WATER SUPPLY ASSESSMENT REPORT (WSA)

PROJECT:

Palmdale Logistics Park (PLP) Southwest corner of Sierra Hwy and West Avenue "M" In the City of Palmdale

Developer:

The Covington Group

Water Purveyor:

Los Angeles County Waterworks District No. 40

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ACRONYMS AND ABBREVIATIONS

AF	acre-feet
AFY	acre-feet per year
AVEK	Antelope Valley-East Kern Water Agency
AWWA	American Water Works Association
cfs	cubic feet per second
EIR	Environmental Impact Report
GPCD	gallons per capita per day
gpd	gallons per day
GPM	Gallons Per Minute
HGL	Hydraulic Grade Line
HWL	High Water Level
IRWMP	Integrated Regional Water Management Plan
LACWD	Los Angeles County Waterworks District
RTP/ SCS	Regional Transportation Plan / Sustainable Communities Strategy
SF	Square feet
Project	PLP (Palmdale Logistics Park)
SB	Senate Bill
SWP	State Water Project
UWMP	Urban Water Management Plan
WSA	Water Supply Assessment

Introduction

The information provided in the preparation of this Water Supply Assessment is mainly obtained from the review of the Los Angeles County Waterworks District No. 40, Antelope Valley (LACWD40), Approved and adopted the Urban Water Management Plan (2020), and the information obtained from the LACWD Engineering staff. The District's Water Master Plan was not available for public review at the time of this report. However, we used the City of Palmdale Water District Master Plan to obtain the water demand for the industrial land use to calculate the maximum day water demand

Water Code Section 10910:

The California Water Code section 10910 commonly known as Senate Bill (SB) 610 requires preparation of a Water Supply Assessment (WSA). As part of that assessment, the public water system shall indicate whether its total projected water supplies available during normal, single-dry, and multiple-dry water years included in the 20-year projection contained in the urban water management plan will meet the projected water demand associated with the proposed project, in addition to the public water system's existing and planned future uses.

Water Code Section 10913. Project:

Section 10913 of the Water Code defines a "Project" for which a WSA must be prepared as any of the following:

a) A proposed residential development of more than 500 dwelling units.

- b) A proposed shopping center or business establishment employing more than 1,000 persons or having more than 500,000 square feet of floor space.
- c) A proposed commercial office building employing more than 1,000 persons or having more than 250,000 square feet of floor space.
- d) A proposed hotel or motel, or both, having more than 500 rooms.
- e) A 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.
- f) A mixed-use project that would demand an amount of water equivalent to, or greater than, the amount of water required by a 500-dwelling-unit project.

PROPOSED NEW DEVELOPMENT

Project Name:

Palmdale Logistics Park, in the City of Palmdale

Project Location:

Southeast corner (SEC) of Sierra HWY and East Avenue "M" in the City of Palmdale

Developer/Owner:

Covington Group 14180 Dallas Parkway Dallas, TX. 75254

Project Architect:

HPA Architecture 18831 Bardeen Ave., Suit #100 Irvine, CA. 92612 Tel: (949) 863-1770

Project Civil Engineer:

Westland Group 4150 Concourse, Suit 100 Ontario, CA. 91764



Palmdale Logistics Park, Project Site

Project Description:

The Palmdale Logistics Park is a project comprised of two warehouse buildings located within a 78.68 acreage of land at the southwest corner of Sierra Highway and West Avenue "M" in the City of Palmdale. The City's zoning designation for this site is General Industrial (M2). The Water purveyor for this site is the Los Angeles County Waterworks District 40 (LACWD40). The proposed development consists of

Building #1: 716,930 S.F. of warehouse

Building #2: 712,770 S.F. of warehouse



Proposed development site

Water Purveyor (Los Angeles County Waterworks District 40)

City of Palmdale (Region 34) in the Antelope Valley is one of the eight regions of the Los Angeles County Waterworks District (LACWD). The District maintains 1,057 miles of potable and recycle water lines and 71 potable water tank reservoirs.

The land use within the Antelope Valley (District) has been primarily agricultural uses; however, this area is in transition from mainly agricultural to residential and industrial uses. According to the 2020 UWMP, the region plans to maintain agricultural land use within Antelope Valley, meet the growing demand of the recreational spaces, and improve blended land use and planning management and flexible management strategies for climate change. The District's projected water demand is based on the land use as well as water duty factors.



Figure 3-1. District Service Area

Sources of water for domestic Use

1- State Water Project (SWP):

The District purchases water from Antelope Valley East Kern Water District (AVEK) which is mostly imported water from the State Water Project (SWP). AVEK is also able to purchase additional SWP during the low demand period and recharge the ground water basins and have the flexibility to pump the ground water during high demands and drought conditions. Groundwater from the Antelope Valley Groundwater Basin (6-44) has also been the secondary source of potable water for the District. Furthermore, the District has executed a Memorandum of Understanding (MOU) with AVEK to implement a new Water Supply Entitlement Acquisition program for new developments that will be used to acquire additional imported water supplies. In the normal, single and multiple dry year scenarios, no supply shortage is anticipated because AVEK can meet the District's demand by groundwater pumping. Based on the UWMP, the Drought Risk Assessment (DRA) shows that no single year during the five year drought period is projected to experience a supply shortage.

2- Groundwater:

LACWD40 has access to the groundwater and has historically been the secondary source of potable water supply. Although, the groundwater has not been a major source of water supply to the District but, it plays a critical role and continues to be an important resource within the Antelope Valley region. The Antelope Valley Groundwater Basin (6-44) is the underlying basin in the District and is composed of two primary aquifers and due to this basin being a closed water basin, the only major outflow is by pumping. The total storage capacity of the Antelope Valley Groundwater basin has been reported at 68 million ac-ft or over 22 trillion gallons.(DWR 2004). The District's historical ground water pumping is shown in the following table



Figure 6-1. Groundwater Sub-basin of Antelope Valley (from the 2014 Salt and Nutrient Plan)

Basin Name	Groundwater Pumped (ac-ft/yr)	Year
Antelope Valley	16,002	2016
	17,397	2017
	17,274	2018
	12,813	2019
	14,266	2020

As of 2020, the ground water adjudication judgement has provided the District with the additional groundwater rights summarized in the following table

Table 6-1A. Groundwater Volumes Available			
Description of Right	District No. 40 Annual		
	Groundwater Right (ac-ft)		
Non-overlying production right	6,789		
55% of the unused Federal Reserve Right	3,500		
Imported water return flows (39% of previous 5-year	10,400		
average of imported supplies)			
AVEK lease	2,600		
TOTAL	23,289		

Based on the District's groundwater pumping record and its available groundwater right, the district has remained substantially below its groundwater pumping right threshold. In addition, as part of the 2015 Court judgement, the Groundwater basin and pumping in the Antelope Valley is being closely monitored and managed to meet the Sustainable Groundwater Management Act requirements. Therefore, the LACWD40 groundwater source is a viable and sustainable secondary source of potable water. The district can increase its groundwater pumping by 35% and continue to remain below its pumping right.

Recycled water

Potential uses of the recycled water in the District 40 service area is handled by different entities and due to the lack of recycled water infrastructure we exclude the use of recycled water as part of this study.

Current LACWD40 Water Demands:

In 2020, the District used a total of 45,818 AF of drinking water of which 31,552 AF was purchased from AVEK (SWP) and 14,266 AF was pumped from the Antelope Valley Groundwater Basin. The residential delivery of the metered drinking water was 72% of all metered flow, about 5% of the total drinking water was not accounted for due to unmetered flow and/or water losses. Table 4-1 of the 2020 Urban Water Management Plan depicts the water demands for different uses. This table depicts that for the combined commercial and industrial developments the demand is under 16% of the total drinking water demand. Such ratio signifies that the commercial and industrial development to have a low impact on the water system except for the fire protection and or any new establishment requiring high levels of water usage (i.e. bottling, agrarian, meat processing, etc.).

Table 4-1 .I	Retail: Demands for Potable and Non-Potable \	Water-Actual	
	2020 Actual		
		Level of	Volume,
Use Type	Additional description	Treatment when	ac-ft/yr
		Delivered	
Single -family		Drinking water	29.191
Multi-family		Drinking water	3.866
Commercial		Drinking water	7.167
<mark>Industrial</mark>		Drinking water	<mark>82</mark>
Institutional/governmental	Includes large landscapes	Drinking water	2.544
Other Potable	Includes construction meters	Drinking water	266
	Includes other authorized consumption		539
Other	such as firefighting, flushing of water	Drinking water	
	mains, and fire flow tests		
Losses			2.163
		Total	45818

District's Future Water Demands and Population Growth

The District's population in 2020 is estimated based on the U.S. Census Bureau (Census) 2010 census for the census blocks within the District's service area using the DWR population tool (Economic Modeling and Analysis Tool) and the District's 2020 boundary. The District used one percent growth rate to project the future population. This growth rate is based on demographics & Growth Forecast Technical Report to the 2020 RTP/SCS (Connect SoCal) (SCAG 2020). The table below provides a summary of current and projected population to year 2045. This growth projection is in line with the Antelope Valley IRWMP.

Year	Population Served
2020	205,000
2025	216,000
2030	227,000
2035	238,000
2040	250,000
2045	263,000

Table 4-2.Retail: Use for Pot	Table 4-2.Retail: Use for Potable and Non-Potable Water – Projected						
	Projected water Use,ac-ft/yr						
Ose Type	2025	2030	2035	2040	2045		
Single -family	40,919	43,706	46,599	49,601	52,116		
Multi-family	2,212	2,364	2,518	2,683	2,819		
Commercial	3,112	2,617	2,178	1,780	1,870		
Industrial	<mark>3,315</mark>	<mark>3,546</mark>	<mark>3,777</mark>	<mark>4,022</mark>	<mark>4,226</mark>		
Institutional/governmental	1,035 870 726 595 62						
Losses	3,808	3,808 3,998 4,202 4,419 4,643					
Total	54,400	57,100	60,000	63,100	66,300		

a. The 2025-2040 projected water demand is based on GPCD times the projected population.

b. Losses are assumed to be seven percent of projected water demand.

Water Supply Reliability

More than seventy percent of the District's water source comes from AVEK, an agency that relies on imported State Water Project (SWP). The most reliable source of water for the LACWD40 is the groundwater which is limited to less than 30% of the total water demand. However, both the District and AVEK are engaged in multiple water management programs that provide them with some flexibility and back up resources to survive the multiple dry year water supply limitations. These water management programs and tools include:

- 1- Development and augmentation of projects for storage and banking the SWP during wet years and use in dry years
- 2- AVEK is constructing a pump station and an intertie to convey water from the westside water bank to serve its customers, This North South intertie and pipeline project will provide the flexibility of moving 28 million gallons of water per day to each water bank on the as needed basis.
- 3- AVEK Enterprise Bank, which will allow groundwater storage and recovery
- 4- Upper Amargosa Creek Recharge Project which is another groundwater recharge project, a joint effort between the City of Palmdale, AVEK, Palmdale Water District and Los Angeles County Waterworks District No. 40.

LACWD40 Multiple Consecutive Dry Years Water Supply and Demands

		2025	2030	2035	2040	2045
	Supply totals	55,164	58,002	61,102	64,402	67,602
	AVEK SWP	12,500	12,500	12,500	12,500	12,500
	AVEK Ground water from Banked	16,878	19,578	22,487	25,578	28,778
	Supplies					
	District's Ground water Production	6,789	6,789	6,789	6,789	6,789
	Rights					
First	District's Unused Federal Reserve	3,500	3,500	3,500	3,500	3,500
riist Voar	Right					
уса	District's Imported Water Return	10,400	10,400	10,400	10,400	10,400
	Flows					
	District /AVEK Lease	2,600	2,600	2,600	2,600	2,600
	New supply from AVEK	1,733	1,733	1,733	1,733	1,733
	Recycled water	764	902	1,102	1,302	1,302
	Demand totals	55,164	58,002	61,102	64,402	67,602
	Difference (supply minus demand)	0	0	0	0	0
	Supply totals	59,776	59,914	61,102	64,402	67,602
	AVEK SWP	32,700	32,700	32,700	32,700	32,700
	AVEK Groundwater from banked	0	0	2,278	5,378	8,578
	Supplies					
	District's Groundwater Production	6 <i>,</i> 789	6,789	6,789	6,789	6,789
	Rights					
	District's Unused Federal Reserve	3,500	3,500	3,500	3,500	3,500
Second	Right					
vear	District's Imported Water Return	10,400	10,400	10,400	10,400	10,400
ycai	Flows					
	District /AEVK Lease	2,600	2,600	2,600	2,600	2,600
	New supply from AVEK	1,733	1,733	1,733	1,733	1,733
	Recycled Water	764	902	1,102	1,302	1,302
	Demand totals	55,164	58,002	61,102	64,402	67,602
	Difference (supply minus demand)	4,612	1,912	0	0	0

		2025	2030	2035	2040	2045
	Supply totals	55,164	58,002	61,102	64,402	67,602
	AEVK SWP	13,500	13,500	13,500	13,500	13,500
	AVEK Groundwater from Banked	15,878	18,578	21,478	24,578	27,778
	Supplies					
	District's Groundwater Production	6,789	6,789	6,789	6,789	6,789
Third	Rights					
year	District's Unused Federal Reserve Right	3,500	3,500	3,500	3,500	3,500
	District's Imported Water Return Flows	10,400	10,400	10,400	10,400	10,400
	District /AVEK Lease	2,600	2,600	2,600	2,600	2,600
	New supply from AVEK [®]	1,733	1,733	1,733	1,733	1,733
	Recycled water ^b	764	902	1,102	1,302	1,302
	Demand totals	55,164	58,002	61,102	64,402	67,602
	Difference (supply minus demand)	0	0	0	0	0
	Supply totals	55,164	58,002	61,102	64,402	67,602
	AEVK SWP	25,900	25,900	25,900	25,900	25,900
	AVEK Groundwater from Banked	3,478	6,178	9,078	12,178	15,378
	Supplies					
	District's Groundwater Production	6,789	6,789	6,789	6,789	6,789
Fourth	Rights					
year	District's Unused Federal Reserve Right	3,500	3,500	3,500	3,500	3,500
	District's Imported Water Return Flows	10,400	10,400	10,400	10,400	10,400
	District /AVEK Lease	2,600	2,600	2,600	2,600	2,600
	New supply from AVEK [®]	1,733	1,733	1,733	1,733	1,733
	Recycled water ^b	764	902	1,102	1,302	1,302
	Demand totals	55,164	58,002	61,102	64,402	67,602
	Difference (supply minus demand)	0	0	0	0	0
	Supply totals	55,164	58,002	61,102	64,402	67,602
	AEVK SWP	18,200	18,200	18,200	18,200	18,200
	AVEK Groundwater from Banked	11,178	13,878	16,778	19,878	23,078
	Supplies					

Fifth	District's Groundwater Production	6,789	6,789	6,789	6,789	6,789
year	Rights					
	District's Unused Federal Reserve Right	3,500	3,500	3,500	3,500	3,500
	District's Imported Water Return Flows	10,400	10,400	10,400	0 10,400	10,400
	District /AVEK Lease	2,600	2,600	2,600	2,600	2,600
	New supply from AVEK [®]	1,733	1,733	1,733	1,733	1,733
	Recycled water ^b	764	902	1,302	1,302	1,302
	Demand totals	55,164	58 <i>,</i> 002	64,402	2 64,402	67,602
	Difference (supply minus demand)	0	0	0	0	0
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Resulting % Use Reduction from WSCP action	n/a
2023	Total
Total Water Use	51,570
Total Supplies	70,884
Surplus/(Shortfall w/0 WSCP Action)	19,314
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP- supply augmentation benefit	n/a
WSCP- use reduction savings benefit	n/a
Revised Surplus /(shortfall)	n/a
Resulting % Use Reduction from WSCP action	n/a
2024	Total
Total Water Use	53,367
Total Supplies	71,738
Surplus/(Shortfall w/0 WSCP Action)	18,371
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP- supply augmentation benefit	n/a
WSCP- use reduction savings benefit	n/a
Revised Surplus /(shortfall)	n/a
Resulting % Use Reduction from WSCP action	n/a

Table 7-5. Five- Year Drought Risk Assessment Tables to Address Water Code Section 10635(b)			
2025	Total		
Total Water Use	55,164		
Total Supplies	72,165		
Surplus /(Shortfall w/0 WSCP Action)	17,001		
Planned WSCP Actions (use reduction and supply augmentation)			
WSCP- supply augmentation benefit	n/a		
WSCP- use reduction savings benefit	n/a		
Revised Surplus /(Shortfall)	n/a		
Resulting % Use Reduction from WSCP action	n/a		

Palmdale Logistics Park (PLP) Projected Water Demand

Palmdale Logistics Park project is located at the southwest corner of Sierra Hwy and West Avenue 'M'. The proposed development involves improvement of approximately 70.68 acres of land with 2 warehouse buildings totaling 1,400,080 square feet.

The City of Palmdale UWMP (2020) estimates the average potable water demand for the Palmdale Logistics Park development to be (4.06 GPD/AC). This unit Demand Factor of 4.06, is based on 2017-2020 consumption and land use classifications. Therefore, the required domestic water for this project is estimated as follows: (4.06 acre-ft/ac or 3,624 gpd / Ac). Table 3-9 of the City's Water Master Plan shows the Water Duty Factor of 1,074 gpd/acre). However, we used the higher demand factor (3,624 gpc/ac) for this project.

Land Use Type (Vacant Parcels)	Area (acres)	WDF (gpd/acre)	Demand (mgd)	Demand (acre-ft/yr)
Commercial	4,950	1,258	6.23	6,980
Industrial	650	1,074	0.70	790
Public	200	2,500	0.50	570
Low Density Residential	10,010	717	7.18	8,040
Medium Density Residential	1,620	3,309	5.36	6,000
High Density Residential	370	4,130	1.53	1,720
Non-Recreational Open Space	350	1,357	0.47	524
Unknown	373	330	0.12	140
Total Vacant Parcel Demand			24,800	
Existing Demand (2010)			19,800	
Total Demand Excluding Conservation			44,600	

Table 3-9

3,624 gpd/ac x 70.68 ac = 256,144 GPD (Average Day Demand) 256,144 x *1.7 (Peaking factor) = 435,445 GPD (Max Day Demand) 435,445 ÷ 24 = 18,144 GPH 18,144 ÷ 60 = 302 gpm (Max Day demand)

The fire flow requirement for the industrial building is 4,000 gpm.

The total water demand including the fire flow demand for Palmdale Logistics Park development is 4,302 gpm which is based on (Max Day + fire flow) at 20 psi residual pressure.

Palmdale Logistics Park (PLP) Water Pressure Zone

The general ground elevation at PLP proposed development is about 2,530 feet above sea level. According to the LACWD40 engineering staff, this site is being served by 2684 PZ tank. Therefore, the expected static water pressure available at the PLP site is about 66 psi which is an acceptable water pressure for warehouse operation.

Water Storage Requirements

According to LACWD40 engineering staff, the current available water storage for 2684 PZ is only 3 MG and that there is no storage capacity available to serve the Palmdale Logistics Park development. The fire flow storage requirement is a minimum of 4 hours at 4,000 gpm plus operational storage and emergency storage. Thus, the fire flow storage required for the proposed development is about 1 MG. However, the District has stated that they will require construction of a 3 MG water storage tank as a condition of this development

Transmission Pipeline requirements

The PLP has not gone through a formal development review by the LACWD40 to establish the need for construction the water infrastructure serving this site. However, based on the informal information obtained from the Los Angeles County District 40 staff, the existing pipelines fronting the property are serving different pressure zones, therefore, they need approximately 2 miles of 24-inch transmission pipelines including 16-inch distribution water mains and on-site fire hydrants to serve the proposed development.

Conclusion:

Based on the above analysis and the information provided in the adopted 2020 Urban Water Management Plan for the LACWD No. 40, the District has documented and is prepared to serve its existing customers including the proposed Palmdale Logistics Park (PLP) potable water demands through year 2045. Furthermore, LACWD40 in collaboration with the AVEK has secured contingency plans to deliver uninterruptable water supply to PLP. The LACWD has stated that a 3 MG water storage tank including construction of new transmission and distribution pipelines to serve this development will be necessary. The location of the new water storage tank and the length and alignment of the new transmission and distribution pipelines will be determined after the formal development review process with the LACWD40.. Therefore, in accordance with the foregoing and the standards set forth by SB 610, this WSA concludes that the total projected water supplies available to LA County Water District No. 40 during normal, single-dry, and multiple-dry water years over the next 20 years will be sufficient to meet the projected water demands for the proposed Project.