
Appendix J

Water Supply Assessment

Water Supply Assessment for the

Apple Valley 143

San Bernadino County,

California

JULY 2022

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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
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 Apple Valley 143 (Project) has been determined to be subject to CEQA by the Town of Apple Valley (Town) acting as 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 lead agency will make an independent determination as to whether there is adequate water supply for the proposed Project, having considered the entire administrative record. 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 143-acre Project site is located in the northern part of the Town, which is within the Victor Valley Region of San Bernardino County (Figure 1). The Project site is located on the northeast quadrant of I-15 and Stoddard Wells Road. The site is located south of Johnson Road, approximately 0.25 miles west of Grasshopper Road, north of Stoddard Wells Road, and north of I-15. The Project site consists of Assessor’s Parcel Numbers (APNs) 047-221-105, 047-221-106, 047-221-115, 047-222-206, and 047-222-211. Specifically, the Project site is in Sections 13 and 24, Township 6N, Ranges 3W and 4W, as depicted on the U.S. Geological Survey Apple Valley North and Victorville, California 7.5-minute topographic quadrangle maps. Regional access to the Project site is provided via I-15, immediately adjacent to the northeast of the Project site.

The Project includes the construction and operation of 3 industrial/warehouse buildings totaling approximately 2,628,000 square feet on approximately 143 acres (Figure 2). Building 1, the southernmost building, would be approximately 615,000 square feet, Building 2, the center building, would be approximately 1,220,000 square feet, and Building 3, the northernmost building, would be approximately 793,000 square feet. The Project would involve associated improvements, including loading docks, truck and vehicle parking, and landscaped areas. The Project is proposed to receive water via an existing 12-inch main tie in from a nearby Walmart Distribution Center. The water line would extend westward under Johnson Road and Stoddard Wells Road to the proposed subject property.

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 within the water service area established for Liberty Utilities (Liberty Utilities 2021). Liberty Utilities currently supplies water to the nearby Walmart Distribution Center that is the proposed source of water tie-in for the Project. 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 (Apple Valley Ranchos Water) (also referred to as 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 accounted for in the UWMP because it is consistent with the existing general plan designation and zoning of the site. According to the Town’s General Plan, the land use and zoning designations for the project site are Regional Commercial (C-R). Additionally, the Project site is located within the Warehouse Distribution Regional Commercial (C-R) Overlay. 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 much of Liberty Utilities’ service area is already built out, 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 3, Existing and Projected Supplies; and Section 4, Reliability of Water Supplies, there is adequate water available to supply the proposed Project. Although the future business that is conducted in the warehouses will impact water demand, water supply should not be an issue even on the higher end of the spectrum according to other existing and planned future uses, under normal-year, single-dry-year, and multiple-dry-year conditions over a 20-year projection.

2 Project Water Demand

Water demand for operation and maintenance of the Project during the anticipated 35-year Project operational life would require approximately 33 AFY of water. Due to the unknown plans of future tenants, water demand from three different businesses was used to estimate potential annual water volumes. 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 and plans for decommissioning and potential revegetation of the site at the end of the 35-year project life are not yet complete. 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 and collectively averaged for the estimation of 33 AFY.

Table 2.1. Water Usage for Example Warehouses

Business	Size (sq ft)	Gallons per day	Gal/day per sq. foot
Big Lots	1360875	673	0.0005
Fresenius Medical Blue	150000	378	0.003
WalMart DC	1080000	29,920	0.03

Table 2.2. Estimated Water Usage for Project

Business	Size (sq ft)	Gal/day per sq. foot	Gal/day	AFY	Average (AFY)
Apple Valley 143	2628000	0.0005	1314	1.47	33
Apple Valley 143	2628000	0.003	7884	8.83	—
Apple Valley 143	2628000	0.03	78840	88.31	—

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3 Water Resources Plans and Programs

3.1 Mojave Basin Area Adjudication

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 basin in DWR's 2019 SGMA Basin Prioritization and thus is exempt from the requirements of developing a Groundwater Sustainability Plan.

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).

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). 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
- Groundwater levels
- Ungauged surface water inflows

3.2 Water Conservation Legislation

The Water Conservation Act of 2009 (SBx7-7) requires all California urban water agencies to set and meet certain demand reduction targets in order to assist the State in reducing urban water use by 20% by 2020 (20x2020). The Act also requires each agency to monitor its progress toward its targets. This was implemented for the purpose of meeting the mandate to reduce per capita urban water consumption by 20% statewide. SBx7-7 describes the overall process by which MVWD is to comply with the requirements. It specifically identifies methods for establishing urban water use targets.

The Governor issued a State of Emergency and Continued State of Emergency in 2014 in response to the persistent state-wide drought. Most recently, Executive Order B-29-15 was issued by the Governor in April 2015 which essentially increases the potable urban water use reduction goal to 25% as compared to 2013 usage throughout the State. The Executive Order outlines specific water use reduction orders designed to heighten the urgency to reduce water consumption and facilitate the ability of local agencies to implement and enforce water conservation requirements. It addresses facilitating funding for projects designed to increase local water supplies and improve water supply reliability.

On April 7, 2017, the Governor lifted the Drought State of Emergency via Executive Order B- 40-17, which rescinded via Executive Order B-29-15 following state-wide potable water reductions of more than 22% through conservation efforts.

On May 31, 2018, AB 1668 and SB 606 further amended the Water Code in relation to water management planning. Specifically, these bills placed a provisional end-use efficiency standard for residential water use of 55 gallons per capita per day (Ch. 10608.20.b.2.A), which shall be used until January 1, 2025, after which the standard shall be adjusted to 52.5 gallons per capita per day until 2030, and 50 gallons per day beyond that date (Ch. 10609.4.a).

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. Alto water levels near the river exhibit seasonal variation, rising in winter and falling in summer. The Mojave Basin Area Watermaster 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 near river wells, 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 (DWR) as well as the Mojave Basin (Alto Subarea) as designated by the Mojave Basin Area Watermaster (Figure 3 and Figure 4). 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. 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 are numerous groundwater wells within and surrounding the Planning Area, mostly private domestic wells. Only one—a 120 feet residential well (State Well No. 06N03W08N001S)—has had regular (yearly or twice-yearly) monitoring of groundwater levels since 1993 (DWR 2022b). This well indicates that groundwater levels within the Planning Area specifically have remained stable throughout the period (ranging between 72 and 74 feet below ground surface) (DWR 2022b).

There are no active wells on the subject property and only one active well adjacent to the property according to the National Water Information System: Mapper (USGS). The nearest active well is approximately 2 miles northeast of the subject property and field measurements from 1994 to 2021 can be seen in Figure 5. Field groundwater-level measurements for Well 343708117132401 show a trend of increasing water levels and a decrease in depth to water during the period of record (1993 to 2021), however this well is outside of the Mojave Basin Area where Liberty Utilities pumps water from. A more accurate representation of the declining groundwater levels of the Alto Subbasin, where the town of Apple Valley is located, can be found in Figure 6.

4.2.3 Groundwater Quality

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, ethylbenzene, xylene, and methyl tertiary butyl ether (MTBE) into groundwater (DWR, 2004).

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 or rely on recycled water to meet its current water demands. In times of extreme drought, however, there are potential water supply projects and programs that may allow Liberty Utilities to enhance and augment existing water supplies including water transfer opportunities and recycled water beneficial uses that may help alleviate the stress during drought conditions.

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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. 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. 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. Although the basin is adjudicated, there is no hard limit on the amount of water than can be produced. 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.

Groundwater is the only source of water and will be required for various activities including construction, operations, and decommissioning. 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 average water demand of 33 AFY was assumed based on data from Liberty Utilities.

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

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						
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
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
	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

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

	Projected (AF)					
		2025	2030	2035	2040	2045
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 shows the projected water supply and demand incorporating the estimated demand from Table 2.2 added to the average project supply and demand forecasts from Table 5.2 for a normal water year. While it is difficult to predict actual supply and demand numbers given a multitude of factors, the population growth for the town of Apple Valley is expected to see moderate growth of approximately 1.2% percent over the next 25 years. Population projections can be seen in Table 5.6.

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

	Projected (AF)				
	2025	2030	2035	2040	2045
Total Potable Supply	15,879	16,499	17,153	17,843	18,571
Total Water Demand	15,879	16,499	17,153	17,843	18,571

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

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

Source: Liberty Utilities, 2021.

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6 Conclusion

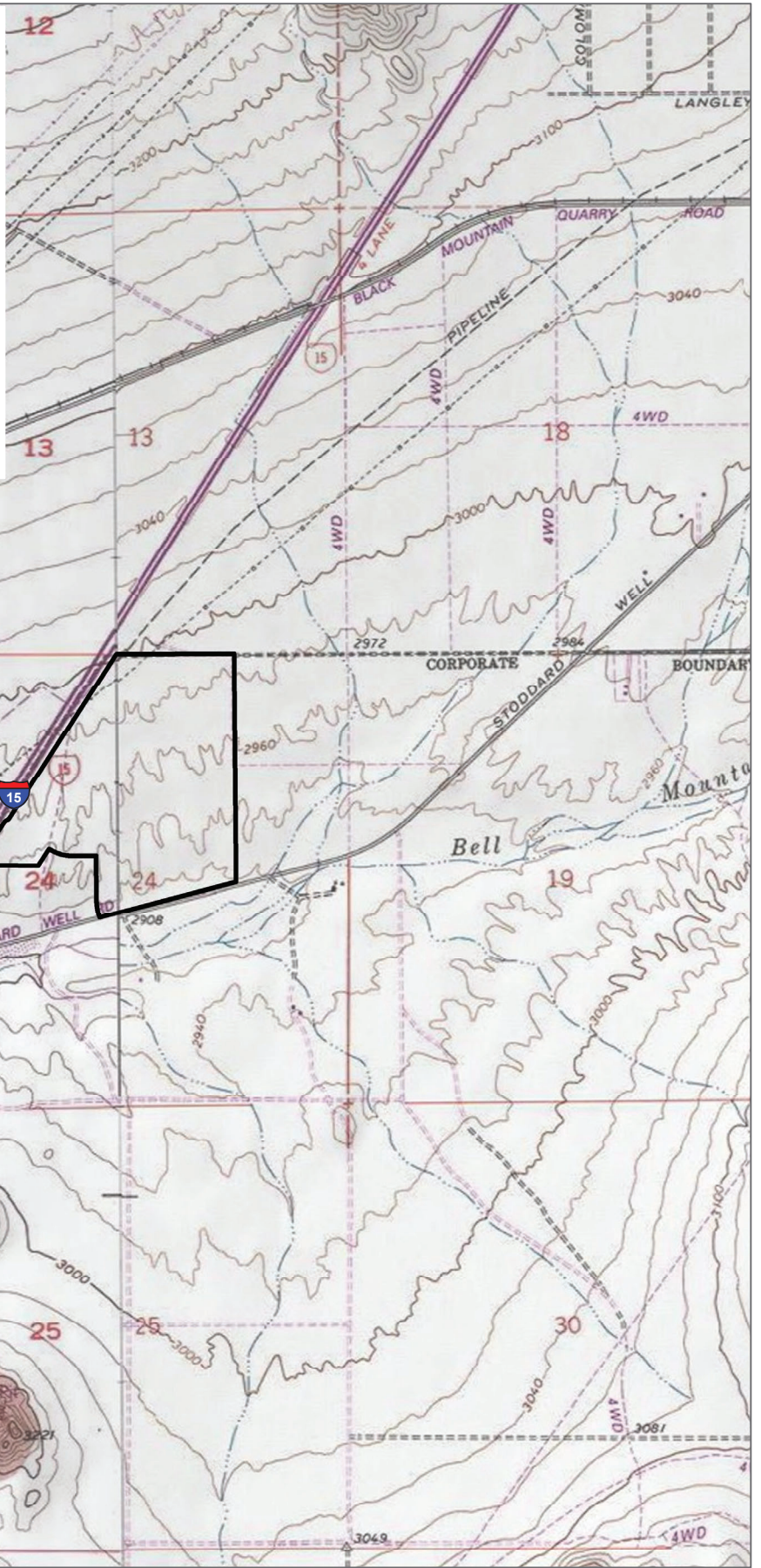
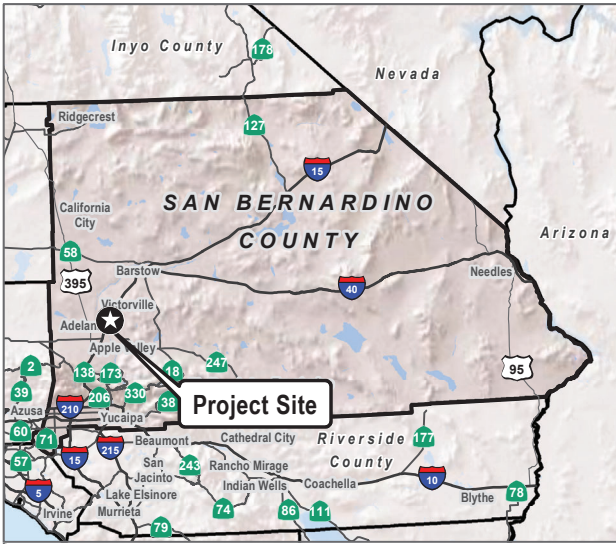
Liberty Utilities – Apple Valley relies on water pumped from the Alto Subarea of the Mojave River Basin which has seen a declining trend in groundwater levels for over 25 years. Due to increased pumping and unsustainable yields, the Mojave River Basin was Adjudicated in 1996 in an effort to control water 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. While Liberty Utilities service area is expected to experience population growth over the next 25 years, the 2020 UWMP has also taken into account increased development as a result. Given this information the Apple Valley 143 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 33 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 30 years.

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7 References

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SOURCE: USGS 7.5-minute Series Victorville and Apple Valley North Quadrangles

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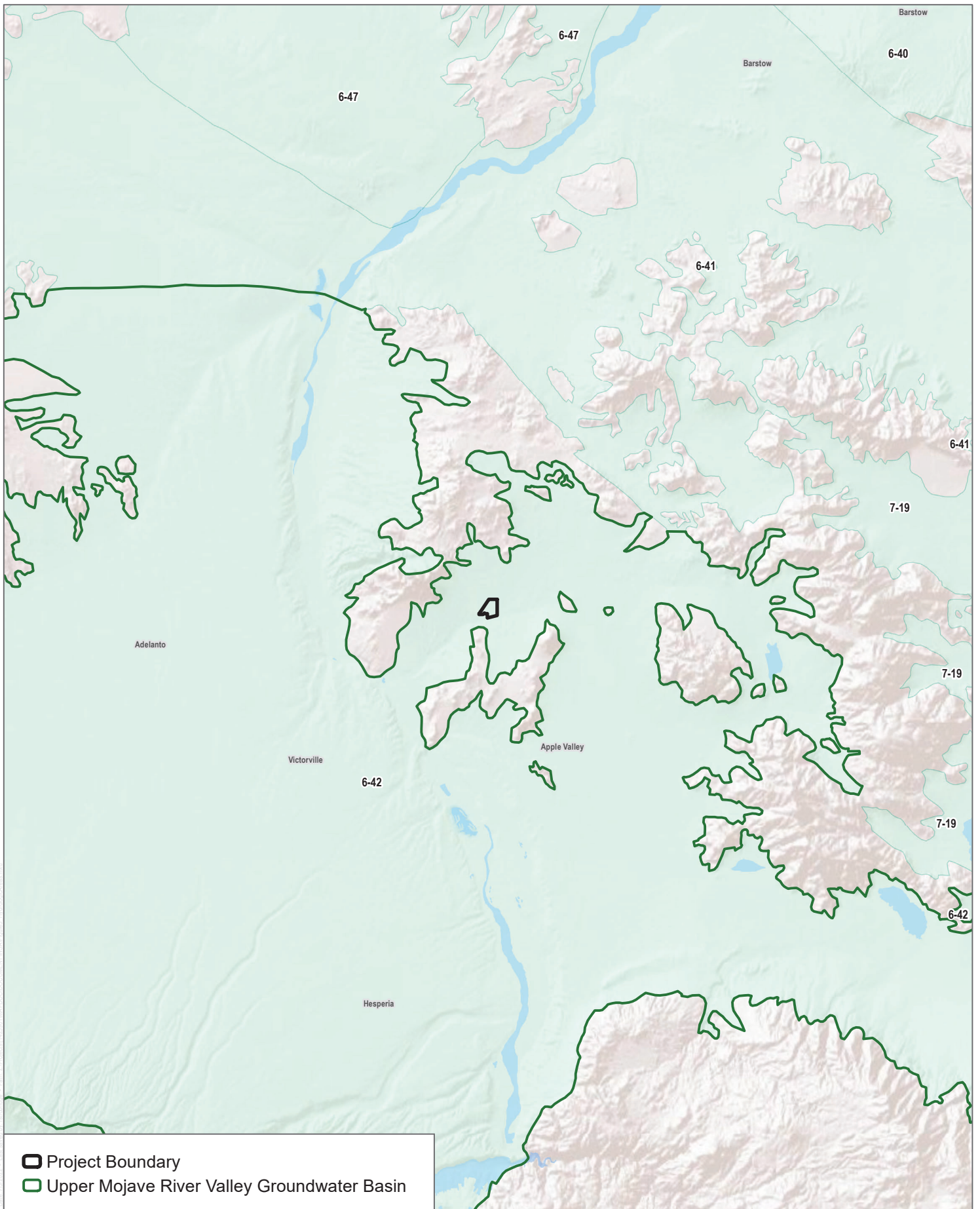


SOURCE: RGA 2022



FIGURE 2
Site Plan
 Apple Valley 143

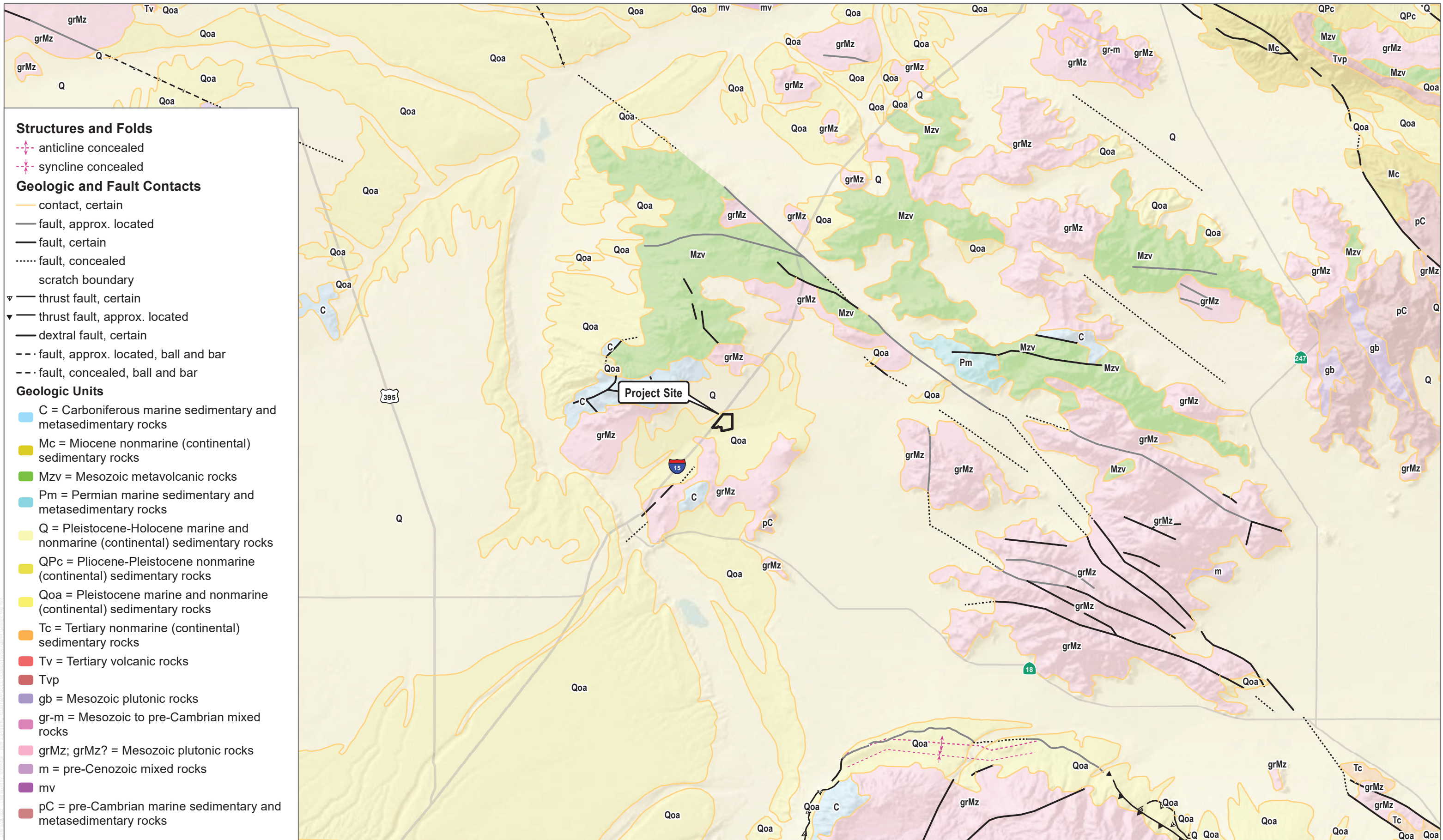
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SOURCE: USGS, DWR 2018

FIGURE 3
Project Area Groundwater Basins

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SOURCE: California Geologic Survey 2010

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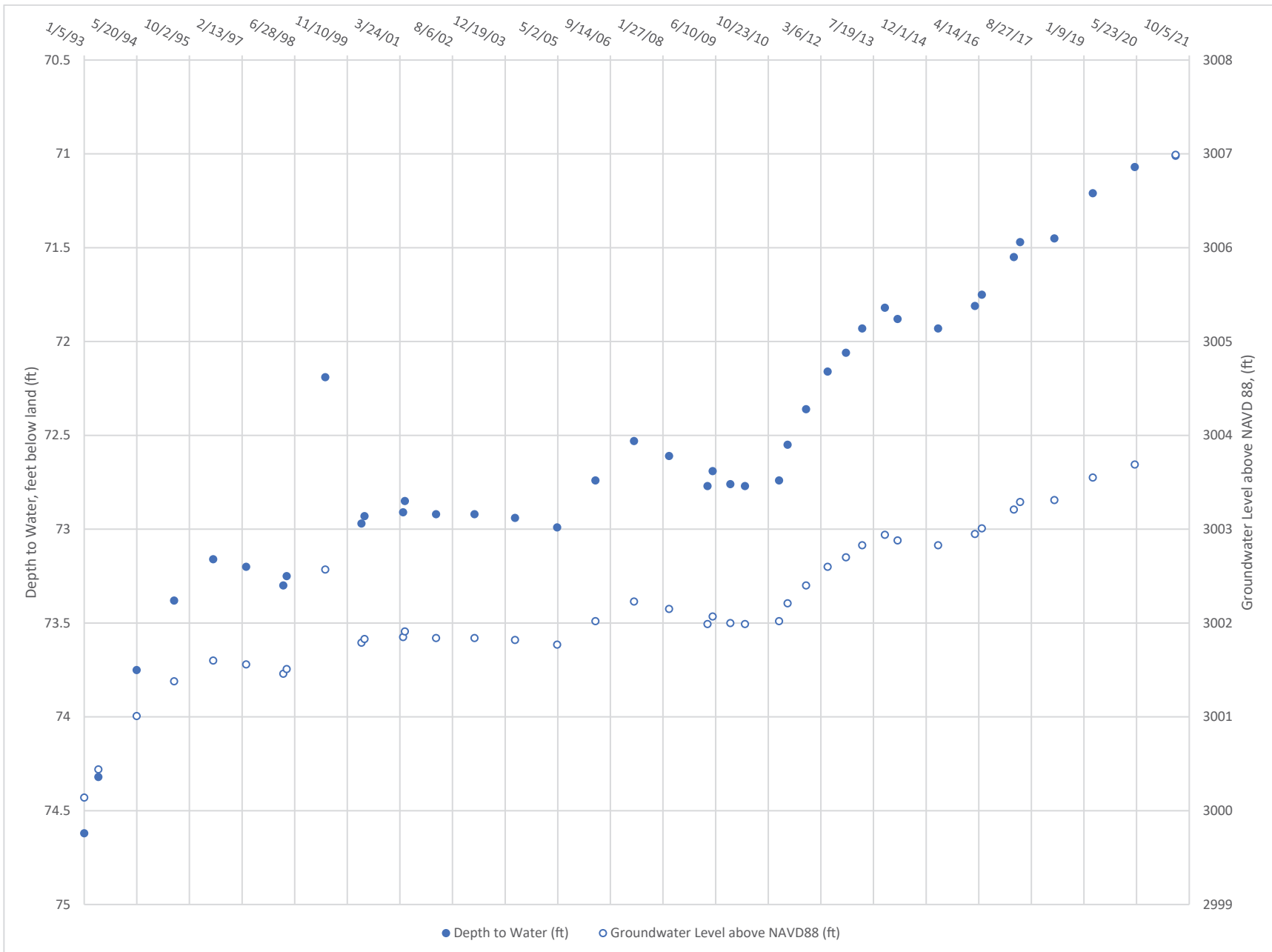


FIGURE 5

Depth to Water and Groundwater Level at USGS 343708117132401 006N003W08N001S

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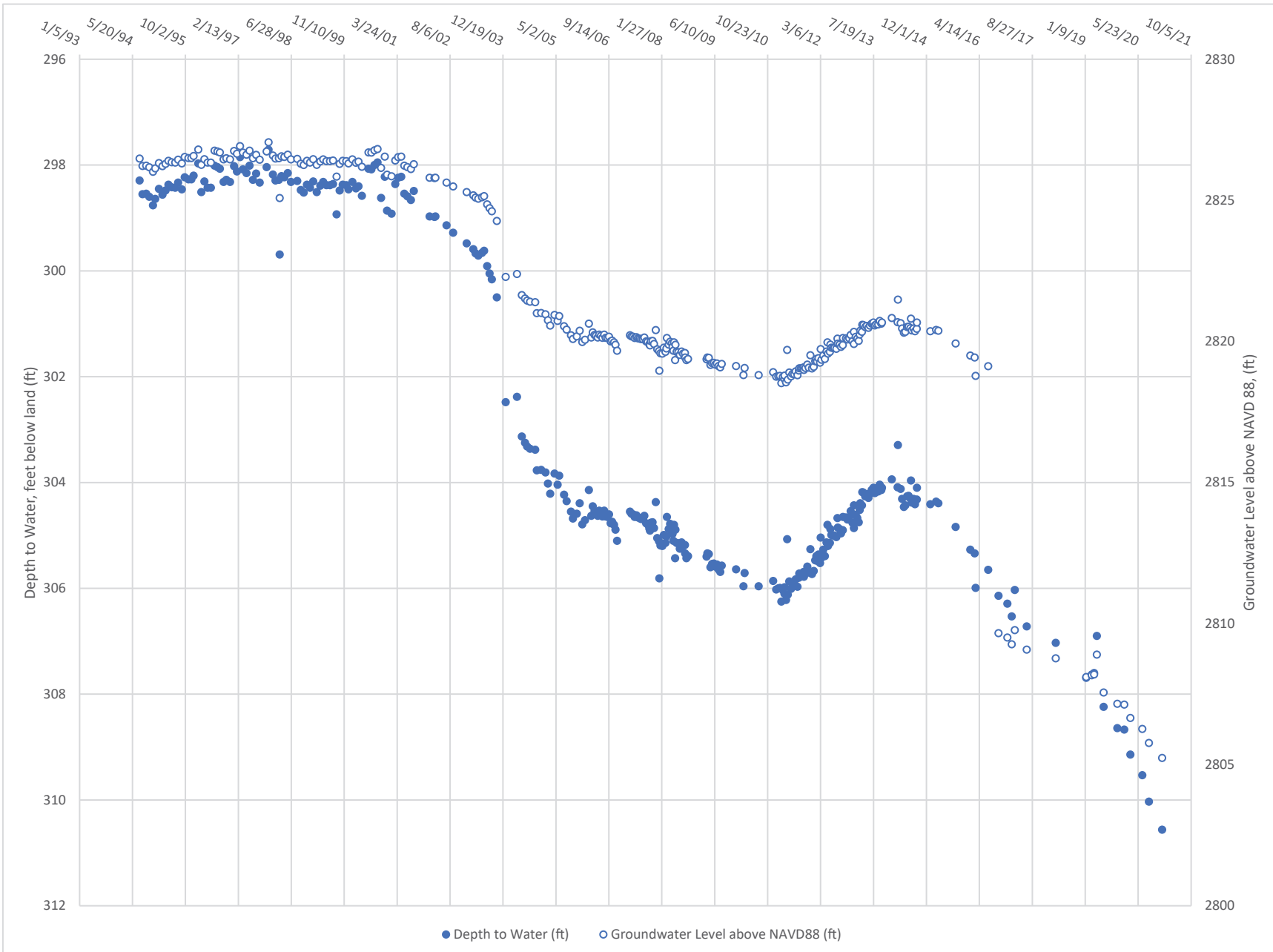


FIGURE 6

Depth to Water and Groundwater Level at USGS 342726117082402 004N003W12A002S

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