
Colorado River Aqueduct Master Reclamation Plan for San Bernardino and Riverside Counties

Proposed Draft Initial Study-Mitigated Negative Declaration

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



Report No. 1639

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- B. Borrow Site Numbering Convention Comparison Matrix
- C. Biological Resources Technical Report
- D. Air Pollutant and Greenhouse Gas Emissions Modeling
- E. Cultural Resources Assessment
- F. Energy Modeling
- G. Noise Modeling

1. Project Description

1.1 Introduction

The Metropolitan Water District of Southern California (Metropolitan) is a regional water wholesaler that provides water for 26 public agency members that, in turn, provide 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 and operates 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 siphons, canals, conduits, and tunnels terminating at Lake Mathews in Riverside County, California. Figures 1.1-1 and 1.1-2 show the relevant portions of the CRA alignment, pumping plants, and related operational areas/right-of-way (ROW) in relation to the Project sites within San Bernardino County and Riverside County, which are discussed further in Section 1.5 (Project Location and Land Use).

In 1932, Congress provided Metropolitan with authority to acquire fee ownership of the CRA ROW as well as additional land to be used for surface mining of stone, earth, gravel, sand, and other earthen materials needed to support the operations and maintenance of the CRA. Metropolitan acquired fee ownership of the ROW roughly between 1932 and 1941. Because the materials are taken from these sites for use at other areas associated with the CRA, they are referred to as “borrow sites.” Metropolitan operates seven borrow sites in San Bernardino County and seven borrow sites in Riverside County (see Figures 1.1-1 and 1.1-2).

The proposed Project consists of the reclamation of these borrow sites pursuant to the Surface Mining and Reclamation Act of 1975 (SMARA; Public Resources Code [PRC] Sections 2710-2796). SMARA provides a comprehensive surface mining and reclamation policy with the regulation of surface mining operations to assure that adverse environmental impacts are minimized and mined lands are reclaimed to a usable condition. While Metropolitan’s existing operations are permitted by right and therefore are not subject to discretionary approval, SMARA requires persons conducting surface mining operations to develop and implement a reclamation plan that must be approved by the applicable SMARA Lead Agency. Per SMARA Article 2, Section 2728, the SMARA “Lead Agencies” represent the city, county, board, or other governing body that has the principal responsibility for approving a reclamation plan. The State of California Mining and Geology Board (State Board) is the SMARA Lead Agency for this Project and therefore has the authority to approve the reclamation plan and oversee reclamation activities at Metropolitan’s borrow sites.

As discussed above, the borrow sites are areas where earthen materials, such as rock, sand, and gravel are taken for use at the CRA during operations and maintenance activities. The materials are extracted by typical surface mining techniques, which include the use of off-road mobile equipment (e.g., dozers, loaders, excavators, and graders). Once

Figure 1.1-1. Project Area – San Bernardino County

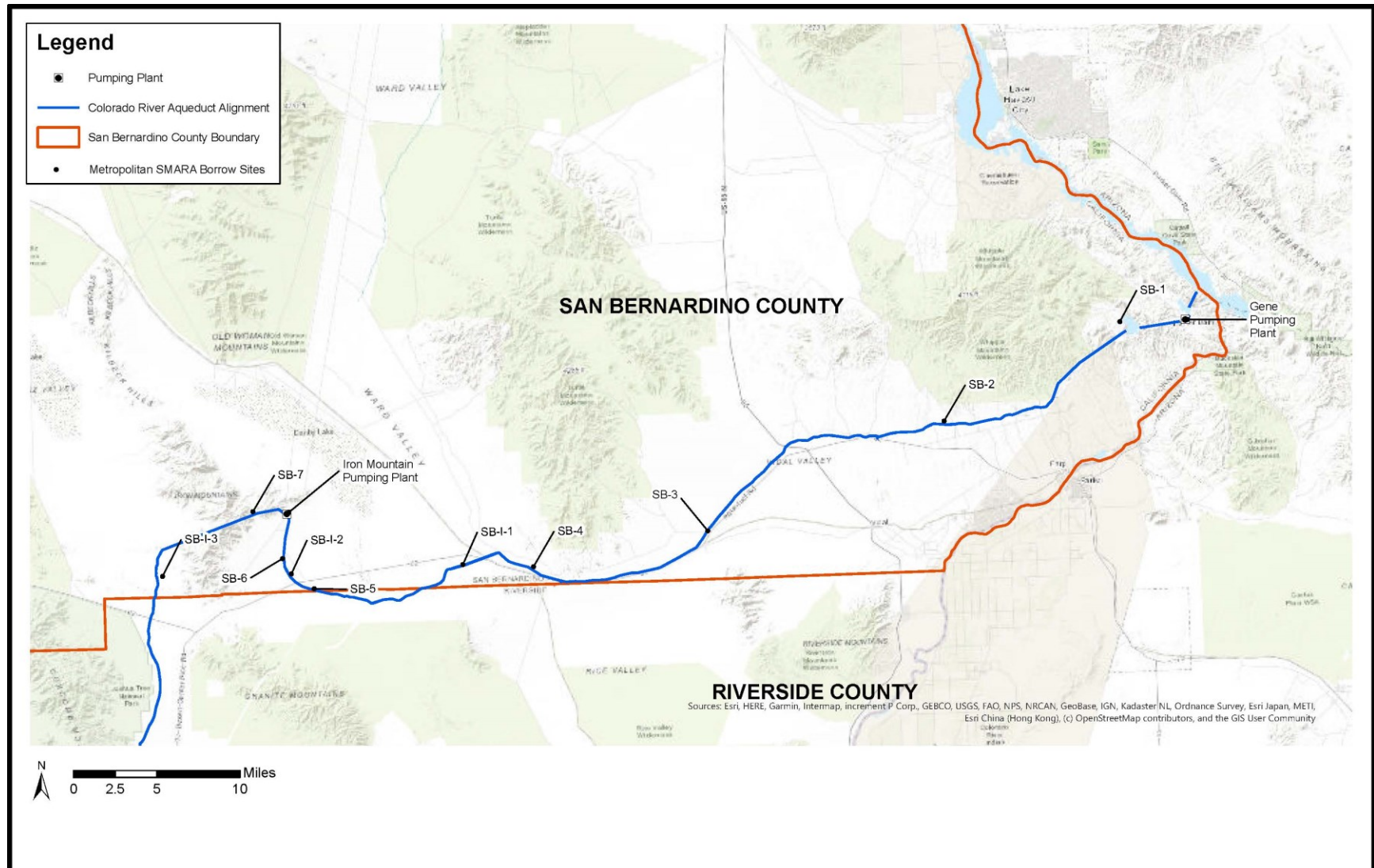
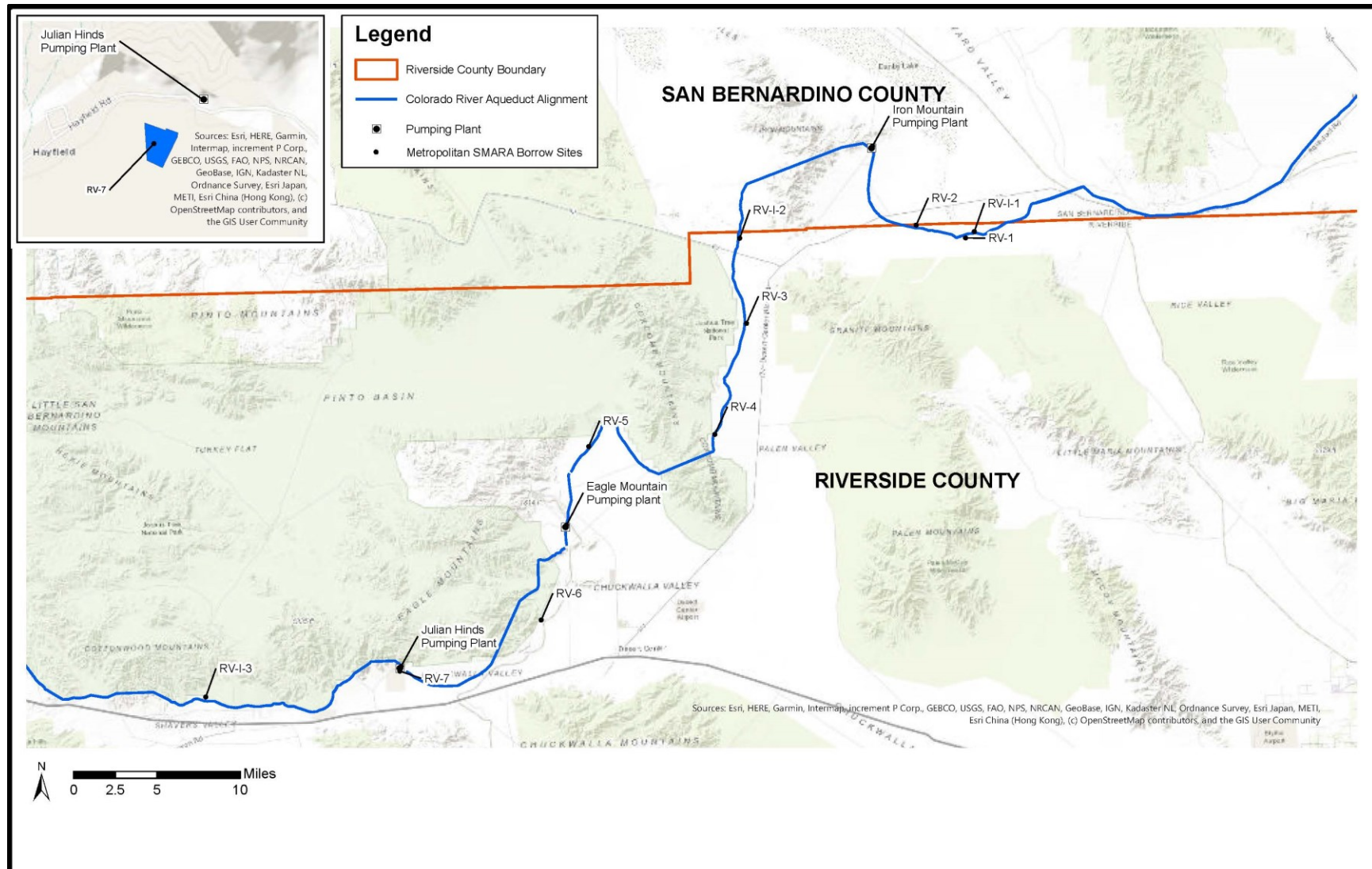


Figure 1.1-2. Project Area – Riverside County



operations at a borrow site cease, reclamation of the borrow sites would commence. The timing of this would be different for each site. It is anticipated that operation and maintenance of the CRA would require the extraction of materials from the majority of the borrow sites for up to the next approximately 100 years, with material depletion at the majority of the borrow site locations conservatively assumed to occur by 2122.

Metropolitan's borrow sites are located along an approximately 125-mile stretch within the ROW of the CRA (the entirety of which is owned by Metropolitan), through San Bernardino and Riverside counties, and reclamation activities may take place in potentially different time periods. As a result, a programmatic approach has been established for the reclamation of the borrow sites. This Master Reclamation Plan (MRP) has been prepared to address reclamation of Metropolitan's borrow sites pursuant to SMARA. (The MRP is provided in Appendix A). Because approval of the MRP by Metropolitan's Board of Directors and the SMARA Lead Agency (i.e., State Board) constitutes a discretionary action, reclamation of the borrow sites as contemplated within the MRP is considered a "Project" under the California Environmental Quality Act (CEQA). Therefore, the reclamation of the borrow sites is the Project being evaluated under CEQA. While the State Board is the Lead Agency pursuant to SMARA, Metropolitan is the Lead Agency under CEQA because it is the public agency with the principal responsibility for carrying out the Project and has discretionary approval authority over the Project.

1.2 Project Background

In 1932, pursuant to federal legislation (June 18, 1932 Act, 47 Stat. 324; House Resolution 10048, collectively referred to as the "1932 Act"), the United States Congress granted certain public and reserved lands of the United States located in Los Angeles, Riverside, and San Bernardino counties to Metropolitan to construct, operate, and maintain the CRA. The 1932 Act gave Metropolitan the right to acquire fee ownership of its CRA ROW and additional land for construction of transmission lines, roads, reservoirs, diagonal dikes, and camp sites. Included in this grant was the right for Metropolitan to take for its own use earth, stone, gravel, and other materials of like character within these lands.

In 1933, Metropolitan began construction of the CRA and its related infrastructure. During infrastructure development and aqueduct construction, Metropolitan initiated material extraction (herein referred to as "surface mining" for consistency with state regulatory provisions) at various on-site sources of sand, gravel, stone, and undifferentiated earthen materials for use in construction, operation, and maintenance of CRA infrastructure. These extraction areas, located along the CRA in San Bernardino and Riverside counties, are referred to as "borrow sites." When Metropolitan completed construction of the CRA and began operations in 1941, it retained fee title to the land beneath and adjacent to the CRA. The fee title land, including the borrow sites, was also utilized throughout the 1950s during planned expansions of the CRA facilities. Metropolitan continues to use earth, stone, sand, gravel, and other materials sourced from these lands to restore, repair, protect, and maintain essential berms, access roads, and pipeline cover after storm events and for other critical operations and maintenance activities along the CRA. Today, Metropolitan operates seven borrow sites in San Bernardino County and seven borrow sites in Riverside County. All sites are generally located near the CRA to facilitate access to material in remote locations.

Under California law, Metropolitan has mining rights for its fee-owned lands because the 1932 Act authorized Metropolitan to extract materials to construct and continuously operate and maintain the CRA, and because Metropolitan initiated the surface mining operations prior to the establishment of local land use zoning ordinances.

1.3 Project Overview

The proposed Project consists of the reclamation of 14 borrow sites located in San Bernardino and Riverside counties. Metropolitan initially identified 20 borrow site reclamation locations where surface mining activities either actively occur or had occurred in the past (ten in San Bernardino County and ten in Riverside County). An analysis of potential environmental impacts from reclamation activities was conducted for all 20 borrow site locations; however, six of the 20 borrow sites are inactive and have already been passively reclaimed and therefore are not subject to SMARA and SMARA reclamation requirements (SMARA; PRC Sections 2710-2796). In an effort to provide a comprehensive environmental review, all 20 borrow site locations are analyzed within this document even though only 14 sites are active and would be subject to reclamation.

As discussed above, the borrow sites are areas where earthen materials, such as rock, sand, and gravel, have been or are being taken for CRA operations and maintenance activities. The materials are extracted by typical surface mining techniques that include the use of off-road mobile equipment (e.g., dozers, loaders, excavators, and graders). As described in Section 1.1 (Introduction), surface mining activities must be reclaimed in accordance with SMARA requirements. Per SMARA, a reclamation plan that identifies the specific reclamation activities, final end use of the reclaimed site, and success criteria and monitoring/reporting must be prepared and approved by the SMARA Lead Agency.

Figures 1.1-1 and 1.1-2 in Section 1.1 (Introduction) show the locations of all the borrow sites; Tables 1.1-1 and 1.1-2 in Section 1.5 (Project Location and Land Use) identify the name, location, size, and parcel numbers for each site; and Section 1.6 (Description of Existing Conditions and Proposed Reclamation Activities within the Project Area) and Section 1.7 (Borrow Site Proposed Reclamation Activities) provide detailed descriptions of the proposed reclamation activities, site locations, and environmental settings for all borrow sites. A brief general description of the proposed Project activities is provided below.

Once operations at a borrow site cease, reclamation would begin; however, as discussed above, the timing of this would be different for each site. The MRP accounts for surface mining operations at the majority of the borrow sites to remain active until the material is depleted or no longer needed. It is anticipated this could take up to 100 years or more with material depletion at the majority of borrow site locations conservatively assumed to occur by 2122.

The majority of the borrow sites are in undeveloped, isolated desert land comprised of low-lying desert foothills and alluvial washes. The sites typically consist of a shallow pit where materials have been or would be extracted. The sites may also have some equipment storage, stockpiling of materials, and other auxiliary activities. Individual site descriptions are provided in Section 1.6 (Description of Existing Conditions and Proposed Reclamation Activities within the Project Area).

The proposed reclamation activities generally would consist of placing nominal quantities of excavated material back into the shallow borrow site excavation pits to ensure the sides (slopes) of the pit walls are stable. The amount of material depends on the condition of the specific site, such as the depth of the pit and the conditions of the slopes. SMARA requires that reclaimed slopes do not exceed a two horizontal to one vertical (2H:1V) angle.

Mobile equipment would be used to knockdown existing stockpiles, regrade slopes, and spread salvaged topsoil to facilitate revegetation, as feasible. Stormwater Best Management Practices (BMPs), such as berms, earthen dikes, or fiber rolls, would be installed to ensure stormwater remains within the Project site and to control erosion. Water would be utilized for dust control, and minimal quantities of water may also be used to irrigate revegetated areas, as needed. Because there are no existing or proposed water wells or water storage tanks within the Project Area, water for dust suppression and revegetation would be transported to the site via a mobile water truck. The proposed revegetation seed mix for the borrow sites is based on baseline vegetation surveys completed by Rincon Consultants, Inc. (Rincon; Appendix C) and includes a large percentage of plant species native or common to the surrounding desert scrubland environment. During reclamation of the borrow sites, there would be no change in the number of employees and/or operating schedule compared to current operations. It is estimated that a maximum of three Metropolitan employees would conduct reclamation operations and be on site at any given time during reclamation of each borrow site.

The final end use of the borrow sites would be revegetated open space consistent with the surrounding environment. Section 1.7 (Borrow Site Proposed Reclamation Activities) provides a detailed description of the proposed reclamation activities.

The MRP has been prepared and organized pursuant to the requirements outlined within SMARA. The MRP includes a Table of Compliance for SMARA Requirements, which summarizes where the specific California Code of Regulations citations are discussed and addressed within the MRP. The MRP is provided in Appendix A.

1.4 Project Objectives

The proposed Project objectives include the following:

- To develop a programmatic approach that allows for efficient management and implementation of the reclamation of Metropolitan's borrow sites located in San Bernardino and Riverside counties.
- To implement an MRP that complies with SMARA and CEQA requirements, as well as other applicable regulatory requirements.
- To provide flexibility in the implementation of the approved MRP for the borrow sites such that it does not interfere with Metropolitan's ability to provide a reliable supply of high-quality water to the 26 public agencies that are dependent on Metropolitan for their water needs.
- To ensure that the implementation of reclamation activities for each borrow site does not interfere with Metropolitan's ability to maintain the CRA and associated facilities in an environmentally safe and economically responsible manner.

- To identify reclamation and revegetation techniques for each borrow site that are designed to meet the specific needs of any unique environmental and safety concerns associated with the specific site area.

1.5 Project Location and Land Use

The Project Area consists of 20 borrow sites (14 active sites and 6 inactive sites). There are ten Metropolitan borrow sites located in unincorporated San Bernardino County and ten Metropolitan borrow sites located in unincorporated Riverside County, which are referred to as the “Project sites” in this document (see Figures 1.1-1 and 1.1-2 in Section 1.1 [Introduction]). The Project Area is composed of all 20 borrow sites; the active borrow sites are referred to herein as San Bernardino (SB) numbers 1 through 7 (SB-1 through SB-7 and Riverside (RV) numbers 1 through 7 (RV-1 through RV-7). The inactive borrow sites are referred to herein as San Bernardino-Inactive-numbers 1 through 3 (SB-I-1 through SB-I-3) and Riverside-Inactive-numbers 1 through 3 (RV-I-1 through RV-I-3). However, the Biological Resources Technical Report and Cultural Resources Technical Report prepared in support of this IS-MND utilized a different site numbering convention than that used herein. To facilitate comparison of the information contained in these technical studies with the information contained in this IS-MND, refer to Appendix B for a comparison matrix of the borrow site numbering convention.

The Project Area is located within the southern Mojave Desert, extending from the Copper Basin Reservoir to the east to the Cottonwood Mountains near the Julian Hinds Pumping Plant to the southwest. Encompassing a total area of approximately 149.3 acres (79.8 acres in San Bernardino County and 69.5 acres in Riverside County), the Project Area includes the boundaries of the 20 borrow sites (each of which includes the Project work areas) and is located along an approximately 125-mile stretch of the CRA adjacent to State Route (SR) 62, SR-95, SR-177, and Interstate 10 (I-10). Table 1.5-1 summarizes the Section, Township, and Range; the United States Geological Survey 7.5-minute topographic quadrangles; and the approximate site coordinates for each of the 20 borrow sites. Table 1.5-2 summarizes the Assessor’s Parcel Numbers, county land use designations, current status, proposed final end uses, and size for all of Metropolitan’s borrow sites.

A total of 14 of the 20 Project sites are active and would continue to provide materials to support Metropolitan’s operations and maintenance activities. Extraction of materials would continue to occur until the material has been depleted. Due to the infrequent use of materials from each site, the Project sites are not expected to deplete for up to 100 years or more. Therefore, the MRP assumes material depletion at these locations would occur by 2122, at which point reclamation would commence. Regardless of when a site is depleted of material, Metropolitan would fully reclaim all Project sites in accordance with applicable SMARA performance standards as outlined in the MRP (see Appendix A).

Table 1.5-1. Borrow Site Locations – San Bernardino and Riverside Counties

Borrow Site Name	USGS 7.5-Minute Topographic Quadrangle	Section/Township/Range	Approximate Coordinates
SB-1	Gene Wash, California (1959)	Section 3, Township 1 North, Range 26 East, San Bernardino Baseline and Meridian	Latitude: 34.29° W Longitude: 114.24° N
SB-2	Parker NW, California (2012)	Section 2, Township 1 North, Range 24 East, San Bernardino Baseline and Meridian	Latitude: 34.21° W Longitude: 114.43° N
SB-3	Vidal NW, California (2018)	Section 5, Township 1 South, Range 22 East, San Bernardino Baseline and Meridian	Latitude: 34.12° W Longitude: 114.68° N
SB-4	Rice, California (1965)	Section 15, Township 1 South, Range 20 East, San Bernardino Baseline and Meridian	Latitude: 34.09° W Longitude: 114.87° N
SB-5	Granite Pass, California (2018)	Section 16, Township 1 South, Range 18 East, San Bernardino Baseline and Meridian	Latitude: 34.08° W Longitude: 115.10° N
SB-6	Granite Pass, California (2018)	Section 6, Township 1 South, Range 18 East, San Bernardino Baseline and Meridian	Latitude: 34.11° W Longitude: 115.13° N
SB-7	Iron Mountains, California (1948)	Section 23, Township 1 South, Range 17 East, San Bernardino Baseline and Meridian	Latitude: 34.15° W Longitude: 115.16° N
SB-I-1	Arica Mountains, California (2012)	Section 12, Township 1 South, Range 19 East, San Bernardino Baseline and Meridian	Latitude: 34.10° W Longitude: 114.94° N
SB-I-2	East of Granite Pass, California (2015)	Section 17, Township 1 South, Range 18 East, San Bernardino Baseline and Meridian	Latitude: 34.09° W Longitude: 115.12° N
SB-I-3	Cadiz Valley SE, California (1985)	Section 12, Township 1 South, Range 16 East, San Bernardino Baseline and Meridian	Latitude: 34.09° W Longitude: 115.26° N
RV-1	East of Granite Pass, California (2015)	Section 19, Township 1 South, Range 19 East, San Bernardino Baseline and Meridian	Latitude: 34.07° W Longitude: 115.03° N
RV-2	East of Granite Pass, California (2015)	Section 22, Township 1 South, Range 18 East, San Bernardino Baseline and Meridian	Latitude: 34.08° W Longitude: 115.08° N
RV-3	Cadiz Valley SE, California (1985)	Section 13, Township 2 South, Range 16 East, San Bernardino Baseline and Meridian	Latitude: 33.99° W Longitude: 115.26° N
RV-4	Coxcomb Mountains, California (1987)	Section 22, Township 3 South, Range 16 East, San Bernardino Baseline and Meridian	Latitude: 33.90° W Longitude: 115.29° N
RV-5	Pinto Wells, California (2012)	Section 20, Township 3 South, Range 15 East, San Bernardino Baseline and Meridian	Latitude: 33.89° W Longitude: 115.43° N
RV-6	Desert Center, California (2018)	Section 12, Township 5 South, Range 14 East, San Bernardino Baseline and Meridian	Latitude: 33.74° W Longitude: 115.48° N
RV-7	Hayfield Spring, California (1986)	Section 20, Township 5 South, Range 13 East, San Bernardino Baseline and Meridian	Latitude: 33.70° W Longitude: 115.63° N
RV-I-1	East of Granite Pass, California (2015)	Section 19, Township 1 South, Range 19 East, San Bernardino Baseline and Meridian	Latitude: 34.07° W Longitude: 115.02° N
RV-I-2	Cadiz Valley SE, California (1985)	Section 23, Township 1 South, Range 16 East, San Bernardino Baseline and Meridian	Latitude: 34.07° W Longitude: 115.26° N
RV-I-3	Cottonwood Spring, California (2016)	Section 3, Township 6 South, Range 11 East, San Bernardino Baseline and Meridian	Latitude: 33.68° W Longitude: 115.83° N

Note: USGS (United States Geological Survey)

See Figures 1.1-1 and 1.1-2 in Section 1.1 (Introduction) for the locations of the borrow sites.

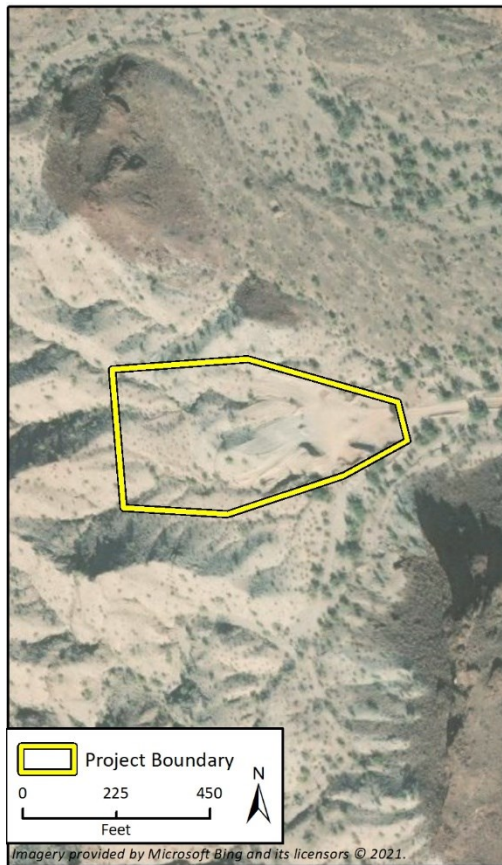
Table 1.5-2. Borrow Sites – Assessor’s Parcel Numbers and Acreages

Borrow Site Name	County Assessor's Parcel Number	Zoning/General Plan Designation	Current Status	Final Reclaimed End Use	Size
SB-1	0661-181-04-0000	Resource/Land Management (RLM)	Active	Revegetated Open Space	4.6 acres
SB-2	0647-321-05-0000 0647-331-17-0000	Resource/Land Management (RLM)	Active	Revegetated Open Space	21.0 acres
SB-3	0646-201-02-0000 0646-201-03-0000 0646-211-15-0000	Resource/Land Management (RLM)	Active	Revegetated Open Space	10.7 acres
SB-4	0646-091-09-0000 0646-101-02-0000	Resource/Land Management (RLM)	Active	Revegetated Open Space	12.3 acres
SB-5	0646-011-07-0000 0646-011-02-0000	Resource/Land Management (RLM)	Active	Revegetated Open Space	4.3 acres
SB-6	0646-021-01-0000 0646-021-12-0000	Resource/Land Management (RLM)	Active	Revegetated Open Space	6.7 acres
SB-7	0643-221-07-0000 0643-221-21-0000	Resource/Land Management (RLM)	Active	Revegetated Open Space	14.2 acres
SB-I-1	0646-081-07-0000	Resource/Land Management (RLM)	Inactive	Revegetated Open Space	2.7 acres
SB-I-2	0646-021-14-0000	Resource/Land Management (RLM)	Inactive	Revegetated Open Space	1.5 acres
SB-I-3	0643-171-07-0000	Resource/Land Management (RLM)	Inactive	Revegetated Open Space	1.8 acres
Total Active Site Area - San Bernardino County:					73.8 acres
Total Inactive Site Area - San Bernardino County:					6.0 acres
Total Area - San Bernardino County:					79.8 acres
RV-1	800-130-019	Non-Area Plan (N-A) / Open Space Rural (OS-RUR)	Active	Revegetated Open Space	23.7 acres
RV-2	800-120-004	Non-Area Plan (N-A) / Open Space Rural (OS-RUR)	Active	Revegetated Open Space	5.5 acres
RV-3	800-040-033	Non-Area Plan (N-A) / Open Space Rural (OS-RUR)	Active	Revegetated Open Space	7.1 acres
RV-4	800-101-044	Non-Area Plan (N-A) / Open Space Rural (OS-RUR)	Active	Revegetated Open Space	2.1 acres
RV-5	800-090-029	Mineral Resources & Related Manufacturing (M-R-A) / Open Space Rural (OS-RUR)	Active	Revegetated Open Space	3.6 acres
RV-6	811-020-023 811-020-028	Non-Area Plan (N-A) / Open Space Rural (OS-RUR)	Active	Revegetated Open Space	5.6 acres
RV-7	705-230-031	Non-Area Plan (N-A) / Open Space Rural (OS-RUR)	Active	Revegetated Open Space	5.3 acres
RV-I-1	800-130-019	Non-Area Plan (N-A) / Open Space Rural (OS-RUR)	Inactive	Revegetated Open Space	2.2 acres
RV-I-2	800-021-008 800-021-010	Non-Area Plan (N-A) / Open Space Rural (OS-RUR)	Inactive	Revegetated Open Space	1.8 acres

Table 1.5-2. Borrow Sites – Assessor’s Parcel Numbers and Acreages

Borrow Site Name	County Assessor's Parcel Number	Zoning/General Plan Designation	Current Status	Final Reclaimed End Use	Size
RV-I-3	715-080-001 715-080-002	Controlled Development Areas (W-2-10) / Open Space Rural (OS-RUR)	Active	Revegetated Open Space	12.6 acres
Total Active Site Area – Riverside County:					52.9 acres
Total Inactive Site Area – Riverside County:					16.6 acres
Total Site Area – Riverside County:					69.5 acres
Project Area Total – San Bernardino and Riverside Counties:					149.3 acres

Figure 1.5-1. Aerial Views of Borrow Sites SB-1 through SB-3



Aerial View of SB-1.

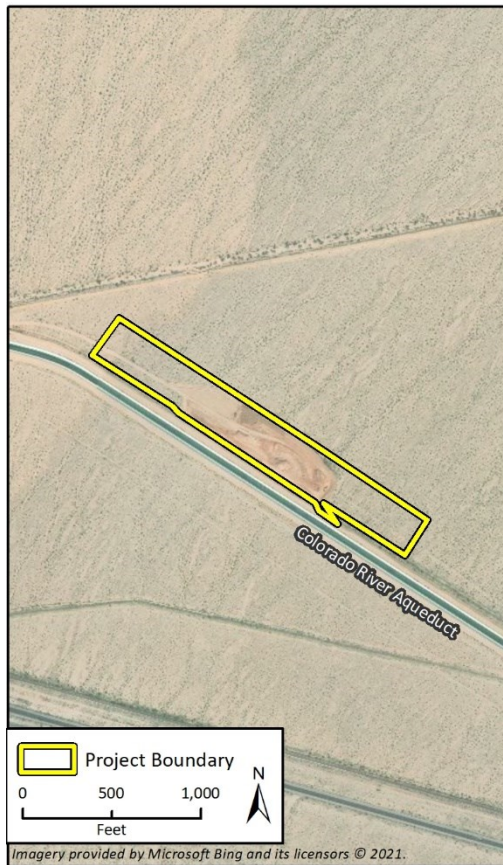


Aerial View of SB-2.



Aerial View of SB-3.

Figure 1.5-2. Aerial Views of Borrow Sites SB-4 through SB-6



Aerial View of SB-4.



Aerial View of SB-5.

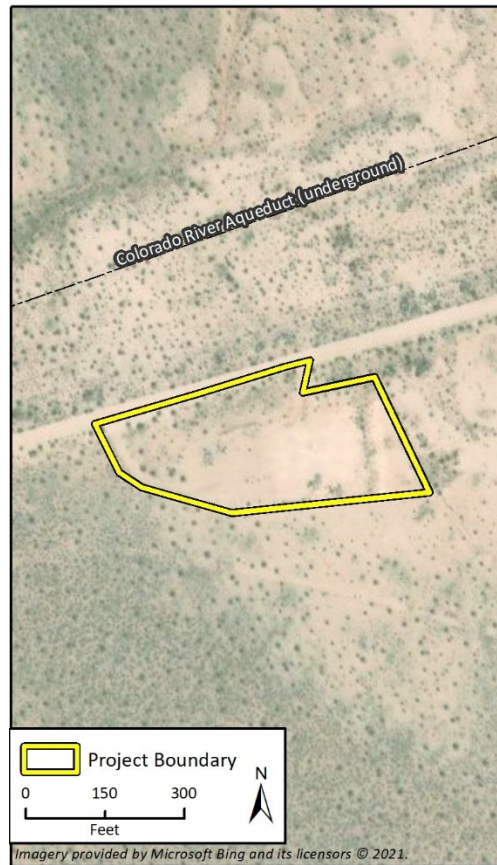


Aerial View of SB-6.

Figure 1.5-3. Aerial Views of Borrow Sites SB-7, SB-I-1, and SB-I-2



Aerial View of SB-7.



Aerial View of SB-I-1.



Aerial View of SB-I-2.

Figure 1.5-4. Aerial Views of Borrow Sites SB-I-3, RV-1, and RV-2



Aerial View of SB-I-3.



Aerial View of RV-1.



Aerial View of RV-2.

Figure 1.5-5. Aerial Views of Borrow Sites RV-3 through RV-5



Aerial View of RV-3.

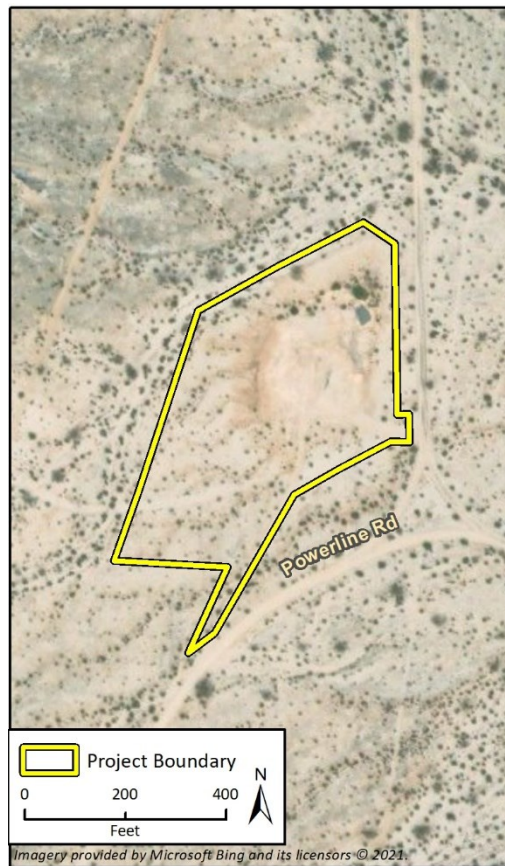


Aerial View of RV-4.



Aerial View of RV-5.

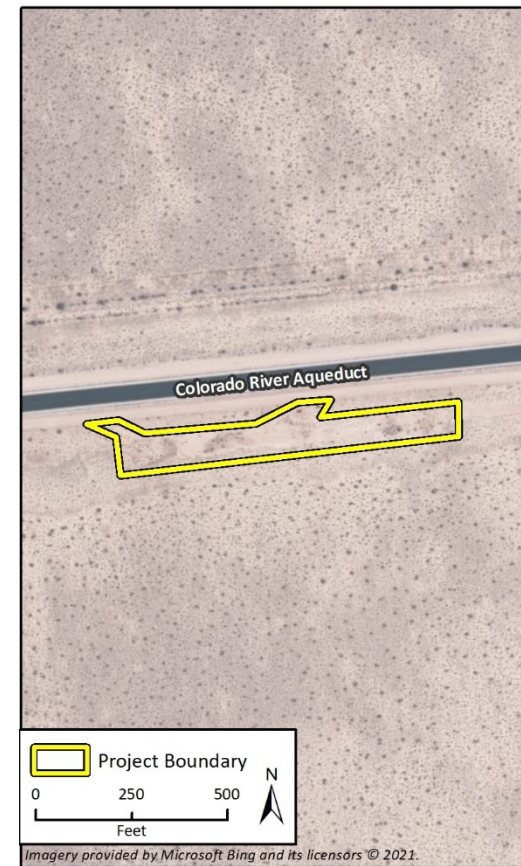
Figure 1.5-6. Aerial Views of Borrow Sites RV-6, RV-7, and RV-I-1



Aerial View of RV-6.



Aerial View of RV-7.



Aerial View of RV-I-1.

Figure 1.5-7. Aerial Views of Borrow Sites RV-I-2 and RV-I-3



Aerial View of RV-I-2.



Aerial View of RV-I-3.

1.6 Description of Existing Conditions and Proposed Reclamation Activities within the Project Area

1.6.1 Regional Environmental Setting

The proposed Project is located in a region of California where an assemblage of mountain ranges are interspersed with long, broad alluvial valleys that often contain dry lakes. The existing topography surrounding the Project Area generally consists of flat undeveloped desert land and alluvial washes as well as low-lying desert foothills.

Topographic features and mountain ranges near the Project Area in San Bernardino County include the Whipple Mountains (adjacent to SB-1 and to the northwest of SB-2), the Turtle Mountains (approximately 9.0 miles north of SB-3, SB-4, and SB-I-1), and the Iron Mountains (adjacent to SB-I-2 through SB-I-3). Topographic features and mountain ranges near Metropolitan's Riverside County operations include the Arica Mountains (approximately 7.0 miles northwest of RV-I-1 through RV-2), the Coxcomb Mountains (approximately 3.0 miles east of RV-I-2 and RV-3 and adjacent to RV-4), the Eagle Mountains (adjacent to RV-5 and RV-6), and the Cottonwood Mountains (adjacent to RV-7 and RV-I-3). The closest perennial surface waterbody to the Project Area is the Copper Basin Reservoir located approximately 0.3 mile west of SB-1.

The Project Area can be generally characterized as undeveloped desert land, comprised of low-lying desert foothills and alluvial wash basins. The Project sites are generally located in isolated areas, with few nearby cities, communities, or other developments, with the exception of Metropolitan's existing employee communities adjacent to the Gene, Iron Mountain, Eagle Mountain, and Julian Hinds pumping plants. SB-1 is located approximately 6.0 miles west of the community of Parker, Arizona and approximately 14.0 miles southwest of Lake Havasu City, Arizona. RV-6 is located approximately 4.9 miles west of the census-designated community of Desert Center. The remaining sites are located near the CRA in Riverside and San Bernardino counties. Nearby prominent roadways include SR-62, SR-177, SR-95, and I-10, which are the primary routes into the Project Area. Section 1.6.2 (San Bernardino County Borrow Sites) and Section 1.6.3 (Riverside County Borrow Sites) provide more detailed descriptions of each borrow site.

The proposed Project region is identified under the Köppen climate classification as a "hot desert climate" zone (PRISM Climate Group 2021). The regional climate is characterized by hot, dry summers and mild winters. The majority of the average 4.6 inches of annual rainfall in the region usually occurs in the winter months beginning in November and lasting through April. Winters can average temperatures from 42 to 68 degrees Fahrenheit (°F) and are generally considered to be warm and mild in nature while summers are hot and dry with average temperatures ranging from 78° to 106° F (Western Regional Climate Center 1893-2016). This climate results in relatively stable weather patterns throughout the year.

Much of the Project Area is crossed by expansive alluvial wash deposits. Soils are predominantly sandy gravel with high runoff coefficients and fast percolation (United States Department of Agriculture 2007). The Project Area vegetation comprises creosote bush scrub and disturbed land (Appendix C). The Project Area is located in the Mojave Desert geomorphic region.

The Project Area is also located within the Basin and Range Physiographic Province, which is comprised of a series of mountain ranges consisting of various Mesozoic granitic and older metamorphic and sedimentary rocks separated by valley basins filled with Quaternary alluvial material. Moreover, Tertiary-age volcanic rocks are exposed throughout the region. The Basin and Range Physiographic Province covers a larger area of the Mojave Desert of California. It is defined by unique basin and range topography associated with tectonic extension, which is characterized by abrupt changes in elevation, alternating between narrow faulted mountain chains and flat arid valleys or basins. With the exception of SB-1, located in the Whipple Mountains, and SB-7, located in the Iron Mountains, the Project sites are situated within the alluvial plains that occur between individual and disconnected mountain ranges.

1.6.2 San Bernardino County Borrow Sites

In San Bernardino County, Metropolitan currently operates seven borrow sites (see Figure 1.1-1 in Section 1.1 [Introduction]), all within Metropolitan's fee property. Borrow sites SB-1, SB-2, SB-3, SB-4, SB-5, SB-6, and SB-7 are currently active and are being used for material extraction and temporary storage for miscellaneous supplies and mobile equipment. SB-I-1, SB-I-2, and SB-I-3 are currently inactive.

SB-1: SB-1 is approximately 4.6 acres and located west of the Copper Basin Reservoir on the eastern portion of the Whipple Mountains. The unincorporated community of Parker Dam, Arizona is located approximately 6.0 miles to the east near the California-Arizona border. Land uses adjacent to the site are primarily undeveloped desert foothills/scrubland. SR-95 is located approximately 5.0 miles to the southeast across the Colorado River. The site is accessed via Metropolitan's existing unpaved access road located along the perimeter of Copper Basin Reservoir, which connects with Parker Dam Road located west of Parker, Arizona. See Figure 1.6-1 for a photo of current site conditions.

The site generally slopes west to east and is comprised of undeveloped, disturbed desert scrubland. Metropolitan has utilized the site to extract alluvial material and rock in the hillside slope to a current pit floor elevation of approximately less than 5 feet below ground surface (bgs) using mobile equipment. The highwall (the unexcavated face of exposed material) is presently about 40 feet above the pit floor. Metropolitan also actively uses portions of the site as a material storage yard. Other than a small stockpile of material, there are no existing structures or other prominent features on the site. The site entrance is currently fenced with a gate.

The existing extraction area encompasses the easterly half of the site with the western area currently undisturbed. Metropolitan anticipates the site would continue to be utilized approximately two to three times per year for an approximate duration of two to three weeks per year. The MRP accounts for extraction at this site over the next 100 years until the material is depleted or no longer needed. When material extraction and ancillary activities, including equipment laydown and/or material storage, are complete at the SB-1 borrow site (estimated to occur by 2122), the borrow site would be reclaimed to its final end use of revegetated open space in accordance with SMARA performance standards. Refer to the MRP (Appendix A) for more detail.

Figure 1.6-1. View of Borrow Site SB-1, View Facing West



SB-2: SB-2 is approximately 21.0 acres and located on the eastern side of the Whipple Mountains, approximately 1.5 miles north of SR-62. Localized shallow excavation of alluvial materials, grading, surface scalping, and material piling have occurred throughout the site. The unincorporated community of Parker, Arizona is located approximately 8.0 miles to the northeast. Land uses adjacent to the site are primarily undeveloped desert foothills/scrubland. Vehicular access to the site is provided by a graded, unpaved access road that connects with SR-62. Figure 1.6-7 provides a photo of current site conditions.

SB-2 is currently active, and material extraction at SB-2 would continue to occur over the majority of the site with a final floor depth of 25 to 30 feet bgs. When material extraction and ancillary activities, including equipment laydown and/or materials storage, are complete at the SB-2 borrow site (estimated to occur by 2122), the borrow site would be reclaimed to its final end use of revegetated open space in accordance with SMARA performance standards. Refer to the MRP (Appendix A) for more detail.

Figure 1.6-2. View of Borrow Site SB-2, View Facing West



SB-3: SB-3 is approximately 10.7 acres and located in an isolated area immediately north of the CRA, approximately 0.2 mile west of SR-62. Land uses adjacent to the site are primarily undeveloped desert lands. The site is currently being used to extract alluvial material using mobile equipment and for equipment storage. The existing borrow site excavation pit is approximately 6 to 10 feet bgs and contains associated stockpiles of material. There are no existing structures on the site. The site is accessed by an unpaved access road that extends from SR-62 and connects with the CRA maintenance road that runs along the southern boundary of the site. See Figure 1.6-2 for a photo of current site conditions.

Metropolitan presently excavates material from the western end of the borrow site. Extraction is expected to proceed from the west to the east and generally parallel the CRA alignment. The existing pit depth is less than 10 feet and would be extended vertically as mining progresses to 25 to 30 feet bgs. Metropolitan anticipates the site would continue to be utilized approximately two to three times per year for an approximate duration of two to three weeks per year. The MRP accounts for extraction at this site for the next 100 years unless the material is depleted sooner or is no longer needed.

When material extraction and ancillary activities, including equipment laydown and material storage, are complete at the SB-3 borrow site (estimated to occur by 2122), the borrow site pit would be reclaimed to its final end use of revegetated open space in accordance with SMARA performance standards. Refer to the MRP (Appendix A) for more detail.

Figure 1.6-3. View of Borrow Site SB-3, View Facing Northeast



SB-4: The SB-4 borrow site is a long, rectangular area approximately 12.3 acres in size, oriented parallel to the CRA. It is located in an isolated area 0.3 mile north of SR-62 and a rail line operated by Burlington Northern Santa Fe Railway. The town of Rice, formerly named Blythe Junction, is located approximately 1.7 miles to the southeast. Land uses adjacent to the site are primarily undeveloped desert lands. Vehicular access to the site is provided by a Metropolitan-owned unpaved access road located about 1.5 miles east of the site, which connects to SR-62. This access road crosses over the CRA, where it connects to the aqueduct maintenance road. Metropolitan has easement rights to this road. Figure 1.6-3 provides a photo of current site conditions.

Metropolitan extracts alluvial material at SB-4 using mobile equipment. The current depth of excavation varies up to about 15 feet bgs. The planned final borrow site pit depth is anticipated to be 25 to 30 feet bgs. There are small stockpiles of material and an erosion control berm along the north perimeter of the site. No structures are present on the site. Metropolitan anticipates the site would continue to be utilized approximately six times per year for an approximate duration of two to three weeks per year. The MRP accounts for extraction at this site over the next 100 years or until the material is depleted or no longer needed.

When material extraction and ancillary activities, including equipment laydown and/or material storage, are complete at the SB-4 borrow site (estimated to occur by 2122), the borrow site would be reclaimed to its final end use of revegetated open space in accordance with SMARA performance standards. Refer to the MRP (Appendix A) for more detail.

Figure 1.6-4. View of Borrow Site SB-4, View Facing Northwest



SB-5: SB-5 is approximately 4.3 acres and located in an isolated area immediately north of and parallel to the CRA. This borrow site is situated 0.4 mile south of SR-62, northeast of the junction of SR-177, and is accessed from the highway via an unpaved access road. There are no nearby communities or cities, and land uses adjacent to the site are primarily undeveloped desert lands. There are no existing structures on the site. Figure 1.6-4 provides a photo of current site conditions.

In addition to extraction of clayey sands and intermixed coarser-grained materials, Metropolitan utilizes the site to store materials and equipment. To date, material extraction has occurred within the western half of the site with future mining progressing in an easterly direction. The site would also continue to be used for storage of imported crushed rock and other materials for infrastructure repair. The present borrow pit floor depth is less than 10 feet bgs with a projected maximum depth of 25 to 30 feet bgs. Metropolitan anticipates the site would continue to be utilized approximately two times per year for an approximate duration of two to three weeks per year. The MRP accounts for extraction at this site over the next 100 years until the material is depleted or no longer needed.

When material extraction and ancillary activities, including equipment laydown and/or equipment storage, are complete at the SB-5 borrow site (estimated to occur by 2122), the borrow site would be reclaimed to its final end use of revegetated open space in accordance with SMARA performance standards. Refer to the MRP (Appendix A) for more detail.

Figure 1.6-5. View of Borrow Site SB-5, View Facing South



SB-6: SB-6 is approximately 6.7 acres and located in an isolated area immediately north of the CRA, about 1.5 miles north of SR-62. There are no nearby communities or cities, and land uses adjacent to the site are primarily undeveloped desert lands. Metropolitan utilizes the site to extract alluvial material and to store equipment. Vehicular access to the site is provided via the unpaved Metropolitan-owned maintenance road that parallels the CRA, which intersects with SR-62 to the south. Figure 1.6-5 provides a photo of current site conditions.

Depth of excavation is presently 10 feet bgs or less with a planned maximum pit depth of 25 to 30 feet bgs. Besides serving as a source for borrow material, the borrow site is occasionally used to store stockpiled materials. Presently, material extraction has occurred primarily along the western side of the site. Metropolitan anticipates the site would continue to be utilized approximately one time per year for an approximate duration of two to three weeks per year. The MRP accounts for extraction at this site over the next 100 years until the material is depleted or no longer needed.

When material extraction and ancillary activities, including equipment laydown and/or materials storage, are complete at the SB-6 borrow site (estimated to occur by 2122), the borrow site would be reclaimed to its final end use of revegetated open space in accordance with SMARA performance standards. Refer to the MRP (Appendix A) for more detail.

Figure 1.6-5. View of Borrow Site SB-6, View Facing North



SB-7: SB-7 is approximately 14.2 acres and located within the Iron Mountains, approximately 2.0 miles west of Metropolitan's Iron Mountain Pumping Plant. The SB-7 site is a portion of the larger Iron Mountain site where material extraction has and will continue to occur; the balance of the Iron Mountain site represents areas where historic construction activities and materials storage occurred in connection with the Iron Mountain Tunnel. There are no nearby communities or cities, and land uses adjacent to the site are primarily undeveloped desert lands and undeveloped desert foothills/scrubland. Vehicular access to the site from the pumping plant is provided via West Basin Road, an unpaved maintenance road, and an unnamed dirt road that runs westerly toward the Iron Mountains. The site is situated within a saddle that bisects the mountain range. Figure 1.6-6 provides a photo of current site conditions.

Metropolitan has utilized the site to extract rock and alluvium and to store equipment and materials. Extraction occurs by removing materials along the west-facing slope within the saddle with materials stockpiled at various locations on a fill platform that was created from the tunnel spoils as part of the CRA construction project. Since the fill platform is related to CRA construction, which took place in the 1930s, this fill feature is not subject to SMARA, and therefore is not part of the MRP. Other than material excavation, miscellaneous material stockpiles, and periodic equipment storage, there are no other existing uses for the site.

When material extraction and ancillary activities, including equipment laydown and/or material storage, are complete at the SB-7 borrow site (estimated to occur by 2122), the borrow site would be reclaimed to its final end use of revegetated open space in accordance with SMARA performance standards. Refer to the MRP (Appendix A) for more detail.

Figure 1.6-7. View of Borrow Site SB-7, View Facing Southeast



SB-I-1: SB-I-1 is approximately 2.7 acres and located in an isolated area immediately south of the CRA, approximately 0.7 mile south of SR-62. There are no nearby communities or cities, and land uses adjacent to the site are primarily undeveloped desert lands. The site is accessed via an unpaved CRA maintenance road where it crosses SR-62. Figure 1.6-8 provides a photo of current site conditions.

Metropolitan has utilized the site in the past to extract sand, along with intermixed coarser grained materials, and to store equipment. The extent of material extraction is limited, with the present depth of excavation generally 5 to 7 feet bgs. Presently, the site is inactive.

Figure 1.6-8. View of Borrow Site SB-I-1, View Facing East



SB-I-2: SB-I-2 is approximately 1.5 acres and located in an isolated area adjacent to the CRA. The site is located 0.5 mile northwest of SR-62 and is accessed where the unpaved CRA maintenance road crosses the highway. There are no nearby communities or cities, and land uses adjacent to the site are primarily undeveloped desert lands. Material extraction at SB-I-2 has taken place in discrete areas throughout the site with excavation depths generally less than 5 to 7 feet bgs. Figure 1.6-9 provides a photo of current site conditions. Presently, the site is inactive.

Figure 1.6-9. View of Borrow Site SB-I-2, View Facing Northwest



SB-I-3: SB-I-3 is approximately 1.8 acres and located about 1.5 miles west of the Iron Mountains and approximately 2.5 miles north of SR-62. There are no nearby communities or cities, and land uses adjacent to the site are primarily undeveloped desert lands. Metropolitan utilized the site to extract alluvium and to store equipment. The site is accessed by traveling along the unpaved, Metropolitan-owned, CRA maintenance road north for about 2.5 miles from its intersection with SR-62. From the aqueduct maintenance road, there is an approximately 0.25-mile segment of the CRA maintenance road system that leads to the site. Figure 1.6-10 provides a photo of current site conditions.

The current borrow pit configuration for SB-I-3 is a polygonal-shaped excavation that extends into the southern edge of a small hill (bedrock outcrop). Materials are removed from the hill slope as well as below grade on the alluvial plain. Current pit depths vary but are generally less than 10 feet bgs. The site is presently inactive.

Figure 1.6-10. View of Borrow Site SB-I-3, View Facing East



1.6.3 Riverside County Borrow Sites

In Riverside County, Metropolitan currently maintains seven borrow sites (see Figure 1-2 in Section 1.1 [Introduction]). RV-1 through RV-7 are currently active and are being used for material extraction and temporary storage for miscellaneous supplies and mobile equipment. Sites RV-I-1, RV-I-2, and RV-I-3 are currently inactive. Per the MRP (see Appendix A), Metropolitan would fully reclaim all borrow sites located in Riverside County in accordance with applicable SMARA performance standards.

RV-1: RV-1 is an approximately 23.7-acre polygonal area located adjacent to the CRA. The site is isolated and situated 2.0 miles south of SR-62. Vehicular access to RV-1 is provided via a Metropolitan-owned unpaved access road from SR-62 located north of the site. This borrow site is located 0.4 mile to the west of RV-I-1. There are no nearby communities or cities, and land uses adjacent to the site are primarily undeveloped desert lands and undeveloped desert foothills/scrubland. Figure 1.6-11 provides a photo of current site conditions.

Metropolitan utilizes the site to extract alluvial material and store equipment and stockpiled materials. Depth of excavation is presently 15 feet bgs, and other than existing material stockpiles, there are no existing features or structures on the site. Metropolitan intends to continue extracting material at RV-1 to a planned maximum pit depth of 25 to 30 feet bgs. Metropolitan anticipates the site would continue to be utilized approximately two times per year for an approximate duration of two to three weeks per year. The MRP accounts for extraction at this site over the next 100 years until the material is depleted or is no longer needed.

When material extraction and ancillary activities, including equipment laydown and/or materials storage, are complete at the RV-2 borrow site (estimated to occur by 2122), the borrow site would be reclaimed to its final end use of revegetated open space in accordance with SMARA performance standards. Refer to the MRP (Appendix A) for more detail.

Figure 1.6-11. View of Borrow Site RV-1, View Facing East



RV-2: RV-2 is approximately 5.5 acres and located in an isolated area immediately north of the CRA. Vehicular access to the site is provided via an unpaved access road from SR-62 located 0.9 mile to the north. There are no nearby communities or cities, and land uses adjacent to the site are primarily undeveloped desert lands and undeveloped desert foothills/scrubland. Figure 1.6-12 provides a photo of current site conditions.

Metropolitan utilizes the site to extract alluvial material and store equipment and stockpiled materials. Presently, there is a single, borrow pile located roughly in the center of the site. There are no structures on site or other features besides the stockpiled materials. Current pit depths are generally 10 to 15 feet bgs with planned final pit depths of 25 to 30 feet bgs. Metropolitan anticipates the site would continue to be utilized approximately two times per year for an approximate duration of two to three weeks per year. The MRP accounts for extraction at this site over the next 100 years until the material is depleted or no longer needed.

When material extraction and ancillary activities, including equipment laydown and/or material storage, are complete at the site (estimated to occur by 2122), the borrow site would be reclaimed to its final end use of revegetated open space in accordance with SMARA performance standards. Refer to the MRP (Appendix A) for more detail.

Figure 1.6-12. View of Borrow Site RV-2, View Facing East



RV-3: RV-3 comprises a 7.1-acre rectangular area and is situated along the CRA approximately 1.2 miles west of SR-177. The site is accessed by an unpaved access road that connects with SR-177. There are no nearby communities or cities, and land uses adjacent to the site are primarily undeveloped desert lands and undeveloped desert foothills/scrubland. Figure 1.6-13 provides a photo of current site conditions.

Metropolitan utilizes the site to extract alluvial material and store/stage equipment and stockpiled materials. To date, excavation of materials has occurred solely in the northwest corner of the site. Material stockpiling also takes place in this area. The excavation at RV-3 is generally limited to surface scalping the first few feet of material; however, future use would extend the excavation downward to depths of 25 to 30 feet bgs. There are no existing structures on the site. Metropolitan anticipates the site would continue to be utilized approximately two times per year for an approximate duration of two to three weeks per year. The MRP accounts for extraction at this site over the next 100 years until the material is depleted or is no longer needed.

When material extraction and ancillary activities, including equipment laydown and/or material storage, are complete at the RV-3 borrow site (estimated to occur by 2122), the borrow site would be reclaimed to its final end use of revegetated open space in accordance with SMARA performance standards. Refer to the MRP (Appendix A) for more detail.

Figure 1.6-13. View of Borrow Site RV-3, View Facing East



RV-4: RV-4 is approximately 2.1 acres and located in an isolated area along the eastern flank of the Coxcomb Mountains immediately east of the CRA. It lies 2.6 miles west of SR-177 and is accessed from the highway via a mostly unpaved, Metropolitan-owned CRA maintenance road. There are no nearby communities or cities, and land uses adjacent to the site are primarily undeveloped desert lands. Metropolitan utilizes the site to extract alluvial material and store equipment. Figure 1.6-14 provides a photo of current site conditions.

The current RV-4 borrow pit is characterized as a shallow excavation (scalping of surface materials), generally a few feet in depth. Future material extraction activities would extend the pit to final depths of 25 to 30 feet bgs. Other than the excavation area and some small material piles, there are no additional features or structures on the site. Metropolitan anticipates the site would continue to be utilized approximately one time per year for an approximate duration of two to three weeks per year. The MRP accounts for extraction at this site over the next 100 years until the material is depleted or no longer needed.

When material extraction and ancillary activities, including equipment laydown and/or material storage, are complete at the RV-4 borrow site (estimated to occur by 2122), the borrow site would be reclaimed to its final end use of revegetated open space in accordance with SMARA performance standards. Refer to the MRP (Appendix A) for more detail.

Figure 1.6-14. View of Borrow Site RV-4, View Facing North



RV-5: RV-5 is a 3.6-acre rectangular area located on an alluvial plain that extends southeasterly from the base of the Eagle Mountain Range. The site occurs in an isolated area north of the CRA, which is accessed from the Metropolitan-owned, CRA maintenance road that intersects with Eagle Mountain Road. SR-177 is located 9.6 miles to the southeast of RV-5. The Kaiser Steel Mill community is located approximately 2.5 miles to the southwest, and Metropolitan's Eagle Mountain Pumping Plant is 5.9 miles to the south. Land uses adjacent to the site are primarily undeveloped desert lands. Figure 1.6-15 provides a photo of current site conditions.

Metropolitan extracts alluvial material at this site, which is also used to store equipment and supplies and stockpile materials. Currently, the excavation is 10 feet bgs or less and is planned to be extended to final borrow pit floor depths of 25 to 30 feet bgs. There are no existing structures on the site. Metropolitan anticipates the site would continue to be utilized approximately one to two times per year for an approximate duration of two to three weeks per year. The MRP accounts for extraction at this site over the next 100 years until the material is depleted or no longer needed.

When material extraction and ancillary activities, including equipment laydown and/or material storage, are complete at the RV-5 borrow site (estimated to occur by 2122), the borrow site would be reclaimed to its final end use of revegetated open space in accordance with SMARA performance standards. Refer to the MRP (Appendix A) for more detail.

Figure 1.6-15. View of Borrow Site RV-5, View Facing West



RV-6: RV-6 is 5.6 acres and located in an isolated area on an alluvial plain that extends to the southeast from the flank of the Eagle Mountains. The CRA runs to the south and west of the site, tunneling through the Eagle Mountains. The intersection of SR-177 and I-10 is located approximately 5.1 miles to the southeast. The census-designated community of Desert Center is also located approximately 5.0 miles to the southeast, and Metropolitan’s Eagle Mountain Pumping Plant is located approximately 4.7 miles to the north. Land uses adjacent to the site are primarily undeveloped desert lands. Vehicular access to the site is provided by an unpaved, Metropolitan-owned, CRA maintenance road that generally runs north-south along the CRA and provides access to Metropolitan’s 230-kilovolt powerlines. The access road connects to Eagle Mountain Road, which connects to Metropolitan’s Eagle Mountain Pumping Plant to the north and I-10 to the south. Figure 1.6-16 provides a photo of current site conditions.

Past material extraction at RV-6 has generally been limited to the first 10 feet bgs with future planned excavation to depths of 25 to 30 feet bgs. Metropolitan currently extracts alluvial material and stockpiles materials at the site. There are no existing structures on the site. Metropolitan anticipates the site would continue to be utilized approximately one to two times per year for an approximate duration of two to three weeks per year. The MRP accounts for extraction at this site over the next 100 years until the material is depleted or no longer needed.

When material extraction and ancillary activities, including equipment laydown and/or material storage, are complete at the site (estimated to occur by 2122), the borrow site would be reclaimed to its final end use of revegetated open space in accordance with SMARA performance standards. Refer to the MRP (Appendix A) for more detail.

Figure 1.6-16. View of Borrow Site RV-6, View Facing West



RV-7: RV-7 is approximately 5.3 acres and located at Metropolitan’s Julian Hinds Pumping Plant, 2.2 miles north of I-10. The site is situated in an area where Metropolitan historically stored construction spoils associated with the pumping plant. These materials are not part of the borrow site extraction activities and are therefore not included in the MRP. Land uses immediately adjacent to the site are primarily undeveloped desert lands. The Julian Hinds Pumping Plant and ancillary sub-station are located immediately north of RV-7. Vehicular access to the site is provided by an unpaved access road that connects to Hayfield Road to the north, which is the main access road to the Julian Hinds Pumping Plant. Figure 1.6-17 provides a photo of current site conditions.

Metropolitan utilizes the site to extract alluvial material and to store/stage equipment and stockpiled materials. The RV-7 excavation pit presently ranges from roughly 10 to 15 feet bgs in depth with coalescing stockpiles in the western portion of the pit footprint. Planned excavation would advance the pit floor to final depths of 25 to 30 feet bgs. There are no other features or structures on site. Metropolitan anticipates the site would continue to be utilized approximately one to two times per year for an approximate duration of two to three weeks per year. The MRP accounts for extraction at this site over the next 100 years until the material is depleted or no longer needed.

When material extraction and ancillary activities, including equipment laydown and/or material storage, are complete at the site (estimated to occur by 2122), the borrow site would be reclaimed to its final end use of revegetated open space in accordance with SMARA performance standards. Refer to the MRP (Appendix A) for more detail.

Figure 1.6-17. View of Borrow Site RV-7, View Facing East



RV-I-1: RV-I-1 is an approximately 2.2-acre rectangular area located along the southern side of the CRA, approximately 1.9 miles south of SR-62. The site is accessed by an unpaved CRA maintenance road from SR-62. There are no nearby communities or cities, and land uses adjacent to the site are primarily undeveloped desert lands. Figure 1.6-18 provides a photo of current site conditions.

At present, the borrow pit depth is generally less than 10 feet bgs. Metropolitan utilized the site to extract alluvial material and as a stockpile storage yard; however, this site is inactive and will no longer be used to extract material.

Figure 1.6-18. View of Borrow Site RV-I-1, View Facing East



RV-I-2: RV-I-2 is approximately 1.8 acres and situated in an isolated area along the CRA, approximately 0.7 mile north of SR-62. There are no nearby communities or cities, and land uses adjacent to the site are primarily undeveloped desert lands. Vehicular access to the site is provided by an unpaved Metropolitan-owned CRA maintenance road that connects to SR-62 to the south. The site is presently inactive. Figure 1.6-19 provides a photo of current site conditions.

Figure 1.6-19. View of Borrow Site RV-I-2, View Facing East



RV-I-3: RV-I-3 comprises a 12.6-acre area located near the southern boundary of Joshua Tree National Park. RV-10 lies approximately 1.4 miles north of I-10 and is accessed from Cottonwood Springs Road to the east via an unpaved CRA maintenance road that leads west, paralleling the CRA. The area is somewhat isolated and immediately north the CRA. The community of Chiriaco Summit is located approximately 6.4 miles east of RV-I-3. Land uses adjacent to the site are primarily undeveloped desert lands and undeveloped desert foothills/scrubland. Figure 1.6-20 provides a photo of current site conditions.

Metropolitan utilized RV-I-3 to extract alluvial material and store/stage equipment and supplies and stockpiled materials. Additionally, broken concrete rubble was temporarily placed on site. There are no existing structures on the site. Excavation at this site has advanced the borrow pit floor to depths of roughly 50 feet bgs, specifically along the northerly and westerly highwalls. Presently, the site is inactive.

Figure 1.6-20. View of Borrow Site RV-I-3, View Facing North



1.7 Borrow Site Proposed Reclamation Activities

The MRP, which is included in Appendix A, has been prepared and organized pursuant to the requirements outlined within SMARA. The MRP includes a Table of Compliance for SMARA Requirements, which summarizes where the specific California Code of Regulations citations are discussed and addressed within the MRP. This section provides a summary of the key aspects of the proposed reclamation activities. These reclamation activities are generally common to all the Project sites being evaluated in accordance with CEQA in this document.

Once operations at the Project sites is complete, the Project sites would be reclaimed in accordance with SMARA requirements. The final end use of the Project sites would be revegetated open space consistent with the surrounding environment. Proposed reclamation activities at the Project sites would generally consist of removing deleterious materials and debris, recontouring Project site slopes and floors to ensure slopes do not exceed a 2H:1V angle,

installing stormwater BMPs to control erosion, and revegetating reclaimed areas with a native plant hydroseed mix. These reclamation activities would take approximately 30 days to complete at each site.

Following reclamation/revegetation activities, a monitoring program as required by SMARA would commence. Monitoring would be conducted on a semi-regular basis (likely quarterly) for a period of up to three years by a monitoring biologist or other qualified staff to ensure BMPs, revegetation, and all other reclamation activities meet the SMARA performance standards. Annual monitoring reports would be prepared and would include a summary of the revegetation effort, site conditions, issues encountered, evaluation of the data collected and success achieved, and recommendations for meeting the performance criteria. Reports would be submitted to the State Board for review annually during the monitoring period.

In accordance with SMARA, the State Board, acting as SMARA Lead Agency, would also conduct annual inspections to determine the status of Project reclamation. Once final reclamation and revegetation is complete, and the appropriate SMARA success criteria have been sufficiently met, Metropolitan would prepare a Completion Report. The Completion Report would be submitted to and reviewed by the State Board, which would conduct a final inspection to determine if reclamation of each borrow site has been achieved. Once the State Board deems reclamation of the Project Area (i.e., borrow sites) is complete, the financial assurances would be released. Proposed reclamation and monitoring activities are discussed in detail below.

1.7.1 Proposed Reclamation Schedule

Once operations have ceased at a Project site, reclamation of the Project site would commence. As discussed above, the MRP accounts for extraction up to the next 100 years with material depletion at the 14 active Project sites anticipated no later than 2122.

1.7.2 Reclaimed Slopes

Once reclamation commences, unused equipment, deleterious materials (e.g., tailings, overburden, sediment, waste rock), and rubbish would be removed from the sites as needed. Metropolitan would flatten any remaining material stockpiles and recontour excavation slopes and floors using mobile equipment to ensure no slopes exceed a 2H:1V angle in accordance with SMARA performance standards.

Based on the maximum pit depths and final slope grades anticipated at the completion of material excavation activities, only minimal regrading of the excavation pit slopes and surplus excavated material at the proposed Project sites is anticipated. However, if any slope cannot be regraded to comply with SMARA's 2H:1V performance standard, Metropolitan would complete a site-specific geologic and engineering analysis demonstrating that proposed final reclaimed slopes maintain a minimum slope stability factor of safety. The slope stability analysis would determine the static and seismic factors of safety and ensure the reclaimed slopes are acceptable for the borrow site design features and considered representative of stable slope configurations. Additionally, existing stormwater control features (e.g., berms, earthen dikes) may be maintained or new structures installed to control erosion at the Project sites post-reclamation. Proposed revegetation at the Project sites would help further stabilize the reclaimed side slopes and prevent erosion once roots are established.

1.7.3 Reclamation Backfilling

Other than the placement of nominal quantities of excavated material into the shallow excavation pits to ensure side slopes do not exceed 2H:1V, no substantial backfilling of the proposed Project sites would occur as part of site reclamation. Based on the anticipated excavation depth and slope conditions, minimal backfilling may be necessary at a few of the Project sites. Additionally, for Project sites where topsoil and subsoil were stored separately (i.e., in perimeter berms, stockpiles), these materials may be spread across the excavation areas to help facilitate successful revegetation efforts. Any remaining stockpiles of overburden or other natural materials (e.g., stone, sand) may also be knocked down and placed back in the pits to help achieve the final desired slope conditions.

1.7.4 Equipment

To facilitate proposed reclamation of the Project sites, mobile equipment would be utilized to knockdown stockpiles, regrade slopes, and spread topsoil/subsoil prior to revegetation. A mobile water truck would be utilized for dust control. The estimated type and number of equipment and support vehicles to be used during reclamation of each Project site is listed in Table 1.7-1 below.

Table 1.7-1. Representative Off-Road Vehicle List – Reclamation

Equipment	Make and Model	Quantity	Average Horsepower	Average Hours/Day
Water Truck	Freightliner – 4,000-gallon	1	300	4
Dozer	Caterpillar D-6	1	215	8
Excavator	Caterpillar 330	1	273	8
Loaders	Caterpillar 966	1	276	8
Grader	Caterpillar 140M, 160M, or 14M Motor	1	187	4
Dump Truck	Freightliner 114SD	1	16	4
Hydroseed Spreader	Freightliner – 1,000-gallon	1	172	8

During proposed reclamation activities, existing unpaved Metropolitan access roads would be maintained, as needed, by a grader with use of a water truck to control fugitive dust emissions. The existing unpaved access roads would not be widened, and no new paved or unpaved roads would be installed on site. Additionally, passenger trucks to transport employees to and from the Project site would be required during proposed reclamation activities. Refer to Section 1.7.7 (Transportation) for additional detail regarding on-road vehicles and estimated employee trips during proposed reclamation activities.

1.7.5 Employees and Hours of Operation

It is estimated that a maximum of three Metropolitan employees would conduct proposed reclamation construction activities (i.e., regrading slopes, backfilling, and revegetation) and be on site at any given time during reclamation of each proposed Project site. These employees would be based from Metropolitan’s Iron Mountain Pumping Plant. Only one Project site is anticipated to be reclaimed at a time. Typical employee shifts during reclamation would commence between approximately 6:00 a.m. to 7:00 a.m. and end between approximately 3:00 p.m. to 4:00 p.m. (approximately 8- to 10-hour shifts), four days per week (typically Monday through Thursday). Reclamation activities (e.g., knocking down piles/berms, removing rubbish,

etc.) and associated site preparation at each Project site would be conducted by Metropolitan staff in a single phase until the site is stabilized and prepared. This process is estimated to take a maximum of one month at each individual Project site. Following site preparation, a monitoring biologist would continue to access the site periodically (estimated four times per year) for up to a period of three years to facilitate maintenance and monitoring of revegetated areas as needed.

1.7.6 Material Processing and Blasting

Due to the nature of proposed reclamation activities at each Project site, material processing and/or blasting would not be required. Therefore, no stationary processing equipment or explosives would be stored or utilized within the Project sites.

1.7.7 Transportation

During reclamation, Metropolitan employees and related contractors (i.e., monitoring biologist) would move between the Project sites, as needed. Typical vehicles would include small work trucks to transport employees and light-duty trucks to transport equipment/materials. In general, these vehicles would access the sites by public roadways and existing roads within Metropolitan's ROW. Excess materials and/or rubbish generated during reclamation activities, would be moved off site to the Iron Mountain Pumping Plant or other proper disposal sites.

The maximum trip distance a single employee/contractor would have to travel during reclamation is estimated to be 77.6 miles (one-way trip), which represents the distance between Metropolitan's Iron Mountain Pumping Plant and SB-1 located west of the Copper Basin Reservoir on the eastern portion of the Whipple Mountains.

1.7.8 Water Use

Fresh Water

During reclamation, fresh water would primarily be utilized for dust control within the Project sites. If needed, minimal quantities of water may also be used as needed to irrigate revegetated areas. There are no existing or proposed water wells or water storage tanks within the Project Area. Water for dust suppression and landscaping would be transported to the site via a mobile water truck. Metropolitan would employ one water truck with a 1,000-gallon or larger affixed tank and attached pump to apply the water as needed.

Primarily, water would be obtained at various locations along the CRA by pumping water into the water truck directly from the CRA, which is administered and controlled by Metropolitan. Additionally, due to its proximity to Metropolitan's Julian Hinds Pumping Plant, water used during the reclamation of RV-7 would be obtained from an existing water hydrant located at the plant. It is estimated that approximately 16,000 gallons of water would be obtained from the CRA to facilitate reclamation (including grading, recontouring, and hydroseeding) at a single Project site during its 30-day reclamation period (320,000 gallons of water total for all Project sites).

Wastewater

Because the proposed Project reclamation activities would not involve material extraction or require processing, material washing is not required. Additionally, proposed reclamation of the Project sites would not generate any process wastewater.

Temporary portable toilets are placed at the Project sites when surface mining activities occur and would remain in place at the sites during reclamation activities as needed. Existing portable toilet facilities are placed within secondary containment and are regularly maintained by either Metropolitan's staff or a local contractor (see Section 1.7.9 [Domestic Water and Sanitation Facilities] for more detail). Reclamation of Metropolitan's Project sites would not produce any industrial or domestic wastewater discharges on site.

1.7.9 Domestic Water and Sanitation Facilities

No septic systems or commercial bathrooms are required for the proposed Project. Metropolitan employees would continue to utilize portable toilets at the Project sites during the proposed reclamation activities. On-site portable toilets would continue to be regularly serviced by a local contractor and would continue to utilize secondary containment (i.e., tray). All domestic waste would be removed at the end of each day. The proposed Project would not produce any industrial wastewater discharges. Once reclamation activities are complete, the existing portable toilets would be removed from each Project site.

1.7.10 Hazardous Materials/Hazardous Waste

Proposed Project reclamation activities would not routinely generate hazardous waste. No on-site portable generators would be required during reclamation activities. There would be no permanent storage of fuel, lubricants, or hazardous materials on the Project sites during reclamation. The only hazardous materials present on site would be fuels and oils stored "in use" by mobile equipment (e.g., scrapers, excavators, dozers, loaders) operating on the Project sites. Minor maintenance (lubing and greasing) and/or re-fueling of mobile equipment or maintenance trucks may occur on site, and if needed, small amounts of fuels, lubricating oils, or other equipment/maintenance supplies may be brought on site to conduct minor/routine maintenance of off-road vehicles. However, all equipment would generally be returned to Metropolitan's fleet shop located at the Iron Mountain Pumping Plant for refueling, repairs, and maintenance. As applicable, handling and transfer of fuel and lubrication would follow best practices and would include any measures identified in the Stormwater Pollution Prevention Plan, if required, and would follow applicable health and safety regulations and/or local ordinances. Emergency spill response materials would be available in an employee support vehicle in the unlikely event of a spill. The employee responsible for the site activities would be appropriately trained in spill response and any potentially hazardous waste would be properly removed and transported to an approved facility. Metropolitan standard cleanup requirements and stormwater BMPs would be implemented on site to control erosion and ensure stormwater is properly contained and kept free of contaminants. These requirements and BMPs include, but are not limited to, the following:

- Spill prevention, control, and cleanup;
- Vehicle and equipment fueling, cleaning, and repair;
- Waste handling and disposal;

- Grading to direct stormwater away from low-lying areas;
- Perimeter berms along certain boundary segments; and
- Use of silt fencing, fiber rolls, waddles, or similar perimeter controls, as needed.

In addition, all vehicles contain fire extinguishers, and staff are trained in fire suppression.

1.7.11 Utilities/Electrical Service

The Project sites do not have permanent electrical connections, nor would electrical connections be required during proposed reclamation activities. Additionally, no natural gas or propane would be utilized during reclamation.

1.7.12 Lighting

Because Metropolitan's proposed reclamation activities would occur during the daytime hours only, lighting would not be utilized at the Project sites. No permanent or portable lighting has been installed at the Project sites, and permanent or portable lighting would not be installed before or during proposed reclamation.

1.7.13 Fencing and Security

With the exception of SB-1, which has a small entrance gate, and RV-7, which is located inside the Julian Hinds Pumping Plant facility boundaries, none of the Project sites are fenced or gated. As needed, certain private access roads controlled by Metropolitan may be gated and/or locked to prevent public access. If considered necessary for public safety, appropriate fencing and signage may be installed at the Project sites.

1.7.14 Visibility

Due to the isolated nature of Project sites, proposed reclamation activities would not be visible from nearby public locations. Therefore, no visual screening (landscaping, berms, etc.) would be required during reclamation.

1.8 Revegetation Plan

The proposed revegetation approach and methods for the proposed Project would be consistent with standard industry practices and would reclaim the borrow sites according to the designated end uses. Specifically, the revegetation plan would be based on the characteristics of the final excavation pits, which are expected to range from approximately 25 to 30 feet bgs with contoured side slopes at a maximum gradient of 2H:1V. Hydroseeding at the Project sites would occur during optimal seasonal conditions within two years following completion of material extraction. Revegetation is anticipated to take approximately three years once each site is hydroseeded. The proposed revegetation seed mix for the Project sites, as outlined in Section 1.8.1 (Seed Mixes) is based on document baseline vegetation surveys (Appendix C) and includes plant species native to the surrounding desert scrubland environment.

As part of the revegetation plan, test plots would be established at two representative borrow sites (SB-5 and RV-7) to determine appropriate planting procedures to achieve successful

revegetation. The test plots would be used to assess the response of seed mixes to various soil blends and depths and to confirm the planting methods implemented would successfully support native vegetation capable of self-regeneration without continued dependence on irrigation, soil amendments, or fertilizer. A qualified biologist who has experience with the desired vegetation communities in this ecoregion would ensure both test plot and subsequent revegetation efforts at each borrow site are sufficiently successful to achieve compliance with the revegetation objectives and performance standards required under SMARA.

The following typical sequence of proposed revegetation activities would be undertaken, as feasible:

- Re-contouring of planting areas, if necessary;
- Control of invasive weeds;
- Placement of topsoil and subsoil, if feasible;
- Installation of temporary irrigation systems, if feasible;
- Installation of erosion control devices, if necessary;
- Planting and seeding;
- Maintenance and monitoring; and
- Reporting.

The revegetation plan generally addresses and defines the following components:

- Description of planting zones;
- Timing;
- Soil preparation;
- Weed control;
- Planting and seeding materials and techniques;
- Implementation monitoring;
- Establishment maintenance;
- Horticultural monitoring; and
- Biological monitoring.

The revegetation plan is included as part of the MRP and would be reviewed and approved by the State Board as part of its review of the overall MRP (Appendix A).

In accordance with SMARA, the Project sites would be monitored following revegetation to ensure SMARA performance standards are met and successful revegetation is achieved. Revegetation monitoring is anticipated to require up to an additional three years. Within the three-year monitoring period following revegetation, trend analyses would be performed to assess whether the revegetation plantings are progressing toward a mature reference habitat.

Generally, revegetation success is based on achieving: 1) acceptable survivorship of plants through the first year following hydroseeding; 2) vigorous growth resulting in progressively higher rates of cover throughout the revegetation monitoring period following hydroseeding; and 3) adequate germination of seeded species to control weed growth and erosion. Specific SMARA performance standards for revegetation success are based on achieving vegetation density, cover, and species richness comparable with pre-mining conditions, or with naturally occurring habitats in the area based on appropriate reference sites. Annual monitoring reports would be prepared and would include a summary of the revegetation effort, site conditions, issues encountered, evaluation of the data collected and success achieved, and recommendations for meeting the performance criteria. Reports would be submitted to the State Board for review annually during the monitoring period. Once final reclamation and revegetation is complete, and the appropriate SMARA success criteria have been met, Metropolitan would prepare a Completion Report. The Completion Report would be submitted to and reviewed by the State Board, which would conduct a final inspection to determine if reclamation of each borrow site has been achieved.

1.8.1 Seed Mixes

The proposed seed mix shown in Table 1.8-1 would be applied to all revegetation areas. It is noted, if determined appropriate by the monitoring biologist, this seed mix may be revised to ensure successful revegetation in accordance with SMARA performance standards and specific site environmental conditions.

Table 1.8-1. Proposed Revegetation Seed Mix¹

Common Name	Scientific Name	Seeding Rate (pounds/acre) ²	
		Minimum	Maximum
SB-1 through SB-7 and RV-1 through RV-4			
Brittlebush ³	<i>Encelia farinosa</i>	1.0	3.0
Burrobush ³	<i>Ambrosia dumosa</i>	1.0	3.0
California buckwheat	<i>Eriogonum fasciculatum</i>	1.0	3.0
Cheese-brush	<i>Ambrosia salsola</i>	1.0	3.0
Creosote bush ³	<i>Larrea tridentata</i>	3.0	5.0
Desert needle grass	<i>Stipa speciosa</i>	1.0	3.0
Indian rice grass	<i>Stipa hymenoides</i>	1.0	3.0
Nevada ephedra	<i>Ephedra nevadensis</i>	1.0	3.0
Shadscale	<i>Atriplex confertifolia</i>	1.0	3.0
Total:		5.0	11.0
RV-5 through RV-7 ⁴			
Creosote bush ³	<i>Larrea tridentata</i>	3.0	5.0
Blue paloverde woodland	<i>Parkinsonia florida</i>	1.0	3.0
Sweetbush scrub	<i>Bebbia juncea</i>	1.0	3.0
Total:		5.0	11.0
Alternative Species ⁵			
Beavertail cactus	<i>Opuntia basilaris</i>	1.0	3.0
Blackbrush	<i>Coleogyne ramosissima</i>	1.0	3.0
Boxthorn	<i>Lycium andersonii</i> or <i>L. cooperi</i>	1.0	3.0
Desert trumpet	<i>Eriogonum inflatum</i>	1.0	3.0
Mojave yucca	<i>Yucca schidigera</i>	1.0	3.0

Table 1.8-1. Proposed Revegetation Seed Mix¹

Common Name	Scientific Name	Seeding Rate (pounds/acre) ²	
		Minimum	Maximum
	SB-1 through SB-7 and RV-1 through RV-4		
Silver cholla cactus	<i>Cylindropuntia echinocarpa</i>	1.0	3.0
Spiny hopsage	<i>Grayia spinosa</i>	1.0	3.0

Notes:

- 1) The seed mixes are based on the existing plant communities within and around the Project sites, which are described generally as "creosote bush scrub" and "disturbed." (Appendix C)
- 2) Seed rate application estimates (pounds/acre) based on those from a nearby existing/approved reclamation plan/mine site (Webber & Webber Mining Consultants 2013).
- 3) Range shown represents minimum and maximum seeding rate (pounds/acre) that should be utilized during hydroseeding.
- 4) The seed mix for RV-5, RV-6 and RV-7 is based on Biological Resources Assessment Report and related vegetation surveys conducted at the nearby Eagle Mountain Pumping Plant (Psomas 2018).
- 5) Alternative species are included in the event that the primary proposed species are not available from a seed supplier.

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 the level of significance with the mitigation measures included herein.

The MRP accounts for extraction of material for up to the next 100 years at the 14 active borrow sites, with material depletion at these locations conservatively anticipated to occur by 2122, at which time reclamation would commence. This analysis utilizes existing environmental

conditions as the baseline and evaluates environmental impacts at a project level. However, Metropolitan, as the CEQA Lead Agency, also anticipates future conditions when Project activities are proposed to occur pursuant to CEQA Guidelines Section 15125(a)(1). In the interim time period between potential Project approval and actual implementation of reclamation activities at the Project sites, environmental conditions, especially with regard to biological resources and drainage features, are likely to change from their present conditions due to both natural processes and current and future mining activities. Therefore, because environmental baseline conditions as they would exist in the future (i.e., in 2122) are not known, the environmental impacts analysis of these Project sites in the IS-MND has been prepared at a programmatic level using the best presently available data. As a result, this IS-MND has been prepared as a hybrid program/project-level IS-MND.

Consistent with the requirements of Section 15168 of the CEQA Guidelines for a program EIR, a program IS-MND is one that is prepared for a series of actions that can be characterized as one large project and are related either (1) geographically; (2) as logical parts in a chain of contemplated actions; (3) in connection with issuance of rules, regulations, plans, or other general criteria to govern the conduct of a continuing program; or (4) as individual activities carried out under the same authorizing statutory or regulatory authority and having generally similar environmental effects that can be mitigated in similar ways. Specifically, the proposed Project involves reclamation activities at a series of individual Project sites in the same geographic area (i.e., Metropolitan fee property in Riverside and San Bernardino counties) carried out under the same authorizing statutory authority of SMARA with generally similar environmental effects across all sites. A program IS-MND has the same requirements as a project-level IS-MND, focusing primarily on the changes in the environment that would result from proposed Project activities included in the program during all phases of the program, including planning, construction, and operation (CEQA Guidelines Section 15063[a][1]). However, a program IS-MND is typically more conceptual and may contain a more general discussion of Project impacts and mitigation measures than a project-level IS-MND.

If the programmatic analysis addresses the proposed Project's effects specifically and comprehensively, many subsequent activities could be found to be within the scope of this IS-MND, and additional environmental documents may not be required pursuant to CEQA Guidelines Section 15162 and 15164. When a Lead Agency relies on a program IS-MND for a subsequent activity, it must incorporate applicable mitigation measures developed in the program IS-MND into the subsequent activities, consistent with the requirements for program EIRs in CEQA Guidelines Section 15168(c)(3). If a subsequent activity would have effects not identified in the program IS-MND due to substantial changes in the proposed Project, substantial changes in the circumstances, or new information of substantial importance, the CEQA Lead Agency must prepare a subsequent IS-MND or subsequent EIR, depending on the level of impact. In this case, the program IS-MND still serves a valuable purpose as the first-tier environmental analysis. However, if only minor changes or additions are necessary and do not trigger the requirements for a subsequent IS-MND pursuant to CEQA Guidelines Section 15162, then an addendum to the IS-MND may be prepared in accordance with the requirements of CEQA Guidelines Section 15164.

The analysis in this IS-MND uses programmatic-level thresholds rather than project-level thresholds for the 14 active sites. Prior to implementation of reclamation activities at each active Project site, proposed Project activities and the environmental baseline condition existing at each

Project site at the time of reclamation will be examined in light of this IS-MND to determine what, if any, additional CEQA documentation needs to be prepared.

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 resource areas as identified on the CEQA Environmental Checklist Form in Appendix G of the CEQA Guidelines (as updated in December 2018). For each resource 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. An economic or social change by itself shall not be considered a significant effect on the environment” but “may be considered in determining whether the physical change is significant.”

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

2.3 Initial Study and Environmental Checklist Form

- a) Project Title: Colorado River Aqueduct Master Reclamation Plan for San Bernardino and Riverside Counties (proposed Project)
- b) Lead Agency Name and Address: The Metropolitan Water District of Southern California
700 North Alameda Street
Los Angeles, CA 90012
- c) Contact Person and Phone Number: Michelle Morrison, Environmental Planning Section
The Metropolitan Water District of Southern California
(213) 217-7906
- d) Project Location: The proposed Project includes a total of 20 borrow sites along the Colorado River Aqueduct right-of-way with ten borrow sites located in unincorporated San Bernardino County and ten borrow sites in unincorporated Riverside County. Figure 1.1-1 in Section 1.1 (Introduction) provides an overview of the Project Area in San Bernardino County, and Figure 1.1-2 in Section 1.1 (Introduction) provides an overview of the Project Area in Riverside County.
- e) Project Sponsor's Name and Address: The Metropolitan Water District of Southern California
700 North Alameda Street
Los Angeles, CA 90012
- f) General Plan Designation: All of the Project sites in San Bernardino County currently have a General Plan land use designation of RLM (Resource/Land Management). All of the Project sites in Riverside County currently have a General Plan land use designation of Open Space-Rural (OS-RUR). The land use designations of each of the Project sites are detailed in Table 1.5-2 in Section 1.5 (Project Location and Land Use).
- g) Zoning: All of the Project sites in San Bernardino County currently have a County zoning designation of RLM (Resource/Land Management). The majority of the Project sites in Riverside County currently have a County

- zoning designation of N-A (Non-Area Plan) with the exception of RV-5 and RV-I-3. RV-5 has a zoning designation of M-R-A (Mineral Resources & Related Manufacturing), and RV-I-3 has a zoning designation of W-2-10 (Controlled Development Areas). The zoning designations of each of the Project sites are detailed in Table 1.5-2 in Section 1.5 (Project Location and Land Use).
- h) Description of Project: Refer to Section 1 (Project Description).
- i) Surrounding Land Uses and Setting: Section 1.6 (Description of Existing Conditions and Proposed Reclamation Activities within the Project Area) describes the surrounding land uses and setting of the proposed Project.
- j) Other Agencies Whose Approval May be Required: State of California Mining and Geology Board
- 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? Yes, Metropolitan has conducted consultation pursuant to PRC Section 21080.3.1 and has made an impact determination. See Section 3.18 (Tribal Cultural Resources).

2.4 Environmental Factors Potentially Affected

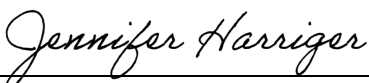
The environmental factors checked below would be potentially affected by the proposed Project, requiring implementation of mitigation as indicated by the checklist on the following pages that is “Less Than Significant With Mitigation Incorporated.”

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

2.5 Determination

On the basis of this initial evaluation:

- ☐ I find that the proposed Project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
- ☒ I find that although the proposed Project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the Project have been made by or agreed to by the Project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
- ☐ I find that the proposed Project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
- ☐ I find that the proposed Project may have a “potentially significant impact” or “potentially significant unless mitigated” impact on the environment, but at least one effect (1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and (2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.
- ☐ I find that although the proposed Project could have a significant effect on the environment, because 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

Section Manager, Environmental Planning Section

11-8-2022

Date

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. The proposed Project consists of the reclamation of 14 borrow sites located in San Bernardino and Riverside counties. Metropolitan initially identified 20 borrow site reclamation locations where surface mining activities either actively occur or had occurred in the past (ten in San Bernardino County and ten in Riverside County). An analysis of potential environmental impacts from reclamation activities was conducted for all 20 borrow site locations; however, six of the 20 borrow sites are inactive and have already been passively reclaimed and therefore are not subject to SMARA and SMARA reclamation requirements (SMARA; PRC Sections 2710-2796). In an effort to provide a comprehensive environmental review, all 20 borrow site locations are analyzed within this document even though only 14 sites are active and will be subject to reclamation.

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?	☐	☐	☐	☒
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway?	☐	☐	☐	☒
c) In non-urbanized areas, substantially degrade the existing visual character or quality of public 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?	☐	☐	☐	☒
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☐	☒

Significance criteria established by CEQA Guidelines, Appendix G.

Discussion. *Would the Project:*

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

No Impact. No, the 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 San Bernardino County Policy Plan states that regionally significant scenic vistas and natural features include prominent hillsides, ridgelines, dominant landforms, and reservoirs (County of San Bernardino 2020b). According to the Riverside County General Plan, Riverside County's natural visual resources include low-lying valleys, ridgelines, mountain ranges, rock formations, rivers, and lakes (County of Riverside 2018). In the Project Area, scenic vistas primarily consist of views of mountain ranges and ridgelines.

The Project Area is located in a remote and isolated area consisting of desert landscape and is obscured from public viewing points by the CRA access roads and v-dike berms that protect the aqueduct within the Metropolitan ROW. The Project Area is located on Metropolitan fee property and cannot be accessed by the general public via a public road. The Project Area is isolated in nature, and reclamation activities would not be visible from nearby public locations. Thus, the proposed Project would not result in substantial adverse effects on a scenic vista, and 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. No, the Project would not substantially damage scenic resources within a State scenic highway. According to the California Department of Transportation (Caltrans), there are no designated State scenic highways within 30 miles of the Project Area, but SR-62 is an eligible State scenic highway (Caltrans 2021). However, the Project Area is obscured from public views from SR-62 by the CRA access roads and v-dike berms that protect the aqueduct within the Metropolitan ROW. Therefore, the Project would not damage scenic resources within view of a State scenic highway because the Project Area is not visible from SR-62, and there would be no impact to scenic resources within a State scenic highway.

- c. In non-urbanized areas, substantially degrade the existing visual character or quality of public 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. No, the Project would not substantially degrade the existing visual character or quality of public views of the Project Area and its surroundings. The Project is located in a non-urbanized area and can be generally characterized as undeveloped desert land, comprised of low-lying desert foothills and alluvial wash basins. Due to the isolated nature of the Project Area, reclamation activities would not be visible from nearby public locations. Furthermore, upon completion of reclamation activities, the sites would function as revegetated open space, which would improve the visual quality of the Project Area as compared to existing conditions by restoring the Project sites to a more natural, less disturbed state consistent with the surrounding environment. Therefore, the Project would not degrade the existing visual character or quality of public views of the Project Area and their 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?*

No Impact. No, the proposed Project would not create new sources of substantial light or glare which would adversely affect day or nighttime views in the area. The proposed Project would only involve periodic daytime work during reclamation and monitoring activities, and no new structures or equipment would be permanently installed at any Project site. No new sources of light or glare are proposed; therefore, no impact would occur.

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?	☐	☐	☐	☒
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	☒
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

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. No, the proposed Project would not convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to non-agricultural use. The Project Area is located in an area surrounded by desert landscape within Metropolitan fee property. No Prime Farmland, Unique Farmland, or Farmland of Statewide Importance are mapped within the Project Area (California Department of Conservation 2016). As such, no impact to Prime Farmland, Unique Farmland, or Farmland of Statewide Importance would occur as a result of the proposed Project.

- b. *Conflict with existing zoning for agricultural use, or a Williamson Act contract?*

No Impact. No, the proposed Project would not conflict with existing zoning for agricultural use, or a Williamson Act contract. The Project Area is located in areas surrounded by desert landscape within Metropolitan fee property. The Project Area is neither zoned for agricultural use nor under a

Williamson Act contract, and no zoning changes are proposed (County of San Bernardino 2020a; County of Riverside 2021). No impact would occur.

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

No Impact. No, the proposed Project would not conflict with existing zoning for, or cause rezoning of, forest land, timberland, or timberland zoned as Timberland Production. The Project Area is located in areas surrounded by desert landscape within Metropolitan fee property. The Project Area is not zoned for forest land or timberland, and no zoning changes are proposed (County of San Bernardino 2020a; County of Riverside 2021). Therefore, no impact 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. No, the proposed Project would not result in the loss of forest land or conversion of forest land to non-forest use. The Project Area is located in an area surrounded by desert landscape within Metropolitan fee-owned property. No forest land exists within or adjacent to the Project Area. Therefore, no impact 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. No, the proposed Project does not involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use. The Project Area is located in an area surrounded by desert landscape within Metropolitan fee-owned property. The Project Area and its surroundings do not contain farmland or forest land (California Department of Conservation 2016); therefore, the proposed Project would not result in the conversion or loss of agriculture or forest land. No impact 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?	☐	☐	☐	☒
b) Result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is non-attainment under an applicable Federal or State ambient air quality standard?	☐	☐	☒	☐
c) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	☐	☐	☐	☒

Significance criteria established by CEQA Guidelines, Appendix G.

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

The Project Area is located in two air basins – the Mojave Desert Air Basin (MDAB) and the Salton Sea Air Basin (SSAB). The MDAB is within the jurisdictional boundaries of the South Coast Air Quality Management District (SCAQMD) and the Mojave Desert Air Quality Management District (MDAQMD). The SSAB is within the jurisdictional boundaries of the SCAQMD and the Imperial County Air Pollution Control District. The characteristics of these two air basins, including their boundaries and respective air districts, as well as a description of the Project sites within each air basin and air district, are summarized in Table 3.3-1. Figures 3.3-1 and 3.3-2 show the boundaries of each air basin and air district in relation to the Project sites.

Table 3.3-1. Air Basin Characteristics

Air Basin	Location of Air Basin	Air Districts with Jurisdiction over Air Basin	Project Sites within Air Basin/Air District Boundaries
Mojave Desert Air Basin (MDAB)	Desert portions of Los Angeles, San Bernardino, Riverside, and Kern Counties	Mojave Desert Air Quality Management District	SB-1 through SB-7, SB-I-1 through SB-I-3, RV-1, RV-2, RV-I-1
		South Coast Air Quality Management District	RV-5, RV-6, RV-I-2,
Salton Sea Air Basin (SSAB)	Imperial County and most of the low desert areas of central Riverside County	South Coast Air Quality Management District	RV-7, RV-I-3
		Imperial County Air Pollution Control District	None

The federal and state Clean Air Acts mandate the control and reduction of certain air pollutants. Under these laws, the United States Environmental Protection Agency (USEPA) and the California Air Resources Board (CARB) have established the National Ambient Air Quality Standards (NAAQS) and the California Ambient Air Quality Standards (CAAQS) for “criteria pollutants” and other pollutants, which are summarized in Table 3.3-2. Some pollutants are

Figure 3.3-1. Air Basin and Air District Boundaries in Relation to Project Sites SB-1 through SB-7, SB-I-1, SB-I-2, RV-1, RV-2, and RV-I-1

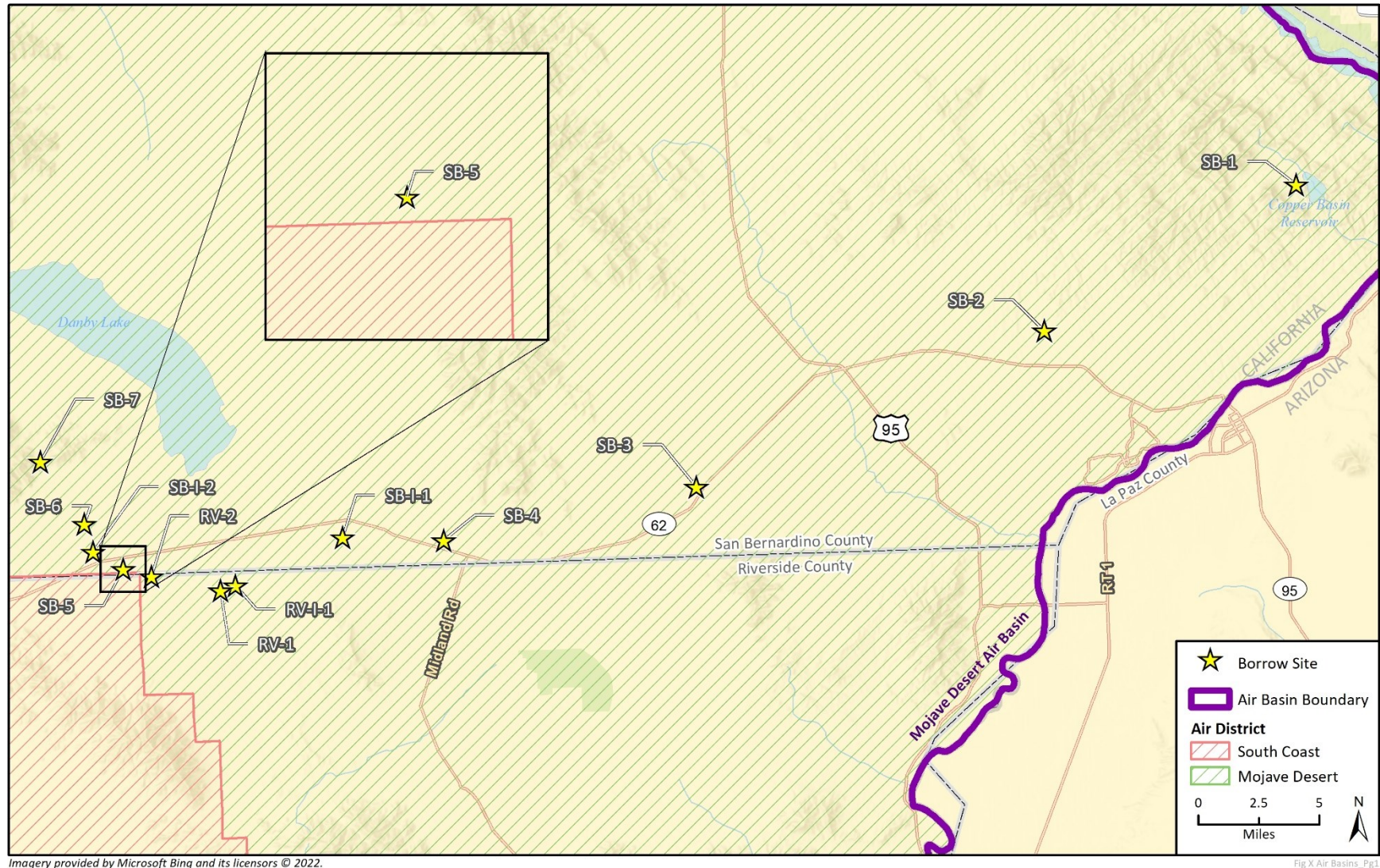
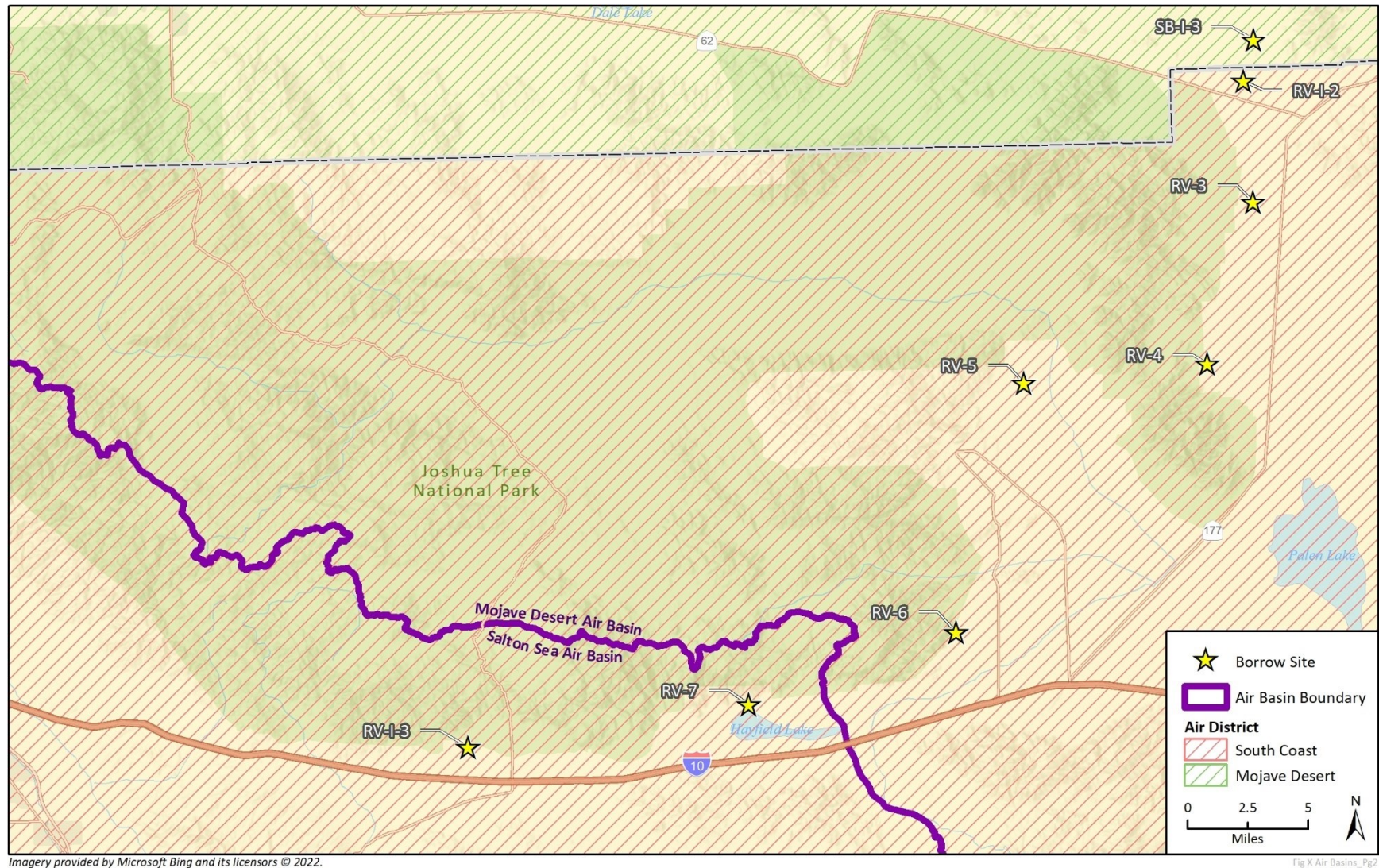


Figure 3.3-2. Air Basin and Air District Boundaries in Relation to Project Sites Project Sites SB-I-3, RV-3 through RV-7, RV-I-2, and RV-I-3



emitted directly from a source (e.g., vehicle tailpipe, an exhaust stack of a factory, etc.) into the atmosphere, including carbon monoxide, volatile organic compounds (VOC)/reactive organic gases (ROG),¹ nitrogen oxides, particulate matter with diameters of 10 microns or less (PM₁₀) and 2.5 microns or less (PM_{2.5}), sulfur dioxide, and lead. Other pollutants are created indirectly through chemical reactions in the atmosphere, such as ozone, which is created by atmospheric chemical and photochemical reactions primarily between VOC and nitrogen oxides. Secondary pollutants include oxidants, ozone, and sulfate and nitrate particulates (smog). The local air quality management agencies, SCAQMD and MDAQMD, are required to monitor air pollutant levels to ensure that the NAAQS and CAAQS are met and, if they are not met, to develop strategies to meet the standards. Depending on whether the standards are met or exceeded, the MDAB and the SSAB are classified as being in “attainment” or “nonattainment.” The attainment status of the MDAB and SSAB for each pollutant regulated by the NAAQS and CAAQS is summarized in Table 3.3-2.

Table 3.3-2. Air Quality Standards and Air Basin Attainment Status

Pollutant	Federal Standard (NAAQS)	California Standard (CAAQS)	SSAB Attainment Status	MDAB Attainment Status
Ozone	0.070 ppm (8-hr avg)	0.09 ppm (1-hr avg) 0.070 ppm (8-hr avg)	N (federal and state)	N (federal and state) ¹
Carbon Monoxide	35.0 ppm (1-hr avg) 9.0 ppm (8-hr avg)	20.0 ppm (1-hr avg) 9.0 ppm (8-hr avg)	U (federal) A (state)	U (federal) U/A (state)
Nitrogen Dioxide	0.100 ppm (1-hr avg) 0.053 ppm (annual avg)	0.18 ppm (1-hr avg) 0.030 ppm (annual avg)	U (federal) A (state)	U (federal) A (state)
Sulfur Dioxide	0.075 ppm (1-hr avg) 0.5 ppm (3-hr avg) 0.14 ppm (24-hr avg) 0.030 ppm (annual avg)	0.25 ppm (1-hr avg) 0.04 ppm (24-hr avg)	U (federal) A (state)	U (federal) A (state)
Lead	0.15 µg/m ³ (rolling 3-month avg) 1.5 µg/m ³ (calendar quarter)	1.5 µg/m ³ (30-day avg)	U (federal) A (state)	U (federal) A (state)
Particulate Matter (PM ₁₀)	150 µg/m ³ (24-hr avg)	50 µg/m ³ (24-hr avg) 20 µg/m ³ (annual avg)	N (federal and state)	N (federal and state)
Particulate Matter (PM _{2.5})	35 µg/m ³ (24-hr avg) 12 µg/m ³ (annual avg)	12 µg/m ³ (annual avg)	N (federal and state) ^{2, 3}	U (federal) N (state) ⁴

¹ CARB defines VOC and ROG similarly as, “any compound of carbon excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate,” with the exception that VOC are compounds that participate in atmospheric photochemical reactions. For the purposes of this analysis, ROG and VOC are considered comparable in terms of mass emissions, and the term VOC is used in this IS-MND.

Table 3.3-2. Air Quality Standards and Air Basin Attainment Status

Pollutant	Federal Standard (NAAQS)	California Standard (CAAQS)	SSAB Attainment Status	MDAB Attainment Status
Visibility-Reducing Particles	No Federal Standards	Extinction coefficient of 0.23 per kilometer – visibility of 10 miles or more (0.07 - 30 miles or more for Lake Tahoe) due to particles when relative humidity is less than 70 percent. Method: Beta Attenuation and Transmittance through Filter Tape (8-hr avg)	U (state)	U (state)
Sulfates	No Federal Standards	25 µg/m ³ (24-hr avg)	A (state)	A (state)
Hydrogen Sulfide	No Federal Standards	0.03 ppm (1-hr avg)	U (state)	N (state) ⁵
Vinyl Chloride	No Federal Standards	0.01 ppm (24-hr avg)	U (state)	U (state)

Notes: NAAQS (National Ambient Air Quality Standard), CAAQS (California Ambient Air Quality Standard), MDAB (Mojave Desert Air Basin), SSAB (Salton Sea Air Basin), ppm (parts per million), hr (hour), avg (average), µg/m³ (micrograms per cubic meter), N (nonattainment), A (attainment), U (unclassified).

Source: CARB 2016 and 2019a through 2019j; USEPA 2021a through 2021g

¹ Only the southwest corner of the desert portion of San Bernardino County is designated nonattainment for the eight-hour ozone NAAQS.

² Only the Imperial County portion of the SSAB is designated nonattainment for the PM_{2.5} NAAQS.

³ Only the City of Calexico in Imperial County is designated nonattainment for the PM_{2.5} CAAQS.

⁴ Only the San Bernardino County portion of the MDAB is designated nonattainment for the PM_{2.5} CAAQS.

⁵ Only the Searles Valley, located in the northwest corner of San Bernardino County, is designated nonattainment for the hydrogen sulfide CAAQS.

The SCAQMD (in conjunction with the Southern California Association of Governments) and the MDAQMD have developed air quality management plans (AQMPs) to meet the requirements of the federal Clean Air Act. The latest iterations of these plans are the SCAQMD (2017) *Final 2016 Air Quality Management Plan* and the MDAQMD (2017) *Federal 75 ppb (parts per billion) Ozone Attainment Plan (Western Mojave Desert Nonattainment Area)*. These plans address various federal non-attainment and attainment/maintenance planning requirements, are incorporated into the State Implementation Plan by the CARB, and are approved or disapproved by the USEPA.

AIR POLLUTANT EMISSION THRESHOLDS

All sites are being evaluated under the current air quality standards and air pollutant emission thresholds for analysis purposes.

SCAQMD

The SCAQMD has recommended quantitative regional significance thresholds for temporary Project construction activities and long-term Project operation within its jurisdictional boundaries, as shown in Table 3.3-3.

Table 3.3-3. SCAQMD Regional Significance Thresholds

	VOC	NO _x	CO	SO _x	PM ₁₀	PM _{2.5}
Construction Thresholds (pounds per day)	75	100	550	150	150	55
Operational Thresholds (pounds per day)	55	55	550	150	150	55

Notes: SCAQMD (South Coast Air Quality Management District), VOC (volatile organic compounds), NO_x (nitrogen oxides), CO (carbon monoxide), SO_x (sulfur oxides), PM₁₀ (particulate matter 10 micrometers or less in diameter), PM_{2.5} (particulate matter 2.5 micrometers or less in diameter).

Source: SCAQMD 2019

MDAQMD

The MDAQMD has also recommended quantitative significance thresholds for temporary construction activities and long-term operation within its jurisdictional boundaries, as shown in Table 3.3-4.

Table 3.3-4. MDAQMD Significance Thresholds

	VOC	NO _x	CO	SO _x	PM ₁₀	PM _{2.5}
Construction Thresholds (pounds per day)	137	137	548	137	82	65
Construction Thresholds (tons per year)	25	25	100	25	15	12
Operational Thresholds (pounds per day)	137	137	548	137	82	65
Operational Thresholds (tons per year)	25	25	100	25	15	12

Notes: MDAQMD (Mojave Desert Air Quality Management District), VOC (volatile organic compounds), NO_x (nitrogen oxides), CO (carbon monoxide), SO_x (sulfur oxides), PM₁₀ (particulate matter 10 micrometers or less in diameter), PM_{2.5} (particulate matter 2.5 micrometers or less in diameter).

Source: MDAQMD 2016

METHODOLOGY

Air pollutant emissions associated with proposed reclamation construction activities (i.e., regrading slopes, backfilling, and revegetation) and restoration monitoring activities (i.e., periodic site visits by a monitoring biologist) were estimated using the California Emissions Estimator Model (CalEEMod) version 2020.4.0. CalEEMod uses Project-specific information, including the Project's land uses and location, to estimate a Project's emissions. The Project's emissions were estimated separately for the proposed reclamation construction activities and the proposed restoration monitoring activities because these activities would not occur simultaneously and would involve substantially different emissions characteristics (e.g., emission sources, frequency and duration of emissions, temporary versus periodically recurring). Air pollutant and greenhouse gas emissions modeling is attached as Appendix D.

Reclamation Construction Activities

Proposed reclamation construction activities were modeled to occur in year 2022. This approach is considered conservative because activities occurring in future years would be expected to generate fewer emissions due to increasingly stringent fuel efficiency standards, such as future iterations of the federal construction equipment emissions standards, Corporate Average Fuel Economy standards, and cleaner mobile equipment engine models that would phase in over time.

To provide a conservative estimate of Project impacts, air pollutant emissions generated by reclamation construction activities for the largest single Project site (RV-1) were modeled and compared to the most stringent air emission thresholds recommended by SCAQMD and MDAQMD for each pollutant. Only one Project site is anticipated to be reclaimed at a time; therefore, reclamation construction activities would be consecutive and would not likely occur simultaneously. To provide flexibility, emissions generated by reclamation construction activities at RV-1 were multiplied to determine the maximum number of Project sites that could undergo reclamation construction activities simultaneously without exceeding the thresholds. The results of this analysis are provided under checklist item (b) below.

Emissions modeled for the proposed reclamation construction activities at RV-1 include emissions generated by heavy equipment used on site and emissions generated by vehicle trips, such as worker, water truck, and dump truck trips. The schedule, list of heavy equipment, and number of vehicle trips used in CalEEMod were based on information summarized previously in Section 1 (Project Description). As stated therein, it was assumed each Project site would require a month to reclaim with workers on site four days each week.² Assumptions for the type and number of equipment and support vehicles to be used during reclamation of each Project site is listed in Table 3.3-5. It was also assumed three Metropolitan employees would be on site during reclamation construction activities and would travel from the Iron Mountain Pumping Plant to each Project site (a one-way trip distance of approximately 15 miles for RV-1). In addition, it was assumed one water truck and one dump truck would travel to and from RV-1 each day with a one-way trip distance of approximately 6.9 miles for the water truck and a one-way trip distance of approximately 20 miles for the dump truck, based on CalEEMod default trip distances for the MDAQMD region.

Table 3.3-5. Representative Off-Road Vehicle List – Reclamation Construction Activities

Equipment	Make and Model	Quantity	Average Horsepower	Average Hours/Day
Water Truck	Freightliner – 4,000-gallon	1	300	4
Dozer	Caterpillar D-6	1	215	8
Excavator	Caterpillar 330	1	273	8
Loaders	Caterpillar 966	1	276	8
Grader	Caterpillar 140M, 160M, or 14M Motor	1	187	4
Dump Truck	Freightliner 114SD	1	16	4
Hydroseed Spreader	Freightliner – 1,000-gallon	1	172	8

Restoration Monitoring Activities

Restoration monitoring activities would occur following the completion of reclamation construction activities at each Project site. Proposed restoration monitoring activities were modeled to occur in year 2022, which is a conservative approach as explained above in the prior subsection. To provide a conservative estimate of Project impacts, air pollutant emissions

² CalEEMod does not include an option for a four-day work week; therefore, the modeling conservatively assumes a five-day work week.

generated by restoration monitoring activities at the furthest individual Project site from the Iron Mountain Pumping Plant (SB-1) were modeled and compared to the most stringent air emission thresholds recommended by SCAQMD and MDAQMD for each pollutant.

Modeling for the proposed restoration monitoring activities at SB-1 include emissions generated by periodic vehicle trips by the biologist to each Project site. To provide a conservative estimate of Project impacts, it was assumed the one-way trip distance for each biologist visit would be approximately 77.6 miles, which is the distance between the Iron Mountain Pumping Plant and SB-1. As stated in Section 1 (Project Description), it was assumed a monitoring biologist would visit each Project site four times per year for up to three years following completion of reclamation construction activities. It was also assumed staff vehicle trips would be made in a light-duty truck with a gross vehicle weight rating of less than 6,000 pounds and an equivalent test weight between 3,750 and 5,750 pounds (e.g., a small pickup truck similar to a Toyota Tacoma).

Only one Project site is anticipated to be reclaimed at a time; therefore, restoration monitoring activities would be consecutive and would not likely occur simultaneously. To provide flexibility, the emissions generated by restoration monitoring activities at SB-1 were multiplied to determine the maximum number of Project sites that could undergo restoration monitoring activities simultaneously without exceeding the thresholds. The results of this analysis are provided under checklist item (b) below.

Discussion. Would the Project:

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

No Impact. No, the proposed Project would not conflict with or obstruct implementation of the applicable air quality plan. The project would be consistent with the AQMP if it complies with all applicable air district rules and regulations, complies with all proposed control measures not yet adopted from the AQMP, and is consistent with the growth forecasts used in development of the AQMP (MDAQMD 2016). The Project is subject to the SCAQMD and the MDAQMD AQMPs.

As the Project sites undergo proposed reclamation, on-site activities would involve removing deleterious materials, grading and final slope contouring, installing stormwater BMPs, revegetating by hydroseeding, and monitoring. The Project does not include permanent stationary emissions sources. Therefore, no SCAQMD or MDAQMD regulations pertaining to permanent emission sources apply to the Project. With respect to regulations that apply to temporary emission sources, such as SCAQMD Rule 403 (Fugitive Dust) and MDAQMD Rule 403 (Fugitive Dust), the proposed Project would comply with those applicable rules and regulations. No new facilities or structures are proposed, and the proposed Project would not increase water supply to the area or otherwise directly or indirectly induce population growth. Therefore, the proposed Project would not conflict with or obstruct the applicable air quality plan, and no impact would occur.

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. 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.

Proposed Reclamation Construction Activities – Daily Emissions

Proposed reclamation construction activities would involve removing deleterious materials and debris, recontouring Project site slopes and floors, installing stormwater BMPs to control erosion, and revegetating reclaimed areas with a native plant hydroseed mix. Air pollutant emissions would be generated by heavy equipment used on site and by vehicle trips, such as worker, water truck, and dump truck trips for a period of one month at each Project site. Emissions modeling assumptions are outlined above under *Methodology*. Both the SCAQMD and MDAQMD recommend the use of maximum daily air pollutant emission thresholds to evaluate Project impacts (Tables 3.3-3 and 3.3-4). Table 3.3-6 summarizes maximum daily emissions for proposed reclamation construction activities at the largest Project site (RV-1) as compared to the most stringent daily air emission thresholds recommended by the SCAQMD and MDAQMD for construction activities. As shown therein, maximum daily emissions generated by reclamation construction activities at the largest individual Project site (RV-1) would not exceed the most stringent air emission thresholds. Reclamation construction activities at the remaining Project sites would generate similar or fewer daily air pollutant emissions because the Project sites are smaller in size than RV-1; therefore, air pollutant emissions generated at these Project sites would also not exceed the significance thresholds.

As discussed previously, only one Project site is anticipated to be reclaimed at a given time. However, maximum daily emissions would not exceed the most stringent thresholds even if reclamation construction activities were conservatively assumed to occurred at up to five Project sites simultaneously.³ Therefore, maximum daily emissions associated with reclamation construction activities would not result in a cumulatively considerable net increase of any criteria pollutant. Impacts would be less than significant.

Table 3.3-6. Representative Maximum Daily Emissions for Proposed Reclamation Construction Activities (lbs/day) – RV-1 (Largest Project Site)

	VOC	NO _x	CO	SO _x	PM ₁₀	PM _{2.5}
RV-1	2.1	19.6	13.6	< 0.1	4.0	2.4
Most Stringent SCAQMD/MDAQMD Significance Thresholds ^{1,2}	75	100	548	137	82	55
<i>Significant (Exceeds Thresholds)?</i>	NO	NO	NO	NO	NO	NO

Notes: VOC (volatile organic compounds), NO_x (nitrogen oxides), CO (carbon monoxide), SO_x (sulfur oxides), PM₁₀ (particulate matter 10 micrometers or less in diameter), PM_{2.5} (particulate matter 2.5 micrometers or less in diameter), lbs/day (pounds per day), SCAQMD (South Coast Air Quality Management District), MDAQMD (Mojave Desert Air Quality Management District).

¹ Emissions generated by reclamation construction activities are compared to the most stringent daily SCAQMD/MDAQMD significance thresholds for construction emissions because the nature of reclamation construction activities would be similar to that of construction activities in that they would be temporary and short-term in duration, use heavy equipment, and require grading activities.

² As shown in Tables 3.3-3 and 3.3-4, the most stringent daily construction thresholds recommended by SCAQMD and MDAQMD are the SCAQMD thresholds for VOC, NO_x, and PM_{2.5} and the MDAQMD thresholds for CO, SO_x, and PM₁₀.

Source: Appendix D; SCAQMD 2019; MDAQMD 2016

³ The limiting factor for reclamation construction activities is nitrogen oxides emissions. Simultaneous reclamation construction activities at five Project sites would generate approximately 98 pounds per day of nitrogen oxides (19.6 pounds per day per site), which would be below the SCAQMD regional significance threshold of 100 pounds per day.

Proposed Reclamation Construction Activities – MDAQMD Annual Emissions

In addition to daily air pollutant emission thresholds, the MDAQMD recommends the use of annual air pollutant emission thresholds to evaluate Project impacts (Table 3.3-4; the SCAQMD has no such annual air pollutant emission thresholds with which to evaluate project impacts.). Table 3.3-7 summarizes annual emissions for Project reclamation construction activities (i.e., regrading slopes, backfilling, and revegetation) at the largest Project site (RV-1) as compared the MDAQMD thresholds. As shown therein, annual emissions for reclamation construction activities at RV-1 would not exceed the MDAQMD significance thresholds for annual air pollutant emissions. Reclamation construction activities at the remaining Project sites would generate similar or fewer air pollutant emissions because these Project sites are smaller in size than RV-1; therefore, annual air pollutant emissions generated at these Project sites would also not exceed the annual significance thresholds. Furthermore, while it is anticipated that only one Project site will be reclaimed at a time, all Project sites could undergo reclamation construction activities in the same year, and annual air pollutant emissions would not exceed the MDAQMD significance thresholds.⁴ ⁵ Therefore, annual emissions associated with reclamation construction activities would not result in a cumulatively considerable net increase of any criteria pollutant, and impacts would be less than significant.

Table 3.3-7. Representative Annual Emissions for Reclamation Construction Activities (tons/year) – RV-1 (Largest Project Site)

	VOC	NO _x	CO	SO _x	PM ₁₀	PM _{2.5}
RV-1	< 0.1	0.3	0.2	< 0.1	0.1	< 0.1
MDAQMD Significance Thresholds ¹	25	25	100	25	15	12
Significant (Exceeds Thresholds)?	No	No	No	No	No	No

Notes: VOC (volatile organic compounds), NO_x (nitrogen oxides), CO (carbon monoxide), SO_x (sulfur oxides), PM₁₀ (particulate matter 10 micrometers or less in diameter), PM_{2.5} (particulate matter 2.5 micrometers or less in diameter), MDAQMD (Mojave Desert Air Quality Management District).

¹ Emissions generated by reclamation construction activities are compared to MDAQMD annual significance thresholds for construction emissions because the nature of reclamation construction activities would be similar to that of construction activities in that they would be temporary and short-term in duration, use heavy-duty equipment, and require grading activities.

Source: Appendix D; MDAQMD 2016

Proposed Restoration Monitoring Activities – Daily Emissions

Air pollutant emissions associated with the proposed restoration monitoring activities (i.e., periodic site visits by a monitoring biologist) would be generated by quarterly vehicle trips by staff between the Iron Mountain Pumping Plant and each Project site for up to three years after the completion of reclamation construction activities. Air pollutant emissions modeling assumptions are outlined above under *Methodology*. Both the SCAQMD and MDAQMD recommend the use of maximum daily air pollutant emission thresholds to evaluate Project impacts (Tables 3.3-3 and 3.3-4). Table

⁴ Only 13 of the 20 Project sites are located in MDAQMD jurisdiction (see Table 3.3-1 under *Overview of Air Pollution, Air Quality Standards, Attainment Status, and Air Quality Management*). However, because the SCAQMD does not have annual air emission thresholds, air pollutant emissions from reclamation construction activities at all 20 Project sites are compared to the MDAQMD annual air emission thresholds in this analysis to provide a conservative evaluation of the Project's emissions.

⁵ The evaluation of air pollutant emissions from reclamation construction activities occurring at all 20 Project sites in the same year is very conservative.

3.3-8 summarizes maximum daily emissions for restoration monitoring activities for the individual Project site located the furthest driving distance from Iron Mountain Pumping Plant (i.e., SB-1) because this is the site for which restoration monitoring activities would generate the highest air pollutant emissions. As shown therein, maximum daily emissions for restoration monitoring activities at SB-1 would not exceed the most stringent SCAQMD/MDAQMD significance thresholds. Restoration monitoring activities at the remaining Project sites would generate similar or fewer air pollutant emissions because they are closer in distance to Iron Mountain Pumping Plant than SB-1; therefore, daily air pollutant emissions generated at these Project sites would also not exceed the significance thresholds. Only one Project site is anticipated to be reclaimed at a time. However, up to 17 Project sites could undergo restoration monitoring activities in the same day, and daily air pollutant emissions would not exceed the most stringent thresholds.⁶ As a result, maximum daily emissions associated with restoration monitoring activities would not result in a cumulatively considerable net increase of any criteria pollutant, and impacts would be less than significant.

Table 3.3-8. Maximum Daily Emissions for Restoration Monitoring Activities (lbs/day) – SB-1 (Furthest Driving Distance from Iron Mountain Pumping Plant)

	VOC	NO _x	CO	SO _x	PM ₁₀	PM _{2.5}
SB-1	0.9	3.2	0.5	< 0.1	0.1	< 0.1
Most Stringent Significance Thresholds ^{1,2}	55	55	548	137	82	55
Significant (Exceeds Thresholds)?	NO	NO	NO	NO	NO	NO

Notes: VOC (volatile organic compounds), NO_x (nitrogen oxides), CO (carbon monoxide), SO_x (sulfur oxides), PM₁₀ (particulate matter 10 micrometers or less in diameter), PM_{2.5} (particulate matter 2.5 micrometers or less in diameter), lbs/day (pounds per day), SCAQMD (South Coast Air Quality Management District), MDAQMD (Mojave Desert Air Quality Management District).

¹ Emissions generated by restoration monitoring activities are compared to the most stringent SCAQMD/MDAQMD daily significance thresholds for operational emissions because the nature of restoration monitoring activities would be similar to that of operational activities associated with typical land use development projects (e.g., residential, commercial) in that they would be recurring, would be long-term in duration, and would consist of passenger vehicle trips.

² As shown in Tables 3.3-3 and 3.3-4, the most stringent daily operational thresholds recommended by SCAQMD and MDAQMD are the SCAQMD thresholds for VOC, NO_x, and PM_{2.5} and the MDAQMD thresholds for CO, SO_x, and PM₁₀.

Source: Appendix D; SCAQMD 2019; MDAQMD 2016

Proposed Restoration Monitoring Activities – MDAQMD Annual Emissions

In addition to daily air pollutant emission thresholds, the MDAQMD recommends the use of annual air pollutant emission thresholds to evaluate Project impacts (Table 3.3-4; the SCAQMD has no such annual air pollutant emission thresholds with which to evaluate project impacts). Table 3.3-9 summarizes annual emissions for restoration monitoring activities (i.e., periodic site visits by a monitoring biologist) for the individual Project site located the furthest driving distance from Iron Mountain Pumping Plant (i.e., SB-1) because conservatively this is the site for which restoration monitoring activities would generate the highest air pollutant emissions. As shown therein, annual emissions for restoration monitoring activities at SB-1 would not exceed the MDAQMD annual significance thresholds. Restoration monitoring activities at the remaining Project sites would

⁶ The limiting factor for restoration monitoring activities is nitrogen oxides emissions. Simultaneous reclamation construction activities at 17 Project sites would generate approximately 54 pounds per day of nitrogen oxides (3.2 pounds per day per site), which would be below the SCAQMD regional significance threshold of 55 pounds per day.

generate similar or fewer air pollutant emissions because they are closer in distance to Iron Mountain Pumping Plant than SB-1; therefore, annual air pollutant emissions generated at these Project sites would also not exceed the significance thresholds. Furthermore, even if all 20 Project sites underwent restoration monitoring activities in the same year, annual air pollutant emissions would still not exceed the significance thresholds.^{7, 8} As a result, annual emissions associated with restoration monitoring activities would not result in a cumulatively considerable net increase of any criteria pollutant on an annual basis, and impacts would be less than significant.

Table 3.3-9. Annual Emissions for Restoration Monitoring Activities (tons/year) – SB-1 (Furthest Driving Distance from Iron Mountain Pumping Plant)

	VOC	NO _x	CO	SO _x	PM ₁₀	PM _{2.5}
SB-1	< 0.1	< 0.1	0.3	< 0.1	0.1	< 0.1
MDAQMD Significance Thresholds	25	25	100	25	15	12
Significant (Exceeds Thresholds)?	NO	NO	NO	NO	NO	NO

Notes: VOC (volatile organic compounds), NO_x (nitrogen oxides), CO (carbon monoxide), SO_x (sulfur oxides), PM₁₀ (particulate matter 10 micrometers or less in diameter), PM_{2.5} (particulate matter 2.5 micrometers or less in diameter), MDAQMD (Mojave Desert Air Quality Management District).

¹ Conservatively assumes the maximum trip distance between Iron Mountain Pumping Plant and the furthest Project site (i.e., 77.6 miles).

² Emissions generated by restoration monitoring activities are compared to MDAQMD significance thresholds for operational emissions because the nature of restoration monitoring activities would be similar to that of operational activities associated with typical land use development projects (e.g., residential, commercial) in that they would be recurring, long-term in duration, and consist of passenger vehicle trips.

Source: Appendix D; MDAQMD 2016

Post-Reclamation Uses

After restoration and monitoring are completed, the final end use of the Project sites would be revegetated open space consistent with the surrounding environment. There would be no additional activities or operations that would generate air emissions; therefore, there would be no operational impacts related to criteria air pollutant emissions.

c. Expose sensitive receptors to substantial pollutant concentrations?

Less than Significant Impact. No, the proposed Project would not expose sensitive receptors to substantial pollutant concentrations. Sensitive receptors include schools, playgrounds, childcare centers, long-term health care facilities, rehabilitation centers, convalescent homes, hospitals, retirement homes, and residences. The Project Area is located in desert landscape within Metropolitan fee property. RV-7 is the only Project site located within 0.25 mile of sensitive receptors, which are Metropolitan employee residences at the Julian Hinds Pumping Plant that are leased by Metropolitan employees and located approximately 1,000 feet to the west of RV-7. Although RV-7 is anticipated to be reclaimed between 2027 and 2122, it is being evaluated under the current air quality standards and air pollutant emission thresholds for analysis purposes.

⁷ Only 13 of the 20 Project sites are located in MDAQMD jurisdiction. However, because the SCAQMD does not have annual air emission thresholds, air pollutant emissions from restoration monitoring activities at all 20 Project sites are compared to the MDAQMD annual air emission thresholds in this analysis to provide a conservative evaluation of the Project's emissions.

⁸ The evaluation of air pollutant emissions from restoration monitoring activities occurring at all 20 Project sites in the same year is very conservative.

Carbon Monoxide Hotspots

Traffic-congested roadways and intersections have the potential to generate elevated localized carbon monoxide levels (i.e., carbon monoxide hotspots). In general, carbon monoxide hotspots occur in areas with poor circulation or areas with heavy traffic. RV-7 is located in a largely undeveloped region of Riverside County with low existing levels of traffic. The proposed Project would result in minor increases in vehicle traffic near RV-7 as a result of worker vehicle trips, delivery of heavy-duty equipment and materials, and haul trips during reclamation construction activities (i.e., regrading slopes, backfilling, and revegetation) and infrequent, periodic monitoring visits during restoration monitoring activities. Because RV-7 is not located in an area with poor circulation or heavy traffic and would generate minimal additional traffic, Project-related traffic would not cause or contribute to potential temporary carbon monoxide hotspots. Therefore, the proposed reclamation construction activities would not expose sensitive receptors to substantial concentrations of carbon monoxide, and impacts would be less than significant.

After restoration and monitoring are completed, the final end use of the Project sites would be revegetated open space consistent with the surrounding environment. There would be no additional activities or operations that would generate carbon monoxide emissions; therefore, there would be no operational impacts related to carbon monoxide hotspots.

Toxic Air Contaminants

Toxic air contaminants (TACs) are a diverse group of air pollutants that may cause or contribute to an increase in deaths or serious illness, or that may pose a present or potential hazard to human health. TACs generally consist of four types: organic chemicals, such as benzene, dioxins, toluene, and perchloroethylene; inorganic chemicals such as chlorine and arsenic; fibers such as asbestos; and metals such as mercury, cadmium, chromium, and nickel. The primary TAC emitted by proposed Project reclamation activities would be diesel particulate matter (DPM) generated by heavy equipment and diesel-fueled delivery and dump trucks used during reclamation construction activities (i.e., regrading slopes, backfilling, and revegetation) at RV-7. Substantial TACs would not be emitted during restoration monitoring activities because the monitoring biologist would utilize a gasoline-powered vehicle, which would not emit DPM, to access RV-7 during site visits.

The amount of TACs to which receptors are exposed (a function of concentration and duration of exposure) is the primary factor used to determine health risk (i.e., potential exposure to TAC emission levels that exceed applicable standards). Health-related risks associated with diesel-exhaust emissions are primarily linked to long-term exposure and the associated risk of contracting cancer. The California Office of Environmental Health Hazard Assessment has not identified short-term health effects from DPM.

Reclamation construction activities would be temporary and short-term (i.e., one month) at RV-7 and would not generate emissions in a fixed location for extended periods of time. The nearest sensitive receptors to RV-7 are located approximately 1,000 feet away, and exhaust from mobile equipment dissipates rapidly. Furthermore, the duration of exposure would be short. Current models and methodologies for conducting health risk assessments are associated with longer-term exposure periods of 9, 30, and 70 years, which do not correlate well with the temporary and highly variable nature of reclamation activities. DPM emissions from the one-month period of reclamation activities would represent 0.3 percent of the typical 30-year exposure duration used in health risk assessments; therefore, reclamation activities would not represent the type of long-term TAC emission sources typically subject to health risk assessments. Reclamation activities would

also be subject to and would comply with California regulations limiting the idling of heavy equipment to no more than five minutes, which would further reduce the exposure of the nearest sensitive receptors to temporary and variable DPM emissions. Moreover, reclamation activities would utilize relatively few pieces of diesel-powered mobile equipment (i.e., an excavator, a grader, a hydroseed spreader, a dozer, a backhoe, and a pump). As such, reclamation activities would not expose sensitive receptors to substantial TAC concentrations, and impacts would be less than significant.

After restoration and monitoring are completed, the final end use of the Project sites would be revegetated open space consistent with the surrounding environment. There would be no additional activities or operations that would generate TACs emissions; therefore, there would be no operational impacts related to TAC emissions.

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

No Impact. No, the proposed Project would not result in other emissions adversely affecting a substantial number of people. The Project Area is located in desert landscape within Metropolitan fee property. RV-7 is the only Project site located within 0.25 mile of sensitive receptors, and the closest sensitive receptors to RV-7 are Metropolitan employee residences at the Julian Hinds Pumping Plant that are leased by Metropolitan employees and located approximately 1,000 feet to the west of RV-7. The Project would generate oil and diesel fuel odors from heavy-duty equipment operating at RV-7 during reclamation construction activities (i.e., regrading slopes, backfilling, and revegetation). However, these odors would be localized, limited to the one-month period of reclamation construction activities at RV-7, and would dissipate rapidly with distance. After restoration and monitoring are completed, the final end use of the Project sites would be revegetated open space consistent with the surrounding environment. There would be no additional activities or operations; therefore, there would be no operational impacts related to odors. 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.

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?	☐	☒	☐	☐
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?	☐	☒	☐	☐
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?	☐	☒	☐	☐
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☒	☐
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or 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?	☐	☐	☒	☐

Significance criteria established by CEQA Guidelines, Appendix G.

OVERVIEW OF BIOLOGICAL RESOURCES

Rincon prepared a Biological Resources Assessment report to document existing conditions and to evaluate the potential for impacts to biological resources 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 plant communities, jurisdictional waters and wetlands, wildlife movement, and locally protected resources, such as protected trees. The Biological Resources Assessment is attached as Appendix C.⁹

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);

⁹ The Biological Resources Technical Report prepared in support of this IS-MND utilized a different site numbering convention than that used herein. To facilitate comparison of the information contained in this report with the information contained in this IS-MND, refer to Appendix B for a comparison matrix of the borrow site numbering convention.

- Regional Water Quality Control Board (RWQCB) (waters of the State);
- United States Fish and Wildlife Service (USFWS) (federally listed species and migratory birds); and
- California Department of Fish and Wildlife (CDFW) (riparian areas and other waters of the State, state listed species).

Special status habitats are vegetation types, associations, or sub-associations that support concentrations of special status plant or wildlife species, are of relatively limited distribution, or are of particular value to wildlife.

Listed species are those taxa that are formally listed as endangered or threatened by the federal government (e.g., USFWS), pursuant to the Federal Endangered Species Act (FESA) or as endangered, threatened, or rare (for plants only) by the State of California (i.e., CDFW), pursuant to the California Endangered Species Act (CESA) or the California Native Plant Protection Act. Some species are considered rare (but not formally listed) by resource agencies, organizations with biological interests/expertise (e.g., Audubon Society, California Native Plant Society [CNPS], The Wildlife Society), and the scientific community.

METHODOLOGY

Biological conditions were evaluated by confirming applicable regulations, policies, and standards; reviewing biological literature and querying available databases pertinent to the Project sites and vicinity (within five miles for CDFW's California Natural Diversity Data Base [CNDDB] and within nine topographic quadrangles for CNPS); and conducting a reconnaissance-level biological survey of the Project sites and 500-foot survey buffer.¹⁰ Prior to conducting the biological field survey for the proposed Project, a variety of literature was reviewed to obtain baseline information about the biological resources with potential to occur within the Project sites and surrounding areas, including databases from CDFW, USFWS, and the CNPS. Refer to Appendix C for the full list of literature reviewed.

On June 29 and 30, 2020, Rincon biologist Megan Minter conducted a general biological reconnaissance survey of the Project sites to document existing site conditions and the potential presence of regulated biological resources, including special status plant and wildlife species, sensitive plant communities, jurisdictional waters and wetlands, and habitat for nesting birds. The survey was performed by walking and driving throughout the Project sites to characterize the existing biological resources present (e.g., vegetative communities, potential presence of listed species and/or their habitats, and presence of potentially jurisdictional waters). Weather conditions were sunny and clear with temperatures in the 90s and 100s °F with variable winds ranging from one to five miles per hour. A follow-up survey was conducted on January 20, 2021 to survey the remaining Project sites that were not surveyed in June 2020. The January 2021 survey followed the same methodology as the June 2020 surveys detailed above. Weather conditions were sunny and clear with temperatures in the 60s and 70s °F and variable winds ranging from one to five miles per hour.

¹⁰ Special status species known to occur in the Project Area, such as burrowing owl (*Athene cunicularia*), mountain lion (*Puma concolor*), and Joshua tree (*Yucca brevifolia*) that were not identified in the CNDDB or CNPS database queries were included to provide a comprehensive analysis.

While a formal jurisdictional delineation was not performed, the biologist mapped approximate limits of the tops of banks at the following inactive Project sites (SB-I-1 through SB-I-3, RV-I-1, and RV-I-2) with a Trimble Global Positioning System by walking the perimeter of significant, potentially jurisdictional features within or immediately adjacent to the Project sites, based on topography and ordinary high water mark / flow indicators such as sediment sorting, benching, scour, and lack of vegetation. The approximate boundaries of significant, potentially jurisdictional waters for the remaining Project sites and other significant features within the general vicinity of the Project sites were mapped based on a desktop analysis of aerial imagery. Smaller swale-like, potentially jurisdictional features that may be visible from aerial imagery were not mapped because those features cannot be accurately assessed from a desktop analysis and should be verified in the field closer to the time of the proposed reclamation activities.

EXISTING CONDITIONS

This assessment provides the existing biological conditions of the Project sites at the time of the literature review and reconnaissance surveys. However, the biological conditions of the Project sites are likely to change from their present conditions prior to implementation of Project activities (i.e., reclamation) due to both natural processes and current and future mining activities.

Two vegetation communities/land cover types were mapped within the Project sites during the reconnaissance survey: creosote bush scrub and disturbed/unvegetated areas. Creosote bush scrub within the Project sites provides habitat for many wildlife species. Wildlife observed during the biological reconnaissance surveys consisted of common desert species, including coast horned lizard (*Phrynosoma blainvillii*), California ground squirrel (*Otospermophilus beecheyi*), coyote (*Canis latrans*), burro (*Equus asinus*), bighorn sheep (*Ovis canadensis*), desert iguana (*Dipsosaurus dorsalis*), jackrabbit (*Lepus californicus*), and greater roadrunner (*Geococcyx californianus*). Avian wildlife species observed flying over the Project sites during the biological reconnaissance surveys included common raven (*Corvus corax*), red-tailed hawk (*Buteo jamaicensis*), American kestrel (*Falco sparverius*), and European starling (*Sturnus vulgaris*).

The literature review included querying available databases pertinent to the Project sites and vicinity (within five miles for CNDDDB and within nine topographic quadrangles for CNPS).¹¹ Based on the results of the literature review, 22 special status plant species are known to occur within five miles of the Project sites.¹² No special status plant species were observed within the Project sites during the biological reconnaissance surveys.

Additionally, 12 special status wildlife species have the potential to occur within five miles of the Project sites, and ten of those 12 special status wildlife species have moderate to high potential to occur at one or more Project site.¹³ These species include: Mojave desert tortoise (*Gopherus agassizii*), burrowing owl (*Athene cunicularia*), prairie falcon (*Falco mexicanus*), Yuma myotis (*Myotis yumanensis*), cave myotis (*Myotis velifer*), California leaf-nosed bat (*Macrotus*

¹¹ Special status species known to occur in the Project Area, such as burrowing owl, mountain lion and Joshua tree that were not identified in the CNDDDB or CNPS were included to provide a comprehensive analysis.

¹² The following five plant species have been documented with non-specific locations that overlap portions of the Project sites: desert scalesed (RV-7), mesquite nedstraw (RV-7), Hardwood's milk-vetch (SB-4), desert beardtongue (SB-1), and Hardwood's eriastrum (SB-I-3).

¹³ The following six wildlife species have been documented on CNDDDB with non-specific locations that overlap portions of the Project sites: bald eagle (SB-1), California leaf-nosed bat (SB-1), cave myotis (SB-1), desert tortoise (SB-3, RV-3, and RV-4), Mojave fringe-toed lizard (SB-4), and prairie falcon (RV-3, RV-4, RV-7, SB-I-1, and SB-7).

californicus), Townsend's big-eared bat (*Corynorhinus townsendii*), desert bighorn sheep (*Ovis canadensis nelsoni*), mountain lion (*Puma concolor*), and bald eagle (*Haliaeetus leucocephalus*). These species and an analysis of their potential to occur at each Project site are discussed in further detail below.

METROPOLITAN STANDARD PRACTICE

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 or on the CRA. Desert Tortoise Awareness Training consists of a presentation and handout discussing the protected status of the desert tortoise and its habitat, predators, and avoidance measures. Avoidance measures include, but are not limited to the following:

- Work areas shall be delineated with flagging if determined necessary by the qualified staff person.
- Access to project sites shall be restricted to designated existing routes of travel.
- Workers shall inspect for tortoises under vehicles and equipment prior to use. If a tortoise is present, workers would only move the vehicle when the tortoise would not be injured by the vehicle or would wait for the tortoise to move out from under the vehicle.

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. Survey timeframes vary depending on a project's geographic location. For proposed reclamation 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 at each borrow site.

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 using 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 reclamation.

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 with Mitigation Incorporated. No, 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 Plants

No special status plant species were observed within any Project site during the biological reconnaissance surveys. Conditions within the Project sites are heavily disturbed by active use for CRA operations and maintenance, and many sites contain little to no vegetation. Special status plants typically require highly specific, high quality habitat not found within the Project sites. Due to the heavily disturbed nature of the Project sites, it is unsuitable for rare plants that require specialized habitats, and all 22 special status plant species were determined to have low or no potential to occur within the inactive Project sites. Because special status plants have low or no potential to occur within the inactive Project sites, impacts at these sites would be less than significant.

Implementation of reclamation activities at the 14 active Project sites is proposed to occur by 2122, and the conditions at the Project sites and/or listing statuses could change within the interim time period. While much of the Project sites are currently disturbed by surface mining activities and support little to no vegetation, there is potential for special status plant species to be supported in the future. Reclamation activities such as movement of soil, vehicles driving and parking, and the foot traffic of crews could incidentally crush or damage special status plant species. However, impact areas would be small and localized at each site. Furthermore, planned revegetation activities, including recontouring, spreading of topsoil, and invasive weed control, would provide a net benefit to on-site habitat conditions for special status plants. After restoration and monitoring are completed, the final end use of the Project sites would be revegetated open space consistent

with the surrounding environment. There would be no additional activities or operations once a given borrow site is successfully revegetated.

As part of the Project, Metropolitan would implement its Standard Practices of Environmental Assessment and WEAP training to identify current site conditions and educate workers on environmental sensitivities at the Project sites. Nevertheless, because conditions within the Project sites and/or plant listing statuses may change before reclamation activities are implemented at sites to be reclaimed between 2027 and 2122, 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. These measures would require identification of special status plants that may be present and application of appropriate avoidance and/or mitigation measures prior to reclamation at sites to be reclaimed between 2027 and 2122. With implementation of these measures, impacts to special status plants would be reduced to less-than-significant levels.

Special Status Wildlife

Twelve special status wildlife species have the potential to occur within five miles of the Project sites, and ten of those 12 special status wildlife species have moderate to high potential to occur at one or more reclamation locations. The sites are heavily disturbed, sparsely or not vegetated, and in most cases offer limited habitat for special status wildlife species. Current operational activities include excavation, dirt moving, materials storage, and heavy equipment use. These existing activities increase sound and vibration levels at the sites and potential exposure to dust and reduce the likelihood that special status wildlife species would be present. The short-term human presence and earthwork required for reclamation would be substantially similar to operational activities that are currently occurring at the Project sites. In the long term, the Project would have a positive effect on special status species habitat because native plant communities would be restored and chronic disturbance of the sites would cease. Table 3.4-1 lists the special status species with potential to occur at the Project sites, which are discussed in further detail below.

Table 3.4-1. Special Status Wildlife with Potential to Occur Within the Project Sites

Common Name	Scientific Name	Status
desert tortoise	<i>Gopherus agassizii</i>	Federal Threatened/State Threatened
bald eagle	<i>Haliaeetus leucocephalus</i>	State Endangered/CDFW Fully Protected
prairie falcon	<i>Falco mexicanus</i>	CDFW Watch List
desert bighorn sheep	<i>Ovis canadensis nelsoni</i>	CDFW Fully Protected
mountain lion	<i>Puma concolor</i>	Candidate State Threatened/Endangered
burrowing owl	<i>Athene cunicularia</i>	CDFW SSC
Townsend's big-eared bat	<i>Corynorhinus townsendii</i>	CDFW SSC
Yuma myotis	<i>Myotis yumanensis</i>	CDFW SSC
cave myotis	<i>Myotis velifer</i>	CDFW SSC
California leaf-nosed bat	<i>Macrotus californicus</i>	CDFW SSC

Notes: CDFW (California Department of Fish and Wildlife), SSC (Species of Special Concern)

Desert Tortoise

Desert tortoise is listed as threatened under FESA and CESA. Desert tortoise has a moderate potential to occur at all 20 Project sites due to the Project sites' proximity to suitable desert scrub

habitat. Potential indirect impacts could include temporary crushing of suitable habitat, unoccupied nest/burrow destruction, increased sound and vibration levels, and exposure to dust. Worker activity within the Project sites could attract desert tortoise predators. However, as discussed above, disturbance associated with reclamation activities would be temporary in nature and would be substantially similar to that which has and will continue to occur as part of ongoing CRA operations and maintenance activities.

Direct impacts to desert tortoise may include crushing/killing of individuals with equipment or vehicles. Young desert tortoise are especially vulnerable to vehicle mortality due to their small size and inability to quickly seek refuge. However, as part of the proposed Project, Metropolitan would implement its Standard Practices of Environmental Assessment to determine site conditions at the time of reclamation and WEAP training to educate workers on environmental sensitivities at the Project sites. Furthermore, Metropolitan's Standard Practices regarding Desert Tortoise Avoidance Training 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. These measures would require identification of desert tortoise individuals that may be present within the Project sites and application of appropriate avoidance and/or mitigation measures prior to reclamation. With the implementation of these measures, impacts to desert tortoise 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 Project is complete.

Bald Eagle and Prairie Falcon

Bald eagle is listed as endangered under CESA and is also a CDFW Fully Protected species. Bald eagle has a high potential to forage at SB-1 due to the site's location within one mile of suitable nesting habitat (i.e., large trees). Prairie falcon is a CDFW Watch List species and has a moderate to high potential to forage at SB-1, SB-7, SB-I-3, RV-I-1, RV-4, RV-5, RV-6, RV-7, and RV-I-3 due to the sites' locations within five miles of suitable nesting habitat (i.e., cliffs). Potential indirect impacts could include temporary crushing of suitable foraging habitat, increased sound and vibration levels, and exposure to dust. Indirect impacts could also include the temporary displacement of prey species during reclamation activities. All of these impacts would be temporary and localized, would not kill or injure individual eagles or falcons, and would not substantially disrupt these species' behavior patterns. If conducted during the nesting season, proposed reclamation activities within proximity to active bald eagle and prairie falcon nests could potentially disrupt nesting activity due to disturbance and noise from heavy equipment and human presence associated with reclamation activities. However, disturbance associated with proposed reclamation activities would be temporary in nature and would be substantially similar to that which has and will continue to occur as part of ongoing CRA operations and maintenance activities.

No direct impacts to bald eagle or prairie falcon would occur for the inactive because no nesting habitat is present within the Project sites. However, site conditions may change prior to reclamation activities at Project sites to be reclaimed between 2027 and 2122. Nevertheless, as part of the Project, Metropolitan would implement its Standard Practice of Environmental Assessment to determine site conditions at the time of reclamation and WEAP training to identify current site conditions and educate workers on environmental sensitivities at Project sites to be reclaimed

between 2027 and 2122. 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 Species Avoidance and Minimization) would be required. These mitigation measures would require identification of bald eagle and prairie falcon individuals that may be present within the Project sites and application of appropriate avoidance and/or mitigation measures prior to reclamation. With the implementation of these measures, impacts to bald eagle and prairie 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 Project is complete.

Desert Bighorn Sheep

Desert bighorn sheep is a CDFW Fully Protected species. Desert bighorn sheep has a high potential to occur at RV-7 at the grounds around Julian Hinds Pumping Plant due to the site's proximity to open, rocky, steep areas with available water and herbaceous forage. Desert bighorn sheep also has a low potential to occur in the vicinity of RV-6 due to the site's proximity to open, rocky, steep areas. Both RV-6 and RV-7 are anticipated to be reclaimed between 2027 and 2122. 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 Project activities. Potential temporary indirect impacts could include increased sound and vibration levels and exposure to dust during proposed Project reclamation activities. However, as discussed above, disturbance associated with reclamation activities would be temporary in nature and substantially similar to ongoing operational activities in and around the Project sites.

Nevertheless, site conditions may change prior to reclamation activities at Project sites to be reclaimed between 2027 and 2122. As part of the proposed Project, Metropolitan would implement its Standard Practice of Environmental Assessment to determine site conditions at the time of reclamation and WEAP training to identify current site conditions and educate workers on environmental sensitivities. In addition to the above listed Standard Practices, implementation of Mitigation Measure BIO-4 (Special Status Wildlife Species Surveys) and BIO-5 (Special Status Wildlife Species Avoidance and Minimization) would be required to avoid potential impacts to desert bighorn sheep. These mitigation measures would require identification of desert bighorn sheep individuals that may be present in the Project sites and application of appropriate avoidance and/or mitigation measures prior to proposed reclamation activities at Project sites to be reclaimed between 2027 and 2122. With the implementation of these 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.

Mountain Lion

Mountain lion is a candidate for threatened or endangered status under CESA. Mountain lion has a moderate potential to occur at all 20 Project sites because all sites are located within open desert habitat within the species' range. While the Project sites are too small to support long-term use by mountain lions, all sites may be subject to transient travel by mountain lions in the regional vicinity.

Direct impacts to mountain lions are not anticipated because the species is large and highly visible and therefore can be easily avoided by equipment and personnel during reclamation activities. Potential indirect impacts could include increased sound and vibration levels and exposure to dust. However, as discussed above, disturbance associated with reclamation activities would be temporary in nature and would be substantially similar to that which has and will continue to occur as part of ongoing CRA operations and maintenance activities. Additionally, the Project sites are surrounded by undeveloped land and open space, providing a multitude of regional movement options within and adjacent to the Project sites. Therefore, reclamation activities at the Project sites would not significantly impact the amount of regional habitat available for mountain lions in the vicinity. While site conditions may change at the Project sites anticipated to be reclaimed between 2027 and 2122, it is unlikely that conditions would change such that they would result in new or additional impacts to mountain lion beyond those analyzed herein. Additionally, implementation of Metropolitan's Standard Practices and 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 mountain lion. Impacts to mountain lion would be less-than-significant 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.

Burrowing Owl

Burrowing owl is a CDFW Species of Special Concern and has a low to moderate potential to forage at all 20 Project sites due to the Project sites' proximity to suitable desert scrub habitat. While no burrows with burrowing owl signs were observed within the Project sites, burrows could be created by small mammals and inhabited by burrowing owls in the future. Potential indirect impacts from the Project could include temporary crushing of suitable habitat, burrow destruction, increased sound and vibration levels, and exposure to dust which may also disrupt nesting activity in adjacent suitable nesting habitat. However, as discussed above, disturbance associated with reclamation activities would be temporary in nature and would be substantially similar to ongoing operational activities in and around the Project sites.

Although no suitable burrowing owl burrows were observed within the Project sites, site conditions may change prior to reclamation activities. Given the presence of suitable habitat, direct impacts to burrowing owl within the Project sites may include crushing/killing of individuals with equipment or vehicles. If burrows are present, individuals or eggs could be crushed or entombed in burrows. Therefore, there is a moderate potential for direct impacts to this species at all Project sites if site conditions change prior to implementation of proposed reclamation activities. However, as part of the proposed Project, Metropolitan would implement its Standard Practice of Environmental Assessment to determine site conditions at the time of reclamation and WEAP training to identify current site conditions and educate workers on environmental sensitivities at all Project sites. Additionally, Metropolitan's Standard Practices regarding nesting birds would be implemented. Furthermore, to avoid potentially significant impacts, implementation of Mitigation Measure BIO-4 (Special Status Wildlife Species Surveys) and BIO-5 (Special Status Wildlife Species Avoidance and Minimization) would be required. These mitigation measures would require identification of burrowing owl individuals that may be present within the Project sites and application of appropriate avoidance and/or mitigation measures prior to proposed reclamation. With the implementation of these measures, impacts to burrowing owl 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.

Special Status Bat Species

Special status bat species, including Yuma myotis, cave myotis, California leaf-nosed bat, and Townsend's big-eared bat (all CDFW Species of Special Concern) have a moderate potential to forage at SB-1 due to the site's location directly adjacent to suitable roosting habitat (rocky outcrops). SB-1 is anticipated to be reclaimed between 2027 and 2122. During Project activities at SB-1, indirect impacts could include increased sound and vibration levels and exposure to dust. These activities could displace special status bat species, and movement of soil may result in air quality impacts that could affect adjacent individuals. However, disturbance associated with proposed Project activities would be temporary in nature and would be substantially similar to that which has and will continue to occur as part of ongoing CRA operations and maintenance activities.

While no bat roosting habitat was observed within any of the Project sites, site conditions may change to support bat roosting habitat at SB-1 prior to implementation of proposed reclamation activities between 2027 and 2122. In this event, direct impacts to special status bat species may include injury or mortality due to heavy equipment or vehicles. However, as part of the proposed Project, Metropolitan would implement its Standard Practice of Environmental Assessment to determine site conditions at the time of reclamation and WEAP training to identify current site conditions and educate workers on environmental sensitivities at all Project sites. Furthermore, to avoid potential 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 mitigation measures would require identification of special status bat species that may be present within the Project sites and application of appropriate avoidance and/or mitigation measures prior to proposed reclamation. With the implementation of these measures, impacts to special status bat species 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.

MITIGATION MEASURES

BIO-1 Special Status Plant Species Surveys

If the site-specific Environmental Assessment determines special status plant species may occur on site at sites to be reclaimed between 2027 and 2122, surveys for special status plants shall be completed prior to any vegetation removal, grubbing, or other reclamation activity (including staging and mobilization). The surveys shall be seasonally timed to coincide with the target species identified in the Environmental Assessment. All plant surveys shall be conducted by a monitoring biologist no more than two years before initial ground disturbance associated with reclamation construction activities and shall cover the entire area proposed for disturbance (including areas for staging and mobilization). All special status plant species identified on site shall be mapped onto a site-specific aerial photograph and 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 Rank 1B 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 Rank 1B 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, if feasible. 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 state listed or federally 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 state listed, federally listed, and/or non-listed California Rare Plant Rank 1B 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 minimum:

- The number of specimens affected for each species
- Identification of on-site or off-site preservation location(s)
- Methods for restoration, enhancement, and/or transplanting, including topsoil salvage and planting seeds of the affected species
- A performance standard replacement ratio of 1:1 per impacted specimen to be achieved within three to five years
- Monitoring of on-site and off-site preservation location(s) to verify performance shall occur in conjunction with special status plant growing seasons, and no less than annually until performance standards are achieved

BIO-4 Special Status Wildlife Species Surveys

For all Project sites, if the site-specific Environmental Assessment determines suitable habitat may be present within the Project site footprint for a candidate, sensitive, or special-status species identified in local or regional plans, policies, or regulations, Metropolitan shall implement pre-activity wildlife surveys. Pre-activity surveys for special-status species with moderate to high potential to occur shall be conducted where suitable habitat is present not more than 72 hours prior to the start of Project activities. The survey area shall include the proposed Project site and all ingress/egress routes, plus a 100-foot buffer. If Project site habitat is determined to be suitable for desert tortoise, protocol surveys shall be conducted by a monitoring biologist within two years before reclamation at that site. Surveys shall be conducted according to the most recent General Ecology and Survey Protocol for Determining Presence/Absence and Abundance for the Desert Tortoise – Mojave Population (USFWS 2009). If the results of the site-specific Environmental Assessment and pre-activity surveys determine suitable habitat for a candidate, sensitive, or special-status species identified in local or regional plans, policies, or

regulations is present within a 100-foot buffer of the Project sites, implementation of appropriate avoidance measures shall be required in accordance with Mitigation Measure BIO-5.

BIO-5 Special Status Wildlife Species Avoidance and Minimization

If the results of the site-specific Environmental Assessment and pre-activity surveys conducted pursuant to Mitigation Measure BIO-4 determine suitable habitat for a candidate, sensitive, or special-status species identified in local or regional plans, policies, or regulations is present within a 100-foot buffer of the Project sites, Metropolitan shall develop and implement appropriate avoidance measures. Avoidance measures may include but are not limited to:

- Installation of Environmentally Sensitive Area/avoidance fencing
 - Flagging or fencing of any special-status species burrows by a monitoring biologist to ensure avoidance during reclamation activities
 - Monitoring by a monitoring biologist during all initial ground disturbing activities. Once initial ground disturbing activities have been completed, the biologist shall conduct daily pre-activity clearance surveys, as necessary
 - If at any time during Project activities, a special-status species enters the Project sites or otherwise may be impacted by the Project, all activities at the site where the find occurred shall cease. At that point, a monitoring biologist shall recommend an appropriate course of action
- 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?*
- 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?*

Less Than Significant with Mitigation Incorporated. No, 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 and 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.

The Project Area is located within large desert watersheds and alluvial areas with multiple ephemeral drainages located within or adjacent to the Project sites. These drainages have generally been formed from flashy runoff and rapid flows in response to rare precipitation events in the local area. These drainage systems are highly dynamic over time due to the infrequent nature and intensity of precipitation. Many drainages near the Project sites are part of large complex, braided ephemeral systems. Over time, the boundaries of these systems tend to migrate in response to each precipitation event. Furthermore, many of these systems have been modified by the construction of large “V-dikes” that serve to funnel flows over the CRA. The majority of the ephemeral drainages that cross the CRA are funneled toward drainage crossings that occur

throughout the CRA system. No wetlands or indicators of wetlands were observed within the Project sites during the reconnaissance-level biological surveys.

Potentially jurisdictional waters were identified within SB-I-2, SB-I-3, and RV-I-2 and adjacent to SB-1, SB-2, SB-3, SB-6, SB-7, RV-1, RV-3, RV-4, RV-5, RV-6, and RV-I-3. No other sites were identified as having potentially jurisdictional waters within or adjacent to them at the time of the assessment. In addition, no Project sites were identified to contain state or federally protected wetlands. As noted earlier under *Methodology*, a formal jurisdictional delineation was not conducted, and as such, all features identified as potentially jurisdictional should be delineated to determine their precise boundaries and applicable regulatory authority. Additionally, smaller swale-like potentially jurisdictional features that may be visible from aerial imagery were not mapped because those features cannot be accurately assessed from a desktop analysis and should be verified in the field closer to time of reclamation.

Although the intent is to avoid jurisdictional waters to the extent feasible, potential temporary impacts to jurisdictional waters, if present, would include vehicles and equipment driving and parking, and the foot traffic of crews. Temporary indirect impacts could include runoff of sediment and dust into jurisdictional areas during operation of heavy equipment. However, as part of the proposed reclamation activities, the Project sites would be graded and recontoured to 2H:1V final slopes, with drainage directed inward toward the pit floors to prevent on- or off-site erosion or siltation. Additionally, reclamation would be conducted using applicable stormwater BMPs, such as berms and/or earthen dikes as detailed in the MRP, which would reduce temporary indirect impacts and control erosion. All areas temporarily impacted would also be revegetated, as detailed in the MRP and associated revegetation plan. At certain Project sites, the perimeter topsoil/subsoil storage berms may be left in place post-reclamation for erosion control and allowed to naturally revegetate as part of the reclamation. Ultimately, reclamation of the Project sites would not substantially alter the existing drainage pattern of the sites or adjacent areas in a manner that would result in substantial erosion on- or off-site.

The proposed Project would not permanently impact jurisdictional waters, if present, because no permanent structures, direct removal, or filling is proposed in these areas. Furthermore, when Project activities are complete, more native vegetation is expected to be in place, which would enhance riparian or other sensitive natural communities, if present. Therefore, no permanent impacts to potentially jurisdictional waters would occur.

Project sites SB-1, SB-2, SB-3, SB-6, SB-7, RV-1, RV-3, RV-4, RV-5, RV-6 and RV-I-3 are located adjacent to potentially jurisdictional waters. The extent and severity of the impacts at these sites is currently unknown because the jurisdictional limits as well as applicable regulations may change. Although no wetlands have been identified at any Project sites, site conditions may change prior to reclamation. However, as part of the Project, Metropolitan would implement its Standard Practices of Environmental Assessment to determine site conditions at the time of reclamation and WEAP training to educate workers on environmental sensitivities at all Project sites. In addition, to avoid potential impacts, implementation of Mitigation Measure BIO-6 (Jurisdictional Waters Delineation and Avoidance) would be required. Mitigation Measure BIO-6 would be implemented to reduce potential impacts to less-than-significant levels through identification and avoidance of potentially jurisdictional resources where feasible. With the implementation of this measure, impacts to riparian habitat, other sensitive natural communities, and state or federally protected wetlands would be reduced to less-than-significant levels.

BIO-6 Jurisdictional Waters Delineation and Avoidance

Prior to reclamation activities at SB-1, SB-2, SB-3, SB-6, SB-7, SB-I-2, SB-I-3, RV-1, RV-3, RV-4, RV-5, RV-6, RV-I-2, and RV-I-3 (as well as any additional sites identified to have potentially jurisdictional waters during the site-specific Environmental Assessment), a formal jurisdictional delineation shall be conducted by a monitoring biologist to determine the extent of the jurisdiction for CDFW, RWQCB, and USACE on or within 100 feet of each Project site and shall be conducted in accordance with the current requirements set forth by each agency. The delineation shall serve as the basis for identifying jurisdictional areas to be avoided during reclamation activities. Jurisdictional areas that are identified shall be flagged or fenced for avoidance to ensure that reclamation activities do not inadvertently impact jurisdictional areas.

- 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. No, 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. Portions of the Project Area, specifically at SB-4, SB-7, SB-I-1, SB-I-3, RV-1, and RV-I-1, are located within Conservation Planning Linkages, which are habitat connectivity linkages mapped in the California Essential Habitat Connectivity map that represent the best connections between core natural areas to maintain habitat connectivity. These linkage areas occur throughout the Project Area (Spencer et al. 2010). The Project sites and vicinity are expected to support wildlife movement due to their location in undeveloped desert areas and proximity to mountain ranges and desert washes, which are known movement corridors. The Project sites are undeveloped and do not contain structures that would prevent or deter wildlife. However, the Project sites encompass a small percentage of total land within the movement linkages and lack valuable habitat features such as water sources or shelter. The Project sites' contributions to the overall function of the habitat linkages are expected to be minor. Implementation of reclamation activities under the proposed Project (i.e., the removal of deleterious materials and debris, recontouring project site slopes and floors to ensure slopes do not exceed a 2H:1V angle, installation of stormwater BMPs to control erosion, and revegetating reclaimed areas with a native plant hydroseed mix) would restore currently disturbed and unvegetated areas to native habitat areas and would not involve placement of permanent structures. Upon completion of reclamation activities, wildlife would be able to move more freely through the Project sites because the restored habitat would provide cover for foraging, refuge, and movement. Therefore, implementation of the Project would not substantially alter existing wildlife movement patterns, and impacts would be less than significant.

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

Less Than Significant. No, the proposed Project would not conflict with any local policies or ordinances protecting biological resources.

The County of Riverside Ordinance No. 559 regulates native trees that occur on parcels or properties greater than 0.5 acre in size in unincorporated areas above an elevation of 5,000 feet above mean sea level. All portions of the Project sites are located below 5,000 feet above mean sea

level, and the proposed Project does not involve tree removal. Therefore, this ordinance does not apply to the proposed Project.

The County of San Bernardino Desert Native Plant Protection ordinance protects certain desert native plants and does not allow removal of the following plants with stems two inches or greater in diameter or six feet or greater in height: smoketree (*Dalea spinosa*), all species of the genus *Prosopis*, all species of the family Agavaceae, creosote rings 10 feet or greater in diameter, and Joshua tree (*Yucca brevifolia*). 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*. None of the species protected under the County of San Bernardino Desert Native Plant Protection ordinance were observed within the Project sites, and no trees are proposed for removal during proposed Project activities.

While no current conflict exists with local ordinances, policies may change or protected species could become established in new areas, and reclamation activities at the Project sites to be reclaimed between 2027 and 2122 could conflict with future local policies. However, as part of Metropolitan Standard Practice, an Environmental Assessment would be conducted prior to reclamation at these sites to ensure Project reclamation activities do not conflict with approved local, regional, or state policies related to biological resources. Therefore, impacts associated with reclamation of these sites would be less than significant.

After restoration and monitoring are completed, the final end use of the Project sites would be revegetated open space consistent with the surrounding environment. There would be no additional activities or operations; therefore, no operational impacts related to local policies and ordinances protecting biological resources would occur.

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?

Less Than Significant. No, the proposed Project would not conflict with the provisions of an adopted Habitat Conservation Plan (HCP), Natural Community Conservation Plan (NCCP), or other approved local, regional, or State HCP. The Coachella Valley Multiple Species Habitat Conservation Plan (CVMSHCP) overlies a portion of the Project Area. The overall goal of the CVMSHCP is to maintain and enhance biological diversity and ecosystem processes within the region while allowing for future economic growth. Only RV-I-3 is located within the CVMSHCP. None of the 27 covered species or 27 natural communities protected by the CVMSHCP have potential to occur at RV-I-3, and Metropolitan is not seeking coverage under the CVMSHCP for the proposed Project.

While no current conflict exists with an HCP, policies may change, and reclamation activities at the Project sites to be reclaimed between 2027 and 2122 could be subject to future adopted HCPs, NCCPs, or other approved local, regional, or state HCPs. However, the proposed Project would restore habitat and native plant communities on the Project sites, and chronic disturbance of the sites would cease upon completion of proposed reclamation activities. Additionally, as part of Metropolitan Standard Practice, an Environmental Assessment would be conducted prior to start of work to determine site conditions and ensure compliance with all applicable federal, state, and local laws, policies, and plans. Therefore, proposed Project activities (i.e., reclamation) at these

sites would not conflict with future HCPs, NCCPs, or other approved local, regional, or state HCPs, and impacts would be less than significant.

After restoration and monitoring are completed, the final end use of the Project sites would be revegetated open space consistent with the surrounding environment. There would be no additional activities or operations; therefore, no operational impacts related to HCPs, NCCPs, or other approved local, regional, or state HCPs would occur.

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?	☐	☐	☐	☒
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☐	☒	☐
c) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☐	☒	☐

Significance criteria established by CEQA Guidelines, Appendix G.

CULTURAL RESOURCES OVERVIEW

This section provides an analysis of proposed Project impacts on cultural resources, including historical and archaeological resources as well as human remains, and is based on the Cultural Resource Assessment attached as Appendix E.¹⁴

REGULATORY FRAMEWORK

CEQA requires a Lead Agency determine whether a project may have a significant effect on historical resources (PRC Section 21084.1), archaeological resources, or human remains. A historical resource is a resource listed in, or determined to be eligible for listing, in the California Register of Historical Resources (CRHR); a resource included in a local register of historical resources; or any object, building, structure, site, area, place, record, or manuscript that a Lead Agency determines to be historically significant (CEQA Guidelines Section 15064.5[a][1-3]). Resources listed on the National Register of Historic Places (NRHP) are automatically listed on the CRHR, along with State Landmarks and Points of Interest. The CRHR can also include properties designated under local ordinances or identified through local historical resource surveys. In addition, pursuant to PRC Section 5024.1(c), a resource shall be considered historically significant if it:

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

If it can be demonstrated that a project would cause damage to a unique archaeological resource, the CEQA Lead Agency may require reasonable efforts be made to permit any or all of these resources to be preserved in place or left in an undisturbed state. To the extent that resources

¹⁴ The Cultural Resources Technical Report prepared in support of this IS-MND utilized a different site numbering convention than that used herein. To facilitate comparison of the information contained in this report with the information contained in this IS-MND, refer to Appendix B for a comparison matrix of the borrow site numbering convention.

cannot be left undisturbed, mitigation measures are required (PRC Section 21083.2[a-b]). PRC Section 21083.2(g) defines a unique archaeological resource as an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it:

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

METHODOLOGY

A search of the California Historical Resources Information System (CHRIS) was conducted to identify any previously recorded cultural resources and previously conducted cultural resources studies within the Project Area and a 0.25-mile radius surrounding it. The CHRIS records are maintained by nine Information Centers located across California and organized by county. Because portions of the Project Area are located in both Riverside and San Bernardino counties, record searches at two Information Centers were required. On August 24, 2020 and February 23, 2021, staff from the South Central Coastal Information Center (SCCIC) at California State University, Fullerton conducted searches that encompassed the portion of the Project Area located in San Bernardino County. On September 15, 2020, staff from the Eastern Information Center (EIC) located at University of California, Riverside conducted a search that encompassed the portion of the Project Area located in Riverside County. The searches included a review of previous cultural resource studies and recorded resources. In addition, Rincon completed a review of the NRHP, the CRHR, and the Historic Resources Inventory.

The SCCIC and EIC records searches identified a total of nine previously conducted cultural resources studies within a 0.25-mile radius of the Project Area. None of these studies included the Project Area. The cultural resources records search identified nine previously recorded cultural resources within a 0.25-mile radius of the Project Area, including one prehistoric and five historic-period archaeological sites as well as three built-environment historic-period resources. No cultural resources have been previously recorded within the Project Area.

A Sacred Lands File (SLF) search was completed by the Native American Heritage Commission (NAHC) with positive results for the Project Area, and the NAHC recommended contacting the Chemehuevi Indian Tribe for additional details. The SLF results do not provide specific details on the nature or precise location of Sacred Lands or whether they are related to any cultural resources recorded by the CHRIS at the SCCIC and EIC; thus, additional details cannot be provided. As the CEQA Lead Agency, Metropolitan conducted outreach all persons on the NAHC-provided contact list and detailed letters were sent describing the Project with maps, and requested a reply for any questions or concerns.

Metropolitan archaeologist Michelle Morrison, MA, RPA performed a Phase I pedestrian field survey of 18 Project sites (SB-1 and SB-3 through SB-7, SB-I-1 through SB-I-3, RV-1 through RV-7, and RV-I-1 through RV-I-3) in June 2020. Rincon Archaeologist Mark Strother, MA, RPA performed an additional Phase I pedestrian field survey in January 2021 to cover Project boundary additions made to the Project Area after the initial survey. Mr. Strother surveyed 11 Project sites

(SB-2, SB-3, SB-4, SB-5, SB-6, SB-I-2, SB-I-3, RV-2, RV-3, RV-5, and RV-I-1) in their entirety. Collectively, Ms. Morrison's June 2020 survey and Mr. Strother's January 2021 survey covered all of the 20 Project sites in the Project Area.

One newly identified historic-period archeological site, Rincon-S-1, was identified within SB-2. This site is comprised of four remnant features likely associated with the construction and/or maintenance of the CRA. Research completed as part of the Cultural Resources Assessment (Appendix E) concluded the features do not possess significant architectural or historical associations and are not eligible for listing in the NRHP or CRHR. As such, the background research and field survey concluded there are no known prehistoric archaeological resources or built environmental resources within the Project Area.

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?*

No Impact. No, the proposed Project would not cause a substantial adverse change in the significance of a historical resource. No historical resources were identified by the cultural resources record searches of the CHRIS conducted at the EIC and SCCIC. In addition, the intensive pedestrian archaeological surveys of the Project Area were negative for historical resources. Although the Project Area is almost entirely adjacent to the CRA (historical resource CA-RIV-6726H and CA-SBR-10521), the resource does not extend onto any of the Project sites. The integrity and significance of the CRA as an eligible historical resource would remain unchanged by the Project. After restoration and monitoring are completed, the final end use of the Project sites would be revegetated open space consistent with the surrounding environment. There would be no additional activities or operations. Therefore, the proposed Project would not cause a substantial adverse change in the significance of CA-RIV-6726H/CA-SBR-10521 or any other historical resources, and no impact would occur.

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

Less Than Significant. No, the proposed Project would not cause a substantial adverse change in the significance of an archaeological resource. The cultural resources record searches and pedestrian surveys did not identify any prehistoric archaeological resources within the Project Area. One historic-period archaeological site, Rincon-S-1, was identified within SB-2 during the survey. This site consists of four remnant features likely associated with the construction of the CRA. However, research completed under the Cultural Resources Assessment (Appendix E) concluded the features do not possess significant architectural or historical associations and are not

eligible for listing in the NRHP or the CRHR. As such, demolition and removal of these features would not result in a substantial adverse impact under CEQA.

The Project Area is highly disturbed due to the immense scale of excavation and construction associated with the original installation of the CRA in the 1930s, the parallel expansion of the CRA in the 1950s, the continuous use of the Project sites for operations and maintenance activities, and access road maintenance and grading by Metropolitan that has occurred for over 75 years. The possibility that previously undiscovered buried archaeological resources could be encountered during ground-disturbing activities is low. Furthermore, Metropolitan Standard Practices require that, 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 proper handling and treatment. After restoration and monitoring are completed, the final end use of the Project sites would be revegetated open space consistent with the surrounding environment. There would be no additional activities or operations. Therefore, impacts to archaeological resources would be less than significant.

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

Less Than Significant. No, the proposed Project would not disturb any human remains, including those interred outside of dedicated cemeteries. Background archival research and the intensive pedestrian field survey failed to find any potential for human remains (e.g., the existence of formal cemeteries). As discussed above, the Project Area is highly disturbed. Although it is highly unlikely, there is the possibility that previously undiscovered remains could be uncovered during ground-disturbing activities. Should human remains be encountered, Metropolitan would comply with the State of California's Health and Safety Code Section 7050.5, which states that no further disturbance would occur until the appropriate county coroner has made a determination of origin and disposition of the remains pursuant to PRC Section 5097.98. Adherence to State of California's Health and Safety Code Section 7050.5 would result in the proper handling and treatment of unexpected human remains. After restoration and monitoring are completed, the final end use of the Project sites would be revegetated open space consistent with the surrounding environment. There would be no additional activities or operations. Therefore, impacts to human remains would be less than significant.

3.6 Energy

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

Significance criteria established by CEQA Guidelines, Appendix G.

OVERVIEW OF ENERGY CONSUMPTION

As a state, California is one of the lowest per capita energy users in the United States, ranked 48th in the nation, due to its energy efficiency programs and mild climate (United States Energy Information Administration 2021). Electricity and natural gas are primarily consumed by the built environment for lighting, appliances, heating and cooling systems, fireplaces, and other uses such as industrial processes, in addition to being consumed by alternative fuel vehicles. Most of California's electricity is generated in-state with approximately 28 percent imported from the Northwest and Southwest in 2019; however, the state relies on out-of-state natural gas imports for nearly 90 percent of its supply (California Energy Commission [CEC] 2021a and 2021b).

Approximately 32 percent of California's electricity supply comes from renewable energy sources, such as wind, solar photovoltaic, geothermal, and biomass (CEC 2021a). In 2018, Senate Bill (SB) 100 accelerated the state's Renewable Portfolio Standards Program, codified in the Public Utilities Act, by requiring electricity providers 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.

Petroleum fuels are primarily consumed by on-road and off-road equipment in addition to some industrial processes. Gasoline, which is used by light-duty cars, pickup trucks, and sport utility vehicles, is the most used transportation fuel in California with 15.4 billion gallons sold in 2019 (CEC 2021c). Diesel, which is used primarily by heavy duty-trucks, delivery vehicles, buses, trains, ships, boats and barges, farm equipment, and heavy-duty construction and military vehicles, is the second most used fuel in California with 1.8 billion gallons sold in 2019 (CEC 2021c).

Energy consumption is directly related to environmental quality in that the consumption of nonrenewable energy resources releases criteria air pollutant and greenhouse gas (GHG) emissions into the atmosphere. The environmental impacts of air pollutant and GHG emissions associated with the Project's energy consumption are discussed in detail in Section 3.3 (Air Quality) and Section 3.8 (Greenhouse Gas Emissions), respectively.

METHODOLOGY

Energy consumption associated with proposed reclamation construction activities (i.e., regrading slopes, backfilling, and revegetation) and restoration monitoring activities (i.e., periodic site visits by a monitoring biologist) was estimated using Project-specific details and fuel consumption factors published by the USEPA and United States Department of Transportation.

The Project's energy consumption for the proposed reclamation construction activities and the proposed restoration monitoring activities was estimated separately. All proposed reclamation and restoration monitoring activities were assumed to use equipment and vehicles that consume

gasoline or diesel fuel with present-day fuel efficiencies. This approach is considered conservative because activities occurring in future years would be expected to consume fewer nonrenewable energy resources due to increasingly stringent fuel efficiency standards, such as future iterations of the federal construction equipment emissions standards, Corporate Average Fuel Economy standards, and cleaner mobile equipment engine models that would phase in over time. In addition, some or all passenger vehicle trips for reclamation of individual Project sites may be made in hybrid or all-electric vehicles, depending on the availability and use of such vehicles in future years

Energy consumption estimated for the proposed reclamation construction activities include energy consumed by heavy equipment used on site and energy consumed by vehicle trips, such as worker, water truck, and dump truck trips. The schedule, list of heavy equipment, and number of vehicle trips used in CalEEMod were based on information contained in Section 1 (Project Description). As stated therein, it was assumed each Project site would require one month to reclaim with workers on site four days each week. Assumptions for the type and number of equipment and support vehicles to be used during reclamation of each Project site is listed in Table 3.6-1. It was also assumed three Metropolitan employees would be on site during reclamation activities and would travel from the Iron Mountain Pumping Plant to each Project site, which is an average distance of 26.4 miles, as shown in Table 3.6-2. In addition, it was assumed one water truck and one dump truck would travel to and from the Project site each day with a one-way trip distance of approximately 6.9 miles for the water truck and a one-way trip distance of approximately 20 miles for the dump truck, based on CalEEMod default trip distances for the MDAQMD region.

Table 3.6-1. Representative Off-Road Vehicle List – Reclamation Construction

Equipment	Make and Model	Quantity	Average Horsepower	Average Hours/Day
Water Truck	Freightliner – 4,000-gallon	1	300	4
Dozer	Caterpillar D-6	1	215	8
Excavator	Caterpillar 330	1	273	8
Loaders	Caterpillar 966	1	276	8
Grader	Caterpillar 140M, 160M, or 14M Motor	1	187	4
Dump Truck	Freightliner 114SD	1	16	4
Hydroseed Spreader	Freightliner – 1,000-gallon	1	172	8

Table 3.6-2. Driving Distance Between Iron Mountain Pumping Plant and Project Sites

Project Site	Driving Distance from Iron Mountain Pumping Plant (miles)	Total Vehicle Miles Traveled for Three Years of Monitoring (12 Visits per Project Site)
RV-1	15.0	360
RV-2	6.3	151
RV-3	16.7	401
RV-4	27.1	650
RV-5	49.7	1193
RV-6	45.8	1099
RV-7	57.0	1368
RV-I-1	10.9	262
RV-I-2	14.8	355
RV-I-3	65.1	1562
SB-1	77.6	1862
SB-2	48.1	1154
SB-3	30.1	722
SB-4	18.3	439
SB-5	5.1	122
SB-6	2.6	62
SB-7	1.4	34
SB-I-1	16.6	398
SB-I-2	5.3	127
SB-I-3	14.8	355
Average Driving Distance	26.4	–
Total Vehicle Miles Traveled	–	12,679

Energy consumption estimates for the proposed restoration monitoring activities include energy consumed by periodic vehicle trips by the biologist to each Project site. As stated in Section 1 (Project Description), it was assumed a monitoring biologist would visit each Project site four times per year for up to three years. The total vehicle miles traveled by the biologist to complete quarterly site visits to each Project site for a period of three years is summarized in Table 3.6-2. It was assumed staff vehicle trips would be made in a light-duty truck with a gross vehicle weight rating of less than 6,000 pounds and an equivalent test weight between 3,751 and 5,750 pounds (e.g., a small pickup truck similar to a Toyota Tacoma).

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?*

No Impact. No, the proposed Project would not result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources during reclamation construction activities (i.e., regrading slopes, backfilling, and revegetation) or restoration monitoring activities (i.e., periodic site visits by a monitoring biologist).

Energy use associated with the proposed Project would be primarily in the form of fuel consumption to operate heavy equipment, worker vehicles, water trucks, and dump trucks during reclamation construction activities and staff vehicles during restoration monitoring activities. Table 3.6-3 summarizes the anticipated energy consumption from proposed reclamation construction and restoration monitoring activities. As shown therein, the proposed Project would consume a total of approximately 5,495 gallons of gasoline fuel and approximately 51,765 gallons of diesel fuel for reclamation of all 20 sites. This equates to an average of approximately 275 gallons of gasoline fuel and approximately 2,588 gallons of diesel fuel for each Project site, which would be consumed during the one-month reclamation construction period and the 12 quarterly site visits for restoration monitoring over the three-year monitoring period. These estimates of fuel consumption are very conservative given that 1) some or all passenger vehicle trips for reclamation of individual Project sites may be made in hybrid or all-electric vehicles, depending on the availability and use of such vehicles in future years, and 2) increasingly stringent fuel efficiency standards, such as future iterations of the federal construction equipment emissions standards, Corporate Average Fuel Economy standards, and cleaner mobile equipment engine models would phase in over time.

Table 3.6-3. Total Estimated Fuel Consumption for Reclamation of All Project Sites (gallons)

	Gasoline	Diesel
Reclamation Construction Activities - Heavy Equipment and Water Truck and Dump Truck Trips	–	51,765
Reclamation Construction Activities - Worker Vehicle Trips ¹	4,786	–
Restoration Monitoring Activities – Biologist Vehicle Trips ^{1,2}	709	–
Total Fuel Consumption for Reclamation of All Project Sites	5,495	51,765

¹ Conservatively assumes all passenger vehicle trips are made in gasoline-powered vehicles. However, some or all passenger vehicle trips for reclamation of individual Project sites may be made in hybrid or all-electric vehicles, depending on the availability and use of such vehicles in future years.

² Conservatively assumes each reclaimed Project site is monitored for three years.

Source: Appendix F

Energy use during proposed reclamation construction and restoration monitoring activities would be temporary in nature and would comply with the provisions of 13 California Code of Regulations Sections 2449 and 2485, which prohibit diesel-fueled commercial motor vehicles and off-road diesel vehicles from idling for more than five minutes, which would minimize unnecessary fuel consumption. Heavy equipment would be subject to the USEPA Construction Equipment Fuel Efficiency Standard (40 Code of Federal Regulations Parts 1039, 1065, and 1068), which would minimize inefficient fuel consumption. Furthermore, in the interest of cost efficiency, contractors and Metropolitan staff would not utilize fuel in a manner that is wasteful or unnecessary. Vehicles used by workers and staff during proposed reclamation construction and restoration monitoring activities would be subject to increasingly stringent federal and state fuel efficiency standards, which would minimize the potential for inefficient fuel usage. During restoration monitoring activities, the Project sites would only be visited on a periodic basis, as needed, to achieve restoration success. After restoration and monitoring are completed, the final end use of the Project sites would be revegetated open space consistent with the surrounding environment. There would be no additional activities or operations; therefore, there would be no operational impacts related to

energy consumption. As a result, the proposed Project would not result in a potential impact due to wasteful, inefficient, or unnecessary consumption of energy resources, and no impact would occur.

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

No Impact. No, the proposed Project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency. None of the energy efficiency and conservation measures outlined in Metropolitan's Climate Action Plan (CAP) are applicable to the proposed Project (Metropolitan 2022a). In addition, Metropolitan is not subject to the *County of Riverside Climate Action Plan Update* (2019) or the *County of San Bernardino Greenhouse Gas Emissions Reduction Plan* (2011), and the entire Project Area is within Metropolitan fee property. Indirectly, on-road vehicles used during proposed reclamation construction and restoration monitoring activities would be required to meet the ongoing federal and state fuel efficiency requirements. Therefore, the Project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency, and no impact would occur.

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.	☐	☐	☒	☐
ii) Strong seismic groundshaking?	☐	☐	☒	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
iv) Landslides?	☐	☐	☐	☒
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
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?	☐	☐	☒	☐
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?	☐	☐	☐	☒
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?	☐	☐	☐	☒
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☐	☒

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.*

Less than Significant Impact. No, the proposed Project would not significantly cause a substantial adverse impact, either directly or indirectly, involving the rupture of an earthquake fault mapped as part of an Alquist-Priolo Earthquake Fault Zone (APEFZ). Per maps published by the Department of Conservation (California Department of Conservation 2021a) as well as maps within the current San Bernardino and Riverside County General Plans (County of San Bernardino 2020b; County of Riverside 2018), none of the Project sites are within or in the immediate vicinity of a mapped APEFZ. Furthermore, based on the California Governor's Office of Emergency Services (2021) hazards mapping tool, areas of high earthquake risk were not identified in the vicinity of the Project sites. The nearest mapped APEFZ earthquake fault to the Project sites is the

Hidden Spring Fault, located about seven miles southwest of RV-I-3. The California Geological Survey Fault Evaluation Report FER-252 (Bryant 2012) identifies the Hidden Spring Fault as potentially active, and it is included within an APEFZ map prepared in 1974. Past seismic events have had magnitudes ranging from M1 to M3.9 (Bryant 2012). According to the California Department of Conservation (2021a) Fault Activity Map, the Hidden Spring Fault is mapped as exhibiting displacement over the past 700,000 years. However, because the Hidden Spring Fault is located approximately seven miles away from RV-I-3 and the reported seismic events have been of low magnitudes, the potential for a substantial adverse ground rupture to occur at the Project sites in connection with this fault is considered low. Additionally, 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, the Project would not directly or indirectly cause adverse effects, including the risk of loss, injury or death, as a result of fault rupture and would therefore have a less-than-significant impact.

ii) Strong seismic groundshaking?

Less than Significant Impact. No, the Project would not cause a substantial adverse impact, either directly or indirectly, from strong seismic ground shaking. Proposed Project reclamation activities would involve recontouring the sites to ensure no slopes exceed a 2H:1V performance standard unless Metropolitan completes a site-specific geologic and engineering analysis demonstrating that proposed final reclaimed slopes maintain a minimum slope stability factor of safety, thereby minimizing the potential for slope instability. This slope design would conform to the prescriptive performance standard for slope stability, pursuant to Section 3704(d) of SMARA, which is considered to reflect an appropriate factor of safety under static and pseudo-static (seismic) conditions. Final reclaimed slopes would be suitable for the proposed end use of the Project sites as revegetated open space. As discussed under item (a)(i), the only Project site that is located in the vicinity of a mapped APEFZ earthquake fault (Hidden Spring Fault) is RV-I-3, and the presence of this fault would not result in significant potential direct or indirect risks, such as loss, injury or death, due to strong seismic ground shaking because 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, due to the location of the nearest faults in relation to the Project sites, the required slope design under SMARA, and lack of structures, impacts related to strong seismic ground shaking resulting in a risk of loss, injury, or death would be less than significant.

iii) *Seismic-related ground failure, including liquefaction?*

Less than Significant Impact. No, the Project would not cause a substantial adverse impact, directly or indirectly, from seismic-related ground failure, including liquefaction. The types of ground failure associated with a seismic event can include lateral spreads and liquefaction as well as landslides. Soil liquefaction is the process in which saturated soil experiences a temporary loss of strength due to the buildup of excess pore water pressure resulting from earthquake ground motions. The soils at the Project sites are generally well-graded Quaternary alluvial deposits that include a wide range of grain sizes, ranging from clay to larger boulders. As discussed in MRP Section 1.3 (Appendix A), the final pit floor elevation for the individual Project sites would be above the groundwater table; thus, the material would not be subject to saturation. Because the Project slopes to be reclaimed would not be saturated by groundwater and the soil characteristics are not conducive to shear strength loss by shaking, liquefaction potential associated with the

Project would not be a safety risk. Furthermore, based on the California Office of Emergency Services (2021) hazards mapping tool, areas of high earthquake risk were not identified in the vicinity of the Project sites.

As the Project sites undergo proposed reclamation, on-site activities would involve removing deleterious materials, grading and final slope contouring, maintaining stormwater BMPs, revegetating by hydroseeding, and monitoring. Moreover, 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 during proposed reclamation activities or following completion of reclamation. Accordingly, there would be no significant risk of loss, injury or death from ground failure, and impacts would be less than significant.

iv) *Landslides?*

No Impact. No, the Project would not directly or indirectly cause a potential substantial adverse impact involving landslides. Landslides represent the mass movement of rock, soil, and earthen debris down a slope. Triggering mechanisms for landslides include undercutting of slopes by natural processes, such as streams, rivers, or differential weathering (such as the freeze/thaw cycle), human activities such as excavation, and seismic shaking or other intense vibration. In addition, historical dormant landslides may be reactivated by these triggering mechanisms. According to the California Department of Conservation (2021b) landslide inventory database, there are no active or dormant landslides within or near the Project sites. Moreover, the Project would involve recontouring the Project sites to ensure no slopes exceed a 2H:1V performance standard unless Metropolitan completes a site-specific geologic and engineering analysis demonstrating that proposed final reclaimed slopes maintain a minimum slope stability factor of safety, which would minimize the potential for slope instability.

As the Project Area is reclaimed, on-site activities would involve removing deleterious materials, grading and final slope contouring, maintaining stormwater BMPs for erosion control, revegetating by hydroseeding, and monitoring. Additionally, 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, the Project would not be susceptible to landslide formation during a seismic event, and there would be no significant risk of loss, injury or death related to landslides.

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

Less than Significant Impact. No, the Project would not result in substantial soil erosion or the loss of topsoil. The Project would involve removing deleterious materials, grading and final slope contouring, revegetating by hydroseeding, and monitoring of the Project sites. Topsoil and subsoil would be preserved as feasible in perimeter berms prior to implementation of the Project, and the Project would not remove or otherwise result in a substantial loss of topsoil. Rather, as part of the Project, the topsoil and subsoil recovered and stored in berms during previous mining would be pushed back onto the adjoining final slope wall to support revegetation. Additionally, through the use of stabilization measures and revegetation during reclamation, substantial erosion due to wind and/or storm events would not occur. Thus, no topsoil or subsoil loss would result.

Various stormwater BMPs for sediment entrainment and erosion control would be implemented during Project activities. Specific BMPs may include construction/maintenance of a perimeter berm along certain boundary segments at each Project site, grading to direct stormwater away from

low-lying areas where off-site discharge could occur, and installation/maintenance of silt fencing and/or waddles as warranted. As a result, with implementation of site-specific BMPs, impacts related to soil erosion and loss of topsoil would be less than significant.

- 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?*

Less than Significant Impact. No, the 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. The Project sites are located principally on alluvial basin fill deposits with a few areas containing intermixed eolian sands. The Natural Resources Conservation Service maps for the Project sites indicate soils in the area are generally gravelly sands and sandy loams with some clayey and silty deposits (United States Department of Agriculture 2021). The soil types mapped are typically described as well drained with relatively low water capacities. These properties are consistent with relatively stable soil conditions because these soils tend to be non-expansive and retain minimal moisture (University of Wisconsin-Madison 2020). Additionally, in portions of SB-1 and SB-I-3, the material consists of weakly indurated crystalline rock. During inspection of the Project sites, these geologic rock types were observed by geologists and engineers to exhibit stable surface features in the exposed pit walls.

The California Department of Conservation (2021b) landslide inventory database does not list active or dormant landslides within the Project sites. Therefore, there are no known landslides at the Project sites that could be reactivated as a result of Project implementation. Furthermore, based on the California Department of Conservation's (2021b) landslide susceptibility map, the Project sites are located in areas indicative of low to moderate deep seated landslide susceptibility. Project reclamation activities would further increase stabilization of the Project site slopes through final contouring and revegetation; therefore, the Project would not have an adverse effect on existing or future landslide susceptibility.

As discussed under item (a)(iii), there is minimal potential for lateral spreading, subsidence, collapse, or liquefaction in the Project Area. In addition, because the Project entails reclamation of existing borrow sites, no adverse ground conditions would be created that would contribute to these types of ground failures. Moreover, there are no identified liquefaction zones mapped at or near the Project sites (California Department of Conservation 2021c). 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 be less than significant.

- 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. No, the 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, no impact related to expansive soils would 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. No, the Project does not require the use or installation of septic tanks or alternative wastewater disposal systems. Project reclamation activities would involve removing deleterious materials and debris, recontouring Project site slopes and floors to ensure slopes do not exceed a 2H:1V angle, installing stormwater BMPs for erosion control, and revegetating reclaimed areas with a native plant hydroseed mix. These activities would be temporary, lasting only approximately one month at each Project site. Portable toilet systems for staff would continue to be provided on site by a vendor approved by Metropolitan, and no permanent septic or wastewater disposal systems would be installed. Therefore, the Project would have no impact related to septic tanks and alternative wastewater disposal systems.

- f. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?*

No Impact. No, the Project would not directly or indirectly destroy a unique paleontological resource or unique geologic features. Project reclamation activities would involve removing deleterious materials and debris, recontouring Project site slopes and floors to ensure slopes do not exceed a 2H:1V angle, installing stormwater BMPs for erosion control, and revegetating reclaimed areas with a native plant hydroseed mix. Project reclamation activities would not involve excavation into previously undisturbed soils. (See Section 3.5 [Cultural Resources] for additional detail.) Therefore, because no additional excavation would be required during reclamation, no impact to paleontological resources would occur.

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
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☐	☒

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 (CO₂), 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 (CO₂) is used to relate the amount of heat absorbed to the amount of the gas emitted, referred to as “carbon dioxide equivalent” (CO₂e), 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 CO₂ on a molecule per molecule basis (Intergovernmental Panel on Climate Change [IPCC] 2014).¹⁵

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 CO₂, 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 AB 32, the “California Global Warming Solutions Act of 2006.” AB 32 required the reduction of statewide GHG emissions to 1990

¹⁵ 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.

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 SB 32 into law, extending AB 32 by requiring the State to further reduce GHG emissions to 40 percent below 1990 levels by 2030 (the other provisions of AB 32 remain unchanged). On December 14, 2017, CARB adopted the 2017 Scoping Plan, which provides a framework for achieving the 2030 target. The 2017 Scoping Plan relies on the continuation and expansion of existing policies and regulations, such as the Cap-and-Trade Program and the Low Carbon Fuel Standard, and implementation of recently adopted policies and legislation, such as SB 1383 (aimed at reducing short-lived climate pollutants including methane, hydrofluorocarbon gases, and anthropogenic black carbon) and SB 100 (accelerated the Renewables Portfolio Standard to increase procurement from eligible renewable energy resources to 33 percent of total retail sales by 2020, 60 percent by 2030, and 100 percent by 2045). 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 CO₂e by 2030 and two MT of CO₂e by 2050 (CARB 2017).

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).

METHODOLOGY

Similar to the air pollutant emissions modeling, GHG emissions associated with proposed reclamation construction activities (i.e., regrading slopes, backfilling, and revegetation) and restoration monitoring activities (i.e., periodic site visits by a monitoring biologist) were estimated using CalEEMod version 2020.4.0. CalEEMod uses Project-specific information, including the Project's land uses and location, to estimate a Project's emissions (Refer to Appendix D for the air quality and greenhouse gas emissions modeling). The Project's emissions were estimated separately for the proposed reclamation construction activities and the proposed restoration monitoring activities because these activities would not occur simultaneously and would involve substantially different emissions characteristics (e.g., emission sources, frequency and duration of emissions, temporary versus periodically recurring).

Reclamation Construction Activities

As discussed in Section 3.3 (Air Quality), proposed reclamation construction activities were modeled to occur consecutively in year 2022. This approach is considered conservative because activities occurring in future years would be expected to generate fewer emissions due to increasingly stringent fuel efficiency standards, such as future iterations of the federal construction equipment emissions standards, Corporate Average Fuel Economy standards, and cleaner mobile equipment engine models that would phase in over time.

To provide a conservative estimate of Project impacts, GHG emissions generated by reclamation construction activities for the largest individual Project site (RV-1) were modeled and compared to the most stringent GHG threshold recommended by SCAQMD and MDAQMD. Only one Project site is anticipated to be reclaimed at a time with up to 12 sites reclaimed in any given year (reclamation activities would require one month at each Project site). To provide flexibility,

emissions generated by reclamation construction activities at RV-1 were multiplied to determine the maximum number of Project sites that could undergo reclamation construction activities in the same year without exceeding the most stringent GHG emission threshold.¹⁶

Emissions modeled for the proposed reclamation construction activities at RV-1 include emissions generated by heavy equipment used on site and emissions generated by vehicle trips, such as worker, water truck, and dump truck trips. The schedule, list of heavy equipment, and number of vehicle trips used in CalEEMod were based on information contained in Section 1 (Project Description). As stated therein, it was assumed each Project site would require one month to reclaim with workers on site four days each week.¹⁷ Assumptions for the type and number of equipment and support vehicles to be used during reclamation of each Project site is listed in Table 3.8-1. It was also assumed three Metropolitan employees would be on site during reclamation construction activities and would travel from the Iron Mountain Pumping Plant to the Project site (a one-way trip distance of approximately 15 miles for RV-1). In addition, it was assumed one water truck and one dump truck would travel to and from the Project site each day with a one-way trip distance of approximately 6.9 miles for the water truck and a one-way trip distance of approximately 20 miles for the dump truck, based on CalEEMod default trip distances for the MDAQMD region.

Table 3.8-1. Representative Off-Road Vehicle List – Reclamation Construction Activities

Equipment	Make and Model	Quantity	Average Horsepower	Average Hours/Day
Water Truck	Freightliner – 4,000-gallon	1	300	4
Dozer	Caterpillar D-6	1	215	8
Excavator	Caterpillar 330	1	273	8
Loaders	Caterpillar 966	1	276	8
Grader	Caterpillar 140M, 160M, or 14M Motor	1	187	4
Dump Truck	Freightliner 114SD	1	16	4
Hydroseed Spreader	Freightliner – 1,000-gallon	1	172	8

Restoration Monitoring Activities

Restoration monitoring activities would occur following the completion of reclamation construction activities at each Project site. Proposed restoration monitoring activities were modeled to occur in year 2022, which is a conservative approach as explained above in the prior subsection. To provide a conservative estimate of Project impacts, GHG emissions generated by restoration monitoring activities at the furthest individual Project site from the Iron Mountain Pumping Plant (SB-1) were modeled and compared to the most stringent GHG emission threshold recommended by SCAQMD and MDAQMD.

¹⁶ The evaluation of GHG emissions from reclamation construction activities occurring at all 20 Project sites in the same year is very conservative given that 14 Project sites are estimated to be reclaimed between 2027 and 2122, as described in Section 1.1 (Introduction).

¹⁷ CalEEMod does not include an option for a four-day work week; therefore, the modeling conservatively assumes a five-day work week.

Modeling for the proposed restoration monitoring activities at SB-1 includes emissions generated by periodic vehicle trips by the biologist to each Project site. As stated in Section 1 (Project Description), it was assumed a monitoring biologist would visit each Project site four times per year for up to three years. To provide a conservative estimate of Project impacts, it was assumed the one-way trip distance for each biologist visit would be approximately 77.6 miles, which is the distance between the Iron Mountain Pumping Plant and the furthest Project site (SB-1). It was also assumed staff vehicle trips would be made in a light-duty truck with a gross vehicle weight rating of less than 6,000 pounds and an equivalent test weight between 3,751 and 5,750 pounds (e.g., a small pickup truck similar to a Toyota Tacoma).

Only one Project site is anticipated to be reclaimed at a time. However, to provide flexibility, emissions generated by restoration monitoring activities at SB-1 were multiplied to determine the maximum number of Project sites that could undergo restoration monitoring activities in the same year without exceeding the most stringent GHG emission threshold.¹⁸

GHG EMISSION THRESHOLDS

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

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

As mentioned in the Regulatory Framework section above, in May 2022, Metropolitan adopted a CAP and certified an associated Program EIR to analyze and mitigate GHG emissions associated with its activities. However, the CAP was not yet completed at the time this Project's GHG emissions analysis was conducted. Therefore, this Project continues the practice of referring to guidance from other agencies, namely local air districts, when evaluating the significance of GHG emissions. Because proposed reclamation activities could occur over such a broad timeframe and the exact date for reclamation is not known, GHG emission calculations have been conservatively estimated for analysis purposes; however, should reclamation occur between 2022 and 2122, the actual Project-related emissions associated with this activity would be quantified and reported in the CAP annual progress report.

As summarized in Table 3.3-1 in Section 3.3 (Air Quality), the Project sites are located in both the MDAQMD and SCAQMD jurisdictional boundaries. SCAQMD considered a tiered approach to determine the significance of projects based on guidance provided by the

¹⁸ The evaluation of GHG emissions from restoration monitoring activities occurring at all 20 Project sites in the same year is very conservative given that 14 Project sites are estimated to be reclaimed between 2027 and 2122, as described in Section 1.1 (Introduction).

SCAQMD's GHG CEQA Significance Threshold Working Group in September 2010. The draft tiered approach is outlined in meeting minutes dated September 29, 2010 (SCAQMD 2010):

- **Tier 1.** If the project is exempt from further environmental analysis under existing statutory or categorical exemptions, there is a presumption of less than significant impacts with respect to climate change. If not, then the Tier 2 threshold should be considered.
- **Tier 2.** Consists of determining whether or not the project is consistent with a GHG reduction plan that may be part of a local general plan, for example. The concept embodied in this tier is equivalent to the existing concept of consistency in CEQA Guidelines Section 15064(h)(3), 15125(d) or 15152(a). Under this tier, if the project is consistent with the qualifying local GHG reduction plan, it is not significant for GHG emissions. If there is not an adopted plan, then a Tier 3 approach would be appropriate.
- **Tier 3.** Establishes a screening significance threshold level to determine significance. The Working Group has provided a recommendation of 10,000 MT of CO₂e per year for industrial projects where SCAQMD is the CEQA Lead Agency and 3,000 MT of CO₂e per year for non-industrial projects.
- **Tier 4.** Establishes a service population threshold to determine significance. The Working Group has provided a recommendation of 4.8 MT of CO₂e per person per year for land use projects.

The Project would not be statutory or categorically exempt; therefore, Tier 1 would not apply. Metropolitan has adopted a local, qualified GHG reduction plan; however, the GHG reduction plan was not adopted at the time of this Project analysis; thus, Tier 2 would not apply. Tier 4 would also not apply because the Project would not generate a service population (defined as residents or employees). Accordingly, the Tier 3 threshold is considered by Metropolitan to be the most appropriate threshold to determine the significance of GHG emission impacts for the Project pursuant to CEQA Guidelines Section 15064. The threshold of 3,000 MT of CO₂e per year is also consistent with the thresholds adopted by the Counties of Riverside and San Bernardino for determining whether a project is a "small project" deemed to have a less-than-significant individual and cumulative impact for GHG emissions (County of San Bernardino 2011; County of Riverside 2019). In addition, the threshold of 3,000 MT of CO₂e per year is more stringent than the MDAQMD threshold of 100,000 tons (or 90,718 MT) of CO₂e per year (MDAQMD 2016) and therefore provides a more conservative evaluation of Project impacts.

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. No, the proposed Project would not directly or indirectly generate GHG emissions that may have a significant impact on the environment.

Reclamation Construction Activities

Proposed Project reclamation construction activities would involve removing deleterious materials and debris, recontouring Project site slopes and floors, installing stormwater BMPs for erosion

control, and revegetating reclaimed areas with a native plant hydroseed mix. Proposed reclamation construction activities would generate GHG emissions through the use of heavy equipment and vehicle trips by workers and contractors. GHG emissions modeling assumptions are outlined above under *Methodology*. Table 3.8-2 summarizes annual GHG emissions generated by proposed construction reclamation activities at the largest Project site (RV-1). As shown therein, reclamation construction activities at RV-1 would generate approximately 50 MT of CO₂e over a 30-day period, which would not exceed the threshold of 3,000 MT of CO₂e per year. Reclamation construction activities at the remaining Project sites would generate similar or fewer GHG emissions because they are smaller in size than RV-1; therefore, GHG emissions generated at these Project sites would also not exceed the significance threshold. Furthermore, conservatively assuming that reclamation construction activities at each Project site would generate the same level of GHG emissions as those at RV-1, all 20 Project sites could undergo reclamation construction activities in the same year, and annual GHG emissions still would not exceed the GHG emission significance threshold of 3,000 MT of CO₂e per year (50 MT x 20 Project sites = 1,000 MT of CO₂e per year).¹⁹ As a result, proposed reclamation construction activities would not generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment, and impacts would be less than significant.

Table 3.8-2. Representative Greenhouse Gas Emissions – Proposed Reclamation Construction Activities at RV-1 (Largest Project Site)

	Annual GHG Emissions (MT of CO ₂ e per year)
RV-1	50
GHG Emissions Significance Threshold¹	3,000
<i>Significant (Exceeds Thresholds)?</i>	<i>NO</i>

Source: Appendix D

Note: MT of CO₂e (metric ton of carbon dioxide equivalent), GHG (greenhouse gas), SCAQMD (South Coast Air Quality Management District).

¹ Based on SCAQMD's GHG working group threshold for "non-industrial" projects (2010), the threshold set forth in the *County of Riverside Climate Action Plan Update* (2019), and the threshold set forth in the *County of San Bernardino Greenhouse Gas Reduction Plan* (2011).

Restoration Monitoring Activities

Proposed restoration monitoring activities involve quarterly monitoring for a period of three years at each Project site. Restoration monitoring would generate GHG emissions associated with vehicle trips for periodic site visits. GHG emissions modeling assumptions are outlined above under *Methodology*. Table 3.8-3 summarizes annual GHG emissions generated by restoration monitoring activities for the individual Project site located the furthest driving distance from Iron Mountain Pumping Plant (i.e., SB-1) because this is the site for which restoration monitoring activities would generate the highest GHG emissions. As shown therein, restoration monitoring activities at SB-1 would generate approximately 13 MT of CO₂e per year for the three-year monitoring period, which would not exceed the threshold of 3,000 MT of CO₂e per year. Restoration monitoring activities at the remaining Project sites would generate similar or fewer GHG emissions because they would be closer in distance to Iron Mountain Pumping Plant;

¹⁹ The evaluation of GHG emissions from reclamation construction activities occurring at all 20 Project sites in the same year is very conservative given 14 Project sites are estimated to be reclaimed between 2027 and 2122, as described in Section 1.1 (Introduction).

therefore, GHG emissions generated at these Project sites would also not exceed the significance threshold. Furthermore, conservatively assuming that restoration monitoring activities at each Project site would generate the same level of GHG emissions as those at SB-1, all 20 Project sites could undergo restoration monitoring activities in the same year, and annual GHG emissions still would not exceed the GHG emission significance threshold of 3,000 MT of CO₂e per year (13 MT x 20 Project sites = 260 MT of CO₂e per year).²⁰ As a result, restoration monitoring activities would not generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment, and impacts would be less than significant.

Table 3.8-3. Representative Greenhouse Gas Emissions – Restoration Monitoring Activities at SB-1 (Furthest Driving Distance from Iron Mountain Pumping Plant)

	Annual GHG Emissions (MT of CO ₂ e per year)
SB-1	13
GHG Emissions Significance Threshold¹	3,000
<i>Significant (Exceeds Thresholds)?</i>	<i>NO</i>

Source: Appendix D

Note: MT of CO₂e (metric ton of carbon dioxide equivalents), GHG (greenhouse gas), SCAQMD (South Coast Air Quality Management District).

¹ Based on SCAQMD's GHG working group threshold for "non-industrial" projects (2010), the threshold set forth in the *County of Riverside Climate Action Plan Update* (2019), and the threshold set forth in the *County of San Bernardino Greenhouse Gas Reduction Plan* (2011).

Post-Reclamation Uses

After restoration and monitoring are completed, the final end use of the Project sites would be revegetated open space consistent with the surrounding environment. There would be no additional activities or operations; therefore, there would be no operational impacts related to GHG emissions.

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

No Impact. No, the proposed Project would not conflict with an applicable plan, policy or regulation of an agency adopted for the purposes of reducing GHG emissions (County of Riverside 2019; County of San Bernardino 2011). Metropolitan is not subject to the *County of Riverside Climate Action Plan Update* (2019) or the *County of San Bernardino Greenhouse Gas Emissions Reduction Plan* (2011) because these plans do not address GHG emissions generated by Metropolitan's operational activities. As shown in Tables 3.8-1 and 3.8-2, the proposed Project would temporarily generate a small amount of GHG emissions and would not conflict with the GHG emissions reduction measures listed in the CARB (2017) Climate Change Scoping Plan. Therefore, the Project would not conflict with applicable plans, policies, or regulations adopted for the purpose of reducing the emissions of GHGs, and no impact would occur.

²⁰ The evaluation of GHG emissions from restoration monitoring activities occurring at all 20 Project sites in the same year is very conservative given that 14 Project sites are estimated to be reclaimed between 2027 and 2122, as described in Section 1.1 (Introduction).

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?	☐	☐	☒	☐
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☒	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒
e) For a Project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the Project result in a safety hazard or excessive noise for people residing or working in the Project area?	☐	☐	☐	☒
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	☐	☐	☒	☐

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. No, the 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. The only hazardous materials present on site would be fuels and oils stored “in use” within mobile equipment (e.g., scrapers, excavators, dozers, loaders, etc.) operating during reclamation activities. Minor maintenance (lubing and greasing) and/or re-fueling of mobile equipment and maintenance trucks via a mobile fuel truck may occur on site; however, equipment would generally be returned to Metropolitan’s fleet shop located at the Iron Mountain Pumping Plant for refueling, repairs, and maintenance.

The Project would employ spill prevention and cleanup measures to contain stormwater and prevent contamination of stormwater discharges. Specifically, handling and transfer of fuel and lubricating oils would follow best practices, as well as applicable health and safety regulations and/or local ordinances. Metropolitan staff would adhere to standard fueling procedures and safety protocols if conducting on-site refueling activities and/or routine equipment maintenance during

the Project. Emergency spill response materials would be available in an employee support vehicle in the unlikely event of a spill. Metropolitan employees are appropriately trained in spill response, and any potentially hazardous materials would be properly removed and transported to an approved facility.

The Project sites are generally located in remote and isolated areas and are not easily accessible by the public. There are few nearby cities, communities, or other developments with the exception of Metropolitan's existing employee communities adjacent to the Gene, Iron Mountain, Eagle Mountain, and Julian Hinds pumping plants. Site RV-7 scheduled to be reclaimed by 2122, is the only Project site located within 0.25 mile of residences. The closest residences to RV-7 are those at the Julian Hinds Pumping Plant, which are leased by Metropolitan employees and located approximately 1,000 feet to the west of RV-7. At this distance, the transport, use, and disposal of hazardous materials at this Project site would not create a significant hazard to members of the public. After restoration and monitoring are completed, the final end use of the Project sites would be revegetated open space consistent with the surrounding environment. There would be no additional activities or operations; thus, there would be no operational impacts related to hazardous materials usage. Therefore, the Project would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials, and impacts would be less than significant.

- b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?*

Less than Significant Impact. No, the Project would not create a significant hazard to the public through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment. Only minimal amounts of hazardous materials would be used; therefore, the potential for an accidental release of significant quantities of hazardous materials that could affect the surrounding environment is low. Furthermore, although certain hazardous materials (i.e., oils, lubricants, fuels) would be found within vehicles and equipment operating on site, Metropolitan employees are trained to properly recognize, contain, and cleanup such releases. The Project sites would also be designed and graded (e.g., perimeter berms) to contain accidentally-released materials and stormwater that may be contaminated as a result of equipment leaks. Moreover, stormwater BMPs, cleanup requirements, and other procedures would be implemented on site to ensure stormwater is properly contained and kept free of contaminants, which would include but would not be limited to:

- Spill prevention, control, and cleanup;
- Vehicle and equipment fueling, cleaning, and repair;
- Waste handling and disposal;
- Perimeter berms; and
- Use of silt fencing, fiber rolls or similar perimeter controls, as needed.

As discussed above, the Project sites are generally located in remote and isolated areas and are not easily accessible by the public. There are few nearby cities, communities, or other developments with the exception of Metropolitan's existing employee communities adjacent to the Gene, Iron

Mountain, Eagle Mountain, and Julian Hinds pumping plants. Site RV-7, scheduled to be reclaimed by 2122, is the only Project site located within 0.25 mile of residences. The closest residences to RV-7 are those at the Julian Hinds Pumping Plant, which are leased by Metropolitan employees and located approximately 1,000 feet to the west of RV-7. At this distance, reclamation activities at the Project sites would not create a significant hazard to members of the public. After restoration and monitoring are completed, the final end use of the Project sites would be revegetated open space consistent with the surrounding environment. There would be no additional activities or operations; therefore, 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.

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

No Impact. No, the Project would not emit hazardous emissions, materials, substances, or waste within 0.25 mile of an existing or proposed school. The Project sites are located in open desert entirely within Metropolitan fee property. The nearest school is the Parker Dam Elementary School, located in the town of Parker, Arizona over five miles away from the nearest Project site (SB-1). 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. No, the Project would not be located on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5. The State Water Resources Control Board (2021) GeoTracker and the Department of Toxic Substances Control (2021) EnviroStor databases were reviewed to determine whether the Project sites are listed hazardous material/waste sites or are located near a known contaminated site. None of the Project sites are on or near hazardous materials sites identified on a list 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. No, the 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 public use airport nearest to the Project sites is the Chiriaco Summit Airport, located approximately 5.4 miles southwest of the nearest Project site (RV-7). Therefore, no impact would occur.

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

No Impact. No, the 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 and cannot be accessed by the general public via a public road. The Project sites are accessed via Metropolitan's private access road system, and proposed reclamation of these sites would not result in alterations to any roadways. The Project would not result in an increased number of vehicles on the nearest public roadways. Additionally, there are no public facilities or structures in the vicinity of the Project sites. As discussed previously, it is estimated that a maximum of three Metropolitan employees would conduct Project reclamation activities and be present on site at any given time at each Project site. In the unlikely event of an emergency that would require on-site evacuation, existing private access roads have sufficient capacity to safely evacuate this small number of on-site employees. After restoration and monitoring are completed, the final end use of the Project sites would be revegetated open space consistent with the surrounding environment. There would be no additional activities or operations; therefore, there would be no operational impacts related to emergency response plans and emergency evacuation plans. 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. No, the 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 sites are all located in areas surrounded by desert landscape and are accessed via private roads within Metropolitan right-of-way. According to the current Fire Hazard Severity Zone Maps published by the California Department of Forestry and Fire Protection (CAL FIRE; 2007a, 2007b, and 2008), none of the Project sites are located within designated "Very High", "High" or "Moderate" Fire Hazard Severity Zones within State or Local Responsibility Areas. According to Figure S-11 of the County of Riverside General Plan and Policy Map HZ-5 of the County of San Bernardino County Policy Plan, the Project sites are designated as having only a "moderate" wildfire hazard potential (County of Riverside 2018; County of San Bernardino 2020).

During Project reclamation activities, a water truck, excavator, dozer, grader, and dump truck would be utilized. All vehicles would contain fire extinguishers, and staff are trained in fire suppression in accordance with Metropolitan's standard protocols. Additionally, no permanent structures are currently located on site, and none are proposed. The Project sites would be generally void of vegetation during the majority of reclamation activities until hydroseeding occurs. After restoration and monitoring are completed, the final end use of the Project sites would be revegetated open space consistent with the surrounding environment. There would be no additional activities or operations; thus, there would be no operational impacts related to wildland fires. 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?	☐	☐	☒	☐
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the Project may impede sustainable groundwater management of the basin?	☐	☐	☐	☒
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:				
i. Result in substantial erosion or siltation on or off site?	☐	☐	☒	☐
ii. Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	☐	☐	☒	☐
iii. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☒	☐
iv. Impede or redirect flood flows?	☐	☐	☐	☒
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to Project inundation?	☐	☐	☒	☐
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☐	☒

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. No, the proposed Project would not violate RWQCB water quality standards or waste discharge requirements (WDRs) or otherwise substantially degrade surface or ground water quality. The Project would neither involve work within waterbodies (ephemeral washes) nor create a waste that would be subject to regulation under a WDR. Project activities involve removing deleterious materials, grading and final slope contouring, installing stormwater BMPs for erosion control, revegetating by hydroseeding, and monitoring. Surface flows are generally not present in the desert environment, and the Project is not expected to permanently impact jurisdictional waters because Project work at each site is temporary (30 days) and no permanent structures, direct removal, or filling is proposed at the sites.

Proposed Project activities would be conducted using applicable sediment entrainment and erosion control measures. Specific BMPs would include construction/maintenance of a perimeter berm along certain boundary segments at each Project site, grading to direct stormwater away from low-lying areas where off-site discharge could occur, and installation of silt fencing and/or waddles as warranted. As a result, reclamation of the Project sites would not discharge materials that would

adversely impact surface water quality. Furthermore, as discussed in Section 3.7 (Geology and Soils), the design pit depths for the individual Project sites would be above the groundwater table (see MRP Section 1.3 [Appendix A]), and the Project would not involve activities that would otherwise impact groundwater quality. Additionally, no waste would be discharged during Project activities, so there would be no potential to adversely affect or violate RWQCB water quality standards or WDRs. After restoration and monitoring are completed, the final end use of the Project sites would be revegetated open space consistent with the surrounding environment. There would be no additional activities or operations; therefore, there would be no operational impacts related to RWQCB water quality standards and WDRs. Therefore, impacts would be less than significant.

- b. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the Project may impede sustainable groundwater management of the basin?*

No Impact. No, the proposed Project would not substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the Project may impede sustainable groundwater management of the basin. A project may result in a significant impact on groundwater supplies if it causes a demonstrable and sustained reduction of groundwater recharge capacity or changes the water levels such that it reduces the ability of a water utility to use the groundwater basin for public water supplies or storage of imported water, or if a project reduces the yields of adjacent wells or well fields or adversely changes the rate or direction of groundwater flow. Additionally, an impact may result if a project were to reduce groundwater levels within a groundwater-dependent ecosystem and/or reduce groundwater to levels that would result in land subsidence.

During proposed Project activities, water would be used for dust control, batching the hydroseed mix, and irrigation of hydroseeded areas using a mobile hydroseed truck and water truck. No groundwater would be used to implement reclamation activities because the water would be sourced directly from the CRA, which Metropolitan manages and maintains rights to draw from. After restoration and monitoring are completed, the final end use of the Project sites would be revegetated open space consistent with the surrounding environment. There would be no additional activities or operations; therefore, there would be no operational impacts related to groundwater supplies. Because the Project would not require use of groundwater supplies, the groundwater basin would not be affected, and the Project would not conflict with its sustainable management. Therefore, no impact related to groundwater supplies would occur.

- c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river 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. No, 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. As discussed in Section 3.4 (Biological Resources), potential drainages were identified within SB-I-2, SB-I-3, and RV-I-2 and adjacent to SB-1, SB-2, SB-3, SB-6, SB-7, RV-1, RV-3, RV-4, RV-5, RV-6, and RV-I-3. The Project involves removing deleterious materials, grading and final

slope contouring, installing stormwater BMPs for erosion control, revegetating by hydroseeding, and monitoring. Specific BMPs may include, but are not limited to, construction/maintenance of a perimeter berm along certain boundary segments at each Project site, grading to direct stormwater away from low-lying areas where off-site discharge could occur, and installation of silt fencing and/or waddles, as warranted. As deemed necessary by Metropolitan staff, BMPs would be installed or existing BMPs maintained as needed during Project activities to minimize sediment entrainment and erosion. Additionally, these BMPs may remain post-reclamation, if needed, to prevent off-site runoff and control erosion. The Project would not include the addition of impervious surfaces on the Project sites and would not permanently impact drainages, if present, because no permanent structures, direct removal, or filling is proposed in these areas. Given that the reclaimed topography would direct drainage into the Project sites and that erosion and siltation would be controlled through the implementation of the aforementioned erosion control BMPs, impacts related to erosion and siltation as a result of altered drainage patterns would be less than significant.

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

Less than Significant Impact. No, 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 3.4 (Biological Resources), potential drainages were identified within SB-I-2, SB-I-3, and RV-I-2 and adjacent to SB-1, SB-2, SB-3, SB-6, SB-7, RV-1, RV-3, RV-4, RV-5, RV-6, and RV-I-3. The Project entails reclamation of sites that were mined for earthen material, sand and gravel, or stone. When reclamation commences, the Project sites would be graded and contoured so that the final topography would convey stormwater inward to the pit floors where it would be captured and detained until it either evaporates or seeps into the underlying soil. The Project would not include the addition of impervious surfaces on the Project sites and would not permanently impact drainages, if present, because no permanent structures, direct removal, or filling is proposed in these areas. Therefore, the proposed Project would not result in flooding on or off site, and impacts would be less than significant.

- 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. No, 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 which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff water. As discussed in Section 3.4 (Biological Resources), potential drainages were identified within SB-I-2, SB-I-3, and RV-I-2 and adjacent to SB-1, SB-2, SB-3, SB-6, SB-7, RV-1, RV-3, RV-4, RV-5, RV-6, and RV-I-3. The Project sites are located in remote desert regions, and there are no existing or planned stormwater drainage systems within the vicinity of the Project. Furthermore, proposed reclamation of the Project sites involves removing deleterious materials, grading and final slope contouring, installing stormwater BMPs for erosion control, revegetating by hydroseeding, and monitoring. The Project would not include the addition of impervious surfaces on the Project sites and would not permanently impact drainages, if present, because no permanent structures, direct removal, or filling is proposed in these areas.

Grading and contouring of the pre-existing pit slope walls and floors would create a final landform design directing stormwater to be captured and detained within the pits. Surface grading and slope preparation would be performed using conventional earth-moving equipment, such as dozers, graders, loaders and excavators. Once the pit floors and walls are finished, revegetation would be initiated using a mobile hydroseed truck, which applies a seed mix and tackifier. Minor maintenance (lubing and greasing) and/or re-fueling of mobile equipment and maintenance trucks via a mobile fuel truck may occur on site; however, equipment would generally be returned to Metropolitan's fleet shop located at the Iron Mountain Pumping Plant for refueling, repairs, and maintenance. Hazardous materials would not be stored on site, and those materials used for equipment maintenance would be kept separately from non-hazardous materials on a surface that prevents spills from permeating the ground surface and in an area secure from unauthorized entry at all times. After restoration and monitoring are completed, the final end use of the Project sites would be revegetated open space consistent with the surrounding environment. There would be no additional activities or operations; thus, there would be no operational impacts related to polluted runoff. 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?

No Impact. No, 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 3.4 (Biological Resources), potential drainages were identified within SB-I-2, SB-I-3, and RV-I-2 and adjacent to SB-1, SB-2, SB-3, SB-6, SB-7, RV-1, RV-3, RV-4, RV-5, RV-6, and RV-I-3. The proposed Project involves reclamation activities including removing deleterious materials, grading and final slope contouring, installing stormwater BMPs for erosion control, revegetating by hydroseeding, and monitoring. The Project would not include the addition of impervious surfaces on the Project sites and would not permanently impact drainages, if present, because no permanent structures, direct removal, or filling is proposed in these areas. Reclamation activities would be performed within the previously excavated areas and would not involve grading or changes to natural landform topography associated with existing drainages outside of the Project Areas. After restoration and monitoring are completed, the final end use of the Project sites would be revegetated open space consistent with the surrounding environment. There would be no additional activities or operations; therefore, there would be no operational impacts related to impeding or redirecting flood flows. Therefore, the proposed Project would not create a new impediment to surface flow or change flood flow patterns. Thus, the Project would have no impact related to flood flows.

d. In flood hazard, tsunami, or seiche zones, risk release of pollutants due to Project inundation?

Less than Significant Impact. No, the proposed Project would not be located in designated flood hazard, tsunami, or seiche zones and would not result in the potential for pollutants to be released to the environment by inundation. The Project sites are all located in the Mojave Desert region, which is approximately 100 miles from the Pacific Ocean and tsunami zones. None of the Project sites occur within a mapped tsunami or seiche hazard area as defined under the state Seismic Hazards Mapping Act and related seismic hazard maps (California Department of Conservation 2021c).

During reclamation construction activities (i.e., regrading slopes, backfilling, and revegetation), there would be nominal quantities of fuels and oils stored within mobile equipment. Any equipment stored on site during the one-month reclamation construction period for each Project site would be maintained in good working condition, and spill prevention measures would be utilized (e.g., drip pans, berms, etc.) to ensure fuels and lubricating oils are properly contained in accordance with Metropolitan's standard operating procedures. As a result, even if flooding were to occur during reclamation construction activities, given the remote proximity of the Project sites to surface waters, the depths to groundwater, and the lack of potential pollutant sources on site, the Project would not risk release of pollutants due to Project inundation during reclamation construction activities. After restoration and monitoring are completed, the final end use of the Project sites would be revegetated open space consistent with the surrounding environment. There would be no additional activities or operations; therefore, there would be no operational impacts related to the release of pollutants due to Project inundation. Impacts would be less than significant.

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

No Impact. No, the proposed Project would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan. Project reclamation activities include removing deleterious materials, grading and final slope contouring, installing/maintaining stormwater BMPs, revegetating by hydroseeding, and monitoring. These activities would not result in waste streams or discharges that would be subject to regulation under an applicable water quality control plan. Moreover, the Project would not require the use of groundwater; consequently, the Project would not conflict with or obstruct a sustainable groundwater management plan. Therefore, no impact would occur.

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?	☐	☐	☐	☒
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?	☐	☐	☐	☒

Significance criteria established by CEQA Guidelines, Appendix G.

Discussion. *Would the Project:*

a. Physically divide an established community?

No Impact. No, the proposed Project would not physically divide an established community. The Project Area is located in open desert entirely within Metropolitan fee property. The Project Area is not located within an established community and does not serve as a means of moving through or connecting a community or neighborhood. There are no established communities in the immediate vicinity of the Project Area. For these reasons, 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. No, 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 Project Area is located on Metropolitan fee property in unincorporated Riverside and San Bernardino counties. In Riverside County, the Project sites are located in both the Eastern Coachella Valley and Desert Center Area Plan areas and are designated Conservation Habitat and Open Space Rural (County of Riverside 2021). The majority of the Riverside County Project sites currently have a zoning designation of N-A (Non-Area Plan) with the exception of RV-5 and RV-I-3. RV-5 has a zoning designation of M-R-A (Mineral Resources & Related Manufacturing) and RV-I-3 has a zoning designation of W-2-10 (Controlled Development Areas). In San Bernardino County, the Project sites are designated/zoned Resource/Land Management (County of San Bernardino 2020a).

The majority of Metropolitan's CRA fee property was granted to Metropolitan by the federal government pursuant to a 1932 act of Congress for the construction and operation of the CRA. The Project does not require any modifications to the existing Metropolitan ROW, and Metropolitan is not mitigating an environmental effect. Additionally, the Project does not require changes to an existing zoning or General Plan designation in San Bernardino or Riverside counties. Project activities would be consistent with the zoning designations for each county. Furthermore, the proposed reclamation activities would restore the Project sites to a more natural, less disturbed, passive state consistent with the surrounding environment and the underlying land use designations of the Project sites for open space, conservation habitat, and resource/land management. Therefore, the proposed Project would not cause a significant environmental impact due to a conflict with a land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect, and no impact would occur.

3.12 Mineral Resources

MINERAL RESOURCES

Would the Project:

	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the State?	☐	☐	☐	☒
b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	☒

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?*

No Impact. No, 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. SMARA requires the State Geologist to classify mineral lands to help identify and protect mineral resources in California. Mineral lands are mapped and assigned Mineral Resource Zones (MRZ) using the State's mineral land classification system. Based on a review of State mineral land classification reports and designations, the Project sites are located outside recognized areas of regional or statewide significance, and none of the Project sites have an MRZ overlay. Accordingly, the Project would not result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the State, and no impact would occur.

- b. *Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?*

No Impact. No, the 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. Based on the General Plans for Riverside and San Bernardino counties, none of the Project sites are covered by an MRZ. Accordingly, 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, and no impact would occur.

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?	☐	☐	☒	☐
b) Generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
c) For a Project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the Project expose people residing or working in the Project area to excessive noise levels?	☐	☐	☐	☒

Significance criteria established by CEQA Guidelines, Appendix G.

OVERVIEW OF NOISE AND VIBRATION

Noise

Sound is a vibratory disturbance created by a moving or vibrating source that is capable of being detected by the hearing organs. Noise is defined as sound that is loud, unpleasant, unexpected, or undesired and may therefore be classified as a more specific group of sounds. The effects of noise on people can include general annoyance, interference with speech communication, sleep disturbance, and, in the extreme, hearing impairment (Caltrans 2013).

Noise levels are commonly measured in decibels (dB) using the A-weighted sound pressure level (dBA). The A-weighting scale is an adjustment to the actual sound pressure levels so that they are consistent with the human hearing response. Decibels are measured on a logarithmic scale that quantifies sound intensity in a manner similar to the Richter scale used to measure earthquake magnitudes. A doubling of the energy of a noise source, such as doubling of traffic volume, would increase the noise level by 3 dB; dividing the energy in half would result in a 3 dB decrease (Crocker 2007).

Vibration

Vibration is a unique form of noise because its energy is carried through buildings, structures, and the ground, whereas sound is simply carried through the air. Thus, vibration is generally felt rather than heard. Some vibration effects can be caused by noise (e.g., the rattling of windows from passing trucks). Typically, ground-borne vibration generated by manmade activities attenuates rapidly as distance from the source of the vibration increases. Vibration amplitudes are usually expressed in peak particle velocity (PPV) for buildings and Root Mean Square (RMS) vibration velocity for people and are normally described in inches per second (in/sec). PPV is defined as the maximum instantaneous positive or negative peak of a vibration signal (Caltrans 2020). RMS is generally the equivalent to 71 percent of the PPV. Thus, evaluating human annoyance to vibration usually results in a more restrictive vibration limit than structural damage limits. Table 3.13-1 summarizes the vibration limits recommended by the American Association of State Highway and Transportation Officials to avoid structural damage to buildings.

Table 3.13-1. Maximum Vibration Levels for Preventing Building Damage

Type of Situation	Vibration Level (in/sec PPV)
Historic sites or other critical locations	0.1
Residential buildings, plastered walls	0.2–0.3
Residential buildings in good repair with gypsum board walls	0.4–0.5
Engineered structures, without plaster	1.0–1.5

Notes: in/sec (inches per second), PPV (peak particle velocity).

Source: Caltrans 2020

The vibration annoyance potential criteria recommended for use by Caltrans, which are based on the general human response to different levels of groundborne vibration velocity levels, are described in Table 3.13-2.

Table 3.13-2. Vibration Annoyance Potential Criteria for Humans (in/sec PPV)

Human Response	Transient Sources	Continuous/Frequent Intermittent Sources
Severe	2.0	0.4
Strongly perceptible	0.9	0.10
Distinctly perceptible	0.25	0.04
Barely perceptible	0.04	0.01

Notes: in/sec (inches per second), PPV (peak particle velocity).

Source: Caltrans 2020

REGULATORY FRAMEWORK

Riverside County

Riverside County Code of Ordinances

Chapter 9.52 of the Riverside County Code regulates noise in the unincorporated areas of Riverside County and notes that no person shall create any sound, or allow the creation of any sound, on any property that causes the exterior sound level on any other occupied property to exceed the sound level standards set forth by the County. Section 9.52.020(A-C) exempts facilities owned or operated by or for a governmental agency, capital improvement projects of a governmental agency, and the maintenance or repair of public properties from compliance with Chapter 9.52.

San Bernardino County

San Bernardino County Code of Ordinances

San Bernardino County Code Sections 83.01.080 and 83.01.090 establish noise level limits and vibration standards, respectively, for sources in unincorporated San Bernardino County. However, Sections 83.01.080(g)(3) and 83.01.090(c)(2) exempt noise and vibration, respectively, generated during temporary construction, maintenance, repair, and demolition activities between 7:00 a.m. and 7:00 p.m., except those activities occurring on Sundays and federal holidays, from compliance with these noise level limits and vibration standards.

METHODOLOGY

Reclamation Construction Activities

Temporary noise levels during reclamation construction activities (i.e., regrading slopes, backfilling, and revegetation) would be generated primarily by the use of heavy equipment, including a dozer, excavator, loader, grader, pump, and hydroseed spreader. For the purposes of this noise assessment, heavy equipment can be considered to operate in two modes: stationary and mobile. As a rule, stationary equipment operates in a single location for one or more days at a time, with either fixed-power operation (e.g., pumps, generators, and compressors) or variable-power operation (e.g., pile drivers, rock drills, and pavement breakers). Mobile equipment moves around the site with power applied in cyclic fashion, such as bulldozers, graders, and loaders (Federal Transit Administration [FTA] 2018). Noise impacts from stationary equipment are assessed from the center of the equipment, while noise impacts from mobile equipment are assessed from the center of the equipment activity area (e.g., Project site). Noise generated by reclamation activities was estimated using the Federal Highway Administration's Roadway Construction Noise Model (RCNM). Only one Project site, RV-9, is located near sensitive receivers, which are Metropolitan employee residences at the Julian Hinds Pumping Plant that are leased by Metropolitan employees. RV-9 would be reclaimed between 2027 and 2122 but is discussed here for current analysis purposes. Heavy equipment would travel throughout the RV-7 site at an average distance of 1,400 feet from the nearest sensitive noise-receivers (i.e., the distance between the nearest sensitive receivers and the center of RV-7); therefore, equipment noise levels were estimated at this distance.

Discussion. Would the Project result in:

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

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

Pursuant to Riverside County Code Section 9.52.020(A-C), Metropolitan's facilities, capital improvement projects, and maintenance and repair of public properties is exempt from compliance with the sound level standards in the County's noise ordinance because Metropolitan is a governmental agency. 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 most prevalent sources of noise in the vicinity of the Project Area are vehicular traffic on I-10, SR-62, SR-95, and SR-177 as well as operations at the Julian Hinds Pumping Plant (near RV-9). The Project Area is located in an area surrounded by desert landscape within Metropolitan fee property. RV-7 is the only Project site located within 0.25 mile of noise-sensitive receivers, which are residences at the Julian Hinds Pumping Plant that are leased by Metropolitan employees.

Reclamation Construction Activities

The proposed Project involves temporary reclamation construction activities within Metropolitan fee property, and no permanent noise sources are proposed. Proposed Project reclamation construction activities involve the use of mobile equipment to remove deleterious materials and debris, recontour Project site slopes and floors, installing/maintain stormwater BMPs for erosion control, and revegetating reclaimed areas with a native plant hydroseed mix. Temporary noise levels during reclamation construction activities would occur between the hours of 7:00 a.m. to 3:00 p.m., Monday through Thursday, and would be generated primarily by the use of heavy equipment, including a dozer, excavator, loader, grader, pump, and hydroseed spreader. It is estimated that a maximum of three Metropolitan employees would conduct reclamation activities and would be on site at any given time during reclamation of each Project site. Equipment noise levels were modeled in accordance with the assumptions outlined under *Methodology* and compared to reasonable criteria for assessing mobile equipment noise impacts based on the potential for adverse community reaction, as published in the FTA *Transit Noise and Vibration Impact Assessment Manual* (2018). For residential uses, the daytime noise threshold is 80 dBA L_{eq} for an 8-hour period (FTA 2018). This threshold is set at a reasonable level at which a substantial noise level increase as compared to ambient noise levels would occur.

Assuming conservatively that all reclamation equipment is operating simultaneously, the average hourly noise level at the nearest noise-sensitive receivers (i.e., Metropolitan employee residences located at the Julian Hinds Pumping Plant) would be approximately 57 dBA L_{eq} , which would not exceed the threshold of 80 dBA L_{eq} (see Appendix G for RCNM results). Furthermore, current material extraction operations at RV-7 and operations at the Julian Hinds Pumping Plant already generate elevated noise levels at these receivers. Given the low number of employees proposed to work at each Project site during reclamation, short duration of work per site (approximately 30 days), and above analysis demonstrating that Project activities would generate an average noise level below the applicable threshold, noise levels generated by reclamation construction activities would not exceed standards established in a local general plan or noise ordinance, or applicable standards of other agencies. Impacts would be less than significant.

Restoration Monitoring Activities and Post-Reclamation Uses

Restoration monitoring activities would consist of quarterly site visits to each Project site for a period of three years by a monitoring biologist, as needed. These periodic visual site inspections and vehicle trips would not generate substantial noise. Furthermore, after restoration and monitoring are completed, the final end use of the Project sites would be revegetated open space consistent with the surrounding environment. There would be no additional reclamation activities or operations. Therefore, there would be no noise impacts associated with restoration monitoring activities and post-reclamation uses because these activities would not generate noise levels in excess of standards established in a local general plan or noise ordinance, or applicable standards of other agencies.

b. Generation of excessive groundborne vibration or groundborne noise levels?

Less than Significant Impact. No, the proposed Project would not generate excessive groundborne vibration or noise levels.

Reclamation Construction Activities

Under *Overview of Noise and Vibration*, Table 3.13-1 presents the vibration impact criteria for buildings, and Table 3.13-2 presents the vibration impact criteria for humans. Groundborne noise is the sound emitted by vibrating structures and objects. Reclamation construction activities would involve the use of heavy equipment, which would generate some groundborne vibration. Although heavy equipment used during reclamation construction activities at RV-7 would primarily operate at least 1,000 feet away from these residences (a distance at which vibration would be imperceptible), loaded trucks may travel along Hayfield Road approximately 90 feet from the nearest residence. At this distance, vibration levels from a loaded truck would be approximately 0.02 in/sec PPV, which is below the distinctly perceptible level of 0.04 in/sec PPV for human annoyance from transient vibration sources and 1.5 in/sec PPV for structural damage to buildings (Caltrans 2020; see Appendix G for vibration modeling results). Furthermore, heavy trucks already utilize this road to access RV-7 for material extraction operations and to access the Julian Hinds Pumping Plant. No excessive groundborne noise is anticipated to occur during Project reclamation construction activities. Therefore, groundborne noise impacts during reclamation construction activities would be less than significant.

Restoration Monitoring Activities and Post-Reclamation Uses

Restoration monitoring activities would not involve the use of groundborne noise- or vibration-generating equipment or vehicles. Furthermore, after restoration and monitoring are completed, the final end use of the Project sites would be revegetated open space consistent with the surrounding environment. There would be no additional activities or operations; therefore, there would be no groundborne noise or vibration impacts associated with restoration monitoring activities and post-reclamation uses. Therefore, no groundborne vibration or noise impacts would occur during restoration monitoring activities and post-reclamation uses.

- 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, expose people residing or working in the Project area to excessive noise levels?*

No Impact. No, the proposed Project is not within the vicinity of an airport land use plan. The Project Area is over two miles from a public airport or public use airport. The nearest public use airport to the Project Area is Chiriaco Summit Airport, located approximately 5.4 miles southwest of the nearest Project site (RV-7). In addition, four of Metropolitan's five desert pumping plants have private airstrips. The closest Metropolitan airstrip to a Project site is located at the Julian Hinds Pumping Plant approximately 1,000 feet from RV-7. While RV-7 is located in the vicinity of Metropolitan's own private airstrip, Project activities and the final reclamation of RV-7 by 2122 to revegetated open space would not expose people residing or working in the Project area to excessive noise levels given the infrequent use of this airstrip and the limited, short-term (approximately 30 days) presence of workers at this Project site. Therefore, no impact 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)?	☐	☐	☐	☒
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

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. No, the proposed Project would not induce substantial unplanned growth in an area. The proposed Project would not include residences and would not require additional employees beyond those already employed by Metropolitan. In addition, no new water supply facilities or infrastructure are proposed; therefore, the Project would not increase water supply to the area or otherwise indirectly induce population growth in the area. Accordingly, the proposed Project would not induce substantial unplanned population growth in an area, either directly or indirectly, and no impact would occur.

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

No Impact. No, the proposed Project would not displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere. The Project Area is located entirely within the Metropolitan ROW. The Project Area does not contain existing dwelling units, and the proposed Project would not displace any persons or housing. The Project would not change the existing land use in the Project Area. Therefore, no additional construction of replacement housing elsewhere would be required. As such, the proposed Project would not displace a substantial number of existing people or housing, and no impact would occur.

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?	☐	☐	☐	☒
b) Police protection?	☐	☐	☐	☒
c) Schools?	☐	☐	☐	☒
d) Parks?	☐	☐	☐	☒
e) Other public facilities?	☐	☐	☐	☒

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. No, the proposed Project would not result in substantial adverse physical impacts to any fire protection services. The Project Area is within Metropolitan ROW and is accessed via Metropolitan's private access road system. The San Bernardino County Fire Department and Riverside County Fire Department fire stations nearest to a Project site are Riverside County Fire Station 49, located approximately nine miles (driving distance) east of RV-6, and San Bernardino County Fire Station 44, located approximately 49 miles (driving distance) west of SB-I-3. The proposed Project does not include new housing and would not require employees beyond those already employed by Metropolitan. In addition, the Project would not increase water supply to the area or otherwise directly or indirectly induce population growth in the area that would increase demand for fire protection services. Therefore, the proposed Project would not have an effect upon or result in a need for new or physically altered fire protection services to maintain acceptable service ratios, response times, or other performance objectives, and no impact would occur.

b. Police protection?

No Impact. No, the proposed Project would not result in substantial adverse physical impacts to any police protection services. The Project Area is within Metropolitan ROW and is accessed via Metropolitan's private access road system. The San Bernardino County Sheriff's Department and Riverside County Sheriff stations nearest to the Project Area are the Riverside County Sheriff's Thermal Patrol Station, located approximately 32 miles (driving distance) southwest of RV-I-3, and the San Bernardino County Sheriff's Department Colorado River Patrol Station, located approximately 58 miles (driving distance) north of SB-3. The proposed Project does not include new housing and would not require employees beyond those already employed by Metropolitan. In addition, the Project would not increase water supply to the area or otherwise directly or indirectly

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

c. Schools?

No Impact. No, the proposed Project would not result in substantial adverse physical impacts to any schools. The Project Area is within Metropolitan ROW. The nearest school districts in San Bernardino County to the Project Area are the Morongo Unified School District and Needles Unified School District, located approximately 44 miles northwest of SB-I-3 and approximately 44 miles north of SB-1, respectively. The nearest school district in Riverside County to the Project Area is Coachella Valley Unified School District, approximately seven miles southwest of RV-I-3. The proposed Project does not include new housing and would not require employees beyond those already employed by Metropolitan. In addition, the Project would not increase water supply to the area or otherwise directly or indirectly induce population growth in the area that would increase demand for schools. Therefore, the proposed Project would not have an effect upon or result in a need for new or physically altered schools to maintain acceptable service ratios or other performance objectives, and no impact would occur.

d. Parks?

No Impact. No, the proposed Project would not result in substantial adverse physical impacts to any parks. The Project Area is within Metropolitan ROW and is accessed via Metropolitan's private access road system. The nearest parks to the Project Area in San Bernardino and Riverside counties are Joshua Tree National Park, located approximately 560 feet north of RV-I-3, and Duke Watkins Park, located approximately 43 miles north of SB-1. The proposed Project does not include new housing and would not require employees beyond those already employed by Metropolitan. In addition, the Project would not increase water supply to the area or otherwise directly or indirectly induce population growth in the area that would increase demand for parks. Therefore, the proposed Project would not have an effect upon or result in a need for new or physically altered parks to maintain acceptable service ratios or other performance objectives, and no impact would occur.

e. Other public facilities?

No Impact. No, the proposed Project would not result in substantial adverse physical impacts to any other public facilities. The Project Area is within Metropolitan ROW and is accessed via Metropolitan's private access road system. The nearest libraries in San Bernardino and Riverside counties to the Project Area are Lake Tamarisk Library, located approximately five miles east of RV-6, and Needles Branch Library, located approximately 43 miles north of SB-1. The proposed Project does not include new housing and would not require employees beyond those already employed by Metropolitan. In addition, the Project would not increase water supply to the area or otherwise directly or indirectly induce population growth in the area that would increase demand for other public facilities, such as libraries. Therefore, the proposed Project would not have an effect upon or result in a need for other new or physically altered public facilities, such as libraries, to maintain acceptable service ratios, response times, or other performance objectives, and no impact 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?	☐	☐	☐	☒
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?	☐	☐	☐	☒

Significance criteria established by CEQA Guidelines, Appendix G.

Discussion.

- 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. No, the proposed Project would not increase the use of existing neighborhood and regional parks or other recreational facilities. The proposed Project sites are located entirely within Metropolitan ROW and are accessed via Metropolitan's private access road system. The nearest parks to the Project Area in San Bernardino and Riverside counties are Joshua Tree National Park, located approximately 560 feet north of RV-I-3, and Duke Watkins Park, located approximately 43 miles north of SB-1. The proposed Project does not include new housing and would not require employees beyond those already employed by Metropolitan. In addition, the Project would not increase water supply to the area or otherwise directly or indirectly induce population growth in the area that would increase the use of existing neighborhood and regional parks or other recreational facilities. 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. No, the proposed Project does not include recreational facilities or require the construction or expansion of recreational facilities. The Project sites are located entirely within Metropolitan ROW and are accessed via Metropolitan's private access road system. The Project involves removing deleterious materials, grading and final slope contouring, installing stormwater BMPs, revegetating by hydroseeding, and monitoring. After restoration and monitoring are completed, the final end use of the Project sites would be revegetated open space consistent with the surrounding environment. There would be no additional activities or operations; therefore, there would be no operational impacts related to recreational facilities. The proposed Project does not include new housing and would not require employees beyond those already employed by Metropolitan. In addition, the Project would not increase water supply to the area or otherwise directly or indirectly induce population growth in the area that would require the construction or expansion of recreational facilities. Therefore, the proposed Project

would not require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment. No impact would occur.

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?	☐	☐	☐	☒
b) Would the Project conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)?	☐	☐	☒	☐
c) Substantially increase hazards due to a geometric design feature (5.g., sharp curves or dangerous intersections) or incompatible uses (5.g., farm equipment)?	☐	☐	☐	☒
d) Result in inadequate emergency access?	☐	☐	☐	☒

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 Program (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).

Riverside County

The Riverside County General Plan along with the Desert Center Area Plan and Eastern Coachella Valley Area Plan identify goals and policies for the circulation system in the vicinity of the Project sites in Riverside County. The minimum LOS standard within these areas is LOS C (County of Riverside 2020). The Riverside County Transportation Commission is responsible for preparing and updating the CMP to meet federal Congestion Management Process guidelines. According to the current CMP, none of the roadways in the vicinity of the Project sites in Riverside County are considered to be deficient (Riverside County Transportation Commission 2011).

Discussion. *Would the Project:*

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

No Impact. No, the Project would not conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities. The Project Area is within Metropolitan ROW and is accessed via Metropolitan's private access road system. Proposed Project activities would require the use of heavy equipment and would require

minimal vehicle trips by reclamation contractors and Metropolitan staff on local and regional roadways. In addition, restoration monitoring activities would involve quarterly site visits to each Project site by a monitoring biologist for approximately three years, which would be a *de minimis* addition to existing traffic volumes on local and regional roadways. After restoration and monitoring are completed, the final end use of the Project sites would be revegetated open space consistent with the surrounding environment. There would be no additional activities or operations; therefore, there would be no operational impacts related to the circulation system. In addition, the Project would not change the existing land uses in the Project Area and would not result in any changes to transit, roadways, bicycle systems, or pedestrian facilities. 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. No, the proposed Project would not conflict with or be inconsistent with CEQA Guidelines Section 15064.3(b). The Governor's Office of Planning and Research (2018) *Technical Advisory on Evaluating Transportation Impacts in CEQA* states, "Projects that generate or attract fewer than 110 trips per day generally may be assumed to cause a less-than-significant VMT impact." The Project would involve approximately six daily one-way trips to and from each Project site during reclamation construction activities (i.e., regrading slopes, backfilling, and revegetation) and approximately two daily one-way trips to and from each Project site during restoration monitoring activities (i.e., periodic site visits by a monitoring biologist). If all six inactive Project sites were reclaimed simultaneously by the end of 2027, total daily trips would be approximately 30 daily trips during reclamation activities (one month in duration) and ten daily trips during restoration monitoring activities (once a quarter). If all 14 active Project sites expected to be reclaimed between 2027 and 2122 were reclaimed at once, total daily trips would be approximately 90 trips during reclamation activities (one month in duration) and 30 daily trips during restoration monitoring activities (once a quarter). After restoration is complete, none of the Project sites would require additional vehicle trips. Therefore, the Project would generate fewer than 110 trips per day and would result in less-than-significant impacts related to VMT 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)?*

No Impact. No, the proposed Project would not substantially increase hazards due to a geometric design feature or incompatible uses. The Project Area is accessed via Metropolitan's private access road system, and reclamation of the Project sites would not result in alterations to these roadways, installation of driveways or geometric design features, or creation of incompatible uses along these roadways. Therefore, no impact would occur.

- d. *Result in inadequate emergency access?*

No Impact. No, the proposed Project would not result in inadequate emergency access. The Project Area is accessed via Metropolitan's private access road system on which traffic is limited to Metropolitan staff and contractor vehicles completing work for Metropolitan. Reclamation of the Project sites would not result in alterations to these roadways. Project-related vehicles and equipment would be parked off of public roads and would not block emergency access routes, and

no road closures are proposed. As a result, the proposed Project would not impede existing emergency access in the Project vicinity, and 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)?	☐	☐	☐	☒
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?	☐	☐	☐	☒

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?*

No Impact. No, the proposed Project would not cause a substantial adverse change in the significance of a tribal cultural resource. Tribal cultural resources are defined as sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are either included or determined to be eligible for inclusion in the CRHR. A formal consultation process with California Native American tribes regarding tribal cultural resources must commence prior to the release of a negative declaration, mitigated negative declaration, or environmental impact report for a project.

On March 17, 2021, Metropolitan sent letters via certified mail to four Native American tribes that had previously requested to be informed through formal notification of proposed projects in the geographic area that is traditionally and culturally affiliated with those tribes. Metropolitan

did not receive any formal requests for tribal cultural resource consultation from any of the four tribes contacted. 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. 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?	☐	☐	☐	☒
b) Have sufficient water supplies available to serve the Project and reasonably foreseeable future development during normal, dry, and multiple dry years?	☐	☐	☒	☐
c) Result in a determination by the wastewater treatment provider which serves or may serve the Project that it has adequate capacity to serve the Project's projected demand in addition to the provider's existing commitments?	☐	☐	☐	☒
d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	☐	☐	☐	☒
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	☐	☐	☐	☒

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?*

No Impact. No, the proposed Project would not require or result in the relocation or construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunication facilities. Water used during reclamation would primarily be utilized for controlling dust, batching the hydroseed mix that would be applied using a mobile hydroseed truck, and irrigating revegetated areas, as needed, within the Project Area. Water for dust suppression and landscape establishment and irrigation would be transported to the site via a mobile water truck. Water would primarily be obtained at various locations along the CRA. During reclamation activities, portable toilets would be placed at the Project sites; no wastewater would be generated by the Project. Furthermore, no electrical or natural gas connections would be required for the proposed Project, and as discussed in Section 3.10 (Hydrology and Water Quality), the Project would not impact stormwater drainage systems. After restoration and monitoring are completed, the final end use of the Project sites would be revegetated open space consistent with the surrounding environment. There would be no additional activities or operations; therefore, there would be no operational impacts related to utility infrastructure. Therefore, no impact would occur.

- b. *Have sufficient water supplies available to serve the Project and reasonably foreseeable future development during normal, dry, and multiple dry years?*

Less than Significant Impact. Yes, there would be sufficient water supplies available to serve the Project. Water used during reclamation would primarily be utilized for controlling dust, batching

hydroseed mix, and irrigating revegetated areas, as needed, within the Project Area. Water for dust suppression and landscape irrigation would be transported to the site via a mobile water truck. Water would primarily be obtained at various locations along the CRA, which is administered and controlled by Metropolitan, by pumping water directly into the water truck, with the exception of RV-7 where water would be obtained from an existing water hydrant at the Julian Hinds Pumping Plant. Water usage would be temporary and would be distributed over a number of years as Project sites are reclaimed individually. After restoration and monitoring are completed, the final end use of the Project sites would be revegetated open space consistent with the surrounding environment, and there would be no additional activities or operations. Therefore, there would be sufficient water supplies available to serve the Project, and 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. No, the proposed Project would not result in a determination by a wastewater treatment provider which serves or may serve the Project that it has inadequate capacity to serve the Project. During reclamation activities, portable toilets would be placed at the Project sites, and no wastewater would be generated by the Project. After restoration and monitoring are completed, the final end use of the Project sites would be revegetated open space consistent with the surrounding environment, and there would be no additional activities or operations. No new demand on an existing wastewater treatment provider would occur as a result of the proposed Project; therefore, 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?*

No Impact. No, the proposed Project would not generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals. The proposed Project entails reclamation of Project sites via grading, contouring, revegetation and monitoring. After restoration and monitoring are completed, the final end use of the Project sites would be revegetated open space consistent with the surrounding environment, and there would be no additional activities or operations. Solid waste would not be generated by the proposed Project. Therefore, no impact 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. Yes, the proposed Project would comply with federal, state, and local management and reduction statutes and regulations related to solid waste. Solid waste would not be generated by the proposed Project. Therefore, no impact would occur.

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?	☐	☐	☐	☒
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?	☐	☐	☐	☒

OVERVIEW OF WILDFIRE

According to the CAL FIRE Very High Fire Hazard Severity Zone (VHFHSZ) maps, the Project sites in San Bernardino County are located within a “non-VHFHSZ,” meaning the sites have little or no potential for high fire hazard at either the State or Local Responsibility Area (LRA) level (CAL FIRE 2008). The Project sites in Riverside County are located either within an “LRA Moderate” or “Other Moderate” Severity Zones, meaning that sites have no potential for high fire hazard at the LRA level (CAL FIRE 2007a). Currently, Eastern Riverside County does not have a State Responsibility Area VHFHSZ map. The closest VHFHSZ to Project sites in San Bernardino County is approximately 66 miles to the west of SB-I-3. The closest VHFHSZ to Project sites in Riverside County is approximately 23 miles southwest of RV-I-3 (CAL FIRE 2007b). None of the Project sites are located in or near a State Responsibility Area or VHFHSZ. See Figure 3.20-1 and Figure 3.20-2 for maps of the Project Area in relation to the nearest High Fire Hazard Severity Zones.

Figure 3.20-1. High Fire Hazard Severity Zones – SB-1 through SB-7, SB-I-1, SB-I-2, RV-1, RV-2, and RV-I-1

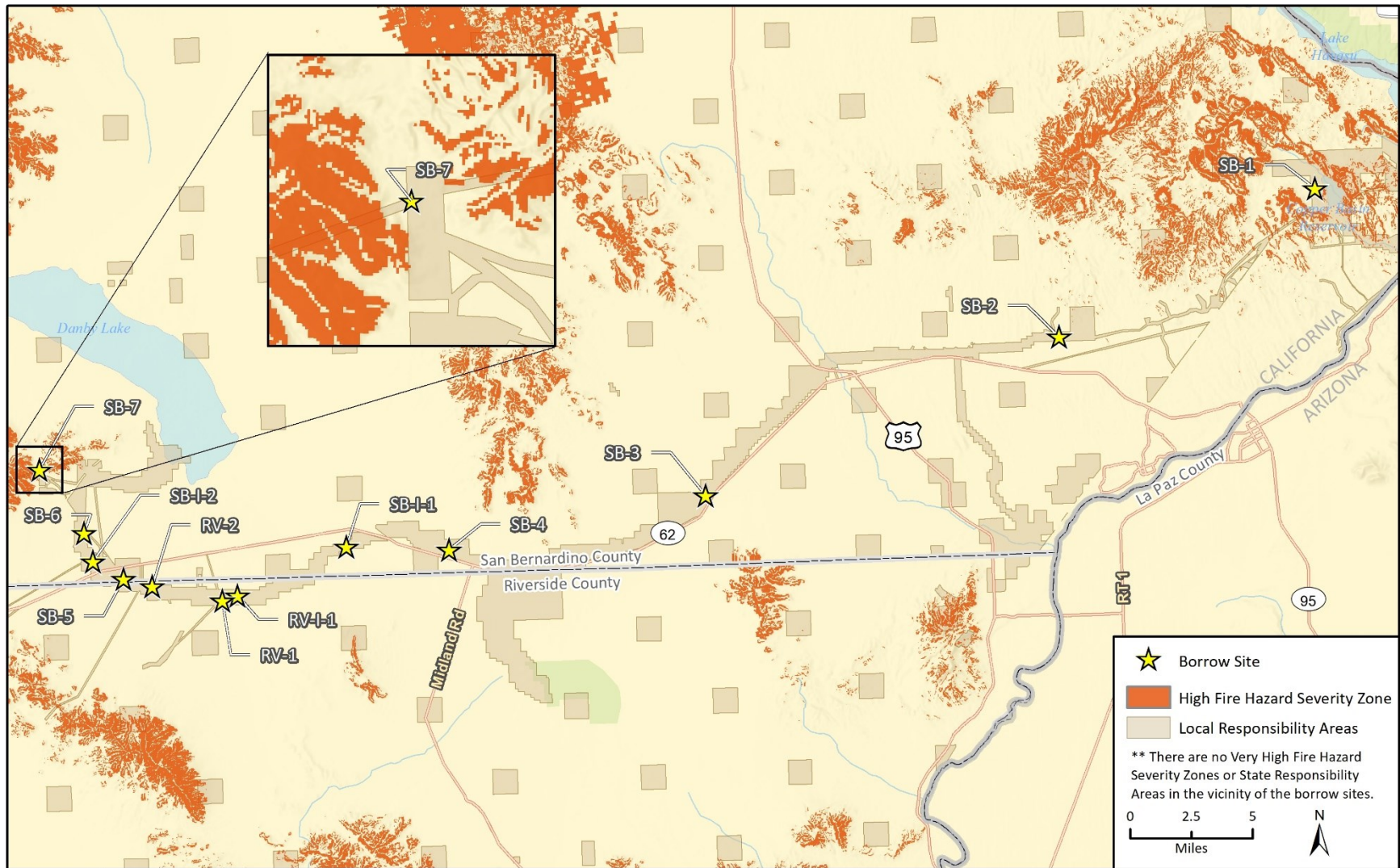
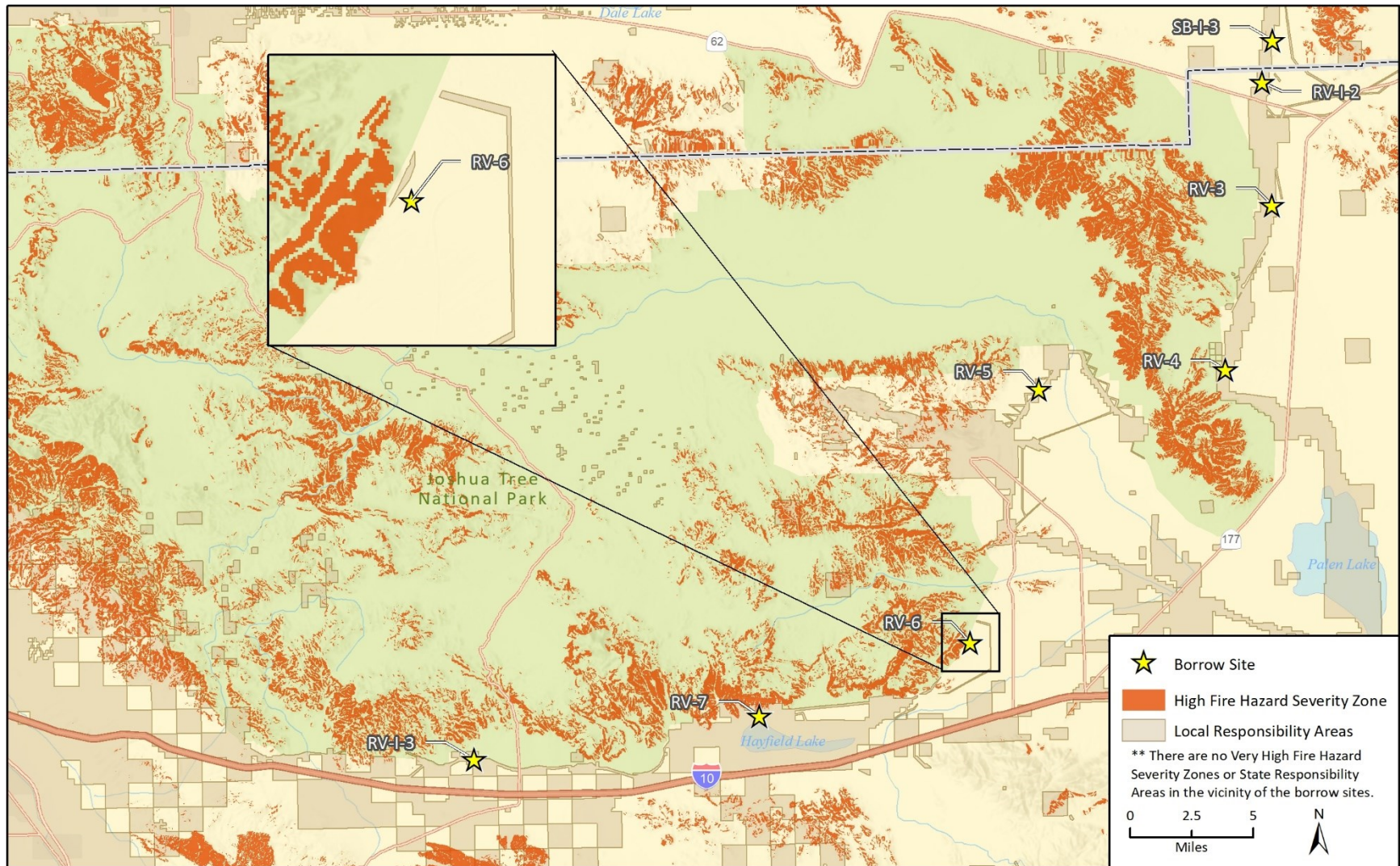


Figure 3.20-2. High Fire Hazard Severity Zones – SB-I-3, RV-3 through RV-7, RV-I-2, and RV-I-3



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Fig X Fire Hazard Severity Zones_Pg2

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?*

No Impact. No, the proposed Project would not be located in or near State Responsibility Areas or lands classified as VHFHSZ and would not substantially impair an adopted emergency 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. None of the Project sites are located in or near a State Responsibility Area or VHFHSZ. The Project sites do not contain occupied structures, and none are proposed. In addition, as stated in Section 1.7.10, *Hazardous Materials/Hazardous Waste*, all vehicles would contain fire extinguishers, and staff are trained in fire suppression. Therefore, no impact related to wildfire in or near State Responsibility Areas or lands classified as VHFHSZ would occur.

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?	☐	☒	☐	☐
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.)	☐	☐	☒	☐
c) Does the Project have environmental effects that would cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☒	☐

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 with Mitigation Incorporated. No, the 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 C (Biological Resources Technical 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-5. 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. No, the 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 reclamation construction activities (i.e., regrading slopes, backfilling, and revegetation) would be temporary, and after restoration and monitoring are completed, the final end use of the Project sites would be revegetated open space consistent with the surrounding environment with no additional activities or operations.

Cumulative impacts could occur if the 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 reclamation 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 sites are located more than 1,000 feet from the nearest residences and communities, the Project's impacts during reclamation construction and restoration monitoring 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, the Project would have no operational impacts that could combine with the impacts of other projects to create cumulative impacts. For these reasons, the incremental effects of the proposed Project would not be considerable when viewed in connection with the effects of past projects, current projects, or probable future projects, and 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 impacts 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 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, groundshaking, flooding, noise, or transportation. For these reasons, 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 Preparers

4.1 The Metropolitan Water District of Southern California

Diane Doesserich, Team Manager
Michelle Morrison, Senior Environmental Specialist

4.2 Rincon Consultants

Jennifer Haddow, PhD, Principal Environmental Scientist
Annaliese Miller, Senior Environmental Planner
Melissa Whittemore, Senior Environmental Planner
Amanda Antonelli, Senior Environmental Planner
Daphne Virlar-Knight, Associate Environmental Planner
Steven Hongola, Principal Ecologist
Christina Shushnar, Supervising Biologist
Andrea Maben, Senior Biologist
Breana Campbell-King, MA, RPA, Senior Archaeologist
Mark Strother, MA, RPA, Archaeologist
Tracy Popiel, GIS Analyst
Debra-Jane Seltzer, Publishing Specialist
Dario Campos, Publishing Specialist

5. List of Acronyms

°F	degrees Fahrenheit
2H:1V	two horizontal to one vertical
AB	Assembly Bill
APEFZ	Alquist-Priolo Earthquake Fault Zone
AQMP	Air Quality Management Plan
bgs	below ground surface
BMP	Best Management Practice
CAAQS	California Ambient Air Quality Standards
CalEEMod	California Emissions Estimator Model
CAL FIRE	California Department of Forestry and Fire Protection
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CDFW	California Department of Fish and Wildlife
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CHRIS	California Historical Resources Information System
CMP	Congestion Management Program
CNDDB	California Natural Diversity Data Base
CNPS	California Native Plant Society
CO	carbon monoxide
CO ₂	carbon dioxide
CO ₂ e	carbon dioxide equivalent
CRA	Colorado River Aqueduct
CRHR	California Register of Historical Resources
CVMSHCP	Coachella Valley Multiple Species Habitat Conservation Plan
dB	decibel
dBA	A-weighted decibel
DPM	diesel particulate matter
EIC	Eastern Information Center
EIR	Environmental Impact Report
FESA	Federal Endangered Species Act
FTA	Federal Transit Administration
GHG	greenhouse gas

HCP	Habitat Conservation Plan
I-10	Interstate 10
in/sec	inches per second
IPCC	Intergovernmental Panel on Climate Change
IS-MND	Initial Study and Mitigated Negative Declaration
lbs	pounds
L_{eq}	equivalent noise level
LOS	level of service
MDAB	Mojave Desert Air Basin
MDAQMD	Mojave Desert Air Quality Management District
Metropolitan	The Metropolitan Water District of Southern California
MRP	Master Reclamation Plan
MRZ	Mineral Resource Zone
MT	metric ton
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NCCP	Natural Community Conservation Plan
NO ₂	nitrogen dioxide
NO _x	nitrogen oxides
NRHP	National Register of Historic Places
PM ₁₀	Particulate matter less than or equal to 10 microns in diameter
PM _{2.5}	Particulate matter less than or equal to 2.5 microns in diameter
PPV	peak particle velocity
PRC	California Public Resources Code
RCNM	Roadway Construction Noise Model
Rincon	Rincon Consultants, Inc.
RMS	root mean squared
ROG	reactive organic gas
ROW	right-of-way
RWQCB	Regional Water Quality Control Board
SB	Senate Bill
SCAQMD	South Coast Air Quality Management District
SCCIC	South Central Coastal Information Center
SMARA	Surface Mining and Reclamation Act
SLF	Sacred Lands File
SO _x	sulfur oxides

SR	State Route
SSAB	Salton Sea Air Basin
State Board	State of California Mining and Geology Board
TAC	toxic air contaminant
USACE	U.S. Army Corps of Engineers
USEPA	United States Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
VHFHSZ	Very High Fire Hazard Severity Zone
VMT	vehicle miles traveled
VOC	volatile organic compound
WDR	waste discharge requirement
WEAP	Worker Environmental Awareness Protections Training

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Appendix A

Colorado River Aqueduct Master Reclamation Plan

MASTER RECLAMATION PLAN

COLORADO RIVER AQUEDUCT BORROW SITES

The Metropolitan Water District of Southern California
San Bernardino & Riverside Counties, California

CA Mine ID No(s). 91-70-0001

November 2022

Prepared for:	California Department of Conservation California State Mining and Geology Board 715 P Street, MS 1909 Sacramento, California 95814 (916) 322-1080
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MASTER RECLAMATION PLAN

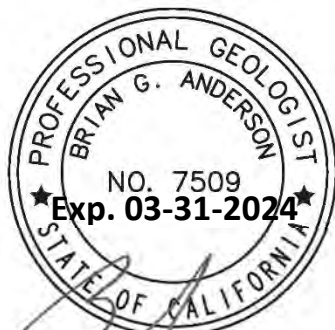
COLORADO RIVER AQUEDUCT BORROW SITES

The Metropolitan Water District of Southern California
San Bernardino & Riverside Counties, California

CA Mine ID No(s). 91-70-0001

November 2022

This Master Reclamation Plan was prepared by the undersigned on behalf and under the direction of The Metropolitan Water District of Southern California.



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MASTER RECLAMATION PLAN

The Metropolitan Water District of Southern California
Colorado River Aqueduct Borrow Sites
San Bernardino & Riverside Counties, California
CA Mine ID No(s). 91-70-0001

November 2022

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MASTER RECLAMATION PLAN

**The Metropolitan Water District of Southern California
Colorado River Aqueduct – Borrow Sites
San Bernardino & Riverside Counties, California
CA Mine ID No(s). 91-70-0001**

November 2022

1.0 INTRODUCTION

The Metropolitan Water District of Southern California (Metropolitan) is a regional water wholesaler that provides water for 26 public agency members that, in turn, provide 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 adequate and reliable supply of high-quality water to meet present and future needs in an environmentally and economically responsible way.

Metropolitan owns and operates the Colorado River Aqueduct (CRA), which is a regional water conveyance system that consists of 5 pumping plants, 450 miles of high voltage power lines, 1 electric substation, 4 reservoirs, and 242 miles of aqueducts, siphons, canals, conduits, and pipelines terminating at Lake Mathews in Riverside County, California. Figure 1 (Appendix A) shows the relevant portions of the CRA alignment, pumping plants, and related operational areas/right-of-way (ROW).

In 1932, Congress provided Metropolitan with authority to acquire fee ownership of the ROW as well as additional land to be used for surface mining of sand, gravel and other earthen materials needed to support the operations and maintenance of the CRA. Metropolitan acquired fee ownership of the ROW roughly between 1932 and 1941. Because the materials are taken from these sites for use at other areas associated with the CRA, they are referred to as “borrow sites.” Metropolitan currently operates 14 borrow sites in California, seven located in San Bernardino County and seven located in Riverside County (see Figure 1, Appendix A).

The Surface Mining and Reclamation Act of 1975 (SMARA, Public Resources Code [PRC], Sections 2710-2796) provides a comprehensive surface mining and reclamation policy with the regulation of surface mining operations to assure that adverse environmental impacts are minimized and mined lands are reclaimed to a usable condition. SMARA requires surface mining operations to develop and implement a reclamation plan approved by the applicable SMARA lead agencies.

In 2021, the California State Legislature passed and Governor Gavin Newsom signed into law Assembly Bill (AB) 442 (Mayes) which, effective January 1, 2022 exempts Metropolitan from certain provisions of SMARA to allow for the continued use of the San Bernardino and Riverside County borrow sites to obtain material to respond to emergencies or for Metropolitan’s own operations and maintenance of infrastructure. AB 442 also authorized Metropolitan to prepare this Master Reclamation Plan, which identifies each individual surface mining operation and satisfies all reclamation plan requirements for each individual surface mining site. AB 442 also required the State Mining and Geology Board (SMGB) to act as the SMARA lead agency for surface mining operations conducted by the Metropolitan. For this

Master Reclamation Plan, the State Mining and Geology Board (SMGB) serves as the lead agency under SMARA. AB 442 sunsets on January 1, 2026. Metropolitan will seek an amendment to make the provisions of AB 442 permanent.

Under California law, Metropolitan has a vested mining right for its fee-owned lands to extract materials to construct and continuously operate and maintain the CRA. While this vested right runs with the land, approval of this Master Reclamation Plan by the State Mining and Geology Board does not constitute a confirmation of these rights.

Because Metropolitan’s borrow sites are located over an approximately 125-mile stretch of the CRA, the entirety of which is owned by Metropolitan, combined with the potentially different time periods in which reclamation may take place, a programmatic approach has been established for this reclamation plan. This Master Reclamation Plan has been prepared to address reclamation of Metropolitan’s borrow sites located in San Bernardino and Riverside Counties pursuant to SMARA.

As discussed above, the borrow sites are areas where sand, gravel, and other earthen materials have been or are being taken for use at the CRA during operations and maintenance activities. The materials are extracted by typical surface mining techniques which include the use of off-road mobile equipment (e.g., dozers, loaders, excavators, and graders). Once operations at a borrow site cease, reclamation would begin. The timing of this would be different for each site. This Master Reclamation Plan accounts for existing operations at the borrow sites to continue until the material is depleted or no longer needed. It is anticipated that this could take 100 years or more with material depletion at the majority of borrow site locations conservatively assumed to occur in 2122.

This Master Reclamation Plan was prepared in compliance with the following:

- SMARA, as amended (Public Resources Code Section 2710 et seq.);
- California Code of Regulations (Title 14, Division 2, Chapter 8, Subchapter 1, Section 3500 et seq.);
- California Assembly Bill 442 (Mayes); and
- California Environmental Quality Act (Public Resources Code Section 21000 et seq. and California Code of Regulations Title 14, Section 15000 et seq.).

1.1 Project Background & Land Use History

In 1932, pursuant to federal legislation passed (June 18, 1932 Act, 47 Stat. 324; House Resolution 10048, collectively referred to as the “1932 Act”), the United States Congress granted certain public and reserved lands of the United States located in Los Angeles, Riverside, and San Bernardino Counties, California to Metropolitan to construct, operate, and maintain the CRA. The 1932 Act gave Metropolitan the right to acquire fee ownership of its CRA ROW and additional land for construction of transmission lines, roads, reservoirs, diagonal dikes, and campsites. Included in this grant was the right for Metropolitan to take for its own use sand, gravel, and other earthen materials within these lands.

In 1933, Metropolitan began construction of the CRA and its related infrastructure. During infrastructure development and aqueduct construction, Metropolitan initiated material extraction (herein referred to as “surface mining” for the sake of consistency with state regulatory provisions) at various onsite sources of sand, gravel, and undifferentiated earthen materials for use in construction, operation, and maintenance of CRA infrastructure. As discussed above, these extraction areas located along the CRA are referred to as borrow sites. When Metropolitan completed construction of the CRA and began operations

in 1941, it retained fee title to the land beneath and adjacent to the CRA. The fee title land/borrow sites were also utilized throughout the 1950s during planned expansions of the CRA facilities. Metropolitan continues to use sand, gravel, and other materials sourced from these lands to restore, repair, protect, and maintain essential berms, access roads, and pipeline cover after storm events, and for other critical operations and maintenance activities along the CRA. Today, Metropolitan maintains 14 borrow sites in San Bernardino and Riverside Counties. All sites are generally located near the CRA to facilitate access to material in remote locations.

As previously noted, current and future surface mining operations at all of Metropolitan’s fee-owned lands, including the borrow sites located in San Bernardino and Riverside Counties, are permitted by right. However, SMARA requires surface mining operations to develop and implement this Master Reclamation Plan approved by the applicable SMARA lead agency, which in this case is the SMBG.

1.2 Site Location

As discussed above, Metropolitan maintains 14 borrow sites total, with seven located in unincorporated San Bernardino County, which are hereinafter referred to as locations SB-1 through SB-7, and seven located in unincorporated Riverside County, which are hereinafter referred to as locations RV-1 through RV-7. Table 1 and Figure 1 (Appendix A) summarize the locations of Metropolitan’s 14 borrow sites, which cover approximately 126.7 acres total. As shown on Figure 1 (Appendix A), the borrow sites are found along an approximately 125-mile stretch of the CRA adjacent to State Route 62 (SR-62), SR-95, SR-177, and Interstate 10 (I-10), extending from the Copper Basin Reservoir (SB-1) near the California-Arizona border, southeast to the Cottonwood Mountains north of I-10 (RV-7). Table 1 also summarizes the Section, Township and Range, the United States Geological Survey (USGS) 7.5-minute topographic quadrangles, and the approximate site coordinates for each of the borrow sites.

Table 1: Borrow Site Locations

Borrow Name	USGS 7.5-Minute Topographic Quadrangle	Section / Township / Range	Approximate Coordinates
SB-1	Gene Wash, California (1959)	Section 3, Township 1 North, Range 26 East, San Bernardino Baseline and Meridian	Latitude: 34.29° W Longitude: 114.24° N
SB-2	Parker NW, California (2012)	Section 2, Township 1 North, Range 24 East, San Bernardino Baseline and Meridian	Latitude: 34.21° W Longitude: 114.43° N
SB-3	Vidal NW, California (2018)	Section 5, Township 1 South, Range 22 East, San Bernardino Baseline and Meridian	Latitude: 34.12° W Longitude: 114.68° N
SB-4	Rice, California (1965)	Section 15, Township 1 South, Range 20 East, San Bernardino Baseline and Meridian	Latitude: 34.09° W Longitude: 114.87° N
SB-5	Granite Pass, California (2018)	Section 16, Township 1 South, Range 18 East, San Bernardino Baseline and Meridian	Latitude: 34.08° W Longitude: 115.10° N

Borrow Name	USGS 7.5-Minute Topographic Quadrangle	Section / Township / Range	Approximate Coordinates
SB-6	Granite Pass, California (2018)	Section 6, Township 1 South, Range 18 East, San Bernardino Baseline and Meridian	Latitude: 34.11° W Longitude: 115.13° N
SB-7	Iron Mountains, California (1948)	Section 23, Township 1 South, Range 17 East, San Bernardino Baseline and Meridian	Latitude: 34.15° W Longitude: 115.16° N
RV-1	East of Granite Pass, California (2015)	Section 19, Township 1 South, Range 19 East, San Bernardino Baseline and Meridian	Latitude: 34.07° W Longitude: 115.03° N
RV-2	East of Granite Pass, California (2015)	Section 22, Township 1 South, Range 18 East, San Bernardino Baseline and Meridian	Latitude: 34.08° W Longitude: 115.08° N
RV-3	Cadiz Valley SE, California (1985)	Section 13, Township 2 South, Range 16 East, San Bernardino Baseline and Meridian	Latitude: 33.99° W Longitude: 115.26° N
RV-4	Coxcomb Mountains, California (1987)	Section 22, Township 3 South, Range 16 East, San Bernardino Baseline and Meridian	Latitude: 33.90° W Longitude: 115.29° N
RV-5	Pinto Wells, California (2012)	Section 20, Township 3 South, Range 15 East, San Bernardino Baseline and Meridian	Latitude: 33.89° W Longitude: 115.43° N
RV-6	Desert Center, California (2018)	Section 12, Township 5 South, Range 14 East, San Bernardino Baseline and Meridian	Latitude: 33.74° W Longitude: 115.48° N
RV-7	Hayfield Spring, California (1986)	Section 20, Township 5 South, Range 13 East, San Bernardino Baseline and Meridian	Latitude: 33.70° W Longitude: 115.63° N

The San Bernardino County borrow sites currently have a County land use/zoning designation of RLM (Resource/Land Management). Per the San Bernardino County Development Code, a zoning designation of RLM allows for post-mining reclamation (San Bernardino County, 2009)

The majority of the Riverside County borrow sites currently have a County zoning designation of N-A (Non-Area Plan) with the exception of RV-5. RV-5 has a zoning designation of M-R-A (Mineral Resources & Related Manufacturing). Per the Riverside County Zoning Ordinance (Riverside County, 2021), zoning designations of N-A and M-R-A allow for post-mining reclamation.

Figure 1 (Appendix A) shows the regional and site setting of Metropolitan’s borrow sites, which cover numerous parcels. Table 2 below summarizes the Assessor’s Parcel Numbers (APNs) and County land use designations for each of Metropolitan’s 14 borrow sites, while Figure 3 through Figure 9 and Figure 11 through Figure 17 (Appendix A) show the individual borrow site boundaries.

Table 2: Borrow Site APN's and Acreages

Borrow Site	County Assessor's Parcel Number (APN)	Zoning/General Plan Designation	Current Status	Reclaimed End Use	Size
SB-1	0661-181-04-0000	Resource/Land Management (RLM)	Active	Revegetated Open Space	4.6 acres
SB-2	0647-321-05-0000 0647-331-17-0000	Resource/Land Management (RLM)	Active	Revegetated Open Space	21.0 acres
SB-3	0646-201-02-0000 0646-201-03-0000 0646-211-15-0000	Resource/Land Management (RLM)	Active	Revegetated Open Space	10.7 acres
SB-4	0646-091-09-0000 0646-101-02-0000	Resource/Land Management (RLM)	Active	Revegetated Open Space	12.3 acres
SB-5	0646-011-02-0000 0646-011-07-0000	Resource/Land Management (RLM)	Active	Revegetated Open Space	4.3 acres
SB-6	0646-021-01-0000 0646-021-12-0000	Resource/Land Management (RLM)	Active	Revegetated Open Space	6.7 acres
SB-7	0643-221-07-0000 0643-221-21-0000	Resource/Land Management (RLM)	Active	Revegetated Open Space	14.2 acres
Total San Bernardino County:					73.8 acres
RV-1	800-130-019	Non-Area Plan (N-A) / Open Space Rural (OS-RUR)	Active	Revegetated Open Space	23.7 acres
RV-2	800-120-004	Non-Area Plan (N-A) / Open Space Rural (OS-RUR)	Active	Revegetated Open Space	5.5 acres
RV-3	800-040-033	Non-Area Plan (N-A) / Open Space Rural (OS-RUR)	Active	Revegetated Open Space	7.1 acres
RV-4	800-101-044	Non-Area Plan (N-A) / Open Space Rural (OS-RUR)	Active	Revegetated Open Space	2.1 acres
RV-5	800-090-029	Mineral Resources & Related Manufacturing (M-R-A) / Open Space Rural (OS-RUR)	Active	Revegetated Open Space	3.6 acres
RV-6	811-020-023 811-020-028	Non-Area Plan (N-A) / Open Space Rural (OS-RUR)	Active	Revegetated Open Space	5.6 acres
RV-7	705-230-031	Non-Area Plan (N-A) / Open Space Rural (OS-RUR)	Active	Revegetated Open Space	5.3 acres
Total Riverside County:					52.9 acres
Total Borrow Site Area:					126.7 acres

The region of San Bernardino and Riverside Counties where Metropolitan's borrow sites are located is an assemblage of mountain ranges interspersed with long, broad alluvial valleys that often contain dry lakes. The existing topography surrounding the borrow sites is generally flat, undeveloped desert land and alluvial washes, as well as low-lying desert foothills.

Topographic features and mountain ranges near the borrow sites located in San Bernardino County include the Whipple Mountains (adjacent to SB-1), the Turtle Mountains (approximately 9.0 miles north of SB-2 and SB-3), and the Iron Mountains (adjacent to SB-5 and SB-6). Topographic features and mountain ranges near Metropolitan’s Riverside County borrow site operations include the Arica Mountains (approximately 7.0 miles northwest of RV-1 and RV-2), the Coxcomb Mountains (approximately 3.0 miles east of RV-3 and adjacent to RV-4), the Eagle Mountains (adjacent to RV-5 and RV-6), and the Cottonwood Mountains (adjacent to RV-7). There are no perennial streams or riparian areas located on or adjacent to the borrow site areas. The closest perennial surface waterbody to the borrow sites is the Copper Basin Reservoir located approximately 0.3 mile west of SB-1.

The site setting can be generally characterized as undeveloped desert land, comprised of low-lying desert foothills and alluvial wash basins. The borrow sites are generally isolated, with few nearby cities, communities or other developments, with the exception of Metropolitan’s existing worker communities adjacent to the Gene, Iron Mountain, Eagle Mountain, and Julian Hinds Pumping Plants. Other than borrow site RV-7, which is located directly adjacent to Metropolitan’s Julian Hinds Pumping Plant, and borrow site SB-1, which is located near Copper Basin reservoir north of the community of Parker, Arizona (approximately 6.0 miles away) and the City of Lake Havasu City, Arizona (approximately 12.0 miles away), the borrow sites are generally located in remote areas adjacent to the CRA or near one of Metropolitan’s pumping plants. As discussed above, nearby roadways include SR-62, SR-177, SR-95 and I-10, which are the primary public routes in which to access the borrow sites.

Table 3 below summarizes general land use information for Metropolitan’s surface mining (i.e., borrow site) operations located in San Bernardino and Riverside Counties.

Table 3: Borrow Site Information

Parameter	Site Information
General Plan / Community Plan & Zoning Designation(s)	<p>General Plan:</p> <ul style="list-style-type: none"> • <u>San Bernardino County</u>: Resource/Land Management (RLM) • <u>Riverside County</u>: Open Space Rural (OS-RUR) <p>Zoning:</p> <ul style="list-style-type: none"> • Resource/Land Management (RLM) • Non-Area Plan (N-A) • Mineral Resources & Related Manufacturing (M-R-A)
Total Site Size	126.7 acres
Current Use & Development	Undeveloped, desert land. Small, shallow material extraction pits. Material and equipment storage. Unpaved access roads and drainage/erosion control features.

Parameter	Site Information
Access	The borrow sites are situated on undeveloped land owned by Metropolitan. Each borrow site is accessed via existing unpaved CRA access roads, which connect to either SR-62, SR-95, SR-177, or I-10, except for SB-1 located north of Parker, Arizona (accessed from unpaved roads that to connect Parker Dam Road) and RV-7 located directly adjacent to Metropolitan’s Julian Hinds Pumping Plant. These existing access roads will continue to serve as the ingress and egress points for employees and other work vehicles. See Figure 3 through Figure 9 and Figure 11 through Figure 17 in Appendix A for the individual site plans.
Public Services / Utilities	<ul style="list-style-type: none"> • The borrow sites have no existing utility connections, as they are used as a source of raw material only and thus, other than occasional sorting and stockpiling, no processing equipment is used that requires electrical hookups, nor will reclamation require any public utilities. • Water will be provided directly from the CRA via mobile water trucks. Water will be used at the borrow sites primarily for fugitive dust control. • Electrical service is not required. • No natural gas or propane is utilized at the borrow sites. • No fixed landline telephone service is required. • Trash will be collected onsite and disposed of by Metropolitan employees in accordance with state and local requirements.

1.3 Summary of Mining & Reclamation Activities

Metropolitan presently operates 14 borrow sites total, with seven located within San Bernardino County (identified as SB-1 through SB-7), and seven located within Riverside County (identified as RV-1 through RV-7). All the borrow sites provide sand and gravel, and other earthen materials needed to support the operations and maintenance of the CRA. Please see Figure 1 (Appendix A), which shows the regional layout of the 14 borrow sites located in San Bernardino and Riverside Counties.

Operations at the borrow sites is typical of surface aggregate mining operations, and involves the use of off-road mobile equipment (e.g., dozers, loaders, excavators, and graders) to excavate and load raw material onto trucks, where it is then delivered to various CRA infrastructure projects on an as-needed basis. Please see Figure 3 through Figure 9 and Figure 11 through Figure 17 in Appendix A, which depict the layout of Metropolitan’s operations, and cross-sections of the borrow sites, respectively.

Mining and ancillary activities currently occur periodically throughout the year at each borrow site, depending on Metropolitan’s needs. Material extracted at each site is utilized to maintain the CRA infrastructure, such as roads, earthen buttresses, and the many “v-dikes” that direct surface water flow near the aqueduct, and to make repairs following storm events. The annual production for Metropolitan’s mining operations assumes that the current demand for the material will remain generally the same year-to-year over the life of the planned mining operations, which is estimated at 15,000 to 25,000 tons. This estimated quantity is the total amount of material that is planned to be excavated from one or more of the borrow sites in any given year, but the actual amount may vary based on the nature, and timing of Metropolitan’s CRA operational activities. It is expected that over the life of Metropolitan’s surface mining operations at the 14 borrow sites, approximately 1.5 to 2.5 million tons of material in total would be extracted, depending on Metropolitan’s needs.

For those portions of the borrow sites that have not been previously disturbed, prior to initiation and/or expansion of operations at a borrow site, removal of vegetation and surface scarification will be performed to prepare and expose fresh surficial material. Once the vegetation has been removed and the surface cleared, to the extent discernable, topsoil and subsoil will be removed (where feasible) using a dozer to push the material into a perimeter berm. Because of the historic uses of the borrow sites, the amount of remaining topsoil and subsoil varies, with some borrow site locations having no appreciable quantities of soils salvaged. In other instances, borrow sources have certain areas where a thin (generally 12 inches or less), poorly developed soil profile exists, which can be removed prior to excavation and stored separately (i.e., in perimeter berms, stockpiles). Where present and feasible, topsoil and subsoil will be salvaged and stored within perimeter berms/stockpiles will either be allowed to naturally revegetate or may be used as revegetation cover as part of reclamation.

Mining operations will progress according to the mine plan details as shown in the drawing sheets (see Figure 3 through Figure 9 and Figure 11 through Figure 17 in Appendix A). Total planned pit depth for the borrow sites is approximately 25- to 30-feet below the lowest ground surface elevation along the top of slope. In some cases, the maximum pit depth could be less, depending on the actual amount of material extracted over the planned life of the surface mining operation. While there is little data available, based on a review of California's Groundwater Ambient Monitoring and Assessment (GAMA) Program, records for groundwater wells between Parker, Arizona and in the vicinity of Vidal Junction indicate groundwater generally occurs at depths greater than 100-feet below ground surface (bgs). Therefore, ongoing mining activities would take place above groundwater and dewatering of the excavation areas would not be required.

Both the operations as well as the proposed reclamation activities, of Metropolitan's surface mining operations in San Bernardino and Riverside Counties include the following (see Figure 3 through Figure 9 and Figure 11 through Figure 17 in Appendix A):

- Open-pit surface mining;
- Temporary stockpiling of excavated materials; and
- Various site improvements for access, safety, etc.;
- Storage and use of ancillary mining equipment.

As discussed above, once operations at a borrow site cease, reclamation would begin; however, the timing of this would be different for each site. This Master Reclamation Plan accounts for operations at the borrow sites to be active until the material is depleted or no longer needed. It is anticipated that this could take up to 100 years with material depletion at the majority of borrow site locations conservatively assumed to occur in 2122.

The final end use of the borrow sites would be revegetated open space consistent with the surrounding environment. However, after extraction of materials at the sites has ceased but prior to the final reclamation to open space, some of the sites may be used as laydown and/or equipment storage areas. Section 5.0 below provides a detailed description of the proposed reclamation activities. Figure 2 through Figure 17 in Appendix A depict the location(s), design, and layout of the reclaimed borrow sites.

2.0 GENERAL OWNERSHIP / OPERATION INFORMATION

2.1 Mine Operator & Property Owner Information

BORROW SITE NAME(S):	SB-1 SB-2 SB-3 SB-4 SB-5 SB-6 SB-7	RV-1 RV-2 RV-3 RV-4 RV-5 RV-6 RV-7
CA MINE ID NUMBER(S):	Metropolitan's Master Reclamation Plan has a primary California Mine ID No. of 91-70-0001. Additionally, Sub-CA Mine ID Nos. have been assigned to each individual borrow site, which are summarized in Table 4.	
LOCATION OF MINE:	The borrow sites are located in unincorporated San Bernardino and Riverside Counties and have no physical addresses per the respective San Bernardino and Riverside County Offices of Assessor. Please see Table 1 above for a description of each site location.	
ASSESSOR PARCEL NUMBERS (APN):	Metropolitan's borrow sites lie on portions of multiple APNs as summarized in Table 2.	
MINE OPERATOR:	The Metropolitan Water District of Southern California	
TELEPHONE NUMBER:	(213) 217-6000	
MAILING ADDRESS:	158000 MWD Road Parker Dam, California 92267	
OWNERS OF POSSESSORY INTEREST:	The Metropolitan Water District of Southern California 700 North Alameda Street Los Angeles, California 90012-2944	
LEGAL DESCRIPTION:	Portions of Sections 3, 5, 6, 12, 15, 16, 17, and 23; Township 1 North, and 1, 2, 3 and 5 South; Range 13 East, 14 East, 15 East, 16 East, 17 East, 18 East, 19 East, 20 East, 22 East, 24 East, and 26 East; San Bernardino Base and Meridian	

Table 4: California Mine ID Number Summary

Document / Borrow Site	CA Mine ID No.
<i>Primary CA Mine ID No.</i>	
Master Reclamation Plan	91-70-0001
<i>Sub-CA Mine ID Nos.</i>	
SB-1	91-70-3601
SB-2	91-70-3602
SB-3	91-70-3603
SB-4	91-70-3604
SB-5	91-70-3605
SB-6	91-70-3606
SB-7	91-70-3607
RV-1	91-70-3301
RV-2	91-70-3302
RV-3	91-70-3303
RV-4	91-70-3304
RV-5	91-70-3305
RV-6	91-70-3306
RV-7	91-70-3307

2.2 Lead Agency Information

LEAD AGENCY: California Department of Conservation (DOC), State Mining and Geology Board (SMGB)

STAFF CONTACT: Paul Fry, P.G.
Senior Engineering Geologist

TELEPHONE NUMBER: (916) 322-1080

MAILING ADDRESS: 715 P Street, MS 1909
Sacramento, California 95814

2.3 General Mining Operation Information

START-UP DATE: N/A (operations)

MINERAL RESOURCE ZONE (MRZ): N/A (no sites located within a State designated Mineral Resource Zone [MRZ])

Table 5: Mining Operation Information

Component	Proposed Plan
Mineral Commodity	Sand and Gravel, Other Materials
Estimated Total Production of Borrow Sites (tons)	1.5 to 2.5 million tons
Estimated Average Annual Borrow Site Production (tons/year) ¹	15,000 to 25,000 tons/year
Borrow Sites in Acres (including setbacks)	126.7 acres
Anticipated Maximum Depth of Mining (feet bgs)	25- to 30-feet bgs
Anticipated Depth of Pit at Reclamation (feet bgs)	25- to 30-feet bgs
Total Maximum Life of Mine ¹	100 years (approximate)
Estimated Maximum Mining Termination Date ¹	2122 (approximate)
Estimated Reclamation Completion Date ¹	2124 (approximate)
Estimated Monitoring Completion Date ¹	2127 (approximate)

“bgs” = below ground surface

1 – Once operations at a borrow site cease, reclamation would begin; however, depending on Metropolitan’s needs, duration of mining and estimated reclamation initiation dates may differ. This mine/reclamation plan presented below accounts for continued extraction up to the next 100-years, with material depletion conservatively anticipated in 2122.

3.0 ENVIRONMENTAL SETTING, CCR §3502 (B)(1)

Metropolitan's surface mining operations cover approximately 126.7 acres located within unincorporated San Bernardino and Riverside Counties. As discussed above, the borrow sites in San Bernardino County are located within the County's North (i.e., SB-1, SB-2, SB-3 and SB-4) and East (i.e., SB-5, SB-6 and SB-7) Desert Planning Regions. Similarly, three of the Metropolitan borrow sites in unincorporated Riverside County (RV-1 through RV-3) are located outside a designated planning area of the County, while the remaining four (RV-4 through RV-7) are located in the County's Desert Center Area Plan Boundary. The borrow sites are situated along an approximate 125-mile stretch of the CRA within undeveloped land owned by Metropolitan. Each of the borrow sites are accessed via existing unpaved CRA access roads, which connect to either SR-62, SR-95, SR-177 and I-10, except for SB-1 located north of Parker, Arizona, which is accessed from unpaved roads that connect Parker Dam Road, and RV-7 located directly adjacent to Metropolitan's Julian Hinds Pumping Plant.

The progression of ongoing mining at each borrow site will generally begin at one corner or along an edge of the planned footprint, and then move toward the opposing boundary as the material is dug. Material extracted at the borrow sites will continue to be loaded onto trucks and transported to various CRA project sites on an as-needed basis. Refer to Figure 1 (Appendix A), which shows a regional view of the borrow sites, and Figure 3 through Figure 9 and Figure 11 through Figure 17 in Appendix A which shows the layouts of the borrow sites and the associated cross-sections.

3.1 Geologic Setting

The borrow sites are located within the Basin and Range Physiographic Province, which is comprised of a series of mountain ranges consisting of various Mesozoic granitic and older metamorphic and sedimentary rocks separated by valley basins filled with Quaternary alluvial material. Moreover, Tertiary-age volcanic rocks are exposed throughout the region. The Basin and Range Physiographic Province covers a larger area of the Mojave Desert of California. It is defined by unique basin and range topography associated with tectonic extension, which is characterized by abrupt changes in elevation, alternating between narrow faulted mountain chains and flat arid valleys or basins. With the exception of SB-1, located in the Whipple Mountains, and SB-7, located in the Iron Mountains, both of which source material from hard rock deposits, the remainder of the borrow sites are situated on alluvial fans or plains that occur between individual and disconnected mountain ranges. More detail regarding the regional geologic setting is provided below.

3.1.1 Regional Geology

The regional geologic framework of the Metropolitan's borrow site operations located in San Bernardino County varies, given the broad geographic context. The geologic settings presented below discusses the existing borrow sites within San Bernardino and Riverside Counties sequentially from east to west, with the exception of SB-2 located north and west of Parker, Arizona.

For the vicinity in an around borrow source location SB-1, the area is part of the Whipple Mountains, which are recognized as one of over 25 distinctive isolated metamorphic terrains that form a narrow belt from southern Canada to northwestern Mexico (Coney, 1980). In the Whipple Mountains, rocks below listric detachment fault are comprised largely of Proterozoic metamorphic and plutonic rocks. The Proterozoic rocks have a gently dipping mylonitic foliation associated with Cretaceous and Tertiary granitic sheet intrusions. Based on the orientation and topography of the Whipple Mountains, the Quaternary basin fill that extends southerly and southwest from the flank of the metamorphic core complex is

interpreted to be sourced from these mountains. The material excavated from SB-2 is also considered to be sourced from the Whipple Mountains.

Borrow sources SB-3 and SB-4 occur south of the Turtle Mountains and Mopah Range, which are likely the province for the Quaternary alluvial materials at that these locations. The Mopah Range is described as consisting of Tertiary volcanic rocks, whereas Mesozoic crystalline basement rocks are exposed in the Turtle Mountains. Since the Miocene, erosion has resulted in the development of alluvial aprons and pediment veneers on the flanks of the ranges (Howard, et al., 1988).

To the west of borrow site locations SB-5, SB-6, and SB-7 lies the Iron Mountains, as well as the Granite Mountains further south. Based on the drainage pattern extending from the eastern flanks of these ranges, the alluvial basin materials within and around the borrow sources appear to be derived from these mountains.

The Iron Mountains are composed of Cretaceous igneous rocks and gneissic rocks that are part of a massive batholith (Miller & Howard, 1985). Based on site-specific observations, historic mining at location SB-7 appears to have sourced material from these rocks. In the central part of the range, Tertiary volcanic rocks are present and intrude the older rocks. Miller and Howard (Miller & Howard, 1985) also note there is a northwest-striking zone of steeply dipping faults located northwest of the Iron Mountain Pumping Plant. Rocks exposed in the Granite Mountains to the south are characteristic of Jurassic and Cretaceous plutonic rocks, including granitic and dioritic assemblages (Haxel & Miller, 1994).

Mining and reclamation activities in Riverside County currently extends from the alluvial plain northwest of the Arica Mountains, where borrow sites RV-1 and RV-2 are located, southwest to the RV-7 borrow site to the east of the Cottonwood Mountains near Joshua Tree National Park. The Quaternary alluvial basin fill that is extracted at the RV-1 and RV-2 borrow sites derive sediment that is eroded from exposed rocks of the Granite Mountains. This mountain range is dominated by Jurassic and Cretaceous plutonic rocks, including granitic and dioritic assemblages (Haxel & Miller, 1994).

A distinct drainage divide lies just east of borrow site RV-3, which indicates that Quaternary alluvial materials excavated at this location likely originate from rocks exposed in the Coxcomb Mountains to the west. As with RV-3, the Coxcomb Mountains are also interpreted as the source province for alluvial sediments deposited within the RV-4 borrow site area. The Coxcomb Mountains form a prominent, generally north-south trending range, which is described as being underlain by metaigneous and metasedimentary rocks of Jurassic and (or) older age intruded by Late Jurassic to Late Cretaceous granitic rocks (Calzia, Kilburn, Simpson, Leszczykowski, & Causey, 1983). The metamorphic and granitic rocks are overlain by volcanic and sedimentary deposits of Tertiary and Quaternary age. The metasedimentary rocks in the southern part of the Coxcomb Mountains were folded at least twice and are metamorphosed to the greenschist facies, according to Calzia, et al. (1983).

The Eagle Mountains lie northwest of borrow site RV-5. Borrow sites RV-6 and RV-7 are situated near the southwestern flank of the mountain range. These locations appear to receive sediment that originates from mountain front erosion along the southern flank of the Eagle Mountains. According to a study by Force (Force, 2001), the Eagle Mountains are comprised of gneissic basement rocks, which are overlain by two sedimentary units, separated by unconformities. The lower unit contains carbonate rocks and quartzite; the “vitreous quartzite” of previous workers, however, is an alteration feature rather than a stratigraphic one. The upper unit contains thick conglomerates. This succession of rocks is deformed into

a west-plunging anticline. Intrusion by Jurassic quartz monzonite apparently followed this deformation. Quartz monzonite forms a branching network of sills, some of which dilate the contact between the upper and lower sedimentary successions (Force, 2001).

3.1.2 Site Geology

Given the extensive and varying geologic framework of the borrow site locations, the following provides individual geologic descriptions for each of the borrow sites located in San Bernardino and Riverside Counties.

Table 6: Site Geologic Descriptions

Borrow Site	Geologic Description
SB-1	Available geologic data within the immediate extraction area of SB-1 are sparse, as this section appears to have been mapped at a broad scale. Based on the geologic map prepared by Bishop (Bishop, 1963), extraction area SB-1 occurs within a Precambrian igneous and metamorphic core complex, with undivided Tertiary sedimentary and volcanic rocks occurring in the immediate vicinity. Mapping conducted by Stone and Howard (Stone & Howard, 1979) generally coincides with the earlier work of Bishop, except that the igneous and metamorphic lithotypes are listed as being younger in age (Mesozoic). Additionally, some unconsolidated alluvial materials occur at the eastern edge of the extraction area, where this borrow site is accessed.
SB-2	Borrow site SB-2 is located near the western flank of the Whipple Mountains. This borrow site occurs in the Pleistocene non-marine geologic unit, as mapped by Bishop (Bishop, 1963). This unit appears to correlate with the older Quaternary alluvium mapped by Stone and Howard (Stone & Howard, 1979).
SB-3	Extraction area SB-3 is located within an alluvial plain, characterized by late Cenozoic silts, sands, pebbles, cobbles, and boulders. These alluvial deposits are described as locally derived poorly sorted angular to subrounded, unconsolidated material (Carr, Dickey, & Quinlivan, 1980).
SB-4	Based on the mapping conducted by Bishop (Bishop, 1963) for the Needles, California 1° X 2° Quadrangle sheet, borrow site SB-4 lies within undivided, Quaternary alluvium.
SB-5, SB-6	Extraction areas at SB-5 and SB-6 occur within an alluvial plain, mapped by Howard (Howard, K. A., 2002) as comprising young Quaternary alluvium. The alluvium is described as sand and poorly sorted sandy gravel of angular and subangular clasts derived from adjacent mountains. It forms alluvial fans, with surfaces commonly characterized by bars and swales. Howard (Howard, K. A., 2002) notes that older parts can be slightly dissected and exhibit lightly varnished desert pavement. As observed in areas to the east, these deposits may locally include a component of windblown sands.

Borrow Site	Geologic Description
SB-7	<p>Borrow site SB-7, which is located near Metropolitan’s Iron Mountain Pumping Plant, occurs within a complex terrane. Based on the geologic map prepared by Howard (Howard, K. A., 2002), the Iron Mountains Fault and related splays is inferred as cross-cutting late Pleistocene alluvium and Cretaceous igneous rocks that occur in and adjacent to this extraction area. The alluvium is characterized as consisting of sandy gravel of angular and subangular clasts derived from adjacent mountains. These deposits form partly dissected fans, benches, and terraces, commonly surfaced by dark pavement of varnished stones.</p> <p>Howard (Howard, K. A., 2002) has mapped the Cretaceous igneous rock as the Granite Pass Granite, which is named after Granite Pass, located between the Iron and Granite Mountains. Part of the Granite Pass Pluton, it is described as a coarse-grained, porphyritic muscovite-biotite monzogranite to granodiorite. Alkali-feldspar phenocrysts 1- to 4-centimeters (cm) occur within the ground mass, according to the description given by Howard (Howard, K. A., 2002).</p>
RV-1 RV-2	<p>Within the area encompassing borrow sites RV-1 and RV-2, mapping by Howard (Howard, K. A., 2002) and others have identified Quaternary sand dune and sand sheet deposits, which interfinger with younger alluvial material.</p>
RV-3 RV-4	<p>Material extraction at RV-3 and RV-4 occurs along the medial-distal section of an alluvial fan that extends from the eastern flank of the Coxcomb Mountains. This borrow site area comprises younger alluvial materials, principally sand and poorly sorted sandy gravel of angular and subangular clasts derived from adjacent mountains. According to Howard (Howard, K. A., 2002), the fan surfaces in this area are commonly characterized by bars and swales, with older segments slightly dissected that may exhibit lightly varnished desert pavement. Windblown sands are also locally present.</p>
RV-5	<p>Borrow site RV-5 is located along the eastern flank of the Eagle Mountain Range, north of the former Kaiser Steel Eagle Mountain Mine. Based on a geologic study conducted by Force (Force, 2001), this extraction area is mapped as Quaternary alluvium; however, based onsite observations there is evidence of minor dike-style intrusive bodies exposed along these alluvial surfaces, which were historically described generally as outwash aprons by Harder (Harder, 1912).</p>
RV-6	<p>The RV-6 borrow site is located near the base of the southern end of the Eagle Mountain Range. This borrow site occurs along a slightly dissected wash surface, comprised of Quaternary alluvium as noted by Force (Force, 2001). The alluvial material is principally sand and gravel, with clasts locally derived from the crystalline rock exposed to the northwest.</p>
RV-7	<p>Borrow site RV-7 is located along the southern edge of the Eagle Mountain Range, and south of the Metropolitan’s Julian Hinds Pumping Plant. This borrow site area is described as younger Quaternary alluvium, consisting of medium- to coarse-grained sand and pebbly sand that is poorly to moderately sorted; unconsolidated to slightly consolidated (Powell, Matti, & Cossette, 2015).</p>

3.2 Hydrology & Climate

3.2.1 Climate

The borrow sites are located in a region identified under the Köppen climate classification as a “hot desert climate” zone (PRISM Climate Group, 2021). The regional climate is characterized by hot, dry summers and mild winters. The majority of the average 4.6 inches of annual rainfall in the region usually occurs in the winter months beginning in November and lasting through April. Winters can average temperatures from 42 to 68 degrees Fahrenheit (°F) and are generally considered to be warm and mild in nature. Summers are hot and dry with average temperatures ranging from 78° to 106° F (Western Regional Climate Center, 1893-2016). This climate results in relatively stable weather patterns throughout the year.

3.2.2 Surface Water & Hydrology

With respect to surface water hydrology, the borrow sites are all located within portions of alluvial fans and boarder alluvial plains, except in the case of SB-1 and SB-7, which are situated within areas of primarily hard rock and nominal alluvium. Surface flow of stormwater occurs as sheet flow and in localized rivulets. In some instances, confined flows may occur in washes adjacent to some of the borrow sites intermittently during larger storm events.

Given the current topography of the borrow sites, storm precipitation is generally contained and thus infiltrates into the ground. In the event of a large storm, as noted above, surface runoff at the borrow site locations would be minimal and occur generally as sheet or rivulet flows across the alluvial fans and plains. Because of the nature of the soils, precipitation is expected to rapidly infiltrate where the underlying soils are comprised of coarser grained sediments and poorly developed soil profiles.

During reclamation of the borrow sites, stormwater runoff and erosion will be controlled by directing drainage inward toward the pit floors, and by maintaining perimeter berms as necessary to control off-site discharge. Any perimeter berms constructed to store any recovered topsoil and/or subsoil will be placed within setback areas between the top of slopes and Metropolitan’s property boundaries. Any topsoil and subsoil material stored in perimeter berms will be stabilized and periodically inspected to ensure erosion and runoff is properly contained. Consistent with existing protocols, protective berms are routinely inspected and Metropolitan continually maintains protective berms surrounding borrow sites on an as needed basis, to ensure erosion control and offsite sediment transport.

As applicable, for those borrow sites undergoing reclamation that are subject to the State’s general stormwater permit, a Stormwater Pollution Prevention Plan (SWPPP) will be prepared and implemented, which will outline site-specific sediment and erosional control measures. Metropolitan may also prepare and implement a Water Pollution Control Plan (WPCP) at the certain borrow sites where warranted. Implementation of a SWPPP or WPCP as needed, which is part of all Metropolitan’s existing protocols, would ensure reclamation of the borrow sites is in compliance with applicable stormwater regulations and best management practices. Stormwater best management practices (BMPs) for stormwater and erosion control have been, and will continue to be implemented during mining and reclamation activities.

Additionally, a supplemental hydrologic analysis of each borrow site was performed by Sespe Consulting, Inc. to confirm if the final, reclaimed pit configuration for each of the borrow sites will have sufficient capacity to contain the 20-year, 1-hour design storm consistent with the SMARA performance standards for erosion control (CCR Section 3706). As determined through the hydrologic analysis (see Appendix C), the formation of pits as a result of the mining operations will function as storage basins capable of

capturing the full capacity of the modeled storm events, with the included standard factor of safety. Please see Sections 4.5 and 5.12 and the hydrologic analysis in Appendix C for additional detail.

3.3 Groundwater Conditions

Because the borrow sites are used solely as a source of raw material (sand, gravel, other earthen materials) for use by Metropolitan in various projects in and around the CRA, none of these locations require dedicated water supply wells or other types of groundwater wells. Consequently, there is no existing site-specific data pertaining to groundwater depths, flow direction or gradient at the borrow site locations. However, as described in Section 1.3, groundwater is expected to occur at depths in excess of 100-feet bgs, with potentiometric surfaces generally coincident with topography. As described previously, the final planned maximum excavation depth at the borrow sites is anticipated to be no more than 25- to 30-feet bgs. Therefore, mining activities would not encounter groundwater.

3.4 Soils, Erosion, & Slope Stability

3.4.1 Soils

As discussed, much of the borrow sites are crossed by expansive alluvial wash deposits. Soils are predominantly sandy gravel with high runoff coefficients and fast percolation. While the soil types for most of the borrow sites are not mapped, six mapped soil types consisting of ten soil series occur throughout the region. None of the soils mapped within the borrow sites are considered Hydric (Natural Resources Conservation Service, 2007).

1. Pintobasin-Joetree-Patscamp complex, 2 to 8 percent slopes;
2. Pintobasin loamy sand, 2 to 4 percent slopes;
3. Buzzardsprings-Coxpin-Dalelake complex, 2 to 8 percent slopes;
4. Deprave-Rockhound-Rizzo complex, 2 to 4 percent slopes;
5. Rizzo complex, 8 to 15 percent slopes; and
6. Carsitas complex, 4 to 8 percent slopes.

Pintobasin Series: Pintobasin Series soils consist of very deep, somewhat excessively drained soils that formed in mixed alluvium from dominantly granitoid rock. Pintobasin soils are found on fan remnants, alluvial fans, fan aprons, inset fans and in drainageways with slopes ranging from 0 to 15 percent. These soils are somewhat excessively drained and experience negligible to low runoff. Pintobasin soils are typically used for recreation and wildlife habitat. Vegetation consists mainly of desert scrub.

Joetree Series: Joetree Series soils are very deep, somewhat excessively drained soils that formed in alluvium from granitoid rocks. They are found on fan aprons over fan remnants with slopes ranging from 0 to 8 percent. They are classified as mixed, hyperthermic Typic Torripsamments. These soils are usually dry and have a typic-aridic soil moisture regime. Joetree soils are typically used for recreation and wildlife habitat. Vegetation consists mainly of creosote bush (*Larrea tridentata*) and burrobush (*Ambrosia dumosa*).

Patscamp Series: Patscamp series consists of very deep, well drained soils that formed in alluvium derived from granitoid rocks. Patscamp soils are found on fan aprons over fan remnants and slopes ranging from two to eight percent. This series is well drained and exhibits very low runoff. These soils are commonly used for recreation and wildlife habitat. Vegetation consists of desert scrub.

Buzzardsprings Series: The Buzzardsprings series consists of very deep, somewhat excessively drained soils that formed in alluvium from igneous rock. These soils are found on fan remnants with slopes that range from 2 to 30 percent. They are classified as sandy, mixed, hyperthermic Typic Haplocalcids. This series is somewhat excessively drained and exhibits very low or low runoff. These soils are typically used for recreation and wildlife habitat. Vegetation consists of desert scrub.

Coxpin Series: The Coxpin series consists of shallow, somewhat excessively drained soils that formed in alluvium from igneous rocks. Coxpin soils are found on fan remnants and fan aprons over fan remnants and slopes ranging from 2 to 8 percent. They are classified as sandy, mixed, hyperthermic, shallow Cambidic Haplodurids. This series is well drained and exhibits medium runoff. These soils are commonly used for recreation and wildlife habitat. Vegetation consists of desert scrub.

Dalelake Series: The Dalelake series consists of very deep, somewhat excessively drained soils that formed in eolian material from mixed sources. Dalelake soils are found on dunes, coppice dunes and sand sheets with slopes that range from 0 to 30 percent. These soils are somewhat excessively drained and exhibit negligible to low runoff. These soils are typically used for recreation and wildlife habitat. Vegetation consists of desert scrub.

Deprave Series: The Deprave series consists of moderately deep, well-drained soils that formed in alluvium from granitoid and/or gneissic rocks. Deprave soils are found on fan remnants and slopes ranging from 0 to 4 percent. They are classified as loamy-skeletal, mixed, superactive, hyperthermic Argidic Argidurids. This series is well drained and has very low or low runoff. These soils are commonly used for recreation and wildlife habitat. Vegetation consists of sparse desert scrub.

Rockhound Series: The Rockhound series consists of very deep, well drained soils that formed in alluvium from granitoid and/or gneissic rocks. Rockhound soils are found on fan remnants and slopes ranging from 2 to 15 percent. They are classified as loamy-skeletal, mixed, superactive, hyperthermic Typic Haplargids. This series is well drained and exhibits very low or medium runoff. These soils are typically used for recreation and wildlife habitat. Vegetation consists of sparse desert scrub.

Rizzo Series: The Rizzo series consists of very deep, excessively drained soils that formed in alluvium from various igneous and metamorphic rocks. The Rizzo soils are found on alluvial fans, fan aprons, fan remnants, inset fans and drainageways with slopes that range from 0 to 75 percent. These soils are classified as sandy-skeletal, mixed, hyperthermic Typic Torriorthents. They are excessively drained and exhibit negligible to very high runoff. These soils are commonly used for recreation and wildlife habitat. Vegetation consists of desert scrub.

Carsitas Series: This series consists of very deep, somewhat excessively drained soils that formed in alluvium from granitoid and/or gneissic rocks. The Carsitas soils are found on alluvial fans, fan aprons, valley fills, dissected remnants of alluvial fans and in drainageways with slopes that range from 0 to 30 percent. This series is classified as mixed, hyperthermic Typic Torripsammments. These soils are somewhat excessively drained and exhibit negligible to low runoff. They are typically used for recreation and wildlife habitat. Vegetation consists of sparse desert scrub.

SMARA regulations (§3711) require salvage of topsoil and other suitable growth media (subsoil) prior to mining and redistribution in areas to be revegetated. As discussed above, because of the historic uses of the borrow sites, the amount of remaining topsoil and subsoil varies, with some borrow site locations

having no appreciable quantities of soils salvaged. In other instances, borrow sites have certain areas where a thin (generally 12 inches or less), poorly developed soil profile exists, which can be removed prior to excavation and placed into a perimeter berm for storage. In accordance with §3711, in those areas where mining has not commenced and topsoil and/or subsoil is present, topsoil and subsoil will be scraped off of the excavation area and will be stored separately, either within a perimeter berm or miscellaneous stockpiles. The topsoil and subsoil will be salvaged and stored in the berm through the duration of mining and will eventually be placed back along the adjoining slope during reclamation to support revegetation.

3.4.2 Erosion, Sediment Transport, & Windblown Dust

The borrow sites are within the jurisdiction of both the South Coast Quality Management District (SCAQMD) and Mojave Desert Air Quality Management District (MDAQMD). Both the SCAQMD's and MDAQMD's Rule 403 (Fugitive Dust Control) prescribes measures for the management of windblown dust. Erosion, sediment transport, and windblown dust are controlled by the continued implementation of Metropolitan's Best Management Practices (BMPs), including a site-specific SWPPP and/or WPCP (if required), compliance with applicable SCAQMD and MDAQMD rules and regulations, and site-specific inspections conducted by Metropolitan. As discussed in Section 3.2.2 above, BMPs that manage off-site stormwater discharges, sediment transport during operations, and general erosion controls have been and will continue to be implemented and maintained at each borrow site as needed. Additionally, as discussed in the supplemental hydrologic analysis provided in Appendix C, erosion during ongoing operations will continue to be sufficiently controlled through the use of BMPs which will continue to be installed and maintained as needed to eliminate the potential for discharge of sediment during storm events. Also see Sections 4.5 and 5.12 and the hydraulic analysis in Appendix C for summaries of stormwater BMPs to be implemented onsite.

3.5 Vegetation & Biological Resources

3.5.1 Vegetation Communities

The dominant habitat found at the borrow sites is desert scrub, but discrete areas of other habitat types also occur within the regional area. Two vegetation communities/land cover types were mapped within the borrow sites (see Table 7). As discussed in further detail below, these land cover types are creosote bush scrub and disturbed.

Table 7: Borrow Site Vegetation Communities & Land Cover

Site	Vegetation Community & Land Cover	Sensitive? ¹
SB-1	Disturbed / Creosote Bush Scrub	No
SB-2	Disturbed / Creosote Bush Scrub	No
SB-3	Disturbed / Creosote Bush Scrub	No
SB-4	Disturbed / Creosote Bush Scrub	No
SB-5	Disturbed / Creosote Bush Scrub	No
SB-6	Disturbed / Creosote Bush Scrub	No
SB-7	Disturbed / Creosote Bush Scrub	No
RV-1	Disturbed / Creosote Bush Scrub	No
RV-2	Disturbed / Creosote Bush Scrub	No
RV-3	Disturbed / Creosote Bush Scrub	No
RV-4	Disturbed / Creosote Bush Scrub	No
RV-5	Disturbed / Creosote Bush Scrub	No

Site	Vegetation Community & Land Cover	Sensitive? ¹
RV-6	Disturbed / Creosote Bush Scrub	No
RV-7	Disturbed / Creosote Bush Scrub	No

1 – A sensitive plant community is one that is listed by CDFW due to the rarity of the community in the state or throughout its entire range (California Department of Fish and Wildlife, 2021).

Creosote Bush Scrub: Much of the borrow sites contains creosote bush scrub (*Larrea tridentata* Shrubland Alliance). This alliance is typically found in alluvial fans, bajadas, upland slopes, and minor intermittent washes between 75 and 1,300-meters in elevation. Soils are well drained, sometimes with naturally occurring desert pavement. This vegetation community contains an intermittent to open shrub canopy dominated by creosote bush with an open to intermittent herbaceous layer with seasonal annuals or perennial grasses (Sawyer, Keeler-Wolf, & Evens, 2009). This native vegetation community (ranked G5S5) is not considered a sensitive natural community (California Department of Fish and Wildlife, 2021).

Within the borrow sites, creosote bush scrub habitat is sparse and low growing due to high levels of existing disturbance from ongoing material extraction activities. Creosote bush scrub is denser in areas surrounding the sites as those areas are not subject to regular disturbance. Boxthorn (*Lycium* sp.), burrobush (*Ambrosia dumosa*), and California buckwheat (*Eriogonum fasciculatum*) are also present throughout this community.

Disturbed: Disturbed areas are defined as locations where soils have been disturbed during construction or other urban-related activities, including extraction of materials to construct and continuously operate and maintain the CRA by Metropolitan. This land cover type is not formally recognized as an official vegetation community. Disturbed areas generally consist of sites that have undergone prior grading and/or off-highway-vehicle recreational use, and unimproved access roads. This includes areas that are unvegetated.

3.5.2 Wildlife

Creosote bush scrub in and around the borrow sites provides habitat for many wildlife species, including suitable nesting habitat for a wide variety of bird species and foraging habitat for common raptors. Wildlife observed during the biological reconnaissance surveys consisted of common desert species. Wildlife observed included coast horned lizard (*Phrynosoma blainvillii*), California ground squirrel (*Otospermophilus beecheyi*), coyote (*Canis latrans*), burro (*Equus asinus*), bighorn sheep (*Ovis canadensis*), desert iguana (*Dipsosaurus dorsalis*), jackrabbit (*Lepus californicus*), and greater roadrunner (*Geococcyx californianus*). Avian wildlife species observed flying over the borrow sites during the biological reconnaissance surveys included common raven (*Corvus corax*), red-tailed hawk (*Buteo jamaicensis*), American kestrel (*Falco sparverius*), and European starling (*Sturnus vulgaris*).

3.5.3 Special-Status Species

A Biological Resources Assessment (BRA) was prepared by Rincon (Rincon Consultants, Inc., 2021; Appendix B) to evaluate the conditions of the habitat(s) within and adjacent to the boundaries of the borrow sites to determine if the existing plant communities, at the time of the survey, had the potential to provide suitable habitat(s) for special-status plant and wildlife species. Special-status plant and wildlife species were evaluated for their potential to occur within the site based on habitat requirements, availability and quality of suitable habitat, and known distributions.

Special-Status Plant Communities: No special-status plant species were observed within or adjacent to the reclamation boundaries during Rincon’s biological reconnaissance surveys (Rincon Consultants, Inc., 2021). Based on the results of the biological literature review, 22 special-status plant species are known to occur in the vicinity (within 5 miles for California Natural Diversity Data Base (CNDDB) and 9 topographic quadrangles for California Native Plant Society (CNPS)) of the borrow sites. The borrow sites are heavily disturbed due to past and ongoing material extraction activities at the borrow pits; as a result, the reclamation area is unsuitable for rare plants that require specialized habitats. All plant species were determined to have low or no potential to occur due to a lack of habitat, unsuitable soils, and/or the borrow site’s location outside of the known distribution and/or elevation range of the species (e.g., special-status plants that are associated with dune habitats, large desert washes, or highly alkaline soils that are not present in the borrow sites).

Special-Status Wildlife: Based on the results of the biological literature review completed by Rincon (Rincon Consultants, Inc., 2021), 12 special-status wildlife species are known to occur in the vicinity (within 5 miles for CNDDB) of the borrow sites. Two species (Mojave fringe-toed lizard [*Uma scoparia*] and cheeseweed owl [*Oliarces clara*]) were determined to have no potential to occur due to a lack of habitat, and/or the borrow site’s location outside of the known distribution and/or elevation range of the species. Ten special-status wildlife species were determined to have a moderate or high potential to occur in the area in and around Metropolitan’s borrow sites: Mojave desert tortoise (*Gopherus agassizii*), prairie falcon (*Falco mexicanus*), Yuma myotis (*Myotis yumanensis*), cave myotis (*Myotis velifer*), California leaf-nosed bat (*Macrotus californicus*), Townsend’s big-eared bat (*Corynorhinus townsendii*), burrowing owl (*Athene cunicularia*), desert bighorn sheep (*Ovis canadensis nelsoni*), mountain lion (*Puma concolor*), and bald eagle (*Haliaeetus leucocephalus*).

As discussed above, the borrow sites are heavily disturbed due to historical mining operations, sparsely or not vegetated, and in most cases offer limited habitat for special status species. In addition, activities that are currently occurring at the borrow pits include excavation, backfilling, earth moving, materials storage, and heavy equipment use. These activities increase sound and vibration levels at the sites and potential exposure to dust for special status species and reduce the likelihood that these species will be present. The short-term human presence and earthwork required for reclamation would be similar to that which occurs during resource extraction activities at the sites. The reclamation activities, including earthwork and revegetation, would be conducted in accordance with all applicable local, state and federal regulations that protect special-status species.

4.0 MINING PLAN, CCR §2772, §3502, §3503

4.1 Mining Operations, CCR §2772(c)(3)-(4), (6)

As described previously, Metropolitan presently operates 14 borrow sites within San Bernardino (identified as SB-1 through SB-7) and Riverside (identified as RV-1 through RV-7) Counties, all of which provide earthen materials for various projects related to the CRA. Metropolitan has vested mining rights for their borrow site operations. With Metropolitan's mining right, current and future surface mining operations at all of Metropolitan's fee-owned lands are permitted by right. The borrow site operations began in the 1930's, with the initiation of the CRA project. These mining operations extend from the easterly part of San Bernardino County in the Whipple Mountains north of Parker, Arizona, southwestward to the area south of the Cottonwood Mountains in Riverside County.

The borrow sites are areas where sand, gravel, and other earthen materials have been or are being taken for CRA-related emergency response and operations and maintenance activities. The materials are extracted by typical surface mining techniques, which include the use of off-road mobile equipment (e.g., dozers, loaders, excavators, and graders). The amount of material to be extracted at each borrow site varies, depending on the condition of the specific site, such as the depth of the pit and the conditions of the slopes. The current mining operations have or are expected to result in the development of the borrow sites that would result in polygonal-shaped surface depressions that would extend vertically as mining progresses to 25- to 30-feet in total depth below the existing topographic elevations. In addition to material extraction, the borrow sites are also currently used for temporary storage for miscellaneous supplies and mobile equipment.

As discussed previously, once operations at a borrow site cease, reclamation would begin. The timing of this would be different for each site. This Master Reclamation Plan accounts for vested operations at the majority of the borrow sites to continue until the material is depleted or no longer needed, at which point reclamation would commence. It is anticipated that this could take up to 100 years with material depletion at the majority of borrow site locations conservatively assumed to occur in 2122.

4.1.1 History of Project Area, CCR §3502 (b)(1)

As discussed in Section 1.0, surface mining began in the 1930's in connection with the construction of the CRA. Initially, much of the mined materials were used for roads, various diversion features such as dikes and as a source of aggregates for concrete. Because Metropolitan mines the material on an as-needed basis, which in part, is dependent on the agency's internal operational demands, extraction and ancillary activities at the borrow site locations has historically varied spatially and temporally. That is, Metropolitan mines material for its own use in response to specific project needs along the CRA, so the duration of mining and the specific location that it occurs will change year-to-year; however, the borrow site locations within the surface mining operation are expected to remain constant into the foreseeable future. Some borrow source locations may be active for a few weeks each year, then inactive for the remainder. Moreover, these operations typically produce only that quantity of material needed for a given project or repair, and thus stockpiling of materials is nominal or otherwise not necessary.

4.1.2 Site Preparation

For those portions of the borrow sites that have not been previously disturbed by historical mining operations, removal of vegetation and surface scarification will be performed prior to initiation of mining at a borrow site to prepare and expose fresh surficial material. Once the vegetation has been removed and the surface cleared, to the extent discernable, topsoil and subsoil will be removed (where feasible)

using a dozer to push the material into either a perimeter berm or separate stockpile. Given that desert soil profiles tend to be very thin and oftentimes poorly developed, no more than 12-inches of topsoil and subsoil is estimated to be salvaged at any given location. Thus, considering the property area of the individual borrow sites, any perimeter berms that will be used to store the topsoil are planned to generally range from 2- to 6-feet in height, but ultimately will be determined according to the actual quantity of soil material recovered and the length of the berm. For this mine plan, where topsoil remains, it is estimated that 1,700 to 2,000 bank cubic yards of topsoil and subsoil may be generated per unit acre of land prepared for mining.

The geometry of topsoil/subsoil storage berms will be trapezoidal, with slope angles typically 3H:1V (horizontal to vertical) or less. After the material has been pushed to the mine area perimeter, the dozer will be used to form the trapezoidal shape by blading the sides. During shaping, the dozer tracks will provide some degree of surficial compaction of the topsoil material, which will improve erosional resistance at the surface. Topsoil and subsoil stored separately onsite will either be allowed to naturally revegetate or will be used as revegetation cover as part of reclamation.

4.1.3 Mining Operations

For Metropolitan's borrow sites, mining operations will generally conform to the design parameters and continue to progress according to the mine plan details as shown in the drawing sheets (see Figure 2 through Figure 17 in Appendix A). Mining at each borrow site is focused on extraction of Quaternary-age alluvial and/or aeolian deposits. Since these are borrow sources, the pit run material is generally used as-is. No material processing other than occasional sorting and stockpiling occurs within the surface mining operation, nor is any planned in connection with the future operations.

The plan for the surface mining operations allows for material extraction to occur at one or more borrow site locations concurrently, or at one single location at any time. Based on prior years' production activities and input from Metropolitan's desert operations staff, mining is expected to continue to take place over a 2- to 6-week period of time annually at any given borrow site location, again with initiation and overall duration of the extraction activities being dependent on specific operational needs and schedules of Metropolitan.

Mining at the borrow sites will typically be limited to the current footprint of disturbance, or will be extended up to the boundaries shown on Figure 3 through Figure 9 and Figure 11 through Figure 17 in Appendix A for each site. Because Metropolitan's fee ownership and mining rights extend well beyond the mining and reclamation boundaries for the borrow areas, setbacks are not necessary for these locations. However, where future activities may expand close to a Metropolitan property line, a nominal 20-foot setback will be maintained from top of the mine pit slope to the fee-owned boundary.

Material excavation will continue to occur using either a track-mounted excavator, bulldozer, wheeled front-end loader, or other off-road mobile equipment. The exact type of equipment used to remove material from the borrow pits will be, in part, dictated by the deposit characteristics and the availability of equipment. Regardless of the type of earth moving equipment used, mining will progress from the current pit floor downward, while maintaining the existing pit slope angles and configurations. In those cases where the mine plan includes extending material extraction beyond current footprint of disturbance, mining will progress from working the face at the toe of the slope or successively cutting downward from the planned boundary edge of the pit downward to depth. Total planned pit depth for the borrow sites, both current and planned, is 25- to 30-feet below the lowest ground surface elevation

along the top of slope. In some cases, the maximum pit depth could be less, depending on the actual amount actually extracted over the planned life of the surface mining operation.

The progression of mining at each borrow pit will generally continue at one corner or along an edge of the planned footprint, and then move toward the opposing boundary as the material is extracted. For the current active borrow sites, mining will continue vertically following the exiting pit slope configurations. As material extraction deepens each pit, the pit floor will advance deeper, and therefore the existing access ramps or roads will be extended concurrently. Mined material will continue to be loaded onto trucks using wheeled front-end loaders or directly by excavators. The trucks will then transport the Metropolitan borrow material to the CRA project or repair sites. Active mining and loading of material is expected to continue to occur over Metropolitan's standard 8- to 10-hour per day work shift, typically between 6:00 a.m. to 4:00 p.m. time period.

Upon reaching final depth, the pit floor will be graded to create a 2H:1V (horizontal to vertical) grade to direct drainage away from the point of access at the pit floor. Final mine and reclamation slopes will be at 2H:1V or less.

4.1.4 Buffer Zones/Setbacks

Where Metropolitan owns the adjacent property, no setback from the top of the mined slope will be established at the borrow pits. However, in those instances where the footprint of the borrow pit is next to non-Metropolitan-owned parcel or adjacent to a public ROW, a minimum 20-foot setback will be maintained from the top of the pit slope to the common property line or public ROW. Additionally, any necessary topsoil/subsoil storage (i.e., perimeter berms, or stockpiles) will be constructed outside of the 20-foot setback, and thus will be included on the borrow sources total area of disturbance. However, if required, perimeter access roads (approximately 10-feet in width) may be constructed at the top of slopes, and included within the 20-foot setback area.

Some borrow pits are located next to potentially jurisdictional drainages. Active mining is not planned for areas within potentially jurisdictional drainages; however, should mining plans necessitate extraction in these areas, applicable resource agency permits would be obtained. Refer to Section 4.5 below and the BRA prepared by Rincon (Rincon Consultants, Inc., 2021; Appendix B) for additional detail.

4.2 Mine Wastes, CCR §2772 (c)(8)(A)

Mining waste is all solid, semisolid, and liquid waste materials from the extraction, beneficiation, and processing of ores and minerals. Mining waste includes, but is not limited to, soil, waste rock, and overburden, as defined in Section 2732 of the Public Resources Code, and tailings, slag, and other processed waste materials, including cementitious materials that are managed at the cement manufacturing facility where the materials were generated. Given the historical mining operations (sand, gravel and other earthen materials are extracted and loaded without processing) and the lack of overburden or interburden, other than minimal topsoil/subsoil that would be stored and used onsite during reclamation/revegetation, there are no mining wastes that will be generated at the borrow sites. While not a mining waste, the vegetative debris generated during surface preparation and extraction at the borrow site locations, or where an existing footprint is being expanded, will be removed and relocated or disposed of outside of the surface mining operation. Metropolitan operations will continue to properly manage the handling and storage of the vegetative duff in accordance with applicable County and State regulations.

4.3 Material Processing

As previously discussed, since the mining operations consist solely of borrow sources for sand, gravel, and earthen materials other than occasional sorting and stockpiling, no significant material processing to size or clean extracted materials is required. The mined material will continue to be directly loaded onto trucks for transport.

4.4 Production Water

4.4.1 Fresh Water

During mining operations, water would be applied to working surfaces in the borrow pits and along access roads, as warranted, to control fugitive dust emissions. Metropolitan operations will employ one water truck with a 1,000 gallon or larger, affixed tank to apply the water. Water would be obtained at various locations along the CRA by pumping water directly into the water truck from the CRA, which is administered and controlled by Metropolitan. Additionally, due to its proximity to Metropolitan's Julian Hinds Pumping Plant, water used during the reclamation of RV-7 would be obtained from an existing water hydrant located at the plant. No other water will be needed to support the ongoing surface mining operations.

4.4.2 Wastewater

Because the ongoing mining operations involve only extraction and do not require processing, other than occasional sorting and stockpiling, material washing is not required. Consequently, the surface mining operation has not and will not generate any process wastewater.

4.5 Erosion & Sediment Control, CCR §3503(a), §3503(e), §3506

Metropolitan currently implements policies, requirements, and responsibilities for evaluation, handling, storage, disposal, transport, including procedures for containment and cleanup of hazardous materials/waste spills. Metropolitan also applies various best management practices (BMPs) related to erosion control and containment of stormwater and will continue to implement them during borrow site operations.

Consistent with Metropolitan's existing protocols, as needed, a California Licensed Engineer or Geologist will determine if the mining and/or reclamation at a borrow source is subject to the California stormwater permitting regulations. For those that have the potential to discharge stormwater, as part of the preparation of a Stormwater Pollution Prevention Plan (SWPPP), additional BMPs will be identified and included in the plan to control erosion and offsite sediment discharge into a jurisdictional water. Metropolitan may also prepare and implement a site-specific Water Pollution Control Plan (WPCP) at certain borrow sites as warranted. Incorporation of a SWPPP or WPCP as needed, which is part of Metropolitan's existing protocols, would ensure reclamation of the borrow sites is in compliance with applicable stormwater regulations and applicable best management practices (BMP). Once implemented, erosion and sediment control BMPs will be routinely inspected by Metropolitan and maintained as part of the overall surface mining operation, and adjusted as warranted to assure compliance with all applicable laws and regulations.

Additionally, as discussed in Section 3.2.2 and 3.4 above, a supplemental hydrologic analysis of each borrow site was performed by Sespe Consulting, Inc. to confirm if the final, reclaimed pit configuration for each of the borrow sites will have sufficient capacity to contain the 20-year, 1-hour design storm

consistent with the SMARA performance standards for erosion control (CCR Section 3706). As determined through the hydrologic analysis (see Appendix C), the formation of pits as a result of the mining operations will function as storage basins capable of capturing the full capacity of the modeled storm events, with the included standard factor of safety.

Furthermore, since no significant processing will occur onsite, other than occasional sorting, no stockpiling of material is anticipated other than for temporary storage as may be necessary. For example, temporary stockpiles may be formed as part of stripping of topsoil and subsoil materials. Topsoil and subsoil may also be stored in a perimeter berm. Consequently, in those areas where the mining operation is near or adjacent to a jurisdictional drainage, the berm may be placed to control and direct stormwater run-off back toward the active borrow pit. Perimeter berms are routinely inspected and Metropolitan continually maintains protective berms surrounding borrow sites on an as needed basis, to ensure proper erosion control and offsite sediment transport.

If needed, additional BMPs, such as sandbags, fiber rolls, or silt fencing, will continue to be installed along berms and other slopes as needed to ensure sediment does not inadvertently erode into a non-Metropolitan-owned parcel, adjacent to a public ROW(s), jurisdictional drainage, or into the adjacent CRA during a large storm event.

4.6 Blasting

Because the mine plan is designed to continue to extract only unconsolidated sediment and/or weakly indurated rock that can be ripped using conventional earth moving equipment, blasting is not necessary and thus not included in the mine plan for the surface mining operation.

5.0 RECLAMATION PLAN

The following section has been prepared and organized pursuant to the requirements outlined within the Surface Mining and Reclamation Act (SMARA). The California Code of Regulations (CCR) citations presented within each titled section reference specific SMARA statutes applicable to each section (also see the “Table of Compliance for SMARA Requirements”).

5.1 Existing & Proposed Land Uses, CCR §2772 (c)(7), §3502 (b)(1)

As discussed in Section 1.0, existing land uses near Metropolitan’s surface mining operations can be generally characterized as undeveloped desert land, low-lying desert foothills and dry alluvial basins. The borrow sites are generally isolated, with few nearby cities, communities or other developments, with the exception of Metropolitan’s existing employee communities adjacent to the Gene, Iron Mountain, and Julian Hinds Pump Plants. There are no streams or riparian areas located within Metropolitan’s surface mining areas; however, the Copper Basin Reservoir is located approximately 0.3 miles west of SB-1. Please see Figure 1 (Appendix A), which displays the surrounding setting. Also see Figure 2 through Figure 17 (Appendix A), which shows the proposed layout and design of Metropolitan’s reclaimed borrow sites, as well as the reclamation cross-sections.

As discussed in Section 1.3, mining and ancillary activities occur periodically throughout the year at each borrow site, depending on Metropolitan’s needs. Material extracted at each site is utilized to maintain the CRA infrastructure, such as roads, earthen buttresses, and the many “v-dikes” that direct surface water flow near the aqueduct, and to make repairs following storm events. The borrow sites have few features and no structures, other than temporary material stockpiles, perimeter berms and equipment and materials storage.

Once operations are complete, Metropolitan’s borrow sites will be reclaimed as revegetated open space. However, after extraction of materials at the sites has ceased but prior to the final reclamation to open space, some of the borrow sites may be used for laydown and/or equipment storage. Reclamation of the borrow sites has been designed to complement the adjacent land uses, including those owned by Metropolitan (e.g., the CRA, ancillary operations, etc.) and non-Metropolitan-owned desert land.

5.2 Visibility, CCR §3502 (b)(2)

As discussed above, the borrow sites are located in isolated areas consisting of desert landscapes, on private lands owned by Metropolitan. Surrounding land uses near the borrow sites are described in Section 5.1 above and shown on Figure 2 through Figure 17 in Appendix A. Due to the remote and isolated locations of the borrow sites, reclamation activities would not be visible from nearby public locations and no visual screening (landscaping, berms, etc.) would be required. Additionally, because the borrow sites are located on Metropolitan fee property and cannot be accessed by the general public via public roads, reclamation would not result in conditions that would expose the public to health or safety concerns.

5.2.1 Berms & Screens

As discussed above, Metropolitan’s surface mining operations are located in isolated areas far from public view. Therefore, no visual screening (landscaping, berms, etc.) would be required during reclamation of Metropolitan’s borrow sites.

As discussed in Section 4.1.2, the amount of salvageable topsoil and subsoil varies between borrow sites. Due to the historic uses of the sites, some borrow site locations have no appreciable quantities of soils

salvaged. For those borrow sites with salvageable topsoil/subsoil, topsoil and subsoil will be removed as feasible and used to construct an approximately 2- to 6-foot perimeter berm(s). The topsoil and subsoil would be spread across the excavation areas once reclamation commences to help facilitate successful revegetation efforts. Additionally, any remaining stockpiles or berms of overburden or other natural materials (e.g., gravel, sand) would also be knocked down and placed back in the pit to help achieve the final desired slope conditions.

5.2.2 Fencing

With the exception of borrow site SB-1, which has a small entrance gate, and RV-7, located within the Hinds Pumping Plant, none of Metropolitan's borrow sites are fenced or gated. Due to the isolated nature and lack of public access to the borrow site areas, public security and safety are not a concern. As needed, certain private access roads controlled by Metropolitan may be gated and/or locked to prevent public access. Additionally, signs have been appropriately placed at the access roads and on perimeter fencing as necessary to identify Metropolitan property. Any existing fencing or signage will remain during reclamation to ensure public safety and to prevent inadvertent public access.

5.2.3 Lighting

Because Metropolitan's surface mining operations occur during daytime hours only, lighting is not utilized at the borrow sites. Reclamation activities would also occur during daytime hours only (8- to 10-hour shifts, between 6:00/7:00 a.m. – 3:00/4:00 p.m.). As such, no permanent or portable lighting has been or will be installed at any of the borrow source areas.

5.3 Existing Vegetation, CCR §3502 (b)(1), §3503 (c), §3703

As described in Section 3.5 and the BRA prepared by Rincon (Rincon Consultants, Inc., 2021; Appendix B) two vegetation communities/land cover types were mapped within Metropolitan's borrow sites: Creosote Bush Scrub and Disturbed.

5.3.1 Special-Status Plant Species

As discussed in Section 3.5.3, the borrow sites are currently unoccupied by special-status plant species. The borrow sites are heavily disturbed due to past and ongoing material extraction activities at the borrow sites; as a result, the reclamation area is unsuitable for rare plants that require specialized habitats. All plant species were determined to have low or no potential to occur due to a lack of habitat, unsuitable soils, and/or the borrow site's location outside of the known distribution and/or elevation range of the species (e.g., special-status plants that are associated with dune habitats, large desert washes, or highly alkaline soils that are not present in the borrow sites).

5.4 Wildlife, CCR §3503 (c), §3703

Based on the BRA completed by Rincon (Rincon Consultants, Inc., 2021) and presented in Appendix B, wildlife observed during the biological reconnaissance surveys consisted of common desert species. Wildlife observed included coast horned lizard (*Phrynosoma blainvillii*), California ground squirrel (*Otospermophilus beecheyi*), coyote (*Canis latrans*), burro (*Equus asinus*), bighorn sheep (*Ovis canadensis*), desert iguana (*Dipsosaurus dorsalis*), jackrabbit (*Lepus californicus*), and greater roadrunner (*Geococcyx californianus*). Avian wildlife species observed flying over the borrow site areas during the biological reconnaissance surveys included common raven (*Corvus corax*), red-tailed hawk (*Buteo jamaicensis*), American kestrel (*Falco sparverius*), and European starling (*Sturnus vulgaris*).

5.4.1 Special-Status Wildlife Species

As discussed in Section 3.5.3, based on the BRA completed by Rincon (Rincon Consultants, Inc., 2021), ten special-status wildlife species were determined to have a moderate or high potential to occur in the area in and around Metropolitan's borrow sites.

The borrow sites are heavily disturbed, sparsely or not vegetated, and in most cases offer limited habitat for special status species. In addition, activities that are currently occurring at the borrow pits include excavation, backfilling, earth moving, materials storage, and heavy equipment use. These activities increase sound and vibration levels at the sites and potential exposure to dust for special-status species and reduce the likelihood that these species will be present. The short-term human presence and earthwork required for reclamation would be similar to that which occurs during resource extraction activities at the sites. As discussed above, the reclamation activities, including earthwork and revegetation, would be conducted in accordance with all applicable local, state, and federal regulations that protect special-status species.

5.5 Reclamation Specifics & Schedule, CCR §2772 (c)(8)

5.5.1 Reclamation Slopes, CCR §3502 (b)(3), §3704

As discussed previously, Metropolitan's borrow sites will be reclaimed for use as revegetated open space consistent with the surrounding environment. Additionally, after extraction of materials at certain sites has ceased, but prior to the final reclamation to open space, some of the sites may be used as laydown and/or equipment storage areas. Once surface mining operations are complete, the borrow sites would be shallow excavation pits with various material stockpiles, equipment storage areas and perimeter berms.

Once reclamation commences, any unused equipment, deleterious materials (e.g., tailings, overburden, sediment, waste rock, etc.) and rubbish would be removed from the borrow site as needed. Metropolitan will also flatten material stockpiles and recontour excavation slopes and floors using mobile equipment, to ensure no slopes exceed a 2H:1V angle in accordance with SMARA performance standards. Only minimal regrading of pit slopes and surplus excavated material is anticipated, and therefore backfilling of the borrow pits will be limited to placement of a nominal quantities of material needed to achieve the final 2H:1V slope conditions. Additionally, existing stormwater control features (e.g., berms, earthen dikes, etc.) may be maintained or new features installed to control erosion at the borrow sites as needed post-reclamation in accordance with applicable laws and regulations.

Because final reclaimed slopes within the borrow sites, including remaining stockpiles, berms and material storage areas, will be regraded so as not to exceed 2H:1V, a site-specific geotechnical evaluation is not required. However, if any reclaimed slope cannot be regraded to comply with SMARA's 2H:1V performance standard, Metropolitan will complete a site-specific geologic and engineering analysis demonstrating that proposed final reclaimed slopes maintain a minimum slope stability factor of safety. The slope stability analysis will determine both the static and seismic factors of safety and ensure the reclaimed slopes are acceptable for the borrow site design features and considered representative of stable slope configurations. Furthermore, proposed revegetation at the borrow sites will help further stabilize the reclaimed side slopes and prevent erosion once roots are established. See Section 3.4 above for more detail.

5.5.2 Reclamation Backfilling, CCR §3502 (b)(4), §3704

Other than the placement of nominal quantities of excavated material into the shallow borrow pits to ensure side slopes do not exceed 2H:1V, or spreading of topsoil/subsoil to facilitate revegetation, no significant backfilling of the borrow pits will occur as part of site reclamation. For borrow sites where topsoil and subsoil were stored separately (i.e., in perimeter berms), these materials may be spread across the excavation areas to help facilitate revegetation efforts. Any remaining stockpiles of overburden or other natural materials (e.g., gravel, sand) may also be knocked down and placed back in the pit to help achieve the final desired slope conditions.

Mobile equipment would be used to knockdown any existing stockpiles, regrade slopes, and spread any salvaged topsoil to facilitate revegetation, as feasible. Please see Section 5.9 below for more detail.

5.5.3 Proposed Time Schedule of Reclamation, CCR §2772 (c)(6)

As discussed previously, Metropolitan typically utilizes the borrow sites infrequently, and only extracts materials as needed. As such, ongoing mining operations will continue to occur on an as needed basis (approximately 2 to 3 weeks per year) with no specific or sequential mining phases.

As discussed in Section 1.0, once operations have ceased at a borrow site, reclamation will commence. The timing of this would be different for each site. This Master Reclamation Plan accounts for operations at the borrow sites to potentially be active until the material is depleted or no longer needed. It is anticipated that this could take up to 100 years with material depletion at the majority of borrow site locations conservatively assumed to occur in 2122.

If feasible, portions of the borrow operations may be reclaimed and revegetated concurrent with mining in other areas of the site or other borrow site locations. Operations at Metropolitan’s borrow sites are anticipated to continue for the estimated durations presented in Table 8 below. For each borrow site, final site reclamation and revegetation is estimated to take approximately two years to complete following termination of mining operations. Revegetation monitoring is anticipated to require an additional three years. Please see Table 8 below, which summarizes the estimated surface mining operations and reclamation schedule for each borrow site.

Table 8: General Mining & Reclamation Schedule

Borrow Site	Approximate Size (acre)	Anticipated Schedule			Reclaimed End Use
		Complete Mining	Reclamation	Reclamation Monitoring	
SB-1	4.6 acres	2122	2124	2127	Revegetated Open Space
SB-2	21.0 acres	2122	2124	2127	Revegetated Open Space
SB-3	10.7 acres	2122	2124	2127	Revegetated Open Space
SB-4	12.3 acres	2122	2124	2127	Revegetated Open Space
SB-5	4.3 acres	2122	2124	2127	Revegetated Open Space
SB-6	6.7 acres	2122	2124	2127	Revegetated Open Space
SB-7	14.2 acres	2122	2124	2127	Revegetated Open Space
RV-1	23.7 acres	2122	2124	2127	Revegetated Open Space
RV-2	5.5 acres	2122	2124	2127	Revegetated Open Space
RV-3	7.1 acres	2122	2124	2127	Revegetated Open Space

Borrow Site	Approximate Size (acre)	Anticipated Schedule			Reclaimed End Use
		Complete Mining	Reclamation	Reclamation Monitoring	
RV-4	2.1 acres	2122	2124	2127	Revegetated Open Space
RV-5	3.6 acres	2122	2124	2127	Revegetated Open Space
RV-6	5.6 acres	2122	2124	2127	Revegetated Open Space
RV-7	5.3 acres	2122	2124	2127	Revegetated Open Space
Note: Timeframes shown above are estimations, and may change depending on Metropolitan's needs. Reclamation at a given borrow site will commence once mining is complete.					

5.6 Revegetation Plan, CCR §3703 (g), §3705

As discussed above, the final end use of Metropolitan's reclaimed borrow sites would be revegetated open space consistent with the surrounding environment. The proposed revegetation approach and methods for Metropolitan's borrow sites are consistent with standard industry practices. Specifically, the revegetation plan is based on the proposed final excavation pits, ranging from approximately 25-feet to 30-feet bgs, with undulating side slopes at a maximum gradient of 2:1 (H:V), for use as revegetated open space. The proposed revegetation seed mixes for Metropolitan's borrow sites are primarily based on baseline vegetation surveys completed by Rincon (Rincon Consultants, Inc., 2021), as well as supplemental surveys prepared by Metropolitan/Psomas (Psomas, 2018), and consist of plant species native to the surrounding desert scrubland environment. The following sections outline the specifics related to proposed revegetation efforts for Metropolitan's borrow sites.

Following completion of mining operations, the following typical sequence of revegetation activities will be undertaken at each borrow site:

- Re-contouring of planting areas, if necessary;
- Control of invasive weeds;
- Placement of topsoil and subsoil, if necessary;
- Installation of temporary irrigation systems, if necessary;
- Installation of supplemental erosion control devices, if necessary;
- Planting and seeding;
- Maintenance and monitoring; and
- Reporting.

Revegetation of Metropolitan's borrow sites will be achieved by using a combination of site preparation, planting activities, and ongoing maintenance procedures. This revegetation plan generally addresses and defines the following components: description of planting zones, timing, soil preparation, weed control, planting and seeding materials and techniques, implementation monitoring, establishment maintenance, horticultural monitoring and biological monitoring.

5.6.1 Revegetation Personnel & Methods

Revegetation activities will be conducted under the supervision of a monitoring biologist. The monitoring biologist will work closely with Metropolitan's operations personnel to assure that revegetation is accomplished according to applicable plans (e.g., this Master Reclamation Plan, etc.) and is consistent with proposed site end uses and the surrounding desert environment. Any deviation from the applicable revegetation plan will be approved by the monitoring biologist prior to implementation. The monitoring

biologist will be onsite during initiation of each revegetation task (e.g., site preparation, seeding, etc.), and work will be monitored on a regular basis. The monitoring biologist will be required to keep activity logs to document the work accomplished and any issues encountered. The monitoring biologist, if different than Metropolitan staff, will review these logs with Metropolitan on a semi-regular basis to ensure revegetation efforts are meeting applicable SMARA performance standards. The monitoring biologist will also prepare field memos to document the progress of revegetation.

5.6.2 Site Preparation for Revegetation, CCR §3503 (f), §3711

The soils in the areas to be reclaimed will consist of disturbed alluvial materials and/or placed layers of topsoil and subsoil, which will serve as the growing medium(s) for revegetation. Prior to revegetation, at each borrow site, The soil surface will be loosened to prepare a seedbed for the hydroseeding. After the final grade has been established (i.e., approximately 25- to 30-foot deep pits, 2H:1V side slopes) and just prior to planting and seeding, the soil surface will be prepared. Where access, the planting areas will be cross-ripped. After recontouring, the soil will be ripped and loosened to a depth of 10-inches to 12-inches below grade. The soil will be ripped in two opposing directions to facilitate bedding of the seeds. On steep slopes, where cross-ripping is not feasible, the soil surface will be either track walked vertically or rolled with a sheep's foot roller to create a rough surface. Soil surfaces will be left in as rough a condition as possible. The intent is to create small cracks, crevices and "micro-habitats" for the seeds to lodge and to improve water infiltration/retention, which will reduce erosion. Should areas become compacted or eroded prior to hydroseeding, re-roughening of the soil surface will be monitored.

Prior to hydroseeding, the final contours, hydrology, and soils composition of the revegetation areas will be reviewed by the monitoring biologist to determine the best locations for the plantings and to make any appropriate modifications to the overall revegetation plan.

Topsoil

As described in Section 5.5.2 above, the amount of remaining topsoil and subsoil varies between borrow sites due to the historic uses of the sites, with some borrow site locations having no appreciable quantities of soil salvaged. In other instances, borrow sources have certain areas where a thin (generally 12 inches or less), poorly developed soil profile exists. Any salvageable topsoil/subsoil would have or will be removed using mobile equipment (i.e., front-loaders, scrapers and/or hydraulic excavator) prior to excavation, and placed into a perimeter berm for storage. As needed, additional erosion control measures (e.g., fiber rolls, dikes, etc.) may be installed in and around topsoil/subsoil storage areas.

For borrow sites where topsoil and subsoil are stored separately (i.e., in perimeter berms, stockpiles), these materials may be spread across the excavation areas to help facilitate successful revegetation efforts. Specifically, prior to revegetation, stockpiles will be deconstructed, and topsoil/subsoil spread throughout the area to be reclaimed using mobile equipment. Any surplus topsoil/subsoil not otherwise used in reclamation would be left in place and allowed to revegetate naturally.

Planting Method

Prior to starting revegetation efforts, the monitoring biologist will establish and clearly stake the limits of planting areas so that areas designated for revegetation would not be inadvertently impacted by vehicle and equipment operations. These efforts may involve making adjustments from planned locations as dictated by field conditions. Although not anticipated, if necessary, temporary orange construction fencing will be installed to delimit sensitive areas adjacent to construction areas. Areas to be revegetated

will be prepared as follows:

- Any remaining equipment, supplies or related materials will be removed from the reclamation areas and either stored at Metropolitan's other facilities (e.g., pumping plants, etc.) or properly disposed of offsite.
- Trash and debris will be cleared. All weeds will be removed from the area and properly disposed of offsite.
- Any eroded areas will be repaired uniformly without leaving pits, holes, or depressions that would potentially prohibit plant growth.

Seeds will be sown by hydroseeding using the appropriate methods approved by the monitoring biologist. Hydroseeding will consist of a hydraulic application of a homogeneous slurry mixture consisting of water, organic soil stabilizer, cellulose wood fiber, and seed. Unless recommended by the monitoring biologist, fertilizer will not be included as an additive to the slurry mix, since native desert plants have very low nutrient requirements and application of fertilizer encourages the establishment of non-native, weedy species. Hydroseeding will be performed only at times when winds are calm. The slurry will be mixed in the hydroseeder tank just prior to the application and will be applied to the applicable revegetation area within the same day. The following specification will apply for areas to be hydroseeded:

- The seed mixes in Table 9 will be applied in a single step hydroseed operation.
- No fertilizer will be added to the hydroseed mix, unless recommended by the monitoring biologist.
- At the time of hydroseeding, all hydroseed mixing will be performed in a tank, with a built-in, continuous agitation and recirculation system of sufficient operating capacity to produce a homogeneous slurry; and a discharge system that will apply the slurry to designated areas at a continuous and uniform rate. Per Metropolitan's existing procedures, water for hydroseed revegetation will be provided directly from the CRA using a mobile water truck and attached pump. Irrigation of revegetated areas will also be applied by a mobile water truck. The tank and all hoses will be rinsed before entering the borrow sites proposed to be reclaimed and revegetated.
- The hydroseeder will spray designated areas with the slurry in a sweeping motion and in an arched stream, until a uniform coat is achieved with no slumping or shadowing. The material will be spread at the application rate recommended by the monitoring biologist.

Once hydroseeded, the revegetation areas will be watered as needed with the mobile water truck and/or by hand. The monitoring biologist will be responsible for identifying equipment and personnel for irrigation of the revegetation areas as deemed appropriate. Once the plants are established, further artificial irrigation will not be necessary and will be discontinued.

Although not anticipated, temporary irrigation systems may be installed to facilitate establishment of the plants. If a temporary irrigation system is used, Metropolitan's Landscape Maintenance Technician, in consultation with the monitoring biologist, will be responsible for the design and initial installation of equipment necessary for temporary irrigation. The design of an irrigation system is subject to the approval of the monitoring biologist. This temporary irrigation system will be monitored by the monitoring biologist, if needed.

Timing

Generally, hydroseeding in revegetation areas will be performed and completed during late fall/early winter months between November 30th and January 30th. However, due to yearly variations in weather patterns, seeding may be performed earlier or later than these dates if conditions are deemed favorable. The monitoring biologist will be responsible for monitoring weather patterns and determining the best time for hydroseeding. All efforts will be made to plant during the time when beneficial temperatures and soil moisture will promote germination and establishment and growth of seeds. Ideally hydroseeding will be performed after the first substantial rainfall of the season.

Reference Areas

SMARA requires that the vegetative density, cover and species richness of naturally occurring habitats be documented in baseline studies prior to initiation of mining activities (14 CCR §3705(a) and (b)). As discussed in Sections 3.5.1 and 5.3, Metropolitan has documented baseline vegetation conditions at or near the borrow sites. The results of the BRA (see Appendix B) have primarily been used to determine appropriate seed mixes and revegetation success criteria for the borrow sites discussed below.

Test Plots

SMARA regulations require test plots be established to determine appropriate planting procedures to assure successful revegetation (14 CCR §3705(b)). Test plots will be utilized during the initial revegetation efforts to confirm whether success can be achieved and documented with the proposed revegetation species, methods and conditions recommended in this Master Reclamation Plan. These test plots will provide valuable data to ensure full revegetation efforts at all borrow sites achieve the necessary success in accordance with SMARA. Specific objectives of the test plots will be to assess the response of seed mixes to various soil blends and depths, and confirm planting methods will successfully support native vegetation capable of self-regeneration without continued dependence on irrigation, soil amendments, or fertilizer.

As shown in Figure 6 and Figure 17 (Appendix A), test plots will be established on borrow sites SB-5 and RV-7 to determine the most appropriate and efficient re-soiling and revegetation methods for reclamation. Specifically, two (2) 25- by 50-foot test plots (one at each borrow site) will be installed at these borrow sites. The test plots will be seeded with the appropriate seed mixes as summarized in Table 9 below (as shown, SB-5 and RV-7 represent the two seed mixes proposed during revegetation). If any species in the proposed seed mixes are not available for purchase at the time test plot efforts begin, the monitoring biologist will utilize the baseline survey data collected by Rincon (Rincon Consultants, Inc., 2021; Appendix B) to establish an acceptable alternative seed mix with available species. The plots will be marked in the field and fenced off to prevent disturbance.

Consistent with SMARA guidance, the monitoring biologist who has experience with the desired vegetation communities in this ecoregion, will ensure both test plot and subsequent revegetation efforts at each borrow site are sufficiently successful to ensure SMARA performance standards are met. Successful performance in these revegetated/reclaimed areas will be demonstrated based on achieving: 1) high survivorship of the plants through the first year after installation; 2) progressively higher rates of cover from the first year through the fifth year after planting; 3) normal growth rates for revegetation species; and 4) adequate germination of seeded species to exclude weeds and control erosion.

5.6.3 Seed Mixes

As discussed above, the existing plant communities within and around the borrow sites can be described generally as “creosote bush scrub” and “disturbed” (Rincon Consultants, Inc., 2021). The appropriate seed mixes shown in Table 9 will be applied to all Metropolitan’s borrow site revegetation areas as indicated on Figure 2 through Figure 17 in Appendix A. If determined appropriate by the monitoring biologist, this seed mixes may be revised to ensure successful revegetation in accordance with SMARA performance standards.

Research has established that plant materials genetically adapted to the particular environmental conditions of a given site are critical to the success of revegetation. Seeds for hydroseeding can either be purchased from a commercial vendor or collected from Metropolitan’s areas. The monitoring biologist may choose to use local seed propagules collected from the general area of the borrow sites. The final seed mix species and application rates to be used for hydroseeding will be determined based on the actual quantity and quality of the seed materials collected.

The seed mix application rates listed below define an approximate minimum to maximum application rate (pounds/acre) for each revegetation species. These application rates are based in part on average seed counts, quality, success rates and amounts normally available for collection. Prior to hydroseeding, the monitoring biologist will determine the final species type and application rates based on the amount and quality of the seeds obtained. Detailed information of the type and amount of seed planted will be recorded.

Seeds of only native species will be either purchased commercially or collected locally from Metropolitan’s areas. To ensure adequate quantities of appropriate species, a seed collection contract will be initiated by Metropolitan with a native seed supplier in advance of revegetation implementation. Seed purchasing and/or collecting will be overseen by the monitoring biologist, as needed.

Table 9: Revegetation Seed Mix – Metropolitan’s Borrow Sites

Common Name	Scientific Name	Seeding Rate (lbs./acre) ^{1, 2}	
		Minimum	Maximum
SB-1 through SB-7 & RV-1 through RV-4			
Brittlebush ³	<i>Encelia farinosa</i>	1.0	3.0
Burrobush ³	<i>Ambrosia dumosa</i>	1.0	3.0
California buckwheat	<i>Eriogonum fasciculatum</i>	1.0	3.0
Cheese-brush	<i>Ambrosia salsola</i>	1.0	3.0
Creosote bush ³	<i>Larrea tridentata</i>	3.0	5.0
Desert needle grass	<i>Stipa speciosa</i>	1.0	3.0
Indian rice grass	<i>Stipa hymenoides</i>	1.0	3.0
Nevada ephedra	<i>Ephedra nevadensis</i>	1.0	3.0
Shadscale	<i>Atriplex confertifolia</i>	1.0	3.0
Total:		5.0	11.0
RV-5 through RV-7 ⁵			
Creosote bush ³	<i>Larrea tridentata</i>	3.0	5.0
Blue paloverde woodland	<i>Parkinsonia florida</i>	1.0	3.0
Sweetbush scrub	<i>Bebbia juncea</i>	1.0	3.0

Common Name	Scientific Name	Seeding Rate (lbs./acre) ^{1, 2}	
		Minimum	Maximum
Total:		5.0	11.0
Alternative Species ⁴			
Beavertail cactus	<i>Opuntia basilaris</i>	1.0	3.0
Blackbrush	<i>Coleogyne ramosissima</i>	1.0	3.0
Boxthorn	<i>Lycium andersonii</i> or <i>L. cooperi</i>	1.0	3.0
Desert trumpet	<i>Eriogonum inflatum</i>	1.0	3.0
Mojave yucca	<i>Yucca schidigera</i>	1.0	3.0
Silver cholla cactus	<i>Cylindropuntia echinocarpa</i>	1.0	3.0
Spiny hopsage	<i>Grayia spinosa</i>	1.0	3.0
Source: <i>Biological Resources Assessment</i> (Rincon Consultants, Inc., 2021) (see Appendix B)			
Notes:			
1) The seed mixes are based on the existing plant communities within and around the Project sites, which are described generally as “creosote bush scrub” and “disturbed” (Appendix B).			
2) Seed rate application estimates (lbs./acre) taken from a nearby existing/approved reclamation plan/mine site (Webber & Webber Mining Consultants, 2013).			
3) Range shown represents minimum and maximum seeding rate (lbs./acre) that should be utilized during hydroseeding.			
4) Alternative species are included in the event that the primary proposed species are not available from a seed supplier.			
5) Seed mix for RV-5, RV-6 and RV-7 is based on Biological Resources Assessment Report (Psomas, 2018) and related vegetation surveys conducted at the nearby Eagle Mountain Pumping Plant.			

5.6.4 Control of Weeds & Non-Native Vegetation

The predominance of exotic, invasive weed species throughout California has presented a formidable challenge to most revegetation projects. Weed species are opportunistic and have mechanisms for dispersal and establishment that can eventually lead to displacement of native species. At Metropolitan’s borrow sites, potential problem weed species will not be known until after mining is completed. To ensure that weed species competition is controlled, each borrow site will be inspected prior to revegetation implementation by the monitoring biologist. The monitor will also determine the most effective treatments for control of invasive species. If weed control activities are necessary, they will likely include a combination of treatments such as herbicide application and hand removal. Weed control activities will be implemented at the direction of the monitoring biologist. The monitor will instruct the weed eradication personnel in identification of native and weed species.

Invasive Plant Species

Non-native invasive plants that threaten California’s wildlands have been categorized by the California Invasive Plant Council (Cal-IPC). Invasive plants that have been classified by Cal-IPC as “High” (severe ecological impacts on physical processes, plant and animal communities, and vegetation structure) or “Moderate” (substantial and apparent—but generally not severe—ecological impacts on physical processes, plant and animal communities, and vegetation structure) in terms of ecological threat will be controlled as necessary within the revegetation areas for a minimum of 3 years in order to prevent aggressive weeds from out-competing native plant species for resources (e.g., space, water, nutrients, and light). These invasive weeds will be removed by hand or mechanically, if needed. In circumstances where mechanical control is not effective, EPA-approved systemic herbicides may be used. Herbicides will be applied under the direction of a licensed applicator.

Prior to initiation of revegetation efforts, the monitoring biologist will consult the most recent Cal-IPC list, and a list of specific species to be controlled under this Master Reclamation Plan will be developed. Additional species may be added to the list based on actual conditions and the recommendation of the monitoring biologist.

5.6.5 Revegetation Success Criteria (Performance Standards), CCR §3705(m)

The basic goal of revegetation is to re-establish self-sustaining native plant communities within the areas disturbed by mining activities. CCR Section 3705(m) requires that reclaimed revegetated sites be "similar to naturally occurring habitats in the surrounding area." Additionally, SMARA also requires the operator to demonstrate that vegetation on reclaimed sites is self-sustaining without irrigation, fertilization, or weeding for a minimum of 2 years prior to release of a performance bond.

Specifically, the goal for reclamation of Metropolitan's mined areas is to provide surface erosion control through revegetation using native plant species. This goal will be achieved by hydroseeding with the seed mixes shown in Table 9, along with fiber mulch and soil stabilizer if needed. When applied, the appropriate hydroseed mixes should establish a quick-growing native plant cover to retard the downward movement of soil. The revegetation seedlings are intended to provide the foundation for which natural successional patterns may develop into mature habitat.

The biological survey(s) conducted by Rincon (Rincon Consultants, Inc., 2021) and Psomas (Psomas, 2018) were utilized to determine the appropriate vegetation community types, initial plant diversities, and densities for this Master Reclamation Plan. Additionally, the results of the proposed test plot program will also be utilized to revise the proposed density, species abundance and diversity as appropriate, and at the discretion of the monitoring biologist.

Throughout revegetation efforts, quantitative baseline measurements will be collected yearly over the course of the 3- to 5-year monitoring period from revegetated areas within Metropolitan's sites, to further document vegetation density, species abundance and diversity as needed. The revegetated areas within Metropolitan's borrow sites are expected to ultimately achieve a vegetation cover similar to vegetation noted within the BRA (see Appendix B) and confirmed within the test plots. Within the 3-year monitoring period following revegetation, trend analyses will be performed to assess whether the revegetation plantings are progressing toward a mature reference habitat.

Generally, revegetation success is based on achieving: 1) acceptable survivorship of plants through the first year following hydroseeding; 2) vigorous growth resulting in progressively higher rates of cover throughout the revegetation monitoring period following hydroseeding; and 3) adequate germination of seeded species to control weed growth and erosion. Specific SMARA performance standards for revegetation success are based on achieving vegetation density, cover, and species richness comparable with pre-mining conditions, or with naturally occurring habitats in the area based on appropriate reference sites. As described in Section 5.6.4 above, due to the highly disturbed surroundings of plant species currently found within the borrow sites, areas to be restored to native habitats may be reclaimed to conditions that differ from the pre-mining condition (14 CCR §3705 (a), §3705 (m)). The pit floor and side slopes will be reclaimed to revegetated open space similar to current conditions. Ultimately, performance in these areas will be based on a combination of establishing vegetative cover and species richness.

The goal of revegetation is to establish land suitable for use as revegetated open space, as well as provide erosion control. The combined seed mixes described in Table 9 above should create a vegetative cover suitable for this proposed end use. Table 10 below presents the specific performance criteria that will be utilized to determine the success of revegetation efforts at the borrow sites. Please note, success criteria can be revised by the monitoring biologist depending on the future results of measurements collected from the initial test plots, nearby naturally occurring reference areas, and/or the success of initial revegetation efforts within Metropolitan’s borrow sites.

Table 10: Five-Year Performance Standards for Revegetation

Performance Criteria	Monitoring Method	Success Criteria (5-Years)	Management Response
Vegetative Cover	Transect/Plot or Aerial Photos Analysis	20% of native cover based on 50-meter by 1-meter transect	Reseed and/or identify and repair as needed, including weed abatement
Density	Transect/Plot	3 native species per 50-meter by 1-meter transect	Substitute failing species with species that are thriving
Species Richness	Transect/Plot	1 native per 50-meter by 1-meter transect	Reseed and/or identify and repair as needed, including weed abatement

As shown in Table 10, data will be collected using the line-intercept method along each 50-meter by 1-meter transect. Specifically, monitoring will include sampling along randomly placed 50-meter by 1-meter transects of reclaimed areas. Data for all transects will then be averaged to produce the results. Success criteria are based on the overall quality of the revegetation results compared to recorded baseline vegetation data collected by Rincon (Rincon Consultants, Inc., 2021). From completion of the revegetation for a specific area, the surviving perennial plant species will be evaluated annually by the monitoring biologist. The first 2 to 3 years will measure survival of hydroseeded areas, need for weeding, and successful establishment of seeded native plants. In later years (i.e., years 4 to 5), monitoring will focus on the site’s resemblance to undisturbed vegetation in terms of the criteria presented in Table 10. This schedule may be revised depending on the results of the revegetation effort and the meeting of the success criteria. Monitoring data will be reviewed by the monitoring biologist and reviewed annually by the SMGB through submittal of the annual SMARA report (see Section 5.15).

5.7 Site Cleanup, CCR §3502 (b)(5)

5.7.1 Building Structure & Equipment Removal, CCR §3709

As discussed previously, there are no existing or proposed permanent buildings or structures within Metropolitan’s borrow sites or mining areas in San Bernardino and Riverside Counties. Temporary structures, such as portable toilets (if needed), would be removed during final reclamation. No other temporary and/or permanent structures that would require specific reclamation will be installed within Metropolitan’s operational and/or reclamation areas.

All mobile equipment (e.g., loaders, dozers, scrapers, water truck, etc.) will be removed following the completion of reclamation activities. Any residual wastes (debris, revegetation materials, etc.) will also be removed and properly disposed of in accordance with applicable health and safety regulations and/or local ordinances.

5.7.2 Tailing & Mine Waste Management, CCR §3712

As described previously, no mine wastes and/or tailings will be generated by mining and/or reclamation operations in Metropolitan's mine areas.

5.7.3 Closure of Surface Openings, CCR §3713

No drill holes, water wells, or other underground workings (e.g., portals, shafts, tunnels, etc.) that would require closure as part of reclamation are existing or are proposed within Metropolitan's borrow site operations.

5.8 Post-Reclamation & Future Mining, CCR §2772 (c)(7)

The proposed end uses of Metropolitan's final reclaimed borrow sites will be revegetated open space. However, when material extraction and ancillary mining activities have ceased, some of the borrow sites may be used for equipment laydown and/or material storage prior to final reclamation/revegetation.

As discussed previously, maximum planned pit depth for the borrow sources is approximately 25- to 30-feet below the lowest ground surface elevation along the top of slope. Other than the placement of nominal quantities of excavated material into the shallow excavation pits to ensure side slopes do not exceed 2H:1V, no substantial backfilling of the borrow sites would occur as part of site reclamation. Additionally, for borrow sites where topsoil and subsoil were stored separately (i.e., in perimeter berms, stockpiles), these materials may be spread across the excavation areas to help facilitate successful revegetation efforts.

Final reclaimed side-slopes will not exceed the SMARA criteria of 2H:1V. The reclaimed sites will be revegetated using the seed mixes shown in Table 9. Figure 2 through Figure 17 Appendix A) depict the borrow site areas to be revegetated during reclamation. The reclaimed borrow sites will be compatible with adjacent properties, including those controlled by Metropolitan as well as non-Metropolitan-owned parcels or areas adjacent to a public ROW. Figure 2 through Figure 17 (Appendix A) also depict the final depth and design of the Metropolitan's reclaimed borrow sites.

5.8.1 Impact of Reclamation on Future Mining, CCR §2772 (c)(9)

The proposed end uses of the final reclaimed borrow sites will be revegetated open space. Establishment of this end use and implementation of this Master Reclamation Plan will not preclude or impact future mining in the area.

5.9 Slopes & Slope Treatment, CCR §3502 (b)(3)

5.9.1 Backfilling, Regrading, Slope Stability, and Recontouring, CCR §3704

As discussed in Section 5.5.2, no significant backfilling, regrading, or contouring will be required. Once mining operations are complete, Metropolitan's final reclaimed borrow sites will remain excavation pits at maximum depths of 25- to 30-feet below the lowest ground surface elevation along the top of slope, with 2H:1V side-slopes.

To ensure the pit walls will not exceed the SMARA criteria of 2H:1V, and to prepare a site for revegetation, minimal regrading/re-contouring may be required at certain borrow sites. Other than the placement of nominal quantities of excavated material into the shallow excavation pits to ensure side slopes do not exceed 2H:1V, no substantial backfilling of the borrow sites would occur as part of site reclamation. Additionally, for borrow sites where topsoil and subsoil were stored separately (i.e., in perimeter berms or stockpiles), these materials may be spread across the excavation areas to help facilitate successful revegetation efforts. Any remaining stockpiles of overburden or other natural materials (e.g., gravel, sand) may also be knocked down and placed back in the pit to help achieve the final desired slope conditions. The reclaimed side-slopes will also be stabilized through the hydroseeding and the establishment of native vegetation.

5.10 Ponds, Reservoirs, Tailings & Wastes, CCR §3706, §3712

No ponds, tailings, and/or mine waste basins or impoundments will be present within Metropolitan's borrow sites/mining areas. Additionally, no dams, embankments, or foundations will be present onsite.

5.11 Soil & Fine Textured Waste

See Section 3.1, which describes the site geology and soils found within Metropolitan's borrow sites and reclamation areas. The following section further describes how topsoil and other fine soils will be managed as part of site reclamation.

5.11.1 Topsoil Salvage, Maintenance, & Redistribution, CCR §3711

Due to the historic uses of the borrow sites, the amount of salvageable topsoil and subsoil varies and is generally limited, with some borrow site locations having no appreciable quantities of soils salvaged. In other instances, borrow sites have certain areas where a thin, poorly developed soil profile exists, which can be removed prior to excavation and placed into a perimeter berm for storage. Topsoil and subsoil will be salvaged to the extent feasible by storing this material in perimeter berms.

After final grading of borrow site areas to be reclaimed, the topsoil and subsoil may be redistributed throughout the site to help facilitate revegetation. At certain borrow sites, the perimeter topsoil/subsoil storage berms may be left in place post-reclamation for erosion control and allowed to naturally revegetate over the course of mining as part of the reclamation. Please see Section 4.1.2 for additional detail.

5.12 Drainage & Erosion Controls

5.12.1 Drainage, Diversion Structures, & Erosion Control, CCR §3706

As described in Section 4.5, mining and reclamation activities at the borrow sites will not impact nearby waterways. Additionally, reclamation would not substantially alter the existing drainage pattern of the borrow sites or adjacent areas in a manner that would result in substantial erosion on- or off-site. At the time of reclamation, the borrow sites would be polygonal-shaped surface depressions up to 30-feet in total depth below the existing topographic elevations. Upon reclamation, these borrow sites would be graded and recontoured to 2H:1V final slopes, with drainage directed inward toward the pit floors.

As discussed previously, reclamation would be conducted using applicable stormwater BMPs, including, but not limited to, construction of a perimeter berm along certain boundary segments at each borrow site, grading to direct stormwater away from low-lying areas where off-site discharge could occur, and

installation of silt fencing and/or waddles, as warranted. As deemed necessary by Metropolitan staff, site-specific stormwater/erosions control plans (e.g., SWPPPs, WPCPs) would be implemented, and BMPs would be installed during reclamation to ensure sediment entrainment and erosion is sufficiently minimized. Additionally, stormwater control features (e.g., berms, earthen dikes, etc.) may be maintained as needed to control erosion at the borrow sites post-reclamation.

To confirm the final, reclaimed pit configuration for each of the borrow sites will have sufficient capacity to contain the 20-year, 1-hour design storm consistent with the SMARA performance standards for erosion control (CCR Section 3706), a supplemental hydrologic analysis of each borrow site was performed by Sespe Consulting, Inc. See Appendix C for a copy of the supplemental hydrologic study. The results of this hydrologic analysis performed conclude that the final, reclaimed pit configuration for each of the borrow sites analyzed will have sufficient capacity to contain the SMARA 20-year, 1-hour design storm. The formation of pits as a result of the mining operations will function as storage basins capable of capturing the full capacity of the modeled storm events, with the included standard factor of safety. Therefore, the final borrow pits are determined to be in conformance with the applicable SMARA performance standards, which require surface mining and reclamation activities to be conducted in such a way to protect both on-site and downstream beneficial uses of water.

Given that the reclaimed topography would direct drainage into the borrow sites and that erosion and siltation would be controlled through the implementation of the aforementioned erosion BMPs, impacts related to drainage diversions, erosion and siltation as a result of altered drainage patterns would not result due to reclamation. Contained stormwater will either naturally evaporate or percolate into the ground. For further detail on drainage and erosion control measures, refer to Section 4.5.

5.12.2 Stream Protection, Including Surface Water, & Groundwater, CCR §3710

As shown on Figure 2 through Figure 17 (Appendix A), reclamation of the borrow sites would not directly or indirectly encroach into an adjacent creek, stream, surface water body or floodplain. As discussed above, once reclamation commences, the borrow sites would polygonal-shaped surface depressions up to 30-feet in total depth below the existing topographic elevations. Existing approved BMPs outlined in Metropolitan's SWPPP and/or WPCP (if required) to prevent runoff and protect the surface water quality of areas surrounding the borrow sites would continue to be implemented during site reclamation. These BMPs will continue to be implemented during reclamation where applicable, and may remain post-reclamation if needed, to prevent runoff and control erosion. Metropolitan has and will continue to comply with all applicable laws and regulations related to storm and surface water.

As discussed in Section 1.0, while there is little data available, groundwater is expected to occur at depths below 100-feet bgs within the borrow sites. Based on a review of California's GAMA, several wells between Parker, Arizona and in the vicinity of Vidal Junction indicate groundwater generally occurs at depths greater than 100-feet bgs. The final depth of excavation is anticipated to be no more than 30-feet bgs; therefore, it is not anticipated that groundwater will be encountered during mining and/or reclamation operations, and dewatering will not be required.

5.13 Public Health & Safety, CCR §3502 (b)(2)

As discussed previously, the borrow sites are located within remote, undeveloped desert areas on land owned by Metropolitan. Each of the borrow sources are accessed via existing unpaved roads, which connect to either SR-62, SR-95, SR-177 or I-10, except for SB-1 located north of Parker, Arizona, and RV-7 located directly adjacent to Metropolitan's Julian Hinda Pumping Plant. SB-1 is accessed from unpaved

roads that connect to Parker Dam Road.

During mining and reclamation, vehicles will continue to access the borrow sites using these existing unpaved access roads. These access roads will continue to serve as the ingress and egress points for all employees and other work vehicles, which includes small work trucks, and employee/visitor passenger vehicles. With the exception of SB-1, which has a small entrance gate, and RV-7 located at the Julian Hinds Pump Plant, none of Metropolitan's other existing borrow sites are fenced or gated. As needed, certain private access roads controlled by Metropolitan may be gated and/or locked to prevent public access. If considered necessary for public safety, appropriate fencing and signage may be installed at the borrow sites.

Mining and reclamation activities will comply with all Federal Mine Safety and Health Administration (MSHA) and State Occupational Safety and Health Administration (OSHA) mine safety regulations concerning operating standards and operation of equipment. Workers, including contract labor, will be trained in mine safety and first aid. Refresher courses will be conducted periodically in accordance with applicable regulations.

Mine operators will continue to carry portable cellular phones for offsite communication. All visitors, outside vendors, and truck drivers will be required to check-in and check-out with the appropriate site manager. Conditions affecting safety will be continually monitored by onsite operations personnel.

Metropolitan's mine areas are private property. During mining and after reclamation of the site is complete, the general public will not be admitted to these lands without prior permission of the appropriate onsite manager. When mining has concluded and reclamation is complete, there will be no open shafts or any hazardous materials on the reclaimed lands.

5.13.1 Control of Potential Contaminants & Non-Marketable Material, CCR §2772 (c)(8)

Water Quality

As discussed above, groundwater underlying Metropolitan's San Bernardino operations is estimated to occur at depths below 100-feet bgs (GAMA, 2021). The proposed maximum planned pit depth of the borrow source excavation areas is 25- to 30-feet bgs. Therefore, groundwater will not be encountered during ongoing mining and/or subsequent reclamation operations. As such, no impacts to groundwater quality are expected.

Approved BMPs to protect the surface water and the water quality identified in the SWPPP and/or WPCP (if required) would continue to be implemented. Site-specific BMPs will continue to be implemented onsite during the life of the mining and reclamation activities to control erosion. The borrow sites would also be designed and graded (e.g., perimeter berms, etc.) to contain stormwater and associated erosion. As discussed, mining and reclamation activities will not directly encroach into drainages or existing floodplains.

Additionally, as discussed in the supplemental hydrologic analysis provided in Appendix C, erosion during ongoing operations will continue to be sufficiently control through the use of BMPs which will continue to be installed and maintained as needed to eliminate the potential for discharge of sediment during storm events.

Contaminants/Mine Waste

As described previously, no mine wastes and/or tailings will be generated by mining and/or reclamation operations in Metropolitan's mine areas. No ponds, tailings, and/or mine waste basins or impoundments will be present within Metropolitan's borrow sites or mining areas.

As part of reclamation, all mobile equipment (e.g., loaders, dozers, scrapers, water truck, etc.) will be removed following the completion of reclamation activities. Additionally, any residual wastes (debris, revegetation materials, etc.) will also be removed and properly disposed of in accordance with applicable health and safety regulations and/or local ordinances.

5.14 Other SMARA Reclamation Standards

5.14.1 Prime Agricultural Land Reclamation, CCR §3707

Per the California Department of Conservation's (DOC's) Farmland Mapping and Monitoring Program, Metropolitan's operations are not located within Prime Agricultural land.

5.14.2 Other Agricultural Land Reclamation, CCR §3708

There are no other designated agricultural lands, including forest land or timberland, within Metropolitan's areas. The borrow sites will be reclaimed to open space.

5.14.3 Other Lead Agency Requirements, CCR §2772(c)(11)

In addition to the SMARA requirements addressed in this Master Reclamation Plan, the California Environmental Quality Act (CEQA) requirements are applicable to Metropolitan's reclamation activities. Therefore, the CEQA Appendix G Environmental Checklist were addressed and a CEQA document was prepared for this Master Reclamation Plan.

5.15 Monitoring, Maintenance, & Reporting

Performance monitoring will include both qualitative and quantitative assessment. Qualitative monitoring will occur during periodic inspections of the reclamation and revegetation areas. These inspections will occur (approximately every quarter) during the first year of reclamation, and less often in subsequent years. Quantitative monitoring will typically occur annually, beginning during the first year after planting.

5.15.1 Qualitative Monitoring

Qualitative monitoring methods will include visual observation and photo documentation. There are no specific performance criteria associated with this monitoring.

During monitoring events, the monitoring biologist will document the conditions, potential issues (e.g., vandalism, fence damage, presence of exotic species, herbivory, erosion, etc.), and recommended actions will be documented in a field memo. Copies of all field memos will be included in each year's annual SMARA report, which will be submitted to the SMGB for review.

Annual photographs of revegetation areas will be taken from preset photo stations during data collection events. Additional photographs will be taken of any potential problem areas. All photographs will be logged and included in each annual report.

5.15.2 Quantitative Monitoring

Vegetative cover and species composition will be assessed using the sampling methods described below and the success criteria described in Section 5.6.5. Sampling will generally be conducted at the end of the growing season. Following each annual data collection event, the monitoring biologist will compile data and prepare an analysis of the results.

As discussed in Section 5.6.5, quantitative data will be collected using the line-intercept method along each 50-meter by 1-meter transect. Success monitoring will include sampling along 6 randomly placed 50-meter by 1-meter transects of the total reclaimed area(s). Data for all transects will then be averaged to produce the results. Success criteria are based on the overall quality of the revegetation results compared to recorded vegetation baseline data collected by Rincon (Rincon Consultants, Inc., 2021). Following completion of revegetation for a specific area, the surviving perennial plant species will be evaluated annually by the monitoring biologist. The first 2 to 3 years will measure survival of hydroseeded areas, need for weeding, and successful establishment of seeded native plants. In later years (i.e., years 4 to 5), monitoring will focus on the reclaimed site's resemblance to undisturbed vegetation in terms of the criteria presented in Table 10. This schedule may be revised depending on the results of the revegetation effort and the meeting of the success criteria. Monitoring data will be reviewed by the monitoring biologist and reviewed annually by the SMGB.

5.15.3 Annual Monitoring Reports

Annual monitoring reports will be prepared that include a summary of the revegetation effort, site conditions, any issues encountered, evaluation of the data collected and success achieved, and recommendations for meeting the performance criteria. Reports will be submitted to the SMGB for review annually.

5.16 Reclamation Assurance, CCR §2773.1 (a)

A detailed Financial Assurance Cost Estimate (FACE) will be prepared prior to continuation of operations and/or initiation of new surface mining operations within Metropolitan's areas in San Bernardino and Riverside Counties. The FACE will include detailed descriptions and spreadsheets estimating the cost for reclamation of the borrow site(s) to the specifications established in this Master Reclamation Plan.

A performance bond payable to the SMGB and, in the alternative, the California Department of Conservation (DOC), Division of Mine Reclamation (DMR), will be provided to the SMGB in the amount of the estimated cost of reclamation. Alternatively, if provided for by future regulations, other forms of equivalent surety may be substituted.

Please see Section 7.0 below for more detail.

6.0 STATEMENT OF RESPONSIBILITY, CCR §2772(C)(10)

As required by Public Resources Code §2772 (c)(10), the owner and operator accepts responsibility for reclaiming the mined lands in accordance with the provisions of this Master Reclamation Plan.

I, the undersigned, hereby acknowledge that all of the provisions of the reclamation plan, and any and all conditions appended thereto will be faithfully performed and completed within the time therein provided, or within any additional time as may be allowed pursuant to the Surface Mining Ordinance Code of the lead agency and with the applicable requirements of Articles 1 and 9 (commencing with section 3500 et seq., respectively) of Chapter 8, Division 2, Title 14, of the California Code of Regulations, the Surface Mining and Reclamation Act of 1975 (SMARA), as amended (Section 2710 et seq. of the Public Resources Code) which are incorporated herein by reference.

I, the undersigned, hereby agree to perform and complete the provisions of said plan, including any and all conditions appended thereto, shall be subject to the provisions of said Ordinance Code and SMARA and the State Mining and Geology Board's (SMGB's) implementing regulations and guidelines.

That the place of performance by the undersigned of the covenants herein, shall be the area managed by the lead agency in the State of California.

That, pursuant to Public Resources Code section 2774.1 (a) notice procedures, any notice required to be given, or otherwise given to the undersigned may be by personal service or by certified mail.

Signature _____

Name _____

Signed this _____ day of _____, 20_____

7.0 FINANCIAL ASSURANCES, CCR §2773.1 (A)

As discussed in Section 5.16, a Financial Assurance Cost Estimate (FACE) will be prepared prior to continuation of operations and/or initiation of new surface mining operations within Metropolitan's areas in San Bernardino and Riverside Counties. This FACE will be reviewed annually and updated accordingly.

Based on the FACE, a performance bond payable to the SMGB and, in the alternative, the DOC, DMR, will be provided to the SMGB in the amount of the estimated cost of reclamation. Alternatively, if provided for by future regulations, other forms of equivalent surety may be substituted.

8.0 REFERENCES

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APPENDIX A

Figures
(Sespe Consulting, Inc. – 2022)



INDEX MAP

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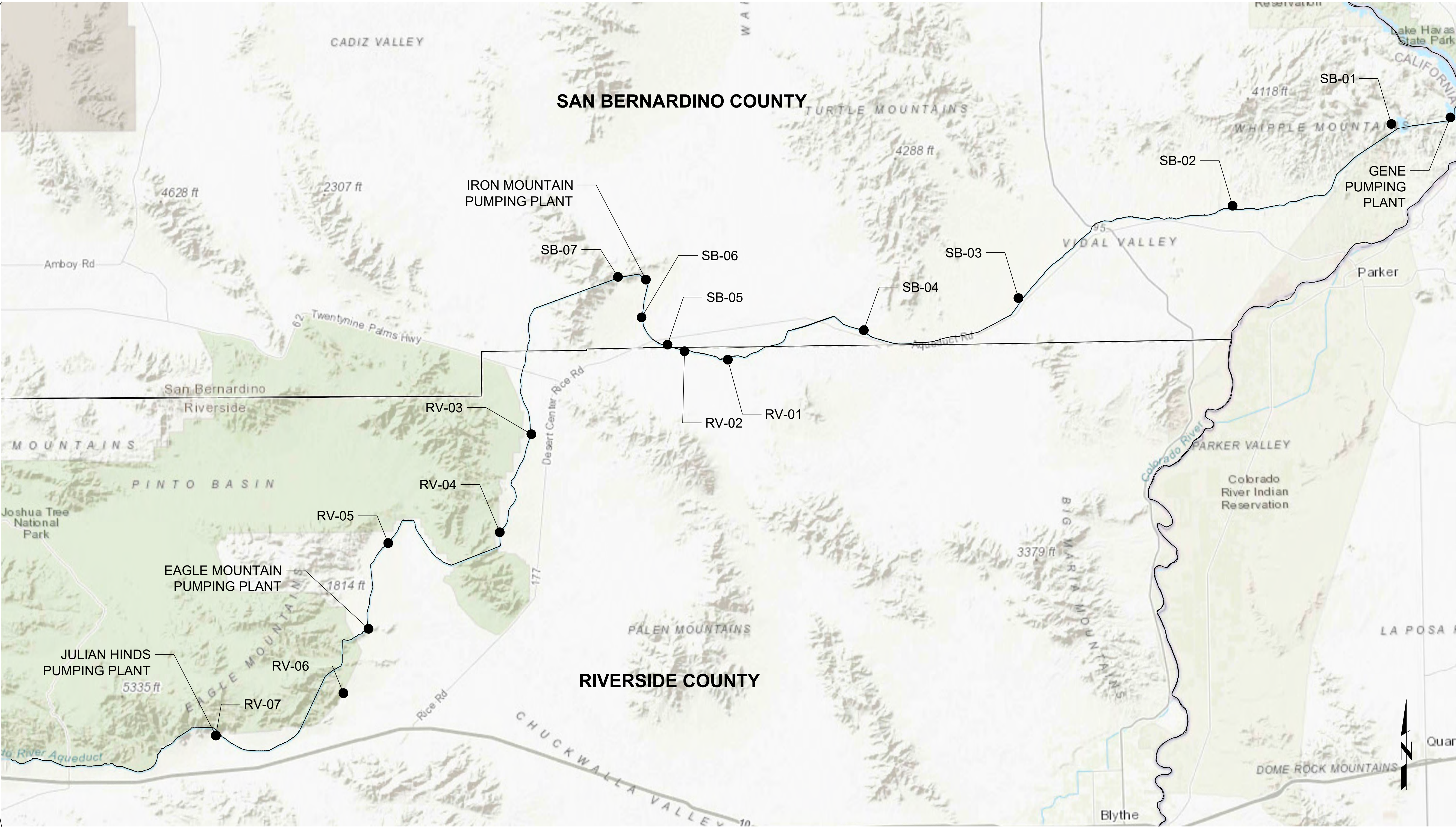
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FIGURE 17: RV-07

MINE IDS:

Document / Borrow Site	CA Mine ID No.
Primary CA Mine ID No.	
Master Reclamation Plan	91-70-0001
Sub-CA Mine ID Nos.	
SB-01	91-70-3601
SB-02	91-70-3602
SB-03	91-70-3603
SB-04	91-70-3604
SB-05	91-70-3605
SB-06	91-70-3606
SB-07	91-70-3607
RV-01	91-70-3301
RV-02	91-70-3302
RV-03	91-70-3303
RV-04	91-70-3304
RV-05	91-70-3305
RV-06	91-70-3306
RV-07	91-70-3307

GENERAL INFORMATION:

MINERAL COMMODITY:	SAND AND GRAVEL; CRUSHED ROCK
APPLICANT: OPERATOR: FEE LAND OWNER:	METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA 700 NORTH ALAMEDA STREET LOS ANGELES, CALIFORNIA 90012 (213) 217-6000
MINERAL RIGHTS OF FEE LAND:	METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA 700 NORTH ALAMEDA STREET LOS ANGELES, CALIFORNIA 90012 (213) 217-6000
OWNER OF MINING LAND:	METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA 700 NORTH ALAMEDA STREET LOS ANGELES, CALIFORNIA 90012 (213) 217-6000
PLAN DESIGN:	SESPE CONSULTING, INC. 374 POLI STREET, SUITE 200 VENTURA, CALIFORNIA 93001 (805) 275-1515



18,000 0 18,000 36,000
SCALE IN FEET
SCALE: 1" = 18,000'
SCALE INDICATED IS BASED ON A
24" X 36" FORMAT PRINT

OVERVIEW OF ALL SITES

DATUM: HORZ= NAD83, CALIFORNIA ZONE 6, US FOOT
 VERT= NAVD88
BASEMAP: ESRI, 2021



SESPE
CONSULTING, INC.

A Trinity Consultants Company
374 Poli Street, Suite 200 • Ventura, CA 93001
(805) 275-1515 • www.sespeconsulting.com

OWNER / APPLICANT METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA 700 NORTH ALAMEDA STREET LOS ANGELES, CALIFORNIA 90012	
LAND USE CONSULTANT SESPE CONSULTING, INC. 374 POLI STREET, SUITE 200 VENTURA, CALIFORNIA 93001 (805) 275-1515	

REVISIONS		
MARK	DATE	DESCRIPTION
	11/09/21	INITIAL DRAFT
	01/18/22	MINOR EDIT TO LAYOUTS
	06/23/22	EDITS TO FIGURES PER CHANGE TO SMR AS LEAD AGENCY
	11/07/22	SB COUNTY SITE NUMBERING ADJ. ADD MINE IDS
REVIEWED BY:		
	DATE	
	DATE	

METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA	
SITE ID:	N/A
MILE MARKER:	N/A
COUNTY:	RIVERSIDE/SAN BERNARDINO
SCALE: HORZ AS SHOWN VERT AS SHOWN	FIGURE NUMBER 1
DRAWN BY: G CAMUS	
CHECKED BY: APS	



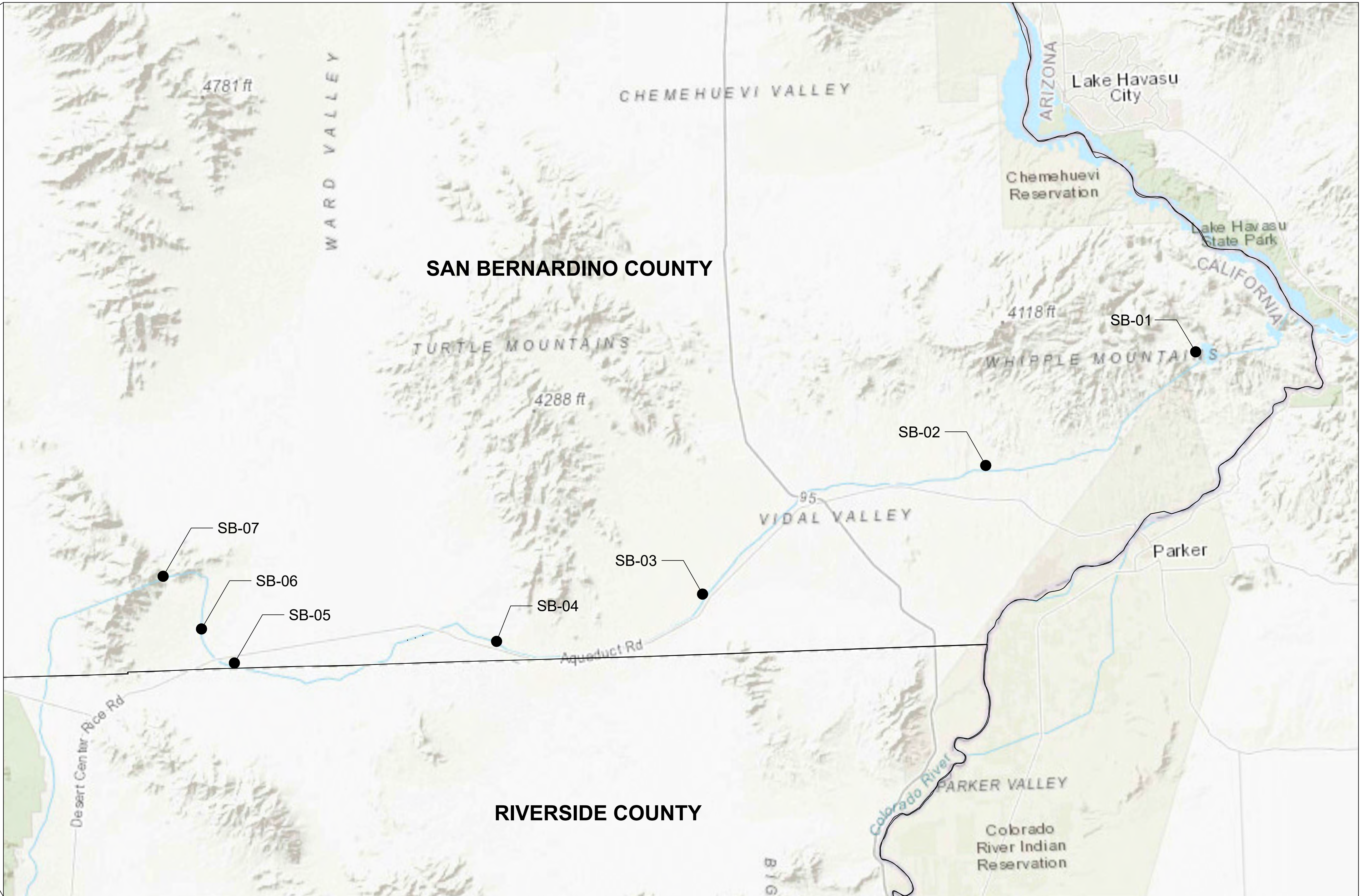
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- FIGURE 17: RV-07

GENERAL INFORMATION:

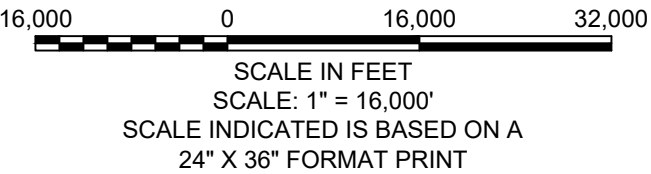
MINERAL COMMODITY:	SAND AND GRAVEL; CRUSHED ROCK
APPLICANT: OPERATOR: FEE LAND OWNER:	METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA 700 NORTH ALAMEDA STREET LOS ANGELES, CALIFORNIA 90012 (213) 217-6000
MINERAL RIGHTS OF FEE LAND:	METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA 700 NORTH ALAMEDA STREET LOS ANGELES, CALIFORNIA 90012 (213) 217-6000
OWNER OF MINING LAND:	METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA 700 NORTH ALAMEDA STREET LOS ANGELES, CALIFORNIA 90012 (213) 217-6000
PLAN DESIGN:	SESPE CONSULTING, INC. 374 POLI STREET, SUITE 200 VENTURA, CALIFORNIA 93001 (805) 275-1515



VICINITY MAP

SAN BERNARDINO COUNTY OVERVIEW

DATUM: HORZ= NAD83, CALIFORNIA ZONE 5, US FOOT
 VERT= NAVD88
BASEMAP: ESRI, 2021



SESPE

CONSULTING, INC.

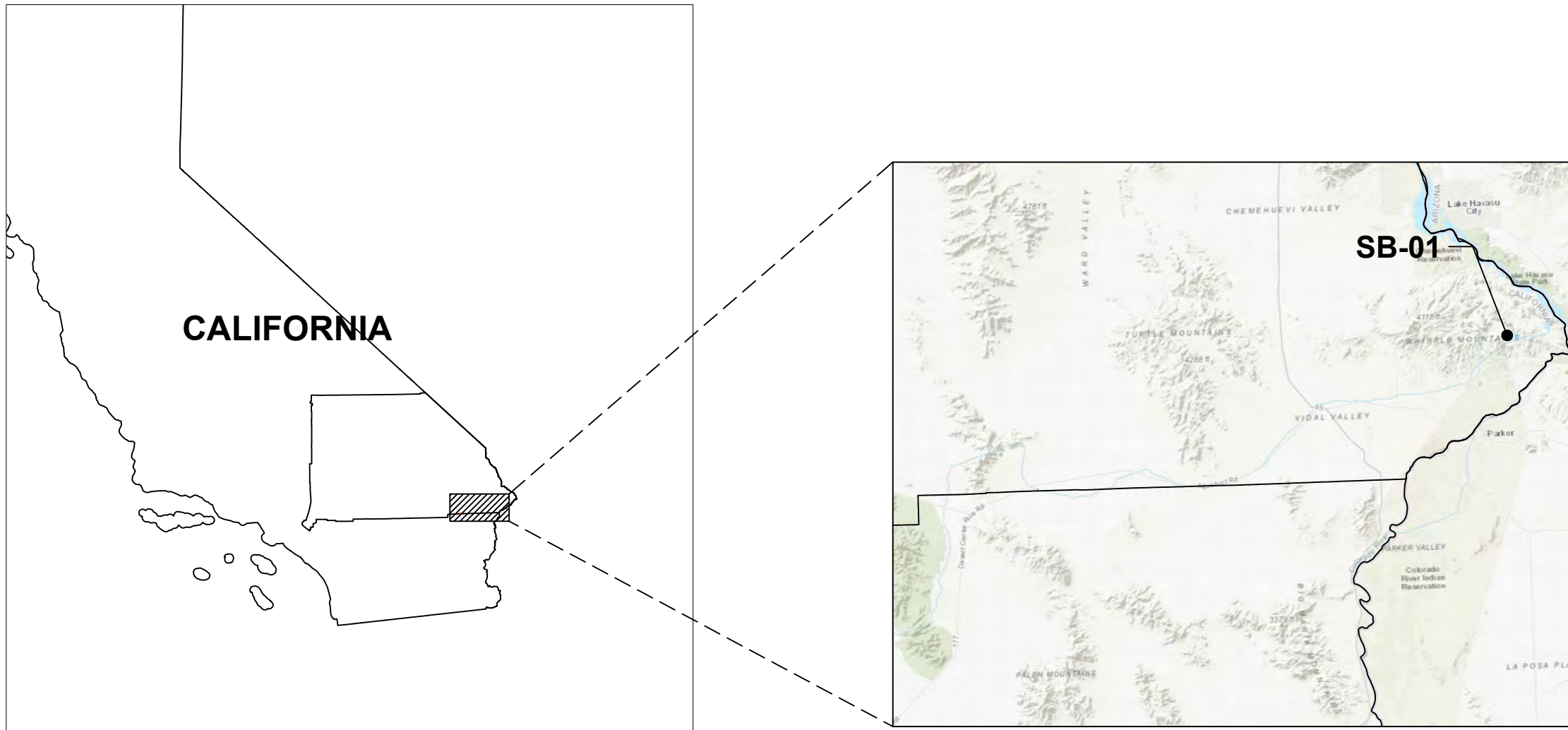
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OWNER / APPLICANT	
METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA	
700 NORTH ALAMEDA STREET	
LOS ANGELES, CALIFORNIA 90012	
LAND USE CONSULTANT	
SESPE CONSULTING, INC.	
374 POLI STREET, SUITE 200	
VENTURA, CALIFORNIA 93001	
(805) 275-1515	

REVISIONS			
MARK	DATE	DESCRIPTION	BY
	06/09/21	INITIAL DRAFT	GJC
	12/08/21	MINOR EDIT TO LAYOUTS	GJC
	01/16/22	MINOR EDIT TO LAYOUTS	GJC
	06/23/22	EDITS TO FIGURES PER CHANGE TO SAM38 AS LEAD AGENCY	GJC
	11/03/22	SB COUNTY SITE NUMBERING ADJ.	APS
REVIEWED BY: _____			
DATE		DATE	
_____		_____	

METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA	
SITE ID: N/A	
MILE MARKER: N/A	
COUNTY: SAN BERNARDINO	
SCALE: HORZ _____ AS SHOWN	FIGURE NUMBER
VERT _____ AS SHOWN	
DRAWN BY: G CAMUS	
CHECKED BY: BGA / APS	2



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SITE INFORMATION:

ASSESSORS PARCEL NUMBER(S) 0661-181-04-0000

EASEMENTS: NO EXISTING EASEMENTS WITHIN THE MINING / RECLAMATION AREA

MINERAL BEING EXTRACTED: SAND AND GRAVEL; CRUSHED ROCK

ADJACENT AREA: UNDEVELOPED OPEN SPACE

PROJECT AREA: EXISTING AGGREGATE BORROW PIT

UTILITIES: N/A - NO PUBLIC OR PRIVATE UTILITIES SERVICING THE OPERATION

GEOLOGIC DESCRIPTION:

GEOLOGIC DESCRIPTION: PRECAMBRIAN IGNEOUS AND METAMORPHIC CORE COMPLEX, WITH UNDIVIDED TERTIARY SEDIMENTARY AND VOLCANIC ROCKS OCCURRING IN THE IMMEDIATE VICINITY. SOME UNCONSOLIDATED ALLUVIAL MATERIALS OCCUR AT THE EASTERN EDGE OF THE EXTRACTION AREA, WHERE THE BORROW SOURCE IS ACCESSED.

REFERENCES:
BISHOP, C. C., 1963. GEOLOGIC MAP OF CALIFORNIA: NEEDLES SHEET, CALIFORNIA DIVISION OF MINES AND GEOLOGY, 1 SHEET.

STONE, P. AND HOWARD, K. A., 1979. COMPILATION OF GEOLOGIC MAPPING IN THE NEEDLES 1" X 2" SHEET, CALIFORNIA AND ARIZONA, USGS OPEN-FILE REPORT 79-388, 2 SHEETS.

LEGEND:

— MWD FEE-OWNED BOUNDARY LINES

— MINING BOUNDARY

— RECLAMATION BOUNDARY

— SURFACE FLOW DIRECTION (APPROX.)

— EXISTING CONTOURS

— FINAL RECLAIMED CONTOURS

— COLORADO RIVER AQUEDUCT CENTERLINE & ALIGNMENT

— TOPSOIL STORAGE BERM (TYP.)

— TOPSOIL SPREAD AREA (TYP.)

MINING NOTES:

- MINING IN THIS AREA IS CONDUCTED UNDER VESTED RIGHTS.
- NO PERMANENT STRUCTURES CURRENTLY EXIST OR ARE PROPOSED WITHIN THE MINING AREA.
- ACCESS TO THE MINING AREA WILL BE FROM THE EXISTING MWD CRA ACCESS AND MAINTENANCE ROADS.
- MINING WILL GENERALLY BE CONDUCTED IN A SINGLE PHASE.
- STOCKPILES OF RAW, MINED MATERIAL OR IMPORTED MATERIAL MAY BE STORED THROUGHOUT THE MINING AREA, AS NEEDED.
- NO WASTE DUMPS OR TAILING PONDS ARE ANTICIPATED.
- WHERE FEASIBLE, TOPSOIL WILL BE SALVAGED AND STOCKPILED IN A PERIMETER BERM FOR USE IN RECLAMATION.

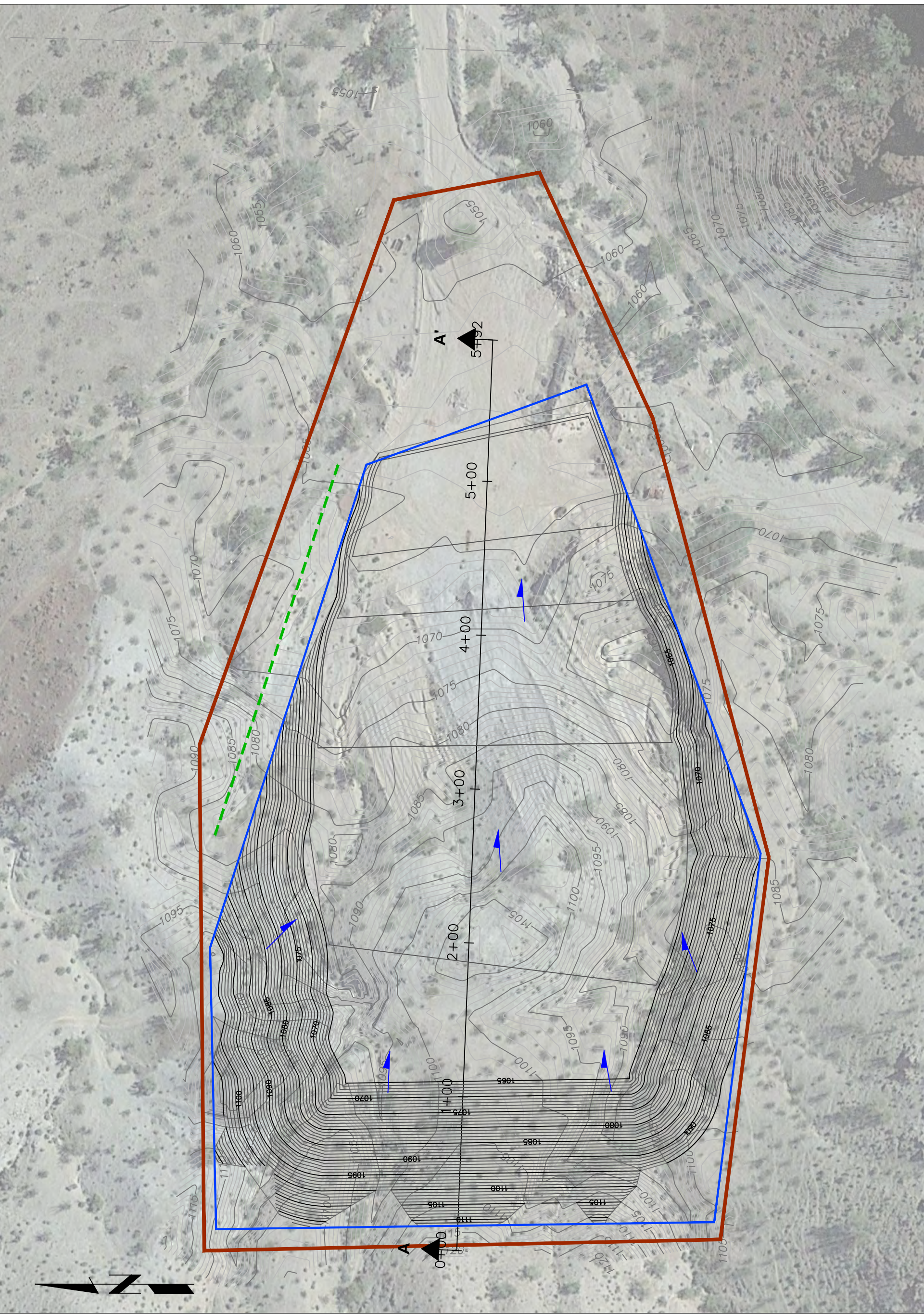
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PROJECTED END OF RECLAMATION: 2127

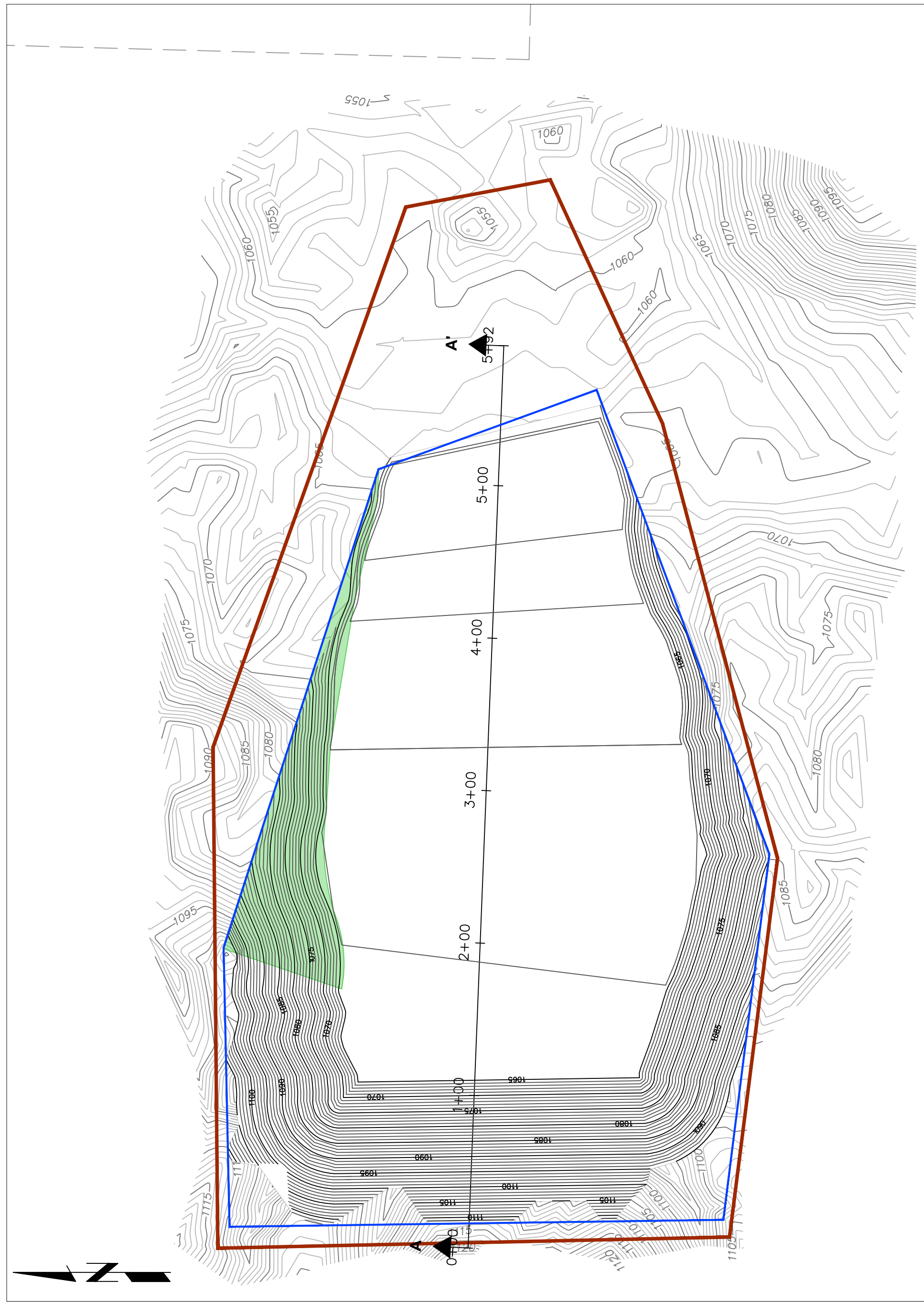
END USE: RECLAIMED OPEN SPACE

- RECLAMATION OF THE SITE WILL INCLUDE SITE CLEANUP, PUBLIC SAFETY MEASURES, DRAINAGE CONTROLS, RECONTOURING, RIPPING (WHERE APPLICABLE), REVEGETATION (UTILIZING NATIVE SPECIES), AND MONITORING AND MAINTENANCE.
- DATES SHOWN ABOVE ARE ESTIMATIONS, AND MAY CHANGE DEPENDING ON SITE CONDITIONS, MAINTENANCE ACTIVITIES AND FREQUENCY REQUIREMENTS.
- ONCE MINING OPERATIONS ARE COMPLETE, THE MINING AREA WILL BE RECLAIMED TO OPEN SPACE. ANY PERIMETER BERMS WILL BE DECONSTRUCTED AND REMAINING TOPSOIL (IF ANY) SPREAD ON SLOPES TO FACILITATE REVEGETATION.
- REVEGETATION ACTIVITIES WILL BE MONITORED BY A QUALIFIED REVEGETATION SPECIALIST. CHANGES TO REVEGETATION METHODS AND DEVELOPMENT OF POSSIBLE ALTERNATIVES TO ACHIEVE SMARA MINIMUM REVEGETATION STANDARDS WILL BE REVIEWED IN COORDINATION WITH CALIFORNIA STATE MINING AND GEOLOGY BOARD.
- RECLAMATION ACTIVITIES WILL NOT PRECLUDE ACCESS TO, OR MINING OF ANY AGGREGATE RESERVES REMAINING AFTER COMPLETION OF THE PROPOSED MINING ACTIVITIES.



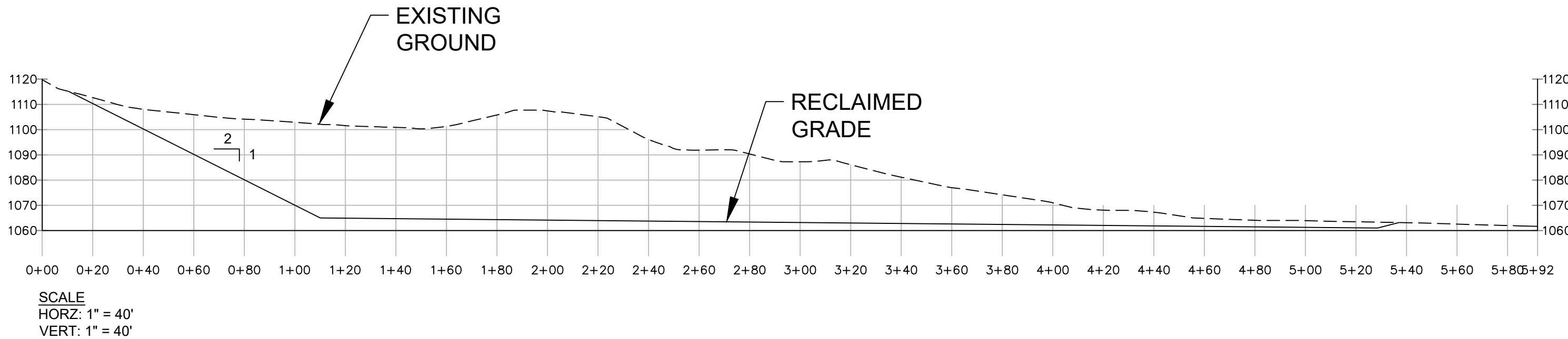
MINE PLAN

SCALE IN FEET
SCALE: 1" = 60'
SCALE INDICATED IS BASED ON A 24" X 36" FORMAT PRINT



RECLAMATION PLAN

SCALE IN FEET
SCALE: 1" = 60'
SCALE INDICATED IS BASED ON A 24" X 36" FORMAT PRINT



CROSS SECTION



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METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA
700 NORTH ALAMEDA STREET
LOS ANGELES, CALIFORNIA 90012

LAND USE CONSULTANT
SESPE CONSULTING, INC.
374 POLI STREET, SUITE 200
VENTURA, CALIFORNIA 93001
(805) 275-1515

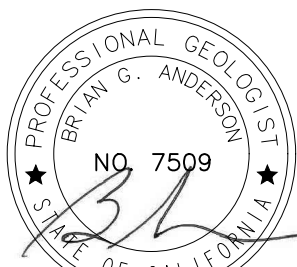
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MARK	DATE	DESCRIPTION	BY
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12/06/21		MINOR EDIT TO LAYOUTS	GJC
01/16/22		MINOR EDIT TO LAYOUTS	GJC
06/23/22		EDITS TO FIGURES PER CHANGE TO SMGB AS LEAD AGENCY	GJC
REVIEWED BY:			
		DATE	
		DATE	

METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA	
SITE ID:	SB-01
MILE MARKER:	6+01
COUNTY:	SAN BERNARDINO
SCALE:	HORIZ: AS SHOWN VERT: AS SHOWN
DRAWN BY:	G. CAMLUS
CHECKED BY:	BGA / APS
FIGURE NUMBER	3

DATUM: HORZ= NAD83, CALIFORNIA ZONE 5, US FOOT
VERT= NAVD88

AERIAL: GOOGLE EARTH IMAGERY, DATED 02/15/20

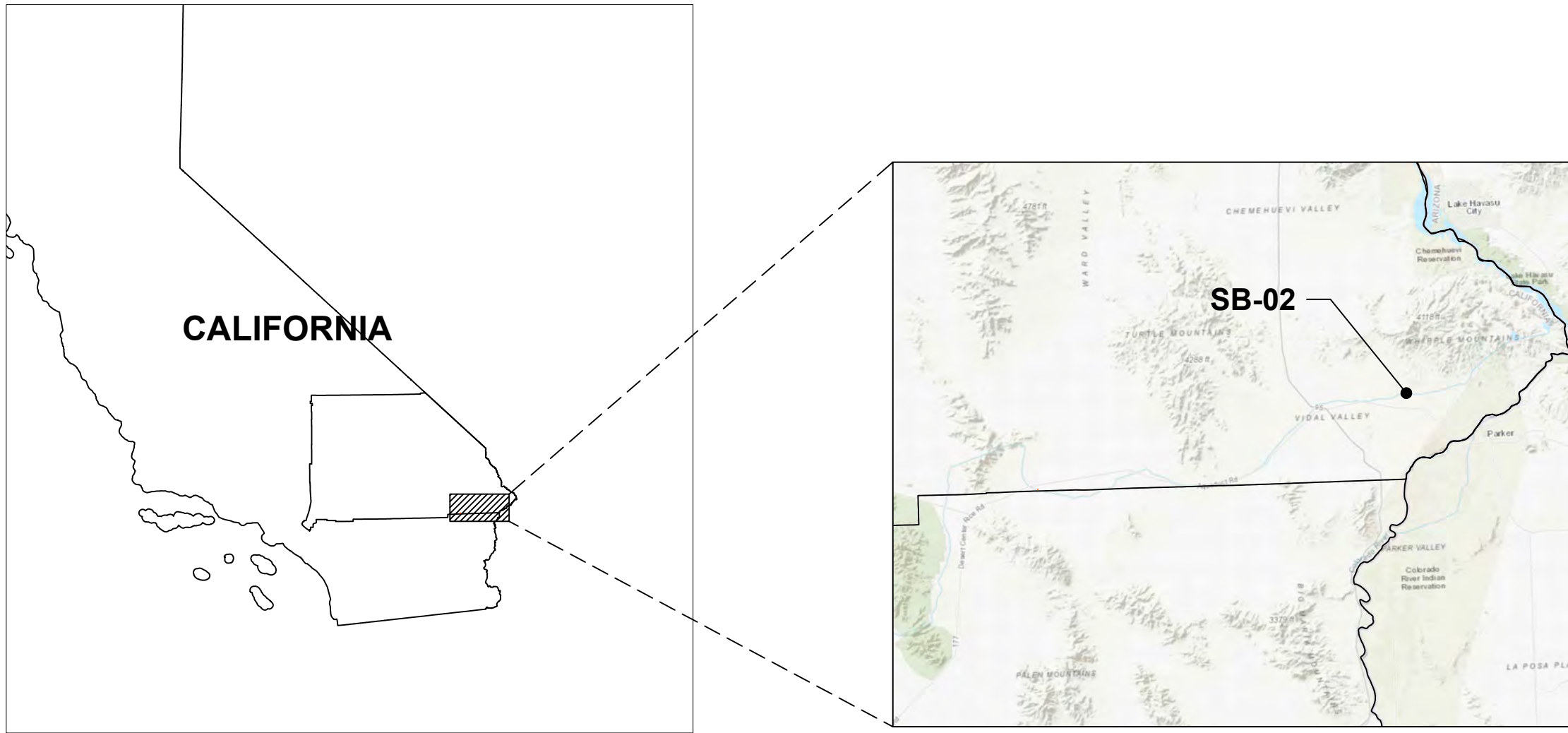
TOPOGRAPHY: MWD SURVEYING TEAM (NICHOLAS ELLIS, PLS 9320 & ROBERT YOUNATHAN, PLS9369), DRAWINGS B-171030, APRIL 2021



BRIAN G. ANDERSON CA P.G. 7509 EXP: 03-31-2024



A. PEARCE SWERDFEGER R.C.E. 87486 EXP: 09-30-2023



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SITE INFORMATION:

ASSESSORS PARCEL NUMBER(S) 0647-321-05-0000, 0647-331-17-0000

EASEMENTS: NO EXISTING EASEMENTS WITHIN THE MINING / RECLAMATION AREA

MINERAL BEING EXTRACTED: SAND AND GRAVEL

ADJACENT AREA: UNDEVELOPED OPEN SPACE

PROJECT AREA: EXISTING AGGREGATE BORROW PIT

UTILITIES: N/A - NO PUBLIC OR PRIVATE UTILITIES SERVICING THE OPERATION

GEOLOGIC DESCRIPTION:

PLEISTOCENE AGE NON-MARINE DEPOSITS, AS MAPPED BY BISHOP (1963), WHICH APPEAR TO CORRELATE WITH THE OLDER QUATERNARY ALLUVIUM MAPPED BY STONE AND HOWARD (1979). THE DEPOSITS OCCUR ALONG THE WESTERN FLANK OF THE WHIPPLE MOUNTAINS.

REFERENCE:
BISHOP, C. C., 1963. GEOLOGIC MAP OF CALIFORNIA: NEEDLES SHEET, CALIFORNIA DIVISION OF MINES AND GEOLOGY, 1 SHEET.
STONE, P. AND HOWARD, K. A., 1979. COMPILATION OF GEOLOGIC MAPPING IN THE NEEDLES 1" X 2" SHEET, CALIFORNIA AND ARIZONA, USGS OPEN-FILE REPORT 79-388, 2 SHEETS.

LEGEND:

- MWD FEE-OWNED BOUNDARY LINES
- MINING BOUNDARY
- RECLAMATION BOUNDARY
- SURFACE FLOW DIRECTION (APPROX.)
- EXISTING CONTOURS
- FINAL RECLAIMED CONTOURS
- COLORADO RIVER AQUEDUCT CENTERLINE & ALIGNMENT
- TOPSOIL STORAGE BERM (TYP.)
- TOPSOIL SPREAD AREA (TYP.)

MINING NOTES:

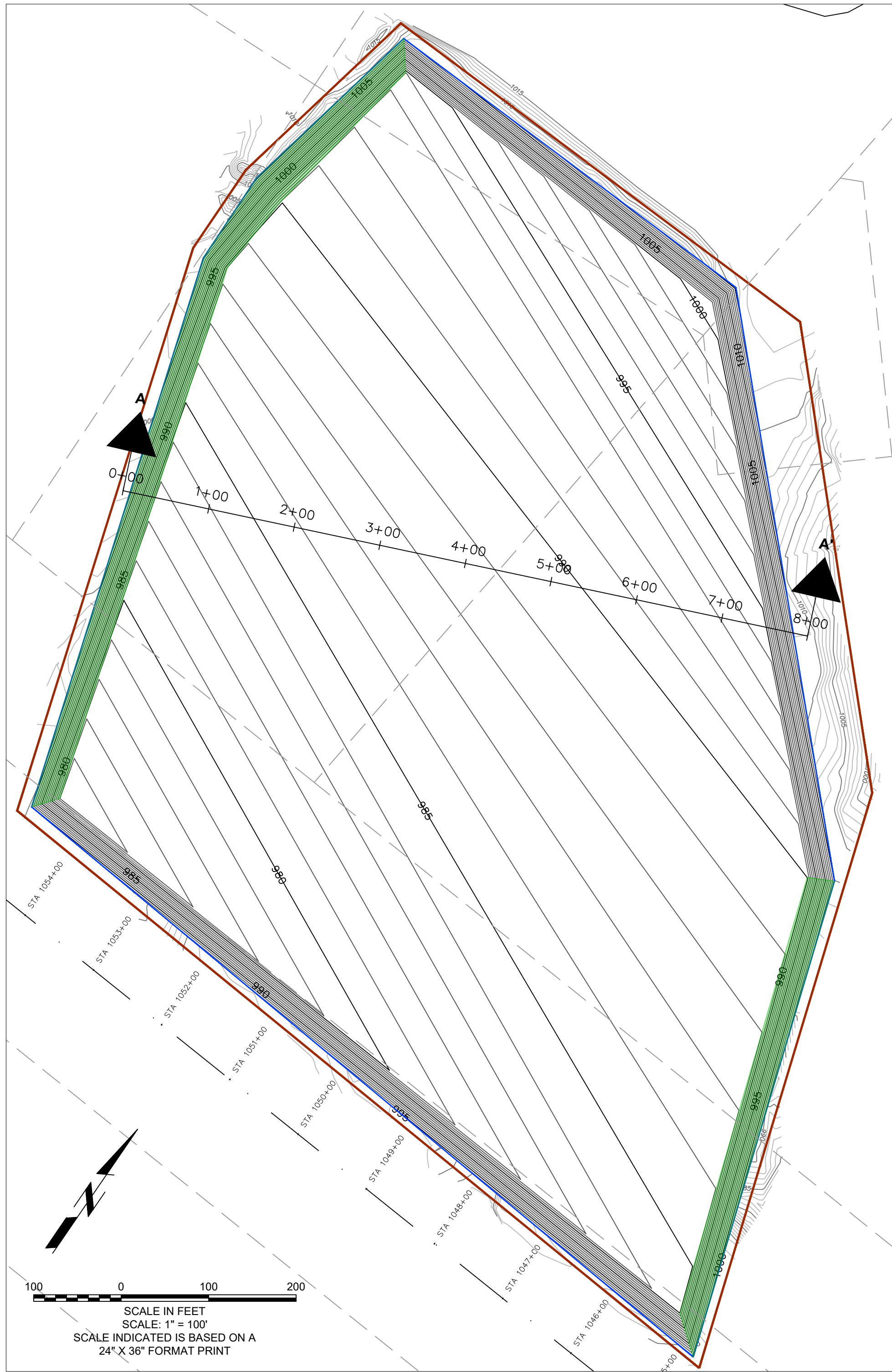
- MINING IN THIS AREA IS CONDUCTED UNDER VESTED RIGHTS.
- NO PERMANENT STRUCTURES CURRENTLY EXIST OR ARE PROPOSED WITHIN THE MINING AREA.
- ACCESS TO THE MINING AREA WILL BE FROM THE EXISTING MWD CRA ACCESS AND MAINTENANCE ROADS.
- MINING WILL GENERALLY BE CONDUCTED IN A SINGLE PHASE.
- STOCKPILES OF RAW, MINED MATERIAL OR IMPORTED MATERIAL MAY BE STORED THROUGHOUT THE MINING AREA, AS NEEDED.
- NO WASTE DUMPS OR TAILING PONDS ARE ANTICIPATED.
- WHERE FEASIBLE, TOPSOIL WILL BE SALVAGED AND STOCKPILED IN A PERIMETER BERM FOR USE IN RECLAMATION.

RECLAMATION NOTES:

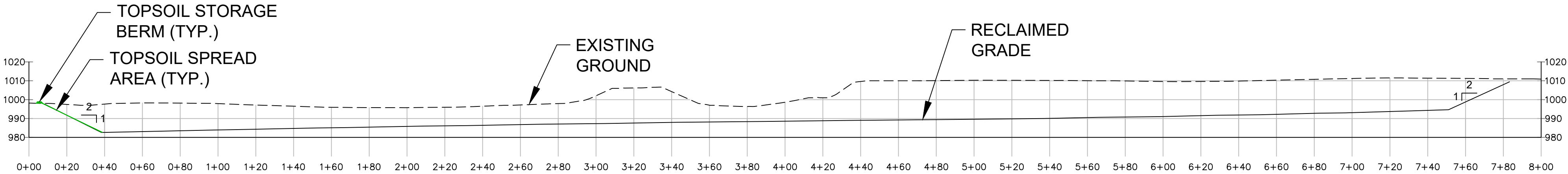
- PROJECTED END OF MINING:** 2122
- PROJECTED END OF RECLAMATION:** 2127
- END USE:** RECLAIMED OPEN SPACE
- RECLAMATION OF THE SITE WILL INCLUDE SITE CLEANUP, PUBLIC SAFETY MEASURES, DRAINAGE CONTROLS, RECONTOURING, RIPPING (WHERE APPLICABLE), REVEGETATION (UTILIZING NATIVE SPECIES), AND MONITORING AND MAINTENANCE.
 - DATES SHOWN ABOVE ARE ESTIMATIONS, AND MAY CHANGE DEPENDING ON SITE CONDITIONS, MAINTENANCE ACTIVITIES AND FREQUENCY REQUIREMENTS.
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 - RECLAMATION ACTIVITIES WILL NOT PRECLUDE ACCESS TO, OR MINING OF ANY AGGREGATE RESERVES REMAINING AFTER COMPLETION OF THE PROPOSED MINING ACTIVITIES.



MINE PLAN



RECLAMATION PLAN



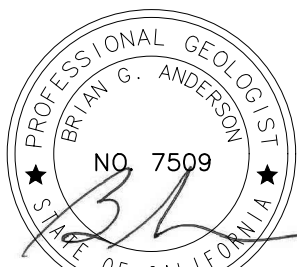
CROSS SECTION

SITE: SB-02

DATUM: HORZ= NAD83, CALIFORNIA ZONE 5, US FOOT
VERT= NAVD88

AERIAL: GOOGLE EARTH IMAGERY, DATED 02/15/20

TOPOGRAPHY: MWD SURVEYING TEAM (NICHOLAS ELLIS, PLS 9320 & ROBERT YOUNATHAN, PLS 9369), DRAWINGS B-171022 (SEPTEMBER 2020), B-174436 & B-174437 (APRIL 2021)



BRIAN G. ANDERSON CA P.G. 7509 EXP. 03-31-2024



A. PEARCE SWERDFEGER R.C.E. 87486 EXP. 09-30-2023



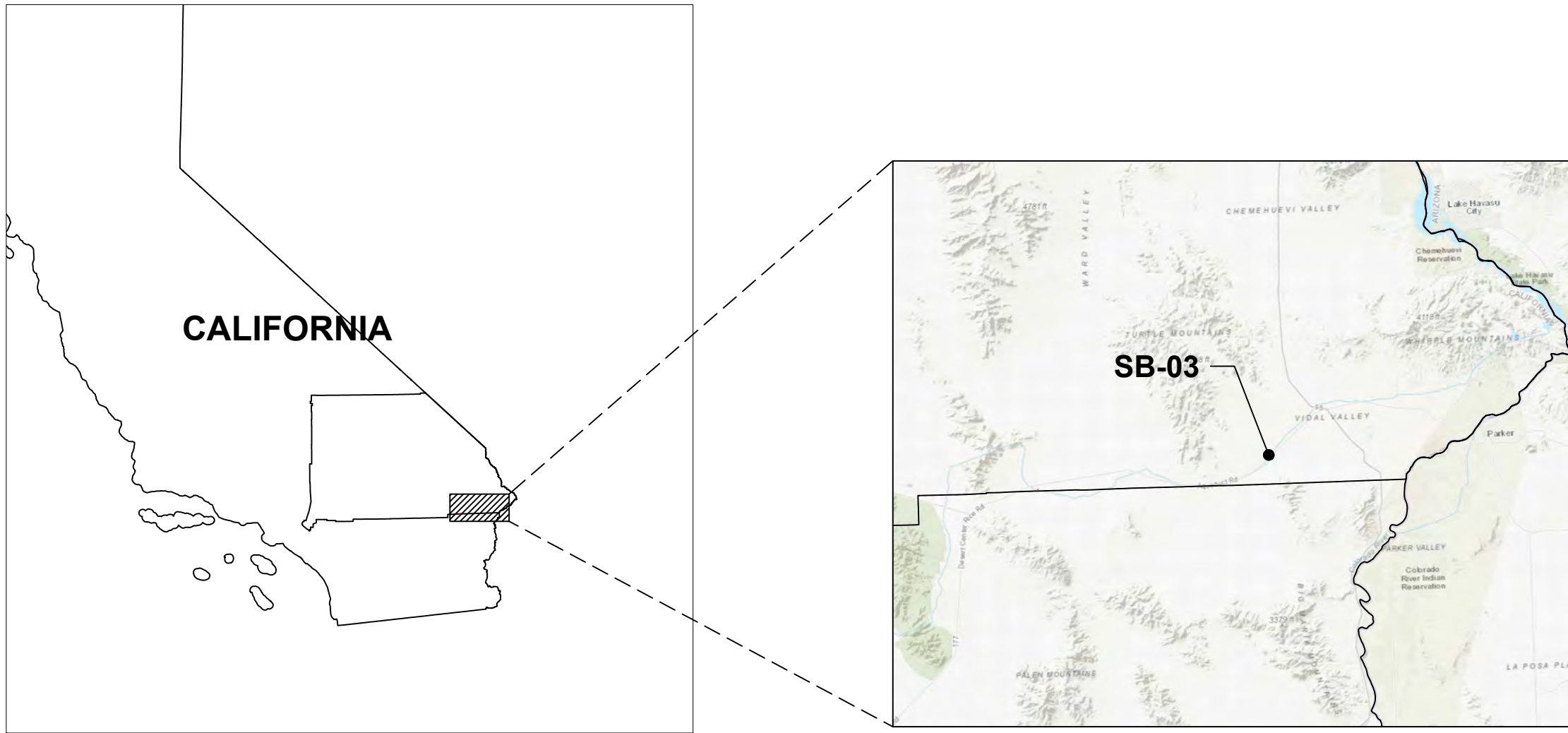
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(805) 275-1515 • www.sespeconsulting.com

OWNER / APPLICANT
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700 NORTH ALAMEDA STREET
LOS ANGELES, CALIFORNIA 90012

LAND USE CONSULTANT
SESPE CONSULTING, INC.
374 POLI STREET, SUITE 200
VENTURA, CALIFORNIA 93001
(805) 275-1515

REVISIONS			
MARK	DATE	DESCRIPTION	BY
8/18/20		INITIAL DRAFT	GJC
12/06/21		MINOR EDIT TO LAYOUTS	GJC
01/16/22		MINOR EDIT TO LAYOUTS	GJC
06/23/22		EDITS TO FIGURES PER CHANGE TO SMGB AS LEAD AGENCY	GJC
11/03/22		SB COUNTY SITE NUMBERING ADJ.	APS
REVIEWED BY:			
		DATE	
		DATE	

METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA	
SITE ID:	SB-02
MILE MARKER:	18+92
COUNTY:	SAN BERNARDINO
SCALE: HORZ: AS SHOWN VERT: AS SHOWN	FIGURE NUMBER
DRAWN BY: G. CAMUS	4
CHECKED BY: BGA / APS	



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FIGURE 12: RV-02
FIGURE 13: RV-03
FIGURE 13: RV-04
FIGURE 15: RV-05
FIGURE 16: RV-06
FIGURE 17: RV-07

SITE INFORMATION:

ASSESSORS PARCEL NUMBER(S) 0646-201-02-0000, 0646-201-03-0000, 0646-211-15-0000

EASEMENTS: NO EXISTING EASEMENTS WITHIN THE MINING / RECLAMATION AREA

MINERAL BEING EXTRACTED: SAND AND GRAVEL

ADJACENT AREA: UNDEVELOPED OPEN SPACE

PROJECT AREA: EXISTING AGGREGATE BORROW PIT

UTILITIES: N/A - NO PUBLIC OR PRIVATE UTILITIES SERVICING THE OPERATION

GEOLOGIC DESCRIPTION:

GEOLOGIC DESCRIPTION: QUATERNARY ALLUVIUM CONSISTING OF SILTS, SANDS, PEBBLES, COBBLES AND BOULDERS. THE ALLUVIAL DEPOSITS ARE DESCRIBED AS LOCALLY DERIVED POORLY SORTED ANGULAR TO SUBROUNDED, UNCONSOLIDATED MATERIAL.

REFERENCE:

CARR, W. J., DICKEY, D. D., AND QUINLIVAN, W. D., 1980. GEOLOGIC MAP OF THE VIDAL NW, VIDAL JUNCTION, AND PARTS OF THE SAVAHIA PEAK SW AND SAVAHIA PEAK QUADRANGLES, SAN BERNARDINO COUNTY, CALIFORNIA, USGS MISCELLANEOUS INVESTIGATIONS SERIES MAP I-1126, 1 SHEET.

LEGEND:

--- MWD FEE-OWNED BOUNDARY LINES
--- MINING BOUNDARY
--- RECLAMATION BOUNDARY
--- SURFACE FLOW DIRECTION (APPROX.)
--- EXISTING CONTOURS
--- FINAL RECLAIMED CONTOURS
--- COLORADO RIVER AQUEDUCT CENTERLINE & ALIGNMENT
--- TOPSOIL STORAGE BERM (TYP.)
--- TOPSOIL SPREAD AREA (TYP.)

MINING NOTES:

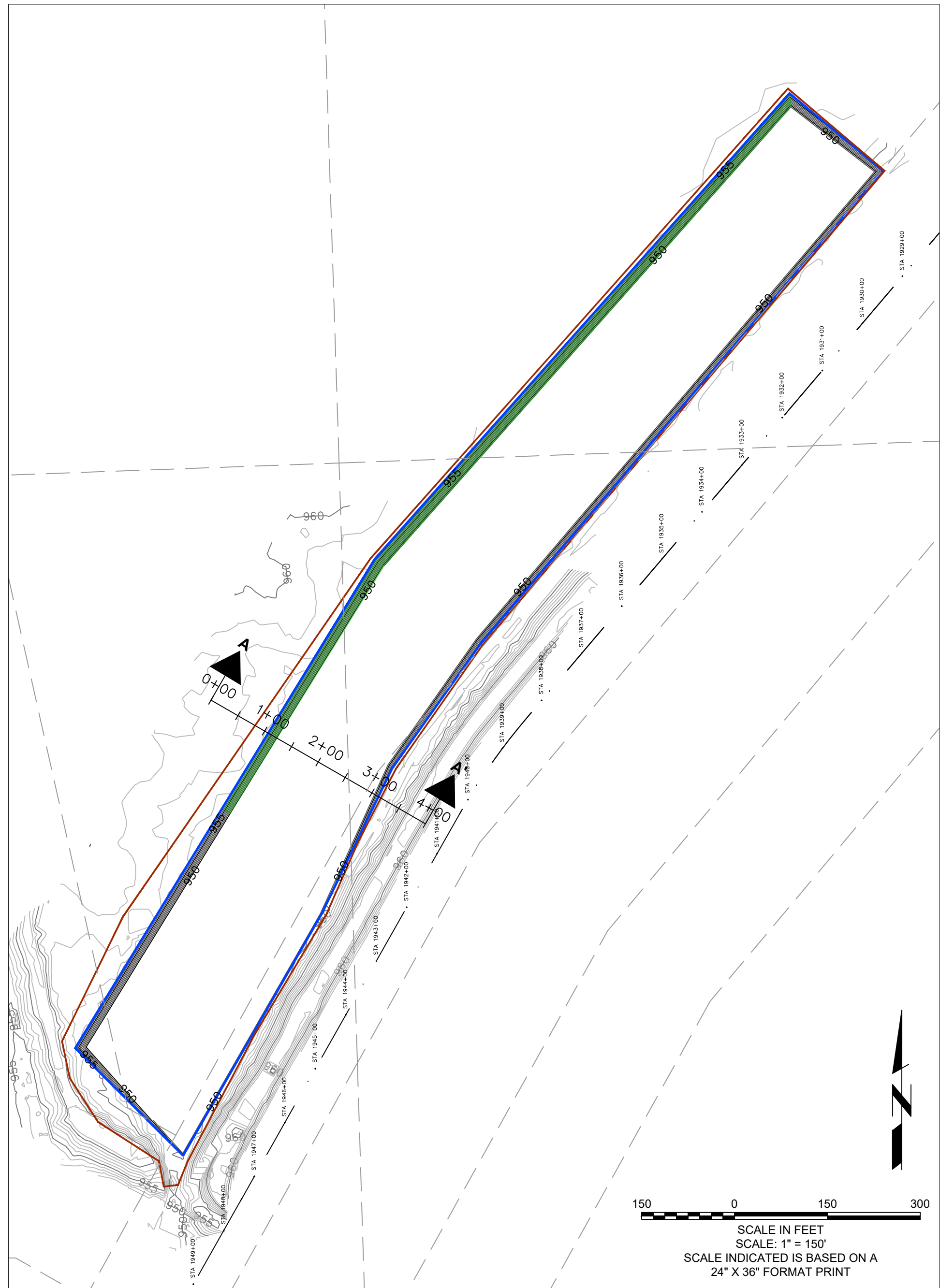
- MINING IN THIS AREA IS CONDUCTED UNDER VESTED RIGHTS.
- NO PERMANENT STRUCTURES CURRENTLY EXIST OR ARE PROPOSED WITHIN THE MINING AREA.
- ACCESS TO THE MINING AREA WILL BE FROM THE EXISTING MWD CRA ACCESS AND MAINTENANCE ROADS.
- MINING WILL GENERALLY BE CONDUCTED IN A SINGLE PHASE.
- STOCKPILES OF RAW, MINED MATERIAL OR IMPORTED MATERIAL MAY BE STORED THROUGHOUT THE MINING AREA, AS NEEDED.
- NO WASTE DUMPS OR TAILING PONDS ARE ANTICIPATED.
- WHERE FEASIBLE, TOPSOIL WILL BE SALVAGED AND STOCKPILED IN A PERIMETER BERM FOR USE IN RECLAMATION.

RECLAMATION NOTES:

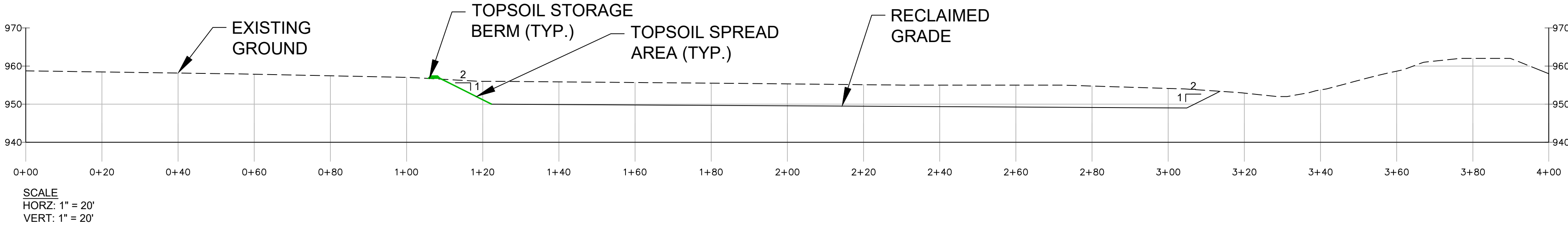
- PROJECTED END OF MINING:** 2122
- PROJECTED END OF RECLAMATION:** 2127
- END USE:** RECLAIMED OPEN SPACE
- RECLAMATION OF THE SITE WILL INCLUDE SITE CLEANUP, PUBLIC SAFETY MEASURES, DRAINAGE CONTROLS, RECONTOURING, RIPPING (WHERE APPLICABLE), REVEGETATION (UTILIZING NATIVE SPECIES), AND MONITORING AND MAINTENANCE.
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MINE PLAN



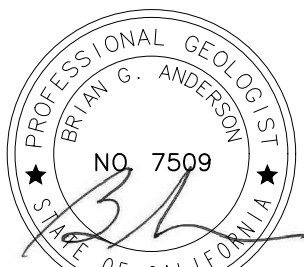
RECLAMATION PLAN



CROSS SECTION

SITE: SB-03

DATUM: HORZ= NAD83, CALIFORNIA ZONE 5, US FOOT
VERT= NAVD88
AERIAL: GOOGLE EARTH IMAGERY, DATED 06/16/17
TOPOGRAPHY: MWD SURVEYING TEAM (NICHOLAS ELLIS, PLS 9320), DRAWING B-171031 (OCTOBER 2020), B-174442 & B-174443 (MAY 2021)



BRIAN G. ANDERSON CA P.G. 7509 EXP. 03-31-2024



A. PEARCE SWERDFEGER R.C.E. 87486 EXP. 09-30-2023



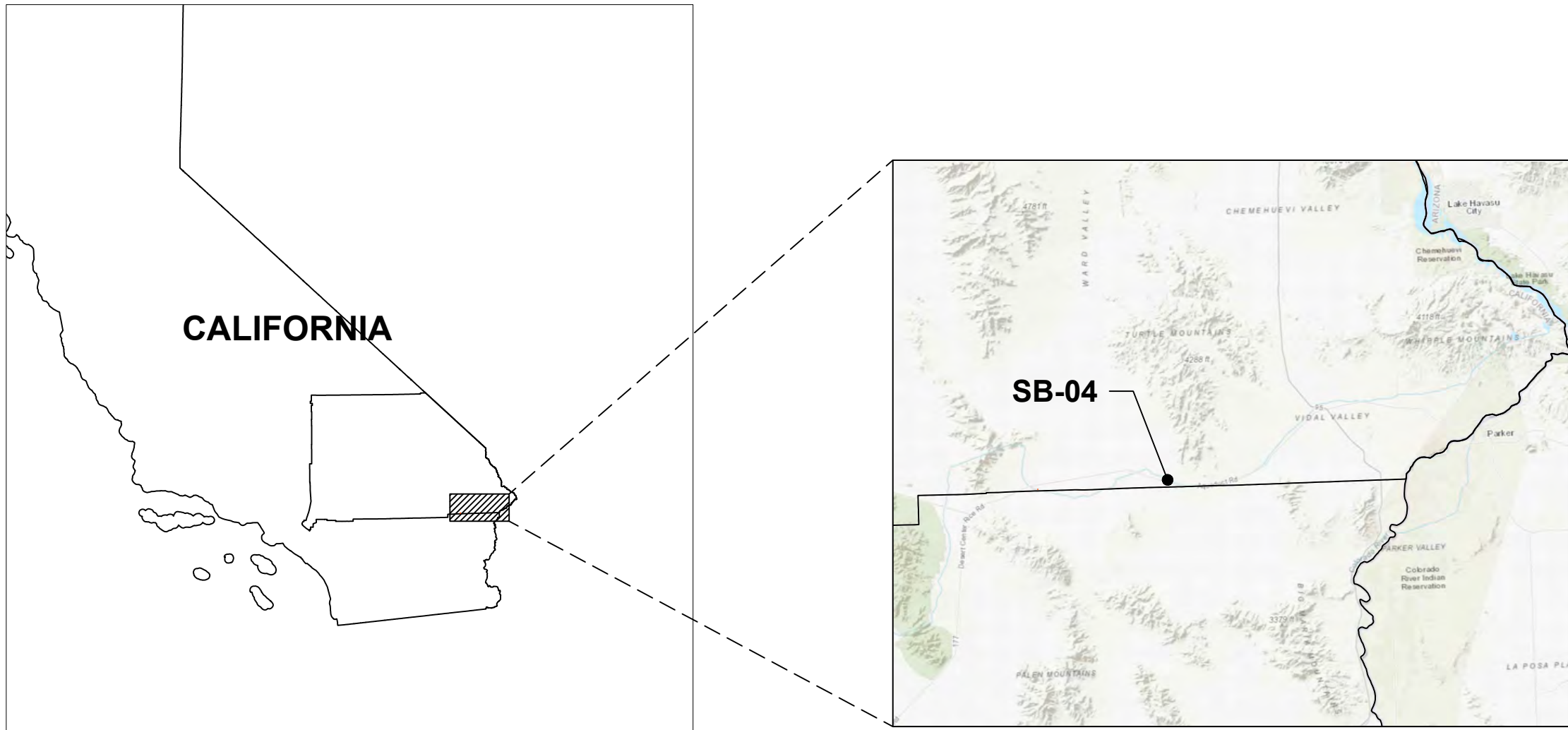
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LAND USE CONSULTANT
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374 POLI STREET, SUITE 200
VENTURA, CALIFORNIA 93001
(805) 275-1515

REVISIONS			
MARK	DATE	DESCRIPTION	BY
8/18/20		INITIAL DRAFT	GJC
12/06/21		MINOR EDIT TO LAYOUTS	GJC
01/16/22		MINOR EDIT TO LAYOUTS	GJC
06/23/22		EDITS TO FIGURES PER CHANGE TO SMGB AS LEAD AGENCY	GJC
11/03/22		SB COUNTY SITE NUMBERING ADJ.	APS
REVIEWED BY:			
		DATE	
		DATE	

METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA	
SITE ID:	SB-03
MILE MARKER:	35+70
COUNTY:	SAN BERNARDINO
SCALE: HORZ: AS SHOWN VERT: AS SHOWN	FIGURE NUMBER 5
DRAWN BY: G. CAMUS	
CHECKED BY: BGA / APS	



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FIGURE 15: RV-05
FIGURE 16: RV-06
FIGURE 17: RV-07

SITE INFORMATION:

ASSESSORS PARCEL NUMBER(S) 0646-091-09-0000, 0646-101-02-0000

EASEMENTS: NO EXISTING EASEMENTS WITHIN THE MINING / RECLAMATION AREA

MINERAL BEING EXTRACTED: SAND AND GRAVEL

ADJACENT AREA: UNDEVELOPED OPEN SPACE

PROJECT AREA: EXISTING AGGREGATE BORROW PIT

UTILITIES: N/A - NO PUBLIC OR PRIVATE UTILITIES SERVICING THE OPERATION

GEOLOGIC DESCRIPTION:

GEOLOGIC DESCRIPTION: QUATERNARY ALLUVIUM CONSISTING OF SILTS, SANDS, PEBBLES, COBBLES AND BOULDERS. THE ALLUVIAL DEPOSITS ARE DESCRIBED AS LOCALLY DERIVED POORLY SORTED ANGULAR TO SUBROUNDED, UNCONSOLIDATED MATERIAL.

REFERENCE:
CARR, W.J., DICKEY, D.D., AND QUINLIVAN, W.D., 1980. GEOLOGIC MAP OF THE VIDAL NW, VIDAL JUNCTION, AND PARTS OF THE SAVAHIA PEAK SW AND SAVAHIA PEAK QUADRANGLES, SAN BERNARDINO COUNTY, CALIFORNIA, USGS MISCELLANEOUS INVESTIGATIONS SERIES MAP I-1126, 1 SHEET.

LEGEND:

— MWD FEE-OWNED BOUNDARY LINES

— MINING BOUNDARY

— RECLAMATION BOUNDARY

— SURFACE FLOW DIRECTION (APPROX.)

— EXISTING CONTOURS

— FINAL RECLAIMED CONTOURS

— COLORADO RIVER AQUEDUCT CENTERLINE & ALIGNMENT

— TOPSOIL STORAGE BERM (TYP.)

— TOPSOIL SPREAD AREA (TYP.)

MINING NOTES:

- MINING IN THIS AREA IS CONDUCTED UNDER VESTED RIGHTS.
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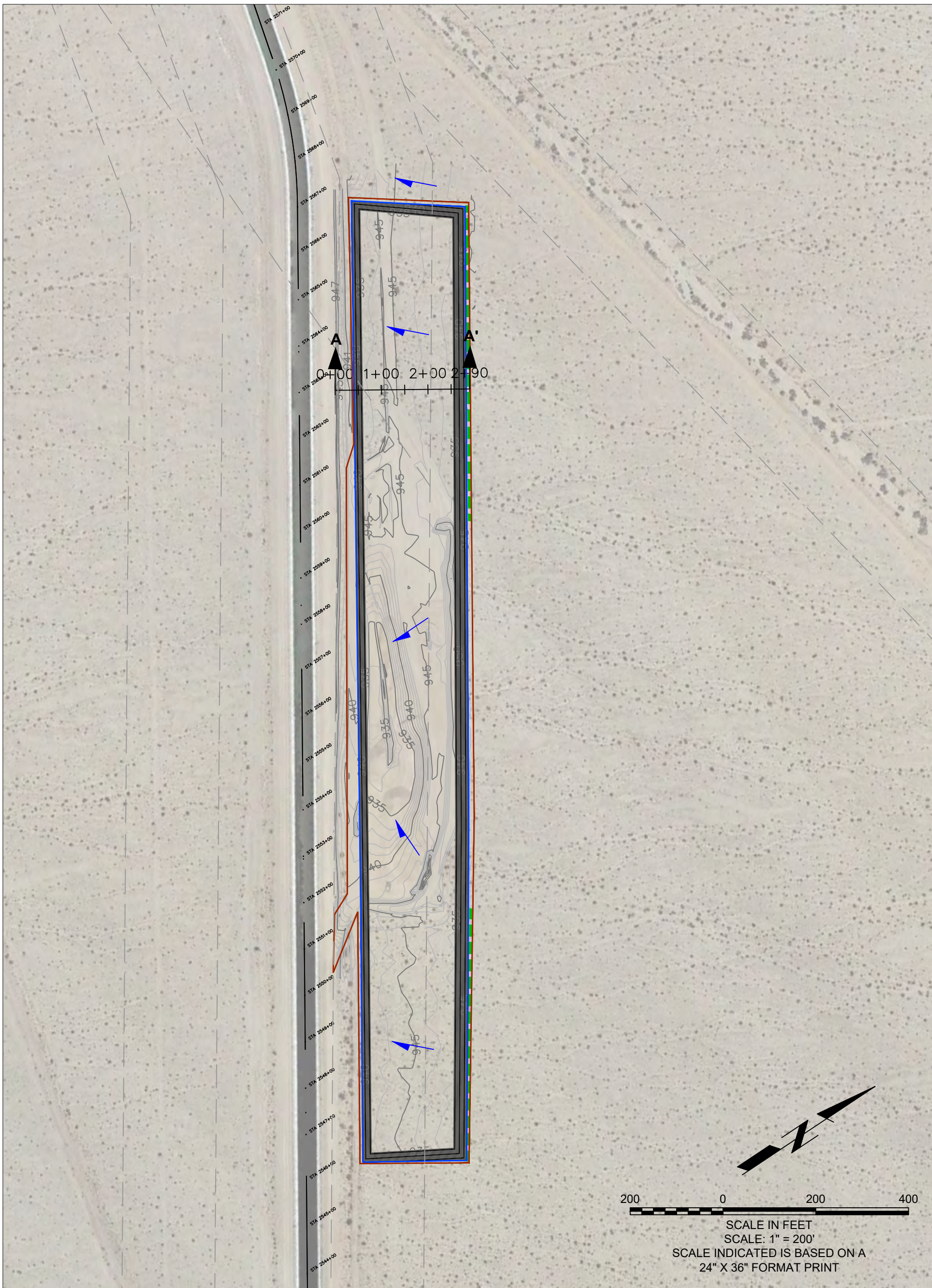
RECLAMATION NOTES:

PROJECTED END OF MINING: 2122

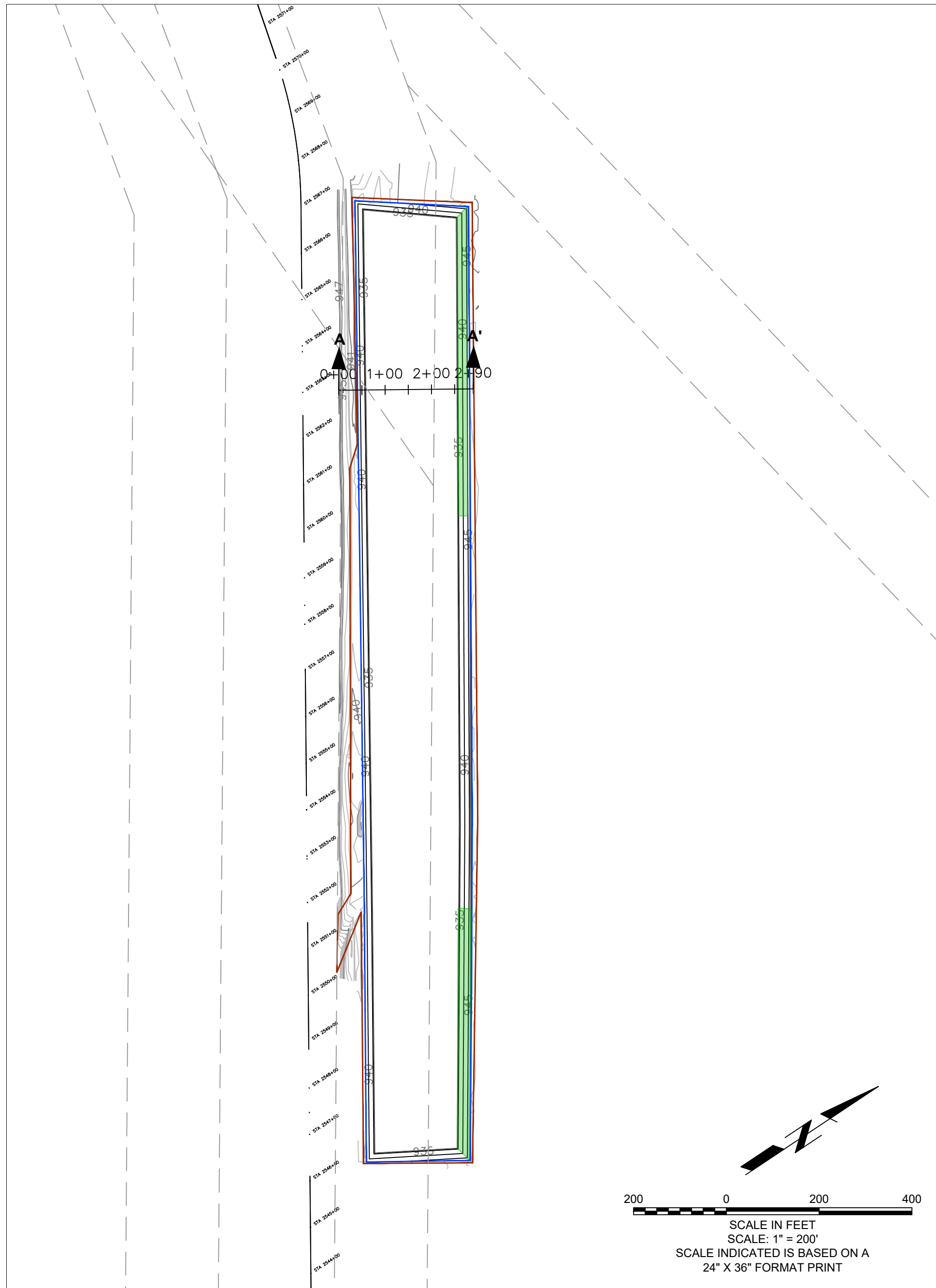
PROJECTED END OF RECLAMATION: 2127

END USE: RECLAIMED OPEN SPACE

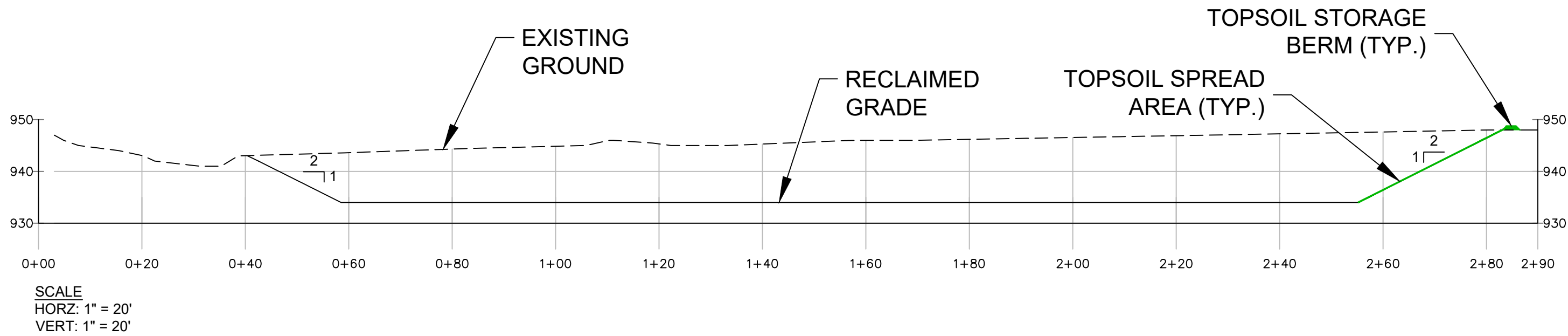
- RECLAMATION OF THE SITE WILL INCLUDE SITE CLEANUP, PUBLIC SAFETY MEASURES, DRAINAGE CONTROLS, RECONTOURING, RIPPING (WHERE APPLICABLE), REVEGETATION (UTILIZING NATIVE SPECIES), AND MONITORING AND MAINTENANCE.
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MINE PLAN



RECLAMATION PLAN



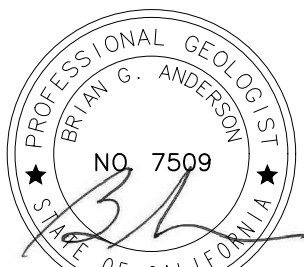
CROSS SECTION

SITE: SB-04

DATUM: HORIZ= NAD83, CALIFORNIA ZONE 5, US FOOT
VERT= NAVD88

AERIAL: GOOGLE EARTH IMAGERY, DATED 06/16/17

TOPOGRAPHY: MWD SURVEYING TEAM (NICHOLAS ELLIS, PLS 9320), DRAWINGS B-170959, B-170960, & B-170961 (JUNE 2020) AND B-174453, B-174454, & B-174455 (MAY 2021)



BRIAN G. ANDERSON CA P.G. 7509 EXP. 03-31-2024



A. PEARCE SWERDFEGER R.C.E. 87486 EXP. 09-30-2023



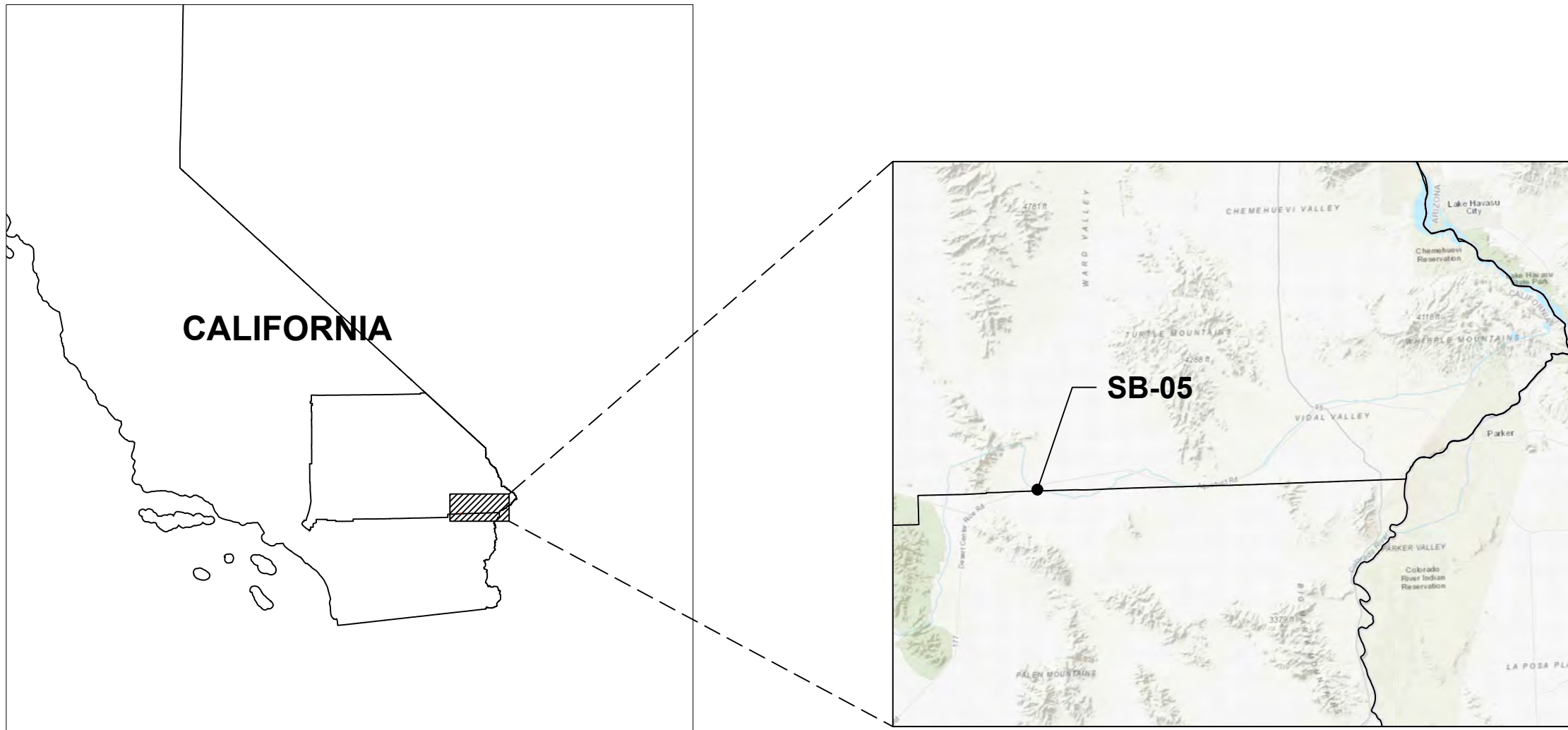
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374 POLI STREET, SUITE 200
VENTURA, CALIFORNIA 93001
(805) 275-1515

REVISIONS			
MARK	DATE	DESCRIPTION	BY
06/09/21		INITIAL DRAFT	GJC
12/06/21		MINOR EDIT TO LAYOUTS	GJC
01/16/22		MINOR EDIT TO LAYOUTS	GJC
06/23/22		EDITS TO FIGURES PER CHANGE TO SMGB AS LEAD AGENCY	GJC
11/03/22		SB COUNTY SITE NUMBERING ADJ.	APS
REVIEWED BY:			
		DATE	
		DATE	

METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA	
SITE ID:	SB-04
MILE MARKER:	47+40
COUNTY:	SAN BERNARDINO
SCALE:	HORIZ: AS SHOWN VERT: AS SHOWN
DRAWN BY:	G. CAMUS
CHECKED BY:	BGA / APS
FIGURE NUMBER	6



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FIGURE 13: RV-03
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FIGURE 15: RV-05
FIGURE 16: RV-06
FIGURE 17: RV-07

SITE INFORMATION:

ASSESSORS PARCEL NUMBER(S) 0646-011-07-0000, 0646-011-02-0000

EASEMENTS: NO EXISTING EASEMENTS WITHIN THE MINING / RECLAMATION AREA

MINERAL BEING EXTRACTED: SAND AND GRAVEL

ADJACENT AREA: UNDEVELOPED OPEN SPACE

PROJECT AREA: EXISTING AGGREGATE BORROW PIT

UTILITIES: N/A - NO PUBLIC OR PRIVATE UTILITIES SERVICING THE OPERATION

GEOLOGIC DESCRIPTION:

QUATERNARY ALLUVIUM COMPRISED OF SAND AND POORLY SORTED SANDY GRAVEL OF ANGULAR AND SUBANGULAR CLASTS DERIVED FROM ADJACENT MOUNTAINS. THE DEPOSITS FORM ALLUVIAL FANS, WITH SURFACES COMMONLY CHARACTERIZED BY BARS AND SWALES. OLDER PARTS OF THE FANS CAN BE SLIGHTLY DISSECTED AND EXHIBIT LIGHTLY VARNISHED DESERT PAVEMENT. SOME DEPOSITS MAY LOCALLY INCLUDE A COMPONENT OF WINDBLOWN SAND.

REFERENCE:
HOWARD, K. A., 2002. GEOLOGIC MAP OF THE SHEEP HOLE MOUNTAINS 30' BY 60' MINUTE QUADRANGLE, SAN BERNARDINO AND RIVERSIDE COUNTIES, CALIFORNIA, U.S. GEOLOGICAL SURVEY GEOLOGIC INVESTIGATIONS SERIES I-2344, 2 SHEETS.

LEGEND:

- MWD FEE-OWNED BOUNDARY LINES
- MINING BOUNDARY
- RECLAMATION BOUNDARY
- SURFACE FLOW DIRECTION (APPROX.)
- EXISTING CONTOURS
- FINAL RECLAIMED CONTOURS
- COLORADO RIVER AQUEDUCT CENTERLINE & ALIGNMENT
- TOPSOIL STORAGE BERM (TYP.)
- TOPSOIL SPREAD AREA (TYP.)
- TEST PLOT AREA

MINING NOTES:

- MINING IN THIS AREA IS CONDUCTED UNDER VESTED RIGHTS.
- NO PERMANENT STRUCTURES CURRENTLY EXIST OR ARE PROPOSED WITHIN THE MINING AREA.
- ACCESS TO THE MINING AREA WILL BE FROM THE EXISTING MWD CRA ACCESS AND MAINTENANCE ROADS.
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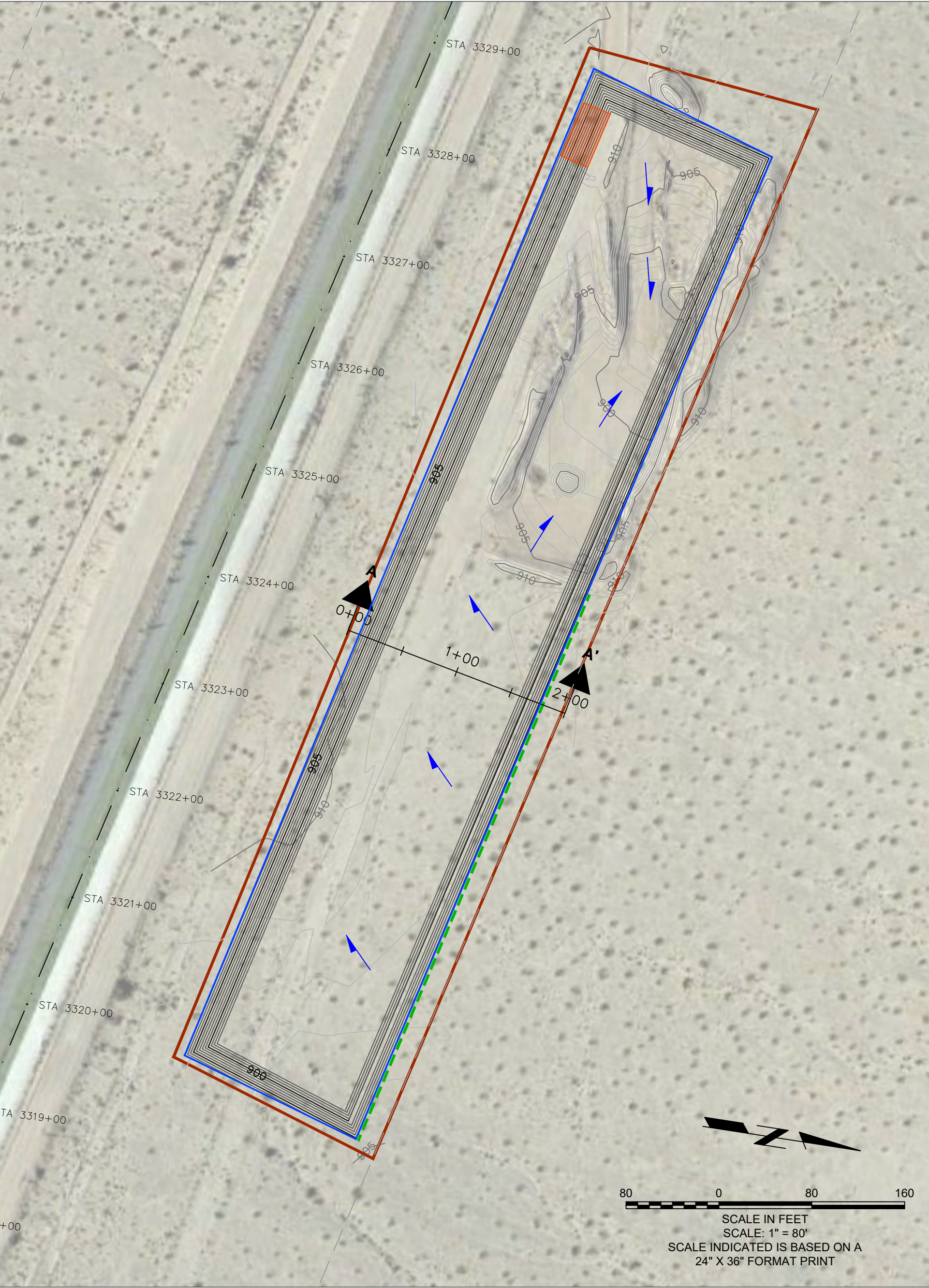
RECLAMATION NOTES:

PROJECTED END OF MINING: 2122

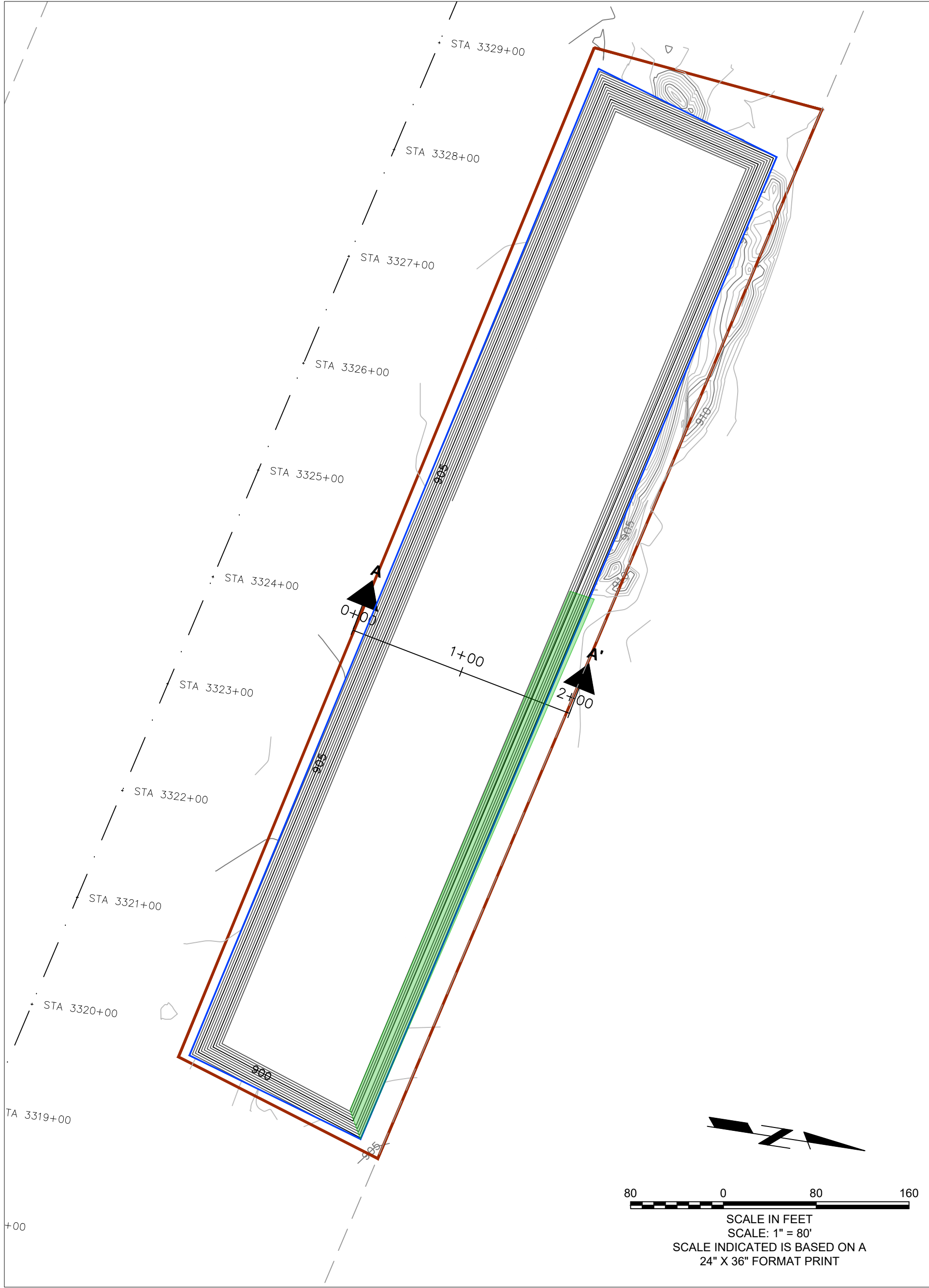
PROJECTED END OF RECLAMATION: 2127

END USE: RECLAIMED OPEN SPACE

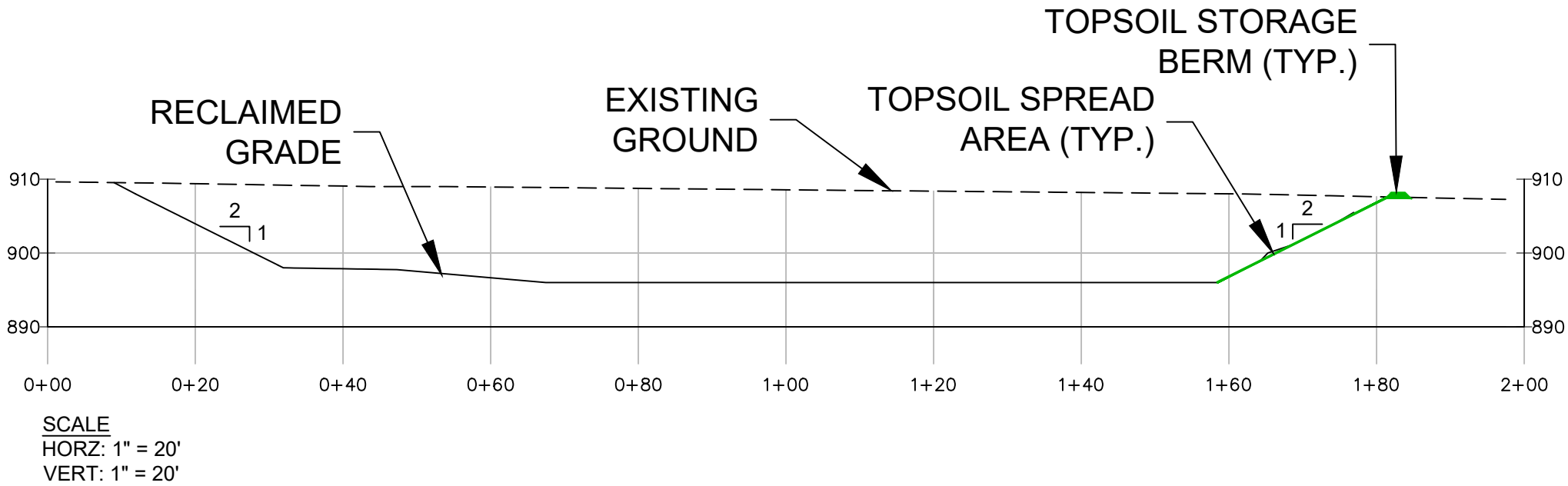
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MINE PLAN



RECLAMATION PLAN



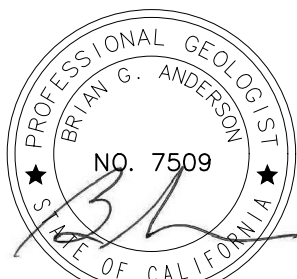
CROSS SECTION

SITE: SB-05

DATUM: HORZ= NAD83, CALIFORNIA ZONE 5, US FOOT
VERT= NAVD88

AERIAL: GOOGLE EARTH IMAGERY, DATED 02/16/16

TOPOGRAPHY: MWD SURVEYING TEAM (NICHOLAS ELLIS, PLS 9320 & ROBERT YOUNATHAN, PLS 9369), DRAWINGS B-170972 & B-170973 (JULY 2020), B-174404 & B-174405 (MARCH 2021)



BRIAN G. ANDERSON CA P.G. 7509 EXP. 03-31-2024



A. PEARCE SWERDFEGER R.C.E. 87486 EXP. 09-30-2023



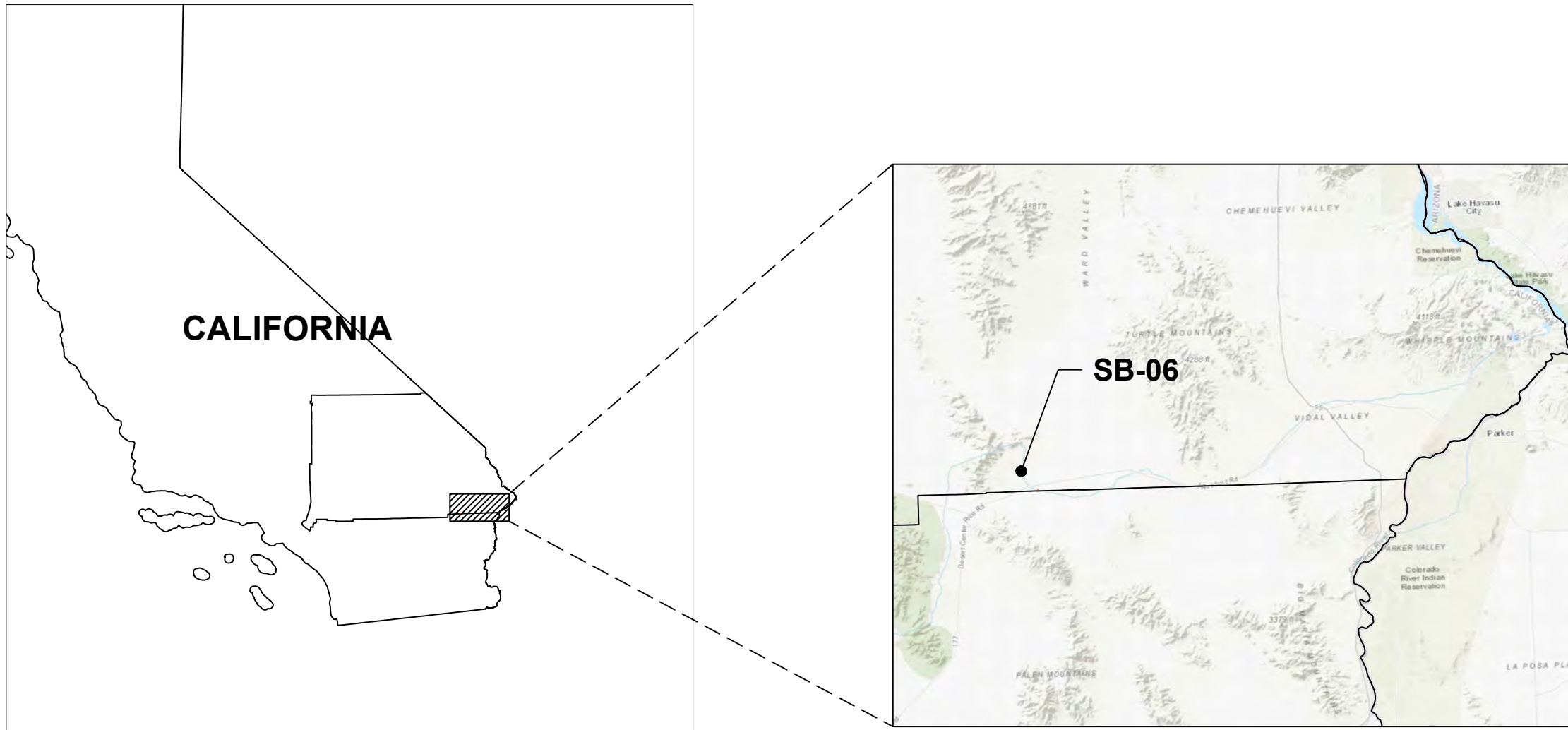
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374 POLI STREET, SUITE 200
VENTURA, CALIFORNIA 93001
(805) 275-1515

REVISIONS			
MARK	DATE	DESCRIPTION	BY
8/18/20		INITIAL DRAFT	GJC
12/06/21		MINOR EDIT TO LAYOUTS	GJC
01/16/22		MINOR EDIT TO LAYOUTS, REVISE PIT TO MEET SETBACK REQUIREMENTS	GJC
06/23/22		EDITS TO FIGURES PER CHANGE TO SMGB AS LEAD AGENCY	GJC
11/03/22		SB COUNTY SITE NUMBERING ADJ.	APS
REVIEWED BY:			
		DATE	
		DATE	

METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA	
SITE ID:	SB-05
MILE MARKER:	62+00
COUNTY:	SAN BERNARDINO
SCALE: HORZ: AS SHOWN VERT: AS SHOWN	FIGURE NUMBER
DRAWN BY: G CAMJUS	7
CHECKED BY: BGA / APS	



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SITE INFORMATION:

ASSESSORS PARCEL NUMBER(S) 0646-021-01-0000, 0646-021-12-0000

EASEMENTS: NO EXISTING EASEMENTS WITHIN THE MINING / RECLAMATION AREA

MINERAL BEING EXTRACTED: SAND AND GRAVEL

ADJACENT AREA: UNDEVELOPED OPEN SPACE

PROJECT AREA: EXISTING AGGREGATE BORROW PIT

UTILITIES: N/A - NO PUBLIC OR PRIVATE UTILITIES SERVICING THE OPERATION

GEOLOGIC DESCRIPTION:

QUATERNARY ALLUVIUM COMPRISED OF SAND AND POORLY SORTED SANDY GRAVEL OF ANGULAR AND SUBANGULAR CLASTS DERIVED FROM ADJACENT MOUNTAINS. THE DEPOSITS FORM ALLUVIAL FANS, WITH SURFACES COMMONLY CHARACTERIZED BY BARS AND SWALES. OLDER PARTS OF THE FANS CAN BE SLIGHTLY DISSECTED AND EXHIBIT LIGHTLY VARNISHED DESERT PAVEMENT. SOME DEPOSITS MAY LOCALLY INCLUDE A COMPONENT OF WINDBLOWN SAND.

REFERENCE:
HOWARD, K. A., 2002. GEOLOGIC MAP OF THE SHEEP HOLE MOUNTAINS 30' BY 60' MINUTE QUADRANGLE, SAN BERNARDINO AND RIVERSIDE COUNTIES, CALIFORNIA, U.S. GEOLOGICAL SURVEY GEOLOGIC INVESTIGATIONS SERIES I-2344, 2 SHEETS.

LEGEND:

--- MWD FEE-OWNED BOUNDARY LINES

--- MINING BOUNDARY

--- RECLAMATION BOUNDARY

--- SURFACE FLOW DIRECTION (APPROX.)

--- EXISTING CONTOURS

--- FINAL RECLAIMED CONTOURS

--- COLORADO RIVER AQUEDUCT CENTERLINE & ALIGNMENT

--- TOPSOIL STORAGE BERM (TYP.)

--- TOPSOIL SPREAD AREA (TYP.)

MINING NOTES:

- MINING IN THIS AREA IS CONDUCTED UNDER VESTED RIGHTS.
- NO PERMANENT STRUCTURES CURRENTLY EXIST OR ARE PROPOSED WITHIN THE MINING AREA.
- ACCESS TO THE MINING AREA WILL BE FROM THE EXISTING MWD CRA ACCESS AND MAINTENANCE ROADS.
- MINING WILL GENERALLY BE CONDUCTED IN A SINGLE PHASE.
- STOCKPILES OF RAW, MINED MATERIAL OR IMPORTED MATERIAL MAY BE STORED THROUGHOUT THE MINING AREA, AS NEEDED.
- NO WASTE DUMPS OR TAILING PONDS ARE ANTICIPATED.
- WHERE FEASIBLE, TOPSOIL WILL BE SALVAGED AND STOCKPILED IN A PERIMETER BERM FOR USE IN RECLAMATION.

RECLAMATION NOTES:

PROJECTED END OF MINING: 2122

PROJECTED END OF RECLAMATION: 2127

END USE: RECLAIMED OPEN SPACE

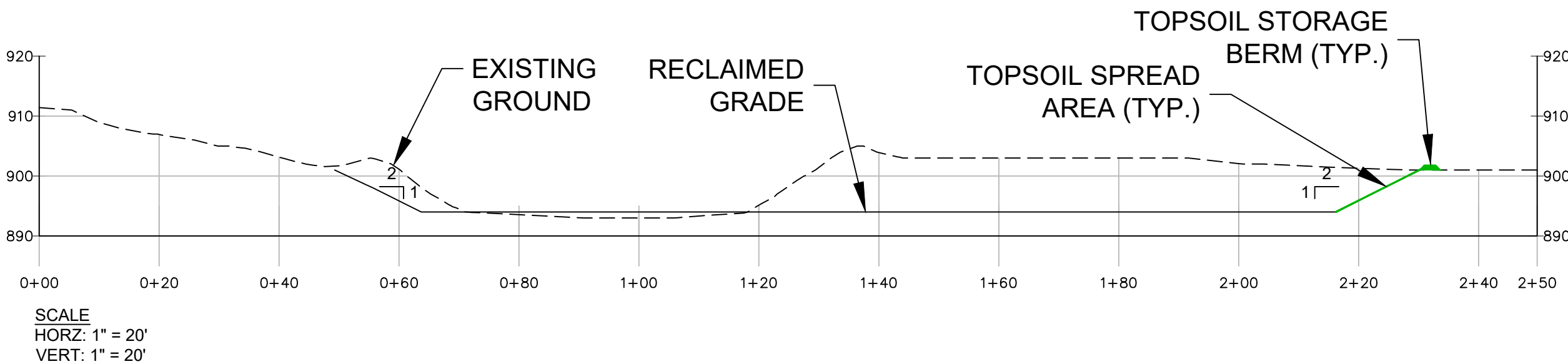
- RECLAMATION OF THE SITE WILL INCLUDE SITE CLEANUP, PUBLIC SAFETY MEASURES, DRAINAGE CONTROLS, RECONTOURING, RIPPING (WHERE APPLICABLE), REVEGETATION (UTILIZING NATIVE SPECIES), AND MONITORING AND MAINTENANCE.
- DATES SHOWN ABOVE ARE ESTIMATIONS, AND MAY CHANGE DEPENDING ON SITE CONDITIONS, MAINTENANCE ACTIVITIES AND FREQUENCY REQUIREMENTS.
- ONCE MINING OPERATIONS ARE COMPLETE, THE MINING AREA WILL BE RECLAIMED TO OPEN SPACE. ANY PERIMETER BERMS WILL BE DECONSTRUCTED AND REMAINING TOPSOIL (IF ANY) SPREAD ON SLOPES TO FACILITATE REVEGETATION.
- REVEGETATION ACTIVITIES WILL BE MONITORED BY A QUALIFIED REVEGETATION SPECIALIST. CHANGES TO REVEGETATION METHODS AND DEVELOPMENT OF POSSIBLE ALTERNATIVES TO ACHIEVE SMARA MINIMUM REVEGETATION STANDARDS WILL BE REVIEWED IN COORDINATION WITH CALIFORNIA STATE MINING AND GEOLOGY BOARD.
- RECLAMATION ACTIVITIES WILL NOT PRECLUDE ACCESS TO, OR MINING OF ANY AGGREGATE RESERVES REMAINING AFTER COMPLETION OF THE PROPOSED MINING ACTIVITIES.



MINE PLAN



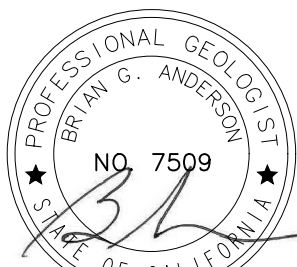
RECLAMATION PLAN



CROSS SECTION

SITE: SB-06

DATUM: HORZ= NAD83, CALIFORNIA ZONE 5, US FOOT
VERT= NAVD88
AERIAL: GOOGLE EARTH IMAGERY, DATED 02/06/16
TOPOGRAPHY: MWD SURVEYING TEAM (NICHOLAS ELLIS, PLS 9320), DRAWING B-170966, SEPTEMBER 2020



BRIAN G. ANDERSON CA P.G. 7509 EXP. 03-31-2024



A. PEARCE SWERDFEGER R.C.E. 87486 EXP. 09-30-2023



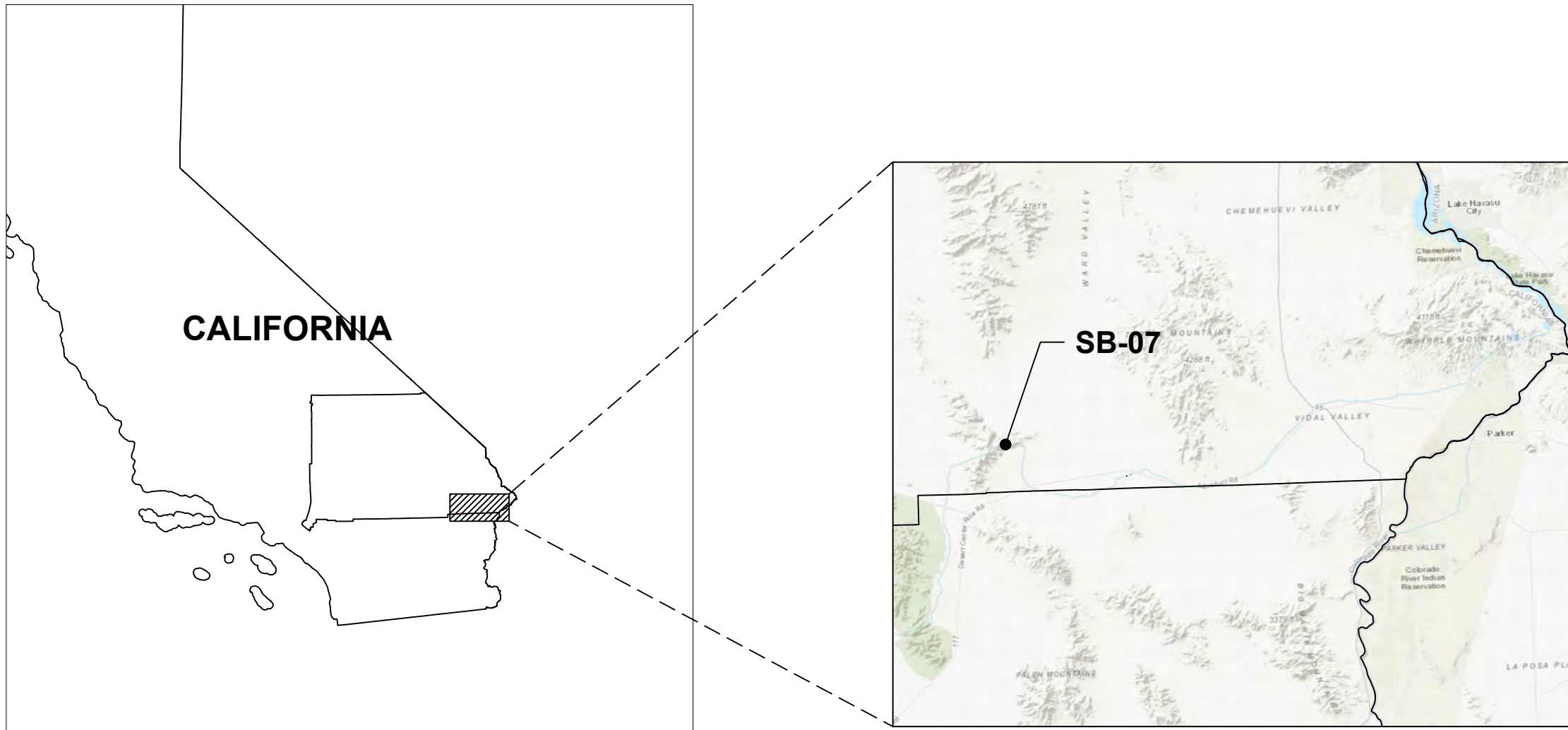
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LAND USE CONSULTANT
SESPE CONSULTING, INC.
374 POLI STREET, SUITE 200
VENTURA, CALIFORNIA 93001
(805) 275-1515

REVISIONS			
MARK	DATE	DESCRIPTION	BY
8/18/20		INITIAL DRAFT	GJC
12/06/21		MINOR EDIT TO LAYOUTS	GJC
01/16/22		MINOR EDIT TO LAYOUTS	GJC
06/23/22		EDITS TO FIGURES PER CHANGE TO SMGB AS LEAD AGENCY	GJC
11/03/22		SB COUNTY SITE NUMBERING ADJ.	APS
REVIEWED BY:			
		DATE	
		DATE	

METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA	
SITE ID:	SB-06
MILE MARKER:	64+80
COUNTY:	SAN BERNARDINO
SCALE: HORZ: AS SHOWN VERT: AS SHOWN	FIGURE NUMBER
DRAWN BY: G CAMUS CHECKED BY: BGA / APS	8



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SITE INFORMATION:

ASSESSORS PARCEL NUMBER(S) 0643-221-07-0000, 0643-221-21-0000

EASEMENTS: NO EXISTING EASEMENTS WITHIN THE MINING / RECLAMATION AREA

MINERAL BEING EXTRACTED: SAND AND GRAVEL; CRUSHED ROCK

ADJACENT AREA: UNDEVELOPED OPEN SPACE

PROJECT AREA: EXISTING AGGREGATE BORROW PIT

UTILITIES: N/A - NO PUBLIC OR PRIVATE UTILITIES SERVICING THE OPERATION

GEOLOGIC DESCRIPTION:

THE IRON MOUNTAINS FAULT AND RELATED SPLAYS IS INFERRED AS CROSS-CUTTING LATE PLEISTOCENE ALLUVIUM AND CRETACEOUS IGNEOUS ROCKS. THE ALLUVIUM IS CHARACTERIZED AS CONSISTING OF SANDY GRAVEL OF ANGULAR AND SUBANGULAR CLASTS DERIVED FROM ADJACENT MOUNTAINS. THESE DEPOSITS FORM PARTLY DISSECTED FANS, BENCHES, AND TERRACES, COMMONLY SURFACED BY DARK PAVEMENT OF VARNISHED STONES.

HOWARD (2002) HAS MAPPED THE CRETACEOUS IGNEOUS ROCK AS THE GRANITE PASS GRANITE, WHICH IS NAMED AFTER GRANITE PASS, LOCATED BETWEEN THE IRON AND GRANITE MOUNTAINS. PART OF THE GRANITE PASS PLUTON, IT IS DESCRIBED AS A COARSE-GRAINED, PORPHYRITIC MUSCOVITE-BIOTITE MONZOGRAHITE TO GRANODIORITE.

REFERENCE:

HOWARD, K. A. 2002. GEOLOGIC MAP OF THE SHEEP HOLE MOUNTAINS 30' BY 60' MINUTE QUADRANGLE, SAN BERNARDINO AND RIVERSIDE COUNTIES, CALIFORNIA, U.S. GEOLOGICAL SURVEY GEOLOGIC INVESTIGATIONS SERIES I-2344, 2 SHEETS.

LEGEND:

— MWD FEE-OWNED BOUNDARY LINES
— MINING BOUNDARY
— RECLAMATION BOUNDARY
— SURFACE FLOW DIRECTION (APPROX.)
— EXISTING CONTOURS
— FINAL RECLAIMED CONTOURS
— COLORADO RIVER AQUEDUCT CENTERLINE & ALIGNMENT

MINING NOTES:

- MINING IN THIS AREA IS CONDUCTED UNDER VESTED RIGHTS.
- NO PERMANENT STRUCTURES CURRENTLY EXIST OR ARE PROPOSED WITHIN THE MINING AREA.
- ACCESS TO THE MINING AREA WILL BE FROM THE EXISTING MWD CRA ACCESS AND MAINTENANCE ROADS.
- MINING WILL GENERALLY BE CONDUCTED IN A SINGLE PHASE.
- STOCKPILES OF RAW, MINED MATERIAL OR IMPORTED MATERIAL MAY BE STORED THROUGHOUT THE MINING AREA, AS NEEDED.
- NO WASTE DUMPS OR TAILING PONDS ARE ANTICIPATED.
- WHERE FEASIBLE, TOPSOIL WILL BE SALVAGED AND STOCKPILED IN A PERIMETER BERM FOR USE IN RECLAMATION.

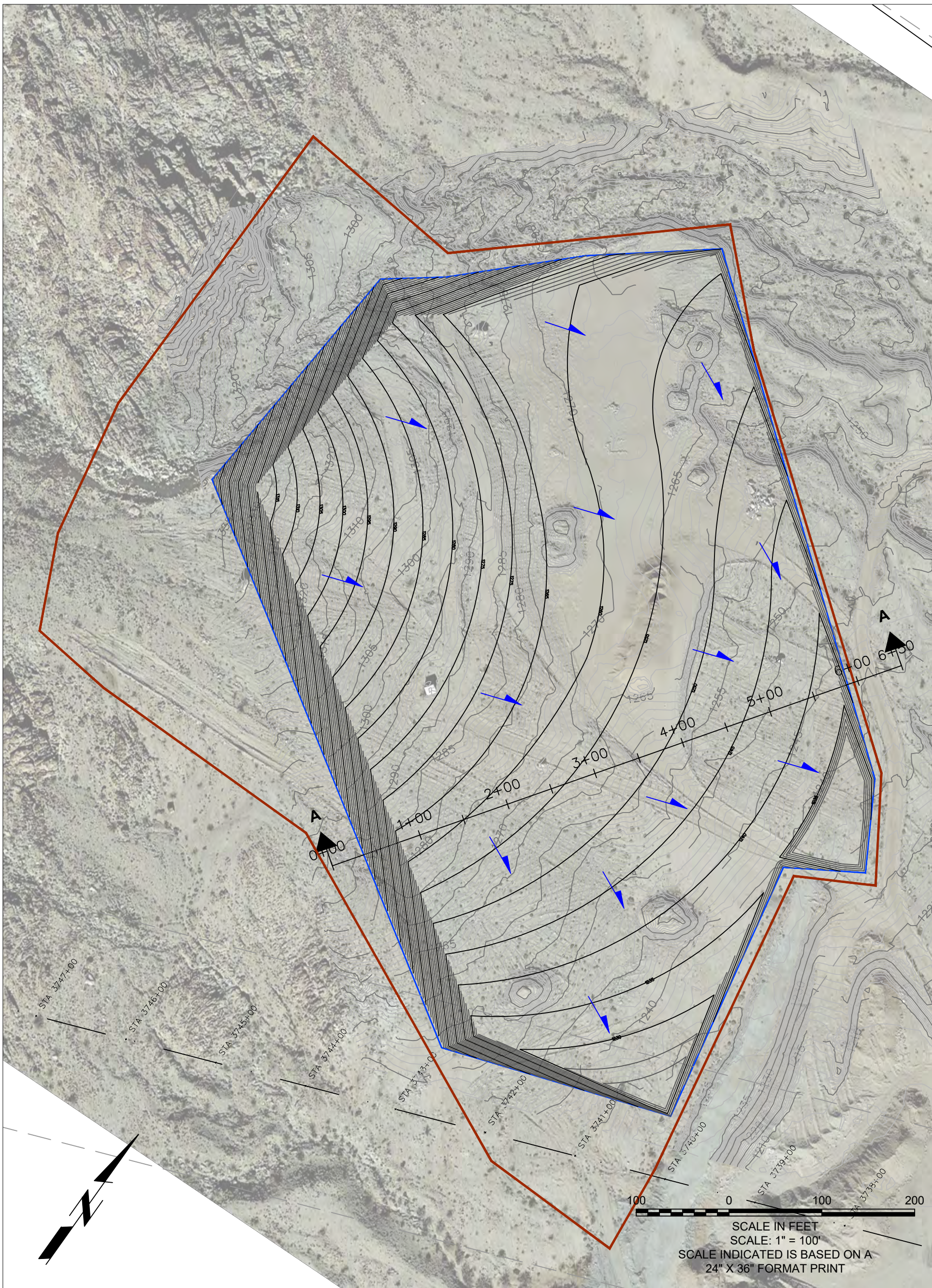
RECLAMATION NOTES:

PROJECTED END OF MINING: 2122

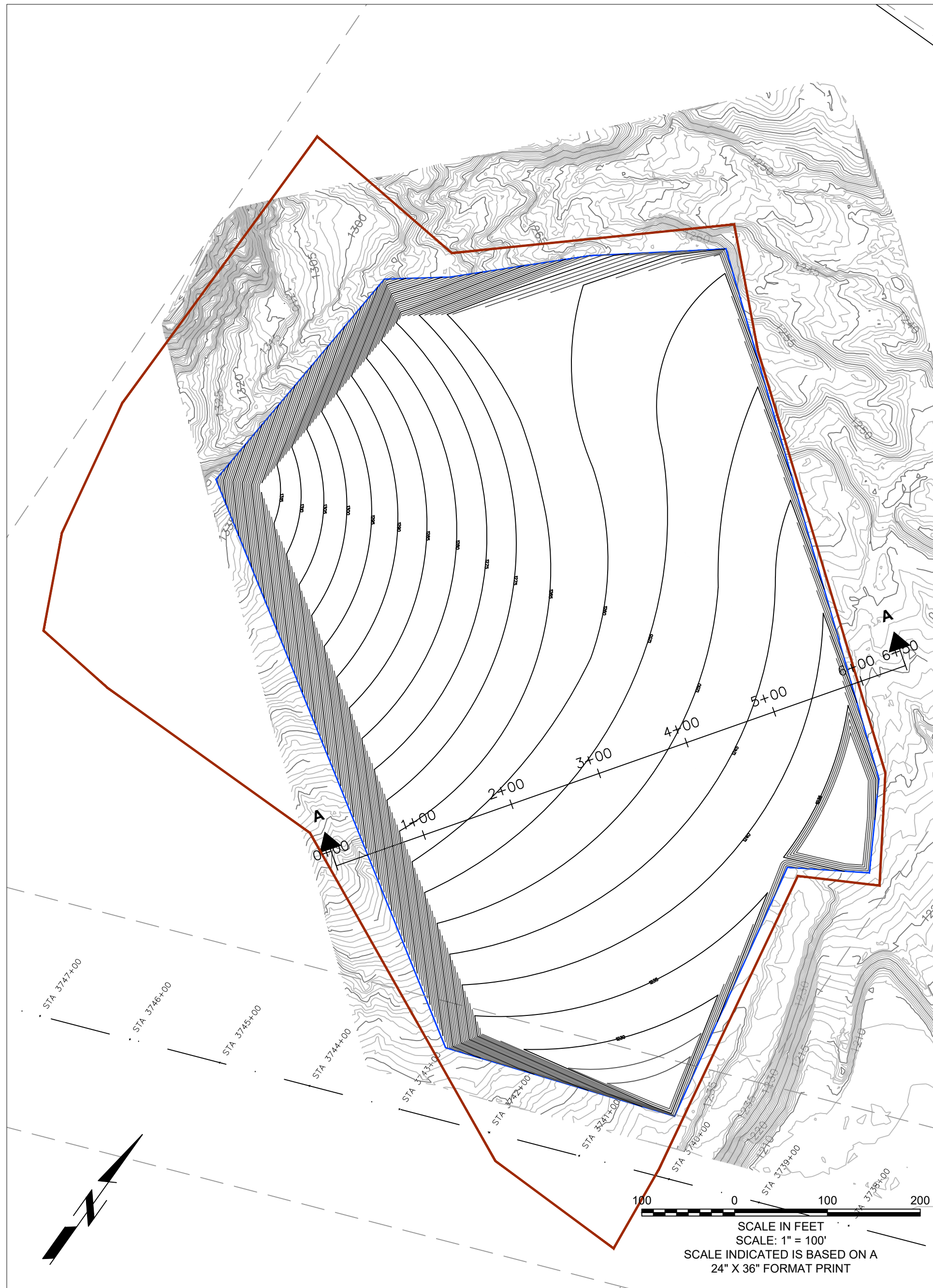
PROJECTED END OF RECLAMATION: 2127

END USE: RECLAIMED OPEN SPACE

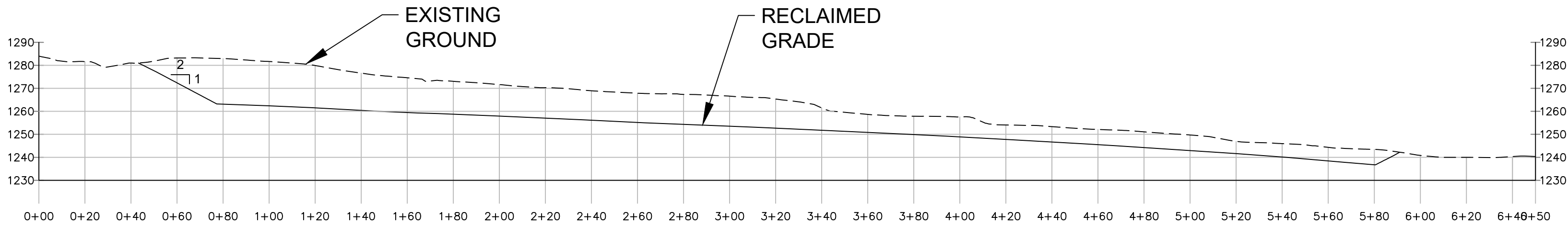
- RECLAMATION OF THE SITE WILL INCLUDE SITE CLEANUP, PUBLIC SAFETY MEASURES, DRAINAGE CONTROLS, RECONTOURING, RIPPING (WHERE APPLICABLE), REVEGETATION (UTILIZING NATIVE SPECIES), AND MONITORING AND MAINTENANCE.
- DATES SHOWN ABOVE ARE ESTIMATIONS, AND MAY CHANGE DEPENDING ON SITE CONDITIONS, MAINTENANCE ACTIVITIES AND FREQUENCY REQUIREMENTS.
- ONCE MINING OPERATIONS ARE COMPLETE, THE MINING AREA WILL BE RECLAIMED TO OPEN SPACE. ANY PERIMETER BERMS WILL BE DECONSTRUCTED AND REMAINING TOPSOIL (IF ANY) SPREAD ON SLOPES TO FACILITATE REVEGETATION.
- REVEGETATION ACTIVITIES WILL BE MONITORED BY A QUALIFIED REVEGETATION SPECIALIST. CHANGES TO REVEGETATION METHODS AND DEVELOPMENT OF POSSIBLE ALTERNATIVES TO ACHIEVE SMARA MINIMUM REVEGETATION STANDARDS WILL BE REVIEWED IN COORDINATION WITH CALIFORNIA STATE MINING AND GEOLOGY BOARD.
- RECLAMATION ACTIVITIES WILL NOT PRECLUDE ACCESS TO, OR MINING OF ANY AGGREGATE RESERVES REMAINING AFTER COMPLETION OF THE PROPOSED MINING ACTIVITIES.



MINE PLAN



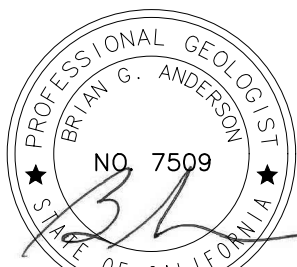
RECLAMATION PLAN



CROSS SECTION

SITE: SB-07

DATUM: HORZ= NAD83, CALIFORNIA ZONE 5, US FOOT
VERT= NAVD88
AERIAL: GOOGLE EARTH IMAGERY, DATED 02/06/16
TOPOGRAPHY: MWD SURVEYING TEAM (NICHOLAS ELLIS, PLS 9320), DRAWING B-171033, OCTOBER 2020



BRIAN G. ANDERSON CA P.G. 7509 EXP. 03-31-2024



A. PEARCE SWERDFEGER R.C.E. 87486 EXP. 09-30-2023



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LAND USE CONSULTANT
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374 POLI STREET, SUITE 200
VENTURA, CALIFORNIA 93001
(805) 275-1515

REVISIONS			
MARK	DATE	DESCRIPTION	BY
8/18/20		INITIAL DRAFT	GJC
12/06/21		MINOR EDIT TO LAYOUTS	GJC
01/16/22		MINOR EDIT TO LAYOUTS	GJC
06/23/22		EDITS TO FIGURES PER CHANGE TO SMGB AS LEAD AGENCY	GJC
11/03/22		SB COUNTY SITE NUMBERING ADJ.	APS
REVIEWED BY:			
		DATE	
		DATE	

METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA	
SITE ID:	SB-07
MILE MARKER:	69+61
COUNTY:	SAN BERNARDINO
SCALE:	HORIZ: AS SHOWN VERT: AS SHOWN
DRAWN BY:	G. CAMUS
CHECKED BY:	BGA / APS
FIGURE NUMBER	9



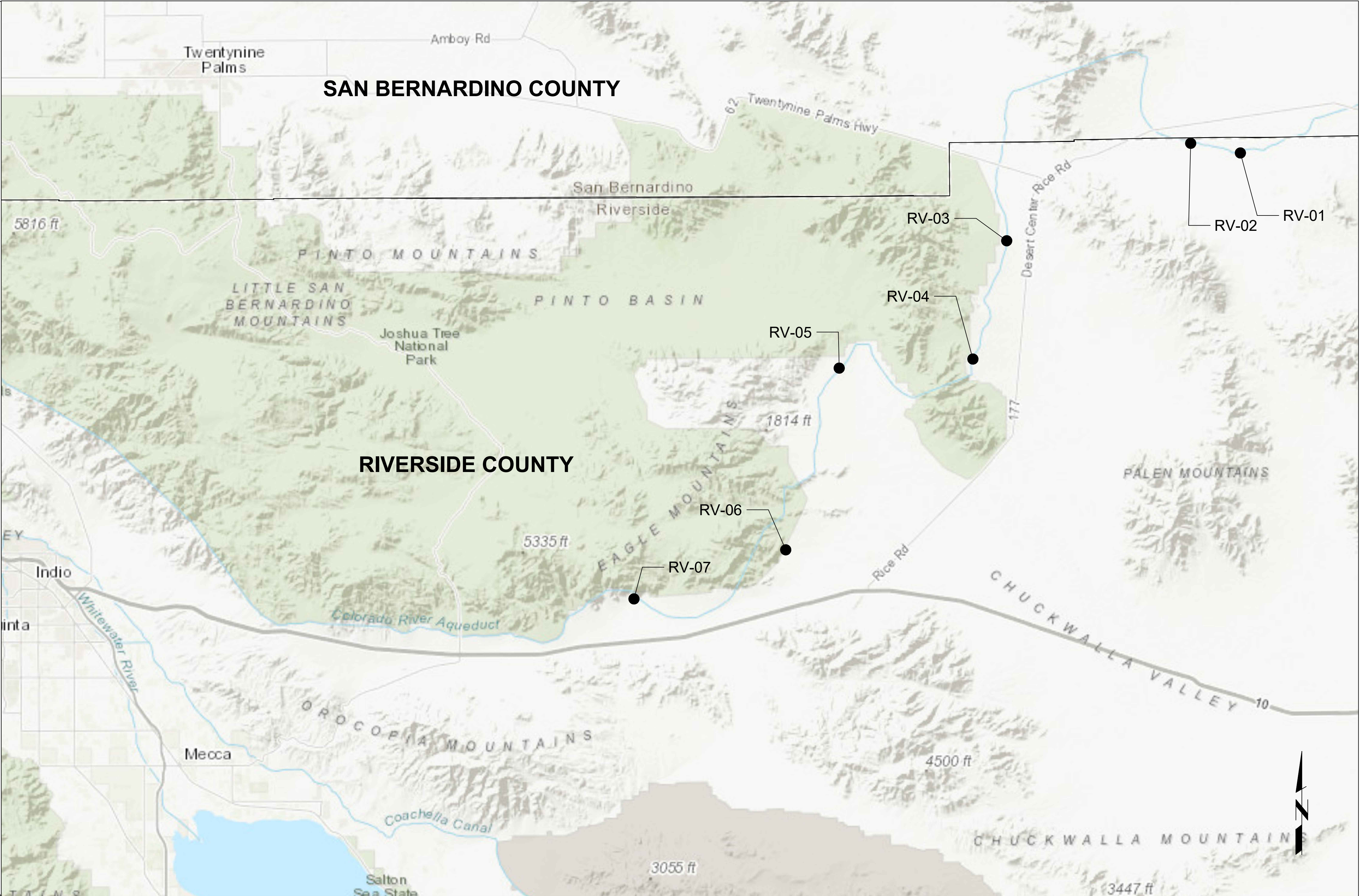
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GENERAL INFORMATION:

MINERAL COMMODITY:	SAND AND GRAVEL; CRUSHED ROCK
APPLICANT: OPERATOR: FEE LAND OWNER:	METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA 700 NORTH ALAMEDA STREET LOS ANGELES, CALIFORNIA 90012 (213) 217-6000
MINERAL RIGHTS OF FEE LAND:	METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA 700 NORTH ALAMEDA STREET LOS ANGELES, CALIFORNIA 90012 (213) 217-6000
OWNER OF MINING LAND:	METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA 700 NORTH ALAMEDA STREET LOS ANGELES, CALIFORNIA 90012 (213) 217-6000
PLAN DESIGN:	SESPE CONSULTING, INC. 374 POLI STREET, SUITE 200 VENTURA, CALIFORNIA 93001 (805) 275-1515



18,000 0 18,000 36,000
SCALE IN FEET
SCALE: 1" = 18,000'
SCALE INDICATED IS BASED ON A
24" X 36" FORMAT PRINT

RIVERSIDE COUNTY OVERVIEW

DATUM: HORZ= NAD83, CALIFORNIA ZONE 6, US FOOT
 VERT= NAVD88
BASEMAP: ESRI, 2021



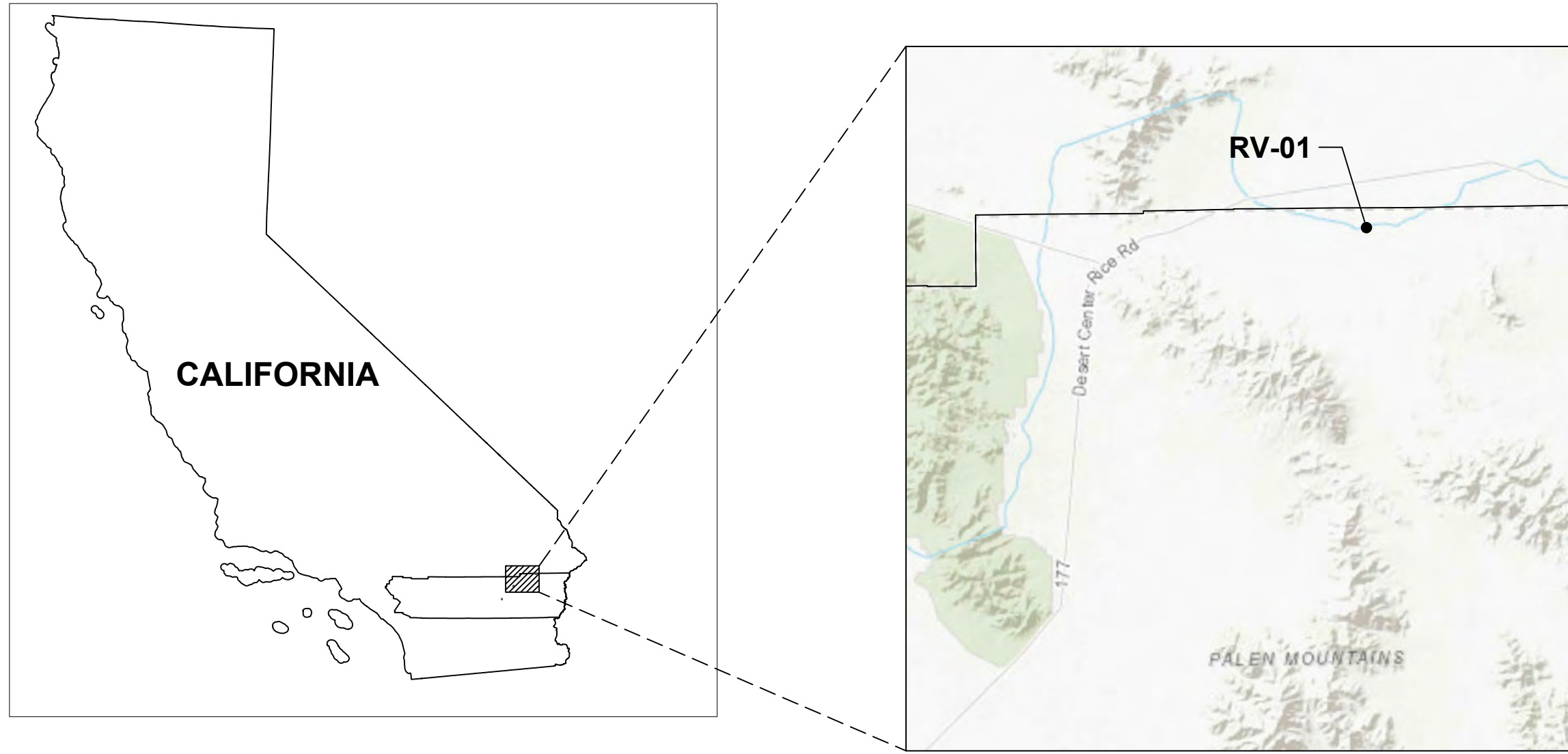
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OWNER / APPLICANT
METROPOLITAN WATER DISTRICT OF
SOUTHERN CALIFORNIA
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LOS ANGELES, CALIFORNIA 90012

LAND USE CONSULTANT
SESPE CONSULTING, INC.
374 POLI STREET, SUITE 200
VENTURA, CALIFORNIA 93001
(805) 275-1515

REVISIONS			
MARK	DATE	DESCRIPTION	BY
	11/02/21	INITIAL DRAFT	GJC
	12/06/21	MINOR EDIT TO LAYOUTS	GJC
	01/16/22	MINOR EDIT TO LAYOUTS	GJC
	06/23/22	EDITS TO FIGURES PER CHANGE TO SMB3 AS LEAD AGENCY	GJC
REVIEWED BY:			
	DATE		
	DATE		

METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA	
SITE ID:	N/A
MILE MARKER:	N/A
COUNTY:	RIVERSIDE
SCALE: HORIZ: _____ AS SHOWN VERT: _____ AS SHOWN	FIGURE NUMBER 10
DRAWN BY: G CAMUS CHECKED BY: BGA / APS	



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SITE INFORMATION:

ASSESSORS PARCEL NUMBER(S) 800-130-019

EASEMENTS: NO EXISTING EASEMENTS WITHIN THE MINING / RECLAMATION AREA

MINERAL BEING EXTRACTED: SAND AND GRAVEL

ADJACENT AREA: UNDEVELOPED OPEN SPACE

PROJECT AREA: EXISTING AGGREGATE BORROW PIT

UTILITIES: N/A - NO PUBLIC OR PRIVATE UTILITIES SERVICING THE OPERATION

GEOLOGIC DESCRIPTION:

QUATERNARY ALLUVIUM COMPRISED OF SAND AND POORLY SORTED SANDY GRAVEL OF ANGULAR AND SUBANGULAR CLASTS DERIVED FROM ADJACENT MOUNTAINS. THE DEPOSITS FORM ALLUVIAL FANS, WITH SURFACES COMMONLY CHARACTERIZED BY BARS AND SWALES. OLDER PARTS OF THE FANS CAN BE SLIGHTLY DISSECTED AND EXHIBIT LIGHTLY VARNISHED DESERT PAVEMENT. SOME DEPOSITS MAY LOCALLY INCLUDE A COMPONENT OF WINDBLOWN SAND.

REFERENCE:

HOWARD, K. A., 2002. GEOLOGIC MAP OF THE SHEEP HOLE MOUNTAINS 30' BY 60' MINUTE QUADRANGLE, SAN BERNARDINO AND RIVERSIDE COUNTIES, CALIFORNIA, U.S. GEOLOGICAL SURVEY GEOLOGIC INVESTIGATIONS SERIES I-2344, 2 SHEETS.

MINING NOTES:

- MINING IN THIS AREA IS CONDUCTED UNDER VESTED RIGHTS.
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LEGEND:

- MWD FEE-OWNED BOUNDARY LINES
- MINING BOUNDARY
- RECLAMATION BOUNDARY
- SURFACE FLOW DIRECTION (APPROX.)
- EXISTING CONTOURS
- FINAL RECLAIMED CONTOURS
- COLORADO RIVER AQUEDUCT CENTERLINE & ALIGNMENT
- TOPSOIL STORAGE BERM (TYP.)
- TOPSOIL SPREAD AREA (TYP.)

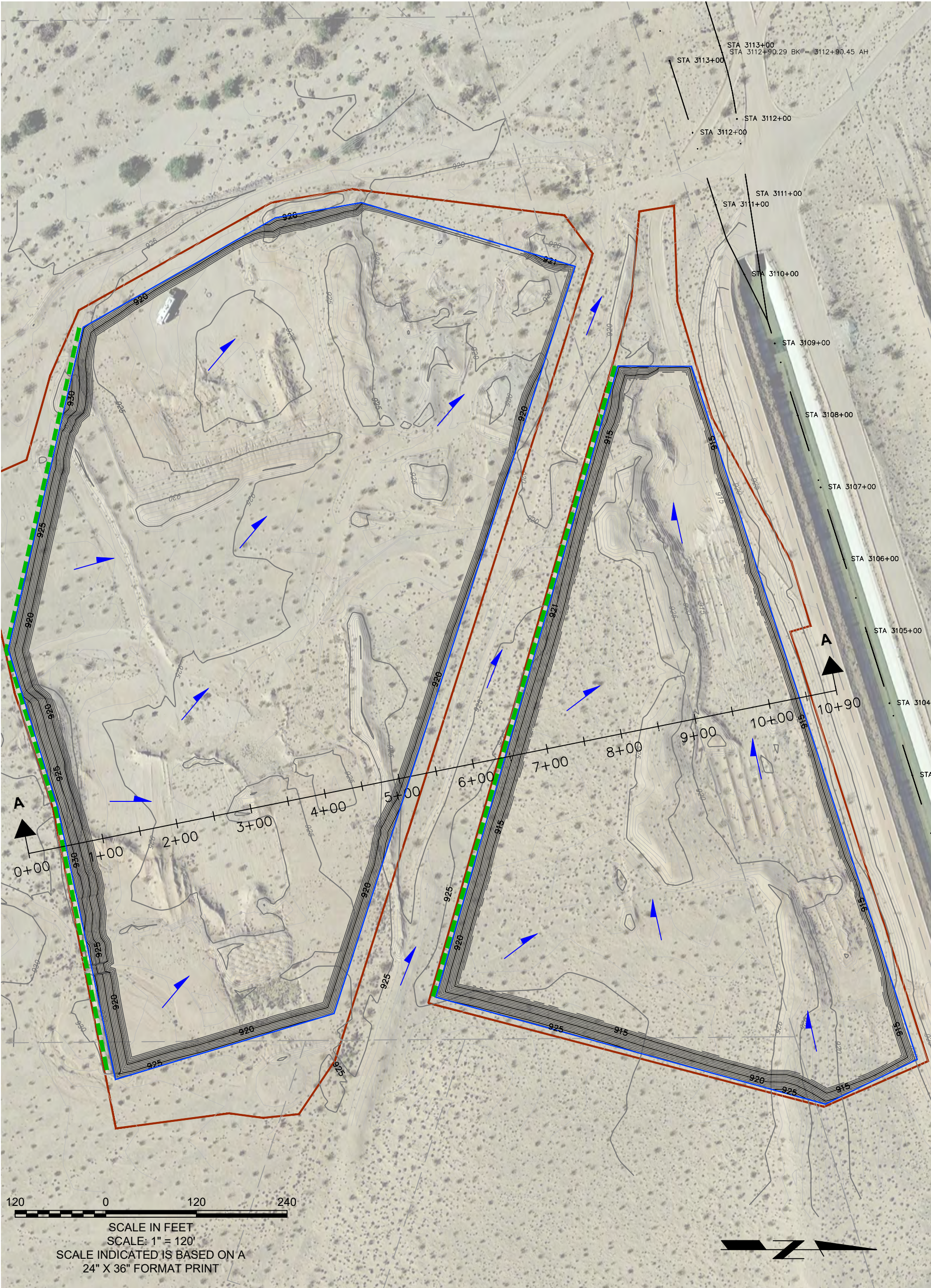
RECLAMATION NOTES:

PROJECTED END OF MINING: 2122

PROJECTED END OF RECLAMATION: 2127

END USE: RECLAIMED OPEN SPACE

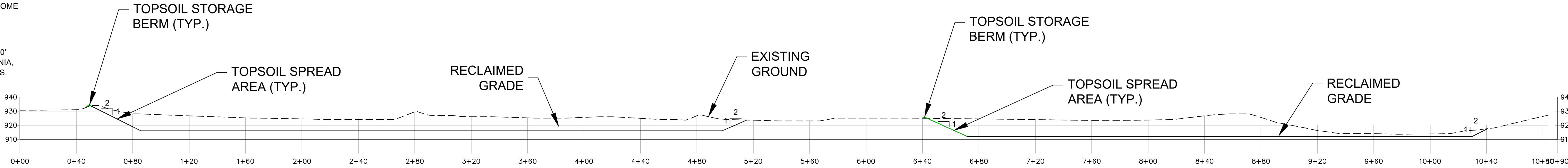
- RECLAMATION OF THE SITE WILL INCLUDE SITE CLEANUP, PUBLIC SAFETY MEASURES, DRAINAGE CONTROLS, RECONTOURING, RIPPING (WHERE APPLICABLE), REVEGETATION (UTILIZING NATIVE SPECIES), AND MONITORING AND MAINTENANCE DATES SHOWN ABOVE ARE ESTIMATIONS, AND MAY CHANGE DEPENDING ON SITE CONDITIONS, MAINTENANCE ACTIVITIES AND FREQUENCY REQUIREMENTS.
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- RECLAMATION ACTIVITIES WILL NOT PRECLUDE ACCESS TO, OR MINING OF ANY AGGREGATE RESERVES REMAINING AFTER COMPLETION OF THE PROPOSED MINING ACTIVITIES.



MINE PLAN



RECLAMATION PLAN



CROSS SECTION

SITE: RV-01

DATUM: HORZ= NAD83, CALIFORNIA ZONE 5, US FOOT
VERT= NAVD88
AERIAL: GOOGLE EARTH IMAGERY, DATED 02/06/16
TOPOGRAPHY: MWD SURVEYING TEAM (NICHOLAS ELLIS, PLS 9320), DRAWINGS B-174364 & B-174365, OCTOBER 2020



BRIAN G. ANDERSON CA P.G. 7599 EXP. 03-31-2024



A. PEARCE SWERDFEGER R.C.E. 87466 EXP. 09-30-2023



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700 NORTH ALAMEDA STREET
LOS ANGELES, CALIFORNIA 90012

LAND USE CONSULTANT
SESPE CONSULTING, INC.
374 POLI STREET, SUITE 200
VENTURA, CALIFORNIA 93001
(805) 275-1515

REVISIONS			
MARK	DATE	DESCRIPTION	BY
8/18/20		INITIAL DRAFT	GJC
12/06/21		MINOR EDIT TO LAYOUTS	GJC
01/16/22		MINOR EDIT TO LAYOUTS	GJC
06/23/22		EDITS TO FIGURES PER CHANGE TO SMGB AS LEAD AGENCY	GJC
REVIEWED BY:			
	DATE		
	DATE		

METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA	
SITE ID: RV-01	FIGURE NUMBER
MILE MARKER: 57+80	11
COUNTY: RIVERSIDE	
SCALE: HORZ: AS SHOWN VERT: AS SHOWN	CHECKED BY: BGA / APS



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SITE INFORMATION:

ASSESSORS PARCEL NUMBER(S) 800-120-004

EASEMENTS: NO EXISTING EASEMENTS WITHIN THE MINING / RECLAMATION AREA

MINERAL BEING EXTRACTED: SAND AND GRAVEL

ADJACENT AREA: UNDEVELOPED OPEN SPACE

PROJECT AREA: EXISTING AGGREGATE BORROW PIT

UTILITIES: N/A - NO PUBLIC OR PRIVATE UTILITIES SERVICING THE OPERATION

GEOLOGIC DESCRIPTION:

QUATERNARY ALLUVIUM COMPRISED OF SAND AND POORLY SORTED SANDY GRAVEL OF ANGULAR AND SUBANGULAR CLASTS DERIVED FROM ADJACENT MOUNTAINS. THE DEPOSITS FORM ALLUVIAL FANS, WITH SURFACES COMMONLY CHARACTERIZED BY BARS AND SWALES. OLDER PARTS OF THE FANS CAN BE SLIGHTLY DISSECTED AND EXHIBIT LIGHTLY VARNISHED DESERT PAVEMENT. SOME DEPOSITS MAY LOCALLY INCLUDE A COMPONENT OF WINDBLOWN SAND.

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LEGEND:

--- MWD FEE-OWNED BOUNDARY LINES

--- MINING BOUNDARY

--- RECLAMATION BOUNDARY

--- SURFACE FLOW DIRECTION (APPROX.)

--- EXISTING CONTOURS

--- FINAL RECLAIMED CONTOURS

--- COLORADO RIVER AQUEDUCT CENTERLINE & ALIGNMENT

--- TOPSOIL STORAGE BERM (TYP.)

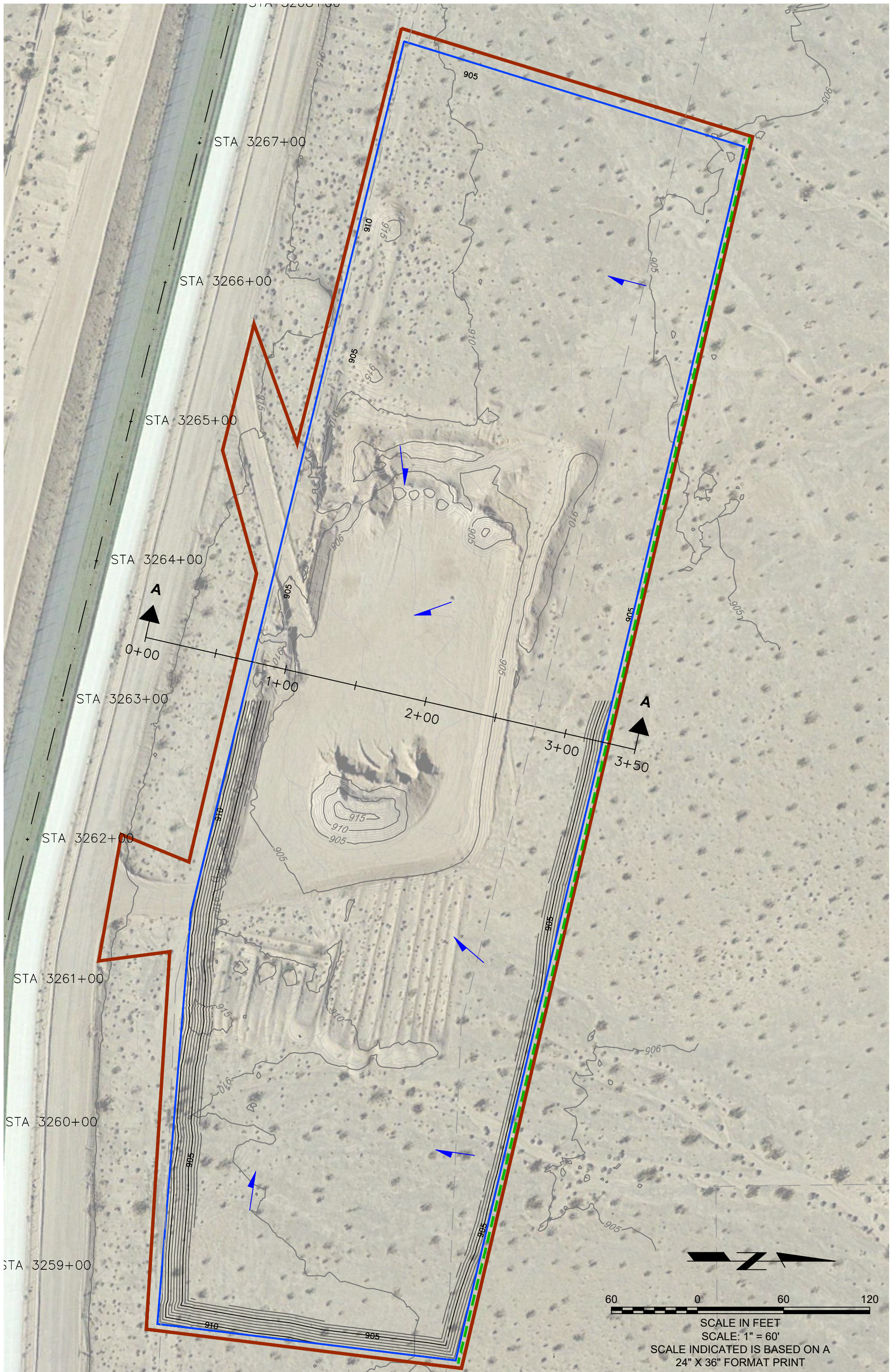
--- TOPSOIL SPREAD AREA (TYP.)

MINING NOTES:

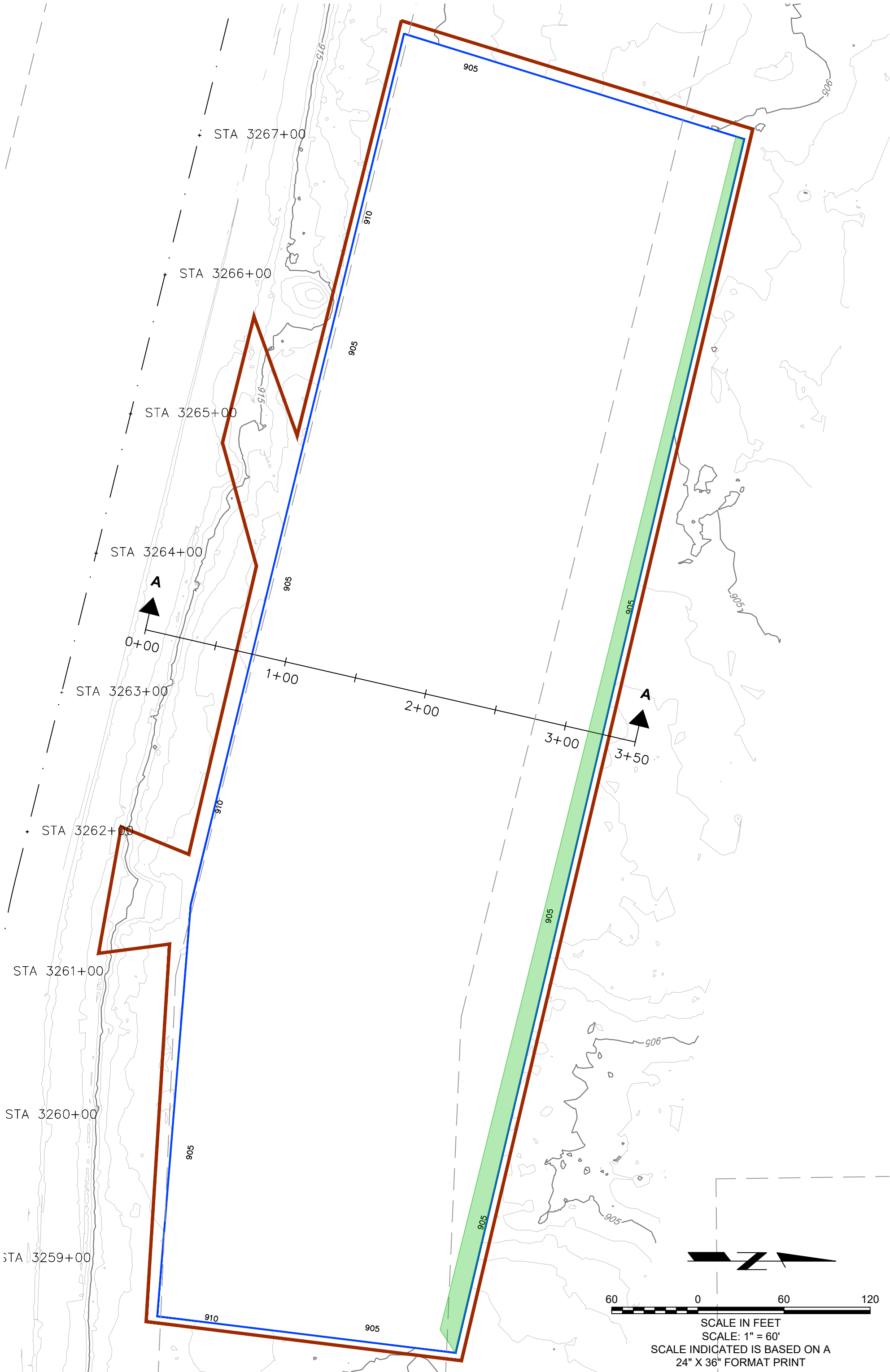
- MINING IN THIS AREA IS CONDUCTED UNDER VESTED RIGHTS.
- NO PERMANENT STRUCTURES CURRENTLY EXIST OR ARE PROPOSED WITHIN THE MINING AREA.
- ACCESS TO THE MINING AREA WILL BE FROM THE EXISTING MWD CRA ACCESS AND MAINTENANCE ROADS.
- MINING WILL GENERALLY BE CONDUCTED IN A SINGLE PHASE.
- STOCKPILES OF RAW, MINED MATERIAL OR IMPORTED MATERIAL MAY BE STORED THROUGHOUT THE MINING AREA, AS NEEDED.
- NO WASTE DUMPS OR TAILING PONDS ARE ANTICIPATED.
- WHERE FEASIBLE, TOPSOIL WILL BE SALVAGED AND STOCKPILED IN A PERIMETER BERM FOR USE IN RECLAMATION.

RECLAMATION NOTES:

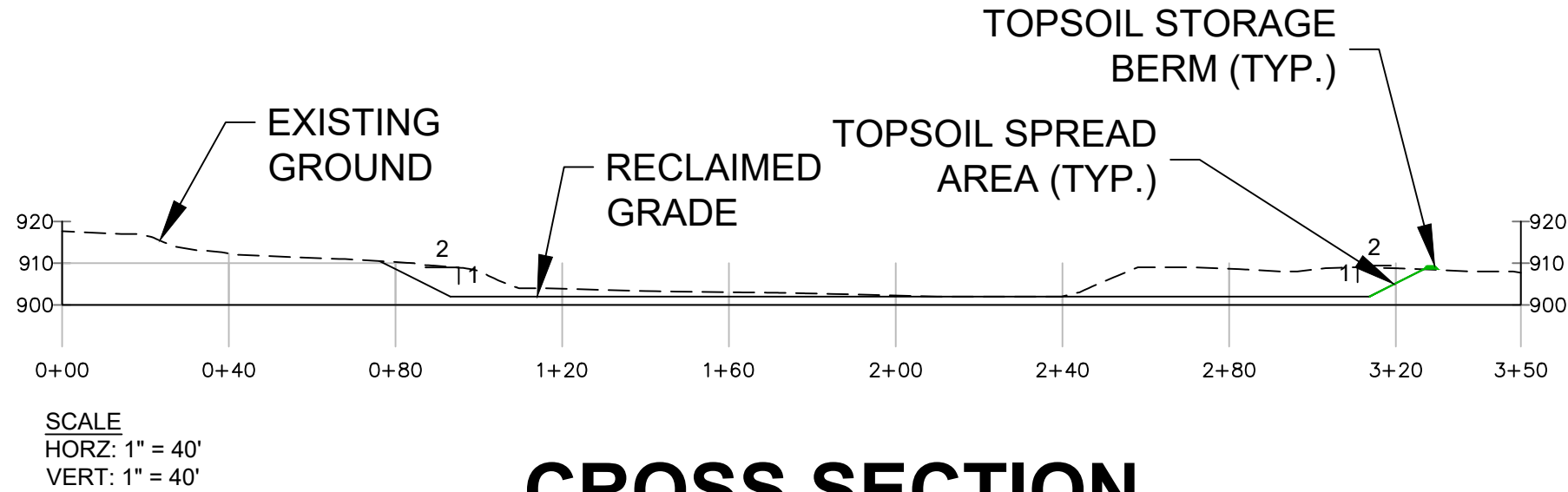
- PROJECTED END OF MINING:** 2122
- PROJECTED END OF RECLAMATION:** 2127
- END USE:** RECLAIMED OPEN SPACE
- RECLAMATION OF THE SITE WILL INCLUDE SITE CLEANUP, PUBLIC SAFETY MEASURES, DRAINAGE CONTROLS, RECONTOURING, RIPPING (WHERE APPLICABLE), REVEGETATION (UTILIZING NATIVE SPECIES), AND MONITORING AND MAINTENANCE.
 - DATES SHOWN ABOVE ARE ESTIMATIONS, AND MAY CHANGE DEPENDING ON SITE CONDITIONS, MAINTENANCE ACTIVITIES AND FREQUENCY REQUIREMENTS.
 - ONCE MINING OPERATIONS ARE COMPLETE, THE MINING AREA WILL BE RECLAIMED TO OPEN SPACE. ANY PERIMETER BERMS WILL BE DECONSTRUCTED AND REMAINING TOPSOIL (IF ANY) SPREAD ON SLOPES TO FACILITATE REVEGETATION.
 - REVEGETATION ACTIVITIES WILL BE MONITORED BY A QUALIFIED REVEGETATION SPECIALIST. CHANGES TO REVEGETATION METHODS AND DEVELOPMENT OF POSSIBLE ALTERNATIVES TO ACHIEVE SMARA MINIMUM REVEGETATION STANDARDS WILL BE REVIEWED IN COORDINATION WITH CALIFORNIA STATE MINING AND GEOLOGY BOARD.
 - RECLAMATION ACTIVITIES WILL NOT PRECLUDE ACCESS TO, OR MINING OF ANY AGGREGATE RESERVES REMAINING AFTER COMPLETION OF THE PROPOSED MINING ACTIVITIES.



MINE PLAN



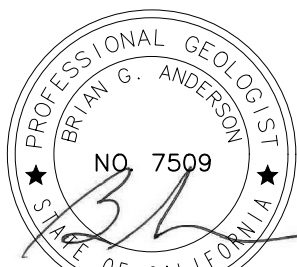
RECLAMATION PLAN



CROSS SECTION

SITE: RV-02

DATUM: HORZ= NAD83, CALIFORNIA ZONE 5, US FOOT
VERT= NAVD88
AERIAL: GOOGLE EARTH IMAGERY, DATED 02/06/16
TOPOGRAPHY: MWD SURVEYING TEAM (NICHOLAS ELLIS, PLS 9320), DRAWING B-171015, AUGUST 2020



BRIAN G. ANDERSON CA P.G. 7509 EXP: 03-31-2024



A. PEARCE SWERDFEGER R.C.E. 87466 EXP: 09-30-2023



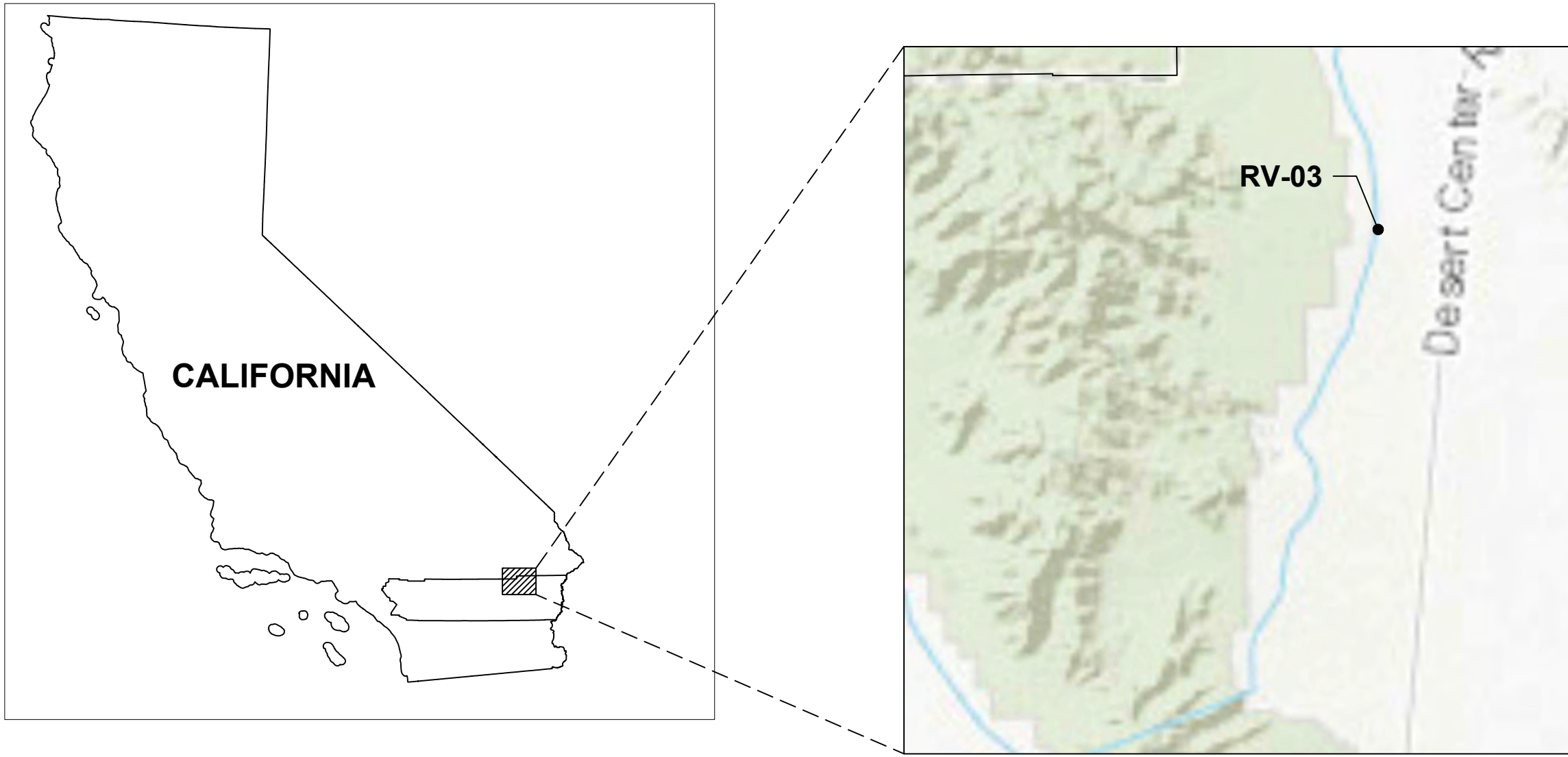
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700 NORTH ALAMEDA STREET
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LAND USE CONSULTANT
SESPE CONSULTING, INC.
374 POLI STREET, SUITE 200
VENTURA, CALIFORNIA 93001
(805) 275-1515

REVISIONS			
MARK	DATE	DESCRIPTION	BY
8/18/20		INITIAL DRAFT	GJC
12/06/21		MINOR EDIT TO LAYOUTS	GJC
01/16/22		MINOR EDIT TO LAYOUTS	GJC
06/23/22		EDITS TO FIGURES PER CHANGE TO SAM38 AS LEAD AGENCY	GJC
REVIEWED BY:			
	DATE		
	DATE		

METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA	
SITE ID:	RV-02
MILE MARKER:	60+90
COUNTY:	RIVERSIDE
SCALE:	HORIZ: AS SHOWN VERT: AS SHOWN
DRAWN BY:	G. CAMUS
CHECKED BY:	BGA / APS
FIGURE NUMBER	12



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FIGURE 13: RV-03
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FIGURE 15: RV-05
FIGURE 16: RV-06
FIGURE 17: RV-07

SITE INFORMATION:

ASSESSORS PARCEL NUMBER(S) 800-040-033

EASEMENTS: NO EXISTING EASEMENTS WITHIN THE MINING / RECLAMATION AREA

MINERAL BEING EXTRACTED: SAND AND GRAVEL

ADJACENT AREA: UNDEVELOPED OPEN SPACE

PROJECT AREA: EXISTING AGGREGATE BORROW PIT

UTILITIES: N/A - NO PUBLIC OR PRIVATE UTILITIES SERVICING THE OPERATION

GEOLOGIC DESCRIPTION:

QUATERNARY SAND DUNE AND SAND SHEET DEPOSITS AND ALLUVIAL BASIN FILL MATERIAL. THE AEOLIAN DEPOSITS LOCALLY INTERFINGER WITH YOUNGER ALLUVIUM.

REFERENCE:
HOWARD, K. A., 2002. GEOLOGIC MAP OF THE SHEEP HOLE MOUNTAINS 30' BY 60' MINUTE QUADRANGLE, SAN BERNARDINO AND RIVERSIDE COUNTIES, CALIFORNIA, U.S. GEOLOGICAL SURVEY GEOLOGIC INVESTIGATIONS SERIES I-2344, 2 SHEETS.

LEGEND:

- MWD FEE-OWNED BOUNDARY LINES
- MINING BOUNDARY
- RECLAMATION BOUNDARY
- SURFACE FLOW DIRECTION (APPROX.)
- EXISTING CONTOURS
- FINAL RECLAIMED CONTOURS
- COLORADO RIVER AQUEDUCT CENTERLINE & ALIGNMENT
- TOPSOIL STORAGE BERM (TYP.)
- TOPSOIL SPREAD AREA (TYP.)

MINING NOTES:

- MINING IN THIS AREA IS CONDUCTED UNDER VESTED RIGHTS.
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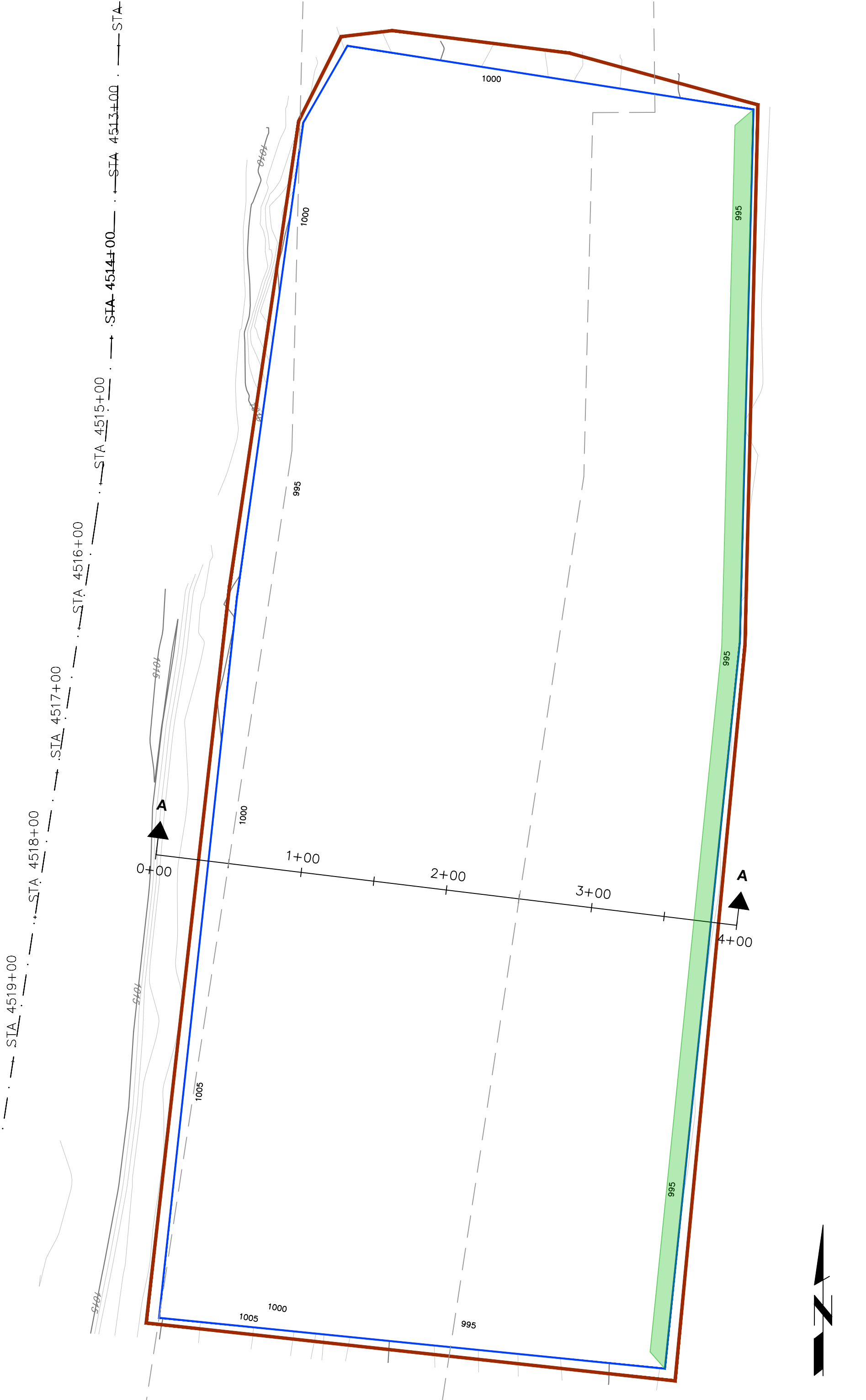
RECLAMATION NOTES:

- PROJECTED END OF MINING:** 2122
- PROJECTED END OF RECLAMATION:** 2127
- END USE:** RECLAIMED OPEN SPACE
- RECLAMATION OF THE SITE WILL INCLUDE SITE CLEANUP, PUBLIC SAFETY MEASURES, DRAINAGE CONTROLS, RECONTOURING, RIPPING (WHERE APPLICABLE), REVEGETATION (UTILIZING NATIVE SPECIES), AND MONITORING AND MAINTENANCE.
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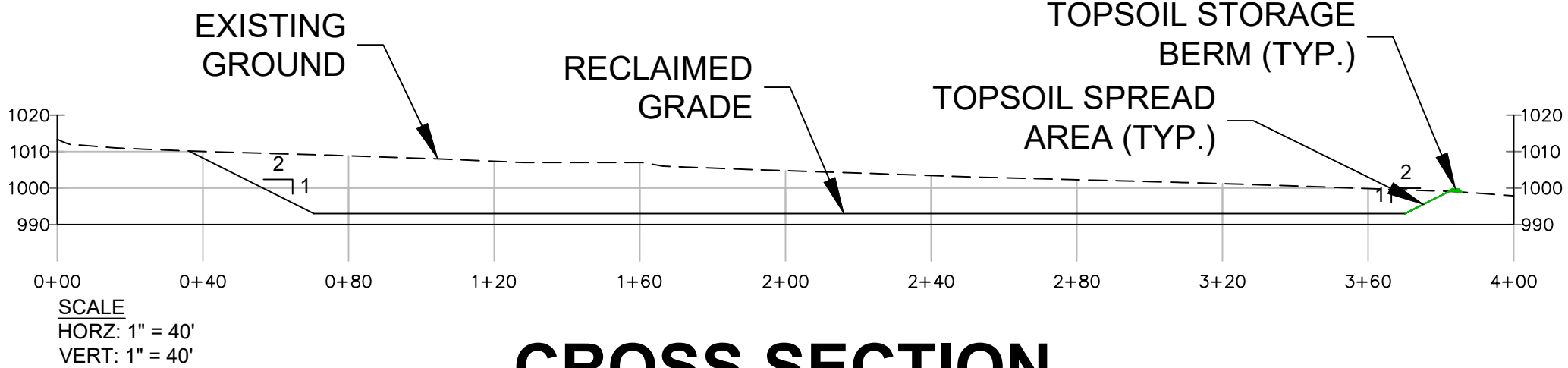
MINE PLAN

60 0 60 120
SCALE IN FEET
SCALE: 1" = 60'
SCALE INDICATED IS BASED ON A
24" X 36" FORMAT PRINT



RECLAMATION PLAN

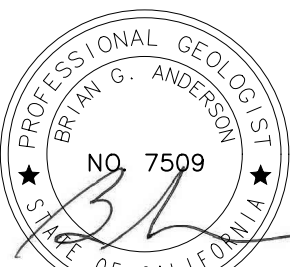
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SCALE IN FEET
SCALE: 1" = 60'
SCALE INDICATED IS BASED ON A
24" X 36" FORMAT PRINT



CROSS SECTION

SITE: RV-03

DATUM: HORZ= NAD83, CALIFORNIA ZONE 5, US FOOT
VERT= NAVD88
AERIAL: GOOGLE EARTH IMAGERY, DATED 02/06/16
TOPOGRAPHY: MWD SURVEYING TEAM (NICHOLAS ELLIS, PLS 9320), DRAWING B-170962, JULY 2020 REVISED MARCH 2021



BRIAN G. ANDERSON CA P.G. 7509 EXP. 03-31-2024



A. PEARCE SWERDFEGER R.C.E. 87466 EXP. 09-30-2023



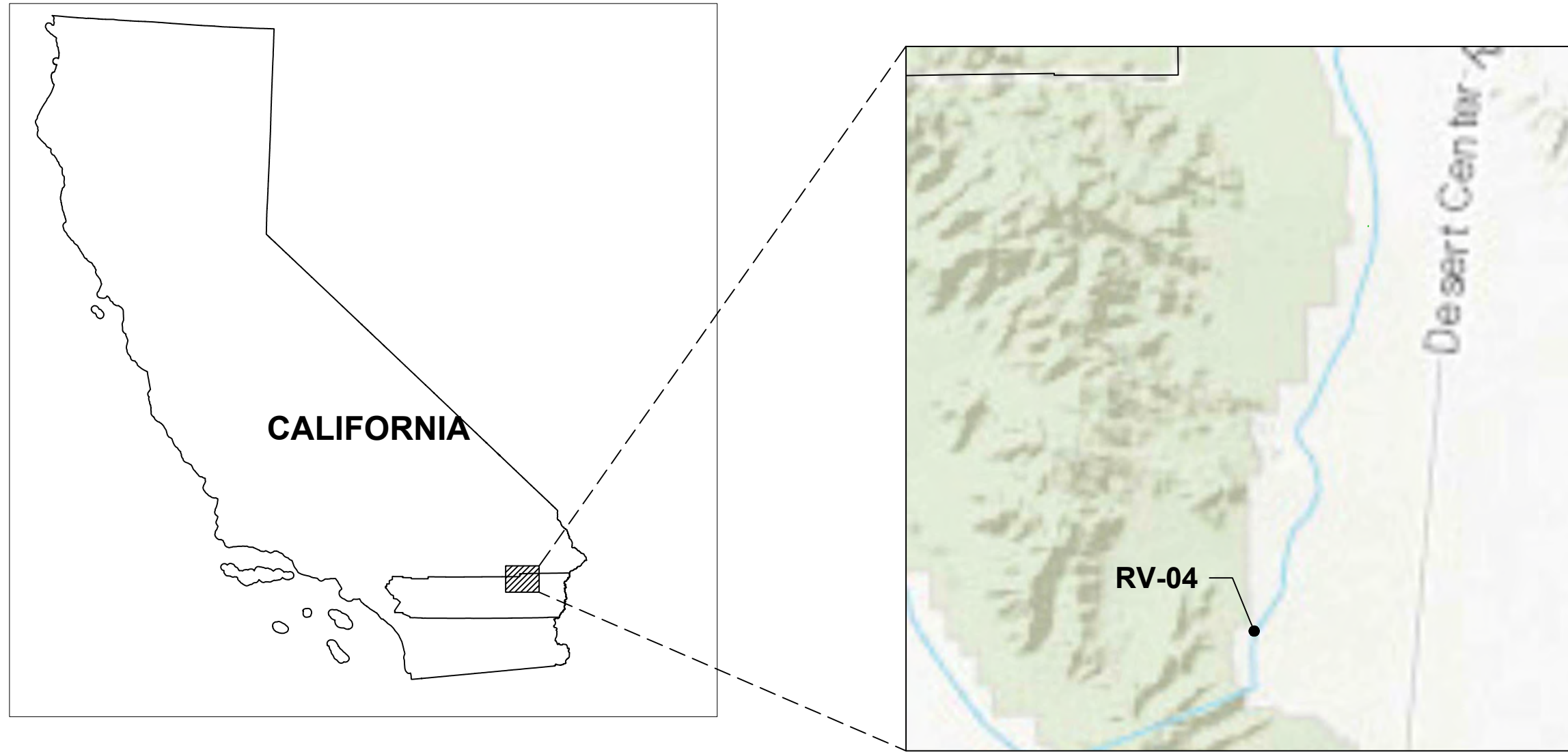
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REVISIONS			
MARK	DATE	DESCRIPTION	BY
8/18/20		INITIAL DRAFT	GJC
12/06/21		MINOR EDIT TO LAYOUTS	GJC
01/16/22		MINOR EDIT TO LAYOUTS	GJC
06/23/22		EDITS TO FIGURES PER CHANGE TO SMGB AS LEAD AGENCY	GJC
REVIEWED BY:			
		DATE	
		DATE	

METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA	
SITE ID:	RV-03
MILE MARKER:	84+25
COUNTY:	RIVERSIDE
SCALE: HORZ: AS SHOWN VERT: AS SHOWN	FIGURE NUMBER
DRAWN BY: G. CAMUS CHECKED BY: BGA / APS	13



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FIGURE 15: RV-05
FIGURE 16: RV-06
FIGURE 17: RV-07

SITE INFORMATION:

ASSESSORS PARCEL NUMBER(S) 800-101-044

EASEMENTS: NO EXISTING EASEMENTS WITHIN THE MINING / RECLAMATION AREA

MINERAL BEING EXTRACTED: SAND AND GRAVEL

ADJACENT AREA: UNDEVELOPED OPEN SPACE

PROJECT AREA: EXISTING AGGREGATE BORROW PIT

UTILITIES: N/A - NO PUBLIC OR PRIVATE UTILITIES SERVICING THE OPERATION

GEOLOGIC DESCRIPTION:

MEDIAL-DISTAL QUATERNARY ALLUVIAL FAN DEPOSITS EXTENDING FROM THE EASTERN FLANK OF THE COXCOMB MOUNTAINS. YOUNGER ALLUVIAL CONSIST PRIMARILY OF SAND AND POORLY SORTED SANDY GRAVEL OF ANGULAR AND SUBANGULAR CLASTS DERIVED FROM ADJACENT MOUNTAINS. ACCORDING TO HOWARD (2002), THE FAN SURFACES IN THIS AREA ARE COMMONLY CHARACTERIZED BY BARS AND SWALES, WITH OLDER SEGMENTS SLIGHTLY DISSECTED THAT MAY EXHIBIT LIGHTLY VARNISHED DESERT PAVEMENT. WINDBLOWN SANDS ARE ALSO LOCALLY PRESENT.

REFERENCE:

HOWARD, K. A., 2002. GEOLOGIC MAP OF THE SHEEP HOLE MOUNTAINS 30' BY 60' MINUTE QUADRANGLE, SAN BERNARDINO AND RIVERSIDE COUNTIES, CALIFORNIA, U.S. GEOLOGICAL SURVEY GEOLOGIC INVESTIGATIONS SERIES I-2344, 2 SHEETS.

LEGEND:

--- MWD FEE-OWNED BOUNDARY LINES
--- MINING BOUNDARY
--- RECLAMATION BOUNDARY
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--- EXISTING CONTOURS
--- FINAL RECLAIMED CONTOURS
--- COLORADO RIVER AQUEDUCT CENTERLINE & ALIGNMENT
--- TOPSOIL STORAGE BERM (TYP.)
--- TOPSOIL SPREAD AREA (TYP.)

MINING NOTES:

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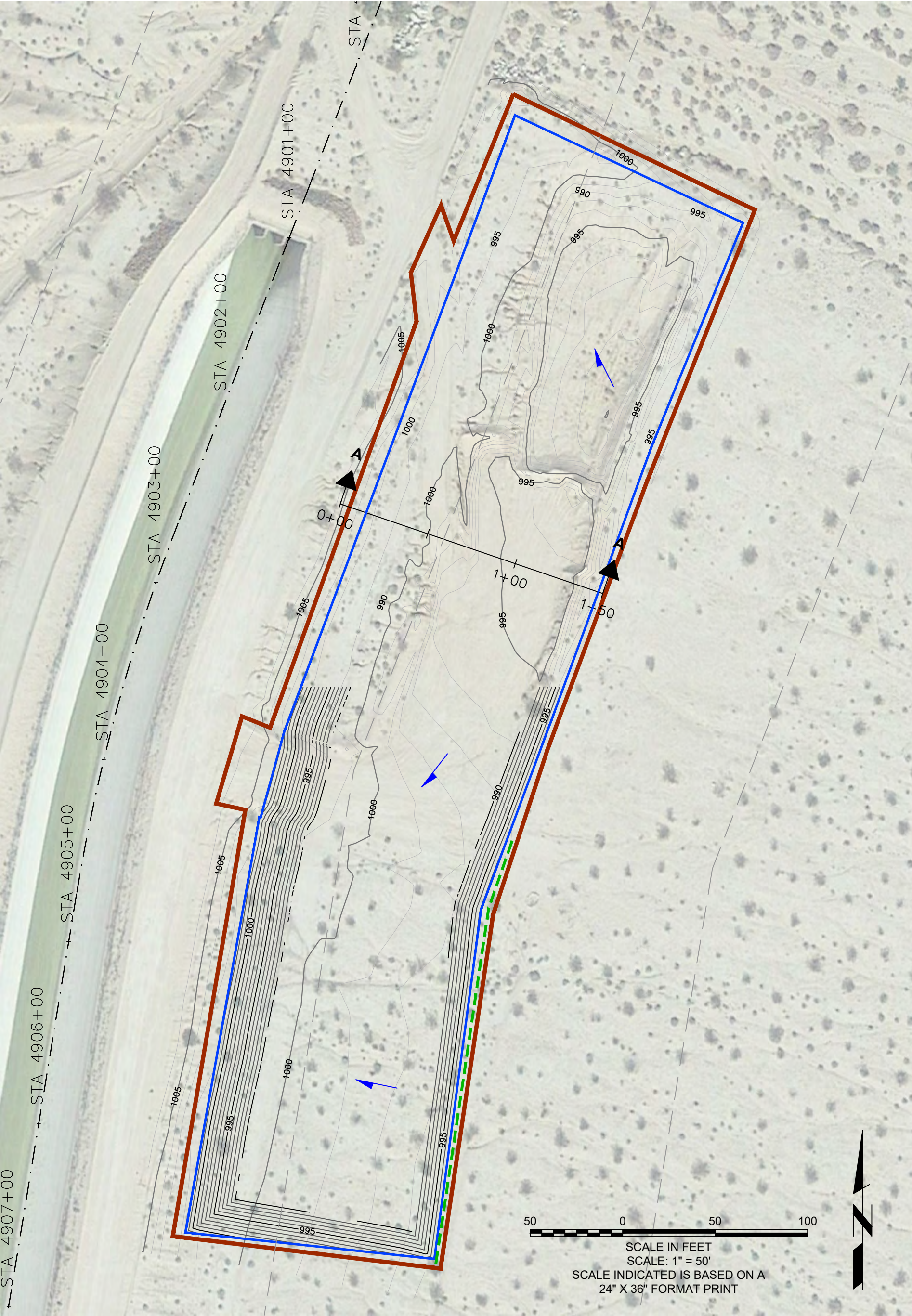
RECLAMATION NOTES:

PROJECTED END OF MINING: 2122

PROJECTED END OF RECLAMATION: 2127

END USE: RECLAIMED OPEN SPACE

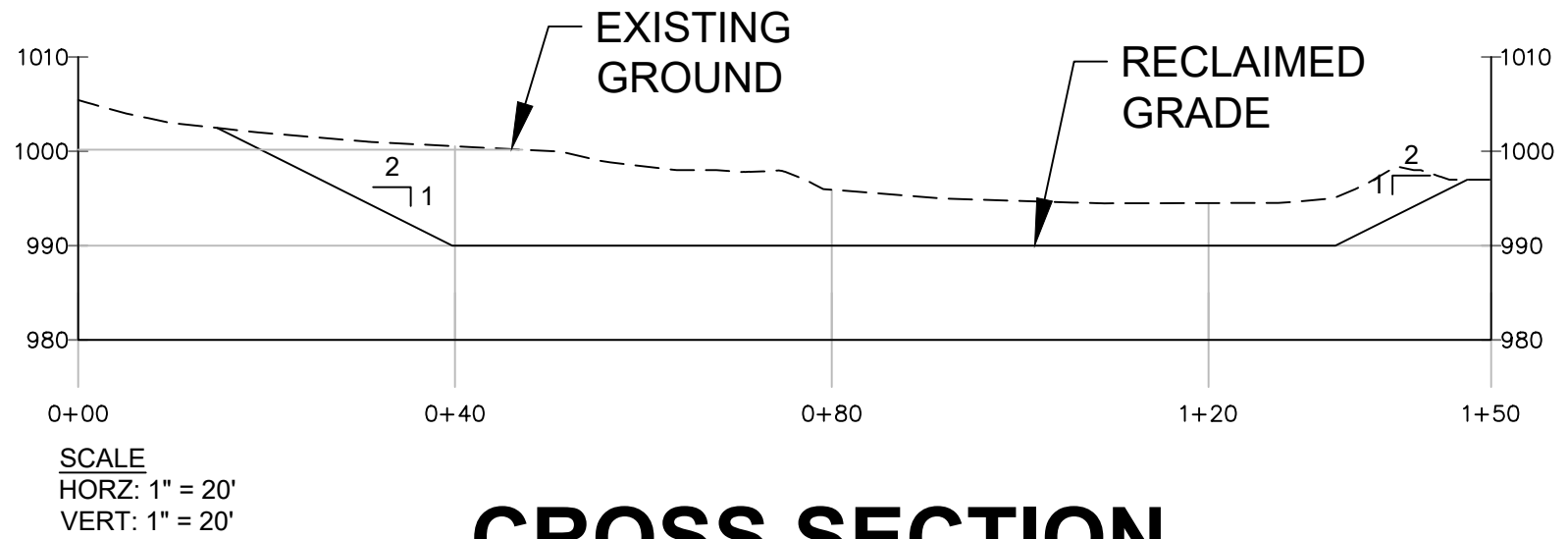
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MINE PLAN



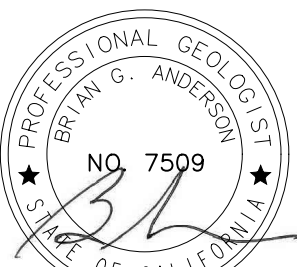
RECLAMATION PLAN



CROSS SECTION

SITE: RV-04

DATUM: HORZ= NAD83, CALIFORNIA ZONE 5, US FOOT
VERT= NAVD88
AERIAL: GOOGLE EARTH IMAGERY, DATED 02/06/16
TOPOGRAPHY: MWD SURVEYING TEAM (NICHOLAS ELLIS, PLS 9320), DRAWING B-170963, JULY 2020



BRIAN G. ANDERSON CA P.G. 7509 EXP. 03-31-2024



A. PEARCE SWERDFEGER R.C.E. 87466 EXP. 09-30-2023



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VENTURA, CALIFORNIA 93001
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REVISIONS			
MARK	DATE	DESCRIPTION	BY
8/18/20		INITIAL DRAFT	GJC
12/06/21		MINOR EDIT TO LAYOUTS	GJC
01/16/22		MINOR EDIT TO LAYOUTS	GJC
06/23/22		EDITS TO FIGURES PER CHANGE TO SAM38 AS LEAD AGENCY	GJC
REVIEWED BY:			
		DATE	
		DATE	

METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

SITE ID: RV-04

MILE MARKER: 91+72

COUNTY: RIVERSIDE

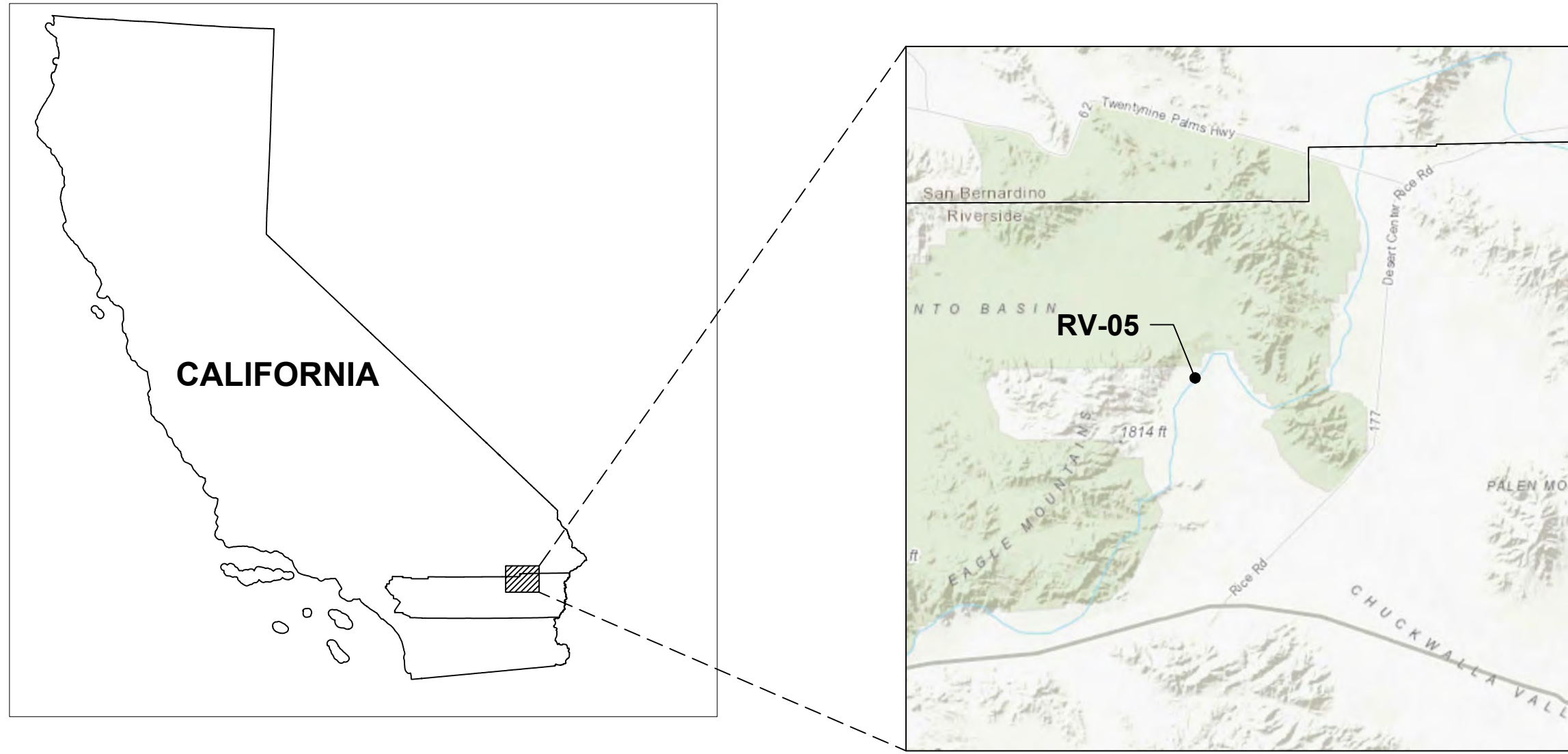
FIGURE NUMBER

SCALE: HORZ: AS SHOWN
VERT: AS SHOWN

DRAWN BY: G. CAMUS

CHECKED BY: BGA / APS

14



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FIGURE 13: RV-03
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FIGURE 15: RV-05
FIGURE 16: RV-06
FIGURE 17: RV-07

SITE INFORMATION:

ASSESSORS PARCEL NUMBER(S) 800-090-029

EASEMENTS: NO EXISTING EASEMENTS WITHIN THE MINING / RECLAMATION AREA

MINERAL BEING EXTRACTED: SAND AND GRAVEL

ADJACENT AREA: UNDEVELOPED OPEN SPACE

PROJECT AREA: EXISTING AGGREGATE BORROW PIT

UTILITIES: N/A - NO PUBLIC OR PRIVATE UTILITIES SERVICING THE OPERATION

GEOLOGIC DESCRIPTION:

QUATERNARY ALLUVIUM WITH EVIDENCE OF MINOR DIKE-STYLE INTRUSIVE BODIES EXPOSED ALONG SOME SURFACES, WHICH WERE HISTORICALLY DESCRIBED GENERALLY AS OUTWASH APRONS BY HARDER (1912).

REFERENCE:

FORCE, E. R., 2001. EAGLE MOUNTAIN MINE, GEOLOGY OF THE FORMER KAISER STEEL OPERATION IN RIVERSIDE COUNTY, CALIFORNIA, USGS OPEN-FILE REPORT 01-237, 16 P.

HARDER, C. E., 1912. IRON ORE DEPOSITS OF THE EAGLE MOUNTAINS, CALIFORNIA, USGS BULLETIN 503, 81 P.

LEGEND:

- MWD FEE-OWNED BOUNDARY LINES
- MINING BOUNDARY
- RECLAMATION BOUNDARY
- SURFACE FLOW DIRECTION (APPROX.)
- EXISTING CONTOURS
- FINAL RECLAIMED CONTOURS
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MINING NOTES:

- MINING IN THIS AREA IS CONDUCTED UNDER VESTED RIGHTS.
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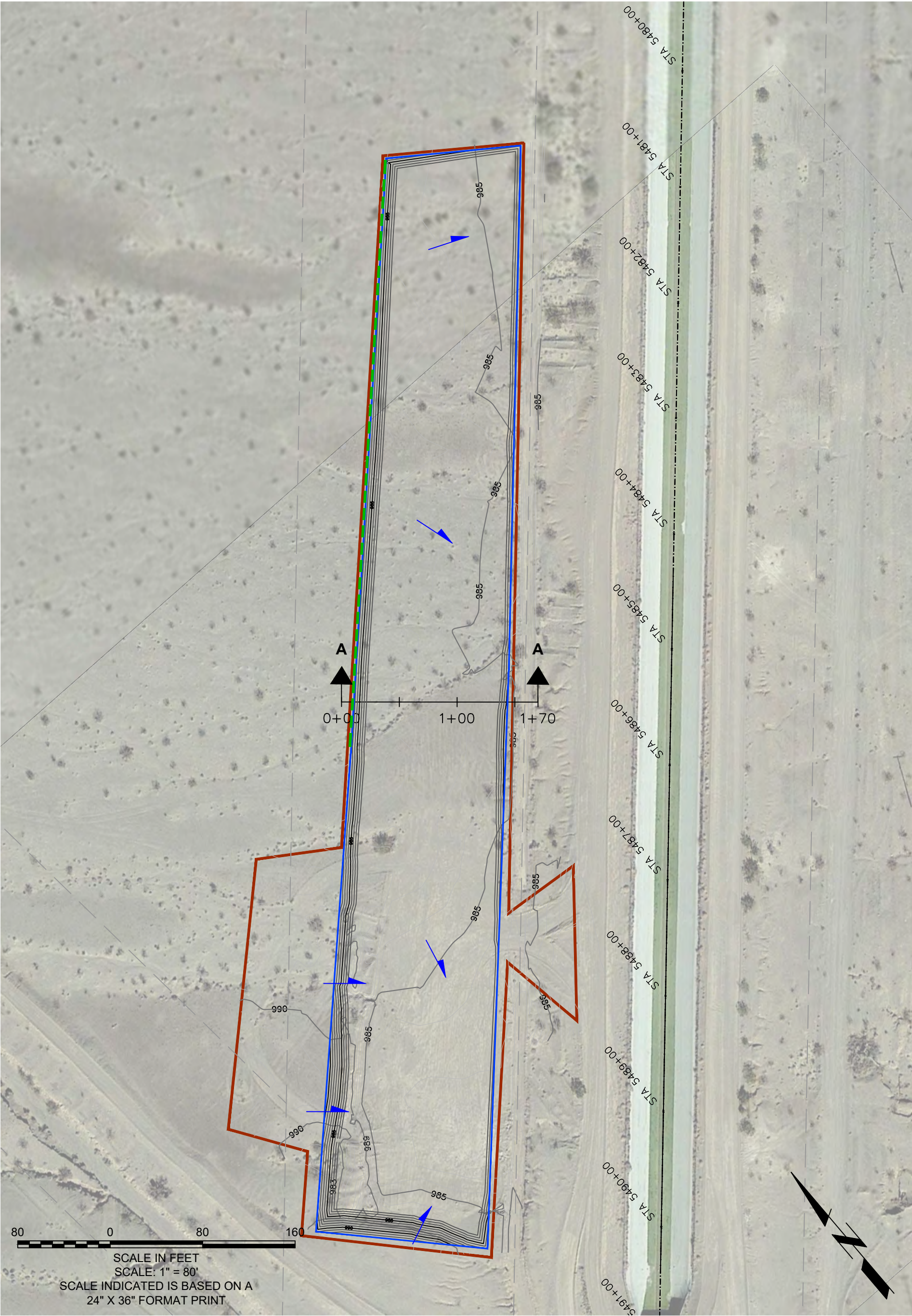
RECLAMATION NOTES:

PROJECTED END OF MINING: 2122

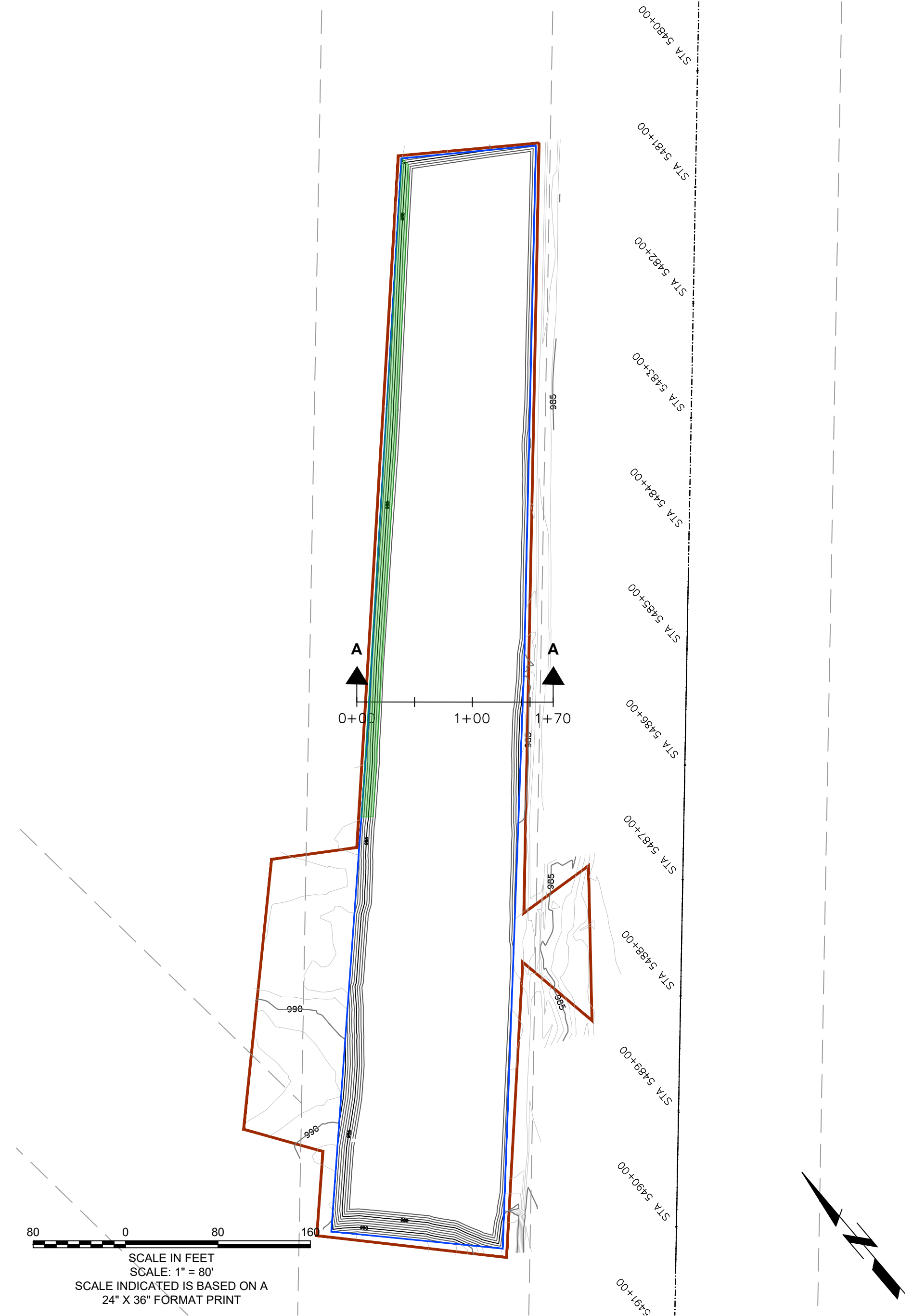
PROJECTED END OF RECLAMATION: 2127

END USE: RECLAIMED OPEN SPACE

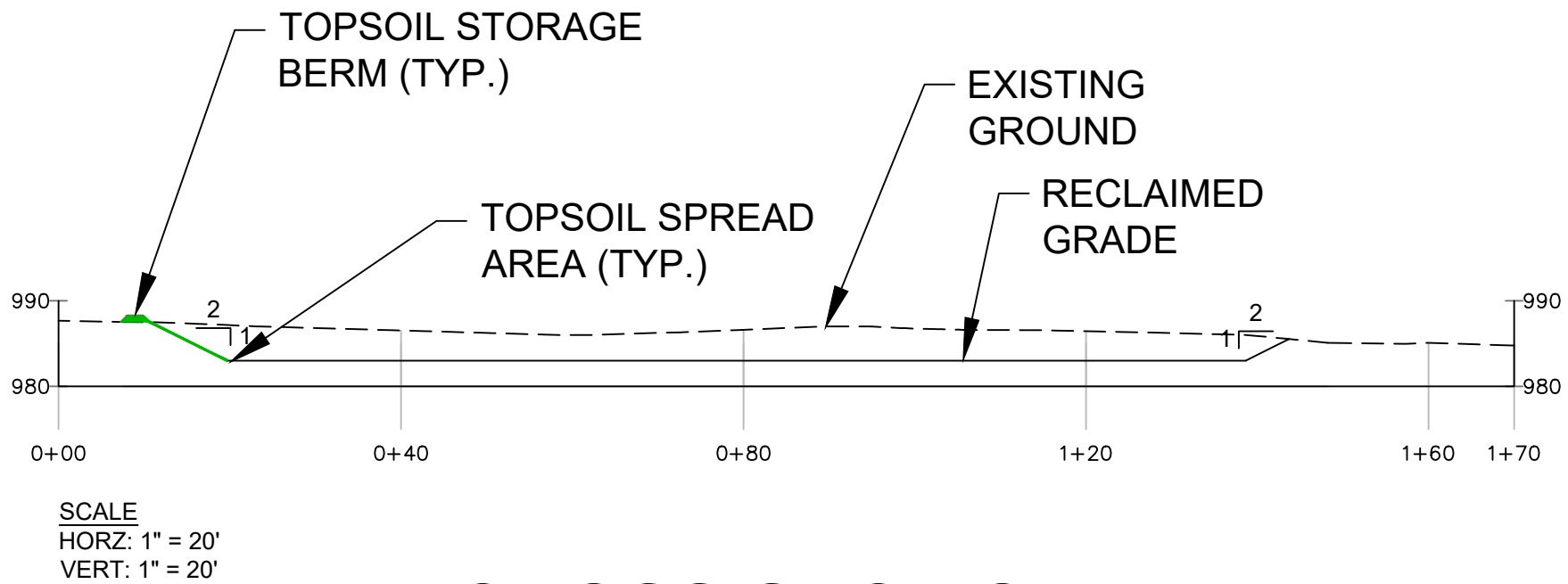
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MINE PLAN



RECLAMATION PLAN



CROSS SECTION

SITE: RV-05

DATUM: HORZ= NAD83, CALIFORNIA ZONE 5, US FOOT
VERT= NAVD88
AERIAL: GOOGLE EARTH IMAGERY, DATED 02/06/16
TOPOGRAPHY: MWD SURVEYING TEAM (NICHOLAS ELLIS, PLS 9320), DRAWINGS B-170964 (JUNE 2020), B-174407 & B-174407 (MARCH 2021)

BRIAN G. ANDERSON
CA P.G. 7509
EXP. 03-31-2024

A. PEARCE SWERDFEGER
R.C.E. 87466
EXP. 09-30-2023



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SESPE CONSULTING, INC.
374 POLI STREET, SUITE 200
VENTURA, CALIFORNIA 93001
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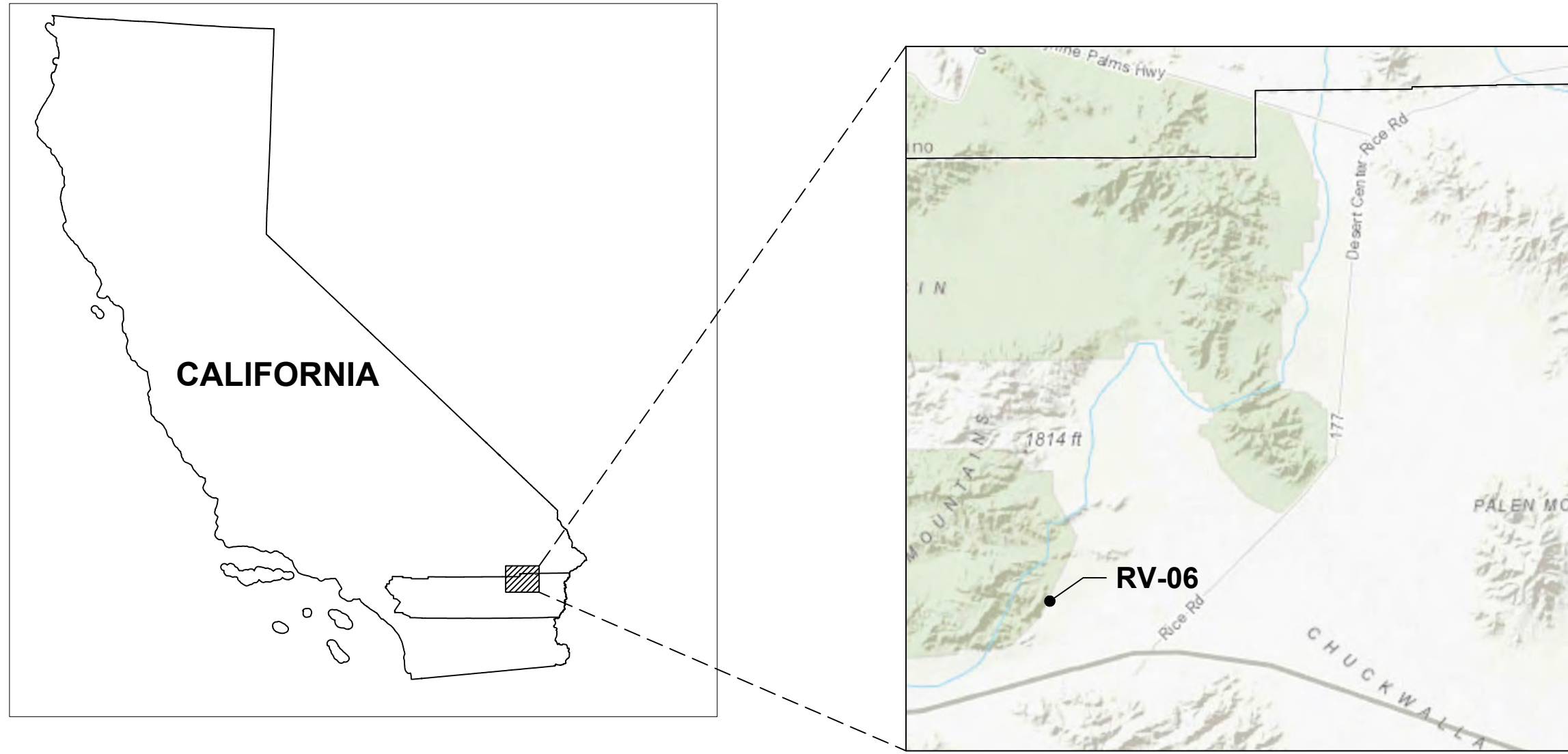
REVISIONS			
MARK	DATE	DESCRIPTION	BY
8/18/20		INITIAL DRAFT	GJC
12/06/21		MINOR EDIT TO LAYOUTS	GJC
01/16/22		MINOR EDIT TO LAYOUTS	GJC
06/23/22		EDITS TO FIGURES PER CHANGE TO SAM38 AS LEAD AGENCY	GJC
REVIEWED BY:			
	DATE		
	DATE		

METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

SITE ID: RV-05
MILE MARKER: 102+73
COUNTY: RIVERSIDE

SCALE: HORZ: AS SHOWN
VERT: AS SHOWN
DRAWN BY: G CAMUS
CHECKED BY: BGA / APS

FIGURE NUMBER
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FIGURE 13: RV-04
FIGURE 15: RV-05
FIGURE 16: RV-06
FIGURE 17: RV-07

SITE INFORMATION:

ASSESSORS PARCEL NUMBER(S) 811-020-023 & 811-020-028

EASEMENTS: NO EXISTING EASEMENTS WITHIN THE MINING / RECLAMATION AREA

MINERAL BEING EXTRACTED: SAND AND GRAVEL

ADJACENT AREA: UNDEVELOPED OPEN SPACE

PROJECT AREA: EXISTING AGGREGATE BORROW PIT

UTILITIES: N/A - NO PUBLIC OR PRIVATE UTILITIES SERVICING THE OPERATION

GEOLOGIC DESCRIPTION:

SLIGHTLY DISSECTED WASH SURFACE COMPRISED OF QUATERNARY ALLUVIUM AS NOTED BY FORCE (2001). THE ALLUVIAL MATERIAL IS PRINCIPALLY SAND AND GRAVEL, WITH CLASTS LOCALLY DERIVED FROM THE CRYSTALLINE ROCK EXPOSED TO THE NORTHWEST.

REFERENCE:

FORCE, E. R., 2001. EAGLE MOUNTAIN MINE, GEOLOGY OF THE FORMER KAISER STEEL OPERATION IN RIVERSIDE COUNTY, CALIFORNIA, USGS OPEN-FILE REPORT 01-237, 16 P.

LEGEND:

- MWD FEE-OWNED BOUNDARY LINES
- MINING BOUNDARY
- RECLAMATION BOUNDARY
- SURFACE FLOW DIRECTION (APPROX.)
- EXISTING CONTOURS
- FINAL RECLAIMED CONTOURS
- COLORADO RIVER AQUEDUCT CENTERLINE & ALIGNMENT
- TOPSOIL STORAGE BERM (TYP.)
- TOPSOIL SPREAD AREA (TYP.)

MINING NOTES:

- MINING IN THIS AREA IS CONDUCTED UNDER VESTED RIGHTS.
- NO PERMANENT STRUCTURES CURRENTLY EXIST OR ARE PROPOSED WITHIN THE MINING AREA.
- ACCESS TO THE MINING AREA WILL BE FROM THE EXISTING MWD CRA ACCESS AND MAINTENANCE ROADS.
- MINING WILL GENERALLY BE CONDUCTED IN A SINGLE PHASE.
- STOCKPILES OF RAW, MINED MATERIAL OR IMPORTED MATERIAL MAY BE STORED THROUGHOUT THE MINING AREA, AS NEEDED.
- NO WASTE DUMPS OR TAILING PONDS ARE ANTICIPATED.
- WHERE FEASIBLE, TOPSOIL WILL BE SALVAGED AND STOCKPILED IN A PERIMETER BERM FOR USE IN RECLAMATION.

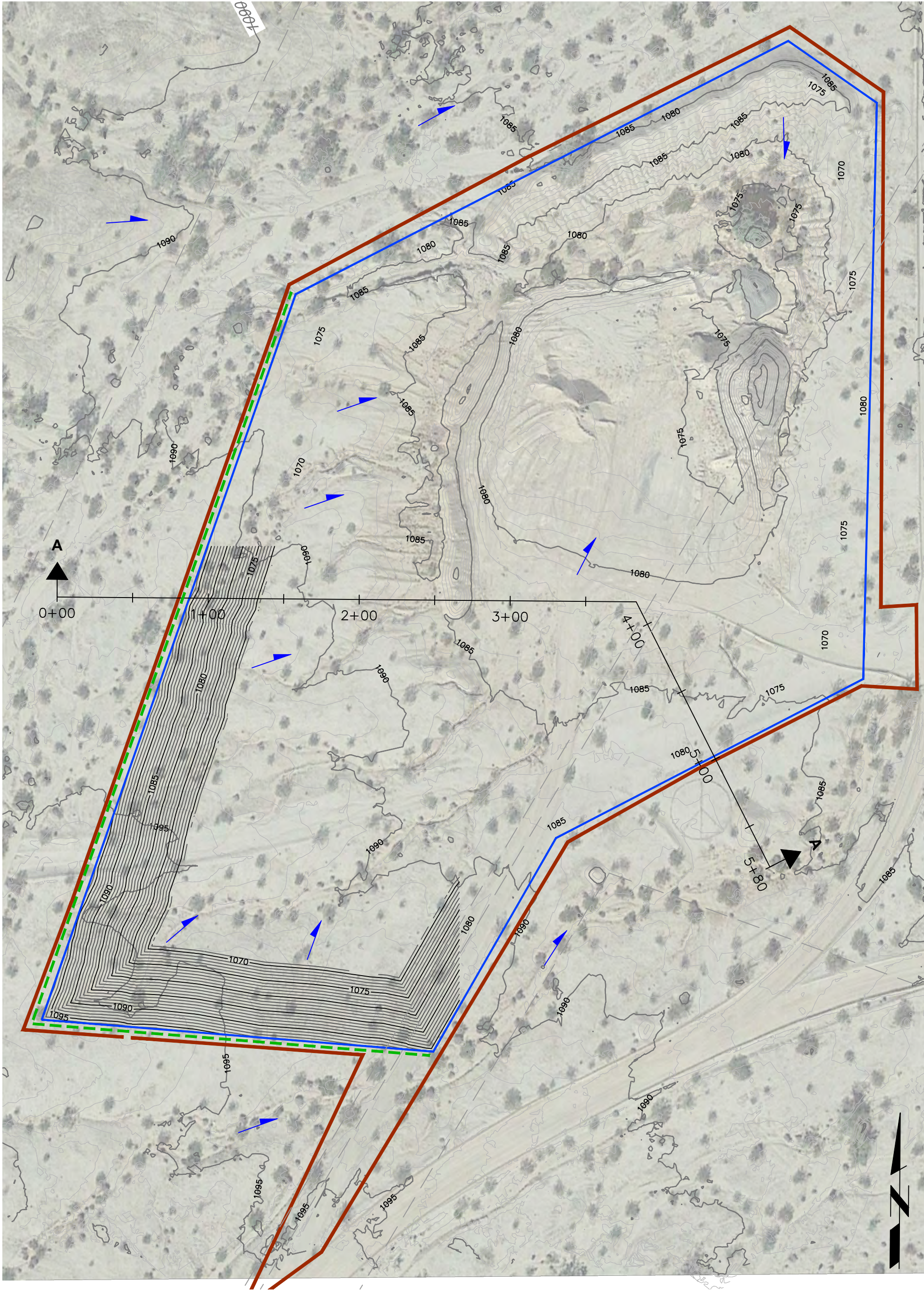
RECLAMATION NOTES:

PROJECTED END OF MINING: 2122

PROJECTED END OF RECLAMATION: 2127

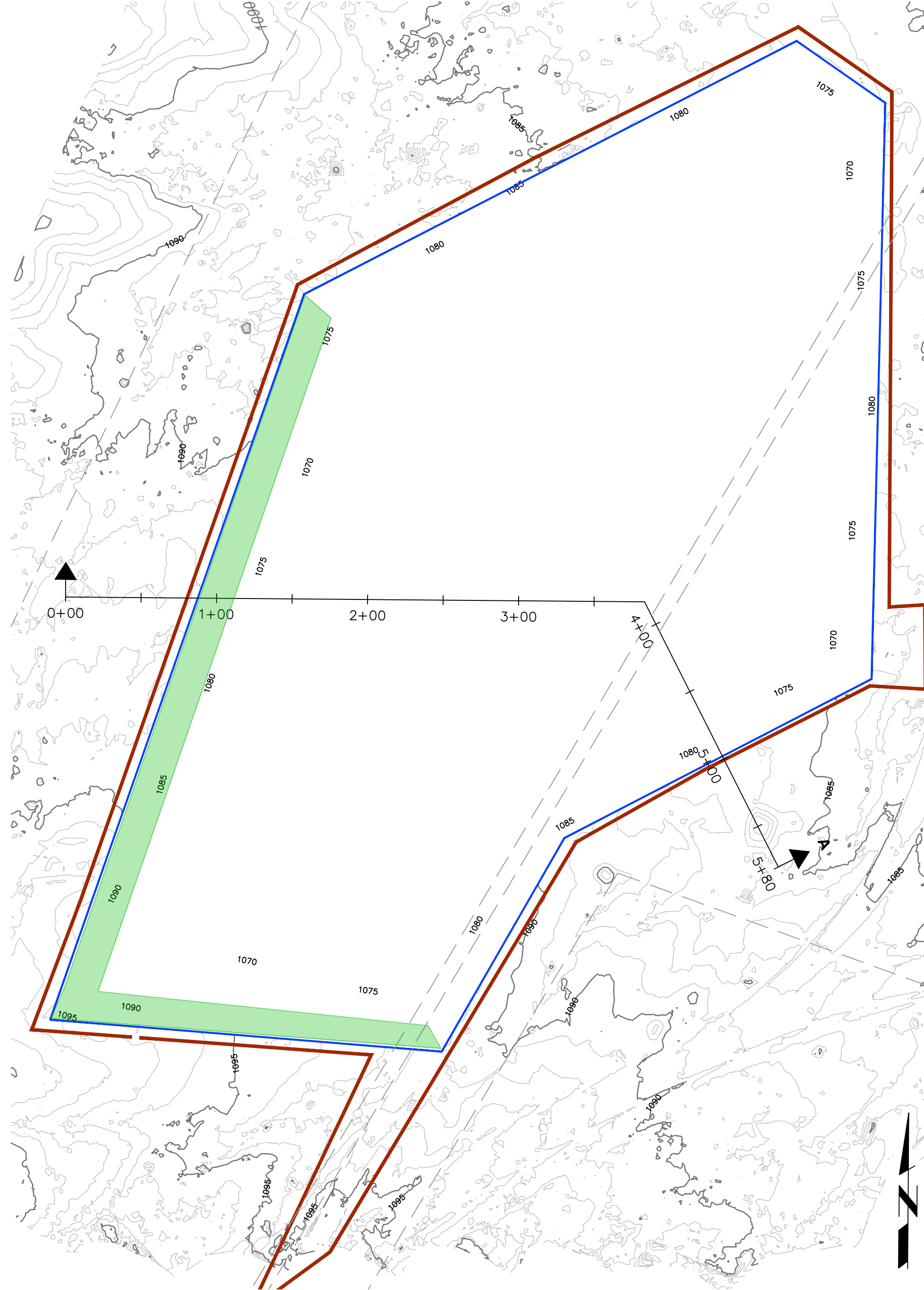
END USE: RECLAIMED OPEN SPACE

- RECLAMATION OF THE SITE WILL INCLUDE SITE CLEANUP, PUBLIC SAFETY MEASURES, DRAINAGE CONTROLS, RECONTOURING, RIPPING (WHERE APPLICABLE), REVEGETATION (UTILIZING NATIVE SPECIES), AND MONITORING AND MAINTENANCE.
- DATES SHOWN ABOVE ARE ESTIMATIONS, AND MAY CHANGE DEPENDING ON SITE CONDITIONS, MAINTENANCE ACTIVITIES AND FREQUENCY REQUIREMENTS.
- ONCE MINING OPERATIONS ARE COMPLETE, THE MINING AREA WILL BE RECLAIMED TO OPEN SPACE. ANY PERIMETER BERMS WILL BE DECONSTRUCTED AND REMAINING TOPSOIL (IF ANY) SPREAD ON SLOPES TO FACILITATE REVEGETATION.
- REVEGETATION ACTIVITIES WILL BE MONITORED BY A QUALIFIED REVEGETATION SPECIALIST. CHANGES TO REVEGETATION METHODS AND DEVELOPMENT OF POSSIBLE ALTERNATIVES TO ACHIEVE SMARA MINIMUM REVEGETATION STANDARDS WILL BE REVIEWED IN COORDINATION WITH CALIFORNIA STATE MINING AND GEOLOGY BOARD.
- RECLAMATION ACTIVITIES WILL NOT PRECLUDE ACCESS TO, OR MINING OF ANY AGGREGATE RESERVES REMAINING AFTER COMPLETION OF THE PROPOSED MINING ACTIVITIES.



MINE PLAN

SCALE IN FEET
SCALE: 1" = 60'
SCALE INDICATED IS BASED ON A 24" X 36" FORMAT PRINT

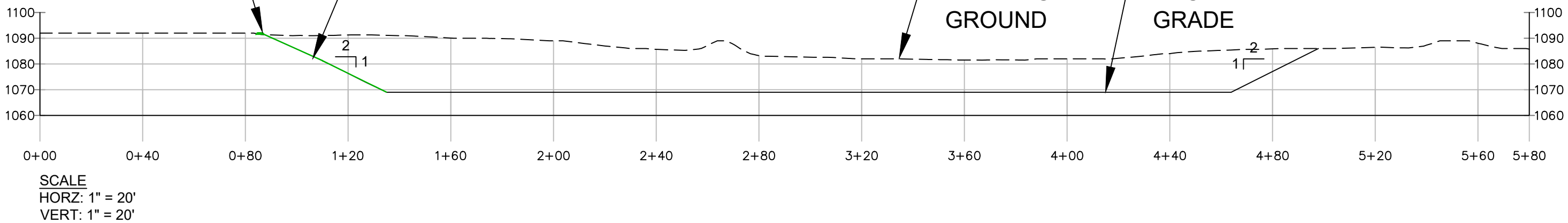


RECLAMATION PLAN

SCALE IN FEET
SCALE: 1" = 60'
SCALE INDICATED IS BASED ON A 24" X 36" FORMAT PRINT

TOPSOIL STORAGE BERM (TYP.)

TOPSOIL SPREAD AREA (TYP.)



CROSS SECTION



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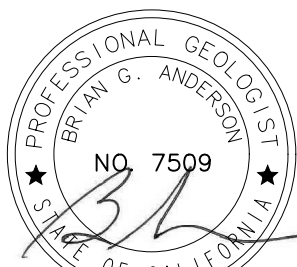
OWNER / APPLICANT
METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA
700 NORTH ALAMEDA STREET
LOS ANGELES, CALIFORNIA 90012

LAND USE CONSULTANT
SESPE CONSULTING, INC.
374 POLI STREET, SUITE 200
VENTURA, CALIFORNIA 93001
(805) 275-1515

REVISIONS			
MARK	DATE	DESCRIPTION	BY
8/18/20		INITIAL DRAFT	GJC
01/18/22		MINOR EDIT TO LAYOUTS	GJC
06/23/22		EDITS TO FIGURES PER CHANGE TO SANS AS LEAD AGENCY	GJC
REVIEWED BY:			
		DATE	
		DATE	

METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA	
SITE ID:	RV-06
MILE MARKER:	114+68
COUNTY:	RIVERSIDE
FIGURE NUMBER	16

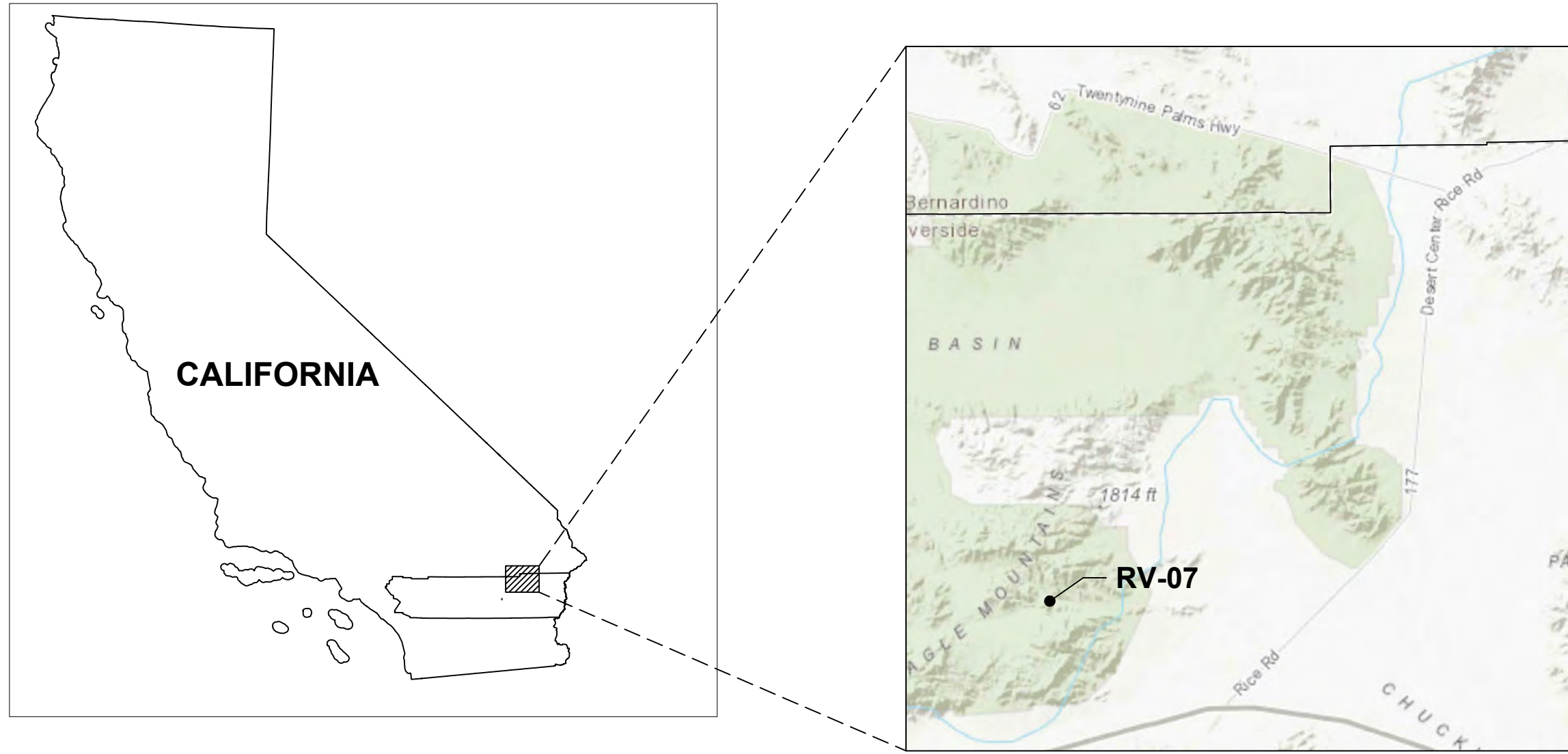
DATUM: HORZ= NAD83, CALIFORNIA ZONE 5, US FOOT
VERT= NAVD88
AERIAL: GOOGLE EARTH IMAGERY, DATED 02/06/16
TOPOGRAPHY: MWD SURVEYING TEAM (ROBERT YOUNATHAN, PLS 9369), DRAWING B-174363, OCTOBER 2020



BRIAN G. ANDERSON CA P.G. 7509 EXP. 03-31-2024



A. PEARCE SWERDFEGER R.C.E. 87466 EXP. 09-30-2023



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FIGURE 13: RV-03
FIGURE 13: RV-04
FIGURE 15: RV-05
FIGURE 16: RV-06
FIGURE 17: RV-07

SITE INFORMATION:

ASSESSORS PARCEL NUMBER(S) 705-230-031

EASEMENTS: NO EXISTING EASEMENTS WITHIN THE MINING / RECLAMATION AREA

MINERAL BEING EXTRACTED: SAND AND GRAVEL

ADJACENT AREA: UNDEVELOPED OPEN SPACE

PROJECT AREA: EXISTING AGGREGATE BORROW PIT

UTILITIES: N/A - NO PUBLIC OR PRIVATE UTILITIES SERVICING THE OPERATION

GEOLOGIC DESCRIPTION:

YOUNGER QUATERNARY ALLUVIUM, CONSISTING OF MEDIUM- TO COARSE-GRAINED SAND AND PEBBLY SAND THAT IS POORLY TO MODERATELY SORTED; UNCONSOLIDATED TO SLIGHTLY CONSOLIDATED.

REFERENCE:

POWELL, R. E., MATTI, J. C., AND COSSETTE, P. M., 2015. GEOLOGY OF JOSHUA TREE NATIONAL PARK, USGS OPEN-FILE REPORT 2015-1175.

LEGEND:

- MWD FEE-OWNED BOUNDARY LINES
- MINING BOUNDARY
- RECLAMATION BOUNDARY
- SURFACE FLOW DIRECTION (APPROX.)
- EXISTING CONTOURS
- FINAL RECLAIMED CONTOURS
- COLORADO RIVER AQUEDUCT CENTERLINE & ALIGNMENT
- TOPSOIL STORAGE BERM (TYP.)
- TOPSOIL SPREAD AREA (TYP.)
- TEST PLOT AREA

MINING NOTES:

- MINING IN THIS AREA IS CONDUCTED UNDER VESTED RIGHTS.
- NO PERMANENT STRUCTURES CURRENTLY EXIST OR ARE PROPOSED WITHIN THE MINING AREA.
- ACCESS TO THE MINING AREA WILL BE FROM THE EXISTING MWD CRA ACCESS AND MAINTENANCE ROADS.
- MINING WILL GENERALLY BE CONDUCTED IN A SINGLE PHASE.
- STOCKPILES OF RAW, MINED MATERIAL OR IMPORTED MATERIAL MAY BE STORED THROUGHOUT THE MINING AREA, AS NEEDED.
- NO WASTE DUMPS OR TAILING PONDS ARE ANTICIPATED.
- WHERE FEASIBLE, TOPSOIL WILL BE SALVAGED AND STOCKPILED IN A PERIMETER BERM FOR USE IN RECLAMATION.

RECLAMATION NOTES:

PROJECTED END OF MINING: 2122

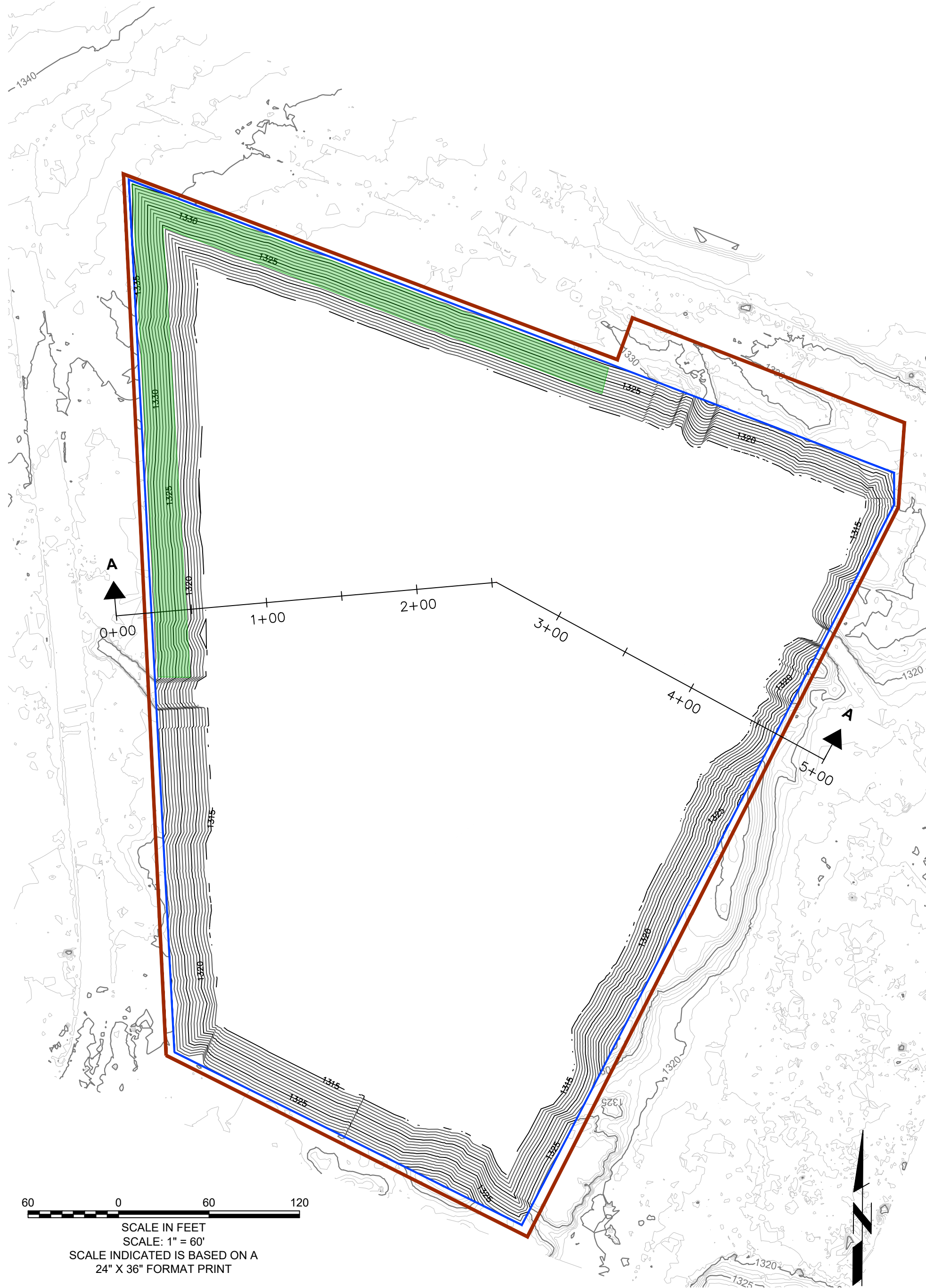
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END USE: RECLAIMED OPEN SPACE

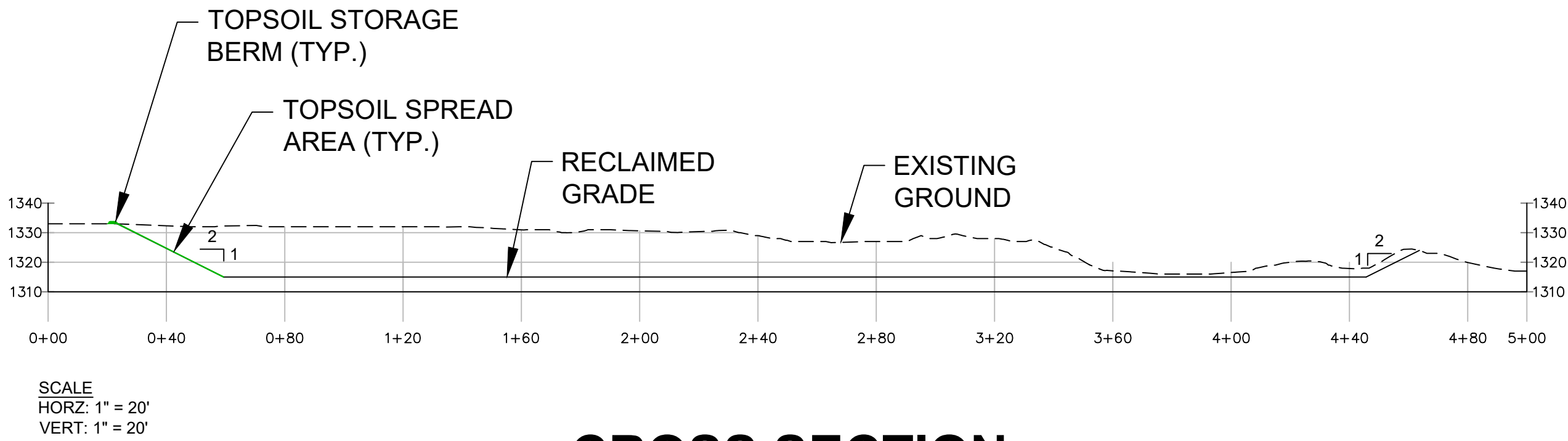
- RECLAMATION OF THE SITE WILL INCLUDE SITE CLEANUP, PUBLIC SAFETY MEASURES, DRAINAGE CONTROLS, RECONTOURING, RIPPING (WHERE APPLICABLE), REVEGETATION (UTILIZING NATIVE SPECIES), AND MONITORING AND MAINTENANCE.
- DATES SHOWN ABOVE ARE ESTIMATIONS, AND MAY CHANGE DEPENDING ON SITE CONDITIONS, MAINTENANCE ACTIVITIES AND FREQUENCY REQUIREMENTS.
- ONCE MINING OPERATIONS ARE COMPLETE, THE MINING AREA WILL BE RECLAIMED TO OPEN SPACE. ANY PERIMETER BERMS WILL BE DECONSTRUCTED AND REMAINING TOPSOIL (IF ANY) SPREAD ON SLOPES TO FACILITATE REVEGETATION.
- REVEGETATION ACTIVITIES WILL BE MONITORED BY A QUALIFIED REVEGETATION SPECIALIST. CHANGES TO REVEGETATION METHODS AND DEVELOPMENT OF POSSIBLE ALTERNATIVES TO ACHIEVE SMARA MINIMUM REVEGETATION STANDARDS WILL BE REVIEWED IN COORDINATION WITH CALIFORNIA STATE MINING AND GEOLOGY BOARD.
- RECLAMATION ACTIVITIES WILL NOT PRECLUDE ACCESS TO, OR MINING OF ANY AGGREGATE RESERVES REMAINING AFTER COMPLETION OF THE PROPOSED MINING ACTIVITIES.



MINE PLAN



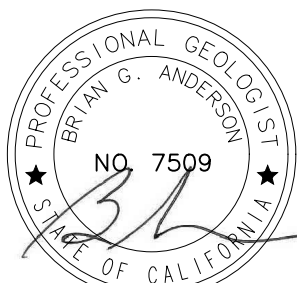
RECLAMATION PLAN



CROSS SECTION

SITE: RV-07

DATUM: HORZ= NAD83, CALIFORNIA ZONE 5, US FOOT
VERT= NAVD88
AERIAL: GOOGLE EARTH IMAGERY, DATED 02/06/16
TOPOGRAPHY: MWD SURVEYING TEAM (NICHOLAS ELLIS, PLS 9320), DRAWING B-170995, SEPTEMBER 2020



BRIAN G. ANDERSON CA P.G. 7509 EXP. 03-31-2024



A. PEARCE SWERDFEGER R.C.E. 87466 EXP. 09-30-2023



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LAND USE CONSULTANT
SESPE CONSULTING, INC.
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REVISIONS			
MARK	DATE	DESCRIPTION	BY
8/18/20		INITIAL DRAFT	GJC
12/06/21		MINOR EDIT TO LAYOUTS	GJC
01/16/22		MINOR EDIT TO LAYOUTS	GJC
06/23/22		EDITS TO FIGURES PER CHANGE TO SAM38 AS LEAD AGENCY	GJC
REVIEWED BY:			
	DATE		
	DATE		

METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA	
SITE ID:	RV-07
MILE MARKER:	124+90
COUNTY:	RIVERSIDE
SCALE:	HORZ: AS SHOWN VERT: AS SHOWN
DRAWN BY:	G. CAMUS
CHECKED BY:	BGA / APS
FIGURE NUMBER	17

APPENDIX B

Biological Resource Assessment – Colorado River Aqueduct Master Reclamation Plan for San Bernardino and Riverside Counties (Rincon Consultants, Inc. – 2021)

Note that the following Biological Resource Assessment utilized a different site numbering convention than was used within the Master Reclamation Plan. The following matrix provides a comparison of the borrow site numbering convention utilized in this technical study with the information contained in the Master Reclamation Plan.

BORROW SITE NUMBERING CONVENTION COMPARISON MATRIX	
Borrow Site Name – Master Reclamation Plan	Borrow Site Name – Biological Resources Assessment
SB-1	SB-1 (No Change)
SB-2	SB-7
SB-3	SB-2
SB-4	SB-3
SB-5	SB-4
SB-6	SB-5
SB-7	SB-6
RV-1	RV-1 (No Change)
RV-2	RV-2 (No Change)
RV-3	RV-3 (No Change)
RV-4	RV-4 (No Change)
RV-5	RV-5 (No Change)
RV-6	RV-6 (No Change)
RV-7	RV-7 (No Change)



Colorado River Aqueduct Master Reclamation Plan for San Bernardino and Riverside Counties

Biological Resources Assessment

prepared for

The Metropolitan Water District of Southern California

700 North Alameda Street
Los Angeles, California 90012

prepared by

Rincon Consultants, Inc.

1980 Orange Tree Lane, Suite 105
Redlands, California 92374

November 2021



RINCON CONSULTANTS, INC.

Environmental Scientists | Planners | Engineers

rinconconsultants.com

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- Appendix D Figures

1 Introduction

Rincon Consultants, Inc. (Rincon) prepared this Biological Resources Assessment (BRA) report for The Metropolitan Water District of Southern California (Metropolitan) to document existing conditions and to evaluate the potential for impacts to biological resources during implementation of the Colorado River Aqueduct Master Reclamation Plan (MRP) for San Bernardino and Riverside Counties Project (Project), which includes reclamation activities at 20 borrow sites located along the Colorado River Aqueduct (CRA) in San Bernardino and Riverside counties. The 20 borrow sites, referred to herein as the Project Area, are locations where earthen materials, such as rock, sand, and gravel have been or are currently being extracted for maintenance of the CRA.

1.1 Project Description

1.1.1 Background

Metropolitan is a regional water wholesaler providing 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 and operates the 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 siphons, canals, conduits, and tunnels terminating at Lake Mathews in Riverside County, California. Figure 1 of Appendix D provides a regional overview of the Project Area.

In 1932, Metropolitan acquired fee ownership of the CRA right-of-way as well as additional land to be used for surface mining of stone, earth, gravel, sand, and other earthen materials needed to support the operations and maintenance of the CRA. Because the materials are taken from these sites for use at other areas associated with the CRA, they are referred to as “borrow sites.” There are 10 Metropolitan borrow sites in San Bernardino County and 10 Metropolitan borrow sites in Riverside County (see Figure 2 of Appendix D). Under California law, Metropolitan has a vested mining right for its fee-owned lands because federal legislation (June 18, 1932 Act, 47 Stat. 324; House Resolution 10048) authorized Metropolitan to extract materials to construct and continuously operate and maintain the CRA project and because Metropolitan initiated the surface mining operations prior to the establishment of land use zoning ordinances. With Metropolitan’s vested mining right, current and future surface mining operations at all of Metropolitan’s fee-owned lands, including the various borrow sites referenced in this report, are permitted by right.

The California Surface Mining and Reclamation Act (SMARA) requires surface mining operations to develop and implement a Reclamation Plan approved by the applicable SMARA lead agency, which is the State of California Mining and Geology Board for the proposed MRP. Because approval of reclamation plans constitutes a discretionary action by the SMARA lead agency(s), they are considered “projects” under the California Environmental Quality Act (CEQA). The reclamation of the 20 borrow sites is the Project being evaluated under CEQA with Metropolitan as the CEQA lead agency.

It is anticipated that operations and maintenance of the CRA would require the extraction of materials from the majority of the borrow sites for the next approximately 100 years. Material

depletion at these sites is anticipated to occur in 2121, at which time reclamation would commence. However, there are five borrow sites that are estimated to undergo reclamation within an estimated five years following approval of the MRP (estimated to occur in 2026); these are SB-4, SB-6, SB-9, RV-1, and RV-4.

1.1.2 Project Overview

The Project consists of an MRP covering the reclamation of the 20 borrow sites in San Bernardino and Riverside counties. The borrow sites are areas where earthen materials, such as rock, sand, and gravel have been or will be taken for CRA operations and maintenance activities. The majority of the sites lie in undeveloped isolated desert land, comprised of low-lying desert foothills and alluvial washes. The materials are extracted by typical surface mining techniques that include the use of off-road mobile equipment (e.g., dozers, loaders, excavators and graders). The sites may also have equipment storage, stockpiling of materials, and other auxiliary activities. As described above, surface mining activities must be reclaimed pursuant to SMARA requirements. Per SMARA, a reclamation plan that identifies the specific reclamation activities, final end use of the reclaimed site, and success criteria and monitoring/reporting must be prepared and approved by the SMARA lead agency (in this case, the State of California Mining and Geology Board).

Once extraction at the borrow sites is complete, the sites would be reclaimed in accordance with applicable MRP and related SMARA requirements under the proposed Project. Once vested surface mining operations are complete, the borrow sites would remain shallow excavation pits with various areas used for material stockpiles, equipment storage areas, and/or perimeter berms. When the sites are no longer needed to support the maintenance of the CRA and associated facilities, the sites would be fully reclaimed as revegetated open space.

Once reclamation commences, any unused equipment, deleterious materials (e.g., tailings, overburden, sediment, waste rock), and rubbish would be removed from the borrow site as needed. Other than the placement of nominal quantities of excavated material into the shallow borrow pits to ensure side slopes do not exceed 2H:1V (horizontal:vertical), or spreading of topsoil/subsoil to facilitate revegetation, no significant backfilling of the borrow pits will occur as part of site reclamation. For borrow sites where topsoil and subsoil were stored separately (i.e., in perimeter berms), these materials may be spread across the excavation areas to help facilitate revegetation efforts. Any remaining stockpiles of overburden or other natural materials (e.g., stone, sand) may also be knocked down and placed back in the pit to help achieve the final desired slope conditions. Additionally, existing stormwater control features (e.g., berms, earthen dikes) may be maintained or new features installed to control erosion at the borrow sites as needed post-reclamation. Water would be utilized for dust control during reclamation and to irrigate revegetated areas, if needed.

As discussed above, the final end use of Metropolitan's reclaimed borrow sites would be revegetated open space consistent with the surrounding environment. The proposed revegetation approach and methods for Metropolitan's borrow sites are consistent with standard industry practices. Specifically, the revegetation plan is based on the proposed final excavation pits, ranging from approximately 25-feet to 30-feet below ground surface, with undulating side slopes at a maximum gradient of 2:1 (H:V), for use as revegetated open space. Following completion of vested mining operations, the following typical sequence of revegetation activities will be undertaken at each borrow site:

- Re-contouring of planting areas, if necessary;
- Control of invasive weeds;

- Placement of topsoil and subsoil, if necessary;
- Installation of temporary irrigation systems, if necessary;
- Installation of erosion control devices, if necessary;
- Planting and seeding;
- Maintenance and monitoring; and
- Reporting.

The proposed revegetation seed mix for the borrow sites would include plant species native or common to the surrounding desert scrubland environment. It is estimated that a maximum of three Metropolitan employees would conduct reclamation operations on site at any given time.

Revegetation activities will be conducted under the supervision of an experienced monitoring biologist. The monitoring biologist will work closely with Metropolitan's operations personnel to assure that revegetation is accomplished according to applicable plans (e.g., County requirements, the proposed MRP, etc.) and is consistent with proposed site end uses and the surrounding desert environment.

1.2 Project Location

There are 10 Metropolitan borrow sites located in unincorporated San Bernardino County and 10 Metropolitan borrow sites located in unincorporated Riverside County (see Table 1 and Table 2). All 20 borrow sites are considered to be the Project Area and are referred to as San Bernardino (SB) numbers 1 through 10 (SB-1 to SB-10) and Riverside (RV) numbers 1 through 10 (RV-1 to RV-10).

The Project Area encompasses a total of approximately 149.3 acres, comprised specifically of 79.8 acres in San Bernardino County and 69.5 acres in Riverside County, and is located along an approximately 125-mile stretch of the CRA adjacent to State Route (SR) 62, SR 177, and Interstate 10 (I-10). The Project Area is located in the southern Mojave Desert, extending from the Copper Basin Reservoir to the east to the Cottonwood Mountains near the Julian Hinds Pumping Plant to the southwest. Table 1 summarizes the Section, Township and Range, the United States Geological Survey (USGS) 7.5-minute topographic quadrangles, and the approximate site coordinates for each of the 20 borrow sites.

Table 1 Borrow Site Locations – San Bernardino and Riverside Counties

Borrow Site Name	USGS 7.5-Minute Topographic Quadrangle	Section/Township/Range	Approximate Coordinates
SB-1	Gene Wash, California (1959)	Section 3, Township 1 North, Range 26 East, San Bernardino Baseline and Meridian	Latitude: 34.29° W Longitude: 114.24° N
SB-2	Vidal NW, California (2018)	Section 5, Township 1 South, Range 22 East, San Bernardino Baseline and Meridian	Latitude: 34.12° W Longitude: 114.68° N
SB-3	Rice, California (1965)	Section 15, Township 1 South, Range 20 East, San Bernardino Baseline and Meridian	Latitude: 34.09° W Longitude: 114.87° N
SB-4	Arica Mountains, California (2012)	Section 12, Township 1 South, Range 19 East, San Bernardino Baseline and Meridian	Latitude: 34.10° W Longitude: 114.94° N
SB-5	Granite Pass, California (2018)	Section 16, Township 1 South, Range 18 East, San Bernardino Baseline and Meridian	Latitude: 34.08° W Longitude: 115.10° N

The Metropolitan Water District of Southern California
Colorado River Aqueduct MRP for San Bernardino and Riverside Counties

Borrow Site Name	USGS 7.5-Minute Topographic Quadrangle	Section/Township/Range	Approximate Coordinates
SB-6	East of Granite Pass, California (2015)	Section 17, Township 1 South, Range 18 East, San Bernardino Baseline and Meridian	Latitude: 34.09° W Longitude: 115.12° N
SB-7	Granite Pass, California (2018)	Section 6, Township 1 South, Range 18 East, San Bernardino Baseline and Meridian	Latitude: 34.11° W Longitude: 115.13° N
SB-8	Iron Mountains, Arizona (1948)	Section 23, Township 1 South, Range 17 East, San Bernardino Baseline and Meridian	Latitude: 34.15° W Longitude: 115.16° N
SB-9	Cadiz Valley SE, California (1985)	Section 12, Township 1 South, Range 16 East, San Bernardino Baseline and Meridian	Latitude: 34.09° W Longitude: 115.26° N
SB-10	Parker NW, California (2012)	Section 2, Township 1 North, Range 24 East, San Bernardino Baseline and Meridian	Latitude: 34.21° W Longitude: 114.43° N
RV-1	East of Granite Pass, California (2015)	Section 19, Township 1 South, Range 19 East, San Bernardino Baseline and Meridian	Latitude: 34.07° W Longitude: 115.02° N
RV-2	East of Granite Pass, California (2015)	Section 19, Township 1 South, Range 19 East, San Bernardino Baseline and Meridian	Latitude: 34.07° W Longitude: 115.03° N
RV-3	East of Granite Pass, California (2015)	Section 22, Township 1 South, Range 18 East, San Bernardino Baseline and Meridian	Latitude: 34.08° W Longitude: 115.08° N
RV-4	Cadiz Valley SE, California (1985)	Section 23, Township 1 South, Range 16 East, San Bernardino Baseline and Meridian	Latitude: 34.07° W Longitude: 115.26° N
RV-5	Cadiz Valley SE, California (1985)	Section 13, Township 2 South, Range 16 East, San Bernardino Baseline and Meridian	Latitude: 33.99° W Longitude: 115.26° N
RV-6	Coxcomb Mountains, California (1987)	Section 22, Township 3 South, Range 16 East, San Bernardino Baseline and Meridian	Latitude: 33.90° W Longitude: 115.29° N
RV-7	Pinto Wells, California (2012)	Section 20, Township 3 South, Range 15 East, San Bernardino Baseline and Meridian	Latitude: 33.89° W Longitude: 115.43° N
RV-8	Desert Center, California (2018)	Section 12, Township 5 South, Range 14 East, San Bernardino Baseline and Meridian	Latitude: 33.74° W Longitude: 115.48° N
RV-9	Hayfield Spring, California (1986)	Section 20, Township 5 South, Range 13 East, San Bernardino Baseline and Meridian	Latitude: 33.70° W Longitude: 115.63° N
RV-10	Cottonwood Spring, California (2016)	Section 3, Township 6 South, Range 11 East, San Bernardino Baseline and Meridian	Latitude: 33.68° W Longitude: 115.83° N

Table 2 summarizes the Assessor's Parcel Numbers (APNs) and reclaimed end use for each of Metropolitan's 20 borrow sites.

Table 2 Borrow Site APNs and Acreages

Borrow Site	County Assessor's Parcel Number (APN)	Current Status	Reclaimed End Use	Size (acres)
SB-1	0661-181-04-0000	Active	Vegetated Open Space	4.6
SB-2	0646-201-02-0000 0646-201-03-0000 0646-211-15-0000	Active	Vegetated Open Space	10.7

Borrow Site	County Assessor's Parcel Number (APN)	Current Status	Reclaimed End Use	Size (acres)
SB-3	0646-091-09-0000 0646-101-02-0000	Active	Vegetated Open Space	12.3
SB-4	0646-081-07-0000	Inactive	Vegetated Open Space	2.7
SB-5	0646-011-07-0000	Active	Vegetated Open Space	4.3
SB-6	0646-021-14-0000	Inactive	Vegetated Open Space	1.5
SB-7	0646-021-01-0000 0646-021-12-0000	Active	Vegetated Open Space	6.7
SB-8	0643-221-07-0000 0643-221-21-0000	Active	Vegetated Open Space	14.2
SB-9	0643-171-07-0000	Inactive	Vegetated Open Space	1.8
SB-10	0647-321-05-0000 0647-331-17-0000	Active	Vegetated Open Space	21.0
				79.8
RV-1	800-130-019	Inactive	Vegetated Open Space	2.2
RV-2	800-130-019	Active	Vegetated Open Space	23.7
RV-3	800-120-004	Active	Vegetated Open Space	5.5
RV-4	800-021-008 800-021-010	Inactive	Vegetated Open Space	1.8
RV-5	800-040-033	Active	Vegetated Open Space	7.1
RV-6	800-101-044	Active	Vegetated Open Space	2.1
RV-7	800-090-029	Active	Vegetated Open Space	3.6
RV-8	811-020-023 811-020-028	Active	Vegetated Open Space	5.6
RV-9	705-230-031	Active	Vegetated Open Space	5.3
RV-10	715-080-001 715-080-002	Active	Vegetated Open Space	12.6
				69.5
				149.3

A total of 15 of the 20 borrow sites are active and would continue to provide materials to support Metropolitan's operations and maintenance activities. Sites SB-4, SB-6, and SB-9 in San Bernardino County and Sites RV-1 and RV-4 in Riverside County are currently inactive. Unless Metropolitan decides to restart operations at these locations, these five borrow sites would remain inactive, and reclamation would be complete in approximately five years from approval of the MRP (estimated during the second half of 2026). For the remainder of the borrow sites, extraction of materials would continue to occur until the material has depleted. Due to the infrequent use of materials from each site, the borrow sites are not expected to deplete for up to 100 years. Therefore, the MRP conservatively assumes material depletion at the majority of the borrow site locations would occur in 2121. Regardless of when a site is depleted of material, Metropolitan would fully reclaim all borrow sites in accordance with applicable SMARA performance standards as outlined in the MRP.

2 Regulatory Overview

Regulated or sensitive resources studied and analyzed herein include special status plant and wildlife species, nesting birds and raptors, sensitive plant communities, jurisdictional waters and wetlands, wildlife movement, and locally protected resources, such as protected trees.

2.1 Definition of Special Status Species

For the purposes of this report, special status species include:

- Species listed, proposed for listing, or candidates for listing as Threatened or Endangered under the federal Endangered Species Act (ESA);
- Species listed as Threatened, Endangered, or Rare by the California Department of Fish and Wildlife (CDFW) under the California Endangered Species Act (CESA) or the Native Plant Protection Act;
- Species designated as Fully Protected, Species of Special Concern, or Watch List by the California Fish and Game Code or CDFW;
- Species designated as locally important by the Local Agency and/or otherwise protected through ordinance or local policy such as the Coachella Valley Multiple Species Habitat Conservation Plan; and,
- Plants occurring in Ranks 1 and 2 of the California Native Plant Society's (CNPS) California Rare Plant Rank (CRPR) system (CNPS 2021).

2.2 Environmental Statutes

For this report, the analysis of potential impacts to biological resources was guided by the following statutes (Appendix A):

- California Environmental Quality Act (CEQA)
- Federal Endangered Species Act (ESA)
- California Endangered Species Act (CESA)
- Federal Clean Water Act (CWA)
- California Fish and Game Code (CFGF)
- Migratory Bird Treaty Act (MBTA)
- The Bald and Golden Eagle Protection Act
- Porter-Cologne Water Quality Control Act (Porter-Cologne Act)
- Coachella Valley Multiple Species Habitat Conservation Plan (CVMSHCP) [Coachella Valley Association of Governments (CVAG) 2007]
- Riverside County General Plan (County of Riverside 2020)
- San Bernardino County Policy Plan (County of San Bernardino 2020)

2.3 Guidelines for Determining CEQA Significance

The following threshold criteria, as defined by the CEQA Guidelines Initial Study Checklist, were used to evaluate potential environmental effects. Based on these criteria, the Project would have a significant effect on biological resources if it would:

- a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.
- b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.
- c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.
- d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.
- e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or 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.

3 Methodology

Biological conditions were evaluated by confirming applicable regulations, policies, and standards; reviewing biological literature and querying available databases pertinent to the Project Area and vicinity (within 5 miles for CDFW's California Natural Diversity Data Base [CNDDB] and 9 topographic quadrangles for CNPS); and conducting a reconnaissance-level biological survey of the Project Area and 500-foot survey buffer. This assessment provides the existing biological conditions of the Project Area at the time of the literature review and reconnaissance surveys. However, biological conditions of the Project Area are likely to change from their present conditions prior to implementation of Project activities (i.e., reclamation) due to both natural processes and current and future mining activities allowed under Metropolitan's vested mining right. The methods employed are described in detail below. The findings and opinions conveyed in this report are based on this methodology.

3.1 Literature Review

Prior to conducting the biological field survey for this BRA, Rincon reviewed a variety of literature to obtain baseline information about the biological resources with potential to occur at the Project Area and in the surrounding areas. Rincon conducted queries of several relevant databases that provide information about occurrences of special status biological resources:

- CDFW's CNDDB (CDFW 2021a)
- CDFW's Biogeographic Information and Observation System (BIOS) (CDFW 2021b)
- U.S. Fish and Wildlife Service's (USFWS) Critical Habitat Mapper (USFWS 2021a)
- USFWS' Information for Planning and Consultation (IPaC) query (USFWS 2021b)
- USFWS' National Wetlands Inventory (NWI) (USFWS 2021c)
- U.S. Department of Agriculture (USDA), Natural Resource Conservation Service's (NRCS) Web Soil Survey (NRCS 2021)
- Calflora's What Grows Here (Calflora 2021)
- California Native Plant Society's (CNPS) Online Inventory of Rare and Endangered Plants of California (CNPS 2021)
- CVMSHCP (CVAG 2007)

3.2 Reconnaissance Surveys

On June 29 and 30, 2020, Rincon biologist Megan Minter conducted a general biological reconnaissance survey of the Project Area and 500-foot survey buffer to document existing site conditions and the potential presence of sensitive biological resources, including sensitive plant and wildlife species, sensitive plant communities, jurisdictional waters and wetlands, and habitat for nesting birds. While a formal jurisdictional delineation was not performed, the locations of potentially jurisdictional waters and streambeds were mapped. The survey was performed by walking and driving throughout the Project Area to characterize biological resources (e.g., vegetative communities, potential presence of sensitive species and/or habitats, and presence of potentially jurisdictional waters). Weather conditions were sunny and clear with temperatures in

the 90s and 100s Fahrenheit (F) with variable winds ranging from 1 to 5 miles per hour. A follow-up survey was conducted on January 20, 2021 to survey the remaining portions of the Project Area that were not surveyed in June 2020. The January survey followed the same methodology as the June 2020 surveys detailed above. Weather conditions were sunny and clear with temperatures in the 60s and 70s F with variable winds ranging from 1 to 5 miles per hour.

Vegetation Community and Land Cover Mapping

Vegetation communities observed on-site were mapped on a site-specific aerial photograph. Vegetation was generally classified using the systems provided in the Preliminary Descriptions of the Terrestrial Communities of California (Holland 1986), and modified using A Manual of California Vegetation, Second Edition (MCV) (Sawyer et al. 2009) as necessary to reflect the existing site conditions). Sensitive plant communities were determined based on those listed by CDFW due to the rarity of the community in the state or throughout its entire range (CDFW 2021c).

Flora

All plant species observed in the Project Area were noted, and plants that could not be identified in the field were identified later using taxonomic keys. The reconnaissance surveys included a directed search for sensitive plants that would have been apparent at the time of the surveys. Floral nomenclature for native and non-native plants follows Baldwin et al. (2012) as updated by The Jepson Online Interchange (University of California Berkeley 2019). For ornamental plants, nomenclature follows USDA PLANTS Database (USDA 2021b), and Baldwin et al. (2012) and CNPS (2021) for special status plants.

Fauna

Animal species observed directly or detected from calls, tracks, scat, nests, or other signs were documented. Zoological nomenclature for birds is in accordance with the California Birds Records Committee (CBRC) *Official California Checklist* (CBRC 2021); for mammals is in accordance with *Mammals of California* (Wilson and Reeder 2005); and for amphibians and reptiles is in accordance with Society for the Study of Amphibians and Reptiles' (SSAR) *Checklist of the Standard English & Scientific Names of Amphibians & Reptiles* (SSAR 2017).

Jurisdictional Waters

Aerial imagery and the NWI (USFWS 2021c) were reviewed to identify potentially jurisdictional hydrologic features that may be considered waters of the state or waters of the United States, including streambeds under the jurisdiction of United States Army Corps of Engineers (USACE), Regional Water Quality Control Board (RWQCB), or CDFW. Features identified during the literature review were located and inspected in the field during the biological reconnaissance surveys for the inactive sites expected to be reclaimed within 5 years (SB-4, SB-6, SB-9, RV-1, and RV-4). While a formal jurisdictional delineation was not performed, the biologist mapped approximate limits of the tops of banks at the near-term sites with a Trimble Global Positioning System by walking the perimeter of significant potentially jurisdictional features within or immediately adjacent to the Project Area, based on topography and ordinary high water mark / flow indicators such as sediment sorting, benching, scour, and lack of vegetation. The approximate boundaries of significant, potentially jurisdictional waters for those borrow sites not to be reclaimed within 5 years and other significant features within the general vicinity of the Project Area were mapped based on a desktop analysis of aerial imagery. Smaller swale-like, potentially jurisdictional features which may be visible

from aerial imagery were not mapped as those features cannot be accurately assessed from a desktop analysis and should be verified in the field closer to the time of reclamation. Due to the long timeframe until implementation of Project reclamation activities for most sites (up to approximately 100 years), a formal jurisdictional waters delineation was not conducted as part of this assessment because conditions in the Project Area will likely change prior to implementation of reclamation activities in these locations.

Survey Limitations

The surveys were conducted during the summer and winter, outside of the typical blooming period for most of the common and special status plant species expected to occur in the Project Area. Similarly, overwintering species, spring migrants, and certain breeding birds with the potential to occur may not have been observed. Because the surveys were performed during the day, identification of nocturnal animals was limited to sign if present on-site. The potential presence of special status species is based on a literature review, existing site conditions, and general biological field surveys to assess habitat suitability. The surveys did not include focused protocol-level surveys for special status plant or animal species. Due to the long timeframe until implementation of Project reclamation activities for most sites (up to approximately 100 years), surveys were conducted to assess baseline existing conditions at the Project Area. Additional surveys would be conducted as appropriate prior to reclamation activities as conditions in the Project Area will likely change prior to implementation of reclamation activities in these locations.

3.3 Special Status Species Assessment

Rincon compiled a list of special status species previously documented within the vicinity of the Project Area. Specifically, a five-mile CNDDDB search and nine-quad CNPS query was conducted for each of the 20 borrow sites. Based on this database search, an analysis was conducted to determine which of the identified special status species have the potential to occur within the Project Area. The habitat requirements for each regionally occurring special status species were assessed and compared to the type and quality of habitats observed on-site during the biological reconnaissance surveys. Conclusions regarding which special status species have the potential to occur on-site were based not only on background research and literature review previously mentioned, but also on the data collected in the field during the reconnaissance surveys.

Local, state, and federal agencies regulate special status species and may require an assessment of their presence or potential presence to be conducted on-site prior to the approval of a proposed project on a property. Assessments for the potential occurrence of special status species are based upon known ranges, habitat preferences for the species, species occurrence records from the CNDDDB, species occurrence records from other sites near the Project Area, and previous reports for the Project Area. The potential for each special status species to occur in the Project Area was evaluated according to the following criteria:

- **No Potential.** Habitat on and adjacent to the Project Area is clearly unsuitable for the species requirements (foraging, breeding, cover, substrate, elevation, hydrology, plant community, site history, disturbance regime).
- **Low Potential.** Few of the habitat components meeting the species requirements are present, and/or the majority of habitat on and adjacent to the Project Area is unsuitable or of very poor quality. The species is not likely to be found in the Project Area.

- **Moderate Potential.** Some of the habitat components meeting the species requirements are present, and/or only some of the habitat within or adjacent to the Project Area is unsuitable. The species has a moderate probability of being found in the Project Area.
- **High Potential.** All of the habitat components meeting the species requirements are present and/or most of the habitat on or adjacent to the Project Area is highly suitable. The species has a high probability of being found in the Project Area.
- **Present.** Species is observed in the Project Area or has been recorded (e.g., CNDDDB, other reports) in the Project Area recently (within the last 5 years).

4 Existing Biological Conditions

This section summarizes the results of the literature review and data collected in the field. Discussions regarding the general environmental setting, vegetation communities present, plant and wildlife species observed, special status species issues, and other biological resource constraints on the Project are presented below. Representative photographs of the Project Area are provided in Appendix B. Biological conditions of the Project Area as presented herein are likely to change from their present conditions prior to implementation of Project activities (i.e., reclamation) due to both natural processes and current and future mining activities allowed under Metropolitan's vested mining right.

4.1 Regional Environmental Setting

The Project Area lies in a region of California with an assemblage of mountain ranges marked by long, broad alluvial valleys that often contain dry lakes. The existing topography surrounding the Project Area generally consists of flat, undeveloped, barren desert land and alluvial washes and low-lying desert foothills.

The Project Area is located within the Basin and Range Physiographic Province, which is comprised of a series of mountain ranges consisting of various Mesozoic granitic and older metamorphic and sedimentary rocks separated by valley basins filled with Quaternary alluvial material. Moreover, Tertiary-age volcanic rocks are exposed throughout the region. The Basin and Range Physiographic Province covers a large area of the Mojave Desert of California. It is defined by unique basin and range topography associated with tectonic extension, which is characterized by abrupt changes in elevation, alternating between narrow faulted mountain chains and flat arid valleys or basins. With the exception of SB-1 (located in the Whipple Mountains) and SB-8 (located in the Iron Mountains), the Project Area is situated within the alluvial plains that occur between individual and disconnected mountain ranges.

Topographic features and mountain ranges near the Project Area in San Bernardino County include the Whipple Mountains (adjacent to SB-1 and to the northwest of SB-10), the Turtle Mountains (approximately 9.0 miles north of SB-2, SB-3, and SB-4), and the Iron Mountains (adjacent to SB-6 through SB-9). Topographic features and mountain ranges near the Project Area in Riverside County include the Arica Mountains (approximately 7.0 miles northwest of RV-1 through RV-3), the Coxcomb Mountains (approximately 3.0 miles east of RV-4 and RV-5 and adjacent to RV-6), the Eagle Mountains (adjacent to RV-7 and RV-8), and the Cottonwood Mountains (adjacent to RV-9 and RV-10). The Copper Basin Reservoir, which is the closest waterbody to the Project Area, lies approximately 0.3 mile west of SB-1.

The Project Area generally lies in an isolated area with few nearby cities, communities, or other developments, except for Metropolitan's existing employee communities adjacent to the Gene, Iron Mountain, Eagle Mountain, and Julian Hinds Pumping Plants. SB-1 lies approximately 6.0 miles west of the community of Parker, Arizona and approximately 12.0 miles southwest of Lake Havasu City, Arizona. RV-8 lies approximately 4.9 miles west of the census-designated community of Desert Center. The remaining portion of the Project Area is located near the CRA in Riverside and San Bernardino counties. Nearby prominent roadways include SR 62, SR 177, SR 95 and I-10, which are

the primary regional routes into the Project Area. Section 1.3, *Description of Existing Conditions and Reclamation Activities within the Project Area*, provides a more detailed description of each site.

The Project Area is located in a region identified under the Köppen climate classification as a “hot desert climate” zone (PRISM Climate Group 2021). The regional climate is characterized by hot, dry summers and mild winters. The majority of the average 4.6 inches of annual rainfall in the region, usually occurs in the winter months beginning in November and lasting through April. Winters can average temperatures from 42 to 68 degrees Fahrenheit (°F) and are generally considered to be warm and mild. Summers are hot and dry, with average temperatures ranging from 78° to 106° F (Western Regional Climate Center 2021) This climate results in relatively stable weather patterns throughout the year in this region.

Much of the Project Area is crossed by expansive alluvial wash deposits. Soils are predominantly sandy gravel with high runoff coefficients and fast percolation. The dominant habitat is desert scrub, but discrete areas of other habitat types also occur within the regional area. Generally, the majority of the regional area can be described as Sonoran and Mojavean Desert Scrub and Riversidean Alluvial Fan Sage Scrub (County of San Bernardino 2014). The Project Area is located in the Mojave Desert geomorphic region.

4.2 Hydrology

The Project Area crosses three desert watersheds extending from near Desert Center, CA to Lake Havasu, AZ. These watersheds include Imperial Reservoir (HUC 15030104), Southern Mojave (HUC 18100100), and Salton Sea (HUC 18100204).

The Imperial Reservoir watershed is an approximate 3,400-square-mile watershed located on the southern end of Lake Havasu. Drainage from this watershed flows south and into Parker Valley and eventually the Colorado River. SB-1 and SB-10 are within this watershed.

The Southern Mojave watershed is an approximately 8,800-square-mile watershed located in the south-central portion of the Mojave Desert. This watershed extends from the west side of the Turtle Mountains west to Iron Mountain. This watershed drains south toward Blythe, CA. Drainages within this watershed are isolated and do not drain to the Colorado River. SB-2 through SB-9 as well as RV-1 through RV-9 are located within this watershed.

The Salton Sea watershed covers approximately 5,000 square miles in the far southwest portion of California. This watershed covers much of the Imperial Valley to the south of the Salton Sea as well as mountain ranges to the north, east, and west of the Salton Sea. Drainages within this watershed eventually drain into the Salton Sea. RV-10 is located within this watershed.

4.3 Soils

While the soil types in much of the Project Area are not mapped, six mapped soil types consisting of 10 soil series occur throughout the Project Area. None of the soils mapped within the Project Area are considered Hydric (NRCS 2007).

- Pintobasin-Joetree-Patscamp complex, 2 to 8 percent slopes
- Pintobasin loamy sand, 2 to 4 percent slopes
- Buzzardsprings-Coxpin-Dalelake complex, 2 to 8 percent slopes
- Deprave-Rockhound-Rizzo complex, 2 to 4 percent slopes

- Rizzo complex, 8 to 15 percent slopes
- Carsitas complex, 4 to 8 percent slopes

Pintobasin Series

Pintobasin Series soils consist of very deep, somewhat excessively drained soils that formed in mixed alluvium from dominantly granitoid rock. Pintobasin soils are found on fan remnants, alluvial fans, fan aprons, inset fans and in drainageways with slopes ranging from zero to 15 percent. These soils are somewhat excessively drained and experience negligible to low runoff. Pintobasin soils are typically used for recreation and wildlife habitat. Vegetation consists mainly of desert scrub.

Joetree Series

Joetree Series soils are very deep, somewhat excessively drained soils that formed in alluvium from granitoid rocks. They are found on fan aprons over fan remnants with slopes ranging from zero to eight percent. They are classified as mixed, hyperthermic typic torripsamments. These soils are usually dry and have a typic-aridic soil moisture regime. Joetree soils are typically used for recreation and wildlife habitat. Vegetation consists mainly of creosote bush (*Larrea tridentata*) and burrobush (*Ambrosia dumosa*).

Patscamp Series

Patscamp series consists of very deep, well drained soils that formed in alluvium derived from granitoid rocks. Patscamp soils are found on fan aprons over fan remnants and slopes ranging from two to eight percent. This series is well drained and exhibits very low runoff. These soils are commonly used for recreation and wildlife habitat. Vegetation consists of desert scrub.

Buzzardsprings Series

The Buzzardsprings series consists of very deep, somewhat excessively drained soils that formed in alluvium from igneous rock. These soils are found on fan remnants with slopes that range from two to 30 percent. They are classified as sandy, mixed, hyperthermic Typic Haplocalcids. This series is somewhat excessively drained and exhibits very low or low runoff. These soils are typically used for recreation and wildlife habitat. Vegetation consists of desert scrub.

Coxpin Series

The Coxpin series consists of shallow, somewhat excessively drained soils that formed in alluvium from igneous rocks. Coxpin soils are found on fan remnants and fan aprons over fan remnants and slopes ranging from two to eight percent. They are classified as sandy, mixed, hyperthermic, shallow Cambidic Haplodurids. This series is well drained and exhibits medium runoff. These soils are commonly used for recreation and wildlife habitat. Vegetation consists of desert scrub.

Dalelake Series

The Dalelake series consists of very deep, somewhat excessively drained soils that formed in eolian material from mixed sources. Dalelake soils are found on dunes, coppice dunes and sand sheets with slopes that range from zero to 30 percent. These soils are somewhat excessively drained and exhibit negligible to low runoff. These soils are typically used for recreation and wildlife habitat. Vegetation consists of desert scrub.

Deprave Series

The Deprave series consists of moderately deep, well-drained soils that formed in alluvium from granitoid and/or gneissic rocks. Deprave soils are found on fan remnants and slopes ranging from zero to four percent. They are classified as loamy-skeletal, mixed, superactive, hyperthermic Argidic Argidurids. This series is well drained and has very low or low runoff. These soils are commonly used for recreation and wildlife habitat. Vegetation consists of sparse desert scrub.

Rockhound Series

The Rockhound series consists of very deep, well drained soils that formed in alluvium from granitoid and/or gneissic rocks. Rockhound soils are found on fan remnants and slopes ranging from two to 15 percent. They are classified as loamy-skeletal, mixed, superactive, hyperthermic Typic Haplargids. This series is well drained and exhibits very low or medium runoff. These soils are typically used for recreation and wildlife habitat. Vegetation consists of sparse desert scrub.

Rizzo Series

The Rizzo series consists of very deep, excessively drained soils that formed in alluvium from various igneous and metamorphic rocks. The Rizzo soils are found on alluvial fans, fan aprons, fan remnants, inset fans and drainageways with slopes that range from zero to 75 percent. These soils are classified as sandy-skeletal, mixed, hyperthermic Typic Torriorthents. They are excessively drained and exhibit negligible to very high runoff. These soils are commonly used for recreation and wildlife habitat. Vegetation consists of desert scrub.

Carsitas Series

This series consists of very deep, somewhat excessively drained soils that formed in alluvium from granitoid and/or gneissic rocks. The Carsitas soils are found on alluvial fans, fan aprons, valley fills, dissected remnants of alluvial fans and in drainageways with slopes that range from zero to 30 percent. This series is classified as mixed, hyperthermic Typic Torripsamments. These soils are somewhat excessively drained and exhibit negligible to low runoff. They are typically used for recreation and wildlife habitat. Vegetation consists of sparse desert scrub.

4.4 Vegetation Communities and Land Cover

Two vegetation communities/land cover types were mapped in the Project Area (Table 3 and Figure 3 of Appendix D). These land cover types are creosote bush scrub and disturbed.

Creosote Bush Scrub

Much of the Project Area contains creosote bush scrub (*Larrea tridentata* Shrubland Alliance). This alliance is typically found in alluvial fans, bajadas, upland slopes, and minor intermittent washes between -75 and 1300 meters in elevation. Soils are well drained, sometimes with naturally occurring desert pavement. This vegetation community contains an intermittent to open shrub canopy dominated by creosote bush with an open to intermittent herbaceous layer with seasonal annuals or perennial grasses (Sawyer et al. 2009). This native vegetation community (ranked G5S5) is not considered a sensitive natural community (CDFW 2021a).

Within the Project Area, creosote bush scrub habitat is sparse and low growing due to high levels of existing disturbance from ongoing material extraction activities. Areas of creosote bush scrub

outside of and surrounding the Project Area are more dense with larger shrubs as those areas are not subject to regular disturbance. Within the Project Area, boxthorn (*Lycium* sp.), burrobush (*Ambrosia dumosa*), and California buckwheat (*Eriogonum fasciculatum*) were also present throughout this community.

Table 3 Vegetation Communities and Land Cover

Site	Vegetation Community and Land Cover	Sensitive? ¹
SB-1	Disturbed/Creosote Bush Scrub	No
SB-2	Disturbed/Creosote Bush Scrub	No
SB-3	Disturbed/Creosote Bush Scrub	No
SB-4	Disturbed/Creosote Bush Scrub	No
SB-5	Disturbed/Creosote Bush Scrub	No
SB-6	Creosote Bush Scrub	No
SB-7	Disturbed/Creosote Bush Scrub	No
SB-8	Disturbed	No
SB-9	Disturbed/Creosote Bush Scrub	No
SB-10	Creosote Bush Scrub	No
RV-1	Creosote Bush Scrub	No
RV-2	Disturbed/Creosote Bush Scrub	No
RV-3	Disturbed/Creosote Bush Scrub	No
RV-4	Disturbed/Creosote Bush Scrub	No
RV-5	Disturbed/Creosote Bush Scrub	No
RV-6	Disturbed/Creosote Bush Scrub	No
RV-7	Disturbed/Creosote Bush Scrub	No
RV-8	Disturbed/Creosote Bush Scrub	No
RV-9	Disturbed/Creosote Bush Scrub	No
RV-10	Creosote Bush Scrub	No

¹ A sensitive plant community is one that is listed by CDFW due to the rarity of the community in the state or throughout its entire range (CDFW 2021c).

Disturbed

Disturbed areas are defined as locations where soils have been disturbed during construction or other urban-related activities, including extraction of materials to construct and continuously operate and maintain the CRA by Metropolitan. This land cover type is not formally recognized as an official vegetation community. Disturbed areas generally consist of sites that have undergone prior grading and/or off-highway-vehicle recreational use and unimproved access roads. This includes areas that are unvegetated.

4.5 Wildlife Observed

Creosote bush scrub in the Project Area provides habitat for many wildlife species, including suitable nesting habitat for a wide variety of bird species and foraging habitat for common raptors. Wildlife

observed during the biological reconnaissance surveys consisted of common desert species. Avian wildlife species observed flying over the Project Area during the biological reconnaissance surveys included common raven (*Corvus corax*), red-tailed hawk (*Buteo jamaicensis*), American kestrel (*Falco sparverius*), and European starling (*Sturnus vulgaris*). Other wildlife observed included coast horned lizard (*Phrynosoma blainvillii*), California ground squirrel (*Otospermophilus beecheyi*), coyote (*Canis latrans*), burro (*Equus asinus*), bighorn sheep (*Ovis canadensis*), desert iguana (*Dipsosaurus dorsalis*), jackrabbit (*Lepus californicus*), and greater roadrunner (*Geococcyx californianus*).

5 Sensitive Biological Resources

This section discusses special status biological resources observed within the Project Area and evaluates the potential for the Project Area to support other sensitive resources. This assessment is based on the existing biological conditions of the Project Area at the time of the literature review and reconnaissance surveys. However, biological conditions of the Project Area are likely to change from their present conditions prior to implementation of Project activities (i.e., reclamation) due to both natural processes and current and future mining activities allowed under Metropolitan's vested mining right. Appendix C provides the complete list of all special status resources with records within a five-mile CNDDDB search and nine-quad CNPS query for each borrow site within the Project Area.

5.1 Special Status Plant and Wildlife Species

Based on the agency database and literature review, and the results of the biological reconnaissance surveys, Rincon conducted a habitat assessment for 34 special status species, including 22 special status plant species and 12 special status animal species. Each of the 34 species was evaluated for its potential to occur in the Project Area (see Appendix C).

Special Status Plants

No special status plant species were observed within the Project Area during the biological reconnaissance surveys. Based on the results of the literature review, 22 special status plant species are known to occur in the vicinity (within 5 miles for CNDDDB and 9 topographic quadrangles for CNPS) of the Project Area.¹ These species and their potential for occurrence are summarized in Appendix C. The Project Area is heavily disturbed due to past and ongoing material extraction activities for CRA operations and maintenance; as a result, the Project Area is unsuitable for rare plants that require specialized habitats. All plant species were determined to have low or no potential to occur due to a lack of habitat, unsuitable soils, and/or the Project Area's location outside of the known distribution and/or elevation range of the species (e.g., special status plants that are associated with dune habitats, large desert washes, or highly alkaline soils that are not present in the Project Area).

Special Status Wildlife

Based on the results of the literature review, 12 special status wildlife species are known to occur in the vicinity (within 5 miles for CNDDDB and 9 topographic quadrangles for CNPS) of the Project Area (Appendix C).² Two species (Mojave fringe-toed lizard [*Uma scoparia*] and cheeseweed owl [*Oliarces clara*]) were determined to have no potential to occur due to a lack of habitat, and/or the Project Area's location outside of the known distribution and/or elevation range of the species. Ten special status wildlife species were determined to have a moderate or high potential to occur in the

¹ Special status plant species known to occur in the Project Area, such as Joshua tree (*Yucca brevifolia*), which were not identified in the CNDDDB or CNPS were included to provide a comprehensive analysis.

² Special status wildlife species known to occur in the Project Area, such as burrowing owl (*Athene cunicularia*) and mountain lion (*Puma concolor*), which were not identified in the CNDDDB or CNPS were included to provide a comprehensive analysis.

Project Area: Mojave desert tortoise (*Gopherus agassizii*), prairie falcon (*Falco mexicanus*), Yuma myotis (*Myotis yumanensis*), cave myotis (*Myotis velifer*), California leaf-nosed bat (*Macrotus californicus*), Townsend's big-eared bat (*Corynorhinus townsendii*), burrowing owl (*Athene cunicularia*), desert bighorn sheep (*Ovis canadensis nelsoni*), mountain lion (*Puma concolor*), and bald eagle (*Haliaeetus leucocephalus*). These species are discussed further below.

Desert Tortoise

The Mojave desert tortoise is a federally and state threatened species that occurs north and west of the Colorado River in California, Nevada, Arizona, and Utah. This species lives in a variety of habitats from sandy flats to rocky foothills, including alluvial fans, washes, and canyons where suitable soils for den construction might be found. Desert tortoises may live 50 or more years in the wild, and their diet consists primarily of wildflowers, grasses, and cacti. This species spends most of its time in burrows, rock shelters, and pallets to regulate body temperature and reduce water loss. It is most active after seasonal rains and is inactive during most of the year. Threats to this species include increase in natural predators due to development and habitat loss.

No desert tortoises or their sign were detected during the biological field surveys. However, this species is highly mobile and suitable habitat for the desert tortoise is found throughout the Project Area. All sites contain suitable desert scrub habitat within or directly adjacent to the Project Area. Although the Project Area is heavily disturbed and subject to varying levels of use (including material extraction activities), they are surrounded by expanses of undisturbed desert scrub that may provide suitable habitat for the desert tortoise. The Project Area also contains friable soils as well as banks and slopes suitable for desert tortoise burrowing. Therefore, the desert tortoise was determined to have moderate potential to occur within the Project Area.

Bald Eagle

The bald eagle is a state-listed endangered and fully protected raptor species that was removed from the federal endangered species list in August 2007 and is protected under the Bald and Golden Eagle Protection Act. Its range includes most of Canada and Alaska, all of the contiguous United States, and northern Mexico. It is found near large bodies of open water with an abundant food supply and old-growth trees for nesting. Suitable foraging habitat for the bald eagle is located at SB-1. Large trees for nesting and a large body of water (Copper Basin) are present adjacent to the Project Area at this location. Furthermore, a bald eagle's nest from the (2019/2020) nesting season was observed approximately 1,200 feet east of SB-1 in a cottonwood tree adjacent to Copper Basin. In the fall of 2020, the cottonwood tree containing the inactive bald eagle nest, fell over in a windstorm. The bald eagle pair were subsequently observed nesting approximately 0.5 mile south of Copper Basin on rocky cliffs. Therefore, the bald eagle was determined to have high foraging potential at SB-1.

Prairie Falcon

The prairie falcon is a raptor species on CDFW's Watch List. It inhabits open hills, plains, prairies, deserts, and grasslands of the arid west where it preys upon small birds and mammals. This species typically nests on a ledge of a cliff in a recessed site. Suitable foraging habitat for this species is located at SB-1, SB-8, SB-9, RV-1, RV-6, RV-7, RV-8, RV-9, and RV-10. All of these sites contain some amount of desert scrub containing prey species within or adjacent to the Project Area. All of these sites also have large cliffs nearby that are suitable for nesting. The prairie falcon was determined to have high foraging potential at SB-1, RV-6, RV-7, RV-8, RV-9, and RV-10 due to the quality of desert

scrub and proximity to suitable nesting habitat. The prairie falcon was determined to have moderate foraging potential at SB-8, SB-9, and RV-1 due to a greater distance from suitable nesting habitat. No nesting habitat for this species occurs within the Project Area.

Desert Bighorn Sheep

The desert bighorn sheep is a state fully-protected species that inhabits rocky slopes and cliffs, canyons, washes and alluvial fans from the White Mountains in Mono County to the Chocolate Mountains in Imperial County. This species is a generalist herbivore and eats a wide variety of desert plants, including cacti. Suitable habitat for the desert bighorn sheep is present adjacent to RV-8 and within and adjacent to RV-9 at the grounds around Julian Hinds Pumping Plant as both sites are within 0.2 mile of the Eagle Mountains which contain suitable open, rocky and steep areas. The Project Area does not fall within range of the federally endangered, Peninsular bighorn sheep. Desert bighorn sheep were determined to have high potential to occur at RV-9 due to the site's location immediately adjacent to the Eagle Mountains as well as the presence of available water and herbaceous forage at the grounds of the Julian Hinds Pumping Plant. Desert bighorn sheep were determined to have low potential to occur at RV-8 due to the site's lack of water source and herbaceous forage.

Mountain Lion

The Fish and Game Commission received a petition on June 25, 2019 to list an evolutionarily significant unit (ESU), comprised of six populations of mountain lion in southern and central coastal California, as threatened or endangered under the CESA. The Fish and Game Commission's determination on the status of the species is due November 3, 2021. Until the determination is made, the mountain lion is granted "candidate" status, and receives protection as though it were listed. Mountain lions require large areas of relatively undisturbed habitats with adequate connectivity. They have large home ranges that include heterogeneous habitats that often consist of pine forests, riparian and oak woodlands, streams, chaparral, and grasslands, though they are also known to occur in desert habitats. While the Project Area is too small to support long-term use by mountain lions, suitable habitat for this species is present at all sites within the Project Area as all sites are located within open desert habitat within the species' range and may be subject to transient travel by mountain lions in the regional vicinity.

Burrowing Owl

The burrowing owl is a state species of special concern that uses a variety of natural and modified habitats for nesting and foraging, typically characterized by low growing vegetation. Burrowing owl habitat includes, but is not limited to, native and non-native grassland, interstitial grassland within shrub lands, shrub lands with low density shrub cover, golf-courses, drainage ditches, unpaved airfields, pastureland, dairies, fallow fields, and agricultural use areas. The species also often utilizes manmade structures, such as earthen berms, cement culverts, cement, asphalt, rock, wood debris piles, or openings beneath cement or asphalt pavement. Suitable foraging habitat for this species is present at all sites within the Project Area as all sites are surrounded by suitable creosote bush scrub. The burrowing owl was determined to have moderate foraging potential at all sites except SB-8 due to the presence of marginally suitable creosote bush scrub present within portions of the Project Area at these sites. SB-8 is disturbed with no suitable habitat present within the Project Area, and thus was determined to have low foraging potential for burrowing owl.

Special Status Bat Species

Yuma myotis, cave myotis, California leaf-nosed bat, and Townsend's big-eared bat are four CDFW species of special concern that have moderate foraging potential to occur at SB-1. Yuma myotis is a small bat species that is found in a variety of habitats, from desert scrub to coniferous forest, and always close to standing water such as lakes and ponds. Yuma myotis roosts in caves, buildings, mines, underneath bridges, and other similar structures. Cave myotis is a large bat species that roosts in habitats such as caves, mines, and rock outcrops. Similar to Yuma myotis, cave myotis forages in a wide variety of scrub and forest habitats. The California leaf-nosed bat inhabits caves, mines, and rock outcrops and forages within Sonoran and Mojave desert scrub habitats. Townsend's big-eared bat is found throughout California in a wide variety of habitats. The species roosts in the open, hanging from walls and ceilings and is most common in mesic sites. Suitable roosting habitat for all of these bat species is located directly adjacent to SB-1 in the rocky outcrops surrounding Copper Basin.

5.2 Sensitive Plant Communities

A sensitive plant community is one that is listed by CDFW due to the rarity of the community in the state or throughout its entire range (CDFW 2021c). The Project Area includes creosote bush scrub and disturbed habitat; neither of which are listed by CDFW as sensitive plant communities. Therefore, no sensitive plant communities were identified to exist within or adjacent to the Project Area.

5.3 Jurisdictional Waters and Wetlands

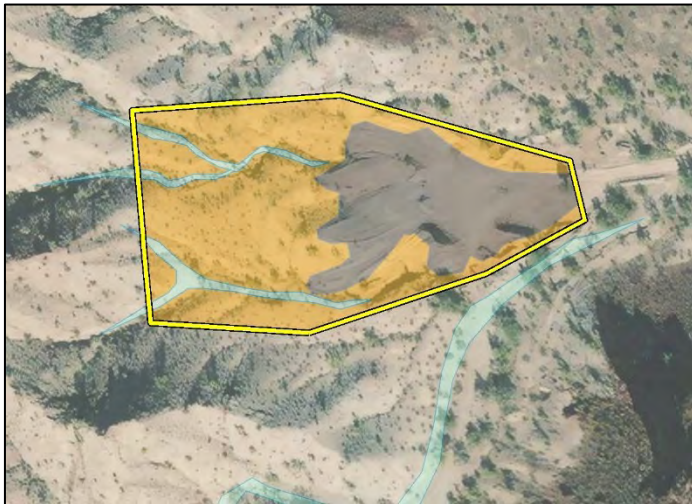
The Project Area is located within large desert watersheds and alluvial areas with multiple ephemeral drainages located within or adjacent to the Project Area. No wetlands or indicators of wetland hydrology were observed within the Project Area. These drainages have generally been formed from flashy runoff and rapid flows in response to rare precipitation events in the local area. These drainage systems are highly dynamic over time due to the infrequent nature and intensity of precipitation. Many drainages near the Project Area are part of large complex, braided ephemeral systems. Over time, the boundaries of these systems tend to migrate in response to each precipitation event. Furthermore, many of these systems have been modified by the construction of large "v-dikes" that serve to funnel flows over the CRA at designed "siphon" locations. Essentially, the majority of the ephemeral drainages that cross the CRA are directed towards specific drainage flow paths that occur approximately every 0.5 mile along the CRA.

Potentially jurisdictional waters were identified at or adjacent to SB-1, SB-2, SB-6, SB-7, SB-8, SB-9, SB-10, RV-2, RV-4, RV-5, RV-6, RV-7, RV-8 and RV-10 and are discussed further below. No other sites were identified as having potentially jurisdictional waters within or adjacent to the site. As noted above, a formal jurisdictional delineation was not conducted, and as such all features identified as potentially jurisdictional should be delineated to determine their precise boundaries and applicable regulatory authority. Approximate boundaries of significant potentially jurisdictional waters within or immediately adjacent to the Project Area for inactive sites to be reclaimed within 5 years (SB-6, SB-9, and RV-4) were mapped in the field during the reconnaissance survey. Approximate boundaries of significant potentially jurisdictional waters for future-term sites (SB-1, SB-2, SB-7, SB-8, SB-10, RV-2, RV-5, RV-6, RV-7, RV-8 and RV-10) and other significant features within the general vicinity of the Project Area were mapped based on a desktop analysis of aerial imagery. Smaller

swale-like potentially jurisdictional features which may be visible from aerial imagery were not mapped as those features cannot be accurately assessed from a desktop analysis and should be verified in the field closer to time of reclamation. Refer to Figure 3 of Appendix D for maps of approximate jurisdictional boundaries. Clipped images of the figures have been included in this section for additional context.

SB-1

SB-1 is located in the Whipple Mountains west of Copper Basin Reservoir. Numerous potentially jurisdictional ephemeral drainages originate from the peaks to the west and south of the site, travel across the western portion of the site, and eventually drain into Copper Basin. These drainages are small (approximately one to three feet in width in the vicinity of SB-1) and flow into a larger, direct tributary to Copper Basin that flows just outside the southern project boundary of SB-1. Based on observations made during the field surveys and a review of aerial imagery, these drainages are likely to be regulated by CDFW and the Colorado River Regional Water Quality Control Board (RWQCB) due to the presence of bed and banks. These drainages are unlikely to be regulated by the USACE due to the fact that they only flow in direct response to precipitation events.



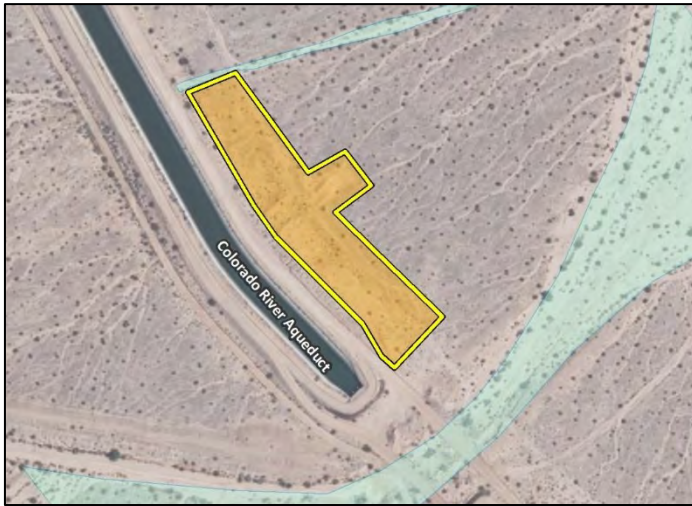
SB-2

The southwest boundary of SB-2 is located directly northeast of a CRA v-dike that conveys surface flows across the CRA. This v-dike directs flows from the Turtle Mountains to the northwest across the CRA. The potentially jurisdictional drainage created by this v-dike is approximately 100 feet in width directly downstream of the crossing location and flows adjacent to the southwest boundary of SB-2. The adjacent feature is likely to be regulated by CDFW and the RWQCB due to the presence of bed and banks. This feature is unlikely to be regulated by USACE due to its ephemeral hydrology.



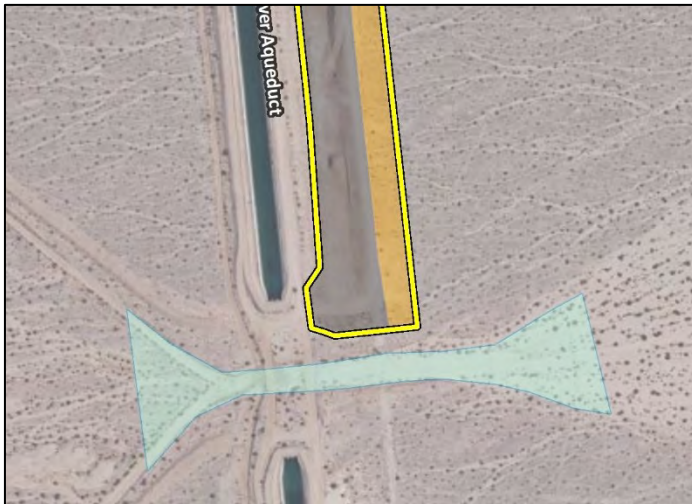
SB-6

A potentially jurisdictional drainage is located along the northern boundary of SB-6. The Project Area does not enter the drainage, but the south bank of the drainage is directly adjacent to the boundary. This small, ephemeral drainage flows from west to east adjacent to SB-6 and eventually to Danby Dry Lake, approximately 5 miles northeast of SB-6. This drainage is approximately eight to ten feet in width in the vicinity of SB-6 and originates as runoff from the Iron Mountains to the west and is bisected by the CRA. An additional potentially jurisdictional drainage is located approximately 70 feet south of the Project Area. These drainages are part of a larger alluvial area that drains the Iron Mountains. Based on observations made during the field surveys, these features are likely to be regulated by CDFW and the RWQCB due to the presence of bed and banks. These features are unlikely to be regulated by the USACE due to their ephemeral hydrology and lack of connectivity to a navigable water.



SB-7

The southeast boundary of SB-7 is located directly northwest of a CRA v-dike that conveys surface flows across the CRA. This v-dike directs flows from the Iron Mountains to the west across the CRA. The potentially jurisdictional drainage created by this v-dike is approximately 90 feet in width directly downstream of the crossing location and flows approximately 100 feet southwest of the boundary of SB-7. The adjacent feature is likely to be regulated by CDFW and the RWQCB due to the presence of bed and banks. This feature is unlikely to be regulated by USACE due to its ephemeral hydrology and lack of connectivity to a navigable water.



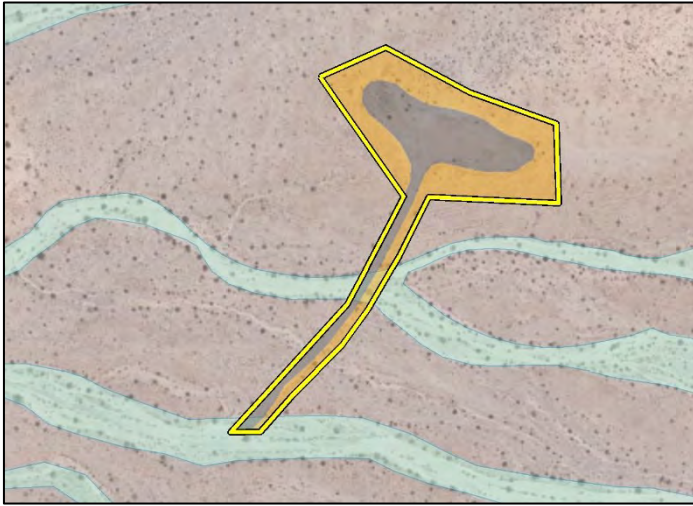
SB-8

SB-8 is located within the foothills of the Iron Mountains. Multiple potentially jurisdictional ephemeral drainages drain from the Iron Mountains to the east and into a large, unnamed ephemeral/intermittent drainage as depicted on USGS topographic maps. This unnamed drainage is present just outside of the boundary of SB-8 on the north and east sides. The drainage flows east and eventually into Danby Dry Lake. At the time of the surveys, no drainages were identified within the boundary of the site. The adjacent features are likely to be regulated by CDFW and the RWQCB due to the presence of bed and banks. These features are unlikely to be regulated by the USACE due to ephemeral hydrology and lack of connectivity to a navigable water.



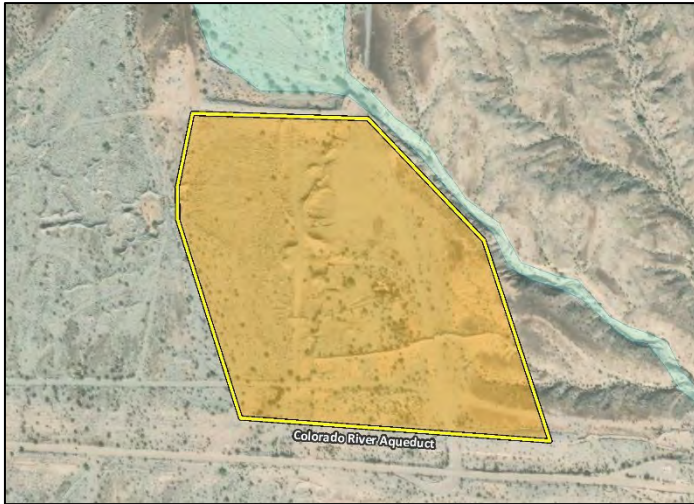
SB-9

Site SB-9 contains a large, potentially jurisdictional ephemeral drainage system flowing through the Project Area from east to west and eventually into Palen Valley Dry Lake. This large ephemeral drainage contains multiple braids that are approximately 20-30 feet in width and the substrate consists of fine sands and small gravel. Flow indicators are present that include sediment sorting, benching, scour, and lack of vegetation. This drainage originates in the Iron Mountains to the east, flows through the access road to SB-9 and is directed by a v-dike designed to channel flows over the CRA. Based on observations made during the field surveys, this feature is likely to be regulated by CDFW and the RWQCB due to the presence of bed and banks. This feature is unlikely to be regulated by USACE due to its ephemeral hydrology and lack of connectivity to a navigable water.



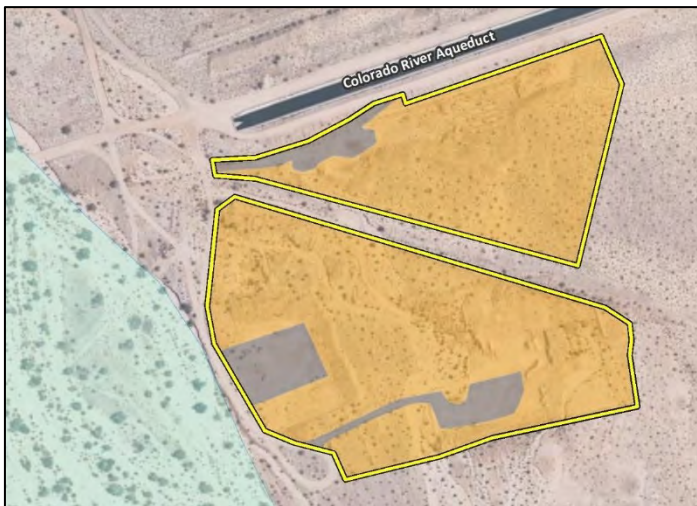
SB-10

SB-10 is located south of the Whipple Mountains. Numerous potentially jurisdictional ephemeral drainages originate from the peaks to the north of the site and travel south, eventually draining into the Colorado River. One of these drainages flows along the northern and eastern border of SB-10. This drainage is likely to be regulated by CDFW and the RWQCB due to the presence of bed and banks. This drainage is unlikely to be regulated by the USACE due to the fact that it only flows in direct response to precipitation events.



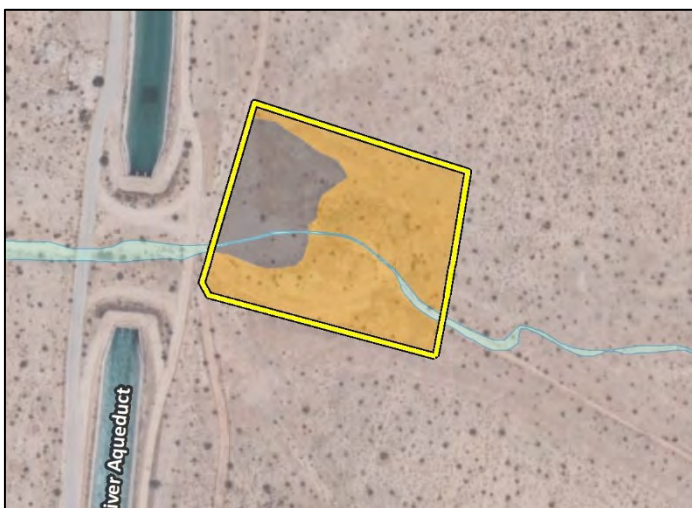
RV-2

The western boundary of RV-2 is located directly east of a potentially jurisdictional drainage that conveys surface flows across the CRA. The drainage is approximately 1,000 feet in width directly adjacent to RV-2 and conveys flows from the Little Maria Mountains in the south to the Danby Dry Lake approximately 5 miles north of RV-2. The adjacent feature is likely to be regulated by CDFW and the RWQCB due to the presence of bed and banks. This feature is unlikely to be regulated by USACE due to its ephemeral hydrology and lack of connectivity to a navigable water.



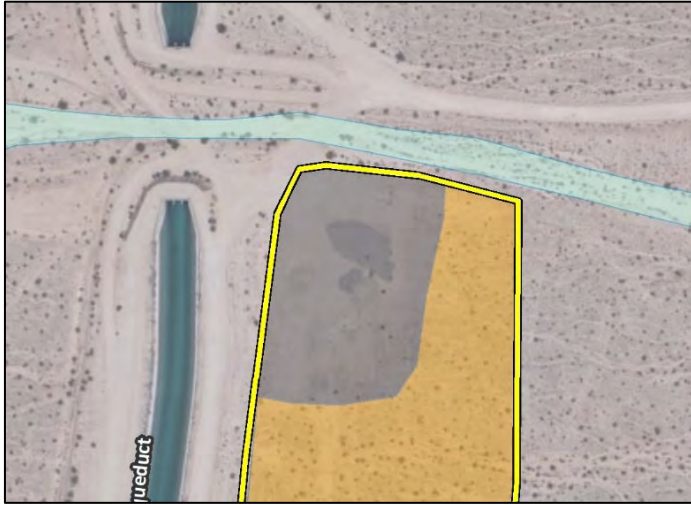
RV-4

RV-4 contains a potentially jurisdictional ephemeral drainage flowing from east to west and eventually into Palen Valley Dry Lake. This small, ephemeral drainage is approximately one to three feet in width in the vicinity of RV-4, and the substrate consists of sands and small gravel. Weak flow indicators are present and include sediment sorting. This drainage originates along a v-dike that is designed to convey flows over the aqueduct. Based on observations made during the field surveys, this drainage feature is likely to be regulated by CDFW and the RWQCB due to the presence of bed and banks. This feature is unlikely to be regulated by USACE due to its ephemeral hydrology and lack of connectivity to a navigable water.



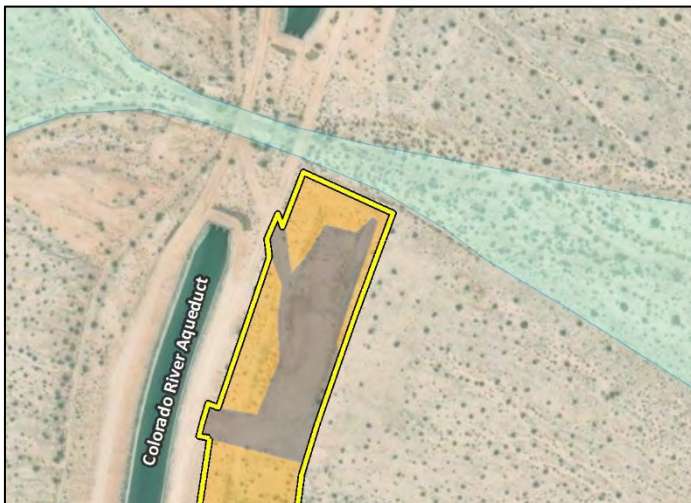
RV-5

The northern boundary of RV-5 is located directly south of a CRA access road and v-dike that conveys surface flows from the Coxcomb Mountains to the east across the CRA. The potentially jurisdictional drainage created by this v-dike is approximately 65 feet in width directly downstream of the crossing location and flows adjacent to the northern boundary of RV-5. At the time of the surveys, no drainages were identified within the boundary of RV-5. The adjacent feature is likely to be regulated by CDFW and the RWQCB due to the presence of bed and banks. This feature is unlikely to be regulated by USACE due to its ephemeral hydrology and lack of connectivity to a navigable water.



RV-6

The northern boundary of RV-6 is located directly southeast of a CRA v-dike. This v-dike conveys flows from the Coxcomb Mountains to the east across the CRA. The potentially jurisdictional drainage created by this v-dike is approximately 120 feet in width directly downstream of the crossing location and flows adjacent to the northern boundary of RV-6. At the time of the surveys, no drainages were identified within the boundary of RV-6. The adjacent feature is likely to be regulated by CDFW and the RWQCB due to the presence of bed and banks. This feature is unlikely to be regulated by USACE due to its ephemeral hydrology and lack of connectivity to a navigable water.



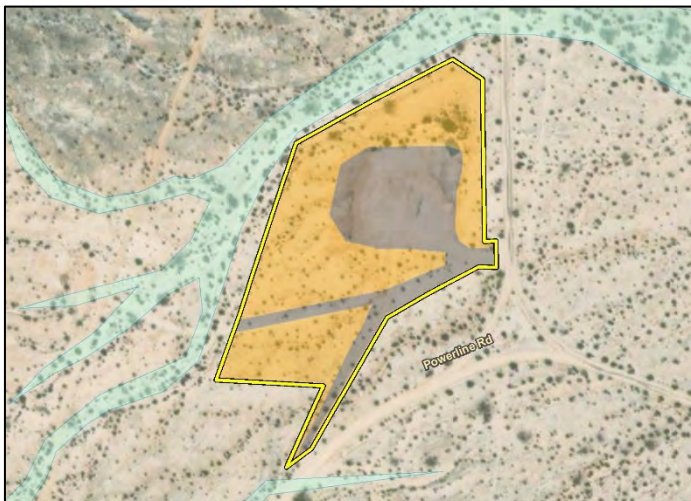
RV-7

RV-7 is located in the northeast foothills of the Eagle Mountains. A CRA v-dike is located adjacent to the southwest boundary of the site. This v-dike creates a deeply-incised potentially jurisdictional drainage approximately 100 feet in width. The drainage flows from northwest to southeast and eventually into Palen Valley Dry Lake. At the time of the surveys, no drainages were identified within the boundary of RV-7. The adjacent feature is likely to be regulated by CDFW and the RWQCB due to the presence of bed and banks. This feature is unlikely to be regulated by the USACE due to its ephemeral hydrology and lack of connectivity to a navigable water.



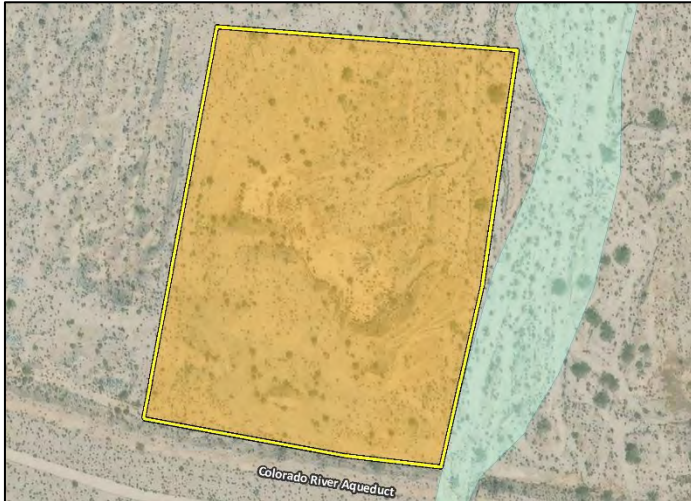
RV-8

RV-8 is located in the southeast foothills of the Eagle Mountains in an alluvial fan area draining to the east. Numerous potentially jurisdictional ephemeral drainages surround the site that flow generally from west to east and eventually into Palen Valley Dry Lake. A larger potentially jurisdictional ephemeral drainage approximately 20 to 30 feet in width flows along the western and northern boundaries of RV-8. At the time of the surveys, no drainages were identified within the boundary of RV-8. The adjacent features are likely to be regulated by CDFW and the RWQCB due to the presence of bed and banks. These features are unlikely to be regulated by the USACE due to their ephemeral hydrology and lack of connectivity to a navigable water.



RV-10

RV-10 is located south of the Cottonwood Mountains in an alluvial fan area draining to the south. A potentially jurisdictional ephemeral drainage conveys flows along the eastern boundary of the site. The adjacent feature is likely to be regulated by CDFW and the RWQCB due to the presence of bed and banks. This feature is unlikely to be regulated by the USACE due to its ephemeral hydrology and lack of connectivity to a navigable water.



5.4 Wildlife Movement

Wildlife movement corridors, or habitat linkages, are generally defined as connections between habitat patches that allow for physical and genetic exchange between otherwise isolated animal populations. Such linkages may serve a local purpose, such as providing a linkage between foraging and denning areas, or they may be regional in nature. Some habitat linkages may serve as migration corridors, wherein animals periodically move away from an area and then subsequently return.

Wildlife movement corridors can be both large and small scale. Portions of the Project Area are located within Conservation Planning Linkages, which are habitat connectivity linkages mapped in the California Essential Habitat Connectivity (CEHC) map that represent the best connections between core natural areas to maintain habitat connectivity (CDFW 2021b). These linkage areas occur throughout the Project Area, specifically at SB-3, SB-4, SB-8, SB-9, RV-1 and RV-2. The Project Area and vicinity are expected to support wildlife movement due to their location in undeveloped desert areas and proximity to mountain ranges and desert washes, which are known movement corridors. The Project Area is undeveloped and does not contain structures that would prevent or deter wildlife. However, because the Project Area encompasses a small percentage of total land within the movement linkages and lack valuable habitat features such as water sources or shelter, the Project Area's contributions to the overall function of the habitat linkages is expected to be minor.

5.5 Resources Protected by Local Policies and Ordinances

County of Riverside Ordinance No. 559: Regulating the Removal of Trees

The County of Riverside Ordinance No. 559 regulates native trees that occur on parcels or properties greater than 0.5 acre in size and located in areas above 5,000 feet in elevation within unincorporated areas. All portions of the Project Area are located below 5,000 feet in elevation, and no trees occur within the Project Area. Therefore, the County of Riverside Ordinance No. 559 does not apply to the Project. Additionally, activities conducted by a public utility subject to the jurisdiction of the California Public Utilities Commission, or any other constituted public agency, are exempt from this ordinance where activities require trees to be removed, pruned, topped, or braced to construct and maintain safe operation of facilities under their jurisdiction.

County of San Bernardino Ordinance No. 88.01.060: Desert Native Plant Protection

The County of San Bernardino Desert Native Plant protection ordinance protects certain desert native plants and does not allow removal of the following plants with stems two inches or greater in diameter or six feet or greater in height without a permit: smoketree (*Dalea spinosa*), all species of the genus *Prosopis*, all species of the family *Agavaceae*, Creosote Rings ten feet or greater in diameter and Joshua trees (*Yucca brevifolia*). 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*. None of the species protected under the County of San Bernardino Desert Native Plant protection ordinance were observed within the Project Area.

5.6 Habitat Conservation Plans

The CVMSHCP is a comprehensive, multi-jurisdictional habitat conservation plan focusing on the conservation of species and their associated habitats in the Coachella Valley region of Riverside County. The overall goal of the CVMSHCP is to maintain and enhance biological diversity and ecosystem processes within the region while allowing for future economic growth (CVAG 2007). RV-10 is within the CVMSHCP Plan area.

The CVMSHCP covers 27 sensitive plant and wildlife species (covered species) as well as 27 natural communities. Covered species include both listed and non-listed species that are adequately conserved by the CVMSHCP. The overall provisions for the plan are subdivided according to specific resource conservation goals that have been organized according to geographic areas defined as Conservation Areas.

RV-10 occurs within the planning boundary of the CVMSHCP but is not within or adjacent to a CVMSHCP Conservation Area. None of the 27 covered species or 27 natural communities have potential to occur at RV-10.

6 Project Impacts

The criteria used to evaluate potential impacts to biological resources within the Project Area are presented in Section 2.3, *Guidelines for Determining CEQA Significance*. This section discusses the possible adverse impacts to biological resources that may occur from implementation of the Project. As discussed above, reclamation of the 20 borrow sites is the Project being evaluated. For the five borrow sites that are anticipated to undergo reclamation in the next five years (SB-4, SB-6, SB-9, RV-1 and RV-4), this analysis utilizes existing environmental conditions as the baseline and evaluates environmental impacts at a project level. However, for the 15 sites that would continue vested operations for up to 100 years (reclamation conservatively assumed to occur until 2121), Metropolitan, as the lead agency, has determined that the environmental baseline conditions for the Project are the conditions expected to exist at the future time(s) when Project activities actually occur pursuant to CEQA Guidelines Section 15125(a)(1). In the interim time period between when this biological resources evaluation was conducted and actual implementation of Project activities (i.e., reclamation) at the borrow sites not to be reclaimed within 5 years, environmental conditions of the borrow sites, especially with regard to biological resources and drainage features, are likely to change from their present conditions due to both natural processes and current and future mining activities allowed under Metropolitan's vested mining right. Therefore, because environmental baseline conditions as they will exist in the future, specifically at the borrow sites that won't be reclaimed for up to 100 years, are not known, the environmental impacts analysis of these borrow sites has been prepared at a programmatic level using the best presently available data. As a result, this analysis has been prepared as a hybrid program/project-level BRA. For the purposes of the discussion below, the vested sites that will be reclaimed within the next five years (estimated to occur in 2026) are referred to as "near-term" sites, and the sites planned for reclamation in up to 100 years (estimated to occur in 2121) are referred to as "future-term" sites.

6.1 Special Status Species

6.1.1 Special Status Plants

As discussed in Section 5.1, *Special Status Plant and Wildlife Species*, 22 special status plants have potential to occur within the Project Area (Appendix C). Conditions within the Project Area are heavily disturbed through active use for CRA operations and maintenance, and many sites contain little to no vegetation. Due to the heavily disturbed nature of the Project Area, it is unsuitable for rare plants that require specialized habitats and all special status plant species were determined to have low or no potential to occur within the Project Area, including both the near-term and future-term sites. Special status plants generally require highly specific, high quality habitat not found within the Project Area. Special status plants have low or no potential to occur within the Project Area.

Implementation of reclamation activities at the 15 future-term borrow sites is anticipated to occur 2121. It is expected that conditions within the Project Area and/or listing statuses could change over time. While much of the Project Area is disturbed and supports little to no vegetation, there is potential for temporary impacts during reclamation activities to occur where special status plant species may be supported in the future. Activities such as movement of soil, vehicles driving and parking, and the foot traffic of crews, could incidentally crush or otherwise impact special status plant species. Impact areas would be small and localized at each site. Furthermore, planned

revegetation activities would provide a net benefit to on-site habitat conditions for special status plants. Nevertheless, conditions in the Project Area may change during the 100 years before reclamation activities are implemented at future-term sites. Therefore, there is a low potential for direct and indirect impacts to occur as a result of reclamation activities at future-term sites.

6.1.2 Special Status Wildlife

As discussed above in Section 5.1, *Special Status Plant and Wildlife Species*, 12 special status wildlife species have potential to occur within the Project Area (Appendix C). Ten special status wildlife species have moderate to high potential to occur. These species include: desert tortoise (*Gopherus agassizii*), Townsend's big-eared bat (*Corynorhinus townsendii*), burrowing owl (*Athene cunicularia*), prairie falcon (*Falco mexicanus*), Yuma myotis (*Myotis yumanensis*), cave myotis (*Myotis velifer*), California leaf-nosed bat (*Macrotus californicus*), desert bighorn sheep (*Ovis canadensis nelsoni*), mountain lion (*Puma concolor*), and bald eagle (*Haliaeetus leucocephalus*).

The Project Area is heavily disturbed, sparsely or not vegetated, and in most cases offer limited habitat for special status species. In addition, vested activities that are currently occurring in the Project Area include excavation, backfilling, earth moving, materials storage, and heavy equipment use. These activities increase sound and vibration levels at the sites and potential exposure to dust for special status species and reduce the likelihood that these species will be present. The short-term human presence and earthwork required for reclamation would be substantially similar to that which occurs during ongoing CRA vested operation and maintenance activities in the Project Area. In the long-term, reclamation will have a positive effect on special status species habitat because native plant communities will be restored and chronic disturbance of the sites will cease.

Reclamation for near-term and future-term sites could result in potential direct and indirect impacts to special status wildlife species present during Project activities. These impacts are discussed below.

DESERT TORTOISE

Desert tortoise has a moderate potential to occur at all 20 borrow sites due to the Project Area's proximity to suitable desert scrub habitat. Potential indirect impacts could include temporary crushing of suitable habitat, nest/burrow destruction, increased sound and vibration levels, and exposure to dust. Equipment and trash within the Project Area could attract desert tortoise predators, such as common ravens. However, as discussed above, disturbance associated with reclamation activities would be temporary in nature and would be substantially similar to that which has and will continue to occur as part of ongoing CRA operations and maintenance activities.

Direct impacts to desert tortoise may include crushing/killing of individuals with equipment or vehicles. Young desert tortoise are especially vulnerable to vehicle mortality due to their small size and inability to quickly seek refuge. Therefore, there is a moderate potential for direct and indirect impacts to occur to desert tortoise for both near-term and future-term sites.

BALD EAGLE AND PRAIRIE FALCON

Bald eagle has a high potential to forage at SB-1 due to the site's location within 1 mile of suitable nesting habitat. Prairie falcon also has a moderate to high potential to forage at SB-1, SB-8, SB-9, RV-1, RV-6, RV-7, RV-8, RV-9, and RV-10 due to the sites' locations adjacent to suitable nesting habitat. Potential indirect impacts could include temporary crushing of suitable foraging habitat, increased sound and vibration levels, and exposure to dust. Indirect impacts also include the temporary

displacement of prey species during reclamation activities. All of these impacts would be temporary and localized, would not kill or injure individual eagles or falcons, and would not substantially disrupt these species' behavior patterns. If conducted during the nesting season, reclamation activities within close proximity to active bald eagle and prairie falcon nests could potentially disrupt nesting activity due to disturbance and noise from heavy equipment and human presence associated with reclamation activities. However, as discussed above, disturbance associated with reclamation activities would be temporary in nature and would be substantially similar to that which has and will continue to occur as part of ongoing CRA operations and maintenance activities.

No direct impacts to bald eagle or prairie falcon would occur for near-term sites as no nesting habitat is present within the Project Area. However, site conditions may change prior to reclamation of the future-term sites. There is a low potential for direct impacts to these species in the future since it is unlikely that suitable nesting habitat (such as large, old-growth trees) would become established in areas currently unvegetated or dominated by creosote bush scrub.

DESERT BIGHORN SHEEP

Desert bighorn sheep has a high potential to occur in the vicinity of RV-9 at the grounds around Julian Hinds Pumping Plant due to the site's proximity to open, rocky, steep areas with available water and herbaceous forage. Desert bighorn sheep also has a low potential to occur in the vicinity of RV-8 due to the site's proximity to open, rocky, steep areas.

Direct impacts to desert bighorn sheep are not anticipated as the species is large and highly visible and therefore, can be easily avoided by equipment and personnel during reclamation activities. Potential indirect impacts could include increased sound and vibration levels, and exposure to dust. However, as discussed above, disturbance associated with reclamation activities would be temporary in nature and would be substantially similar to that which has and will continue to occur as part of ongoing CRA operations and maintenance activities. Although site conditions may change prior to reclamation of the future-term sites, there is a low potential for indirect impacts to desert bighorn sheep in the future.

MOUNTAIN LION

Mountain lion has a moderate potential to occur at all 20 borrow sites as all sites are located within open desert habitat within the species' range. While the Project Area is too small to support long-term use by mountain lions, all sites may be subject to transient travel by mountain lions in the regional vicinity.

Direct impacts to mountain lions are not anticipated as the species is large and highly visible and therefore, can be easily avoided by equipment and personnel during reclamation activities. Potential indirect impacts could include increased sound and vibration levels, and exposure to dust. However, as discussed above, disturbance associated with reclamation activities would be temporary in nature and would be substantially similar to that which has and will continue to occur as part of ongoing CRA operations and maintenance activities. Additionally, the Project Area is surrounded by undeveloped land and open space providing a multitude of regional movement options within and adjacent to the Project Area. Therefore, reclamation activities in the Project Area would not significantly impact the amount of regional habitat available for mountain lions in the vicinity. While site conditions may change prior to reclamation of the future-term sites; it is unlikely that conditions would change such that they would result in new or additional impacts to mountain lion beyond those analyzed herein.

BURROWING OWL

Burrowing owl has a low to moderate potential to forage at all 20 borrow sites due to the Project Area's proximity to suitable desert scrub habitat. While no suitable burrows were observed within the Project Area, burrows could be created by small mammals and inhabited by burrowing owls in the future. Potential indirect impacts could include temporary crushing of suitable habitat, burrow destruction, increased sound and vibration levels, and exposure to dust which may also disrupt nesting activity in adjacent suitable nesting habitat. However, as discussed above, disturbance associated with reclamation activities would be temporary in nature and would be substantially similar to that which has and will continue to occur as part of ongoing CRA operations and maintenance activities.

Although no suitable burrowing owl burrows were observed within the Project Area; given the presence of suitable habitat, the species could occupy the sites in the future. In addition, site conditions may change prior to reclamation activities at both near-term and future-term sites. Direct impacts to burrowing owl within the reclamation areas at the near-term and future-term sites may include crushing/killing of individuals with equipment or vehicles. If activities occur during the breeding season, eggs or nestlings could be crushed or entombed in burrows. Therefore, there is a moderate potential for direct impacts at near-term and future-term sites.

SPECIAL STATUS BAT SPECIES

Special status bat species have moderate potential to occur at SB-1. No near-term reclamation activities would occur at SB-1. Indirect impacts could include increased sound and vibration levels, and exposure to dust. These activities could displace special status bat species and movement of soil may result in air quality impacts that could affect adjacent individuals. However, as discussed above, disturbance associated with reclamation activities would be temporary in nature and would be substantially similar to that which has and will continue to occur as part of ongoing CRA operations and maintenance activities. While no bat roosting habitat was observed within the Project Area, site conditions may change prior to reclamation of the future-term sites and direct impacts to special status bat species may include injury or mortality due to heavy equipment or vehicles. Therefore, direct and indirect impacts to special status bat species may occur at SB-1.

NESTING BIRDS

Several common bird species protected by CFGC 3503 and the MBTA may nest in shrubs or suitable burrows within the Project Area. Reclamation activities may result in direct or indirect impacts to nesting bird species, should they be present within and/or in the immediate vicinity of areas of disturbance at the time of reclamation. Impacts to nesting birds could occur if nests with eggs or young are present within the proposed disturbance area during restoration. These impacts include disturbance of an active nest during reclamation activities through dust, vibration, noise, or vegetation removal and direct mortality to an individual from equipment. While common birds are not special status species, the destruction of eggs or nestlings is prohibited by federal and state law and must be avoided. As discussed above, disturbance associated with reclamation activities would be temporary in nature and would be substantially similar to that which has and will continue to occur as part of ongoing CRA operations and maintenance activities. Therefore, there is a moderate potential for direct and indirect impacts to nesting birds.

6.2 Jurisdictional Waters and Wetlands

Potentially jurisdictional waters are present within or adjacent to the Project Area at SB-1, SB-2, SB-6, SB-7, SB-8, SB-9, SB-10, RV-2, RV-4, RV-5, RV-6, RV-7, RV-8 and RV-10. The Project (including both near-term and future-term sites) is not expected to permanently impact jurisdictional waters because no permanent structures, direct removal, or filling are proposed in these areas.

Furthermore, after reclamation is complete, more native vegetation is expected to be in place, which would enhance riparian habitat, if present. In locations where potentially jurisdictional waters are within the Project Area, the Project would not result in a loss of jurisdictional waters as no areas would be permanently impacted and all areas temporarily impacted would be revegetated as detailed in the MRP and associated revegetation plan. Therefore, no permanent impacts would occur.

Potential temporary impacts to jurisdictional waters would include, but would not be limited to vehicles driving and parking, the foot traffic of crews, and revegetation. Temporary indirect impacts could include runoff of sediment and dust into jurisdictional areas during operation of heavy equipment. However, upon reclamation the borrow sites would be graded and recontoured to 2H:1V final slopes, with drainage directed inward toward the pit floors to prevent on- or off-site erosion or siltation. Additionally, reclamation would be conducted using applicable stormwater best management practices (BMPs) such as berms and/or earthen dikes as detailed in the MRP, which would reduce the temporary indirect impacts. Of the near-term sites, potentially jurisdictional waters are within SB-9 and RV-4, and directly adjacent to SB-6. In addition, reclamation activities for 15 of the 20 sites are estimated to occur as late as 2121 and the limits of jurisdictional waters as well as the applicable regulations may change over the next 100 years. Therefore, the extent and severity of the impacts at these 15 future-term sites is currently unknown.

6.3 Wildlife Movement

The Project Area is surrounded by undeveloped land and open space providing a multitude of regional wildlife movement options within and adjacent to the Project Area. Implementation of reclamation activities within the Project Area would restore currently disturbed and unvegetated areas to natural habitat areas and would not involve placement of permanent structures. Upon completion of reclamation activities, including revegetation, wildlife would be able to move more freely through the Project Area because the restored habitat would provide cover for foraging and movement. Therefore, implementation of the Project (including both near-term and future-term sites) would not significantly alter existing wildlife movement patterns.

6.4 Local Policies and Ordinances

None of the species protected under the County of San Bernardino Desert Native Plant protection ordinance were observed within the Project Area, and no trees which are regulated by the County of Riverside Ordinance No. 559 are proposed for removal during Project activities. Therefore, reclamation at the near-term sites would not conflict with local policies or ordinances.

While no current conflict exists with local ordinances, policies may change or protected species could become established prior to reclamation of the future-term sites, and therefore reclamation of the future-term sites could conflict with future local policies. Therefore, future sites should be

reevaluated at the time of reclamation to determine potential for impacts to a local plan or ordinance.

6.5 Conservation Plans

None of the five near-term sites are within or adjacent to the CVMSHCP area. Therefore, no impacts would occur associated with Project activities at near-term sites.

RV-10 is located within the CVMSHCP area, but not within any specific CVMSHCP Conservation Area. Furthermore, none of the 27 covered species or 27 natural communities have potential to occur at RV-10. The Project would avoid direct impacts to CVMSHCP Conservation Areas and would not conflict with the CVMSHCP Conservation Objectives because the reclamation activities are not located in areas that support covered species or their habitat. While no current conflict exists with a Natural Conservation Community Plan, or other approved, regional, or state habitat conservation plan, policies may change, and reclamation activities at the sites proposed for reclamation in the future (up to 2121) could conflict with future adopted Habitat Conservation Plans, Natural Conservation Community Plans, or other approved local, regional, or state habitat conservation plans. Future sites should be reevaluated at the time of reclamation to determine potential for impacts to a Natural Conservation Community Plan, or other approved, regional, or state habitat conservation plan.

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7 Limitations, Assumptions, and Use Reliance

This Biological Resources Assessment has been performed in accordance with professionally accepted biological investigation practices conducted at this time and in this geographic area. The biological investigation is limited by the scope of work performed. Biological surveys for the presence or absence of certain taxa have been conducted as part of this assessment but were not performed during a particular blooming period, nesting period, or particular portion of the season when positive identification would be expected if present, and, therefore, cannot be considered definitive. The biological surveys are limited also by the environmental conditions present at the time of the surveys. In addition, general biological (or protocol) surveys do not guarantee that the organisms are not present and will not be discovered in the future within the site. In particular, mobile wildlife species could occupy the site on a transient basis, or re-establish populations in the future. Our field studies were based on current industry practices, which change over time and may not be applicable in the future. No other guarantees or warranties, expressed or implied, are provided. The findings and opinions conveyed in this report are based on findings derived from site reconnaissance, review of CNDDDB RareFind5, and specified historical and literature sources. Standard data sources relied upon during the completion of this report, such as the CNDDDB, may vary with regard to accuracy and completeness. In particular, the CNDDDB is compiled from research and observations reported to CDFW that may or may not have been the result of comprehensive or site-specific field surveys. Although Rincon believes the data sources are reasonably reliable, Rincon cannot and does not guarantee the authenticity or reliability of the data sources it has used. Additionally, pursuant to our contract, the data sources reviewed included only those that are practically reviewable without the need for extraordinary research and analysis.

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Appendix A

Regulatory Guidance

Regulatory Setting

The following is a summary of the regulatory context under which biological resources are managed at the federal, state, and local levels. A number of 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:

- U.S. Army Corps of Engineers (wetlands and other waters of the United States);
- U.S. Fish and Wildlife Service (federally listed species and migratory birds);
- Colorado River Basin Regional Water Quality Control Board (waters of the State); and
- California Department Fish and Wildlife (riparian areas, streambeds, and lakes; state-listed species; nesting birds).

United States Army Corps of Engineers

The United States Army Corps of Engineers (USACE), is responsible for administering several federal programs related to ensuring the quality and navigability of the nation's waters.

Clean Water Act Section 404

Congress enacted the CWA “to restore and maintain the chemical, physical, and biological integrity of the Nation's waters.” Under provisions of Section 404 of the Clean Water Act (CWA), the USACE regulates the placement of dredge or fill material into “waters of the United States.” In administering this program, the USACE must consider factors including the need to minimize impacts while maintaining the applicant's objectives to the extent practicable, and the CWA's requirement that any permitted discharge of fill must be the least environmentally damaging practicable alternative. The process of obtaining a Section 404 permit can be onerous, and may include public noticing and comment, a robust alternatives analysis performed under the U.S. Environmental Protection Agency's (USEPA) Clean Water Act Section 404(b)(1) Guidelines, environmental review under the National Environmental Policy Act, required interagency consultation processes triggered by other federal laws, and costly compensatory mitigation.

To streamline the permitting process for routine types of projects the USACE has determined will have only minimal environmental impacts, the USACE has issued a series of General Permits, including Nationwide Permits (NWPs) issued at the national level and Regional General Permits (RGPs) issued at the regional level. For activities that meet the criteria, qualifying for coverage under a General Permit can be a boon because it eliminates the most complex steps in the permitting process (404(b)(1) analysis and NEPA review).

Waters of the U.S.

On April 21, 2020, the USACE and U.S. Environmental Protection Agency published the *Navigable Waters Protection Rule* to define “Waters of the United States.” This rule, effective on June 22, 2020, defines four categories of jurisdictional features, documents certain types of waters that are excluded from jurisdiction, and clarifies some regulatory terms. Under the *Navigable Waters Protection Rule*, “waters of the United States” include:

- (1) Territorial seas and traditional navigable waters;
- (2) Perennial and intermittent tributaries that contribute surface flow to those waters;
- (3) Certain Lakes and ponds, and impoundments of jurisdictional waters, and;
- (4) Wetlands adjacent to jurisdictional waters.

Tributaries are defined as “a river, stream, or similar naturally occurring surface water channel that contributes surface water flow to the territorial seas or traditional navigable waters in a typical year either directly or through one or more tributaries, jurisdictional lakes, ponds, and impoundments of jurisdictional waters, or adjacent wetlands.” The tributary category also includes a ditch that “either relocates a tributary, is constructed in a tributary, or is constructed in an adjacent wetland as long as the ditch is perennial or intermittent and contributes surface water flow to a traditional navigable water or territorial sea in a typical year.”

Adjacent wetlands are defined as wetlands that:

- (i) Abut, meaning to touch at least at one point or side of, a defined water of the U.S.;
- (ii) Are inundated by flooding from a defined water of the U.S. in a typical year;
- (iii) Are physically separated from a defined water of the U.S. by a natural berm, bank, dune, or similar natural features or by artificial dike, barrier or similar artificial structures as long as direct hydrological surface connection to defined Waters of the U.S. are allowed; or,
- (iv) Are physically separated from a defined water of the U.S. only by an artificial dike, barrier, or similar artificial structure so long as that structure allows for a direct hydrologic surface connection between the wetlands and the defined water of the U.S. in a typical year, such as through a culvert, flood or tide gate, pump, or similar artificial feature. An adjacent wetland is jurisdictional in its entirety when a road or similar artificial structure divides the wetland, as long as the structure allows for a direct hydrologic surface connection through or over that structure in a typical year.

The Navigable Waters Protection Rule states that the following areas not considered to be jurisdictional features even where they otherwise meet the definitions described above:

- (1) Groundwater, including groundwater drained through subsurface drainage systems;
- (2) Ephemeral features that flow only in direct response to precipitation including ephemeral streams, swales, gullies, rills and pools;
- (3) Diffuse stormwater runoff and directional sheet flow over uplands;
- (4) Ditches that are not defined Waters of the U.S. and not constructed in adjacent wetlands subject to certain limitations;
- (5) Prior converted cropland;
- (6) Artificially irrigated areas that would revert to upland if artificial irrigation ceases;
- (7) Artificial lakes and ponds that are not jurisdictional impoundments and that are constructed or excavated in upland or non-jurisdictional waters;
- (8) Water-filled depressions constructed or excavated in upland or in non-jurisdictional waters for the purpose of obtaining fill, sand, or gravel;
- (9) Stormwater control features constructed or excavated in uplands or in non-jurisdictional water to convey, treat, infiltrate, or stormwater run-off;
- (10) Groundwater recharge, water reuse, and wastewater recycling structures constructed or excavated in upland or in non-jurisdictional waters; and,

(11) Waste treatment systems.

USACE jurisdictional limits are typically identified by the ordinary high water mark (OHWM) or the landward edge of adjacent wetlands (where present). The OHWM is the “line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding area” (33 CFR 328.3).

Wetlands

The USACE defines wetlands as “those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions” (33 CFR 328.3). The USACE’s delineation procedures identify wetlands in the field based on indicators of three wetland parameters: hydrophytic vegetation, hydric soils, and wetland hydrology. The following is a discussion of each of these parameters.

Hydrophytic Vegetation

Hydrophytic vegetation dominates areas where frequency and duration of inundation or soil saturation exerts a controlling influence on the plant species present. Plant species are assigned wetland indicator status according to the probability of their occurring in wetlands. More than fifty percent of the dominant plant species must have a wetland indicator status to meet the hydrophytic vegetation criterion. The USACE published the National Wetland Plant List (USACE 2018), which separates vascular plants into the following four basic categories based on plant species frequency of occurrence in wetlands:

- **Obligate Wetland (OBL).** Almost always occur in wetlands
- **Facultative Wetland (FACW).** Usually occur in wetlands, but occasionally found in non-wetlands
- **Facultative (FAC).** Occur in wetlands or non-wetlands
- **Facultative Upland (FACU).** Usually occur in non-wetlands, but may occur in wetlands
- **Obligate Upland (UPL).** Almost never occur in wetlands

The USACE considers OBL, FACW and FAC species to be indicators of wetlands. An area is considered to have hydrophytic vegetation when greater than 50 percent of the dominant species in each vegetative stratum (tree, shrub, and herb) fall within these categories. Any species not appearing on the United States Fish and Wildlife Service’s list is assumed to be an upland species, almost never occurring in wetlands. In addition, an area needs to contain at least 5% vegetative cover to be considered as a vegetated wetland.

Hydric Soils

Hydric soils are saturated or inundated for a sufficient duration during the growing season to develop anaerobic or reducing conditions that favor the growth and regeneration of hydrophytic vegetation. Field indicators of wetland soils include observations of ponding, inundation, saturation, dark (low chroma) soil colors, bright mottles (concentrations of oxidized minerals such as iron), gleying (indicates reducing conditions by a blue-grey color), or accumulation of organic material. Additional supporting information includes documentation of soil as hydric or reference to wet conditions in the local soils survey, both of which must be verified in the field.

Wetland Hydrology

Wetland hydrology is inundation or soil saturation with a frequency and duration long enough to cause the development of hydric soils and plant communities dominated by hydrophytic vegetation. If direct observation of wetland hydrology is not possible (as in seasonal wetlands), or records of wetland hydrology are not available (such as stream gauges), assessment of wetland hydrology is frequently supported by field indicators, such as water marks, drift lines, sediment deposits, or drainage patterns in wetlands.

Rivers and Harbors Act Section 10

Section 10 of the Rivers and Harbors Act of 1899 requires authorization from the USACE for the construction of any structure in or over any navigable water of the United States. Structures or work outside the limits defined for navigable waters of the United States require a Section 10 permit if the structure or work affects the course, location, or condition of the water body. The law applies to any dredging or disposal of dredged materials, excavation, filling, re-channelization, or any other modification of a navigable water of the United States, and applies to all structures and work. It further includes, without limitation, any wharf, dolphin, weir, boom breakwater, jetty, groin, bank protection (e.g. riprap, revetment, bulkhead), mooring structures such as pilings, aerial or subaqueous power transmission lines, intake or outfall pipes, permanently moored floating vessel, tunnel, artificial canal, boat ramp, aids to navigation, and any other permanent, or semi-permanent obstacle or obstruction. It is important to note that Section 10 applies only to navigable waters, and thus does not apply to work in non-navigable wetlands or tributaries. In some cases, Section 10 authorization is issued by the USACE concurrently with CWA Section 404 authorization, such as when certain Nationwide Permits are used.

Regional Water Quality Control Board

The State Water Resources Control Board (SWRCB) and nine Regional Water Quality Control Boards (RWQCBs) have jurisdiction over “waters of the State,” which are defined as any surface water or groundwater, including saline waters, within the boundaries of the state (California Water Code sec. 13050(e)). These agencies also have responsibilities for administering portions of the CWA.

Clean Water Act Section 401

Section 401 of the CWA requires an applicant requesting a federal license or permit for an activity that may result in any discharge into navigable waters (such as a Section 404 Permit) to provide state certification that the proposed activity will not violate state and federal water quality standards. In California, CWA Section 401 Water Quality Certification (Section 401 Certification) is issued by the RWQCBs and by the SWRCB for multi-region projects. The process begins when an applicant requests a pre-application meeting with the RWQCB, waits no less than 30 days, and then submits an application to the RWQCB and informs the USACE (or the applicable agency from which a license or permit was requested) that an application has been submitted. The USACE will then determine a “reasonable period of time” for the RWQCB to act on the application; this is typically 60 days for routine projects and longer for complex projects but may not exceed one year. Under current regulations, once initiated, the reasonable period of time cannot be stopped or paused. When the period has elapsed, if the RWQCB has not either issued or denied the application for Section 401 Certification, the USACE may determine that Certification has been waived and issue

the requested permit. If a Section 401 Certification is issued it may include binding conditions, imposed either through the Certification itself or through the requested federal license or permit.

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act (Porter-Cologne Act) is the principal law governing water quality regulation in California. It establishes a comprehensive program to protect water quality and the beneficial uses of water. The Porter-Cologne Act applies to surface waters, wetlands, and ground water and to both point and nonpoint sources of pollution. Pursuant to the Porter-Cologne Act (California Water Code section 13000 et seq.), the policy of the State is as follows:

- The quality of all the waters of the State shall be protected
- All activities and factors affecting the quality of water shall be regulated to attain the highest water quality within reason
- The State must be prepared to exercise its full power and jurisdiction to protect the quality of water in the State from degradation

The Porter-Cologne Act established nine RWQCBs (based on watershed boundaries) and the SWRCB, which are charged with implementing its provisions and which have primary responsibility for protecting water quality in California. The SWRCB provides program guidance and oversight, allocates funds, and reviews RWQCB decisions. In addition, the SWRCB allocates rights to the use of surface water. The RWQCBs have primary responsibility for individual permitting, inspection, and enforcement actions within each of nine hydrologic regions. The SWRCB and RWQCBs have numerous nonpoint source related responsibilities, including monitoring and assessment, planning, financial assistance, and management.

Section 13260 of the Porter-Cologne Act requires any person discharging or proposing to discharge waste that could affect the quality of waters of the State to file a Report of Waste Discharge with the appropriate RWQCB. The RWQCB may then authorize the discharge, subject to conditions, by issuing Waste Discharge Requirements (WDRs). While this requirement was historically applied primarily to outfalls and similar point source discharges, the SWRCB's *State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State*, effective May 2020, make it clear that the agency will apply the Porter-Cologne Act's requirements to discharges of dredge and fill material as well. The *Procedures* state that they are to be used in issuing CWA Section 401 Certifications and WDRs, and largely mirror the existing review requirements for CWA Section 404 Permits and Section 401 Certifications, incorporating most elements of the USEPA's *Section 404(b)(1) Guidelines*. Following issuance of the *Procedures*, the SWRCB produced a consolidated application form for dredge/fill discharges that can be used to obtain a CWA Section 401 Water Quality Certification, WDRs, or both.

Non-Wetland Waters of the State

The SWRCB and RWQCBs have not established regulations for field determinations of waters of the state except for wetlands currently. In many cases the RWQCBs interpret the limits of waters of the State to be bounded by the OHWM unless isolated conditions or ephemeral waters are present. However, in the absence of statewide guidance each RWQCB may interpret jurisdictional boundaries within their region and the SWRCB has encouraged applicants to confirm jurisdictional limits with their RWQCB before submitting applications. As determined by the RWQCB, waters of the State may include riparian areas or other locations outside the OHWM, leading to a larger jurisdictional area over a given water body compared to the USACE.

Wetland Waters of the State

Procedures for defining wetland waters of the State pursuant to the SWRCB's *State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State* went into effect May 28, 2020. The SWRCB defines an area as wetland if, under normal circumstances:

- (i) the area has continuous or recurrent saturation of the upper substrate caused by groundwater, or shallow surface water, or both;
- (ii) the duration of such saturation is sufficient to cause anaerobic conditions in the upper substrate; and
- (iii) the area's vegetation is dominated by hydrophytes or the area lacks vegetation.

The SWRCB's Implementation Guidance for the Wetland Definition and Procedures for Discharges of Dredge and Fill Material to Waters of the State (2020), states that waters of the U.S. and waters of the State should be delineated using the standard USACE delineation procedures, taking into consideration that the methods shall be modified only to allow for the fact that a lack of vegetation does not preclude an area from meeting the definition of a wetland.

United States Fish and Wildlife Service

The United States Fish and Wildlife Service (USFWS) implements several laws protecting the Nation's fish and wildlife resources, including the Endangered Species Act (ESA; 16 United States Code [USC] Sections 153 et seq.), the Migratory Bird Treaty Act (MBTA; 16 USC Sections 703-711) and the Bald and Golden Eagle Protection Act (16 USC Section 668).

Endangered Species Act

The USFWS and National Marine Fisheries Service (NMFS) share responsibility for implementing the ESA. Generally, the USFWS implements the FESA for terrestrial and freshwater species, while the NMFS implements the FESA for marine and anadromous species. Projects that would result in "take" of any threatened or endangered animal species, or a threatened or endangered plant species if occurring on federal land, are required to obtain permits from the USFWS or NMFS through either Section 7 (interagency consultation with a federal nexus) or Section 10 (Habitat Conservation Plan) of the ESA, depending on the involvement by the federal government in funding, authorizing, or carrying out the project. The permitting process is used to determine if a project would jeopardize the continued existence of a listed species and what measures would be required to avoid jeopardizing the species. "Take" under federal definition means to harass, harm (which includes habitat modification), pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. Proposed or candidate species do not have the full protection of the ESA; however, the USFWS and NMFS advise project applicants that they could be elevated to listed status at any time.

Migratory Bird Treaty Act

The MBTA of 1918 implements four international conservation treaties that the U.S. entered into with Canada in 1916, Mexico in 1936, Japan in 1972, and Russia in 1976. It is intended to ensure the sustainability of populations of all protected migratory bird species. The law has been amended with the signing of each treaty, as well as when any of the treaties were amended, such as with Mexico in

1976 and Canada in 1995. The MBTA prohibits the take (including killing, capturing, selling, trading, and transport) of protected migratory bird species without prior authorization by the USFWS.

The list of migratory bird species protected by the law, in regulations at 50 CFR Part 10.13, is primarily based on bird families and species included in the four international treaties. A migratory bird species is included on the list if it meets one or more of the following criteria:

1. It occurs in the United States or U.S. territories as the result of natural biological or ecological processes and is currently, or was previously listed as, a species or part of a family protected by one of the four international treaties or their amendments.
2. Revised taxonomy results in it being newly split from a species that was previously on the list, and the new species occurs in the United States or U.S. territories as the result of natural biological or ecological processes.
3. New evidence exists for its natural occurrence in the United States or U.S. territories resulting from natural distributional changes and the species occurs in a protected family.

In 2004, the Migratory Bird Treaty Reform Act limited the scope of the MBTA by stating the MBTA applies only to migratory bird species that are native to the United States or U.S. territories, and that a native migratory bird species is one that is present as a result of natural biological or ecological processes. The MBTRA requires the USFWS to publish a list of all nonnative, human-introduced bird species to which the MBTA does not apply, and an updated list was published in 2020. The 2020 update identifies species belonging to biological families referred to in treaties the MBTA implements but are not protected because their presence in the United States or U.S. territories is solely the result of intentional or unintentional human-assisted introductions.

Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act prohibits anyone, without a permit issued by the USFWS, from "taking" bald or golden eagles, including their parts (including feathers), nests, or eggs. The Act provides criminal penalties for persons who "take, possess, sell, purchase, barter, offer to sell, purchase or barter, transport, export or import, at any time or any manner, any bald eagle ... [or any golden eagle], alive or dead, or any part, nest, or egg thereof." The Act defines "take" as "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb."

"Disturb" means "to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, 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."

In addition to immediate impacts, this definition also covers impacts that result from human-induced alterations initiated around a previously used nest site during a time when eagles are not present, if, upon the eagle's return, such alterations agitate or bother an eagle to a degree that interferes with or interrupts normal breeding, feeding, or sheltering habits, and causes injury, death or nest abandonment.

California Department of Fish and Wildlife

The California Department of Fish and Wildlife (CDFW) derives its authority from the Fish and Game Code of California and administers several State laws protecting fish and wildlife resources and the habitats upon which they depend.

California Endangered Species Act

The California Endangered Species Act (CESA) (Fish and Game Code Sections 2050 et. seq.) prohibits take of state listed threatened or endangered. Take under CESA is defined as "Hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill" (Fish and Game Code sec. 86). This definition does not prohibit indirect harm by way of habitat modification, except where such harm is the proximate cause of death of a listed species. Where incidental take would occur during construction or other lawful activities, CESA allows the CDFW to issue an Incidental Take Permit upon finding, among other requirements, that impacts to the species have been minimized and fully mitigated. Unlike the federal ESA, CESA's protections extend to candidate species during the period (typically one year) while the California Fish and Game Commission decides whether the species warrants CESA listing.

Native Plant Protection Act

The CDFW also has authority to administer the Native Plant Protection Act (NPPA) (Fish and Game Code Section 1900 et seq.). The NPPA requires the CDFW to establish criteria for determining if a species, subspecies, or variety of native plant is endangered or rare, and prohibits the take of listed plant species. Effective in 2015, CDFW promulgated regulations (14 CCR 786.9) under the authority of the NPPA, establishing that the CESA's permitting procedures would be applied to plants listed under the NPPA as "Rare." With this change, there is little practical difference for the regulated public between plants listed under CESA and those listed under the NPPA.

Fully Protected Species Laws

The CDFW enforces Sections 3511, 4700, 5050, and 5515 of the Fish and Game Code, which prohibit take of species designated as Fully Protected. The CDFW is not allowed to issue an Incidental Take Permit for Fully Protected species; therefore, impacts to these species must be avoided. The exception is situations where a Natural Community Conservation Plan (NCCP) is in place that authorizes take of the fully protected species.

Avian Protection Laws

California Fish and Game Code sections 3503, 3503.5, and 3513 describe unlawful take, possession, or destruction of native birds, nests, and eggs. Section 3503.5 of the Code protects all birds-of-prey and their eggs and nests against take, possession, or destruction of nests or eggs. Section 3513 makes it a state-level offense to take any bird in violation of the federal Migratory Bird Treaty Act.

Protection of Lakes and Streambeds

California Fish and Game Code section 1602 states that it is unlawful for any person to "substantially divert or obstruct the natural flow of, or substantially change or use any material from the bed, channel, or bank of, any river, stream, or lake" without first notifying the California Department of Fish and Wildlife (CDFW) of that activity. Thereafter, if CDFW determines and informs the entity that the activity will not substantially adversely affect any existing fish or wildlife resources, the entity

may commence the activity. If, however, CDFG determines that the activity may substantially adversely affect an existing fish or wildlife resource, the entity may be required to obtain from CDFW a Streambed Alteration Agreement (SAA), which will include reasonable measures necessary to protect the affected resource(s), before the entity may conduct the activity described in the notification. Upon receiving a complete Notification of Lake/Streambed Alteration, CDFW has 60 days to present the entity with a Draft SAA. Upon review of the Draft SAA by the applicant, any problematic terms are negotiated with CDFW and a final SAA is executed.

The CDFW has not defined the term “stream” for the purposes of implementing its regulatory program under Section 1602, and the agency has not promulgated regulations directing how jurisdictional streambeds may be identified, or how their limits should be delineated. However, four relevant sources of information offer insight as to the appropriate limits of CDFW jurisdiction as discussed below.

- **The plain language of Section 1602 of CFGC** establishes the following general concepts:
 - References “river,” “stream,” and “lake”
 - References “natural flow”
 - References “bed,” “bank,” and “channel”
- **Applicable court decisions**, in particular *Rutherford v. State of California* (188 Cal App. 3d 1276 (1987)), which interpreted Section 1602’s use of “stream” to be as defined in common law. The Court indicated that a “stream” is commonly understood to:
 - Have a source and a terminus
 - Have banks and a channel
 - Convey flow at least periodically, but need not flow continuously and may at times appear outwardly dry
 - Represent the depression between the banks worn by the regular and usual flow of the water
 - Include the area between the opposing banks measured from the foot of the banks from the top of the water at its ordinary stage, including intervening sand bars
 - Include the land that is covered by the water in its ordinary low stage
 - Include lands below the OHWM
- **CDFW regulations** defining “stream” for other purposes, including sport fishing (14 CCR 1.72) and streambed alterations associated with cannabis production (14 CCR 722(c)(21)), which indicate that a stream:
 - Flows at least periodically or intermittently
 - Flows through a bed or channel having banks
 - Supports fish or aquatic life
 - Can be dry for a period of time
 - Includes watercourses where surface or subsurface flow supports or has supported riparian vegetation
- **Guidance documents**, including *A Field Guide to Lake and Streambed Alteration Agreements* (CDFG 1994) and *Methods to Describe and Delineate Episodic Stream Processes on Arid Landscapes for Permitting Utility-Scale Solar Power Plants* (Brady and Vyverberg 2013), which suggest the following:

- A stream may flow perennially or episodically
- A stream is defined by the course in which water currently flows, or has flowed during the historic hydrologic course regime (approximately the last 200 years)
- Width of a stream course can reasonably be identified by physical or biological indicators
- A stream may have one or more channels (single thread vs. compound form)
- Features such as braided channels, low-flow channels, active channels, banks associated with secondary channels, floodplains, islands, and stream-associated vegetation, are interconnected parts of the watercourse
- Canals, aqueducts, irrigation ditches, and other means of water conveyance can be considered streams if they support aquatic life, riparian vegetation, or stream-dependent terrestrial wildlife
- Biologic components of a stream may include aquatic and riparian vegetation, all aquatic animals including fish, amphibians, reptiles, invertebrates, and terrestrial species which derive benefits from the stream system
- The lateral extent of a stream can be measured in different ways depending on the particular situation and the type of fish or wildlife resource at risk

The tenets listed above, among others, are applied to establish the boundaries of streambeds in various environments. Importance of each factor may be weighted based on site-specific considerations and the applicability of the indicators to the streambed at hand.

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Appendix B

Representative Site Photographs



Photograph 1. Overview of SB-1.



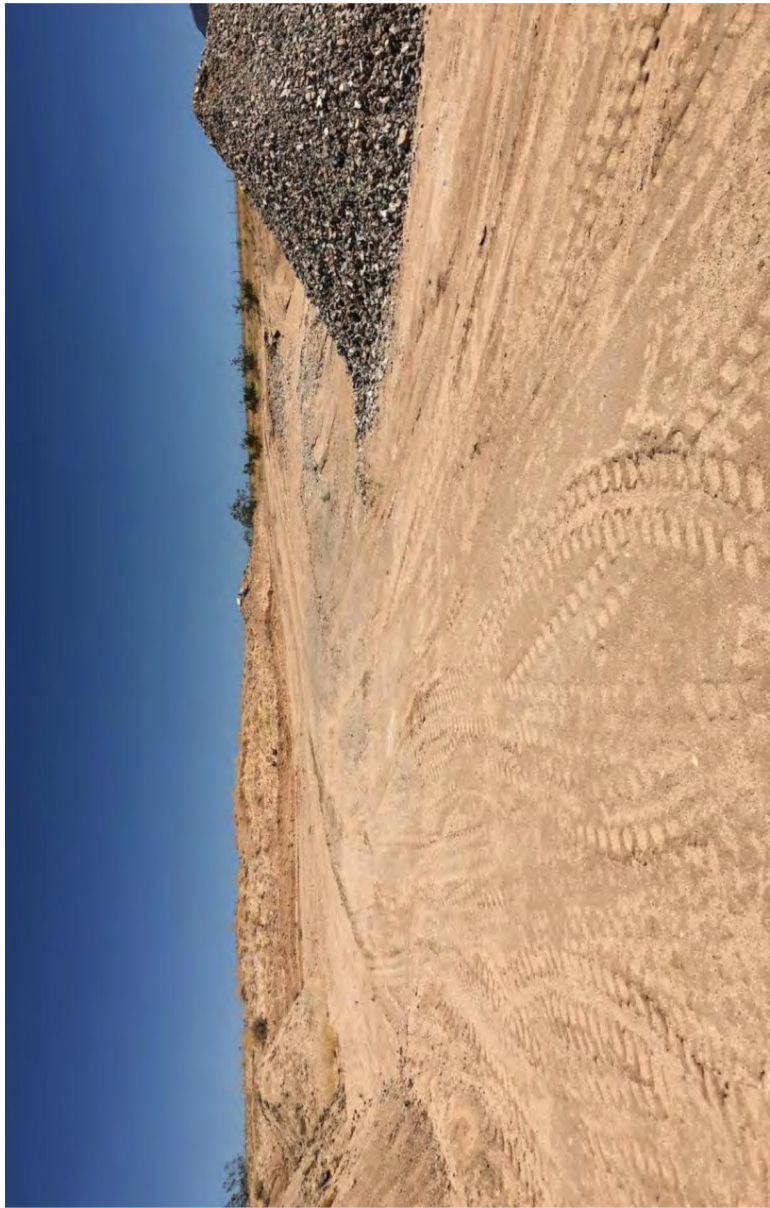
Photograph 2. Overview of SB-2.



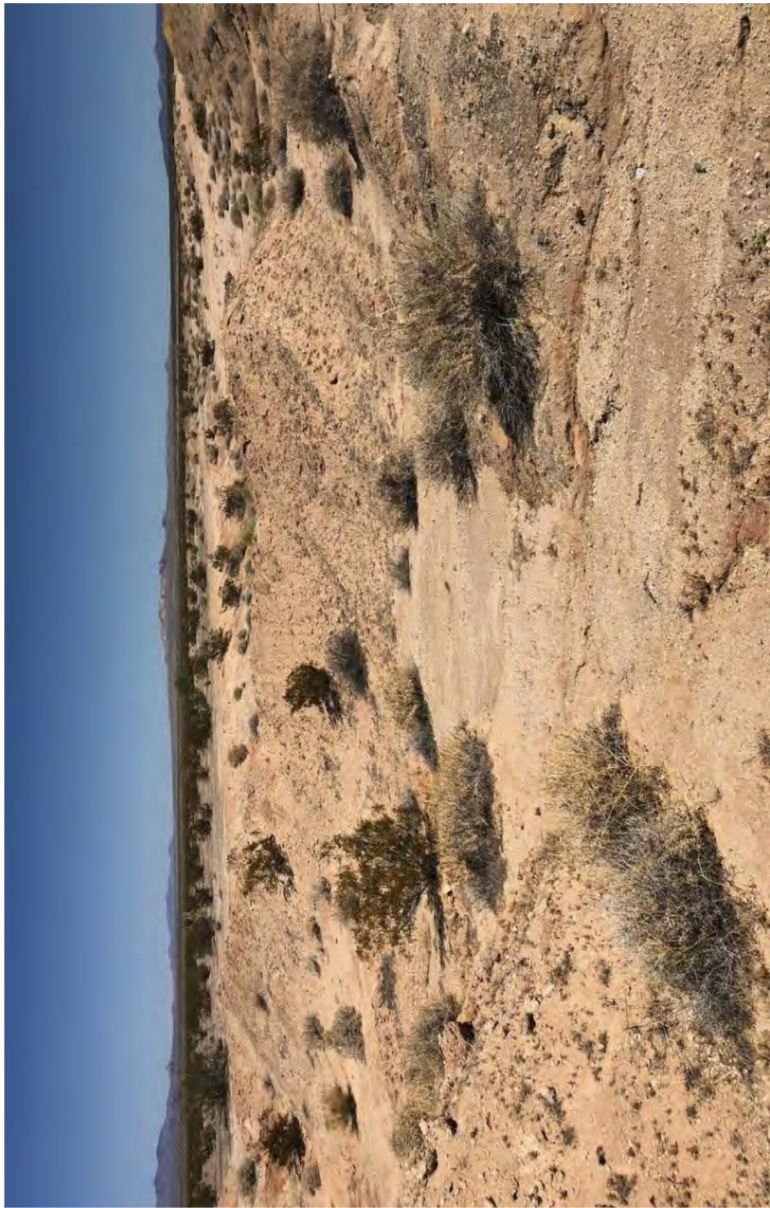
Photograph 3. Overview of SB-3.



Photograph 4. Overview of SB-4.



Photograph 5. Overview of SB-5.



Photograph 6. Overview of SB-6.



Photograph 7. Overview of SB-7.



Photograph 8. Overview of SB-8.



Photograph 9. Overview of SB-9.



Photograph 10. Overview of SB-10.

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Photograph 9. Overview of RV-1.



Photograph 10. Overview of RV-2.



Photograph 9. Overview of RV-3.



Photograph 10. Overview of RV-4.



Photograph 9. Overview of RV-5.



Photograph 10. Overview of RV-6.



Photograph 9. Overview of RV-7



Photograph 10. Overview of RV-8.



Photograph 9. Overview of RV-9.



Photograph 10. Overview of RV-10.

Appendix C

Special Status Species Evaluation Tables

Special Status Species with Potential to Occur at SB-1

Scientific Name	Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/Observations
Plants					
<i>Carnegiea gigantea</i>	saguaro	None/None G5/S1 2B.2	Sonoran Desert scrub. Rocky sites. 50-975 m. perennial stem succulent. Blooms May-Jun	None	Disturbed, marginally suitable desert scrub habitat is present within the Project Area. However, this large perennial species was not observed.
<i>Mammillaria grahamii</i> var. grahamii	Graham fishhook cactus	None/None G4T4/S2 2B.2	Sonoran Desert scrub. Gravelly or rocky sites in washes, canyons and on plains. Sometimes associated with creosote bush scrub. 300-900 m. perennial stem succulent. Blooms Apr-Sep	None	Disturbed, marginally suitable desert scrub habitat is present within the Project Area. However, this large perennial species was not observed.
<i>Mentzelia puberula</i>	Darlington's blazing star	None/None G5/S2 2B.2	Mojave Desert scrub, Sonoran Desert scrub. Sandy crevices in cliffs or on rocky slopes. 70-1280 m. perennial herb. Blooms Mar-May	None	Disturbed, marginally suitable desert scrub habitat is present within the Project Area. However, sandy crevices in cliffs or rocky slopes are not present within the Project Area.
<i>Penstemon pseudospectabilis</i> ssp. pseudospectabilis	desert beardtongue	None/None G4G5T4/S3 2B.2	Mojavean desert scrub, Sonoran Desert scrub. Often in sandy washes; sometimes on rocky slopes. 80-1740 m. perennial herb. Blooms Jan-May	None	Disturbed, marginally suitable desert scrub habitat is present within the Project Area. Additionally, this perennial species was not observed.
<i>Psoralea fremontii</i> var. attenuatus	narrow-leaved psoralea	None/None G5T4/S3 2B.3	Sonoran Desert scrub. Granitic or volcanic soils. 310-915 m. perennial shrub. Blooms Apr	None	Suitable soils are not present within the Project Area.
<i>Teucrium glandulosum</i>	desert germander	None/None G4/S2 2B.3	Sonoran Desert scrub. Rocky sites. 400-790 m. perennial stoloniferous herb. Blooms Apr-May	None	Disturbed, marginally suitable desert scrub habitat is present within the Project Area. However, this perennial species was not observed.

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Scientific Name	Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/Observations
<i>Yucca brevifolia</i>	Joshua tree	None/CT G5/S2	Confined mostly to the Mojave Desert between 400 and 1,800 m (1,300 and 5,900 ft) elevation. Habitats occur in broad valleys where soils are deep, on alluvial or rocky slopes, and on pediments with minimal runoff surrounding desert mountains and mesas	None	Disturbed, marginally suitable habitat is located within the Project Area; however, this large perennial species was not observed within or adjacent to the Project Area.
Invertebrates					
<i>Oliarces clara</i>	cheeseweed owlfly (cheeseweed moth lacewing)	None/None G1G3/S2	Inhabits the lower Colorado River drainage. Found under rocks or in flight over streams. Larrea tridentata is the suspected larval host.	None	The Colorado River is outside of the Project Area and no streams are present within the Project Area.
Reptiles					
<i>Gopherus agassizii</i>	desert tortoise	FT/ST G3/S2S3	Most common in desert scrub, desert wash, and Joshua tree habitats; occurs in almost every desert habitat. Require friable soil for burrow and nest construction. Creosote bush habitat with large annual wildflower blooms preferred.	Moderate	Marginally suitable but highly disturbed desert scrub habitat is present within the Project Area. Friable soil is present within and adjacent to the Project Area.
Birds					
<i>Athene cunicularia</i>	burrowing owl	None/None G4/S3 SSC	Open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	Moderate (foraging only)	Disturbed, marginally suitable desert scrub habitat for foraging is present within the Project Area. No existing suitable burrows were observed within the Project Area.

Scientific Name	Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/Observations
<i>Falco mexicanus</i>	prairie falcon	None/None G5/S4 WL	Inhabits dry, open terrain, either level or hilly. Breeding sites located on cliffs. Forages far afield, even to marshlands and ocean shores.	High (foraging only)	The Project Area is disturbed and does not contain suitable breeding habitat; however, suitable breeding habitat (cliffs) is located directly adjacent to the Project Area. Suitable foraging habitat is located within the Project Area.
<i>Haliaeetus leucocephalus</i>	bald eagle	FD/SE G5/S3 FP	Ocean shore, lake margins, and rivers for both nesting and wintering. Most nests within 1 mile of water. Nests in large, old-growth, or dominant live tree with open branches, especially ponderosa pine. Roosts communally in winter.	High (foraging only)	Suitable nesting habitat is present within 1 mile of but not within the Project Area. Suitable foraging habitat is present within the Project Area. A known bald eagle nest that has been used in prior years is within 1,200 feet of the Project Area.
Mammals					
<i>Corynorhinus townsendii</i>	Townsend's big-eared bat	None/None G3G4/S2 SSC	Throughout California in a wide variety of habitats. Most common in mesic sites. Roosts in the open, hanging from walls and ceilings. Roosting sites limiting. Extremely sensitive to human disturbance.	Moderate (foraging only)	No suitable roosting habitat present within Project Area; however, marginally suitable roosting habitat (small rocky outcrops) is located directly adjacent to the Project Area. Suitable foraging habitat is present within the Project Area.
<i>Macrotus californicus</i>	California leaf-nosed bat	None/None G4/S3 SSC	Desert riparian, desert wash, desert scrub, desert succulent scrub, alkali scrub and palm oasis habitats. Needs rocky, rugged terrain with mines or caves for roosting.	Moderate (foraging only)	No suitable roosting habitat present within Project Area; however, suitable roosting habitat (rocky outcrops) is located directly adjacent to the Project Area. Suitable foraging habitat is present within the Project Area.
<i>Myotis velifer</i>	cave myotis	None/None G5/S1 SSC	Lowlands of the Colorado River and adjacent mountain ranges. Require caves or mines for roosting.	Moderate (foraging only)	No suitable roosting habitat present within Project Area; however, suitable roosting habitat (rocky outcrops) directly adjacent to the Project Area. Suitable foraging habitat is present within the Project Area.

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Scientific Name	Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/Observations
<i>Myotis yumanensis</i>	Yuma myotis	None/None G5/S4 SSC	Optimal habitats are open forests and woodlands with sources of water over which to feed. Distribution is closely tied to bodies of water. Maternity colonies in caves, mines, buildings or crevices.	Moderate (foraging only)	No suitable roosting habitat present within Project Area; however, marginally suitable roosting habitat (rocky outcrops) is located directly adjacent to the Project Area. Suitable foraging habitat is present within the Project Area.
<i>Puma concolor</i>	mountain lion	CT/CE	Large areas of relatively undisturbed habitats with adequate connectivity. Pine forests, riparian and oak woodlands, streams, chaparral, and grasslands. Also known to occur in desert habitats.	Moderate	Suitable open desert habitat within the species' range is present within the Project Area. Project Area may support transient travel by mountain lions, though is too small to support long-term occupancy.

Regional Vicinity refers to within a 9-quadrant search radius of site.

Status (Federal/State)

FD = Federal Delisted

SE = State Endangered

SSC = CDFW Species of Special Concern

FP = CDFW Fully Protected

CT = Candidate State Threatened

CE = Candidate State Endangered

CRPR (CNPS California Rare Plant Rank)

2B= Rare, Threatened, or Endangered in California, but more common elsewhere

CRPR Threat Code Extension

.2 = Moderately threatened in California (20-80% of occurrences threatened/moderate degree and immediacy of threat)

.3 = Not very endangered in California (<20% of occurrences threatened/low degree and immediacy of threat)

Other Statuses

G1 or S1 Critically Imperiled Globally or Subnationally (state)

G2 or S2 Imperiled Globally or Subnationally (state)

G3 or S3 Vulnerable to extirpation or extinction Globally or Subnationally (state)

G4/5 or S4/5 Apparently secure, common and abundant

T Global condition of subspecies/varieties

Special Status Species with Potential to Occur at SB-2

Scientific Name	Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/Observations
Plants					
<i>Eremothera boothii</i> ssp. boothii	Booth's evening-primrose	None/None G5T4/S3 2B.3	Joshua tree woodland, pinyon and juniper woodland. 290-2410 m. annual herb. Blooms Apr-Sep	None	Suitable habitat (Joshua tree woodland or juniper woodland) is not present.
<i>Yucca brevifolia</i>	Joshua tree	None/CT G5/S2	Confined mostly to the Mojave Desert between 400 and 1,800 m (1,300 and 5,900 ft) elevation. Habitats occur in broad valleys where soils are deep, on alluvial or rocky slopes, and on pediments with minimal runoff surrounding desert mountains and mesas	None	Disturbed, marginally suitable habitat is located within the Project Area; however, this large perennial species was not observed within or adjacent to the Project Area.
Reptiles					
<i>Gopherus agassizii</i>	desert tortoise	FT/ST G3/S2S3	Most common in desert scrub, desert wash, and Joshua tree habitats; occurs in almost every desert habitat. Require friable soil for burrow and nest construction. Creosote bush habitat with large annual wildflower blooms preferred.	Moderate	Marginally suitable but highly disturbed desert scrub habitat is present within the Project Area. Friable soil is present within and adjacent to the Project Area.
Birds					
<i>Athene cunicularia</i>	burrowing owl	None/None G4/S3 SSC	Open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	Moderate (foraging only)	Disturbed, marginally suitable desert scrub habitat for foraging is present within the Project Area. No existing suitable burrows were observed within the Project Area.
Mammals					
<i>Puma concolor</i>	mountain lion	CT/CE	Large areas of relatively undisturbed habitats with adequate connectivity. Pine forests, riparian and oak woodlands, streams, chaparral, and grasslands. Also known to occur in desert habitats.	Moderate	Suitable open desert habitat within the species' range is present within the Project Area. Project Area may support transient travel by mountain lions, though is too small to support long-term occupancy.

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Regional Vicinity refers to within a 9-quad search radius of site.

Status (Federal/State)		CRPR (CNPS California Rare Plant Rank)
FT =	Federal Threatened	2B= Rare, Threatened, or Endangered in California, but more common elsewhere
ST =	State Threatened	
SSC =	CDFW Species of Special Concern	CRPR Threat Code Extension
CT =	Candidate State Threatened	.3 = Not very endangered in California (<20% of occurrences threatened/
CE =	Candidate State Endangered	low degree and immediacy of threat)

Other Statuses

G2 or S2	Imperiled Globally or Subnationally (state)
G3 or S3	Vulnerable to extirpation or extinction Globally or Subnationally (state)
G4/5 or S4/5	Apparently secure, common and abundant
T	Global condition of subspecies/varieties

Special Status Species with Potential to Occur at SB-3

Scientific Name	Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/Observations
Plants					
<i>Astragalus insularis</i> var. harwoodii	Harwood's milk-vetch	None/None G5T4/S2 2B.2	Desert dunes, Mojavean desert scrub. Open sandy flats and sandy or stony desert washes; mostly in creosote bush scrub. -50-700 m. annual herb. Blooms Jan-May	Low	Low quality desert scrub habitat present. The Project Area is highly disturbed and contains little vegetation.
<i>Eriastrum harwoodii</i>	Harwood's eriastrum	None/None G2/S2 1B.2	Desert dunes. 75-720 m. annual herb. Blooms Mar-Jun	None	Suitable habitat (dunes) not present.
<i>Yucca brevifolia</i>	Joshua tree	None/CT G5/S2	Confined mostly to the Mojave Desert between 400 and 1,800 m (1,300 and 5,900 ft) elevation. Habitats occur in broad valleys where soils are deep, on alluvial or rocky slopes, and on pediments with minimal runoff surrounding desert mountains/mesas	None	Project Area is disturbed and does not contain suitable habitat; additionally, this large perennial species was not observed within or adjacent to the Project Area.

Scientific Name	Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/Observations
Reptiles					
<i>Gopherus agassizii</i>	desert tortoise	FT/ST G3/S2S3	Most common in desert scrub, desert wash, and Joshua tree habitats; occurs in almost every desert habitat. Require friable soil for burrow/nest construction. Creosote bush habitat with large annual wildflower blooms preferred.	Moderate	Marginally suitable but highly disturbed desert scrub habitat is present within the Project Area. Friable soil is present within and adjacent to the Project Area.
<i>Uma scoparia</i>	Mojave fringe-toed lizard	None/None G3G4/S3S4 SSC	Fine, loose, wind-blown sand in sand dunes, dry lakebeds, riverbanks, desert washes, sparse alkali scrub and desert scrub. Shrubs or annual plants may be necessary for arthropods found in the diet.	None	Suitable habitat (dunes and fine wind blown sands) not present. The Project Area is highly disturbed.
Birds					
<i>Athene cunicularia</i>	burrowing owl	None/None G4/S3 SSC	Open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	Moderate (foraging only)	Disturbed, marginally suitable desert scrub habitat for foraging is present within the Project Area. No existing suitable burrows were observed within the Project Area.
Mammals					
<i>Ovis canadensis nelsoni</i>	Desert bighorn sheep	None/None G4T4/S3 FP	Widely distributed from the White Mtns. in Mono Co. to the Chocolate Mts in Imperial Co. Open, rocky, steep areas with available water and herbaceous forage.	None	Suitable habitat (open, rocky, steep areas with available water and herbaceous forage) not present.
<i>Puma concolor</i>	mountain lion	CT/CE	Large areas of relatively undisturbed habitats with adequate connectivity. Pine forests, riparian and oak woodlands, streams, chaparral, and grasslands. Also known to occur in desert habitats.	Moderate	Suitable open desert habitat within the species' range is present within the Project Area. Project Area may support transient travel by mountain lions, though is too small to support long-term occupancy.

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Regional Vicinity refers to within a 9-quad search radius of site.

Status (Federal/State)		CRPR (CNPS California Rare Plant Rank)
FT =	Federal Threatened	1B = Rare, Threatened, or Endangered in California and elsewhere
ST =	State Threatened	2B = Rare, Threatened, or Endangered in California, but more common elsewhere
FP =	CDFW Fully Protected	
SSC =	CDFW Species of Special Concern	CRPR Threat Code Extension
CT =	Candidate State Threatened	.2 = Moderately threatened in California (20-80% of occurrences threatened/
CE =	Candidate State Endangered	moderate degree and immediacy of threat)

Other Statuses

G2 or S2	Imperiled Globally or Subnationally (state)
G3 or S3	Vulnerable to extirpation or extinction Globally or Subnationally (state)
G4/5 or S4/5	Apparently secure, common and abundant
T	Global condition of subspecies/varieties

Special Status Species with Potential to Occur at SB-4

Scientific Name	Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/Observations
Plants					
<i>Eriastrum harwoodii</i>	Harwood's eriastrum	None/None G2/S2 1B.2	Desert dunes. 75-720 m. annual herb. Blooms Mar-Jun	None	Suitable habitat (dunes) not present.
<i>Yucca brevifolia</i>	Joshua tree	None/CT G5/S2	Confined mostly to the Mojave Desert between 400 and 1,800 m (1,300 and 5,900 ft) elevation. Habitats occur in broad valleys where soils are deep, on alluvial or rocky slopes, and on pediments with minimal runoff surrounding desert mountains and mesas	None	Disturbed, marginally suitable habitat is located within the Project Area, but this large perennial species was not observed within or adjacent to the Project Area.
Reptiles					
<i>Gopherus agassizii</i>	desert tortoise	FT/ST G3/S2S3	Most common in desert scrub, desert wash, and Joshua tree habitats; occurs in almost every desert habitat. Require friable soil for burrow and nest construction. Creosote bush habitat with large annual wildflower blooms preferred.	Moderate	Marginally suitable but highly disturbed desert scrub habitat is present within the Project Area. Friable soil is present within and adjacent to the Project Area.

Scientific Name	Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/Observations
Birds					
<i>Athene cunicularia</i>	burrowing owl	None/None G4/S3 SSC	Open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	Moderate (foraging only)	Disturbed, marginally suitable desert scrub habitat for foraging is present within the Project Area. No existing suitable burrows were observed within the Project Area.
Mammals					
<i>Puma concolor</i>	mountain lion	CT/CE	Large areas of relatively undisturbed habitats with adequate connectivity. Pine forests, riparian and oak woodlands, streams, chaparral, and grasslands. Also known to occur in desert habitats.	Moderate	Suitable open desert habitat within the species' range is present within the Project Area. Project Area may support transient travel by mountain lions, though is too small to support long-term occupancy.

Regional Vicinity refers to within a 9-quadrant search radius of site.

Status (Federal/State)

FT = Federal Threatened

ST = State Threatened

CT = Candidate State Threatened

CE = Candidate State Endangered

SSC = CDFW Species of Special Concern

CRPR (CNPS California Rare Plant Rank)

1B = Rare, Threatened, or Endangered in California and elsewhere

CRPR Threat Code Extension

.2 = Moderately threatened in California (20-80% of occurrences threatened/moderate degree and immediacy of threat)

Other Statuses

G2 or S2 Imperiled Globally or Subnationally (state)

G3 or S3 Vulnerable to extirpation or extinction Globally or Subnationally (state)

G4/5 or S4/5 Apparently secure, common and abundant

Special Status Species with Potential to Occur at SB-5

Scientific Name	Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/Observations
Plants					
<i>Yucca brevifolia</i>	Joshua tree	None/CT G5/S2	Confined mostly to the Mojave Desert between 400 and 1,800 m (1,300 and 5,900 ft) elevation. Habitats occur in broad valleys where soils are deep, on alluvial or rocky slopes, and on pediments with minimal runoff surrounding desert mountains and mesas	None	Disturbed, marginally suitable habitat is located within the Project Area, but this large perennial species was not observed within or adjacent to the Project Area.
Reptiles					
<i>Gopherus agassizii</i>	desert tortoise	FT/ST G3/S2S3	Most common in desert scrub, desert wash, and Joshua tree habitats; occurs in almost every desert habitat. Require friable soil for burrow and nest construction. Creosote bush habitat with large annual wildflower blooms preferred.	Moderate	Marginally suitable but highly disturbed desert scrub habitat is present within and adjacent to the Project Area. Friable soil is present within and adjacent to the Project Area.
Birds					
<i>Athene cunicularia</i>	burrowing owl	None/None G4/S3 SSC	Open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	Moderate (foraging only)	Marginally suitable but highly disturbed desert scrub habitat suitable for foraging is present within the Project Area. No existing suitable burrows were observed within the Project Area.
Mammals					
<i>Puma concolor</i>	mountain lion	CT/CE	Large areas of relatively undisturbed habitats with adequate connectivity. Pine forests, riparian and oak woodlands, streams, chaparral, and grasslands. Also known to occur in desert habitats.	Moderate	Suitable open desert habitat within the species' range is present within the Project Area. Project Area may support transient travel by mountain lions, though is too small to support long-term occupancy.

Regional Vicinity refers to within a 9-quad search radius of site.

Status (Federal/State)

FT = Federal Threatened

CT = Candidate State Threatened

CE = Candidate State Endangered

ST = State Threatened

SSC = CDFW Species of Special Concern

Other Statuses

G1 or S1 Critically Imperiled Globally or Subnationally (state)

G2 or S2 Imperiled Globally or Subnationally (state)

G3 or S3 Vulnerable to extirpation or extinction Globally or Subnationally (state)

G4/5 or S4/5 Apparently secure, common and abundant

Special Status Species With Potential to Occur at SB-6

Scientific Name	Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/Observations
Plants					
<i>Yucca brevifolia</i>	Joshua tree	None/CT G5/S2	Confined mostly to the Mojave Desert between 400 and 1,800 m (1,300 and 5,900 ft) elevation. Habitats occur in broad valleys where soils are deep, on alluvial or rocky slopes, and on pediments with minimal runoff surrounding desert mountains and mesas	None	Disturbed, marginally suitable habitat is located within the Project Area, but this large perennial species was not observed within or adjacent to the Project Area.
Reptiles					
<i>Gopherus agassizii</i>	desert tortoise	FT/ST G3/S2S3	Most common in desert scrub, desert wash, and Joshua tree habitats; occurs in almost every desert habitat. Require friable soil for burrow and nest construction. Creosote bush habitat with large annual wildflower blooms preferred.	Moderate	Marginally suitable but highly disturbed desert scrub habitat is present within and adjacent to the Project Area. Friable soil is present within and adjacent to the Project Area.
Birds					
<i>Athene cunicularia</i>	burrowing owl	None/None G4/S3 SSC	Open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	Moderate (foraging only)	Marginally suitable but highly disturbed desert scrub habitat suitable for foraging is present within the Project Area. No existing suitable burrows were observed within the Project Area.

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Scientific Name	Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/Observations
Mammals					
<i>Puma concolor</i>	mountain lion	CT/CE	Large areas of relatively undisturbed habitats with adequate connectivity. Pine forests, riparian and oak woodlands, streams, chaparral, and grasslands. Also known to occur in desert habitats.	Moderate	Suitable open desert habitat within the species' range is present within the Project Area. Project Area may support transient travel by mountain lions, though is too small to support long-term occupancy.

Regional Vicinity refers to within a 9-quad search radius of site.

Status (Federal/State)

FT = Federal Threatened

CT = Candidate State Threatened

CE = Candidate State Endangered

ST = State Threatened

SSC = CDFW Species of Special Concern

Other Statuses

G2 or S2 Imperiled Globally or Subnationally (state)

G3 or S3 Vulnerable to extirpation or extinction Globally or Subnationally (state)

G4/5 or S4/5 Apparently secure, common and abundant

Special Status Species with Potential to Occur at SB-7

Scientific Name	Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/Observations
Plants					
<i>Yucca brevifolia</i>	Joshua tree	None/CT G5/S2	Confined mostly to the Mojave Desert between 400 and 1,800 m (1,300 and 5,900 ft) elevation. Habitats occur in broad valleys where soils are deep, on alluvial or rocky slopes, and on pediments with minimal runoff surrounding desert mountains and mesas	None	Disturbed, marginally suitable habitat is located within the Project Area, but this large perennial species was not observed within or adjacent to the Project Area.

Scientific Name	Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/Observations
Reptiles					
<i>Gopherus agassizii</i>	desert tortoise	FT/ST G3/S2S3	Most common in desert scrub, desert wash, and Joshua tree habitats; occurs in almost every desert habitat. Require friable soil for burrow and nest construction. Creosote bush habitat with large annual wildflower blooms preferred.	Moderate	Marginally suitable but highly disturbed desert scrub habitat is present within and adjacent to the Project Area. Friable soil is present within and adjacent to the Project Area.
Birds					
<i>Athene cunicularia</i>	burrowing owl	None/None G4/S3 SSC	Open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	Moderate (foraging only)	Marginally suitable but highly disturbed desert scrub habitat suitable for foraging is present within the Project Area. No existing suitable burrows were observed within the Project Area.
Mammals					
<i>Puma concolor</i>	mountain lion	CT/CE	Large areas of relatively undisturbed habitats with adequate connectivity. Pine forests, riparian and oak woodlands, streams, chaparral, and grasslands. Also known to occur in desert habitats.	Moderate	Suitable open desert habitat within the species' range is present within the Project Area. Project Area may support transient travel by mountain lions, though is too small to support long-term occupancy.

Regional Vicinity refers to within a 9-quad search radius of site.

Status (Federal/State)

FT = Federal Threatened

CT = Candidate State Threatened

CE = Candidate State Endangered

ST = State Threatened

SSC = CDFW Species of Special Concern

Other Statuses

G2 or S2 Imperiled Globally or Subnationally (state)

G3 or S3 Vulnerable to extirpation or extinction Globally or Subnationally (state)

G4/5 or S4/5 Apparently secure, common and abundant

Special Status Species with Potential to Occur at SB-8

Scientific Name	Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/Observations
Plants					
<i>Yucca brevifolia</i>	Joshua tree	None/CT G5/S2	Confined mostly to the Mojave Desert between 400 and 1,800 m (1,300 and 5,900 ft) elevation. Habitats occur in broad valleys where soils are deep, on alluvial or rocky slopes, and on pediments with minimal runoff surrounding desert mountains and mesas	None	Project Area is disturbed and does not contain suitable habitat; additionally, this large perennial species was not observed within or adjacent to the Project Area.
Reptiles					
<i>Gopherus agassizii</i>	desert tortoise	FT/ST G3/S2S3	Most common in desert scrub, desert wash, and Joshua tree habitats; occurs in almost every desert habitat. Require friable soil for burrow and nest construction. Creosote bush habitat with large annual wildflower blooms preferred.	Moderate	The Project Area is disturbed and does not contain suitable habitat; however, marginally suitable but highly disturbed desert scrub habitat is present adjacent to the Project Area. Friable soil is present within and adjacent to the Project Area.
Birds					
<i>Athene cunicularia</i>	burrowing owl	None/None G4/S3 SSC	Open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	Low (foraging only)	Project Area is disturbed with no suitable desert scrub habitat present. However, suitable desert scrub habitat is present adjacent to the Project Area.
<i>Falco mexicanus</i>	prairie falcon	None/None G5/S4 WL	Inhabits dry, open terrain, either level or hilly. Breeding sites located on cliffs. Forages far afield, even to marshlands and ocean shores.	Moderate (foraging only)	The Project Area is disturbed and does not contain suitable breeding habitat; however, suitable breeding habitat (cliffs) is located directly adjacent to the Project Area. Marginally suitable and disturbed foraging habitat is located within the Project Area.

Scientific Name	Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/Observations
Mammals					
<i>Puma concolor</i>	mountain lion	CT/CE	Large areas of relatively undisturbed habitats with adequate connectivity. Pine forests, riparian and oak woodlands, streams, chaparral, and grasslands. Also known to occur in desert habitats.	Moderate	Suitable open desert habitat within the species' range is present within the Project Area. Project Area may support transient travel by mountain lions, though is too small to support long-term occupancy.

Regional Vicinity refers to within a 9-quadrant search radius of site.

Status (Federal/State)

FT = Federal Threatened

CT = Candidate State Threatened

CE = Candidate State Endangered

ST = State Threatened

SSC = CDFW Species of Special Concern

WL = CDFW Watch List

Other Statuses

G2 or S2 Imperiled Globally or Subnationally (state)

G3 or S3 Vulnerable to extirpation or extinction Globally or Subnationally (state)

G4/5 or S4/5 Apparently secure, common and abundant

Special Status Species with Potential to Occur at SB-9

Scientific Name	Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/Observations
Plants					
<i>Androstephium breviflorum</i>	small-flowered androstephium	None/None G4/S2? 2B.2	Mojavean desert scrub, desert dunes. Bajadas. One site known from sand dunes. 150-915 m. perennial bulbiferous herb. Blooms Mar-Apr	Low	Highly disturbed creosote bush scrub and is located within the Project Area.
<i>Eriastrum harwoodii</i>	Harwood's eriastrum	None/None G2/S2 1B.2	Desert dunes. 75-720 m. annual herb. Blooms Mar-Jun	None	Suitable habitat (dunes) not present.

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Scientific Name	Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/Observations
<i>Yucca brevifolia</i>	Joshua tree	None/CT G5/S2	Confined mostly to the Mojave Desert between 400 and 1,800 m (1,300 and 5,900 ft) elevation. Habitats occur in broad valleys where soils are deep, on alluvial or rocky slopes, and on pediments with minimal runoff surrounding desert mountains and mesas	None	Disturbed, marginally suitable habitat is located within the Project Area, but this large perennial species was not observed within or adjacent to the Project Area.
Reptiles					
<i>Gopherus agassizii</i>	desert tortoise	FT/ST G3/S2S3	Most common in desert scrub, desert wash, and Joshua tree habitats; occurs in almost every desert habitat. Require friable soil for burrow and nest construction. Creosote bush habitat with large annual wildflower blooms preferred.	Moderate	Marginally suitable but highly disturbed desert scrub habitat is present within and adjacent to the Project Area.
<i>Uma scoparia</i>	Mojave fringe-toed lizard	None/None G3G4/S3S4 SSC	Fine, loose, wind-blown sand in sand dunes, dry lakebeds, riverbanks, desert washes, sparse alkali scrub and desert scrub. Shrubs or annual plants may be necessary for arthropods found in the diet.	None	Suitable habitat (dunes and fine wind blown sands) not present. The Project Area is highly disturbed.
Birds					
<i>Athene cunicularia</i>	burrowing owl	None/None G4/S3 SSC	Open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	Moderate (foraging only)	Marginally suitable but highly disturbed desert scrub habitat suitable for foraging is present within the Project Area. No existing suitable burrows were observed within the Project Area.
<i>Falco mexicanus</i>	prairie falcon	None/None G5/S4 WL	Inhabits dry, open terrain, either level or hilly. Breeding sites located on cliffs. Forages far afield, even to marshlands and ocean shores.	Moderate (foraging only)	The Project Area does not contain suitable breeding habitat; however, suitable breeding habitat (cliffs) is located directly adjacent to the Project Area. Marginally suitable and disturbed foraging habitat is located within the Project Area.

Scientific Name	Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/Observations
Mammals					
<i>Puma concolor</i>	mountain lion	CT/CE	Large areas of relatively undisturbed habitats with adequate connectivity. Pine forests, riparian and oak woodlands, streams, chaparral, and grasslands. Also known to occur in desert habitats.	Moderate	Suitable open desert habitat within the species' range is present within the Project Area. Project Area may support transient travel by mountain lions, though is too small to support long-term occupancy.

Regional Vicinity refers to within a 9-quadrant search radius of site.

Status (Federal/State)

FT = Federal Threatened

ST = State Threatened

WL = CDFW Watch List

SSC = CDFW Species of Special Concern

CT = Candidate State Threatened

CE = Candidate State Endangered

CRPR (CNPS California Rare Plant Rank)

1B = Rare, Threatened, or Endangered in California and elsewhere

2B = Rare, Threatened, or Endangered in California, but more common elsewhere

CRPR Threat Code Extension

.2 = Moderately threatened in California (20-80% of occurrences threatened/moderate degree and immediacy of threat)

Other Statuses

G2 or S2 Imperiled Globally or Subnationally (state)

G3 or S3 Vulnerable to extirpation or extinction Globally or Subnationally (state)

G4/5 or S4/5 Apparently secure, common and abundant

Special Status Species with Potential to Occur at SB-10

Scientific Name	Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/Observations
Plants					
<i>Yucca brevifolia</i>	Joshua tree	None/CT G5/S2	Confined mostly to the Mojave Desert between 400 and 1,800 m (1,300 and 5,900 ft) elevation. Habitats occur in broad valleys where soils are deep, on alluvial or rocky slopes, and on pediments with minimal runoff surrounding desert mountains and mesas	None	Disturbed, marginally suitable habitat is located within the Project Area, but this large perennial species was not observed within or adjacent to the Project Area.

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Scientific Name	Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/Observations
Reptiles					
<i>Gopherus agassizii</i>	desert tortoise	FT/ST G3/S2S3	Most common in desert scrub, desert wash, and Joshua tree habitats; occurs in almost every desert habitat. Require friable soil for burrow and nest construction. Creosote bush habitat with large annual wildflower blooms preferred.	Moderate	Marginally suitable but highly disturbed desert scrub habitat is present within and adjacent to the Project Area. Friable soil is present within and adjacent to the Project Area.
Birds					
<i>Athene cunicularia</i>	burrowing owl	None/None G4/S3 SSC	Open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	Moderate (foraging only)	Marginally suitable but highly disturbed desert scrub habitat suitable for foraging is present within the Project Area. No existing suitable burrows were observed within the Project Area.
Mammals					
<i>Puma concolor</i>	mountain lion	CT/CE	Large areas of relatively undisturbed habitats with adequate connectivity. Pine forests, riparian and oak woodlands, streams, chaparral, and grasslands. Also known to occur in desert habitats.	Moderate	Suitable open desert habitat within the species' range is present within the Project Area. Project Area may support transient travel by mountain lions, though is too small to support long-term occupancy.

Regional Vicinity refers to within a 9-quad search radius of site.

Status (Federal/State)

FE = Federal Endangered

CT = Candidate State Threatened

FT = Federal Threatened

CE = Candidate State Endangered

ST = State Threatened

SSC = CDFW Species of Special Concern

Other Statuses

G2 or S2 Imperiled Globally or Subnationally (state)

G3 or S3 Vulnerable to extirpation or extinction Globally or Subnationally (state)

G4/5 or S4/5 Apparently secure, common and abundant

Special Status Species with Potential to Occur at RV-1

Scientific Name	Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/Observations
Plants					
<i>Astragalus insularis</i> var. <i>harwoodii</i>	Harwood's milk-vetch	None/None G5T4/S2 2B.2	Desert dunes, Mojavean desert scrub. Open sandy flats and sandy or stony desert washes; mostly in creosote bush scrub. -50-700 m. annual herb. Blooms Jan-May	Low	Low quality Mojavean desert scrub habitat is present within the Project Area; however, the Project Area is highly disturbed and contains little vegetation.
<i>Eriastrum harwoodii</i>	Harwood's eriastrum	None/None G2/S2 1B.2	Desert dunes. 75-720 m. annual herb. Blooms Mar-Jun	None	Suitable habitat (dunes) not present.
<i>Yucca brevifolia</i>	Joshua tree	None/CT G5/S2	Confined mostly to the Mojave Desert between 400 and 1,800 m (1,300 and 5,900 ft) elevation. Habitats occur in broad valleys where soils are deep, on alluvial or rocky slopes, and on pediments with minimal runoff surrounding desert mountains and mesas	None	Disturbed, marginally suitable habitat is located within the Project Area, but this large perennial species was not observed within or adjacent to the Project Area.
Reptiles					
<i>Gopherus agassizii</i>	desert tortoise	FT/ST G3/S2S3	Most common in desert scrub, desert wash, and Joshua tree habitats; occurs in almost every desert habitat. Require friable soil for burrow and nest construction. Creosote bush habitat with large annual wildflower blooms preferred.	Moderate	Marginally suitable but highly disturbed desert scrub habitat is present within and adjacent to the Project Area. Friable soil is present within and adjacent to the Project Area.
Birds					
<i>Athene cunicularia</i>	burrowing owl	None/None G4/S3 SSC	Open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	Moderate (foraging only)	Marginally suitable but highly disturbed desert scrub habitat suitable for foraging is present within the Project Area. No existing suitable burrows were observed within the Project Area.

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Scientific Name	Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/Observations
<i>Falco mexicanus</i>	prairie falcon	None/None G5/S4 WL	Inhabits dry, open terrain, either level or hilly. Breeding sites located on cliffs. Forages far afield, even to marshlands and ocean shores.	Moderate (foraging only)	The Project Area does not contain suitable breeding habitat; however, suitable breeding habitat (cliffs) is located directly adjacent to the Project Area. Marginally suitable and disturbed foraging habitat is located within the Project Area.
Mammals					
<i>Puma concolor</i>	mountain lion	CT/CE	Large areas of relatively undisturbed habitats with adequate connectivity. Pine forests, riparian and oak woodlands, streams, chaparral, and grasslands. Also known to occur in desert habitats.	Moderate	Suitable open desert habitat within the species' range is present within the Project Area. Project Area may support transient travel by mountain lions, though is too small to support long-term occupancy.

Regional Vicinity refers to within a 9-quad search radius of site.

Status (Federal/State)		CRPR (CNPS California Rare Plant Rank)
FT =	Federal Threatened	1B = Rare, Threatened, or Endangered in California and elsewhere
ST =	State Threatened	2B= Rare, Threatened, or Endangered in California, but more common elsewhere
WL =	CDFW Watch List	
SSC =	CDFW Species of Special Concern	CRPR Threat Code Extension
CT =	Candidate State Threatened	.2 = Moderately threatened in California (20-80% of occurrences threatened/
CE =	Candidate State Endangered	moderate degree and immediacy of threat)

Other Statuses

G2 or S2	Imperiled Globally or Subnationally (state)
G3 or S3	Vulnerable to extirpation or extinction Globally or Subnationally (state)
G4/5 or S4/5	Apparently secure, common and abundant
T	Global condition of subspecies/varieties

Special Status Species with Potential to Occur at RV-2

Scientific Name	Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/Observations
Plants					
<i>Astragalus insularis</i> var. <i>harwoodii</i>	Harwood's milk-vetch	None/None G5T4/S2 2B.2	Desert dunes, Mojavean desert scrub. Open sandy flats and sandy or stony desert washes; mostly in creosote bush scrub. -50-700 m. annual herb. Blooms Jan-May	Low	Low quality Mojavean desert scrub habitat is present within Project Area; however, Project Area is highly disturbed and contains little vegetation.
<i>Eriastrum harwoodii</i>	Harwood's eriastrum	None/None G2/S2 1B.2	Desert dunes. 75-720 m. annual herb. Blooms Mar-Jun	None	Suitable habitat (dunes) not present.
<i>Yucca brevifolia</i>	Joshua tree	None/CT G5/S2	Confined mostly to the Mojave Desert between 400 and 1,800 m (1,300 and 5,900 ft) elevation. Habitats occur in broad valleys where soils are deep, on alluvial or rocky slopes, and on pediments with minimal runoff surrounding desert mountains and mesas	None	Disturbed, marginally suitable habitat is located within the Project Area, but this large perennial species was not observed within or adjacent to the Project Area.
Reptiles					
<i>Gopherus agassizii</i>	desert tortoise	FT/ST G3/S2S3	Most common in desert scrub, desert wash, and Joshua tree habitats; occurs in almost every desert habitat. Require friable soil for burrow and nest construction. Creosote bush habitat with large annual wildflower blooms preferred.	Moderate	Marginally suitable but highly disturbed desert scrub habitat is present within and adjacent to the Project Area. Friable soil is present within and adjacent to the Project Area.
Birds					
<i>Athene cunicularia</i>	burrowing owl	None/None G4/S3 SSC	Open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	Moderate (foraging only)	Marginally suitable but highly disturbed desert scrub habitat suitable for foraging is present within the Project Area. No existing suitable burrows were observed within the Project Area.

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Scientific Name	Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/Observations
<i>Falco mexicanus</i>	prairie falcon	None/None G5/S4 WL	Inhabits dry, open terrain, either level or hilly. Breeding sites located on cliffs. Forages far afield, even to marshlands and ocean shores.	None	No suitable breeding (cliffs) or foraging habitat present within or adjacent to the Project Area.
Mammals					
<i>Puma concolor</i>	mountain lion	CT/CE	Large areas of relatively undisturbed habitats with adequate connectivity. Pine forests, riparian and oak woodlands, streams, chaparral, and grasslands. Also known to occur in desert habitats.	Moderate	Suitable open desert habitat within the species' range is present within the Project Area. Project Area may support transient travel by mountain lions, though is too small to support long-term occupancy.

Regional Vicinity refers to within a 9-quadrant search radius of site.

Status (Federal/State)	CRPR (CNPS California Rare Plant Rank)
FT = Federal Threatened	1B = Rare, Threatened, or Endangered in California and elsewhere
ST = State Threatened	2B = Rare, Threatened, or Endangered in California, but more common elsewhere
WL = CDFW Watch List	
SSC = CDFW Species of Special Concern	CRPR Threat Code Extension
CT = Candidate State Threatened	.1 = Seriously endangered in California (>80% of occurrences threatened/ high degree and immediacy of threat)
CE = Candidate State Endangered	.2 = Moderately threatened in California (20-80% of occurrences threatened/ moderate degree and immediacy of threat)

Other Statuses

G2 or S2	Imperiled Globally or Subnationally (state)
G3 or S3	Vulnerable to extirpation or extinction Globally or Subnationally (state)
G4/5 or S4/5	Apparently secure, common and abundant
T	Global condition of subspecies/varieties

Special Status Species with Potential to Occur at RV-3

Scientific Name	Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/Observations
Plants					
<i>Astragalus insularis</i> var. <i>harwoodii</i>	Harwood's milk-vetch	None/None G5T4/S2 2B.2	Desert dunes, Mojavean desert scrub. Open sandy flats and sandy or stony desert washes; mostly in creosote bush scrub. -50-700 m. annual herb. Blooms Jan-May	Low	Low quality Mojavean desert scrub habitat is present within the Project Area. The Project Area is highly disturbed and contains little vegetation.
<i>Eriastrum harwoodii</i>	Harwood's eriastrum	None/None G2/S2 1B.2	Desert dunes. 75-720 m. annual herb. Blooms Mar-Jun	None	Suitable habitat (dunes) not present.
<i>Yucca brevifolia</i>	Joshua tree	None/CT G5/S2	Confined mostly to the Mojave Desert between 400 and 1,800 m (1,300 and 5,900 ft) elevation. Habitats occur in broad valleys where soils are deep, on alluvial or rocky slopes, and on pediments with minimal runoff surrounding desert mountains and mesas	None	Disturbed, marginally suitable habitat is located within the Project Area, but this large perennial species was not observed within or adjacent to the Project Area.
Reptiles					
<i>Gopherus agassizii</i>	desert tortoise	FT/ST G3/S2S3	Most common in desert scrub, desert wash, and Joshua tree habitats; occurs in almost every desert habitat. Require friable soil for burrow and nest construction. Creosote bush habitat with large annual wildflower blooms preferred.	Moderate	Marginally suitable but highly disturbed desert scrub habitat is present within and adjacent to the Project Area. Friable soil is present within and adjacent to the Project Area.
Birds					
<i>Athene cunicularia</i>	burrowing owl	None/None G4/S3 SSC	Open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	Moderate (foraging only)	Marginally suitable but highly disturbed desert scrub habitat suitable for foraging is present within the Project Area. No existing suitable burrows were observed within the Project Area.

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Scientific Name	Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/Observations
Mammals					
<i>Puma concolor</i>	mountain lion	CT/CE	Large areas of relatively undisturbed habitats with adequate connectivity. Pine forests, riparian and oak woodlands, streams, chaparral, and grasslands. Also known to occur in desert habitats.	Moderate	Suitable open desert habitat within the species' range is present within the Project Area. Project Area may support transient travel by mountain lions, though is too small to support long-term occupancy.

Regional Vicinity refers to within a 9-quad search radius of site.

Status (Federal/State)

FT = Federal Threatened

ST = State Threatened

SSC = CDFW Species of Special Concern

CT = Candidate State Threatened

CE = Candidate State Endangered

CRPR (CNPS California Rare Plant Rank)

1B = Rare, Threatened, or Endangered in California and elsewhere

2B= Rare, Threatened, or Endangered in California, but more common elsewhere

CRPR Threat Code Extension

.2 = Moderately threatened in California (20-80% of occurrences threatened/moderate degree and immediacy of threat)

Other Statuses

G2 or S2 Imperiled Globally or Subnationally (state)

G3 or S3 Vulnerable to extirpation or extinction Globally or Subnationally (state)

G4/5 or S4/5 Apparently secure, common and abundant

T Global condition of subspecies/varieties

Special Status Species with Potential to Occur at RV-4

Scientific Name	Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/Observations
Plants					
<i>Androstephium breviflorum</i>	small-flowered androstephium	None/None G4/S2? 2B.2	Mojavean desert scrub, desert dunes. Bajadas. One site known from sand dunes. 150-915 m. perennial bulbiferous herb. Blooms Mar-Apr	None	Suitable habitat (dunes) not present.
<i>Astragalus insularis</i> var. <i>harwoodii</i>	Harwood's milk-vetch	None/None G5T4/S2 2B.2	Desert dunes, Mojavean desert scrub. Open sandy flats and sandy or stony desert washes; mostly in creosote bush scrub. -50-700 m. annual herb. Blooms Jan-May	Low	Low quality Mojavean desert scrub habitat is present. The Project Area is highly disturbed and contains little vegetation.
<i>Eriastrum harwoodii</i>	Harwood's eriastrum	None/None G2/S2 1B.2	Desert dunes. 75-720 m. annual herb. Blooms Mar-Jun	None	Suitable habitat (dunes) not present.
<i>Yucca brevifolia</i>	Joshua tree	None/CT G5/S2	Confined mostly to the Mojave Desert between 400 and 1,800 m (1,300 and 5,900 ft) elevation. Habitats occur in broad valleys where soils are deep, on alluvial or rocky slopes, and on pediments with minimal runoff surrounding desert mountains and mesas	None	Disturbed, marginally suitable habitat is located within the Project Area, but this large perennial species was not observed within or adjacent to the Project Area.
Reptiles					
<i>Gopherus agassizii</i>	desert tortoise	FT/ST G3/S2S3	Most common in desert scrub, desert wash, and Joshua tree habitats; occurs in almost every desert habitat. Require friable soil for burrow and nest construction. Creosote bush habitat with large annual wildflower blooms preferred.	Moderate	Marginally suitable but highly disturbed desert scrub habitat is present within and adjacent to the Project Area. Friable soil is present within and adjacent to the Project Area.

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Scientific Name	Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/Observations
Birds					
<i>Athene cunicularia</i>	burrowing owl	None/None G4/S3 SSC	Open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	Moderate (foraging only)	Marginally suitable but highly disturbed desert scrub habitat suitable for foraging is present within the Project Area. No existing suitable burrows were observed within the Project Area.
<i>Falco mexicanus</i>	prairie falcon	None/None G5/S4 WL	Inhabits dry, open terrain, either level or hilly. Breeding sites located on cliffs. Forages far afield, even to marshlands and ocean shores.	None	No suitable breeding (cliffs) or foraging habitat present within or adjacent to the Project Area.
Mammals					
<i>Puma concolor</i>	mountain lion	CT/CE	Large areas of relatively undisturbed habitats with adequate connectivity. Pine forests, riparian and oak woodlands, streams, chaparral, and grasslands. Also known to occur in desert habitats.	Moderate	Suitable open desert habitat within the species' range is present within the Project Area. Project Area may support transient travel by mountain lions, though is too small to support long-term occupancy.

Regional Vicinity refers to within a 9-quad search radius of site.

Status (Federal/State)

FT = Federal Threatened
ST = State Threatened
WL = CDFW Watch List
SSC = CDFW Species of Special Concern
CT = Candidate State Threatened
CE = Candidate State Endangered

CRPR (CNPS California Rare Plant Rank)

1B = Rare, Threatened, or Endangered in California and elsewhere
2B = Rare, Threatened, or Endangered in California, but more common elsewhere

CRPR Threat Code Extension

.2 = Moderately threatened in California (20-80% of occurrences threatened/moderate degree and immediacy of threat)

Other Statuses

G2 or S2 Imperiled Globally or Subnationally (state)
G3 or S3 Vulnerable to extirpation or extinction Globally or Subnationally (state)
G4/5 or S4/5 Apparently secure, common and abundant
T Global condition of subspecies/varieties

Special Status Species with Potential to Occur at RV-5

Scientific Name	Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/Observations
Plants					
<i>Androstephium breviflorum</i>	small-flowered androstephium	None/None G4/S2? 2B.2	Mojavean desert scrub, desert dunes. Bajadas. One site known from sand dunes. 150-915 m. perennial bulbiferous herb. Blooms Mar-Apr	Low	Low quality Mojavean desert scrub habitat present. The Project Area is highly disturbed and contains little vegetation.
<i>Astragalus insularis</i> var. <i>harwoodii</i>	Harwood's milk-vetch	None/None G5T4/S2 2B.2	Desert dunes, Mojavean desert scrub. Open sandy flats and sandy or stony desert washes; mostly in creosote bush scrub. -50-700 m. annual herb. Blooms Jan-May	Low	Low quality Mojavean desert scrub habitat present. The Project Area is highly disturbed and contains little vegetation.
<i>Eriastrum harwoodii</i>	Harwood's eriastrum	None/None G2/S2 1B.2	Desert dunes. 75-720 m. annual herb. Blooms Mar-Jun	None	Suitable habitat (dunes) not present.
<i>Yucca brevifolia</i>	Joshua tree	None/CT G5/S2	Confined mostly to the Mojave Desert between 400 and 1,800 m (1,300 and 5,900 ft) elevation. Habitats occur in broad valleys where soils are deep, on alluvial or rocky slopes, and on pediments with minimal runoff surrounding desert mountains and mesas	None	Disturbed, marginally suitable habitat is located within the Project Area, but this large perennial species was not observed within or adjacent to the Project Area.
Reptiles					
<i>Gopherus agassizii</i>	desert tortoise	FT/ST G3/S2S3	Most common in desert scrub, desert wash, and Joshua tree habitats; occurs in almost every desert habitat. Require friable soil for burrow and nest construction. Creosote bush habitat with large annual wildflower blooms preferred.	Moderate	Marginally suitable but highly disturbed desert scrub habitat is present within and adjacent to the Project Area. Friable soil is present within and adjacent to the Project Area.

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Scientific Name	Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/Observations
Birds					
<i>Athene cunicularia</i>	burrowing owl	None/None G4/S3 SSC	Open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	Moderate (foraging only)	Marginally suitable but highly disturbed desert scrub habitat suitable for foraging is present within the Project Area. No existing suitable burrows were observed within the Project Area.
<i>Falco mexicanus</i>	prairie falcon	None/None G5/S4 WL	Inhabits dry, open terrain, either level or hilly. Breeding sites located on cliffs. Forages far afield, even to marshlands and ocean shores.	None	No suitable breeding (cliffs) or foraging habitat present within or adjacent to the Project Area.
Mammals					
<i>Ovis canadensis nelsoni</i>	desert bighorn sheep	None/None G4T4/S3 FP	Widely distributed from the White Mtns. in Mono Co. to the Chocolate Mts in Imperial Co. Open, rocky, steep areas with available water and herbaceous forage.	None	Suitable habitat (open, rocky, steep areas with available water and herbaceous forage) not present.
<i>Puma concolor</i>	mountain lion	CT/CE	Large areas of relatively undisturbed habitats with adequate connectivity. Pine forests, riparian and oak woodlands, streams, chaparral, and grasslands. Also known to occur in desert habitats.	Moderate	Suitable open desert habitat within the species' range is present within the Project Area. Project Area may support transient travel by mountain lions, though is too small to support long-term occupancy.

Regional Vicinity refers to within a 9-quad search radius of site.

Status (Federal/State)

FT = Federal Threatened

ST = State Threatened

FP = CDFW Fully Protected

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SSC = CDFW Species of Special Concern

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CE = Candidate State Endangered

CRPR (CNPS California Rare Plant Rank)

1B = Rare, Threatened, or Endangered in California and elsewhere

2B= Rare, Threatened, or Endangered in California, but more common elsewhere

CRPR Threat Code Extension

.2 = Moderately threatened in California (20-80% of occurrences threatened/moderate degree and immediacy of threat)

Other Statuses

G2 or S2	Imperiled Globally or Subnationally (state)
G3 or S3	Vulnerable to extirpation or extinction Globally or Subnationally (state)
G4/5 or S4/5	Apparently secure, common and abundant
T	Global condition of subspecies/varieties

Special Status Species with Potential to Occur at RV-6

Scientific Name	Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/Observations
Plants					
<i>Androstephium breviflorum</i>	small-flowered androstephium	None/None G4/S2? 2B.2	Mojavean desert scrub, desert dunes. Bajadas. One site known from sand dunes. 150-915 m. perennial bulbiferous herb. Blooms Mar-Apr	Low	Low quality Mojavean desert scrub habitat present. The Project Area is highly disturbed and contains little vegetation.
<i>Astragalus insularis</i> var. <i>harwoodii</i>	Harwood's milk-vetch	None/None G5T4/S2 2B.2	Desert dunes, Mojavean desert scrub. Open sandy flats and sandy or stony desert washes; mostly in creosote bush scrub. -50-700 m. annual herb. Blooms Jan-May	Low	Low quality Mojavean desert scrub habitat is present. The Project Area is highly disturbed and contains little vegetation.
<i>Eriastrum harwoodii</i>	Harwood's eriastrum	None/None G2/S2 1B.2	Desert dunes. 75-720 m. annual herb. Blooms Mar-Jun	None	Suitable habitat (dunes) not present.
<i>Yucca brevifolia</i>	Joshua tree	None/CT G5/S2	Confined mostly to the Mojave Desert between 400 and 1,800 m (1,300 and 5,900 ft) elevation. Habitats occur in broad valleys where soils are deep, on alluvial or rocky slopes, and on pediments with minimal runoff surrounding desert mountains and mesas	None	Disturbed, marginally suitable habitat is located within the Project Area, but this large perennial species was not observed within or adjacent to the Project Area.

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Scientific Name	Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/Observations
Reptiles					
<i>Gopherus agassizii</i>	desert tortoise	FT/ST G3/S2S3	Most common in desert scrub, desert wash, and Joshua tree habitats; occurs in almost every desert habitat. Require friable soil for burrow and nest construction. Creosote bush habitat with large annual wildflower blooms preferred.	Moderate	Marginally suitable but highly disturbed desert scrub habitat is present within and adjacent to the Project Area. Friable soil is present within and adjacent to the Project Area.
Birds					
<i>Athene cunicularia</i>	burrowing owl	None/None G4/S3 SSC	Open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	Moderate (foraging only)	Marginally suitable but highly disturbed desert scrub habitat suitable for foraging is present within the Project Area. No existing suitable burrows were observed within the Project Area.
<i>Falco mexicanus</i>	prairie falcon	None/None G5/S4 WL	Inhabits dry, open terrain, either level or hilly. Breeding sites located on cliffs. Forages far afield, even to marshlands and ocean shores.	High (foraging only)	The Project Area does not contain suitable breeding habitat; however, suitable breeding habitat (cliffs) present near the Project Area. Suitable foraging habitat within and adjacent to the Project Area
Mammals					
<i>Ovis canadensis nelsoni</i>	desert bighorn sheep	None/None G4T4/S3 FP	Widely distributed from the White Mtns. in Mono Co. to the Chocolate Mts in Imperial Co. Open, rocky, steep areas with available water and herbaceous forage.	None	Suitable habitat (open, rocky, steep areas with available water and herbaceous forage) not present.
<i>Puma concolor</i>	mountain lion	CT/CE	Large areas of relatively undisturbed habitats with adequate connectivity. Pine forests, riparian and oak woodlands, streams, chaparral, and grasslands. Also known to occur in desert habitats.	Moderate	Suitable open desert habitat within the species' range is present within the Project Area. Project Area may support transient travel by mountain lions, though is too small to support long-term occupancy.

Regional Vicinity refers to within a 9-quad search radius of site.

Status (Federal/State)

FT = Federal Threatened

ST = State Threatened

FP = CDFW Fully Protected

WL = CDFW Watch List

SSC = CDFW Species of Special Concern

CT = Candidate State Threatened

CE = Candidate State Endangered

CRPR (CNPS California Rare Plant Rank)

1B = Rare, Threatened, or Endangered in California and elsewhere

2B= Rare, Threatened, or Endangered in California, but more common elsewhere

CRPR Threat Code Extension

.2 = Moderately threatened in California (20-80% of occurrences threatened/
moderate degree and immediacy of threat)

Other Statuses

G2 or S2 Imperiled Globally or Subnationally (state)

G3 or S3 Vulnerable to extirpation or extinction Globally or Subnationally (state)

G4/5 or S4/5 Apparently secure, common and abundant

T Global condition of subspecies/varieties

Special Status Species with Potential to Occur at RV-7

Scientific Name	Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/Observations
Plants					
<i>Androstephium breviflorum</i>	small-flowered androstephium	None/None G4/S2? 2B.2	Mojavean desert scrub, desert dunes. Bajadas. One site known from sand dunes. 150-915 m. perennial bulbiferous herb. Blooms Mar-Apr	Low	Low quality Mojavean desert scrub habitat is present. The Project Area is highly disturbed and contains little vegetation.
<i>Astragalus insularis</i> var. <i>harwoodii</i>	Harwood's milk-vetch	None/None G5T4/S2 2B.2	Desert dunes, Mojavean desert scrub. Open sandy flats and sandy or stony desert washes; mostly in creosote bush scrub. -50-700 m. annual herb. Blooms Jan-May	Low	Low quality Mojavean desert scrub habitat is present. The Project Area is highly disturbed and contains little vegetation.
<i>Eriastrum harwoodii</i>	Harwood's eriastrum	None/None G2/S2 1B.2	Desert dunes. 75-720 m. annual herb. Blooms Mar-Jun	None	Suitable habitat (dunes) not present.

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Scientific Name	Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/Observations
<i>Yucca brevifolia</i>	Joshua tree	None/CT G5/S2	Confined mostly to the Mojave Desert between 400 and 1,800 m (1,300 and 5,900 ft) elevation. Habitats occur in broad valleys where soils are deep, on alluvial or rocky slopes, and on pediments with minimal runoff surrounding desert mountains and mesas	None	Disturbed, marginally suitable habitat is located within the Project Area, but this large perennial species was not observed within or adjacent to the Project Area.
Reptiles					
<i>Gopherus agassizii</i>	desert tortoise	FT/ST G3/S2S3	Most common in desert scrub, desert wash, and Joshua tree habitats; occurs in almost every desert habitat. Require friable soil for burrow and nest construction. Creosote bush habitat with large annual wildflower blooms preferred.	Moderate	Marginally suitable but highly disturbed desert scrub habitat is present within and adjacent to the Project Area. Friable soil is present within and adjacent to the Project Area.
Birds					
<i>Athene cunicularia</i>	burrowing owl	None/None G4/S3 SSC	Open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	Moderate (foraging only)	Marginally suitable but highly disturbed desert scrub habitat suitable for foraging is present within the Project Area. No existing suitable burrows were observed within the Project Area.
<i>Falco mexicanus</i>	prairie falcon	None/None G5/S4 WL	Inhabits dry, open terrain, either level or hilly. Breeding sites located on cliffs. Forages far afield, even to marshlands and ocean shores.	High (foraging only)	The Project Area does not contain suitable breeding habitat; however, suitable breeding habitat (cliffs) is located adjacent to the Project Area. Suitable foraging habitat present within and adjacent to the Project Area.
Mammals					
<i>Ovis canadensis nelsoni</i>	desert bighorn sheep	None/None G4T4/S3 FP	Widely distributed from the White Mtns. in Mono Co. to the Chocolate Mts in Imperial Co. Open, rocky, steep areas with available water and herbaceous forage.	None	Suitable habitat (open, rocky, steep areas with available water and herbaceous forage) not present.

Scientific Name	Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/Observations
<i>Puma concolor</i>	mountain lion	CT/CE	Large areas of relatively undisturbed habitats with adequate connectivity. Pine forests, riparian and oak woodlands, streams, chaparral, and grasslands. Also known to occur in desert habitats.	Moderate	Suitable open desert habitat within the species' range is present within the Project Area. Project Area may support transient travel by mountain lions, though is too small to support long-term occupancy.

Regional Vicinity refers to within a 9-quadrant search radius of site.

Status (Federal/State)	CRPR (CNPS California Rare Plant Rank)
FT = Federal Threatened	1B = Rare, Threatened, or Endangered in California and elsewhere
ST = State Threatened	2B = Rare, Threatened, or Endangered in California, but more common elsewhere
FP = CDFW Fully Protected	
WL = CDFW Watch List	
SSC = CDFW Species of Special Concern	CRPR Threat Code Extension
CT = Candidate State Threatened	.2 = Moderately threatened in California (20-80% of occurrences threatened/
CE = Candidate State Endangered	moderate degree and immediacy of threat)
Other Statuses	
G2 or S2	Imperiled Globally or Subnationally (state)
G3 or S3	Vulnerable to extirpation or extinction Globally or Subnationally (state)
G4/5 or S4/5	Apparently secure, common and abundant
T	Global condition of subspecies/varieties

Special Status Species with Potential to Occur at RV-8

Scientific Name	Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/Observations
Plants					
<i>Colubrina californica</i>	Las Animas colubrina	None/None G4/S2S3 2B.3	Mojavean desert scrub, Sonoran Desert scrub. On narrow, steep, rocky ravines or washes. 10-915 m. perennial deciduous shrub. Blooms Apr-Jun	None	Marginally suitable disturbed desert scrub habitat is present within the Project Area; however, this perennial shrub was not observed.

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Scientific Name	Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/Observations
<i>Coryphantha alversonii</i>	Alverson's foxtail cactus	None/None G3/S3 4.3	Mojavean desert scrub, Sonoran desert scrub. Sandy or rocky habitat; sites from gravelly slopes and dissected alluvial fans. Granite substrate. 75-1525 m. perennial stem succulent. Blooms Apr-Jun	None	Marginally suitable disturbed desert scrub habitat is present within the Project Area; however, this perennial shrub was not observed.
<i>Ditaxis serrata</i> var. <i>californica</i>	California ditaxis	None/None G5T3T4/S2? 3.2	Sonoran Desert scrub. On sandy washes and alluvial fans of the foothills and lower desert slopes. 30-1000 m. perennial herb. Blooms Mar-Dec	None	Marginally suitable disturbed desert scrub habitat is present within the Project Area; however, this perennial shrub was not observed.
<i>Yucca brevifolia</i>	Joshua tree	None/CT G5/S2	Confined mostly to the Mojave Desert between 400 and 1,800 m (1,300 and 5,900 ft) elevation. Habitats occur in broad valleys where soils are deep, on alluvial or rocky slopes, and on pediments with minimal runoff surrounding desert mountains and mesas	None	Disturbed, marginally suitable habitat is located within the Project Area, but this large perennial species was not observed within or adjacent to the Project Area.
Reptiles					
<i>Gopherus agassizii</i>	desert tortoise	FT/ST G3/S2S3	Most common in desert scrub, desert wash, and Joshua tree habitats; occurs in almost every desert habitat. Require friable soil for burrow and nest construction. Creosote bush habitat with large annual wildflower blooms preferred.	Moderate	Marginally suitable but highly disturbed desert scrub habitat is present within and adjacent to the Project Area. Friable soil is present within and adjacent to the Project Area.
Birds					
<i>Athene cunicularia</i>	burrowing owl	None/None G4/S3 SSC	Open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	Moderate (foraging only)	Marginally suitable but highly disturbed desert scrub habitat suitable for foraging is present within the Project Area. No existing suitable burrows were observed within the Project Area.

Scientific Name	Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/Observations
<i>Falco mexicanus</i>	prairie falcon	None/None G5/S4 WL	Inhabits dry, open terrain, either level or hilly. Breeding sites located on cliffs. Forages far afield, even to marshlands and ocean shores.	High (foraging only)	The Project Area does not contain suitable breeding habitat; however, suitable breeding habitat (cliffs) is located adjacent to the Project Area. Suitable foraging habitat within and adjacent to the Project Area.
Mammals					
<i>Ovis canadensis nelsoni</i>	desert bighorn sheep	None/None G4T4/S3 FP	Widely distributed from the White Mtns. in Mono Co. to the Chocolate Mts in Imperial Co. Open, rocky, steep areas with available water and herbaceous forage.	Low	Suitable habitat (open, rocky, steep areas with available water and herbaceous forage) present nearby but not directly within the Project Area.
<i>Puma concolor</i>	mountain lion	CT/CE	Large areas of relatively undisturbed habitats with adequate connectivity. Pine forests, riparian and oak woodlands, streams, chaparral, and grasslands. Also known to occur in desert habitats.	Moderate	Suitable open desert habitat within the species' range is present within the Project Area. Project Area may support transient travel by mountain lions, though is too small to support long-term occupancy.

Regional Vicinity refers to within a 9-quad search radius of site.

Status (Federal/State)	CRPR (CNPS California Rare Plant Rank)
FT = Federal Threatened	2B= Rare, Threatened, or Endangered in California, but more common elsewhere
ST = State Threatened	
FP = CDFW Fully Protected	3 = Need more information (Review List)
WL = CDFW Watch List	4 = Limited Distribution (Watch List)
SSC = CDFW Species of Special Concern	CRPR Threat Code Extension
CT = Candidate State Threatened	.2 = Moderately threatened in California (20-80% of occurrences threatened/moderate degree and immediacy of threat)
CE = Candidate State Endangered	.3 = Not very endangered in California (<20% of occurrences threatened/low degree and immediacy of threat)

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Colorado River Aqueduct Master Reclamation Plan for San Bernardino and Riverside Counties

Other Statuses

G2 or S2	Imperiled Globally or Subnationally (state)
G3 or S3	Vulnerable to extirpation or extinction Globally or Subnationally (state)
G4/5 or S4/5	Apparently secure, common and abundant
T	Global condition of subspecies/varieties

Special Status Species with Potential to Occur at RV-9

Scientific Name	Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/Observations
Plants					
<i>Ayenia compacta</i>	California ayenia	None/None G4/S3 2B.3	Mojavean desert scrub, Sonoran Desert scrub. Sandy and gravelly washes in the desert; dry desert canyons. 60-1830 m. perennial herb. Blooms Mar-Apr	Low	Low quality Mojavean desert scrub habitat present. The Project Area is highly disturbed and contains little vegetation.
<i>Castela emoryi</i>	Emory's crucifixion-thorn	None/None G3G4/S2S3 2B.2	Mojavean desert scrub, Sonoran Desert scrub, playas. Gravelly soils, sometimes in alkali playas or washes. 88-2000 m. perennial deciduous shrub. Blooms (Apr) Jun-Jul (Sep-Oct)	Low	Low quality Mojavean desert scrub habitat present. The Project Area is highly disturbed and contains little vegetation.
<i>Colubrina californica</i>	Las Animas colubrina	None/None G4/S2S3 2B.3	Mojavean desert scrub, Sonoran Desert scrub. On narrow, steep, rocky ravines or washes. 10-915 m. perennial deciduous shrub. Blooms Apr-Jun	None	Marginally suitable disturbed desert scrub habitat is present within the Project Area; however, this perennial shrub was not observed.
<i>Euphorbia abramsiana</i>	Abrams' spurge	None/None G4/S2 2B.2	Mojavean desert scrub, Sonoran Desert scrub. Sandy sites. 45-1445 m. annual herb. Blooms (Aug) Sep-Nov	Low	Marginally suitable disturbed desert scrub habitat is present within the Project Area.
<i>Matelea parvifolia</i>	spear-leaf matelea	None/None G5/S3 2B.3	Mojavean desert scrub, Sonoran Desert scrub. Dry rocky ledges and slopes. 485-1440 m. perennial herb. Blooms Mar-May (Jul)	Low	Low quality Mojavean desert scrub habitat present. The Project is highly disturbed and contains little vegetation.
<i>Panicum hirticaule</i> ssp. hirticaule	roughstalk witch grass	None/None G5T5/S2 2B.1	Desert dunes, Joshua tree woodland, Mojavean desert scrub, Sonoran Desert scrub. Sandy, silty depressions. 60-1465 m. annual herb. Blooms Aug-Dec	Low	Low quality Mojavean desert scrub habitat present. The Project Area is highly disturbed and contains little vegetation.

Scientific Name	Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/Observations
<i>Spermolepis gigantea</i>	desert scaleseed	None/None G2G3/SH 2B.1	Sonoran Desert scrub. 400 m. annual herb. Blooms Mar-Apr	Low	Low quality desert scrub habitat present. The Project Area is highly disturbed and contains little vegetation.
<i>Stylocline sonorensis</i>	mesquite neststraw	None/None G3G5/SX 2A	Sonoran Desert scrub. Open sandy drainages. annual herb. Blooms Apr	Low	Low quality desert scrub habitat present. The Project Area is highly disturbed and contains little vegetation.
<i>Teucrium cubense</i> <i>ssp. depressum</i>	dwarf germander	None/None G4G5T3T4/S2 2B.2	Desert dunes, playas, Sonoran desert scrub. Dunes, playa margins and scrub. 45-400m. annual herb. Blooms Mar-May(Sep-Nov)	Low	Low quality desert scrub habitat present. The Project Area is highly disturbed and contains little vegetation.
<i>Yucca brevifolia</i>	Joshua tree	None/CT G5/S2	Confined mostly to the Mojave Desert between 400 and 1,800 m (1,300 and 5,900 ft) elevation. Habitats occur in broad valleys where soils are deep, on alluvial or rocky slopes, and on pediments with minimal runoff surrounding desert mountains and mesas	None	Disturbed, marginally suitable habitat is located within the Project Area, but this large perennial species was not observed within or adjacent to the Project Area.
Reptiles					
<i>Gopherus agassizii</i>	desert tortoise	Threatened/ Threatened G3/S2S3	Most common in desert scrub, desert wash, and Joshua tree habitats; occurs in almost every desert habitat. Require friable soil for burrow and nest construction. Creosote bush habitat with large annual wildflower blooms preferred.	Moderate	Marginally suitable but highly disturbed desert scrub habitat is present within and adjacent to the Project Area. Friable soil is present within and adjacent to the Project Area.
Birds					
<i>Athene cunicularia</i>	burrowing owl	None/None G4/S3 SSC	Open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	Moderate (foraging only)	Marginally suitable but highly disturbed desert scrub habitat suitable for foraging is present within the Project Area. No existing suitable burrows were observed within the Project Area.

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Colorado River Aqueduct Master Reclamation Plan for San Bernardino and Riverside Counties

Scientific Name	Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/Observations
<i>Falco mexicanus</i>	prairie falcon	None/None G5/S4 WL	Inhabits dry, open terrain, either level or hilly. Breeding sites located on cliffs. Forages far afield, even to marshlands and ocean shores.	High (foraging only)	The Project Area does not contain suitable breeding habitat; however, suitable breeding habitat (cliffs) are located adjacent to the Project Area. Suitable foraging habitat located within the Project Area.
Mammals					
<i>Ovis canadensis nelsoni</i>	desert bighorn sheep	None/None G4T4/S3 FP	Widely distributed from the White Mtns. in Mono Co. to the Chocolate Mts in Imperial Co. Open, rocky, steep areas with available water and herbaceous forage.	High	Suitable habitat (open, rocky, steep areas with available water and herbaceous forage) present within the Project Area.
<i>Puma concolor</i>	mountain lion	CT/CE	Large areas of relatively undisturbed habitats with adequate connectivity. Pine forests, riparian and oak woodlands, streams, chaparral, and grasslands. Also known to occur in desert habitats.	Moderate	Suitable open desert habitat within the species' range is present within the Project Area. Project Area may support transient travel by mountain lions, though is too small to support long-term occupancy.

Regional Vicinity refers to within a 9-quad search radius of site.

Status (Federal/State)

FP = CDFW Fully Protected
WL = CDFW Watch List
SSC = CDFW Species of Special Concern
CT = Candidate State Threatened
CE = Candidate State Endangered

CRPR (CNPS California Rare Plant Rank)

2A = Presumed extirpated in California, but common elsewhere
2B= Rare, Threatened, or Endangered in California, but more common elsewhere

CRPR Threat Code Extension

.1 = Seriously endangered in California (>80% of occurrences threatened/
high degree and immediacy of threat)
.2 = Moderately threatened in California (20-80% of occurrences threatened/
moderate degree and immediacy of threat)
.3 = Not very endangered in California (<20% of occurrences threatened/
low degree and immediacy of threat)

Other Statuses

G2 or S2	Imperiled Globally or Subnationally (state)
G3 or S3	Vulnerable to extirpation or extinction Globally or Subnationally (state)
G4/5 or S4/5	Apparently secure, common and abundant
GH or SH	Possibly Extirpated – missing; known from only historical occurrences but still some hope of rediscovery
T	Global condition of subspecies/varieties
SX	Presumed extirpated

Special Status Species with Potential to Occur at RV-10

Scientific Name	Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/Observations
Plants					
<i>Ayenia compacta</i>	California ayenia	None/None G4/S3 2B.3	Mojavean desert scrub, Sonoran Desert scrub. Sandy and gravelly washes in the desert; dry desert canyons. 60-1830 m. perennial herb. Blooms Mar-Apr	Low	Marginally suitable disturbed desert scrub habitat is present within the Project Area.
<i>Castela emoryi</i>	Emory's crucifixion-thorn	None/None G3G4/S2S3 2B.2	Mojavean desert scrub, Sonoran Desert scrub, playas. Gravelly soils, sometimes in alkali playas or washes. 88-2000 m. perennial deciduous shrub. Blooms (Apr) Jun-Jul (Sep-Oct)	Low	Marginally suitable disturbed desert scrub habitat is present within the Project Area.
<i>Colubrina californica</i>	Las Animas colubrina	None/None G4/S2S3 2B.3	Mojavean desert scrub, Sonoran Desert scrub. On narrow, steep, rocky ravines or washes. 10-915 m. perennial deciduous shrub. Blooms Apr-Jun	None	Marginally suitable disturbed desert scrub habitat is present within the Project Area; however this perennial shrub was not observed.
<i>Euphorbia abramsiana</i>	Abrams' spurge	None/None G4/S2 2B.2	Mojavean desert scrub, Sonoran Desert scrub. Sandy sites. 45-1445 m. annual herb. Blooms (Aug) Sep-Nov	Low	Marginally suitable disturbed desert scrub habitat is present within the Project Area.
<i>Matelea parvifolia</i>	spear-leaf matelea	None/None G5/S3 2B.3	Mojavean desert scrub, Sonoran Desert scrub. Dry rocky ledges and slopes. 485-1440 m. perennial herb. Blooms Mar-May (Jul)	Low	Marginally suitable desert scrub habitat is present. The Project Area is highly disturbed and contains little vegetation.

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Scientific Name	Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/Observations
<i>Panicum hirticaule</i> ssp. <i>hirticaule</i>	roughstalk witch grass	None/None G5T5/S2 2B.1	Desert dunes, Joshua tree woodland, Mojavean desert scrub, Sonoran Desert scrub. Sandy, silty depressions. 60-1465 m. annual herb. Blooms Aug-Dec	Low	Marginally suitable desert scrub habitat present. The Project Area is highly disturbed and contains little vegetation.
<i>Spermolepis gigantea</i>	desert scaleseed	None/None G2G3/SH 2B.1	Sonoran Desert scrub. 400 m. annual herb. Blooms Mar-Apr	Low	Low quality desert scrub habitat present. The Project Area is highly disturbed and contains little vegetation.
<i>Stylocline sonorensis</i>	mesquite neststraw	None/None G3G5/SX 2A	Sonoran Desert scrub. Open sandy drainages. annual herb. Blooms Apr	Low	Low quality desert scrub habitat present. The Project Area is highly disturbed and contains little vegetation.
<i>Teucrium cubense</i> ssp. <i>depressum</i>	dwarf germander	None/None G4G5T3T4/S2 2B.2	Desert dunes, playas, Sonoran desert scrub. Dunes, playa margins and scrub. 45-400m. annual herb. Blooms Mar-May(Sep-Nov)	Low	Low quality desert scrub habitat present. The Project Area is highly disturbed and contains little vegetation.
<i>Yucca brevifolia</i>	Joshua tree	None/CT G5/S2	Confined mostly to the Mojave Desert between 400 and 1,800 m (1,300 and 5,900 ft) elevation. Habitats occur in broad valleys where soils are deep, on alluvial or rocky slopes, and on pediments with minimal runoff surrounding desert mountains and mesas	None	Disturbed, marginally suitable habitat is located within the Project Area, but this large perennial species was not observed within or adjacent to the Project Area.
Reptiles					
<i>Gopherus agassizii</i>	desert tortoise	FT/ST G3/S2S3	Most common in desert scrub, desert wash, and Joshua tree habitats; occurs in almost every desert habitat. Require friable soil for burrow and nest construction. Creosote bush habitat with large annual wildflower blooms preferred.	Moderate	Marginally suitable but highly disturbed desert scrub habitat is present within and adjacent to the Project Area. Friable soil is present within and adjacent to the Project Area.

Scientific Name	Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/Observations
Birds					
<i>Athene cunicularia</i>	burrowing owl	None/None G4/S3 SSC	Open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	Moderate (foraging only)	Marginally suitable but highly disturbed desert scrub habitat suitable for foraging is present within the Project Area. No existing suitable burrows were observed within the Project Area.
<i>Falco mexicanus</i>	prairie falcon	None/None G5/S4 WL	Inhabits dry, open terrain, either level or hilly. Breeding sites located on cliffs. Forages far afield, even to marshlands and ocean shores.	High (foraging only)	The Project Area does not contain suitable breeding habitat; however, suitable breeding habitat (cliffs) is located adjacent to the Project Area. Suitable foraging habitat located within the Project Area.
Mammals					
<i>Ovis canadensis nelsoni</i>	desert bighorn sheep	None/None G4T4/S3 FP	Widely distributed from the White Mtns. in Mono Co. to the Chocolate Mts in Imperial Co. Open, rocky, steep areas with available water and herbaceous forage.	None	Suitable habitat (open, rocky, steep areas with available water and herbaceous forage) not present.
<i>Puma concolor</i>	mountain lion	CT/CE	Large areas of relatively undisturbed habitats with adequate connectivity. Pine forests, riparian and oak woodlands, streams, chaparral, and grasslands. Also known to occur in desert habitats.	Moderate	Suitable open desert habitat within the species' range is present within the Project Area. Project Area may support transient travel by mountain lions, though is too small to support long-term occupancy.

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low degree and immediacy of threat)

Other Statuses

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G3 or S3 Vulnerable to extirpation or extinction Globally or Subnationally (state)

G4/5 or S4/5 Apparently secure, common and abundant

GH or SH Possibly Extirpated – missing; known from only historical occurrences but still some hope of rediscovery

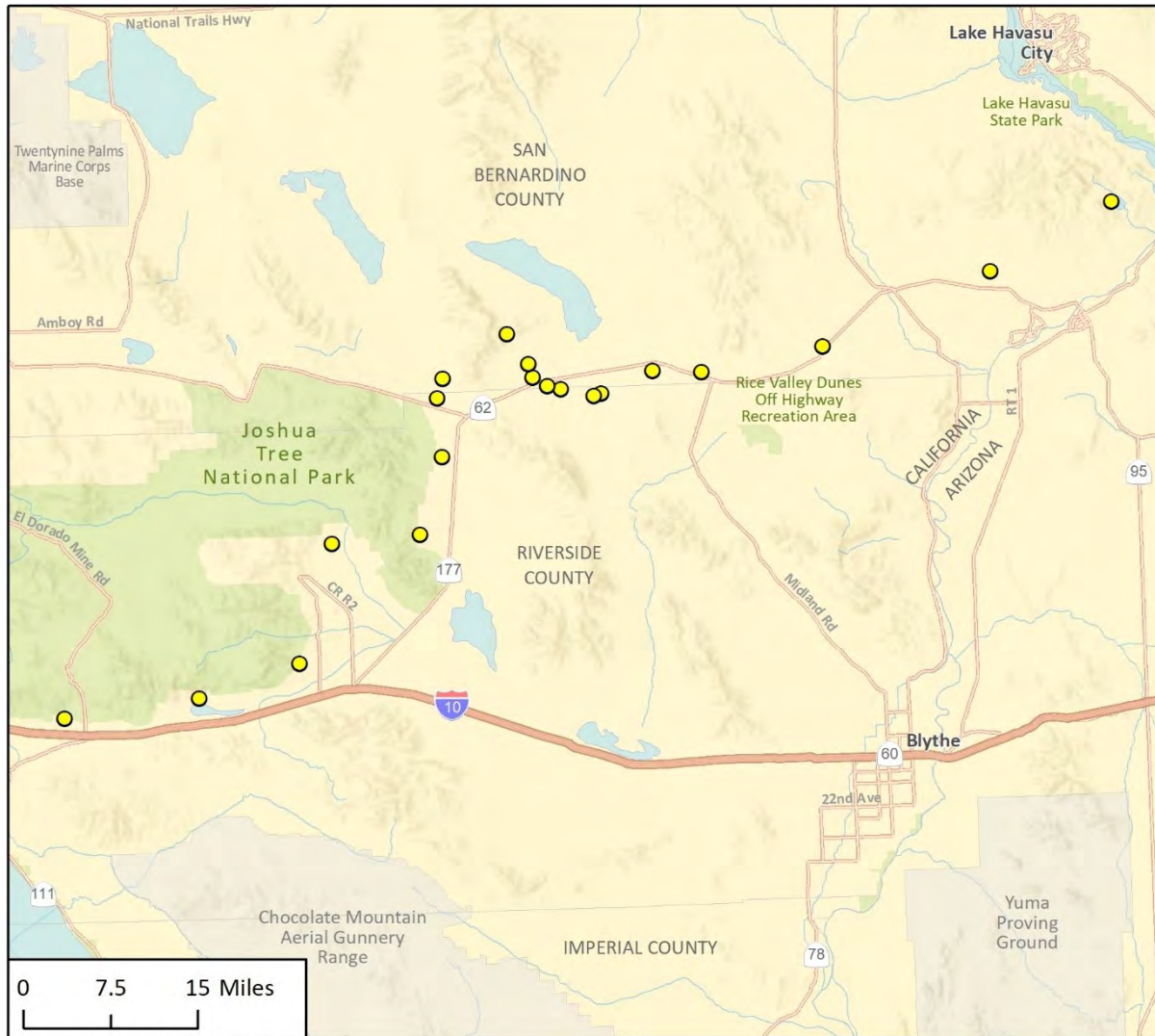
T Global condition of subspecies/varieties

SX Presumed extirpated

Appendix D

Figures

Figure 1 Regional Location



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● Borrow Site

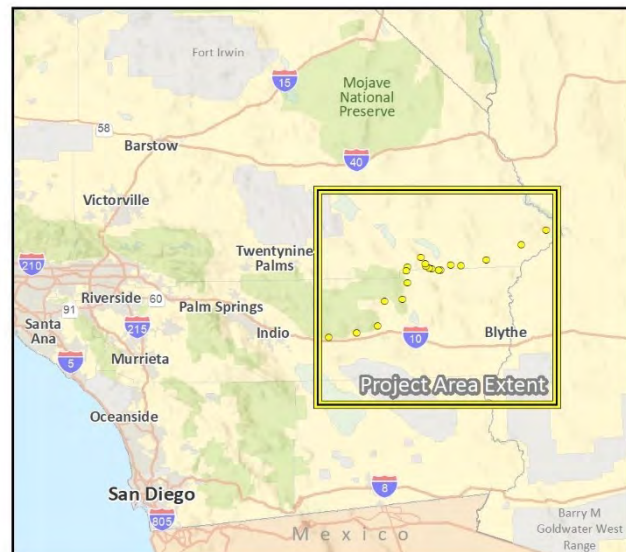


Fig. 1 Regional Location

The Metropolitan Water District of Southern California
Colorado River Aqueduct Master Reclamation Plan for San Bernardino and Riverside Counties

Figure 2 San Bernardino and Riverside County Borrow Sites

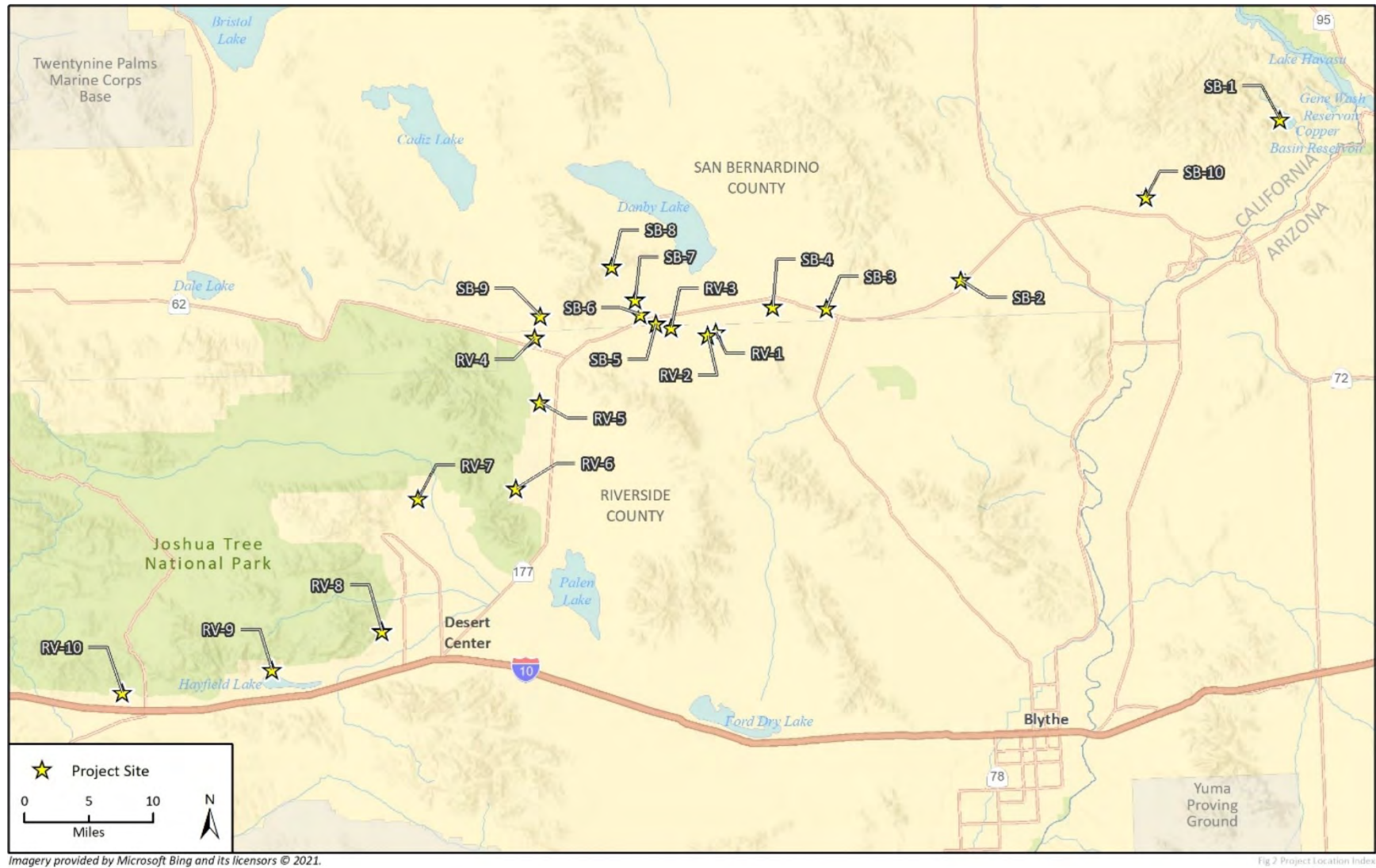


Figure 3a RV-1

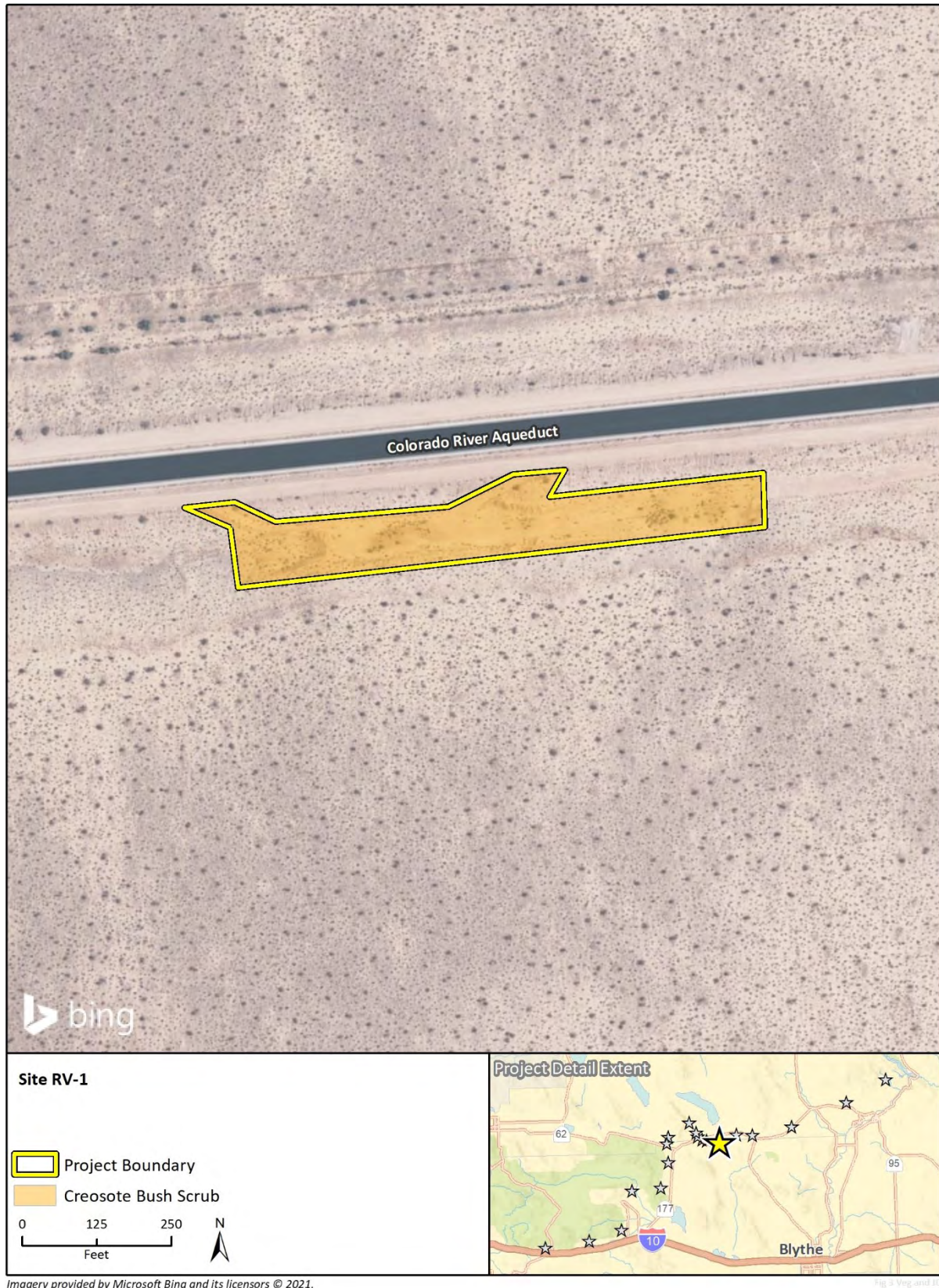


Figure 3b RV-2

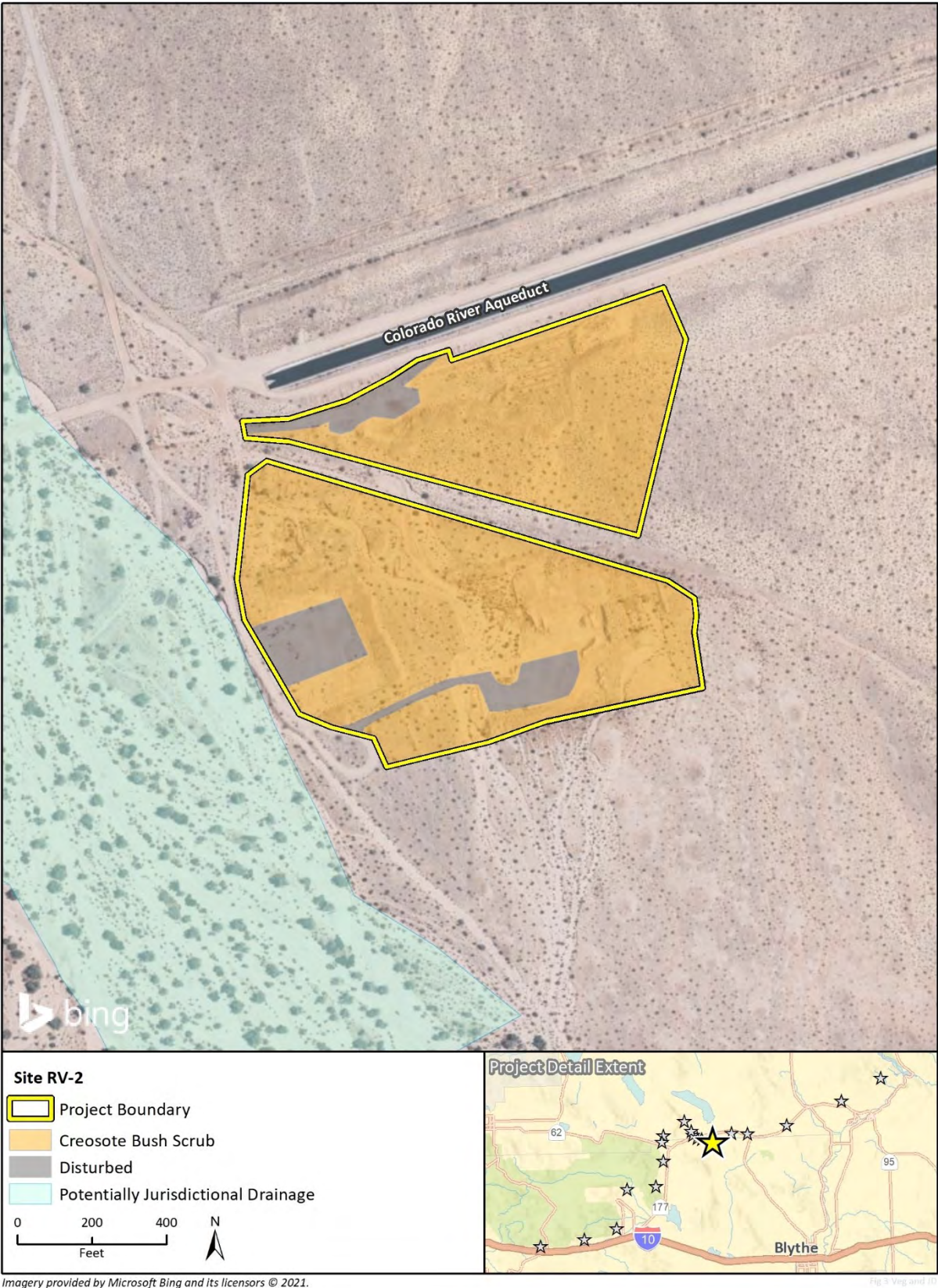


Figure 3c RV-3



Figure 3d RV-4



Figure 3e RV-5

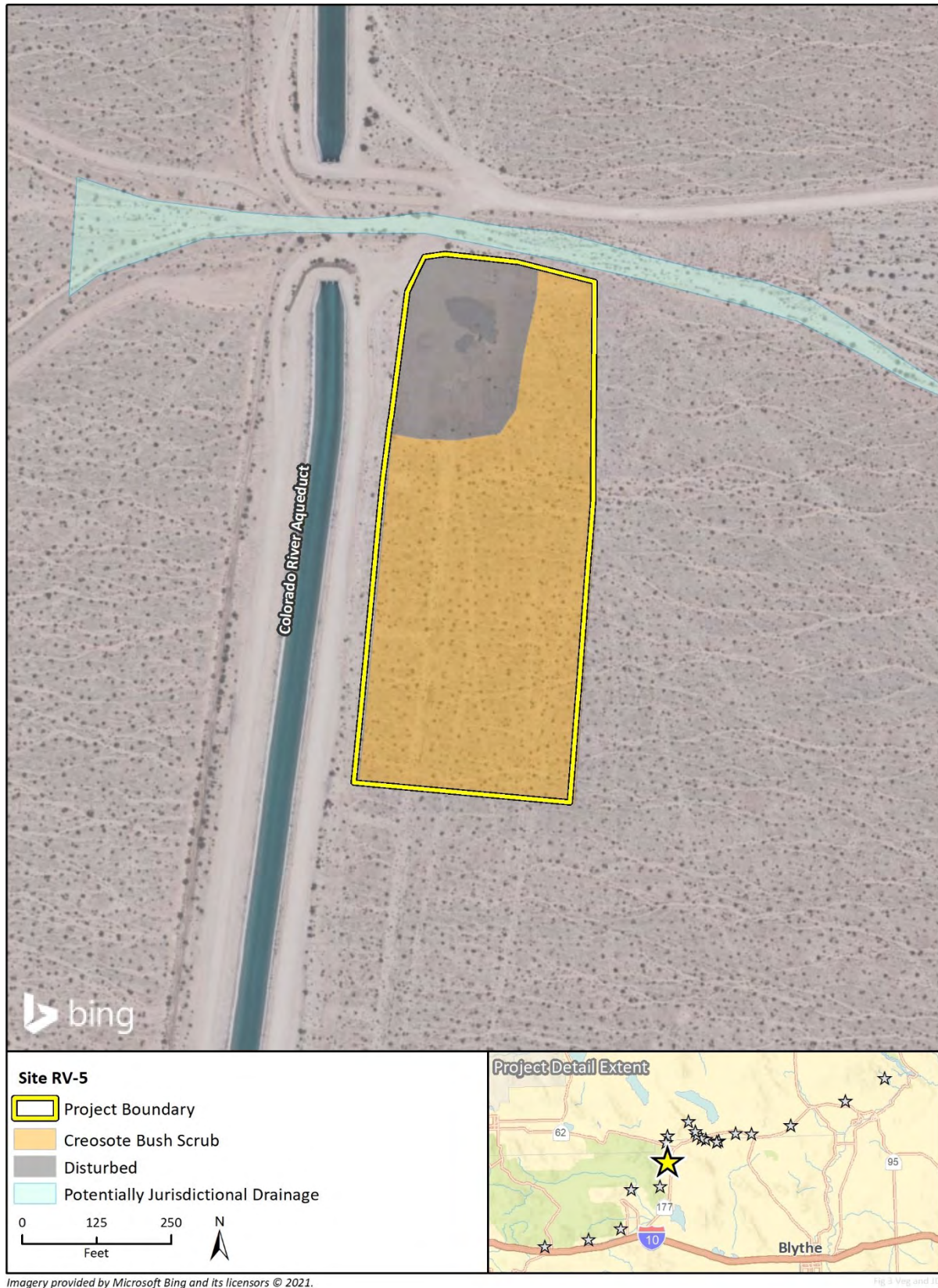


Figure 3f RV-6

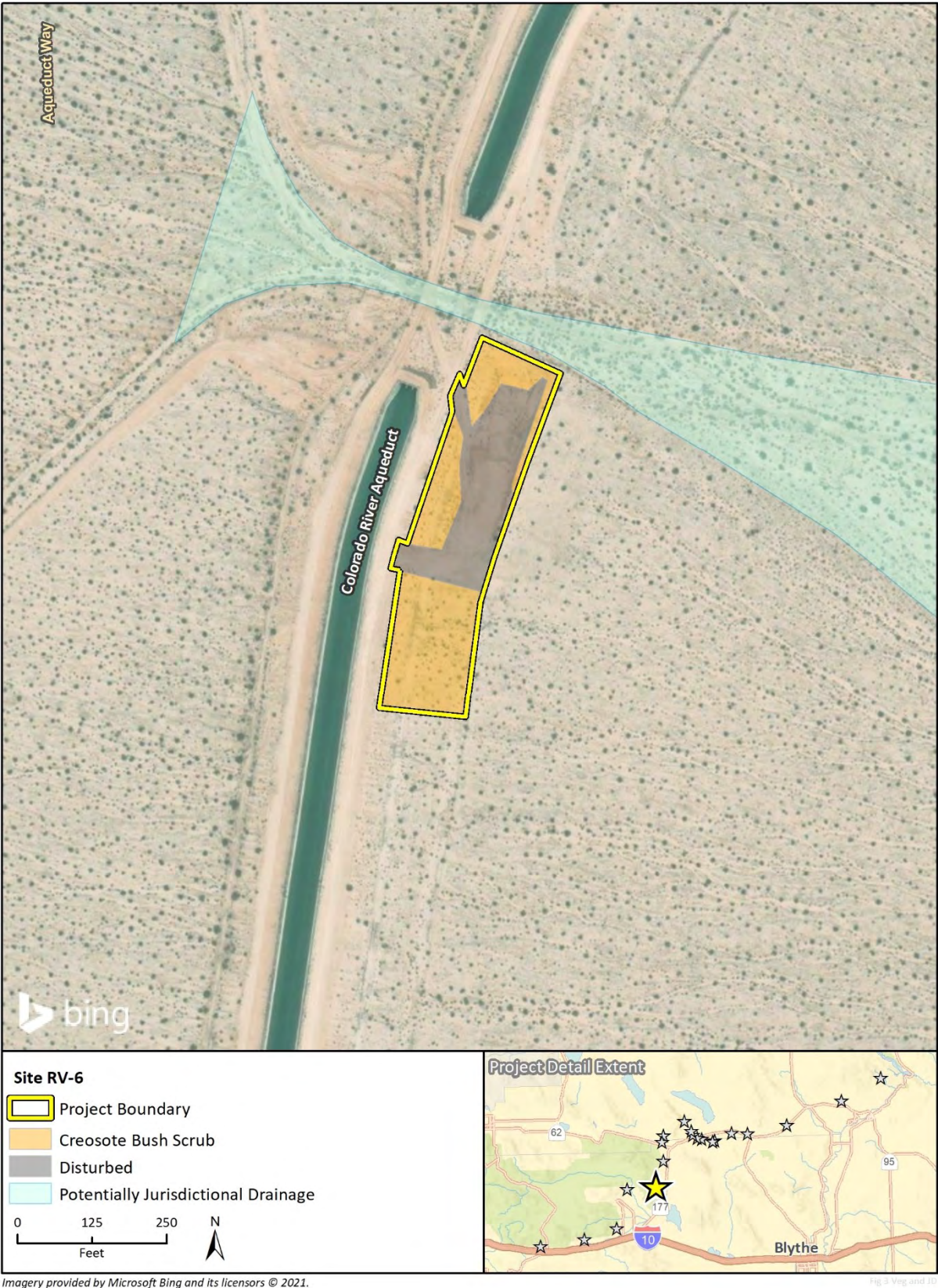


Figure 3g RV-7

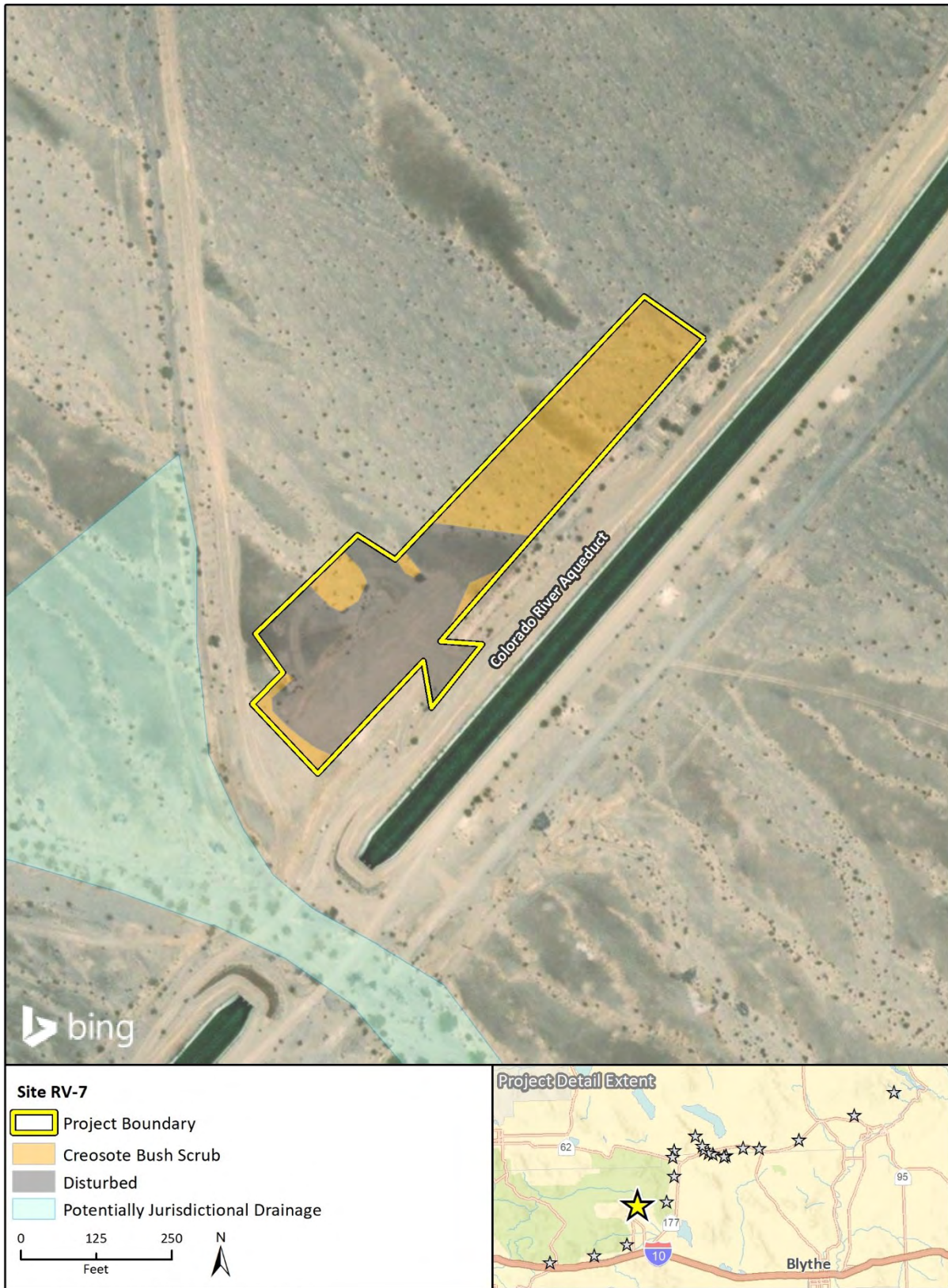


Figure 3h RV-8

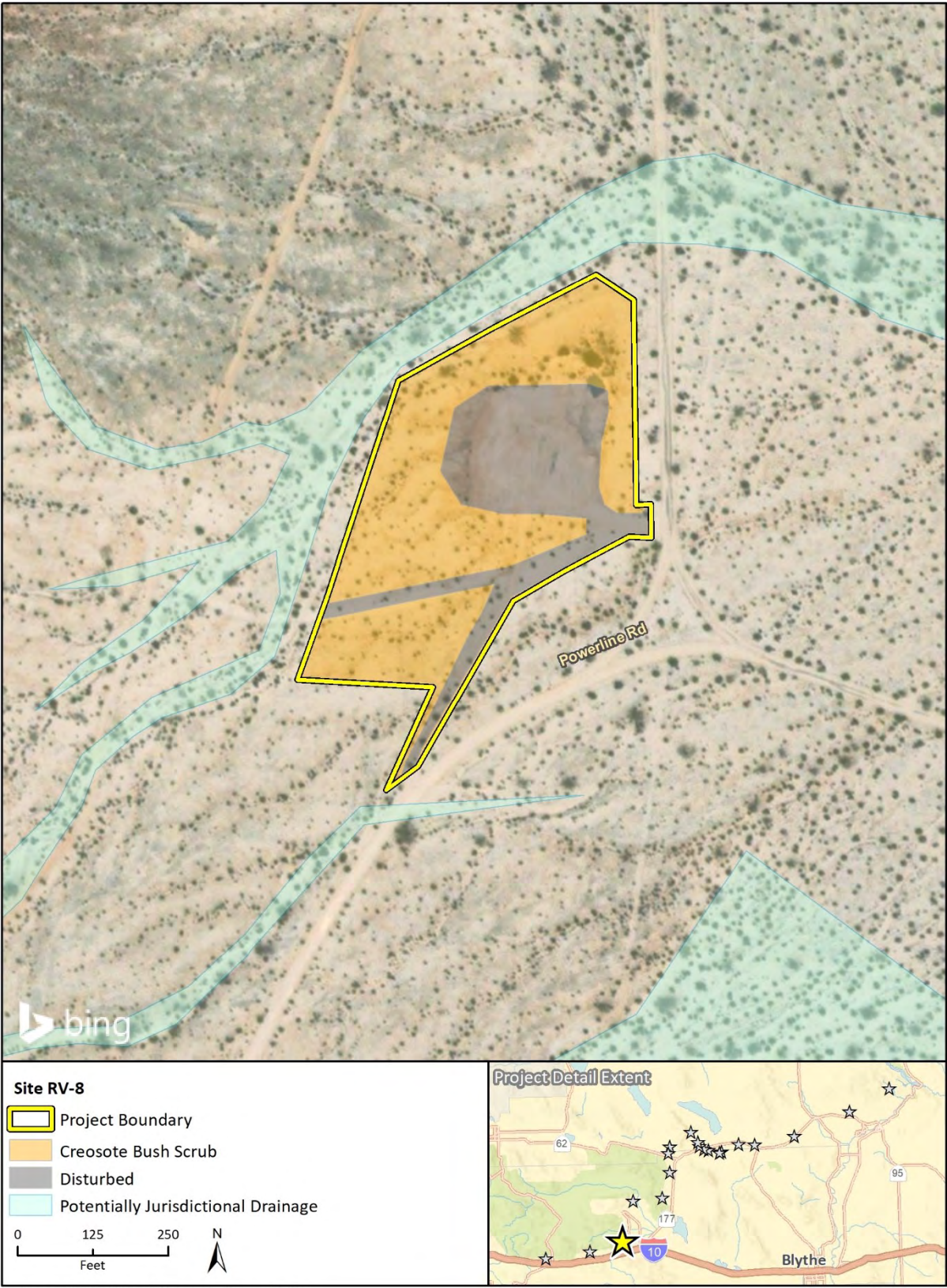


Figure 3i RV-9



Figure 3j RV-10

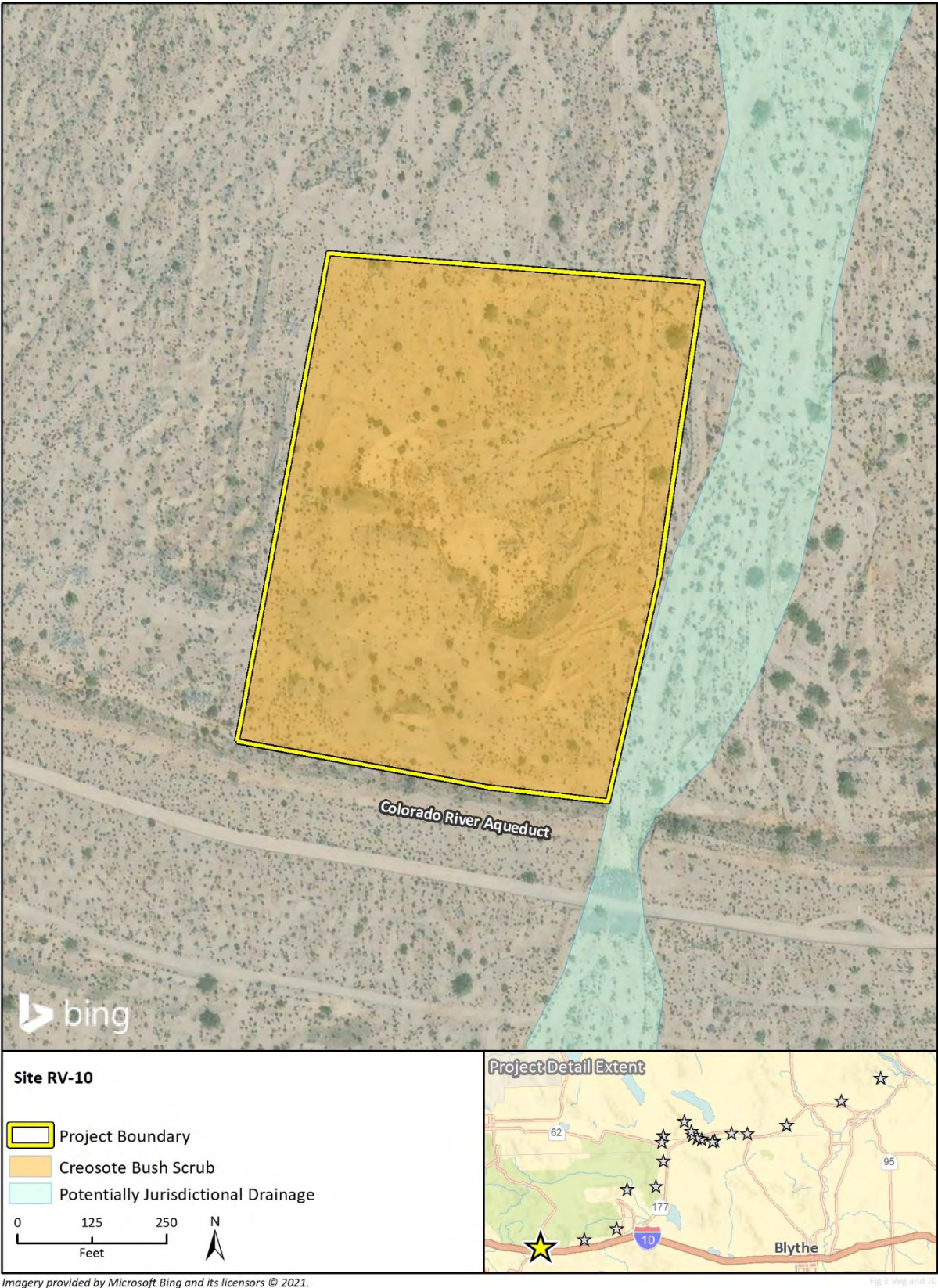


Figure 3k SB-1

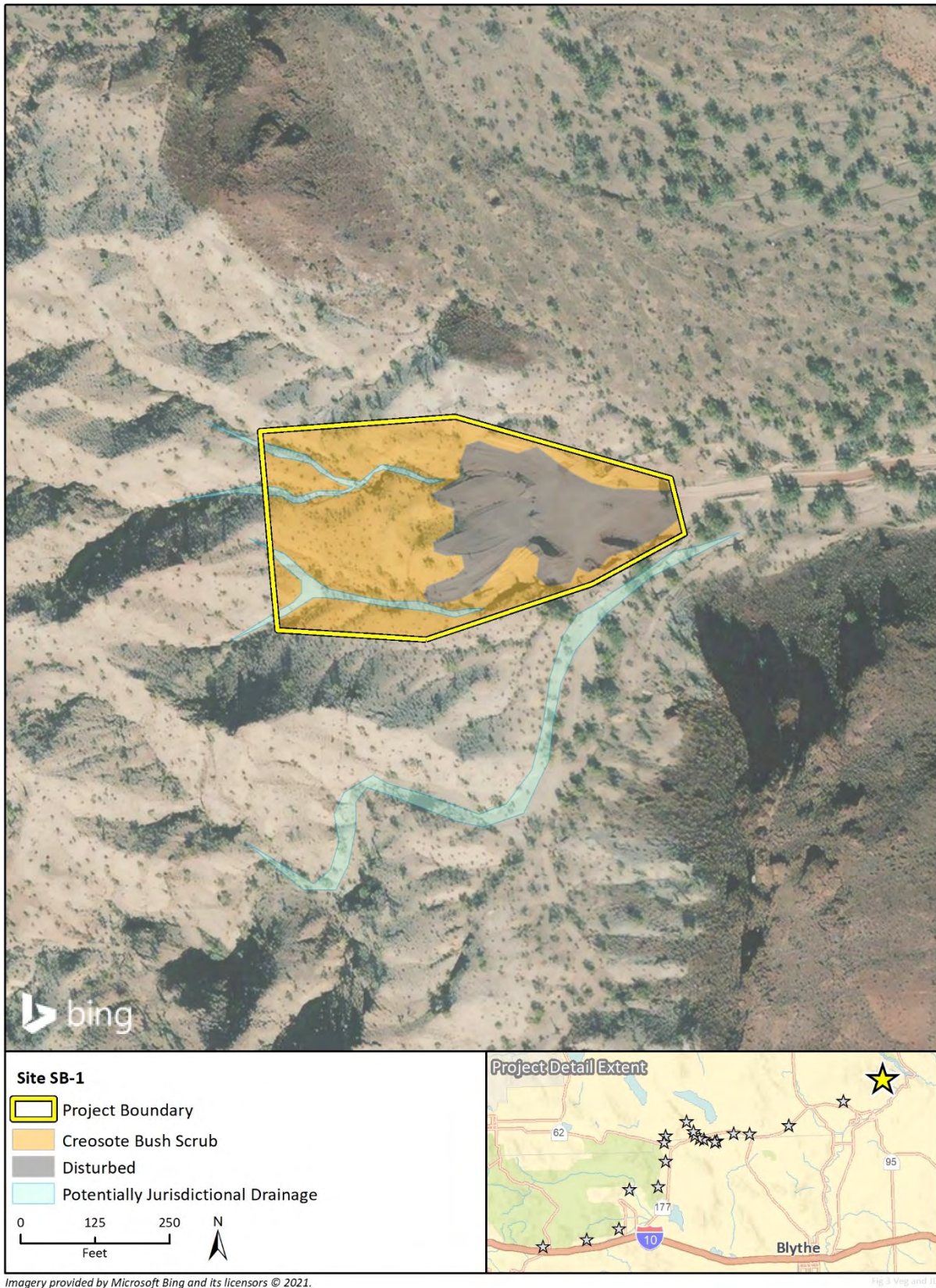
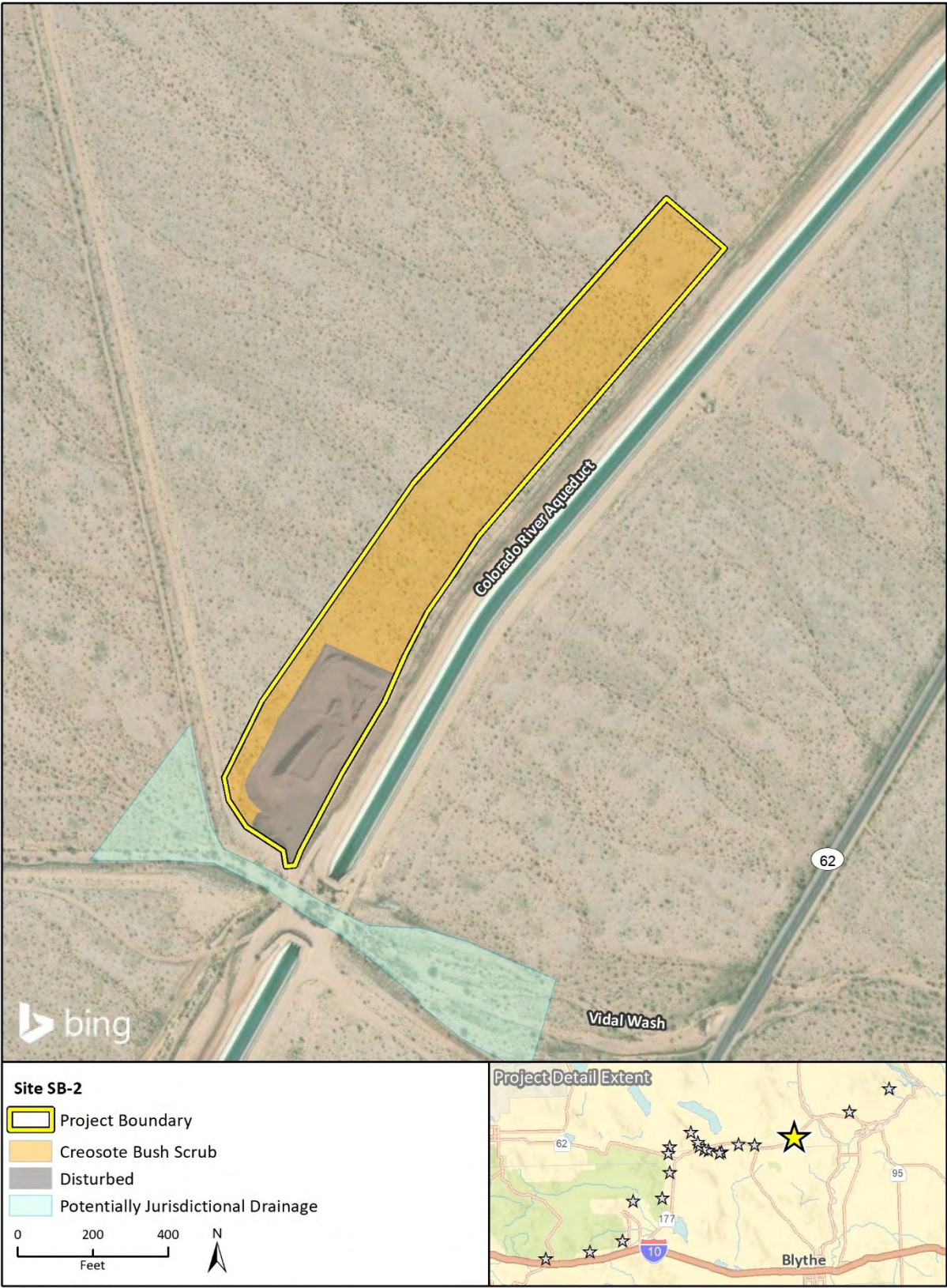


Figure 3I SB-2



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Figure 3m SB-3



Figure 3n SB-4



Figure 3o SB-5



Figure 3p SB-6

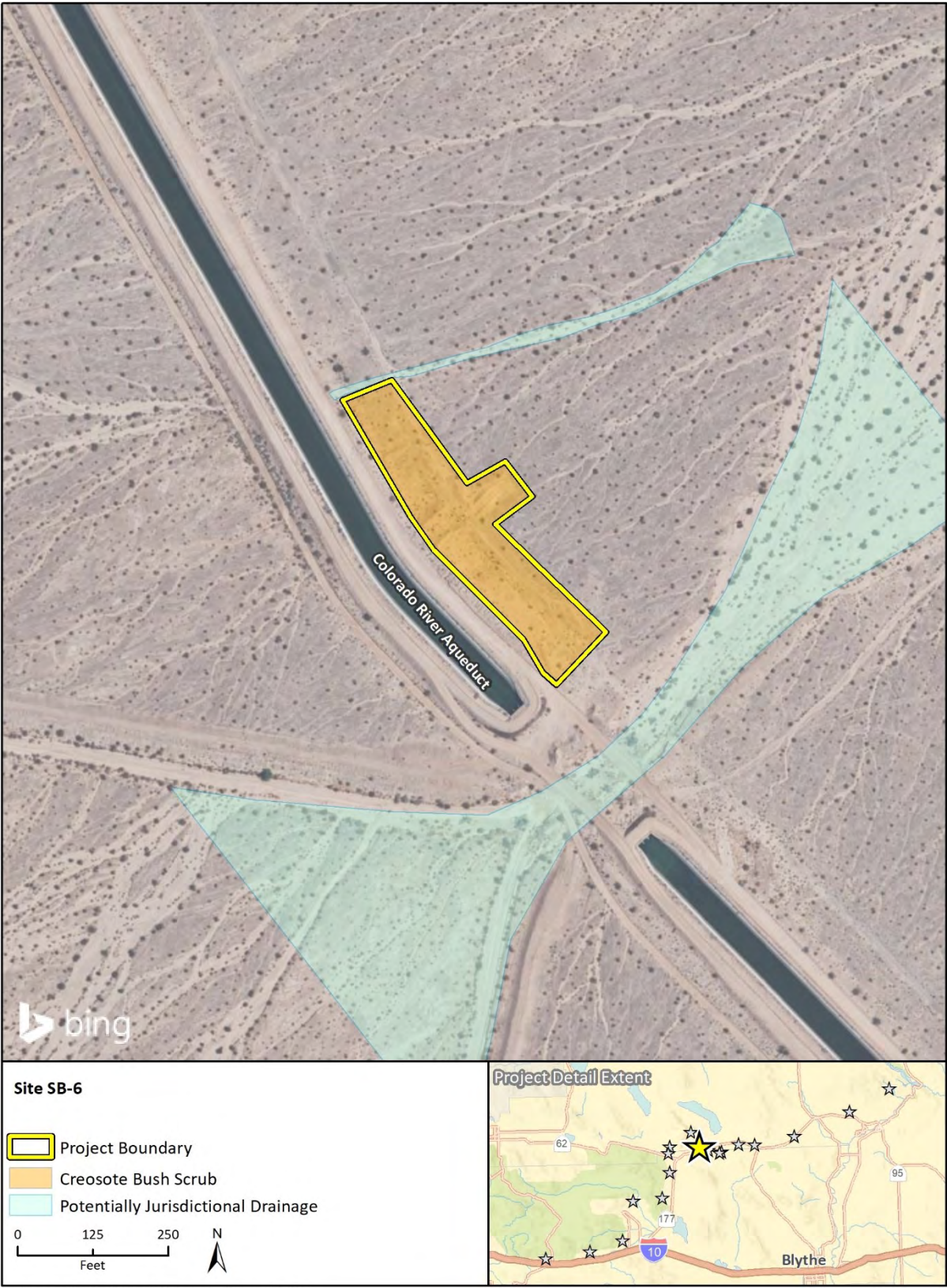


Figure 3q SB-7

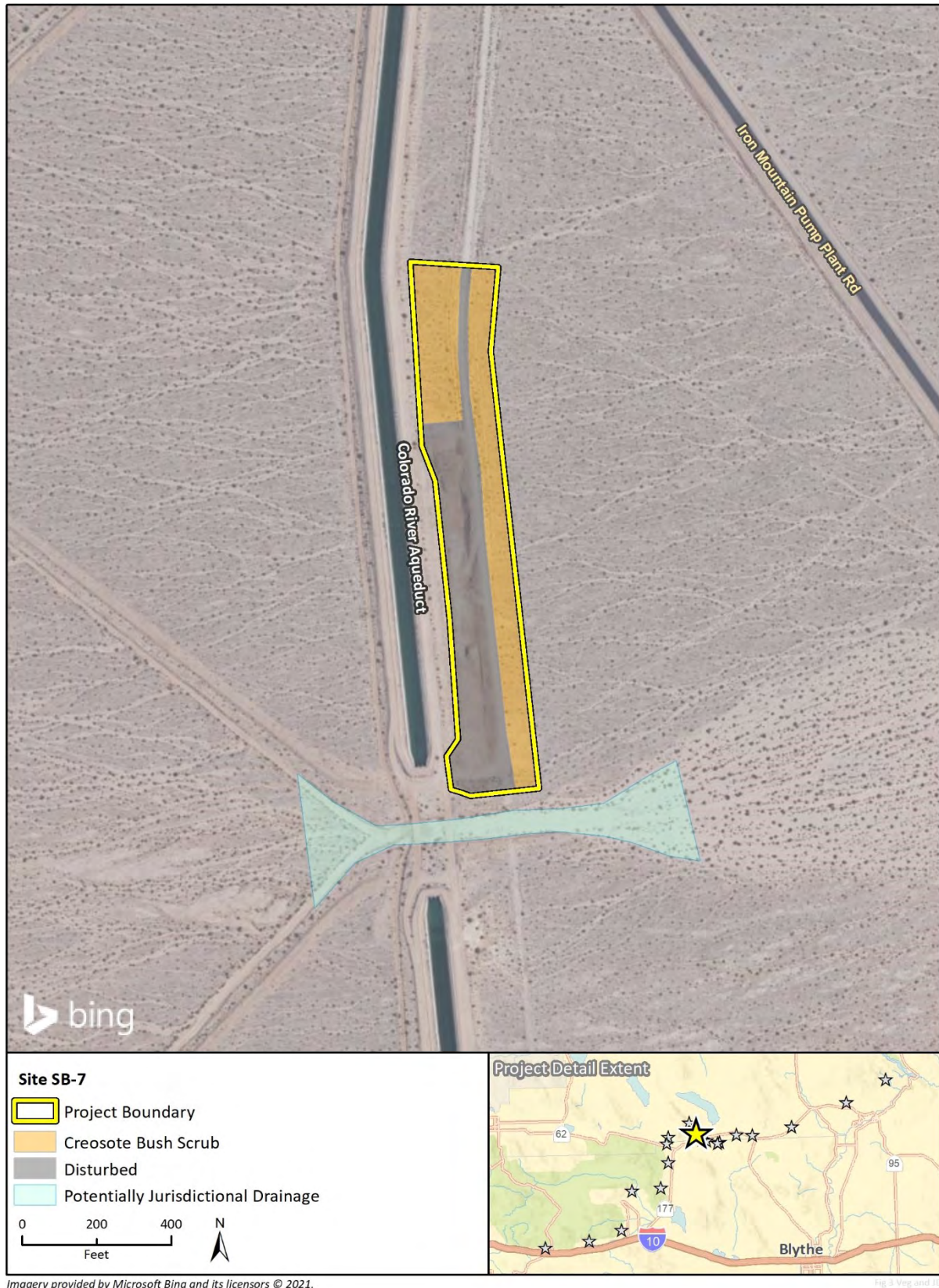
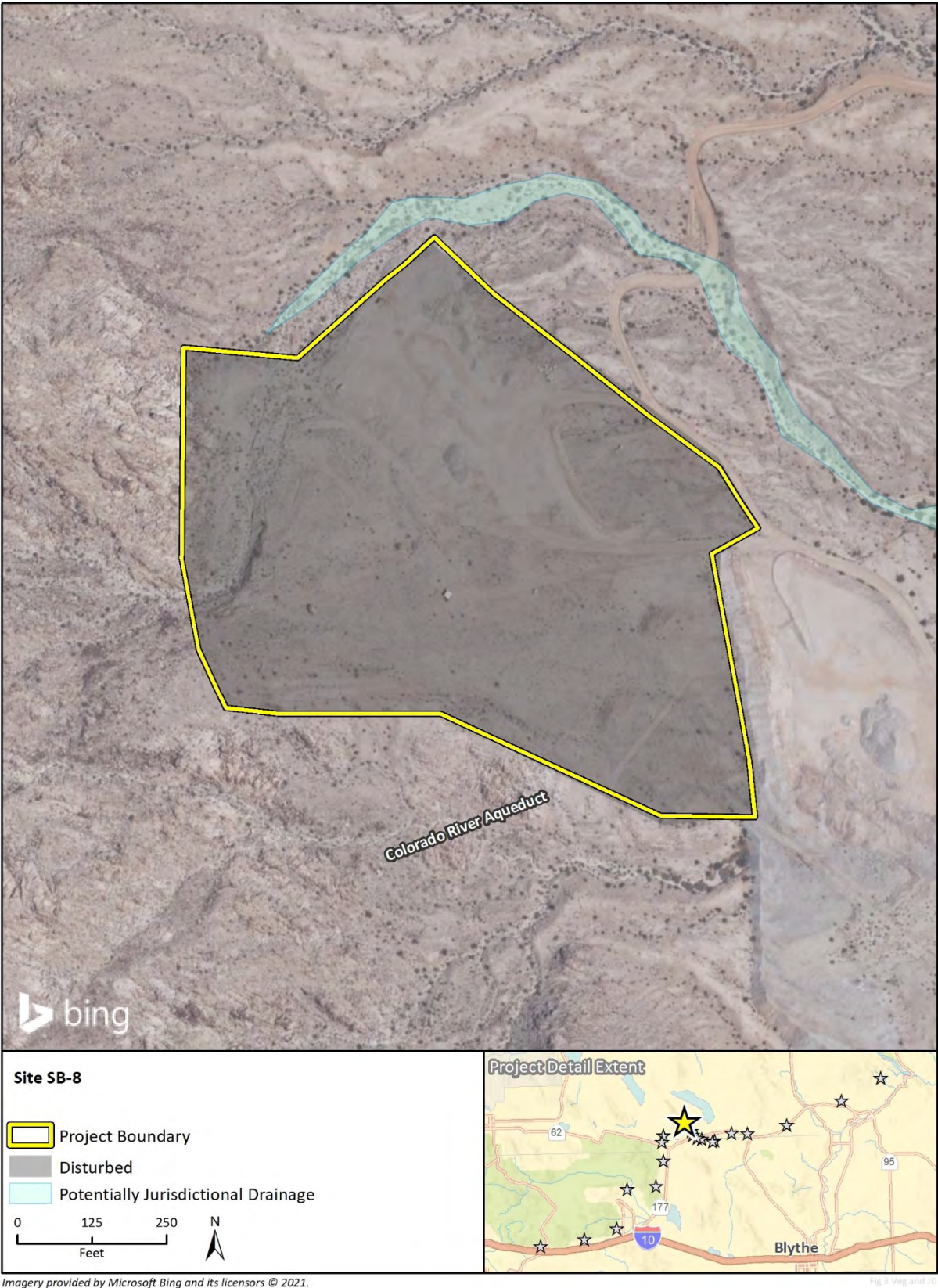


Figure 3r SB-8



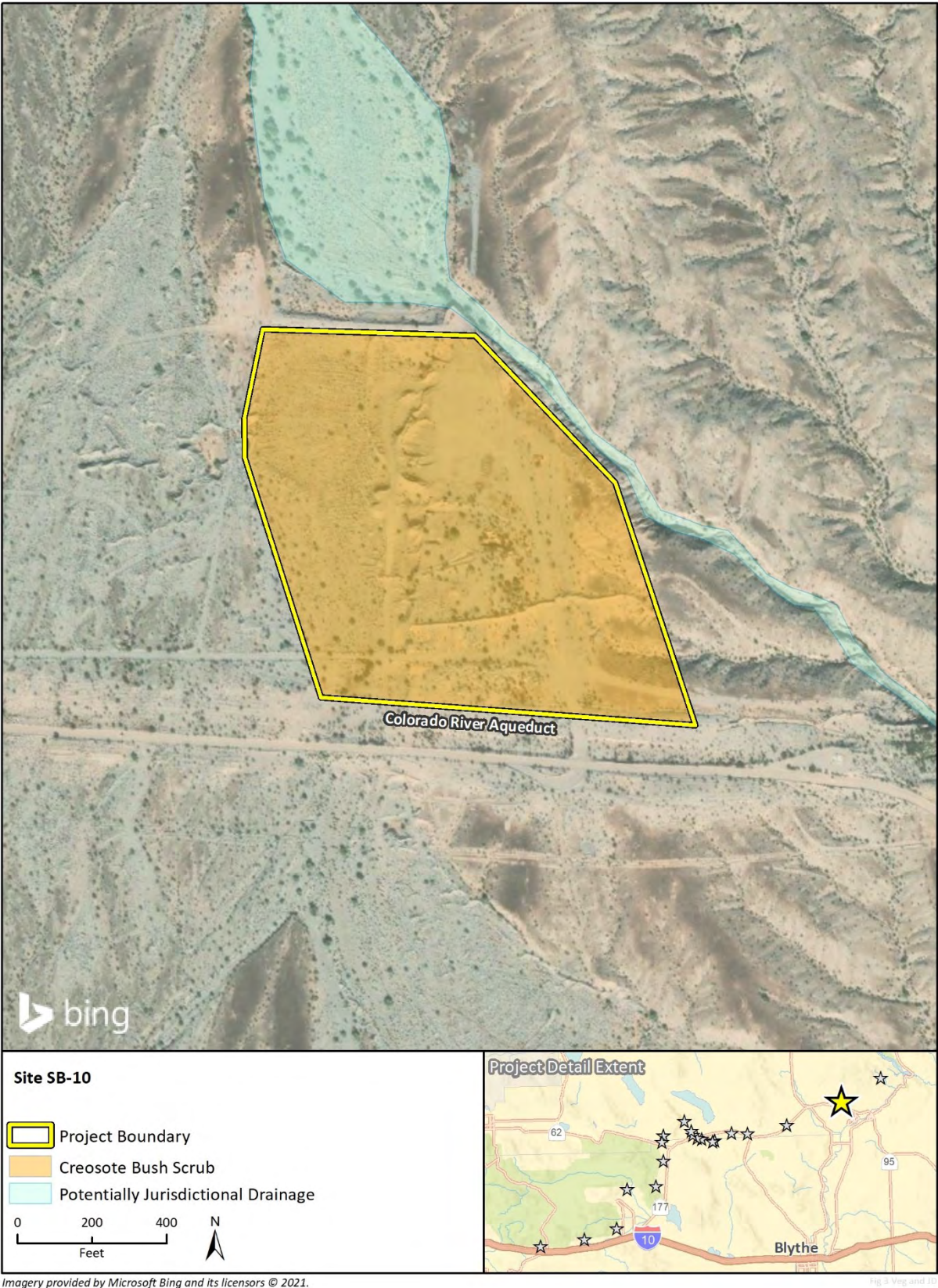
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Figure 3s SB-9



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Figure 3t SB-10



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APPENDIX C

Metropolitan Water District of Southern California's Colorado River Aqueduct Borrow Sites Drainage Evaluation (Sespe Consulting, Inc. – 2022)

Note that the following Drainage Evaluation utilized a different site numbering convention than was used within the Master Reclamation Plan. The following matrix provides a comparison of the borrow site numbering convention utilized in this technical study with the information contained in the Master Reclamation Plan.

BORROW SITE NUMBERING CONVENTION COMPARISON MATRIX	
Borrow Site Name – Master Reclamation Plan	Borrow Site Name – Drainage Evaluation
SB-1	SB-1 (No Change)
SB-2	SB-7
SB-3	SB-2
SB-4	SB-3
SB-5	SB-4
SB-6	SB-5
SB-7	SB-6
RV-1	RV-1 (No Change)
RV-2	RV-2 (No Change)
RV-3	RV-3 (No Change)
RV-4	RV-4 (No Change)
RV-5	RV-5 (No Change)
RV-6	RV-6 (No Change)
RV-7	RV-7 (No Change)

Date: June 24, 2022

To: Ms. Michelle Morrison
Environmental Planning Section
Metropolitan Water District of Southern California

From: Pearce Swerdfefer, P.E.
Sespe Consulting, Inc.

Re: Metropolitan Water District of Southern California's Colorado River Aqueduct Borrow
Sites Drainage Evaluation



Attachments:

- A. Figures
- B. Borrow Site Summary
- C. HydroCAD® Model Reports
- D. Supporting Documents

BACKGROUND

The Metropolitan Water District of Southern California (Metropolitan) is a regional water wholesaler that provides water for 26 public agency members that, in turn, provide water to approximately 19 million people in parts of Los Angeles, Orange, Riverside, San Bernardino, San Diego, and Ventura Counties.

Metropolitan owns and operates the Colorado River Aqueduct (CRA), which is a regional water conveyance system that consists of five (5) pumping plants, 450 miles of high voltage power lines, one (1) electric substation, four (4) reservoirs, and 242 miles of aqueducts, siphons, canals, conduits, and pipelines terminating at Lake Mathews in Riverside County, California. Figure 1 shows the relevant portions of the CRA alignment, pumping plants, and the aggregate borrow sites that are the subject of this analysis.

In 1932, Congress provided Metropolitan with authority to acquire fee ownership of the CRA right-of-way (ROW) as well as additional land to be used for surface mining of stone, earth, gravel, sand, and other earthen materials needed to support the operations and maintenance of the CRA. Metropolitan acquired fee ownership of the ROW roughly between 1932 and 1941. Because the materials are taken from these sites for use at other areas associated with the CRA, they are referred to as "borrow sites." Metropolitan currently operates 14 borrow sites in California, seven located in San Bernardino County and seven located in Riverside County (see Figure 1).

The Surface Mining and Reclamation Act of 1975 (SMARA, Public Resources Code [PRC], Sections 2710-2796) provides a comprehensive surface mining and reclamation policy with the regulation of surface mining operations to assure that adverse environmental impacts are minimized, and mined lands are

reclaimed to a usable condition. Further, the California Code of Regulations (Title 14, Division 2, Chapter 8, Subchapter 1, Section 3500 et seq.) specifies that surface mining and reclamation activities shall be conducted in such a way to protect both on-site and downstream beneficial uses of water. In addition, erosion and sedimentation control is necessary during all phases of construction, operation, reclamation, and final closure of the mine. Performance standards for erosion control (CCR Section 3706) stipulates that erosion control methods must be designed to handle runoff from not less than the 20-year, 1-hour storm (SMARA design storm event).

PURPOSE AND SCOPE

This memorandum has been prepared to satisfy the performance standard for erosion control and drainage in accordance with CCR Section 3706. The scope of this report is as follows:

- Conduct a qualitative screening analysis of each borrow site to determine which of the remaining sites have the potential to receive run-on from adjacent areas.
- Identify tributary watersheds to each borrow site that have the potential to receive run-on.
- Prepare a hydrologic model for borrow sites that will potentially receive run-on to determine the pit inundation depth during final reclamation conditions.
- Provide a summary of impacts and conclusions, which may include additional features, control methods, or Best Management Practices (BMPs) to implement at each borrow site.

As required for conformance with SMARA, the final reclaimed condition (pre-revegetation) was modeled for this study, which was assumed to be the 'worst case scenario' in terms of total disturbance area, land cover type, and erosion potential.

QUALITATIVE SCREENING ANALYSIS

Methodology

Given the topography of the borrow sites and surrounding areas, typical meteorological patterns, and soil types, precipitation from small storms is expected to rapidly infiltrate where the underlying soils are comprised of coarser grained sediments and poorly developed soil profiles. However, in the event of a larger storm, surface runoff from areas surrounding the borrow sites is expected to occur generally as sheet or rivulet flows across the alluvial fans and plains and may be captured in the pits. An initial evaluation of the borrow pits and surrounding areas, potential drainage sub-catchments, and run-off capture potential was first conducted to determine which sites should be analyzed further using hydrologic modeling techniques.

To perform the analysis, the final pit configurations were evaluated with respect to the surrounding topography and surface hydrologic characteristics. In general, physical topographic barriers such as berms, V-dikes, natural or constructed channels, and the elevated CRA channel will redirect flows; therefore, for borrow sites with these features in close proximity to the final pit configuration, it was determined that hydrologic modeling was not necessary as the surface capture areas are insignificant. The physical descriptions that follow formed the qualitative assessment used to identify the individual sites that were subject to hydrologic modeling based on the SMARA design storm event.

San Bernardino County Borrow Sites

SB-01

SB-01 is located west of the Copper Basin Reservoir on the eastern portion of the Whipple Mountains. The existing site generally slopes west to east and is comprised of undeveloped, disturbed desert scrubland. The final, reclaimed landform will consist of 2:1 (horizontal:vertical [h:v]) slopes along the north, south, and western pit walls that daylight with the existing grade at along the eastern edge of the borrow site.

The land surrounding SB-01 to the west consists of hills with ephemeral drainages that generally flow toward the east, into the borrow area. Ephemeral drainage channels to the north and south of the borrow area will carry surface storm water flows and bypass the SB-01 pit. SB-01 has potential for off-site run-on and was therefore evaluated via hydrologic modeling.

SB-02

SB-02 is located in an isolated area immediately northwest of, and parallel to, the CRA, approximately 0.2 miles west of State Route 62 (SR-62). The existing site is used to extract and stockpile alluvial material and for equipment storage. Undeveloped desert lands surround the site. The final, reclaimed landform will consist of 2:1 (h:v) slopes surrounding an approximately 5- to 10-foot deep pit that daylight with the existing grade at along the southern edge of the borrow site.

SB-02 is located on the upslope of the CRA, so there is potential for localized surface flows to run into the borrow area. The elevated CRA channel to the southeast, and V-dikes (dikes erected by Metropolitan during the construction of the CRA to direct surface flows to either over- or under-flow bypass channels for the CRA) to the north and west provide physical barriers to limit the volume of surface water run-on that may reach the finished borrow area pit. SB-02 has potential for off-site run-on from the areas within the physical barriers and was therefore evaluated via hydrologic modeling.

SB-03

SB-03 is located in an isolated area immediately north of, and parallel to, the CRA, approximately 0.3 miles north of SR-62 and a rail line operated by Atchison, Topeka, and Santa Fe (ATSF) Railway. Undeveloped desert lands surround the site. The final, reclaimed landform will consist of 2:1 (h:v) slopes surrounding an approximately 10- to 15-foot deep pit.

SB-03 is located upslope of the CRA, thus there is the potential for localized surface flows to run into the borrow area. The elevated CRA channel to the south, and V-dikes to the north and east provide physical barriers to limit the volume of surface water run-on that may reach the finished borrow area pit. SB-03 has potential for off-site run-on from the areas within the physical barriers and was therefore evaluated via hydrologic modeling.

SB-04

SB-04 is located in an isolated area immediately north of, and parallel to, the CRA, approximately 0.4 miles south of SR-62, adjacent to an unpaved access road known as Rice Road. Undeveloped desert lands surround the site. The final, reclaimed landform will consist of 2:1 (h:v) slopes surrounding an approximately 10- to 15-foot-deep pit.

SB-04 is located downslope of the CRA, so there is very limited potential for surface flows to run into the borrow area. The elevated CRA channel provides a physical barrier to limit the volume of surface water

run-on that may reach the finished borrow area pit; therefore, hydrologic modeling was determined not to be necessary for SB-04.

SB-05

SB-05 is located in an isolated area immediately east of, and parallel to, the CRA, approximately 1.5 miles north of SR-62 and 0.25 miles west of Iron Mountain Pump Plant Road. Undeveloped desert lands surround the site. The final, reclaimed landform will consist of 2:1 (h:v) slopes surrounding an approximately 10- to 15-foot-deep pit.

SB-05 is located downslope of the CRA, so there is very limited potential for localized surface flows to run into the borrow area. The elevated CRA channel provides a physical barrier to limit the volume of surface water run-on that may reach the finished borrow area pit; therefore, hydrologic modeling was determined not to be necessary for SB-05.

SB-06

SB-06 is located within the Iron Mountains, approximately 2.0 miles west of Metropolitan's Iron Mountain Pumping Plant. The land adjacent to the site is primarily undeveloped desert lands and undeveloped desert foothills/scrubland. Access to the site from the pumping plant is provided via West Basin Road, an unpaved access road, and an unnamed dirt road that runs westerly toward the Iron Mountains. The site is situated within a saddle that bisects the mountain range. The final, reclaimed landform will consist of 2:1 (h:v) slopes surrounding the south and west portion of an approximately 20- to 30-foot-deep pit. The pit bottom slopes between 8-15% toward the east.

The land surrounding SB-06 consists of steep hills with ephemeral drainages that generally flow toward the east. Ephemeral drainage channels to the north and south of the borrow area will carry most surface storm water flows from the areas surrounding the borrow area and bypass the SB-06 entirely. However, a portion of the area uphill from SB-06 is expected to drain into the pit; therefore SB-06 has the potential for off-site run-on and was therefore analyzed via hydrologic modeling. Note that for the hydrologic modeling, SB-06 is divided into two drainage sub-catchments because there are two ultimate capture locations of runoff in the final pit configuration.

SB-07

SB-07 is located on the eastern side of the Whipple Mountains, approximately 1.5 miles north of SR-62. SB-07 is directly north of an underground portion of the CRA; undeveloped desert foothills/scrubland surround the site. The final, reclaimed landform will consist of 2:1 (h:v) slopes surrounding an approximately 15- to 20-foot-deep pit. The pit bottom slopes between 2-5% toward the southwest.

SB-07 is bordered upslope by a constructed earthen berm and an ephemeral drainage channel that provide physical barriers to direct surface water flows around the pit. The borrow area has a limited potential for off-site run-on from the adjacent areas; however, there is potential for localized surface flows to be intercepted in the pit, therefore SB-07 was evaluated via hydrologic modeling.

Riverside County Borrow Sites

RV-01

RV-01 consists of two (2) separate pits located adjacent to, and south of, the CRA, approximately 2.0 miles south of SR-62. The smaller northern pit and larger southern pit are separated by an elevated

berm-like feature on the east that transitions to a channel on the west that empties into the larger alluvial fan further to the west.

Undeveloped desert lands surround the site. The final, reclaimed landform of the northern pit will consist of 2:1 (h:v) slopes surrounding an approximately 5- to 15-foot-deep pit. The final, reclaimed landform of the southern pit will consist of 2:1 (h:v) slopes around the majority of the site that daylight with the existing grade at along the northeastern edge of the borrow site.

RV-01 is located upslope of the CRA, so there is the potential for localized surface flows to run into each of the borrow area pits. The existing braided channels of the alluvial fan to the west of the borrow site carries the majority of surface flows from surrounding areas. However, the areas directly upslope from RV-01, east of the braided channel, will flow into the pits; therefore RV-01 was evaluated via hydrologic modeling. Note that for the hydrologic modeling, RV-01 is divided into two drainage sub-catchments because there are two ultimate capture locations of runoff in the final pit configuration.

RV-02

RV-02 is located in an isolated area immediately north of, and parallel to, the CRA, approximately 0.9 miles south of SR-62. Undeveloped desert lands surround the site. The final, reclaimed landform will consist of 2:1 (h:v) slopes surrounding an approximately 5- to 10-foot-deep pit.

RV-02 is located downslope of the CRA, so there is very limited potential for surface flows to run into the borrow area. The elevated CRA channel provides a physical barrier to limit the volume of surface water run-on that may reach the finished borrow area pit; therefore, hydrologic modeling was determined not to be necessary for RV-02.

RV-03

RV-03 is located in an isolated area immediately east of, and parallel to, the CRA, approximately 1.2 miles west of SR-177. Undeveloped desert lands surround the site. The final, reclaimed landform will consist of 2:1 (h:v) slopes surrounding an approximately 10- to 15-foot-deep pit.

RV-03 is located downslope of the CRA, so there is very limited potential for surface flows to run into the borrow area. The elevated CRA channel provides a physical barrier to limit the volume of surface water run-on that may reach the finished borrow area pit; therefore, hydrologic modeling was determined not to be necessary for RV-03.

RV-04

RV-04 is located in an isolated area along the eastern flank of the Coxcomb Mountains. The borrow site is immediately east of, and parallel to, the CRA, approximately 2.6 miles west of SR-177. Undeveloped desert lands surround the site. The final, reclaimed landform will consist of 2:1 (h:v) slopes surrounding an approximately 10- to 15-foot-deep pit.

RV-04 is located downslope of the CRA, so there is very limited potential for surface flows to run into the borrow area. The elevated CRA channel provides a physical barrier to limit the volume of surface water run-on that may reach the finished borrow area pit; therefore, hydrologic modeling was determined not to be necessary for RV-04.

RV-05

RV-05 is located in an alluvial plain that extends southeasterly from the base of the Eagle Mountain Range. SR-177 is approximately 9.6 miles to the southeast, the Kaiser Steel Mill community is located approximately 2.5 miles to the southwest, and Metropolitan's Eagle Mountain Pumping Plant is 5.9 miles to the south. The borrow site is immediately northwest of, and parallel to, the CRA. Undeveloped desert lands surround the site. The final, reclaimed landform will consist of 2:1 (h:v) slopes surrounding an approximately 5- to 10-foot-deep pit that daylight with the existing grade at the southern corner of the site.

RV-05 is located upslope of the CRA, so there is potential for localized surface flows to run into the borrow area. The elevated CRA channel to the south, and V-dikes to the north and west provide physical barriers to limit the volume of surface water run-on that may reach the finished borrow area pit. RV-05 has a potential for off-site run-on from the areas within the physical barriers and was therefore evaluated via hydrologic modeling.

RV-06

RV-06 is located in an isolated area on an alluvial fan that extends to the southeast from the flank of the Eagle Mountains. The CRA runs to the north and west of the site, tunneling through the Eagle Mountains. The intersection of SR-177 and Interstate 10 (I-10) is located approximately 5.1 miles to the southeast, at the census-designated community of Desert Center, and Metropolitan's Eagle Mountain Pumping Plant is located approximately 4.7 miles to the north. Undeveloped desert lands surround the site. The final, reclaimed landform will consist of 2:1 (h:v) slopes surrounding an approximately 15- to 25-foot-deep pit.

RV-06 is surrounded by various alluvial braids that carry the majority of surface flows from surrounding areas. However, the areas directly surrounding RV-06 will flow into the pit; therefore RV-06 was analyzed via hydrologic modeling.

RV-07

RV-07 is located at Metropolitan's Julian Hinds Pump Plant, 2.2 miles north of I-10. Land uses immediately adjacent to the site are primarily desert lands; the Julian Hinds Pumping Plant and ancillary sub-station are located immediately to the north of RV-07. Access to the site is via an unpaved road that connects to Hayfield Road to the north, which is the main access road to the Julian Hinds Pump Plant. The final, reclaimed landform will consist of 2:1 (h:v) slopes surrounding an approximately 15- to 25-foot-deep pit.

RV-07 is downslope of the Julian Hinds Pumping Plant buildings, roads, a constructed earthen berm, and other constructed drainage channels that may provide physical barriers to direct surface water flows away from the pumping plant and consequently, away from the pit. The borrow area has potential for off-site run-on from the areas immediately adjacent to the pit, so RV-07 was therefore evaluated via hydrologic modeling.

Qualitative Screening Analysis Results Summary

Table 1 provides a summary of the Metropolitan CRA borrow sites and the results of the qualitative screening analysis from the previous sections. The nomenclature included in the 'Modeled' column identifies the drainage sub-catchment identifier used in the HydroCAD® model.

Table 1: Summary of Borrow Areas and Qualitative Analysis Results

County	Borrow Area	Latitude	Longitude	Run-on Potential	Modeled
San Bernardino	SB-01	34.289089	-114.242803	Yes	Yes (SB-01)
	SB-02	34.120720	-114.683551	Yes	Yes (SB-02)
	SB-03	34.093589	-114.867022	Yes	Yes (SB-03)
	SB-04	34.082096	-115.098683	No	No
	SB-05	34.109788	-115.125941	No	No
	SB-06	34.148585	-115.158453	Yes	Yes (SB-06N)
					Yes (SB-06S)
	SB-07	34.209065	-114.430717	Yes	Yes (SB-07)
Riverside	RV-01	34.067692	-115.028977	Yes	Yes (RV-01N)
					Yes (RV-01S)
	RV-02	34.077234	-115.078545	No	No
	RV-03	33.997098	-115.258909	No	No
	RV-04	33.900792	-115.295001	No	No
	RV-05	33.892279	-115.427442	Yes	Yes (RV-05)
	RV-06	33.743705	-115.480633	Yes	Yes (RV-06)
	RV-07	33.703457	-115.630832	Yes	Yes (RV-07)

QUANITATIVE MODELING

For each borrow pit that was determined to have the potential to capture run-off from the surrounding areas, a hydrologic model was created to determine the total pit capture volume during the design storm and maximum storm water inundation level. A complete summary of the borrow sites and modeling input and output data is included in Attachment B and described below.

Methodology

Design Storm Run-off Volume

A hydrologic model was created for each delineated sub-catchment using HydroCAD® software,¹ which uses the rational and unit hydrograph methods. Antecedent Moisture Condition (AMC) II was used for all calculations. HydroCAD® storm water modeling software utilizes the TR-20 methodology for watershed modeling developed by the Natural Resources Conservation Service (NRCS). The TR-20 methodology scales a synthetic rainfall distribution based on a user provided rainfall depth. The NRCS has developed four synthetic rainfall distributions for use in runoff modeling; all borrow sites are within the Type II boundary.² The pre-defined Type II 24-hour storm type included in the HydroCAD® program was scaled to a one (1) hour event to model the required SMARA design storm.

A standard factor of safety of 1.1 (10% increase) was incorporated into the design storm volume calculations to ensure that storm water is sufficiently captured throughout the life of the Project.

Complete hydrologic calculations and HydroCAD® printouts are included in Attachment C.

¹ HydroCAD Software Solutions LLC, HydroCAD-10.10 Stormwater Modeling software.

² Appendix B, Figure B-2: Synthetic Rainfall Distributions and Rainfall Data Sources. *Urban Hydrology for Small Watersheds Manual*. United States Department of Agriculture (USDA), Natural Resource Conservation Service (NRCS), Conservation Engineering Division. Technical Release 55 (TR-55) (210-VI-TR-55). June 1986.

Site Specific Information

Drainage Sub-catchments

The drainage sub-catchment for each modeled borrow site was delineated based on visual field observations, digital topographic contours (where available), and publicly available data from Google Earth™. The delineation assumes that all mining and reclamation earthwork will be completed as proposed in the Master Reclamation Plan and any storm water containment/improvements will be installed and maintained as described in this memorandum.

Curve Number

The TR-20 methodology uses curve numbers, which are parameters used to predict rainfall excess (i.e., runoff). Composite run-off curve numbers (CN) were calculated in HydroCAD® based on the site's hydraulic soil group (HSG) and the ground cover conditions. The site-specific HSGs for the borrow sites located in Riverside County was determined using soil data from the Natural Resource Conservation Service (NRCS) website.³ Where the NRCS Web Soil Survey did not have sufficient data, HSG D was assumed to remain conservative.

The NRCS Web Soil Survey does not include any data for the borrow sites in San Bernardino County, so the hydrologic soils group map included in the San Bernardino County Hydrology Manual⁴ was used to determine site-specific HSGs for these borrow sites.

The ground cover conditions were determined from on-site observations, review of aerial photography, and anticipated site conditions.

Storm Event Rainfall Depth

The design storm treatment/containment volume was calculated using the 25-year, 1-hour rain event. Precipitation values used in the model were obtained from National Oceanic and Atmospheric Administration (NOAA) Atlas 14 Precipitation Frequency Data Server (PFDS).⁵ Because the NOAA PFDS does not have a 20-year, 1-hour storm precipitation estimate (as required by SMARA), the 25-year, 1-hour point precipitation frequency was used in its place to remain conservative. For ease in modeling and consistency, the maximum 25-year, 1-hour rainfall depth across all borrow sites was used for the hydrologic models and was determined to be 1.48 inches.

Supporting documentation used in the hydrologic calculations are included in Attachment D.

Pit Containment Volume and Inundation Depth

The maximum pit containment was calculated using the design contours for each pit in the final reclaimed condition, as described in the Master Reclamation Plan⁶ using a three-dimensional computer-aided design (CAD) model. Similarly, the maximum pit inundation depth for the runoff captured from the SMARA design storm was calculated using the same methodology.

³ Natural Resources Conservation Service (NRCS), Web Soil Survey, accessed May 8, 2022 (<https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx>).

⁴ Figure C-12: Hydrologic Soils Group Map for Southeast Area. *San Bernardino County Department of Public Works Hydrology Manual*. August 1986.

⁵ National Oceanic and Atmospheric Administration (NOAA) Atlas 14, Volume 6, Version 2, Point Precipitation Frequency Estimates, accessed May 16, 2022 (https://hdsc.nws.noaa.gov/hdsc/pfds/pfds_map_cont.html).

⁶ *Master Reclamation Plan for the Colorado River Aqueduct Borrow Sites*. Sespe Consulting, Inc. May 2022 (Draft).

Quantitative Screening Analysis Results Summary

Table 2 provides a summary of results of the quantitative modeling analysis. The nomenclature included in the 'Modeled' column identifies the drainage sub-catchment identifier used in the HydroCAD® model. The complete summary of the borrow sites, modeling input and output data, and pit containment data is included in Attachment B.

Table 2: Summary of Quantitative Analysis Results

County	Borrow Area	Modeled	25-yr, 1-hr Storm Depth (in)	25-yr, 1-hr Storm Runoff Volume (ac-ft)	Maximum Inundation Depth (in)	Sufficient Containment
San Bernardino	SB-01	Yes – SB01	1.49	0.561	31.21	Yes
	SB-02	Yes – SB02	1.13	2.902	4.48	Yes
	SB-03	Yes – SB03	1.27	0.318	0.48	Yes
	SB-04	No				
	SB-05	No				
	SB-06	Yes – SB06N	1.48	0.344	30.00	Yes
		Yes – SB06S		0.360	32.40	Yes
Riverside	RV-01	Yes – RV01N	1.38	1.574	3.01	Yes
		Yes – RV01S		6.324	7.30	Yes
	RV-02	No				
	RV-03	No				
	RV-04	No				
	RV-05	Yes – RV05	1.11	0.069	0.38	Yes
	RV-06	Yes – RV06	1.12	0.282	1.05	Yes
	RV-07	Yes – RV07	1.23	0.190	0.65	Yes

CONCLUSIONS

The results of the hydrologic analysis performed as part of this study conclude that the final, reclaimed pit configuration for each of the borrow sites analyzed will have sufficient capacity to contain the SMARA 20-year, 1-hour design storm. The formation of pits as a result of the mining operations will function as storage basins capable of capturing the full capacity of the modeled storm events, with the included standard factor of safety. Therefore, the final borrow pits are determined to be in conformance with the applicable SMARA performance standards, which require surface mining and reclamation activities to be conducted in such a way to protect both on-site and downstream beneficial uses of water.

As discussed previously, SMARA requires the reclaimed condition be assessed with respect to the 20-year, 1-hour storm event, and therefore does not address interim conditions during mining, which is constantly changing over the course of the operations. As such, to control erosion during ongoing mining operations throughout the life of the mine, it is recommended that the California Stormwater Quality Association (CASQA) Best Management Practice (BMP) Handbook's temporary sediment control measures (silt fence [SE-1], fiber rolls [SE-5], or similar) be installed and maintained as needed to eliminate the potential for discharge of sediment until the pit configurations are capable of containing

the entire runoff from the SMARA design storm. Thus, temporary erosion control methods implemented at the site should be designed to handle runoff from not less than the 20-year, 1-hour storm.

ATTACHMENT A

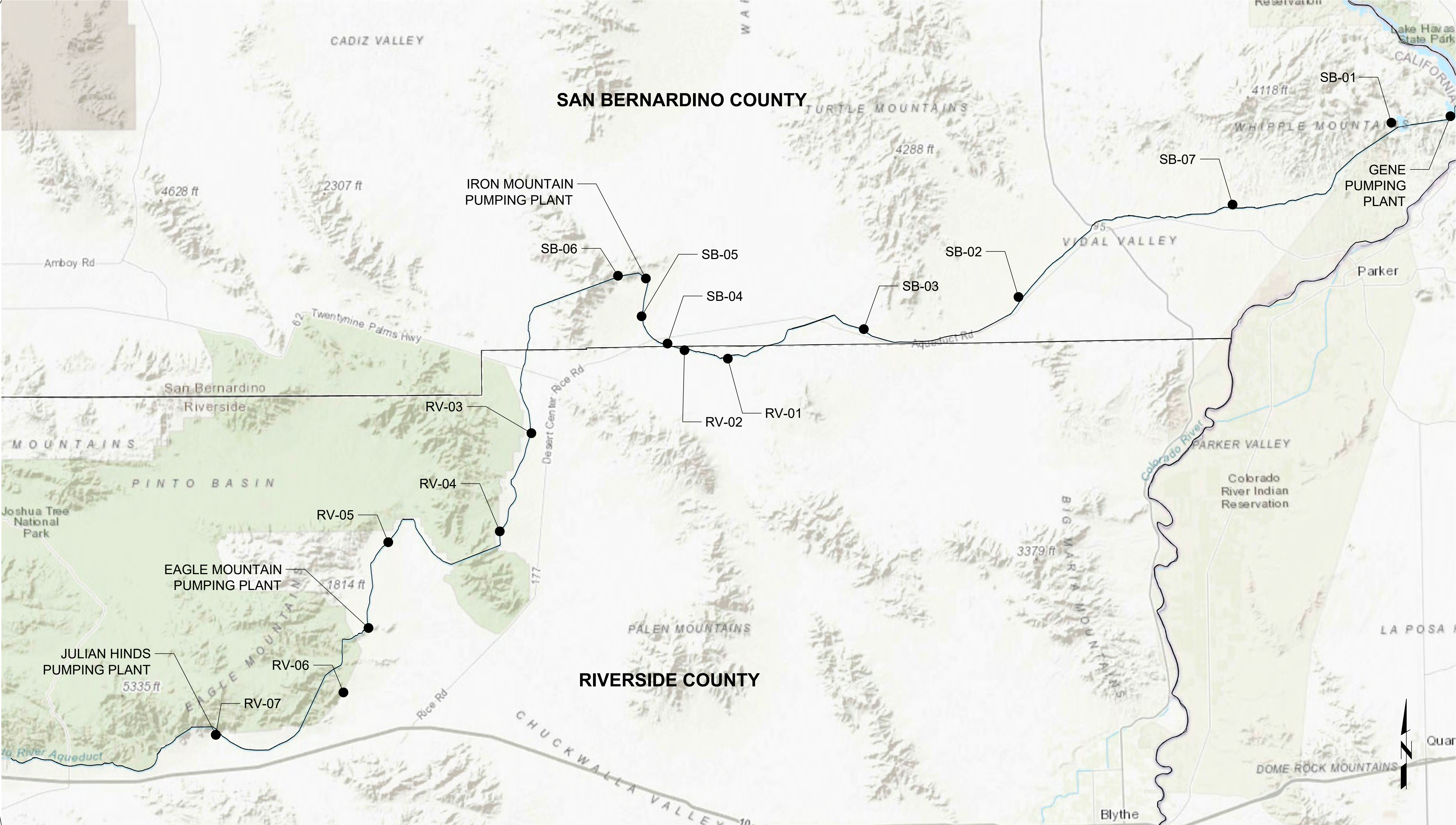
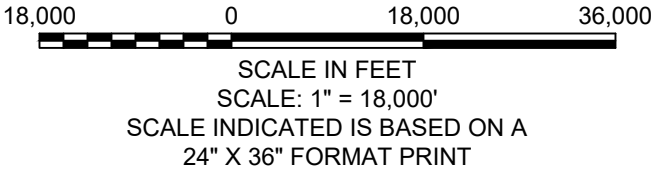
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OVERVIEW OF ALL SITES

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 VERT= NAVD88
BASEMAP: ESRI, 2021



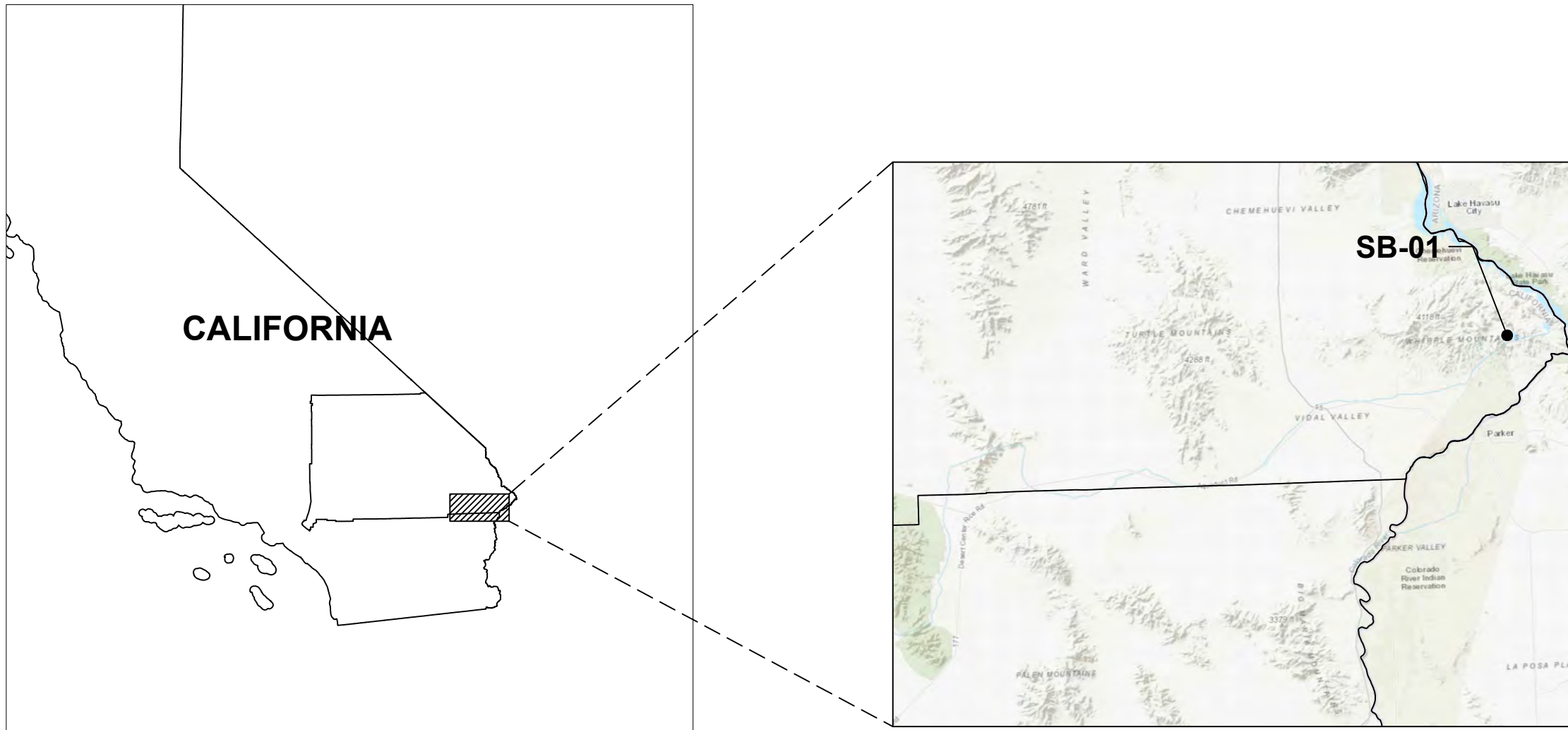
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REVISIONS			
MARK	DATE	DESCRIPTION	BY
	06/2022	INITIAL DRAFT	APS
REVIEWED BY:			

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VERT: AS SHOWN	
DRAWN BY: G CAMUS	1
CHECKED BY: APS	



INDEX MAP

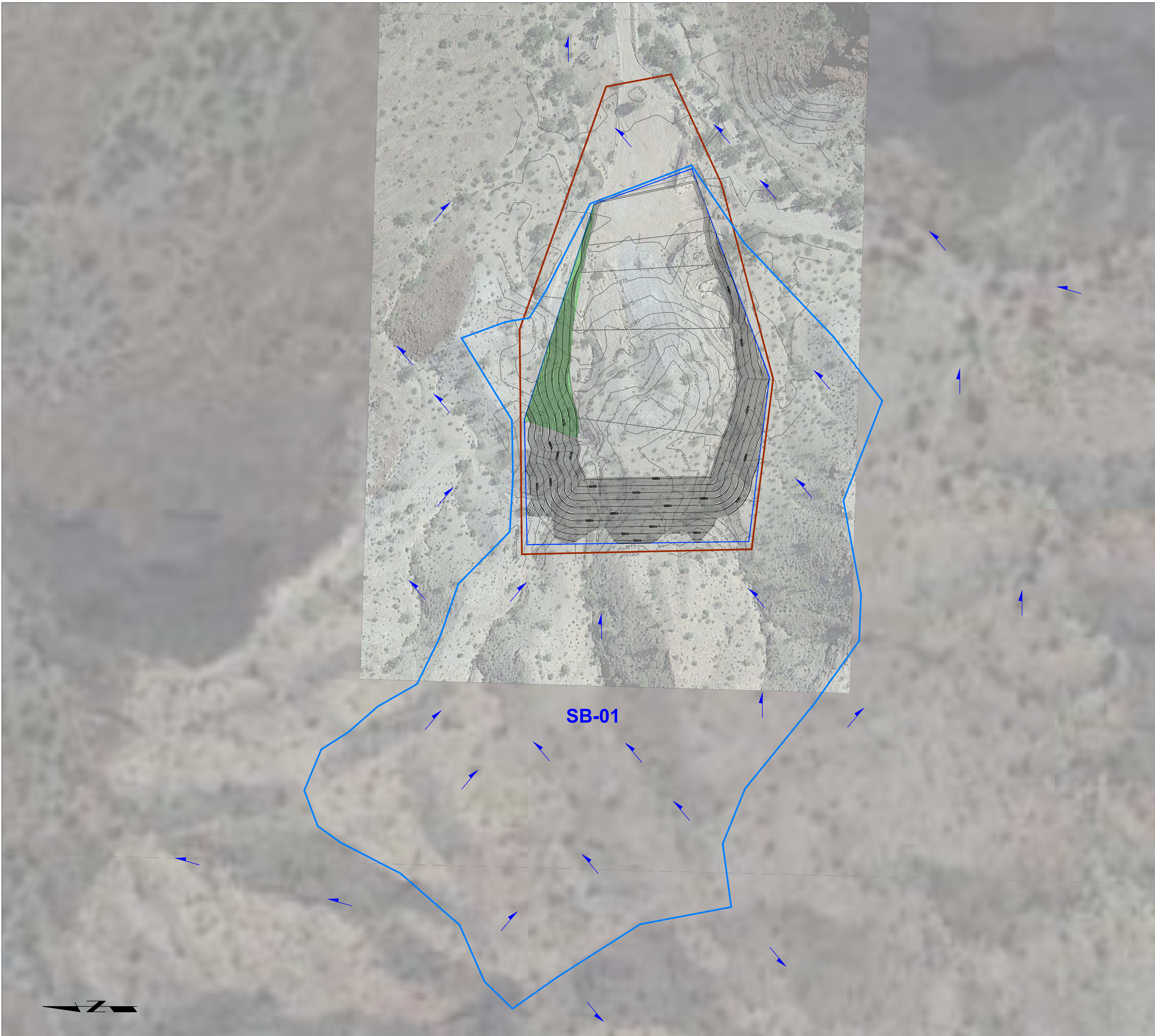
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LEGEND:

- MWD FEE-OWNED BOUNDARY LINES
- MINING BOUNDARY
- RECLAMATION BOUNDARY
- SURFACE FLOW DIRECTION (APPROX.)
- EXISTING CONTOURS
- FINAL RECLAIMED CONTOURS
- COLORADO RIVER AQUEDUCT CENTERLINE & ALIGNMENT
- TOPSOIL SPREAD AREA (TYP.)
- DRAINAGE SUBCATCHMENT

SB-01 DRAINAGE SUBCATCHMENT NAME



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SCALE: 1" = 80'
SCALE INDICATED IS BASED ON A
24" X 36" FORMAT PRINT

DRAINAGE ANALYSIS: SB-01

DISCLAIMER: DRAINAGE SUBCATCHMENTS ARE APPROXIMATE AND HAVE BEEN DELINEATED BASED ON TOPOGRAPHY (WHERE AVAILABLE), VISUAL FIELD OBSERVATIONS, AND GOOGLE EARTH DATA.

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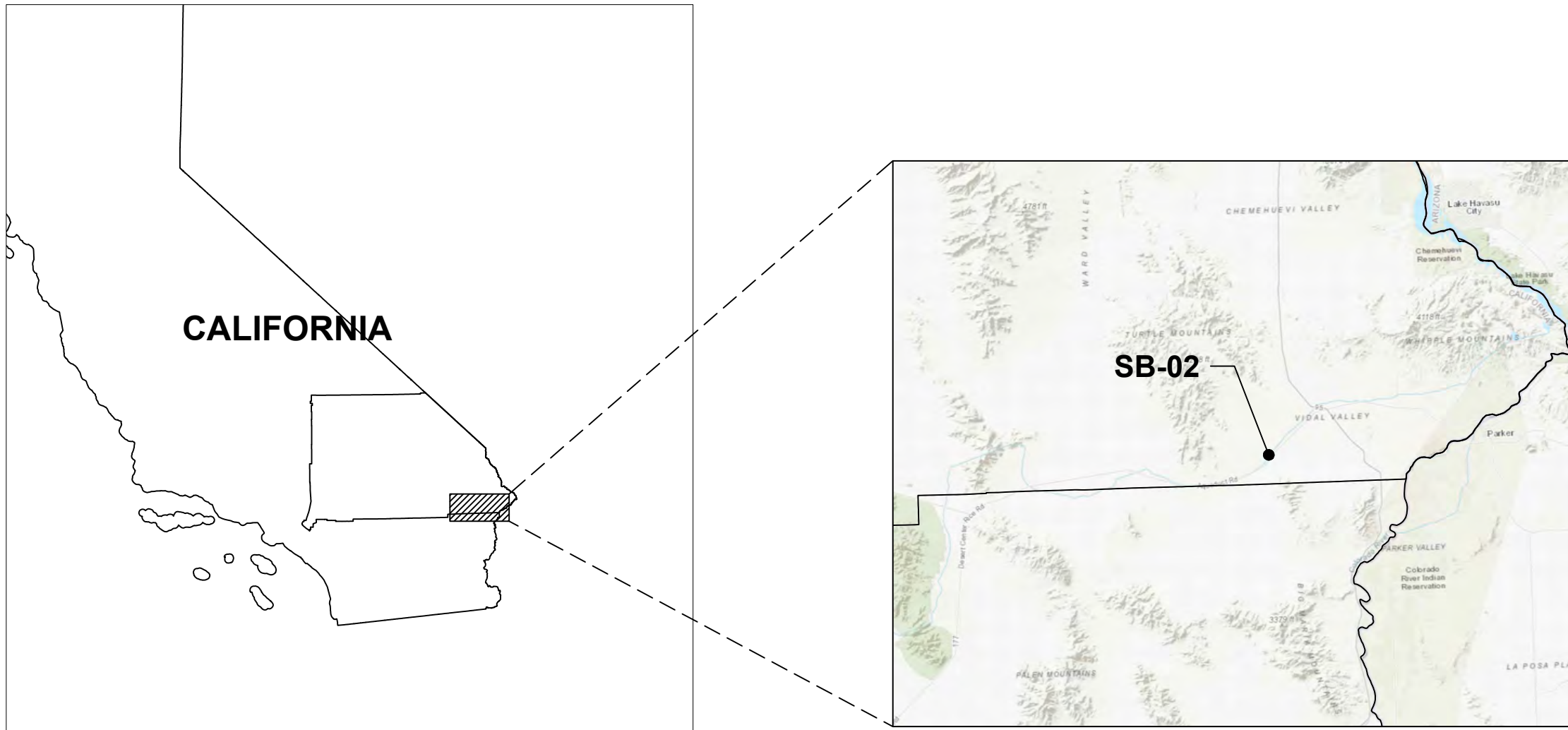


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06/2022		INITIAL DRAFT	APS
REVIEWED BY: _____ DATE _____			
DRAWN BY: G. CAMUS DATE _____			
CHECKED BY: APS			

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COUNTY:	SAN BERNARDINO
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DRAWN BY: G. CAMUS	
CHECKED BY: APS	



INDEX MAP

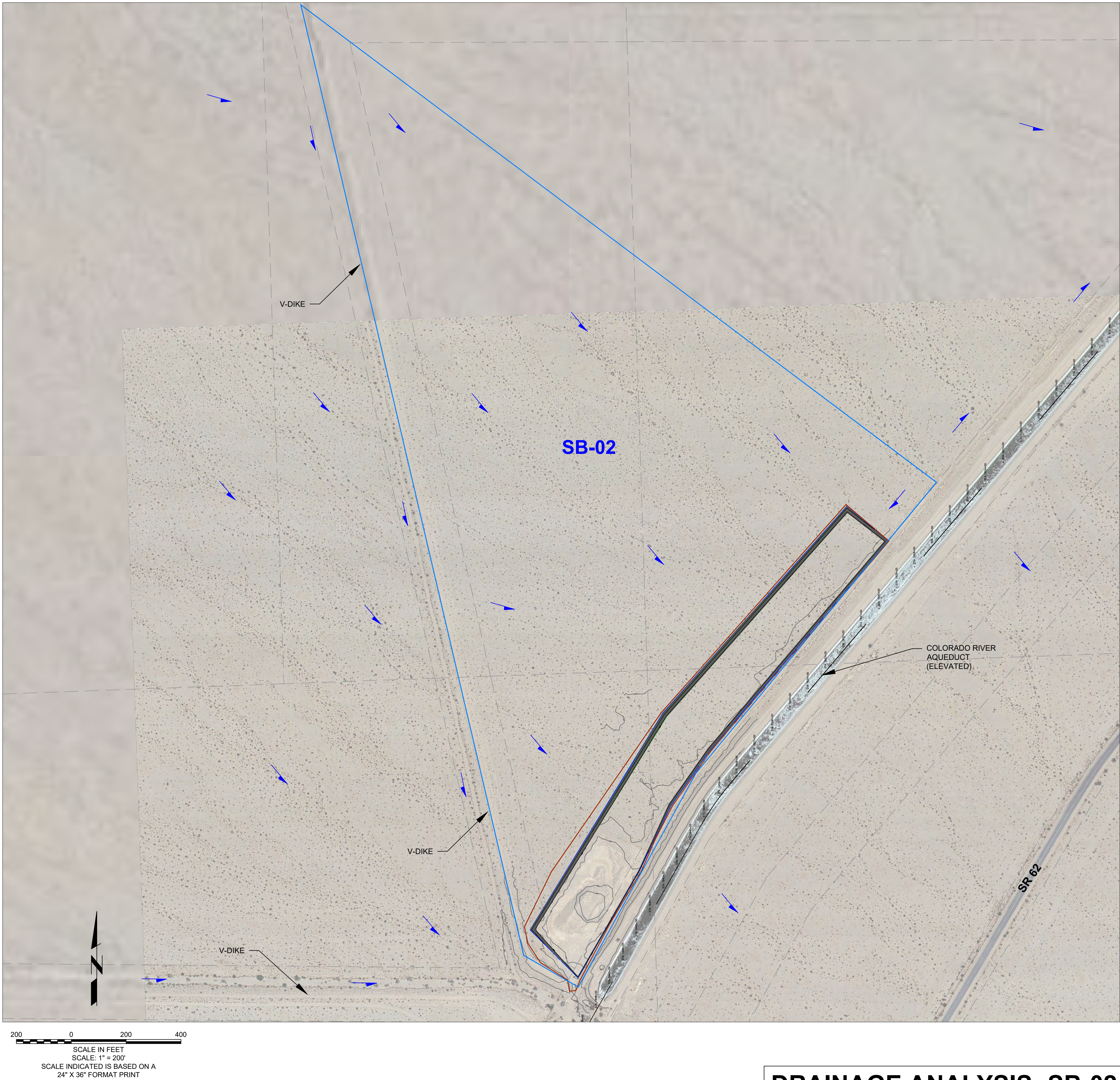
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LEGEND:

- MWD FEE-OWNED BOUNDARY LINES
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- FINAL RECLAIMED CONTOURS
- COLORADO RIVER AQUEDUCT CENTERLINE & ALIGNMENT
- TOPSOIL SPREAD AREA (TYP.)
- DRAINAGE SUBCATCHMENT

SB-02 DRAINAGE SUBCATCHMENT NAME



DRAINAGE ANALYSIS: SB-02

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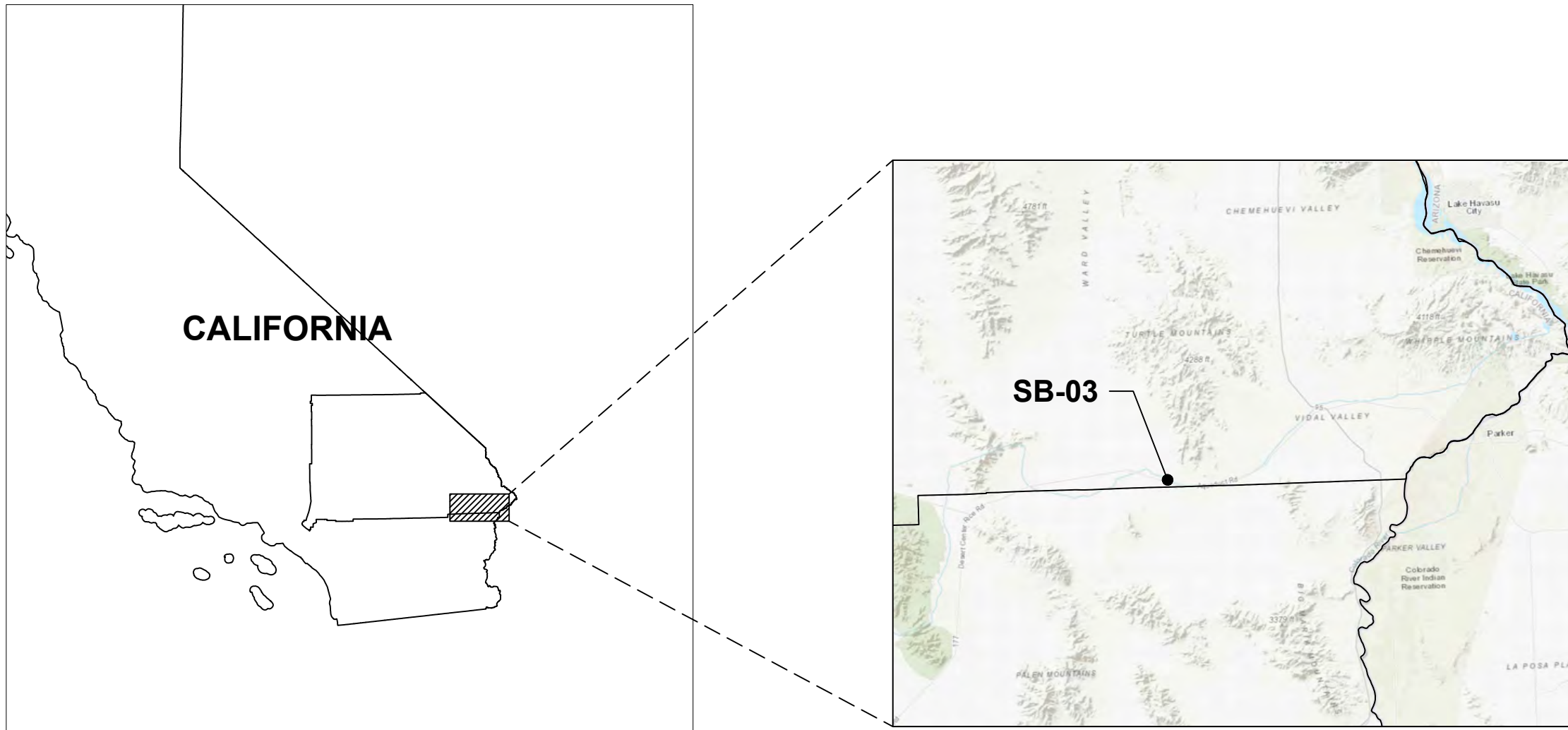
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SCALE:	HORIZ AS SHOWN VERT AS SHOWN
DRAWN BY:	G CAMUS
CHECKED BY:	APS
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- TOPSOIL SPREAD AREA (TYP.)
- DRAINAGE SUBCATCHMENT

SB-03 DRAINAGE SUBCATCHMENT NAME



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SCALE IN FEET
SCALE: 1" = 250'
SCALE INDICATED IS BASED ON A
24" X 36" FORMAT PRINT

DRAINAGE ANALYSIS: SB-03

DISCLAIMER: DRAINAGE SUBCATCHMENTS ARE APPROXIMATE AND HAVE BEEN DELINEATED BASED ON TOPOGRAPHY (WHERE AVAILABLE), VISUAL FIELD OBSERVATIONS, AND GOOGLE EARTH DATA.

DATUM: HORZ= NAD83, CALIFORNIA ZONE 5, US FOOT
VERT= NAVD88

AERIAL: GOOGLE EARTH IMAGERY, DATED 06/16/17

TOPOGRAPHY: MWD SURVEYING TEAM (NICHOLAS ELLIS, PLS 9320), DRAWINGS B-170959, B-170960, & B-170961 (JUNE 2020) AND B-174453, B-174454, & B-174455 (MAY 2021)



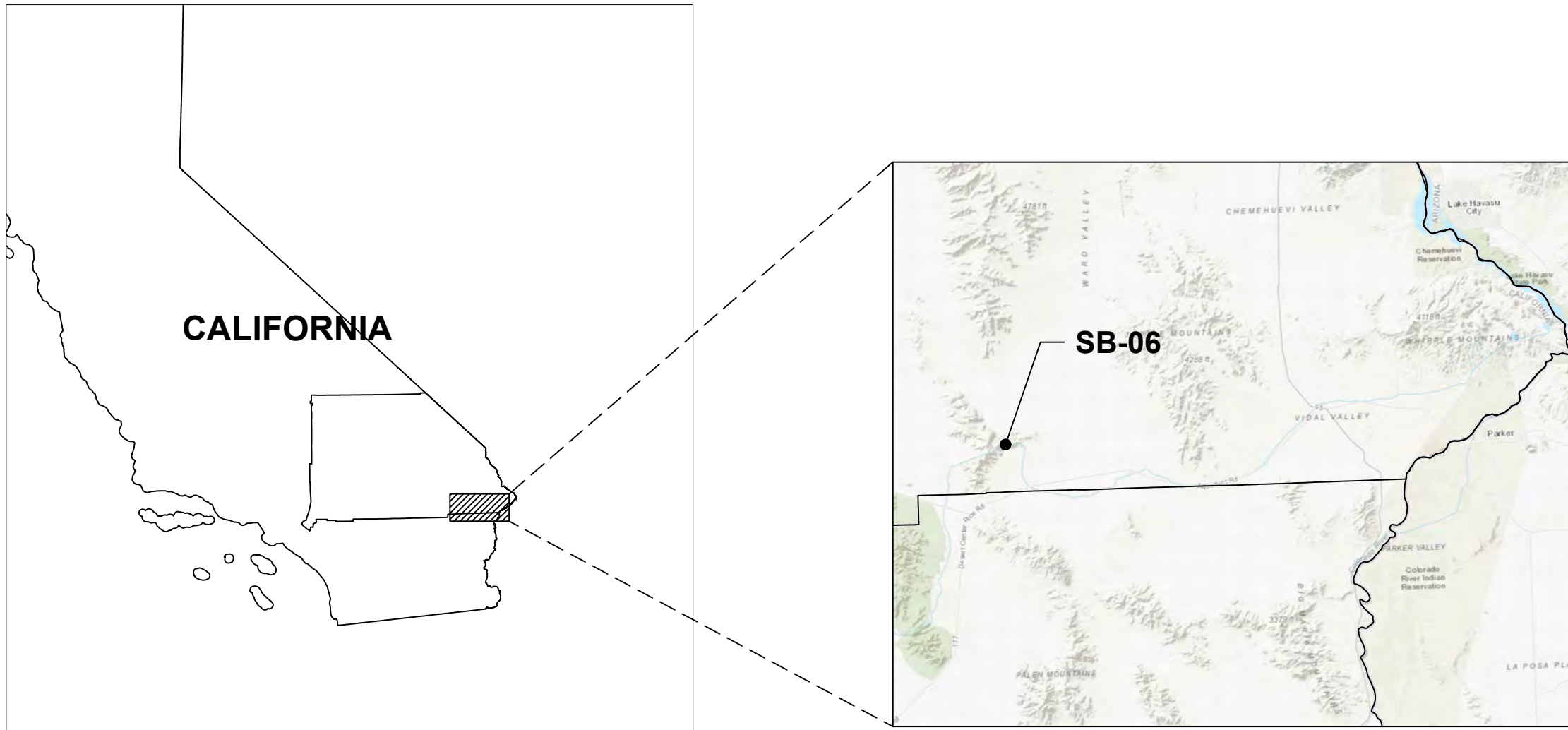
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06/20/22		INITIAL DRAFT	APS
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	DATE		
	DATE		

METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA	
SITE ID:	SB-03
MILE MARKER:	47+40
COUNTY:	SAN BERNARDINO
SCALE: HORZ AS SHOWN VERT AS SHOWN	FIGURE NUMBER
DRAWN BY: G CAMUS	4
CHECKED BY: APS	



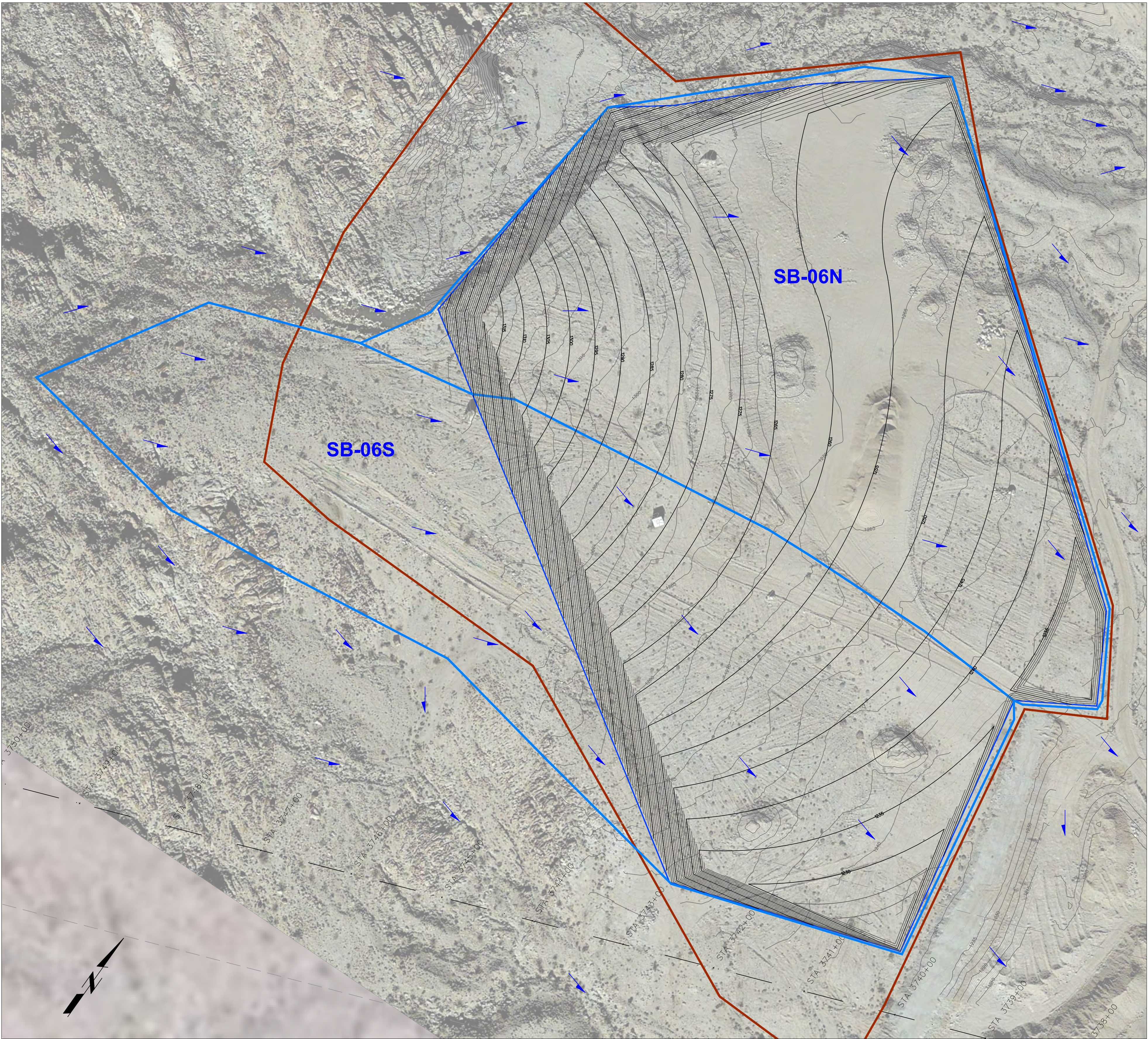
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LEGEND:

- MWD FEE-OWNED BOUNDARY LINES
- MINING BOUNDARY
- RECLAMATION BOUNDARY
- SURFACE FLOW DIRECTION (APPROX.)
- EXISTING CONTOURS
- FINAL RECLAIMED CONTOURS
- COLORADO RIVER AQUEDUCT CENTERLINE & ALIGNMENT
- TOPSOIL SPREAD AREA (TYP.)
- DRAINAGE SUBCATCHMENT
- SB-06** DRAINAGE SUBCATCHMENT NAME



60 0 60 120
SCALE IN FEET
SCALE: 1" = 60'
SCALE INDICATED IS BASED ON A
24" X 36" FORMAT PRINT

DRAINAGE ANALYSIS: SB-06

DISCLAIMER: DRAINAGE SUBCATCHMENTS ARE APPROXIMATE AND HAVE BEEN DELINEATED BASED ON TOPOGRAPHY (WHERE AVAILABLE), VISUAL FIELD OBSERVATIONS, AND GOOGLE EARTH DATA.

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VERT= NAVD88
AERIAL: GOOGLE EARTH IMAGERY, DATED 02/06/16
TOPOGRAPHY: MWD SURVEYING TEAM (NICHOLAS ELLIS, PLS 9320), DRAWING B-171033, OCTOBER 2020



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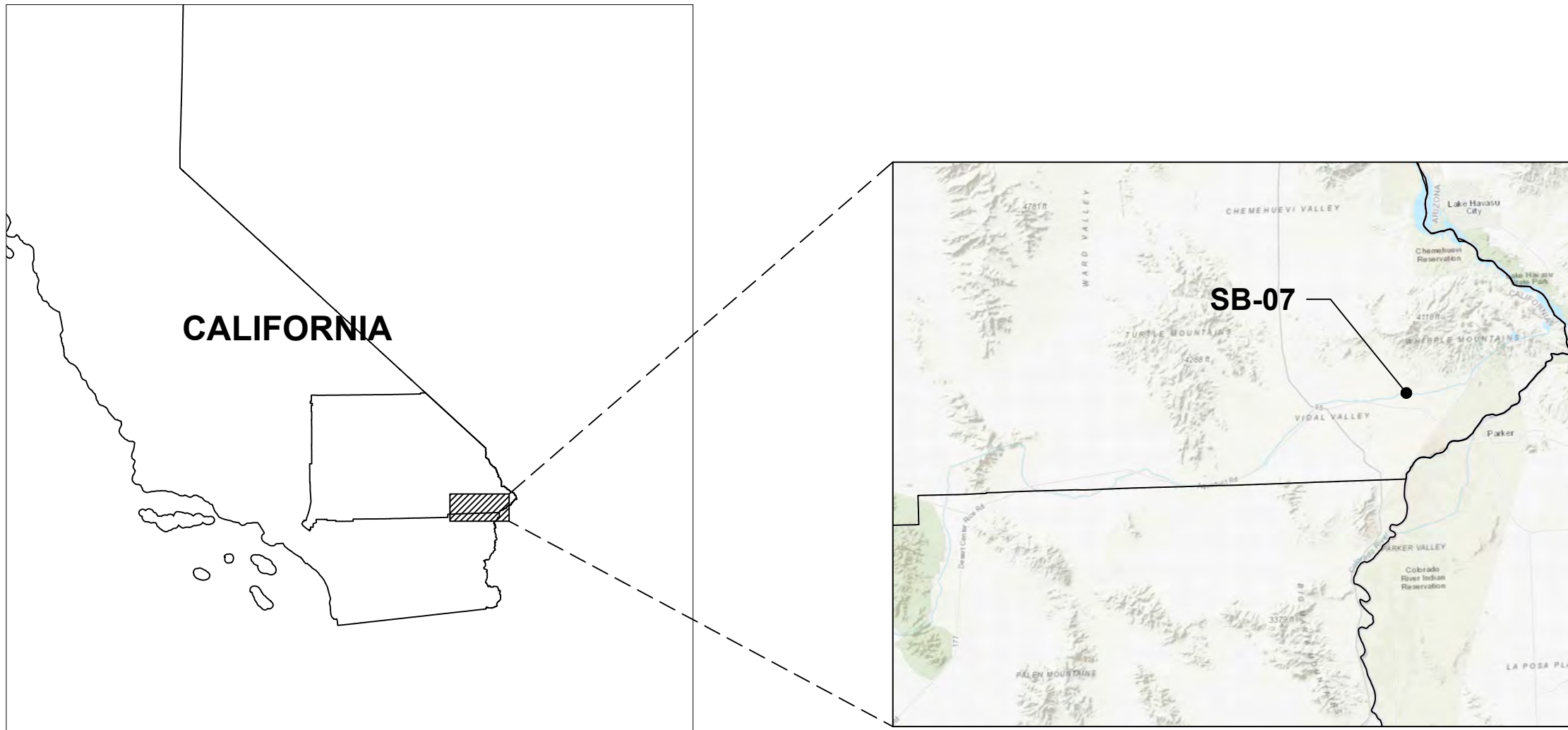


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METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA	
SITE ID:	SB-06
MILE MARKER:	69+61
COUNTY:	SAN BERNARDINO
SCALE:	HORZ AS SHOWN VERT AS SHOWN
DRAWN BY:	G CAMUS
CHECKED BY:	APS
FIGURE NUMBER	5



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FIGURE 6: SB-07 DRAINAGE ANALYSIS
FIGURE 7: RV-01 DRAINAGE ANALYSIS
FIGURE 8: RV-05 DRAINAGE ANALYSIS
FIGURE 9: RV-06 DRAINAGE ANALYSIS
FIGURE 10: RV-07 DRAINAGE ANALYSIS

LEGEND:

- MWD FEE-OWNED BOUNDARY LINES
- MINING BOUNDARY
- RECLAMATION BOUNDARY
- SURFACE FLOW DIRECTION (APPROX.)
- EXISTING CONTOURS
- FINAL RECLAIMED CONTOURS
- COLORADO RIVER AQUEDUCT CENTERLINE & ALIGNMENT
- TOPSOIL SPREAD AREA (TYP.)
- DRAINAGE SUBCATCHMENT

SB-07 DRAINAGE SUBCATCHMENT NAME



DRAINAGE ANALYSIS: SB-07

DISCLAIMER: DRAINAGE SUBCATCHMENTS ARE APPROXIMATE AND HAVE BEEN DELINEATED BASED ON TOPOGRAPHY (WHERE AVAILABLE), VISUAL FIELD OBSERVATIONS, AND GOOGLE EARTH DATA.

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VERT= NAVD88
AERIAL: GOOGLE EARTH IMAGERY, DATED 02/15/20
TOPOGRAPHY: MWD SURVEYING TEAM (NICHOLAS ELLIS, PLS 9320 & ROBERT YOUNATHAN, PLS 9369), DRAWINGS B-171022 (SEPTEMBER 2020), B-174436 & B-174437 (APRIL 2021)



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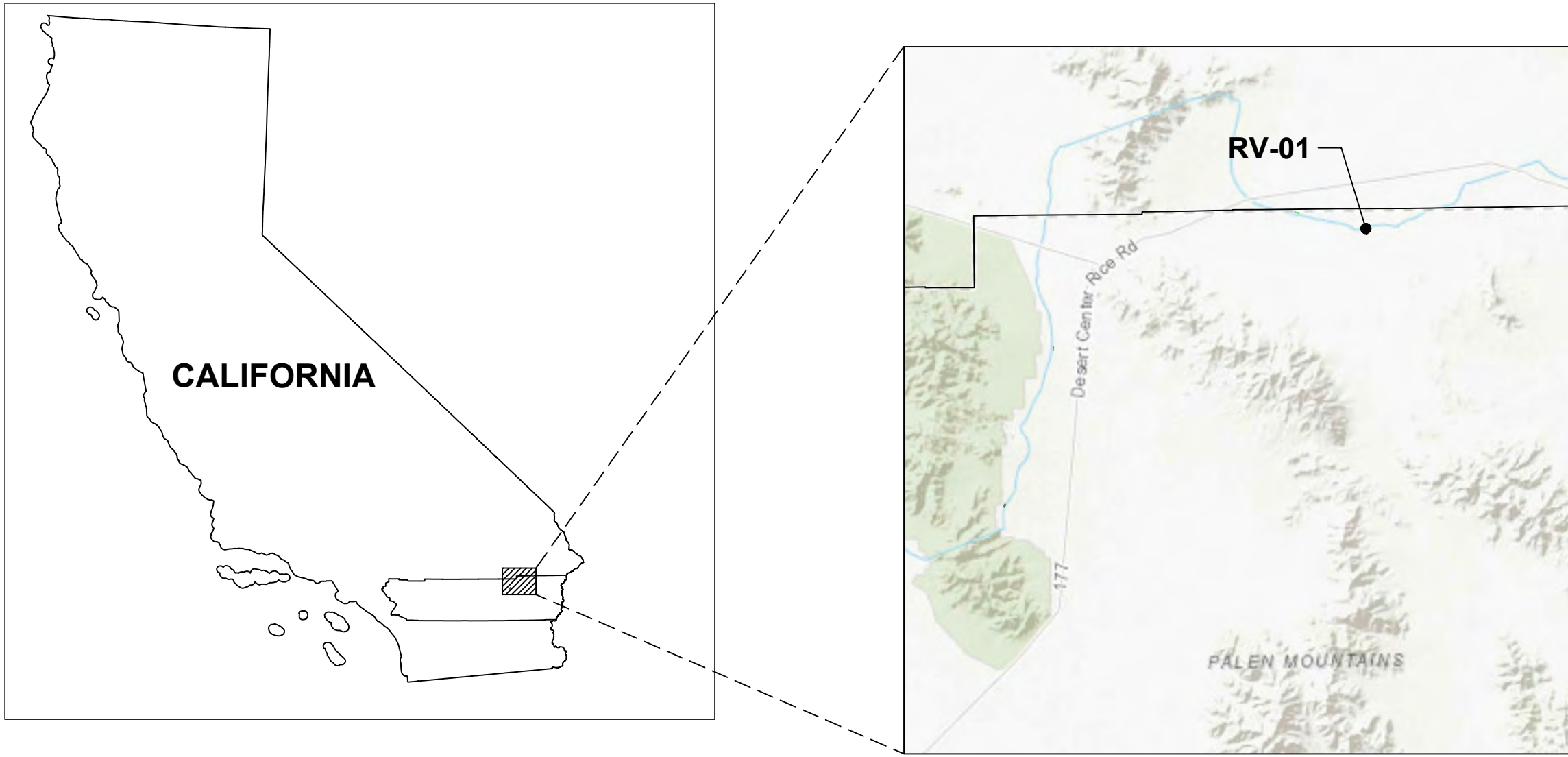


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METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA	
SITE ID:	SB-07
MILE MARKER:	18+92
COUNTY:	SAN BERNARDINO
SCALE:	HORIZ AS SHOWN VERT AS SHOWN
DRAWN BY:	G CAMUS
CHECKED BY:	APS
FIGURE NUMBER	6



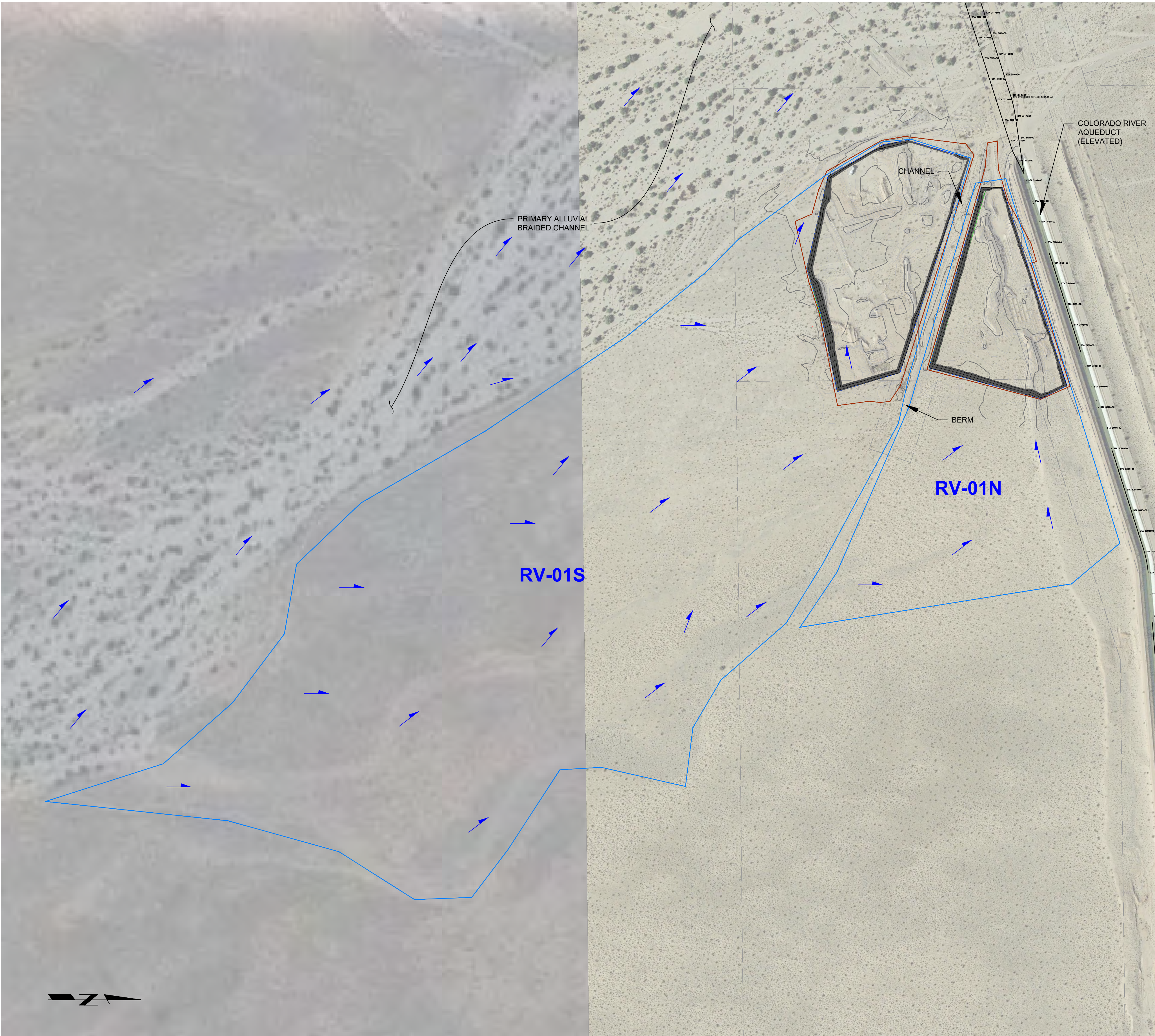
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FIGURE 8: RV-05 DRAINAGE ANALYSIS
FIGURE 9: RV-06 DRAINAGE ANALYSIS
FIGURE 10: RV-07 DRAINAGE ANALYSIS

LEGEND:

- MWD FEE-OWNED BOUNDARY LINES
- MINING BOUNDARY
- RECLAMATION BOUNDARY
- SURFACE FLOW DIRECTION (APPROX.)
- EXISTING CONTOURS
- FINAL RECLAIMED CONTOURS
- COLORADO RIVER AQUEDUCT CENTERLINE & ALIGNMENT
- TOPSOIL SPREAD AREA (TYP.)
- DRAINAGE SUBCATCHMENT
- RV-01** DRAINAGE SUBCATCHMENT NAME



250 0 250 500
SCALE IN FEET
SCALE: 1" = 250'
SCALE INDICATED IS BASED ON A
24" X 36" FORMAT PRINT

DRAINAGE ANALYSIS: RV-01

DISCLAIMER: DRAINAGE SUBCATCHMENTS ARE APPROXIMATE AND HAVE BEEN DELINEATED BASED ON TOPOGRAPHY (WHERE AVAILABLE), VISUAL FIELD OBSERVATIONS, AND GOOGLE EARTH DATA.

DATUM: HORZ= NAD83, CALIFORNIA ZONE 5, US FOOT
VERT= NAVD88
AERIAL: GOOGLE EARTH IMAGERY, DATED 02/06/16
TOPOGRAPHY: MWD SURVEYING TEAM (NICHOLAS ELLIS, PLS 9320), DRAWINGS B-174364 & B-174365, OCTOBER 2020



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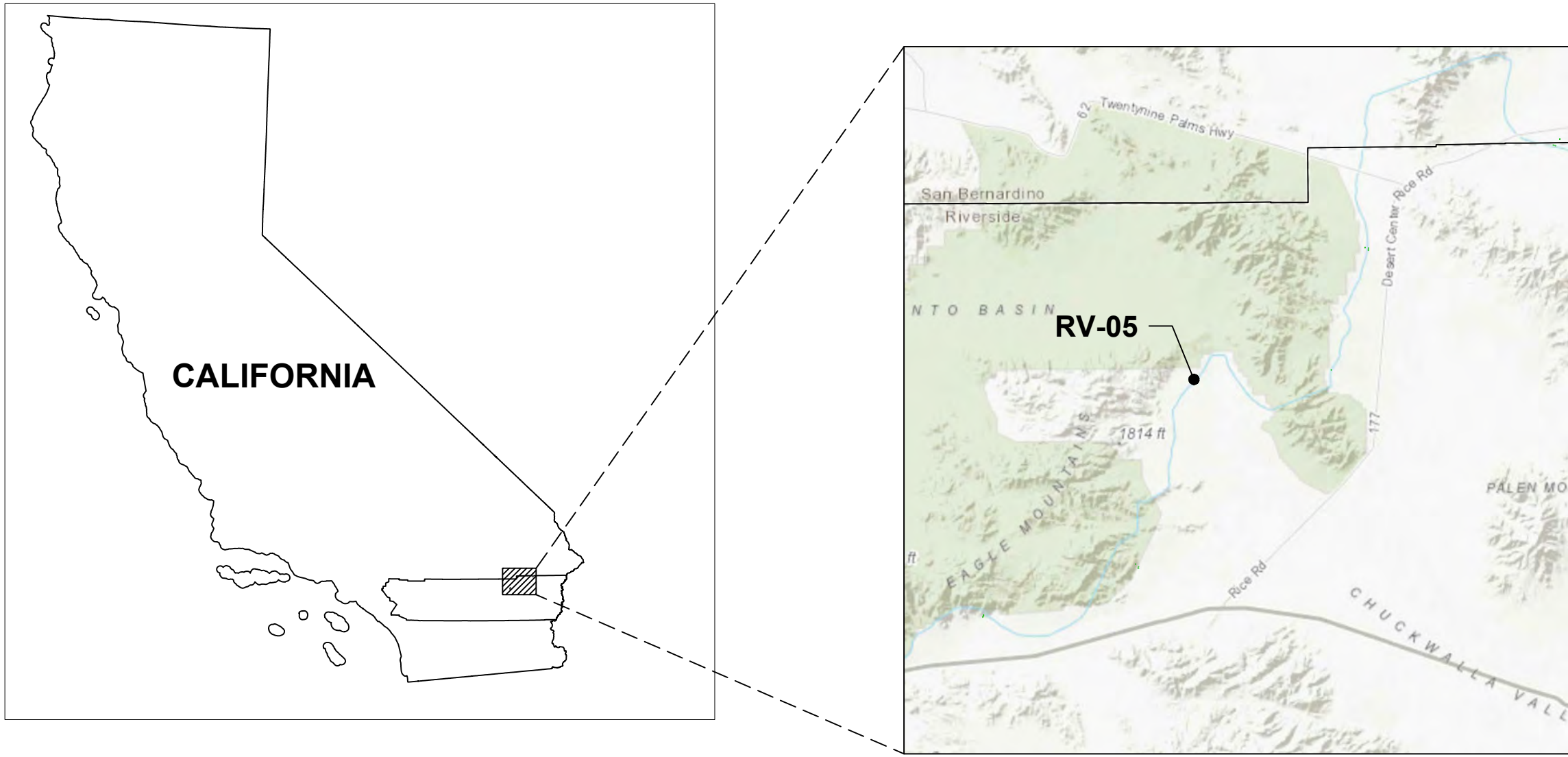


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		DATE	

METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA	
SITE ID:	RV-01
MILE MARKER:	57+80
COUNTY:	RIVERSIDE
SCALE: HORZ AS SHOWN VERT AS SHOWN	FIGURE NUMBER
DRAWN BY: G CAMUS CHECKED BY: APS	7



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FIGURE 8: RV-05 DRAINAGE ANALYSIS
FIGURE 9: RV-06 DRAINAGE ANALYSIS
FIGURE 10: RV-07 DRAINAGE ANALYSIS

LEGEND:

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- RECLAMATION BOUNDARY
- SURFACE FLOW DIRECTION (APPROX.)
- EXISTING CONTOURS
- FINAL RECLAIMED CONTOURS
- COLORADO RIVER AQUEDUCT CENTERLINE & ALIGNMENT
- TOPSOIL SPREAD AREA (TYP.)
- DRAINAGE SUBCATCHMENT

RV-05 DRAINAGE SUBCATCHMENT NAME



SCALE IN FEET
SCALE: 1" = 120'
SCALE INDICATED IS BASED ON A
24" X 36" FORMAT PRINT

DRAINAGE ANALYSIS: RV-05

DISCLAIMER: DRAINAGE SUBCATCHMENTS ARE APPROXIMATE AND HAVE BEEN DELINEATED BASED ON TOPOGRAPHY (WHERE AVAILABLE), VISUAL FIELD OBSERVATIONS, AND GOOGLE EARTH DATA.

DATUM: HORZ= NAD83, CALIFORNIA ZONE 5, US FOOT
VERT= NAVD88
AERIAL: GOOGLE EARTH IMAGERY, DATED 02/06/16
TOPOGRAPHY: MWD SURVEYING TEAM (NICHOLAS ELLIS, PLS 9320), DRAWINGS B-170964 (JUNE 2020), B-174407 & B-174407 (MARCH 2021)



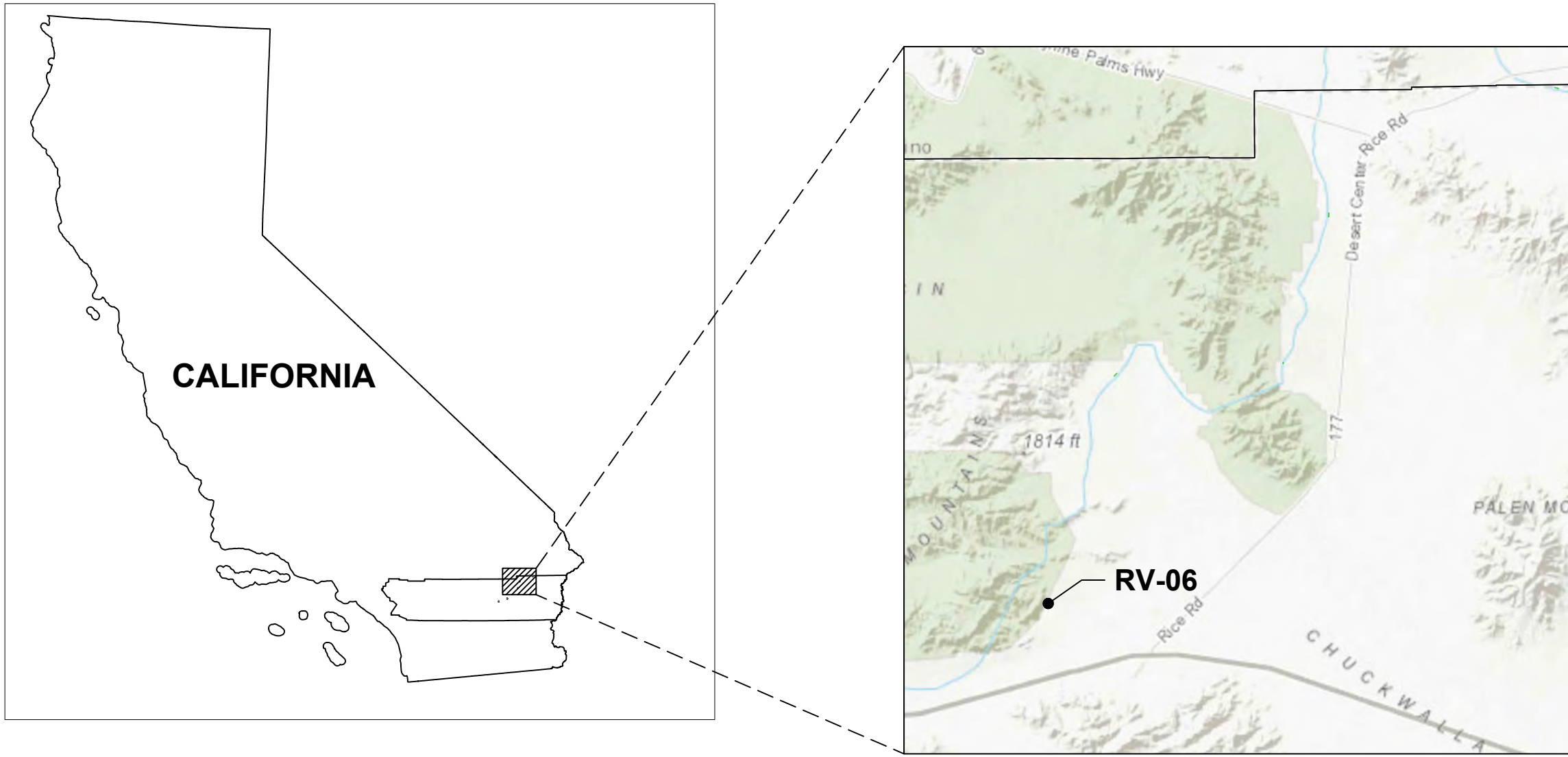
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	DATE		

METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA	
SITE ID:	RV-05
MILE MARKER:	102+73
COUNTY:	RIVERSIDE
SCALE: HORZ AS SHOWN VERT AS SHOWN	FIGURE NUMBER
DRAWN BY: G CAMJUS CHECKED BY: APS	8



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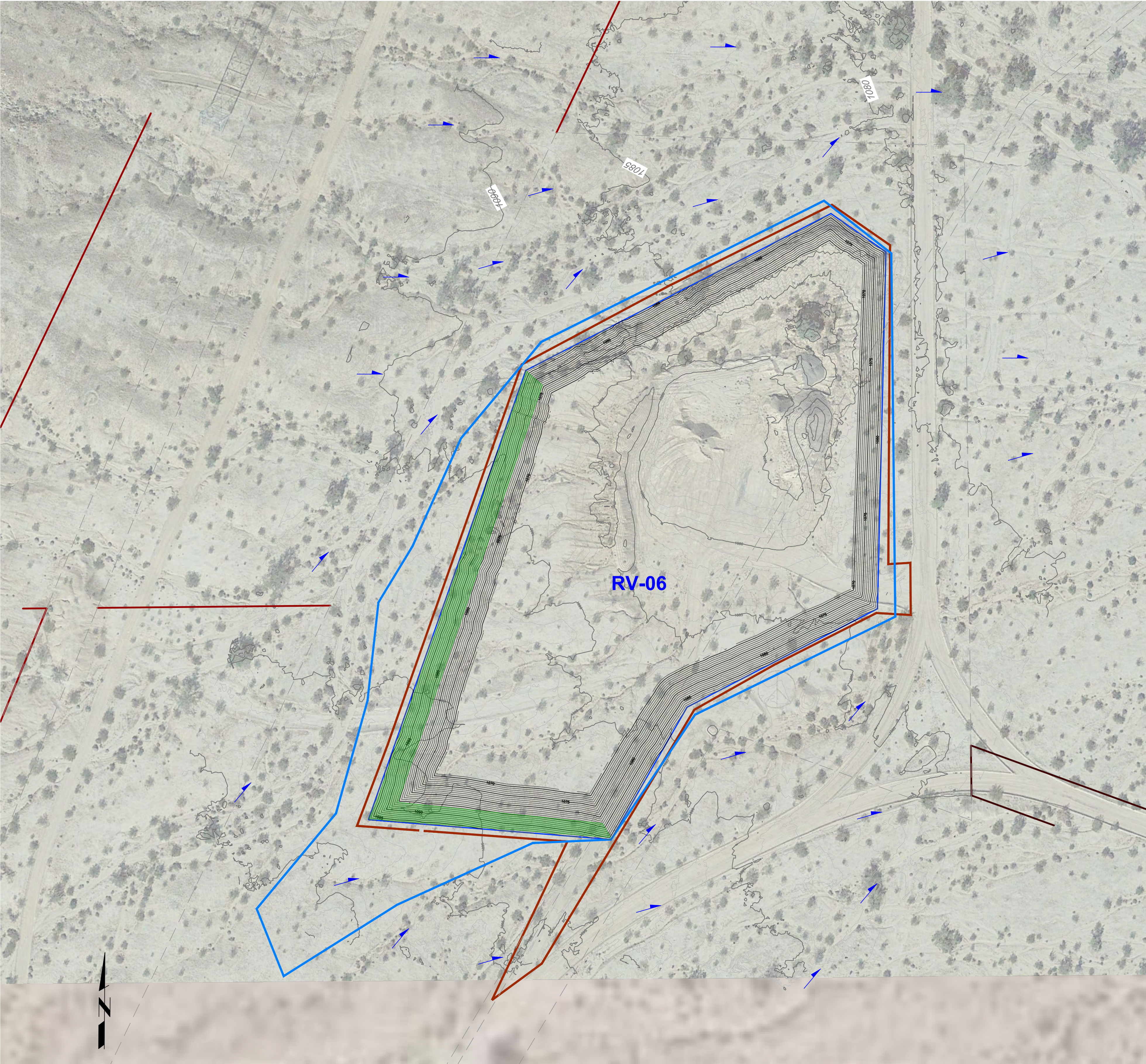
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FIGURE 8: RV-05 DRAINAGE ANALYSIS
FIGURE 9: RV-06 DRAINAGE ANALYSIS
FIGURE 10: RV-07 DRAINAGE ANALYSIS

LEGEND:

- MWD FEE-OWNED BOUNDARY LINES
- MINING BOUNDARY
- RECLAMATION BOUNDARY
- SURFACE FLOW DIRECTION (APPROX.)
- EXISTING CONTOURS
- FINAL RECLAIMED CONTOURS
- COLORADO RIVER AQUEDUCT CENTERLINE & ALIGNMENT
- TOPSOIL SPREAD AREA (TYP.)
- DRAINAGE SUBCATCHMENT

RV-06 DRAINAGE SUBCATCHMENT NAME



60 0 60 120
SCALE IN FEET
SCALE: 1" = 60'
SCALE INDICATED IS BASED ON A
24" X 36" FORMAT PRINT

DRAINAGE ANALYSIS: RV-06

DISCLAIMER: DRAINAGE SUBCATCHMENTS ARE APPROXIMATE AND HAVE BEEN DELINEATED BASED ON TOPOGRAPHY (WHERE AVAILABLE), VISUAL FIELD OBSERVATIONS, AND GOOGLE EARTH DATA.

DATUM: HORZ= NAD83, CALIFORNIA ZONE 5, US FOOT
VERT= NAVD88
AERIAL: GOOGLE EARTH IMAGERY, DATED 02/06/16
TOPOGRAPHY: MWD SURVEYING TEAM (ROBERT YOUNATHAN, PLS 9369), DRAWING B-174363, OCTOBER 2020



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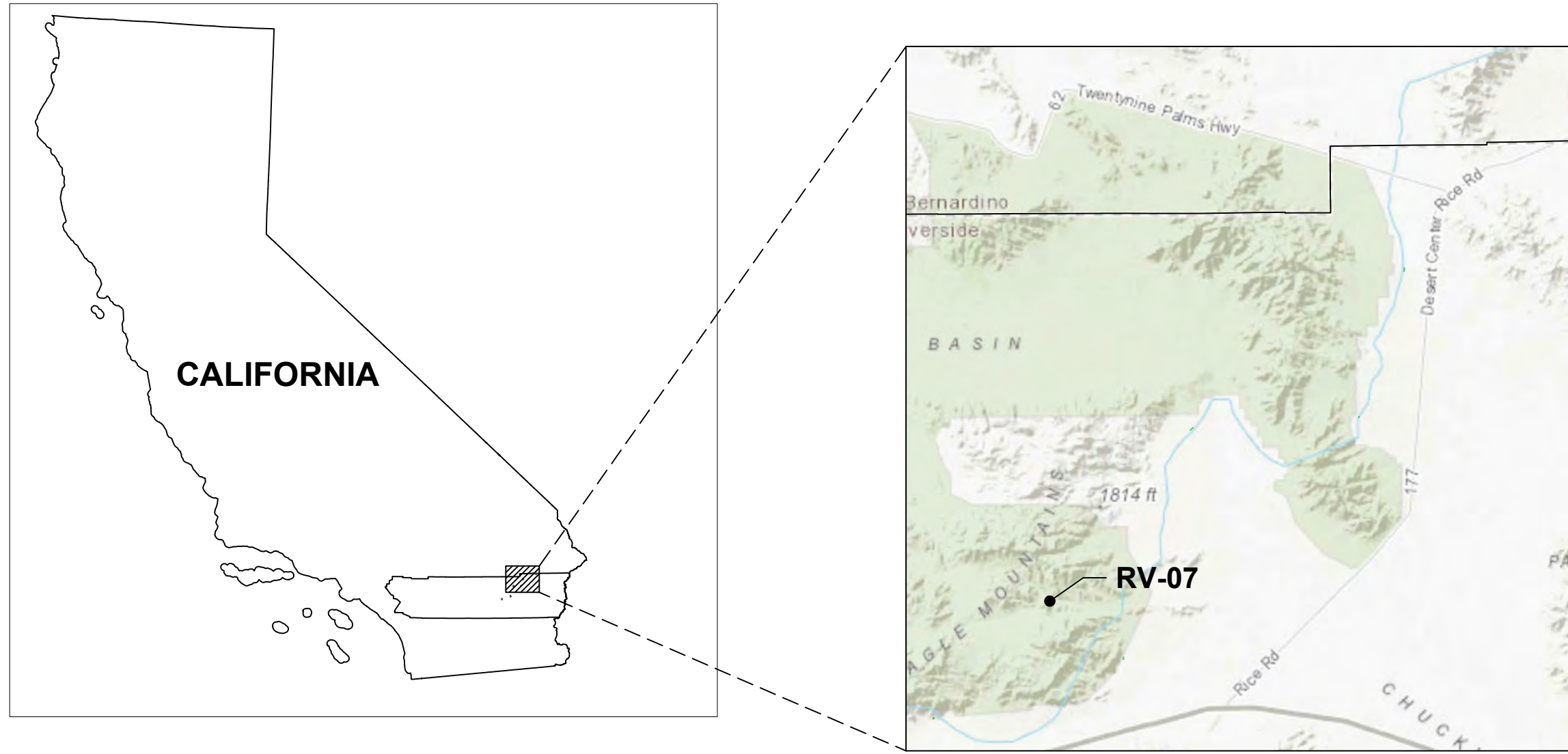


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	DATE		

METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA	
SITE ID:	RV-06
MILE MARKER:	114+68
COUNTY:	RIVERSIDE
SCALE: HORZ AS SHOWN VERT AS SHOWN	FIGURE NUMBER 9
DRAWN BY: G CAMUS	
CHECKED BY: APS	



INDEX MAP

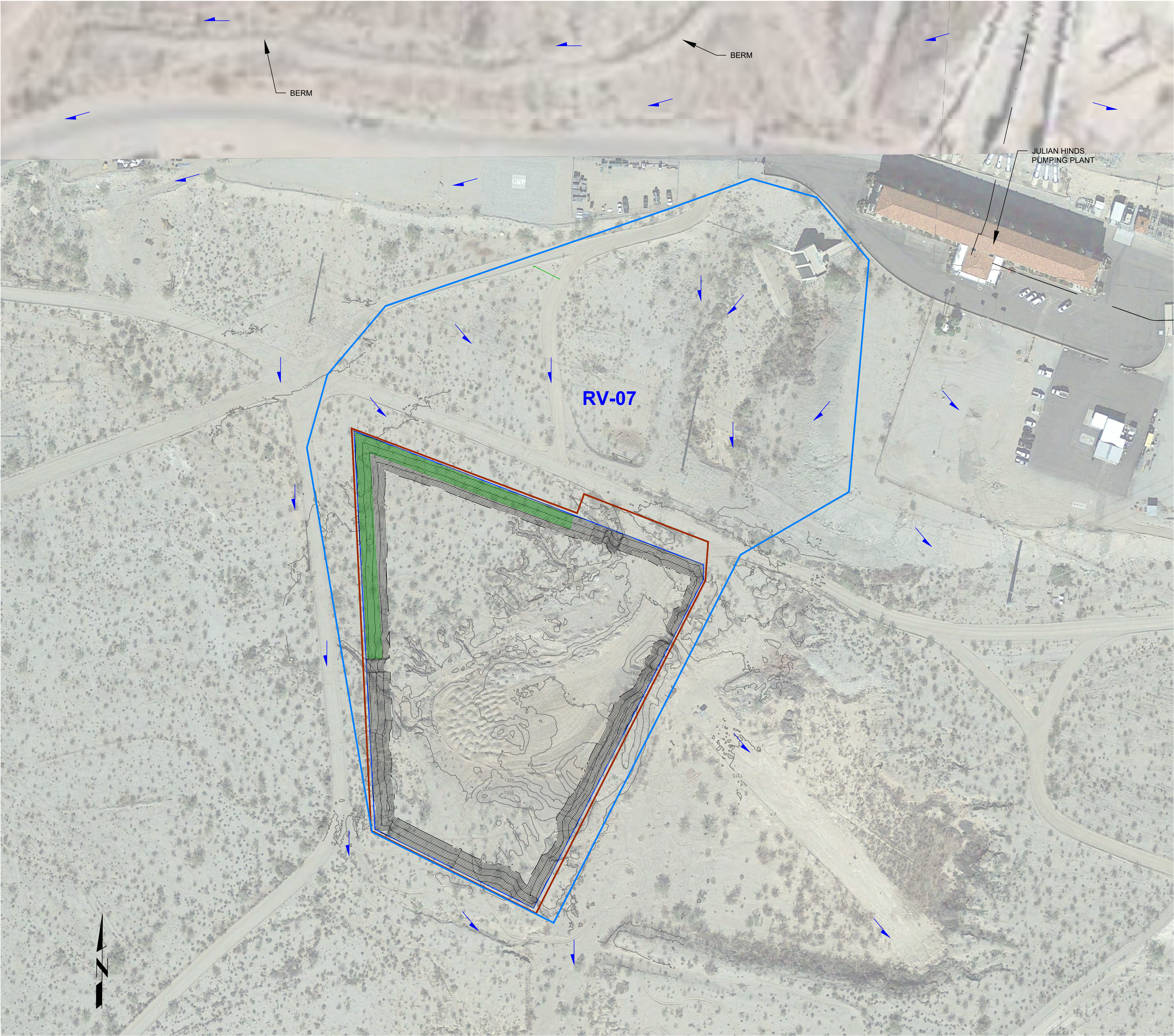
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FIGURE 6: SB-07 DRAINAGE ANALYSIS
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FIGURE 8: RV-05 DRAINAGE ANALYSIS
FIGURE 9: RV-06 DRAINAGE ANALYSIS
FIGURE 10: RV-07 DRAINAGE ANALYSIS

LEGEND:

- MWD FEE-OWNED BOUNDARY LINES
- MINING BOUNDARY
- RECLAMATION BOUNDARY
- SURFACE FLOW DIRECTION (APPROX.)
- EXISTING CONTOURS
- FINAL RECLAIMED CONTOURS
- COLORADO RIVER AQUEDUCT CENTERLINE & ALIGNMENT
- TOPSOIL SPREAD AREA (TYP.)
- DRAINAGE SUBCATCHMENT

RV-07 DRAINAGE SUBCATCHMENT NAME



60 0 60 120
SCALE IN FEET
SCALE: 1" = 60'
SCALE INDICATED IS BASED ON A
24" X 36" FORMAT PRINT

DRAINAGE ANALYSIS: RV-07

DISCLAIMER: DRAINAGE SUBCATCHMENTS ARE APPROXIMATE AND HAVE BEEN DELINEATED BASED ON TOPOGRAPHY (WHERE AVAILABLE), VISUAL FIELD OBSERVATIONS, AND GOOGLE EARTH DATA.

DATUM: HORZ= NAD83, CALIFORNIA ZONE 5, US FOOT
VERT= NAVD88
AERIAL: GOOGLE EARTH IMAGERY, DATED 02/06/16
TOPOGRAPHY: MWD SURVEYING TEAM (NICHOLAS ELLIS, PLS 9320), DRAWING B-170995, SEPTEMBER 2020



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METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA	
SITE ID:	RV-07
MILE MARKER:	124+90
COUNTY:	RIVERSIDE
SCALE: HORZ AS SHOWN	VERT AS SHOWN
DRAWN BY: G CAMUS	CHECKED BY: APS
FIGURE NUMBER	
10	

ATTACHMENT B

BORROW SITE SUMMARY

BORROW SITE SUMMARY

County	Borrow Area	Latitude	Longitude	Potential for Off-site Run-on	Modeled	Hydraulic Soils Group Data Source	25-yr, 1-hr Storm Depth (in)	25-yr, 1-hr Storm Runoff Volume (ac-ft)	25-yr, 1-hr Storm Runoff Volume w/ FoS (ac-ft)	Maximum Pit Containment Volume (ac-ft)	Maximum Inundation Depth (in)	Sufficient Containment
San Bernardino	SB-01	34.289089	-114.242803	Yes	Yes - SB01	San Bernardino County Hydrology Manual, Figure C-12	1.49	0.561	0.617	0.726	31.21	Yes
	SB-02	34.120720	-114.683551	Yes	Yes - SB02		1.13	2.902	3.192	6.287	4.48	Yes
	SB-03	34.093589	-114.867022	Yes	Yes - SB03		1.27	0.318	0.350	77.192	0.48	Yes
	SB-04	34.082096	-115.098683	No	No							
	SB-05	34.109788	-115.125941	No	No							
	SB-06	34.148585	-115.158453	Yes	Yes - SB06N		1.48	0.344	0.378	0.467	30.00	Yes
				Yes	Yes - SB06S			0.360	0.396	0.786	32.40	Yes
	SB-07	34.209065	-114.430717	Yes	Yes - SB07		1.19	1.110	1.221	63.349	37.20	Yes
Riverside	RV-01	34.067692	-115.028977	Yes	Yes - RV01N	NRCS Web Soil Survey	1.38	1.574	1.731	11.499	3.01	Yes
				Yes	Yes - RV01S			6.324	6.956	28.083	7.30	Yes
	RV-02	34.077234	-115.078545	No	No							
	RV-03	33.997098	-115.258909	No	No							
	RV-04	33.900792	-115.295001	No	No							
	RV-05	33.892279	-115.427442	Yes	Yes - RV05		1.11	0.069	0.076	2.475	0.38	Yes
	RV-06	33.743705	-115.480633	Yes	Yes - RV06		1.12	0.282	0.310	47.498	1.05	Yes
	RV-07	33.703457	-115.630832	Yes	Yes - RV07		1.23	0.190	0.209	11.592	0.65	Yes

- Notes:
- The 25-yr, 1-hr Storm Depth was determined from the National Oceanic and Atmospheric Administration (NOAA) Atlas 14, Volume 6, Version 2, Point Precipitation Frequency Estimates.
 - The 25-yr, 1-hr Storm Runoff Volume was calculated using the HydroCAD Software Solutions LLC, HydroCAD-10.10 Stormwater Modeling software. For ease in modeling and consistency, the maximum 25-year, 1-hour rainfall depth across all borrow sites (1.48") was used for the hydrologic models.
 - A 1.1 (10%) standard factor of safety (FoS) was applied to the calculated 25-yr, 1-hr Storm Runoff Volume.
 - The maximum pit containment was calculated using the design contours for each pit in the final reclaimed condition, as described in the Master Reclamation Plan using a 3D CAD model.
 - The maximum pit inundation depth for the runoff captured from the 25-yr, 1-hr storm (including FoS) was calculated using a 3D CAD model.

ATTACHMENT C

HYDROCAD MODEL REPORTS

SB_Sites_Model-v0.3

Prepared by Trinity Consultants

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Page 1

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
9.640	86	Desert shrub range, Fair, HSG D (SB01)
11.194	72	Dirt roads, HSG A (SB03)
9.608	87	Dirt roads, HSG C (SB02)
33.956	89	Dirt roads, HSG D (SB01, SB06N, SB06S, SB07)
170.071	63	Natural western desert, HSG A (SB03)
69.671	85	Natural western desert, HSG C (SB02)
4.691	88	Natural western desert, HSG D (SB06N, SB06S, SB07)
308.831	73	TOTAL AREA

SB_Sites_Model-v0.3

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Page 2

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
181.266	HSG A	SB03
0.000	HSG B	
79.279	HSG C	SB02
48.287	HSG D	SB01, SB06N, SB06S, SB07
0.000	Other	
308.831		TOTAL AREA

SB_Sites_Model-v0.3

Prepared by Trinity Consultants

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Page 3

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.000	9.640	0.000	9.640	Desert shrub range, Fair	SB01
11.194	0.000	9.608	33.956	0.000	54.758	Dirt roads	SB01, SB02, SB03, SB06N, SB06S, SB07
170.071	0.000	69.671	4.691	0.000	244.433	Natural western desert	SB02, SB03, SB06N, SB06S, SB07
181.266	0.000	79.279	48.287	0.000	308.831	TOTAL AREA	

SB_Sites_Model-v0.3*Type II 24-hr scaled to 1.00 hrs 25-yr, 1-hr Rainfall=1.48"*

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Time span=0.00-5.00 hrs, dt=0.05 hrs, 101 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment SB01: Subcat SB01	Runoff Area=12.917 ac 0.00% Impervious Runoff Depth=0.52" Tc=0.0 min CN=87 Runoff=71.35 cfs 0.561 af
Subcatchment SB02: Subcat SB02	Runoff Area=79.279 ac 0.00% Impervious Runoff Depth=0.44" Tc=0.0 min CN=85 Runoff=354.78 cfs 2.902 af
Subcatchment SB03: Subcat SB03	Runoff Area=181.266 ac 0.00% Impervious Runoff Depth=0.02" Tc=0.0 min CN=64 Runoff=9.32 cfs 0.318 af
Subcatchment SB06N: Subcat SB06N	Runoff Area=6.713 ac 0.00% Impervious Runoff Depth=0.62" Tc=0.0 min CN=89 Runoff=44.91 cfs 0.344 af
Subcatchment SB06S: Subcat SB06S	Runoff Area=7.011 ac 0.00% Impervious Runoff Depth=0.62" Tc=0.0 min CN=89 Runoff=46.91 cfs 0.360 af
Subcatchment SB07: Subcat SB07	Runoff Area=21.645 ac 0.00% Impervious Runoff Depth=0.62" Tc=0.0 min CN=89 Runoff=144.82 cfs 1.110 af

Total Runoff Area = 308.831 ac Runoff Volume = 5.596 af Average Runoff Depth = 0.22"
100.00% Pervious = 308.831 ac 0.00% Impervious = 0.000 ac

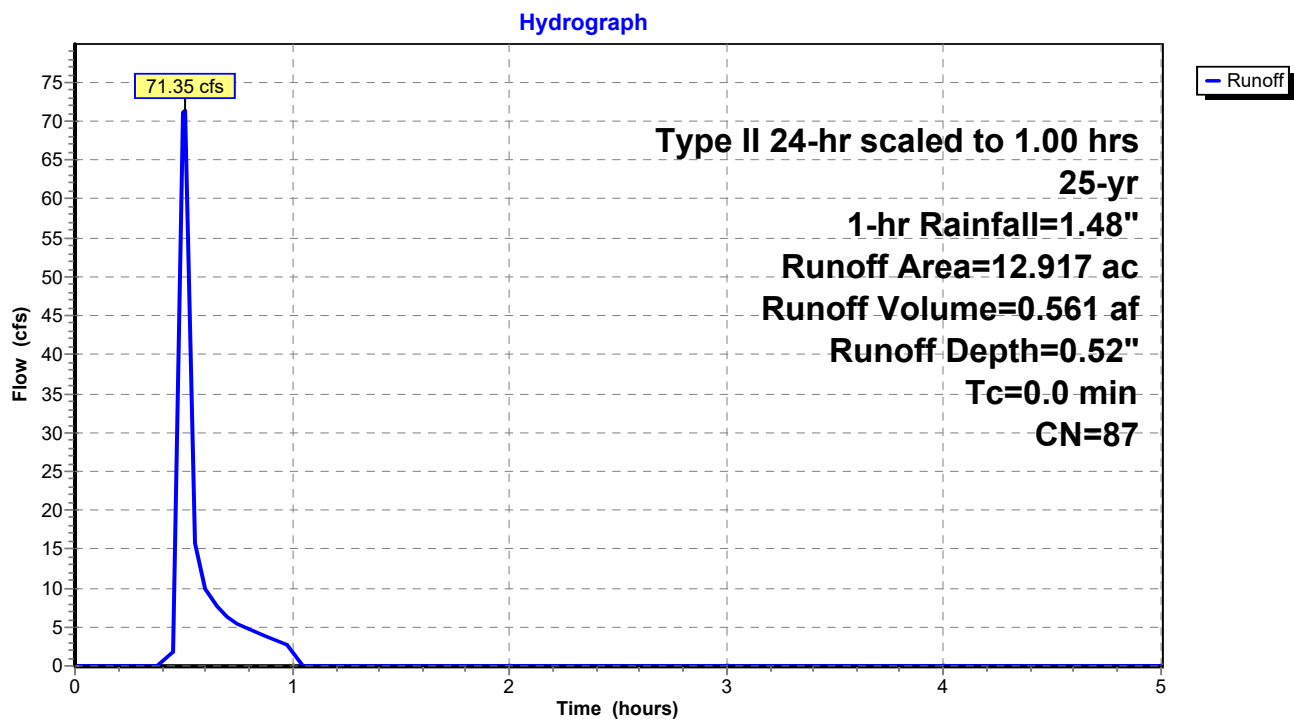
Summary for Subcatchment SB01: Subcat SB01

Runoff = 71.35 cfs @ 0.50 hrs, Volume= 0.561 af, Depth= 0.52"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-5.00 hrs, dt= 0.05 hrs

Type II 24-hr scaled to 1.00 hrs 25-yr, 1-hr Rainfall=1.48"

Area (ac)	CN	Description
9.640	86	Desert shrub range, Fair, HSG D
3.277	89	Dirt roads, HSG D
12.917	87	Weighted Average
12.917		100.00% Pervious Area

Subcatchment SB01: Subcat SB01

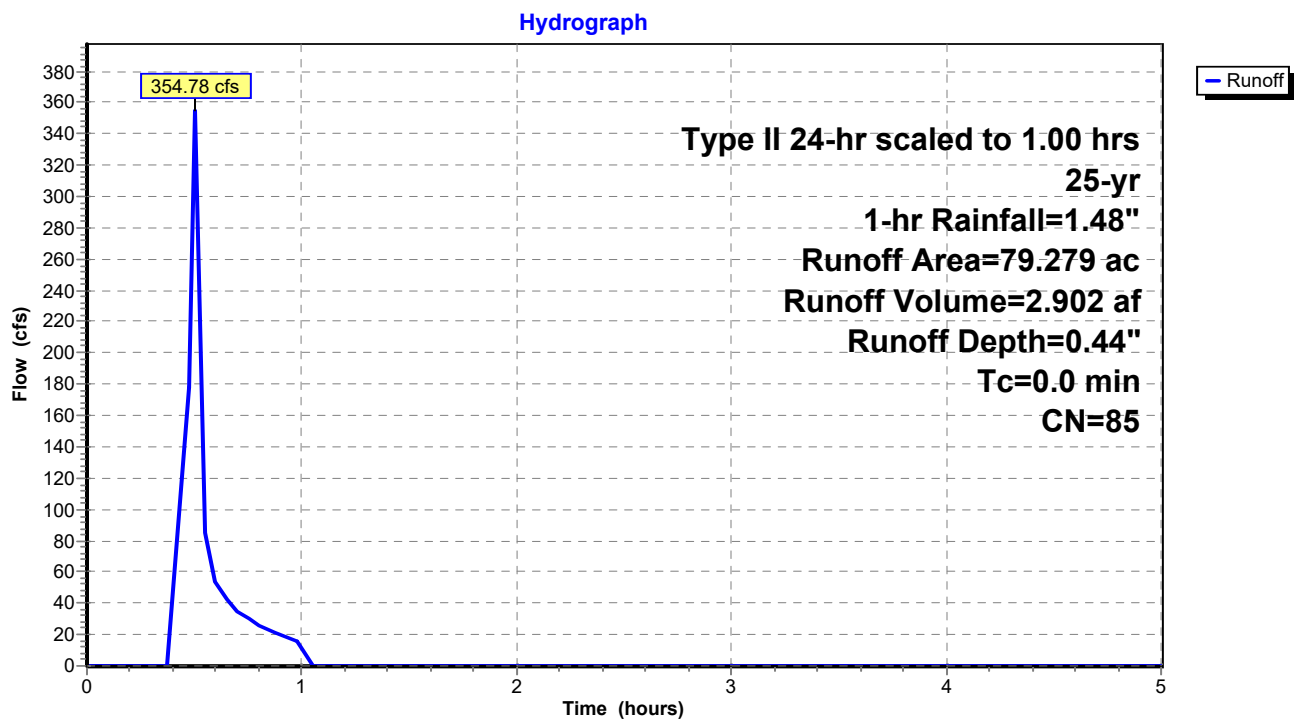
Summary for Subcatchment SB02: Subcat SB02

Runoff = 354.78 cfs @ 0.50 hrs, Volume= 2.902 af, Depth= 0.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-5.00 hrs, dt= 0.05 hrs

Type II 24-hr scaled to 1.00 hrs 25-yr, 1-hr Rainfall=1.48"

Area (ac)	CN	Description
9.608	87	Dirt roads, HSG C
69.671	85	Natural western desert, HSG C
79.279	85	Weighted Average
79.279		100.00% Pervious Area

Subcatchment SB02: Subcat SB02

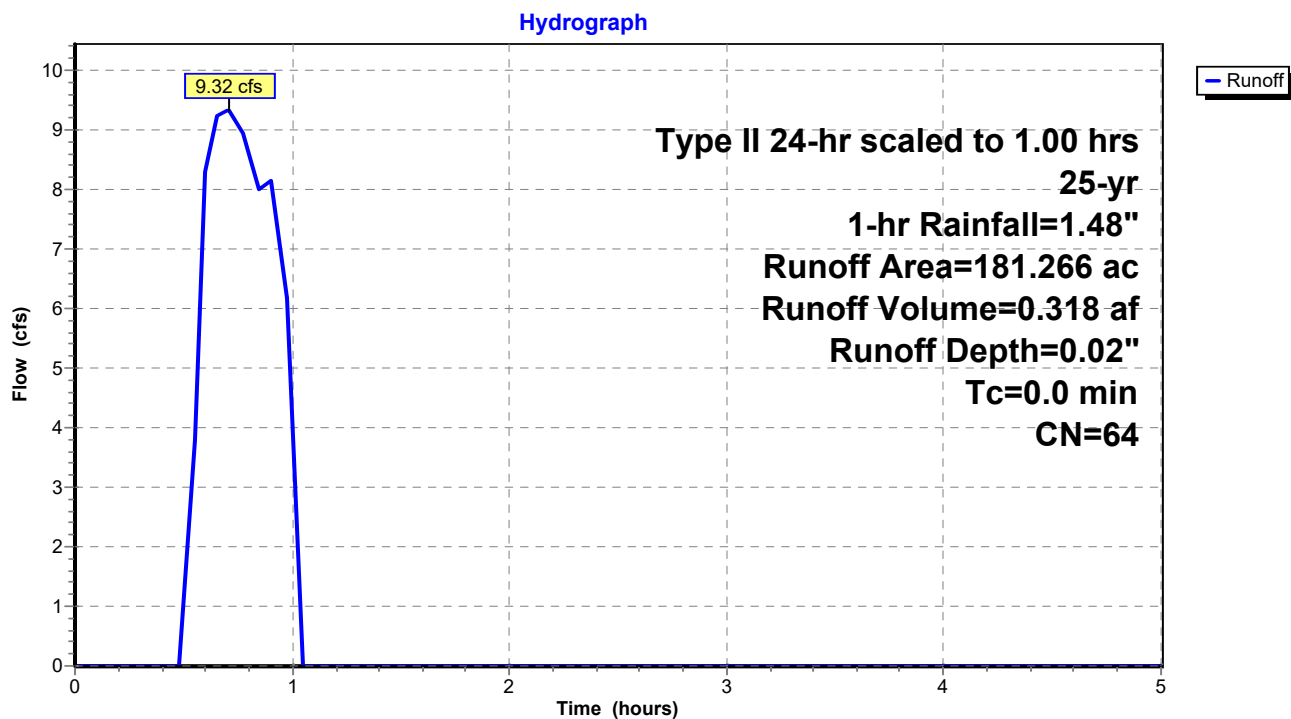
Summary for Subcatchment SB03: Subcat SB03

Runoff = 9.32 cfs @ 0.71 hrs, Volume= 0.318 af, Depth= 0.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-5.00 hrs, dt= 0.05 hrs
Type II 24-hr scaled to 1.00 hrs 25-yr, 1-hr Rainfall=1.48"

Area (ac)	CN	Description
11.194	72	Dirt roads, HSG A
170.071	63	Natural western desert, HSG A
181.266	64	Weighted Average
181.266		100.00% Pervious Area

Subcatchment SB03: Subcat SB03



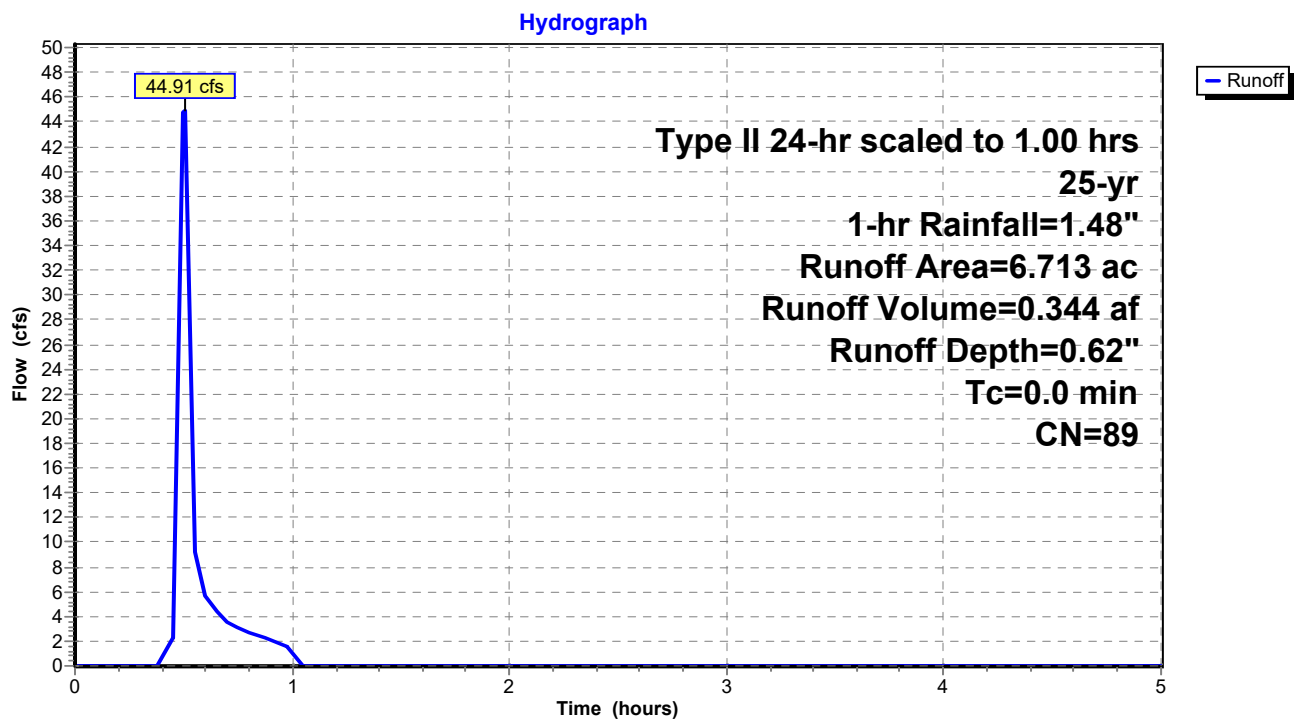
Summary for Subcatchment SB06N: Subcat SB06N

Runoff = 44.91 cfs @ 0.50 hrs, Volume= 0.344 af, Depth= 0.62"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-5.00 hrs, dt= 0.05 hrs

Type II 24-hr scaled to 1.00 hrs 25-yr, 1-hr Rainfall=1.48"

Area (ac)	CN	Description
6.533	89	Dirt roads, HSG D
0.180	88	Natural western desert, HSG D
6.713	89	Weighted Average
6.713		100.00% Pervious Area

Subcatchment SB06N: Subcat SB06N

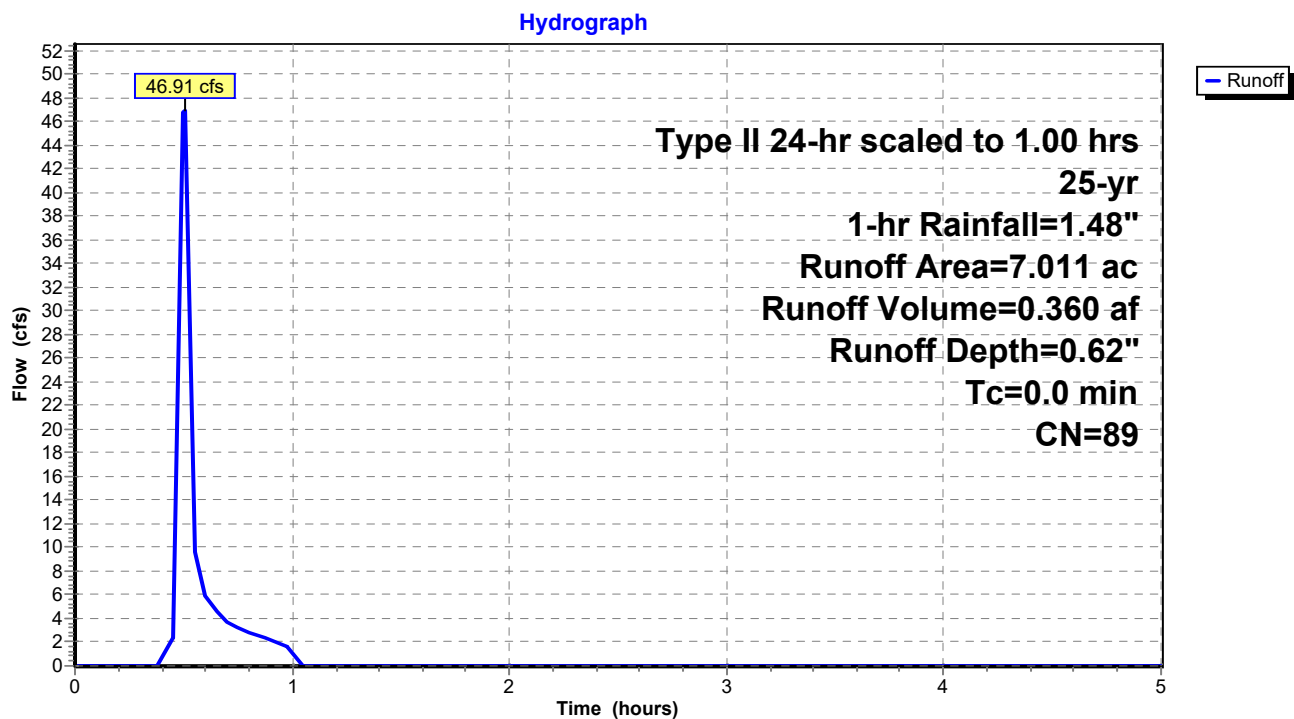
Summary for Subcatchment SB06S: Subcat SB06S

Runoff = 46.91 cfs @ 0.50 hrs, Volume= 0.360 af, Depth= 0.62"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-5.00 hrs, dt= 0.05 hrs

Type II 24-hr scaled to 1.00 hrs 25-yr, 1-hr Rainfall=1.48"

Area (ac)	CN	Description
4.858	89	Dirt roads, HSG D
2.153	88	Natural western desert, HSG D
7.011	89	Weighted Average
7.011		100.00% Pervious Area

Subcatchment SB06S: Subcat SB06S

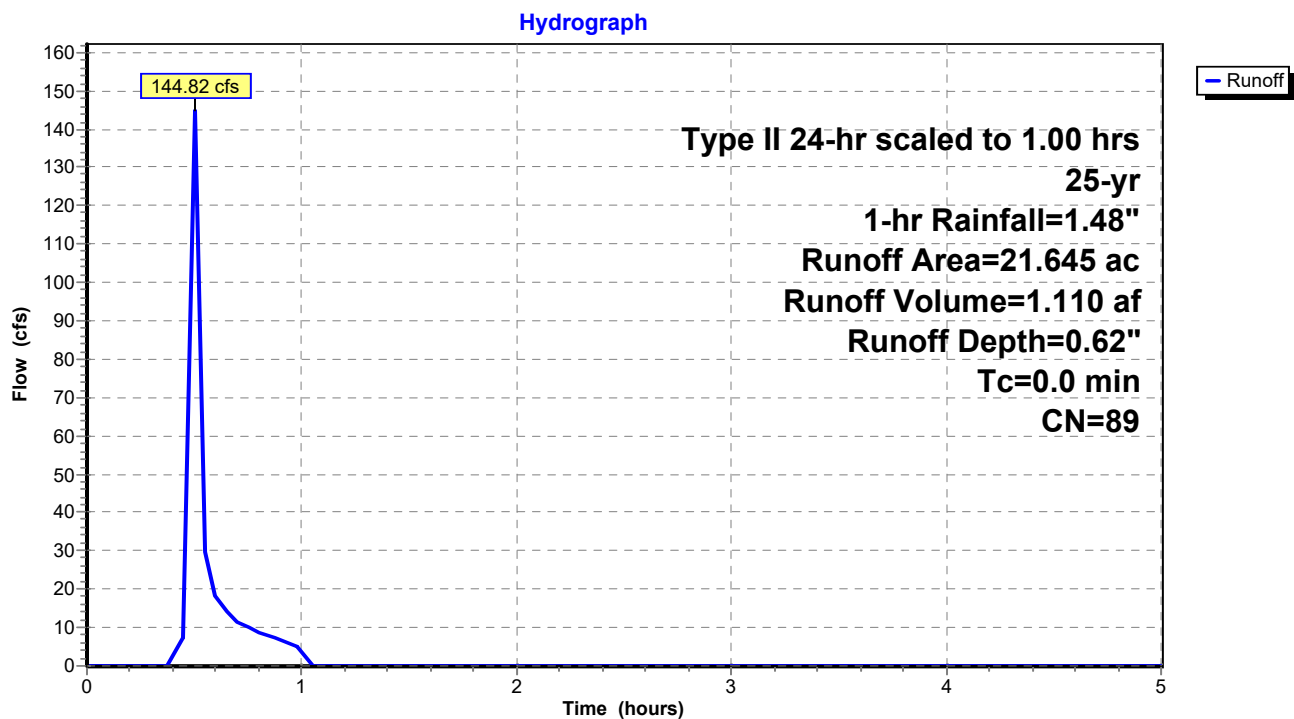
Summary for Subcatchment SB07: Subcat SB07

Runoff = 144.82 cfs @ 0.50 hrs, Volume= 1.110 af, Depth= 0.62"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-5.00 hrs, dt= 0.05 hrs

Type II 24-hr scaled to 1.00 hrs 25-yr, 1-hr Rainfall=1.48"

Area (ac)	CN	Description
19.287	89	Dirt roads, HSG D
2.358	88	Natural western desert, HSG D
21.645	89	Weighted Average
21.645		100.00% Pervious Area

Subcatchment SB07: Subcat SB07

RV_Sites_Model-v0.3

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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
5.049	72	Dirt roads, HSG A (RV05, RV07)
5.084	87	Dirt roads, HSG C (RV06)
24.285	89	Dirt roads, HSG D (RV01N, RV01S, RV07)
56.456	63	Natural western desert, HSG A (RV05, RV07)
1.364	85	Natural western desert, HSG C (RV06)
148.788	88	Natural western desert, HSG D (RV01N, RV01S, RV06, RV07)
241.027	82	TOTAL AREA

RV_Sites_Model-v0.3

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Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
61.506	HSG A	RV05, RV07
0.000	HSG B	
6.448	HSG C	RV06
173.073	HSG D	RV01N, RV01S, RV06, RV07
0.000	Other	
241.027		TOTAL AREA

RV_Sites_Model-v0.3

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Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
5.049	0.000	5.084	24.285	0.000	34.418	Dirt roads	RV01N, RV01S, RV05, RV06, RV07
56.456	0.000	1.364	148.788	0.000	206.609	Natural western desert	RV01N, RV01S, RV05, RV06, RV07
61.506	0.000	6.448	173.073	0.000	241.027	TOTAL AREA	

RV_Sites_Model-v0.3*Type II 24-hr scaled to 1.00 hrs 25-yr, 1-hr Rainfall=1.48"*

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Time span=0.00-5.00 hrs, dt=0.05 hrs, 101 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentRV01N: Subcat RV01N	Runoff Area=33.317 ac 0.00% Impervious Runoff Depth=0.57" Tc=0.0 min CN=88 Runoff=202.95 cfs 1.574 af
SubcatchmentRV01S: Subcat RV01S	Runoff Area=133.865 ac 0.00% Impervious Runoff Depth=0.57" Tc=0.0 min CN=88 Runoff=815.44 cfs 6.324 af
SubcatchmentRV05: Subcat RV05	Runoff Area=54.663 ac 0.00% Impervious Runoff Depth=0.02" Tc=0.0 min CN=63 Runoff=2.15 cfs 0.069 af
SubcatchmentRV06: Subcat RV06	Runoff Area=6.487 ac 0.00% Impervious Runoff Depth=0.52" Tc=0.0 min CN=87 Runoff=35.83 cfs 0.282 af
SubcatchmentRV07: Subcat RV07	Runoff Area=12.695 ac 0.00% Impervious Runoff Depth=0.18" Tc=0.0 min CN=76 Runoff=15.75 cfs 0.190 af

Total Runoff Area = 241.027 ac Runoff Volume = 8.439 af Average Runoff Depth = 0.42"
100.00% Pervious = 241.027 ac 0.00% Impervious = 0.000 ac

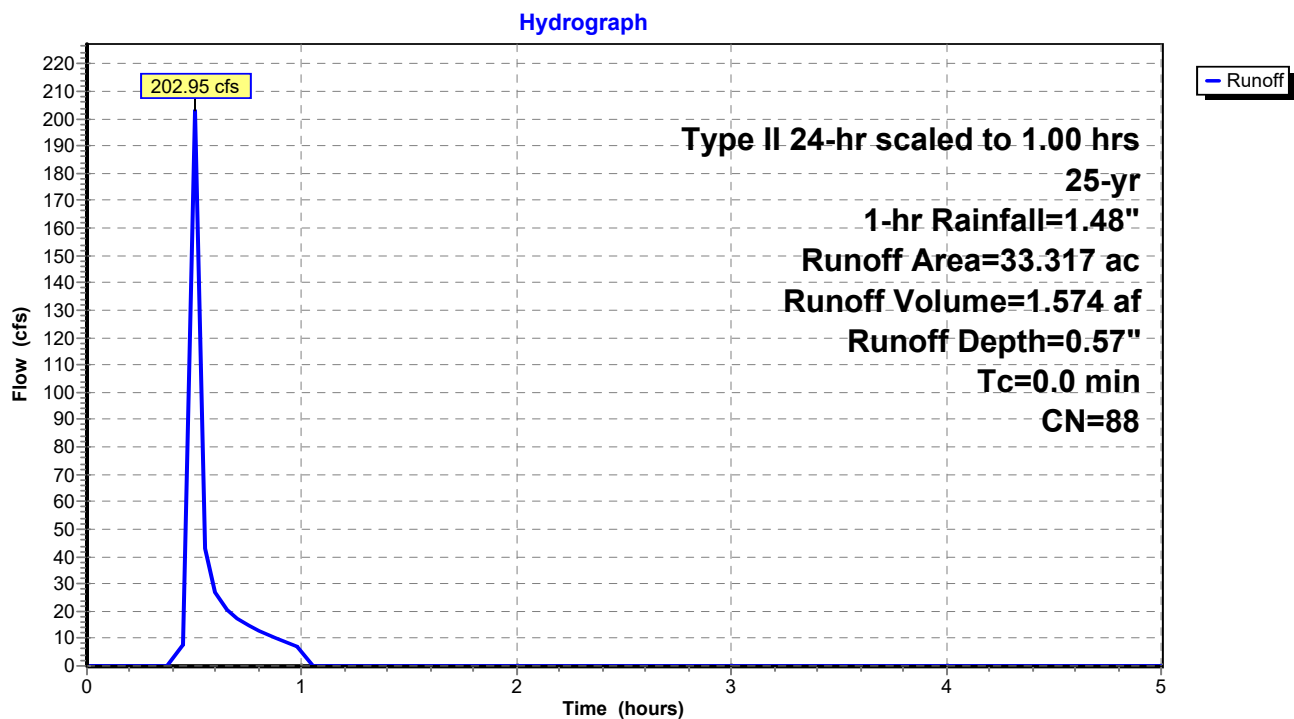
Summary for Subcatchment RV01N: Subcat RV01N

Runoff = 202.95 cfs @ 0.50 hrs, Volume= 1.574 af, Depth= 0.57"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-5.00 hrs, dt= 0.05 hrs

Type II 24-hr scaled to 1.00 hrs 25-yr, 1-hr Rainfall=1.48"

Area (ac)	CN	Description
7.912	89	Dirt roads, HSG D
25.404	88	Natural western desert, HSG D
33.317	88	Weighted Average
33.317		100.00% Pervious Area

Subcatchment RV01N: Subcat RV01N

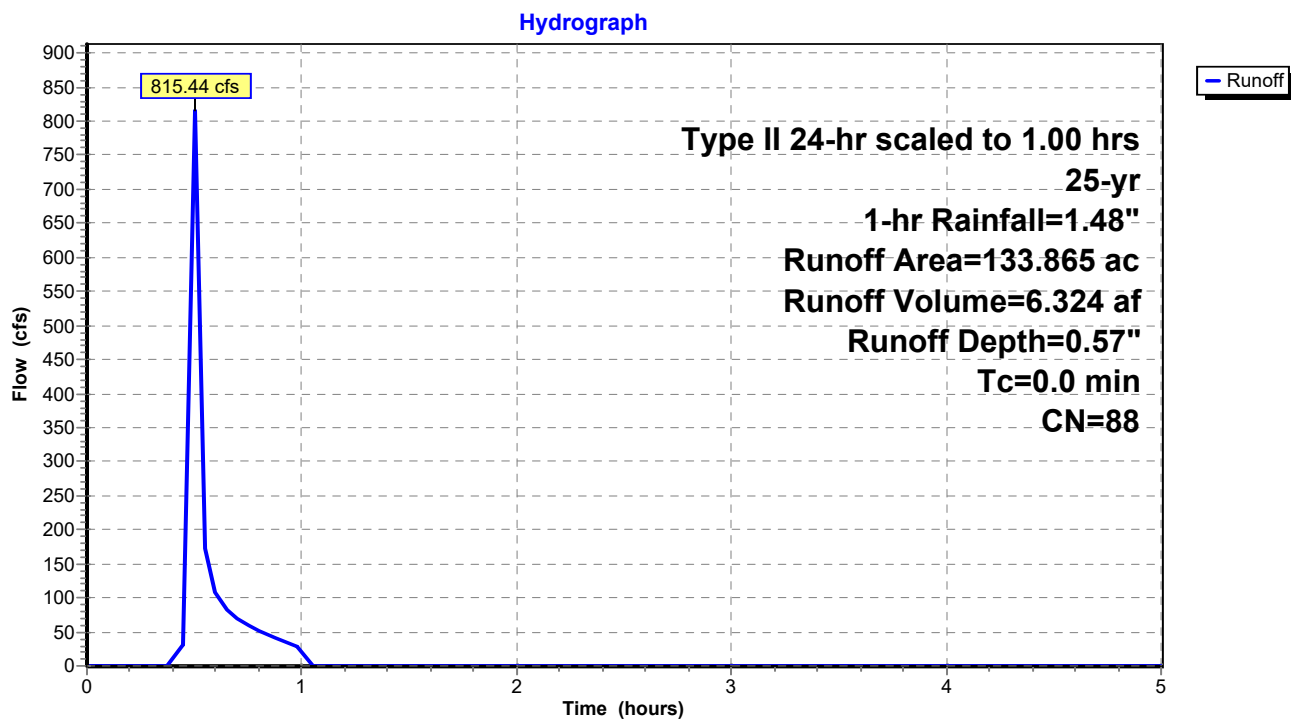
Summary for Subcatchment RV01S: Subcat RV01S

Runoff = 815.44 cfs @ 0.50 hrs, Volume= 6.324 af, Depth= 0.57"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-5.00 hrs, dt= 0.05 hrs

Type II 24-hr scaled to 1.00 hrs 25-yr, 1-hr Rainfall=1.48"

Area (ac)	CN	Description
13.484	89	Dirt roads, HSG D
120.381	88	Natural western desert, HSG D
133.865	88	Weighted Average
133.865		100.00% Pervious Area

Subcatchment RV01S: Subcat RV01S

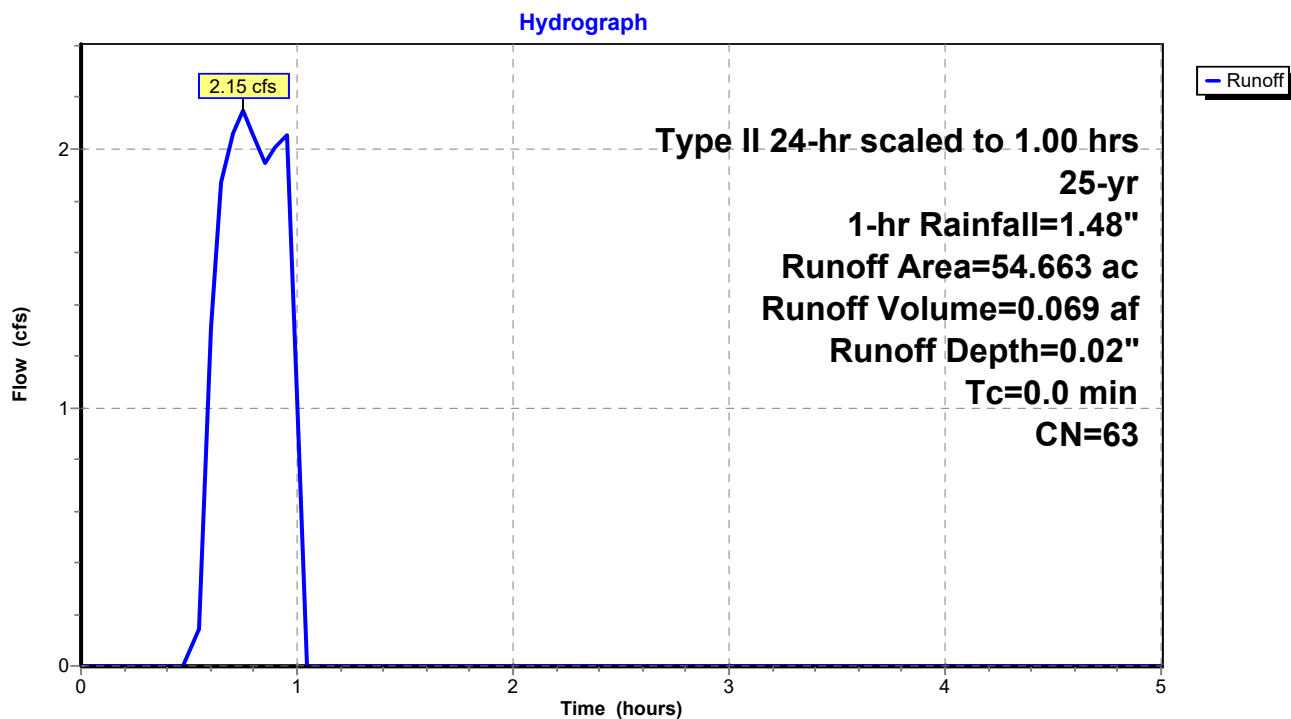
Summary for Subcatchment RV05: Subcat RV05

Runoff = 2.15 cfs @ 0.75 hrs, Volume= 0.069 af, Depth= 0.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-5.00 hrs, dt= 0.05 hrs

Type II 24-hr scaled to 1.00 hrs 25-yr, 1-hr Rainfall=1.48"

Area (ac)	CN	Description
2.931	72	Dirt roads, HSG A
51.733	63	Natural western desert, HSG A
54.663	63	Weighted Average
54.663		100.00% Pervious Area

Subcatchment RV05: Subcat RV05

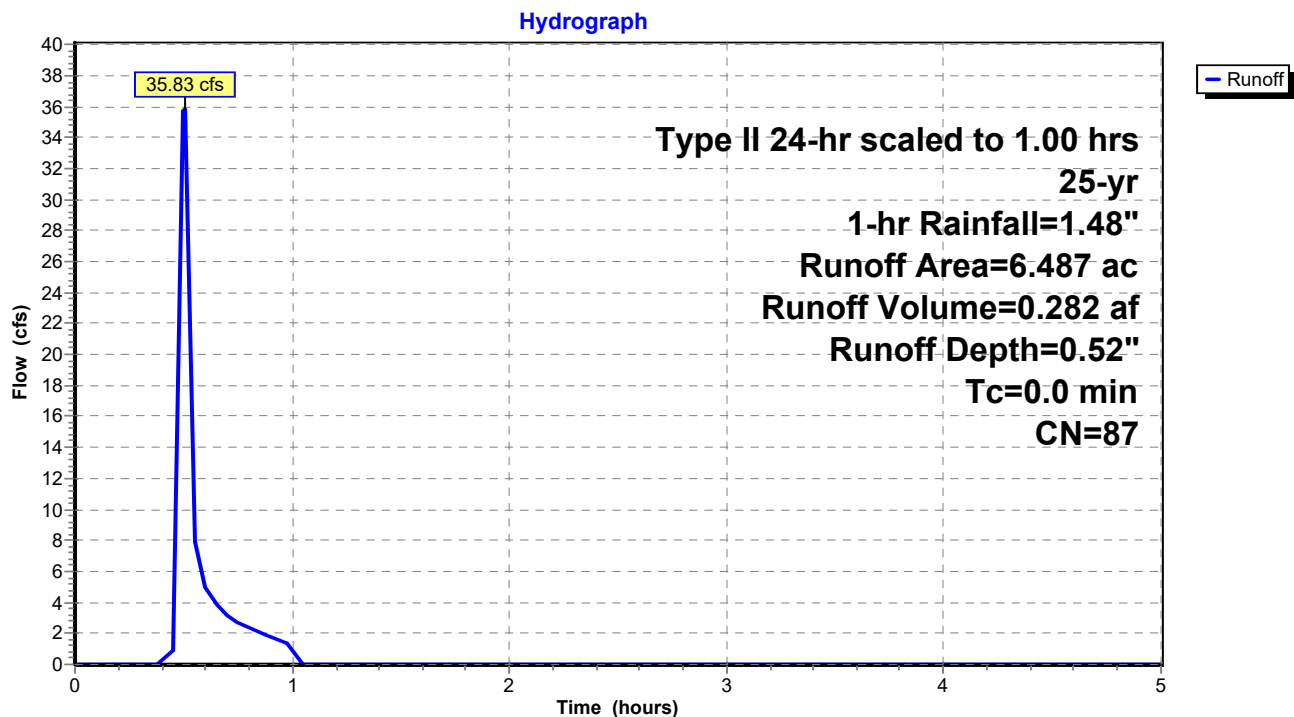
Summary for Subcatchment RV06: Subcat RV06

Runoff = 35.83 cfs @ 0.50 hrs, Volume= 0.282 af, Depth= 0.52"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-5.00 hrs, dt= 0.05 hrs

Type II 24-hr scaled to 1.00 hrs 25-yr, 1-hr Rainfall=1.48"

Area (ac)	CN	Description
5.084	87	Dirt roads, HSG C
1.364	85	Natural western desert, HSG C
0.039	88	Natural western desert, HSG D
6.487	87	Weighted Average
6.487		100.00% Pervious Area

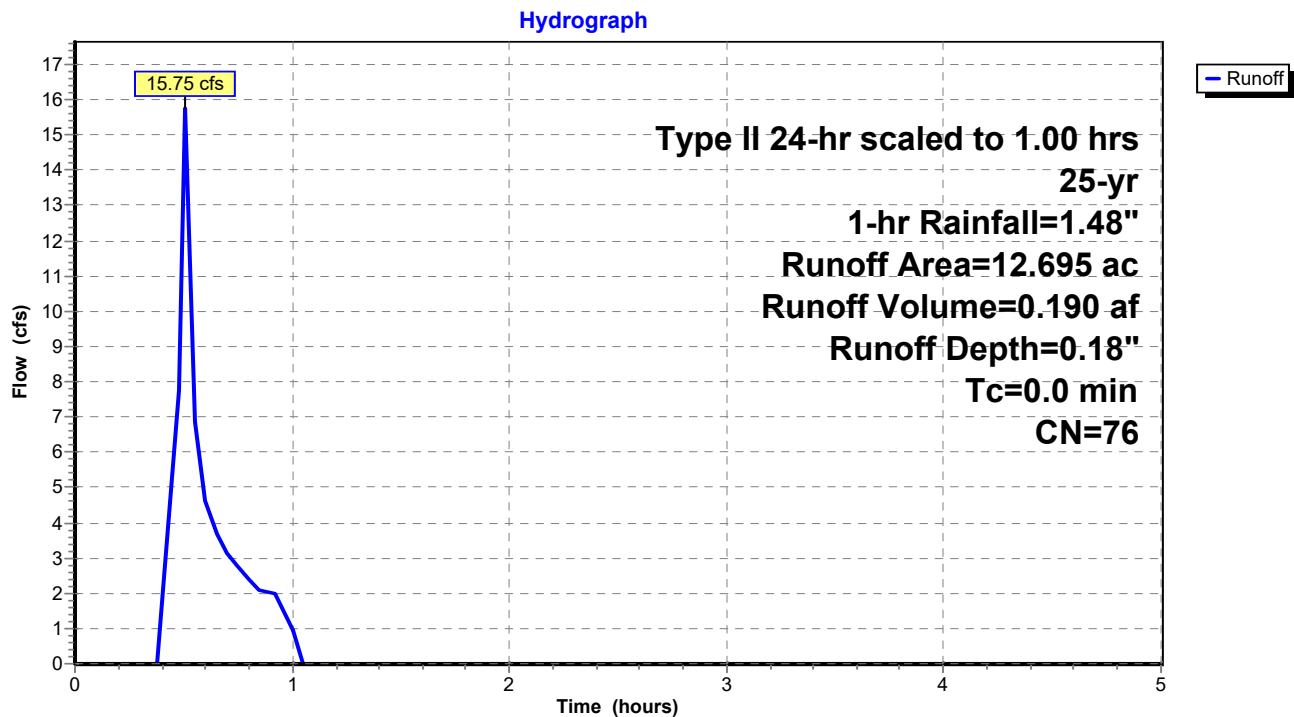
Subcatchment RV06: Subcat RV06

Summary for Subcatchment RV07: Subcat RV07

Runoff = 15.75 cfs @ 0.51 hrs, Volume= 0.190 af, Depth= 0.18"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-5.00 hrs, dt= 0.05 hrs
Type II 24-hr scaled to 1.00 hrs 25-yr, 1-hr Rainfall=1.48"

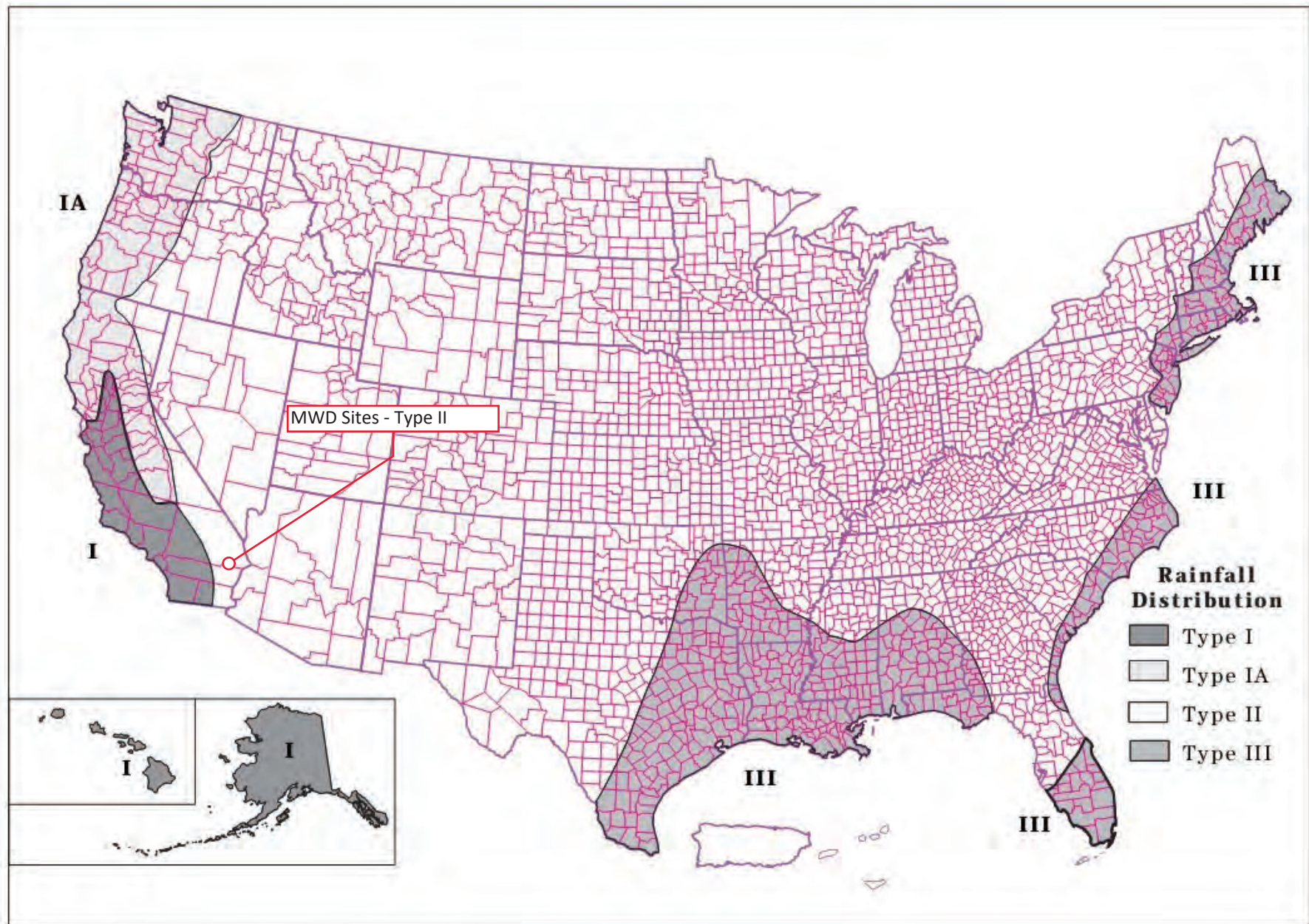
Area (ac)	CN	Description
2.118	72	Dirt roads, HSG A
2.888	89	Dirt roads, HSG D
4.724	63	Natural western desert, HSG A
2.965	88	Natural western desert, HSG D
12.695	76	Weighted Average
12.695		100.00% Pervious Area

Subcatchment RV07: Subcat RV07

ATTACHMENT D

SUPPORTING DOCUMENTS

Figure B-2 Approximate geographic boundaries for NRCS (SCS) rainfall distributions



Source: *Urban Hydrology for Small Watersheds Manual*, Appendix B - Synthetic Rainfall Distributions and Rainfall Data Sources. United States Department of Agriculture (USDA), Natural Resource Conservation Service (NRCS), Conservation Engineering Division. Technical Release 55 (TR-55) (210-VI-TR-55). June 1986.



NOAA Atlas 14, Volume 6, Version 2
Location name: Twentynine Palms, California,
USA*
Latitude: 34.1486°, Longitude: -115.1585°
Elevation: 1273.43 ft**
* source: ESRI Maps
** source: USGS



POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sarah Dietz, Sarah Heim, Lillian Hiner, Kazungu Maitaria, Deborah Martin, Sandra Pavlovic,
Ishani Roy, Carl Trypaluk, Dale Unruh, Fenglin Yan, Michael Yekta, Tan Zhao, Geoffrey Bonnin, Daniel
Brewer, Li-Chuan Chen, Tye Parzybok, John Yarchoan

NOAA, National Weather Service, Silver Spring, Maryland

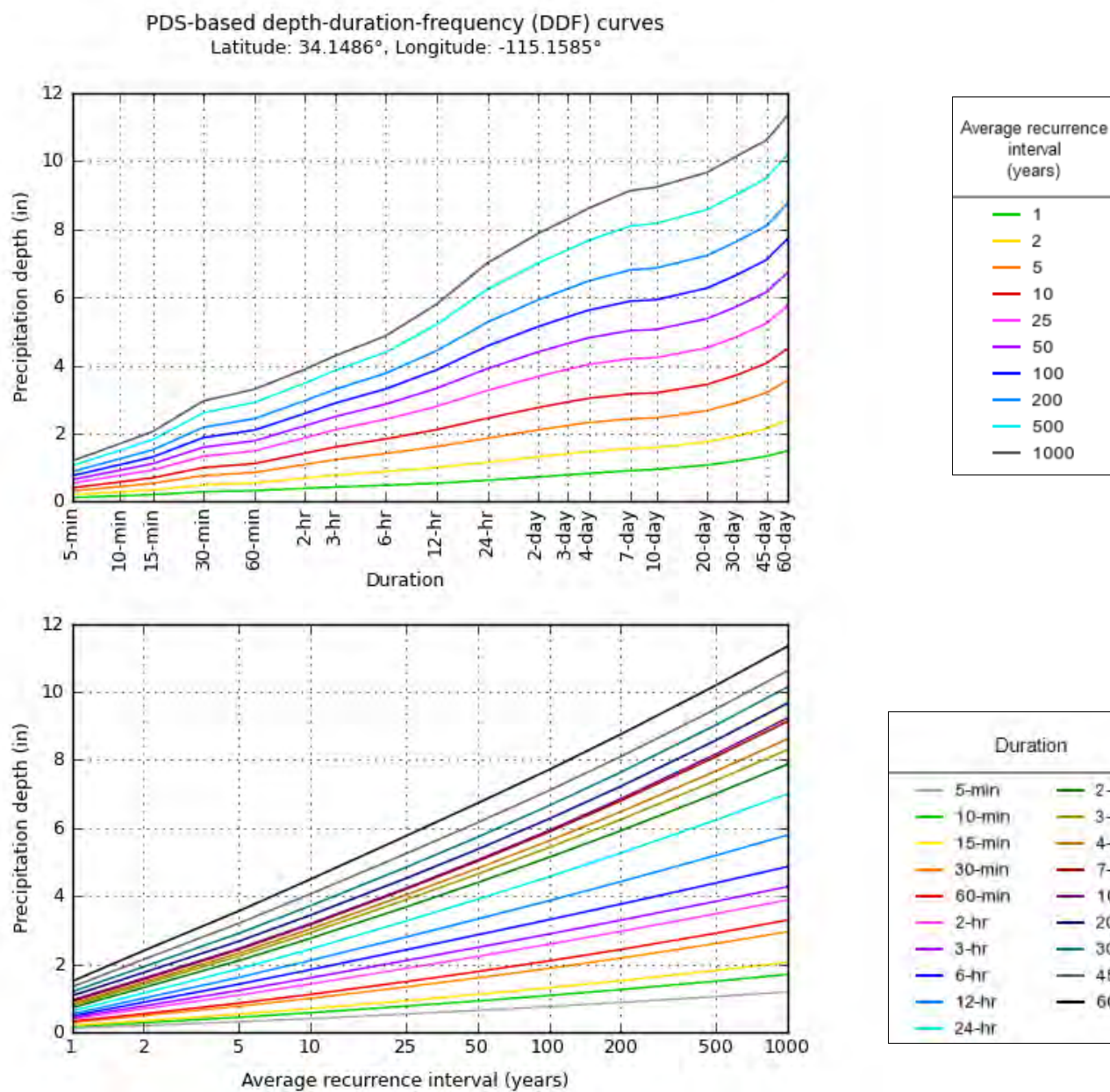
[PF_tabular](#) | [PF_graphical](#) | [Maps & aerals](#)

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches) ¹										
Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.114 (0.095-0.139)	0.195 (0.162-0.237)	0.306 (0.253-0.373)	0.399 (0.328-0.491)	0.533 (0.423-0.677)	0.640 (0.498-0.831)	0.753 (0.571-1.00)	0.874 (0.645-1.20)	1.05 (0.739-1.49)	1.19 (0.809-1.75)
10-min	0.164 (0.136-0.199)	0.279 (0.232-0.340)	0.438 (0.363-0.534)	0.572 (0.470-0.704)	0.764 (0.607-0.971)	0.917 (0.713-1.19)	1.08 (0.819-1.44)	1.25 (0.924-1.72)	1.50 (1.06-2.14)	1.70 (1.16-2.51)
15-min	0.198 (0.165-0.240)	0.338 (0.281-0.411)	0.530 (0.439-0.646)	0.692 (0.569-0.851)	0.923 (0.733-1.17)	1.11 (0.863-1.44)	1.31 (0.990-1.74)	1.52 (1.12-2.08)	1.81 (1.28-2.59)	2.05 (1.40-3.04)
30-min	0.284 (0.237-0.345)	0.486 (0.403-0.590)	0.761 (0.630-0.928)	0.995 (0.817-1.22)	1.33 (1.05-1.69)	1.59 (1.24-2.07)	1.88 (1.42-2.50)	2.18 (1.61-2.98)	2.61 (1.84-3.72)	2.95 (2.02-4.37)
60-min	0.318 (0.264-0.386)	0.542 (0.450-0.659)	0.850 (0.704-1.04)	1.11 (0.912-1.37)	1.48 (1.18-1.88)	1.78 (1.38-2.31)	2.10 (1.59-2.79)	2.43 (1.79-3.33)	2.91 (2.06-4.16)	3.30 (2.25-4.88)
2-hr	0.385 (0.320-0.467)	0.687 (0.571-0.835)	1.09 (0.901-1.33)	1.42 (1.16-1.74)	1.87 (1.49-2.38)	2.22 (1.73-2.89)	2.59 (1.96-3.44)	2.96 (2.19-4.06)	3.48 (2.46-4.97)	3.89 (2.65-5.75)
3-hr	0.423 (0.352-0.514)	0.770 (0.640-0.937)	1.23 (1.01-1.50)	1.60 (1.31-1.96)	2.10 (1.67-2.67)	2.49 (1.94-3.23)	2.89 (2.19-3.84)	3.29 (2.43-4.51)	3.85 (2.72-5.49)	4.28 (2.92-6.33)
6-hr	0.474 (0.394-0.575)	0.880 (0.731-1.07)	1.41 (1.17-1.72)	1.84 (1.51-2.26)	2.42 (1.92-3.07)	2.86 (2.22-3.71)	3.31 (2.51-4.40)	3.77 (2.78-5.16)	4.39 (3.10-6.26)	4.86 (3.32-7.20)
12-hr	0.535 (0.445-0.650)	0.998 (0.829-1.21)	1.61 (1.33-1.96)	2.11 (1.73-2.59)	2.79 (2.22-3.55)	3.32 (2.58-4.32)	3.86 (2.93-5.15)	4.43 (3.26-6.06)	5.19 (3.67-7.42)	5.80 (3.96-8.57)
24-hr	0.622 (0.549-0.720)	1.15 (1.01-1.33)	1.86 (1.63-2.15)	2.44 (2.13-2.86)	3.26 (2.76-3.93)	3.90 (3.25-4.79)	4.57 (3.72-5.73)	5.27 (4.18-6.77)	6.24 (4.77-8.32)	7.01 (5.19-9.64)
2-day	0.720 (0.635-0.833)	1.31 (1.16-1.52)	2.10 (1.85-2.44)	2.76 (2.41-3.23)	3.67 (3.11-4.42)	4.39 (3.65-5.39)	5.14 (4.18-6.44)	5.92 (4.70-7.61)	7.01 (5.36-9.35)	7.88 (5.84-10.8)
3-day	0.780 (0.688-0.902)	1.40 (1.23-1.62)	2.23 (1.96-2.59)	2.92 (2.55-3.42)	3.89 (3.29-4.68)	4.64 (3.86-5.70)	5.43 (4.42-6.80)	6.25 (4.96-8.04)	7.40 (5.66-9.87)	8.30 (6.16-11.4)
4-day	0.825 (0.727-0.954)	1.46 (1.29-1.70)	2.32 (2.04-2.69)	3.03 (2.65-3.55)	4.03 (3.41-4.85)	4.81 (4.00-5.90)	5.62 (4.58-7.05)	6.48 (5.14-8.33)	7.67 (5.87-10.2)	8.62 (6.39-11.9)
7-day	0.903 (0.796-1.04)	1.55 (1.37-1.80)	2.42 (2.13-2.82)	3.16 (2.76-3.70)	4.20 (3.56-5.05)	5.02 (4.18-6.16)	5.88 (4.79-7.38)	6.80 (5.40-8.74)	8.09 (6.19-10.8)	9.13 (6.77-12.6)
10-day	0.941 (0.830-1.09)	1.58 (1.40-1.84)	2.46 (2.16-2.85)	3.19 (2.78-3.73)	4.22 (3.58-5.09)	5.06 (4.20-6.20)	5.93 (4.82-7.43)	6.86 (5.44-8.82)	8.17 (6.25-10.9)	9.24 (6.85-12.7)
20-day	1.07 (0.943-1.24)	1.75 (1.54-2.03)	2.67 (2.35-3.10)	3.44 (3.00-4.02)	4.51 (3.83-5.44)	5.37 (4.47-6.59)	6.27 (5.10-7.86)	7.23 (5.74-9.29)	8.58 (6.56-11.4)	9.67 (7.17-13.3)
30-day	1.19 (1.05-1.37)	1.92 (1.70-2.23)	2.90 (2.55-3.37)	3.71 (3.24-4.34)	4.84 (4.10-5.83)	5.73 (4.76-7.03)	6.66 (5.42-8.35)	7.64 (6.06-9.82)	9.03 (6.90-12.0)	10.1 (7.52-14.0)
45-day	1.33 (1.17-1.54)	2.14 (1.89-2.48)	3.20 (2.81-3.71)	4.06 (3.54-4.75)	5.24 (4.44-6.31)	6.15 (5.12-7.55)	7.10 (5.78-8.90)	8.10 (6.43-10.4)	9.50 (7.26-12.7)	10.6 (7.88-14.6)
60-day	1.49 (1.32-1.72)	2.39 (2.11-2.77)	3.56 (3.13-4.13)	4.49 (3.92-5.26)	5.76 (4.88-6.93)	6.73 (5.59-8.25)	7.71 (6.28-9.67)	8.76 (6.95-11.3)	10.2 (7.79-13.6)	11.3 (8.41-15.6)
¹ Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS). Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values. Please refer to NOAA Atlas 14 document for more information.										

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PF graphical



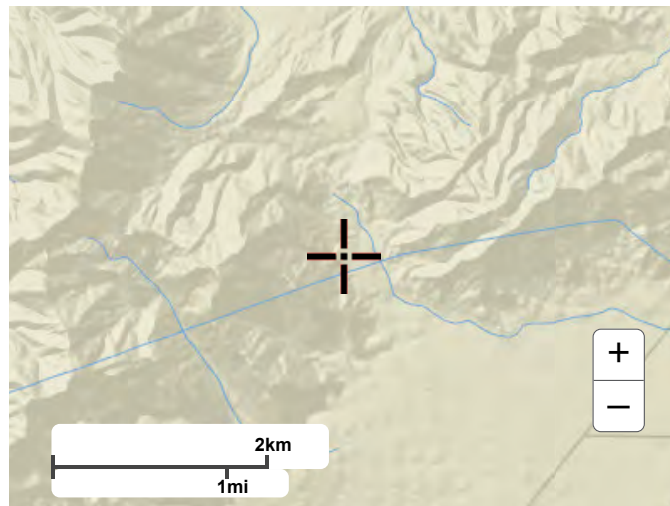
NOAA Atlas 14, Volume 6, Version 2

Created (GMT): Fri May 27 16:12:07 2022

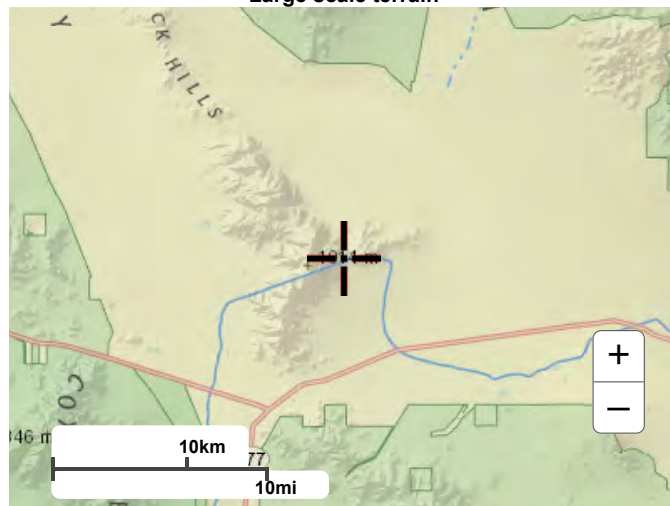
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Maps & aerals

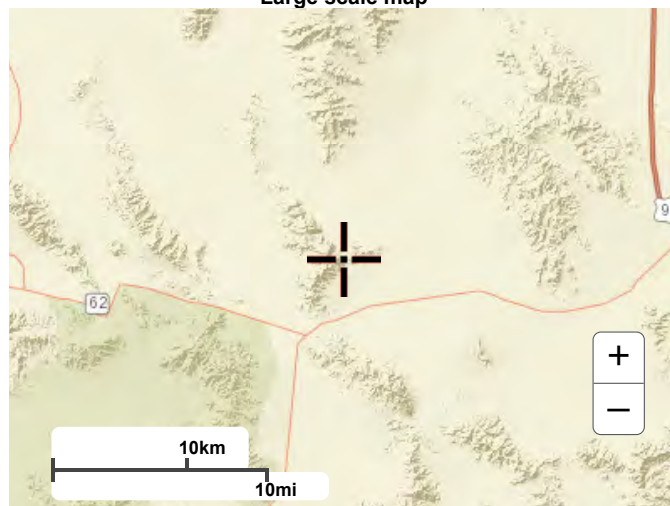
Small scale terrain



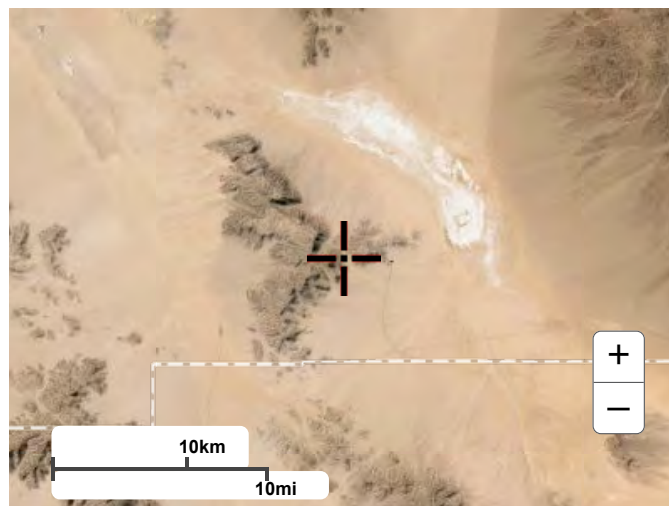
Large scale terrain



Large scale map

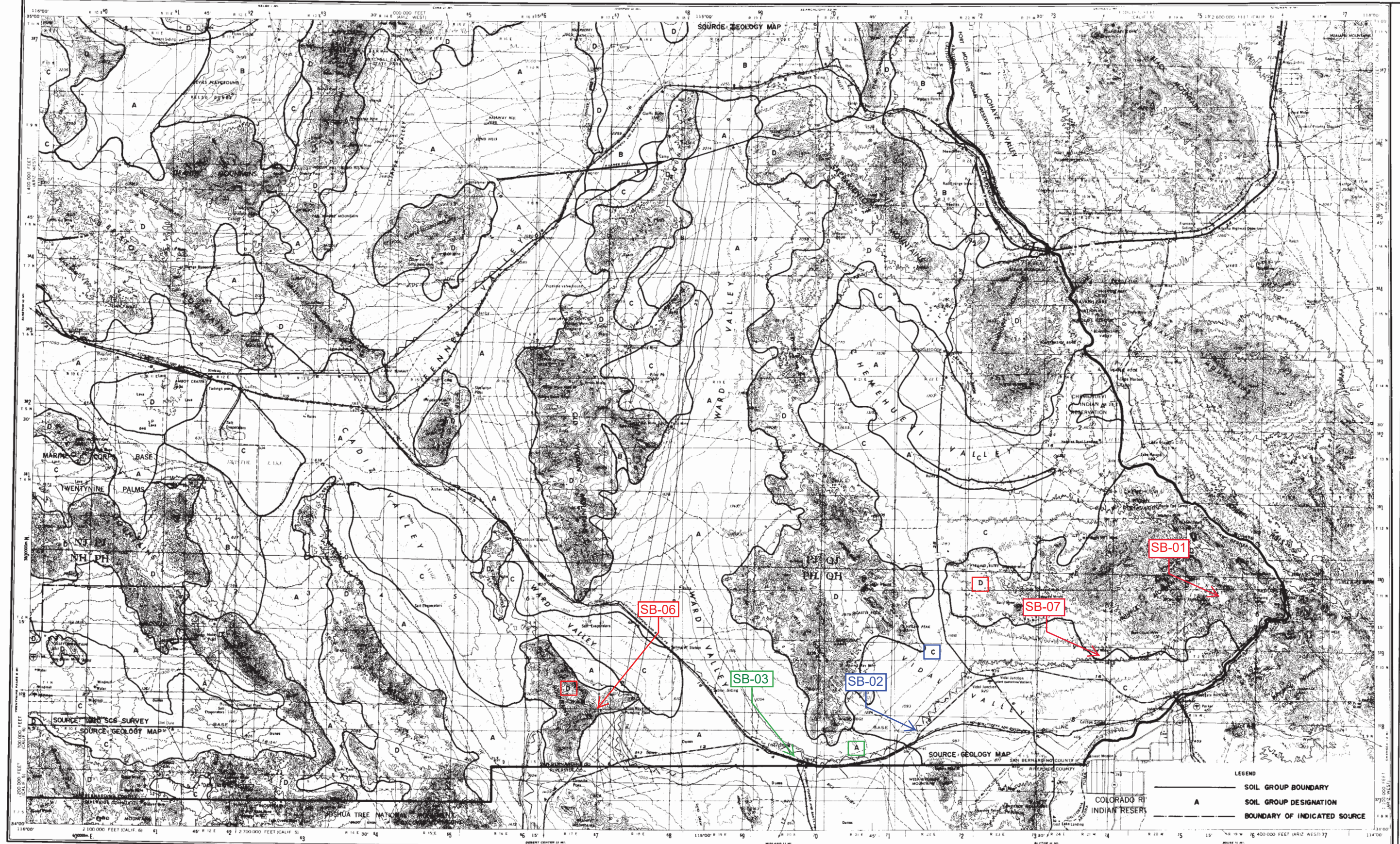


Large scale aerial

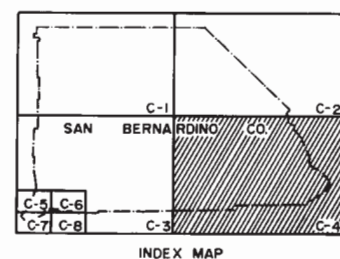
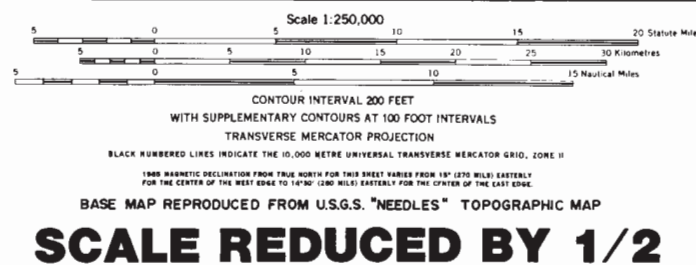
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SAN BERNARDINO COUNTY **HYDROLOGY MANUAL**



LOCATION DIAGRAM

NEVADA	ARIZONA	UTAH	NEW MEXICO
NO. 11-10	NO. 11-11	NO. 11-12	NO. 11-13
NO. 11-14	NO. 11-15	NO. 11-16	NO. 11-17
NO. 11-18	NO. 11-19	NO. 11-20	NO. 11-21
NO. 11-22	NO. 11-23	NO. 11-24	NO. 11-25
NO. 11-26	NO. 11-27	NO. 11-28	NO. 11-29
NO. 11-30	NO. 11-31	NO. 11-32	NO. 11-33
NO. 11-34	NO. 11-35	NO. 11-36	NO. 11-37
NO. 11-38	NO. 11-39	NO. 11-40	NO. 11-41
NO. 11-42	NO. 11-43	NO. 11-44	NO. 11-45
NO. 11-46	NO. 11-47	NO. 11-48	NO. 11-49
NO. 11-50	NO. 11-51	NO. 11-52	NO. 11-53
NO. 11-54	NO. 11-55	NO. 11-56	NO. 11-57
NO. 11-58	NO. 11-59	NO. 11-60	NO. 11-61
NO. 11-62	NO. 11-63	NO. 11-64	NO. 11-65
NO. 11-66	NO. 11-67	NO. 11-68	NO. 11-69
NO. 11-70	NO. 11-71	NO. 11-72	NO. 11-73
NO. 11-74	NO. 11-75	NO. 11-76	NO. 11-77
NO. 11-78	NO. 11-79	NO. 11-80	NO. 11-81
NO. 11-82	NO. 11-83	NO. 11-84	NO. 11-85
NO. 11-86	NO. 11-87	NO. 11-88	NO. 11-89
NO. 11-90	NO. 11-91	NO. 11-92	NO. 11-93
NO. 11-94	NO. 11-95	NO. 11-96	NO. 11-97
NO. 11-98	NO. 11-99	NO. 11-100	NO. 11-101

HYDROLOGIC SOILS GROUP MAP **FOR** **SOUTHEAST AREA**



United States
Department of
Agriculture

NRCS

Natural
Resources
Conservation
Service

A product of the National
Cooperative Soil Survey,
a joint effort of the United
States Department of
Agriculture and other
Federal agencies, State
agencies including the
Agricultural Experiment
Stations, and local
participants

Custom Soil Resource Report for **Colorado Desert Area, California**

RV01 Soil Areas



June 18, 2022

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (<http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<https://offices.sc.egov.usda.gov/locator/app?agency=nrcs>) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

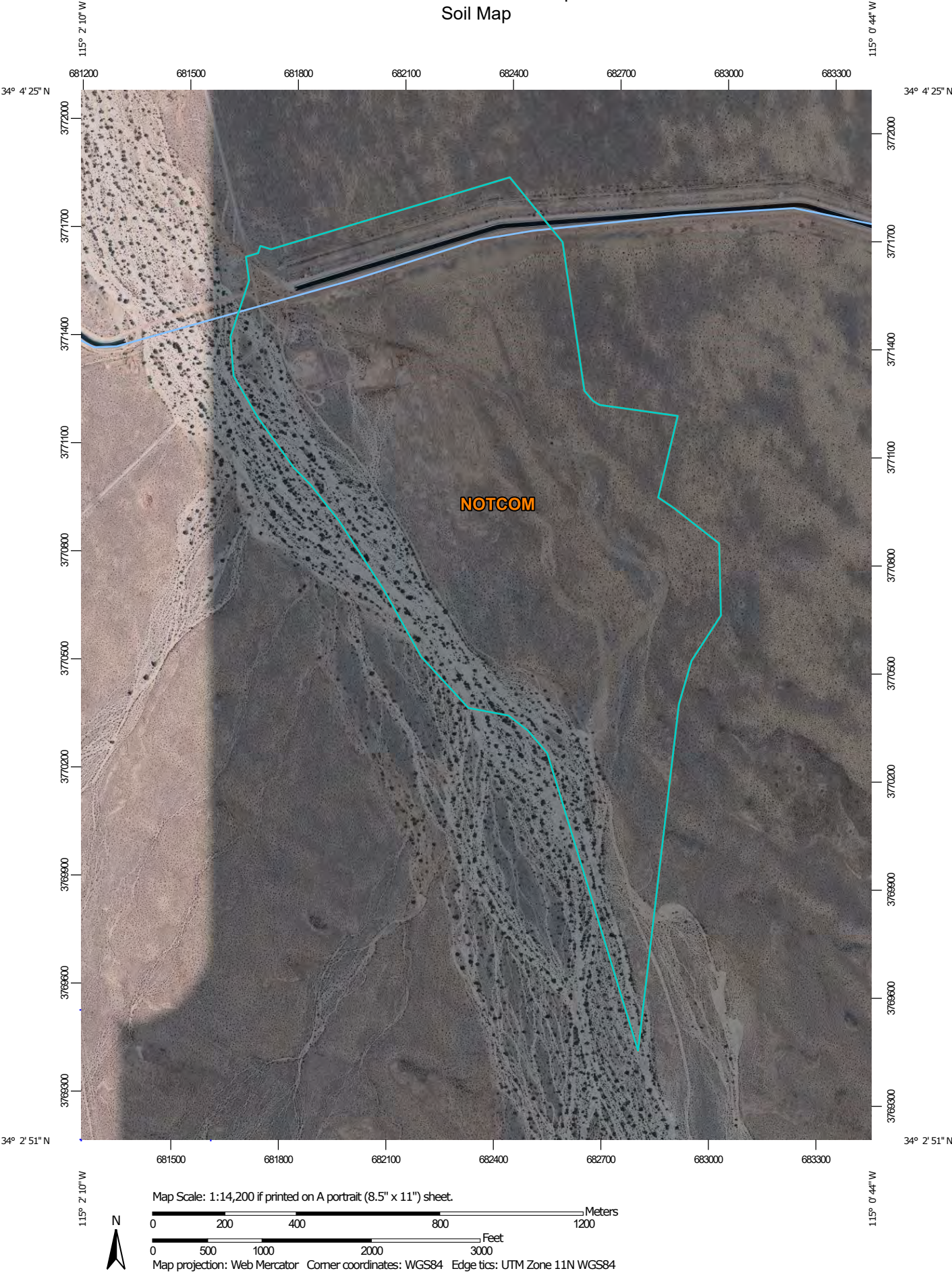
Custom Soil Resource Report

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map



MAP LEGEND

	Area of Interest (AOI)		Spoil Area
	Area of Interest (AOI)		Stony Spot
Soils			Very Stony Spot
	Soil Map Unit Polygons		Wet Spot
	Soil Map Unit Lines		Other
	Soil Map Unit Points		Special Line Features
Special Point Features		Water Features	
	Blowout		Streams and Canals
	Borrow Pit	Transportation	
	Clay Spot		Rails
	Closed Depression		Interstate Highways
	Gravel Pit		US Routes
	Gravelly Spot		Major Roads
	Landfill		Local Roads
	Lava Flow		Aerial Photography
	Marsh or swamp		
	Mine or Quarry		
	Miscellaneous Water		
	Perennial Water		
	Rock Outcrop		
	Saline Spot		
	Sandy Spot		
	Severely Eroded Spot		
	Sinkhole		
	Slide or Slip		
	Sodic Spot		

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Colorado Desert Area, California
Survey Area Data: Version 9, Sep 13, 2021

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: May 23, 2020—Jun 4, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
NOTCOM	No Digital Data Available	363.6	100.0%
Totals for Area of Interest		363.6	100.0%

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Custom Soil Resource Report

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Colorado Desert Area, California

NOTCOM—No Digital Data Available

Map Unit Composition

Notcom: 100 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Notcom

Properties and qualities

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Custom Soil Resource Report

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participants

Custom Soil Resource Report for Colorado Desert Area, California

RV05 Soil Areas



May 8, 2022

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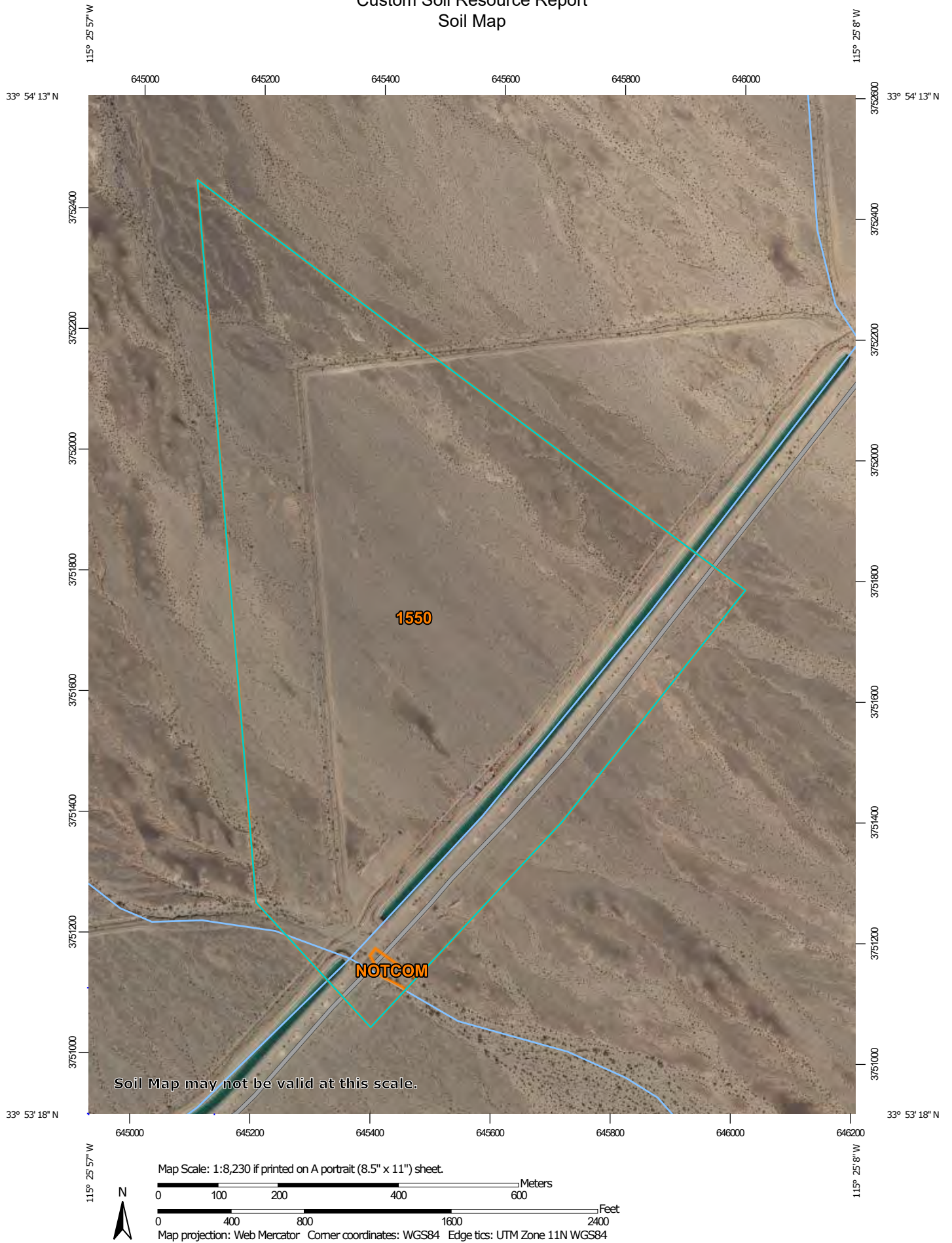
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identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report Soil Map



MAP LEGEND

	Area of Interest (AOI)		Spoil Area
	Area of Interest (AOI)		Stony Spot
Soils			Very Stony Spot
	Soil Map Unit Polygons		Wet Spot
	Soil Map Unit Lines		Other
	Soil Map Unit Points		Special Line Features
Special Point Features		Water Features	
	Blowout		Streams and Canals
	Borrow Pit	Transportation	
	Clay Spot		Rails
	Closed Depression		Interstate Highways
	Gravel Pit		US Routes
	Gravelly Spot		Major Roads
	Landfill		Local Roads
	Lava Flow		Aerial Photography
	Marsh or swamp		
	Mine or Quarry		
	Miscellaneous Water		
	Perennial Water		
	Rock Outcrop		
	Saline Spot		
	Sandy Spot		
	Severely Eroded Spot		
	Sinkhole		
	Slide or Slip		
	Sodic Spot		

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Colorado Desert Area, California
Survey Area Data: Version 9, Sep 13, 2021

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Feb 6, 2021—May 29, 2021

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
1550	Buzzardsprings-Coxpin-Dalelake complex, 2 to 8 percent slopes	162.1	99.7%
NOTCOM	No Digital Data Available	0.5	0.3%
Totals for Area of Interest		162.6	100.0%

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however,

Custom Soil Resource Report

onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Colorado Desert Area, California

1550—Buzzardsprings-Coxpin-Dalelake complex, 2 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2qb0p
Elevation: 950 to 1,570 feet
Mean annual precipitation: 3 to 5 inches
Mean annual air temperature: 68 to 73 degrees F
Frost-free period: 300 to 340 days
Farmland classification: Not prime farmland

Map Unit Composition

Buzzardsprings, stable, and similar soils: 35 percent
Coxpin and similar soils: 25 percent
Dalelake and similar soils: 20 percent
Minor components: 20 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Buzzardsprings, Stable

Setting

Landform: Fan remnants
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from igneous rock

Typical profile

A - 0 to 3 inches: fine sandy loam
2Bkq - 3 to 25 inches: gravelly loamy sand
2Ckq - 25 to 59 inches: gravelly sand

Properties and qualities

Slope: 2 to 4 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): High (2.83 to 9.92 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 10 percent
Available water supply, 0 to 60 inches: Low (about 3.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: A
Ecological site: R030XY002CA - Desert Pavement
Hydric soil rating: No

Description of Coxpin

Setting

Landform: Fan remnants
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Alluvium derived from igneous rock

Typical profile

A - 0 to 1 inches: loamy fine sand
Bw - 1 to 10 inches: gravelly sandy loam
Bk - 10 to 17 inches: gravelly loamy sand
Bkq - 17 to 22 inches: cemented sand
Ck - 22 to 59 inches: sand

Properties and qualities

Slope: 2 to 8 percent
Surface area covered with cobbles, stones or boulders: 0.0 percent
Depth to restrictive feature: 14 to 20 inches to duripan
Drainage class: Somewhat excessively drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately low (0.01 to 0.14 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Maximum salinity: Nonsaline (0.0 to 1.5 mmhos/cm)
Sodium adsorption ratio, maximum: 2.0
Available water supply, 0 to 60 inches: Very low (about 1.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: D
Ecological site: R030XD042CA - Hyperthermic Shallow To Moderately Deep Fan Remnants
Hydric soil rating: No

Description of Dalelake

Setting

Landform: Sand sheets
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Eolian deposits derived from igneous rock

Typical profile

A - 0 to 4 inches: fine sand
C - 4 to 59 inches: fine sand

Properties and qualities

Slope: 2 to 8 percent

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Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): High to very high (7.09 to 14.17 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 4.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: A
Ecological site: R030XD025CA - Hyperthermic Sandsheets
Hydric soil rating: No

Minor Components

Perurose, rarely flooded

Percent of map unit: 10 percent
Landform: Sand sheets on fan remnants
Landform position (two-dimensional): Backslope, shoulder
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R030XD015CA - Hyper-Arid Fans
Hydric soil rating: No

Pintobasin, stable

Percent of map unit: 8 percent
Landform: Fan aprons
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R030XY002CA - Desert Pavement
Hydric soil rating: No

Missionwell

Percent of map unit: 2 percent
Landform: Hills
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R030XD003CA - Hyperthermic Steep South Slopes
Hydric soil rating: No

NOTCOM—No Digital Data Available

Map Unit Composition

Notcom: 100 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Notcom

Properties and qualities

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United States
Department of
Agriculture

NRCS

Natural
Resources
Conservation
Service

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Agriculture and other
Federal agencies, State
agencies including the
Agricultural Experiment
Stations, and local
participants

Custom Soil Resource Report for **Colorado Desert Area, California**

RV06 Soil Areas



May 8, 2022

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (<http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<https://offices.sc.egov.usda.gov/locator/app?agency=nrcs>) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

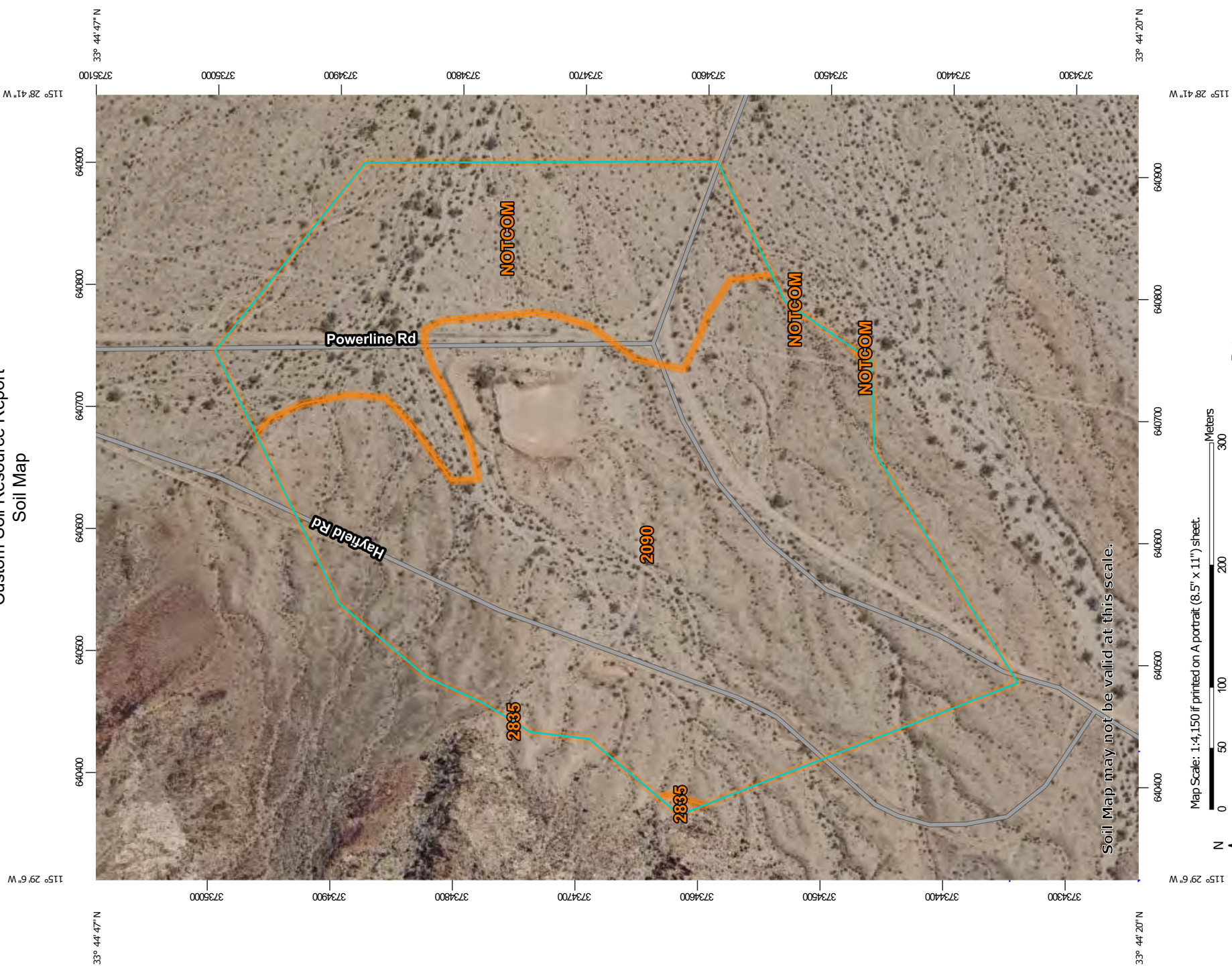
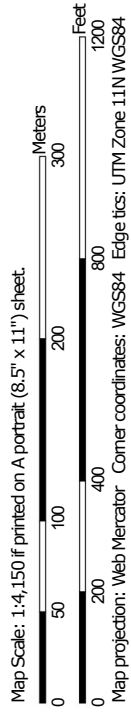
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identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

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Soil Map



MAP LEGEND

	Area of Interest (AOI)		Spoil Area
	Area of Interest (AOI)		Stony Spot
Soils			Very Stony Spot
	Soil Map Unit Polygons		Wet Spot
	Soil Map Unit Lines		Other
	Soil Map Unit Points		Special Line Features
Special Point Features		Water Features	
	Blowout		Streams and Canals
	Borrow Pit	Transportation	
	Clay Spot		Rails
	Closed Depression		Interstate Highways
	Gravel Pit		US Routes
	Gravelly Spot		Major Roads
	Landfill		Local Roads
	Lava Flow		Background
	Marsh or swamp		Aerial Photography
	Mine or Quarry		
	Miscellaneous Water		
	Perennial Water		
	Rock Outcrop		
	Saline Spot		
	Sandy Spot		
	Severely Eroded Spot		
	Sinkhole		
	Slide or Slip		
	Sodic Spot		

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Colorado Desert Area, California
Survey Area Data: Version 9, Sep 13, 2021

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Feb 6, 2021—May 29, 2021

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
2090	Deprave-Rockhound-Rizzo complex, 2 to 4 percent slopes	39.6	71.8%
2835	Rock outcrop-Blackeagle complex, 30 to 75 percent slopes	0.1	0.1%
NOTCOM	No Digital Data Available	15.5	28.0%
Totals for Area of Interest		55.1	100.0%

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or

landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Colorado Desert Area, California

2090—Deprave-Rockhound-Rizzo complex, 2 to 4 percent slopes

Map Unit Setting

National map unit symbol: 2qb11
Elevation: 920 to 1,720 feet
Mean annual precipitation: 2 to 4 inches
Mean annual air temperature: 73 to 79 degrees F
Frost-free period: 360 to 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Deprave and similar soils: 35 percent
Rockhound and similar soils: 25 percent
Rizzo and similar soils: 20 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Deprave

Setting

Landform: Fan remnants
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Alluvium derived from granitoid and/or gneiss

Typical profile

C - 0 to 2 inches: gravel
A - 2 to 4 inches: gravelly loam
Btk - 4 to 15 inches: very gravelly sandy clay loam
Bq - 15 to 39 inches: very gravelly loamy sand
Bkqm - 39 to 63 inches: very gravelly sand, cemented

Properties and qualities

Slope: 2 to 4 percent
Surface area covered with cobbles, stones or boulders: 1.0 percent
Depth to restrictive feature: 20 to 39 inches to duripan
Drainage class: Well drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.14 to 1.42 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Available water supply, 0 to 60 inches: Very low (about 2.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: C
Ecological site: R031XY002CA - Desert Pavement 2-4" p.z.

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Hydric soil rating: No

Description of Rockhound

Setting

Landform: Fan remnants

Landform position (two-dimensional): Summit

Landform position (three-dimensional): Interfluve

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Alluvium derived from granitoid and/or gneiss

Typical profile

C - 0 to 2 inches: gravel

A - 2 to 4 inches: very gravelly loam

Bk - 4 to 7 inches: very gravelly loam

Btq1 - 7 to 17 inches: gravelly loam

Btq2 - 17 to 34 inches: extremely gravelly sandy clay loam

Bkq - 34 to 59 inches: very gravelly sandy loam

Properties and qualities

Slope: 2 to 4 percent

Surface area covered with cobbles, stones or boulders: 1.0 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Runoff class: Very low

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.14 to 1.42 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Calcium carbonate, maximum content: 10 percent

Available water supply, 0 to 60 inches: Low (about 4.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 7s

Hydrologic Soil Group: B

Ecological site: R031XY002CA - Desert Pavement 2-4" p.z.

Hydric soil rating: No

Description of Rizzo

Setting

Landform: Fan aprons

Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Tread

Down-slope shape: Linear

Across-slope shape: Convex

Parent material: Alluvium derived from granitoid and/or gneiss

Typical profile

A - 0 to 1 inches: extremely cobbly sandy loam

C1 - 1 to 9 inches: very gravelly loamy coarse sand

C2 - 9 to 19 inches: very gravelly loamy coarse sand

Ck - 19 to 59 inches: very gravelly coarse sand

Properties and qualities

Slope: 2 to 4 percent
Surface area covered with cobbles, stones or boulders: 10.0 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): High (2.83 to 9.92 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Very low (about 1.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: A
Ecological site: R031XY009CA - Gravelly Fan Remnants And Fan Aprons
Hydric soil rating: No

Minor Components

Roostertail, stable

Percent of map unit: 10 percent
Landform: Fan remnants
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R031XY002CA - Desert Pavement 2-4" p.z.
Hydric soil rating: No

Rizzo, frequently flooded

Percent of map unit: 3 percent
Landform: Drainageways
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Concave
Ecological site: R031XY026CA - Large, High Intensity, Frequently Flooded Ephemeral Stream
Hydric soil rating: No

Rizzo, occasionally flooded, rocky surface

Percent of map unit: 3 percent
Landform: Inset fans
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R031XY021CA - Very Gravelly Wash
Hydric soil rating: No

Kenalduma

Percent of map unit: 2 percent
Landform: Fan remnants

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Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R031XY201CA - Cobbly Fan Remnants
Hydric soil rating: No

Deprave, moderately steep

Percent of map unit: 2 percent
Landform: Fan remnants
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R031XY004CA - Hyper-Arid Hill 2-4" p.z.
Hydric soil rating: No

2835—Rock outcrop-Blackeagle complex, 30 to 75 percent slopes

Map Unit Setting

National map unit symbol: 2n823
Elevation: 1,120 to 3,970 feet
Mean annual precipitation: 2 to 7 inches
Mean annual air temperature: 63 to 79 degrees F
Frost-free period: 270 to 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Rock outcrop: 41 percent
Blackeagle and similar soils: 40 percent
Minor components: 19 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Rock Outcrop

Setting

Landform: Mountains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Lower third of mountainflank
Down-slope shape: Linear
Across-slope shape: Convex

Description of Blackeagle

Setting

Landform: Mountains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Lower third of mountainflank

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Down-slope shape: Linear

Across-slope shape: Convex

Parent material: Colluvium over residuum derived from granitoid

Typical profile

C - 0 to 5 inches: gravel

A - 5 to 7 inches: very gravelly fine sandy loam

Bk - 7 to 17 inches: very gravelly fine sandy loam

R - 17 to 27 inches: bedrock

Properties and qualities

Slope: 30 to 75 percent

Surface area covered with cobbles, stones or boulders: 1.0 percent

Depth to restrictive feature: 14 to 20 inches to lithic bedrock

Drainage class: Somewhat excessively drained

Runoff class: Very high

Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.13 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Calcium carbonate, maximum content: 3 percent

Available water supply, 0 to 60 inches: Very low (about 1.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 8

Hydrologic Soil Group: D

Ecological site: R030XD003CA - Hyperthermic Steep South Slopes

Hydric soil rating: No

Minor Components

Supplymine

Percent of map unit: 10 percent

Landform: Mountains

Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Mountainflank

Down-slope shape: Linear

Across-slope shape: Convex

Ecological site: R030XD003CA - Hyperthermic Steep South Slopes

Hydric soil rating: No

Rizzo, extremely stony

Percent of map unit: 4 percent

Landform: Fan remnants

Landform position (two-dimensional): Summit

Landform position (three-dimensional): Interfluve

Down-slope shape: Convex

Across-slope shape: Convex

Ecological site: R031XY030CA - Extremely Stony Fan Remnants

Hydric soil rating: No

Rubbleland

Percent of map unit: 2 percent

Aguilareal

Percent of map unit: 2 percent

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Landform: Mountains

Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Center third of mountainflank

Down-slope shape: Linear

Across-slope shape: Convex

Ecological site: R030XB172CA - Warm Gravelly Shallow Hills

Hydric soil rating: No

Rizzo, frequently flooded

Percent of map unit: 1 percent

Landform: Channels

Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Tread

Down-slope shape: Linear

Across-slope shape: Concave

Ecological site: R031XY034CA - Gravelly, Braided, Ephemeral Stream

Hydric soil rating: No

NOTCOM—No Digital Data Available

Map Unit Composition

Notcom: 100 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Notcom

Properties and qualities

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Natural
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participants

Custom Soil Resource Report for Colorado Desert Area, California

RV07 Soil Areas



May 8, 2022

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (<http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<https://offices.sc.egov.usda.gov/locator/app?agency=nrcs>) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

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identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report Soil Map



MAP LEGEND

	Area of Interest (AOI)		Spoil Area
	Area of Interest (AOI)		Stony Spot
Soils			Very Stony Spot
	Soil Map Unit Polygons		Wet Spot
	Soil Map Unit Lines		Other
	Soil Map Unit Points		Special Line Features
Special Point Features		Water Features	
	Blowout		Streams and Canals
	Borrow Pit	Transportation	
	Clay Spot		Rails
	Closed Depression		Interstate Highways
	Gravel Pit		US Routes
	Gravelly Spot		Major Roads
	Landfill		Local Roads
	Lava Flow		Background
	Marsh or swamp		Aerial Photography
	Mine or Quarry		
	Miscellaneous Water		
	Perennial Water		
	Rock Outcrop		
	Saline Spot		
	Sandy Spot		
	Severely Eroded Spot		
	Sinkhole		
	Slide or Slip		
	Sodic Spot		

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Colorado Desert Area, California
Survey Area Data: Version 9, Sep 13, 2021

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Feb 6, 2021—May 29, 2021

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
2440	Rizzo complex, 8 to 15 percent slopes	33.3	49.9%
2835	Rock outcrop-Blackeagle complex, 30 to 75 percent slopes	15.3	22.9%
NOTCOM	No Digital Data Available	18.1	27.2%
Totals for Area of Interest		66.7	100.0%

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or

landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Colorado Desert Area, California

2440—Rizzo complex, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: 2pz5q
Elevation: 1,230 to 2,230 feet
Mean annual precipitation: 2 to 4 inches
Mean annual air temperature: 73 to 79 degrees F
Frost-free period: 360 to 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Rizzo and similar soils: 35 percent
Rizzo, occasionally flooded, and similar soils: 30 percent
Rizzo, extremely stony, and similar soils: 15 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Rizzo

Setting

Landform: Fan aprons
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Alluvium derived from igneous rock

Typical profile

A - 0 to 1 inches: gravelly loamy fine sand
C1 - 1 to 4 inches: gravelly coarse sand
C2 - 4 to 12 inches: very gravelly loamy coarse sand
C3 - 12 to 59 inches: very gravelly coarse sand

Properties and qualities

Slope: 8 to 15 percent
Surface area covered with cobbles, stones or boulders: 10.0 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): High to very high (7.09 to 14.17 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Very low (about 1.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: A
Ecological site: R031XY009CA - Gravelly Fan Remnants And Fan Aprons
Hydric soil rating: No

Description of Rizzo, Occasionally Flooded

Setting

Landform: Drainageways
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Concave
Parent material: Alluvium derived from igneous rock

Typical profile

A - 0 to 1 inches: extremely gravelly coarse sand
C1 - 1 to 4 inches: gravelly coarse sand
C2 - 4 to 12 inches: very gravelly loamy coarse sand
C3 - 12 to 59 inches: very gravelly coarse sand

Properties and qualities

Slope: 8 to 15 percent
Surface area covered with cobbles, stones or boulders: 10.0 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): High to very high (7.09 to 14.17 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: NoneOccasional
Frequency of ponding: None
Available water supply, 0 to 60 inches: Very low (about 1.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: A
Ecological site: R031XY034CA - Gravelly, Braided, Ephemeral Stream
Hydric soil rating: No

Description of Rizzo, Extremely Stony

Setting

Landform: Fan remnants
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Alluvium derived from igneous rock

Typical profile

A - 0 to 1 inches: extremely cobbly sandy loam
C1 - 1 to 9 inches: very gravelly loamy coarse sand
C2 - 9 to 19 inches: very gravelly loamy coarse sand
Ck - 19 to 59 inches: very gravelly coarse sand

Properties and qualities

Slope: 8 to 15 percent
Surface area covered with cobbles, stones or boulders: 10.0 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained

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Runoff class: Low

Capacity of the most limiting layer to transmit water (Ksat): High (2.83 to 9.92 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Available water supply, 0 to 60 inches: Very low (about 1.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 7e

Hydrologic Soil Group: A

Ecological site: R031XY030CA - Extremely Stony Fan Remnants

Hydric soil rating: No

Minor Components

Rizzo, steep

Percent of map unit: 10 percent

Landform: Alluvial fans

Landform position (two-dimensional): Shoulder

Landform position (three-dimensional): Tread

Down-slope shape: Linear

Across-slope shape: Convex

Ecological site: R031XY001CA - Limy Hill 4-6" p.z.

Hydric soil rating: No

Rizzo, frequently flooded

Percent of map unit: 10 percent

Landform: Channels

Landform position (two-dimensional): Shoulder

Landform position (three-dimensional): Tread

Down-slope shape: Linear

Across-slope shape: Concave

Ecological site: R031XY029CA - Frequently Flooded, Confined Ephemeral Stream

Hydric soil rating: No

2835—Rock outcrop-Blackeagle complex, 30 to 75 percent slopes

Map Unit Setting

National map unit symbol: 2n823

Elevation: 1,120 to 3,970 feet

Mean annual precipitation: 2 to 7 inches

Mean annual air temperature: 63 to 79 degrees F

Frost-free period: 270 to 365 days

Farmland classification: Not prime farmland

Map Unit Composition

Rock outcrop: 41 percent

Blackeagle and similar soils: 40 percent

Minor components: 19 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Rock Outcrop

Setting

Landform: Mountains

Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Lower third of mountainflank

Down-slope shape: Linear

Across-slope shape: Convex

Description of Blackeagle

Setting

Landform: Mountains

Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Lower third of mountainflank

Down-slope shape: Linear

Across-slope shape: Convex

Parent material: Colluvium over residuum derived from granitoid

Typical profile

C - 0 to 5 inches: gravel

A - 5 to 7 inches: very gravelly fine sandy loam

Bk - 7 to 17 inches: very gravelly fine sandy loam

R - 17 to 27 inches: bedrock

Properties and qualities

Slope: 30 to 75 percent

Surface area covered with cobbles, stones or boulders: 1.0 percent

Depth to restrictive feature: 14 to 20 inches to lithic bedrock

Drainage class: Somewhat excessively drained

Runoff class: Very high

Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.13 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Calcium carbonate, maximum content: 3 percent

Available water supply, 0 to 60 inches: Very low (about 1.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 8

Hydrologic Soil Group: D

Ecological site: R030XD003CA - Hyperthermic Steep South Slopes

Hydric soil rating: No

Minor Components

Supplymine

Percent of map unit: 10 percent

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Landform: Mountains

Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Mountainflank

Down-slope shape: Linear

Across-slope shape: Convex

Ecological site: R030XD003CA - Hyperthermic Steep South Slopes

Hydric soil rating: No

Rizzo, extremely stony

Percent of map unit: 4 percent

Landform: Fan remnants

Landform position (two-dimensional): Summit

Landform position (three-dimensional): Interfluve

Down-slope shape: Convex

Across-slope shape: Convex

Ecological site: R031XY030CA - Extremely Stony Fan Remnants

Hydric soil rating: No

Rubbleland

Percent of map unit: 2 percent

Aguilareal

Percent of map unit: 2 percent

Landform: Mountains

Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Center third of mountainflank

Down-slope shape: Linear

Across-slope shape: Convex

Ecological site: R030XB172CA - Warm Gravelly Shallow Hills

Hydric soil rating: No

Rizzo, frequently flooded

Percent of map unit: 1 percent

Landform: Channels

Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Tread

Down-slope shape: Linear

Across-slope shape: Concave

Ecological site: R031XY034CA - Gravelly, Braided, Ephemeral Stream

Hydric soil rating: No

NOTCOM—No Digital Data Available

Map Unit Composition

Notcom: 100 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Notcom

Properties and qualities

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Appendix B

Borrow Site Numbering Convention Comparison Matrix

Borrow Site Numbering Convention Comparison Matrix

Borrow Site Name in Initial Study-Mitigated Negative Declaration	Borrow Site Name in Biological and Cultural Resources Technical Reports
SB-1	SB-1
SB-2	SB-10
SB-3	SB-2
SB-4	SB-3
SB-5	SB-5
SB-6	SB-7
SB-7	SB-8
SB-I-1	SB-4
SB-I-2	SB-6
SB-I-3	SB-9
RV-1	RV-2
RV-2	RV-3
RV-3	RV-5
RV-4	RV-6
RV-5	RV-7
RV-6	RV-8
RV-7	RV-9
RV-I-1	RV-1
RV-I-2	RV-4
RV-I-3	RV-10

Appendix C

Biological Resources Technical Report



Colorado River Aqueduct Master Reclamation Plan for San Bernardino and Riverside Counties

Biological Resources Assessment

prepared for

The Metropolitan Water District of Southern California

700 North Alameda Street
Los Angeles, California 90012

prepared by

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November 2021



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1 Introduction

Rincon Consultants, Inc. (Rincon) prepared this Biological Resources Assessment (BRA) report for The Metropolitan Water District of Southern California (Metropolitan) to document existing conditions and to evaluate the potential for impacts to biological resources during implementation of the Colorado River Aqueduct Master Reclamation Plan (MRP) for San Bernardino and Riverside Counties Project (Project), which includes reclamation activities at 20 borrow sites located along the Colorado River Aqueduct (CRA) in San Bernardino and Riverside counties. The 20 borrow sites, referred to herein as the Project Area, are locations where earthen materials, such as rock, sand, and gravel have been or are currently being extracted for maintenance of the CRA.

1.1 Project Description

1.1.1 Background

Metropolitan is a regional water wholesaler providing 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 and operates the 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 siphons, canals, conduits, and tunnels terminating at Lake Mathews in Riverside County, California. Figure 1 of Appendix D provides a regional overview of the Project Area.

In 1932, Metropolitan acquired fee ownership of the CRA right-of-way as well as additional land to be used for surface mining of stone, earth, gravel, sand, and other earthen materials needed to support the operations and maintenance of the CRA. Because the materials are taken from these sites for use at other areas associated with the CRA, they are referred to as “borrow sites.” There are 10 Metropolitan borrow sites in San Bernardino County and 10 Metropolitan borrow sites in Riverside County (see Figure 2 of Appendix D). Under California law, Metropolitan has a vested mining right for its fee-owned lands because federal legislation (June 18, 1932 Act, 47 Stat. 324; House Resolution 10048) authorized Metropolitan to extract materials to construct and continuously operate and maintain the CRA project and because Metropolitan initiated the surface mining operations prior to the establishment of land use zoning ordinances. With Metropolitan’s vested mining right, current and future surface mining operations at all of Metropolitan’s fee-owned lands, including the various borrow sites referenced in this report, are permitted by right.

The California Surface Mining and Reclamation Act (SMARA) requires surface mining operations to develop and implement a Reclamation Plan approved by the applicable SMARA lead agency, which is the State of California Mining and Geology Board for the proposed MRP. Because approval of reclamation plans constitutes a discretionary action by the SMARA lead agency(s), they are considered “projects” under the California Environmental Quality Act (CEQA). The reclamation of the 20 borrow sites is the Project being evaluated under CEQA with Metropolitan as the CEQA lead agency.

It is anticipated that operations and maintenance of the CRA would require the extraction of materials from the majority of the borrow sites for the next approximately 100 years. Material

depletion at these sites is anticipated to occur in 2121, at which time reclamation would commence. However, there are five borrow sites that are estimated to undergo reclamation within an estimated five years following approval of the MRP (estimated to occur in 2026); these are SB-4, SB-6, SB-9, RV-1, and RV-4.

1.1.2 Project Overview

The Project consists of an MRP covering the reclamation of the 20 borrow sites in San Bernardino and Riverside counties. The borrow sites are areas where earthen materials, such as rock, sand, and gravel have been or will be taken for CRA operations and maintenance activities. The majority of the sites lie in undeveloped isolated desert land, comprised of low-lying desert foothills and alluvial washes. The materials are extracted by typical surface mining techniques that include the use of off-road mobile equipment (e.g., dozers, loaders, excavators and graders). The sites may also have equipment storage, stockpiling of materials, and other auxiliary activities. As described above, surface mining activities must be reclaimed pursuant to SMARA requirements. Per SMARA, a reclamation plan that identifies the specific reclamation activities, final end use of the reclaimed site, and success criteria and monitoring/reporting must be prepared and approved by the SMARA lead agency (in this case, the State of California Mining and Geology Board).

Once extraction at the borrow sites is complete, the sites would be reclaimed in accordance with applicable MRP and related SMARA requirements under the proposed Project. Once vested surface mining operations are complete, the borrow sites would remain shallow excavation pits with various areas used for material stockpiles, equipment storage areas, and/or perimeter berms. When the sites are no longer needed to support the maintenance of the CRA and associated facilities, the sites would be fully reclaimed as revegetated open space.

Once reclamation commences, any unused equipment, deleterious materials (e.g., tailings, overburden, sediment, waste rock), and rubbish would be removed from the borrow site as needed. Other than the placement of nominal quantities of excavated material into the shallow borrow pits to ensure side slopes do not exceed 2H:1V (horizontal:vertical), or spreading of topsoil/subsoil to facilitate revegetation, no significant backfilling of the borrow pits will occur as part of site reclamation. For borrow sites where topsoil and subsoil were stored separately (i.e., in perimeter berms), these materials may be spread across the excavation areas to help facilitate revegetation efforts. Any remaining stockpiles of overburden or other natural materials (e.g., stone, sand) may also be knocked down and placed back in the pit to help achieve the final desired slope conditions. Additionally, existing stormwater control features (e.g., berms, earthen dikes) may be maintained or new features installed to control erosion at the borrow sites as needed post-reclamation. Water would be utilized for dust control during reclamation and to irrigate revegetated areas, if needed.

As discussed above, the final end use of Metropolitan's reclaimed borrow sites would be revegetated open space consistent with the surrounding environment. The proposed revegetation approach and methods for Metropolitan's borrow sites are consistent with standard industry practices. Specifically, the revegetation plan is based on the proposed final excavation pits, ranging from approximately 25-feet to 30-feet below ground surface, with undulating side slopes at a maximum gradient of 2:1 (H:V), for use as revegetated open space. Following completion of vested mining operations, the following typical sequence of revegetation activities will be undertaken at each borrow site:

- Re-contouring of planting areas, if necessary;
- Control of invasive weeds;

- Placement of topsoil and subsoil, if necessary;
- Installation of temporary irrigation systems, if necessary;
- Installation of erosion control devices, if necessary;
- Planting and seeding;
- Maintenance and monitoring; and
- Reporting.

The proposed revegetation seed mix for the borrow sites would include plant species native or common to the surrounding desert scrubland environment. It is estimated that a maximum of three Metropolitan employees would conduct reclamation operations on site at any given time.

Revegetation activities will be conducted under the supervision of an experienced monitoring biologist. The monitoring biologist will work closely with Metropolitan's operations personnel to assure that revegetation is accomplished according to applicable plans (e.g., County requirements, the proposed MRP, etc.) and is consistent with proposed site end uses and the surrounding desert environment.

1.2 Project Location

There are 10 Metropolitan borrow sites located in unincorporated San Bernardino County and 10 Metropolitan borrow sites located in unincorporated Riverside County (see Table 1 and Table 2). All 20 borrow sites are considered to be the Project Area and are referred to as San Bernardino (SB) numbers 1 through 10 (SB-1 to SB-10) and Riverside (RV) numbers 1 through 10 (RV-1 to RV-10).

The Project Area encompasses a total of approximately 149.3 acres, comprised specifically of 79.8 acres in San Bernardino County and 69.5 acres in Riverside County, and is located along an approximately 125-mile stretch of the CRA adjacent to State Route (SR) 62, SR 177, and Interstate 10 (I-10). The Project Area is located in the southern Mojave Desert, extending from the Copper Basin Reservoir to the east to the Cottonwood Mountains near the Julian Hinds Pumping Plant to the southwest. Table 1 summarizes the Section, Township and Range, the United States Geological Survey (USGS) 7.5-minute topographic quadrangles, and the approximate site coordinates for each of the 20 borrow sites.

Table 1 Borrow Site Locations – San Bernardino and Riverside Counties

Borrow Site Name	USGS 7.5-Minute Topographic Quadrangle	Section/Township/Range	Approximate Coordinates
SB-1	Gene Wash, California (1959)	Section 3, Township 1 North, Range 26 East, San Bernardino Baseline and Meridian	Latitude: 34.29° W Longitude: 114.24° N
SB-2	Vidal NW, California (2018)	Section 5, Township 1 South, Range 22 East, San Bernardino Baseline and Meridian	Latitude: 34.12° W Longitude: 114.68° N
SB-3	Rice, California (1965)	Section 15, Township 1 South, Range 20 East, San Bernardino Baseline and Meridian	Latitude: 34.09° W Longitude: 114.87° N
SB-4	Arica Mountains, California (2012)	Section 12, Township 1 South, Range 19 East, San Bernardino Baseline and Meridian	Latitude: 34.10° W Longitude: 114.94° N
SB-5	Granite Pass, California (2018)	Section 16, Township 1 South, Range 18 East, San Bernardino Baseline and Meridian	Latitude: 34.08° W Longitude: 115.10° N

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Borrow Site Name	USGS 7.5-Minute Topographic Quadrangle	Section/Township/Range	Approximate Coordinates
SB-6	East of Granite Pass, California (2015)	Section 17, Township 1 South, Range 18 East, San Bernardino Baseline and Meridian	Latitude: 34.09° W Longitude: 115.12° N
SB-7	Granite Pass, California (2018)	Section 6, Township 1 South, Range 18 East, San Bernardino Baseline and Meridian	Latitude: 34.11° W Longitude: 115.13° N
SB-8	Iron Mountains, Arizona (1948)	Section 23, Township 1 South, Range 17 East, San Bernardino Baseline and Meridian	Latitude: 34.15° W Longitude: 115.16° N
SB-9	Cadiz Valley SE, California (1985)	Section 12, Township 1 South, Range 16 East, San Bernardino Baseline and Meridian	Latitude: 34.09° W Longitude: 115.26° N
SB-10	Parker NW, California (2012)	Section 2, Township 1 North, Range 24 East, San Bernardino Baseline and Meridian	Latitude: 34.21° W Longitude: 114.43° N
RV-1	East of Granite Pass, California (2015)	Section 19, Township 1 South, Range 19 East, San Bernardino Baseline and Meridian	Latitude: 34.07° W Longitude: 115.02° N
RV-2	East of Granite Pass, California (2015)	Section 19, Township 1 South, Range 19 East, San Bernardino Baseline and Meridian	Latitude: 34.07° W Longitude: 115.03° N
RV-3	East of Granite Pass, California (2015)	Section 22, Township 1 South, Range 18 East, San Bernardino Baseline and Meridian	Latitude: 34.08° W Longitude: 115.08° N
RV-4	Cadiz Valley SE, California (1985)	Section 23, Township 1 South, Range 16 East, San Bernardino Baseline and Meridian	Latitude: 34.07° W Longitude: 115.26° N
RV-5	Cadiz Valley SE, California (1985)	Section 13, Township 2 South, Range 16 East, San Bernardino Baseline and Meridian	Latitude: 33.99° W Longitude: 115.26° N
RV-6	Coxcomb Mountains, California (1987)	Section 22, Township 3 South, Range 16 East, San Bernardino Baseline and Meridian	Latitude: 33.90° W Longitude: 115.29° N
RV-7	Pinto Wells, California (2012)	Section 20, Township 3 South, Range 15 East, San Bernardino Baseline and Meridian	Latitude: 33.89° W Longitude: 115.43° N
RV-8	Desert Center, California (2018)	Section 12, Township 5 South, Range 14 East, San Bernardino Baseline and Meridian	Latitude: 33.74° W Longitude: 115.48° N
RV-9	Hayfield Spring, California (1986)	Section 20, Township 5 South, Range 13 East, San Bernardino Baseline and Meridian	Latitude: 33.70° W Longitude: 115.63° N
RV-10	Cottonwood Spring, California (2016)	Section 3, Township 6 South, Range 11 East, San Bernardino Baseline and Meridian	Latitude: 33.68° W Longitude: 115.83° N

Table 2 summarizes the Assessor's Parcel Numbers (APNs) and reclaimed end use for each of Metropolitan's 20 borrow sites.

Table 2 Borrow Site APNs and Acreages

Borrow Site	County Assessor's Parcel Number (APN)	Current Status	Reclaimed End Use	Size (acres)
SB-1	0661-181-04-0000	Active	Vegetated Open Space	4.6
SB-2	0646-201-02-0000 0646-201-03-0000 0646-211-15-0000	Active	Vegetated Open Space	10.7

Borrow Site	County Assessor's Parcel Number (APN)	Current Status	Reclaimed End Use	Size (acres)
SB-3	0646-091-09-0000 0646-101-02-0000	Active	Vegetated Open Space	12.3
SB-4	0646-081-07-0000	Inactive	Vegetated Open Space	2.7
SB-5	0646-011-07-0000	Active	Vegetated Open Space	4.3
SB-6	0646-021-14-0000	Inactive	Vegetated Open Space	1.5
SB-7	0646-021-01-0000 0646-021-12-0000	Active	Vegetated Open Space	6.7
SB-8	0643-221-07-0000 0643-221-21-0000	Active	Vegetated Open Space	14.2
SB-9	0643-171-07-0000	Inactive	Vegetated Open Space	1.8
SB-10	0647-321-05-0000 0647-331-17-0000	Active	Vegetated Open Space	21.0
				79.8
RV-1	800-130-019	Inactive	Vegetated Open Space	2.2
RV-2	800-130-019	Active	Vegetated Open Space	23.7
RV-3	800-120-004	Active	Vegetated Open Space	5.5
RV-4	800-021-008 800-021-010	Inactive	Vegetated Open Space	1.8
RV-5	800-040-033	Active	Vegetated Open Space	7.1
RV-6	800-101-044	Active	Vegetated Open Space	2.1
RV-7	800-090-029	Active	Vegetated Open Space	3.6
RV-8	811-020-023 811-020-028	Active	Vegetated Open Space	5.6
RV-9	705-230-031	Active	Vegetated Open Space	5.3
RV-10	715-080-001 715-080-002	Active	Vegetated Open Space	12.6
				69.5
				149.3

A total of 15 of the 20 borrow sites are active and would continue to provide materials to support Metropolitan's operations and maintenance activities. Sites SB-4, SB-6, and SB-9 in San Bernardino County and Sites RV-1 and RV-4 in Riverside County are currently inactive. Unless Metropolitan decides to restart operations at these locations, these five borrow sites would remain inactive, and reclamation would be complete in approximately five years from approval of the MRP (estimated during the second half of 2026). For the remainder of the borrow sites, extraction of materials would continue to occur until the material has depleted. Due to the infrequent use of materials from each site, the borrow sites are not expected to deplete for up to 100 years. Therefore, the MRP conservatively assumes material depletion at the majority of the borrow site locations would occur in 2121. Regardless of when a site is depleted of material, Metropolitan would fully reclaim all borrow sites in accordance with applicable SMARA performance standards as outlined in the MRP.

2 Regulatory Overview

Regulated or sensitive resources studied and analyzed herein include special status plant and wildlife species, nesting birds and raptors, sensitive plant communities, jurisdictional waters and wetlands, wildlife movement, and locally protected resources, such as protected trees.

2.1 Definition of Special Status Species

For the purposes of this report, special status species include:

- Species listed, proposed for listing, or candidates for listing as Threatened or Endangered under the federal Endangered Species Act (ESA);
- Species listed as Threatened, Endangered, or Rare by the California Department of Fish and Wildlife (CDFW) under the California Endangered Species Act (CESA) or the Native Plant Protection Act;
- Species designated as Fully Protected, Species of Special Concern, or Watch List by the California Fish and Game Code or CDFW;
- Species designated as locally important by the Local Agency and/or otherwise protected through ordinance or local policy such as the Coachella Valley Multiple Species Habitat Conservation Plan; and,
- Plants occurring in Ranks 1 and 2 of the California Native Plant Society's (CNPS) California Rare Plant Rank (CRPR) system (CNPS 2021).

2.2 Environmental Statutes

For this report, the analysis of potential impacts to biological resources was guided by the following statutes (Appendix A):

- California Environmental Quality Act (CEQA)
- Federal Endangered Species Act (ESA)
- California Endangered Species Act (CESA)
- Federal Clean Water Act (CWA)
- California Fish and Game Code (CFGF)
- Migratory Bird Treaty Act (MBTA)
- The Bald and Golden Eagle Protection Act
- Porter-Cologne Water Quality Control Act (Porter-Cologne Act)
- Coachella Valley Multiple Species Habitat Conservation Plan (CVMSHCP) [Coachella Valley Association of Governments (CVAG) 2007]
- Riverside County General Plan (County of Riverside 2020)
- San Bernardino County Policy Plan (County of San Bernardino 2020)

2.3 Guidelines for Determining CEQA Significance

The following threshold criteria, as defined by the CEQA Guidelines Initial Study Checklist, were used to evaluate potential environmental effects. Based on these criteria, the Project would have a significant effect on biological resources if it would:

- a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.
- b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.
- c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.
- d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.
- e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or 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.

3 Methodology

Biological conditions were evaluated by confirming applicable regulations, policies, and standards; reviewing biological literature and querying available databases pertinent to the Project Area and vicinity (within 5 miles for CDFW's California Natural Diversity Data Base [CNDDB] and 9 topographic quadrangles for CNPS); and conducting a reconnaissance-level biological survey of the Project Area and 500-foot survey buffer. This assessment provides the existing biological conditions of the Project Area at the time of the literature review and reconnaissance surveys. However, biological conditions of the Project Area are likely to change from their present conditions prior to implementation of Project activities (i.e., reclamation) due to both natural processes and current and future mining activities allowed under Metropolitan's vested mining right. The methods employed are described in detail below. The findings and opinions conveyed in this report are based on this methodology.

3.1 Literature Review

Prior to conducting the biological field survey for this BRA, Rincon reviewed a variety of literature to obtain baseline information about the biological resources with potential to occur at the Project Area and in the surrounding areas. Rincon conducted queries of several relevant databases that provide information about occurrences of special status biological resources:

- CDFW's CNDDB (CDFW 2021a)
- CDFW's Biogeographic Information and Observation System (BIOS) (CDFW 2021b)
- U.S. Fish and Wildlife Service's (USFWS) Critical Habitat Mapper (USFWS 2021a)
- USFWS' Information for Planning and Consultation (IPaC) query (USFWS 2021b)
- USFWS' National Wetlands Inventory (NWI) (USFWS 2021c)
- U.S. Department of Agriculture (USDA), Natural Resource Conservation Service's (NRCS) Web Soil Survey (NRCS 2021)
- Calflora's What Grows Here (Calflora 2021)
- California Native Plant Society's (CNPS) Online Inventory of Rare and Endangered Plants of California (CNPS 2021)
- CVMSHCP (CVAG 2007)

3.2 Reconnaissance Surveys

On June 29 and 30, 2020, Rincon biologist Megan Minter conducted a general biological reconnaissance survey of the Project Area and 500-foot survey buffer to document existing site conditions and the potential presence of sensitive biological resources, including sensitive plant and wildlife species, sensitive plant communities, jurisdictional waters and wetlands, and habitat for nesting birds. While a formal jurisdictional delineation was not performed, the locations of potentially jurisdictional waters and streambeds were mapped. The survey was performed by walking and driving throughout the Project Area to characterize biological resources (e.g., vegetative communities, potential presence of sensitive species and/or habitats, and presence of potentially jurisdictional waters). Weather conditions were sunny and clear with temperatures in

the 90s and 100s Fahrenheit (F) with variable winds ranging from 1 to 5 miles per hour. A follow-up survey was conducted on January 20, 2021 to survey the remaining portions of the Project Area that were not surveyed in June 2020. The January survey followed the same methodology as the June 2020 surveys detailed above. Weather conditions were sunny and clear with temperatures in the 60s and 70s F with variable winds ranging from 1 to 5 miles per hour.

Vegetation Community and Land Cover Mapping

Vegetation communities observed on-site were mapped on a site-specific aerial photograph. Vegetation was generally classified using the systems provided in the Preliminary Descriptions of the Terrestrial Communities of California (Holland 1986), and modified using A Manual of California Vegetation, Second Edition (MCV) (Sawyer et al. 2009) as necessary to reflect the existing site conditions). Sensitive plant communities were determined based on those listed by CDFW due to the rarity of the community in the state or throughout its entire range (CDFW 2021c).

Flora

All plant species observed in the Project Area were noted, and plants that could not be identified in the field were identified later using taxonomic keys. The reconnaissance surveys included a directed search for sensitive plants that would have been apparent at the time of the surveys. Floral nomenclature for native and non-native plants follows Baldwin et al. (2012) as updated by The Jepson Online Interchange (University of California Berkeley 2019). For ornamental plants, nomenclature follows USDA PLANTS Database (USDA 2021b), and Baldwin et al. (2012) and CNPS (2021) for special status plants.

Fauna

Animal species observed directly or detected from calls, tracks, scat, nests, or other signs were documented. Zoological nomenclature for birds is in accordance with the California Birds Records Committee (CBRC) *Official California Checklist* (CBRC 2021); for mammals is in accordance with *Mammals of California* (Wilson and Reeder 2005); and for amphibians and reptiles is in accordance with Society for the Study of Amphibians and Reptiles' (SSAR) *Checklist of the Standard English & Scientific Names of Amphibians & Reptiles* (SSAR 2017).

Jurisdictional Waters

Aerial imagery and the NWI (USFWS 2021c) were reviewed to identify potentially jurisdictional hydrologic features that may be considered waters of the state or waters of the United States, including streambeds under the jurisdiction of United States Army Corps of Engineers (USACE), Regional Water Quality Control Board (RWQCB), or CDFW. Features identified during the literature review were located and inspected in the field during the biological reconnaissance surveys for the inactive sites expected to be reclaimed within 5 years (SB-4, SB-6, SB-9, RV-1, and RV-4). While a formal jurisdictional delineation was not performed, the biologist mapped approximate limits of the tops of banks at the near-term sites with a Trimble Global Positioning System by walking the perimeter of significant potentially jurisdictional features within or immediately adjacent to the Project Area, based on topography and ordinary high water mark / flow indicators such as sediment sorting, benching, scour, and lack of vegetation. The approximate boundaries of significant, potentially jurisdictional waters for those borrow sites not to be reclaimed within 5 years and other significant features within the general vicinity of the Project Area were mapped based on a desktop analysis of aerial imagery. Smaller swale-like, potentially jurisdictional features which may be visible

from aerial imagery were not mapped as those features cannot be accurately assessed from a desktop analysis and should be verified in the field closer to the time of reclamation. Due to the long timeframe until implementation of Project reclamation activities for most sites (up to approximately 100 years), a formal jurisdictional waters delineation was not conducted as part of this assessment because conditions in the Project Area will likely change prior to implementation of reclamation activities in these locations.

Survey Limitations

The surveys were conducted during the summer and winter, outside of the typical blooming period for most of the common and special status plant species expected to occur in the Project Area. Similarly, overwintering species, spring migrants, and certain breeding birds with the potential to occur may not have been observed. Because the surveys were performed during the day, identification of nocturnal animals was limited to sign if present on-site. The potential presence of special status species is based on a literature review, existing site conditions, and general biological field surveys to assess habitat suitability. The surveys did not include focused protocol-level surveys for special status plant or animal species. Due to the long timeframe until implementation of Project reclamation activities for most sites (up to approximately 100 years), surveys were conducted to assess baseline existing conditions at the Project Area. Additional surveys would be conducted as appropriate prior to reclamation activities as conditions in the Project Area will likely change prior to implementation of reclamation activities in these locations.

3.3 Special Status Species Assessment

Rincon compiled a list of special status species previously documented within the vicinity of the Project Area. Specifically, a five-mile CNDDDB search and nine-quad CNPS query was conducted for each of the 20 borrow sites. Based on this database search, an analysis was conducted to determine which of the identified special status species have the potential to occur within the Project Area. The habitat requirements for each regionally occurring special status species were assessed and compared to the type and quality of habitats observed on-site during the biological reconnaissance surveys. Conclusions regarding which special status species have the potential to occur on-site were based not only on background research and literature review previously mentioned, but also on the data collected in the field during the reconnaissance surveys.

Local, state, and federal agencies regulate special status species and may require an assessment of their presence or potential presence to be conducted on-site prior to the approval of a proposed project on a property. Assessments for the potential occurrence of special status species are based upon known ranges, habitat preferences for the species, species occurrence records from the CNDDDB, species occurrence records from other sites near the Project Area, and previous reports for the Project Area. The potential for each special status species to occur in the Project Area was evaluated according to the following criteria:

- **No Potential.** Habitat on and adjacent to the Project Area is clearly unsuitable for the species requirements (foraging, breeding, cover, substrate, elevation, hydrology, plant community, site history, disturbance regime).
- **Low Potential.** Few of the habitat components meeting the species requirements are present, and/or the majority of habitat on and adjacent to the Project Area is unsuitable or of very poor quality. The species is not likely to be found in the Project Area.

- **Moderate Potential.** Some of the habitat components meeting the species requirements are present, and/or only some of the habitat within or adjacent to the Project Area is unsuitable. The species has a moderate probability of being found in the Project Area.
- **High Potential.** All of the habitat components meeting the species requirements are present and/or most of the habitat on or adjacent to the Project Area is highly suitable. The species has a high probability of being found in the Project Area.
- **Present.** Species is observed in the Project Area or has been recorded (e.g., CNDDDB, other reports) in the Project Area recently (within the last 5 years).

4 Existing Biological Conditions

This section summarizes the results of the literature review and data collected in the field. Discussions regarding the general environmental setting, vegetation communities present, plant and wildlife species observed, special status species issues, and other biological resource constraints on the Project are presented below. Representative photographs of the Project Area are provided in Appendix B. Biological conditions of the Project Area as presented herein are likely to change from their present conditions prior to implementation of Project activities (i.e., reclamation) due to both natural processes and current and future mining activities allowed under Metropolitan's vested mining right.

4.1 Regional Environmental Setting

The Project Area lies in a region of California with an assemblage of mountain ranges marked by long, broad alluvial valleys that often contain dry lakes. The existing topography surrounding the Project Area generally consists of flat, undeveloped, barren desert land and alluvial washes and low-lying desert foothills.

The Project Area is located within the Basin and Range Physiographic Province, which is comprised of a series of mountain ranges consisting of various Mesozoic granitic and older metamorphic and sedimentary rocks separated by valley basins filled with Quaternary alluvial material. Moreover, Tertiary-age volcanic rocks are exposed throughout the region. The Basin and Range Physiographic Province covers a large area of the Mojave Desert of California. It is defined by unique basin and range topography associated with tectonic extension, which is characterized by abrupt changes in elevation, alternating between narrow faulted mountain chains and flat arid valleys or basins. With the exception of SB-1 (located in the Whipple Mountains) and SB-8 (located in the Iron Mountains), the Project Area is situated within the alluvial plains that occur between individual and disconnected mountain ranges.

Topographic features and mountain ranges near the Project Area in San Bernardino County include the Whipple Mountains (adjacent to SB-1 and to the northwest of SB-10), the Turtle Mountains (approximately 9.0 miles north of SB-2, SB-3, and SB-4), and the Iron Mountains (adjacent to SB-6 through SB-9). Topographic features and mountain ranges near the Project Area in Riverside County include the Arica Mountains (approximately 7.0 miles northwest of RV-1 through RV-3), the Coxcomb Mountains (approximately 3.0 miles east of RV-4 and RV-5 and adjacent to RV-6), the Eagle Mountains (adjacent to RV-7 and RV-8), and the Cottonwood Mountains (adjacent to RV-9 and RV-10). The Copper Basin Reservoir, which is the closest waterbody to the Project Area, lies approximately 0.3 mile west of SB-1.

The Project Area generally lies in an isolated area with few nearby cities, communities, or other developments, except for Metropolitan's existing employee communities adjacent to the Gene, Iron Mountain, Eagle Mountain, and Julian Hinds Pumping Plants. SB-1 lies approximately 6.0 miles west of the community of Parker, Arizona and approximately 12.0 miles southwest of Lake Havasu City, Arizona. RV-8 lies approximately 4.9 miles west of the census-designated community of Desert Center. The remaining portion of the Project Area is located near the CRA in Riverside and San Bernardino counties. Nearby prominent roadways include SR 62, SR 177, SR 95 and I-10, which are

the primary regional routes into the Project Area. Section 1.3, *Description of Existing Conditions and Reclamation Activities within the Project Area*, provides a more detailed description of each site.

The Project Area is located in a region identified under the Köppen climate classification as a “hot desert climate” zone (PRISM Climate Group 2021). The regional climate is characterized by hot, dry summers and mild winters. The majority of the average 4.6 inches of annual rainfall in the region, usually occurs in the winter months beginning in November and lasting through April. Winters can average temperatures from 42 to 68 degrees Fahrenheit (°F) and are generally considered to be warm and mild. Summers are hot and dry, with average temperatures ranging from 78° to 106° F (Western Regional Climate Center 2021) This climate results in relatively stable weather patterns throughout the year in this region.

Much of the Project Area is crossed by expansive alluvial wash deposits. Soils are predominantly sandy gravel with high runoff coefficients and fast percolation. The dominant habitat is desert scrub, but discrete areas of other habitat types also occur within the regional area. Generally, the majority of the regional area can be described as Sonoran and Mojavean Desert Scrub and Riversidean Alluvial Fan Sage Scrub (County of San Bernardino 2014). The Project Area is located in the Mojave Desert geomorphic region.

4.2 Hydrology

The Project Area crosses three desert watersheds extending from near Desert Center, CA to Lake Havasu, AZ. These watersheds include Imperial Reservoir (HUC 15030104), Southern Mojave (HUC 18100100), and Salton Sea (HUC 18100204).

The Imperial Reservoir watershed is an approximate 3,400-square-mile watershed located on the southern end of Lake Havasu. Drainage from this watershed flows south and into Parker Valley and eventually the Colorado River. SB-1 and SB-10 are within this watershed.

The Southern Mojave watershed is an approximately 8,800-square-mile watershed located in the south-central portion of the Mojave Desert. This watershed extends from the west side of the Turtle Mountains west to Iron Mountain. This watershed drains south toward Blythe, CA. Drainages within this watershed are isolated and do not drain to the Colorado River. SB-2 through SB-9 as well as RV-1 through RV-9 are located within this watershed.

The Salton Sea watershed covers approximately 5,000 square miles in the far southwest portion of California. This watershed covers much of the Imperial Valley to the south of the Salton Sea as well as mountain ranges to the north, east, and west of the Salton Sea. Drainages within this watershed eventually drain into the Salton Sea. RV-10 is located within this watershed.

4.3 Soils

While the soil types in much of the Project Area are not mapped, six mapped soil types consisting of 10 soil series occur throughout the Project Area. None of the soils mapped within the Project Area are considered Hydric (NRCS 2007).

- Pintobasin-Joetree-Patscamp complex, 2 to 8 percent slopes
- Pintobasin loamy sand, 2 to 4 percent slopes
- Buzzardsprings-Coxpin-Dalelake complex, 2 to 8 percent slopes
- Deprave-Rockhound-Rizzo complex, 2 to 4 percent slopes

- Rizzo complex, 8 to 15 percent slopes
- Carsitas complex, 4 to 8 percent slopes

Pintobasin Series

Pintobasin Series soils consist of very deep, somewhat excessively drained soils that formed in mixed alluvium from dominantly granitoid rock. Pintobasin soils are found on fan remnants, alluvial fans, fan aprons, inset fans and in drainageways with slopes ranging from zero to 15 percent. These soils are somewhat excessively drained and experience negligible to low runoff. Pintobasin soils are typically used for recreation and wildlife habitat. Vegetation consists mainly of desert scrub.

Joetree Series

Joetree Series soils are very deep, somewhat excessively drained soils that formed in alluvium from granitoid rocks. They are found on fan aprons over fan remnants with slopes ranging from zero to eight percent. They are classified as mixed, hyperthermic typic torripsamments. These soils are usually dry and have a typic-aridic soil moisture regime. Joetree soils are typically used for recreation and wildlife habitat. Vegetation consists mainly of creosote bush (*Larrea tridentata*) and burrobush (*Ambrosia dumosa*).

Patscamp Series

Patscamp series consists of very deep, well drained soils that formed in alluvium derived from granitoid rocks. Patscamp soils are found on fan aprons over fan remnants and slopes ranging from two to eight percent. This series is well drained and exhibits very low runoff. These soils are commonly used for recreation and wildlife habitat. Vegetation consists of desert scrub.

Buzzardsprings Series

The Buzzardsprings series consists of very deep, somewhat excessively drained soils that formed in alluvium from igneous rock. These soils are found on fan remnants with slopes that range from two to 30 percent. They are classified as sandy, mixed, hyperthermic Typic Haplocalcids. This series is somewhat excessively drained and exhibits very low or low runoff. These soils are typically used for recreation and wildlife habitat. Vegetation consists of desert scrub.

Coxpin Series

The Coxpin series consists of shallow, somewhat excessively drained soils that formed in alluvium from igneous rocks. Coxpin soils are found on fan remnants and fan aprons over fan remnants and slopes ranging from two to eight percent. They are classified as sandy, mixed, hyperthermic, shallow Cambidic Haplodurids. This series is well drained and exhibits medium runoff. These soils are commonly used for recreation and wildlife habitat. Vegetation consists of desert scrub.

Dalelake Series

The Dalelake series consists of very deep, somewhat excessively drained soils that formed in eolian material from mixed sources. Dalelake soils are found on dunes, coppice dunes and sand sheets with slopes that range from zero to 30 percent. These soils are somewhat excessively drained and exhibit negligible to low runoff. These soils are typically used for recreation and wildlife habitat. Vegetation consists of desert scrub.

Deprave Series

The Deprave series consists of moderately deep, well-drained soils that formed in alluvium from granitoid and/or gneissic rocks. Deprave soils are found on fan remnants and slopes ranging from zero to four percent. They are classified as loamy-skeletal, mixed, superactive, hyperthermic Argidic Argidurids. This series is well drained and has very low or low runoff. These soils are commonly used for recreation and wildlife habitat. Vegetation consists of sparse desert scrub.

Rockhound Series

The Rockhound series consists of very deep, well drained soils that formed in alluvium from granitoid and/or gneissic rocks. Rockhound soils are found on fan remnants and slopes ranging from two to 15 percent. They are classified as loamy-skeletal, mixed, superactive, hyperthermic Typic Haplargids. This series is well drained and exhibits very low or medium runoff. These soils are typically used for recreation and wildlife habitat. Vegetation consists of sparse desert scrub.

Rizzo Series

The Rizzo series consists of very deep, excessively drained soils that formed in alluvium from various igneous and metamorphic rocks. The Rizzo soils are found on alluvial fans, fan aprons, fan remnants, inset fans and drainageways with slopes that range from zero to 75 percent. These soils are classified as sandy-skeletal, mixed, hyperthermic Typic Torriorthents. They are excessively drained and exhibit negligible to very high runoff. These soils are commonly used for recreation and wildlife habitat. Vegetation consists of desert scrub.

Carsitas Series

This series consists of very deep, somewhat excessively drained soils that formed in alluvium from granitoid and/or gneissic rocks. The Carsitas soils are found on alluvial fans, fan aprons, valley fills, dissected remnants of alluvial fans and in drainageways with slopes that range from zero to 30 percent. This series is classified as mixed, hyperthermic Typic Torripsamments. These soils are somewhat excessively drained and exhibit negligible to low runoff. They are typically used for recreation and wildlife habitat. Vegetation consists of sparse desert scrub.

4.4 Vegetation Communities and Land Cover

Two vegetation communities/land cover types were mapped in the Project Area (Table 3 and Figure 3 of Appendix D). These land cover types are creosote bush scrub and disturbed.

Creosote Bush Scrub

Much of the Project Area contains creosote bush scrub (*Larrea tridentata* Shrubland Alliance). This alliance is typically found in alluvial fans, bajadas, upland slopes, and minor intermittent washes between -75 and 1300 meters in elevation. Soils are well drained, sometimes with naturally occurring desert pavement. This vegetation community contains an intermittent to open shrub canopy dominated by creosote bush with an open to intermittent herbaceous layer with seasonal annuals or perennial grasses (Sawyer et al. 2009). This native vegetation community (ranked G5S5) is not considered a sensitive natural community (CDFW 2021a).

Within the Project Area, creosote bush scrub habitat is sparse and low growing due to high levels of existing disturbance from ongoing material extraction activities. Areas of creosote bush scrub

outside of and surrounding the Project Area are more dense with larger shrubs as those areas are not subject to regular disturbance. Within the Project Area, boxthorn (*Lycium* sp.), burrobush (*Ambrosia dumosa*), and California buckwheat (*Eriogonum fasciculatum*) were also present throughout this community.

Table 3 Vegetation Communities and Land Cover

Site	Vegetation Community and Land Cover	Sensitive? ¹
SB-1	Disturbed/Creosote Bush Scrub	No
SB-2	Disturbed/Creosote Bush Scrub	No
SB-3	Disturbed/Creosote Bush Scrub	No
SB-4	Disturbed/Creosote Bush Scrub	No
SB-5	Disturbed/Creosote Bush Scrub	No
SB-6	Creosote Bush Scrub	No
SB-7	Disturbed/Creosote Bush Scrub	No
SB-8	Disturbed	No
SB-9	Disturbed/Creosote Bush Scrub	No
SB-10	Creosote Bush Scrub	No
RV-1	Creosote Bush Scrub	No
RV-2	Disturbed/Creosote Bush Scrub	No
RV-3	Disturbed/Creosote Bush Scrub	No
RV-4	Disturbed/Creosote Bush Scrub	No
RV-5	Disturbed/Creosote Bush Scrub	No
RV-6	Disturbed/Creosote Bush Scrub	No
RV-7	Disturbed/Creosote Bush Scrub	No
RV-8	Disturbed/Creosote Bush Scrub	No
RV-9	Disturbed/Creosote Bush Scrub	No
RV-10	Creosote Bush Scrub	No

¹ A sensitive plant community is one that is listed by CDFW due to the rarity of the community in the state or throughout its entire range (CDFW 2021c).

Disturbed

Disturbed areas are defined as locations where soils have been disturbed during construction or other urban-related activities, including extraction of materials to construct and continuously operate and maintain the CRA by Metropolitan. This land cover type is not formally recognized as an official vegetation community. Disturbed areas generally consist of sites that have undergone prior grading and/or off-highway-vehicle recreational use and unimproved access roads. This includes areas that are unvegetated.

4.5 Wildlife Observed

Creosote bush scrub in the Project Area provides habitat for many wildlife species, including suitable nesting habitat for a wide variety of bird species and foraging habitat for common raptors. Wildlife

observed during the biological reconnaissance surveys consisted of common desert species. Avian wildlife species observed flying over the Project Area during the biological reconnaissance surveys included common raven (*Corvus corax*), red-tailed hawk (*Buteo jamaicensis*), American kestrel (*Falco sparverius*), and European starling (*Sturnus vulgaris*). Other wildlife observed included coast horned lizard (*Phrynosoma blainvillii*), California ground squirrel (*Otospermophilus beecheyi*), coyote (*Canis latrans*), burro (*Equus asinus*), bighorn sheep (*Ovis canadensis*), desert iguana (*Dipsosaurus dorsalis*), jackrabbit (*Lepus californicus*), and greater roadrunner (*Geococcyx californianus*).

5 Sensitive Biological Resources

This section discusses special status biological resources observed within the Project Area and evaluates the potential for the Project Area to support other sensitive resources. This assessment is based on the existing biological conditions of the Project Area at the time of the literature review and reconnaissance surveys. However, biological conditions of the Project Area are likely to change from their present conditions prior to implementation of Project activities (i.e., reclamation) due to both natural processes and current and future mining activities allowed under Metropolitan's vested mining right. Appendix C provides the complete list of all special status resources with records within a five-mile CNDDDB search and nine-quad CNPS query for each borrow site within the Project Area.

5.1 Special Status Plant and Wildlife Species

Based on the agency database and literature review, and the results of the biological reconnaissance surveys, Rincon conducted a habitat assessment for 34 special status species, including 22 special status plant species and 12 special status animal species. Each of the 34 species was evaluated for its potential to occur in the Project Area (see Appendix C).

Special Status Plants

No special status plant species were observed within the Project Area during the biological reconnaissance surveys. Based on the results of the literature review, 22 special status plant species are known to occur in the vicinity (within 5 miles for CNDDDB and 9 topographic quadrangles for CNPS) of the Project Area.¹ These species and their potential for occurrence are summarized in Appendix C. The Project Area is heavily disturbed due to past and ongoing material extraction activities for CRA operations and maintenance; as a result, the Project Area is unsuitable for rare plants that require specialized habitats. All plant species were determined to have low or no potential to occur due to a lack of habitat, unsuitable soils, and/or the Project Area's location outside of the known distribution and/or elevation range of the species (e.g., special status plants that are associated with dune habitats, large desert washes, or highly alkaline soils that are not present in the Project Area).

Special Status Wildlife

Based on the results of the literature review, 12 special status wildlife species are known to occur in the vicinity (within 5 miles for CNDDDB and 9 topographic quadrangles for CNPS) of the Project Area (Appendix C).² Two species (Mojave fringe-toed lizard [*Uma scoparia*] and cheeseweed owl [*Oliarces clara*]) were determined to have no potential to occur due to a lack of habitat, and/or the Project Area's location outside of the known distribution and/or elevation range of the species. Ten special status wildlife species were determined to have a moderate or high potential to occur in the

¹ Special status plant species known to occur in the Project Area, such as Joshua tree (*Yucca brevifolia*), which were not identified in the CNDDDB or CNPS were included to provide a comprehensive analysis.

² Special status wildlife species known to occur in the Project Area, such as burrowing owl (*Athene cunicularia*) and mountain lion (*Puma concolor*), which were not identified in the CNDDDB or CNPS were included to provide a comprehensive analysis.

Project Area: Mojave desert tortoise (*Gopherus agassizii*), prairie falcon (*Falco mexicanus*), Yuma myotis (*Myotis yumanensis*), cave myotis (*Myotis velifer*), California leaf-nosed bat (*Macrotus californicus*), Townsend's big-eared bat (*Corynorhinus townsendii*), burrowing owl (*Athene cunicularia*), desert bighorn sheep (*Ovis canadensis nelsoni*), mountain lion (*Puma concolor*), and bald eagle (*Haliaeetus leucocephalus*). These species are discussed further below.

Desert Tortoise

The Mojave desert tortoise is a federally and state threatened species that occurs north and west of the Colorado River in California, Nevada, Arizona, and Utah. This species lives in a variety of habitats from sandy flats to rocky foothills, including alluvial fans, washes, and canyons where suitable soils for den construction might be found. Desert tortoises may live 50 or more years in the wild, and their diet consists primarily of wildflowers, grasses, and cacti. This species spends most of its time in burrows, rock shelters, and pallets to regulate body temperature and reduce water loss. It is most active after seasonal rains and is inactive during most of the year. Threats to this species include increase in natural predators due to development and habitat loss.

No desert tortoises or their sign were detected during the biological field surveys. However, this species is highly mobile and suitable habitat for the desert tortoise is found throughout the Project Area. All sites contain suitable desert scrub habitat within or directly adjacent to the Project Area. Although the Project Area is heavily disturbed and subject to varying levels of use (including material extraction activities), they are surrounded by expanses of undisturbed desert scrub that may provide suitable habitat for the desert tortoise. The Project Area also contains friable soils as well as banks and slopes suitable for desert tortoise burrowing. Therefore, the desert tortoise was determined to have moderate potential to occur within the Project Area.

Bald Eagle

The bald eagle is a state-listed endangered and fully protected raptor species that was removed from the federal endangered species list in August 2007 and is protected under the Bald and Golden Eagle Protection Act. Its range includes most of Canada and Alaska, all of the contiguous United States, and northern Mexico. It is found near large bodies of open water with an abundant food supply and old-growth trees for nesting. Suitable foraging habitat for the bald eagle is located at SB-1. Large trees for nesting and a large body of water (Copper Basin) are present adjacent to the Project Area at this location. Furthermore, a bald eagle's nest from the (2019/2020) nesting season was observed approximately 1,200 feet east of SB-1 in a cottonwood tree adjacent to Copper Basin. In the fall of 2020, the cottonwood tree containing the inactive bald eagle nest, fell over in a windstorm. The bald eagle pair were subsequently observed nesting approximately 0.5 mile south of Copper Basin on rocky cliffs. Therefore, the bald eagle was determined to have high foraging potential at SB-1.

Prairie Falcon

The prairie falcon is a raptor species on CDFW's Watch List. It inhabits open hills, plains, prairies, deserts, and grasslands of the arid west where it preys upon small birds and mammals. This species typically nests on a ledge of a cliff in a recessed site. Suitable foraging habitat for this species is located at SB-1, SB-8, SB-9, RV-1, RV-6, RV-7, RV-8, RV-9, and RV-10. All of these sites contain some amount of desert scrub containing prey species within or adjacent to the Project Area. All of these sites also have large cliffs nearby that are suitable for nesting. The prairie falcon was determined to have high foraging potential at SB-1, RV-6, RV-7, RV-8, RV-9, and RV-10 due to the quality of desert

scrub and proximity to suitable nesting habitat. The prairie falcon was determined to have moderate foraging potential at SB-8, SB-9, and RV-1 due to a greater distance from suitable nesting habitat. No nesting habitat for this species occurs within the Project Area.

Desert Bighorn Sheep

The desert bighorn sheep is a state fully-protected species that inhabits rocky slopes and cliffs, canyons, washes and alluvial fans from the White Mountains in Mono County to the Chocolate Mountains in Imperial County. This species is a generalist herbivore and eats a wide variety of desert plants, including cacti. Suitable habitat for the desert bighorn sheep is present adjacent to RV-8 and within and adjacent to RV-9 at the grounds around Julian Hinds Pumping Plant as both sites are within 0.2 mile of the Eagle Mountains which contain suitable open, rocky and steep areas. The Project Area does not fall within range of the federally endangered, Peninsular bighorn sheep. Desert bighorn sheep were determined to have high potential to occur at RV-9 due to the site's location immediately adjacent to the Eagle Mountains as well as the presence of available water and herbaceous forage at the grounds of the Julian Hinds Pumping Plant. Desert bighorn sheep were determined to have low potential to occur at RV-8 due to the site's lack of water source and herbaceous forage.

Mountain Lion

The Fish and Game Commission received a petition on June 25, 2019 to list an evolutionarily significant unit (ESU), comprised of six populations of mountain lion in southern and central coastal California, as threatened or endangered under the CESA. The Fish and Game Commission's determination on the status of the species is due November 3, 2021. Until the determination is made, the mountain lion is granted "candidate" status, and receives protection as though it were listed. Mountain lions require large areas of relatively undisturbed habitats with adequate connectivity. They have large home ranges that include heterogeneous habitats that often consist of pine forests, riparian and oak woodlands, streams, chaparral, and grasslands, though they are also known to occur in desert habitats. While the Project Area is too small to support long-term use by mountain lions, suitable habitat for this species is present at all sites within the Project Area as all sites are located within open desert habitat within the species' range and may be subject to transient travel by mountain lions in the regional vicinity.

Burrowing Owl

The burrowing owl is a state species of special concern that uses a variety of natural and modified habitats for nesting and foraging, typically characterized by low growing vegetation. Burrowing owl habitat includes, but is not limited to, native and non-native grassland, interstitial grassland within shrub lands, shrub lands with low density shrub cover, golf-courses, drainage ditches, unpaved airfields, pastureland, dairies, fallow fields, and agricultural use areas. The species also often utilizes manmade structures, such as earthen berms, cement culverts, cement, asphalt, rock, wood debris piles, or openings beneath cement or asphalt pavement. Suitable foraging habitat for this species is present at all sites within the Project Area as all sites are surrounded by suitable creosote bush scrub. The burrowing owl was determined to have moderate foraging potential at all sites except SB-8 due to the presence of marginally suitable creosote bush scrub present within portions of the Project Area at these sites. SB-8 is disturbed with no suitable habitat present within the Project Area, and thus was determined to have low foraging potential for burrowing owl.

Special Status Bat Species

Yuma myotis, cave myotis, California leaf-nosed bat, and Townsend's big-eared bat are four CDFW species of special concern that have moderate foraging potential to occur at SB-1. Yuma myotis is a small bat species that is found in a variety of habitats, from desert scrub to coniferous forest, and always close to standing water such as lakes and ponds. Yuma myotis roosts in caves, buildings, mines, underneath bridges, and other similar structures. Cave myotis is a large bat species that roosts in habitats such as caves, mines, and rock outcrops. Similar to Yuma myotis, cave myotis forages in a wide variety of scrub and forest habitats. The California leaf-nosed bat inhabits caves, mines, and rock outcrops and forages within Sonoran and Mojave desert scrub habitats. Townsend's big-eared bat is found throughout California in a wide variety of habitats. The species roosts in the open, hanging from walls and ceilings and is most common in mesic sites. Suitable roosting habitat for all of these bat species is located directly adjacent to SB-1 in the rocky outcrops surrounding Copper Basin.

5.2 Sensitive Plant Communities

A sensitive plant community is one that is listed by CDFW due to the rarity of the community in the state or throughout its entire range (CDFW 2021c). The Project Area includes creosote bush scrub and disturbed habitat; neither of which are listed by CDFW as sensitive plant communities. Therefore, no sensitive plant communities were identified to exist within or adjacent to the Project Area.

5.3 Jurisdictional Waters and Wetlands

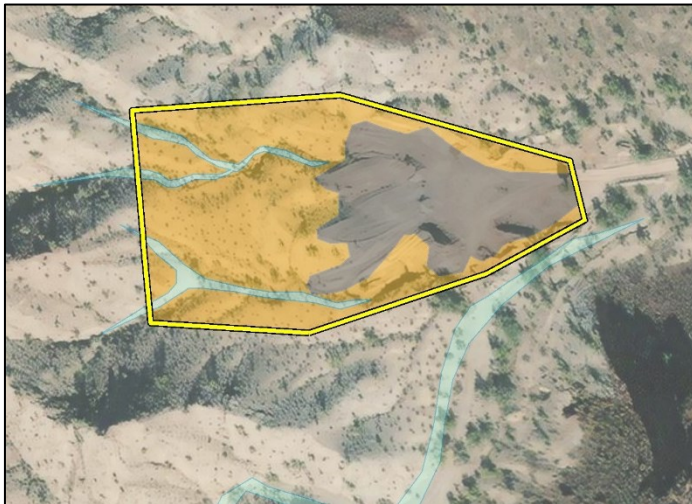
The Project Area is located within large desert watersheds and alluvial areas with multiple ephemeral drainages located within or adjacent to the Project Area. No wetlands or indicators of wetland hydrology were observed within the Project Area. These drainages have generally been formed from flashy runoff and rapid flows in response to rare precipitation events in the local area. These drainage systems are highly dynamic over time due to the infrequent nature and intensity of precipitation. Many drainages near the Project Area are part of large complex, braided ephemeral systems. Over time, the boundaries of these systems tend to migrate in response to each precipitation event. Furthermore, many of these systems have been modified by the construction of large "v-dikes" that serve to funnel flows over the CRA at designed "siphon" locations. Essentially, the majority of the ephemeral drainages that cross the CRA are directed towards specific drainage flow paths that occur approximately every 0.5 mile along the CRA.

Potentially jurisdictional waters were identified at or adjacent to SB-1, SB-2, SB-6, SB-7, SB-8, SB-9, SB-10, RV-2, RV-4, RV-5, RV-6, RV-7, RV-8 and RV-10 and are discussed further below. No other sites were identified as having potentially jurisdictional waters within or adjacent to the site. As noted above, a formal jurisdictional delineation was not conducted, and as such all features identified as potentially jurisdictional should be delineated to determine their precise boundaries and applicable regulatory authority. Approximate boundaries of significant potentially jurisdictional waters within or immediately adjacent to the Project Area for inactive sites to be reclaimed within 5 years (SB-6, SB-9, and RV-4) were mapped in the field during the reconnaissance survey. Approximate boundaries of significant potentially jurisdictional waters for future-term sites (SB-1, SB-2, SB-7, SB-8, SB-10, RV-2, RV-5, RV-6, RV-7, RV-8 and RV-10) and other significant features within the general vicinity of the Project Area were mapped based on a desktop analysis of aerial imagery. Smaller

swale-like potentially jurisdictional features which may be visible from aerial imagery were not mapped as those features cannot be accurately assessed from a desktop analysis and should be verified in the field closer to time of reclamation. Refer to Figure 3 of Appendix D for maps of approximate jurisdictional boundaries. Clipped images of the figures have been included in this section for additional context.

SB-1

SB-1 is located in the Whipple Mountains west of Copper Basin Reservoir. Numerous potentially jurisdictional ephemeral drainages originate from the peaks to the west and south of the site, travel across the western portion of the site, and eventually drain into Copper Basin. These drainages are small (approximately one to three feet in width in the vicinity of SB-1) and flow into a larger, direct tributary to Copper Basin that flows just outside the southern project boundary of SB-1. Based on observations made during the field surveys and a review of aerial imagery, these drainages are likely to be regulated by CDFW and the Colorado River Regional Water Quality Control Board (RWQCB) due to the presence of bed and banks. These drainages are unlikely to be regulated by the USACE due to the fact that they only flow in direct response to precipitation events.



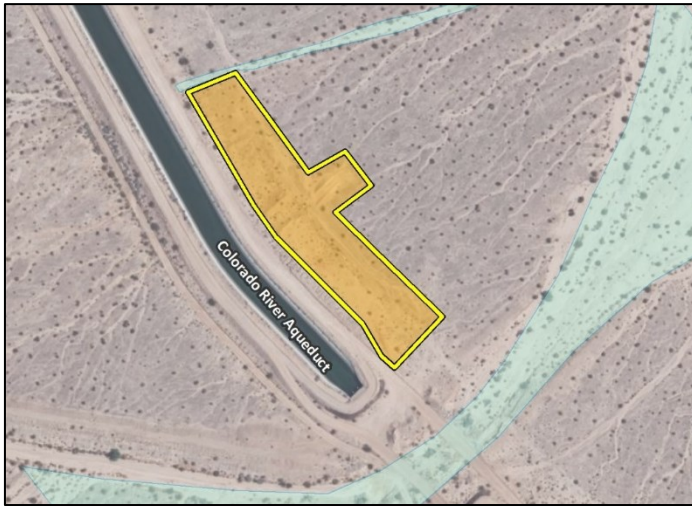
SB-2

The southwest boundary of SB-2 is located directly northeast of a CRA v-dike that conveys surface flows across the CRA. This v-dike directs flows from the Turtle Mountains to the northwest across the CRA. The potentially jurisdictional drainage created by this v-dike is approximately 100 feet in width directly downstream of the crossing location and flows adjacent to the southwest boundary of SB-2. The adjacent feature is likely to be regulated by CDFW and the RWQCB due to the presence of bed and banks. This feature is unlikely to be regulated by USACE due to its ephemeral hydrology.



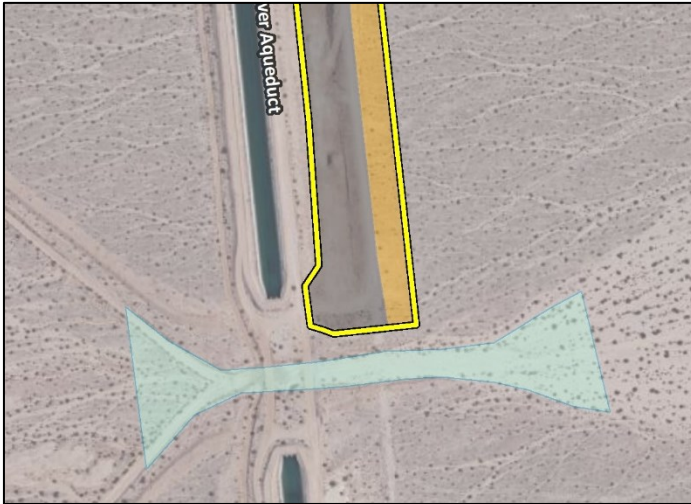
SB-6

A potentially jurisdictional drainage is located along the northern boundary of SB-6. The Project Area does not enter the drainage, but the south bank of the drainage is directly adjacent to the boundary. This small, ephemeral drainage flows from west to east adjacent to SB-6 and eventually to Danby Dry Lake, approximately 5 miles northeast of SB-6. This drainage is approximately eight to ten feet in width in the vicinity of SB-6 and originates as runoff from the Iron Mountains to the west and is bisected by the CRA. An additional potentially jurisdictional drainage is located approximately 70 feet south of the Project Area. These drainages are part of a larger alluvial area that drains the Iron Mountains. Based on observations made during the field surveys, these features are likely to be regulated by CDFW and the RWQCB due to the presence of bed and banks. These features are unlikely to be regulated by the USACE due to their ephemeral hydrology and lack of connectivity to a navigable water.



SB-7

The southeast boundary of SB-7 is located directly northwest of a CRA v-dike that conveys surface flows across the CRA. This v-dike directs flows from the Iron Mountains to the west across the CRA. The potentially jurisdictional drainage created by this v-dike is approximately 90 feet in width directly downstream of the crossing location and flows approximately 100 feet southwest of the boundary of SB-7. The adjacent feature is likely to be regulated by CDFW and the RWQCB due to the presence of bed and banks. This feature is unlikely to be regulated by USACE due to its ephemeral hydrology and lack of connectivity to a navigable water.



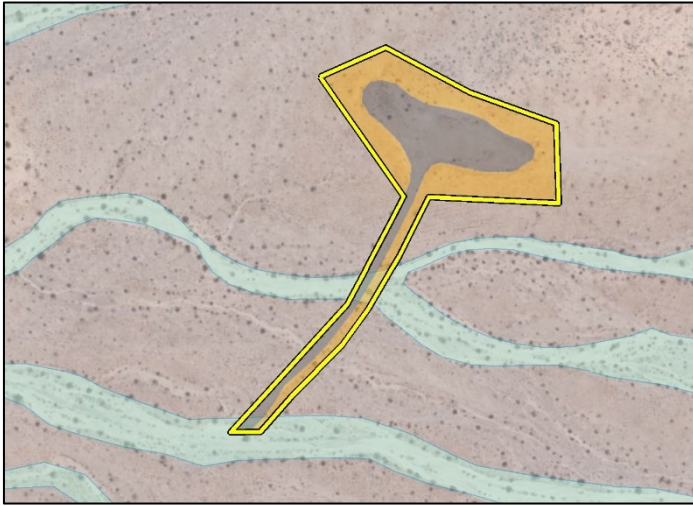
SB-8

SB-8 is located within the foothills of the Iron Mountains. Multiple potentially jurisdictional ephemeral drainages drain from the Iron Mountains to the east and into a large, unnamed ephemeral/intermittent drainage as depicted on USGS topographic maps. This unnamed drainage is present just outside of the boundary of SB-8 on the north and east sides. The drainage flows east and eventually into Danby Dry Lake. At the time of the surveys, no drainages were identified within the boundary of the site. The adjacent features are likely to be regulated by CDFW and the RWQCB due to the presence of bed and banks. These features are unlikely to be regulated by the USACE due to ephemeral hydrology and lack of connectivity to a navigable water.



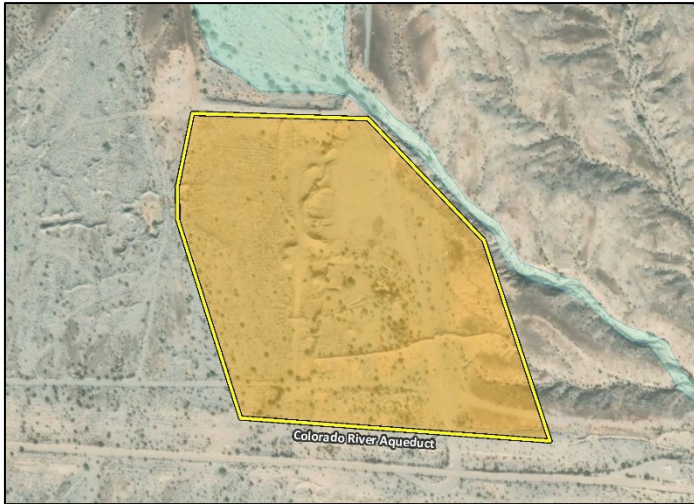
SB-9

Site SB-9 contains a large, potentially jurisdictional ephemeral drainage system flowing through the Project Area from east to west and eventually into Palen Valley Dry Lake. This large ephemeral drainage contains multiple braids that are approximately 20-30 feet in width and the substrate consists of fine sands and small gravel. Flow indicators are present that include sediment sorting, benching, scour, and lack of vegetation. This drainage originates in the Iron Mountains to the east, flows through the access road to SB-9 and is directed by a v-dike designed to channel flows over the CRA. Based on observations made during the field surveys, this feature is likely to be regulated by CDFW and the RWQCB due to the presence of bed and banks. This feature is unlikely to be regulated by USACE due to its ephemeral hydrology and lack of connectivity to a navigable water.



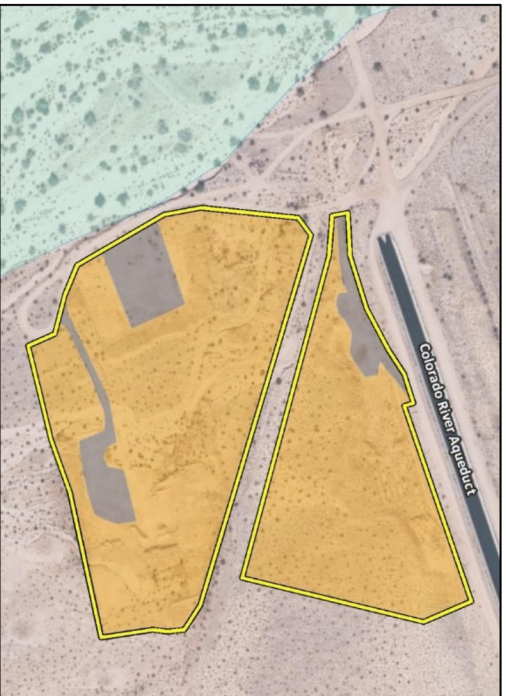
SB-10

SB-10 is located south of the Whipple Mountains. Numerous potentially jurisdictional ephemeral drainages originate from the peaks to the north of the site and travel south, eventually draining into the Colorado River. One of these drainages flows along the northern and eastern border of SB-10. This drainage is likely to be regulated by CDFW and the RWQCB due to the presence of bed and banks. This drainage is unlikely to be regulated by the USACE due to the fact that it only flows in direct response to precipitation events.



RV-2

The western boundary of RV-2 is located directly east of a potentially jurisdictional drainage that conveys surface flows across the CRA. The drainage is approximately 1,000 feet in width directly adjacent to RV-2 and conveys flows from the Little Maria Mountains in the south to the Danby Dry Lake approximately 5 miles north of RV-2. The adjacent feature is likely to be regulated by CDFW and the RWQCB due to the presence of bed and banks. This feature is unlikely to be regulated by USACE due to its ephemeral hydrology and lack of connectivity to a navigable water.

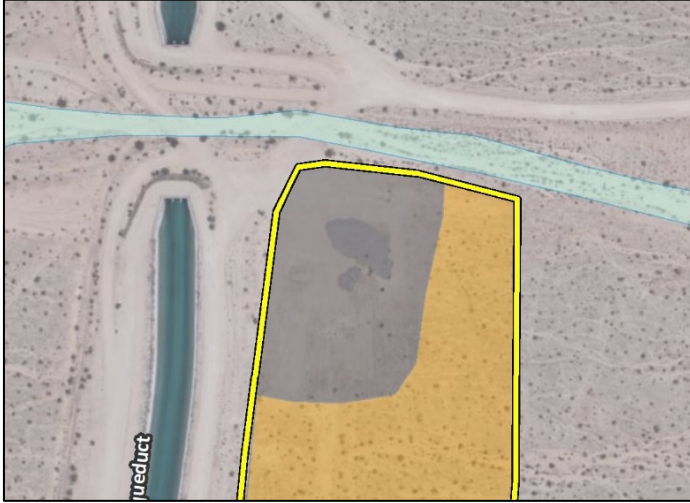
**RV-4**

RV-4 contains a potentially jurisdictional ephemeral drainage flowing from east to west and eventually into Palen Valley Dry Lake. This small, ephemeral drainage is approximately one to three feet in width in the vicinity of RV-4, and the substrate consists of sands and small gravel. Weak flow indicators are present and include sediment sorting. This drainage originates along a v-dike that is designed to convey flows over the aqueduct. Based on observations made during the field surveys, this drainage feature is likely to be regulated by CDFW and the RWQCB due to the presence of bed and banks. This feature is unlikely to be regulated by USACE due to its ephemeral hydrology and lack of connectivity to a navigable water.



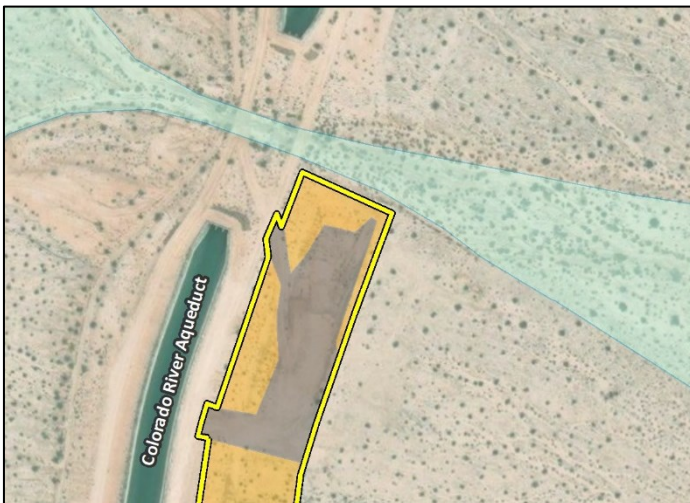
RV-5

The northern boundary of RV-5 is located directly south of a CRA access road and v-dike that conveys surface flows from the Coxcomb Mountains to the east across the CRA. The potentially jurisdictional drainage created by this v-dike is approximately 65 feet in width directly downstream of the crossing location and flows adjacent to the northern boundary of RV-5. At the time of the surveys, no drainages were identified within the boundary of RV-5. The adjacent feature is likely to be regulated by CDFW and the RWQCB due to the presence of bed and banks. This feature is unlikely to be regulated by USACE due to its ephemeral hydrology and lack of connectivity to a navigable water.



RV-6

The northern boundary of RV-6 is located directly southeast of a CRA v-dike. This v-dike conveys flows from the Coxcomb Mountains to the east across the CRA. The potentially jurisdictional drainage created by this v-dike is approximately 120 feet in width directly downstream of the crossing location and flows adjacent to the northern boundary of RV-6. At the time of the surveys, no drainages were identified within the boundary of RV-6. The adjacent feature is likely to be regulated by CDFW and the RWQCB due to the presence of bed and banks. This feature is unlikely to be regulated by USACE due to its ephemeral hydrology and lack of connectivity to a navigable water.

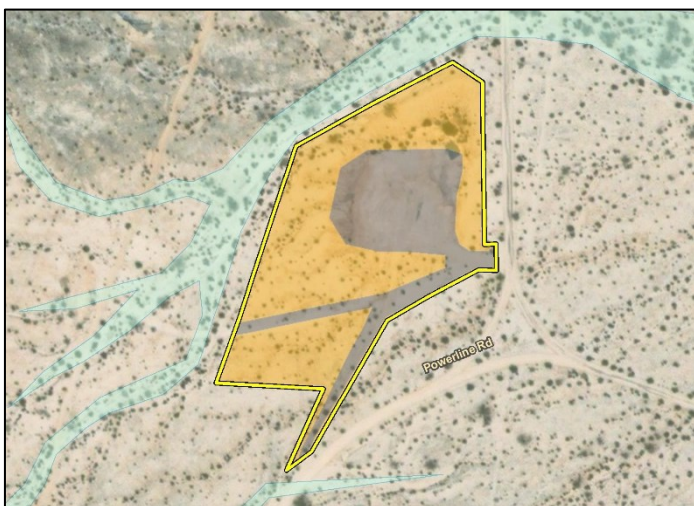


RV-7

RV-7 is located in the northeast foothills of the Eagle Mountains. A CRA v-dike is located adjacent to the southwest boundary of the site. This v-dike creates a deeply-incised potentially jurisdictional drainage approximately 100 feet in width. The drainage flows from northwest to southeast and eventually into Palen Valley Dry Lake. At the time of the surveys, no drainages were identified within the boundary of RV-7. The adjacent feature is likely to be regulated by CDFW and the RWQCB due to the presence of bed and banks. This feature is unlikely to be regulated by the USACE due to its ephemeral hydrology and lack of connectivity to a navigable water.

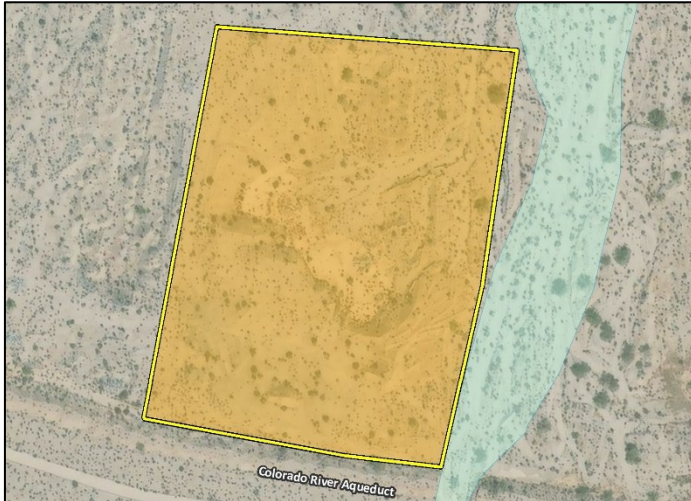
**RV-8**

RV-8 is located in the southeast foothills of the Eagle Mountains in an alluvial fan area draining to the east. Numerous potentially jurisdictional ephemeral drainages surround the site that flow generally from west to east and eventually into Palen Valley Dry Lake. A larger potentially jurisdictional ephemeral drainage approximately 20 to 30 feet in width flows along the western and northern boundaries of RV-8. At the time of the surveys, no drainages were identified within the boundary of RV-8. The adjacent features are likely to be regulated by CDFW and the RWQCB due to the presence of bed and banks. These features are unlikely to be regulated by the USACE due to their ephemeral hydrology and lack of connectivity to a navigable water.



RV-10

RV-10 is located south of the Cottonwood Mountains in an alluvial fan area draining to the south. A potentially jurisdictional ephemeral drainage conveys flows along the eastern boundary of the site. The adjacent feature is likely to be regulated by CDFW and the RWQCB due to the presence of bed and banks. This feature is unlikely to be regulated by the USACE due to its ephemeral hydrology and lack of connectivity to a navigable water.



5.4 Wildlife Movement

Wildlife movement corridors, or habitat linkages, are generally defined as connections between habitat patches that allow for physical and genetic exchange between otherwise isolated animal populations. Such linkages may serve a local purpose, such as providing a linkage between foraging and denning areas, or they may be regional in nature. Some habitat linkages may serve as migration corridors, wherein animals periodically move away from an area and then subsequently return.

Wildlife movement corridors can be both large and small scale. Portions of the Project Area are located within Conservation Planning Linkages, which are habitat connectivity linkages mapped in the California Essential Habitat Connectivity (CEHC) map that represent the best connections between core natural areas to maintain habitat connectivity (CDFW 2021b). These linkage areas occur throughout the Project Area, specifically at SB-3, SB-4, SB-8, SB-9, RV-1 and RV-2. The Project Area and vicinity are expected to support wildlife movement due to their location in undeveloped desert areas and proximity to mountain ranges and desert washes, which are known movement corridors. The Project Area is undeveloped and does not contain structures that would prevent or deter wildlife. However, because the Project Area encompass a small percentage of total land within the movement linkages and lack valuable habitat features such as water sources or shelter, the Project Area's contributions to the overall function of the habitat linkages is expected to be minor.

5.5 Resources Protected by Local Policies and Ordinances

County of Riverside Ordinance No. 559: Regulating the Removal of Trees

The County of Riverside Ordinance No. 559 regulates native trees that occur on parcels or properties greater than 0.5 acre in size and located in areas above 5,000 feet in elevation within unincorporated areas. All portions of the Project Area are located below 5,000 feet in elevation, and no trees occur within the Project Area. Therefore, the County of Riverside Ordinance No. 559 does not apply to the Project. Additionally, activities conducted by a public utility subject to the jurisdiction of the California Public Utilities Commission, or any other constituted public agency, are exempt from this ordinance where activities require trees to be removed, pruned, topped, or braced to construct and maintain safe operation of facilities under their jurisdiction.

County of San Bernardino Ordinance No. 88.01.060: Desert Native Plant Protection

The County of San Bernardino Desert Native Plant protection ordinance protects certain desert native plants and does not allow removal of the following plants with stems two inches or greater in diameter or six feet or greater in height without a permit: smoketree (*Dalea spinosa*), all species of the genus *Prosopis*, all species of the family *Agavaceae*, Creosote Rings ten feet or greater in diameter and Joshua trees (*Yucca brevifolia*). 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*. None of the species protected under the County of San Bernardino Desert Native Plant protection ordinance were observed within the Project Area.

5.6 Habitat Conservation Plans

The CVMSHCP is a comprehensive, multi-jurisdictional habitat conservation plan focusing on the conservation of species and their associated habitats in the Coachella Valley region of Riverside County. The overall goal of the CVMSHCP is to maintain and enhance biological diversity and ecosystem processes within the region while allowing for future economic growth (CVAG 2007). RV-10 is within the CVMSHCP Plan area.

The CVMSHCP covers 27 sensitive plant and wildlife species (covered species) as well as 27 natural communities. Covered species include both listed and non-listed species that are adequately conserved by the CVMSHCP. The overall provisions for the plan are subdivided according to specific resource conservation goals that have been organized according to geographic areas defined as Conservation Areas.

RV-10 occurs within the planning boundary of the CVMSHCP but is not within or adjacent to a CVMSHCP Conservation Area. None of the 27 covered species or 27 natural communities have potential to occur at RV-10.

6 Project Impacts

The criteria used to evaluate potential impacts to biological resources within the Project Area are presented in Section 2.3, *Guidelines for Determining CEQA Significance*. This section discusses the possible adverse impacts to biological resources that may occur from implementation of the Project. As discussed above, reclamation of the 20 borrow sites is the Project being evaluated. For the five borrow sites that are anticipated to undergo reclamation in the next five years (SB-4, SB-6, SB-9, RV-1 and RV-4), this analysis utilizes existing environmental conditions as the baseline and evaluates environmental impacts at a project level. However, for the 15 sites that would continue vested operations for up to 100 years (reclamation conservatively assumed to occur until 2121), Metropolitan, as the lead agency, has determined that the environmental baseline conditions for the Project are the conditions expected to exist at the future time(s) when Project activities actually occur pursuant to CEQA Guidelines Section 15125(a)(1). In the interim time period between when this biological resources evaluation was conducted and actual implementation of Project activities (i.e., reclamation) at the borrow sites not to be reclaimed within 5 years, environmental conditions of the borrow sites, especially with regard to biological resources and drainage features, are likely to change from their present conditions due to both natural processes and current and future mining activities allowed under Metropolitan's vested mining right. Therefore, because environmental baseline conditions as they will exist in the future, specifically at the borrow sites that won't be reclaimed for up to 100 years, are not known, the environmental impacts analysis of these borrow sites has been prepared at a programmatic level using the best presently available data. As a result, this analysis has been prepared as a hybrid program/project-level BRA. For the purposes of the discussion below, the vested sites that will be reclaimed within the next five years (estimated to occur in 2026) are referred to as "near-term" sites, and the sites planned for reclamation in up to 100 years (estimated to occur in 2121) are referred to as "future-term" sites.

6.1 Special Status Species

6.1.1 Special Status Plants

As discussed in Section 5.1, *Special Status Plant and Wildlife Species*, 22 special status plants have potential to occur within the Project Area (Appendix C). Conditions within the Project Area are heavily disturbed through active use for CRA operations and maintenance, and many sites contain little to no vegetation. Due to the heavily disturbed nature of the Project Area, it is unsuitable for rare plants that require specialized habitats and all special status plant species were determined to have low or no potential to occur within the Project Area, including both the near-term and future-term sites. Special status plants generally require highly specific, high quality habitat not found within the Project Area. Special status plants have low or no potential to occur within the Project Area.

Implementation of reclamation activities at the 15 future-term borrow sites is anticipated to occur 2121. It is expected that conditions within the Project Area and/or listing statuses could change over time. While much of the Project Area is disturbed and supports little to no vegetation, there is potential for temporary impacts during reclamation activities to occur where special status plant species may be supported in the future. Activities such as movement of soil, vehicles driving and parking, and the foot traffic of crews, could incidentally crush or otherwise impact special status plant species. Impact areas would be small and localized at each site. Furthermore, planned

revegetation activities would provide a net benefit to on-site habitat conditions for special status plants. Nevertheless, conditions in the Project Area may change during the 100 years before reclamation activities are implemented at future-term sites. Therefore, there is a low potential for direct and indirect impacts to occur as a result of reclamation activities at future-term sites.

6.1.2 Special Status Wildlife

As discussed above in Section 5.1, *Special Status Plant and Wildlife Species*, 12 special status wildlife species have potential to occur within the Project Area (Appendix C). Ten special status wildlife species have moderate to high potential to occur. These species include: desert tortoise (*Gopherus agassizii*), Townsend's big-eared bat (*Corynorhinus townsendii*), burrowing owl (*Athene cunicularia*), prairie falcon (*Falco mexicanus*), Yuma myotis (*Myotis yumanensis*), cave myotis (*Myotis velifer*), California leaf-nosed bat (*Macrotus californicus*), desert bighorn sheep (*Ovis canadensis nelsoni*), mountain lion (*Puma concolor*), and bald eagle (*Haliaeetus leucocephalus*).

The Project Area is heavily disturbed, sparsely or not vegetated, and in most cases offer limited habitat for special status species. In addition, vested activities that are currently occurring in the Project Area include excavation, backfilling, earth moving, materials storage, and heavy equipment use. These activities increase sound and vibration levels at the sites and potential exposure to dust for special status species and reduce the likelihood that these species will be present. The short-term human presence and earthwork required for reclamation would be substantially similar to that which occurs during ongoing CRA vested operation and maintenance activities in the Project Area. In the long-term, reclamation will have a positive effect on special status species habitat because native plant communities will be restored and chronic disturbance of the sites will cease.

Reclamation for near-term and future-term sites could result in potential direct and indirect impacts to special status wildlife species present during Project activities. These impacts are discussed below.

DESERT TORTOISE

Desert tortoise has a moderate potential to occur at all 20 borrow sites due to the Project Area's proximity to suitable desert scrub habitat. Potential indirect impacts could include temporary crushing of suitable habitat, nest/burrow destruction, increased sound and vibration levels, and exposure to dust. Equipment and trash within the Project Area could attract desert tortoise predators, such as common ravens. However, as discussed above, disturbance associated with reclamation activities would be temporary in nature and would be substantially similar to that which has and will continue to occur as part of ongoing CRA operations and maintenance activities.

Direct impacts to desert tortoise may include crushing/killing of individuals with equipment or vehicles. Young desert tortoise are especially vulnerable to vehicle mortality due to their small size and inability to quickly seek refuge. Therefore, there is a moderate potential for direct and indirect impacts to occur to desert tortoise for both near-term and future-term sites.

BALD EAGLE AND PRAIRIE FALCON

Bald eagle has a high potential to forage at SB-1 due to the site's location within 1 mile of suitable nesting habitat. Prairie falcon also has a moderate to high potential to forage at SB-1, SB-8, SB-9, RV-1, RV-6, RV-7, RV-8, RV-9, and RV-10 due to the sites' locations adjacent to suitable nesting habitat. Potential indirect impacts could include temporary crushing of suitable foraging habitat, increased sound and vibration levels, and exposure to dust. Indirect impacts also include the temporary

displacement of prey species during reclamation activities. All of these impacts would be temporary and localized, would not kill or injure individual eagles or falcons, and would not substantially disrupt these species' behavior patterns. If conducted during the nesting season, reclamation activities within close proximity to active bald eagle and prairie falcon nests could potentially disrupt nesting activity due to disturbance and noise from heavy equipment and human presence associated with reclamation activities. However, as discussed above, disturbance associated with reclamation activities would be temporary in nature and would be substantially similar to that which has and will continue to occur as part of ongoing CRA operations and maintenance activities.

No direct impacts to bald eagle or prairie falcon would occur for near-term sites as no nesting habitat is present within the Project Area. However, site conditions may change prior to reclamation of the future-term sites. There is a low potential for direct impacts to these species in the future since it is unlikely that suitable nesting habitat (such as large, old-growth trees) would become established in areas currently unvegetated or dominated by creosote bush scrub.

DESERT BIGHORN SHEEP

Desert bighorn sheep has a high potential to occur in the vicinity of RV-9 at the grounds around Julian Hinds Pumping Plant due to the site's proximity to open, rocky, steep areas with available water and herbaceous forage. Desert bighorn sheep also has a low potential to occur in the vicinity of RV-8 due to the site's proximity to open, rocky, steep areas.

Direct impacts to desert bighorn sheep are not anticipated as the species is large and highly visible and therefore, can be easily avoided by equipment and personnel during reclamation activities. Potential indirect impacts could include increased sound and vibration levels, and exposure to dust. However, as discussed above, disturbance associated with reclamation activities would be temporary in nature and would be substantially similar to that which has and will continue to occur as part of ongoing CRA operations and maintenance activities. Although site conditions may change prior to reclamation of the future-term sites, there is a low potential for indirect impacts to desert bighorn sheep in the future.

MOUNTAIN LION

Mountain lion has a moderate potential to occur at all 20 borrow sites as all sites are located within open desert habitat within the species' range. While the Project Area is too small to support long-term use by mountain lions, all sites may be subject to transient travel by mountain lions in the regional vicinity.

Direct impacts to mountain lions are not anticipated as the species is large and highly visible and therefore, can be easily avoided by equipment and personnel during reclamation activities. Potential indirect impacts could include increased sound and vibration levels, and exposure to dust. However, as discussed above, disturbance associated with reclamation activities would be temporary in nature and would be substantially similar to that which has and will continue to occur as part of ongoing CRA operations and maintenance activities. Additionally, the Project Area is surrounded by undeveloped land and open space providing a multitude of regional movement options within and adjacent to the Project Area. Therefore, reclamation activities in the Project Area would not significantly impact the amount of regional habitat available for mountain lions in the vicinity. While site conditions may change prior to reclamation of the future-term sites; it is unlikely that conditions would change such that they would result in new or additional impacts to mountain lion beyond those analyzed herein.

BURROWING OWL

Burrowing owl has a low to moderate potential to forage at all 20 borrow sites due to the Project Area's proximity to suitable desert scrub habitat. While no suitable burrows were observed within the Project Area, burrows could be created by small mammals and inhabited by burrowing owls in the future. Potential indirect impacts could include temporary crushing of suitable habitat, burrow destruction, increased sound and vibration levels, and exposure to dust which may also disrupt nesting activity in adjacent suitable nesting habitat. However, as discussed above, disturbance associated with reclamation activities would be temporary in nature and would be substantially similar to that which has and will continue to occur as part of ongoing CRA operations and maintenance activities.

Although no suitable burrowing owl burrows were observed within the Project Area; given the presence of suitable habitat, the species could occupy the sites in the future. In addition, site conditions may change prior to reclamation activities at both near-term and future-term sites. Direct impacts to burrowing owl within the reclamation areas at the near-term and future-term sites may include crushing/killing of individuals with equipment or vehicles. If activities occur during the breeding season, eggs or nestlings could be crushed or entombed in burrows. Therefore, there is a moderate potential for direct impacts at near-term and future-term sites.

SPECIAL STATUS BAT SPECIES

Special status bat species have moderate potential to occur at SB-1. No near-term reclamation activities would occur at SB-1. Indirect impacts could include increased sound and vibration levels, and exposure to dust. These activities could displace special status bat species and movement of soil may result in air quality impacts that could affect adjacent individuals. However, as discussed above, disturbance associated with reclamation activities would be temporary in nature and would be substantially similar to that which has and will continue to occur as part of ongoing CRA operations and maintenance activities. While no bat roosting habitat was observed within the Project Area, site conditions may change prior to reclamation of the future-term sites and direct impacts to special status bat species may include injury or mortality due to heavy equipment or vehicles. Therefore, direct and indirect impacts to special status bat species may occur at SB-1.

NESTING BIRDS

Several common bird species protected by CFGC 3503 and the MBTA may nest in shrubs or suitable burrows within the Project Area. Reclamation activities may result in direct or indirect impacts to nesting bird species, should they be present within and/or in the immediate vicinity of areas of disturbance at the time of reclamation. Impacts to nesting birds could occur if nests with eggs or young are present within the proposed disturbance area during restoration. These impacts include disturbance of an active nest during reclamation activities through dust, vibration, noise, or vegetation removal and direct mortality to an individual from equipment. While common birds are not special status species, the destruction of eggs or nestlings is prohibited by federal and state law and must be avoided. As discussed above, disturbance associated with reclamation activities would be temporary in nature and would be substantially similar to that which has and will continue to occur as part of ongoing CRA operations and maintenance activities. Therefore, there is a moderate potential for direct and indirect impacts to nesting birds.

6.2 Jurisdictional Waters and Wetlands

Potentially jurisdictional waters are present within or adjacent to the Project Area at SB-1, SB-2, SB-6, SB-7, SB-8, SB-9, SB-10, RV-2, RV-4, RV-5, RV-6, RV-7, RV-8 and RV-10. The Project (including both near-term and future-term sites) is not expected to permanently impact jurisdictional waters because no permanent structures, direct removal, or filling are proposed in these areas.

Furthermore, after reclamation is complete, more native vegetation is expected to be in place, which would enhance riparian habitat, if present. In locations where potentially jurisdictional waters are within the Project Area, the Project would not result in a loss of jurisdictional waters as no areas would be permanently impacted and all areas temporarily impacted would be revegetated as detailed in the MRP and associated revegetation plan. Therefore, no permanent impacts would occur.

Potential temporary impacts to jurisdictional waters would include, but would not be limited to vehicles driving and parking, the foot traffic of crews, and revegetation. Temporary indirect impacts could include runoff of sediment and dust into jurisdictional areas during operation of heavy equipment. However, upon reclamation the borrow sites would be graded and recontoured to 2H:1V final slopes, with drainage directed inward toward the pit floors to prevent on- or off-site erosion or siltation. Additionally, reclamation would be conducted using applicable stormwater best management practices (BMPs) such as berms and/or earthen dikes as detailed in the MRP, which would reduce the temporary indirect impacts. Of the near-term sites, potentially jurisdictional waters are within SB-9 and RV-4, and directly adjacent to SB-6. In addition, reclamation activities for 15 of the 20 sites are estimated to occur as late as 2121 and the limits of jurisdictional waters as well as the applicable regulations may change over the next 100 years. Therefore, the extent and severity of the impacts at these 15 future-term sites is currently unknown.

6.3 Wildlife Movement

The Project Area is surrounded by undeveloped land and open space providing a multitude of regional wildlife movement options within and adjacent to the Project Area. Implementation of reclamation activities within the Project Area would restore currently disturbed and unvegetated areas to natural habitat areas and would not involve placement of permanent structures. Upon completion of reclamation activities, including revegetation, wildlife would be able to move more freely through the Project Area because the restored habitat would provide cover for foraging and movement. Therefore, implementation of the Project (including both near-term and future-term sites) would not significantly alter existing wildlife movement patterns.

6.4 Local Policies and Ordinances

None of the species protected under the County of San Bernardino Desert Native Plant protection ordinance were observed within the Project Area, and no trees which are regulated by the County of Riverside Ordinance No. 559 are proposed for removal during Project activities. Therefore, reclamation at the near-term sites would not conflict with local policies or ordinances.

While no current conflict exists with local ordinances, policies may change or protected species could become established prior to reclamation of the future-term sites, and therefore reclamation of the future-term sites could conflict with future local policies. Therefore, future sites should be

reevaluated at the time of reclamation to determine potential for impacts to a local plan or ordinance.

6.5 Conservation Plans

None of the five near-term sites are within or adjacent to the CVMSHCP area. Therefore, no impacts would occur associated with Project activities at near-term sites.

RV-10 is located within the CVMSHCP area, but not within any specific CVMSHCP Conservation Area. Furthermore, none of the 27 covered species or 27 natural communities have potential to occur at RV-10. The Project would avoid direct impacts to CVMSHCP Conservation Areas and would not conflict with the CVMSHCP Conservation Objectives because the reclamation activities are not located in areas that support covered species or their habitat. While no current conflict exists with a Natural Conservation Community Plan, or other approved, regional, or state habitat conservation plan, policies may change, and reclamation activities at the sites proposed for reclamation in the future (up to 2121) could conflict with future adopted Habitat Conservation Plans, Natural Conservation Community Plans, or other approved local, regional, or state habitat conservation plans. Future sites should be reevaluated at the time of reclamation to determine potential for impacts to a Natural Conservation Community Plan, or other approved, regional, or state habitat conservation plan.

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7 Limitations, Assumptions, and Use Reliance

This Biological Resources Assessment has been performed in accordance with professionally accepted biological investigation practices conducted at this time and in this geographic area. The biological investigation is limited by the scope of work performed. Biological surveys for the presence or absence of certain taxa have been conducted as part of this assessment but were not performed during a particular blooming period, nesting period, or particular portion of the season when positive identification would be expected if present, and, therefore, cannot be considered definitive. The biological surveys are limited also by the environmental conditions present at the time of the surveys. In addition, general biological (or protocol) surveys do not guarantee that the organisms are not present and will not be discovered in the future within the site. In particular, mobile wildlife species could occupy the site on a transient basis, or re-establish populations in the future. Our field studies were based on current industry practices, which change over time and may not be applicable in the future. No other guarantees or warranties, expressed or implied, are provided. The findings and opinions conveyed in this report are based on findings derived from site reconnaissance, review of CNDDDB RareFind5, and specified historical and literature sources. Standard data sources relied upon during the completion of this report, such as the CNDDDB, may vary with regard to accuracy and completeness. In particular, the CNDDDB is compiled from research and observations reported to CDFW that may or may not have been the result of comprehensive or site-specific field surveys. Although Rincon believes the data sources are reasonably reliable, Rincon cannot and does not guarantee the authenticity or reliability of the data sources it has used. Additionally, pursuant to our contract, the data sources reviewed included only those that are practically reviewable without the need for extraordinary research and analysis.

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Appendix A

Regulatory Guidance

Regulatory Setting

The following is a summary of the regulatory context under which biological resources are managed at the federal, state, and local levels. A number of 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:

- U.S. Army Corps of Engineers (wetlands and other waters of the United States);
- U.S. Fish and Wildlife Service (federally listed species and migratory birds);
- Colorado River Basin Regional Water Quality Control Board (waters of the State); and
- California Department Fish and Wildlife (riparian areas, streambeds, and lakes; state-listed species; nesting birds).

United States Army Corps of Engineers

The United States Army Corps of Engineers (USACE), is responsible for administering several federal programs related to ensuring the quality and navigability of the nation's waters.

Clean Water Act Section 404

Congress enacted the CWA “to restore and maintain the chemical, physical, and biological integrity of the Nation's waters.” Under provisions of Section 404 of the Clean Water Act (CWA), the USACE regulates the placement of dredge or fill material into “waters of the United States.” In administering this program, the USACE must consider factors including the need to minimize impacts while maintaining the applicant's objectives to the extent practicable, and the CWA's requirement that any permitted discharge of fill must be the least environmentally damaging practicable alternative. The process of obtaining a Section 404 permit can be onerous, and may include public noticing and comment, a robust alternatives analysis performed under the U.S. Environmental Protection Agency's (USEPA) Clean Water Act Section 404(b)(1) Guidelines, environmental review under the National Environmental Policy Act, required interagency consultation processes triggered by other federal laws, and costly compensatory mitigation.

To streamline the permitting process for routine types of projects the USACE has determined will have only minimal environmental impacts, the USACE has issued a series of General Permits, including Nationwide Permits (NWP) issued at the national level and Regional General Permits (RGPs) issued at the regional level. For activities that meet the criteria, qualifying for coverage under a General Permit can be a boon because it eliminates the most complex steps in the permitting process (404(b)(1) analysis and NEPA review).

Waters of the U.S.

On April 21, 2020, the USACE and U.S. Environmental Protection Agency published the *Navigable Waters Protection Rule* to define “Waters of the United States.” This rule, effective on June 22, 2020, defines four categories of jurisdictional features, documents certain types of waters that are excluded from jurisdiction, and clarifies some regulatory terms. Under the *Navigable Waters Protection Rule*, “waters of the United States” include:

- (1) Territorial seas and traditional navigable waters;
- (2) Perennial and intermittent tributaries that contribute surface flow to those waters;
- (3) Certain Lakes and ponds, and impoundments of jurisdictional waters, and;
- (4) Wetlands adjacent to jurisdictional waters.

Tributaries are defined as “a river, stream, or similar naturally occurring surface water channel that contributes surface water flow to the territorial seas or traditional navigable waters in a typical year either directly or through one or more tributaries, jurisdictional lakes, ponds, and impoundments of jurisdictional waters, or adjacent wetlands.” The tributary category also includes a ditch that “either relocates a tributary, is constructed in a tributary, or is constructed in an adjacent wetland as long as the ditch is perennial or intermittent and contributes surface water flow to a traditional navigable water or territorial sea in a typical year.”

Adjacent wetlands are defined as wetlands that:

- (i) Abut, meaning to touch at least at one point or side of, a defined water of the U.S.;
- (ii) Are inundated by flooding from a defined water of the U.S. in a typical year;
- (iii) Are physically separated from a defined water of the U.S. by a natural berm, bank, dune, or similar natural features or by artificial dike, barrier or similar artificial structures as long as direct hydrological surface connection to defined Waters of the U.S. are allowed; or,
- (iv) Are physically separated from a defined water of the U.S. only by an artificial dike, barrier, or similar artificial structure so long as that structure allows for a direct hydrologic surface connection between the wetlands and the defined water of the U.S. in a typical year, such as through a culvert, flood or tide gate, pump, or similar artificial feature. An adjacent wetland is jurisdictional in its entirety when a road or similar artificial structure divides the wetland, as long as the structure allows for a direct hydrologic surface connection through or over that structure in a typical year.

The Navigable Waters Protection Rule states that the following areas not considered to be jurisdictional features even where they otherwise meet the definitions described above:

- (1) Groundwater, including groundwater drained through subsurface drainage systems;
- (2) Ephemeral features that flow only in direct response to precipitation including ephemeral streams, swales, gullies, rills and pools;
- (3) Diffuse stormwater runoff and directional sheet flow over uplands;
- (4) Ditches that are not defined Waters of the U.S. and not constructed in adjacent wetlands subject to certain limitations;
- (5) Prior converted cropland;
- (6) Artificially irrigated areas that would revert to upland if artificial irrigation ceases;
- (7) Artificial lakes and ponds that are not jurisdictional impoundments and that are constructed or excavated in upland or non-jurisdictional waters;
- (8) Water-filled depressions constructed or excavated in upland or in non-jurisdictional waters for the purpose of obtaining fill, sand, or gravel;
- (9) Stormwater control features constructed or excavated in uplands or in non-jurisdictional water to convey, treat, infiltrate, or stormwater run-off;
- (10) Groundwater recharge, water reuse, and wastewater recycling structures constructed or excavated in upland or in non-jurisdictional waters; and,

(11) Waste treatment systems.

USACE jurisdictional limits are typically identified by the ordinary high water mark (OHWM) or the landward edge of adjacent wetlands (where present). The OHWM is the “line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding area” (33 CFR 328.3).

Wetlands

The USACE defines wetlands as “those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions” (33 CFR 328.3). The USACE’s delineation procedures identify wetlands in the field based on indicators of three wetland parameters: hydrophytic vegetation, hydric soils, and wetland hydrology. The following is a discussion of each of these parameters.

Hydrophytic Vegetation

Hydrophytic vegetation dominates areas where frequency and duration of inundation or soil saturation exerts a controlling influence on the plant species present. Plant species are assigned wetland indicator status according to the probability of their occurring in wetlands. More than fifty percent of the dominant plant species must have a wetland indicator status to meet the hydrophytic vegetation criterion. The USACE published the National Wetland Plant List (USACE 2018), which separates vascular plants into the following four basic categories based on plant species frequency of occurrence in wetlands:

- **Obligate Wetland (OBL).** Almost always occur in wetlands
- **Facultative Wetland (FACW).** Usually occur in wetlands, but occasionally found in non-wetlands
- **Facultative (FAC).** Occur in wetlands or non-wetlands
- **Facultative Upland (FACU).** Usually occur in non-wetlands, but may occur in wetlands
- **Obligate Upland (UPL).** Almost never occur in wetlands

The USACE considers OBL, FACW and FAC species to be indicators of wetlands. An area is considered to have hydrophytic vegetation when greater than 50 percent of the dominant species in each vegetative stratum (tree, shrub, and herb) fall within these categories. Any species not appearing on the United States Fish and Wildlife Service’s list is assumed to be an upland species, almost never occurring in wetlands. In addition, an area needs to contain at least 5% vegetative cover to be considered as a vegetated wetland.

Hydric Soils

Hydric soils are saturated or inundated for a sufficient duration during the growing season to develop anaerobic or reducing conditions that favor the growth and regeneration of hydrophytic vegetation. Field indicators of wetland soils include observations of ponding, inundation, saturation, dark (low chroma) soil colors, bright mottles (concentrations of oxidized minerals such as iron), gleying (indicates reducing conditions by a blue-grey color), or accumulation of organic material. Additional supporting information includes documentation of soil as hydric or reference to wet conditions in the local soils survey, both of which must be verified in the field.

Wetland Hydrology

Wetland hydrology is inundation or soil saturation with a frequency and duration long enough to cause the development of hydric soils and plant communities dominated by hydrophytic vegetation. If direct observation of wetland hydrology is not possible (as in seasonal wetlands), or records of wetland hydrology are not available (such as stream gauges), assessment of wetland hydrology is frequently supported by field indicators, such as water marks, drift lines, sediment deposits, or drainage patterns in wetlands.

Rivers and Harbors Act Section 10

Section 10 of the Rivers and Harbors Act of 1899 requires authorization from the USACE for the construction of any structure in or over any navigable water of the United States. Structures or work outside the limits defined for navigable waters of the United States require a Section 10 permit if the structure or work affects the course, location, or condition of the water body. The law applies to any dredging or disposal of dredged materials, excavation, filling, re-channelization, or any other modification of a navigable water of the United States, and applies to all structures and work. It further includes, without limitation, any wharf, dolphin, weir, boom breakwater, jetty, groin, bank protection (e.g. riprap, revetment, bulkhead), mooring structures such as pilings, aerial or subaqueous power transmission lines, intake or outfall pipes, permanently moored floating vessel, tunnel, artificial canal, boat ramp, aids to navigation, and any other permanent, or semi-permanent obstacle or obstruction. It is important to note that Section 10 applies only to navigable waters, and thus does not apply to work in non-navigable wetlands or tributaries. In some cases, Section 10 authorization is issued by the USACE concurrently with CWA Section 404 authorization, such as when certain Nationwide Permits are used.

Regional Water Quality Control Board

The State Water Resources Control Board (SWRCB) and nine Regional Water Quality Control Boards (RWQCBs) have jurisdiction over “waters of the State,” which are defined as any surface water or groundwater, including saline waters, within the boundaries of the state (California Water Code sec. 13050(e)). These agencies also have responsibilities for administering portions of the CWA.

Clean Water Act Section 401

Section 401 of the CWA requires an applicant requesting a federal license or permit for an activity that may result in any discharge into navigable waters (such as a Section 404 Permit) to provide state certification that the proposed activity will not violate state and federal water quality standards. In California, CWA Section 401 Water Quality Certification (Section 401 Certification) is issued by the RWQCBs and by the SWRCB for multi-region projects. The process begins when an applicant requests a pre-application meeting with the RWQCB, waits no less than 30 days, and then submits an application to the RWQCB and informs the USACE (or the applicable agency from which a license or permit was requested) that an application has been submitted. The USACE will then determine a “reasonable period of time” for the RWQCB to act on the application; this is typically 60 days for routine projects and longer for complex projects but may not exceed one year. Under current regulations, once initiated, the reasonable period of time cannot be stopped or paused. When the period has elapsed, if the RWQCB has not either issued or denied the application for Section 401 Certification, the USACE may determine that Certification has been waived and issue

the requested permit. If a Section 401 Certification is issued it may include binding conditions, imposed either through the Certification itself or through the requested federal license or permit.

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act (Porter-Cologne Act) is the principal law governing water quality regulation in California. It establishes a comprehensive program to protect water quality and the beneficial uses of water. The Porter-Cologne Act applies to surface waters, wetlands, and ground water and to both point and nonpoint sources of pollution. Pursuant to the Porter-Cologne Act (California Water Code section 13000 et seq.), the policy of the State is as follows:

- The quality of all the waters of the State shall be protected
- All activities and factors affecting the quality of water shall be regulated to attain the highest water quality within reason
- The State must be prepared to exercise its full power and jurisdiction to protect the quality of water in the State from degradation

The Porter-Cologne Act established nine RWQCBs (based on watershed boundaries) and the SWRCB, which are charged with implementing its provisions and which have primary responsibility for protecting water quality in California. The SWRCB provides program guidance and oversight, allocates funds, and reviews RWQCB decisions. In addition, the SWRCB allocates rights to the use of surface water. The RWQCBs have primary responsibility for individual permitting, inspection, and enforcement actions within each of nine hydrologic regions. The SWRCB and RWQCBs have numerous nonpoint source related responsibilities, including monitoring and assessment, planning, financial assistance, and management.

Section 13260 of the Porter-Cologne Act requires any person discharging or proposing to discharge waste that could affect the quality of waters of the State to file a Report of Waste Discharge with the appropriate RWQCB. The RWQCB may then authorize the discharge, subject to conditions, by issuing Waste Discharge Requirements (WDRs). While this requirement was historically applied primarily to outfalls and similar point source discharges, the SWRCB's *State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State*, effective May 2020, make it clear that the agency will apply the Porter-Cologne Act's requirements to discharges of dredge and fill material as well. The *Procedures* state that they are to be used in issuing CWA Section 401 Certifications and WDRs, and largely mirror the existing review requirements for CWA Section 404 Permits and Section 401 Certifications, incorporating most elements of the USEPA's *Section 404(b)(1) Guidelines*. Following issuance of the *Procedures*, the SWRCB produced a consolidated application form for dredge/fill discharges that can be used to obtain a CWA Section 401 Water Quality Certification, WDRs, or both.

Non-Wetland Waters of the State

The SWRCB and RWQCBs have not established regulations for field determinations of waters of the state except for wetlands currently. In many cases the RWQCBs interpret the limits of waters of the State to be bounded by the OHWM unless isolated conditions or ephemeral waters are present. However, in the absence of statewide guidance each RWQCB may interpret jurisdictional boundaries within their region and the SWRCB has encouraged applicants to confirm jurisdictional limits with their RWQCB before submitting applications. As determined by the RWQCB, waters of the State may include riparian areas or other locations outside the OHWM, leading to a larger jurisdictional area over a given water body compared to the USACE.

Wetland Waters of the State

Procedures for defining wetland waters of the State pursuant to the SWRCB's *State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State* went into effect May 28, 2020. The SWRCB defines an area as wetland if, under normal circumstances:

- (i) the area has continuous or recurrent saturation of the upper substrate caused by groundwater, or shallow surface water, or both;
- (ii) the duration of such saturation is sufficient to cause anaerobic conditions in the upper substrate; and
- (iii) the area's vegetation is dominated by hydrophytes or the area lacks vegetation.

The SWRCB's Implementation Guidance for the Wetland Definition and Procedures for Discharges of Dredge and Fill Material to Waters of the State (2020), states that waters of the U.S. and waters of the State should be delineated using the standard USACE delineation procedures, taking into consideration that the methods shall be modified only to allow for the fact that a lack of vegetation does not preclude an area from meeting the definition of a wetland.

United States Fish and Wildlife Service

The United States Fish and Wildlife Service (USFWS) implements several laws protecting the Nation's fish and wildlife resources, including the Endangered Species Act (ESA; 16 United States Code [USC] Sections 153 et seq.), the Migratory Bird Treaty Act (MBTA; 16 USC Sections 703-711) and the Bald and Golden Eagle Protection Act (16 USC Section 668).

Endangered Species Act

The USFWS and National Marine Fisheries Service (NMFS) share responsibility for implementing the ESA. Generally, the USFWS implements the FESA for terrestrial and freshwater species, while the NMFS implements the FESA for marine and anadromous species. Projects that would result in "take" of any threatened or endangered animal species, or a threatened or endangered plant species if occurring on federal land, are required to obtain permits from the USFWS or NMFS through either Section 7 (interagency consultation with a federal nexus) or Section 10 (Habitat Conservation Plan) of the ESA, depending on the involvement by the federal government in funding, authorizing, or carrying out the project. The permitting process is used to determine if a project would jeopardize the continued existence of a listed species and what measures would be required to avoid jeopardizing the species. "Take" under federal definition means to harass, harm (which includes habitat modification), pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. Proposed or candidate species do not have the full protection of the ESA; however, the USFWS and NMFS advise project applicants that they could be elevated to listed status at any time.

Migratory Bird Treaty Act

The MBTA of 1918 implements four international conservation treaties that the U.S. entered into with Canada in 1916, Mexico in 1936, Japan in 1972, and Russia in 1976. It is intended to ensure the sustainability of populations of all protected migratory bird species. The law has been amended with the signing of each treaty, as well as when any of the treaties were amended, such as with Mexico in

1976 and Canada in 1995. The MBTA prohibits the take (including killing, capturing, selling, trading, and transport) of protected migratory bird species without prior authorization by the USFWS.

The list of migratory bird species protected by the law, in regulations at 50 CFR Part 10.13, is primarily based on bird families and species included in the four international treaties. A migratory bird species is included on the list if it meets one or more of the following criteria:

1. It occurs in the United States or U.S. territories as the result of natural biological or ecological processes and is currently, or was previously listed as, a species or part of a family protected by one of the four international treaties or their amendments.
2. Revised taxonomy results in it being newly split from a species that was previously on the list, and the new species occurs in the United States or U.S. territories as the result of natural biological or ecological processes.
3. New evidence exists for its natural occurrence in the United States or U.S. territories resulting from natural distributional changes and the species occurs in a protected family.

In 2004, the Migratory Bird Treaty Reform Act limited the scope of the MBTA by stating the MBTA applies only to migratory bird species that are native to the United States or U.S. territories, and that a native migratory bird species is one that is present as a result of natural biological or ecological processes. The MBTRA requires the USFWS to publish a list of all nonnative, human-introduced bird species to which the MBTA does not apply, and an updated list was published in 2020. The 2020 update identifies species belonging to biological families referred to in treaties the MBTA implements but are not protected because their presence in the United States or U.S. territories is solely the result of intentional or unintentional human-assisted introductions.

Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act prohibits anyone, without a permit issued by the USFWS, from "taking" bald or golden eagles, including their parts (including feathers), nests, or eggs. The Act provides criminal penalties for persons who "take, possess, sell, purchase, barter, offer to sell, purchase or barter, transport, export or import, at any time or any manner, any bald eagle ... [or any golden eagle], alive or dead, or any part, nest, or egg thereof." The Act defines "take" as "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb."

"Disturb" means "to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, 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."

In addition to immediate impacts, this definition also covers impacts that result from human-induced alterations initiated around a previously used nest site during a time when eagles are not present, if, upon the eagle's return, such alterations agitate or bother an eagle to a degree that interferes with or interrupts normal breeding, feeding, or sheltering habits, and causes injury, death or nest abandonment.

California Department of Fish and Wildlife

The California Department of Fish and Wildlife (CDFW) derives its authority from the Fish and Game Code of California and administers several State laws protecting fish and wildlife resources and the habitats upon which they depend.

California Endangered Species Act

The California Endangered Species Act (CESA) (Fish and Game Code Sections 2050 et. seq.) prohibits take of state listed threatened or endangered. Take under CESA is defined as "Hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill" (Fish and Game Code sec. 86). This definition does not prohibit indirect harm by way of habitat modification, except where such harm is the proximate cause of death of a listed species. Where incidental take would occur during construction or other lawful activities, CESA allows the CDFW to issue an Incidental Take Permit upon finding, among other requirements, that impacts to the species have been minimized and fully mitigated. Unlike the federal ESA, CESA's protections extend to candidate species during the period (typically one year) while the California Fish and Game Commission decides whether the species warrants CESA listing.

Native Plant Protection Act

The CDFW also has authority to administer the Native Plant Protection Act (NPPA) (Fish and Game Code Section 1900 et seq.). The NPPA requires the CDFW to establish criteria for determining if a species, subspecies, or variety of native plant is endangered or rare, and prohibits the take of listed plant species. Effective in 2015, CDFW promulgated regulations (14 CCR 786.9) under the authority of the NPPA, establishing that the CESA's permitting procedures would be applied to plants listed under the NPPA as "Rare." With this change, there is little practical difference for the regulated public between plants listed under CESA and those listed under the NPPA.

Fully Protected Species Laws

The CDFW enforces Sections 3511, 4700, 5050, and 5515 of the Fish and Game Code, which prohibit take of species designated as Fully Protected. The CDFW is not allowed to issue an Incidental Take Permit for Fully Protected species; therefore, impacts to these species must be avoided. The exception is situations where a Natural Community Conservation Plan (NCCP) is in place that authorizes take of the fully protected species.

Avian Protection Laws

California Fish and Game Code sections 3503, 3503.5, and 3513 describe unlawful take, possession, or destruction of native birds, nests, and eggs. Section 3503.5 of the Code protects all birds-of-prey and their eggs and nests against take, possession, or destruction of nests or eggs. Section 3513 makes it a state-level offense to take any bird in violation of the federal Migratory Bird Treaty Act.

Protection of Lakes and Streambeds

California Fish and Game Code section 1602 states that it is unlawful for any person to "substantially divert or obstruct the natural flow of, or substantially change or use any material from the bed, channel, or bank of, any river, stream, or lake" without first notifying the California Department of Fish and Wildlife (CDFW) of that activity. Thereafter, if CDFW determines and informs the entity that the activity will not substantially adversely affect any existing fish or wildlife resources, the entity

may commence the activity. If, however, CDFG determines that the activity may substantially adversely affect an existing fish or wildlife resource, the entity may be required to obtain from CDFW a Streambed Alteration Agreement (SAA), which will include reasonable measures necessary to protect the affected resource(s), before the entity may conduct the activity described in the notification. Upon receiving a complete Notification of Lake/Streambed Alteration, CDFW has 60 days to present the entity with a Draft SAA. Upon review of the Draft SAA by the applicant, any problematic terms are negotiated with CDFW and a final SAA is executed.

The CDFW has not defined the term “stream” for the purposes of implementing its regulatory program under Section 1602, and the agency has not promulgated regulations directing how jurisdictional streambeds may be identified, or how their limits should be delineated. However, four relevant sources of information offer insight as to the appropriate limits of CDFW jurisdiction as discussed below.

- **The plain language of Section 1602 of CFGC** establishes the following general concepts:
 - References “river,” “stream,” and “lake”
 - References “natural flow”
 - References “bed,” “bank,” and “channel”
- **Applicable court decisions**, in particular *Rutherford v. State of California* (188 Cal App. 3d 1276 (1987)), which interpreted Section 1602’s use of “stream” to be as defined in common law. The Court indicated that a “stream” is commonly understood to:
 - Have a source and a terminus
 - Have banks and a channel
 - Convey flow at least periodically, but need not flow continuously and may at times appear outwardly dry
 - Represent the depression between the banks worn by the regular and usual flow of the water
 - Include the area between the opposing banks measured from the foot of the banks from the top of the water at its ordinary stage, including intervening sand bars
 - Include the land that is covered by the water in its ordinary low stage
 - Include lands below the OHWM
- **CDFW regulations** defining “stream” for other purposes, including sport fishing (14 CCR 1.72) and streambed alterations associated with cannabis production (14 CCR 722(c)(21)), which indicate that a stream:
 - Flows at least periodically or intermittently
 - Flows through a bed or channel having banks
 - Supports fish or aquatic life
 - Can be dry for a period of time
 - Includes watercourses where surface or subsurface flow supports or has supported riparian vegetation
- **Guidance documents**, including *A Field Guide to Lake and Streambed Alteration Agreements* (CDFG 1994) and *Methods to Describe and Delineate Episodic Stream Processes on Arid Landscapes for Permitting Utility-Scale Solar Power Plants* (Brady and Vyverberg 2013), which suggest the following:

- A stream may flow perennially or episodically
- A stream is defined by the course in which water currently flows, or has flowed during the historic hydrologic course regime (approximately the last 200 years)
- Width of a stream course can reasonably be identified by physical or biological indicators
- A stream may have one or more channels (single thread vs. compound form)
- Features such as braided channels, low-flow channels, active channels, banks associated with secondary channels, floodplains, islands, and stream-associated vegetation, are interconnected parts of the watercourse
- Canals, aqueducts, irrigation ditches, and other means of water conveyance can be considered streams if they support aquatic life, riparian vegetation, or stream-dependent terrestrial wildlife
- Biologic components of a stream may include aquatic and riparian vegetation, all aquatic animals including fish, amphibians, reptiles, invertebrates, and terrestrial species which derive benefits from the stream system
- The lateral extent of a stream can be measured in different ways depending on the particular situation and the type of fish or wildlife resource at risk

The tenets listed above, among others, are applied to establish the boundaries of streambeds in various environments. Importance of each factor may be weighted based on site-specific considerations and the applicability of the indicators to the streambed at hand.

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Appendix B

Representative Site Photographs



Photograph 1. Overview of SB-1.



Photograph 2. Overview of SB-2.



Photograph 3. Overview of SB-3.



Photograph 4. Overview of SB-4.



Photograph 5. Overview of SB-5.



Photograph 6. Overview of SB-6.



Photograph 7. Overview of SB-7.



Photograph 8. Overview of SB-8.



Photograph 9. Overview of SB-9.



Photograph 10. Overview of SB-10.



Photograph 9. Overview of RV-1.



Photograph 10. Overview of RV-2.



Photograph 9. Overview of RV-3.



Photograph 10. Overview of RV-4.



Photograph 9. Overview of RV-5.



Photograph 10. Overview of RV-6.



Photograph 9. Overview of RV-7



Photograph 10. Overview of RV-8.



Photograph 9. Overview of RV-9.



Photograph 10. Overview of RV-10.

Appendix C

Special Status Species Evaluation Tables

Special Status Species with Potential to Occur at SB-1

Scientific Name	Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/Observations
Plants					
<i>Carnegiea gigantea</i>	saguaro	None/None G5/S1 2B.2	Sonoran Desert scrub. Rocky sites. 50-975 m. perennial stem succulent. Blooms May-Jun	None	Disturbed, marginally suitable desert scrub habitat is present within the Project Area. However, this large perennial species was not observed.
<i>Mammillaria grahamii</i> var. grahamii	Graham fishhook cactus	None/None G4T4/S2 2B.2	Sonoran Desert scrub. Gravelly or rocky sites in washes, canyons and on plains. Sometimes associated with creosote bush scrub. 300-900 m. perennial stem succulent. Blooms Apr-Sep	None	Disturbed, marginally suitable desert scrub habitat is present within the Project Area. However, this large perennial species was not observed.
<i>Mentzelia puberula</i>	Darlington's blazing star	None/None G5/S2 2B.2	Mojave Desert scrub, Sonoran Desert scrub. Sandy crevices in cliffs or on rocky slopes. 70-1280 m. perennial herb. Blooms Mar-May	None	Disturbed, marginally suitable desert scrub habitat is present within the Project Area. However, sandy crevices in cliffs or rocky slopes are not present within the Project Area.
<i>Penstemon pseudospectabilis</i> ssp. pseudospectabilis	desert beardtongue	None/None G4G5T4/S3 2B.2	Mojavean desert scrub, Sonoran Desert scrub. Often in sandy washes; sometimes on rocky slopes. 80-1740 m. perennial herb. Blooms Jan-May	None	Disturbed, marginally suitable desert scrub habitat is present within the Project Area. Additionally, this perennial species was not observed.
<i>Psoralea fremontii</i> var. attenuatus	narrow-leaved psoralea	None/None G5T4/S3 2B.3	Sonoran Desert scrub. Granitic or volcanic soils. 310-915 m. perennial shrub. Blooms Apr	None	Suitable soils are not present within the Project Area.
<i>Teucrium glandulosum</i>	desert germander	None/None G4/S2 2B.3	Sonoran Desert scrub. Rocky sites. 400-790 m. perennial stoloniferous herb. Blooms Apr-May	None	Disturbed, marginally suitable desert scrub habitat is present within the Project Area. However, this perennial species was not observed.

The Metropolitan Water District of Southern California
Colorado River Aqueduct Master Reclamation Plan for San Bernardino and Riverside Counties

Scientific Name	Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/Observations
<i>Yucca brevifolia</i>	Joshua tree	None/CT G5/S2	Confined mostly to the Mojave Desert between 400 and 1,800 m (1,300 and 5,900 ft) elevation. Habitats occur in broad valleys where soils are deep, on alluvial or rocky slopes, and on pediments with minimal runoff surrounding desert mountains and mesas	None	Disturbed, marginally suitable habitat is located within the Project Area; however, this large perennial species was not observed within or adjacent to the Project Area.
Invertebrates					
<i>Oliarces clara</i>	cheeseweed owlfly (cheeseweed moth lacewing)	None/None G1G3/S2	Inhabits the lower Colorado River drainage. Found under rocks or in flight over streams. Larrea tridentata is the suspected larval host.	None	The Colorado River is outside of the Project Area and no streams are present within the Project Area.
Reptiles					
<i>Gopherus agassizii</i>	desert tortoise	FT/ST G3/S2S3	Most common in desert scrub, desert wash, and Joshua tree habitats; occurs in almost every desert habitat. Require friable soil for burrow and nest construction. Creosote bush habitat with large annual wildflower blooms preferred.	Moderate	Marginally suitable but highly disturbed desert scrub habitat is present within the Project Area. Friable soil is present within and adjacent to the Project Area.
Birds					
<i>Athene cunicularia</i>	burrowing owl	None/None G4/S3 SSC	Open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	Moderate (foraging only)	Disturbed, marginally suitable desert scrub habitat for foraging is present within the Project Area. No existing suitable burrows were observed within the Project Area.

Scientific Name	Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/Observations
<i>Falco mexicanus</i>	prairie falcon	None/None G5/S4 WL	Inhabits dry, open terrain, either level or hilly. Breeding sites located on cliffs. Forages far afield, even to marshlands and ocean shores.	High (foraging only)	The Project Area is disturbed and does not contain suitable breeding habitat; however, suitable breeding habitat (cliffs) is located directly adjacent to the Project Area. Suitable foraging habitat is located within the Project Area.
<i>Haliaeetus leucocephalus</i>	bald eagle	FD/SE G5/S3 FP	Ocean shore, lake margins, and rivers for both nesting and wintering. Most nests within 1 mile of water. Nests in large, old-growth, or dominant live tree with open branches, especially ponderosa pine. Roosts communally in winter.	High (foraging only)	Suitable nesting habitat is present within 1 mile of but not within the Project Area. Suitable foraging habitat is present within the Project Area. A known bald eagle nest that has been used in prior years is within 1,200 feet of the Project Area.
Mammals					
<i>Corynorhinus townsendii</i>	Townsend's big-eared bat	None/None G3G4/S2 SSC	Throughout California in a wide variety of habitats. Most common in mesic sites. Roosts in the open, hanging from walls and ceilings. Roosting sites limiting. Extremely sensitive to human disturbance.	Moderate (foraging only)	No suitable roosting habitat present within Project Area; however, marginally suitable roosting habitat (small rocky outcrops) is located directly adjacent to the Project Area. Suitable foraging habitat is present within the Project Area.
<i>Macrotus californicus</i>	California leaf-nosed bat	None/None G4/S3 SSC	Desert riparian, desert wash, desert scrub, desert succulent scrub, alkali scrub and palm oasis habitats. Needs rocky, rugged terrain with mines or caves for roosting.	Moderate (foraging only)	No suitable roosting habitat present within Project Area; however, suitable roosting habitat (rocky outcrops) is located directly adjacent to the Project Area. Suitable foraging habitat is present within the Project Area.
<i>Myotis velifer</i>	cave myotis	None/None G5/S1 SSC	Lowlands of the Colorado River and adjacent mountain ranges. Require caves or mines for roosting.	Moderate (foraging only)	No suitable roosting habitat present within Project Area; however, suitable roosting habitat (rocky outcrops) directly adjacent to the Project Area. Suitable foraging habitat is present within the Project Area.

The Metropolitan Water District of Southern California
Colorado River Aqueduct Master Reclamation Plan for San Bernardino and Riverside Counties

Scientific Name	Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/Observations
<i>Myotis yumanensis</i>	Yuma myotis	None/None G5/S4 SSC	Optimal habitats are open forests and woodlands with sources of water over which to feed. Distribution is closely tied to bodies of water. Maternity colonies in caves, mines, buildings or crevices.	Moderate (foraging only)	No suitable roosting habitat present within Project Area; however, marginally suitable roosting habitat (rocky outcrops) is located directly adjacent to the Project Area. Suitable foraging habitat is present within the Project Area.
<i>Puma concolor</i>	mountain lion	CT/CE	Large areas of relatively undisturbed habitats with adequate connectivity. Pine forests, riparian and oak woodlands, streams, chaparral, and grasslands. Also known to occur in desert habitats.	Moderate	Suitable open desert habitat within the species' range is present within the Project Area. Project Area may support transient travel by mountain lions, though is too small to support long-term occupancy.

Regional Vicinity refers to within a 9-quadrant search radius of site.

Status (Federal/State)

FD = Federal Delisted

SE = State Endangered

SSC = CDFW Species of Special Concern

FP = CDFW Fully Protected

CT = Candidate State Threatened

CE = Candidate State Endangered

CRPR (CNPS California Rare Plant Rank)

2B= Rare, Threatened, or Endangered in California, but more common elsewhere

CRPR Threat Code Extension

.2 = Moderately threatened in California (20-80% of occurrences threatened/moderate degree and immediacy of threat)

.3 = Not very endangered in California (<20% of occurrences threatened/low degree and immediacy of threat)

Other Statuses

G1 or S1 Critically Imperiled Globally or Subnationally (state)

G2 or S2 Imperiled Globally or Subnationally (state)

G3 or S3 Vulnerable to extirpation or extinction Globally or Subnationally (state)

G4/5 or S4/5 Apparently secure, common and abundant

T Global condition of subspecies/varieties

Special Status Species with Potential to Occur at SB-2

Scientific Name	Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/Observations
Plants					
<i>Eremothera boothii</i> ssp. boothii	Booth's evening-primrose	None/None G5T4/S3 2B.3	Joshua tree woodland, pinyon and juniper woodland. 290-2410 m. annual herb. Blooms Apr-Sep	None	Suitable habitat (Joshua tree woodland or juniper woodland) is not present.
<i>Yucca brevifolia</i>	Joshua tree	None/CT G5/S2	Confined mostly to the Mojave Desert between 400 and 1,800 m (1,300 and 5,900 ft) elevation. Habitats occur in broad valleys where soils are deep, on alluvial or rocky slopes, and on pediments with minimal runoff surrounding desert mountains and mesas	None	Disturbed, marginally suitable habitat is located within the Project Area; however, this large perennial species was not observed within or adjacent to the Project Area.
Reptiles					
<i>Gopherus agassizii</i>	desert tortoise	FT/ST G3/S2S3	Most common in desert scrub, desert wash, and Joshua tree habitats; occurs in almost every desert habitat. Require friable soil for burrow and nest construction. Creosote bush habitat with large annual wildflower blooms preferred.	Moderate	Marginally suitable but highly disturbed desert scrub habitat is present within the Project Area. Friable soil is present within and adjacent to the Project Area.
Birds					
<i>Athene cunicularia</i>	burrowing owl	None/None G4/S3 SSC	Open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	Moderate (foraging only)	Disturbed, marginally suitable desert scrub habitat for foraging is present within the Project Area. No existing suitable burrows were observed within the Project Area.
Mammals					
<i>Puma concolor</i>	mountain lion	CT/CE	Large areas of relatively undisturbed habitats with adequate connectivity. Pine forests, riparian and oak woodlands, streams, chaparral, and grasslands. Also known to occur in desert habitats.	Moderate	Suitable open desert habitat within the species' range is present within the Project Area. Project Area may support transient travel by mountain lions, though is too small to support long-term occupancy.

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Regional Vicinity refers to within a 9-quad search radius of site.

Status (Federal/State)		CRPR (CNPS California Rare Plant Rank)
FT =	Federal Threatened	2B= Rare, Threatened, or Endangered in California, but more common elsewhere
ST =	State Threatened	
SSC =	CDFW Species of Special Concern	CRPR Threat Code Extension
CT =	Candidate State Threatened	.3 = Not very endangered in California (<20% of occurrences threatened/
CE =	Candidate State Endangered	low degree and immediacy of threat)

Other Statuses

G2 or S2	Imperiled Globally or Subnationally (state)
G3 or S3	Vulnerable to extirpation or extinction Globally or Subnationally (state)
G4/5 or S4/5	Apparently secure, common and abundant
T	Global condition of subspecies/varieties

Special Status Species with Potential to Occur at SB-3

Scientific Name	Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/Observations
Plants					
<i>Astragalus insularis</i> var. harwoodii	Harwood's milk-vetch	None/None G5T4/S2 2B.2	Desert dunes, Mojavean desert scrub. Open sandy flats and sandy or stony desert washes; mostly in creosote bush scrub. -50-700 m. annual herb. Blooms Jan-May	Low	Low quality desert scrub habitat present. The Project Area is highly disturbed and contains little vegetation.
<i>Eriastrum harwoodii</i>	Harwood's eriastrum	None/None G2/S2 1B.2	Desert dunes. 75-720 m. annual herb. Blooms Mar-Jun	None	Suitable habitat (dunes) not present.
<i>Yucca brevifolia</i>	Joshua tree	None/CT G5/S2	Confined mostly to the Mojave Desert between 400 and 1,800 m (1,300 and 5,900 ft) elevation. Habitats occur in broad valleys where soils are deep, on alluvial or rocky slopes, and on pediments with minimal runoff surrounding desert mountains/mesas	None	Project Area is disturbed and does not contain suitable habitat; additionally, this large perennial species was not observed within or adjacent to the Project Area.

Scientific Name	Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/Observations
Reptiles					
<i>Gopherus agassizii</i>	desert tortoise	FT/ST G3/S2S3	Most common in desert scrub, desert wash, and Joshua tree habitats; occurs in almost every desert habitat. Require friable soil for burrow/nest construction. Creosote bush habitat with large annual wildflower blooms preferred.	Moderate	Marginally suitable but highly disturbed desert scrub habitat is present within the Project Area. Friable soil is present within and adjacent to the Project Area.
<i>Uma scoparia</i>	Mojave fringe-toed lizard	None/None G3G4/S3S4 SSC	Fine, loose, wind-blown sand in sand dunes, dry lakebeds, riverbanks, desert washes, sparse alkali scrub and desert scrub. Shrubs or annual plants may be necessary for arthropods found in the diet.	None	Suitable habitat (dunes and fine wind blown sands) not present. The Project Area is highly disturbed.
Birds					
<i>Athene cunicularia</i>	burrowing owl	None/None G4/S3 SSC	Open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	Moderate (foraging only)	Disturbed, marginally suitable desert scrub habitat for foraging is present within the Project Area. No existing suitable burrows were observed within the Project Area.
Mammals					
<i>Ovis canadensis nelsoni</i>	Desert bighorn sheep	None/None G4T4/S3 FP	Widely distributed from the White Mtns. in Mono Co. to the Chocolate Mts in Imperial Co. Open, rocky, steep areas with available water and herbaceous forage.	None	Suitable habitat (open, rocky, steep areas with available water and herbaceous forage) not present.
<i>Puma concolor</i>	mountain lion	CT/CE	Large areas of relatively undisturbed habitats with adequate connectivity. Pine forests, riparian and oak woodlands, streams, chaparral, and grasslands. Also known to occur in desert habitats.	Moderate	Suitable open desert habitat within the species' range is present within the Project Area. Project Area may support transient travel by mountain lions, though is too small to support long-term occupancy.

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Regional Vicinity refers to within a 9-quad search radius of site.

Status (Federal/State)		CRPR (CNPS California Rare Plant Rank)
FT =	Federal Threatened	1B = Rare, Threatened, or Endangered in California and elsewhere
ST =	State Threatened	2B= Rare, Threatened, or Endangered in California, but more common elsewhere
FP =	CDFW Fully Protected	
SSC =	CDFW Species of Special Concern	CRPR Threat Code Extension
CT =	Candidate State Threatened	.2 = Moderately threatened in California (20-80% of occurrences threatened/
CE =	Candidate State Endangered	moderate degree and immediacy of threat)

Other Statuses

G2 or S2	Imperiled Globally or Subnationally (state)
G3 or S3	Vulnerable to extirpation or extinction Globally or Subnationally (state)
G4/5 or S4/5	Apparently secure, common and abundant
T	Global condition of subspecies/varieties

Special Status Species with Potential to Occur at SB-4

Scientific Name	Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/Observations
Plants					
<i>Eriastrum harwoodii</i>	Harwood's eriastrum	None/None G2/S2 1B.2	Desert dunes. 75-720 m. annual herb. Blooms Mar-Jun	None	Suitable habitat (dunes) not present.
<i>Yucca brevifolia</i>	Joshua tree	None/CT G5/S2	Confined mostly to the Mojave Desert between 400 and 1,800 m (1,300 and 5,900 ft) elevation. Habitats occur in broad valleys where soils are deep, on alluvial or rocky slopes, and on pediments with minimal runoff surrounding desert mountains and mesas	None	Disturbed, marginally suitable habitat is located within the Project Area, but this large perennial species was not observed within or adjacent to the Project Area.
Reptiles					
<i>Gopherus agassizii</i>	desert tortoise	FT/ST G3/S2S3	Most common in desert scrub, desert wash, and Joshua tree habitats; occurs in almost every desert habitat. Require friable soil for burrow and nest construction. Creosote bush habitat with large annual wildflower blooms preferred.	Moderate	Marginally suitable but highly disturbed desert scrub habitat is present within the Project Area. Friable soil is present within and adjacent to the Project Area.

Scientific Name	Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/Observations
Birds					
<i>Athene cunicularia</i>	burrowing owl	None/None G4/S3 SSC	Open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	Moderate (foraging only)	Disturbed, marginally suitable desert scrub habitat for foraging is present within the Project Area. No existing suitable burrows were observed within the Project Area.
Mammals					
<i>Puma concolor</i>	mountain lion	CT/CE	Large areas of relatively undisturbed habitats with adequate connectivity. Pine forests, riparian and oak woodlands, streams, chaparral, and grasslands. Also known to occur in desert habitats.	Moderate	Suitable open desert habitat within the species' range is present within the Project Area. Project Area may support transient travel by mountain lions, though is too small to support long-term occupancy.

Regional Vicinity refers to within a 9-quad search radius of site.

Status (Federal/State)

FT = Federal Threatened

ST = State Threatened

CT = Candidate State Threatened

CE = Candidate State Endangered

SSC = CDFW Species of Special Concern

CRPR (CNPS California Rare Plant Rank)

1B = Rare, Threatened, or Endangered in California and elsewhere

CRPR Threat Code Extension

.2 = Moderately threatened in California (20-80% of occurrences threatened/moderate degree and immediacy of threat)

Other Statuses

G2 or S2 Imperiled Globally or Subnationally (state)

G3 or S3 Vulnerable to extirpation or extinction Globally or Subnationally (state)

G4/5 or S4/5 Apparently secure, common and abundant

Special Status Species with Potential to Occur at SB-5

Scientific Name	Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/Observations
Plants					
<i>Yucca brevifolia</i>	Joshua tree	None/CT G5/S2	Confined mostly to the Mojave Desert between 400 and 1,800 m (1,300 and 5,900 ft) elevation. Habitats occur in broad valleys where soils are deep, on alluvial or rocky slopes, and on pediments with minimal runoff surrounding desert mountains and mesas	None	Disturbed, marginally suitable habitat is located within the Project Area, but this large perennial species was not observed within or adjacent to the Project Area.
Reptiles					
<i>Gopherus agassizii</i>	desert tortoise	FT/ST G3/S2S3	Most common in desert scrub, desert wash, and Joshua tree habitats; occurs in almost every desert habitat. Require friable soil for burrow and nest construction. Creosote bush habitat with large annual wildflower blooms preferred.	Moderate	Marginally suitable but highly disturbed desert scrub habitat is present within and adjacent to the Project Area. Friable soil is present within and adjacent to the Project Area.
Birds					
<i>Athene cunicularia</i>	burrowing owl	None/None G4/S3 SSC	Open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	Moderate (foraging only)	Marginally suitable but highly disturbed desert scrub habitat suitable for foraging is present within the Project Area. No existing suitable burrows were observed within the Project Area.
Mammals					
<i>Puma concolor</i>	mountain lion	CT/CE	Large areas of relatively undisturbed habitats with adequate connectivity. Pine forests, riparian and oak woodlands, streams, chaparral, and grasslands. Also known to occur in desert habitats.	Moderate	Suitable open desert habitat within the species' range is present within the Project Area. Project Area may support transient travel by mountain lions, though is too small to support long-term occupancy.

Regional Vicinity refers to within a 9-quad search radius of site.

Status (Federal/State)

FT = Federal Threatened

CT = Candidate State Threatened

CE = Candidate State Endangered

ST = State Threatened

SSC = CDFW Species of Special Concern

Other Statuses

G1 or S1 Critically Imperiled Globally or Subnationally (state)

G2 or S2 Imperiled Globally or Subnationally (state)

G3 or S3 Vulnerable to extirpation or extinction Globally or Subnationally (state)

G4/5 or S4/5 Apparently secure, common and abundant

Special Status Species With Potential to Occur at SB-6

Scientific Name	Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/Observations
Plants					
<i>Yucca brevifolia</i>	Joshua tree	None/CT G5/S2	Confined mostly to the Mojave Desert between 400 and 1,800 m (1,300 and 5,900 ft) elevation. Habitats occur in broad valleys where soils are deep, on alluvial or rocky slopes, and on pediments with minimal runoff surrounding desert mountains and mesas	None	Disturbed, marginally suitable habitat is located within the Project Area, but this large perennial species was not observed within or adjacent to the Project Area.
Reptiles					
<i>Gopherus agassizii</i>	desert tortoise	FT/ST G3/S2S3	Most common in desert scrub, desert wash, and Joshua tree habitats; occurs in almost every desert habitat. Require friable soil for burrow and nest construction. Creosote bush habitat with large annual wildflower blooms preferred.	Moderate	Marginally suitable but highly disturbed desert scrub habitat is present within and adjacent to the Project Area. Friable soil is present within and adjacent to the Project Area.
Birds					
<i>Athene cunicularia</i>	burrowing owl	None/None G4/S3 SSC	Open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	Moderate (foraging only)	Marginally suitable but highly disturbed desert scrub habitat suitable for foraging is present within the Project Area. No existing suitable burrows were observed within the Project Area.

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Scientific Name	Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/Observations
Mammals					
<i>Puma concolor</i>	mountain lion	CT/CE	Large areas of relatively undisturbed habitats with adequate connectivity. Pine forests, riparian and oak woodlands, streams, chaparral, and grasslands. Also known to occur in desert habitats.	Moderate	Suitable open desert habitat within the species' range is present within the Project Area. Project Area may support transient travel by mountain lions, though is too small to support long-term occupancy.

Regional Vicinity refers to within a 9-quad search radius of site.

Status (Federal/State)

FT = Federal Threatened

CT = Candidate State Threatened

CE = Candidate State Endangered

ST = State Threatened

SSC = CDFW Species of Special Concern

Other Statuses

G2 or S2 Imperiled Globally or Subnationally (state)

G3 or S3 Vulnerable to extirpation or extinction Globally or Subnationally (state)

G4/5 or S4/5 Apparently secure, common and abundant

Special Status Species with Potential to Occur at SB-7

Scientific Name	Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/Observations
Plants					
<i>Yucca brevifolia</i>	Joshua tree	None/CT G5/S2	Confined mostly to the Mojave Desert between 400 and 1,800 m (1,300 and 5,900 ft) elevation. Habitats occur in broad valleys where soils are deep, on alluvial or rocky slopes, and on pediments with minimal runoff surrounding desert mountains and mesas	None	Disturbed, marginally suitable habitat is located within the Project Area, but this large perennial species was not observed within or adjacent to the Project Area.

Scientific Name	Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/Observations
Reptiles					
<i>Gopherus agassizii</i>	desert tortoise	FT/ST G3/S2S3	Most common in desert scrub, desert wash, and Joshua tree habitats; occurs in almost every desert habitat. Require friable soil for burrow and nest construction. Creosote bush habitat with large annual wildflower blooms preferred.	Moderate	Marginally suitable but highly disturbed desert scrub habitat is present within and adjacent to the Project Area. Friable soil is present within and adjacent to the Project Area.
Birds					
<i>Athene cunicularia</i>	burrowing owl	None/None G4/S3 SSC	Open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	Moderate (foraging only)	Marginally suitable but highly disturbed desert scrub habitat suitable for foraging is present within the Project Area. No existing suitable burrows were observed within the Project Area.
Mammals					
<i>Puma concolor</i>	mountain lion	CT/CE	Large areas of relatively undisturbed habitats with adequate connectivity. Pine forests, riparian and oak woodlands, streams, chaparral, and grasslands. Also known to occur in desert habitats.	Moderate	Suitable open desert habitat within the species' range is present within the Project Area. Project Area may support transient travel by mountain lions, though is too small to support long-term occupancy.

Regional Vicinity refers to within a 9-quad search radius of site.

Status (Federal/State)

FT = Federal Threatened

CT = Candidate State Threatened

CE = Candidate State Endangered

ST = State Threatened

SSC = CDFW Species of Special Concern

Other Statuses

G2 or S2 Imperiled Globally or Subnationally (state)

G3 or S3 Vulnerable to extirpation or extinction Globally or Subnationally (state)

G4/5 or S4/5 Apparently secure, common and abundant

Special Status Species with Potential to Occur at SB-8

Scientific Name	Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/Observations
Plants					
<i>Yucca brevifolia</i>	Joshua tree	None/CT G5/S2	Confined mostly to the Mojave Desert between 400 and 1,800 m (1,300 and 5,900 ft) elevation. Habitats occur in broad valleys where soils are deep, on alluvial or rocky slopes, and on pediments with minimal runoff surrounding desert mountains and mesas	None	Project Area is disturbed and does not contain suitable habitat; additionally, this large perennial species was not observed within or adjacent to the Project Area.
Reptiles					
<i>Gopherus agassizii</i>	desert tortoise	FT/ST G3/S2S3	Most common in desert scrub, desert wash, and Joshua tree habitats; occurs in almost every desert habitat. Require friable soil for burrow and nest construction. Creosote bush habitat with large annual wildflower blooms preferred.	Moderate	The Project Area is disturbed and does not contain suitable habitat; however, marginally suitable but highly disturbed desert scrub habitat is present adjacent to the Project Area. Friable soil is present within and adjacent to the Project Area.
Birds					
<i>Athene cunicularia</i>	burrowing owl	None/None G4/S3 SSC	Open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	Low (foraging only)	Project Area is disturbed with no suitable desert scrub habitat present. However, suitable desert scrub habitat is present adjacent to the Project Area.
<i>Falco mexicanus</i>	prairie falcon	None/None G5/S4 WL	Inhabits dry, open terrain, either level or hilly. Breeding sites located on cliffs. Forages far afield, even to marshlands and ocean shores.	Moderate (foraging only)	The Project Area is disturbed and does not contain suitable breeding habitat; however, suitable breeding habitat (cliffs) is located directly adjacent to the Project Area. Marginally suitable and disturbed foraging habitat is located within the Project Area.

Scientific Name	Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/Observations
Mammals					
<i>Puma concolor</i>	mountain lion	CT/CE	Large areas of relatively undisturbed habitats with adequate connectivity. Pine forests, riparian and oak woodlands, streams, chaparral, and grasslands. Also known to occur in desert habitats.	Moderate	Suitable open desert habitat within the species' range is present within the Project Area. Project Area may support transient travel by mountain lions, though is too small to support long-term occupancy.

Regional Vicinity refers to within a 9-quadrant search radius of site.

Status (Federal/State)

FT = Federal Threatened

CT = Candidate State Threatened

CE = Candidate State Endangered

ST = State Threatened

SSC = CDFW Species of Special Concern

WL = CDFW Watch List

Other Statuses

G2 or S2 Imperiled Globally or Subnationally (state)

G3 or S3 Vulnerable to extirpation or extinction Globally or Subnationally (state)

G4/5 or S4/5 Apparently secure, common and abundant

Special Status Species with Potential to Occur at SB-9

Scientific Name	Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/Observations
Plants					
<i>Androstephium breviflorum</i>	small-flowered androstephium	None/None G4/S2? 2B.2	Mojavean desert scrub, desert dunes. Bajadas. One site known from sand dunes. 150-915 m. perennial bulbiferous herb. Blooms Mar-Apr	Low	Highly disturbed creosote bush scrub and is located within the Project Area.
<i>Eriastrum harwoodii</i>	Harwood's eriastrum	None/None G2/S2 1B.2	Desert dunes. 75-720 m. annual herb. Blooms Mar-Jun	None	Suitable habitat (dunes) not present.

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Scientific Name	Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/Observations
<i>Yucca brevifolia</i>	Joshua tree	None/CT G5/S2	Confined mostly to the Mojave Desert between 400 and 1,800 m (1,300 and 5,900 ft) elevation. Habitats occur in broad valleys where soils are deep, on alluvial or rocky slopes, and on pediments with minimal runoff surrounding desert mountains and mesas	None	Disturbed, marginally suitable habitat is located within the Project Area, but this large perennial species was not observed within or adjacent to the Project Area.
Reptiles					
<i>Gopherus agassizii</i>	desert tortoise	FT/ST G3/S2S3	Most common in desert scrub, desert wash, and Joshua tree habitats; occurs in almost every desert habitat. Require friable soil for burrow and nest construction. Creosote bush habitat with large annual wildflower blooms preferred.	Moderate	Marginally suitable but highly disturbed desert scrub habitat is present within and adjacent to the Project Area.
<i>Uma scoparia</i>	Mojave fringe-toed lizard	None/None G3G4/S3S4 SSC	Fine, loose, wind-blown sand in sand dunes, dry lakebeds, riverbanks, desert washes, sparse alkali scrub and desert scrub. Shrubs or annual plants may be necessary for arthropods found in the diet.	None	Suitable habitat (dunes and fine wind blown sands) not present. The Project Area is highly disturbed.
Birds					
<i>Athene cunicularia</i>	burrowing owl	None/None G4/S3 SSC	Open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	Moderate (foraging only)	Marginally suitable but highly disturbed desert scrub habitat suitable for foraging is present within the Project Area. No existing suitable burrows were observed within the Project Area.
<i>Falco mexicanus</i>	prairie falcon	None/None G5/S4 WL	Inhabits dry, open terrain, either level or hilly. Breeding sites located on cliffs. Forages far afield, even to marshlands and ocean shores.	Moderate (foraging only)	The Project Area does not contain suitable breeding habitat; however, suitable breeding habitat (cliffs) is located directly adjacent to the Project Area. Marginally suitable and disturbed foraging habitat is located within the Project Area.

Scientific Name	Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/Observations
Mammals					
<i>Puma concolor</i>	mountain lion	CT/CE	Large areas of relatively undisturbed habitats with adequate connectivity. Pine forests, riparian and oak woodlands, streams, chaparral, and grasslands. Also known to occur in desert habitats.	Moderate	Suitable open desert habitat within the species' range is present within the Project Area. Project Area may support transient travel by mountain lions, though is too small to support long-term occupancy.

Regional Vicinity refers to within a 9-quad search radius of site.

Status (Federal/State)

FT = Federal Threatened

ST = State Threatened

WL = CDFW Watch List

SSC = CDFW Species of Special Concern

CT = Candidate State Threatened

CE = Candidate State Endangered

CRPR (CNPS California Rare Plant Rank)

1B = Rare, Threatened, or Endangered in California and elsewhere

2B = Rare, Threatened, or Endangered in California, but more common elsewhere

CRPR Threat Code Extension

.2 = Moderately threatened in California (20-80% of occurrences threatened/moderate degree and immediacy of threat)

Other Statuses

G2 or S2 Imperiled Globally or Subnationally (state)

G3 or S3 Vulnerable to extirpation or extinction Globally or Subnationally (state)

G4/5 or S4/5 Apparently secure, common and abundant

Special Status Species with Potential to Occur at SB-10

Scientific Name	Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/Observations
Plants					
<i>Yucca brevifolia</i>	Joshua tree	None/CT G5/S2	Confined mostly to the Mojave Desert between 400 and 1,800 m (1,300 and 5,900 ft) elevation. Habitats occur in broad valleys where soils are deep, on alluvial or rocky slopes, and on pediments with minimal runoff surrounding desert mountains and mesas	None	Disturbed, marginally suitable habitat is located within the Project Area, but this large perennial species was not observed within or adjacent to the Project Area.

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Scientific Name	Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/Observations
Reptiles					
<i>Gopherus agassizii</i>	desert tortoise	FT/ST G3/S2S3	Most common in desert scrub, desert wash, and Joshua tree habitats; occurs in almost every desert habitat. Require friable soil for burrow and nest construction. Creosote bush habitat with large annual wildflower blooms preferred.	Moderate	Marginally suitable but highly disturbed desert scrub habitat is present within and adjacent to the Project Area. Friable soil is present within and adjacent to the Project Area.
Birds					
<i>Athene cunicularia</i>	burrowing owl	None/None G4/S3 SSC	Open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	Moderate (foraging only)	Marginally suitable but highly disturbed desert scrub habitat suitable for foraging is present within the Project Area. No existing suitable burrows were observed within the Project Area.
Mammals					
<i>Puma concolor</i>	mountain lion	CT/CE	Large areas of relatively undisturbed habitats with adequate connectivity. Pine forests, riparian and oak woodlands, streams, chaparral, and grasslands. Also known to occur in desert habitats.	Moderate	Suitable open desert habitat within the species' range is present within the Project Area. Project Area may support transient travel by mountain lions, though is too small to support long-term occupancy.

Regional Vicinity refers to within a 9-quad search radius of site.

Status (Federal/State)

FE = Federal Endangered

CT = Candidate State Threatened

FT = Federal Threatened

CE = Candidate State Endangered

ST = State Threatened

SSC = CDFW Species of Special Concern

Other Statuses

G2 or S2 Imperiled Globally or Subnationally (state)

G3 or S3 Vulnerable to extirpation or extinction Globally or Subnationally (state)

G4/5 or S4/5 Apparently secure, common and abundant

Special Status Species with Potential to Occur at RV-1

Scientific Name	Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/Observations
Plants					
<i>Astragalus insularis</i> var. <i>harwoodii</i>	Harwood's milk-vetch	None/None G5T4/S2 2B.2	Desert dunes, Mojavean desert scrub. Open sandy flats and sandy or stony desert washes; mostly in creosote bush scrub. -50-700 m. annual herb. Blooms Jan-May	Low	Low quality Mojavean desert scrub habitat is present within the Project Area; however, the Project Area is highly disturbed and contains little vegetation.
<i>Eriastrum harwoodii</i>	Harwood's eriastrum	None/None G2/S2 1B.2	Desert dunes. 75-720 m. annual herb. Blooms Mar-Jun	None	Suitable habitat (dunes) not present.
<i>Yucca brevifolia</i>	Joshua tree	None/CT G5/S2	Confined mostly to the Mojave Desert between 400 and 1,800 m (1,300 and 5,900 ft) elevation. Habitats occur in broad valleys where soils are deep, on alluvial or rocky slopes, and on pediments with minimal runoff surrounding desert mountains and mesas	None	Disturbed, marginally suitable habitat is located within the Project Area, but this large perennial species was not observed within or adjacent to the Project Area.
Reptiles					
<i>Gopherus agassizii</i>	desert tortoise	FT/ST G3/S2S3	Most common in desert scrub, desert wash, and Joshua tree habitats; occurs in almost every desert habitat. Require friable soil for burrow and nest construction. Creosote bush habitat with large annual wildflower blooms preferred.	Moderate	Marginally suitable but highly disturbed desert scrub habitat is present within and adjacent to the Project Area. Friable soil is present within and adjacent to the Project Area.
Birds					
<i>Athene cunicularia</i>	burrowing owl	None/None G4/S3 SSC	Open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	Moderate (foraging only)	Marginally suitable but highly disturbed desert scrub habitat suitable for foraging is present within the Project Area. No existing suitable burrows were observed within the Project Area.

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Scientific Name	Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/Observations
<i>Falco mexicanus</i>	prairie falcon	None/None G5/S4 WL	Inhabits dry, open terrain, either level or hilly. Breeding sites located on cliffs. Forages far afield, even to marshlands and ocean shores.	Moderate (foraging only)	The Project Area does not contain suitable breeding habitat; however, suitable breeding habitat (cliffs) is located directly adjacent to the Project Area. Marginally suitable and disturbed foraging habitat is located within the Project Area.
Mammals					
<i>Puma concolor</i>	mountain lion	CT/CE	Large areas of relatively undisturbed habitats with adequate connectivity. Pine forests, riparian and oak woodlands, streams, chaparral, and grasslands. Also known to occur in desert habitats.	Moderate	Suitable open desert habitat within the species' range is present within the Project Area. Project Area may support transient travel by mountain lions, though is too small to support long-term occupancy.

Regional Vicinity refers to within a 9-quad search radius of site.

Status (Federal/State)		CRPR (CNPS California Rare Plant Rank)
FT =	Federal Threatened	1B = Rare, Threatened, or Endangered in California and elsewhere
ST =	State Threatened	2B= Rare, Threatened, or Endangered in California, but more common elsewhere
WL =	CDFW Watch List	
SSC =	CDFW Species of Special Concern	CRPR Threat Code Extension
CT =	Candidate State Threatened	.2 = Moderately threatened in California (20-80% of occurrences threatened/
CE =	Candidate State Endangered	moderate degree and immediacy of threat)

Other Statuses

G2 or S2	Imperiled Globally or Subnationally (state)
G3 or S3	Vulnerable to extirpation or extinction Globally or Subnationally (state)
G4/5 or S4/5	Apparently secure, common and abundant
T	Global condition of subspecies/varieties

Special Status Species with Potential to Occur at RV-2

Scientific Name	Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/Observations
Plants					
<i>Astragalus insularis</i> var. <i>harwoodii</i>	Harwood's milk-vetch	None/None G5T4/S2 2B.2	Desert dunes, Mojavean desert scrub. Open sandy flats and sandy or stony desert washes; mostly in creosote bush scrub. -50-700 m. annual herb. Blooms Jan-May	Low	Low quality Mojavean desert scrub habitat is present within Project Area; however, Project Area is highly disturbed and contains little vegetation.
<i>Eriastrum harwoodii</i>	Harwood's eriastrum	None/None G2/S2 1B.2	Desert dunes. 75-720 m. annual herb. Blooms Mar-Jun	None	Suitable habitat (dunes) not present.
<i>Yucca brevifolia</i>	Joshua tree	None/CT G5/S2	Confined mostly to the Mojave Desert between 400 and 1,800 m (1,300 and 5,900 ft) elevation. Habitats occur in broad valleys where soils are deep, on alluvial or rocky slopes, and on pediments with minimal runoff surrounding desert mountains and mesas	None	Disturbed, marginally suitable habitat is located within the Project Area, but this large perennial species was not observed within or adjacent to the Project Area.
Reptiles					
<i>Gopherus agassizii</i>	desert tortoise	FT/ST G3/S2S3	Most common in desert scrub, desert wash, and Joshua tree habitats; occurs in almost every desert habitat. Require friable soil for burrow and nest construction. Creosote bush habitat with large annual wildflower blooms preferred.	Moderate	Marginally suitable but highly disturbed desert scrub habitat is present within and adjacent to the Project Area. Friable soil is present within and adjacent to the Project Area.
Birds					
<i>Athene cunicularia</i>	burrowing owl	None/None G4/S3 SSC	Open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	Moderate (foraging only)	Marginally suitable but highly disturbed desert scrub habitat suitable for foraging is present within the Project Area. No existing suitable burrows were observed within the Project Area.

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Scientific Name	Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/Observations
<i>Falco mexicanus</i>	prairie falcon	None/None G5/S4 WL	Inhabits dry, open terrain, either level or hilly. Breeding sites located on cliffs. Forages far afield, even to marshlands and ocean shores.	None	No suitable breeding (cliffs) or foraging habitat present within or adjacent to the Project Area.
Mammals					
<i>Puma concolor</i>	mountain lion	CT/CE	Large areas of relatively undisturbed habitats with adequate connectivity. Pine forests, riparian and oak woodlands, streams, chaparral, and grasslands. Also known to occur in desert habitats.	Moderate	Suitable open desert habitat within the species' range is present within the Project Area. Project Area may support transient travel by mountain lions, though is too small to support long-term occupancy.

Regional Vicinity refers to within a 9-quad search radius of site.

Status (Federal/State)	CRPR (CNPS California Rare Plant Rank)
FT = Federal Threatened	1B = Rare, Threatened, or Endangered in California and elsewhere
ST = State Threatened	2B= Rare, Threatened, or Endangered in California, but more common elsewhere
WL = CDFW Watch List	
SSC = CDFW Species of Special Concern	CRPR Threat Code Extension
CT = Candidate State Threatened	.1 = Seriously endangered in California (>80% of occurrences threatened/ high degree and immediacy of threat)
CE = Candidate State Endangered	.2 = Moderately threatened in California (20-80% of occurrences threatened/ moderate degree and immediacy of threat)

Other Statuses

G2 or S2	Imperiled Globally or Subnationally (state)
G3 or S3	Vulnerable to extirpation or extinction Globally or Subnationally (state)
G4/5 or S4/5	Apparently secure, common and abundant
T	Global condition of subspecies/varieties

Special Status Species with Potential to Occur at RV-3

Scientific Name	Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/Observations
Plants					
<i>Astragalus insularis</i> var. <i>harwoodii</i>	Harwood's milk-vetch	None/None G5T4/S2 2B.2	Desert dunes, Mojavean desert scrub. Open sandy flats and sandy or stony desert washes; mostly in creosote bush scrub. -50-700 m. annual herb. Blooms Jan-May	Low	Low quality Mojavean desert scrub habitat is present within the Project Area. The Project Area is highly disturbed and contains little vegetation.
<i>Eriastrum harwoodii</i>	Harwood's eriastrum	None/None G2/S2 1B.2	Desert dunes. 75-720 m. annual herb. Blooms Mar-Jun	None	Suitable habitat (dunes) not present.
<i>Yucca brevifolia</i>	Joshua tree	None/CT G5/S2	Confined mostly to the Mojave Desert between 400 and 1,800 m (1,300 and 5,900 ft) elevation. Habitats occur in broad valleys where soils are deep, on alluvial or rocky slopes, and on pediments with minimal runoff surrounding desert mountains and mesas	None	Disturbed, marginally suitable habitat is located within the Project Area, but this large perennial species was not observed within or adjacent to the Project Area.
Reptiles					
<i>Gopherus agassizii</i>	desert tortoise	FT/ST G3/S2S3	Most common in desert scrub, desert wash, and Joshua tree habitats; occurs in almost every desert habitat. Require friable soil for burrow and nest construction. Creosote bush habitat with large annual wildflower blooms preferred.	Moderate	Marginally suitable but highly disturbed desert scrub habitat is present within and adjacent to the Project Area. Friable soil is present within and adjacent to the Project Area.
Birds					
<i>Athene cunicularia</i>	burrowing owl	None/None G4/S3 SSC	Open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	Moderate (foraging only)	Marginally suitable but highly disturbed desert scrub habitat suitable for foraging is present within the Project Area. No existing suitable burrows were observed within the Project Area.

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Scientific Name	Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/Observations
Mammals					
<i>Puma concolor</i>	mountain lion	CT/CE	Large areas of relatively undisturbed habitats with adequate connectivity. Pine forests, riparian and oak woodlands, streams, chaparral, and grasslands. Also known to occur in desert habitats.	Moderate	Suitable open desert habitat within the species' range is present within the Project Area. Project Area may support transient travel by mountain lions, though is too small to support long-term occupancy.

Regional Vicinity refers to within a 9-quadrant search radius of site.

Status (Federal/State)

FT = Federal Threatened

ST = State Threatened

SSC = CDFW Species of Special Concern

CT = Candidate State Threatened

CE = Candidate State Endangered

CRPR (CNPS California Rare Plant Rank)

1B = Rare, Threatened, or Endangered in California and elsewhere

2B = Rare, Threatened, or Endangered in California, but more common elsewhere

CRPR Threat Code Extension

.2 = Moderately threatened in California (20-80% of occurrences threatened/moderate degree and immediacy of threat)

Other Statuses

G2 or S2 Imperiled Globally or Subnationally (state)

G3 or S3 Vulnerable to extirpation or extinction Globally or Subnationally (state)

G4/5 or S4/5 Apparently secure, common and abundant

T Global condition of subspecies/varieties

Special Status Species with Potential to Occur at RV-4

Scientific Name	Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/Observations
Plants					
<i>Androstephium breviflorum</i>	small-flowered androstephium	None/None G4/S2? 2B.2	Mojavean desert scrub, desert dunes. Bajadas. One site known from sand dunes. 150-915 m. perennial bulbiferous herb. Blooms Mar-Apr	None	Suitable habitat (dunes) not present.
<i>Astragalus insularis</i> var. <i>harwoodii</i>	Harwood's milk-vetch	None/None G5T4/S2 2B.2	Desert dunes, Mojavean desert scrub. Open sandy flats and sandy or stony desert washes; mostly in creosote bush scrub. -50-700 m. annual herb. Blooms Jan-May	Low	Low quality Mojavean desert scrub habitat is present. The Project Area is highly disturbed and contains little vegetation.
<i>Eriastrum harwoodii</i>	Harwood's eriastrum	None/None G2/S2 1B.2	Desert dunes. 75-720 m. annual herb. Blooms Mar-Jun	None	Suitable habitat (dunes) not present.
<i>Yucca brevifolia</i>	Joshua tree	None/CT G5/S2	Confined mostly to the Mojave Desert between 400 and 1,800 m (1,300 and 5,900 ft) elevation. Habitats occur in broad valleys where soils are deep, on alluvial or rocky slopes, and on pediments with minimal runoff surrounding desert mountains and mesas	None	Disturbed, marginally suitable habitat is located within the Project Area, but this large perennial species was not observed within or adjacent to the Project Area.
Reptiles					
<i>Gopherus agassizii</i>	desert tortoise	FT/ST G3/S2S3	Most common in desert scrub, desert wash, and Joshua tree habitats; occurs in almost every desert habitat. Require friable soil for burrow and nest construction. Creosote bush habitat with large annual wildflower blooms preferred.	Moderate	Marginally suitable but highly disturbed desert scrub habitat is present within and adjacent to the Project Area. Friable soil is present within and adjacent to the Project Area.

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Scientific Name	Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/Observations
Birds					
<i>Athene cunicularia</i>	burrowing owl	None/None G4/S3 SSC	Open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	Moderate (foraging only)	Marginally suitable but highly disturbed desert scrub habitat suitable for foraging is present within the Project Area. No existing suitable burrows were observed within the Project Area.
<i>Falco mexicanus</i>	prairie falcon	None/None G5/S4 WL	Inhabits dry, open terrain, either level or hilly. Breeding sites located on cliffs. Forages far afield, even to marshlands and ocean shores.	None	No suitable breeding (cliffs) or foraging habitat present within or adjacent to the Project Area.
Mammals					
<i>Puma concolor</i>	mountain lion	CT/CE	Large areas of relatively undisturbed habitats with adequate connectivity. Pine forests, riparian and oak woodlands, streams, chaparral, and grasslands. Also known to occur in desert habitats.	Moderate	Suitable open desert habitat within the species' range is present within the Project Area. Project Area may support transient travel by mountain lions, though is too small to support long-term occupancy.

Regional Vicinity refers to within a 9-quad search radius of site.

Status (Federal/State)

FT = Federal Threatened
ST = State Threatened
WL = CDFW Watch List
SSC = CDFW Species of Special Concern
CT = Candidate State Threatened
CE = Candidate State Endangered

CRPR (CNPS California Rare Plant Rank)

1B = Rare, Threatened, or Endangered in California and elsewhere
2B = Rare, Threatened, or Endangered in California, but more common elsewhere

CRPR Threat Code Extension

.2 = Moderately threatened in California (20-80% of occurrences threatened/moderate degree and immediacy of threat)

Other Statuses

G2 or S2 Imperiled Globally or Subnationally (state)
G3 or S3 Vulnerable to extirpation or extinction Globally or Subnationally (state)
G4/5 or S4/5 Apparently secure, common and abundant
T Global condition of subspecies/varieties

Special Status Species with Potential to Occur at RV-5

Scientific Name	Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/Observations
Plants					
<i>Androstephium breviflorum</i>	small-flowered androstephium	None/None G4/S2? 2B.2	Mojavean desert scrub, desert dunes. Bajadas. One site known from sand dunes. 150-915 m. perennial bulbiferous herb. Blooms Mar-Apr	Low	Low quality Mojavean desert scrub habitat present. The Project Area is highly disturbed and contains little vegetation.
<i>Astragalus insularis</i> var. <i>harwoodii</i>	Harwood's milk-vetch	None/None G5T4/S2 2B.2	Desert dunes, Mojavean desert scrub. Open sandy flats and sandy or stony desert washes; mostly in creosote bush scrub. -50-700 m. annual herb. Blooms Jan-May	Low	Low quality Mojavean desert scrub habitat present. The Project Area is highly disturbed and contains little vegetation.
<i>Eriastrum harwoodii</i>	Harwood's eriastrum	None/None G2/S2 1B.2	Desert dunes. 75-720 m. annual herb. Blooms Mar-Jun	None	Suitable habitat (dunes) not present.
<i>Yucca brevifolia</i>	Joshua tree	None/CT G5/S2	Confined mostly to the Mojave Desert between 400 and 1,800 m (1,300 and 5,900 ft) elevation. Habitats occur in broad valleys where soils are deep, on alluvial or rocky slopes, and on pediments with minimal runoff surrounding desert mountains and mesas	None	Disturbed, marginally suitable habitat is located within the Project Area, but this large perennial species was not observed within or adjacent to the Project Area.
Reptiles					
<i>Gopherus agassizii</i>	desert tortoise	FT/ST G3/S2S3	Most common in desert scrub, desert wash, and Joshua tree habitats; occurs in almost every desert habitat. Require friable soil for burrow and nest construction. Creosote bush habitat with large annual wildflower blooms preferred.	Moderate	Marginally suitable but highly disturbed desert scrub habitat is present within and adjacent to the Project Area. Friable soil is present within and adjacent to the Project Area.

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Scientific Name	Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/Observations
Birds					
<i>Athene cunicularia</i>	burrowing owl	None/None G4/S3 SSC	Open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	Moderate (foraging only)	Marginally suitable but highly disturbed desert scrub habitat suitable for foraging is present within the Project Area. No existing suitable burrows were observed within the Project Area.
<i>Falco mexicanus</i>	prairie falcon	None/None G5/S4 WL	Inhabits dry, open terrain, either level or hilly. Breeding sites located on cliffs. Forages far afield, even to marshlands and ocean shores.	None	No suitable breeding (cliffs) or foraging habitat present within or adjacent to the Project Area.
Mammals					
<i>Ovis canadensis nelsoni</i>	desert bighorn sheep	None/None G4T4/S3 FP	Widely distributed from the White Mtns. in Mono Co. to the Chocolate Mts in Imperial Co. Open, rocky, steep areas with available water and herbaceous forage.	None	Suitable habitat (open, rocky, steep areas with available water and herbaceous forage) not present.
<i>Puma concolor</i>	mountain lion	CT/CE	Large areas of relatively undisturbed habitats with adequate connectivity. Pine forests, riparian and oak woodlands, streams, chaparral, and grasslands. Also known to occur in desert habitats.	Moderate	Suitable open desert habitat within the species' range is present within the Project Area. Project Area may support transient travel by mountain lions, though is too small to support long-term occupancy.

Regional Vicinity refers to within a 9-quad search radius of site.

Status (Federal/State)

FT = Federal Threatened

ST = State Threatened

FP = CDFW Fully Protected

WL = CDFW Watch List

SSC = CDFW Species of Special Concern

CT = Candidate State Threatened

CE = Candidate State Endangered

CRPR (CNPS California Rare Plant Rank)

1B = Rare, Threatened, or Endangered in California and elsewhere

2B= Rare, Threatened, or Endangered in California, but more common elsewhere

CRPR Threat Code Extension

.2 = Moderately threatened in California (20-80% of occurrences threatened/moderate degree and immediacy of threat)

Other Statuses

G2 or S2	Imperiled Globally or Subnationally (state)
G3 or S3	Vulnerable to extirpation or extinction Globally or Subnationally (state)
G4/5 or S4/5	Apparently secure, common and abundant
T	Global condition of subspecies/varieties

Special Status Species with Potential to Occur at RV-6

Scientific Name	Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/Observations
Plants					
<i>Androstephium breviflorum</i>	small-flowered androstephium	None/None G4/S2? 2B.2	Mojavean desert scrub, desert dunes. Bajadas. One site known from sand dunes. 150-915 m. perennial bulbiferous herb. Blooms Mar-Apr	Low	Low quality Mojavean desert scrub habitat present. The Project Area is highly disturbed and contains little vegetation.
<i>Astragalus insularis</i> var. <i>harwoodii</i>	Harwood's milk-vetch	None/None G5T4/S2 2B.2	Desert dunes, Mojavean desert scrub. Open sandy flats and sandy or stony desert washes; mostly in creosote bush scrub. -50-700 m. annual herb. Blooms Jan-May	Low	Low quality Mojavean desert scrub habitat is present. The Project Area is highly disturbed and contains little vegetation.
<i>Eriastrum harwoodii</i>	Harwood's eriastrum	None/None G2/S2 1B.2	Desert dunes. 75-720 m. annual herb. Blooms Mar-Jun	None	Suitable habitat (dunes) not present.
<i>Yucca brevifolia</i>	Joshua tree	None/CT G5/S2	Confined mostly to the Mojave Desert between 400 and 1,800 m (1,300 and 5,900 ft) elevation. Habitats occur in broad valleys where soils are deep, on alluvial or rocky slopes, and on pediments with minimal runoff surrounding desert mountains and mesas	None	Disturbed, marginally suitable habitat is located within the Project Area, but this large perennial species was not observed within or adjacent to the Project Area.

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Scientific Name	Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/Observations
Reptiles					
<i>Gopherus agassizii</i>	desert tortoise	FT/ST G3/S2S3	Most common in desert scrub, desert wash, and Joshua tree habitats; occurs in almost every desert habitat. Require friable soil for burrow and nest construction. Creosote bush habitat with large annual wildflower blooms preferred.	Moderate	Marginally suitable but highly disturbed desert scrub habitat is present within and adjacent to the Project Area. Friable soil is present within and adjacent to the Project Area.
Birds					
<i>Athene cunicularia</i>	burrowing owl	None/None G4/S3 SSC	Open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	Moderate (foraging only)	Marginally suitable but highly disturbed desert scrub habitat suitable for foraging is present within the Project Area. No existing suitable burrows were observed within the Project Area.
<i>Falco mexicanus</i>	prairie falcon	None/None G5/S4 WL	Inhabits dry, open terrain, either level or hilly. Breeding sites located on cliffs. Forages far afield, even to marshlands and ocean shores.	High (foraging only)	The Project Area does not contain suitable breeding habitat; however, suitable breeding habitat (cliffs) present near the Project Area. Suitable foraging habitat within and adjacent to the Project Area
Mammals					
<i>Ovis canadensis nelsoni</i>	desert bighorn sheep	None/None G4T4/S3 FP	Widely distributed from the White Mtns. in Mono Co. to the Chocolate Mts in Imperial Co. Open, rocky, steep areas with available water and herbaceous forage.	None	Suitable habitat (open, rocky, steep areas with available water and herbaceous forage) not present.
<i>Puma concolor</i>	mountain lion	CT/CE	Large areas of relatively undisturbed habitats with adequate connectivity. Pine forests, riparian and oak woodlands, streams, chaparral, and grasslands. Also known to occur in desert habitats.	Moderate	Suitable open desert habitat within the species' range is present within the Project Area. Project Area may support transient travel by mountain lions, though is too small to support long-term occupancy.

Regional Vicinity refers to within a 9-quad search radius of site.

Status (Federal/State)

FT = Federal Threatened

ST = State Threatened

FP = CDFW Fully Protected

WL = CDFW Watch List

SSC = CDFW Species of Special Concern

CT = Candidate State Threatened

CE = Candidate State Endangered

CRPR (CNPS California Rare Plant Rank)

1B = Rare, Threatened, or Endangered in California and elsewhere

2B= Rare, Threatened, or Endangered in California, but more common elsewhere

CRPR Threat Code Extension

.2 = Moderately threatened in California (20-80% of occurrences threatened/
moderate degree and immediacy of threat)

Other Statuses

G2 or S2 Imperiled Globally or Subnationally (state)

G3 or S3 Vulnerable to extirpation or extinction Globally or Subnationally (state)

G4/5 or S4/5 Apparently secure, common and abundant

T Global condition of subspecies/varieties

Special Status Species with Potential to Occur at RV-7

Scientific Name	Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/Observations
Plants					
<i>Androstephium breviflorum</i>	small-flowered androstephium	None/None G4/S2? 2B.2	Mojavean desert scrub, desert dunes. Bajadas. One site known from sand dunes. 150-915 m. perennial bulbiferous herb. Blooms Mar-Apr	Low	Low quality Mojavean desert scrub habitat is present. The Project Area is highly disturbed and contains little vegetation.
<i>Astragalus insularis</i> var. <i>harwoodii</i>	Harwood's milk-vetch	None/None G5T4/S2 2B.2	Desert dunes, Mojavean desert scrub. Open sandy flats and sandy or stony desert washes; mostly in creosote bush scrub. -50-700 m. annual herb. Blooms Jan-May	Low	Low quality Mojavean desert scrub habitat is present. The Project Area is highly disturbed and contains little vegetation.
<i>Eriastrum harwoodii</i>	Harwood's eriastrum	None/None G2/S2 1B.2	Desert dunes. 75-720 m. annual herb. Blooms Mar-Jun	None	Suitable habitat (dunes) not present.

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Scientific Name	Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/Observations
<i>Yucca brevifolia</i>	Joshua tree	None/CT G5/S2	Confined mostly to the Mojave Desert between 400 and 1,800 m (1,300 and 5,900 ft) elevation. Habitats occur in broad valleys where soils are deep, on alluvial or rocky slopes, and on pediments with minimal runoff surrounding desert mountains and mesas	None	Disturbed, marginally suitable habitat is located within the Project Area, but this large perennial species was not observed within or adjacent to the Project Area.
Reptiles					
<i>Gopherus agassizii</i>	desert tortoise	FT/ST G3/S2S3	Most common in desert scrub, desert wash, and Joshua tree habitats; occurs in almost every desert habitat. Require friable soil for burrow and nest construction. Creosote bush habitat with large annual wildflower blooms preferred.	Moderate	Marginally suitable but highly disturbed desert scrub habitat is present within and adjacent to the Project Area. Friable soil is present within and adjacent to the Project Area.
Birds					
<i>Athene cunicularia</i>	burrowing owl	None/None G4/S3 SSC	Open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	Moderate (foraging only)	Marginally suitable but highly disturbed desert scrub habitat suitable for foraging is present within the Project Area. No existing suitable burrows were observed within the Project Area.
<i>Falco mexicanus</i>	prairie falcon	None/None G5/S4 WL	Inhabits dry, open terrain, either level or hilly. Breeding sites located on cliffs. Forages far afield, even to marshlands and ocean shores.	High (foraging only)	The Project Area does not contain suitable breeding habitat; however, suitable breeding habitat (cliffs) is located adjacent to the Project Area. Suitable foraging habitat present within and adjacent to the Project Area.
Mammals					
<i>Ovis canadensis nelsoni</i>	desert bighorn sheep	None/None G4T4/S3 FP	Widely distributed from the White Mtns. in Mono Co. to the Chocolate Mts in Imperial Co. Open, rocky, steep areas with available water and herbaceous forage.	None	Suitable habitat (open, rocky, steep areas with available water and herbaceous forage) not present.

Scientific Name	Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/Observations
<i>Puma concolor</i>	mountain lion	CT/CE	Large areas of relatively undisturbed habitats with adequate connectivity. Pine forests, riparian and oak woodlands, streams, chaparral, and grasslands. Also known to occur in desert habitats.	Moderate	Suitable open desert habitat within the species' range is present within the Project Area. Project Area may support transient travel by mountain lions, though is too small to support long-term occupancy.

Regional Vicinity refers to within a 9-quadrant search radius of site.

Status (Federal/State)	CRPR (CNPS California Rare Plant Rank)
FT = Federal Threatened	1B = Rare, Threatened, or Endangered in California and elsewhere
ST = State Threatened	2B = Rare, Threatened, or Endangered in California, but more common elsewhere
FP = CDFW Fully Protected	
WL = CDFW Watch List	
SSC = CDFW Species of Special Concern	CRPR Threat Code Extension
CT = Candidate State Threatened	.2 = Moderately threatened in California (20-80% of occurrences threatened/
CE = Candidate State Endangered	moderate degree and immediacy of threat)
Other Statuses	
G2 or S2	Imperiled Globally or Subnationally (state)
G3 or S3	Vulnerable to extirpation or extinction Globally or Subnationally (state)
G4/5 or S4/5	Apparently secure, common and abundant
T	Global condition of subspecies/varieties

Special Status Species with Potential to Occur at RV-8

Scientific Name	Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/Observations
Plants					
<i>Colubrina californica</i>	Las Animas colubrina	None/None G4/S2S3 2B.3	Mojavean desert scrub, Sonoran Desert scrub. On narrow, steep, rocky ravines or washes. 10-915 m. perennial deciduous shrub. Blooms Apr-Jun	None	Marginally suitable disturbed desert scrub habitat is present within the Project Area; however, this perennial shrub was not observed.

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Colorado River Aqueduct Master Reclamation Plan for San Bernardino and Riverside Counties

Scientific Name	Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/Observations
<i>Coryphantha alversonii</i>	Alverson's foxtail cactus	None/None G3/S3 4.3	Mojavean desert scrub, Sonoran desert scrub. Sandy or rocky habitat; sites from gravelly slopes and dissected alluvial fans. Granite substrate. 75-1525 m. perennial stem succulent. Blooms Apr-Jun	None	Marginally suitable disturbed desert scrub habitat is present within the Project Area; however, this perennial shrub was not observed.
<i>Ditaxis serrata</i> var. <i>californica</i>	California ditaxis	None/None G5T3T4/S2? 3.2	Sonoran Desert scrub. On sandy washes and alluvial fans of the foothills and lower desert slopes. 30-1000 m. perennial herb. Blooms Mar-Dec	None	Marginally suitable disturbed desert scrub habitat is present within the Project Area; however, this perennial shrub was not observed.
<i>Yucca brevifolia</i>	Joshua tree	None/CT G5/S2	Confined mostly to the Mojave Desert between 400 and 1,800 m (1,300 and 5,900 ft) elevation. Habitats occur in broad valleys where soils are deep, on alluvial or rocky slopes, and on pediments with minimal runoff surrounding desert mountains and mesas	None	Disturbed, marginally suitable habitat is located within the Project Area, but this large perennial species was not observed within or adjacent to the Project Area.
Reptiles					
<i>Gopherus agassizii</i>	desert tortoise	FT/ST G3/S2S3	Most common in desert scrub, desert wash, and Joshua tree habitats; occurs in almost every desert habitat. Require friable soil for burrow and nest construction. Creosote bush habitat with large annual wildflower blooms preferred.	Moderate	Marginally suitable but highly disturbed desert scrub habitat is present within and adjacent to the Project Area. Friable soil is present within and adjacent to the Project Area.
Birds					
<i>Athene cunicularia</i>	burrowing owl	None/None G4/S3 SSC	Open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	Moderate (foraging only)	Marginally suitable but highly disturbed desert scrub habitat suitable for foraging is present within the Project Area. No existing suitable burrows were observed within the Project Area.

Scientific Name	Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/Observations
<i>Falco mexicanus</i>	prairie falcon	None/None G5/S4 WL	Inhabits dry, open terrain, either level or hilly. Breeding sites located on cliffs. Forages far afield, even to marshlands and ocean shores.	High (foraging only)	The Project Area does not contain suitable breeding habitat; however, suitable breeding habitat (cliffs) is located adjacent to the Project Area. Suitable foraging habitat within and adjacent to the Project Area.
Mammals					
<i>Ovis canadensis nelsoni</i>	desert bighorn sheep	None/None G4T4/S3 FP	Widely distributed from the White Mtns. in Mono Co. to the Chocolate Mts in Imperial Co. Open, rocky, steep areas with available water and herbaceous forage.	Low	Suitable habitat (open, rocky, steep areas with available water and herbaceous forage) present nearby but not directly within the Project Area.
<i>Puma concolor</i>	mountain lion	CT/CE	Large areas of relatively undisturbed habitats with adequate connectivity. Pine forests, riparian and oak woodlands, streams, chaparral, and grasslands. Also known to occur in desert habitats.	Moderate	Suitable open desert habitat within the species' range is present within the Project Area. Project Area may support transient travel by mountain lions, though is too small to support long-term occupancy.

Regional Vicinity refers to within a 9-quad search radius of site.

Status (Federal/State)	CRPR (CNPS California Rare Plant Rank)
FT = Federal Threatened	2B= Rare, Threatened, or Endangered in California, but more common elsewhere
ST = State Threatened	
FP = CDFW Fully Protected	3 = Need more information (Review List)
WL = CDFW Watch List	4 = Limited Distribution (Watch List)
SSC = CDFW Species of Special Concern	CRPR Threat Code Extension
CT = Candidate State Threatened	.2 = Moderately threatened in California (20-80% of occurrences threatened/moderate degree and immediacy of threat)
CE = Candidate State Endangered	.3 = Not very endangered in California (<20% of occurrences threatened/low degree and immediacy of threat)

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Other Statuses

G2 or S2	Imperiled Globally or Subnationally (state)
G3 or S3	Vulnerable to extirpation or extinction Globally or Subnationally (state)
G4/5 or S4/5	Apparently secure, common and abundant
T	Global condition of subspecies/varieties

Special Status Species with Potential to Occur at RV-9

Scientific Name	Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/Observations
Plants					
<i>Ayenia compacta</i>	California ayenia	None/None G4/S3 2B.3	Mojavean desert scrub, Sonoran Desert scrub. Sandy and gravelly washes in the desert; dry desert canyons. 60-1830 m. perennial herb. Blooms Mar-Apr	Low	Low quality Mojavean desert scrub habitat present. The Project Area is highly disturbed and contains little vegetation.
<i>Castela emoryi</i>	Emory's crucifixion-thorn	None/None G3G4/S2S3 2B.2	Mojavean desert scrub, Sonoran Desert scrub, playas. Gravelly soils, sometimes in alkali playas or washes. 88-2000 m. perennial deciduous shrub. Blooms (Apr) Jun-Jul (Sep-Oct)	Low	Low quality Mojavean desert scrub habitat present. The Project Area is highly disturbed and contains little vegetation.
<i>Colubrina californica</i>	Las Animas colubrina	None/None G4/S2S3 2B.3	Mojavean desert scrub, Sonoran Desert scrub. On narrow, steep, rocky ravines or washes. 10-915 m. perennial deciduous shrub. Blooms Apr-Jun	None	Marginally suitable disturbed desert scrub habitat is present within the Project Area; however, this perennial shrub was not observed.
<i>Euphorbia abramsiana</i>	Abrams' spurge	None/None G4/S2 2B.2	Mojavean desert scrub, Sonoran Desert scrub. Sandy sites. 45-1445 m. annual herb. Blooms (Aug) Sep-Nov	Low	Marginally suitable disturbed desert scrub habitat is present within the Project Area.
<i>Matelea parvifolia</i>	spear-leaf matelea	None/None G5/S3 2B.3	Mojavean desert scrub, Sonoran Desert scrub. Dry rocky ledges and slopes. 485-1440 m. perennial herb. Blooms Mar-May (Jul)	Low	Low quality Mojavean desert scrub habitat present. The Project is highly disturbed and contains little vegetation.
<i>Panicum hirticaule</i> ssp. hirticaule	roughstalk witch grass	None/None G5T5/S2 2B.1	Desert dunes, Joshua tree woodland, Mojavean desert scrub, Sonoran Desert scrub. Sandy, silty depressions. 60-1465 m. annual herb. Blooms Aug-Dec	Low	Low quality Mojavean desert scrub habitat present. The Project Area is highly disturbed and contains little vegetation.

Scientific Name	Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/Observations
<i>Spermolepis gigantea</i>	desert scaleseed	None/None G2G3/SH 2B.1	Sonoran Desert scrub. 400 m. annual herb. Blooms Mar-Apr	Low	Low quality desert scrub habitat present. The Project Area is highly disturbed and contains little vegetation.
<i>Stylocline sonorensis</i>	mesquite neststraw	None/None G3G5/SX 2A	Sonoran Desert scrub. Open sandy drainages. annual herb. Blooms Apr	Low	Low quality desert scrub habitat present. The Project Area is highly disturbed and contains little vegetation.
<i>Teucrium cubense</i> <i>ssp. depressum</i>	dwarf germander	None/None G4G5T3T4/S2 2B.2	Desert dunes, playas, Sonoran desert scrub. Dunes, playa margins and scrub. 45-400m. annual herb. Blooms Mar-May(Sep-Nov)	Low	Low quality desert scrub habitat present. The Project Area is highly disturbed and contains little vegetation.
<i>Yucca brevifolia</i>	Joshua tree	None/CT G5/S2	Confined mostly to the Mojave Desert between 400 and 1,800 m (1,300 and 5,900 ft) elevation. Habitats occur in broad valleys where soils are deep, on alluvial or rocky slopes, and on pediments with minimal runoff surrounding desert mountains and mesas	None	Disturbed, marginally suitable habitat is located within the Project Area, but this large perennial species was not observed within or adjacent to the Project Area.
Reptiles					
<i>Gopherus agassizii</i>	desert tortoise	Threatened/ Threatened G3/S2S3	Most common in desert scrub, desert wash, and Joshua tree habitats; occurs in almost every desert habitat. Require friable soil for burrow and nest construction. Creosote bush habitat with large annual wildflower blooms preferred.	Moderate	Marginally suitable but highly disturbed desert scrub habitat is present within and adjacent to the Project Area. Friable soil is present within and adjacent to the Project Area.
Birds					
<i>Athene cunicularia</i>	burrowing owl	None/None G4/S3 SSC	Open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	Moderate (foraging only)	Marginally suitable but highly disturbed desert scrub habitat suitable for foraging is present within the Project Area. No existing suitable burrows were observed within the Project Area.

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Scientific Name	Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/Observations
<i>Falco mexicanus</i>	prairie falcon	None/None G5/S4 WL	Inhabits dry, open terrain, either level or hilly. Breeding sites located on cliffs. Forages far afield, even to marshlands and ocean shores.	High (foraging only)	The Project Area does not contain suitable breeding habitat; however, suitable breeding habitat (cliffs) are located adjacent to the Project Area. Suitable foraging habitat located within the Project Area.
Mammals					
<i>Ovis canadensis nelsoni</i>	desert bighorn sheep	None/None G4T4/S3 FP	Widely distributed from the White Mtns. in Mono Co. to the Chocolate Mts in Imperial Co. Open, rocky, steep areas with available water and herbaceous forage.	High	Suitable habitat (open, rocky, steep areas with available water and herbaceous forage) present within the Project Area.
<i>Puma concolor</i>	mountain lion	CT/CE	Large areas of relatively undisturbed habitats with adequate connectivity. Pine forests, riparian and oak woodlands, streams, chaparral, and grasslands. Also known to occur in desert habitats.	Moderate	Suitable open desert habitat within the species' range is present within the Project Area. Project Area may support transient travel by mountain lions, though is too small to support long-term occupancy.

Regional Vicinity refers to within a 9-quadrant search radius of site.

Status (Federal/State)

FP = CDFW Fully Protected
 WL = CDFW Watch List
 SSC = CDFW Species of Special Concern
 CT = Candidate State Threatened
 CE = Candidate State Endangered

CRPR (CNPS California Rare Plant Rank)

2A = Presumed extirpated in California, but common elsewhere
 2B= Rare, Threatened, or Endangered in California, but more common elsewhere

CRPR Threat Code Extension

.1 = Seriously endangered in California (>80% of occurrences threatened/
 high degree and immediacy of threat)
 .2 = Moderately threatened in California (20-80% of occurrences threatened/
 moderate degree and immediacy of threat)
 .3 = Not very endangered in California (<20% of occurrences threatened/
 low degree and immediacy of threat)

Other Statuses

G2 or S2	Imperiled Globally or Subnationally (state)
G3 or S3	Vulnerable to extirpation or extinction Globally or Subnationally (state)
G4/5 or S4/5	Apparently secure, common and abundant
GH or SH	Possibly Extirpated – missing; known from only historical occurrences but still some hope of rediscovery
T	Global condition of subspecies/varieties
SX	Presumed extirpated

Special Status Species with Potential to Occur at RV-10

Scientific Name	Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/Observations
Plants					
<i>Ayenia compacta</i>	California ayenia	None/None G4/S3 2B.3	Mojavean desert scrub, Sonoran Desert scrub. Sandy and gravelly washes in the desert; dry desert canyons. 60-1830 m. perennial herb. Blooms Mar-Apr	Low	Marginally suitable disturbed desert scrub habitat is present within the Project Area.
<i>Castela emoryi</i>	Emory's crucifixion-thorn	None/None G3G4/S2S3 2B.2	Mojavean desert scrub, Sonoran Desert scrub, playas. Gravelly soils, sometimes in alkali playas or washes. 88-2000 m. perennial deciduous shrub. Blooms (Apr) Jun-Jul (Sep-Oct)	Low	Marginally suitable disturbed desert scrub habitat is present within the Project Area.
<i>Colubrina californica</i>	Las Animas colubrina	None/None G4/S2S3 2B.3	Mojavean desert scrub, Sonoran Desert scrub. On narrow, steep, rocky ravines or washes. 10-915 m. perennial deciduous shrub. Blooms Apr-Jun	None	Marginally suitable disturbed desert scrub habitat is present within the Project Area; however this perennial shrub was not observed.
<i>Euphorbia abramsiana</i>	Abrams' spurge	None/None G4/S2 2B.2	Mojavean desert scrub, Sonoran Desert scrub. Sandy sites. 45-1445 m. annual herb. Blooms (Aug) Sep-Nov	Low	Marginally suitable disturbed desert scrub habitat is present within the Project Area.
<i>Matelea parvifolia</i>	spear-leaf matelea	None/None G5/S3 2B.3	Mojavean desert scrub, Sonoran Desert scrub. Dry rocky ledges and slopes. 485-1440 m. perennial herb. Blooms Mar-May (Jul)	Low	Marginally suitable desert scrub habitat is present. The Project Area is highly disturbed and contains little vegetation.

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Scientific Name	Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/Observations
<i>Panicum hirticaule</i> ssp. <i>hirticaule</i>	roughstalk witch grass	None/None G5T5/S2 2B.1	Desert dunes, Joshua tree woodland, Mojavean desert scrub, Sonoran Desert scrub. Sandy, silty depressions. 60-1465 m. annual herb. Blooms Aug-Dec	Low	Marginally suitable desert scrub habitat present. The Project Area is highly disturbed and contains little vegetation.
<i>Spermolepis gigantea</i>	desert scaleseed	None/None G2G3/SH 2B.1	Sonoran Desert scrub. 400 m. annual herb. Blooms Mar-Apr	Low	Low quality desert scrub habitat present. The Project Area is highly disturbed and contains little vegetation.
<i>Stylocline sonorensis</i>	mesquite neststraw	None/None G3G5/SX 2A	Sonoran Desert scrub. Open sandy drainages. annual herb. Blooms Apr	Low	Low quality desert scrub habitat present. The Project Area is highly disturbed and contains little vegetation.
<i>Teucrium cubense</i> ssp. <i>depressum</i>	dwarf germander	None/None G4G5T3T4/S2 2B.2	Desert dunes, playas, Sonoran desert scrub. Dunes, playa margins and scrub. 45-400m. annual herb. Blooms Mar-May(Sep-Nov)	Low	Low quality desert scrub habitat present. The Project Area is highly disturbed and contains little vegetation.
<i>Yucca brevifolia</i>	Joshua tree	None/CT G5/S2	Confined mostly to the Mojave Desert between 400 and 1,800 m (1,300 and 5,900 ft) elevation. Habitats occur in broad valleys where soils are deep, on alluvial or rocky slopes, and on pediments with minimal runoff surrounding desert mountains and mesas	None	Disturbed, marginally suitable habitat is located within the Project Area, but this large perennial species was not observed within or adjacent to the Project Area.
Reptiles					
<i>Gopherus agassizii</i>	desert tortoise	FT/ST G3/S2S3	Most common in desert scrub, desert wash, and Joshua tree habitats; occurs in almost every desert habitat. Require friable soil for burrow and nest construction. Creosote bush habitat with large annual wildflower blooms preferred.	Moderate	Marginally suitable but highly disturbed desert scrub habitat is present within and adjacent to the Project Area. Friable soil is present within and adjacent to the Project Area.

Scientific Name	Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/Observations
Birds					
<i>Athene cunicularia</i>	burrowing owl	None/None G4/S3 SSC	Open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	Moderate (foraging only)	Marginally suitable but highly disturbed desert scrub habitat suitable for foraging is present within the Project Area. No existing suitable burrows were observed within the Project Area.
<i>Falco mexicanus</i>	prairie falcon	None/None G5/S4 WL	Inhabits dry, open terrain, either level or hilly. Breeding sites located on cliffs. Forages far afield, even to marshlands and ocean shores.	High (foraging only)	The Project Area does not contain suitable breeding habitat; however, suitable breeding habitat (cliffs) is located adjacent to the Project Area. Suitable foraging habitat located within the Project Area.
Mammals					
<i>Ovis canadensis nelsoni</i>	desert bighorn sheep	None/None G4T4/S3 FP	Widely distributed from the White Mtns. in Mono Co. to the Chocolate Mts in Imperial Co. Open, rocky, steep areas with available water and herbaceous forage.	None	Suitable habitat (open, rocky, steep areas with available water and herbaceous forage) not present.
<i>Puma concolor</i>	mountain lion	CT/CE	Large areas of relatively undisturbed habitats with adequate connectivity. Pine forests, riparian and oak woodlands, streams, chaparral, and grasslands. Also known to occur in desert habitats.	Moderate	Suitable open desert habitat within the species' range is present within the Project Area. Project Area may support transient travel by mountain lions, though is too small to support long-term occupancy.

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Regional Vicinity refers to within a 9-quad search radius of site.

Status (Federal/State)

FT = Federal Threatened

ST = State Threatened

FP = CDFW Fully Protected

WL = CDFW Watch List

SSC = CDFW Species of Special Concern

CT = Candidate State Threatened

CE = Candidate State Endangered

CRPR (CNPS California Rare Plant Rank)

2A = Presumed extirpated in California, but common elsewhere

2B= Rare, Threatened, or Endangered in California, but more common elsewhere

CRPR Threat Code Extension

.1 = Seriously endangered in California (>80% of occurrences threatened/
high degree and immediacy of threat)

.2 = Moderately threatened in California (20-80% of occurrences threatened/
moderate degree and immediacy of threat)

.3 = Not very endangered in California (<20% of occurrences threatened/
low degree and immediacy of threat)

Other Statuses

G2 or S2 Imperiled Globally or Subnationally (state)

G3 or S3 Vulnerable to extirpation or extinction Globally or Subnationally (state)

G4/5 or S4/5 Apparently secure, common and abundant

GH or SH Possibly Extirpated – missing; known from only historical occurrences but still some hope of rediscovery

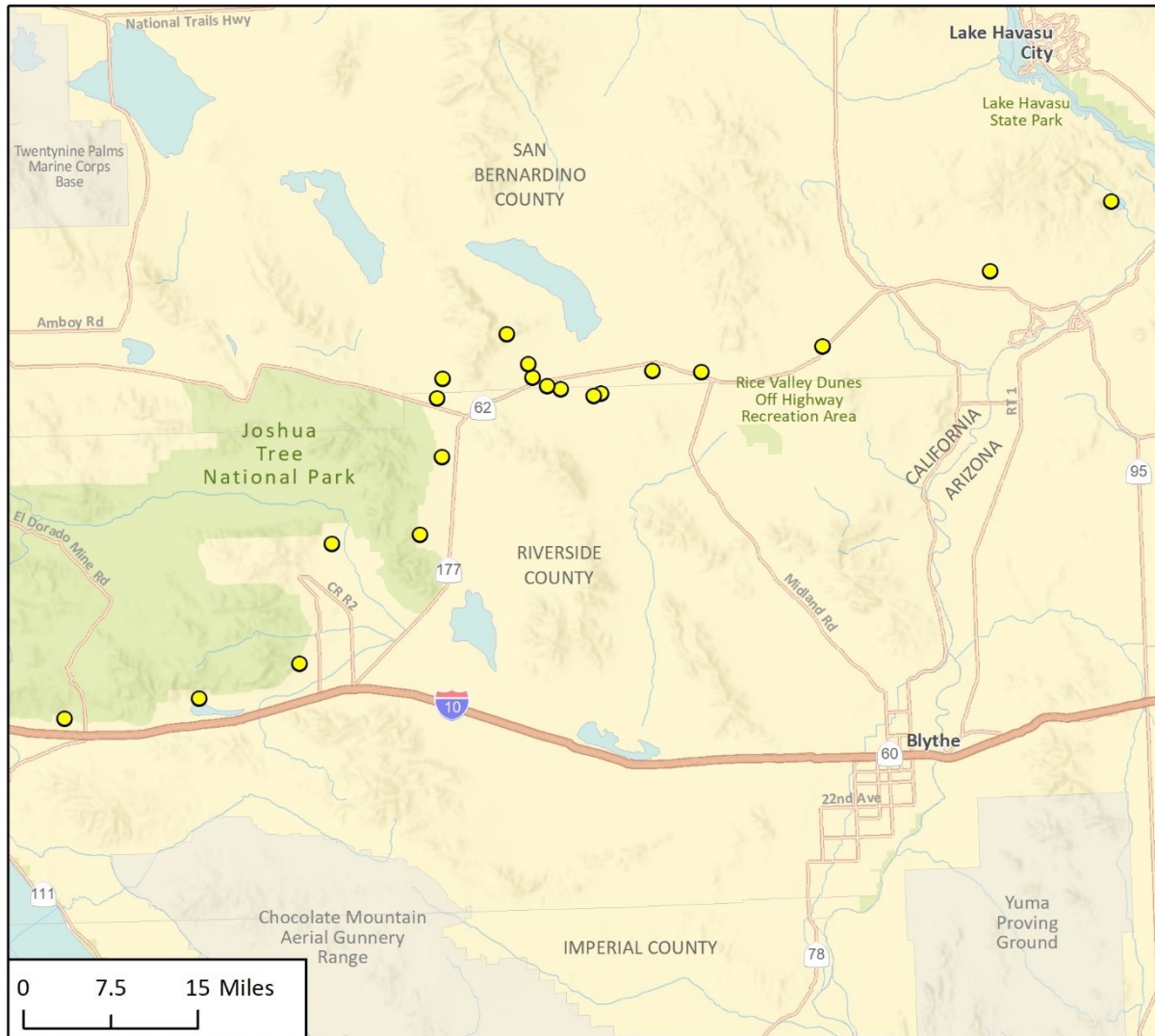
T Global condition of subspecies/varieties

SX Presumed extirpated

Appendix D

Figures

Figure 1 Regional Location



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● Borrow Site

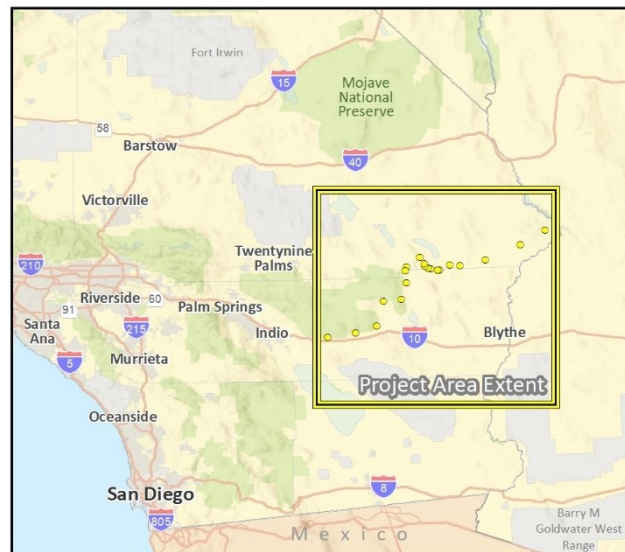


Fig 1 Regional Location

The Metropolitan Water District of Southern California
Colorado River Aqueduct Master Reclamation Plan for San Bernardino and Riverside Counties

Figure 2 San Bernardino and Riverside County Borrow Sites

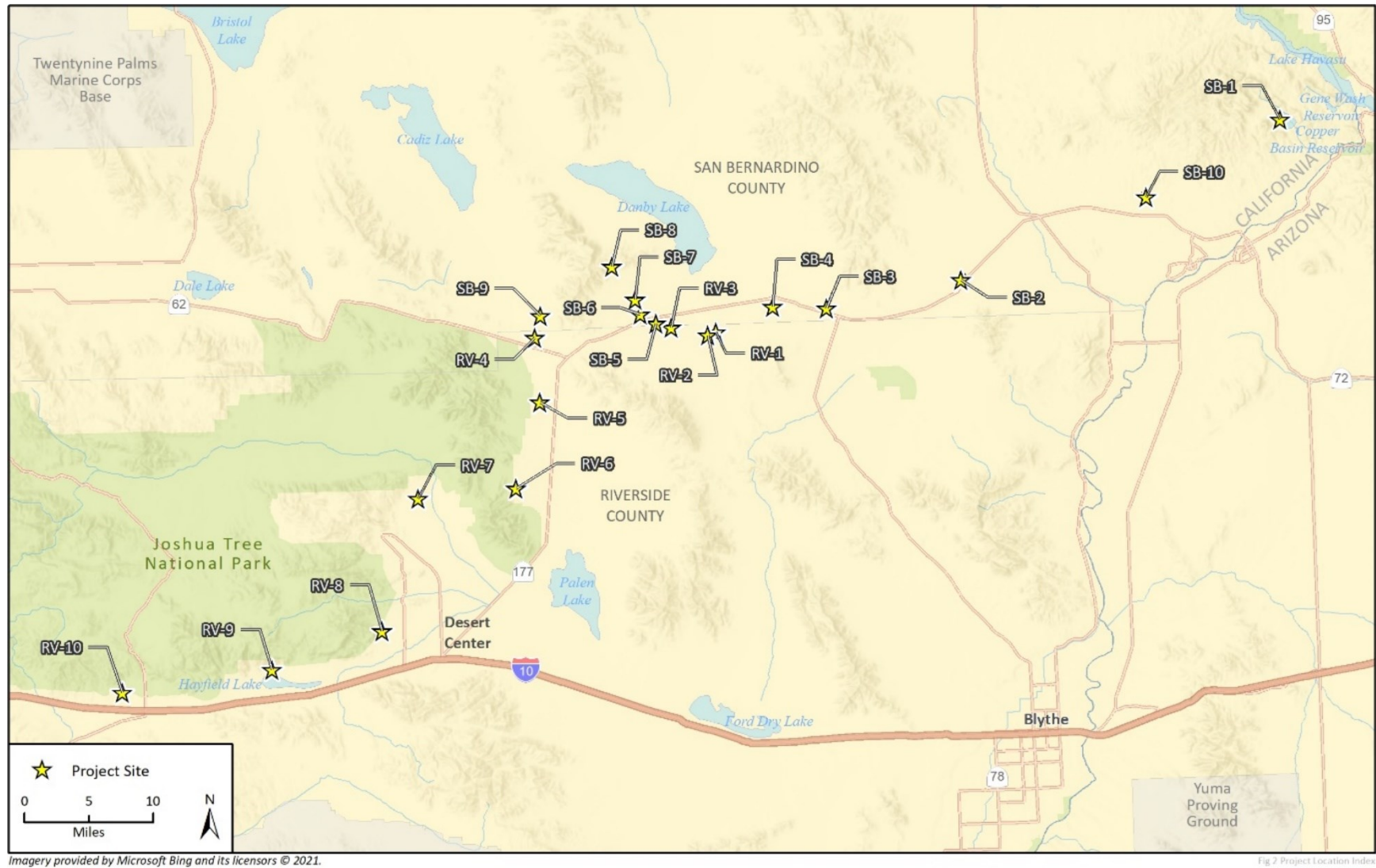


Figure 3a RV-1



Figure 3b RV-2

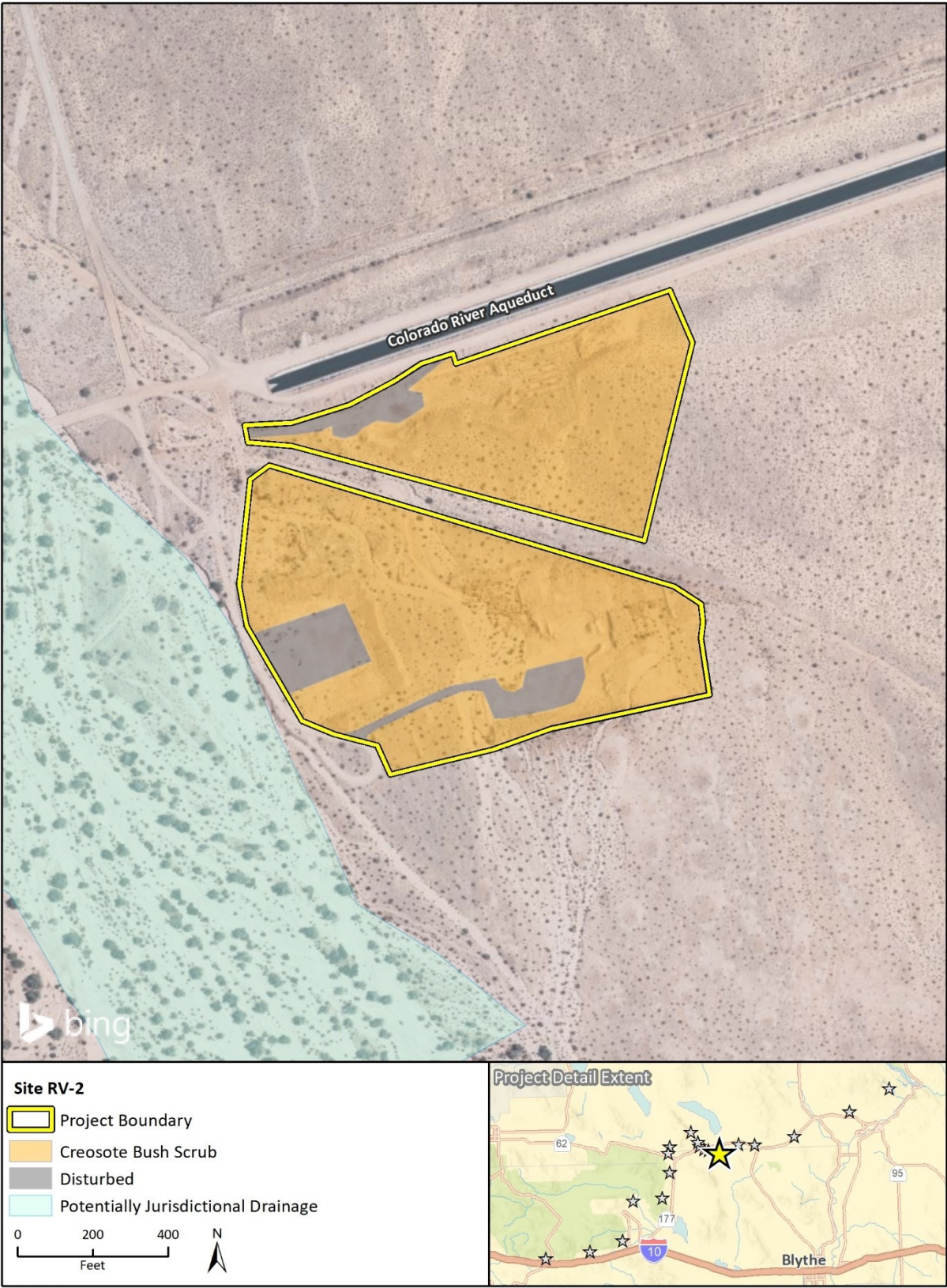


Figure 3c RV-3



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Fig. 3-Veg and 10

Figure 3d RV-4

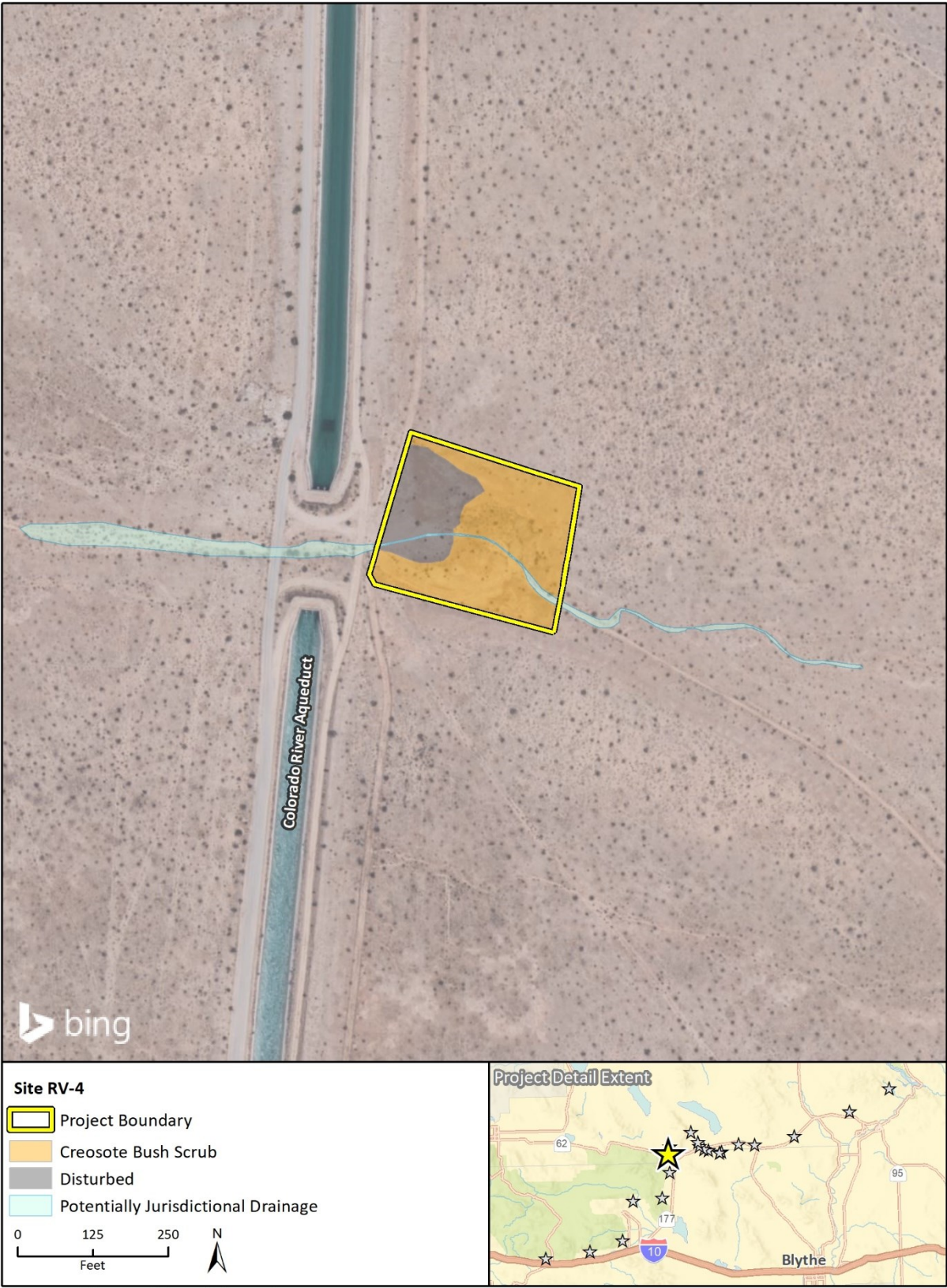
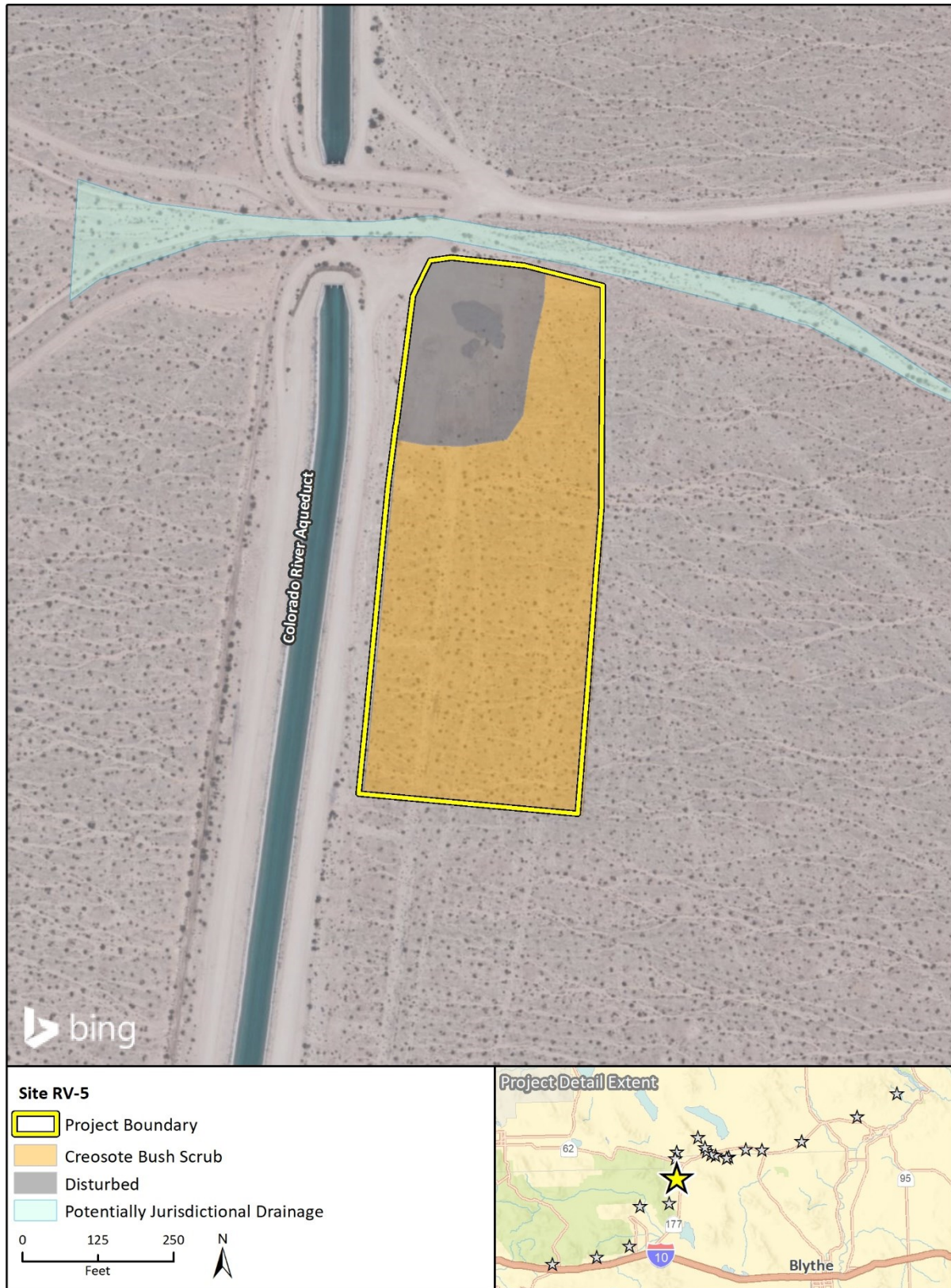


Figure 3e RV-5



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Fig. 3 Veg and 10

Figure 3f RV-6

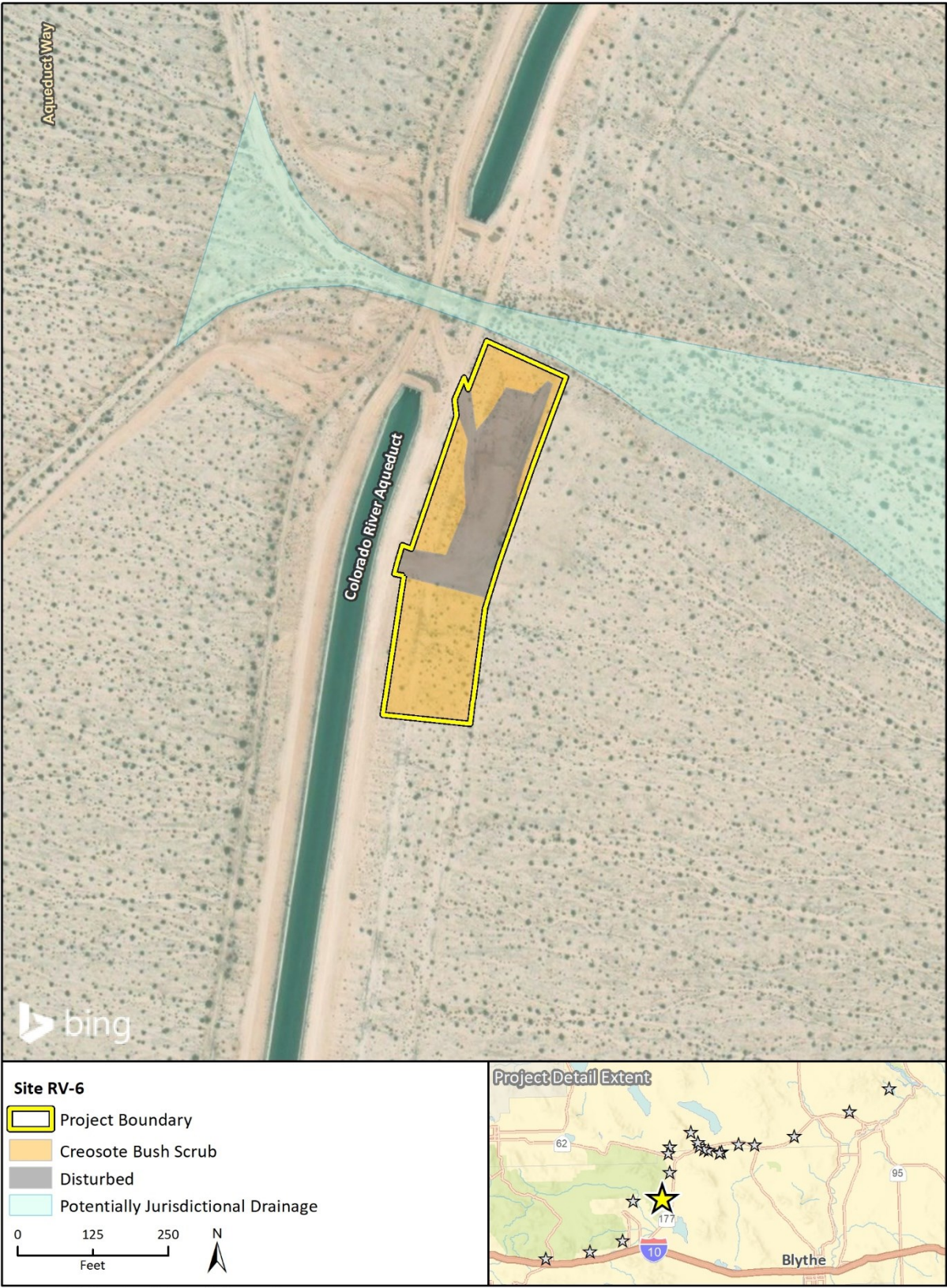


Figure 3g RV-7

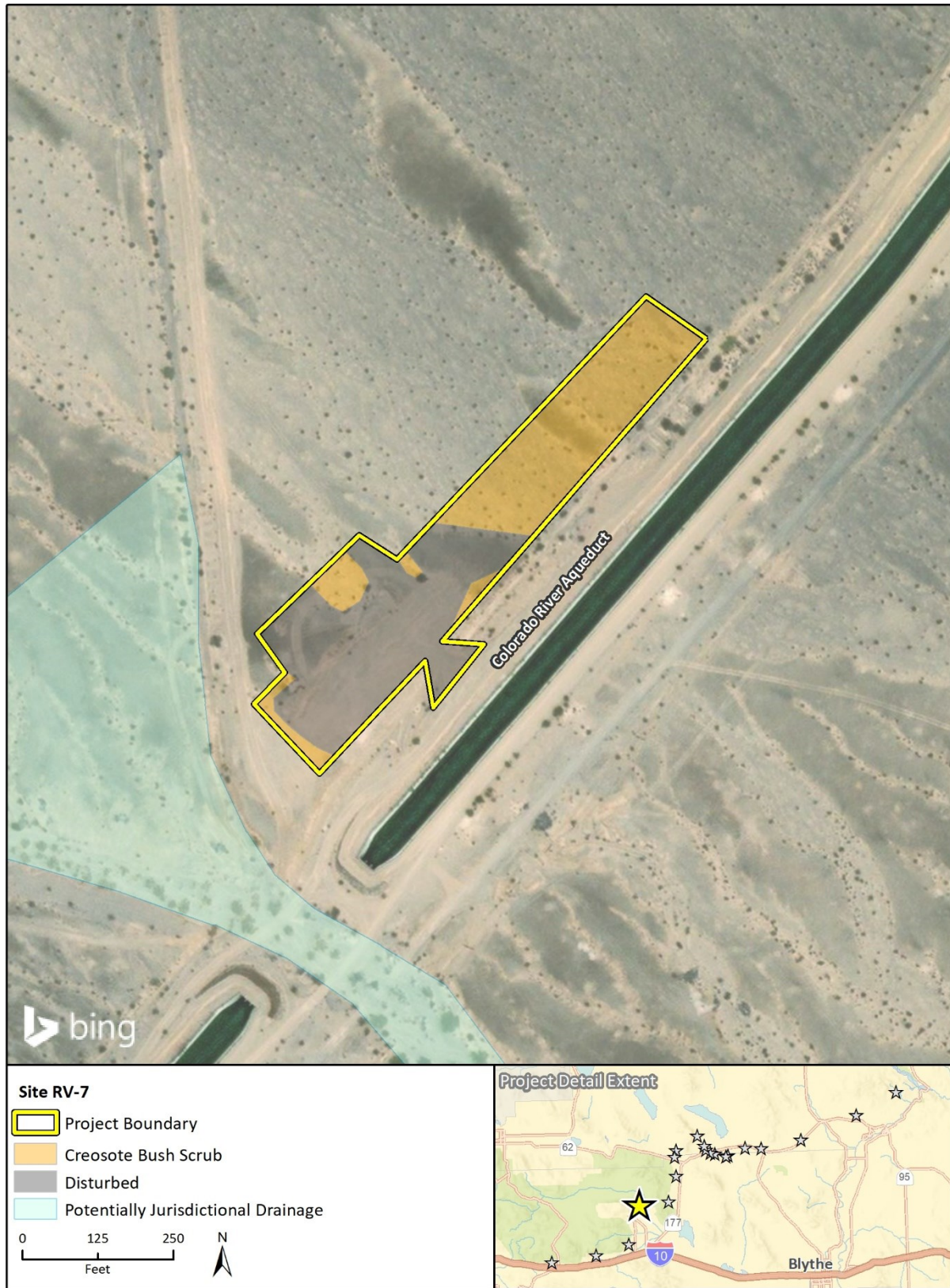
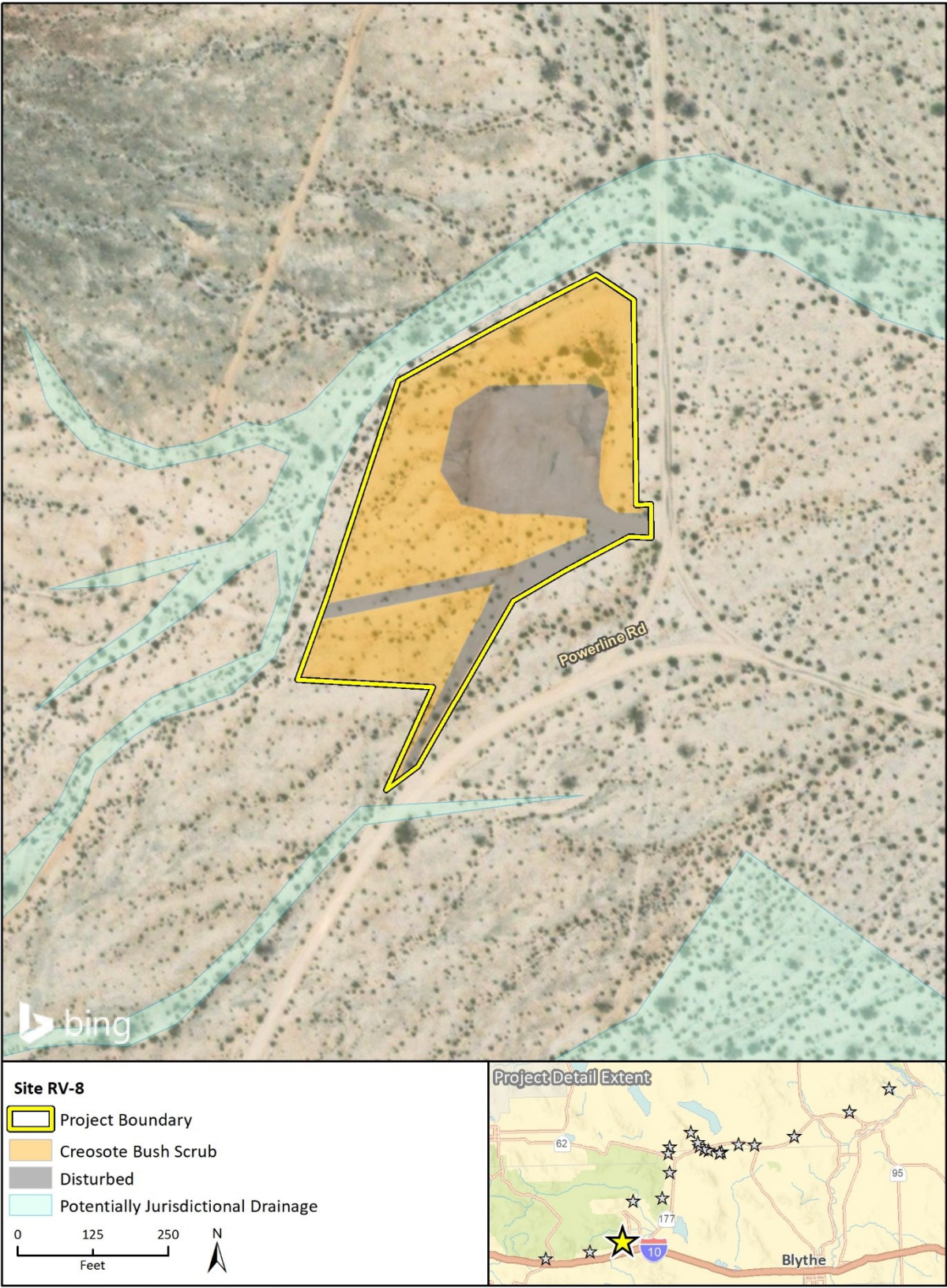


Figure 3h RV-8



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Figure 3i RV-9



Figure 3j RV-10

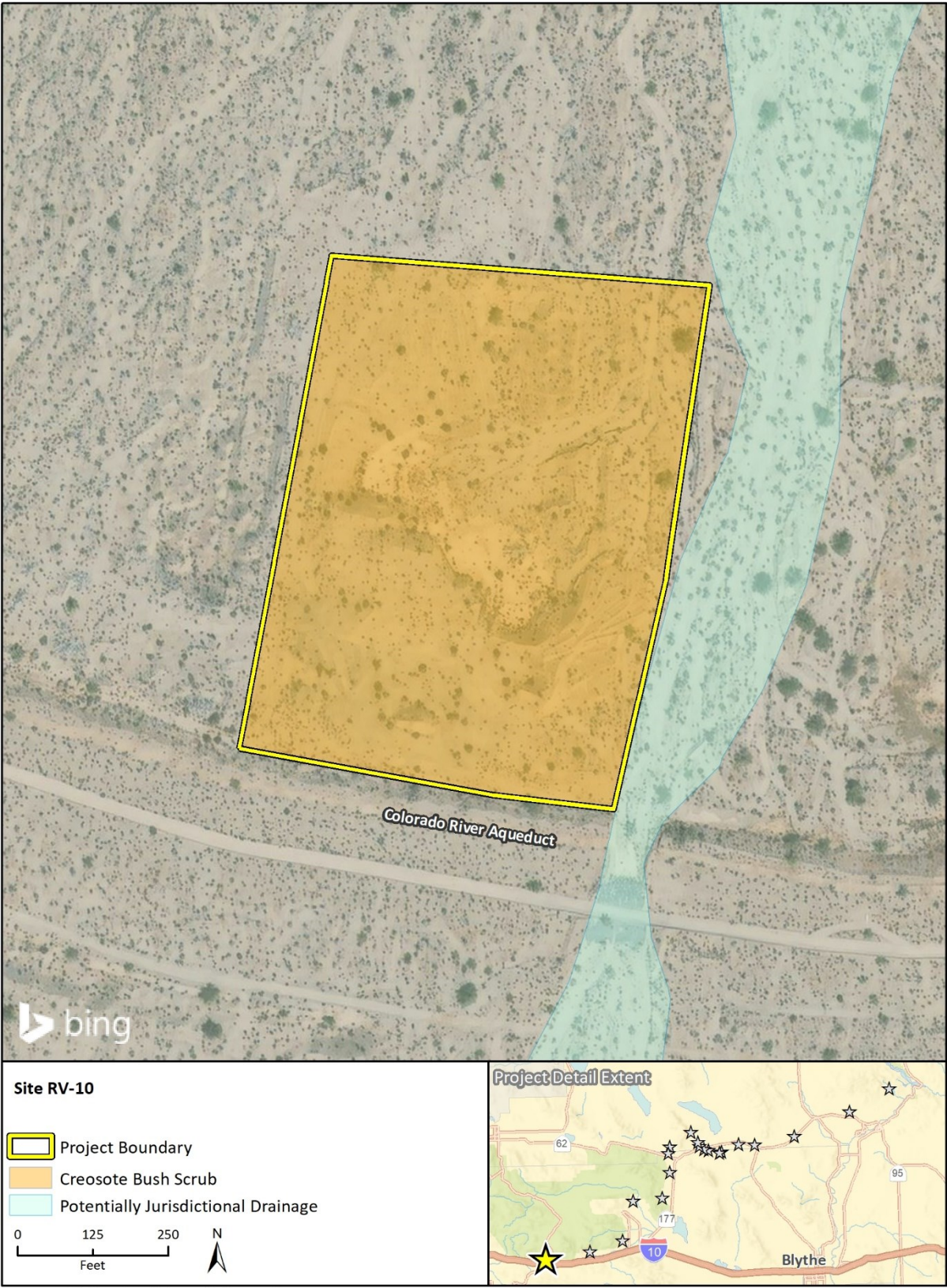


Figure 3k SB-1

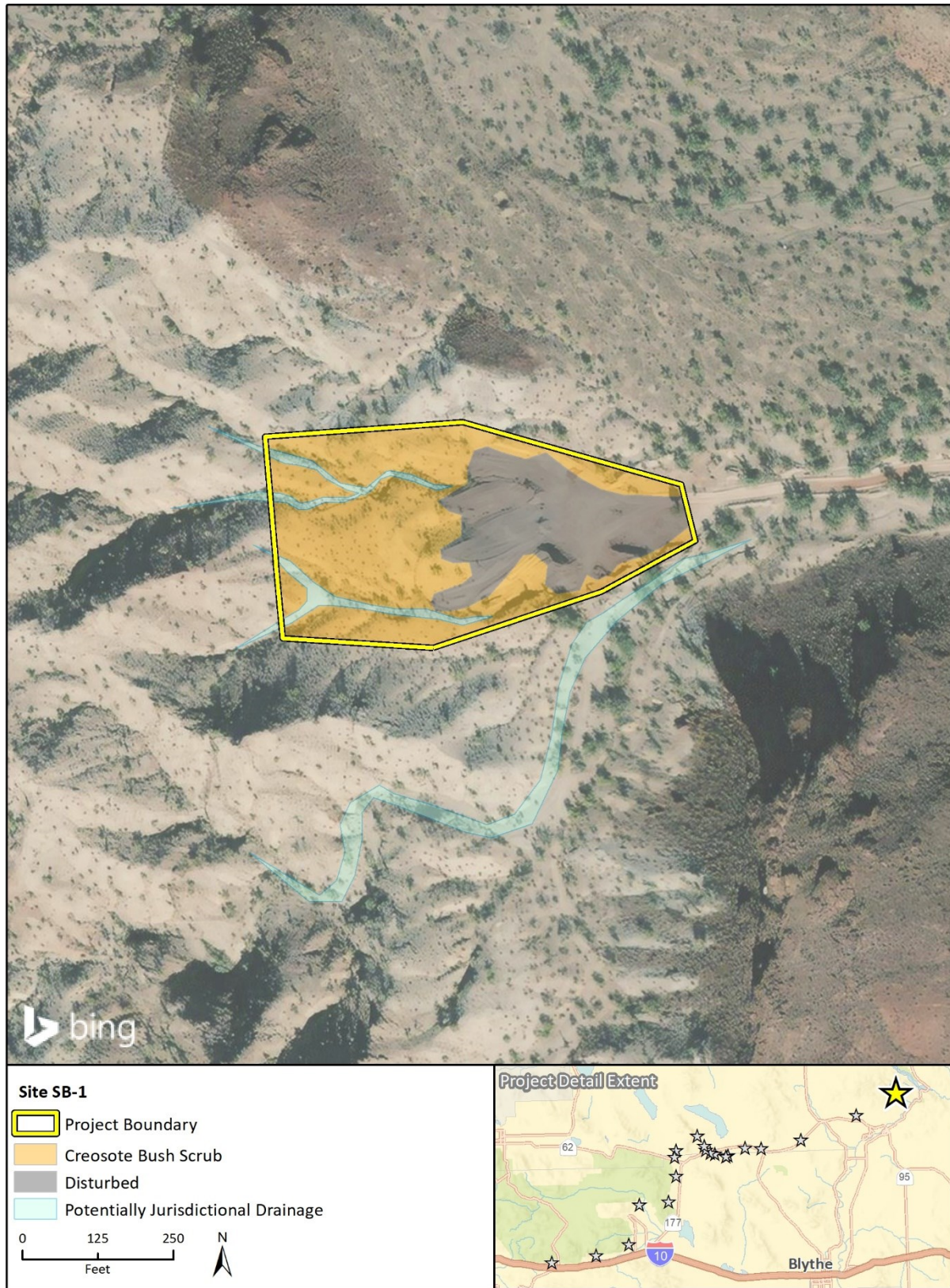
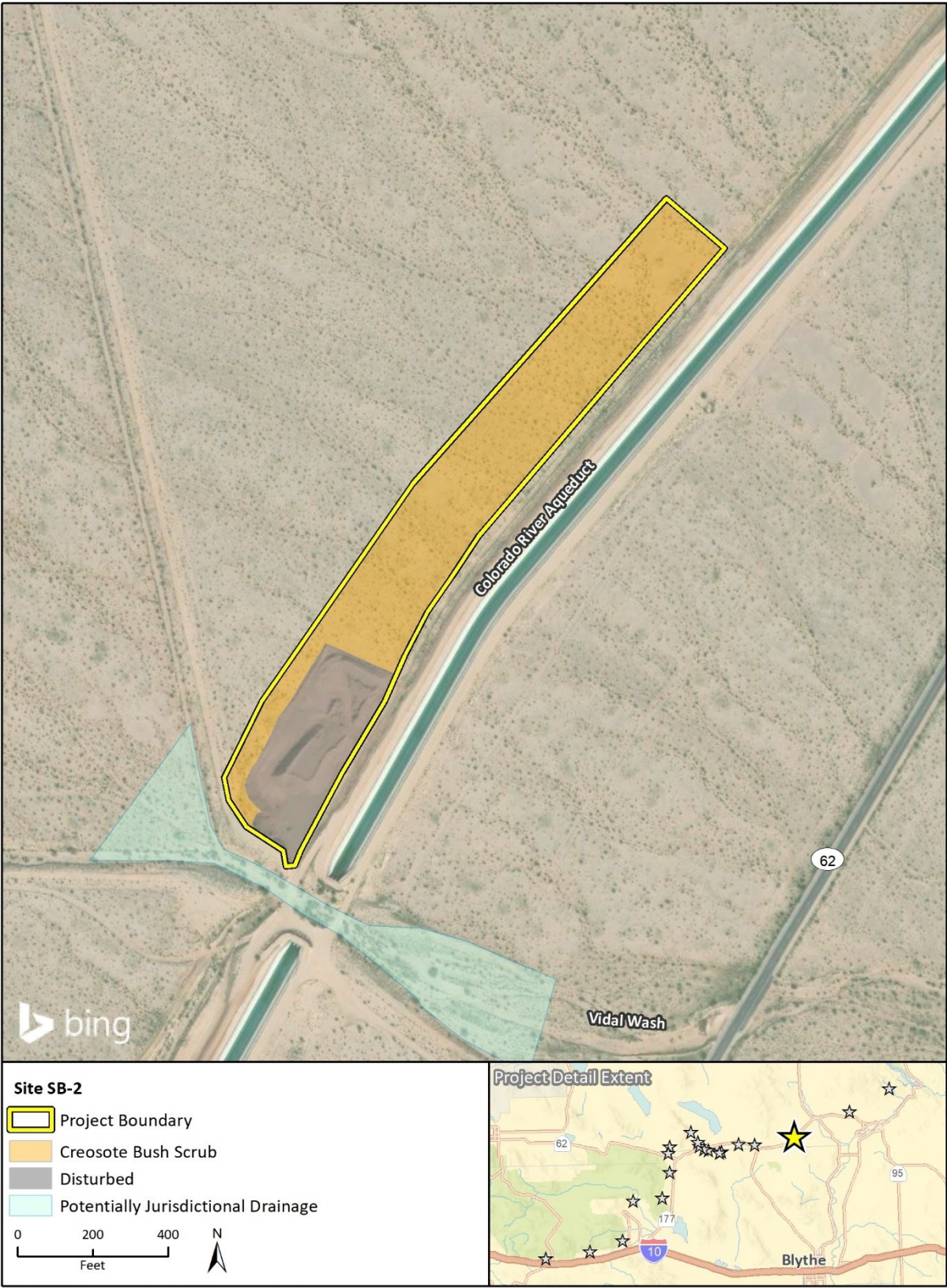


Figure 3I SB-2



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Fig. 3-10a and 10b

Figure 3m SB-3



Figure 3n SB-4



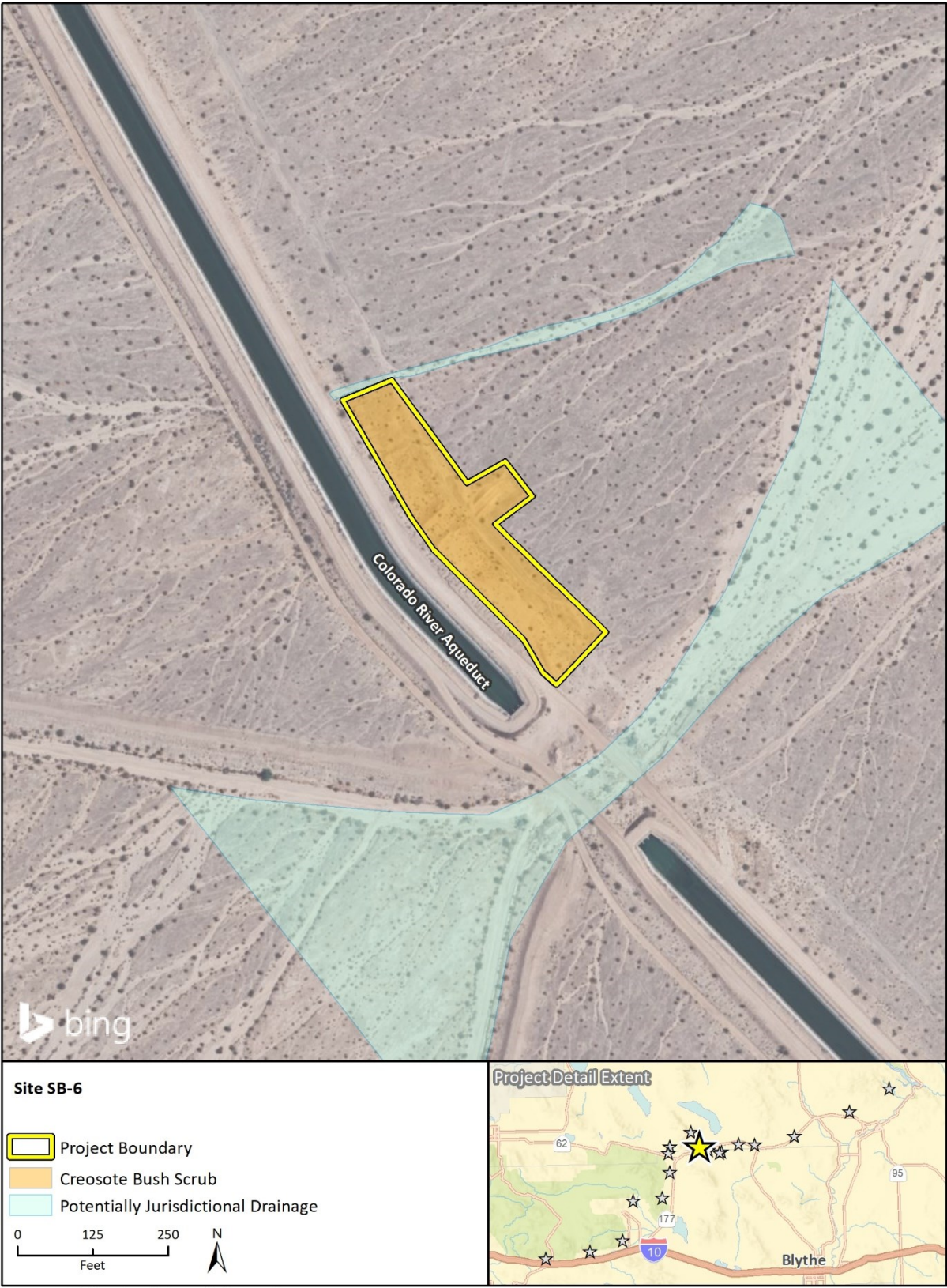
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Fig. 3-10g and 10j

Figure 3o SB-5

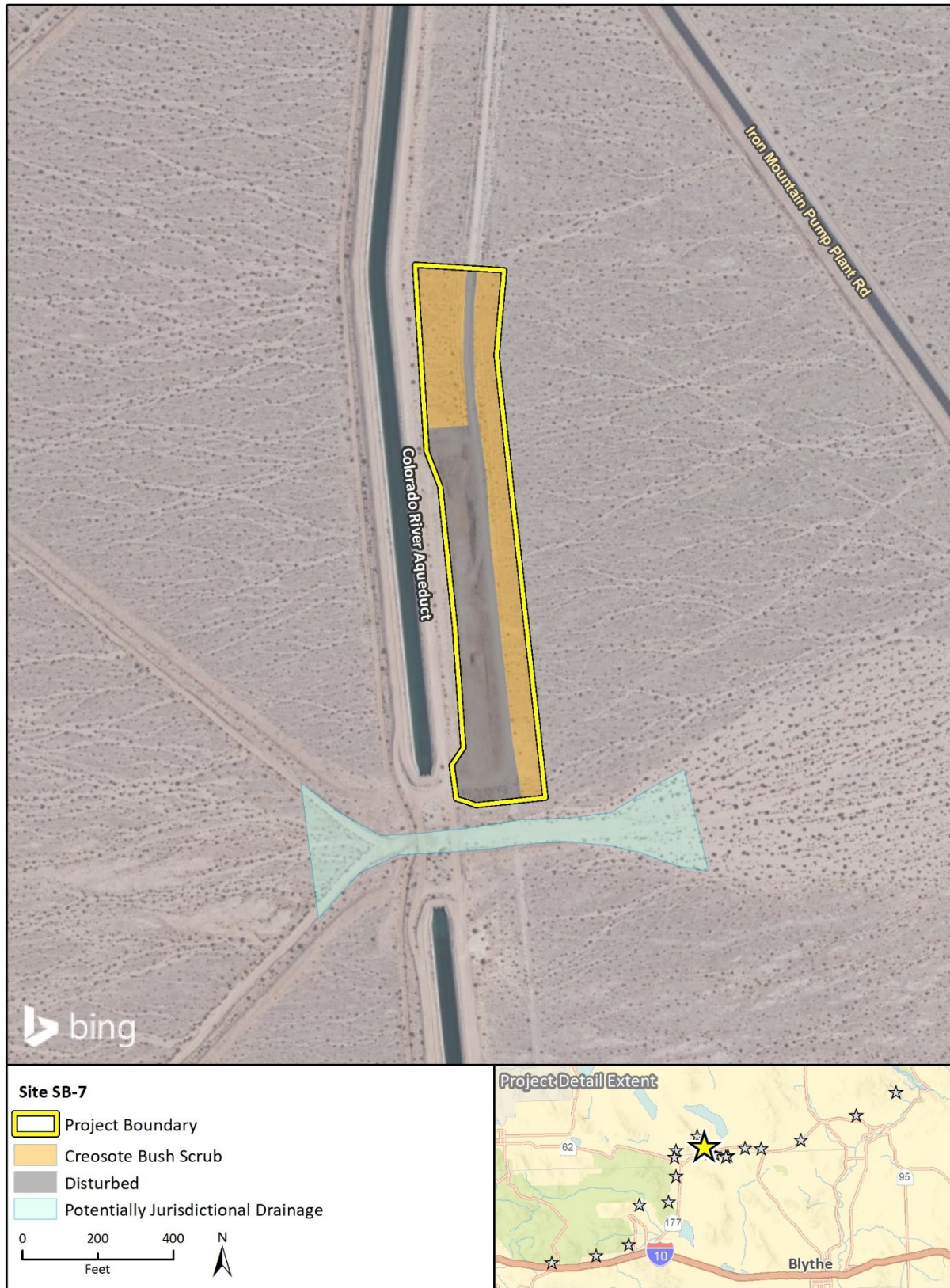


Figure 3p SB-6



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Figure 3q SB-7



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Fig. 3-Veg and 10

Figure 3r SB-8

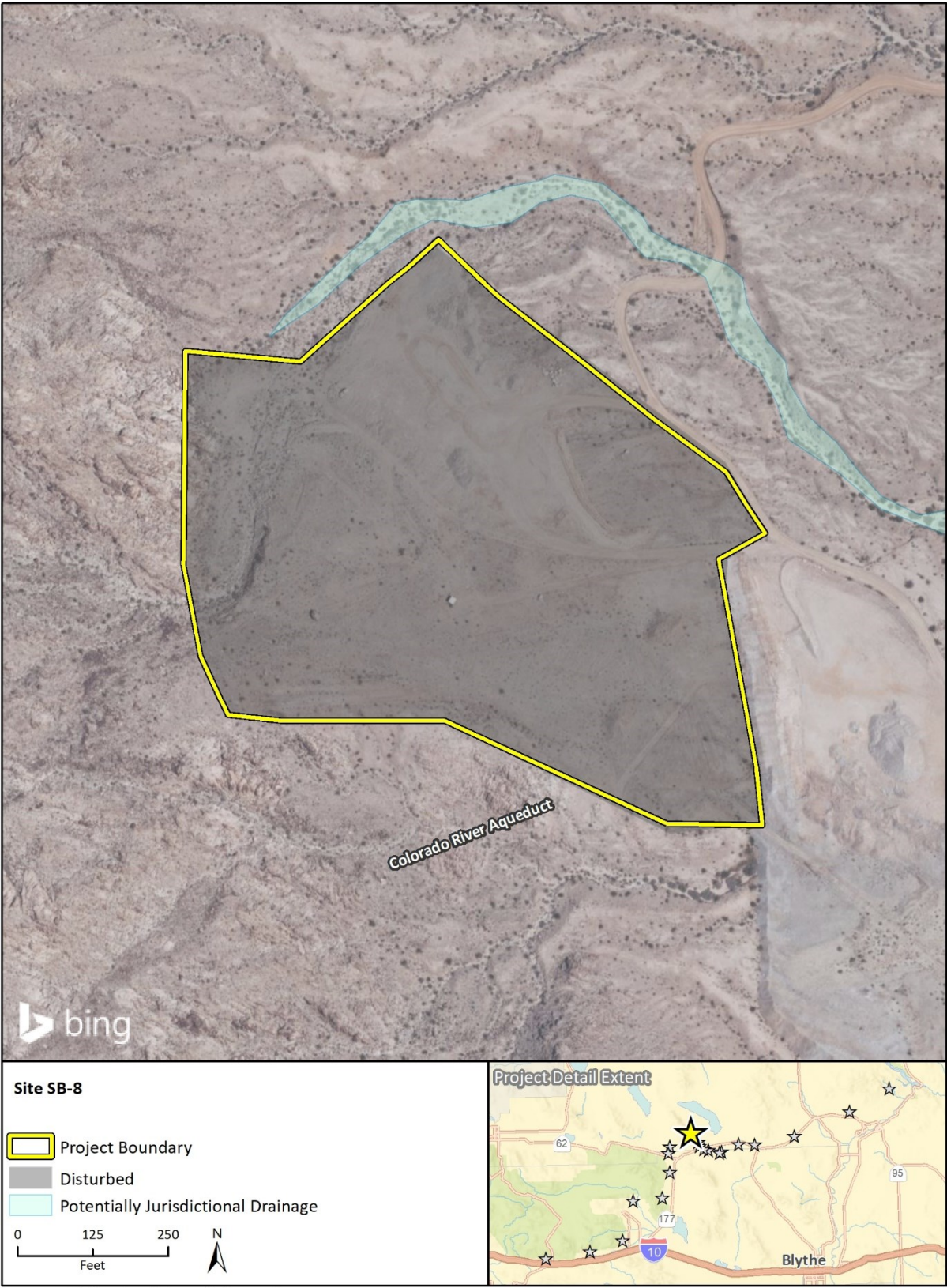
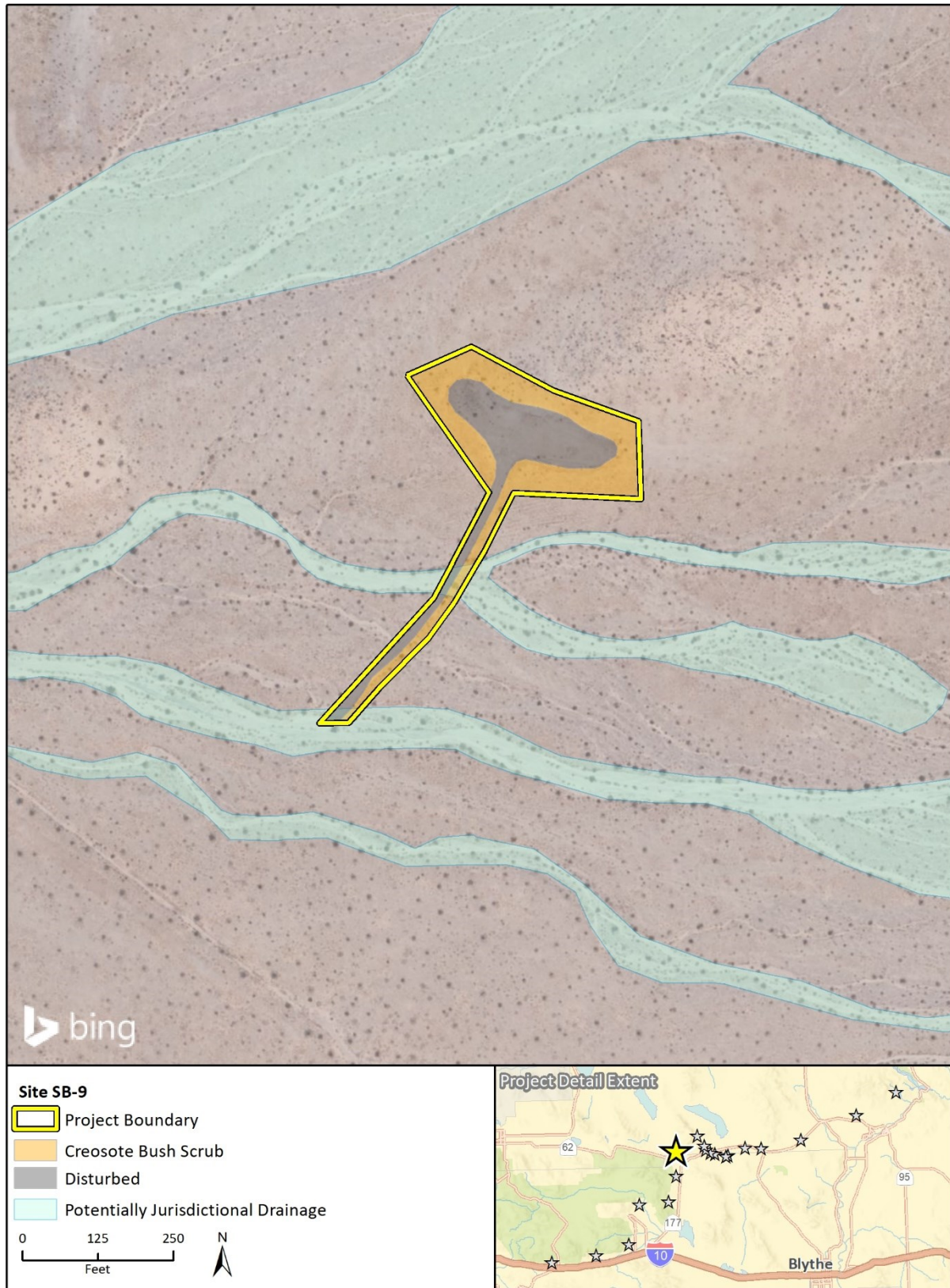


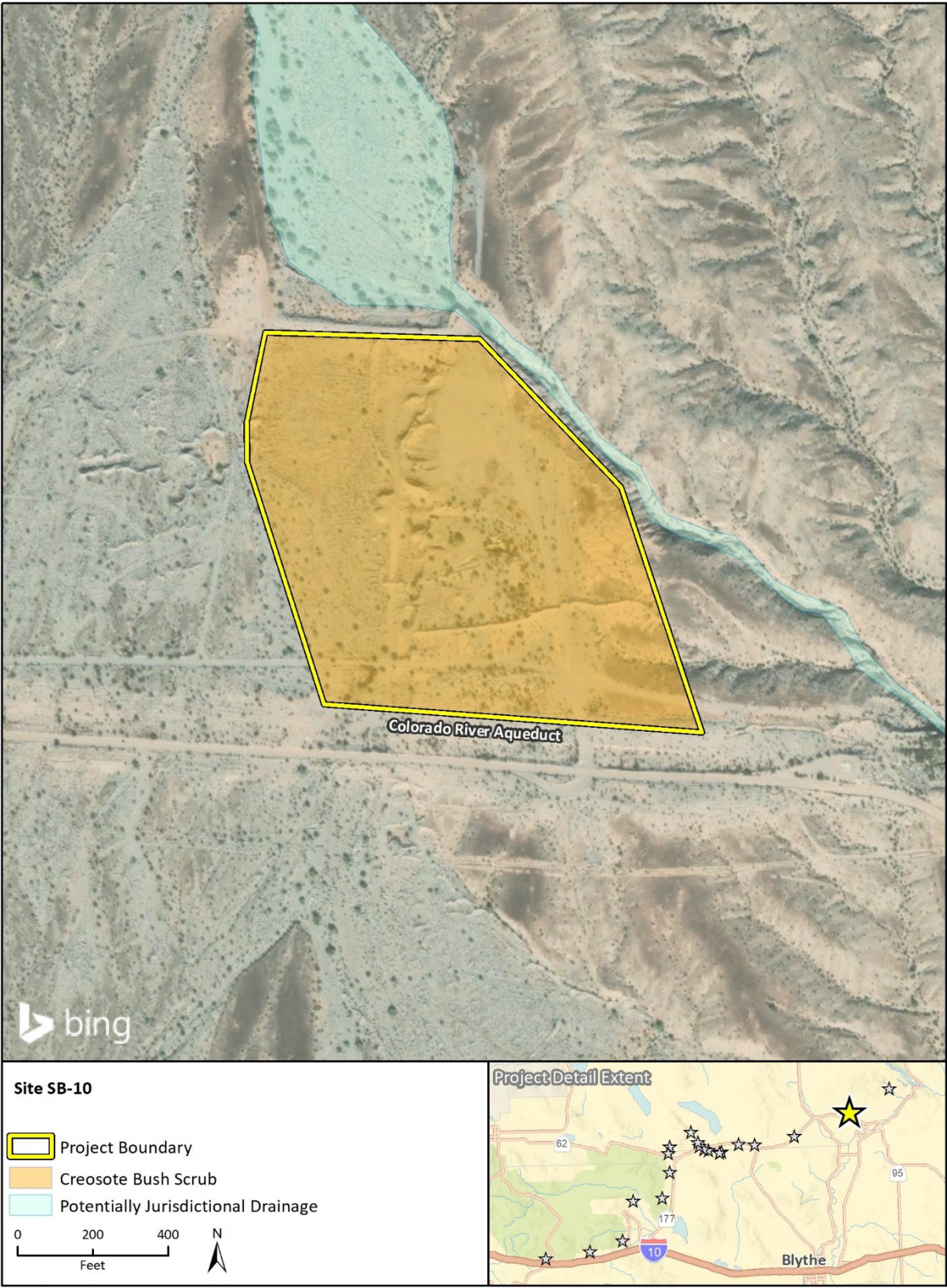
Figure 3s SB-9



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Fig. 3 Veg and 10

Figure 3f SB-10



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Appendix D

Air Pollutant and Greenhouse Gas Emissions Modeling

CRA MRP - RV-1 - Mojave Desert AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

CRA MRP - RV-1

Mojave Desert AQMD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	23.70	Acre	23.70	1,032,372.00	0

1.2 Other Project Characteristics

Urbanization	Rural	Wind Speed (m/s)	2.6	Precipitation Freq (Days)	30
Climate Zone	10			Operational Year	2023
Utility Company	User Defined				
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 - No connections to gas/electricity required for project.

Land Use - Size of disturbance area

Construction Phase - One month for reclamation construction activities.

Off-road Equipment - Other construction equipment = hydroseed spreader.

Grading - No export or import required.

Trips and VMT - Maximum of three Met employees for reclamation operations. Distance between Iron Mtn Pumping Plant and site. One water truck trip per day. One dump truck trip per day.

Construction Off-road Equipment Mitigation - MDAQMD Rule 403

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	35.00	30.00
tblConstructionPhase	PhaseEndDate	1/28/2022	2/11/2022

CRA MRP - RV-1 - Mojave Desert AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

tblOffRoadEquipment	HorsePower	158.00	273.00
tblOffRoadEquipment	HorsePower	187.00	238.00
tblOffRoadEquipment	HorsePower	247.00	215.00
tblOffRoadEquipment	HorsePower	172.00	30.00
tblOffRoadEquipment	HorsePower	97.00	276.00
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.41	0.41
tblOffRoadEquipment	LoadFactor	0.42	0.42
tblOffRoadEquipment	LoadFactor	0.37	0.37
tblOffRoadEquipment	OffRoadEquipmentType	Graders	Other Construction Equipment
tblOffRoadEquipment	OffRoadEquipmentType	Tractors/Loaders/Backhoes	Pumps
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	UsageHours	8.00	4.00
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	HaulingTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	WorkerTripLength	16.80	15.00
tblTripsAndVMT	WorkerTripNumber	15.00	6.00

2.0 Emissions Summary

CRA MRP - RV-1 - Mojave Desert AQMD Air District, 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	2.0985	19.5971	13.5587	0.0380	6.8993	0.8622	7.7615	3.4181	0.8057	4.2238	0.0000	3,671.9300	3,671.9300	0.9872	7.6800e-003	3,698.8962
Maximum	2.0985	19.5971	13.5587	0.0380	6.8993	0.8622	7.7615	3.4181	0.8057	4.2238	0.0000	3,671.9300	3,671.9300	0.9872	7.6800e-003	3,698.8962

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	2.0985	19.5971	13.5587	0.0380	3.1497	0.8622	4.0119	1.5503	0.8057	2.3559	0.0000	3,671.9300	3,671.9300	0.9872	7.6800e-003	3,698.8962
Maximum	2.0985	19.5971	13.5587	0.0380	3.1497	0.8622	4.0119	1.5503	0.8057	2.3559	0.0000	3,671.9300	3,671.9300	0.9872	7.6800e-003	3,698.8962

	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	54.35	0.00	48.31	54.65	0.00	44.22	0.00	0.00	0.00	0.00	0.00	0.00

CRA MRP - RV-1 - Mojave Desert AQMD Air District, 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	0.5625	2.0000e-005	2.4200e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		5.1900e-003	5.1900e-003	1.0000e-005		5.5300e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.5625	2.0000e-005	2.4200e-003	0.0000	0.0000	1.0000e-005	1.0000e-005	0.0000	1.0000e-005	1.0000e-005		5.1900e-003	5.1900e-003	1.0000e-005	0.0000	5.5300e-003

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.5625	2.0000e-005	2.4200e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		5.1900e-003	5.1900e-003	1.0000e-005		5.5300e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.5625	2.0000e-005	2.4200e-003	0.0000	0.0000	1.0000e-005	1.0000e-005	0.0000	1.0000e-005	1.0000e-005		5.1900e-003	5.1900e-003	1.0000e-005	0.0000	5.5300e-003

CRA MRP - RV-1 - Mojave Desert AQMD Air District, 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	Reclamation Construction	Grading	1/3/2022	2/11/2022	5	30	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 22.5

Acres of Paving: 23.7

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
Reclamation Construction	Other Construction Equipment	1	8.00	30	0.42
Reclamation Construction	Excavators	1	8.00	273	0.38
Reclamation Construction	Tractors/Loaders/Backhoes	1	8.00	276	0.37
Reclamation Construction	Graders	1	4.00	238	0.41
Reclamation Construction	Pumps	1	8.00	84	0.74
Reclamation Construction	Rubber Tired Dozers	1	8.00	215	0.40

Trips and VMT

CRA MRP - RV-1 - Mojave Desert AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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
Reclamation Construction	6	6.00	2.00	2.00	15.00	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Reclamation Construction - 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					6.8175	0.0000	6.8175	3.3961	0.0000	3.3961			0.0000			0.0000
Off-Road	2.0688	19.4901	13.3257	0.0370		0.8607	0.8607		0.8043	0.8043		3,571.479 9	3,571.479 9	0.9854		3,596.114 4
Total	2.0688	19.4901	13.3257	0.0370	6.8175	0.8607	7.6781	3.3961	0.8043	4.2004		3,571.479 9	3,571.479 9	0.9854		3,596.114 4

CRA MRP - RV-1 - Mojave Desert AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Reclamation Construction - 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	2.0000e-004	8.3200e-003	2.0900e-003	4.0000e-005	1.1700e-003	1.1000e-004	1.2700e-003	3.2000e-004	1.0000e-004	4.2000e-004		4.0726	4.0726	1.0000e-005	6.4000e-004	4.2636
Vendor	3.4300e-003	0.0810	0.0375	3.7000e-004	0.0123	1.0400e-003	0.0133	3.5300e-003	9.9000e-004	4.5300e-003		39.1967	39.1967	2.0000e-004	5.3800e-003	40.8038
Worker	0.0261	0.0177	0.1934	5.6000e-004	0.0684	3.3000e-004	0.0688	0.0182	3.1000e-004	0.0185		57.1809	57.1809	1.6100e-003	1.6600e-003	57.7145
Total	0.0297	0.1070	0.2330	9.7000e-004	0.0819	1.4800e-003	0.0834	0.0220	1.4000e-003	0.0234		100.4502	100.4502	1.8200e-003	7.6800e-003	102.7819

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.0679	0.0000	3.0679	1.5283	0.0000	1.5283			0.0000			0.0000
Off-Road	2.0688	19.4901	13.3257	0.0370		0.8607	0.8607		0.8043	0.8043	0.0000	3,571.479 9	3,571.479 9	0.9854		3,596.114 4
Total	2.0688	19.4901	13.3257	0.0370	3.0679	0.8607	3.9285	1.5283	0.8043	2.3325	0.0000	3,571.479 9	3,571.479 9	0.9854		3,596.114 4

CRA MRP - RV-1 - Mojave Desert AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Reclamation Construction - 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	2.0000e-004	8.3200e-003	2.0900e-003	4.0000e-005	1.1700e-003	1.1000e-004	1.2700e-003	3.2000e-004	1.0000e-004	4.2000e-004		4.0726	4.0726	1.0000e-005	6.4000e-004	4.2636
Vendor	3.4300e-003	0.0810	0.0375	3.7000e-004	0.0123	1.0400e-003	0.0133	3.5300e-003	9.9000e-004	4.5300e-003		39.1967	39.1967	2.0000e-004	5.3800e-003	40.8038
Worker	0.0261	0.0177	0.1934	5.6000e-004	0.0684	3.3000e-004	0.0688	0.0182	3.1000e-004	0.0185		57.1809	57.1809	1.6100e-003	1.6600e-003	57.7145
Total	0.0297	0.1070	0.2330	9.7000e-004	0.0819	1.4800e-003	0.0834	0.0220	1.4000e-003	0.0234		100.4502	100.4502	1.8200e-003	7.6800e-003	102.7819

CRA MRP - RV-1 - Mojave Desert AQMD Air District, 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
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Non-Asphalt Surfaces	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Non-Asphalt Surfaces	0.526992	0.056742	0.174739	0.140288	0.030240	0.007815	0.006009	0.021774	0.000488	0.000160	0.028107	0.000925	0.005722

CRA MRP - RV-1 - Mojave Desert AQMD Air District, 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					
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

CRA MRP - RV-1 - Mojave Desert AQMD Air District, 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 - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.5625	2.0000e-005	2.4200e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		5.1900e-003	5.1900e-003	1.0000e-005		5.5300e-003
Unmitigated	0.5625	2.0000e-005	2.4200e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		5.1900e-003	5.1900e-003	1.0000e-005		5.5300e-003

CRA MRP - RV-1 - Mojave Desert AQMD Air District, 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	0.1966					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.3657					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.2000e-004	2.0000e-005	2.4200e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		5.1900e-003	5.1900e-003	1.0000e-005		5.5300e-003
Total	0.5625	2.0000e-005	2.4200e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		5.1900e-003	5.1900e-003	1.0000e-005		5.5300e-003

CRA MRP - RV-1 - Mojave Desert AQMD Air District, 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	0.1966					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.3657					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.2000e-004	2.0000e-005	2.4200e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		5.1900e-003	5.1900e-003	1.0000e-005		5.5300e-003
Total	0.5625	2.0000e-005	2.4200e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		5.1900e-003	5.1900e-003	1.0000e-005		5.5300e-003

7.0 Water Detail

7.1 Mitigation Measures Water

CRA MRP - RV-1 - Mojave Desert AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**8.0 Waste Detail**

8.1 Mitigation Measures Waste**9.0 Operational Offroad**

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
----------------	--------	-----------	-----------	-------------	-------------	-----------

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
----------------	--------	-----------	------------	-------------	-------------	-----------

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
----------------	--------	----------------	-----------------	---------------	-----------

User Defined Equipment

Equipment Type	Number
----------------	--------

11.0 Vegetation

CRA MRP - RV-1 - Mojave Desert AQMD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

CRA MRP - RV-1

Mojave Desert AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	23.70	Acre	23.70	1,032,372.00	0

1.2 Other Project Characteristics

Urbanization	Rural	Wind Speed (m/s)	2.6	Precipitation Freq (Days)	30
Climate Zone	10			Operational Year	2023
Utility Company	User Defined				
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 - No connections to gas/electricity required for project.

Land Use - Size of disturbance area

Construction Phase - One month for reclamation construction activities.

Off-road Equipment - Other construction equipment = hydroseed spreader.

Grading - No export or import required.

Trips and VMT - Maximum of three Met employees for reclamation operations. Distance between Iron Mtn Pumping Plant and site. One water truck trip per day. One dump truck trip per day.

Construction Off-road Equipment Mitigation - MDAQMD Rule 403

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	35.00	30.00
tblConstructionPhase	PhaseEndDate	1/28/2022	2/11/2022

CRA MRP - RV-1 - Mojave Desert AQMD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

tblOffRoadEquipment	HorsePower	158.00	273.00
tblOffRoadEquipment	HorsePower	187.00	238.00
tblOffRoadEquipment	HorsePower	247.00	215.00
tblOffRoadEquipment	HorsePower	172.00	30.00
tblOffRoadEquipment	HorsePower	97.00	276.00
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.41	0.41
tblOffRoadEquipment	LoadFactor	0.42	0.42
tblOffRoadEquipment	LoadFactor	0.37	0.37
tblOffRoadEquipment	OffRoadEquipmentType	Graders	Other Construction Equipment
tblOffRoadEquipment	OffRoadEquipmentType	Tractors/Loaders/Backhoes	Pumps
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	UsageHours	8.00	4.00
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	HaulingTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	WorkerTripLength	16.80	15.00
tblTripsAndVMT	WorkerTripNumber	15.00	6.00

2.0 Emissions Summary

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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	0.0315	0.2940	0.2036	5.7000e-004	0.1035	0.0129	0.1164	0.0513	0.0121	0.0634	0.0000	49.9883	49.9883	0.0134	1.1000e-004	50.3556
Maximum	0.0315	0.2940	0.2036	5.7000e-004	0.1035	0.0129	0.1164	0.0513	0.0121	0.0634	0.0000	49.9883	49.9883	0.0134	1.1000e-004	50.3556

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	0.0315	0.2940	0.2036	5.7000e-004	0.0472	0.0129	0.0602	0.0233	0.0121	0.0353	0.0000	49.9883	49.9883	0.0134	1.1000e-004	50.3555
Maximum	0.0315	0.2940	0.2036	5.7000e-004	0.0472	0.0129	0.0602	0.0233	0.0121	0.0353	0.0000	49.9883	49.9883	0.0134	1.1000e-004	50.3555

	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	54.36	0.00	48.32	54.65	0.00	44.23	0.00	0.00	0.00	0.00	0.00	0.00

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Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-3-2022	4-2-2022	0.3099	0.3099
		Highest	0.3099	0.3099

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	0.1026	0.0000	2.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	4.2000e-004	4.2000e-004	0.0000	0.0000	4.5000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.1026	0.0000	2.2000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	4.2000e-004	4.2000e-004	0.0000	0.0000	4.5000e-004

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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	0.1026	0.0000	2.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	4.2000e-004	4.2000e-004	0.0000	0.0000	4.5000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.1026	0.0000	2.2000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	4.2000e-004	4.2000e-004	0.0000	0.0000	4.5000e-004

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	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	Reclamation Construction	Grading	1/3/2022	2/11/2022	5	30	

Acres of Grading (Site Preparation Phase): 0

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**Acres of Grading (Grading Phase): 22.5****Acres of Paving: 23.7****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
Reclamation Construction	Other Construction Equipment	1	8.00	30	0.42
Reclamation Construction	Excavators	1	8.00	273	0.38
Reclamation Construction	Tractors/Loaders/Backhoes	1	8.00	276	0.37
Reclamation Construction	Graders	1	4.00	238	0.41
Reclamation Construction	Pumps	1	8.00	84	0.74
Reclamation Construction	Rubber Tired Dozers	1	8.00	215	0.40

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Reclamation Construction	6	6.00	2.00	2.00	15.00	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Reclamation Construction - 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					0.1023	0.0000	0.1023	0.0509	0.0000	0.0509	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0310	0.2924	0.1999	5.6000e-004		0.0129	0.0129		0.0121	0.0121	0.0000	48.5999	48.5999	0.0134	0.0000	48.9351
Total	0.0310	0.2924	0.1999	5.6000e-004	0.1023	0.0129	0.1152	0.0509	0.0121	0.0630	0.0000	48.5999	48.5999	0.0134	0.0000	48.9351

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	1.3000e-004	3.0000e-005	0.0000	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0000	1.0000e-005	0.0000	0.0554	0.0554	0.0000	1.0000e-005	0.0580
Vendor	5.0000e-005	1.2100e-003	5.5000e-004	1.0000e-005	1.8000e-004	2.0000e-005	2.0000e-004	5.0000e-005	1.0000e-005	7.0000e-005	0.0000	0.5328	0.5328	0.0000	7.0000e-005	0.5547
Worker	3.6000e-004	2.8000e-004	3.1200e-003	1.0000e-005	1.0100e-003	0.0000	1.0100e-003	2.7000e-004	0.0000	2.7000e-004	0.0000	0.8002	0.8002	2.0000e-005	2.0000e-005	0.8078
Total	4.1000e-004	1.6200e-003	3.7000e-003	2.0000e-005	1.2100e-003	2.0000e-005	1.2300e-003	3.2000e-004	1.0000e-005	3.5000e-004	0.0000	1.3884	1.3884	2.0000e-005	1.0000e-004	1.4205

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Reclamation Construction - 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					0.0460	0.0000	0.0460	0.0229	0.0000	0.0229	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0310	0.2924	0.1999	5.6000e-004		0.0129	0.0129		0.0121	0.0121	0.0000	48.5998	48.5998	0.0134	0.0000	48.9350
Total	0.0310	0.2924	0.1999	5.6000e-004	0.0460	0.0129	0.0589	0.0229	0.0121	0.0350	0.0000	48.5998	48.5998	0.0134	0.0000	48.9350

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	1.3000e-004	3.0000e-005	0.0000	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0000	1.0000e-005	0.0000	0.0554	0.0554	0.0000	1.0000e-005	0.0580
Vendor	5.0000e-005	1.2100e-003	5.5000e-004	1.0000e-005	1.8000e-004	2.0000e-005	2.0000e-004	5.0000e-005	1.0000e-005	7.0000e-005	0.0000	0.5328	0.5328	0.0000	7.0000e-005	0.5547
Worker	3.6000e-004	2.8000e-004	3.1200e-003	1.0000e-005	1.0100e-003	0.0000	1.0100e-003	2.7000e-004	0.0000	2.7000e-004	0.0000	0.8002	0.8002	2.0000e-005	2.0000e-005	0.8078
Total	4.1000e-004	1.6200e-003	3.7000e-003	2.0000e-005	1.2100e-003	2.0000e-005	1.2300e-003	3.2000e-004	1.0000e-005	3.5000e-004	0.0000	1.3884	1.3884	2.0000e-005	1.0000e-004	1.4205

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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	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Non-Asphalt Surfaces	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Non-Asphalt Surfaces	0.526992	0.056742	0.174739	0.140288	0.030240	0.007815	0.006009	0.021774	0.000488	0.000160	0.028107	0.000925	0.005722

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Historical Energy Use: N

5.1 Mitigation Measures Energy

[illegible]

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Unmitigated

[illegible]

Mitigated

[illegible]

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**5.3 Energy by Land Use - Electricity****Unmitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

6.0 Area Detail**6.1 Mitigation Measures Area**

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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
Category	tons/yr										MT/yr					
Mitigated	0.1026	0.0000	2.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	4.2000e-004	4.2000e-004	0.0000	0.0000	4.5000e-004
Unmitigated	0.1026	0.0000	2.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	4.2000e-004	4.2000e-004	0.0000	0.0000	4.5000e-004

6.2 Area by SubCategory**Unmitigated**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0359					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0667					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.0000e-005	0.0000	2.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	4.2000e-004	4.2000e-004	0.0000	0.0000	4.5000e-004
Total	0.1026	0.0000	2.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	4.2000e-004	4.2000e-004	0.0000	0.0000	4.5000e-004

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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	tons/yr										MT/yr					
Architectural Coating	0.0359					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0667					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.0000e-005	0.0000	2.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	4.2000e-004	4.2000e-004	0.0000	0.0000	4.5000e-004
Total	0.1026	0.0000	2.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	4.2000e-004	4.2000e-004	0.0000	0.0000	4.5000e-004

7.0 Water Detail

7.1 Mitigation Measures Water

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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			
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

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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			
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

8.0 Waste Detail**8.1 Mitigation Measures Waste****Category/Year**

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

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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			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**10.0 Stationary Equipment**

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
----------------	--------	-----------	------------	-------------	-------------	-----------

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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User Defined Equipment

Equipment Type	Number
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11.0 Vegetation

CRA MRP - Restoration Monitoring - SB-1 - Mojave Desert AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**CRA MRP - Restoration Monitoring - SB-1****Mojave Desert AQMD Air District, Winter****1.0 Project Characteristics****1.1 Land Usage**

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	1.00	Acre	1.00	43,560.00	0

1.2 Other Project Characteristics

Urbanization	Rural	Wind Speed (m/s)	2.6	Precipitation Freq (Days)	30
Climate Zone	10			Operational Year	2022
Utility Company	User Defined				
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 - No connections to electricity/natural gas required for project.

Land Use -

Construction Phase - Restoration monitoring only.

Off-road Equipment - Restoration monitoring only.

Grading - Restoration monitoring only.

Trips and VMT - Restoration monitoring only.

On-road Fugitive Dust - Restoration monitoring only.

Architectural Coating - Restoration monitoring only.

Vehicle Trips - Maximum of two daily trips per site for restoration monitoring. Trip length is maximum distance from Iron Mtn Pumping Plant to furthest borrow site.

Consumer Products - Restoration monitoring only.

Area Coating - Restoration monitoring only.

CRA MRP - Restoration Monitoring - SB-1 - Mojave Desert AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Landscape Equipment - Restoration monitoring only.

Fleet Mix - Restoration monitoring assumed to require a pickup truck.

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_Parking	2614	0
tblConsumerProducts	ROG_EF	2.14E-05	0
tblConsumerProducts	ROG_EF_Degreaser	3.542E-07	0
tblConsumerProducts	ROG_EF_PesticidesFertilizers	5.152E-08	0
tblFleetMix	HHD	0.02	0.00
tblFleetMix	LDA	0.52	0.00
tblFleetMix	LDT1	0.06	0.00
tblFleetMix	LDT2	0.17	1.00
tblFleetMix	LHD1	0.03	0.00
tblFleetMix	LHD2	7.9300e-003	0.00
tblFleetMix	MCY	0.03	0.00
tblFleetMix	MDV	0.14	0.00
tblFleetMix	MH	6.0360e-003	0.00
tblFleetMix	MHD	6.1010e-003	0.00
tblFleetMix	OBUS	4.9600e-004	0.00
tblFleetMix	SBUS	9.2300e-004	0.00
tblFleetMix	UBUS	1.6100e-004	0.00
tblLandscapeEquipment	NumberSummerDays	180	0
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	1.00	0.00
tblOffRoadEquipment	UsageHours	6.00	0.00
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	WorkerTripNumber	10.00	0.00
tblVehicleTrips	CC_TL	6.60	77.60
tblVehicleTrips	CC_TTP	0.00	100.00

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

tblVehicleTrips	PR_TP	0.00	100.00
tblVehicleTrips	WD_TR	0.00	2.00

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

[illegible]

Mitigated Construction

[illegible]

CRA MRP - Restoration Monitoring - SB-1 - Mojave Desert AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

[illegible]

CRA MRP - Restoration Monitoring - SB-1 - Mojave Desert AQMD Air District, 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	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	9.3300e-003	0.0322	0.3081	1.0900e-003	0.1179	4.9000e-004	0.1184	0.0313	4.5000e-004	0.0317		110.9033	110.9033	1.7000e-003	2.6500e-003	111.7354
Total	9.3400e-003	0.0322	0.3082	1.0900e-003	0.1179	4.9000e-004	0.1184	0.0313	4.5000e-004	0.0317		110.9035	110.9035	1.7000e-003	2.6500e-003	111.7356

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	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	9.3300e-003	0.0322	0.3081	1.0900e-003	0.1179	4.9000e-004	0.1184	0.0313	4.5000e-004	0.0317		110.9033	110.9033	1.7000e-003	2.6500e-003	111.7354
Total	9.3400e-003	0.0322	0.3082	1.0900e-003	0.1179	4.9000e-004	0.1184	0.0313	4.5000e-004	0.0317		110.9035	110.9035	1.7000e-003	2.6500e-003	111.7356

CRA MRP - Restoration Monitoring - SB-1 - Mojave Desert AQMD Air District, 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	Demolition	Demolition	1/3/2022	1/14/2022	5	10	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 1

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
Demolition	Concrete/Industrial Saws	1	0.00	81	0.73
Demolition	Rubber Tired Dozers	1	0.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	2	0.00	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
Demolition	4	0.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

CRA MRP - Restoration Monitoring - SB-1 - Mojave Desert AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**3.2 Demolition - 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					
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

CRA MRP - Restoration Monitoring - SB-1 - Mojave Desert AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**3.2 Demolition - 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	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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	9.3300e-003	0.0322	0.3081	1.0900e-003	0.1179	4.9000e-004	0.1184	0.0313	4.5000e-004	0.0317		110.9033	110.9033	1.7000e-003	2.6500e-003	111.7354
Unmitigated	9.3300e-003	0.0322	0.3081	1.0900e-003	0.1179	4.9000e-004	0.1184	0.0313	4.5000e-004	0.0317		110.9033	110.9033	1.7000e-003	2.6500e-003	111.7354

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Non-Asphalt Surfaces	2.00	0.00	0.00	40,352	40,352
Total	2.00	0.00	0.00	40,352	40,352

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Non-Asphalt Surfaces	14.70	77.60	6.60	0.00	100.00	0.00	100	0	0

4.4 Fleet Mix

[illegible]

CRA MRP - Restoration Monitoring - SB-1 - Mojave Desert AQMD Air District, 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					
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

CRA MRP - Restoration Monitoring - SB-1 - Mojave Desert AQMD Air District, 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 - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Unmitigated	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004

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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	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Total	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004

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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	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Total	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004

7.0 Water Detail**7.1 Mitigation Measures Water**

CRA MRP - Restoration Monitoring - SB-1 - Mojave Desert AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**8.0 Waste Detail**

8.1 Mitigation Measures Waste**9.0 Operational Offroad**

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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10.0 Stationary Equipment

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**CRA MRP - Restoration Monitoring - SB-1****Mojave Desert AQMD Air District, Annual****1.0 Project Characteristics****1.1 Land Usage**

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	1.00	Acre	1.00	43,560.00	0

1.2 Other Project Characteristics

Urbanization	Rural	Wind Speed (m/s)	2.6	Precipitation Freq (Days)	30
Climate Zone	10			Operational Year	2022
Utility Company	User Defined				
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 - No connections to electricity/natural gas required for project.

Land Use -

Construction Phase - Restoration monitoring only.

Off-road Equipment - Restoration monitoring only.

Grading - Restoration monitoring only.

Trips and VMT - Restoration monitoring only.

On-road Fugitive Dust - Restoration monitoring only.

Architectural Coating - Restoration monitoring only.

Vehicle Trips - Maximum of two daily trips per site for restoration monitoring. Trip length is maximum distance from Iron Mtn Pumping Plant to furthest borrow site.

Consumer Products - Restoration monitoring only.

Area Coating - Restoration monitoring only.

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Landscape Equipment - Restoration monitoring only.

Fleet Mix - Restoration monitoring assumed to require a pickup truck.

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_Parking	2614	0
tblConsumerProducts	ROG_EF	2.14E-05	0
tblConsumerProducts	ROG_EF_Degreaser	3.542E-07	0
tblConsumerProducts	ROG_EF_PesticidesFertilizers	5.152E-08	0
tblFleetMix	HHD	0.02	0.00
tblFleetMix	LDA	0.52	0.00
tblFleetMix	LDT1	0.06	0.00
tblFleetMix	LDT2	0.17	1.00
tblFleetMix	LHD1	0.03	0.00
tblFleetMix	LHD2	7.9300e-003	0.00
tblFleetMix	MCY	0.03	0.00
tblFleetMix	MDV	0.14	0.00
tblFleetMix	MH	6.0360e-003	0.00
tblFleetMix	MHD	6.1010e-003	0.00
tblFleetMix	OBUS	4.9600e-004	0.00
tblFleetMix	SBUS	9.2300e-004	0.00
tblFleetMix	UBUS	1.6100e-004	0.00
tblLandscapeEquipment	NumberSummerDays	180	0
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	1.00	0.00
tblOffRoadEquipment	UsageHours	6.00	0.00
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	WorkerTripNumber	10.00	0.00
tblVehicleTrips	CC_TL	6.60	77.60
tblVehicleTrips	CC_TTP	0.00	100.00

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

tblVehicleTrips	PR_TP	0.00	100.00
tblVehicleTrips	WD_TR	0.00	2.00

2.1 Overall Construction

Unmitigated Construction

[illegible]

Mitigated Construction

[illegible]

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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	0.00	0.00	0.00	0.00	0.00	0.00	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)
		Highest		

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	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
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	1.2300e-003	4.4900e-003	0.0431	1.5000e-004	0.0151	6.0000e-005	0.0151	4.0000e-003	6.0000e-005	4.0500e-003	0.0000	13.3913	13.3913	2.1000e-004	3.3000e-004	13.4946
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	1.2300e-003	4.4900e-003	0.0431	1.5000e-004	0.0151	6.0000e-005	0.0151	4.0000e-003	6.0000e-005	4.0500e-003	0.0000	13.3913	13.3913	2.1000e-004	3.3000e-004	13.4946

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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	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
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	1.2300e-003	4.4900e-003	0.0431	1.5000e-004	0.0151	6.0000e-005	0.0151	4.0000e-003	6.0000e-005	4.0500e-003	0.0000	13.3913	13.3913	2.1000e-004	3.3000e-004	13.4946
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	1.2300e-003	4.4900e-003	0.0431	1.5000e-004	0.0151	6.0000e-005	0.0151	4.0000e-003	6.0000e-005	4.0500e-003	0.0000	13.3913	13.3913	2.1000e-004	3.3000e-004	13.4946

	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	Demolition	Demolition	1/3/2022	1/14/2022	5	10	

Acres of Grading (Site Preparation Phase): 0

CRA MRP - Restoration Monitoring - SB-1 - Mojave Desert AQMD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**Acres of Grading (Grading Phase): 0****Acres of Paving: 1****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
Demolition	Concrete/Industrial Saws	1	0.00	81	0.73
Demolition	Rubber Tired Dozers	1	0.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	2	0.00	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
Demolition	4	0.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Unmitigated Construction On-Site

[illegible]

Unmitigated Construction Off-Site

[illegible]

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Mitigated Construction On-Site

[illegible]

Mitigated Construction Off-Site

[illegible]

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

4.1 Mitigation Measures Mobile

4.2 Trip Summary Information

4.3 Trip Type Information

4.4 Fleet Mix

[illegible]

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Historical Energy Use: N

5.1 Mitigation Measures Energy

[illegible]

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Unmitigated

[illegible]

Mitigated

[illegible]

CRA MRP - Restoration Monitoring - SB-1 - Mojave Desert AQMD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**5.3 Energy by Land Use - Electricity****Unmitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

6.0 Area Detail**6.1 Mitigation Measures Area**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

[illegible]

Unmitigated

[illegible]

CRA MRP - Restoration Monitoring - SB-1 - Mojave Desert AQMD Air District, Annual

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	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	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

7.0 Water Detail**7.1 Mitigation Measures Water**

CRA MRP - Restoration Monitoring - SB-1 - Mojave Desert AQMD Air District, 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			
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

CRA MRP - Restoration Monitoring - SB-1 - Mojave Desert AQMD Air District, 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			
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

8.0 Waste Detail**8.1 Mitigation Measures Waste****Category/Year**

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

CRA MRP - Restoration Monitoring - SB-1 - Mojave Desert AQMD Air District, 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			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
----------------	--------	-----------	-----------	-------------	-------------	-----------

CRA MRP - Restoration Monitoring - SB-1 - Mojave Desert AQMD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**10.0 Stationary Equipment**

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
----------------	--------	-----------	------------	-------------	-------------	-----------

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
----------------	--------	----------------	-----------------	---------------	-----------

User Defined Equipment

Equipment Type	Number
----------------	--------

11.0 Vegetation

Appendix E

Cultural Resources Assessment



Colorado River Aqueduct Master Reclamation Plan for San Bernardino and Riverside Counties

Cultural Resources Assessment

prepared for

The Metropolitan Water District of Southern California

700 North Alameda Street
Los Angeles, California 90012

prepared by

Rincon Consultants, Inc.

1980 Orange Tree Lane, Suite 105
Redlands, California 92374

November 2021



RINCON CONSULTANTS, INC.

Environmental Scientists | Planners | Engineers
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Executive Summary

The Metropolitan Water District of Southern California (Metropolitan) retained Rincon Consultants, Inc. (Rincon) to complete a cultural resources assessment for the Colorado River Aqueduct Master Reclamation Plan for San Bernardino and Riverside Counties Project (Project). This study has been prepared pursuant to the California Environmental Quality Act (CEQA). Metropolitan is the CEQA lead agency.

The current study includes a Phase I cultural resources investigation inclusive of a cultural resources records search, a search of the Native American Heritage Commission's (NAHC) Sacred Lands File, and field surveys resulting in the recordation and evaluation of one historic-period archaeological site, Rincon-S-1, comprised of four remnant features likely associated with the construction and/or maintenance of the Colorado River Aqueduct. Research completed under the current study concluded Rincon-S-1 does not possess significant historical associations and is not eligible for listing in the National Register of Historic Places (NRHP) or the California Register of Historical Resources (CRHR) under all four criteria (A-D/1-4); as such, it is not a historical resource, and its demolition would not result in a significant adverse impact under CEQA. The background research and field surveys completed by Metropolitan and Rincon concluded that there are no other known archaeological or built environment resources at the Project sites. Based on the results of the cultural resources assessment, Rincon recommends a finding of ***no impacts to historical and archaeological resources*** under CEQA. No further cultural resources work is recommended for the Project. Rincon presents the following measure for the unanticipated discovery of cultural resources during Project development. The project is also required to adhere to State regulations regarding the unanticipated discovery of human remains, detailed below.

Unanticipated Discovery of Cultural Resources

If cultural resources are encountered during Project related activities, work in the immediate area should halt and an archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards for archaeology (National Park Service 1983) should be contacted immediately to evaluate the find. If the discovery proves to be eligible for listing in the NRHP and/or CRHR, additional work such as data recovery excavation and Native American consultation and archaeological monitoring may be warranted to mitigate any significant impacts.

Unanticipated Discovery of Human Remains

If human remains are found, existing regulations outlined in the State of California Health and Safety Code Section 7050.5 state that no further disturbance shall occur until the County Coroner has made a determination of origin and disposition pursuant to Public Resources Code Section 5097.98. The County Coroner shall be notified immediately, and if the human remains are determined to be prehistoric, the Coroner shall notify the NAHC, which will determine and notify a Most Likely Descendant, who shall complete the inspection of the site within 48 hours of being granted access and provide Metropolitan with recommendations for the treatment of the remains.

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1 Introduction

The Metropolitan Water District of Southern California (Metropolitan) retained Rincon Consultants, Inc. (Rincon) to complete a cultural resources assessment for the Colorado River Aqueduct Master Reclamation Plan (MRP) for San Bernardino and Riverside Counties Project (Project). The proposed Project is located within the southern Mojave Desert in San Bernardino and Riverside Counties, California. The purpose of this report serves to document the results of the cultural resources assessment, including a cultural resources records search, archival review, pedestrian field surveys, and an assessment of potential project-related impacts to cultural resources. The study was completed pursuant to California Environmental Quality Act (CEQA) requirements and applicable State and local guidelines and regulations. Metropolitan is the CEQA lead agency for the Project.

1.1 Project Description

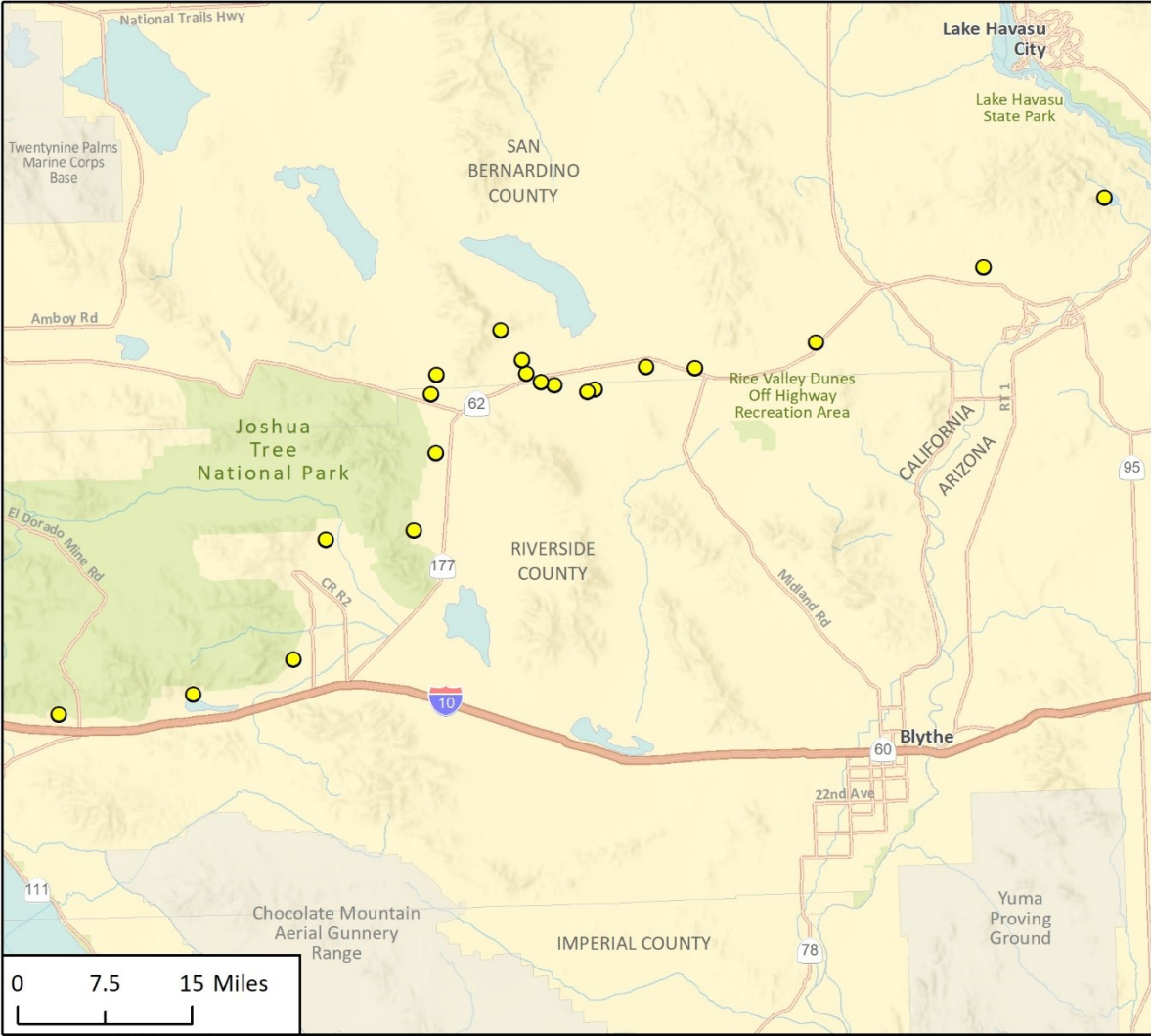
1.1.1 Introduction

Metropolitan is a regional water wholesaler providing 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 and operates 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. Figure 1 provides a regional overview of the Project Area.

In 1932, Metropolitan acquired fee ownership of the right-of-way for the CRA as well as additional land to be used for surface mining of stone, earth, gravel, sand, and other earthen materials needed to support the operations and maintenance of the CRA. Because the materials are taken from these sites for use at other areas associated with the CRA, they are referred to as “borrow sites.” There are ten borrow sites in San Bernardino County (see Figure 2) and ten borrow sites in Riverside County (see Figure 3). Under California law, Metropolitan has a vested mining right for its fee-owned lands because federal legislation (June 18, 1932 Act, 47 Stat. 324; House Resolution 10048) authorized Metropolitan to extract materials to construct and continuously operate and maintain the CRA project and because Metropolitan initiated the surface mining operations prior to the establishment of land use zoning ordinances. With Metropolitan’s vested mining right, current and future surface mining operations at all of Metropolitan’s fee-owned lands, including the various borrow sites referenced in this report, are permitted by right.

The California Surface Mining and Reclamation Act (SMARA) requires surface mining operations to develop and implement a Reclamation Plan approved by the applicable SMARA lead agencies. Because approval of reclamation plans constitutes a discretionary action by the SMARA lead agency(s), they are considered “projects” under CEQA. The State of California Mining and Geology Board is the lead agency for the proposed MRP under SMARA. The reclamation of the 20 borrow sites is the Project being evaluated under CEQA with Metropolitan as the CEQA lead agency, as stated previously.

Figure 1 Regional Location Map

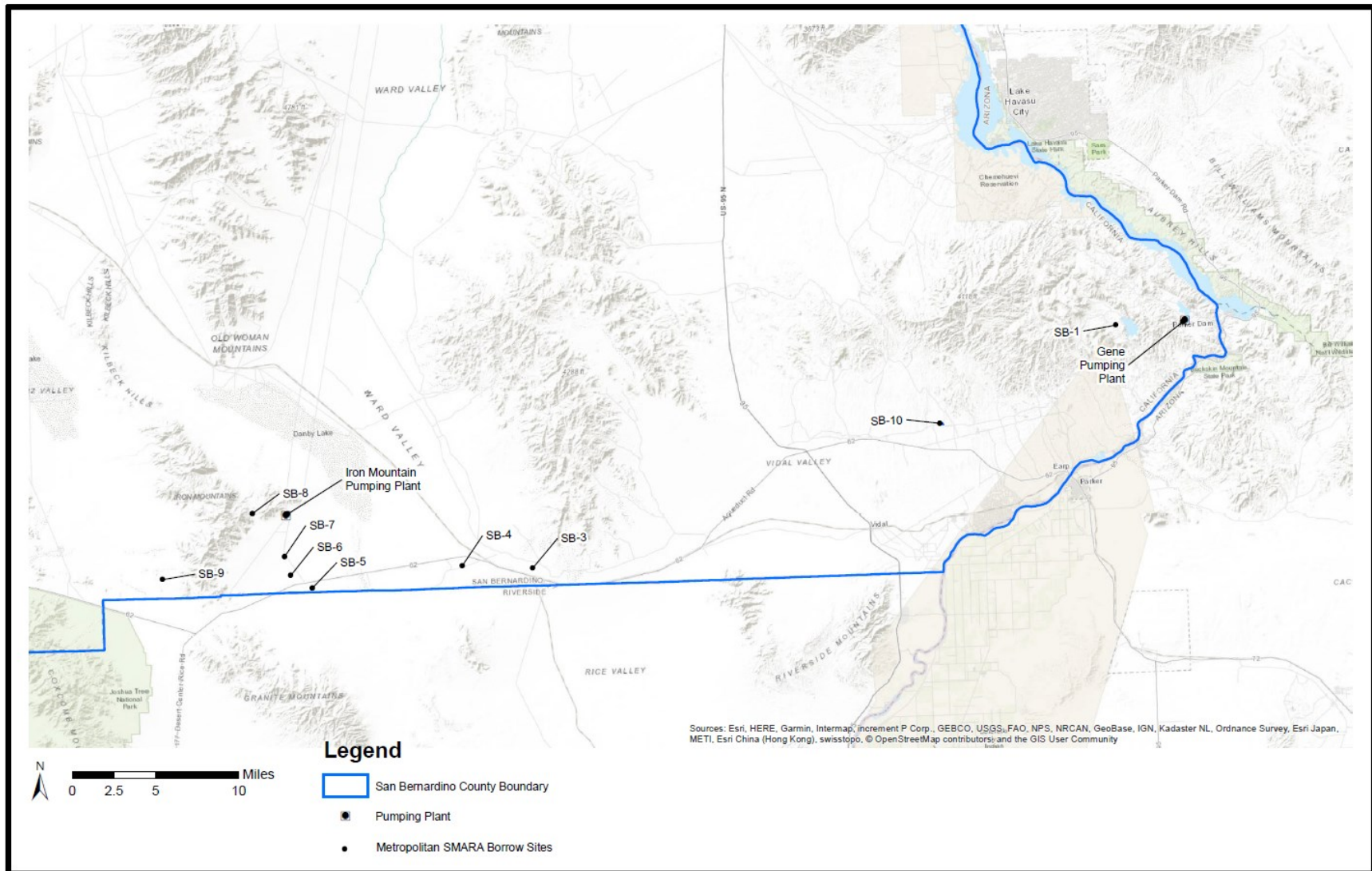


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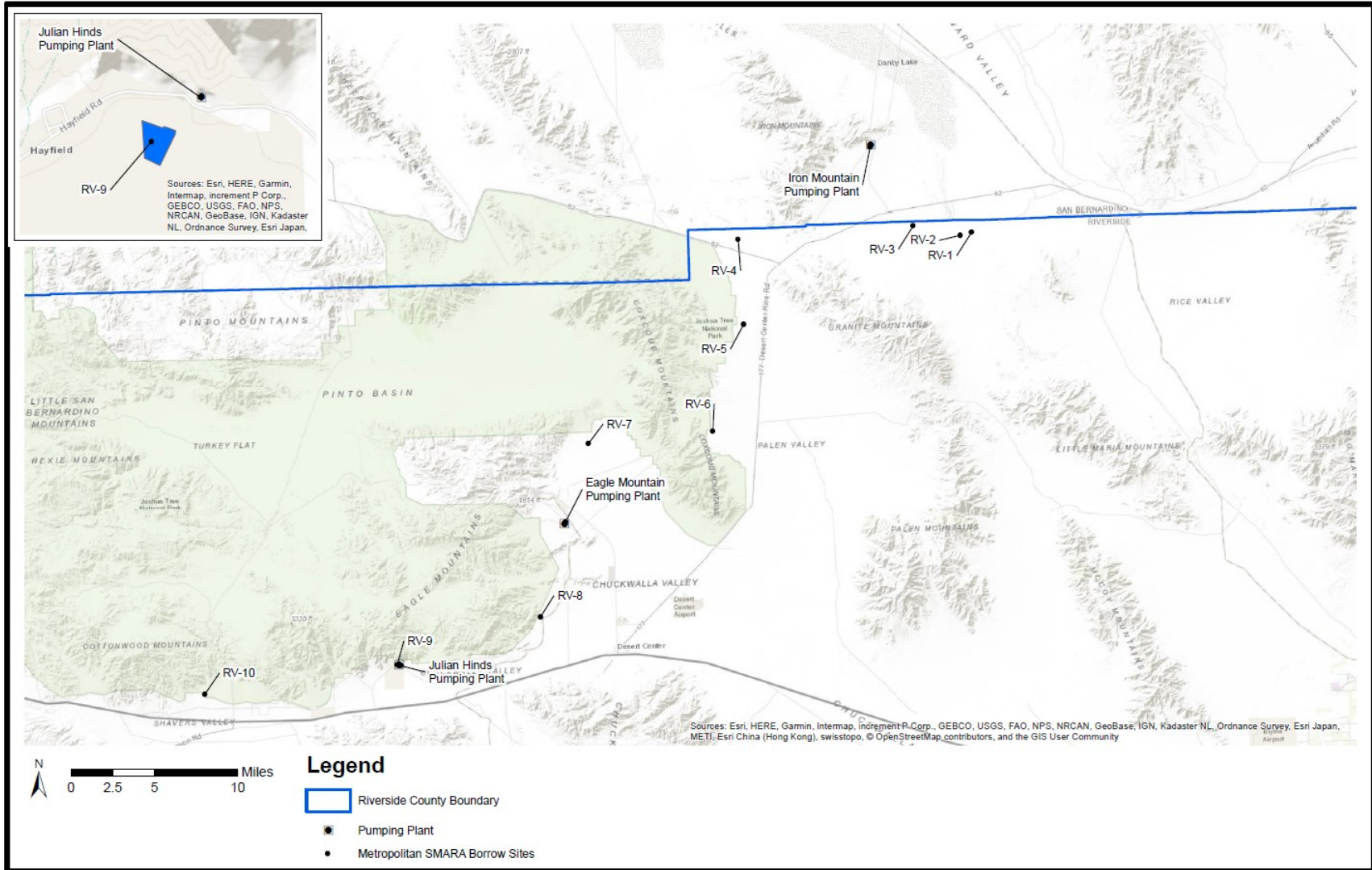
Fig. 1 Regional Location

Figure 2 Borrow Site Locations – San Bernardino County



The Metropolitan Water District of Southern California
Colorado River Aqueduct MRP for San Bernardino and Riverside Counties

Figure 3 Borrow Site Locations – Riverside County



It is anticipated that operations and maintenance of the CRA would require the extraction of materials from the majority of the borrow sites for the next approximately 100 years. Material depletion at these sites is anticipated in 2121, at which time reclamation would commence. There are five borrow sites that are estimated to undergo reclamation in the next five years; these are SB-4, SB-6, SB-9, RV-1, and RV-4.

1.1.2 Project Overview/Description

The Project consists of an MRP covering the reclamation of the 20 borrow sites in San Bernardino and Riverside counties. The borrow sites are areas where earthen materials, such as rock, sand, and gravel have been or will be taken for use at the CRA during operations and maintenance activities. The majority of the sites lie in undeveloped isolated desert land, comprised of low-lying desert foothills and alluvial washes. The materials are extracted by typical surface mining techniques that include the use of off-road mobile equipment (e.g., dozers, loaders, excavators and graders). The sites may also have equipment storage, stockpiling of materials, and other auxiliary activities. As described above, surface mining activities must be reclaimed pursuant to SMARA requirements. Per SMARA, a reclamation plan that identifies the specific reclamation activities, final end use of the reclaimed site, and success criteria and monitoring/reporting must be prepared and approved by the SMARA lead agency, which is the State of California Mining and Geology Board for the proposed MRP. As discussed above, Metropolitan is the CEQA lead agency for the Project.

Once extraction at the borrow sites is complete, the pit area would be reclaimed in accordance with SMARA requirements under the proposed Project. As needed, the borrow sites would be converted to shallow excavation pits. The shallow pit as well as other areas of the borrow site could be used for material stockpiles, equipment storage areas, and/or perimeter berms. When the sites are no longer needed to support the maintenance of the CRA and associated facilities, the sites would be fully reclaimed as revegetated open space.

Once reclamation commences, any unused equipment, deleterious materials (e.g., tailings, overburden, sediment, waste rock), and rubbish would be removed from the borrow site as needed. Metropolitan would flatten any remaining material stockpiles and recontour excavation slopes and floors using mobile equipment, to ensure no slopes exceed a 2H:1V (horizontal:vertical) angle in accordance with SMARA performance standards. Nominal quantities of excavated material would be placed back into the shallow borrow site excavation pits to ensure the sides (slopes) of the pit walls are stable. Mobile equipment would also be used to spread any salvaged topsoil to facilitate revegetation, as feasible. Water would be utilized for dust control and to irrigate revegetated areas, if needed. The proposed revegetation seed mix for the borrow sites would include a large percentage of plant species native or common to the surrounding desert scrubland environment. It is estimated that a maximum of three Metropolitan employees would conduct reclamation operations on site at any given time and remain on site during reclamation of each borrow site.

1.1.3 Project Location

The Project would cover 20 total borrow sites with 10 borrow sites located in unincorporated San Bernardino County (see Table 1, Table 2, and Figure 2), and the remaining 10 borrow sites in unincorporated Riverside County (see Table 1, Table 2, and Figure 3). All 20 borrow sites are considered to be the Project Area and are referred to as San Bernardino (SB) numbers 1 through 10 (SB-1 to SB-10) and Riverside (RV) numbers 1 through 10 (RV-1 to RV-10). The Project Area encompasses approximately 149.3 acres total, comprised specifically of 79.8 acres in San Bernardino

County and 69.5 acres in Riverside County, and is located along an approximately 125-mile stretch of the CRA adjacent to State Route (SR) 62, SR 177, and Interstate 10 (I-10). The Project Area lies in the southern Mojave Desert, extending from the Copper Basin Reservoir in the east to the Cottonwood Mountains near the Julian Hinds Pumping Plant to the southwest. Table 1 summarizes the Section, Township, and Range; the United States Geological Survey 7.5-minute topographic quadrangles; and the approximate site coordinates for each of the 20 borrow sites in the Project Area.

Table 1 Borrow Site Locations – San Bernardino and Riverside Counties

Borrow Site	United States Geological Survey 7.5-Minute Topographic Quadrangle	Section/Township/Range	Approximate Coordinates
SB-1	Gene Wash, California (1959)	Section 3, Township 1 North, Range 26 East, San Bernardino Baseline and Meridian	Latitude: 34.29° W Longitude: 114.24° N
SB-2	Vidal NW, California (2018)	Section 5, Township 1 South, Range 22 East, San Bernardino Baseline and Meridian	Latitude: 34.12° W Longitude: 114.68° N
SB-3	Rice, California (1965)	Section 15, Township 1 South, Range 20 East, San Bernardino Baseline and Meridian	Latitude: 34.09° W Longitude: 114.87° N
SB-4	Arica Mountains, California (2012)	Section 12, Township 1 South, Range 19 East, San Bernardino Baseline and Meridian	Latitude: 34.10° W Longitude: 114.94° N
SB-5	Granite Pass Quadrangle, California (2018)	Section 16, Township 1 South, Range 18 East, San Bernardino Baseline and Meridian	Latitude: 34.08° W Longitude: 115.10° N
SB-6	East of Granite Pass Quadrangle, California (2015)	Section 17, Township 1 South, Range 18 East, San Bernardino Baseline and Meridian	Latitude: 34.09° W Longitude: 115.12° N
SB-7	Granite Pass Quadrangle, California (2018)	Section 6, Township 1 South, Range 18 East, San Bernardino Baseline and Meridian	Latitude: 34.11° W Longitude: 115.13° N
SB-8	Iron Mountains, California (1948)	Section 23, Township 1 South, Range 17 East, San Bernardino Baseline and Meridian	Latitude: 34.15° W Longitude: 115.16° N
SB-9	Un-named Quadrangle between Granite Pass (2018) and Cadiz Valley SW (1985) Quadrangles	Section 12, Township 1 South, Range 16 East, San Bernardino Baseline and Meridian	Latitude: 34.09° W Longitude: 115.26° N
SB-10	Parker NW Quadrangle, California (2012)	Section 2, Township 1 North, Range 24 East, San Bernardino Baseline and Meridian	Latitude: 34.21° W Longitude: 114.43° N
RV-1	East of Granite Pass Quadrangle, California (2015)	Section 19, Township 1 South, Range 19 East, San Bernardino Baseline and Meridian	Latitude: 34.07° W Longitude: 115.02° N

Borrow Site	United States Geological Survey 7.5-Minute Topographic Quadrangle	Section/Township/Range	Approximate Coordinates
RV-2	East of Granite Pass Quadrangle, California (2015)	Section 19, Township 1 South, Range 19 East, San Bernardino Baseline and Meridian	Latitude: 34.07° W Longitude: 115.03° N
RV-3	East of Granite Pass Quadrangle, California (2015)	Section 22, Township 1 South, Range 18 East, San Bernardino Baseline and Meridian	Latitude: 34.08° W Longitude: 115.08° N
RV-4	Un-named Quadrangle between Granite Pass (2018) and Cadiz Valley SW (1985) Quadrangles	Section 23, Township 1 South, Range 16 East, San Bernardino Baseline and Meridian	Latitude: 34.07° W Longitude: 115.26° N
RV-5	Un-named Quadrangle between Granite Pass (2018) and Cadiz Valley SW (1985) Quadrangles	Section 13, Township 2 South, Range 16 East, San Bernardino Baseline and Meridian	Latitude: 33.99° W Longitude: 115.26° N
RV-6	Un-named Quadrangle between W of Palen Pass (1989) and Pinto Wells (2015) Quadrangles	Section 22, Township 3 South, Range 16 East, San Bernardino Baseline and Meridian	Latitude: 33.90° W Longitude: 115.29° N
RV-7	Pinto Wells, California (2012)	Section 20, Township 3 South, Range 15 East, San Bernardino Baseline and Meridian	Latitude: 33.89° W Longitude: 115.43° N
RV-8	Desert Center, California (2018)	Section 12, Township 5 South, Range 14 East, San Bernardino Baseline and Meridian	Latitude: 33.74° W Longitude: 115.48° N
RV-9	Hayfield Spring, California (1986)	Section 20, Township 5 South, Range 13 East, San Bernardino Baseline and Meridian	Latitude: 33.70° W Longitude: 115.63° N
RV-10	Cottonwood Spring, California (2016)	Section 3, Township 6 South, Range 11 East, San Bernardino Baseline and Meridian	Latitude: 33.68° W Longitude: 115.83° N

Note: See Figure 2 and Figure 3 for the locations of the borrow sites listed in the table.

Table 2 summarizes the Assessor's Parcel Numbers (APN) and County land use designations for each of the borrow sites. SB-1 through SB-3 and SB-10 lie in the County of San Bernardino's North Desert Planning Region, and SB-4 through SB-9 lie in the East Desert Planning Region per the San Bernardino County General Plan (County of San Bernardino 2020). All of these borrow sites currently have a County land use/zoning designation of Resource/Land Management (RLM). Per the San Bernardino County Development Code (County of San Bernardino 2009), a zoning designation of RLM allows for post-mining reclamation. Most of the borrow sites in unincorporated Riverside County are not located in a designated planning area of the county, with the exception of RV-6 through RV-9, which are located in the County's Desert Center Area Plan Boundary per the Riverside County General Plan (County of Riverside 2015). The majority of the Riverside County borrow sites currently have a County zoning designation of Non-Area Plan (N-A), with the exception of RV-7 and RV-10. RV-7 has a zoning designation of Mineral Resources & Related Manufacturing (M-R-A), and RV-10 has a zoning designation of Controlled Development Areas (W-2-10). All of the Riverside County borrow sites have a General Plan designation of Open Space Rural (OS-RUR). Per the

Riverside County Zoning Ordinance (County of Riverside 2020), zoning designations of N-A, M-R-A and W-2-10 allow for post-mining reclamation. None of the borrow sites are subject to a Williamson Act contract or other federal, State or County land use restrictions. See Figure 2 for a regional map of Metropolitan’s borrow sites located in San Bernardino County and Figure 3 for a regional map of Metropolitan’s borrow sites located in Riverside County.

Table 2 Borrow Sites – APNs and Acreages

Borrow Site	Assessor’s Parcel Number	Zoning/General Plan Designation	Current Status	Reclaimed End Use	Size
SB-1	0661-181-04-0000	Resource/Land Management (RLM)	Active	Revegetated Open Space	4.6 acres
SB-2	0646-201-02-0000 0646-201-03-0000 0646-211-15-0000	Resource/Land Management (RLM)	Active	Revegetated Open Space	10.7 acres
SB-3	0646-091-09-0000 0646-101-02-0000	Resource/Land Management (RLM)	Active	Revegetated Open Space	12.3 acres
SB-4	0646-081-07-0000	Resource/Land Management (RLM)	Inactive	Revegetated Open Space	2.7 acres
SB-5	0646-011-07-0000	Resource/Land Management (RLM)	Active	Revegetated Open Space	4.3 acres
SB-6	0646-021-14-0000	Resource/Land Management (RLM)	Inactive	Revegetated Open Space	1.5 acres
SB-7	0646-021-01-0000 0646-021-12-0000	Resource/Land Management (RLM)	Active	Revegetated Open Space	6.7 acres
SB-8	0643-221-07-0000 0643-221-21-0000	Resource/Land Management (RLM)	Active	Revegetated Open Space	14.2 acres
SB-9	0643-171-07-0000	Resource/Land Management (RLM)	Inactive	Revegetated Open Space	1.8 acres
SB-10	0647-321-05-0000 0647-331-17-0000	Resource/Land Management (RLM)	Active	Revegetated Open Space	21.0 acres
RV-1	800-130-019	Non-Area Plan (N-A)/ Open Space Rural (OS-RUR)	Inactive	Revegetated Open Space	2.2 acres
RV-2	800-130-019	Non-Area Plan (N-A)/ Open Space Rural (OS-RUR)	Active	Revegetated Open Space	23.7 acres
RV-3	800-120-004	Non- Area Plan (N-A)/ Open Space Rural (OS-RUR)	Active	Revegetated Open Space	5.5 acres
RV-4	800-021-008 800-021-010	Non-Area Plan (N-A)/ Open Space Rural (OS-RUR)	Inactive	Revegetated Open Space	1.8 acres

Borrow Site	Assessor's Parcel Number	Zoning/General Plan Designation	Current Status	Reclaimed End Use	Size
RV-5	800-040-033	Non-Area Plan (N-A)/ Open Space Rural (OS-RUR)	Active	Revegetated Open Space	7.1 acres
RV-6	800-101-044	Non-Area Plan (N-A)/ Open Space Rural (OS-RUR)	Active	Revegetated Open Space	2.1 acres
RV-7	800-090-029	Mineral Resources & Related Manufacturing (M-R-A)/ Open Space Rural (OS-RUR)	Active	Revegetated Open Space	3.6 acres
RV-8	811-020-023 811-020-028	Non-Area Plan (N-A)/ Open Space Rural (OS-RUR)	Active	Revegetated Open Space	5.6 acres
RV-9	705-230-031	Non-Area Plan (N-A)/ Open Space Rural (OS-RUR)	Active	Revegetated Open Space	5.3 acres
RV-10	715-080-001 715-080-002	Controlled Development Areas (W-2-10)/ Open Space Rural (OS-RUR)	Active	Revegetated Open Space	12.6 acres
Total San Bernardino County Acreage:					79.8 acres
Total Riverside County Acreage:					69.5 acres
Project Area Total:					149.3 acres

1.2 Personnel

Rincon Cultural Resources Principal Investigator Breana Campbell-King, MA, Registered Professional Archaeologist (RPA), served as Principal Investigator for the study and provided program-level oversight for this project. Ms. Campbell-King meets the Secretary of the Interior's Professional Qualification Standards for prehistoric and historic archaeology (National Park Service [NPS] 1983). Metropolitan Archaeologist Michelle Morrison, MA, and Rincon Archaeologist Mark Strother, MA, RPA, completed the field surveys. Mr. Strother is also the primary author of this report. Architectural historian, James Williams, MA, assisted with archival research and is a contributing author of this report. Technical Editor Dario Campos and Rincon Principals Christopher A. Duran, MA, RPA, and Jennifer Haddow, PhD, reviewed this report for quality control.

2 Regulatory Setting

This section includes a discussion of applicable federal and State laws regulations, and standards governing cultural resources to which the Project is required to adhere before and during implementation.

2.1 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 as well as private groups and citizens to identify the Nation’s cultural resources and indicate what properties should be considered for protection from destruction or impairment” (36 Code of Federal Regulations 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. Districts, sites, buildings, structures, and objects of potential significance must also possess integrity of location, design, setting, materials, workmanship, feeling, and association. A property is eligible for the NRHP if it meets one or more of the following criteria.

1. Is associated with events that have made a significant contribution to the broad patterns of our history
2. Is associated with the lives of persons significant in our past
3. Embodies the distinctive characteristics of a type, period, or method of installation, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction
4. Has yielded, or may be likely to yield, information important in prehistory or history

In addition to meeting at least one of the above designation criteria, resources must also retain integrity, or enough of their historic character or appearance to be “recognizable as historical resources and to convey the reasons for their significance” (California Office of Historic Preservation 2001). The NPS 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, defined in the following manner (NPS 1990):

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 create 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

2.2 California Environmental Quality Act

Public Resources Code (PRC) Section 5024.1, Section 15064.5 of the CEQA Guidelines, and PRC Sections 21083.2 and 21084.1 were used as the basic guidelines for this cultural resources study. PRC Section 21084.1 requires that a lead agency determine if a project could have a significant effect on historical resources. A historical resource is one listed in or determined to be eligible for listing in the California Register of Historical Resources (CRHR) (PRC Section 21084.1), included in a local register of historical resources (CEQA Guidelines Section 15064.5[a][2]), or any object, building, structure, site, area, place, record, or manuscript that a lead agency determines to be historically significant (CEQA Guidelines Section 15064.5[a][3]). Resources listed in the NRHP are automatically listed in the CRHR.

According to CEQA, impacts that adversely alter the significance of a resource listed in or eligible for listing in the CRHR are considered a significant effect on the environment. These impacts could result from physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of a historical resource would be materially impaired (CEQA Guidelines Section 15064.5[b][1]). Material impairment is defined as demolition or alteration in an adverse manner of those characteristics of a historical resource that convey its historical significance and that justify its inclusion in, or eligibility for inclusion in, the CRHR (CEQA Guidelines Section 15064.5[b][2][A]).

California Register of Historical Resources

The CRHR was created by Assembly Bill 2881, which was established in 1992. The CRHR is an authoritative listing and guide to be used by State and local agencies, private groups, and citizens in identifying the existing historical resources of the state and to indicate which resources deserve to be protected, to the extent prudent and feasible, from substantial adverse change (PRC Section 5024.1[a]). The criteria for eligibility for the CRHR are consistent with the NRHP criteria but have been modified for State use in order to include a range of historical resources that better reflect the history of California (PRC Section 5024.1[b]). Certain properties are determined by the statute to be automatically included in the CRHR by operation of law, including California properties formally determined to be eligible for, or listed in, the NRHP.

The CRHR consists of properties that are listed automatically and those that must be nominated through an application and public hearing process. A resource may be eligible for listing in the CRHR if it meets one or more of the following criteria:

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

Activities that adversely alter the significance of a resource listed in or eligible for listing in the CRHR have a significant effect on the environment under CEQA. Impacts to historical resources are thus

considered significant if a project would physically destroy or damage all or part of a resource, change the character of the use of the resource or physical feature within the setting of the resource that contributes to its significance, or introduce visual, atmospheric, or audible elements that diminish the integrity of significant features of the resource.

Assembly Bill 52

On July 1, 2015, California Assembly Bill 52 (AB 52) went into effect, expanding CEQA by defining a new resource category called Tribal Cultural Resources (TCR). AB 52 establishes that “a project with an effect that may cause a substantial adverse change in the significance of a TCR is a project that may have a significant effect on the environment” (PRC Section 21084.2). AB 52 further states the lead agency shall establish measures to avoid impacts that would alter the significant characteristics of a TCR, when feasible (PRC Section 21084.3).

PRC Section 21074(a)(1)(A) and (B) define TCRs as “sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe” that are listed or eligible for listing in the CRHR or in a local register of historical resources, as defined in PRC Section 5020.1(k), or resources that are determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in PRC Section 5024.1(c). In applying these criteria, the lead agency shall consider the significance of the resource to a California Native American tribe.

AB 52 also establishes a formal consultation process for California tribes regarding TCRs. The consultation process must be completed before a CEQA document can be certified. Under AB 52, lead agencies are required to “begin consultation with a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project.” Native American tribes to be included in the process are those that have requested notice of projects proposed within the jurisdiction of the lead agency. Consultation for this project will be completed by Metropolitan.

3 Natural Setting

The Project Area lies in a region of California with an assemblage of mountain ranges marked by long, broad alluvial valleys that often contain dry lakes. The existing topography surrounding the Project Area generally consists of flat, undeveloped, barren desert land and alluvial washes and low-lying desert foothills.

Topographic features and mountain ranges near the borrow sites in San Bernardino County include the Whipple Mountains (adjacent to SB-1 and to the northwest of SB-10), the Turtle Mountains (approximately 9.0 miles north of SB-2, SB-3, and SB-4), and the Iron Mountains (adjacent to SB-6 through SB-9). Topographic features and mountain ranges near the borrow sites in Riverside County include the Arica Mountains (approximately 7.0 miles northwest of RV-1 through RV-3), the Coxcomb Mountains (approximately 3.0 miles east of RV-4 and RV-5 and adjacent to RV-6), the Eagle Mountains (adjacent to RV-7 and RV-8), and the Cottonwood Mountains (adjacent to RV-9 and RV-10). The Copper Basin Reservoir, which is the closest waterbody to the Project Area, lies approximately 0.3 mile west of SB-1.

The Project Area generally lies in an isolated area with few nearby cities, communities, or other developments, except for Metropolitan's existing employee communities adjacent to the Gene, Iron Mountain, Eagle Mountain, and Julian Hinds Pumping Plants. SB-1 lies approximately 6.0 miles west of the community of Parker, Arizona and approximately 14.0 miles southwest of Lake Havasu City, Arizona. RV-8 lies approximately 4.9 miles west of the census-designated community of Desert Center. The remaining borrow sites are located near the CRA in Riverside and San Bernardino counties. Nearby prominent roadways include SR 62, SR 177, SR 95 and I-10, which are the primary regional routes into the Project Area.

The Köppen climate classification identifies the Project region as a "hot desert climate" zone (PRISM Climate Group 2021). Characterized by hot, dry summers and mild winters, a majority of the region averages 4.6 inches of annual rainfall usually occurring in the winter months from November through April. Average temperatures in winter range from 42 to 68 degrees Fahrenheit (°F) and are generally considered warm and mild in nature, whereas average temperatures in the region's hot and dry summers range from 78 to 106°F. This regional climate results in relatively stable weather patterns throughout the year (Western Regional Climate Center 2016).

3.1 Geology, Soils, and Biology

The Project Area lies in the Mojave Desert geomorphic region with much of the area crossed by expansive alluvial wash deposits. Soils consist of predominantly sandy gravel with high runoff coefficients and fast percolation. The Project Area biology is comprised of creosote bush scrub and disturbed land (Rincon 2021).

The Project Area lies in the Basin and Range Physiographic Province, which includes a series of mountain ranges consisting of various Mesozoic granitic and older metamorphic and sedimentary rocks separated by valley basins filled with Quaternary alluvial material. Moreover, Tertiary-age volcanic rocks are exposed throughout the region. The Basin and Range Physiographic Province covers a large area of the Mojave Desert of California, defined by unique basin and range topography associated with tectonic extension and characterized by abrupt changes in elevation, alternating between narrow faulted mountain chains and flat arid valleys or basins. With the

exception of SB-1 (located in the Whipple Mountains) and SB-8 (located in the Iron Mountains), the Project Area lies in the alluvial plains that occur between individual and disconnected mountain ranges.

3.2 Cultural Setting

The cultural setting for the Project Area is categorized broadly into three contexts - Prehistoric, Ethnographic, and Historic. The Prehistoric and Historic Contexts describe human occupation before and after European contact, while the Ethnographic Context provides a synchronic “snapshot” of traditional Native American lifeways as described by ethnographers prior to assimilative actions.

3.2.1 Prehistoric Context

Several chronological sequences have been proposed by archaeologists to describe cultural change in southern California (Jones and Klar 2007; Moratto 1984). Sutton et al. (2007) devised an updated Mojave Desert culture history, dividing it into five temporal periods - Late and Terminal Pleistocene, Early Holocene, Middle Holocene, and Late Holocene. Table 3 presents this chronology.

Table 3 Cultural Chronology for the Mojave Desert

Approximate Date Range ¹	Temporal Period	Cultural Complex	Previously Known As
Pre-12,000 cal B.P.	Late Pleistocene	Pre-Clovis	Early Man Pre-Projectile Point
12,000 to 10,000 cal B.P.	Terminal Pleistocene	Paleoindian	Clovis Big Game Hunting Tradition
10,000 to 8000 cal B.P.	Early Holocene	Lake Mojave Pinto	Western Pluvial Lakes Tradition San Dieguito Complex
9000 to 4000 cal B.P.	Middle Holocene	Deadman Lake	Little Lake
4000 to 1600 cal B.P.	Late Holocene	Gypsum	Newberry
1600 to 850 cal B.P.		Rose Spring	Saratoga Springs Haiwee
850 cal B.P. to Historic		Late Prehistoric	Shoshonean Marana Protohistoric

¹ cal B.P. refers to Before Present (B.P.) dates derived by radiocarbon dating “calibrated” to the year 1950, which is used as the “modern carbon” reference point.

Source: Sutton et al. 2007:236

Pleistocene Period (circa Pre-12,000 to 10,000 cal B.P.)

The climate of the Pleistocene Period in the Mojave Desert is generally characterized as cool and wet (Sutton et al. 2007: 231). During this time, the Mojave Desert featured several pluvial lakes. The presence of lakes generally indicates an environment with plentiful food and water resources suitable for early human habitation, especially as compared to the harsher desert environment now present. However, claims of pre-Clovis (circa before 11,500 cal B.P.) archaeological sites in the Mojave Desert remain controversial and are generally not accepted by most professional

archaeologists. Nonetheless, it is possible that such occupation occurred, and sites with reliable early dates may yet be found, as has happened elsewhere in the Americas.

The Clovis Complex is the earliest and only Paleoindian cultural complex widely accepted in the Mojave Desert (Sutton et al. 2007:233-234). Dating to approximately 11,500 cal B.P., this complex is predominantly defined by large lanceolate-shaped bifaces with fluting, prepared to thin and flatten the base of the artifact for hafting. Other tools associated with the Clovis Complex include large side scrapers, blades derived from prepared cores, and a mixture of expedient flaked tools (Justice 2002:73). Paleo-Indian populations associated with fluted point technology consisted of small, mobile groups who hunted and gathered near permanent sources of water, such as pluvial lakes. The tools associated with these populations are most commonly found in the drainage basins of the pluvial lakes (Sutton et al. 2007: 234).

Fluted points have traditionally been interpreted as tools used for hunting Pleistocene megafauna due to their clear association with megafaunal remains in the Great Plains and Southwest, but most fluted points found in California have lacked corroborating Pleistocene radiocarbon dates (Arnold et al. 2004). One exception was found during excavations at China Lake in the early 1970s where fluted points associated with burned remains of extinct megafauna were uncovered (Davis 1975). As Davis and Panlaqui (1978:31) noted, the sites at China Lake demonstrate that Paleo-Indians exploited many available resources, not just megafauna.

Evidence of terminal Pleistocene and early Holocene habitation in the Mojave Desert has remained sparse until recently. Evidence of late Pleistocene occupation was identified on the southern slopes of the Tehachapi Mountains near Cottonwood Creek in the form of a basal fragment of a fluted Clovis projectile point (Glennan 1971, 1987).

Early Holocene (10,000 to 8000 cal B.P.)

The onset of the early Holocene was marked by warmer temperatures, reduced precipitation, and the eventual drying up of the Pleistocene pluvial lakes. These changes are believed to have caused an irregular distribution of resources available to the early Holocene inhabitants (Sutton et al. 2007:237). The shallow lakes and marshes of the Mojave Desert during this period were biologically productive but surrounded by desert vegetation typical of later time periods, initially dominated by white bursage and later by creosote bush (Grayson 1993:199-200). The Lake Mojave Complex reflects an increasingly diversified subsistence strategy that was necessary for successful adaptation to climatic changes.

The Lake Mojave Complex is identified primarily by heavy, stemmed projectile points attributable to the Great Basin Stemmed series, such as Lake Mojave and Silver Lake. Other Lake Mojave Complex tools include bifaces, steep-edged unifaces, crescents, the occasional cobble-core tool, and, infrequently, ground stone implements (Justice 2002:91). Settlement organization components include extensive residential accumulations, workshops, and small camps containing a handful of formed tools (Sutton et al. 2007: 237). Basgall and Overly (2004) have found evidence of occupation near Pleistocene China Lake and Fort Irwin yielding radiocarbon dates from 9500 to 8000 cal B.P.

While earlier research presumed a dependence on lacustrine subsistence strategies, recent studies have found Lake Mojave Complex sites in other contexts (Basgall 2005; Basgall and Jurich 2006; Giambastiani and Berg 2008:14). Sutton et al. (2007:237) stated the Lake Mojave assemblages included tools that are “consistent with long-term curation and transport.” The presence of exotic lithic materials and marine shell beads in Lake Mojave Complex assemblages further supports the assertion that these people were highly mobile and possibly traded with groups over long distances.

Middle Holocene (9000 to 4000 cal B.P.)

The middle Holocene climate was generally more arid than periods before and after but experienced multiple oscillations between wetter and drier conditions. The desiccation of the lakes and marshes of the Pleistocene and early Holocene required the region's inhabitants to rely on streams and springs for water, resulting in lower occupational densities (Aikens 1978; Basgall 2000; Cleland and Spaulding 1992; Sutton 1996; Warren 1984). Average temperatures and aridity increased, peaking between 8000 and 6000 cal B.P. Settlement patterns adapted, including a shift to upland settings where sources of water still existed and changes in tool assemblage content and diversity that marked the emergence of the Pinto Complex (Sutton 1996).

The Pinto Complex was defined by Campbell and Campbell (1935) based on their work at the Pinto Basin site, but it has a wider distribution throughout the Mojave Desert than previous complexes. During the latter part of the Early Holocene, archaeological data indicate that the Pinto Complex overlaps the Lake Mojave Complex (Sutton et al., 2007:237). The Pinto Complex reflects shifts in subsistence patterns and adaptation to the shrinking of the Pleistocene lakes, including a greater emphasis on the exploitation of plants, with the continued pursuit of artiodactyls and smaller game. The broad distribution of this complex implies a high degree of residential mobility. The hallmarks of the Pinto Complex tool assemblage include concave base and bifurcate base projectile points with strong basal ears and more gradual shoulders (Justice 2002:126; Zyniecki 2003:12). Other diagnostic artifacts of this complex include domed and keeled scrapers, large and small leaf-shaped bifaces, core/cobble tools, large metates and milling slabs, and shaped and unshaped handstones.

Near the end of the middle Holocene, the climate became increasingly hotter and more arid. Very few archaeological sites date to this time period between 5000 and 4000 cal B.P.; this suggests that populations were very low. It is possible that some areas were abandoned during this hot period (Sutton et al. 2007:241).

Late Holocene (4,000 cal B.P. to European Contact)

The climate of the late Holocene was similar to current conditions, cooler and moister than the middle Holocene but not as cool and moist as the early Holocene. The climate remained highly variable with periods during which the Mojave lakes refilled to levels of earlier high stands that contrasted with at least two major droughts, circa 1124 to 904 cal B.P. and circa 807 to 660 cal B.P. (Stine 1994). A cooler and wetter period occurred between 550 and 100 cal B.P. (Cleland and Spaulding 1992:4). These climatic changes during the late Holocene once again resulted in modified subsistence strategies and correlating tool kits of three progressive cultural complexes (or periods) - Gypsum Complex, Rose Spring Complex, and Late Prehistoric Complex.

Dart-point size projectile points, including notched or eared (Elko), concave base (Humboldt), and small-stemmed (Gypsum) types, characterized the projectile points of the Gypsum Complex. In addition to these diagnostic points, Gypsum Complex sites include leaf-shaped points, rectangular-based knives, flake scrapers, drills, and occasionally, large scraper planes, choppers, and hammerstones (Warren 1984:416). Manos and milling stones were common, and the mortar and pestle were also introduced during this period. Other artifacts found at Gypsum Complex sites include split-twist animal figurines, Olivella shell beads, and Halotis spp. beads and ornaments, which are indicative of trade with people from the southern California coast and the southern Great Basin. The inhabitants of the Mojave Desert exported high-quality, locally available cryptocrystalline silica, such as obsidian, chalcedony, and chert, for the production of stone tools in exchange for exotic materials.

By 1,750 cal B.P., a slightly cooler climate appears to have provided for increased population, based on a higher frequency of archaeological sites. The Rose Spring Complex was present from approximately 1,815 to 915 cal B.P. with regional temporal variations known as the Saratoga Springs, Haiwee, or Amargosa periods (Sutton 1996; Sutton et al. 2007:236). The smaller Rose Spring projectile points replaced the dart-size points of previous complexes and heralded the introduction of the bow and arrow (Yohe 1998). The bow and arrow provided its user a way to rapidly fire multiple projectiles during hunting or warfare from a position of relative security, as compared to the atlatl or spear. This technological innovation appears to correspond with the onset of the Numic expansion westward to the coast, which some researchers believe started from southeastern California (Bettinger and Baumhoff 1982; Grayson 1993). Bedrock milling features supplement portable milling stones in villages and ancillary sites within the California deserts.

The Late Prehistoric period (circa 900 to 250 cal B.P.) corresponds to the introduction of ceramic artifacts in the Mojave Desert region as well as replacement of Rose Spring projectile points with even smaller Desert Side-notched points and Cottonwood series points. Use of mortar and pestle became more widespread during this period, and evidence of food storage facilities becomes increasingly common in the archaeological record. In the central Mojave Desert, the Mojave River became a primary focus of occupation, and trade networks increased along the Mojave River and over the San Gabriel Mountains (Sutton 1996).

Archeological evidence left by highly mobile hunter-gatherers in the Mojave Desert during the Late Prehistoric period is typified by sparse scatters of flaked stone, ground stone, and ceramic artifacts and features such as hearths, rock rings, and trails.

3.3 Ethnographic Context

The Project Area lies in the traditional use area of the Cahuilla (Bean 1978), the Chemehuevi of the Southern Paiute (Kroeber 1925; Kelly and Fowler 1986), the Mojave (Kroeber 1925), the Halchidhoma (Stewart 1983a and 1983b), and the Serrano (Bean and Smith 1978). Ethnographic contexts for these cultural groups are provided below.

3.3.1 Cahuilla

RV-1 through RV-10 are located in a region historically occupied by a Native American group known as the Cahuilla (Bean 1978; Kroeber 1925). The term Cahuilla likely derived from the native word *káwiya*, meaning “master” or “boss” (Bean 1978:575). Traditional Cahuilla ethnographic territory extended west to east from the present-day city of Riverside to the central portion of the Salton Sea in the Colorado Desert and south to north from the San Jacinto Valley to the San Bernardino Mountains.

The Cahuilla, like their neighbors to the west (the Luiseño and Juaneño) and the Cupeño to the south, are speakers of a Cupan language. Cupan languages are part of the Takic linguistic subfamily of the Uto-Aztecan language family. It is thought that the Cahuilla migrated to southern California approximately 2,000 to 3,000 years ago, most likely from the southern Sierra Nevada mountain ranges of east-central California, with other Takic speaking social groups (Moratto 1984:559).

Cahuilla social organization was hierarchical and contained three primary levels (Bean 1978:580). The highest level was the cultural nationality, encompassing everyone speaking a common language. The next level included the two patrimoiety of the Wildcats (*tuktum*) and the Coyotes (*'istam*). Every clan of the Cahuilla fell into one or the other of these moiety. The lowest level

consisted of the numerous political-ritual-corporate units called sibs, or patrilineal clans (Bean 1978:580).

Cahuilla villages were usually located in canyons or on alluvial fans near a source of accessible water. Each lineage group maintained their own houses (kish) and granaries and constructed ramadas for work and cooking. Sweat houses and song houses (for non-religious music) were also often present. Each community also had a separate house for the lineage or clan leader. A ceremonial house, or *kiš ʔámnawet*, associated with the clan leader was where major religious ceremonies were held. Houses and ancillary structures were often spaced apart, and a “village” could extend over a mile or two. Each lineage had ownership rights to various resource-collecting locations, “including food collecting, hunting, and other areas. Individuals also owned specific areas or resources, e.g., plant foods, hunting areas, mineral collecting places, or sacred spots used only by shamans, healers and the like” (Bean 1990:2).

The Cahuilla hunted a variety of game, including mountain sheep, cottontail, jackrabbit, mice, and wood rats as well as predators such as mountain lion, coyote, wolf, bobcat, and fox. Various birds were also consumed, including quail, duck, and dove, plus various types of reptiles, amphibians, and insects. The Cahuilla employed a wide variety of tools and implements to gather and collect food resources. For the hunt, these included the bow and arrow, traps, nets, slings, and blinds for hunting land mammals and birds as well as nets for fishing. Rabbits and hares were commonly brought down by the throwing stick, but when communal hunts were organized for these animals, the Cahuilla often utilized clubs and large nets (Bean 1978).

Foodstuffs were processed using a variety of tools, including portable stone mortars, bedrock mortars and pestles, basket hopper mortars, manos and metates, bedrock grinding slicks, hammerstones and anvils, and many others. Food was consumed from woven, carved wood, and pottery vessels. The ground meal and unprocessed hard seeds were stored in large, finely-woven baskets, and the unprocessed mesquite beans were stored in large granaries woven of willow branches and raised off the ground on platforms to keep them from vermin. Pottery vessels were made by the Cahuilla and traded from the Yuman-speaking groups across the Colorado River and to the south (Bean 1978).

The Cahuilla had adopted limited agricultural practices by the time Euro-Americans traveled into their territory. Bean (1978:578) has suggested their “proto-agricultural techniques and a marginal agriculture” consisting of beans, squash and corn may have been adopted from the Colorado River groups to the east. By the time of the first Romero Expedition in 1823-24, they were observed growing corn, pumpkins, and beans in small gardens localized around springs in the Thermal area of the Coachella Valley (Bean and Mason 1962:104). The introduction of European plants, such as barley and other grain crops, suggest an interaction with the missions or local Mexican rancheros. Despite the increasing use and diversity of crops, no evidence indicates this small-scale agriculture was anything more than a supplement to Cahuilla subsistence, and it apparently did not alter social organization.

By 1819, several Spanish mission outposts, known as *asistencias*, were established near Cahuilla territory at San Bernardino and San Jacinto. Cahuilla interaction with Europeans at this time was not as intense as it was for native groups living along the coast. This was likely due to the local topography and lack of water, which made the area less attractive to colonists. By the 1820s, European interaction increased as mission ranchos were established in the region and local Cahuilla were employed to work on them.

The Bradshaw Trail was established in 1862 and was the first major east-west stagecoach and freight route through the Coachella Valley. Traversing the San Geronio Pass, the trail connected gold mines on the Colorado River with the coast. Bradshaw based his trail on the Cocomaricopa Trail with maps and guidance provided by local Native Americans. Journals by early travelers along the Bradshaw Trail told of encountering Cahuilla villages and walk-in wells during their journey through the Coachella Valley. The continued influx of immigrants into the region introduced the Cahuilla to European diseases. The single worst recorded event was a smallpox epidemic in 1862-63. By 1891, only 1,160 Cahuilla remained within their remaining territory, reduced from an estimated aboriginal population of 6,000 to 10,000. By 1974, approximately 900 people claimed Cahuilla descent, most of whom resided on reservations (Bean 1978:583-584).

Between 1875 and 1891, the United States established ten reservations for the Cahuilla in their traditional territory. These reservations include Agua Caliente, Augustine, Cabazon, Cahuilla, Los Coyotes, Morongo, Ramona, Santa Rosa, Soboba, and Torres-Martinez (Bean 1978:585). Four of the reservations are shared with other groups, including the Chemehuevi, Cupeño, and Serrano.

3.3.2 Southern Paiute

Southern Paiute territory extends across southern Utah and southern Nevada into southern California in the Mojave Desert (Kelly and Fowler 1986). SB-3 through SB-8 and RV-1 through RV-3 are located in traditional Southern Paiute territory. The following section provides a brief discussion of Southern Paiute ethnography with particular focus on the Chemehuevi group.

The Southern Paiute occupied a broad territory, resulting in a varied diet. Small game, including rabbits and other small rodents as well as chuckwalla and tortoise in the Mojave Desert area, was the primary protein source and was supplemented occasionally by larger game, including antelope and mountain sheep. Chemehuevi culture included inherited rights to hunt large game within defined areas (Kelly and Fowler 1986). Wild plant resources included pine nuts, agave, and various seeds. Agriculture reached the Southern Paiute region a few decades prior to Spanish arrival, and the Chemehuevi occasionally farmed crops such as maize, squash, and winter wheat (Kelly and Fowler 1986; Kroeber 1925).

Southern Paiute settlement patterns are generally characterized as a seasonal round with groups moving to different areas for each season. Winter dwellings among the Chemehuevi typically consisted of earth-covered structures and caves. During warmer months, most Southern Paiute sheltered under trees with branches loaded with extra brush to provide shade, and small shade and windbreak structures (Kelly and Fowler 1986). Southern Paiute material culture included basketry, pottery, and clay figurines.

The Southern Paiute generally did not have a central political system, and settlement was instead focused on an assemblage of households that tended to travel and settle together. The Chemehuevi differed slightly in that they had patrilineal chiefs (Kelly and Fowler 1986).

3.3.3 Mojave

SB-1 is located in traditional Mojave territory, which ranges along the Colorado River through the high desert across California, Arizona, and Nevada into the upper reaches of the Chemehuevi Valley, east of the Stepladder Mountains. The Mojave were closely associated with their Chemehuevi neighbors with whom they maintained a peaceful relationship until war broke out between the tribes in 1867 (Kroeber 1925). The Mojave followed a patrilineal, exogamous clan system.

Up to half of the Mojave diet relied on cultivated crops, including maize, beans, pumpkins, watermelons, and cantaloupe that were planted after seasonal floods occurred along the Colorado River. Wild herbs and grasses were also cultivated, supplemented by gathering of seeds and mesquite beans. Fishing was conducted using seines and by driving fish up sloughs where they were gathered in large wooden scoops. Game was scarce and hunting made up very little of the tribe's caloric intake (Kroeber 1925).

Mojave settlement was largely centered in the area that is now the Fort Mojave Reservation. The Mojave constructed communal houses framed with logs and poles, covered with arrow weed and sand. Smaller habitations were constructed near the communal houses but were considered too cold for sleeping. While no sweat lodges existed for the Mojave, communal houses served the same purpose.

Mojave material culture was comprised of basketry and pottery, shell currency and jewelry, and lithic implements such as projectile points and ground stone used, respectively, for hunting and processing vegetal resources. Mojave basketry is considered to be the least developed of all of the California tribes (Kroeber 1925).

3.3.4 Halchidhoma

The Halchidhoma, also known as the Panya, originally lived along the Colorado River Floodplain, occupying an area between Mojave and Quechan territories, which intersect SB-2 and SB-10. By 1840, however, conflict between these groups had resulted in the Halchidhoma relocating to Maricopa territory on the eastern side of the Colorado River (Bean and Vane 1978; Griffiths et al. 2016). As such, much less is known about them than other groups in the area.

Like other groups in the region, the Halchidhoma relied heavily on agricultural staples including beans, maize, and squash, supplementing their diet by hunting and gathering. This was done especially during dry years when agriculture was more tenuous (Stewart 1983b). They did not use canal systems like other agricultural groups, such as the Hohokham, because the power and variability of the Colorado River made it untenable (Schaefer and Laylander 2007). Halchidhoma houses were domed structures generally made from arrow-weed and covered in wet earth. Granaries were constructed using the same methods. Similar to other groups in the region, hunting implements were generally made up of a bow and arrow as well as a simple curved piece of wood for hunting rabbits and other small game (Bean and Vane 1978).

Little is known about Halchidhoma sociopolitical organization. Like most of the groups in the area, the Halchidhoma traded widely with other groups. Warfare was a constant for the Halchidhoma; the Halchidhoma, Gabrielino, and Cahuilla were allied against the Cocopa and Maricopa in what Bean and Vane (1978) refer to as the Northern Sonoran Amity-Enmity System.

3.3.5 Serrano

The Serrano occupied an area in and around the San Bernardino Mountains between approximately 1,500 to 11,000 feet above mean sea level. Their territory extended west of the Cajon Pass, east past Twentynine Palms, north of Victorville, and south to Yucaipa Valley and includes the locations of SB-9 and RV-4. The Serrano language is part of the Serran division of a branch of the Takic family of the Uto-Aztecan linguistic stock (Mithun 2001:539, 543). The two Serrano languages, Kitanemuk and Serrano, are closely related. Kitanemuk lands were northwest of Serrano lands. Serrano was spoken originally by a relatively small group located within the San Bernardino and Sierra Madre mountains, and the term "Serrano" has come to be ethnically defined as the name of the people in

the San Bernardino Mountains (Kroeber 1925:611). The Vanyume (also referred to as the Desert Serrano), who lived along the Mojave River and associated Mojave Desert areas, spoke either a dialect of Serrano or a closely related language (Mithun 2001:543). Year-round habitation tended to be located on the desert floor, at the base of the mountains, and up into the foothills with all habitation areas requiring year-round water sources (Bean and Smith 1978).

Most Serrano lived in small villages located near water sources (Bean and Smith 1978:571). Houses measuring 12 to 14 feet in diameter were domed and constructed of willow branches and tule thatching; they were occupied by a single extended family. Many of the villages had a ceremonial house used both as a religious center and the residence of the lineage leaders. Additional structures within a village might include granaries and a large circular subterranean sweathouse. The sweathouses were typically built along streams or pools. A village was usually composed of at least two lineages. The Serrano were organized loosely along patrilineal lines, and they associated themselves with one of two exogamous moieties or “clans”—the Wildcat (tuktum) or the Coyote (wahiym) moiety.

The subsistence economy of the Serrano was one of hunting and collecting plant goods with occasional fishing (Bean and Smith 1978:571). They hunted large and small animals, including mountain sheep, deer, antelope, rabbits, small rodents, and various birds, particularly quail. Plant staples consisted of seeds, acorn nuts of the black oak, piñon nuts, bulbs and tubers, shoots, blooms, and roots of various plants, including yucca, berries, barrel cacti, and mesquite. The Serrano used fire as a management tool to increase yields of specific plants, particularly chia.

Trade and exchange was an important aspect of the Serrano economy. Those living in the lower-elevation, desert floor villages traded foodstuffs with people living in the foothill villages who had access to a different variety of edible resources. In addition to inter-village trade, ritualized communal food procurement events, such as rabbit and deer hunts and piñon, acorn, and mesquite nut-gathering events, integrated the economy and helped distribute resources that were available in different ecozones.

Contact between Serrano and Europeans was relatively minimal prior to the early 1800s. However, as early as 1790, Serrano began to be drawn into mission life (Bean and Vane 2002). More Serrano were relocated to Mission San Gabriel in 1811 after a failed indigenous attack on that mission. Most of the remaining western Serrano were moved to an asistencia built near Redlands in 1819 (Bean and Smith 1978:573).

A smallpox epidemic in the 1860s killed many indigenous southern Californians, including many Serrano (Bean and Vane 2002). Oral history accounts of a massacre in the 1860s at Twentynine Palms may have been part of a larger American military campaign that lasted 32 days (Bean and Vane 2002:10). Surviving Serrano sought shelter at Morongo with their Cahuilla neighbors; Morongo later became a reservation (Bean and Vane 2002). Other survivors followed the Serrano leader, Santos Manuel, down from the mountains and toward the valley floors and eventually settled what later became the San Manuel Band of Mission Indians Reservation, formally established in 1891.

Both the San Manuel Band of Mission Indians and the Morongo Band of Mission Indians are federally recognized tribes and include Serrano. People of both tribes participate in cultural programs to revitalize traditional languages, knowledge, and practices.

3.4 Post-Contact Period Context

The post-contact history of California is generally divided into three timespans: the Spanish period (1769 to 1822), the Mexican period (1822 to 1848), and the American period (1848 to present). Each of these periods is briefly described below.

Spanish Period (1769 to 1822)

In 1542, Juan Rodríguez Cabrillo led the first European expedition to observe what is now called southern California. For more than 200 years, Cabrillo and other Spanish, Portuguese, British, and Russian explorers sailed the Alta (upper) California coast and made limited inland expeditions, but they did not establish permanent settlements (Bean 1968; Rolle 2003).

Gaspar de Portolá and Franciscan Father Junípero Serra established the first Spanish settlement in Alta California at Mission San Diego de Alcalá in 1769. This was the first of 21 missions erected by the Spanish between 1769 and 1823. While Spanish missions were established in southern San Bernardino County, Native Americans in the Mojave Desert region were influenced by other Native Americans migrating to the area, driven from their homelands by the encroachment of the Spanish.

During this period, Spain also deeded ranchos to prominent citizens and soldiers, though very few in comparison to the following Mexican Period. To manage and expand herds of cattle on these large ranchos, colonists enlisted the labor of the surrounding Native American population (Engelhardt 1927a). The missions were responsible for administering the local people as well as converting the population to Christianity (Engelhardt 1927b). Inevitably, this increased local population density and contact with diseases brought by Europeans greatly reduced the Native American population (McCawley 1996).

The first known Spanish explorers to enter the Mojave Desert were a group of soldiers led by Pedro Fages in 1772. In 1776, Friar Francisco Garcés, traveled through the area coming from the Colorado River (Hoover et al. 2002:321). Friar Garcés traveled as far as the Pacific coast along an ancient trade route, known as the Mojave Trail, and he named the Mojave River the Arroyo de los Mártires (Stream of the Martyrs). The river was later named Rio de las Animas (River of Souls) by Friar Joaquín Pasqual Nuez, who accompanied the 1819 expedition of Lieutenant Gabriel Moraga.

Mexican Period (1822 to 1848)

The Mexican period commenced when news of the success of the Mexican Revolution (1810 to 1821) against the Spanish Crown reached California in 1822. This period saw extensive interior land grant development as well as exploration west of the Sierra Nevada Mountains by American fur trappers. The California missions declined in power and were ultimately secularized in 1834. The hallmarks of the Mexican period were large ranchos deeded by the governor to prominent Mexican citizens, who were frequently soldiers. These ranchos became important economic and social centers; however, no ranchos were claimed in the arid Mojave Desert. Governor Pío Pico and his predecessors made more than 600 rancho grants between 1833 and 1846, putting most of the state's lands into private ownership for the first time (Gumprecht 1999). During the Mexican period, trappers and explorers from the eastern United States repeatedly journeyed westward. Jedidiah Strong Smith, one of these early American adventurers, traveled through the Mojave Desert in 1826 and 1827 and nicknamed the Mojave River the "Inconstant River" because of its frequent disappearance beneath the ground surface.

American Period (1848 to Present)

The American period officially began with the signing of the Treaty of Guadalupe Hidalgo in 1848, in which the United States agreed to pay Mexico \$15 million for the conquered territory, including California, Nevada, Utah, and parts of Colorado, Arizona, New Mexico, and Wyoming. In 1850, California was admitted to the Union as the 31st state.

The discovery of gold in northern California in 1848 led to the California Gold Rush, although the first significant California gold was discovered in Placerita Canyon near the San Fernando Mission in 1842 (Guinn 1977). Southern California remained dominated by cattle ranches in the early American period even though farming and more urban professions increasingly supplanted ranching through the late nineteenth century as a result of droughts and the growing population. By 1853, the population of California exceeded 300,000 people. Thousands of settlers and immigrants continued to immigrate into the state, particularly after the completion of the transcontinental railroad in 1869.

During the Gold Rush, thousands of people traveled the Mojave River Trail from the east, attempting to reach the fabled goldfields of California. The Mojave River Trail was called the Old Spanish Trail by Captain John C. Frémont until he met a group of Native Americans northeast of Victorville who told Frémont they had lived along the Mojave River and the mountains to the north, and traded with other indigenous peoples in the region along the Mojave River Trail (Frémont 1845:260).

3.5 Colorado River Aqueduct

The following history of the CRA is excerpted from the *Cultural Resource Treatment Plan for the Weymouth Water Treatment Plant Historic District* (Chasteen et al. 2016). As explained in the report, Metropolitan's efforts to develop the CRA arose as Southern California's early twentieth-century population boom threatened to exhaust the region's water supply:

Given the arid climate of Southern California, a permanent and reliable source of water was needed to support the expanding population in Los Angeles and other Southern California cities. An early attempt to provide a stable supply of water was the construction of the Los Angeles Aqueduct, which brought water from Owens Lake to the city of Los Angeles.

In 1922, the State of California obtained water rights for the Colorado River through the Colorado River Compact. The Upper Basin (Wyoming, Utah, Colorado, and New Mexico) was to receive half of the river's water, and the Lower Basin (California, Arizona, and Nevada) would receive the other half. Through execution of the Compact, despite Arizona refusing to sign, California secured rights to the Colorado River water and efforts began to transport the water to its population centers. The Colorado River Aqueduct Association of Southern California, organized in Pasadena in 1924, promoted creation of a water district to oversee construction of an aqueduct to bring water from the Colorado River to Southern California. In 1925, the California Senate approved the Johnson-Swing Bill, which established Metropolitan to oversee construction of the CRA. Later, a 1944 treaty settled Mexico's share of the Colorado River water at less than one tenth, and Arizona sued California over its share of water rights in 1955, which was not settled until 2006.

The *Cultural Resource Treatment Plan for the Weymouth Water Treatment Plant Historic District* (Chasteen et al. 2016) also details the massive effort required to design and construct the canal as well as the project's marked impact on the environment within and near the alignment of the CRA:

Designed by Metropolitan engineers, work on the CRA began in 1933, with water deliveries commencing in 1941. A planned expansion was finished later in 1960. The system pumps Colorado River water from Lake Havasu, impounded behind Parker Dam, and conveys it to western Riverside County. Five pumping plants, together with many segments of conduit, open canals, tunnels, dams, and reservoirs, form the CRA as it crosses the Colorado and Mojave deserts. The design and construction of the CRA was overseen by F.E. Weymouth, who was also instrumental in determining the route the CRA followed from the source to Lake Mathews.

Metropolitan's District forces and contractors worked on different construction schedules at the same time, generally going from east to west. Because no infrastructure existed in the desert, construction came first for roads, water, electric power, and telephones. The contractors often started work on segments of the aqueduct as soon as the supporting infrastructure was established, including usable roads and power. During 1936 and 1937, more than 10,000 workers were busy all along the aqueduct route and that of the distribution system.

After the aqueduct was completed, the construction camps were abandoned and structures and equipment salvaged, leaving only concrete slab foundations, street grids, and some refuse dumps. Equipment and buildings, including the Banning headquarters, were sold. However, the landscape had been transformed: the aqueduct snaked through the desert; pumping plants and their triple delivery pipes climbed barren slopes; and new mountains of tailings were left near the tunnel portals. Permanent camps were established at the pumping plants, providing worker residences. Operations & Maintenance was established, and for a while, the aqueduct ran at a low level because sufficient water was still available from other sources for Southern California. Some of the towns that had boomed during construction, such as Desert Center, no longer flourished. Railroad sidings such as Freda were no longer used.

According to the *Cultural Resource Treatment Plan for the Weymouth Water Treatment Plant Historic District* (Chasteen et al. 2016), Southern California's post-World War II-era population boom led Metropolitan to expand the CRA to meet the region's growing need for water:

[T]he growth spurred by World War II industry and post-war settlement in Southern California necessitated expansion of the CRA aqueduct system infrastructure, including the water treatment plant, much sooner than anticipated...Additional construction of the aqueduct began in the 1950s, with the installation of needed pump motors and pipes to bring the pumping plants to full capacity. The second barrels on the double siphons were also constructed, but unlike the first phase of construction, the workers stayed at nearby motels and commuted to the construction sites. Temporary construction camps were no longer needed in the desert as before.

In the pumping plant villages, new buildings were added as needed, but the basic layout remained unchanged. In the 1960s, interstate highways were built through the area. Palm Springs and neighboring communities continued to expand. However, it was determined that the water delivered by the CRA system would not meet projected demand and a second source of water was sought.

As described in *Cultural Resource Treatment Plan for the Weymouth Water Treatment Plant Historic District* (Chasteen et al. 2016), in the 1960s, growing demand for water in Arizona and Southern

California led Metropolitan to supplement the district's water supply with deliveries from the State Water Project (SWP):

As Arizona's population grew, the state's water usage increased. In 1968, President [Lyndon B.] Johnson signed a bill approving construction of the Central Arizona Project (CAP). Prior to construction of the CAP, Arizona was unable to utilize fully its share of Colorado River water, and the resulting surplus was consumed by California. The CAP is a series of canals used to move Colorado River water throughout Arizona and was completed in 1994. In anticipation of the CAP coming into service and Arizona claiming its full share of Colorado River water, Metropolitan sought new sources of water to dispense throughout Southern California.

The first statewide water project was developed by Lieutenant Robert B. Marshall, of the U.S. Geological Survey, in 1919. Marshall's plan was to transport water from the Sacramento River system to the San Joaquin Valley, and then over the Tehachapi Mountains to Southern California. This plan led to construction of the California Aqueduct by the California Department of Water Resources in stages with completion by 1972, when it was touted as the largest aqueduct project of all time. During construction, the California Aqueduct was anticipated that it would transport 1.8 billion gallons a day over a distance of 450 miles from the Sacramento River delta to Metropolitan. Estimates were that following implementation of the SWP, Weymouth Water Treatment Plant would receive 90 million gallons per day or only 20 percent, of its water from the Colorado River. The remaining 80 percent, or 370 million gallons per day, would come from the Sacramento River. In anticipation of this predominant new source of water, Metropolitan expanded its processing capabilities through the construction of the Diemer Water Treatment Plant near Yorba Linda in Orange County. Three additional treatment plants have subsequently been constructed in order to meet demand. The delivery of this water resulted in a change of the filtration processes at this plant because the Sacramento River water is not as hard as the Colorado River water and does not require the same amount of softening. This revised filtration process is largely still in use today.

As detailed in the *Cultural Resource Treatment Plan for the Weymouth Water Treatment Plant Historic District* (Chasteen et al. 2016), the CRA today is an expansive network of canals, dams, reservoirs, pumping stations, and other related facilities recognized as much for the quality of its engineering as for its impact on the historical development of the Southern California Region:

Each year, large quantities of water flow through the CRA system from Lake Havasu to Lake Mathews and now to Metropolitan's new 800,000-acre-foot Diamond Valley Lake in southwest Riverside County. Today, those deliveries at times exceed more than one billion gallons a day. Water reaches nearly 18 million residents through a complex distribution system. Five pumping plants lift the water a total of 1,617 feet and propel it through 92 miles of tunnels, 63 miles of concrete-lined canals, 55 miles of concrete conduits, and 144 siphons totaling 29 miles. The system also includes four reservoirs and 306 miles of high-voltage power lines. From Lake Mathews, Metropolitan pipelines stretch 750 miles throughout the southland's coastal plain, connecting the District's 10 reservoirs and five filtration plants. In recent years, Metropolitan has embarked on a plan to upgrade the CRA system. Some of the old manual tasks have been mechanized with a corresponding change from analog to digital instruments and equipment. Future changes include converting the filtration process to that of ozonation.

The CRA system has been identified in numerous studies as being eligible for the CRHR and NRHP. The unique historical aspects of the early CRA system through 1972 are its length, pump lift, and construction through difficult and arid terrain. Its successful completion brought new life to the area, forever changing the desert landscape and the character of urban settlement in Southern California, as well...In 1955, the American Society of Civil Engineers found the CRA to be “an engineering wonder” and designated it as a National Historic Civil Engineering Landmark. In 1998, the CRA system...was the subject of study by a Historic American Engineering Record team representing the NPS for its engineering merit.

4 Background Research

Background research for the cultural resources assessment included record searches, a review of historical maps and aerial photographs, and a search of the Native American Heritage Commission's (NAHC) Sacred Lands File (SLF). A summary of findings of each of these efforts is provided below.

4.1 Cultural Resources Records Search

A search of the California Historical Resources Information System (CHRIS) was conducted to identify previously recorded cultural resources and previously conducted cultural resources studies in the Project Area and a 0.25-mile radius surrounding it. The CHRIS records are maintained by nine Information Centers across California and organized by county. Because the borrow sites are located in Riverside and San Bernardino counties, record searches at two Information Centers were required. On August 24, 2020 and February 23, 2021, staff from the South Central Coastal Information Center (SCCIC) at California State University, Fullerton conducted searches that encompassed the borrow sites located in San Bernardino County. On September 15, 2020, staff from the Eastern Information Center (EIC) located at University of California, Riverside conducted a search that encompassed the borrow sites located in Riverside County. The searches included a review of previous cultural resource studies and recorded resources. In addition, Rincon completed a review of the NRHP, the CRHR, and the Historic Resources Inventory.

4.2 Previously Conducted Cultural Resources Studies

The SCCIC and EIC records searches identified a total of nine previously conducted cultural resources studies within a 0.25-mile radius of the Project Area (see Table 4). None of these studies include the Project Area. The SCCIC and EIC lists of these studies are provided in Appendix A.

Table 4 Previously Conducted Cultural Resources Studies within 0.25-Mile of the Project Area

Report Number	Author(s)	Year	Title	Relationship to Project Site
SB-00558	Bureau of Land Management	1977	<i>Environmental Assessment Record for Interim Critical Management, Program Area No. 37, Cadiz Valley/Danby Lake</i>	Outside
RI-00220	Cowan and Wallof	1977	<i>Interim Report Field Work and Data Analysis: Cultural Resources Survey of the Proposed Southern California Edison Palo Verde-Devers 500kV Transmission Line</i>	Outside
RI-00221	Carrico et al.	1982	<i>Cultural Resource Inventory and National Register Assessment of the Southern California Edison Palo Verde to Devers Transmission Line Corridor (California Portion)</i>	Outside

Report Number	Author(s)	Year	Title	Relationship to Project Site
RI-00222	Waloff and Cowan	1977	<i>Final Report: Cultural Resources Survey of the Proposed Southern California Edison Palo Verde-Devers 500kV Power Transmission Line</i>	Outside
RI-00982	Crew and Fitting	1980	<i>An Archaeological Survey of Geothermal Drilling Sites in Riverside County, California</i>	Outside
RI-01249	Bureau of Land Management	1978	<i>California Desert Program: Archaeological Sample Unit Records for the Big Maria Planning Unit</i>	Outside
RI-01973	Mack	1985	<i>Archaeological Assessment of Six Parcels (Northern, Rocky, Metro, Palen, Ironwood, and Cockrell) Near Palen Dry Lake, Desert Center, California</i>	Outside
RI-03321	Bull et al.	1991	<i>Cultural Resources Survey of the Eagle Mountain Mine and the Kaiser Industrial Railroad, Cultural Resources Permit #CA881916</i>	Outside
RI-08411	Carrico et al.	2008	<i>Final Amendment to Cultural Resources Inventory of the Proposed Blythe Energy Project Transmission Line, Riverside County, California</i>	Outside

Sources: California Historical Resources Information System records searches conducted at the South Central Coastal Information Center and Eastern Information Center in 2020 and 2021 (Appendix A)

4.3 Previously Recorded Cultural Resources

The cultural resources records search identified nine previously recorded cultural resources within a 0.25-mile radius of the Project Area, including one prehistoric and five historic-period archaeological sites as well as three built-environment historic-period resources (see Table 5). The SCCIC and EIC lists of these resources are provided in Appendix A. No cultural resources have been previously recorded within the Project Area.

Table 5 Previously Recorded Resources within 0.25-Mile of the Project Area

Primary Number	Trinomial	Resource Type	Description	Recorder(s) and Year(s)	NRHP/CRHR Status	Relationship to Project Site
P-36-009569	CA-SBR-009569H	Historic Period	Tailings, foundations and refuse associated with the development of a tunnel for a section of the CRA	Hamilton 1998	Ineligible	Outside

Primary Number	Trinomial	Resource Type	Description	Recorder(s) and Year(s)	NRHP/CRHR Status	Relationship to Project Site
P-36-010521	CA-SBR-010521H	Historic Period	CRA	Goodman and Neves 2000 ESA 2010	Recommended NRHP-eligible	Outside
P-33-001117	CA-RIV-001117	Historic Period	Camp Young Desert Training Center	Cowan 1976 Carrico et al. 1979 Quillen et al. 1979 Hammond 1981 Love 1995 Eckhardt and Way 2004 Eckhardt and Wilson 2005 Thomson et al. 2011 Droessier and Downs 2016	Insufficient data	Outside
P-33-006824	none	Historic Period	Pumping Station	Warner 1982 Wilson et al. 2005	Insufficient data	Outside
P-33-008394	CA-RIV-006125	Prehistoric	Site including six metates and two collapsed hearths	Williams et al. 1998	Insufficient data	Outside
P-33-011265	CA-RIV-006727H	Historic Period	CRA	Goodman and Neves 2000 Dice 2001 Boggs et al. 2003 Wilson et al. 2005 Beedle 2005 DeGiovine et al. 2008 DeGiovine et al. 2009 Kremkau 2011 Loftus 2016	Recommended NRHP-eligible	Outside
P-33-011638	CA-RIV-010760	Historic Period	WWII Military Training Center	Floyd 1968 Trampier 2011	Insufficient data	Outside
P-33-013651	none	Historic Period	Mining prospecting pits	Way et al. 2004	Insufficient data	Outside
P-33-015035	CA-RIV-013001	Historic Period	Hayfield-Chino 220-kilovolt Transmission Line	Brock 1998 Brunzell 2006 Davidson et al. 2012 Treffers 2013 Becker and Treffers 2013 Becker and Treffers 2014	Found NRHP/CRHR-ineligible through survey	Outside

Primary Number	Trinomial	Resource Type	Description	Recorder(s) and Year(s)	NRHP/CRHR Status	Relationship to Project Site
NRHP = National Register of Historic Places; CRHR = California Register of Historical Resources; CRA = Colorado River Aqueduct Sources: California Historical Resources Information System records searches conducted at the South Central Coastal Information Center and Eastern Information Center in 2020 and 2021 (Appendix A)						

4.4 Native American Outreach

Rincon contacted the NAHC on July 7, 2020 to request an SLF search of the Project Area. As part of the request, Rincon asked the NAHC to provide a list of Native American groups and/or individuals culturally affiliated with the area who may have knowledge of cultural resources within the Project Area. The NAHC responded on July 8, 2020 stating positive SLF results and provided a list of 24 Native American contacts who may have knowledge of cultural resources in the vicinity of the Project Area. See Appendix B for the SLF response letter and Native American contact list. As the lead CEQA agency, Metropolitan will conduct Native American outreach and tribal cultural resources consultation.

5 Field Survey

5.1 Methods

On June 29 and 30, Metropolitan archaeologist Michelle Morrison, MA performed a Phase I pedestrian field survey of 18 borrow sites (SB-1 through SB-9 and RV-2 through RV-10). Rincon Archaeologist Mark Strother, MA, RPA, performed an additional Phase I pedestrian field survey on January 20, 2021 to cover additions made to the Project Area after the initial survey. Mr. Strother surveyed 11 borrow sites (SB-2, SB-3, SB-5, SB-6, SB-7, SB-9, SB-10, RV-1, RV-3, RV-5, RV-7) in their entirety. Collectively, Ms. Morrison's June 2020 survey and Mr. Strother's January 2021 survey covered each of the 20 borrow sites in the Project Area. During the surveys, Ms. Morrison and Mr. Strother examined all exposed ground surface for prehistoric artifacts (e.g., flaked stone tools, tool-making debris, stone milling tools, ceramics, fire-affected rock), ecofacts (marine shell and bone), soil discoloration that might indicate the presence of a cultural midden, soil depressions, and features indicative of the former presence of structures or buildings (e.g., standing exterior walls, postholes, foundations) or historic-era debris (e.g., metal, glass, ceramics). Ground disturbances such as burrows and drainages were also visually inspected. The survey was conducted using the aid of a handheld global positioning system (GPS) unit. Field notes of survey conditions and observations were recorded using field forms and a digital camera. Copies of field notes and photographs from both surveys are maintained at the Rincon Los Angeles office.

5.2 Results

The 20 borrow sites are generally comprised of isolated, predominantly undeveloped alluvial plains adjacent to the CRA. Overall, surface visibility was excellent (90 to 100 percent) with limited vegetation coverage throughout the Project Area. Descriptions of each borrow site and details from the June 2020 and January 2021 pedestrian surveys are provided below. One newly identified historic-period archeological site, Rincon-S-1, was identified [CONFIDENTIAL: REDACTED DUE TO THE CONFIDENTIALITY OF CULTURAL RESOURCE LOCATIONS]. A description of the newly identified resource is also provided below. Department of Parks and Recreation Series 523 forms documenting the resource are provided in Appendix C. In addition, although it is not within any of the borrow sites, one previously recorded resource (the CRA; CA-SBR-10521H/CA-RIV-6726H) was encountered during the field surveys. However, the integrity and significance of the CRA as an NRHP-eligible historical resource would remain unchanged by the Project. Because resource CA-SBR-10521H/CA-RIV-6726H is not located within any of the borrow sites and its eligibility would be unaffected by the Project, no update to its resource record is included with this assessment.

SB-1

SB-1, which is approximately 4.6 acres, lies west of the Copper Basin Reservoir on the eastern portion of the Whipple Mountains. The unincorporated community of Parker Dam lies approximately 6.0 miles to the east near the California-Arizona border. Land uses adjacent to the site are primarily undeveloped desert foothills/scrubland. SR 95 runs approximately 5.0 miles to the southeast across the Colorado River. The site generally slopes west to east, comprised of undeveloped, disturbed desert scrubland. Metropolitan utilizes the site to extract alluvial material and rock in the hillside slope using mobile equipment. Metropolitan also actively uses portions of the site as a material storage yard. A small stockpile of alluvial material is present along the northern edge of the site. No structures or other prominent features are present, and no remnants of previous structures were observed. The site entrance is currently fenced with a gate. No cultural resources were identified within SB-1 during Ms. Morrison's June 2020 survey. Figure 4 provides a photograph of current site conditions.

Figure 4 Overview of SB-1 - View Northwest



SB-2

SB-2, which is approximately 10.7 acres in size, lies in an isolated area immediately north of the CRA, approximately 0.2 mile west of SR 62. Land uses adjacent to the site are primarily undeveloped desert lands. SB-2 is currently being used to extract alluvial material and to store extraction equipment. No original ground surface is present in the southern half of the site, and the northern half of the site is comprised of undeveloped desert scrubland. Confined to the southern half of the site, the existing borrow site excavation pit is approximately 15 feet below ground surface (bgs), and associated stockpiles of alluvial material are approximately 20 feet in height. No structures or other prominent features are present, and no remnants of previous structures were observed. No cultural resources were identified within SB-2 during Ms. Morrison's June 2020 survey or Mr. Strother's January 2021 survey. Figure 5 provides a photograph of current site conditions.

Figure 5 Overview of SB-2 - View Northeast



SB-3

SB-3 is a long, rectangular area approximately 12.3 acres in size, oriented parallel to the CRA. SB-3 lies in an isolated area 0.3 mile north of SR 62 and a rail line operated by Atchison, Topeka, and Santa Fe Railway. The town of Rice, formerly named Blythe Junction, lies approximately 1.7 miles to the southeast. Land uses adjacent to the site are primarily undeveloped desert lands. Metropolitan extracts alluvial material at SB-3 using mobile equipment. With the exception of the northernmost 30 feet of SB-3, which consists of undeveloped desert scrubland, no original ground surface is present in the northern two-thirds of the site. The southern third of the site is comprised of undeveloped desert scrubland. The current depth of excavation varies up to 15 feet bgs. Small stockpiles of material are centrally located in SB-3, and an erosion control berm runs near the north perimeter of the site. No structures or other prominent features are present, and no remnants of previous structures were observed. No cultural resources were identified within SB-3 during Ms. Morrison's June 2020 survey or Mr. Strother's January 2021 survey. Figure 6 provides a photograph of current site conditions.

Figure 6 Overview of SB-3 - View Northwest



SB-4

SB-4, which is approximately 2.7 acres, lies in an isolated area immediately south of the CRA, approximately 0.7 mile south of SR 62. There are no nearby communities, and land uses adjacent to the site are primarily undeveloped, desert lands. Metropolitan has utilized SB-4 in the past to extract sand, along with intermixed coarser grained materials, and to store equipment. The site consists of undeveloped, disturbed desert scrubland. The extent of material extraction is limited, with the present depth of excavation generally five to seven feet bgs. Presently, the site remains inactive other than for use as an equipment and stockpile storage yard. Some nominal quantities of imported crushed stone are also stored at the SB-4 site. No structures or other prominent features are present, and no remnants of previous structures were observed. No cultural resources were identified within SB-4 during Ms. Morrison's June 2020 survey or Mr. Strother's January 2021 survey. Figure 7 provides a photograph of current site conditions.

Figure 7 Overview of SB-4 - View East



SB-5

SB-5, which is approximately 4.3 acres, lies in an isolated area immediately north of and parallel to the CRA, 0.4 mile south of SR 62 and northeast of its junction of SR 177. There are no nearby communities, and land uses adjacent to the site remain primarily undeveloped, desert lands. In addition to extraction of clayey sands and intermixed coarser-grained materials, Metropolitan utilizes the site to store materials and equipment. To date, material extraction has occurred in the western half of the site with future mining progressing in an easterly direction. Except for the extraction area in the west-central portion of SB-5, the site is comprised of undeveloped, disturbed desert scrubland. The present pit floor depth is less than 10 feet bgs. No structures or other prominent features are present, and no remnants of previous structures were observed. No cultural resources were identified within SB-5 during Ms. Morrison's June 2020 survey or Mr. Strother's January 2021 survey. Figure 8 provides a photograph of current site conditions.

Figure 8 Overview of SB-5 - View Southeast



SB-6

SB-6, which is 1.5 acres in size, lies in an isolated area adjacent to the CRA, 0.5-mile northwest of SR 62. There are no nearby communities, and land uses adjacent to the site are primarily undeveloped, desert lands. Material extraction at SB-6 has taken place in discrete areas throughout the site with excavation depths generally less than five to seven feet bgs, but the site is currently inactive. Except for the extraction areas, the site is comprised of undeveloped, disturbed desert scrubland. No structures or other prominent features are present, and no remnants of previous structures were observed. No cultural resources were identified within SB-6 during Ms. Morrison's June 2020 survey or Mr. Strother's January 2021 survey. Figure 9 provides a photograph of current site conditions.

Figure 9 Overview of SB-6 - View North



SB-7

SB-7, which is approximately 6.7 acres, lies in an isolated area immediately north of the CRA, about 1.5 miles north of SR 62. There are no nearby communities, and land uses adjacent to the site are primarily undeveloped, desert lands. Metropolitan utilizes the site to extract alluvial material and to store equipment. A dirt road bisects the site with the disturbed extraction area to the west of the road and undeveloped desert scrubland to the east. Small patches of disturbed desert scrubland are also present at the northwestern and southwestern peripheries of the site. No structures or other prominent features are present, and no remnants of previous structures were observed. No cultural resources were identified within SB-7 during Ms. Morrison's June 2020 survey or Mr. Strother's January 2021 survey. Figure 10 provides a photograph of current site conditions.

Figure 10 Overview of SB-7 - View South



SB-8

SB-8, which is approximately 14.2 acres, lies in the Iron Mountains, approximately 2.0 miles west of Metropolitan's Iron Mountain Pumping Plant. SB-8 is a portion of the larger Iron Mountain site where material extraction has and will continue to occur; the balance of the Iron Mountain site represents areas where historical construction activities and materials storage occurred in connection with the Iron Mountain Tunnel. There are no nearby communities, and land uses adjacent to the site are primarily undeveloped, desert lands and undeveloped desert foothills/scrubland. The site lies in a saddle that bisects the mountain range. No structures or other prominent features are present, and no remnants of previous structures were observed. No cultural resources were identified within SB-8 during Ms. Morrison's June 2020 survey. Figure 11 provides a photograph of current site conditions.

Figure 11 Overview of SB-8 - View West



SB-9

SB-9, which is approximately 1.8 acres, lies about 1.5 miles west of the Iron Mountains, approximately 2.5 miles north of SR 62. There are no nearby communities, and land uses adjacent to the site are primarily undeveloped, desert lands. Metropolitan utilizes the site to extract alluvium and to store equipment. The current pit configuration for SB-9 is a polygonal-shaped excavation that extends into the southern edge of a low-lying bedrock outcrop. Materials are removed from the hill slope as well as below grade on the alluvial plain. Current pit depths vary but are generally less than 10 feet bgs. The site is currently inactive. No structures or other prominent features are present, and no remnants of previous structures were observed. No cultural resources were identified within SB-9 during Ms. Morrison's June 2020 survey or Mr. Strother's January 2021 survey. Figure 12 provides a photograph of current site conditions.

Figure 12 Overview of SB-9 - View Southeast



SB-10

SB-10, which is approximately 21.0 acres, is located on the eastern side of the Whipple Mountains, approximately 1.5 miles north of SR 62. Localized shallow excavation of alluvial materials, grading, surface scalping, and material piling have occurred throughout the site. The uninhabited community of Parker lies approximately 8.0 miles to the northeast. Land uses adjacent to the site are primarily undeveloped desert foothills/scrubland. No prehistoric or built environment resources were identified during Mr. Strother's January 2021 survey. [CONFIDENTIAL: REDACTED DUE TO THE CONFIDENTIALITY OF CULTURAL RESOURCE LOCATIONS] Figure 13 provides a photograph of current conditions at SB-10.

Figure 13 Overview of SB-10 - View South



RV-1

RV-1, an approximately 2.2-acre rectangular area located along the southern side of the CRA, lies approximately 1.9 miles south of SR 62. There are no nearby communities, and land uses adjacent to the site are primarily undeveloped, desert lands. Metropolitan utilized the site to extract alluvial material; however, this site is inactive and will no longer be used to extract material. At present, the pit is generally less than 10 feet bgs in depth. Beside serving as a material source, the site is used as a stockpile storage yard. The site primarily consists of undeveloped, disturbed desert scrubland. No structures or other prominent features are present, and no remnants of previous structures were observed. No cultural resources were identified within RV-1 during Mr. Strother's January 2021 survey. Figure 14 provides a photograph of current site conditions.

Figure 14 Overview of RV-1 - View West



RV-2

RV-2, an approximately 23.7-acre polygonal isolated area located adjacent to the CRA, lies 2.0 miles south of SR 62 and 0.4 mile to the west of RV-1. There are no nearby communities, and land uses adjacent to the site are primarily undeveloped, barren desert lands and undeveloped desert foothills/scrubland. Metropolitan utilizes the site to extract alluvial material and to store equipment and stockpiled materials. Depth of excavation is presently 15 feet bgs, and other than existing material stockpiles, there are no existing features or structures on the site. No structures or other prominent features are present, and no remnants of previous structures were observed. No cultural resources were identified within RV-2 during Ms. Morrison's June 2020 survey. Figure 15 provides a photograph of current site conditions.

Figure 15 Overview of RV-2 - View Northeast



RV-3

RV-3, which is approximately 5.5 acres, lies in an isolated area immediately north of the CRA. There are no nearby communities, and land uses adjacent to the site are primarily undeveloped, desert lands and undeveloped desert foothills/scrubland. Metropolitan utilizes the site to extract alluvial material and to store equipment and stockpiled materials. Presently, there is a single borrow pile located roughly at the center of the site. The remainder of the site is comprised of undeveloped, predominantly disturbed desert scrubland. Current pit depths are generally 10 to 15 feet bgs. No structures or other prominent features are present, and no remnants of previous structures were observed. No cultural resources were identified within RV-3 during Ms. Morrison's June 2020 survey or Mr. Strother's January 2021 survey. Figure 16 provides a photograph of current site conditions.

Figure 16 Overview of RV-3 - View North



RV-4

RV-4, which is approximately 1.8 acres in size, lies in an isolated area along the CRA, approximately 0.7 mile north of SR 62. There are no nearby communities, and land uses adjacent to the site are primarily undeveloped, desert lands. Metropolitan utilized the site to extract alluvial material and to store equipment and supplies, but the site is currently inactive. The current pit floor is 10 to 15 feet bgs. No structures or other prominent features are present, and no remnants of previous structures were observed. No cultural resources were identified within RV-4 during Ms. Morrison's June 2020 survey. Figure 17 provides a photograph of current site conditions.

Figure 17 Overview of RV-4 - View North



RV-5

RV-5 is a 7.1-acre rectangular area that lies along the CRA approximately 1.2 miles west of SR 177. There are no nearby communities, and land uses adjacent to the site are primarily undeveloped, desert lands and undeveloped desert foothills/scrubland. Metropolitan utilizes the site to extract alluvial material and to store/stage equipment and stockpiled materials. To date, excavation of materials has occurred solely in the northwest corner of the site. The excavation at RV-5 is generally limited to surface scalping the first few feet of material. No extant structures or other prominent features are present, and no remnants of previous structures were observed. No cultural resources were identified within RV-5 during Ms. Morrison's June 2020 survey or Mr. Strother's January 2021 survey. Figure 18 provides a photograph of current site conditions.

Figure 18 Overview of RV-5 - View North



RV-6

RV-6, which is approximately 2.1 acres, lies in an isolated area along the eastern flank of the Coxcomb Mountains immediately east of the CRA. RV-6 is approximately 2.6 miles west of SR 177. There are no nearby communities, and land uses adjacent to the site are primarily undeveloped, desert lands. Metropolitan utilizes the site to extract alluvial material and to store equipment. The current RV-6 excavation pit is characterized as a shallow excavation (scalping of surface materials) that is generally a few feet in depth. Undeveloped desert brushland comprises the remaining portion of the site. No structures or other prominent features are present, and no remnants of previous structures were observed. No cultural resources were identified within RV-6 during Ms. Morrison's June 2020 survey. Figure 19 provides a photograph of current site conditions.

Figure 19 Overview of RV-6 - View West



RV-7

RV-7 is a 3.6-acre rectangular area located on an alluvial plain that extends southeasterly from the base of the Eagle Mountain Range. The site occurs in an isolated area north of the CRA. SR 177 lies 9.6 miles to the southeast. The Kaiser Steel Mill community lies approximately 2.5 miles to the southwest, and Metropolitan's Eagle Mountain Pumping Plant 5.9 miles to the south. Land uses adjacent to the site are primarily undeveloped desert lands. Metropolitan extracts alluvial material at this site, which is also used to store equipment and supplies and stockpile materials. Currently, the excavation confined to the southern half of the site is 10 feet bgs or less. The northern portion of RV-7 is comprised of undeveloped desert scrubland. No structures or other prominent features are present, and no remnants of previous structures were observed. No cultural resources were identified within RV-7 during Ms. Morrison's June 2020 survey or Mr. Strother's January 2021 survey. Figure 20 provides a photograph of current site conditions.

Figure 20 Overview of RV-7 - View Northeast



RV-8

RV-8, which is 5.6 acres in size, lies in an isolated area on an alluvial plain that extends to the southeast from the flank of the Eagle Mountains. Here, the CRA runs to the south and west of the site, tunneling through the Eagle Mountains. The intersection of SR 177 and I-10 lies is located approximately 5.1 miles to the southeast. The census-designated community of Desert Center also is approximately 5.0 miles to the southeast, and Metropolitan's Eagle Mountain Pumping Plant is approximately 4.7 miles to the north. Land uses adjacent to the site are primarily undeveloped desert lands. Past material extraction at RV-8 has generally been limited to the first 10 feet bgs. Metropolitan currently extracts alluvial material and stockpiles materials at the site. This extraction area is currently confined to the central portion of RV-8; undeveloped, disturbed desert scrubland comprises the rest of the site. No structures or other prominent features are present, and no remnants of previous structures were observed. No cultural resources were identified within RV-8 during Ms. Morrison's June 2020 survey. Figure 21 provides a photograph of current site conditions.

Figure 21 Overview of RV-8 - View West



RV-9

RV-9, which is approximately 5.3 acres in size, is adjacent to the Julian Hinds Pumping Plant and is where Metropolitan historically stored construction spoils associated with the pumping plant, 2.2 miles north of I-10. Land uses immediately adjacent to the site are primarily desert lands. The Julian Hinds Pumping Plant and ancillary sub-station lie immediately to the north of RV-9. Metropolitan utilizes the site to extract alluvial material and to store/stage equipment and stockpiled materials. The RV-9 excavation pit presently ranges from roughly 10 to 15-feet bgs in depth with coalescing stockpiles in the western portion of the pit footprint. There are no other features or structures on site. No structures or other prominent features are present, and no remnants of previous structures were observed. No cultural resources were identified in RV-9 during Ms. Morrison's June 2020 survey. Figure 22 provides a photo of current site conditions.

Figure 22 Overview of RV-9 - view north



RV-10

RV-10 comprises a 12.6-acre area located near the southern boundary of Joshua Tree National Park and lies approximately 1.4 miles north of I-10. The area is isolated and is immediately north of the CRA, which is a cut-and-cover buried conduit west of the Julian Hinds Pumping Plant. Other than the community of Chiriaco Summit located approximately 6.4 miles east of RV-10, no other nearby communities exist. Land uses adjacent to the site are primarily undeveloped, desert lands and undeveloped desert foothills/scrubland. Metropolitan utilizes RV-10 to extract alluvial material and to store/stage equipment and supplies and stockpiled materials. Additionally, broken concrete rubble has been temporarily placed on site. Excavation at this site has advanced the pit floor to depths of roughly 50 feet bgs, specifically along the northerly and westerly highwalls. No structures or other prominent features are present, and no remnants of previous structures were observed. No cultural resources were identified within RV-10 during Ms. Morrison's June 2020 survey. Figure 23 provides current site conditions.

Figure 23 Overview of RV - 10 - View North



5.3 Evaluation of Rincon-S-1

One newly identified historic-period archaeological resource, Rincon-S-1, was identified during the survey [**CONFIDENTIAL: REDACTED DUE TO THE CONFIDENTIALITY OF CULTURAL RESOURCE LOCATIONS**]. A description of the newly identified resource is provided below. Department of Parks and Recreation 523 series forms are provided in Appendix C.

The four historic-period features that comprise Rincon-S-1 [CONFIDENTIAL: REDACTED DUE TO THE CONFIDENTIALITY OF CULTURAL RESOURCE LOCATIONS] and extend over an area approximately 150 feet from north to south by 300 feet from east to west. Table 6 lists observed features at the site, which include four concrete trestle pillars (Feature 1, Figure 24), a milled lumber alignment (Feature 2, Figure 25), several fragmented slabs of concrete (Feature 3, Figure 26), and a concrete pillar with an associated scatter of concrete/slurry slabs, milled lumber, and metal piping (Feature 4, Figure 27).

Based on similar archaeological sites in the region (Hamilton et al. 1998), these features were likely developed to support the construction and continued maintenance of the CRA. Such uses would have been consistent with patterns of CRA related construction and surface mining activities in the area during the 1930s. Taken in 1947, the earliest available aerial photograph depicts the four features. Although the precise nature of their original function remains unclear in the 1947 aerial imagery, the features appear to be in better condition in the imagery. Aerial photographs taken between 1969 and 2016 depict the features in their current condition.

Table 6 Historic-Period Archaeological Features at Rincon-S-1

Feature No.	Historic Period Feature Description	Length and Width of Feature	Height of Feature
1	Concrete trestle pillars	4 feet by 1.5 feet	5 feet
2	Milled lumber alignment	240 feet by 8 feet	Flush with ground level
3	Concrete slab rubble pile	7 feet by 7 feet	1 foot
4	Concrete pillar with associated fragmented concrete/slurry slabs, milled lumber, and metal pipe	The pillar is 4 feet by 2 feet; the associated debris extends over an area that is 30 feet by 30 feet	The pillar is 4 feet; the associated debris is 1 to 2 feet

Research did not suggest that any of the features are an important physical expression of specific events or periods in the region's history. Thus, the features do not meet the eligibility criteria for listing under NRHP Criterion A or CRHR Criterion 1. Likewise, research did not indicate that any persons associated with the remnant features can be considered significant to local, state, or national history. Therefore, the features do not meet the eligibility criteria for listing under NRHP Criterion B or CRHR Criterion 2. The structural remnants that are present on the project site are fragmentary, and the original function associated with these remains is no longer recognizable. Furthermore, the historical features lack any technological, architectural, or engineering merits. As such, the features do not meet the eligibility criteria for listing under NRHP Criterion C or CRHR Criterion 3. Lastly, the remnant features at this location are likely fragmentary pieces of a former surface mining operation or construction staging area and are unable to yield any new information important to the study of the construction or use of facilities of their particular type or vintage in local, state, or national history. Therefore, the features do not meet the eligibility criteria for listing under NRHP Criterion D or CRHR Criterion 4. As a result, Rincon recommends site Rincon-S-1 as ineligible for the NRHP and CRHR under all four criteria (A-D/1-4).

Figure 24 Rincon-S-1 Feature 1 - View Northwest

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Figure 25 Rincon-S-1 Feature 2 - View West

CONFIDENTIAL: PHOTO REDACTED DUE TO THE CONFIDENTIALITY OF POTENTIAL CULTURAL MATERIAL LOCATIONS

Figure 26 Rincon-S-1 Feature 3 - View Northwest

CONFIDENTIAL: PHOTO REDACTED DUE TO THE CONFIDENTIALITY OF POTENTIAL CULTURAL MATERIAL LOCATIONS

Figure 27 Rincon-S-1 Feature 4 - View North

CONFIDENTIAL: PHOTO REDACTED DUE TO THE CONFIDENTIALITY OF POTENTIAL CULTURAL MATERIAL LOCATIONS

6 Findings and Recommendations

The current study included a cultural resources records search, an SLF search with positive results, and pedestrian field surveys and resulted in the recordation and evaluation of one historic-period archaeological site, Rincon-S-1, which consists of four remnant features likely associated with the construction of the CRA. Research completed under the current study concluded the features do not possess significant architectural or historical associations and are not eligible for listing in the NRHP or CRHR. As such, their demolition and removal from the site would not result in a significant adverse impact under CEQA. The background research and field surveys concluded there are no known prehistoric archaeological resources or built environment resources within the Project Area. Although it is not within the Project Area, one previously recorded historic-period built environment resource, the CRA (CA-SBR-10521H/CA-RIV-6726H), was encountered during the field surveys. However, the segments of the CRA adjacent to the Project Area encountered during the field surveys would not be physically disturbed by the proposed Project. Water from the CRA would be used for dust suppression activities and irrigation of revegetated areas as part of the Project; however, pumping water from the CRA would not result in modifications to it or its surroundings. As such, the Project would not cause a significant adverse impact to CA-SBR-10521H/CA-RIV-6726H and would not affect the integrity of the resource. Although the SLF search yielded positive results, there is no indication a sacred site exists in the Project Area. Based on the results of the cultural resources assessment, Rincon recommends a finding of ***no impact to historical and archaeological resources*** under CEQA. No further cultural resources work is recommended for the Project.

Rincon presents the following measure in case of unanticipated discovery of cultural resources during Project development. The Project is also required to adhere to regulations regarding the unanticipated discovery of human remains, detailed below.

6.1 Unanticipated Discovery of Cultural Resources

If cultural resources are encountered during ground-disturbing activities, work in the immediate area should halt and an archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards for archaeology (NPS 1983) should be contacted immediately to evaluate the find. If the discovery proves to be eligible for the NRHP and/or CRHR, additional work such as data recovery excavation and Native American consultation and archaeological monitoring may be warranted to mitigate any significant impacts.

6.2 Unanticipated Discovery of Human Remains

If human remains are found, existing regulations outlined in the State of California Health and Safety Code Section 7050.5 state that no further disturbance shall occur until the County Coroner has made a determination of origin and disposition pursuant to Public Resources Code Section 5097.98. The County Coroner shall be notified immediately, and if the human remains are determined to be prehistoric, the Coroner shall notify the NAHC, which will determine and notify a Most Likely Descendant, who shall complete the inspection of the site within 48 hours of being granted access and provide Metropolitan with recommendations for the treatment of the remains.

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Stine, S.

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- 1996 The Current Status of Archaeological Research in the Mojave Desert. *Journal of California and Great Basin Anthropology* 18(2):221-257.

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- 2007 Advances in Understanding Mojave Desert Prehistory. In *California Prehistory: Colonization, Culture, and Complexity*, edited by T. L. Jones and K. A. Klar, pp. 229–245. AltaMira Press, New York.

Warren, Claude N.

- 1984 The Desert Region. In *California Archaeology*, Michael J. Moratto (author), pp. 339-430. New York: Academic Press.

Western Regional Climate Center

- 2016 Western U.S. Climate Summaries. <https://wrcc.dri.edu/Climate/summaries.php>.

Yohe, Robert M.

- 1998 The Introduction of the Bow and Arrow and Lithic Resource Use at Rose Spring (CA-INY-372). *Journal of California and Great Basin Anthropology* 20:26-52.

Zyniecki, M.

- 2003 Cultural Resources Inventory of 1,730 Acres in the Emerson Lake Training Area, Marine Air Ground Task Force Training Command, Marine Corps Air Ground Combat Center, Twentynine Palms. Report submitted to NREA, MAGTFCT, MCAGCC, Twentynine Palms, California.

Appendix A

South Central Coastal Information Center and Eastern Information Center Records Search
Results

Report List

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
SB-00558 Not scanned.	NADB-R - 1060558; Voided - 77-9.13	1977	BUREAU OF LAND MANAGEMENT	ENVIRONMENTAL ASSESSMENT RECORD FOR INTERIM CRITICAL MANAGEMENT, PROGRAM AREA NO. 37, CADIZ VALLEY/DANBY LAKE	BUREAU OF LAND MANAGEMENT	36-003235, 36-005606, 36-005607, 36-005608, 36-005609, 36-005610, 36-005611

Listed resources have NOT been verified by SCCIC staff.

Resource List

Primary No.	Trinomial	Other IDs	Type	Age	Attribute codes	Recorded by	Reports
P-36-009569	CA-SBR-009569H	AE-CRA-6H			AH02; AH04; AH16	1998 (HAMILTON)	
P-36-010521	CA-SBR-010521H	FS 51; Colorado River Aqueduct; Colorado River Aqueduct			AH06; HP20	2000 (GOODMAN+NEVES); 2010 (ESA)	SB-07945, SB-07951

No listed resources have been previously verified by SCCIC staff.

Resource List

Primary No.	Trinomial	Other IDs	Type	Age	Attribute codes	Recorded by	Reports
P-36-010521	CA-SBR-010521H	FS 51; Colorado River Aqueduct; Colorado River Aqueduct			AH06; HP20	2000 (GOODMAN+NEVES); 2010 (ESA)	SB-07945, SB-07951

Report List

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
RI-00220	NADB-R - 1080278; Submitter - 213; Voided - MF-0210	1977	Richard A. Cowan and Kurt Wallof	Intermin Report Field Work and Data Analysis: Cultural Resource Survey of the Proposed Southern California Edison Palo Verde-Devers 500 Kv Transmission Line	Archaeological Research Unit, U.C. Riverside	33-001111, 33-001112, 33-001113, 33-001114, 33-001115, 33-001116, 33-001117
RI-00221	NADB-R - 1080279; Voided - MF-0210	1982	Richard L. Carrico, Dennis K. Quillen, and Dennis Gallegos	Cultural Resource Inventory and National Register Assessment of the Southern California Edison Palo Verde to Devers Transmission Line Corridor (California Portion)	WESTEC Service, Inc., San Diego, CA	33-000053, 33-000164, 33-000183, 33-000250, 33-000343, 33-000504, 33-000673, 33-000772, 33-000775, 33-000891, 33-000893, 33-001018, 33-001115, 33-001117, 33-001118, 33-001119, 33-001383, 33-001635, 33-001808, 33-001809, 33-001810, 33-001811, 33-001812, 33-001813, 33-001814, 33-001815, 33-001816, 33-001817, 33-001818, 33-001819, 33-001820, 33-001821, 33-001822, 33-001823
RI-00222	NADB-R - 1083708; Submitter - 213; Voided - MF-0210	1977	Kurt Wallof and Richard A. Cowan	Final Report: Cultural Resource Survey of the Proposed Southern California Edison Palo Verde-Devers 500 Kv Power Transmission Line	Archaeological Ressearch Unit, U.C. Riverside	33-001111, 33-001112, 33-001114, 33-001116, 33-001118, 33-001119, 33-001120, 33-001121, 33-001122, 33-001123, 33-001124, 33-001125, 33-001126, 33-001127, 33-001128, 33-001129, 33-001130, 33-001131, 33-001132, 33-001134, 33-001135, 33-001136, 33-001137
RI-00982	NADB-R - 1081032; Other - GT-277; Voided - MF-0892	1980	Harvey L. Crew and James E. Fitting	An Archaeological Survey of Geothermal Drilling Sites in Riverside County, California	Scientific Applications, La Jolla, CA	
RI-01249	NADB-R - 1081411; Voided - MF-1244	1978	Bureau Of Land Management	California Desert Program: Archaeological Sample Unit Records for the Big Maria Plannning Unit	Bureau Of Land Management	33-001468, 33-001469, 33-001470, 33-001471, 33-001472, 33-001473, 33-001474, 33-001475, 33-001476, 33-001477, 33-001478, 33-001479, 33-001480, 33-001481, 33-001482, 33-001483, 33-001484, 33-001486, 33-001487, 33-001488, 33-001489, 33-001490, 33-001491, 33-001492, 33-001493, 33-001494, 33-001495, 33-001496, 33-001497, 33-001498, 33-001499
RI-01973	NADB-R - 1082390; Voided - MF-2164	1985	MACK, JOANNE M.	ARCHAEOLOGICAL ASSESSMENT OF SIX PARCELS (NORTHERN, ROCKY, METRO, PALEN, IRONWOOD, AND COCKRELL) NEAR PALEN DRY LAKE, DESERT CENTER, CALIFORNIA	Archaeological Consultant, Claremont, CA	33-003016, 33-003017, 33-003018, 33-003019, 33-003020, 33-003021

Report List

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
RI-03321	NADB-R - 1083922; Voided - MF-3552	1991	BULL, CHARLES S., SUE A. WADE, and MCMILLAN DAVIS	CULTURAL RESOURCE SURVEY OF THE EAGLE MOUNTAIN MINE AND THE KAISER INDUSTRIAL RAILROAD, CULTURAL RESOURCE PERMIT #CA881916	REGIONAL ENVIRONMENTAL CONSULTANTS	33-003216, 33-003798
RI-08411		2008	Richard Carrico, Fred Budinger, and Jenna Farrell	Final Amendment to Cultural Resources Inventory of the Proposed Blythe Energy Project Transmission Line, Riverside County, California.	Tetra Tech EC, Inc.	33-001383, 33-008706, 33-009187, 33-009461, 33-010823, 33-010862, 33-011439, 33-012933, 33-013574, 33-013592, 33-013673, 33-014150, 33-014159, 33-014201

Resource List

Primary No.	Trinomial	Other IDs	Type	Age	Attribute codes	Recorded by	Reports
P-33-001117	CA-RIV-001117	Other - Camp Young; Other - 101-1 (Site); Other - Patton's Camp Young rock alignment-parking; Other - ARU Project-213; Other - DTC access road	Site, Element of district	Historic	AH02; AH07; AH16; HP34	1976 (Cowan, UC Riverside, CA.); 1979 (Sue Carrico, D. Gallegos and J. Thesken, Westec Services, Inc.); 1979 (Dennis Quillen, D. Gallegos and J. Thesken, Westec Services, Inc.); 1981 (Hammond, CALTRANS); 1995 (Bruce Love, n/a); 2004 (W.T. Eckhardt and K. Ross Way, Mooney & Associates, San Diego, CA.); 2005 (William T. Eckhardt and Stacie L. Wilson, Mooney, Jones & Stokes, San Diego, CA.); 2011 (H. Thomson, E. Maier and K. Lambert, AECOM); 2011 (H. Thomson, E. Maier, K. Lambert, AECOM); 2016 (Rachel Droessler and Lauren Downs, AECOM)	RI-00220, RI-00221, RI-00991, RI-03716, RI-03948, RI-04452, RI-08375, RI-08410, RI-09837, RI-10451
P-33-006824		Other - Julian Hinds Pumping Plant; Other - Hayfield Pumping Station; Other - Ser. No. 33-2239-16; Other - BEP. 625-B66	Building, Structure, Site	Historic	AH06; HP06; HP08; HP09; HP20	1982 (Linda Warner, Riverside County Historical Commission); 2005 (Stacie Wilson, Andrea Craft, Michael Wise, Mooney Jones & Stokes)	
P-33-008394	CA-RIV-006125	Other - AE-CRA-3	Site	Prehistoric	AP04; AP11	1998 (S. Williams, B. Gothar, K. Warren, Applied EarthWorks, Inc., Hemet, CA)	

Resource List

Primary No.	Trinomial	Other IDs	Type	Age	Attribute codes	Recorded by	Reports
P-33-011265	CA-RIV-006726H	Other - FS 51a, b, c, d; Other - Colorado River Aqueduct; Other - SRI-9990; Voided - 33-011138; Other - Colorado River Aqueduct- Old Aqueduct Road	District, Element of district	Historic	HP20	2000 (Goodman, J, and J. Neves, SWCA, Inc.); 2001 (Dice, Michael, L& L Environmental, Inc.); 2003 (Boggs, Brian, Gini Austerman, and Lashawn Lee, Statistical Research, Inc.); 2005 (Stacie Wilson, Andrea Craft, and Michael Wise, Mooney Jones & Stokes); 2005 (Beedle, Peggy, Applied EarthWorks, Inc.); 2008 (DeGiovine, M., T. Martin, S. Wilson, and K. Chimel, ICF Jones & Stokes); 2009 (DeGiovine, M., T. Martin, S. Wilson, and K. Chimel, ICF Jones & Stokes); 2011 (Scott Kremkau, SRI); 2016 (Shannon Loftus, ACE Environmental, LLC.)	RI-04424, RI-06070, RI-06707, RI-06920, RI-07206, RI-07671, RI-08374, RI-08453, RI-09167
P-33-011638	CA-RIV-010760	Other - SRI-6610; Other - Desert Training Center; Other - California-Arizona Maneuver Area; Other - DTC-CAMA	Site	Historic	AH07; HP34; HP37	1968 (Floyd, McBall, n/a); 2011 (Joshua Trampier, BLM)	
P-33-013651		Other - BEP.070-43	Site	Historic	AH04; AH09	2004 (Way, K.R. and W.T. Eckhardt, Mooney and Associates)	

Resource List

Primary No.	Trinomial	Other IDs	Type	Age	Attribute codes	Recorded by	Reports
P-33-015035	CA-RIV-013001	Other - Chino Mira Loma 200kV Transmission Line; Other - Mira Loma-Vista 220kV Transmission Line; Other - Devers-Vista No. 1 220kV Transmission Line; Resource Name - Southern California Edison Company Chino-Hayfield 220kV Transmission Line; Other - Devers-San Bernardino No. 1 220kV Transmission Line; Other - Julian Hinds-Mirage 220kV Transmission Line; Other - LSA-PDH0601-H3; Other - SCE1110-TL-1; Voided - 33-022389; Other - Devers-Hinds 220 kv Transmission Line; Voided - 33-008411	Structure	Historic	HP11	1998 (J. Brock, Archaeological Advisory Group); 2006 (Brunzell, David, LSA Associates, Inc.); 2012 (L.Davidson, R.Goodwin, B.Smith, LSA Associates, Inc.); 2013 (Steven Treffers, SWCA Envriental Consultants); 2013 (Wendy L. Tinsley Becker, Steven Treffers, Urbana Preservation and Planning, SWCA Environmental Consultants); 2013 (Wendy L. Tinsley Becker, Steven Treffers, Urbana Preservation and Planning, SWCA); 2014 (Wendy L. Tinsley Becker, Steven Treffers, Urbana Preservation and Planning, SWCA)	RI-06722, RI-07603, RI-08980, RI-09035, RI-09151, RI-09167, RI-10157, RI-10435, RI-10754

Appendix B

Sacred Lands File Search Results



NATIVE AMERICAN HERITAGE COMMISSION

July 8, 2020

Mark Strother
Rincon Consultants, Inc.

Via Email to: mstrother@rinconconsultants.com

CHAIRPERSON
Laura Miranda
Luiseño

VICE CHAIRPERSON
Reginald Pagaling
Chumash

SECRETARY
Merri Lopez-Keifer
Luiseño

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Chumash

COMMISSIONER
[Vacant]

COMMISSIONER
[Vacant]

EXECUTIVE SECRETARY
Christina Snider
Pomo

NAHC HEADQUARTERS
1550 Harbor Boulevard
Suite 100
West Sacramento,
California 95691
(916) 373-3710
nahc@nahc.ca.gov
NAHC.ca.gov

Re: Metropolitan Water District Development of Surface Mining and Reclamation Act Reclamation Plans Project, Riverside and San Bernardino Counties

Dear Mr. Strother:

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 positive. Please contact the Chemehuevi Indian Tribe on the attached list for more information. 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.

Sincerely,

Andrew Green
Cultural Resources Analyst

Attachment

**Native American Heritage Commission
Native American Contact List
Riverside, San Bernardino Counties
7/8/2020**

Agua Caliente Band of Cahuilla Indians

Patricia Garcia-Plotkin, Director
5401 Dinah Shore Drive
Palm Springs, CA, 92264
Phone: (760) 699 - 6907
Fax: (760) 699-6924
ACBCI-THPO@aguacaliente.net

Cahuilla

Agua Caliente Band of Cahuilla Indians

Jeff Grubbe, Chairperson
5401 Dinah Shore Drive
Palm Springs, CA, 92264
Phone: (760) 699 - 6800
Fax: (760) 699-6919

Cahuilla

Augustine Band of Cahuilla Mission Indians

Amanda Vance, Chairperson
P.O. Box 846
Coachella, CA, 92236
Phone: (760) 398 - 4722
Fax: (760) 369-7161
hhaines@augustinetribe.com

Cahuilla

Cabazon Band of Mission Indians

Doug Welmas, Chairperson
84-245 Indio Springs Parkway
Indio, CA, 92203
Phone: (760) 342 - 2593
Fax: (760) 347-7880
jstapp@cabazonindians-nsn.gov

Cahuilla

Cahuilla Band of Indians

Daniel Salgado, Chairperson
52701 U.S. Highway 371
Anza, CA, 92539
Phone: (951) 763 - 5549
Fax: (951) 763-2808
Chairman@cahuilla.net

Cahuilla

Chemehuevi Indian Tribe

Charles Wood, Chairperson
P.O. Box 1976 1990 Palo Verde Drive
Havasupai Lake, CA, 92363
Phone: (760) 858 - 4219
Fax: (760) 858-5400
chairman@cit-nsn.gov

Chemehuevi

Colorado River Indian Tribes

Dennis Patch, Chairman
26600 Mojave Road
Parker, AZ, 85344
Phone: (928) 669 - 9211
Fax: (928) 669-1925
amanda.barrera@crit-nsn.gov

Chemehuevi
Mojave

Fort Mojave Indian Tribe

Timothy Williams, Chairperson
500 Merriman Ave
Needles, CA, 92363
Phone: (760) 629 - 4591
Fax: (760) 629-5767
lindaotero@fortmojave.com

Mojave

Los Coyotes Band of Cahuilla and Cupeño Indians

Shane Chapparosa, Chairperson
P.O. Box 189
Warner Springs, CA, 92086-0189
Phone: (760) 782 - 0711
Fax: (760) 782-0712

Cahuilla

Morongo Band of Mission Indians

Denisa Torres, Cultural Resources Manager
12700 Pumarra Road
Banning, CA, 92220
Phone: (951) 849 - 8807
Fax: (951) 922-8146
dtorres@morongo-nsn.gov

Cahuilla
Serrano

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public 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 Metropolitan Water District Development of Surface Mining and Reclamation Act Reclamation Plans Project, Riverside, San Bernardino Counties.

**Native American Heritage Commission
Native American Contact List
Riverside, San Bernardino Counties
7/8/2020**

Morongo Band of Mission Indians

Robert Martin, Chairperson
12700 Pumarra Road
Banning, CA, 92220
Phone: (951) 849 - 8807
Fax: (951) 922-8146
dtorres@morongo-nsn.gov

Cahuilla
Serrano

San Manuel Band of Mission Indians

Jessica Mauck, Director of
Cultural Resources
26569 Community Center Drive
Highland, CA, 92346
Phone: (909) 864 - 8933
jmauck@sanmanuel-nsn.gov

Serrano

Quechan Tribe of the Fort Yuma Reservation

Manfred Scott, Acting Chairman
Kw'ts'an Cultural Committee
P.O. Box 1899
Yuma, AZ, 85366
Phone: (928) 750 - 2516
scottmanfred@yahoo.com

Quechan

Santa Rosa Band of Cahuilla Indians

Lovina Redner, Tribal Chair
P.O. Box 391820
Anza, CA, 92539
Phone: (951) 659 - 2700
Fax: (951) 659-2228
Isaul@santarosacahuilla-nsn.gov

Cahuilla

Quechan Tribe of the Fort Yuma Reservation

Jill McCormick, Historic
Preservation Officer
P.O. Box 1899
Yuma, AZ, 85366
Phone: (760) 572 - 2423
historicpreservation@quechantribe.com

Quechan

Serrano Nation of Mission Indians

Wayne Walker, Co-Chairperson
P. O. Box 343
Patton, CA, 92369
Phone: (253) 370 - 0167
serranonation1@gmail.com

Serrano

Serrano Nation of Mission Indians

Mark Cochrane, Co-Chairperson
P. O. Box 343
Patton, CA, 92369
Phone: (909) 528 - 9032
serranonation1@gmail.com

Serrano

Ramona Band of Cahuilla

John Gomez, Environmental
Coordinator
P. O. Box 391670
Anza, CA, 92539
Phone: (951) 763 - 4105
Fax: (951) 763-4325
jgomez@ramona-nsn.gov

Cahuilla

Soboba Band of Luiseno Indians

Joseph Ontiveros, Cultural
Resource Department
P.O. BOX 487
San Jacinto, CA, 92581
Phone: (951) 663 - 5279
Fax: (951) 654-4198
jontiveros@soboba-nsn.gov

Cahuilla
Luiseno

Ramona Band of Cahuilla

Joseph Hamilton, Chairperson
P.O. Box 391670
Anza, CA, 92539
Phone: (951) 763 - 4105
Fax: (951) 763-4325
admin@ramona-nsn.gov

Cahuilla

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 Metropolitan Water District Development of Surface Mining and Reclamation Act Reclamation Plans Project, Riverside, San Bernardino Counties.

**Native American Heritage Commission
Native American Contact List
Riverside, San Bernardino Counties
7/8/2020**

***Soboba Band of Luiseno
Indians***

Scott Cozart, Chairperson
P. O. Box 487
San Jacinto, CA, 92583
Phone: (951) 654 - 2765
Fax: (951) 654-4198
jontiveros@soboba-nsn.gov

Cahuilla
Luiseno

***Torres-Martinez Desert Cahuilla
Indians***

Michael Mirelez, Cultural
Resource Coordinator
P.O. Box 1160
Thermal, CA, 92274
Phone: (760) 399 - 0022
Fax: (760) 397-8146
mmirelez@tmdci.org

Cahuilla

***Twenty-Nine Palms Band of
Mission Indians***

Darrell Mike, Chairperson
46-200 Harrison Place
Coachella, CA, 92236
Phone: (760) 863 - 2444
Fax: (760) 863-2449
29chairman@29palmsbomi-
nsn.gov

Chemehuevi

***Twenty-Nine Palms Band of
Mission Indians***

Anthony Madrigal, Tribal Historic
Preservation Officer
46-200 Harrison Place
Coachella, CA, 92236
Phone: (760) 775 - 3259
amadrigal@29palmsbomi-nsn.gov

Chemehuevi

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 Metropolitan Water District Development of Surface Mining and Reclamation Act Reclamation Plans Project, Riverside, San Bernardino Counties.

Appendix C

Rincon-S-1 Department of Parks and Recreation 523 Series Forms [CONFIDENTIAL:
REDACTED DUE TO THE CONFIDENTIALITY OF CULTURAL RESOURCE LOCATIONS]

Appendix F

Energy Modeling

CRA Master Reclamation Plan IS-MND

Last Updated: March 16, 2021

Compression-Ignition Engine Brake-Specific Fuel Consumption (BSFC) Factors [1]:

HP: 0 to 100	0.0588	HP: Greater than 100	0.0529
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Values above are expressed in gallons per horsepower-hour/BSFC.

HEAVY EQUIPMENT

Heavy Equipment	#	Hours per Day	Horsepower	Load Factor	Construction Phase	Fuel Used (gallons)
Excavators	1	8	273	0.38	Grading Phase	18,424.87
Graders	1	4	238	0.41	Grading Phase	8,665.41
Other Construction Equipment	1	8	30	0.42	Grading Phase	2,487.84
Rubber Tired Dozers	1	8	215	0.4	Grading Phase	15,274.14
Tractors/Loaders/Backhoes	1	8	276	0.37	Grading Phase	18,137.15
Total Fuel Used						62,989.40
						(Gallons)

Construction Phase	Days of Operation
Grading Phase	420
Total Days	420

WORKER TRIPS

Constuction Phase	MPG [2]	Trips	Trip Length (miles)	Fuel Used (gallons)
Grading Phase	24.4	13	26.4	5912.02
Total				5,912.02

DUMP TRUCK AND WATER TRUCK TRIPS

Trip Class	MPG [2]	Trips	Trip Length (miles)	Fuel Used (gallons)
DUMP TRUCK TRIPS				
Grading Phase	7.5	42	20.0	112.00
Total				112.00
WATER TRUCK TRIPS				
Grading Phase	7.5	2	7.3	817.60
Total				817.60

Total Gasoline Consumption (gallons)	5,912.02
Total Diesel Consumption (gallons)	63,919.00

Sources:

[1] United States Environmental Protection Agency. 2018. *Exhaust and Crankcase Emission Factors for Nonroad Compression-Ignition Engines in MOVES2014b*. July 2018. Available at: <https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P100UXEN.pdf>.

[2] United States Department of Transportation, Bureau of Transportation Statistics. 2019. *National Transportation Statistics 2019*. Available at: <https://www.bts.gov/topics/national-transportation-statistics>.

CRA Master Reclamation Plan IS-MND

Last Updated: March 16, 2021

Populate one of the following tables (Leave the other blank):

Annual VMT	OR	Daily Vehicle Trips
Annual VMT: 12,680		Daily Vehicle Trips: Average Trip Distance:

Fleet Class	Fleet Mix	Fuel Economy (MPG) [1]
Light Duty Auto (LDA)	0.000000	Passenger Vehicles 24.4
Light Duty Truck 1 (LDT1)	1.000000	Light-Med Duty Trucks 17.9
Light Duty Truck 2 (LDT2)	0.000000	Heavy Trucks/Other 7.5
Medium Duty Vehicle (MDV)	0.000000	Motorcycles 44
Light Heavy Duty 1 (LHD1)	0.000000	
Light Heavy Duty 2 (LHD2)	0.000000	
Medium Heavy Duty (MHD)	0.000000	
Heavy Heavy Duty (HHD)	0.000000	
Other Bus (OBUS)	0.000000	
Urban Bus (UBUS)	0.000000	
Motorcycle (MCY)	0.000000	
School Bus (SBUS)	0.000000	
Motorhome (MH)	0.000000	

Fleet Mix					
Vehicle Type	Percent	Fuel Type	Annual VMT: VMT	Vehicle Trips: VMT	Fuel Consumption (Gallons)
Passenger Vehicles	0.00%	Gasoline	0	0.00	0.00
Light-Medium Duty Trucks	100.00%	Gasoline	12680	0.00	708.38
Heavy Trucks/Other	0.00%	Diesel	0	0.00	0.00
Motorcycle	0.00%	Gasoline	0	0.00	0.00

Total Gasoline Consumption (gallons)	708.38
Total Diesel Consumption (gallons)	0.00

Sources:

[1] United States Department of Transportation, Bureau of Transportation Statistics. 2019. National Transportation Statistics 2019. Available at: <https://www.bts.gov/topics/national-transportation-statistics>.

Appendix G

Noise Modeling

Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 03/15/2021

Case Description: MWD Reclamation Plan - Reclamation Construction Activities

**** Receptor #1 ****

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
Residential	Residential	65.0	45.0	45.0

Equipment

Description	Impact Device	Spec	Actual	Receptor	Estimated	Shielding
		Usage (%)	Lmax (dBA)	Lmax (dBA)	Distance (feet)	
Grader	No	40	85.0	1400.0	0.0	
Pumps	No	50	80.9	1400.0	0.0	
Pumps	No	50	80.9	1400.0	0.0	
Front End Loader	No	40	79.1	1400.0	0.0	
Dozer	No	40	81.7	1400.0	0.0	
Excavator	No	40	80.7	1400.0	0.0	

Results

[illegible]

Groundborne Noise and Vibration Modeling

Notes

The reference distance is measured from the nearest anticipated point of construction equipment to the nearest structure.

Equipment	Reference Level Inputs			
	PPV_{ref} (in/sec)	Lv_{ref} (VdB)	RMS_{ref} (in/sec)	Reference Distance
Loaded trucks	0.076	83	0.014	25

Equipment	Vibration Level at Receiver			
	Distance (feet)	PPV_x (in/sec)	Lv_x (VdB)	RMS_x (in/sec)
Loaded trucks	90	0.0186	71	0.003

Source

California Department of Transportation (Caltrans). 2020. Transportation and Construction Vibration Guidance Manual (CT-HWANP-RT-20-365.01.01). April. <https://dot.ca.gov/-/media/dot-media/programs/environmental-analysis/documents/env/tcvgm-apr2020-a11y.pdf>.
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