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Description:	California Senate Bill (SB) 610 and SB 221 amended the California Water Code (CWC) to stipulate projects subject to the California Environmental Quality Act (CEQA) require preparation of a water supply assessment (WSA) for industrial facilities occupying more than 40 acres of land (CWC Section 10912(a)). The Soda Mountain Solar Project comprises more than 40 acres; therefore, this WSA has been prepared.
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Water Supply Assessment for the Soda Mountain Solar Project, San Bernardino County, California

JUNE 2024

PREPARED FOR

Soda Mountain Solar, LLC

PREPARED BY

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WATER SUPPLY ASSESSMENT FOR THE SODA MOUNTAIN SOLAR PROJECT, SAN BERNARDINO COUNTY, CALIFORNIA

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EXECUTIVE SUMMARY

California Senate Bill (SB) 610 and SB 221 amended the California Water Code (CWC) to stipulate projects subject to the California Environmental Quality Act (CEQA) require preparation of a water supply assessment (WSA) for industrial facilities occupying more than 40 acres of land (CWC Section 10912(a)). The Soda Mountain Solar Project comprises approximately 2,670 acres; therefore, this WSA has been prepared. The steps followed to ensure compliance of this WSA with the CWC are described in Appendix A, based on the *Guidebook for Implementation of Senate Bill 610 and Senate Bill 221 of 2001* (California Department of Water Resources 2003).

The Soda Mountain Solar Project is planned for approximately 18 months of construction beginning in 2025. The project would use water sourced from two groundwater wells within the Lower Mojave River Valley Groundwater Basin in San Bernardino County, California. During the construction process, the water demand is estimated to be 366 acre-feet for a period of 18 months, or 200,000 gallons per day. Operational water demand for the Soda Mountain Solar Project is approximately 5.6 acre-feet per year and will begin in 2026, with a lifespan of 33.5 years following construction. Water use for the Soda Mountain Solar Project will total approximately 524 acre-feet, including water used during project construction and facility operation. Water supply availability projections indicate that sufficient water supplies are available to meet projected water demand.

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1 INTRODUCTION

In 2001, California adopted Senate Bill (SB) 610 and SB 221, amending the California Water Code (CWC) to require that certain types of development projects provide detailed assessments of water supply availability and reliability to county and city decision-makers prior to project approval. Preparation of a water supply assessment (WSA) is required for specified projects subject to the California Environmental Quality Act (CEQA), including a proposed industrial facility occupying more than 40 acres of land (CWC Section 10912(a)). WSAs identify water supply needs for a described project over a 20-year projection under varying climatic conditions. The primary purpose of these requirements is to promote collaborative planning of local water supplies and land use decisions. Because the language of SB 610 is unclear on whether renewable energy projects meet the definition of a “project,” this WSA takes a conservative approach and considers renewable energy projects to be subject to the requirements of SB 610.

Water requirements associated with the Soda Mountain Solar Project (project) are described in Section 8, Project Water Demand, of this WSA. The project would use water sourced from two groundwater wells within the Lower Mojave River Valley Groundwater Basin in San Bernardino County, California. The proposed water sources for the project are evaluated in Section 4.1, Public Water Systems, Local Water Agencies, and Service Areas, of this WSA.

In accordance with the CWC, a WSA must examine the availability of an identified water supply under normal year (no drought), single dry year (limited drought), and multiple dry year (extended drought) conditions, over a 20-year projection. The WSA must account for the projected water demand of the project in addition to other existing and planned future uses of the identified water supply, including agricultural and manufacturing uses, to the extent information is available. A common lack of data for groundwater usage and replenishment rates often makes it difficult to estimate baseline conditions regarding water supply availability; therefore, where data are not available to make quantitative estimates of water supply, reasonable assumptions are made based on available information and data.

The steps followed to ensure compliance of this WSA with the CWC are described in Appendix A and are based on the California Department of Water Resources (DWR) *Guidebook for Implementation of Senate Bill 610 and Senate Bill 221 of 2001* (DWR 2003).

2 PROJECT LOCATION AND DESCRIPTION

The project is located entirely on federally owned land managed by the Bureau of Land Management (BLM). The 2,670-acre project site is located approximately 7 miles southwest of the community of Baker in unincorporated San Bernardino County, California (Figures 1 and 2), approximately 50 miles northeast of Barstow and approximately 0.5 mile from the western boundary of the Mojave National Preserve. The project site is located in portions of Sections 1 and 11–14, Township 12 North, Range 7 East; Sections 25 and 36, Township 13 North, Range 7 East; Sections 6–8 and 18, Township 12 North, Range 8 East; and Sections 17–21 and 29– 32, Township 13 North, Range 8 East, San Bernardino Meridian, California.

The project would occupy approximately 2,670 acres in the alluvial valley dividing the northern and southern portions of the Soda Mountains in the Mojave Desert. The project is bounded to the east by the Mojave National Preserve and BLM lands, including the Rasor Off-Highway Vehicle (OHV) recreation area in the southeast corner. The former Arrowhead Trail Highway that was replaced by Interstate 15 (I-15) traverses the east side of the project site. The XpressWest project (formerly called the DesertXpress High Speed Passenger Rail Project) also has been permitted within this corridor.

I-15 runs along the western boundary of the project site, with Rasor Road Services Shell Oil gas station located off I-15 southwest of the project site, along the access road to the project site. Infrastructure surrounding the site includes the four-lane I-15, two high-voltage electric transmission lines, an electrical distribution line, wireless cellular telephone towers, two fiber-optic cables, and two fuel pipelines. Portions of the project site are located within a designated federal Section 368 Energy Corridor adjacent to I-15 (corridor number 27-225).

The project is located approximately 40 miles northeast of the associated water supply source (Figures 1 and 3). Water will be trucked to the project site from the water supply source. Additionally, the water supply source is located within an adjudicated basin Subarea that is managed by the Mojave Water Agency (MWA) (Figure 4). Because the project water supply source is located within an adjudicated Subarea, water use will be managed so as to conform to applicable MWA adjudication policy. See section 3.2 for a detailed summary of MWA adjudication policy.

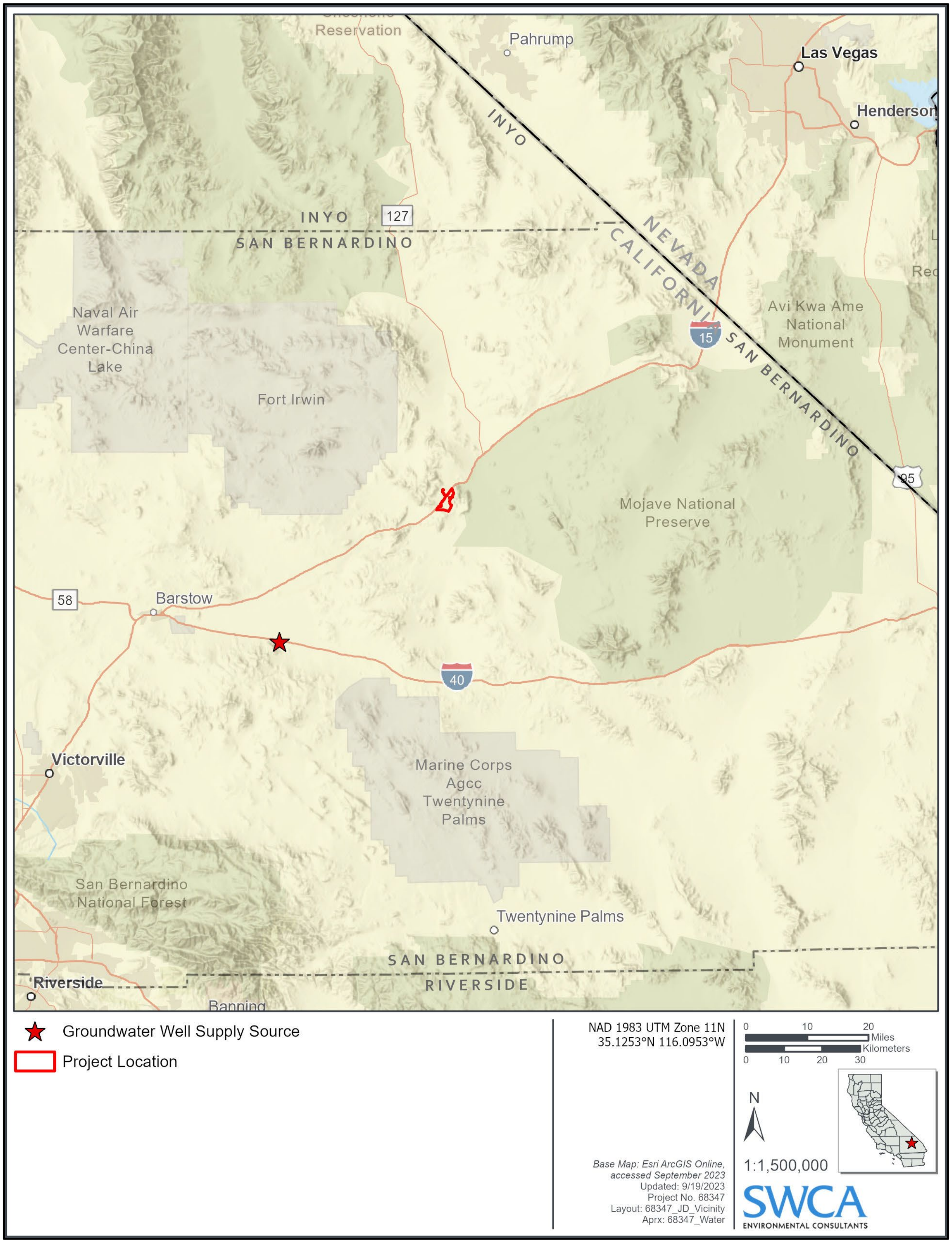

Figure 1. Project vicinity map.

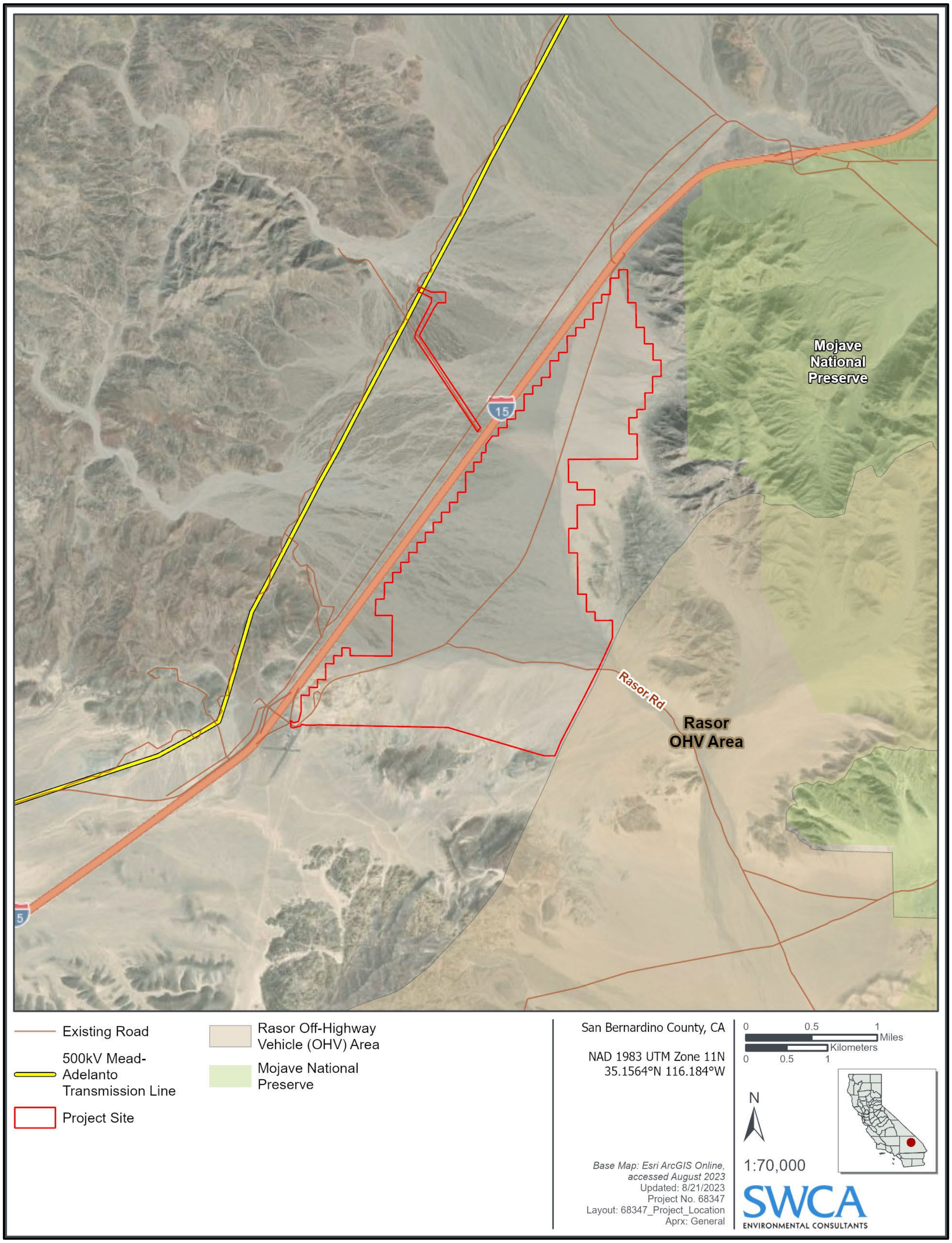

Figure 2. Project site.

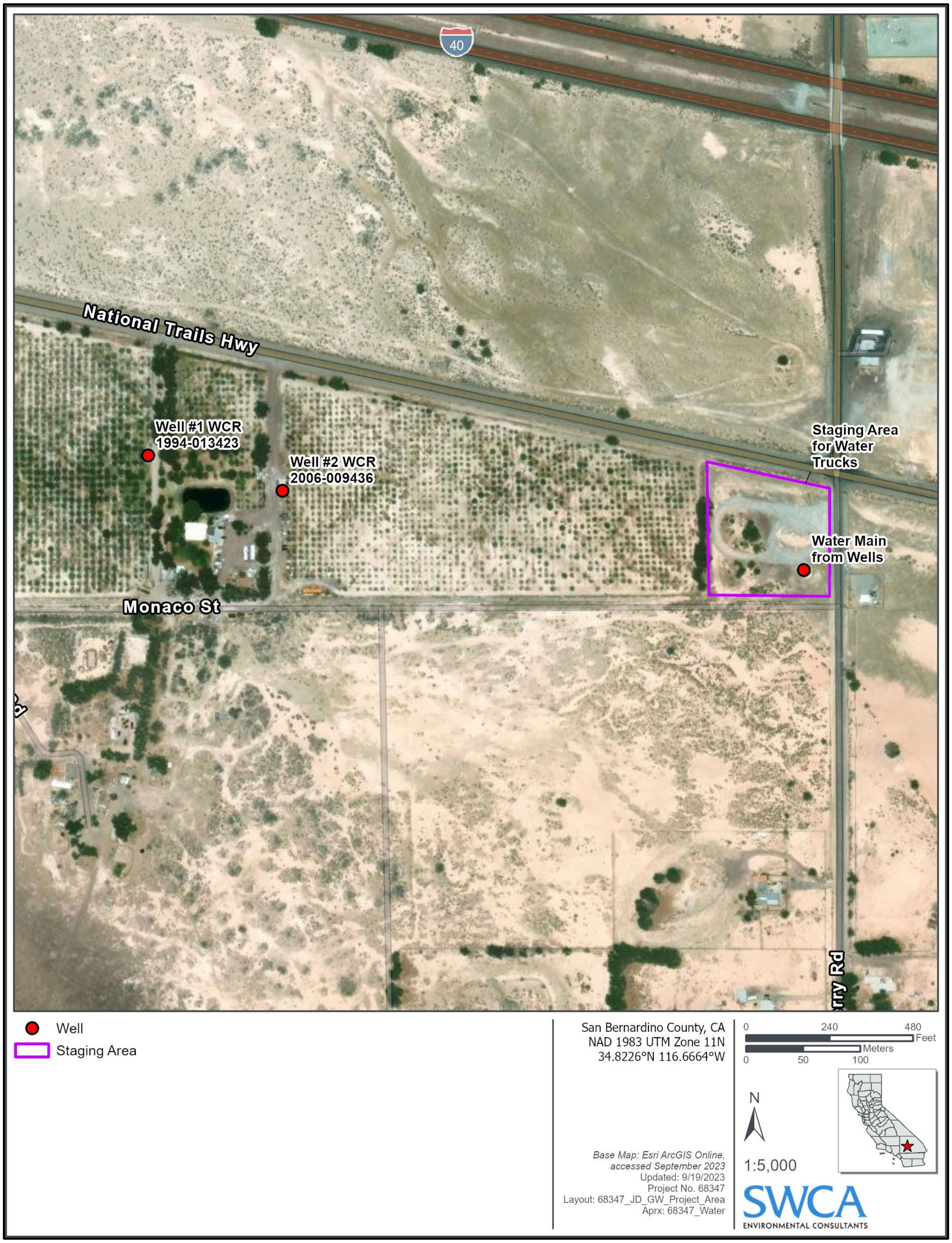

Figure 3. Project water supply source.

3 GROUNDWATER MANAGEMENT

The proposed project is located within the Baja Subarea, an administrative unit used by the Mojave Water Agency (MWA). The Lower Mojave River Valley Groundwater Basin underlies the Baja Subarea; however, the subarea also includes portions of other adjacent basins. The MWA reports annual production amounts in addition to contracting for hydrogeologic studies of this subarea. Available data from the Baja Subarea is frequently used for the analysis in this report because they represent the best available data for the project water supply source.

3.1 General

The MWA was created in 1960 in order to manage the water resources for approximately 4,900 square miles of eastern San Bernardino County, California (Figure 4). It is the prerogative of MWA to manage its jurisdictional water resources so as to ensure a sufficient water supply for present and future beneficial uses. As a result, MWA's primary purpose is to improve water service reliability within its service area boundary (MWA 2021a). The Lower Mojave River Valley Basin is the primary water supply source within the region. The historic increase in agriculture, simultaneous with urban growth, significantly increased water demand in the basin. The basin experienced overdraft as early as the 1950s, as evidenced by an extensive regional decline in groundwater levels. Early adjudication in the 1960s and subsequent formalization of basin adjudication in 1996 followed due to continued over-pumping of the basin. The final judgment of the adjudication mandated that MWA was appointed as the Mojave Basin Area Watermaster, which entails implementing the adjudication (MWA 2021a).

3.2 Adjudication Summary

The adjudication serves as the administrative context to equitably allocate the right to produce water from the available natural water supply, and to ensure the shared responsibility of equal cost distribution for purchasing supplemental water that is imported to the basin. The adjudication limits the amount of produced water in the basin so that, over time, groundwater levels will stabilize and water extracted from the basin will not exceed the water being added to the basin. Water production rights and obligations had not been defined in the basin until MWA initiated the adjudication and the court issued the judgment in January 1996. In order to implement the judgment and adjudication, MWA defined five management subareas: Alto, Baja, Centro, Este, and Oeste (plus the Alto Transition Zone sub-management unit) (Figure 4 and 5). The subarea boundaries have been generally defined based on hydrologic divisions that were established in previous studies, and they have evolved over time to account for a combination of hydrologic, geologic, engineering, and political considerations (MWA 2021a).

The judgement assigns the water rights for each major producer within the management subareas based on their historic production. These water right amounts are referred to as Base Annual Production (BAP). Due to historic overdraft, the intention of the BAP was to provide a mechanism for incrementally reducing the annual production, or pumping, within the basin subareas. As part of the mechanism for incrementally reducing annual production, each of the producers is assigned a Free Production Allowance (FPA). The FPA is a percentage of the BAP and varies based on factors such as climate trends, river flows, purpose of water use, specific location within the basin, and other variables. The FPA has been consistently reduced since the adjudication for most subareas, and it is reassessed annually in order for the continued reduction of production so that sustainable groundwater levels are attained within the subareas. Producers are limited to pumping a varying percentage of their BAP, and sometimes a small percentage, as a result. A Production Safe Yield (PSY) is reached once a subarea has attained a balance between water sources that add water to the groundwater and water extractions. For subareas that have attained a

PSY, the long-term trend for the FPA should stabilize as a flat line. The FPA is lowered for subareas that have not attained a PSY (MWA 2021a).

The FPA functions to effectively limit the net extraction of water for each producer. Producers may extract more water than is allowed by their FPA; however, they must replace all of the water that they extracted beyond their FPA limit. One of the responsibilities of the Watermaster is to provide a means to physically replace water if needed. If necessary, a producer can replace water that is pumped in excess of their FPA by paying the Watermaster to purchase imported water and then to spread that imported water onto the affected area, thereby allowing it to percolate through the ground to the groundwater basin or subarea. Alternatively, a producer can obtain unused FPA from another producer (MWA 2021a).

In general, the FPA total for a given subarea is reduced over time until it comes within 5% of the PSY (MWA 2021a). The Watermaster determines the PSY for each subarea. The PSY in each subarea represents the average net natural water supply plus the expected return flow from the previous years' water production under a representative land use condition (i.e., the water added to the sub-basin from all sources). The Watermaster will reduce annual FPA until the FPA comes within a range of 5% of the PSY. When the FPA and PSY match, the groundwater levels within the Subarea will be stable. The PSY for each Subarea was last updated in 2018, and was based on long-term hydrology, consumptive uses for 2017-2018 (updated), phreatophyte use, Subarea subsurface obligations and surface obligations. The PSY for the Baja Subarea is 12,189 AF (MWA 2023).

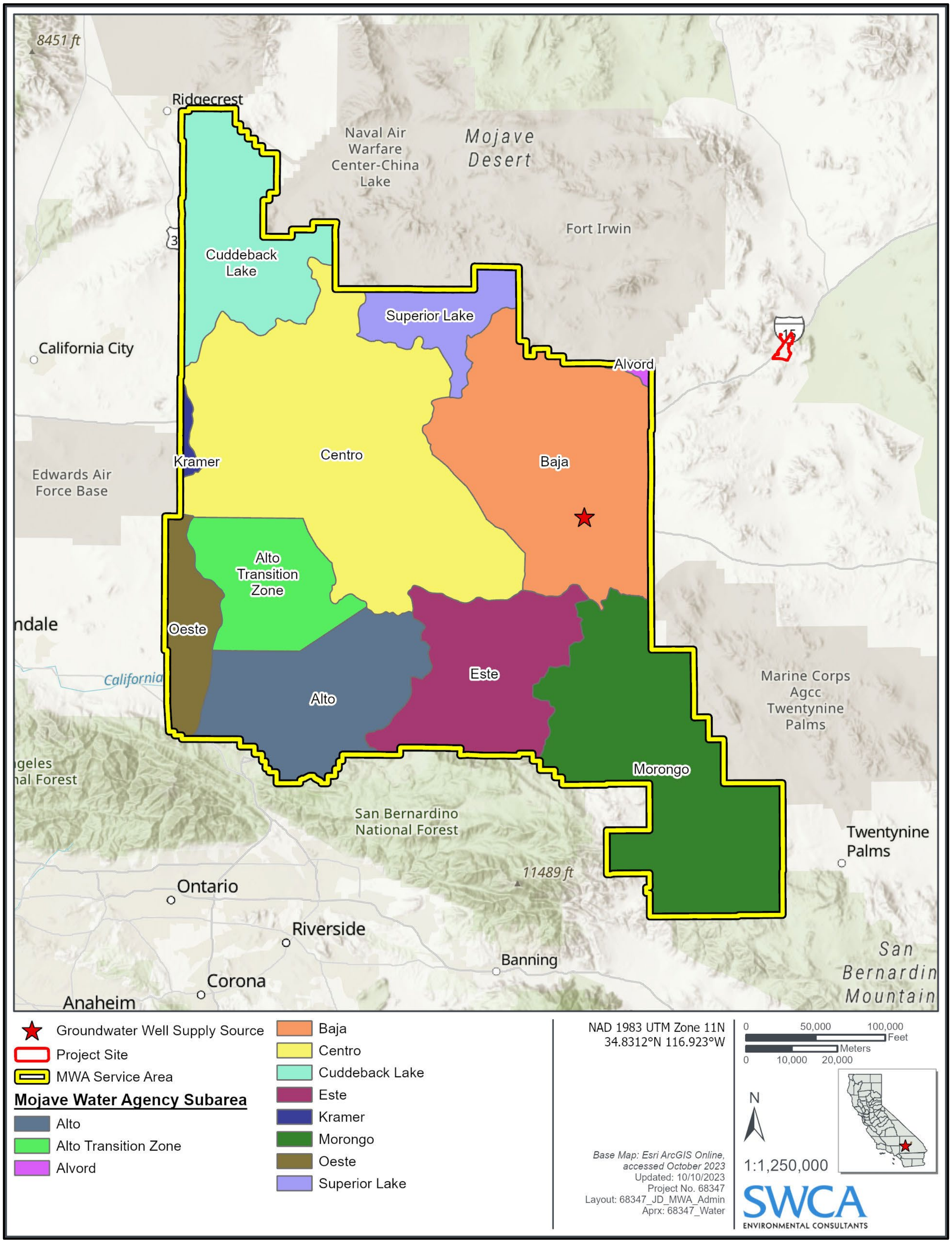

Figure 4. MWA service area, including subareas.

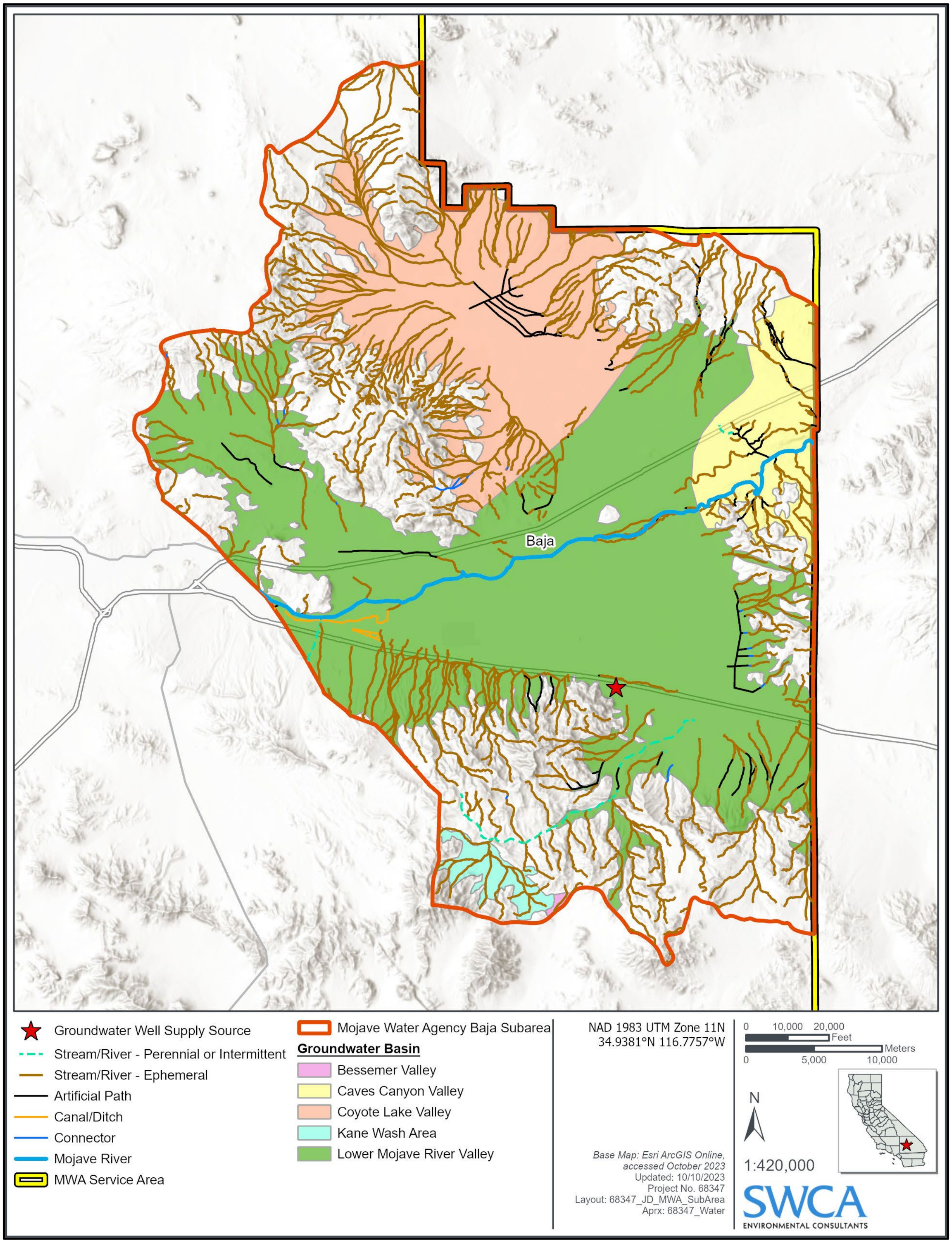

Figure 5. MWA Baja Subarea with surface and groundwater features.

3.3 Urban Water Management Plan

Public water systems are required by the CWC to prepare urban water management plans (UWMPs) to carry out "long-term resource planning responsibilities to ensure adequate water supplies to meet existing and future demands for water" (Water Code Section 10610.2). UWMPs are prepared using input from multiple water systems operating in a region, include an assessment of the reliability of water supply over a 20-year period, and account for known and projected water demands during that time, including during a normal water year, a single dry water year, and multiple dry water years (MWA 2021a).

The MWA has created a UWMP for 2020 that covers the entire MWA service area. The project water supply source lies within the Baja Subarea, an adjudicated water basin; therefore, groundwater within the basin is actively managed to achieve sustainability. As part of the UWMP, an analysis was performed to determine if MWA has adequate water supplies to meet demands during an average year, single dry year, and multiple dry years over the next 25 years.

3.4 Sustainable Groundwater Management Act

The Sustainable Groundwater Management Act of 2014 (SGMA) created a framework to promote the sustainable management of groundwater resources by local agencies. It creates requirements applicable to groundwater basins that have been designated as high- or medium-priority by DWR under California Water Code Section 10933. The SGMA addresses the depletion of groundwater resources by mandating the formation of groundwater sustainability agencies tasked with developing and implementing groundwater sustainability plans tailored to local basins. These plans outline strategies, such as recharge and demand management to achieve sustainability within 20 years, guided by set goals and criteria. The framework outlined by the SGMA does not apply to the proposed project because the proposed project is underlain by the Lower Mojave River Groundwater Basin (see Section 5), a subbasin designated low priority by the DWR (DWR 2014).

4 WATER SUPPLY ASSESSMENT APPLICABILITY

Preparation of a water supply assessment (WSA) is required for specified projects that a city or county determines are subject to the California Environmental Quality Act (CEQA). The list of specified projects includes a proposed industrial facility occupying more than 40 acres of land (CWC Section 10912(a)). Because the language of SB 610 is unclear on whether renewable energy projects fit within this definition, this WSA takes a conservative approach and assumes it does.

SB 610 amended CWC Sections 10910 and 10912 to create a direct relationship between water supply and land use. The CWC, as amended by SB 610, requires that a WSA address the following questions:

- Is there a public water system that will service the project?
  - A public water system will not service the project site.
- Is there a current UWMP that accounts for the project demand?
  - A UWMP does exist for the proposed project's water supply source; however, it does not provide data specific enough for the administrative unit (the Baja Subarea) within which this project's supply source is located. Therefore, the current UWMP does not account for the project demand.
- Is groundwater a component of the supplies for the project?
  - Groundwater is the sole component of water supply for this project.

The primary question to be answered in a WSA per the requirements of SB 610 is:

- Will the total projected water supply available during normal, single dry, and multiple dry water years during a 20-year projection meet the projected water demand of the proposed project, in addition to existing and planned future uses of the identified water supply, including agricultural and manufacturing uses?
    - o See Sections 9.

4.1 Public Water Systems, Local Water Agencies, and Service Areas

The project would source water from two private groundwater wells, located approximately 40 miles southwest of the project site in Newberry Springs, California (Figure 1). The water rights for these wells are owned by the well owner, Eagle Well Drilling and Pump Service (see Appendix B). Water will be trucked to the project site from the water supply source (Figure 3).

5 LOWER MOJAVE RIVER VALLEY GROUNDWATER BASIN

The Lower Mojave River Valley Groundwater Basin underlies an extended east-west valley, with the Mojave River flowing intermittently through the valley. The river flows from the west across the Harper Lake (Waterman) fault and exits the valley to the east through Afton Canyon. The northern boundary of the basin is formed from contact between unconsolidated Quaternary sediments and consolidated Tertiary, as well as older geology from the Waterman and Calico Mountains. The southern boundary is formed by the contact between unconsolidated sediments and consolidated geology that comprises Dagget Ridge, the Newberry Mountains, and the Rodman Mountains. The western boundary of the basin is formed by the Camp Rock-Harper Lake fault zone, and the southeastern boundary is formed by the Pisgah fault. The northeastern boundary of the basin is created by an arbitrary divide between the adjacent Caves Canyon Valley Basin and the Coyote Lake Valley Basin (DWR 2004).

Estimates vary for total groundwater storage for the Lower Mojave River Valley Groundwater Basin and its associated administrative boundaries. The DWR utilizes estimates for the Baja Subarea, an administrative unit managed by the MWA, which includes the Mojave River Valley Groundwater Basin. According to DWR Bulletin 6-40, the MWA calculated a total effective storage capacity of the Baja Subarea by using an economic pumping depth of 100 feet, in order to limit the depth of the basin, to be about 1,544,000 acre-feet (AF). The total storage capacity of the Lower Mojave River Valley Groundwater Basin was obtained by using an overlying area of approximately 286,000 acres, an average thickness of approximately 300 feet, and a specific yield of 10.5%; this equaled approximately 9,010,000 AF of total storage capacity for the basin (MWA 1999a, DWR 2004). Other estimates place the groundwater storage in the Baja Subarea at 6,816,000 AF. This number includes estimates for the amount of stored groundwater that could potentially be pumped with wells and equates to 20,717 AF of water per 1-foot depth of basin (Todd Engineers 2013).

Groundwater recharge for the MWA service area is generally supplied by natural stormwater flows, infiltration from the Mojave River and its tributaries, State Water Project (SWP) imports to purposefully recharge basins, wastewater imports, and irrigation and wastewater return flow (MWA 2021a). The Lower Mojave River Valley Groundwater Basin is located downstream of the Centro Subarea and also receives subsurface flows from the Centro Subarea via the Harper Lake (Waterman) fault (Tetra Tech 2018). As noted above, the Baja Subarea is an administrative unit used by the MWA. The Lower Mojave

River Valley Groundwater Basin underlies the Baja Subarea; however, the subarea also includes portions of other adjacent basins. The MWA reports annual production amounts in addition to contracting for hydrogeologic studies of this subarea. Data from the Baja Subarea are utilized for analysis in this report because they represent the best available data for the project water supply source.

6 WATER QUALITY

There have been many studies, dating as early as the first decade of the twentieth century, that have been developed by differing agencies in order to characterize the groundwater quality in the MWA service area. The most current of these studies was the Mojave Salt and Nutrient Management Plan (SNMP), which was completed in 2015. Although there is evidence of groundwater quality degradation, the studies have typically confirmed that the groundwater quality is sufficient for beneficial uses within the region. In particular, these studies, and associated investigations, have examined the source and occurrence of naturally occurring, key groundwater contaminants, including hexavalent chromium and arsenic, in the region (MWA 2021a).

Key groundwater constituents that are of particular concern within the MWA service area include nitrates, iron, arsenic, manganese, hexavalent chromium (Cr-VI), fluoride, and total dissolved solids (TDS). Some of these constituents are caused by anthropogenic activities in the region, while others are naturally occurring in desert environments (MWA 2021a). Some of these constituents have been measured to exceed safe drinking water standards within the Mojave River Basin and the Morongo Basin.

The MWA SNMP evaluated potential groundwater quality issues resulting from salts and nutrients and whether the beneficial uses within the basin would be decreased if these Temporary Dissolved Solids(TDS) and Maximum Contaminant Loads (MCLs) were found to be in excess. Nitrate and TDS levels were analyzed as respective indicators of nutrient and salt constituents (MWA 2021a). Nitrate is a contaminant that is extensively found in California groundwater. High nitrate levels in drinking water can cause a condition called methemoglobinemia. TDS, as expressed as an indicator of salinity, can cause infrastructure damage, including the decreased lifespan of pipes and water-based appliances in homes and businesses (MWA 2021a). Concentrations of TDS have been found to generally increase in downgradient portions of the Mojave River Basin, and along flow paths of groundwater, away from the Mojave River, which is the primary recharge source within the basin. Elevated TDS concentrations (greater than 1,000 mg/L) are generally associated with natural processes including mineralization and evaporation beneath dry lake beds. Mean TDS concentrations have been found to be very low in the upgradient portions of the Mojave River Basin (less than 300 mg/L), and they increase adjacent to the pathways alongside and away from the Mojave River due to natural processes such as mineralization, as well as impacts from anthropogenic loading (MWA 2021a).

According to the SNPM analysis of subregions for constituents of concern, the Baja – Floodplain and the Baja – Regional display average existing TDS concentrations of 401 and 617 mg/L, respectively, and average existing concentrations of nitrate (NO_3^-) of 3.9 and 1.4 mg/L, respectively. Nitrate levels at these two locations are very low (less than 5 mg/L), while TDS concentrations vary. Baja – Floodplain TDS concentrations are below the recommended secondary MCL of 500 mg/L; however, Baja – Regional TDS concentrations are above the 500-mg/L recommended secondary MCL for TDS. MCLs consist of primary and secondary MCLs. Primary MCLs are associated with a health-based risk of water consumption due to exceedance of a particular concentration level, while secondary MCLs are associated with no health risk (MWA 2021a). Secondary MCLs are less critical and are associated primarily with aesthetic concerns, including taste and odor.

Additional emerging water quality constituents of concern include perfluoroalkyl and polyfluoroalkyl substances (PFAS) and perfluorooctanoic acid (PFOA). These chemical constituents have been associated primarily with domestic industrial items, including Teflon pans, fast food packaging, and stain-resistant carpets. MWA have been addressing these emerging constituents via regionwide management of groundwater resources and the imported supplies that augment local sources. Statewide regulatory actions are also meant to regulate these emerging sources of constituent concern (MWA 2021a).

6.1 Climate

The MWA area has a warm, dry desert climate, with extremely hot, dry summers and temperate winters. It receives little rainfall. The climatic records for Barstow Daggett AP, California, in San Bernardino County, California (Cooperative Observer Program [COOP] Station No. 042257), indicate that the project site has an average annual maximum temperature of 81.6 degrees Fahrenheit (°F) and an annual minimum temperature of 53.4°F. The average annual rainfall at the project site is 3.83 inches, most of which occurs between December and February, whereas the average annual total snowfall, which largely occurs during December and January, is 0.8 inch (Western Regional Climate Center 2023).

6.2 Local Groundwater and Land Use

The project's water supply source is located south of the Mojave River in an area that includes farmland and scattered rural residential development. The existing land uses are primarily agricultural and open space. The highest consumptive uses that are listed for the 2017–2018 Baja Subarea indicate that agricultural and urban land uses require the most water (MWA 2023). Residential, commercial, and industrial land uses are primarily concentrated around the main urban areas including Daggett, Newberry Springs, and portions of Barstow.

MWA has monitored groundwater levels at a well (state well number: 09N03E34D007S) near the project's water supply source in Newberry Springs, California, since 2010. Although groundwater levels have remained mostly constant over the last 13 years, the trend does depict a noticeable decline in water levels beginning around 2013. In 2010, groundwater elevation levels were approximately 1,718 feet; in 2013, they were at 1,716 feet; by 2017, groundwater levels had dropped about 11 feet and were at 1,705 feet. They have increased since 2017, and in 2020, they were at 1,711 feet (DWR 2020).

7 GROUNDWATER SOURCES OF WATER

The subsections below describe the various sources of groundwater recharge for the basin, as well as associated recharge rate estimates. Unless otherwise noted, the analytical approach for these recharge values are found in Section 9.1 of this WSA.

7.1 Recharge from the Mojave River

The Mojave River is the principal source of recharge for the basin. It runs along an east-west axis, entering the basin at Harper Lake (Waterman) Fault and exiting the basin in the east. It has provided a 40-year average recharge rate of 5,806.6 acre-feet per year (AFY) (USGS 2023).

7.2 Imported Water (SWP Enhanced Recharge)

Imported water is sourced from the SWP and is sold to producers in order to make up for water that is pumped in excess of a producer's FPA. From 2010 through 2022, the historic annual average has equaled approximately 572 AFY recharge in aggregate from producers who have used SWP water to make up for pumping that has exceeded their FPA (Todd Engineers 2013) (see section 9.1.4 for more information).

7.3 Subsurface Inflow

Subsurface inflows come from the Harper Lake (Waterman) fault and flow into the basin, which is downstream of the Centro Subarea. Subsurface inflows average approximately 1,462 AFY (Todd Engineers 2013).

7.4 Mountain Front Recharge

Mountain front recharge estimates for this report were sourced from *Conceptual Hydrogeologic Model and Assessment of Water Supply and Demand for the Centro and Baja Management Subareas Mojave River Groundwater Basin* (Todd Engineers 2013). Mountain front recharge estimates represent 0.49% of average annual rainfall on contributing watershed areas outside the Mojave River Basin model boundary. Historic averages are equal to 980 AFY (Todd Engineers 2013).

7.5 Return Flow (Recirculated Production)

The return flow from pumping is the amount of water that returns to the groundwater basin after consumptive use. For instance, return flow for water that is pumped and used for agricultural purposes is the water that percolates back into the basin that is not lost to plant use or evapotranspiration. The 5-year, historic return flow for the Baja Subarea is 2,856 AFY. It is based on a 12.6% average return flow for the Baja Subarea, sourced from the 2015 urban water management plan (UWMP) (MWA 2021a).

7.6 Existing Groundwater Demand/Outflow

7.6.1 *Evapotranspiration*

Evapotranspiration is the water use from native plants that is absorbed by the plant roots, used by the plant, and then evaporates from the plant into the air. The historic average outflow from evapotranspiration is equal to 2,000 AFY (Todd Engineers 2013).

7.6.2 *Total Pumping (Production)*

Water that is pumped by producers from groundwater wells is known as pumped water. Pumped water is also referred to as produced water. Pumped water is the largest source of water outflow and has historically averaged 22,665 AFY (See Table 3). This amount has been significantly decreasing due, in large part, to the adjudication. The actual pumped amount in 2022 was 10,521 AFY (MWA 2023).

7.6.3 *Project Demand*

The proposed project would require 336 AF of water to support construction over an 18-month period (Table 1). Thereafter, the project would require up to 5.6 AFY to support operation and maintenance activities. See Tables 1 and 2 in Sections 8 and 9 for more detailed information regarding project water demand (see Appendix B Long-Term Water Supply Service Agreement for the Soda Mountain Solar Project for the demand estimates source).

8 PROJECT WATER DEMAND

The proposed project would require 336 AF (109,486,080 gallons) of water to support construction over an 18-month period (Table 1). Thereafter, the project would require up to 5.6 AFY (1,824,768 gallons) to support operation and maintenance activities. The total project lifespan would be 35 years. The water demand for each phase of the proposed project is described in detail in Section 8.1, Construction Water Demand, and Section 8.2, Operation and Maintenance Water Demand. Table 1 provides a summary estimate of project water demand. See Appendix B Long-Term Water Supply Service Agreement for the Soda Mountain Solar Project for the source of the project demand estimates. These estimates are conservative; the actual project water demand may be less.

Table 1. Summary of Project Water Demand

Project Phase	Water Demand (gallons)	Water Demand (AF)	Daily average (gallons)	Daily Maximum (gallons)*
		Construction (18 months)		
Dust control	94,984,648	291.5	173,488	173,488
Initial system demand	9,497,917	29.2	17,348	17,348
Personnel	5,003,515	15.4	9,139	9,139
Total	***109,486,080***	***336***	***199,975***	***199,975***
		Operation (annually)		
System washwater	912,384	2.8	2,450	21,723
Process water	91,238.4	0.28	250	250
Facilities (potable and non-potable)	456,192	1.4	1,250	1,250
Irrigation	182,459	0.56	450	450
Fire suppression	182,459	0.56	450	450
Total	***1,824,732***	***5.6***	***4,850***	***24,123***

* The daily maximum water usage for construction and operational activities is equivalent to the daily average water usage. However, system washing will occur biannually, lasting for a duration of three weeks per washing cycle. The maximum water demand for system washing was calculated by dividing the annual operational water usage by six weeks, or 42 days.

8.1 Construction Water Demand

Project construction will use water sourced from two privately owned wells approximately 40 miles southwest of the project site. During the 18-month construction period, it is estimated that the project would require up to 336 AF (109,486,080 gallons) of water. This water would be used for common construction-related activities, including dust control, sanitation, initial system demand, and other miscellaneous purposes. During construction, the project would have an average daily water demand of 199,975 gallons, which is roughly equivalent to the peak daily water usage during the construction phase (see Table 1).

8.2 Operation and Maintenance Water Demand

Water used for project operation and maintenance would be sourced from two privately owned wells approximately 40 miles southwest of the project site. During the 33.5-year operating period, it is estimated that the project would require up to 5.6 AFY (1,824,768 gallons per year). Operational water use will primarily involve the periodic washing of photovoltaic modules, which is anticipated to occur twice annually over a three-week period. This process aims to remove dust and maintain power generation efficiency, with no additives or detergents required. Washing would be done using a truckmounted pressure washer (i.e., system washwater). System washing would require approximately 2.8 AF (912,384 gallons) of water per year. During the operational phase, the project would have a maximum average daily water demand of 4,850 gallons and a maximum daily water demand of 24,123 gallons, which would occur during periods of system washing (see Table 1).

8.2.1 *On-site Facilities Water*

The solar collector would require an estimated 0.28 AF (91,238.4 gallons) of water per year.
Other potable and nonpotable facility uses would require an estimated 1.4 AF (456,192 gallons) of water per year.

8.2.2 *Landscape Irrigation and Fire Suppression*

Limited landscape irrigation would be required at an estimated 0.56 AF (182,458.55 gallons) of water per year. Fire suppression is estimated at 0.56 AF (182,458.55 gallons) of water per year.

9 WATER AVAILABILITY DURING A NORMAL (AVERAGE) YEAR, A SINGLE DRY YEAR, AND MULTIPLE DRY YEARS

This section assesses project and non-project water needs over a 20-year future projection to determine whether there are sufficient supplies to serve the project over the next 20 years. The assessment considers average-year ("normal" year), single dry year, and multiple dry year (drought) conditions. A multiple dry year scenario is assumed to be 3 consecutive years for the purpose of this analysis.

Project water demand for a projected 35-year total project lifespan is summarized in Table 2. Project water demand would be greatest during the 18-month construction period. Total project water use would be approximately 523.6 AF for the 35-year period following the initiation of construction. Table 2 includes the total water use per year and the total between years, as water use accrues. It includes both construction and operational water demand.

Table 2. 35-year Project Water Use Projections (AF)

	Project Water Use Projection (AF)											
Year	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	
Water use	224.0	114.8	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	
5-year average	–	–	–	–	71.12	–	–	–	–	5.6	–	
Total	**224.0**	**338.8**	**344.4**	**350.0**	**355.6**	**361.2**	**366.8**	**372.4**	**378.0**	**383.6**	**389.2**	
Year	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**
Water use	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6
5-year average	–		–	5.6	–	–	–	–	5.6	–	–	–
Total	**394.8**	**400.4**	**406.0**	**411.6**	**417.2**	**422.8**	**428.4**	**434.0**	**439.6**	**445.2**	**450.8**	**456.4**
Year	**24**	**25**	**26**	**27**	**28**	**29**	**30**	**31**	**32**	**33**	**34**	**35**
Water use	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6
5-year average	–	5.6	-	-	–	–	5.6	–	-	–	–	5.6
Total	**462.0**	**467.6**	**473.2**	**478.8**	**484.4**	**490.0**	**495.6**	**501.2**	**506.8**	**512.4**	**518**	**523.6**

9.1 Analytical Approach

The groundwater budget for the Baja Subarea represents a complicated topic, with anthropogenic sources such as pumping return flow and natural sources such as groundwater recharge and mountain front recharge playing key roles in annual and long-term groundwater supply for the basin (Todd Engineers 2013). Moreover, the Baja Subarea has a long history of overdraft that led to the adjudication of the basin in 1996 (MWA 2023). As a result, groundwater pumping has steadily decreased over time due to regulatory ramp-downs from the MWA. In 1996, the adjudication established a decreasing FPA to producers within the basin, which is subject to reevaluation every 5 years (MWA 2023). In the event that producers exceed their share of the FPA, they are required to provide replacement water, which can be purchased directly from the MWA-appointed Watermaster. As a result of these regulations, annual pumping has steadily decreased from 40,706 AFY in 1998 (MWA 1999b) to 10,521 AFY in 2022 (MWA 2023). Although the basin remains in overdraft, additional ramp-downs to the FPA will continue until depleting groundwater trends within the basin are no longer observed (MWA 2023).

Although additional ramp-downs to annual pumping limits are expected, uncertainty remains regarding the timeline of these regulatory efforts. Moreover, groundwater recharge from the Mojave River represents the largest source of groundwater recharge to the basin; however, multiple years often pass between major recharge events that result in a surplus (Figure 6). For this reason, this report uses a 40-year (1982–2022) average Mojave River recharge rate and assumes a negative linear relationship between pumping and years 2004 through 2022 to extrapolate future pumping values for the years 2023 through 2033. Projected future pumping values are assumed to remain constant after 2033 due a positive groundwater balance in the Baja Subarea. A positive groundwater balance is extrapolated from historic pumping trends that have steadily decreased as a result of MWA adjudication policy. For this approach, the components of the groundwater budget that would be influenced by climatic conditions are river recharge and mountain front recharge. The historical water budget for the Baja Subarea is provided in Table 3, and the projected water budget is provided in Table 4.

9.1.1 *River Recharge*

River recharge represents the major source of inflow to the Baja Subarea. To calculate the 40-year average recharge from the Mojave River, U.S. Geological Survey (USGS) surface-water annual statistics were retrieved from the Mojave River at Barstow (USGS 10262500) and the Mojave River at Afton (USGS 10263000), representing upstream and downstream flows, respectively (USGS 2023). For this analysis, it was assumed that groundwater recharge by the Mojave River is the difference between the upstream and downstream flows at the USGS gaging stations.

The Afton gage represents an area of groundwater discharge from the basin caused by the underlying geology. During most years, the discharge at the Afton gage is marginally greater than the recharge at Barstow; this results in slightly negative recharge balances that are only offset during surplus recharge events. Above-average recharge events in ephemeral streams are integral to the long-term recharge of the basin; however, these events often cannot be captured over short time scales (Todd Engineers 2013). For example, in 1998, the groundwater recharge from the Mojave River was approximately 9,209 AF. The groundwater recharge remained in deficit for the following 6 years (1999–2004), until 2005, when the recharge from the river was approximately 81,519 AF (USGS 2023). For the purpose of this report, the 40-year average encompasses multiple less-frequent recharge events that were scattered throughout that time period (see Figure 6). Notably, between 1993 and 2022, the groundwater recharge from the Mojave River was near-zero or slightly negative (see Figure 6). However, sporadic surplus recharge events such as those in 1993, 1995, 1998, 2005, and 2011 represent key recharge events that all coincide with decreases in the average depth to groundwater, which was observed at monitoring wells located near Barstow and Afton (Figure 7) (DWR 2020). The 40-year average between 1982 and 2022 is 5,806.6 AFY (Tables 3–5) (USGS 2023).

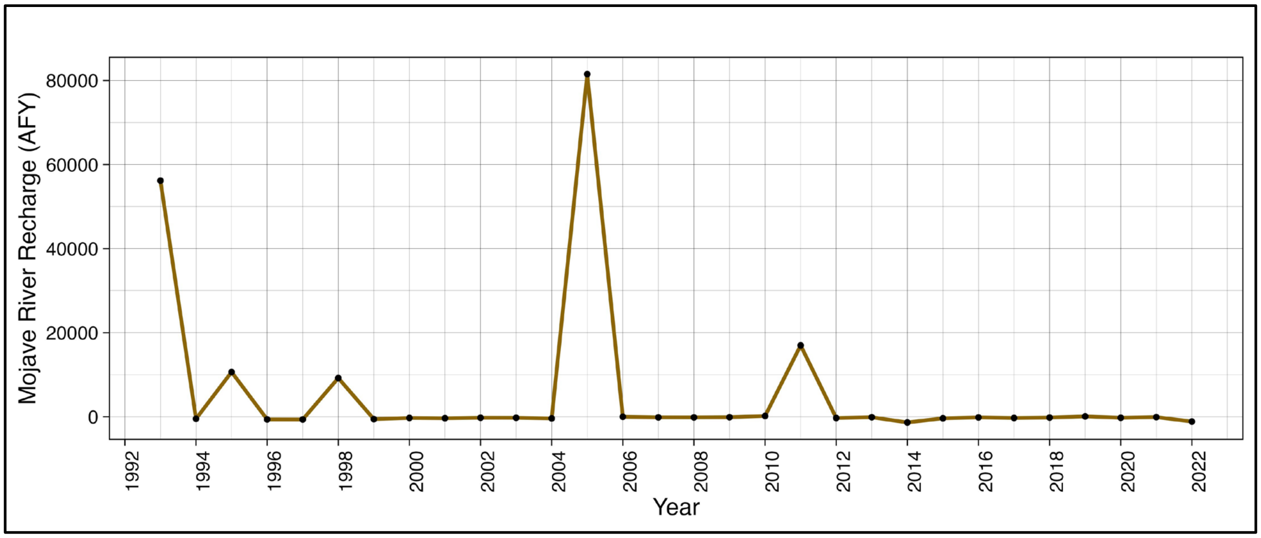

Figure 6. Mojave River Recharge to the Baja Subarea based on the difference between inflow at Barstow and outflow at Afton.

Note: USGS surface-water annual statistics were retrieved from the Mojave River at Barstow (USGS 10262500) and the Mojave River at Afton (USGS 10263000), representing upstream and downstream flow, respectively.

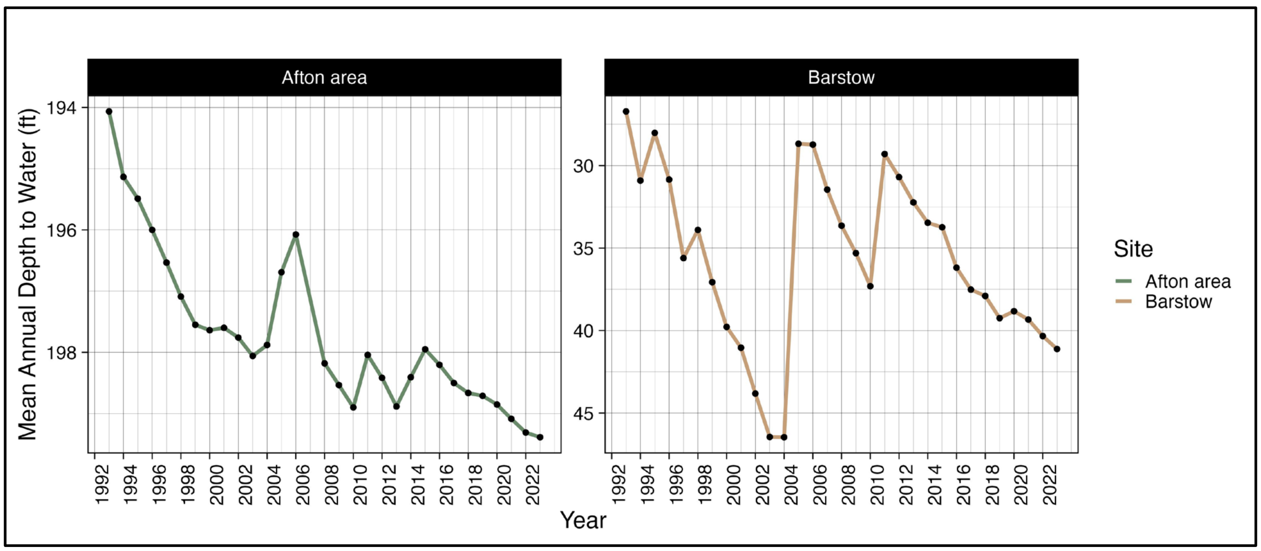

Figure 7. Average annual depth to groundwater at a monitoring well located near the Afton gage (site code: 350417N1164462W001) and the Barstow monitoring well (site code: 348975N1169943W003)

Source: DWR (2020).

9.1.2 *Projections for Future Pumping*

Projections for future annual pumping were extrapolated from the negative linear relationship between historical pumping and years 2004 through 2022 ($y = -876.63x + 1789639.15$). Water budget estimations are provided in Table 4.

Table 3. Historical Water Budget for the Baja Subarea (2010–2022) in AF

Water Outflow	Historical Water Budget (AF)													
	Historical Average	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**
Evapotranspiration‡	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000
Total pumping (production) §	22,665	21,324	24,112	28,896	28,121	27,579	27,177	28,227	23,691	22,296	21,162	18,677	12,867	10,521
Project demand	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Production safe yield §		*20,679*	*20,679*	*20,679*	*20,679*	*20,679*	*20,679*	*20,679*	*20,679*	*20,679*	*12,189*	*12,189*	*12,189*	*12,189*
FPA §		*43,863*	*42,261*	*40,650*	*39,079*	*37,461*	*34,232*	*31,080*	*27,860*	*24,682*	*21,474*	*18,270*	*16,697*	*12,213*
Total Outflow	**24,665.38**	**23,324**	**26,112**	**30,896**	**30,121**	**29,579**	**29,177**	**30,227**	**25,691**	**24,296**	**23,162**	**20,677**	**14,867**	**12,521**
Water Inflow Source	**Historical Water Budget (AF)**													
	Historical Average	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**
River recharge*	5,806.6	-179.5†	-6,406.4	72.4	23,266.8	-1,404.5	-366.3	-117.3	-292.5	-196.9	-86.2	-244.7	79.6	-1,143.9
SWP enhanced recharge ‡	572.15	311.0	727.0	1,938.0	500.0	0.0	0.0	25.0	1,276.0	86.0	1,962.0	611.0	1.0	1.0
Subsurface inflow from Centro Subarea ‡	1,462.0	1,462.0	1,462.0	1,462.0	1,462.0	1,462.0	1,462.0	1,462.0	1,462.0	1,462.0	1,462.0	1,462.0	1,462.0	1,462.0
Mountain front recharge ‡	980	980.0	980.0	980.0	980.0	980.0	980.0	980.0	980.0	980.0	980.0	980.0	980.0	980.0
Return flow (recirculated production) ¶	2,855.84	2,687	3,038	3,641	3,543	3,475	3,424	3,557	2,985	2,809	2,666	2,353	1,621	1,326
Total inflow	**11,676.58**	**5,260.3**	**-199.3**	**8,093.3**	**29,752.1**	**4,512.5**	**5,500.0**	**5,906.3**	**6,410.6**	**5,140.4**	**6,984.3**	**5,161.6**	**4,143.9**	**2,624.8**
Final Balance (AFY)	**-12,989**	**-18,064**	**-26,311**	**-22,803**	**-369**	**-25,067**	**-23,677**	**-24,321**	**-19,280**	**-19,156**	**-16,178**	**-15,515**	**-10,723**	**-9,896**

* Average value represents the 40-year average recharge rate from the Mojave River (USGS 2023).

† The Afton gage represents an area of groundwater discharge from the basin caused by the underlying geology. Negative recharge values result from years where discharge at Afton was greater than recharge at Barstow.

Sources: ‡ Todd Engineers 2013, § MWA 2023, ¶ MWA 2021a.

Table 4. Future Water Budget for the Baja Subarea in AF

Water Outflow	Future Water Budget (AF)											
	Future Average	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033 -2045**
Evapotranspiration ‡	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000
Total pumping (production)*	9,547.0	16,217.2	15,340.4	14,463.8	13,587.1	12,710.5	11,833.9	10,957.2	10,080.6	9,204.0	8,327.3	7,450.7
Project demand	19.35652	0	0	224	114.8	5.6	5.6	5.6	5.6	5.6	5.6	5.6
Total Outflow	**11,566.4**	**18,217.0**	**17,340.4**	**16,687.8**	**15,701.9**	**14,716.1**	**13,839.5**	**12,962.8**	**12,086.2**	**11,209.6**	**10,333.0**	**9,456.3**
Water Inflow Source	**Future Water Budget (AF)**											
	Future Average	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**
River recharge†	5,806.6	5,806.6	5,806.6	5,806.6	5,806.6	5,806.6	5,806.6	5,806.6	5,806.6	5,806.6	5,806.6	5,806.6
SWP enhanced recharge ‡	572	572	572	572	572	572	572	572	572	572	572	572
Subsurface inflow from Centro Subarea ‡	1,462	1,462	1,462	1,462	1,462	1,462	1,462	1,462	1,462	1,462	1,462	1,462
Mountain front recharge ‡	980	980	980	980	980	980	980	980	980	980	980	980
Return flow (recirculated production) §	1,203	2,043	1,933	1,822	1,712	1,602	1,491	1,381	1,270	1,160	1,049	939
Total inflow	10,023.5	10,863.9	10,753.5	10,643.0	10,532.6	10,422.1	10,311.7	10,201.2	10,090.7	9,980.3	9,869.8	10,863.9
Final Balance (AFY)	-1,543	-7,353	-6,587	-6,045	-5,169	-4,294	-3,528	-2,762	-1,995	-1,229	-463	303

* Pumping values are from the Mojave Basin Area Watermaster Annual Reports (MWA 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021b, 2022, 2023).

† Value represents the 40-year average recharge rate from the Mojave River (USGS 2023).

Sources: ‡ Todd Engineers 2013, § MWA 2021a.

9.1.3 *Return Flow (Recirculated Pumping)*

Return flow represents a percentage of produced water that is returned to the basin. For this analysis, return flow was estimated to be approximately 12.6% of annual pumping based on estimates from the 2015 UWMP (MWA 2021a). Across the region, return flow averaged 34%; however, for the Baja Subarea, agricultural and urban return flow were estimated to be 14.0% and 11.2%, respectively (12.6% average) (MWA 2021a).

9.1.4 *Future Inflow and Outflow Constants*

For the purpose of this analysis, the average SWP enhanced recharge for 2010 through 2022 was calculated and held constant at 572 AF for all calculations and budget projections related to basin inflow. Additionally, evapotranspiration was estimated to be approximately 2,000 AFY (Todd Engineers 2013) and was held constant for all calculations and budget projections related to basin outflow.

9.1.5 *Normal (Average) Year*

Rainfall data for 1982 through 2022 were analyzed to determine single dry year and multiple dry year precipitation based on modeled data for the Newberry Springs wells (PRISM Climate Group 2023). The average annual precipitation for the entire period of record (1985–2022) was 2.95 inches. For the purposes of this analysis, this amount of recharge is assumed to derive from the normal year conditions of 2.95 inches.

The historical 40-year average inflow for the Baja Subarea is approximately 11,677 AFY, whereas the historical outflow is 24,665 AFY. For this analysis, normal year estimates were based on the Mojave River's long-term average recharge rate (40-year average) of 5,806.6 AFY and the historical average for pumping of 22,665 AFY (Table 5.).

Table 5. Normal (Average) Year Groundwater Budget for the Baja Subarea Based on Historical Conditions (AF)

Water Outflow	Average Year Groundwater Budget (AF)
Evapotranspiration †	2,000
Total pumping (production) ‡	22,665.4
Project demand	0
Total Outflow	**24,665.4**
Water Inflow Source	**Average Year Ground Water Budget (AF)**
River recharge †	5,806.6
SWP enhanced recharge †	572.2
Subsurface inflow from Centro Subarea †	1,462
Mountain front recharge †	980
Return flow (recirculated production) §	2,855.8
Total inflow	**11,676.6**
Final Balance (AFY)	**-12,989**

* Value represents the 40-year average recharge rate from the Mojave River (USGS 2023).

Sources: † Todd Engineers 2013, ‡ MWA 2023, § MWA 2021a

9.2 Single Dry Year with Project Demand

A probability-based estimate is used to determine water availability during a single dry year. Single dry year rainfall is estimated as a year with a 10% probability of occurrence, meaning that 10% of the years would be drier (DWR 2003). The predicted rainfall for a single dry year is 0.49 inch, or 16.6% of normal year rainfall at Newberry Springs wells.

The single dry year conditions were applied to the historical mountain front recharge and groundwater recharge from the Mojave River to develop future projections (Table 6.). The components of the groundwater budget that would be influenced by climatic conditions are river recharge and mountain front recharge. There would be a deficit of -8,425 AF; however, the deficit under drought conditions is notably less severe than under historical conditions (-19,871 AF) due to ramp-downs in annual pumping as a result of the adjudication policy.

Table 6. Single Dry Year Budgets for the Baja Subarea under Historical Conditions and Future Conditions

Water Outflow	Single Dry Year (Historical)	Single Dry Year
Evapotranspiration ‡	2,000	2,000
Total pumping (production) §	22,665.4	9,547
Project demand	0.0	19.4
Total Outflow	**24,665.4**	**11,566.4**
Water Inflow Source	**Single Dry Year (Historical)**	**Single Dry Year**
River recharge*	961.9	961.9
SWP enhanced recharge ‡	572.2	572.0
Subsurface inflow from Centro Subarea ‡	242.2	242.2
Mountain front recharge†, ‡	162.3	162.3
Return flow (recirculated production) ¶	2,855.8	1,202.9
Total Inflow	**4,794.4**	**3,141.4**
Final Balance (AFY)	**-19,871**	**-8,425**

* Value represents 16.6% of the 40-year average recharge for historical conditions and future conditions (USGS 2023).

† Value represents 16.6% of the average mountain front recharge.

Sources: ‡ Todd Engineers 2013, § MWA 2023, ¶ MWA 2021a.

9.3 Multiple Dry Year Scenarios with Project Demand

A multiple dry year scenario is estimated using historical precipitation analysis. Rainfall is estimated for the driest 3-year period on record (DWR 2003). The 2000 to 2003 water years are the driest 3-year period on record for which there are complete data. Between 2000 and 2003, precipitation at the Newberry Springs wells was modeled as follows:

- Year 1: 0.47 inch (2000–2001 water year)
- Year 2: 2.28 inches (2001–2002 water year)
- Year 3: 0.26 inch (2002–2003 water year)

The Year 1, Year 2, and Year 3 precipitation values represent 16.0%, 77.4%, and 8.8% of average annual rainfall, respectively. Over this period of multiple dry years, precipitation totaled 3.01 inches, compared with an estimated total of 8.85 inches during 3 consecutive normal year conditions; therefore, between 2000 and 2003, precipitation was 34.1% of the estimated normal year conditions.

Under an event of multiple dry years that mirrors years 2001 through 2003, the basin would be in overdraft (-20,946 AF). However, the overdraft resulting from multiple dry years is notably less severe than it could be under historical pumping conditions, reflecting the cumulative impact of decreasing pumping on the basin’s water balance over the long term.

Table 7. Multiple Dry Year Scenarios Based on the Precipitation Analysis from 2000 through 2003

Scenario	**Multiple Dry Years**			
Year	**2000**	**2001**	**2002**	**Total**
Water Outflow				
Evapotranspiration ‡	2,000.0	2,000.0	2,000.0	6,000.0
Total pumping (production) §	9,547.0	9,547.0	9,547.0	28,641.0
Project demand	19.4	19.4	19.4	58.1
Total Outflow	11,566.4	11,566.4	11,566.4	34,699.1
Water Inflow Source				
River recharge*	926.4192	4,494.118	512.4872	5,933.025
SWP enhanced recharge ‡	572	572	572	1,716
Subsurface inflow from Centro Subarea ‡	233.3	1,131.5	129	1,493.8
Mountain front recharge† ‡	156.4	758.5	86.6	1,001.3
Return flow (total pumping net recirculated) ¶	1,202.9	1,202.9	1,202.9	3,608.8
Total Inflow	**3,091.0**	**8,159.1**	**2,502.9**	**13,753.0**
Final Balance (AFY)	**-8,475.4**	**-3,407.3**	**-9,063.4**	**-20,946.1**

* Value represents 16.6% of the 40-year average recharge for historical conditions and future conditions (USGS 2023).

† Value represents 16.6% of the average mountain front recharge.

Sources: ‡ Todd Engineers 2013, § MWA 2023, ¶ MWA 2021a.

9.4 Basin Budget with Project Demand

The adjudication of the basin requires that water supply is managed until groundwater trends are no longer declining. The MWA also continues to decrease FPA until it is within 5% of the basin's estimated PSY. As a result, pumping has declined by 56% between 2017 and 2022 to within 5% of the estimated PSY of the Baja Subarea. Efforts to decrease producers' share of the basin's FPA will continue until the basin is in balance (e.g., supply is less than or equal to demand). The long-term 40-year recharge rate from the basin provides the most realistic net balance because it captures infrequent surplus river recharge events and their corresponding impacts to groundwater levels. It also accounts for continued ramp-downs on pumping until the basin's inflow is greater than the outflow (see Table 4). Under this scenario, the basin would be in balance in 2033.

10 CONCLUSION

This WSA assesses the project's construction and operation water demand. During the construction period of up to approximately 18 months, the project would use up to approximately 336 AF of water for construction activities. Operational water demand, which includes system washing and operation of the proposed on-site facilities, would total approximately 5.6 AFY, or 523.6 AF for the project lifespan.

The project is located within the Baja Subarea, where groundwater levels have continued to decline. Despite this, the 1996 adjudication of the basin requires that the MWA continue ramp-downs to the FPA until the basin is in balance and groundwater is no longer in decline. Significant progress has been made since the adjudication of the basin; for example, in 2010, pumping was 21,324 AF, whereas in 2022, it was 10,521 AF. Furthermore, in the event that a producer exceeds its share of the FPA, the producer can purchase SWP replacement water directly from the Watermaster.

Water demand for the proposed project would fit within the existing framework across the basin. The project demand would not increase, nor likely decrease, the amount of pumping from the subbasin because the maximum amount of pumping across the MWA is capped and controlled under the Adjudication.

It is assumed that the supplier will act in accordance with the Stipulated Judgment and fulfill contractual and lawful obligations. Therefore, water supply will be met with the suppliers existing water delivery system, and production in excess of the suppliers share of the FPA would require the purchase of replacement water.

This report determines possible future balances for the basin, including the effect of single and multiple dry year scenarios. Section 9.1 of the report provides future conditions of the basin as per the 1996 adjudication. Under this scenario, the Baja Subarea would be in balance (supply is greater than or equal to demand) around the year 2033. Despite this, a recharge deficit will likely occur during a single dry year and over the course of multiple dry years; however, recharge deficits are likely regardless of regulatory ramp-downs by the MWA and the proposed solar development. The accrued groundwater deficit by the basin drought conditions is offset by sporadic years with surplus recharge events, such as in 2005, when the groundwater recharge from the Mojave River totaled 81,519 AF (see Figures 6 and 7).

In general, the future water supply from the Baja Subarea will account for the project demand, principally due to continued regulatory ramp-downs from the MWA.

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APPENDIX A

Determination of DWR Implementation of Senate Bill 610

DETERMINATION OF DWR IMPLEMENTATION OF SENATE BILL 610

The WSA for the proposed project was prepared using guidance contained in the *Guidebook for Implementation of Senate Bill 610 and Senate Bill 221 of 2001* (DWR Guidebook). The DWR prepared the DWR Guidebook to assist water suppliers in preparation of the water assessments and the written verification of water supply availability required by SB 610 and SB 221; the DWR has no regulatory or permitting approval authority concerning water assessments or verifications of sufficient water supply and provides the DWR Guidebook purely as an assistance tool (DWR 2003). The following table provides a detailed description of how the DWR Guidebook was used in preparing the project's WSA.

Table A-1. Soda Mountain Solar Energy Project WSA - Checklist

Guidelines Section Number and Title (DWR 2003)	Guidelines Direction	Relevant WSA Section and Response
Section 1 (page 2). Does SB 610 or SB 221 apply to the proposed development?	Is the project subject to SB 610? Is the project subject to CEQA (Water Code §10910(a))? If yes, continue.	Section 4 Yes, the project is subject to CEQA.
	Is it a "project" as defined by Water Code §10912(a) or (b)? If yes, to comply with SB 610 go to Section 2, page 4.	Section 4 Yes, the project is considered to meet the definition of "project" per CWC Section 10912(a) or (b).
	Is the project subject to SB 221? Does the tentative map include a "subdivision" as defined by Government Code §66473.7(a)(1)? If no, stop.	No, the project does not include a "subdivision." SB 221 does not apply to the project, and no further action relevant to SB 221 is required.
Section 2 (page 4). Who will prepare the SB 610 analysis?	Is there a public water system ("water supplier") for the project (Water Code § 10910(b))? If no, go to Section 3, page 6.	Section 4.1 No, there is no public water system for the project.
Section 3 (page 6). Has an assessment already been prepared that includes this project?	Has this project already been the subject of an assessment (Water Code §10910(h))? If no, go to Section 4, page 8.	No, the project has not been the subject of an assessment.
Section 4 (page 8). Is there a current Urban Water Management Plan?	Is there an adopted urban water management plan (UWMP) (Water Code §10910(c))? If yes, continue. If yes, information from the UWMP related to the proposed water demand for the project may also be used for carrying out Section 5, Steps 1 and 2, and Section 7; proceed to Section 5, page 10 of the Guidelines.	Section 4 Yes, there is an associated UWMP. However, the data that are used in the UWMP are not appropriate for the basin-scale analysis that this project requires.
Section 5 (page 10). What information should be included in an assessment?	Step One (page 13). Documenting wholesale water supplies.	The project proponent will utilize water supplied by privately owned wells.
	Step Two (page 17). Documenting Supply if Groundwater is a Source*.	Section 4.1 and Appendix B The project proponent will utilize water supplied by privately owned wells.
	Specify if a groundwater management plan or any other specific authorization for groundwater management for the basin has been adopted and how it affects the water supplier's use of the basin.	There is no groundwater management plan. The basin is designated as a low-priority basin under the Sustainable Groundwater Management Act (SGMA; DWR 2014).

Guidelines Section Number and Title (DWR 2003)	Guidelines Direction	Relevant WSA Section and Response
	The description of the groundwater basin may be excerpted from the groundwater management plan, from DWR Bulletin 118, California's Ground Water, or from some other document that has been published and that discusses the basin boundaries, type of rock that constitutes the aquifer, variability of the aquifer material, and total groundwater in storage (average specific yield times the volume of the aquifer).	Section 5 provides descriptions of the groundwater basin's characteristics using available resources, including DWR Bulletin 118.
	In an adjudicated basin the amount of water the urban supplier has the legal right to pump should be enumerated in the court decision.	Sections 3.2 and 5 The Lower Mojave River Valley Groundwater Basin is an adjudicated basin.
	The DWR has projected estimates of overdraft, or "water shortage," based on projected amounts of water supply and demand (basin management), at the hydrologic region level in Bulletin 160, California Water Plan Update. Estimates at the basin or subbasin level will be projected for some basins in Bulletin 118. If the basin has not been evaluated by DWR, data that indicate groundwater level trends over a period of time should be collected and evaluated.	Sections 5 and 6.2 DWR Bulletin 118 and the SGMA indicate decreasing trends in groundwater within the Lower Mojave River Valley Groundwater Basin. The basin is still categorized as low priority under SGMA.
	If the evaluation indicates an overdraft due to existing groundwater extraction, or projected increases in groundwater extraction, describe actions and/or program designed to eliminate the long-term overdraft condition.	The evaluation indicates an overdraft due to existing groundwater extraction.
	If water supplier wells are plotted on a map, or are available from a geographic information system, the amount of water extracted by the water supplier for the past five years can be obtained from the Department of Health Services, Office of Drinking Water and Environmental Management.	Water pumping is planned for the project.
	Description and analysis of the amount and location of groundwater pumped by the water supplier for the past five years. Include information on proposed pumping locations and quantities. The description and analysis is to be based on information that is reasonably available, including, but not limited to, historic use records from DWR.	There is a water supplier for this project. Existing water demand is accounted for in Section 7.6.
	Analysis of the location, amount, and sufficiency of groundwater that is projected to be pumped by the water supplier.	Section 9 discusses the amount and sufficiency of groundwater supplies from the Lower Mojave River Valley Groundwater Basin.
	Step 3 (page 21). Documenting project demand (Project Demand Analysis).	Section 8.1 Construction of the project would require up to approximately 366 AF of water. Operational water demand would total approximately 5.6 AFY.
	Step 4 (page 26). Documenting dry year(s) supply.	Sections 9.2 and 9.3 discuss water demand reliability, including during dry year scenarios.

Guidelines Section Number and Title (DWR 2003)	Guidelines Direction	Relevant WSA Section and Response
	Step 5 (page 31). Documenting dry year(s) demand.	Sections 9.2 and 9.3 discuss water demand reliability, including during dry year scenarios.
Section 6 (page 33). Is the projected water supply sufficient or insufficient for the proposed project?		Sections 9.1 and 10 summarize why the identified water supply/supplies are considered sufficient for the project.
Section 7 (page 35). If the projected supply is determined to be insufficient.	Does the assessment conclude that supply is “sufficient”? If no, continue.	Sections 9.1 and 10 It is reasonably anticipated that sufficient water supplies are available for the project under a realistic scenario. If the project uses excess water, the supplier will compensate its excess water use from the MWA.
Section 8 (page 38). Final SB 610 assessment actions by lead agencies.	The lead agency shall review the WSA and must decide whether additional water supply information is needed for its consideration of the proposed project. The lead agency “shall determine, based on the entire record, whether projected water supplies will be sufficient to satisfy.	The WSA for the project will be included as part of the Draft Environmental Impact Report for the project. Per SB 610, the lead agency will approve or disapprove a project based on a number of factors, including but not limited to the WSA.

APPENDIX B

Long-Term Water Supply Service Agreement for the Soda Mountain Solar Project

Long Term Water Supply Service Agreement for Soda Mountain Solar Project

THIS LONG-TERM WATER SUPPLY SERVICE AGREEMENT (the "Agreement") dated this 23rd the day of August, 2023

BETWEEN: Eagle Well Drilling & Pump Service of 45401 National Trails Hwy., Newberry Springs, CA. 92365 ("Seller") and Soda Mountain Solar, LLC of 110 Edison Pl suite 312, Newark, NJ 07102, USA ("Buyer").

IN CONSIDERATION OF THE COVENANTS and agreements contained in this Service Agreement the parties to this Agreement agree as follows:

1. Service:

The Seller will sell, transfer to the Buyer the following service Up to 5,000 gallons of water per day until contract is terminated from the two wells (WCR2006-009436 and WCR1994-013423 located at 45401 National Trails Highway in Newberry Springs San Bernardino County, CA. This long-term water supply agreement is to provide water supply to Soda Mountain Solar during the Operation and maintenance period.

2. Purchase Price:

The Buyer will accept the Goods and pay for the Goods at the price of $0.02 (USD) per gallon (the "Purchase Price"), paid within 30 days of pick up as required in clause 5 of this Agreement. This price shall be fixed for the term of the agreement.

3. Payment:

Invoices will be paid in net 30 days and will be continued until the agreement is terminated.

4. Delivery of Goods: The Goods will be picked up by the Buyer at the Seller's address: 45401 National Trails Hwy., Newberry Springs, CA. 92365.

5. Term

The term for this agreement will become effective after the construction service agreement has ended and will continue until the Buyer terminates the contract.

6. Notices

Any notice to be given or document to be delivered to either the Seller or Buyer pursuant to this Agreement will be sufficient if delivered personally or sent by prepaid registered mail to the address specified below. Any written notice or delivery of documents will have been given, made and received on the day of delivery if delivered personally, or on the third (3rd) consecutive business day next following the date of mailing if sent by prepaid registered mail:

1

SELLER:
Eagle Well Drilling & Pump Service of 45401 National Trails Hwy., Newberry Springs, CA. 92365.

BUYER:
Soda Mountain Solar, LLC of 110 Edison Pl suite 312, Newark, NJ 07102.

7. Additional Provisions

Well Completion Report number: WCR1994-013423
APN: 0531-072-02. San Bernardino County, CA

Well Completion Report number: WCR2006-009436
APN: 0531-072-02. San Bernardino County, CA

8. General Provisions:

9. Headings are inserted for convenience only and are not to be considered when interpreting this Agreement. Words in the singular mean and include the plural and vice versa. Words in the masculine mean and include the feminine and vice versa.

10. Either party to this Agreement may assign its rights under this Agreement, but the assignment will not change the duty of either party, increase the burden or risk involved, or impair the chances of obtaining the performance of the Agreement. However, no obligation for performance imposed on either party by this Agreement may be delegated to any other person without the prior written consent of the other party. Each party has a substantial interest in having the other party perform or control the acts required by this Agreement.

11. This Agreement cannot be modified in any way except in writing signed by all the parties to this Agreement.

12. This Agreement will be governed by and construed in accordance with the laws of the State of California, including the California Uniform Commercial Code and the Seller and the Buyer hereby attorn to the jurisdiction of the Courts of the State of California.

13. Except where otherwise stated in this Agreement, all terms employed in this Agreement will have the same definition as set forth in the Uniform Commercial Code in effect in the State of California on the date of execution of this Agreement.

14. If any clause of this Agreement is held unconscionable by any court of competent jurisdiction, arbitration panel or other official finder of fact, the clause will be deleted from this Agreement and the balance of this Agreement will remain in full force and effect.

15. This Agreement will inure to the benefit of and be binding upon the Seller and the Buyer and their respective successors and assigns.

16. This Agreement may be executed in counterparts. Facsimile signatures are binding and are considered to be original signatures.

17. This Agreement constitutes the entire agreement between the parties and there are no further items or provisions, either oral or otherwise. The Buyer acknowledges that it has not relied upon any representations of the Seller as to prospective performance of the Goods but has relied upon its own inspection and investigation of the subject matter.

IN WITNESS WHEREOF the parties have executed this Service Agreement on this ____day of ________

Dustin Thaler
VP Development
(Witness)

Michael Cocchimiglio
CEO & Head of Development
Soda Mountain Solar, LLC (Buyer)

(Witness)

Eagle Well Drilling & Pump Service (Seller)

3

Construction Water Supply Service Agreement for Soda Mountain Solar Project

THIS CONSTRUCTION WATER SUPPLY SERVICE AGREEMENT (the "Agreement") dated this 23rd the day of August 2023

BETWEEN: Eagle Well Drilling & Pump Service of 45401 National Trails Hwy., Newberry Springs, CA. 92365 ("Seller") and Soda Mountain Solar, LLC of 110 Edison Pl suite 312, Newark, NJ 07102, USA **("Buyer").**

IN CONSIDERATION OF THE COVENANTS and agreements contained in this Service Agreement the parties to this Agreement agree as follows:

1. Service:
The Seller will sell, transfer to the Buyer the following service Up to 200,000 gallons of water per day until contract is terminated from the two wells WCR2006-009436 and WCR1994-013423 located at 45401 National Trails Highway in Newberry Springs San Bernardino County, CA. This construction water supply agreement is to provide water supply to the Soda Mountain Solar during the construction period.

2. Purchase Price:
The Buyer will accept the Goods and pay for the Goods at the price **of $0.02 (USD**) per gallon (the "Purchase Price"), paid within 30 days of pick up as required in clause 5 of this Agreement. This price shall be fixed for the term of the agreement.

3. Payment:
Invoices will be paid in net 30 days and will be continued until the agreement is terminated.

4. Delivery of Goods: The Goods will be picked up by the Buyer at the Seller's address: 45401 National Trails Hwy., Newberry Springs, CA. 92365.

5. Term:
The term for this agreement will be eighteen (18) months from the date of the first invoice. The buyer shall have an option to extend this agreement for two six (6) additional months by letting the seller know 90 days before this agreement ends.

6. Notices:
Any notice to be given or document to be delivered to either the Seller or Buyer pursuant to this Agreement will be sufficient if delivered personally or sent by prepaid registered mail to the address specified below. Any written notice or delivery of documents will have been given, made and received on the day of delivery if delivered personally, or on the third (3rd) consecutive business day next following the date of mailing if sent by prepaid registered mail:

SELLER:
Eagle Well Drilling & Pump Service of 45401 National Trails Hwy., Newberry Springs, CA. 92365

BUYER:
Soda Mountain Solar, LLC of 110 Edison Pl suite 312, Newark, NJ 07102, USA

7. Additional Provisions
Well Completion Report number: WCR1994-013423
APN: 0531-072-02. San Bernardino County, CA

Well Completion Report number: WCR2006-009436
APN: 0531-072-02. San Bernardino County, CA

4

8. General Provisions

9. Headings are inserted for convenience only and are not to be considered when interpreting this Agreement. Words in the singular mean and include the plural and vice versa. Words in the masculine mean and include the feminine and vice versa.

10. Either party to this Agreement may assign its rights under this Agreement, but the assignment will not change the duty of either party, increase the burden or risk involved, or impair the chances of obtaining the performance of the Agreement. However, no obligation for performance imposed on either party by this Agreement may be delegated to any other person without the prior written consent of the other party. Each party has a substantial interest in having the other party perform or control the acts required by this Agreement.

11. This Agreement cannot be modified in any way except in writing signed by all the parties to this Agreement.

12. This Agreement will be governed by and construed in accordance with the laws of the State of California, including the California Uniform Commercial Code and the Seller and the Buyer hereby attorn to the jurisdiction of the Courts of the State of California.

13. Except where otherwise stated in this Agreement, all terms employed in this Agreement will have the same definition as set forth in the Uniform Commercial Code in effect in the State of California on the date of execution of this Agreement.

14. If any clause of this Agreement is held unconscionable by any court of competent jurisdiction, arbitration panel or other official finder of fact, the clause will be deleted from this Agreement and the balance of this Agreement will remain in full force and effect.

15. This Agreement will inure to the benefit of and be binding upon the Seller and the Buyer and their respective successors and assigns.

16. This Agreement may be executed in counterparts. Facsimile signatures are binding and are considered to be original signatures.

Time is of the essence in this Agreement.

17. This Agreement constitutes the entire agreement between the parties and there are no further items or provisions, either oral or otherwise. The Buyer acknowledges that it has not relied upon any representations of the Seller as to prospective performance of the Goods but has relied upon its own inspection and investigation of the subject matter.

IN WITNESS WHEREOF the parties have executed this Service Agreement on this

__________day of____________________, __________.

Dustin Thaler
VP Development
(Witness)

Michael Cocchimiglio
CEO & Head of Development
Soda Mountain Solar, LLC (Buyer)

(Witness)

Eagle Well Drilling & Pump Service (Seller)

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Attachment A – Water Wells Information

WCR Number	WCR2006-009436	WCR1994-013423
Legacy Log Number	1084027	394748
Well Location	45401 National Trails Highway	45401 National Trails Highway
City	Newberry Springs	Newberry Springs
County Name	San Bernardino	San Bernardino
Local Permit Agency	San Bernardino County DPH Environmental Health Services Safe Drinking Water Permit Section	San Bernardino County DPH - Environmental Health Services Safe Drinking Water Permit Section
Region Office	DWR Southern Region Office	DWR Southern Region Office
Record Type	Well Completion/New/Production or Monitoring/NA	Well Completion/New/Production or Monitoring/NA
Planned Use/Former Use	Water Supply Domestic	Water Supply Irrigation - Agriculture
Driller Name	Eagle Well Drilling	Eagle Drilling
Driller License Number	768952	517720
Decimal Latitude	34.82894	34.82894
Decimal Longitude	-116.67175	-116.67175
Method of Determination LL	Location from PLSS Section	Location from PLSS Section
LL Accuracy	Centroid of Section	Centroid of Section
Township	09N	09N
Range	03E	03E
Section	33	33
Baseline Meridian	San Bernardino	San Bernardino
APN	0531-072-02	531-072-02
Date Work Ended	2/25/2006	3/5/1994
Total Completed Depth	207	340
Top Of Perforated Interval	147	200
Bottom of Perforated Interval	207	340
Casing Diameter	8	10

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Attachment A – Water Wells Information

Drilling Method	Direct Rotary	Direct Rotary
Fluid	Not Available at Conversion	Not Available at Conversion
Static Water Level	90	20
Well Yield	100	600
Well Yield Unit of Measure	GPM	GPM
PLSS MTRS	S09N03E33	S09N03E33
WCR Links	https://cadwr.app.box.com/v/WellCompletionReports/file/462865111501	
Global ID	{6FB7CA62-073E-43F9-8662-E7A762F9A21F}	{92A68E29-S90F-464F-86E0-9EAISEC734D3}
x	-12987839.8	-12987839.8
y	4140659.003	4140659.003

Attachment B – Water Wells Completion Report

ORIGINAL
File with DWR

Page ___ of ___

Owner's Well No. ______

Date Work Began 2/25/06 Ended 2/26/06

Local Permit Agency San Bernardino Environmental Health

Permit No. 2006020168 Permit Date 2/22/06

STATE OF CALIFORNIA
WELL COMPLETION REPORT
Refer to Instruction Pamphlet
No. 1084027

DWR USE ONLY — DO NOT FILL IN
09N03E33R002S
STATE WELL NO./STATION NO.
LATITUDE | LONGITUDE
APN/TRS/OTHER

GEOLOGIC LOG

ORIENTATION (✓) ✓ VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)

DRILLING METHOD Rotary FLUID Mud

DEPTH FROM SURFACE Ft. to Ft.	DESCRIPTION Describe material, grain size, color, etc.
0 – 20	Sand, Gravel, Cobble
20 – 60	Gravel, Gray Clay, Sand
60 – 100	Sand, Gray Clay, Cobble
100 – 140	Cobble, Gray Clay, Sand
140 – 180	Gray Clay, Sand, Cobble
180 – 215	Sand, Gray Clay

TOTAL DEPTH OF BORING 215 (Feet)

TOTAL DEPTH OF COMPLETED WELL 207 (Feet)

WELL OWNER

WELL LOCATION

Address 45401 National Trails

City Newberry Springs

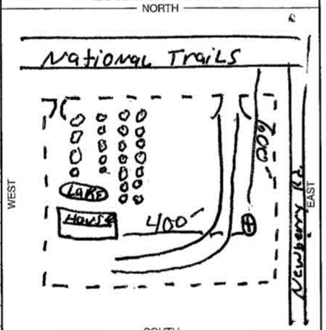
County San Bernardino

APN Book ____ Page ____ Parcel 0531072020000

Township 09N Range 03E Section 33

Lat ___ N Long ___ W

LOCATION SKETCH



Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. PLEASE BE ACCURATE & COMPLETE.

ACTIVITY (✓)
✓ NEW WELL
MODIFICATION/REPAIR
___ Deepen
___ Other (Specify)
___ DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG")

USES (✓)
WATER SUPPLY
___ Domestic ___ Public
___ Irrigation ___ Industrial
MONITORING ___
TEST WELL ___
CATHODIC PROTECTION ___
HEAT EXCHANGE ___
DIRECT PUSH ___
INJECTION ___
VAPOR EXTRACTION ___
SPARGING ___
REMEDIATION ___
OTHER (SPECIFY) ___

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER UNK (Ft.) BELOW SURFACE

DEPTH OF STATIC WATER LEVEL 90 (Ft.) & DATE MEASURED 2-24-06

ESTIMATED YIELD * 100 (GPM) & TEST TYPE Air

TEST LENGTH 2 (Hrs.) TOTAL DRAWDOWN ___ (Ft.)

* May not be representative of a well's long-term yield.

CASING (S)

DEPTH FROM SURFACE Ft. to Ft.	BORE-HOLE DIA. (Inches)	BLANK	SCREEN	CON-DUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
207 – 147	17"		✓			PVC	8	F-480	6 x 1/4
147 – 0		✓				"	"	"	

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft. to Ft.	CEMENT (✓)	BENTONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)
207 – 55			✓	5/16 Gravel
55 – 0	✓			

ATTACHMENTS (✓)
___ Geologic Log
___ Well Construction Diagram
___ Geophysical Log(s)
___ Soil/Water Chemical Analyses
___ Other ___

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

NAME Eagle Well Drilling (PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

P.O. Box 358 Newberry Springs CA 92365
ADDRESS CITY STATE ZIP

Signed [signature] C-57 LICENSED WATER WELL CONTRACTOR 2-26-06 DATE SIGNED 768952 C-57 LICENSE NUMBER

DWR 188 REV. 05-03 IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM OSP 03 78836

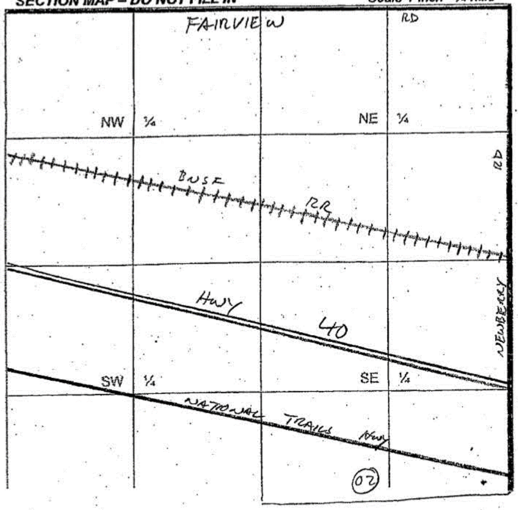
9

1084027

☒ New ☐ Reconstruction ☐ Destruction

9. SEALED ZONES (if applicable):
From 0 to 50 ft.

SECTION MAP – DO NOT FILL IN   Scale 1 inch - ¼ mile



10. LOCATION INFORMATION 3764/3764 CS/D.
(a) TOWNSHIP:
Tier 9 Ⓝ/S Range 3 Ⓔ/W Section 33
(b) Assessor's Parcel No. 0531072020001
(c) Latitude and Longitude
Lat: ____ °, ____ ', ____ "N/S
Long: ____ °, ____ ', ____ "E/W
(d) Solid or Liquid Disposal Site within Two Miles
☐ Yes ☐ No
Location ____

DO NOT FILL IN
Seal ____
Cap ____
Check Valve ____
Electricals ____
Stab ____
Tag ____
Building & Safety Notified

10

Attachment C
Soda Mt. Solar/BESS Verification of Water Supply for Construction and Maintenance Activities
Engineering Attestation of Water Supply

Introduction:
To support construction and maintenance activities for the Soda Mt. PV/BESS project, the project developer intends to secure water supply from Eagle Well Drilling & Pump Service. The project intends to secure up to 200,000 Gallons per Day for construction activities and up to 5,000 Gallons per Day for ongoing maintenance once the project is in service.
On August 16, 2023, ZGlobal Staff, including Vice President of Engineering, traveled to the locations of the two wells (WCR2006-009436 and WCR1994-013423) proposed to be utilized to provide the water for Soda Mt.
Well Locations:
Both wells are located at 45401 National Trails Highway in Newberry Springs CA, San Bernardino County. Figure 1 below shows the physical locations of both wells at this address as well as an area available for Water Tank/Truck staging. There is a Water main, fed from the wells at this staging location as shown in the figure.

Figure 1 – Well Locations and Staging Area

Wells:
Both well pumps are powered by diesel engines and do not require electrical connection to the local utility to function. Both engines were observed to be functional and in good operating condition. During the site visit, both engines were observed to start immediately with no extra measures required beyond pressing the start button. Both wells were equipped with Flow meters.

- **Well #1 (WCR 1994-013423**)

Well #1 was tested during the site visit to confirm the flow rate. Figures 3 and 4 show the Gallons per Minute (GPM) observed. Figure 3, with diesel engine idling at low RMP's shows a flow rate of approximately 370 GPM. Figure 4, with the diesel engine near full throttle, shows a flow rate of approximately 830 GPM.

11

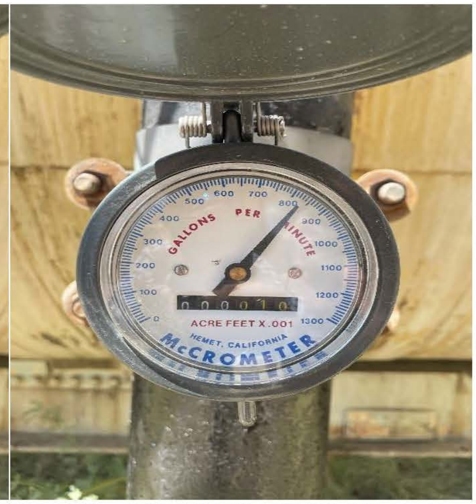


Figure 2 – Well #1 at low RMP **Figure 3 – Well #1 at full throttle**

- **Well #2 (WCR 2006-009436):** Well #2 was tested during the site visit to confirm the flow rate. Figures 6 shows the Gallons per Minute (GPM) observed. The flow rate was observed to be approximately 480 GPM.

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Figure 4 – Well #2 showing 480 GPM.

Flow Rate Calculation and Totals:

The GPM flow rates recorded above are translated to Gallons Per Day as follows:
(Gallons / Min) x (60 Min/Hour) x (24 Hours/Day) = Gallons / Day

	Gallons Per Minute (GMP)	Gallons Per Hour (GPH)	Gallons Per Day (GPD)
Well #1	480	28,800	691,200
Well #2	830	49,800	1,195,200
total	**1,310**	**78,600**	**1,886,400**

Table 1 – Flow Rate Calculation and Totals

Engineering Attestation:

I, Brian Rahman, a Registered Professional Engineering in the State of California, confirm via this document and my signature below that:

1. I have personally visited the site of the two water wells described above,
2. Have observed and recorded the flow rates observed in the figures above for both wells, and
3. Confirm that the wells, either individually or in aggregate will satisfy the specified 5,000 GPD for maintenance and 200,000 PGD for Construction.

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