a statement of qualifications or proposal with respect to Project X, including the preparation of a request for qualifications or proposals, evaluation criteria, or any other aspect of the procurement process.
- c. A DBE has conducted preliminary design services for Project X prior to submitting a statement of qualifications or proposal with respect to Project X.
- d. A DBE performed design work under a previous Metropolitan contract that specifically excludes that DBE from participating as a proposer or joining any DB or PDB team for Project X.
- e. A DBE performed design work related to Project X for other entities prior to submitting a statement of qualifications or proposal for Project X.
- f. A DBE is under contract with another entity to perform oversight of Project X.
- g. A DBE employs a former Metropolitan staffer or staffers, or an individual or individuals from another entity, who have knowledge, or access to information, that would give the DBE an unfair competitive advantage with respect to Project X.
- h. Any circumstances that would violate California Government Code Section 1090, et seq. relating to contractual conflicts of interest or any other law or regulation.

For any organizational conflicts of interest governed by California Government Code Section 1090, Metropolitan will defer to a determination in an advice letter or opinion issued by the California Fair Political Practices Commission (FPPC) regarding the participation of a DBE in the applicable solicitation or contract. In the absence of an FPPC letter, Metropolitan's Ethics Office will evaluate any potential Section 1090 conflict of interest and make a determination.

Consultants responsible for preparing documents under the California Environmental Quality Act are required to comply with all state laws and regulations applicable to such services, including requirements relating to organizational conflicts of interest. For federally-funded projects subject to the National Environmental Policy Act compliance, consultants involved in the preparation of an Environmental Impact Statement (EIS) must disclose whether or not they have a financial or other interest in the outcome of the project. A consultant involved in the preparation of an EIS may not propose on work connected with the project before the EIS is completed.

Metropolitan may be required to comply with requirements and regulations applicable to federally-funded projects. Nothing in this policy is intended to limit, modify, or otherwise alter the effect of other relevant federal or state regulations, statutes, or rules.

#### **IV. DBE Obligations as Proposer**

DBEs must make a written disclosure of any actual or potential conflict prior to responding to a solicitation for a DB or PDB project. The DBE may also submit proposed measures to avoid or mitigate the conflict. Metropolitan, in its sole discretion, shall determine whether an actual or potential organizational conflict of interest, or the appearance of any such organizational conflict of interest, exists, whether any measures proposed are sufficient to overcome the conflict, and whether the DBE may continue with the procurement process.

**V. DBE Obligations after Contract Award**

The DBE to whom a contract is awarded has an ongoing obligation to monitor and disclose actual or potential conflicts of interest. If an actual or potential organizational conflict of interest is discovered after the contract has been awarded, the DBE must make an immediate and full written disclosure to Metropolitan that includes a description of the action that the DBE has taken or proposes to take to avoid or mitigate the conflict.

**VI. Safeguards and Mitigation Measures**

If Metropolitan determines that a DBE can and should be permitted to participate in a procurement process or continue performing work pursuant to a contract notwithstanding an actual, potential, or perceived organizational conflict of interest, Metropolitan, in its sole discretion, may require the DBE to undertake safeguards to mitigate the conflict, including any or all of the following:

- a. Metropolitan may require that, in order to participate in a solicitation or project, a DBE establish ethical walls and related procedures, including the segregation of individuals and information within a DBE firm. Segregated information may include confidential information obtained from Metropolitan employees or as a result of the DBE's former contracts with Metropolitan.
- b. Metropolitan may require assurances or demonstration of the type and/or effectiveness of the ethical walls to be utilized.
- c. Metropolitan may require information, including in affidavit form, regarding when ethical walls will be instituted, how they will operate, and how their existence will be communicated within the organization.
- d. Metropolitan may audit, or direct others to audit on its behalf, to ensure compliance with ethical walls and related safeguards and procedures.
- e. Metropolitan may require other safeguards or mitigation measures that it deems appropriate to address any actual, potential, or perceived organizational conflict of interest.

This section notwithstanding, if an actual conflict of interest under the law exists, and no safeguard or mitigation effort fully cures the conflict, then the DBE will not be permitted to participate in a solicitation or contract under any circumstances.

**VII. Remedial Measures**

If Metropolitan determines that a DBE has failed to comply with this policy in any respect, either prior to award of a contract or during performance of contract work, Metropolitan may take any necessary action to remediate the conflict, including, but not limited to, the following:

- a. Preclude and/or disqualify a DBE and/or its affiliates from continued participation in a specific DB or PDB solicitation;
- b. Preclude and/or disqualify a DBE and/or its affiliates from participation in future DB or PDB solicitations;
- c. Require the DBE to institute safeguards and mitigation measures to the extent that safeguards and measures have not already been instituted; and/or
- d. Terminate or amend the contract under which the DBE is performing work for Metropolitan.



Legal & Claims Committee

# Implementation of Alternative Project Delivery Methods

Item # 7-15  
March 13, 2023

## Actions Needed to Implement Alternative Project Delivery

- Approve Administrative Code amendments to implement Alternative Project Delivery (APD)
- Adopt an organizational conflict-of-interest policy for APD
- Request for additional funds for contract with Hanson Bridgett LLP for specialized advice on APD contracting



## APD Legislation Chronology

- Limitations of traditional design-bid-build
- Oct. 2021 Board action on APD legislation
- Feb. 2022 introduction of AB 1845 (Calderon)
- Legislative amendments and testimony
- Sept. 2022 Governor signing of AB 1845
- SB 991 progressive design-build legislation

## Highlights of AB 1845

- Authorizes MWD to use design-build (DB), progressive DB, and construction manager/general contractor (CM/GC)
- 15 drought- or climate change-related capital projects, including Pure Water Southern California, between Jan. 1, 2023 and Dec. 1, 2026 (DB) or Dec. 1, 2028 (PDB, CM/GC)
- Requires “skilled and trained workforce,” which can be met with Project Labor Agreement

## Highlights of AB 1845 (cont'd)

- Standard requirements for bonding, retention, and subcontractor protections
- **Conflict-of-interest** guidelines required for DB and PDB
- MWD forces must perform inspections
- Prohibition on **design-build-operate**

## Highlights of SB 991

- Authorizes PDB for cities, counties, and special districts that produce, store, supply, treat, or distribute water from any source
- 15 projects in excess of \$5M between January 1, 2023 and January 1, 2029
- Like AB 1845, provisions regarding procurement process, skilled and trained workforce, and conflict-of-interest policy
- Unlike AB 1845, no owner inspection requirements or prohibition on design-build-operate

## Public Works Project Delivery Methods

- Traditional Delivery Method for Local Agencies
- Alternative Delivery Methods
  - Design-Build
  - CM/GC
  - Progressive Design-Build



## Proposed Administrative Code Amendments

- Codify solicitation and contracting requirements for alternative project delivery methods
- Specific Amendments
  - New APD definitions
  - New Section §8148 Alternative Project Delivery
  - Amend change order authority for public works purchasing contracts
  - Minor revisions to conform various sections to items listed above

## Design Build Delivery Method

### Design Build (DB)

- Contracting method where a single design-build entity (DBE) is hired to do both design and construction
- Selection through two-step RFQ/RFP process
- Fixed price award (low bid or best value)

## CM/GC Delivery Method

### Construction Manager/General Contractor (CM/GC)

- Contracting method where a single entity is hired to do CM and construction
- Design performed by Metropolitan
- Selection through qualification-based process
- Once design is complete, Metropolitan would negotiate construction activities as follows:
  - Guaranteed Maximum Price (GMP)
  - Fixed Price

## Progressive Design Build

### Progressive Design Build (PDB)

- Contracting method where a single entity is hired to do both design and construction
- Selection through qualification-based process
- Two Phase Process
  - Design phase – negotiated NTE price
  - Construction phase – negotiated GMP
- Streamlined and collaborative process

## Sepulveda Feeder Pump Stations Project

### Sepulveda Feeder Pump Stations

- Two new 30-cfs pump stations, conveyance pipelines, and associated supporting infrastructure
- Would allow reverse water flow to move water from the Central Pool to the Jensen Exclusive Area

### Approximate value

- \$80-\$100M

### Delivery method

- Progressive Design Build (PDB)



## PBD Benefits Sepulveda Feeder Project

- Potential for schedule advancement (earlier online date)
- Enhanced opportunities for:
  - Collaboration during project development phase
  - Risk identification & allocation
- Earlier cost certainty; possible cost savings
- Greater flexibility in selection process
- Increased opportunities for innovation

Public  
Works  
Purchases  
Change  
Order  
Authority

## Change Order Authority Amendment

- Amend public works purchasing change order authority to greater of \$250,000 or 5%
- Assists in expediting project completion
- Allows Metropolitan, DBE, or CM/GC greater flexibility for large scale materials and equipment purchases

## Conflict- of-Interest Policy

- Purpose of conflict-of-interest (COI) policy for DB and PDB
- Coordination with Ethics Office
- Elements
  - Description of prohibited conflicts
  - Obligations of design-build entities
  - Mitigation of conflicts
  - Remedial measures
  - Attestation

## Examples of Potential Conflicts

- Firm A advised Metropolitan on solicitation process for Project X before responding to RFQ for Project X.
- Firm B performed work for another entity related to Project X before responding to an MWD RFQ for Project X.
- Firm C employs former MWD employees with knowledge of Project X before responding to an RFQ for Project X.

## Funding for Outside Counsel

- 14 law firms responded to General Counsel RFP for APD legal services
- Hanson Bridgett (HB) selection based on extensive public agency experience
- HB work to date: drafting of PDB contract, assistance with RFQ and COI policy
- HB future work: development of documents for DB and CM/GC, advice on APD issues



## Board Options

### Option #1

- a. Approve amendments to the Administrative Code authorizing the use of alternative project delivery methods.
- b. Adopt an organizational conflict-of-interest policy governing solicitation of design-build and progressive design-build projects.
- c. Authorize \$150,000 increase to Hanson Bridgett LLP contract, for new not-to-exceed amount of \$250,000, for legal services related to implementation of alternative project delivery.

## Board Options (cont'd)

### Option #2

Do not approve recommended amendments to the Administrative Code, adoption of organizational conflict-of-interest policy, or contract increase.

# Staff Recommendation

## Option #1





## • Conservation Board Report March 2023

### Summary

This report provides a summary of conservation activity and expenditures for January 2023.

### Purpose

Informational

### Detailed Report

## Conservation Expenditures – FY2022/23 & FY2023/24 <sup>(1)</sup>

	Paid <sup>(2)</sup>	Committed <sup>(3)</sup>
Regional Devices	\$5.3 M	\$4.1 M
Member Agency Administered	\$5.9 M	\$6.7 M
Turf Replacement	\$9.9 M	\$36.9 M
Advertising	\$4.6 M	\$2.4 M
Other	\$1.2 M	\$1.3 M
<b>TOTAL</b>	<b>\$26.9 M</b>	<b>\$51.4 M</b>

(1) The Conservation Program biennial expenditure authorization is \$86 million.

(2) Paid as of 7/1/2022 - 1/31/2023. Financial reporting on cash basis.

(3) Committed dollars as of February 10, 2023

### Summary of Expenditures in January 2023: \$3,143,380 <sup>(1)</sup>

**Lifetime Water Savings to be achieved by all rebates in January 2023: 5,427 AF**

FY2022/23-FY2023/24: 29,221 AF lifetime water savings



#### Turf Replacement Rebates:

January: 943,343 ft<sup>2</sup> removed

**FY2022/23-FY2023/24: 4,689,189 ft<sup>2</sup> removed**



#### Clothes Washers:

January: 570 units rebated

**FY2022/23-FY2023/24: 6,181 units rebated**



#### Smart Controllers:

January: 963 units rebated

**FY2022/23-FY2023/24: 5,865 units rebated**



#### Toilets:

January: 668 units rebated

**FY2022/23-FY2023/24: 15,278 units rebated**



#### Rain Barrels and Cisterns:

January: 92 units rebated

**FY2022/23-FY2023/24: 521 units rebated**



#### Sprinkler Nozzles:

January: 3,370 units rebated

**FY2022/23-FY2023/24: 13,374 units rebated**

(1) Expenditures may include advertising and Water Savings Incentive Program activity in addition to the incentives highlighted above.





- **Board of Directors**  
***One Water and Stewardship Committee***

3/14/2023 Board Meeting

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9-2

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**Subject**

Information on the High Desert Water Bank Program status, updated costs, and water quality

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**Executive Summary**

This letter provides an update on the status, costs, and water quality of the High Desert Water Bank (HDWB) Program with Antelope Valley – East Kern Water Agency (AVEK). The estimated costs of the HDWB have increased since the 2019 Board authorization of \$131 million to a current estimate of \$210 million. Over the past four years, inflation has significantly increased, the off-site power distribution design was finalized, modeling based on four-pilot recovery wells revealed the need for additional wells to achieve the recovery target, and water quality testing of the pilot recovery wells revealed naturally occurring arsenic levels above the California Maximum Contaminant Level (MCL), potentially requiring treatment before pumping into the California Aqueduct. Based on the current construction schedule, the HDWB Program can begin recharging in Summer 2023 with full recharge and recovery operation in 2025. The current HDWB agreement provides:

(1) Metropolitan and AVEK will agree in writing to the final design, construction schedule, and estimated budget; (2) if the capital costs will exceed the budget, Metropolitan may either scale down the project to stay within the original budget of \$131 million or pay the additional costs; (3) Metropolitan will pay the actual energy costs; and (4) if Metropolitan determines that water quality treatment is required before water is returned to Metropolitan, and if AVEK or a third party is not responsible for impairing water quality, Metropolitan can decide on the type of treatment to implement and would be required to pay actual treatment costs. Staff will return to the Board to request authorization for additional project costs, design changes, any necessary amendments to the HDWB agreement, and to provide regular updates.

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**Details**

**Background**

In April 2019, the Board authorized the General Manager to enter into the HDWB Agreement with AVEK (HDWB Agreement) and provide up to \$131 million for the construction of monitoring and production wells, turnouts from the California Aqueduct, underground and aboveground pipelines, recharge basins, and water storage and booster pump facilities. Metropolitan and AVEK executed the HDWB Agreement in December 2019. Once operational, Metropolitan is required to pay for the actual operation and maintenance (O&M) and power costs for the facilities when used for Metropolitan's benefit and, potentially, any required treatment costs. Under the program, Metropolitan may store up to 280,000 AF of its State Water Project (SWP) supplies in the Antelope Valley Groundwater Basin. In addition, Metropolitan has first priority to 70,000 AF per year of put and take capacity. AVEK has a secondary priority right to access the groundwater bank. At this point in time, there are no other participants in the groundwater bank. However, AVEK plans to develop additional capacity to bring new participants into future phases of the bank over time. Under the HDWB Agreement, Metropolitan can recover a portion of its costs should future participants utilize unused capacity that was developed by Metropolitan's investment in the program.

When completed, the HDWB will provide the region with valuable supply benefits. The HDWB, like Metropolitan's other SWP groundwater storage programs, will help manage surplus supplies and improve dry-year regional reliability. The HDWB will provide an increased emergency benefit with a direct pump back of stored water into the California Aqueduct when needed. The HDWB is downstream of the Edmonston Pumping

Plant and provides an additional factor of reliability. If the Edmonston Pumping Plant or facilities upstream are damaged by an earthquake or shut down due to another type of failure, stored water would be returned from the HDWB to help maintain deliveries. In addition to earthquake-related failures, the aging California Aqueduct is experiencing increased occurrences of failures, particularly in portions of the San Joaquin Valley upstream of the AVEK connection. Staff is also evaluating opportunities to deliver supplies to the West Branch and increase supply reliability of SWP-dependent areas.

### **High Desert Water Bank (HDB) Program**

Construction of the HDWB is on schedule and anticipated to be fully operational by the end of 2025. As of March 2023, AVEK has completed the construction of ten recovery wells. Current construction activities include work on turnout to the California Aqueduct and staged work of recharge basins allowing Metropolitan the ability to begin recharging in Summer 2023. To date, Metropolitan has paid approximately \$50 million primarily for land acquisition, design, and construction of the HDWB facilities. Metropolitan's anticipated expenditure for the remainder of this fiscal year is approximately \$12 million.

As construction of the HDWB progresses, staff regularly meets with AVEK to get updates on project status, milestone achievements, and challenges. Staff is in discussions with AVEK regarding unforeseen issues impacting the project and estimated project costs, including project design, the power distribution system, hydraulic variability, water quality, and inflation.

#### *Power Distribution System*

In 2018 when the original cost estimate was prepared, it did not include electrical distribution system costs to bring power to the project site. At that time, AVEK had not received the Method of Service (MOS) study and associated cost estimate from Southern California Edison (SCE). SCE recently completed a MOS study including the conceptual design and estimated distribution system costs. Based on the conceptual design, SCE will be taking power from the nearest substation at Neenach via a new 66 kV transmission line to a new substation adjacent to the project. AVEK will install three-12 kV power lines within the project site to power the project facilities. SCE will own all the off-site facilities, and AVEK will own facilities within the project site. The estimated cost for the power facilities is about \$75 million; however, the majority of the capital will be covered by SCE. Metropolitan's capital cost responsibility for power for the project is approximately \$11 million. Metropolitan is also responsible for the facilities' O&M costs (which are estimated to be 3 percent of capital costs) once operational.

#### *Hydraulic Variability*

In 2017, in accordance with the original project design, AVEK completed its initial field investigation and drilled five monitoring wells to a depth of approximately 500 feet below ground surface. Shortly after completion, the monitoring wells were tested and sampled. In 2020, AVEK completed an initial groundwater model based on the information collected from the monitoring wells. The model was refined and calibrated to calculate the estimated recharge and recovery capacity. Based on the modeling results, the recovery capacity objective of 70,000 AF-per year could not be met with the original proposed well design of 23 shallow wells. In 2021, AVEK installed and tested four deep pilot recovery wells drilled to approximately 1000 feet. These pilot wells were drilled with the intention of being permanent recovery wells but are referred to as "pilot" since they were the first wells and were used for extensive testing and modeling of the basin. Testing included step and constant rate pumping tests and zonal testing. AVEK also installed a deep piezometer and monitoring well. Based on the depth-specific data collected, AVEK was able to estimate, among other things, the recovery capacity of the wells. Modeling revealed that the annual recovery objectives could be met by drilling deeper wells and increasing the total number of wells by four. The new recovery facilities would include a total of 27 deep aquifer wells. The impacts of increasing the depth and number of recovery wells, including drilling, pumps, motors, instrumentation and SCADA, piping, and well site electrical, results in an increase in costs of about \$29 million. It should be noted that this is a conservative approach in design to ensure production of at least 70,000 acre-feet of direct pump-back capacity in a given year. It is possible that this infrastructure may allow for a higher amount of annual pumping or for the full 70,000 acre-feet to be produced in a shorter time window within the year.

### *Groundwater Quality and Treatment*

The initial field investigation in 2017 included Title 22 water quality sampling for the five monitoring wells. In 2018, the monitoring wells were resampled per Metropolitan's request. All water quality samples collected from the monitoring wells met California's Title 22 Drinking Water Standards. The monitoring wells were shallow, based on the initial well design. However, after completing the groundwater modeling described above, water quality testing of the first four deeper recovery wells (pilot recovery wells) revealed that arsenic levels in all four wells were above the MCL of 10 micrograms per liter ( $\mu\text{g/L}$ ),<sup>1</sup> ranging from 11 to 19  $\mu\text{g/L}$ . Metropolitan's Board adopted policy governing the introduction of new water sources into treated and untreated conveyance facilities requires new water pump-in programs to meet all MCLs in effect at the time and to be modified, if necessary, to meet subsequent, more stringent MCLs. AVEK conducted additional testing and monitoring, including zonal testing and depth-specific sampling, to refine the groundwater model and further study the basin. The groundwater basin is comprised of a shallow and a deep aquifer. Arsenic is naturally occurring and widespread throughout the basin but is more concentrated in the deeper aquifer. AVEK has completed and tested ten of the 27 planned wells. Arsenic levels in nine wells range from 8 to 20  $\mu\text{g/L}$ . Based on the current water quality data, recovered water from the HDWB may require arsenic treatment prior to delivery to the California Aqueduct. Based on performance requirements, project constraints, and cost-effectiveness for large flow rates, AVEK's recommended treatment process is coagulation and sedimentation. The estimated capital cost for the construction of a treatment facility designed to treat the full program's capacity of 70,000 acre-feet per year is \$29 million and \$4.2 million per year for O&M costs. Metropolitan staff are reviewing this recommendation. A hybrid operation of treating some wells while blending with other untreated wells could be considered.

Additionally, nitrate was detected in both the monitoring wells and recovery wells, although concentrations were below the MCL of 10 milligrams per liter as Nitrogen ( $\text{mg/L-N}$ ). The nitrate concentrations ranged from 6.3 to 7.8  $\text{mg/L-N}$  in the shallower monitoring wells and 2.7 to 5.9  $\text{mg/L-N}$  in nine deeper recovery wells. Before AVEK introduces its water into the California Aqueduct, the DWR's Facilitation Group (of which Metropolitan is a member) will review AVEK's proposal to evaluate the program's impact on water quality and provide the program's approval recommendations to DWR. Nitrate cannot be removed through the conventional water treatment process at most treatment plants. However, nitrate treatment is not anticipated at this time. As such, the treatment costs for nitrate are not included in the estimated treatment costs discussed above. Staff will continue to monitor if and how nitrate levels change over time in order to determine whether additional treatment for nitrate is warranted in the future.

### *Inflation*

In 2018, AVEK's consultant prepared the original cost estimate for the project. Since then, the unprecedented pandemic resulted in unforeseen challenges to project development, including supply chain issues affecting the ability to acquire materials/equipment coupled with increased material and construction costs. The original estimate assumed an inflation rate of three percent per year. The Construction Cost Index (CCI) between 2018 and 2022 shows a cost increase of about 30 percent over this period. Recent construction bids received are higher than the estimates, consistent with the CCI. The estimated cost increase due to higher-than-anticipated inflation is about \$37 million.

### **Changes to Design and Costs**

Metropolitan continues to work with AVEK to search for cost-saving opportunities without compromising project performance. As an example, AVEK's consultant redesigned the recharge facilities based on additional modeling completed in 2021 to maximize the gravity-fed recharge areas and remove pumped recharge facilities. Absent this design change, the recharge facilities' costs would have been about \$27 million higher. Furthermore, staff is working with AVEK to potentially extend the term of the agreement by 20 years beyond the end of the original SWP contract (*i.e.*, to 2077) to distribute the costs over a more extended period, thus reducing the project's unit

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<sup>1</sup> The California State Water Resources Control Board, Division of Drinking Water (DDW) is currently investigating the technological and economic feasibility of lowering the arsenic MCL below the current California and federal MCL and closer to the Public Health Goal of 0.004  $\mu\text{g/L}$ .

cost. Staff revised the estimated O&M costs of the program to reflect common industry practice of three percent of capital costs and added the estimated annual O&M costs of \$4.2 million for the arsenic treatment facility. All O&M costs are assumed to be escalated annually based on the Consumer Price Index. Based on the discussed increases in cost, modification to estimated O&M costs, and assuming AVEK and Metropolitan agree to extend the term of the HDWB Agreement, the estimated unit cost of the program is \$565/AF. The table below provides a summary of the capital cost impacts to the program.

<b>Program Component</b>	<b>Cost Increase</b>
Power	\$11 million
Hydraulic Variability	\$29 million
Recharge Basins	(\$27 million)
Groundwater Quality	\$29 million
Inflation	\$37 million
<b>Total</b>	<b>\$79 million</b>

With the changes shown above, the total capital cost of the program has increased to \$210 million. The HDWB Agreement includes an option for Metropolitan to downsize the program facilities to meet the authorized amount of \$131 million should the capital costs increase. However, if Metropolitan chose to exercise this option and if AVEK constructed additional facilities that Metropolitan did not pay for, the parties may need to negotiate for Metropolitan to access a proportionate share of all program facilities, including recharge, recovery, and storage.

#### *Considerations*

Although the changes described above have resulted in increases in the overall costs for the project, there may be opportunities to recover some costs in the future. For example, the turnout to the California Aqueduct and the off-site power distribution system have additional capacity available that can be used in a future expanded phase of the program. These facilities could be used for Metropolitan's benefit or instead, Metropolitan can negotiate reimbursement for those costs, if other participants benefit from the facilities. In addition, the redesign of the recharge basins reduced the amount of land required for the first phase. Because Metropolitan paid for the initial land purchase, Metropolitan can benefit from that land if the program is expanded, or Metropolitan can negotiate with AVEK to be credited for use of facilities and purchased land if Metropolitan chooses not to participate in a future phase. Additionally, the planned facilities are designed to allow at least 70,000 acre-feet of capture and pump-back capacity. It is possible that program performance may exceed these amounts. Metropolitan and AVEK may consider revising the agreement to reflect the potential for higher program performance.

#### **Timeline and Next Steps**

Staff will incorporate committee feedback and return to the Board to request authorization for the additional project costs, approval of the final project design including treatment options, and necessary contract amendments, as may be required. In addition, staff will continue to monitor the construction and schedule of the project and provide regular updates to the committee.

#### **Policy**

By Minute Item 44357, dated February 13, 2001, the Board authorized adopting a water quality policy governing the introduction of new water sources into treated and untreated conveyance facilities, and authorized the General Manager to implement the policy, as set forth in the letter signed by the General Manager on January 29, 2001.

By Minute Item 50302, dated November 10, 2015, the Board authorized entering into an agreement for Storage and Exchange Programs with AVEK.

By Minute Item 51564, dated April 9, 2019, the Board authorized to enter into an agreement for the High Desert Water Bank Program with AVEK.

Metropolitan Water District Administrative Code Section 4203: Water Transfer Policy


### **Fiscal Impact**

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Based on the delineated increases in costs attributed to power, hydraulic variability, groundwater quality, and inflation, the capital costs for the construction of the HDWB Program are estimated to increase by \$79 million. Total capital costs are projected to be \$210 million with an estimated unit cost of about \$565/AF. In the Adopted Biennium Budget for Fiscal Years 2022/23 and 2023/24 (the "Adopted Budget"), the Board approved bond financing for the HDWB Program, which reduces O&M expenditures for this supply program by converting short-term construction cash expenditures to debt service payments over the term of bonds. Staff will propose the issuance of additional bonds to fund the \$79 million in increased capital costs. The net fiscal impact of the delayed financing and increased capital costs is negligible (approximately \$30,000) during the term of the Adopted Budget. The additional debt financing costs, however, are estimated to increase supply program costs by \$112.2 million over the fifteen-year term of the bonds, averaging about \$6.5 million per year over prior annual projections.

  
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Brad Coffey  
Manager, Water Resource Management

3/4/2023  
\_\_\_\_\_  
Date

  
\_\_\_\_\_  
Adel Hagekhalil  
General Manager

3/4/2023  
\_\_\_\_\_  
Date

Ref# wrm12688221





## One Water and Stewardship Committee

# Information on the High Desert Water Bank Program status, updated costs, and water quality

Item 9-2

March 14, 2023

# Program Parameters



Board authorized in April 2019



Capital costs up to \$131 million

- Estimated project unit cost: \$320/AF



Program size:

- Storage capacity of 280,000 AF
- Put/take capability of 70,000 AFY
- Would more than double existing direct pump-back



Agreement term: 2019 - 2037

- 20-year no cost option to extend

# Initial Project Design

- Pumped and gravity-fed recharge basins
- 23 recovery wells
- Two turnouts
- Off-site power needed to operate not included



Gravity Recharge

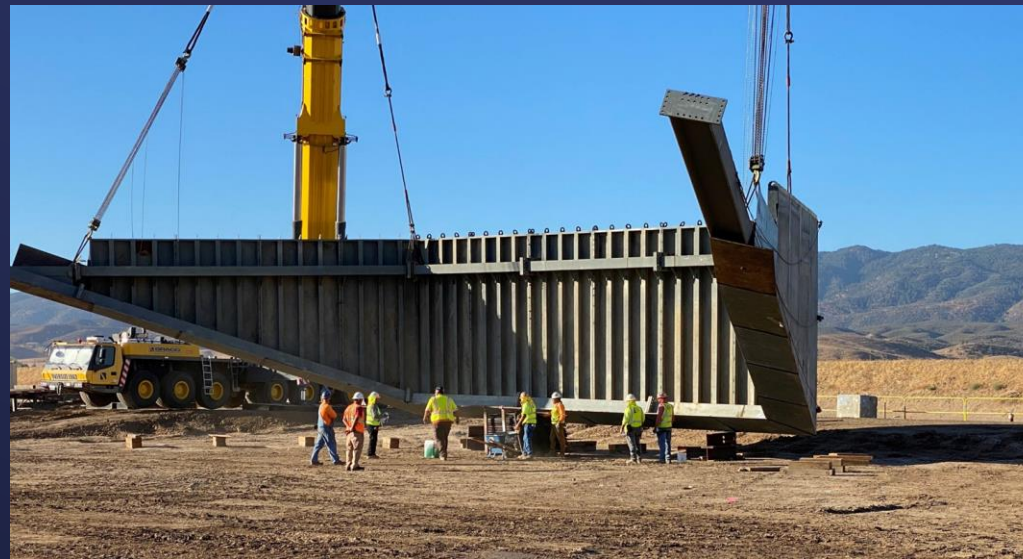


Pumped Recharge



## Where We Are Today

- Provided about \$50 million to date
- Completed construction of 10 recovery wells
- Turnout and stage 1 recharge basins under construction
- Could begin recharging in Summer 2023
- Project is on schedule to commence full operation in 2025



## HDWB – Phase II

- AVEK plans for future phase of HDWB
  - Storage capacity of up to 440 TAF
  - Put/Take capability of up to 110 TAFY
  - Connection to West Branch
- Several interested parties
- AVEK may prioritize Metropolitan's participation, if interested





# Updated Design & Costs



- Power distribution costs are defined
- Design evolved to meet program parameters
  - Increased depth and number of wells
  - Optimized recharge basin design



- Changes in water quality
  - Arsenic (naturally occurring)
  - Nitrate



- Inflation has driven up costs

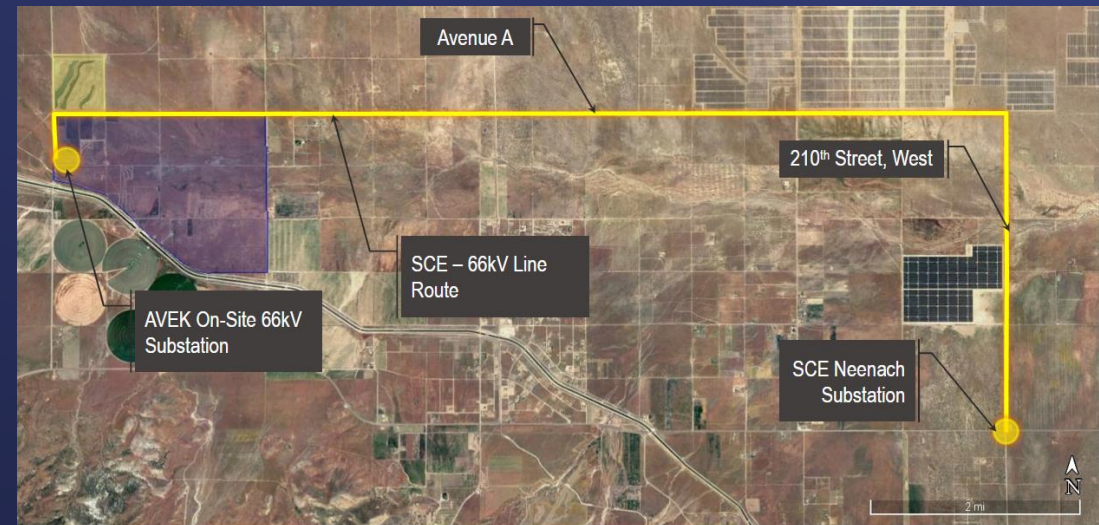
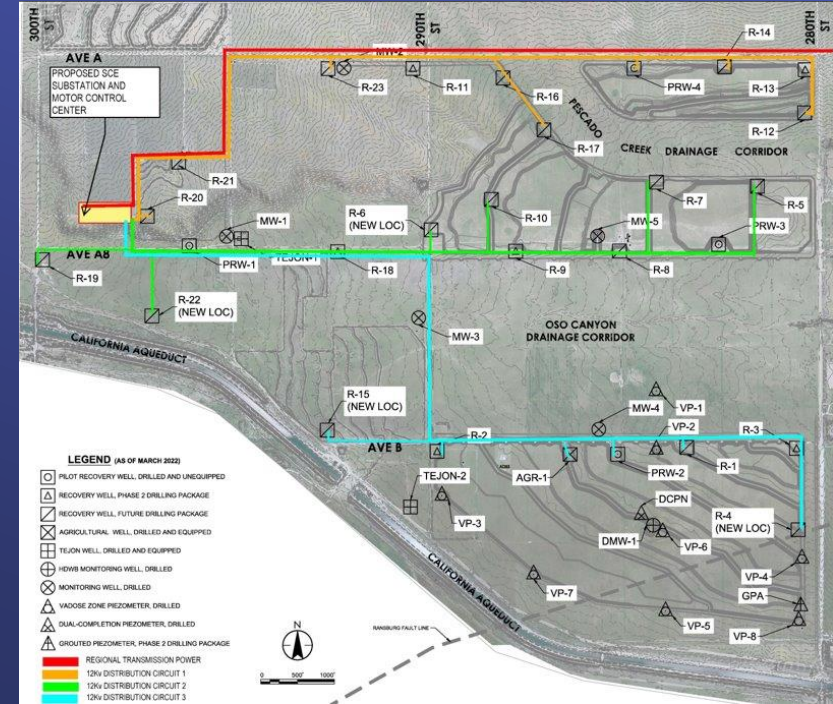


- Cost increases of \$79 million
  - Total cost of \$210 million

# Power Distribution Costs Are Now Defined



- Off-site power costs not included in 2018 construction estimate
  - Unknown power needs
- SCE completed Method of Service study in 2022
  - Off-site
    - Transmission Line
    - Substation
  - On-site
    - Power lines
- Capital cost estimate: \$11M

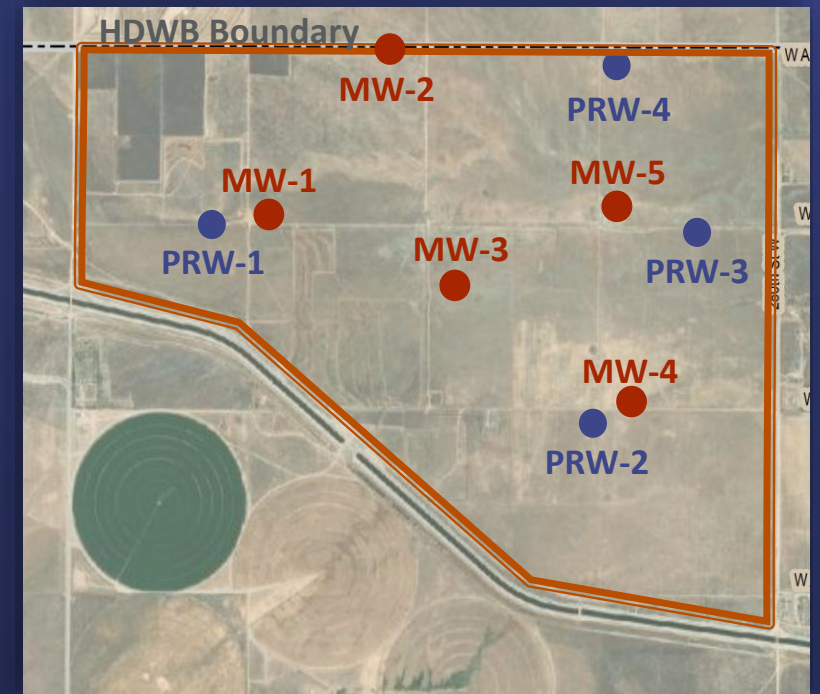


# Design Evolved to Meet Program Parameters



## Wells

- AVEK drilled and tested five monitoring wells
  - Depth of approximately 500 ft
  - Testing indicated that water quality met all drinking water standards
- Updated monitoring well data and groundwater modeling showed need for deeper well design
- Updated recovery well data and modeling showed potential need for additional four wells
  - Total number of wells increases from 23 to 27
- Increased capital cost estimate: \$29 M



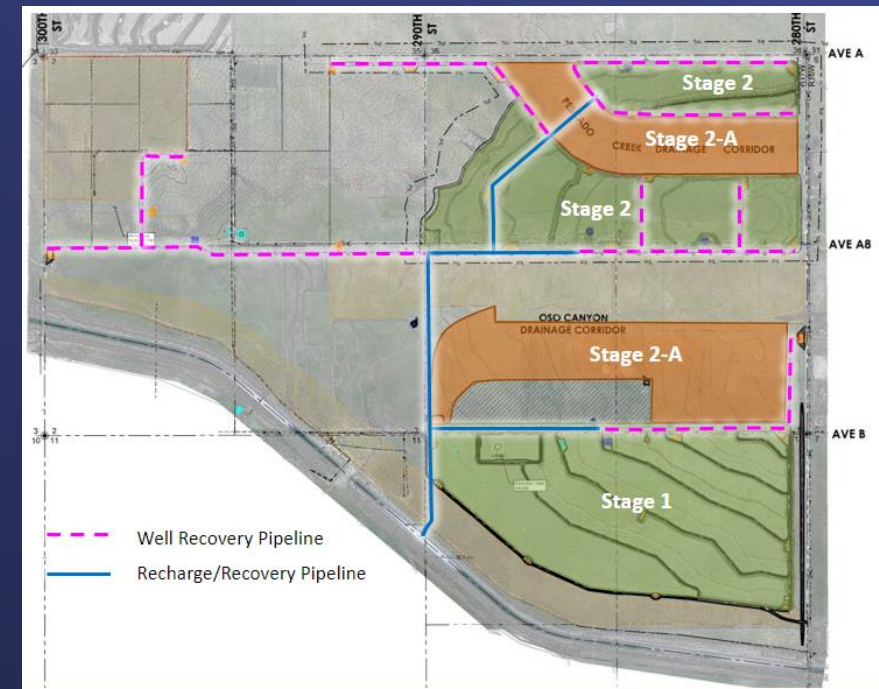
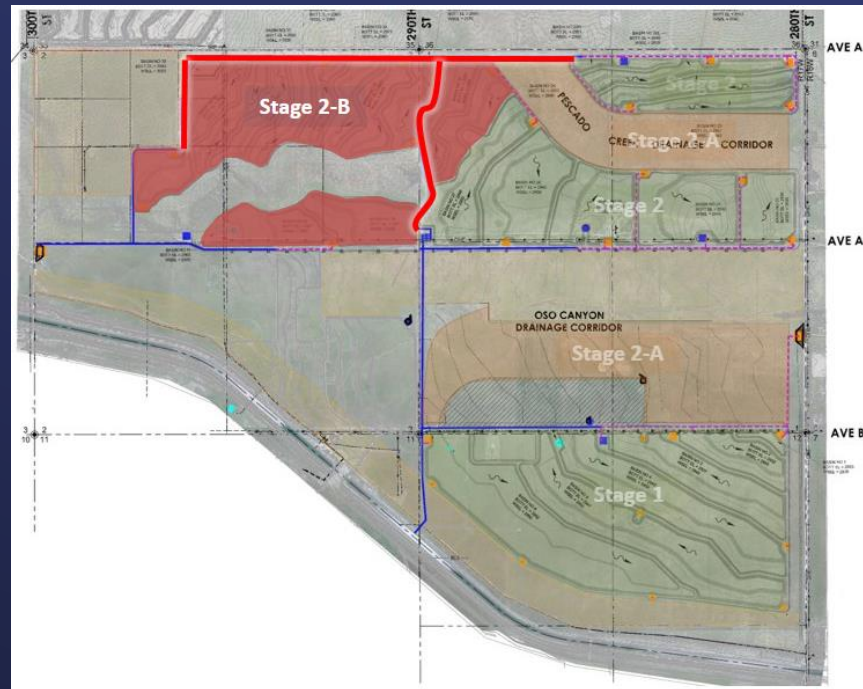


# Design Evolved to Meet Program Parameters



## Recharge Basins

- Removed pumped basins and pumping
  - Gravity recharge basins only
  - Increased berms
- Avoided an additional cost of about \$27 M



# Changes in Water Quality



## Arsenic

- Initial field investigation and testing
  - All water quality samples met Title 22 Drinking Water Standards
- Water quality sampling from recovery wells shows levels of arsenic from 8 – 20  $\mu\text{g/L}$  (MCL is 10  $\mu\text{g/L}$ )
  - Naturally occurring
  - Modeling shows arsenic is widespread throughout the basin, more concentrated in the deeper aquifer
  - Treatment is required
- Recommended treatment process is coagulation and sedimentation
- Capital cost estimate: \$29 M



# Changes in Water Quality



## Nitrate

- Nitrate levels in recovery wells from 2.7 – 5.9 mg/L-N (MCL is 10 mg/L-N)
  - Higher than ambient levels in CA Aqueduct
  - Looking into impacts to our source water and treated water
- Nitrate concentrations for remaining recovery wells are unknown
- AVEK's consultant working on model to evaluate trends in nitrate concentrations as water cycled through basin

# SWP Banking Program Considerations

Banking Program	Constituents of Concern	Termination Date
Arvin-Edison	1,2,3 TCP	2035
Semitropic	Arsenic	2035
Kern-Delta		2029

- Agreements require renegotiation soon
- Some programs impacted by water quality regulations
- More treatment likely to be required in the future

# Inflation Has Driven Costs Up



- Unprecedented challenges
  - Increased material and construction costs
  - Supply chain issues affecting ability to acquire materials/equipment
- 2018 Capital Cost Calculation
  - Assumed an annual 3% cost increase
- 2022 Consumer Cost Index
  - Cost increase between 2018 and 2022 of 30%
- Estimated additional cost: \$37 M

# Changes in Cost



Factors Contributing to Changes in Cost	Estimated Capital Cost
Off-site Power	\$11 M
Design Changes	\$2 M
Wells	\$29 M
Recharge Basins	(\$27 M)
Inflation	\$37 M
Water Quality (Arsenic Treatment)	\$29 M
<b>Total:</b>	<b>\$79 M</b>

- Updated O&M cost estimate to be 3% of capital and included \$4.2M/yr for treatment facility

# Future Cost Recovery Opportunities

- Oversized facilities
  - Turnout
  - Power distribution
  - Conveyance pipelines
- Acquired land
  - Originally planned for pumped recharge
- Number of wells
  - Remain within 70 TAF recovery target



## Feedback on Options

- Build project with revised design and cost for \$210 M
  - Negotiate extension of term by 20 years through 2077
    - Estimated project unit cost: \$565/AF
- Limit participation in project and stay within approved budget of \$131 M
  - Negotiate project participation of 60-70% of all program facilities
- Limit participation in project to stay within approved budget plus additional cost for treatment for \$160 M
  - Consistent with agreement terms
  - Negotiate project participation of 70-80% of all program facilities

# Cost Competitive to Other Storage Investments



- Metropolitan groundwater storage program full cycle costs (not including capital costs)
  - Arvin-Edison – \$441/AF
  - Kern-Delta – \$323/AF
  - Semitropic – \$493/AF
- Evaluating additional project costs within and outside of Metropolitan
  - Diamond Valley Lake
  - Sites Reservoir
  - Los Vaqueros Expansion
- Will provide cost information for action item

# Consideration

- Move forward with revised design including additional wells and treatment
- Amend agreement
  - Additional project costs
  - Add element of treatment
  - Extend term
  - Allow yield above 70 TAF
  - Ability to recover costs
    - Land
    - Oversized facilities
    - Treatment

## Next Steps

- Incorporate Committee feedback
- Return to the Board for action in a future month
- Continue to meet with AVEK and monitor progress and potential changes
  - Cost
  - Schedule
  - Water quality

