Appendix K
Water Supply Assessment

DRAFT

Water Supply Assessment for the

1M Warehouse Project San Bernadino County, California

APRIL 2023

Prepared for:

LIBERTY UTILITIES
21760 Ottawa Rd
Apple Valley, California 92308
Contact: Greg Miles

Prepared by:

DUDEK

1103 R Street
Sacramento, California 95811
Contact: Matt Norcott

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Acronyms and Abbreviations

Acronym/Abbreviation	Definition
AF	acre-feet
AFY	acre-feet per year
APN	Assessor's Parcel Number
BAP	Base Annual Production
CEQA	California Environmental Quality Act
CWC	California Water Code
DWR	California Department of Water Resources
gpd	gallons per day
gpm	gallons per minute
GSA	Groundwater Sustainability Agency
GSP	Groundwater Sustainability Plan
mg/L	milligrams per liter
PSY	Production Safe Yield
PWS	public water system
SB	Senate Bill
SGMA	Sustainable Groundwater Management Act
USGS	United States Geological Survey
Watermaster	Mojave Basin Area Watermaster
WSA	Water Supply Assessment

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1 Introduction

1.1 Purpose of Document

Senate Bill (SB) 610 was passed on January 1, 2002, amending the California Water Code (CWC) to require detailed analysis of water supply availability for certain types of development projects. The primary purpose of SB 610 is to improve the linkage between water and land use planning by ensuring greater communication between water providers and local planning agencies and ensuring that land use decisions for certain large development projects are fully informed as to whether a sufficient water supply is available to meet project demands. SB 610 requires preparation of a Water Supply Assessment (WSA) for a project that is subject to the California Environmental Quality Act (CEQA) and meets certain requirements. SB 610 is codified in CWC Division 6, Part 2.10 (Sections 10910–10915).

The 1M Warehouse Project (Project) has been determined to be subject to CEQA by the Town of Apple Valley (Town) acting as the CEQA lead agency. The Project satisfies the statutory definition of a "project" for the purpose of determining SB 610 applicability because it is considered an industrial facility in excess of 650,000 square feet of floor area, per CWC Section 10912(a)(5). The original intent of SB 610 was to address water supply sufficiency primarily for urban development projects, and/or other projects that have large water demands. The water demand benchmark used in SB 610 for when a project is required to prepare a WSA is generally the amount of water used by a 500-unit residential development project. This amount varies from place to place throughout municipal areas California, but for reference, would generally not ever be less than 100 AFY[1], even for most modern and water-efficient residential development projects. The statute attempts to define size thresholds for commercial and industrial projects to approximate those that would have similarly large water demands. Given the long-term operation and maintenance water demand of the Project would be lower than a 500-unit residential development project (see Section 2), an argument could be made that the requirements of SB 610 do not technically apply to the Project. Nevertheless, out of an abundance of caution, and because analysis required by SB 610 is useful for the CEQA process, this WSA has been prepared for the Project in satisfaction of the requirements of SB 610.

This WSA is being prepared for Liberty Utilities, who will make an independent determination as to whether there is adequate water supply for the proposed Project, having considered the entire administrative record. While the Project site is within the General Plan boundary for the Town of Apple Valley, it has not yet been annexed into Liberty Utilities service area. In compliance with SB 610, this WSA examines the availability of the identified water supply under normal-year, single-dry-year, and multiple-dry-year conditions over a 20-year projection and the 35-year estimated project life, accounting for the projected water demand of the Project plus other existing and planned future uses of the identified water supply.

1.2 Project Location and Description

The approximately 68-acre Project site is located in the northern part of the Town, which is within the Apple Valley Region of San Bernardino County (**Figure 1**). The Project site is located approximately 4.5 miles east of I-15 and is bounded by Johnson Road to the north, Central Road to the west, Lafayette Street to the south, and Sycamore Lane

[1] This amount is for illustrative purposes only, and accounts for indoor water use efficiency standard in the California Code of Regulations (Title 23, Section 697) of 55 – 75 gallons per capita per day, an average household size of 3 persons, and excludes outdoor (landscaping) water demands.

to the east. The Project site consists of Assessor's Parcel Numbers (APNs) 0463-241-02 and 0463-241-03. Regional access to the Project site is provided via I-15, to the east of the Project site.

The Project includes the construction and operation of one industrial/warehouse building and an office building in the southeast corner of the site totaling approximately 1,080,125 square feet on approximately 72.2 acres (**Appendix A**). The Project would involve associated improvements, including loading docks, truck and vehicle parking, and landscaped areas. The Project is proposed to receive water from Liberty Utilities.

1.3 Water Supply Assessment Applicability

SB 610 amended California Water Code (CWC) Sections 10910 and 10912 to create a direct relationship between water supply and land use. SB 610 establishes the legal framework for assessing the sufficiency of water supply for new development which qualify as a "Project". Per California Water Code Section 10912(a), a "Project" means any of the following:

- Proposed residential development of more than 500 dwelling units
- Proposed shopping center or business establishment employing more than 1,000 persons, or having more than 500,000 square-feet of floor space
- Proposed commercial office building employing more than 1,000 persons or having more than 250,000 square-feet of floor space
- Proposed hotel or motel or both, having more than 500 rooms
- Proposed industrial, manufacturing, or processing plant, or industrial park planned to house more than 1,000 persons, occupying more than 40 acres of land, or having more than 650,000 square-feet of floor area
- Proposed mixed-use project that includes one or more of the above components
- Proposed project that would demand an amount of water equivalent to, or greater than, the amount of water required by a 500 dwelling unit project. (Water Code Section 10912(a).)

The Project qualifies as a "Project" per California Water Code Section 10912(a) because it is a proposed industrial, manufacturing, or processing plant, or industrial park that occupies more than 40 acres of land, and has more than 650,000 square-feet of floor space. A WSA has also been prepared to assist in responding to the CEQA Guidelines Utilities and Service System impact questions. 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?
- Is there a current Urban Water Management Plan (UWMP) that accounts for the project demand?
- Is groundwater a component of the supplies for the project?
- Are there sufficient supplies to serve the project over the next 20 years?

The primary question to be answered in a WSA per the requirements of SB 610 is: *Will the total projected water supplies 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 supplies, including agricultural and manufacturing uses?*

The response to this question also informs and assists the lead agency in responding to the CEQA Guidelines Utilities and Service Systems question: *Would the Project have sufficient water supplies available to serve the Project and reasonably foreseeable future development during normal, dry, and multiple dry years?*

1.3.1 Is There a Public Water System that Will Service the Project?

Section 10912 of the CWC defines a "public water system" as a system that has 3,000 or more service connections and provides piped water to the public for human consumption. The Project is located adjacent to the water service area established for Liberty Utilities (Apple Valley Ranchos Water) (also referred to as Liberty Utilities). The service area for Liberty Utilities currently ends west of Central Road, while the Project will be constructed in the parcel immediately east of Central Road. Liberty Utilities will plan on annexing the project into its service area to supply water for all phases of the construction, operation, and decommissioning. Liberty Utilities is an investor-owned public utility, meeting the definition of a Public Water System. Liberty Utilities provides water service primarily within the Town of Apple Valley. As of 2020, Liberty Utilities provides approximately 21,000 municipal connections. (Liberty Utilities, 2021).

Under SB 610, WSA reports must be prepared and furnished to local governments by the water utility serving that community for inclusion in any environmental documentation for projects meeting the specified requirements under Section 10912 (a) of the CWC and subject to CEQA. According to CWC Section 10910 (g)(1), "[…] the governing body of each public water system, or the city or county if either is required to comply with this act […] shall approve the assessment prepared pursuant to this section at a regular or special meeting." According to SB 610, the public water system serving the project area is required to prepare the WSA report.

1.3.2 Urban Water Management Plan Coverage

Urban Water Management Plans (UWMPs) are prepared by California's urban water suppliers to support long-term resource planning and ensure adequate water supplies. UWMPs must be updated and submitted to the California Department of Water Resources (DWR) every 5 years for review and approval. The DWR has identified the UWMP as a foundational document in the preparation of a WSA, noting that a thorough UWMP can provide the required information to fulfill the standards set forth by SB 610. Every urban water supplier that either delivers more than 3,000 AF per year (AFY) of water annually or serves more than 3,000 connections is required to assess the reliability of its water sources over a 20-year period under normal-year, dry-year, and multiple dry-year scenarios; these are the same requirements of a WSA, as specified by SB 610. A WSA may also rely on additional water supply data beyond the information in the UWMP.

An UWMP was created and submitted to DWR to satisfy 2020 requirements by Liberty Utilities. The 2020 UWMP for Liberty Utilities contains detailed information about the urban water supplier's water supply and demand estimates. The 2020 UWMP serves as an update to Liberty Utilities water resource needs, water use efficiency programs, water reliability assessment and strategies to mitigate water shortage conditions and builds upon the last UWMP that was submitted in 2015 (Liberty Utilities, 2021). The water demand for the Project is not accounted for in the UWMP, however, the site is included in the General Plan which shows the existing general plan designation and zoning for the site. According to the Town's General Plan, the land use and zoning designations for the project site are Industrial – Specific Plan which allows for a broad range of a broad range of clean manufacturing and warehousing uses, ranging from manufacturing to warehouse distribution facilities (Town of Apple Valley, 2012).

Additionally, the UWMP projects future commercial water use in 5-year increments by scaling existing/metered commercial water use within its service area along with general population growth trends, as established using DWR's Population Tool (Liberty Utilities, 2021). For example, the UWMP projects a 101 acre-foot increase in yearly commercial water demand between 2020 and 2025 (and continues to increase it in five-year increments thereafter). Given Liberty Utilities' projected population forecasts the Project's additional water demand (discussed in Section 2) reasonably fits within this projected increase. The UWMP indicates that Liberty Utilities can meet water demands during normal years, single dry years, and a five consecutive year drought period over the next 25 years (Liberty Utilities, 2021). This is because although the underlying basin is adjudicated, there is no hard limit on the amount of groundwater that can be produced annually, because it has been able to meet demands during historical 5-year droughts, and because it has a water shortage contingency plan and demand management measures in place (Liberty Utilities, 2021).

1.3.3 Is Groundwater a Component of the Supplies for the Project?

Groundwater is the only source of water supply for the Liberty Utilities' distribution system and the only source proposed for the Project. Liberty Utilities provides domestic water from potable supply wells within its service area and provides water for agricultural purposes from groundwater wells which are separate from Liberty Utilities' potable water system.

1.3.4 Are there Sufficient Supplies to Serve the Project Over the Next 20 Years?

As described in Section 2, Project Water Demand; Section 4, Water Resources Inventory; and Section 5, Reliability of Water Supplies, there is adequate water available to supply the proposed Project. Although the future tenant for the Project will impact water demand, water supply should not be an issue even under the most high water demand scenario discussed in Section 2 under normal-year, single-dry-year, and multiple-dry-year conditions over a 20-year projection.

2 Project Water Demand

Due to the unknown plans of future tenants, water demand from three different businesses was used to estimate potential annual water volumes for operation and maintenance. This estimate was based on average water use per square foot of similar project types within the Liberty Utilities service area. Construction water demand is estimated to be insignificant. Table 2.1 shows the water use for the example warehouse developments provided by Liberty Utilities. Table 2.2 shows the three different water use rates applied to the Project footprint. Each scenario has been converted to AFY. Maximum water demand potential for the Project is approximately 40 AFY using the highest demand estimate that was provided by Liberty Utilities and rounding up to account for tenant uncertainty.

Table 2.1. Water Usage for Example Warehouses

Business	Size (sq ft)	Gallons per day	Gal/day per sq. foot
Big Lots	1,360,875	673	0.0005
Fresenius Medical Blue	150,000	378	0.003
WalMart DC	1,080,000	29,920	0.03

Source: Liberty Utilities, 2022

Table 2.2. Estimated Water Usage for Project

Business	Size (sq ft)	Gal/day per sq. foot	Gal/day	AFY
1M Warehouse Project	1,080,120	0.0005	540	0.60
1M Warehouse Project	1,080,120	0.003	3240	3.63
1M Warehouse Project	1,080,120	0.03	32,404	36.30

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3 Water Resources Plans and Programs

3.1 Sustainable Groundwater Management Act

The Sustainable Groundwater Management Act (SGMA) is a package of three bills (Assembly Bill 1739, SB 1168, and SB 1319) and provides local agencies with a framework for managing groundwater basins in a sustainable manner. The SGMA establishes minimum standards for sustainable groundwater management, roles and responsibilities for local agencies that manage groundwater resources, priorities, and timelines to achieve sustainable groundwater management within 20 years of adoption of a Groundwater Sustainability Plan (GSP). The SGMA also requires all high and medium priority basins be sustainably managed. The Mojave Basin Area is considered an adjudicated and very low priority[2] basin in DWR's 2019 SGMA Basin Prioritization and thus is exempt from the requirements of developing a Groundwater Sustainability Plan (DWR, 2019). Instead, the basin is managed by a court-appointed water master, as discussed below.

3.2 Mojave Basin Area Adjudication

The Mojave Watershed was adjudicated in 1996 in an effort to preserve the limited resources typical of arid regions by regulating groundwater allocations. The adjudication was initiated by a 1990 lawsuit filed by the City of Barstow and Southern California Water Company, claiming excessive water use in the upper Mojave River Basin, thus reducing the amount of surface and groundwater available to the central Basin. Additional cross-complaints were filed and several parties joined the lawsuit. For more than 18 months, water producers of all types who were reliant upon the Mojave River Basin commenced negotiations which eventually produced the "Final Judgment" on how the groundwater supply could be fairly distributed (Water Education Foundation, 2022).

Mojave Water Agency is the current Court-appointed Watermaster for the Mojave Basin Area Judgment. The Watermaster's main responsibilities are to monitor and verify water production, collect required assessment, conduct studies, and prepare an annual report. The adjudication is primarily concerned with maintaining groundwater levels to help maintain a specified level of groundwater pumping in the area (Mojave Water Agency, 2022). The Watermaster does not have a specific obligation towards maintaining water quality; however, it is noted that continued pumping in depleted areas may result in long- term local negative impacts such as water quality problems due to migration of lesser quality water. The Watermaster is currently responsible for reporting the following types of data in the Mojave Basin Area:

- Verification of reported groundwater production
- Mojave River Flows
- Precipitation Page 6-4 Salt and Nutrient Management Plan, Mojave Water Agency
- Wastewater Discharges
- Subsurface Inflow
- State Water Project and wastewater imports

[2] Under the 2019 Basin Prioritization, all adjudicated basins were automatically assigned a very low priority because they are excluded from SGMA. A "very low" priority in this case does not suggest that a basin does not have problems with respect to groundwater.

- Groundwater levels
- Ungauged surface water inflows

3.3 Urban Water Management Planning Act

The Urban Water Management Planning Act (CWC Sections 10610–10657) requires urban water suppliers to prepare a UWMP every 5 years and to submit it to the DWR, the California State Library, and any city or county within which the supplier provides water supplies. All urban water suppliers, either publicly or privately owned, providing water for municipal purposes either directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre-feet (AF) annually are required to prepare a UWMP (CWC Section 10617).

The Urban Water Management Planning Act was enacted in 1983. Over the years, it has been amended in response to water resource challenges and planning imperatives confronting California. A significant amendment was made in 2009 as a result of the governor's call for a statewide 20% reduction in urban water use by 2020, referred to as "20x2020," the Water Conservation Act of 2009, and "SB X7-7." This amendment required urban retail water suppliers to establish water use targets for 2015 and 2020 that would result in statewide water savings of 20% by 2020. Beginning in 2016, urban retail water suppliers were required to comply with the water conservation requirements in SB X7-7 in order to be eligible for state water grants or loans.

A subsequent substantial revision to the Urban Water Management Planning Act was made in 2018 through a pair of bills (i.e., Assembly Bill 1668 and SB 606), described below in Section 3.4, Water Use Efficiency Standards. These changes include, among other things, additional requirements for Water Shortage Contingency Plans, expansion of dry-year supply reliability assessments to a 5-year drought period, establishment of annual drought risk assessment procedures and reporting, and new conservation targets referred to as "annual water use objectives," which will require retailers to continue to reduce water use beyond the 2020 SB X7-7 targets. The Urban Water Management Planning Act contains numerous other requirements that a UWMP must satisfy.

3.4 Water Use Efficiency Standards

The Water Conservation legislation of 2018 (SB 606 and Assembly Bill 1668)— referred to as "Making Water Conservation a California Way of Life" or the "2018 Water Conservation Legislation"— established a new foundation for long-term improvements in urban water supplier conservation and drought planning in order to adapt to climate change and the longer more intense droughts in California. Together, Assembly Bill 1668 and SB 606 lay out a new long-term water conservation framework for California. This new framework is far-reaching for both the urban and agricultural sectors of California and represents a major shift in focus. Programs and initiatives are organized around four primary goals:

1. Use water more wisely
2. Eliminate water waste
3. Strengthen local drought resilience
4. Improve agricultural water use efficiency and drought planning

Collectively, this legislation provides a road map for all Californians to work together to ensure that we will have enough water now and, in the years, ahead. One of the major outcomes of the legislation is the adoption of long-

term standards for the efficient use of water and performance measures for commercial, industrial, and institutional water use on or before June 30, 2022. The bill establishes a standard for indoor water use of 55 gallons per capita daily to be reached by 2025, 52.5 gallons per capita daily beginning in 2025, decreasing to 50 gallons per capita daily beginning in 2030, or an alternative to this standard as determined jointly by DWR and State Water Resources Control Board in accordance with necessary studies and investigations.

On July 8, 2021, the Governor signed Executive Order N-10-21 which asks Californians to voluntarily reduce water use by 15% from 2020 levels. The Executive Order was in direct response to California experiencing the second driest year on record and the ongoing drought.

On January 4, 2022, the State Water Resources Control Board adopted an emergency regulation that prohibits certain wasteful water use practices statewide and encourages Californians to monitor their water use more closely while building habits to use water wisely.

3.5 Water Shortage Contingency Plan

Liberty Utilities includes a water shortage contingency plan within their UWMP that presents how the water supplier will respond in the event of an actual water shortage contingency. The main points are summarized below:

1. Beginning in 2022, Liberty Utilities will be required to submit an Annual Assessment reviewing unconstrainted water demands for the current year and the potential upcoming single dry year
2. Liberty Utilities will incorporate multiple standard water shortage levels into their management plans ranging from 10 percent to greater than 50 percent
3. Customers will be required to reduce their consumption levels by the percentage specified in the plan
4. Increased tracking of customer water usage and outdoor usage restrictions
5. Emergency Response Plan

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4 Water Resources Inventory

4.1 Local Surface Water

Liberty Utilities does not use surface water to meet its water demands.

4.2 Groundwater

Liberty Utilities has historically pumped groundwater directly from the Mojave Basin Area and the Project will rely solely on groundwater. The Basin Area is subdivided into five smaller areas (Oeste, Alto, Este, Centro, and Baja) and the Project will be built within the Alto subbasin. Groundwater movement occurs between each of the subbasins with the primary form of recharge being predominantly from infiltration from the Mojave River (Liberty Utilities, 2021). The Mojave Basin Area Watermaster monitors groundwater levels that represent conditions throughout the Alto subarea in three areas: 1) the Western portion located generally west of the Mojave River (the river is included in the western portion); 2) the Eastern portion located generally east of the Mojave River; and 3) the Alto Transition Zone.

The Project is in the northern part of the Alto Subarea, east of the Mojave River. The Alta Subarea has the largest water supply in the Mojave Basin (Town of Apple Valley, 2009). Alto water levels near the river exhibit seasonal variation, rising in winter and falling in summer. The Mojave Basin Area Watermaster (2022) notes that variability showing lower lows and lower highs is an indication of extractions exceeding recharge over time. Water levels in the western portion of Alto in the regional aquifer exhibit declines consistent with locally heavy pumping and limited local recharge. Water levels in the eastern portion of Alto indicate similar trends although to a lesser extent, most likely due to limited pumping in the regional aquifer east of the river. Continued pumping in depleted areas of the regional system may result in long-term local negative impacts such as declining yields and water quality problems. Water levels in wells near the river, particularly in the south part of Alto, experienced a trend of decline for 7 years consistent with limited recharge due to drier than average conditions. Water supply conditions for the past 10 years have been dry (43.3% of Base Period average). The Mojave Basin Area Watermaster has determined that continuation of dry conditions will result in further water level declines (Mojave Basin Area Watermaster, 2022).

According to the Sustainable Groundwater Management Act (SGMA) Basin Prioritization Dashboard, DWR has designated the Upper Mojave River Valley Groundwater Basin as very low priority and the Basin has been adjudicated to determine the water rights of the various producers (DWR, 2022a). Because the Project is within an adjudicated area, it is not subject to the requirements of California's Sustainable Groundwater Management Act, but instead is subject to groundwater pumping allocations under the court adjudication set up to mitigate long-term overdraft, to keep subareas in balance, and to meet biological resource mitigation obligations (Mojave Basin Area Watermaster 2022). Final Judgment was entered in 1996 adopting the physical solution set forth in the Judgment. The purpose of the Judgment was to create incentives to conserve local water, guarantee that downstream producers will not be adversely affected by upstream producers, and assess producers to obtain funding for the purchase of imported water. To carry out the Mojave Basin Judgment, the Mojave Water Agency assigned Base Annual Production amounts to each producer using 10-acre feet per year or more.

4.2.1 Groundwater Basin Description

The Project is to be located within the Upper Mojave River Valley Groundwater Basin (DWR Basin No. 6-042) as mapped by the California Department of Water Resources (**Figure 2**) as well as the Mojave Basin (Alto Subarea) as designated by the Mojave Basin Area Watermaster. The Basin is an adjudicated groundwater basin and is exempt from the requirements of developing a Groundwater Sustainability Plan (GSP) as it is designated as a very-low priority basin. The groundwater basin is bounded on the north from basement rock outcrops near Helendale to those in the Shadow Mountains. The southern boundary is the contact between Quaternary sedimentary deposits and unconsolidated basement rocks of the San Bernardino Mountains (**Figure 3**). The basin is bounded on the southeast by the Helendale fault and on the east by basement exposures of the mountains surrounding Apple Valley. In the west, the boundary is marked by a surface drainage divide between this basin and El Mirage Valley Basin, and a contact between alluvium and basement rocks that form the Shadow Mountains. (DWR, 2004). It is important to note that the definition of the Upper Mojave River Valley Groundwater Basin and the Mojave Basin Area are distinctly separate from each other with the Mojave Basin area being smaller in size and more closely following the shape of the Mojave River.

4.2.2 On-Site Well Inventory and Groundwater Levels

According to the SGMA Data Viewer, there is one groundwater well (345992N1171704W001) that is in the Project area. Groundwater levels were last measured in these wells on May 14, 1957 when the depth to groundwater was 127.1 feet below the ground surface. From 1960 to 1995, the groundwater level in the Alto Subarea declined approximately 60 feet from an elevation of 2815 feet to approximately 2,755 feet (Town of Apple Valley, 2009). Records also indicate groundwater beneath the site and in the immediate area has historically been greater than 50 feet beneath the ground surface.

4.2.3 Groundwater Quality

Bulletin 118 as presented by DWR (2004) presents the following information on water quality for the Upper Mojave River Valley Groundwater Basin.

> Calcium bicarbonate character waters are found near the San Bernardino Mountains and near the Mojave River channel. Sodium bicarbonate waters are found near Victorville. Sodium bicarbonate-sulfate waters are found near Adelanto. Sodium-calcium sulfate waters occur west of Victorville. Sodium chloride waters are found in Apple Valley. High nitrate concentrations occur in the southern portion of the basin and high iron and manganese concentrations are found near Oro Grande. Groundwater has been contaminated with trichloroethane (TCE) at the former George Air Force Base, now a federal Superfund site. Leaking underground storage tanks in and around Victorville have introduced fuel additives benzene, toluene, ethlybenzene, xylene, and methyl tertiary butyl ether (MTBE) into groundwater.

However, there are no groundwater quality issues present in groundwater delivered for potable use. The UWMP provides the following information regarding groundwater quality served by Liberty Utilities (2021):

> Liberty Utilities currently obtains potable groundwater supplies from 20 active wells in the Mojave Basin Area. According to Liberty Utilities' annual Consumer Confidence Reports, potable groundwater quality within Liberty Utilities' service area currently meets all the regulatory

> requirements. There have been no contaminants detected that exceed any federal or state drinking water standards. Hundreds of samples analyzed every month and thousands every year by Liberty Utilities contract certified laboratories assure that all primary (health related) and secondary (aesthetic) drinking water standards are met. [...] Currently, water quality does not affect water supply reliability in the Liberty Utilities service area. Therefore, no anticipated change in reliability or supply due to water quality is anticipated based on the present data.

4.3 Imported Water and Wastewater/Recycled Water

Liberty Utilities does not purchase imported water supplies to meet its current water demands, however, it does have pay a replacement water fee to the Mojave Basin Area Watermaster for any supply it uses in excess of its pumping limits. Base annual production limits are discussed in detail in Section 5. The Watermaster also manages the transfer of surplus water between producers in the Basin. Surplus and deficits between the producers are calculated annually.

Liberty Utilities also does not rely on any recycled water at the current time. According to the 2020 UWMP, the Victor Valley Wastewater Reclamation Authority (VVWRA), which provides wastewater collection and treatment services to Liberty Utilities, has constructed facilities to serve recycled water within Liberty Utilities' service area, if needed in the future.

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5 Reliability of Water Supplies

5.1 Apple Valley Water Demand and Supplies

As the Project will be constructed within the Town of Apple Valley , it will receive water from Liberty Utilities upon annexation of the Project area into Liberty Utilities' service area. Actual and projected water supplies for the Town of Apple Valley without the Project are included in Table 5.1 and Table 5.2. These projections were taken from the 2020 UWMP for the Liberty Utilities – Apple Valley and show the actual and projected supply and demand estimates for a normal water year in 5-year increments. Table 5.3 and Table 5.4 show the estimates for a single dry year, and multiple dry years, respectively without the Project. Table 5.5 shows the estimated supply and demand with the Project water demand from Section 2 included in the totals. The supply and demand totals are the same because Liberty Utility only pumps the amount of water necessary to serve the demand in any given year. Table The UWMP states the following with regard to limits on groundwater production (Liberty Utilities, 2021):

> The Mojave Basin Area Judgment assigned Base Annual Production (BAP) rights to producers which historically used 10 AFY or more, based on historical production. BAP is defined as the producer's highest annual use verified for the five-year base period from 1986 to 1990. Parties to the Judgment are assigned a variable Free Production Allowance (FPA) by the Watermaster, which is a percentage of BAP set for each Subarea for each year. The allocated FPA represents each producer's share of the water supply available for that Subarea. [Liberty Utilities'] current FPA for the Alto Subarea is 55 percent of BAP for municipal and industrial and 70 percent of BAP for agriculture.
>
> Production Safe Yield (PSY) is determined for each Subarea within the Mojave Basin Area. The PSY in each Subarea is assumed to equal the average net natural water supply plus the expected return flow from the previous year's water production. Exhibit H of the Judgment requires that in the event the FPA exceeds the estimated PSY by five percent or more of BAP, Watermaster recommend a reduction in FPA equal to, but not more than, a full five percent of the aggregate Subarea BAP. […] If Liberty Utilities pumps more than its FPA, then it must pay the Watermaster to purchase SWP replacement water equal to the amount of production in excess of the FPA. Alternatively, Liberty Utilities may meet its obligation by transferring unused FPA from another party within the Subarea.

Liberty Utilities' BAP to the Mojave Basin Area – Alto Subarea was 13,610 AFY and its FPA was 7,486 AFY (55% of the total BAP) for FY 2021-22 (Mojave Area Basin Watermaster 2023). The BAP for Liberty Utilities has increased approximately 280 AF since FY 2011-2012 as a result of acquiring additional water rights. While water suppliers are allowed to exceed their FPA limits, they are responsible for paying a fee for any water needed in surplus of the FPA. For FY 2021-2022 Liberty Utilities had a replacement water obligation of 792 AF, which the Watermaster was responsible for acquiring. According to the Watermaster 2021-2022 Annual Report:

> Producers in each Subarea are allowed to produce as much water as they need annually to meet their requirements, subject only to compliance with the Physical Solution set forth in the Judgment. An underlying assumption of the Judgment is that sufficient water will be made available to meet the needs of the Basin in the future from a combination of natural supply, imported water, water conservation, water reuse and transfers of FPA among parties.

Groundwater is the only source of water and will be required for all activities for the Project. The type of tenants that will occupy the subject property is unknown, although the type of operations will alter the water demand use. For this report, the water demand estimate of 40 AFY was assumed based on data from Liberty Utilities. Table 5.6 shows the population forecast for Liberty Utilities Service area. Liberty Utilities is expecting a growth increase for the next 20 years which includes associated building growth such as the Project. According to the UWMP, Liberty Utilities has been able to meet its demands even with decreasing supply. In 2011, Liberty Utilities pumped 18,230 acre-feet from the Basin, the highest amount in the last 10 years. This supply, however, is nearly equivalent to the to the demand estimated for 2045 and shows that Liberty is well-equipped to handle the reduced supply into the future.

Table 5.1. Current and Projected Water Supply and Demand Comparison (without Project) for Normal Year

Water Sources	Actual (AF)	Projected (AF)				
	2020	2025	2030	2035	2040	2045
Demand						
Single Family	6,486	7,107	7,579	8,077	8,602	9,156
Industrial	2	2	2	2	2	2
Commercial	1,736	1,837	1,909	1,984	2,064	2,149
Institutional/Government	517	547	568	591	615	640
Landscape	588	622	646	672	699	727
Agricultural Irrigation	4,912	4,950	4,950	4,950	4,950	4,950
Losses	710	751	781	812	844	879
Other	28	30	31	32	34	35
Total	**14,979**	**15,846**	**16,466**	**17,120**	**17,810**	**18,538**

Source: Liberty Utilities, 2021
Notes: AF = acre-feet; 1 acre-foot = 325,851 gallons.

Table 5.2. Projected Water Supply and Demand Comparison (without Project) for Normal Year

Supply/Demand	Projected (AF)				
	2025	2030	2035	2040	2045
Total Water Demand	15,846	16,466	17,120	17,810	18,538
Total Potable Supply	15,846	16,466	17,120	17,810	18,538

Source: Liberty Utilities, 2021
Notes: AF = acre-feet; 1 acre-foot = 325,851 gallons.

Table 5.3. Projected Water Supply and Demand Comparison (without Project) for Single Dry Year

Supply/Demand	Projected (AF)				
	2025	2030	2035	2040	2045
Total Water Demand	14,922	15,506	16,122	16,772	17,458

Table 5.3. Projected Water Supply and Demand Comparison (without Project) for Single Dry Year

Supply/Demand	Projected (AF)				
	2025	2030	2035	2040	2045
Total Potable Supply	14,922	15,506	16,122	16,772	17,458

Source: Liberty Utilities, 2021
Notes: AF = acre-feet; 1 acre-foot = 325,851 gallons.

Table 5.4. Projected Water Supply and Demand Comparison (without Project) for Multiple Dry Years

	Projected (AF)					
		2025	2030	2035	2040	2045
First Year	Supply Totals	19,285	20,039	20,835	21,675	22,561
	Demand Totals	19,285	20,039	20,835	21,675	22,561
Second Year	Supply Totals	17,760	18,454	19,188	19,961	20,777
	Demand Totals	17,760	18,454	19,188	19,961	20,777
Third Year	Supply Totals	18,114	18,823	19,571	20,360	21,192
	Demand Totals	18,114	18,823	19,571	20,360	21,192
Fourth Year	Supply Totals	17,440	18,122	18,842	19,602	20,403
	Demand Totals	17,440	18,122	18,842	19,602	20,403
Fifth Year	Supply Totals	14,296	14,856	15,446	16,069	16,726
	Demand Totals	14,296	14,856	15,446	16,069	16,726

Source: Liberty Utilities, 2021
Notes: AF = acre-feet; 1 acre-foot = 325,851 gallons.

Table 5.5. Projected Water Supply and Demand Comparison (with Project) for Normal Year

	Projected (AF)				
	2025	2030	2035	2040	2045
Total Potable Supply	15,886	16,506	17,160	17,850	18,578
Total Water Demand	15,886	16,506	17,160	17,850	18,578

Source: Liberty Utilities, 2021
Notes: AF = acre-feet; 1 acre-foot = 325,851 gallons.

Table 5.6. Liberty Utilities Service Area Population – Current and Projected

Population Served	2020	2025	2030	2035	2040	2045
	61,444	64,828	68,399	72,166	76,141	80,334

Source: Liberty Utilities, 2021.

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6 Conclusion

Liberty Utilities – Apple Valley relies on water pumped from the Alto Subarea of the Mojave River Basin which has seen a declining trend in groundwater levels for over 25 years. Due to increased pumping and unsustainable yields, the Mojave River Basin was Adjudicated in 1996 in an effort to control water levels and manage the future for the growing basin population. Liberty Utilities has met 100 percent of its total demands with supplies from the Mojave Basin area during the last drought between 2011 and 2015 and has a water shortage contingency plan in place in the event of severe drought occurrence. Liberty Utilities has also reduced their pumping supply since 2011 and has continued to meet the demand of its service area. The 2021-2022 Watermaster Report has also shown that Liberty Utilities is able to meet its demand annually in times of recent drought. Despite nearly 50% FPA reduction in the Basin and Subbasin, Liberty Utilities has met demand through a series of carry-overs, transfers, and replacement water agreements.

While Liberty Utilities service area is expected to experience population growth over the next 20 years, the 2020 UWMP has also taken into account increased development as a result. Furthermore, Victor Valley Wastewater Reclamation Authority has constructed facilities to increase recycled water supply for Liberty Utilities in the future. Given this information, the 1M Warehouse Project will likely not adversely affect the water supply for Liberty Utilities – Apple Valley for the duration of the project life as the water demand is estimated to be only 40 AFY. As seen in the tables presented in Section 5, Liberty Utilities has projected supply and demand estimates for normal, dry, and multiple dry water years and expects supply to match demand for the next 20 years.

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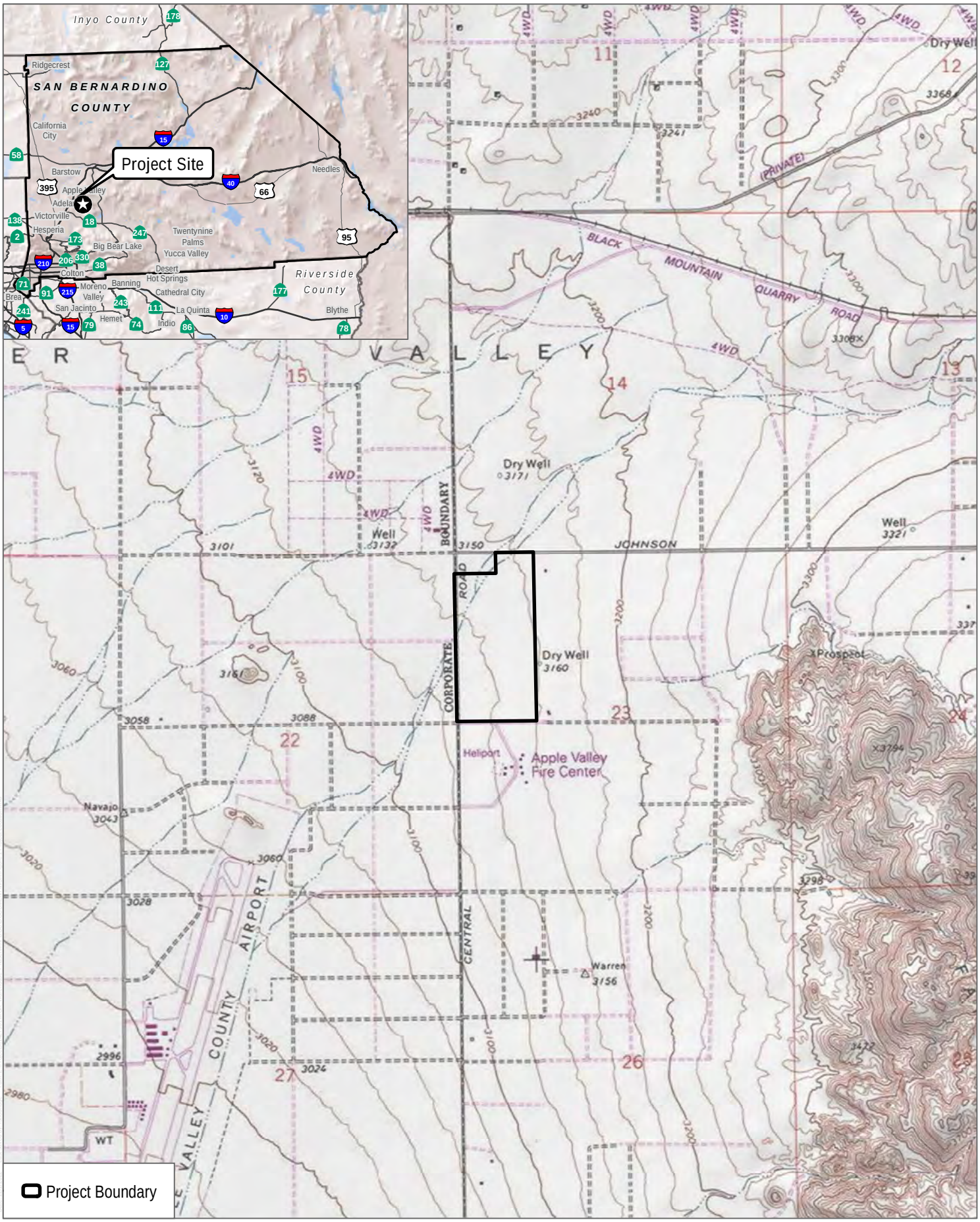

SOURCE: DigitalGlobe 2017; San Bernadino County 2021

DUDEK

0 1,000 2,000 Feet

FIGURE 1

Project Location

1M Warehouse Project

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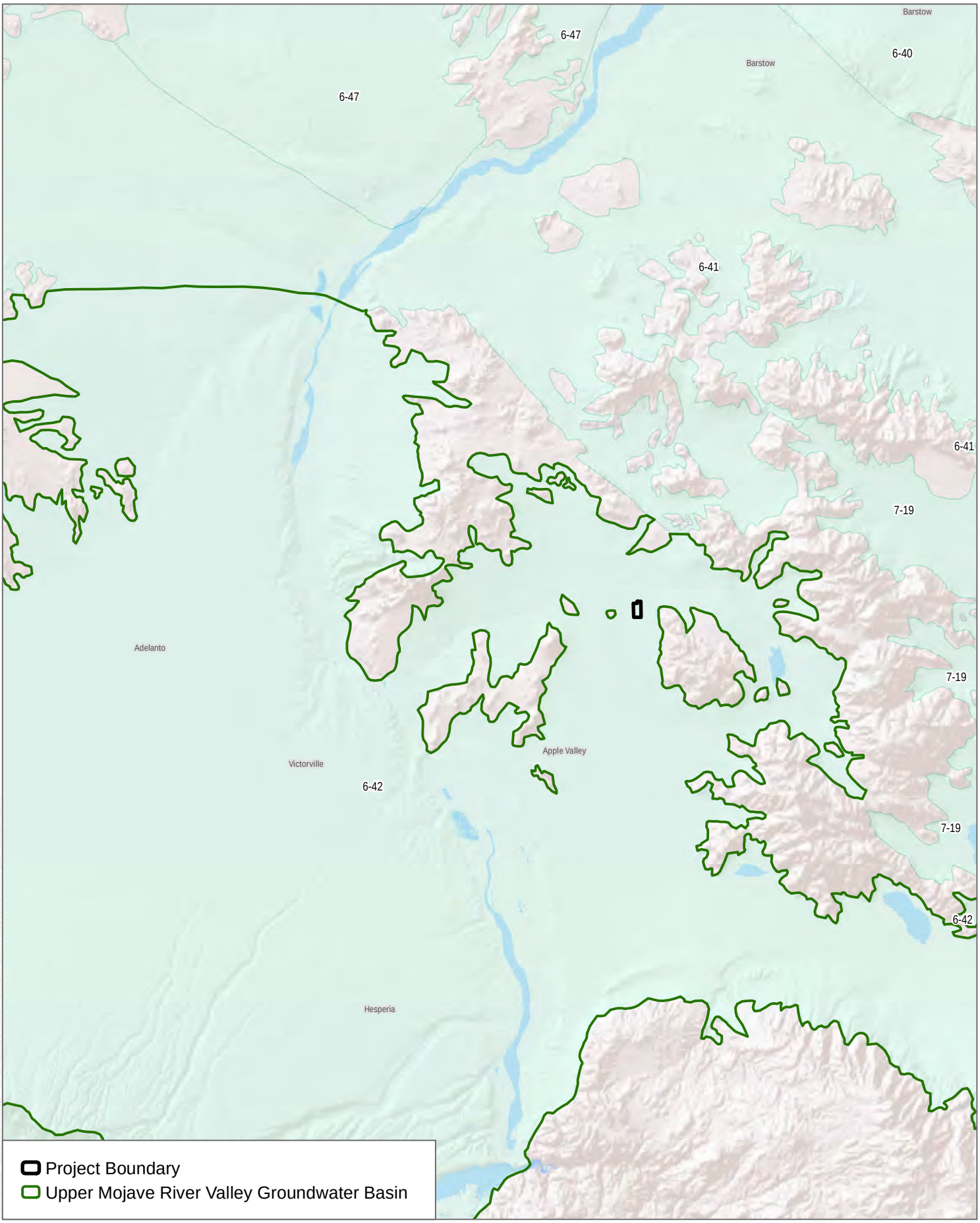

SOURCE: USGS, DWR 2018

DUDEK

0 2 4 Miles

FIGURE 2

Hydrologic Areas

1M Warehouse Project

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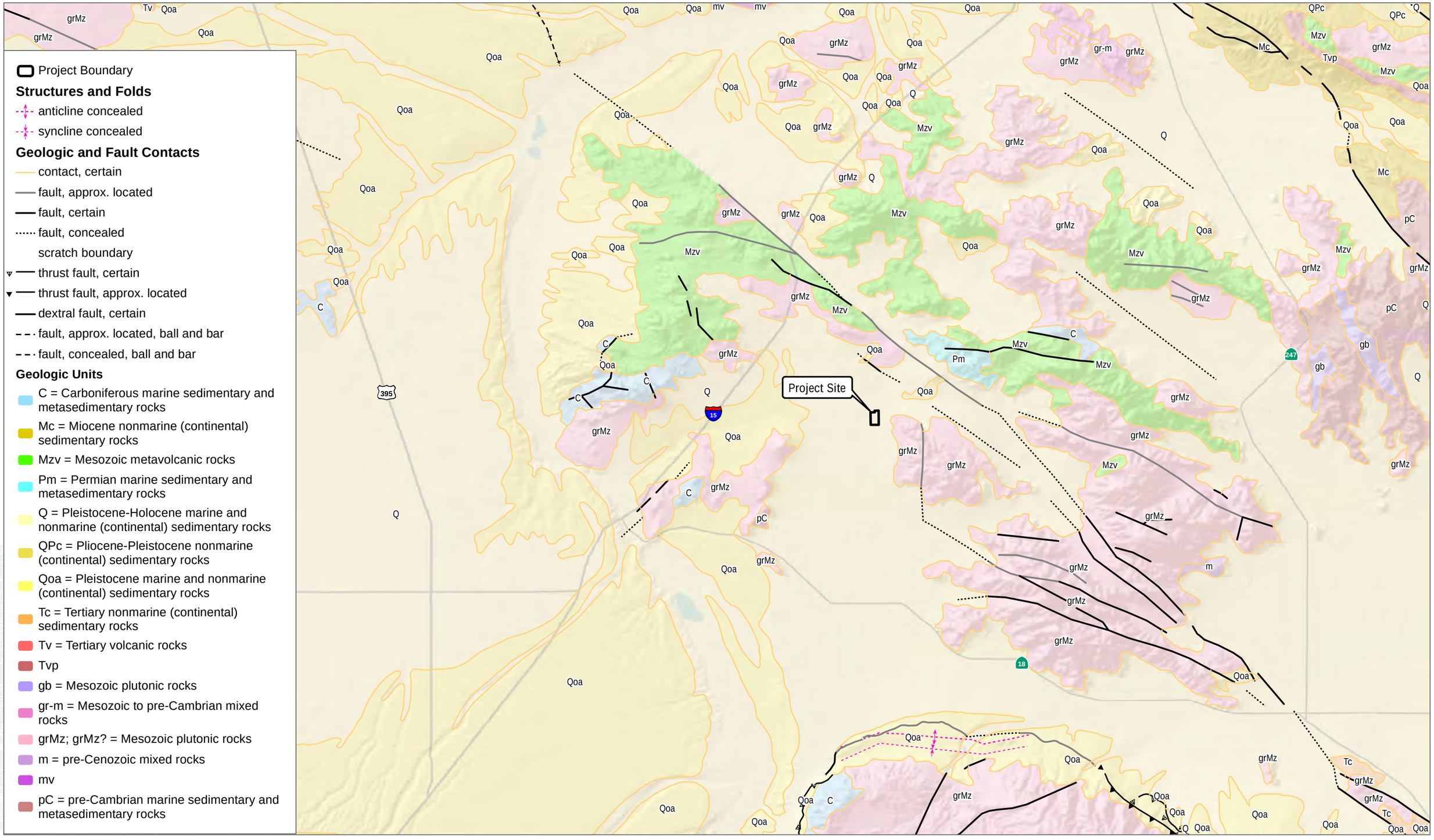

SOURCE: California Geologic Survey 2010

DUDEK

0 1.5 3 Miles

FIGURE 3

Geologic Map

1M Warehouse Project

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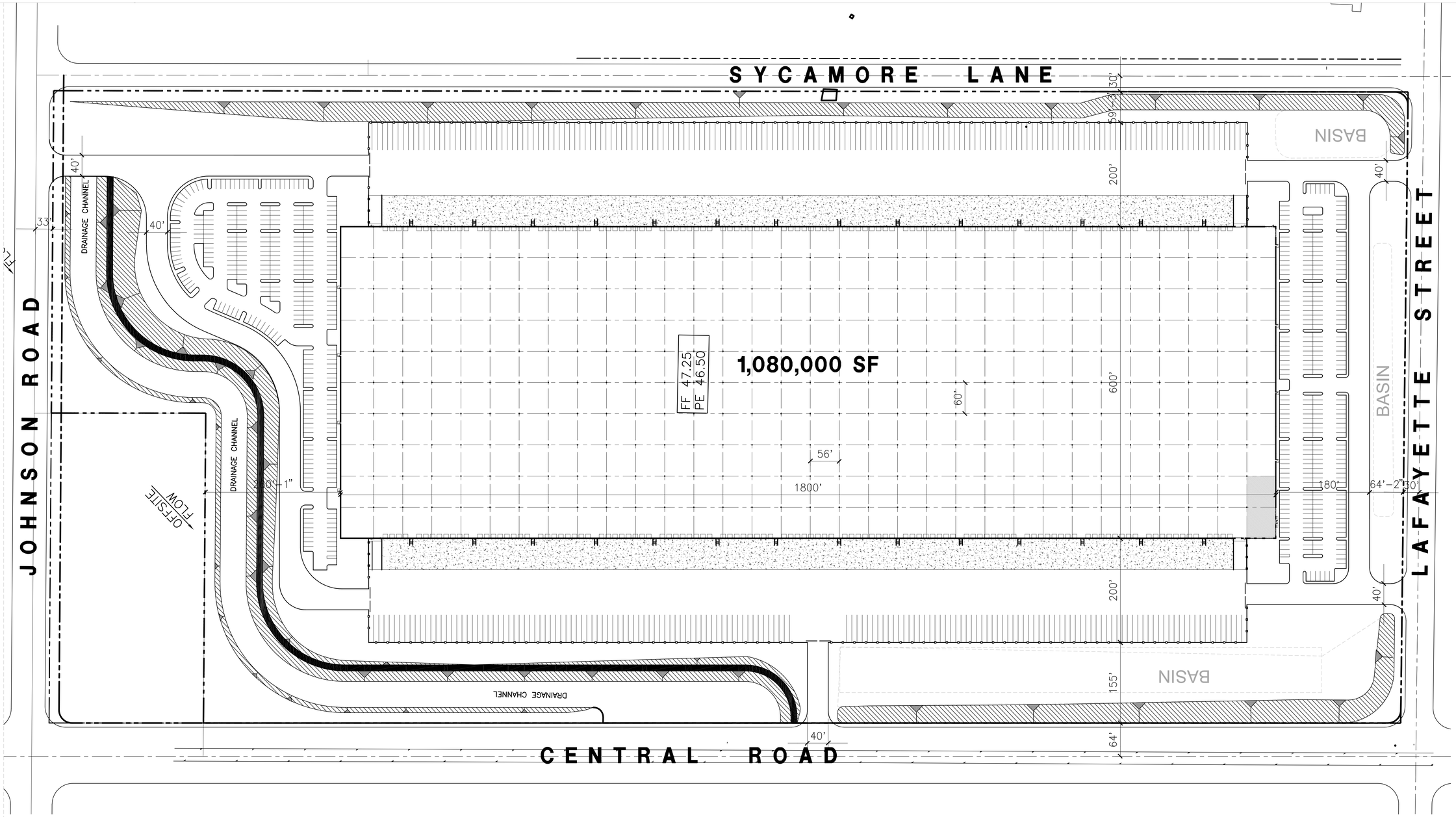
Appendix A
Site Plan



OVERALL SITE PLAN A
scale: 1" = 80'–0"

SCALE: 1" = 80'–0"
0 80' 160' 240'
TRUE NORTH

PROPERTY OWNER/APPLICANT

UNCOMMON
9220 WINNETKA AVENUE
LOS ANGELES, CA 91311
818 857 2196
IDAN PERLMAN

ADDRESS OF THE PROPERTY

TBD

ASSESSOR'S PARCEL NUMBERS

0463–241–03

ZONING

NORTH APPLE VALLEY INDUSTRIAL SPECIFIC PLAN
SPECIFIC PLAN INDUSTRIAL (I–SP)

APPLICANT'S REPRESENTATIVE

HPA, INC.
18831 BARDEEN AVE SUITE 100
IRVINE CA 92612
TEL: 949–862–2122
ATTN: INKON KIM

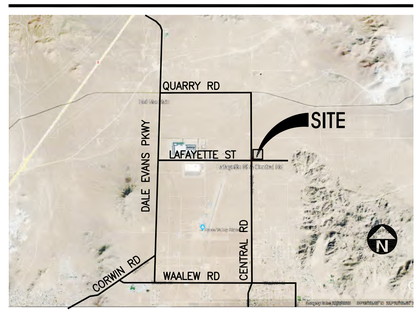
LEGENDS

- PAVED DRIVEWAY TRUCK YARD
- CONC TRUCK APRON
- LANDSCAPED AREA
- STANDARD PARKING STALL (9' X 19')
- WAREHOUSE
- POTENTIAL OFFICE
- DRIVE THRU DOOR
- 8' HIGH STEEL TUBE FENCE
- PROPERTY LINE

Tabulation

SITE AREA		
In s.f.	2,949,850	sf
In acres	67.7	ac
BUILDING AREA		
Office	5,000	sf
Warehouse	1,075,000	sf
TOTAL	**1,080,000**	sf
SITE COVERAGE		
Maximum Allowed	45%	
Actual	36.6%	
AUTO PARKING REQUIRED		
Office: not exceeding 25% GFA	n/a	stalls
Whse: 1/500 s.f for 1st 10k	20	stalls
1/1,000 s.f. above 10k	1,070	stalls
TOTAL	**1,090**	stalls
AUTO PARKING PROVIDED		
Standard (9' x 19')	579	stalls
TRAILER PARKING PROVIDED		
Trailer (10' x 53')	325	stalls
ZONING ORDINANCE		
Zone - North Apple Valley Industrial Specific Plan		
Zoning - Specific Plan Industrial (I-SP)		
MAXIMUM BUILDING HEIGHT ALLOWED		
Height - 75'		

Aerial Map



HPA architecture
hpa, inc.
18831 bardeen avenue, - ste. #100
irvine, ca
92612
tel: 949•863•1770
fax: 949•863•0851
email: hpa@hparchs.com

Owner:
UNCO
UNCOMMON
9220 Winnetka Avenue
Los Angeles, CA 91311
818-857-2196
ATTN: Idan Perlman

Project:
500K
Central &
Lafayette
Apple Valley, CA

Consultants:

CIVIL	Merrell Johnson
STRUCTURAL	-
MECHANICAL	-
PLUMBING	-
ELECTRICAL	-
LANDSCAPE	-
FIRE PROTECTION	-
SOILS ENGINEER	-

Title: OVERALL SITE PLAN

Project Number:	22438
Drawn by:	IK
Date:	05/26/22
Revision:	
Sheet:	DAB-A1.1