

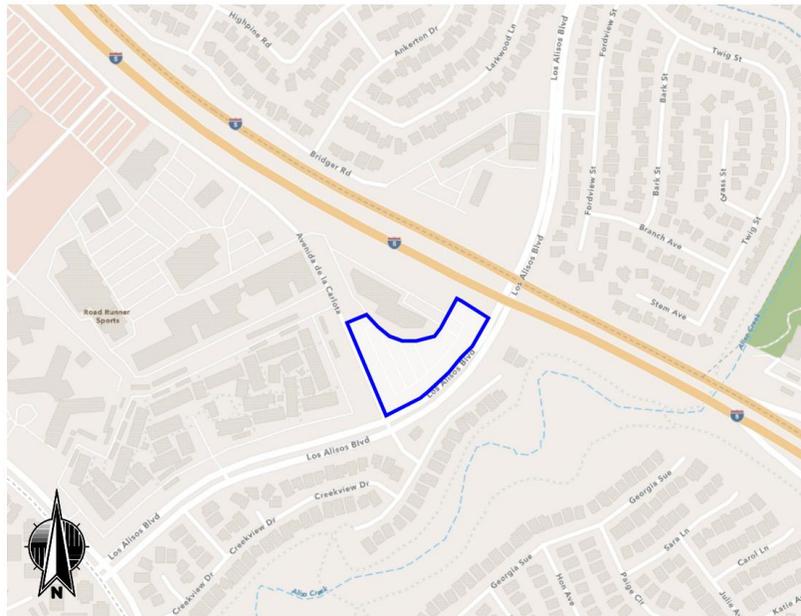
TECHNICAL MEMORANDUM

Oakbrook Plaza Estimated Water Demands

PREPARED FOR: City of Laguna Hills Community Development Department
PREPARED BY: Fuscoe Engineering, Inc.
DATE: February 12, 2025

Project Description

The Oakbrook Plaza Project ("Project") is situated in the City of Laguna Hills ("City") in an existing 8.42-acre office plaza (zoned as Village Commercial) at the intersection of Avenida De La Carlota and Los Alisos Boulevard. The proposed project will subdivide the existing office plaza into two parcels (4.18 acres and 4.24 acres), developing 2.66 acres (of the proposed 4.18-acre parcel) of the existing southerly surface parking lot into a 4-story apartment building with a subterranean parking garage with 2 floors. The proposed apartment building will consist of 250 dwelling units (du) including studio, 1-bedroom, and 2-bedroom units, and 26,350 square feet (sf) of irrigated landscaping. To ensure regional and local water supply capacity is available to handle water demand changes from the proposed Project, existing and proposed water calculations were performed to quantify a net change in water demands to compare with the regional water system capacities. These calculations and associated analyses are provided below.



VICINITY MAP
NOT TO SCALE

Water System Findings

Per the El Toro Water District Urban Water Management Plan (2020) and El Toro Water District Sewer and Water Master Plan (2004), El Toro Water District ("The District") provides water through approximately 9,500 service connections and is delivered across 180 miles of pipeline within five cities in South Orange County (Aliso Viejo, Mission Viejo, Laguna Hills, Laguna Woods, and Lake Forest). Demands within the District's jurisdiction are anticipated to follow a stable trend, as the district is essentially built-out. Water usage has had a stable annual average of 8,972 acre-feet (AF) over the past decade. As a result, the projected total water demand is only expected to increase by 8.5% from 2020 (8,437AF) to 2045 (9,156AF).

The ETWD Sewer and Water Master Plan depicted anticipated future redevelopments within the District's jurisdiction to evaluate the future impacts. Within the City of Laguna Hills, the Urban Village redevelopment project near the Laguna Hills Mall was anticipated to construct additional residential and mixed-use facilities. Our Project site is within the footprint of this redevelopment area. See Attachment A. The ETWD Sewer and Water Master Plan projected 176 gpm additional water demand required by the proposed Urban Village project in the City of Laguna Hills. The Project site is in Gravity Zone (570) as specified in the ETWD Sewer and Water Master Plan.

To determine if the Oakbrook Plaza Project fits within the planned water demand increases within the District's water projections, a comparison of existing and proposed water demands has been conducted. The existing Project Site is used as a parking lot for an office building and is shown as Village Commercial in the City's zoning map and associated water planning documentation. Proposed apartment water demands were estimated using the City of Los Angeles/Los Angeles County Sanitation District's characteristic sewage generation factors, provided by El Toro Water District. A reduction factor has been applied based on the Sanitation District's generation factors and confirmation with El Toro Water District.

Table 1 Existing and Proposed Water Demands

		Existing Water Demands			
Land Use	Water Demand	Water Demand Factor	Water Demand		
			(gpm)	(gpd)	(AFY)
VC (Village Commercial) ⁽⁴⁾	0	0	0	0	0
Landscaped Area	29,600 sf	ETWU Method ⁽³⁾	1	1,851	2.07
Total Existing			1	1,851	2.07
		Proposed Water Demands			
Land Use	Water Demand	Reduction Factor	Water Demand		
			(gpm)	(gpd)	(AFY)
Residential Units	29,875 ⁽¹⁾⁽²⁾ gpd	0.44 ⁽¹⁾	10	13,145	14.72
Landscaped Area	26,350 sf	ETWU Method ⁽³⁾	1	1,648	1.85
Total Proposed			11	14,793	16.57
		Existing versus Proposed Water Demand Summary			
Total Proposed			11	14,793	16.57
Total Existing			1	1,851	2.07
Net Change			+10	+12,942	+14.50
Notes					
¹ Based on City of Los Angeles characteristic sewage generation factors as directed by ETWD. 0.44 factor is to reduce by 44%, since no food is being produced.					
² Based on a count of 27 studios, 140 (1) bedroom, 83 (2) bedroom apartment units.					
³ Based on Estimated Annual Water Use equation: (Eto*plant factor*landscaped area* 0.62)/irrigation efficiency. Utilizing CIMIS Reference Evapotranspiration Zones Map ET of 49.7 in/yr; conservative plant factor of 0.6; and irrigation efficiency of 0.81 for proposed conditions.					
⁴ Project limit consists of the existing surface parking lot of the office plaza only.					

As shown above, total Project water demands are estimated to increase by approximately 10 gpm. This increase in demand represents 2.4% of the projected increase of 719 AFY of total demands through 2045 within the District's service area and 5.7% of the anticipated 176 gpm increase within the Urban Village Project as noted in the 2020 UWMP and 2004 Sewer and Water Master Plan. Additionally, this project does not fall within any areas of deficiency, as identified within the 2004 El Toro Water District Water & Sewer Master plan. Therefore, impacts related to water supply availability and capacity to serve the Project are not significant.

Fire Flow Requirements

Under California Fire Code and for buildings in Orange County Fire Authority (OCFA) jurisdiction, the proposed Project must have adequate infrastructure and pressure to provide 3,000 gpm of flows for a 4-hour duration. See Attachment B. A fire flow tests were conducted by OCFA on 9/13/2024. The field-testing results returned a flow rate of 1,375 gpm at a residual pressure of

20 psi at test hydrant, WHY-MB499-006 and a flow rate of 1,350 gpm at a residual pressure of 20 psi at test hydrant WHY-MB499-009. See Attachment C for fire flow test results and Fire Code requirements associated with the Project.

Conclusion

The above findings demonstrate that the proposed increase in water demand from developing the Project area will not have a significant impact on regional water supply capacity. There is sufficient water supply capacity as shown above and as stated in the El Toro Water District 2020 UWMP to handle proposed increases in water demands from the Project. Therefore, no significant regional or local water impacts are anticipated.

List of Attachments

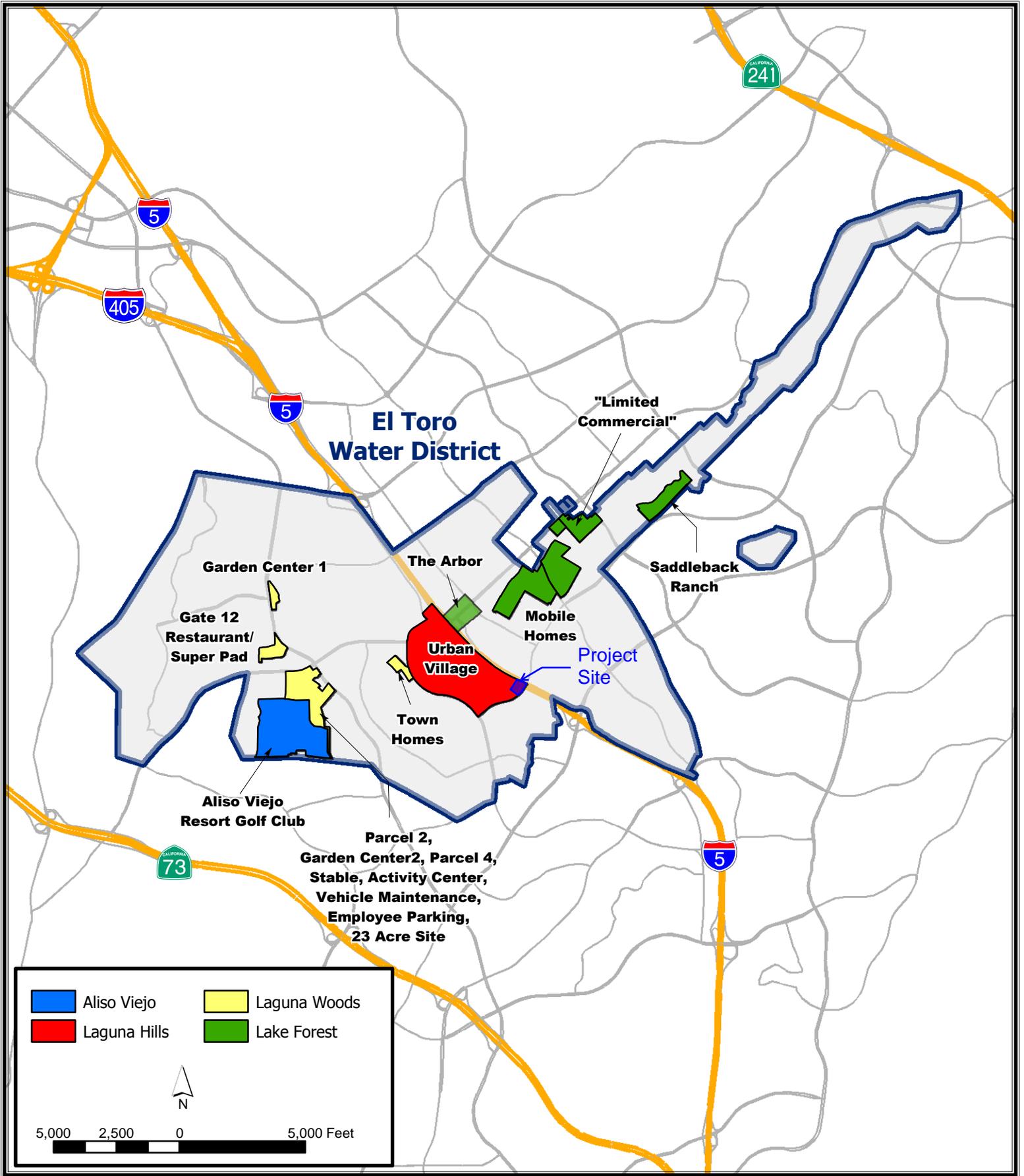
Attachment A – El Toro Water District Sewer and Water Master Plan Excerpt

Attachment B – OCFA Fire Flow Requirements

Attachment C – Fire Flow Test Results

Attachment D – Site Plan

Attachment A – El Toro Water District Sewer and Water Master Plan Excerpt



	Aliso Viejo		Laguna Woods
	Laguna Hills		Lake Forest

N

5,000 2,500 0 5,000 Feet



**El Toro Water District
Redevelopment Areas**

Attachment B – OCFA Fire Flow Requirements

ATTACHMENT 23

CFC TABLE B105.1(2): Minimum Required Fire Flow and Flow Duration for Buildings in OCFA Jurisdiction

FIRE FLOW CALCULATION AREA (square feet)					DETACHED SINGLE-FAMILY RESIDENCE/DUPLEX		OTHER BUILDINGS			
					FIRE FLOW (gallons per minute at 20 psi residual)		DURATION (hours)	FIRE FLOW (gallons per minute at 20 psi residual)		DURATION (hours)
Type IA/IB	Type IIA/IIIA	Type IV/VA	Type IIB/IIIB	Type VB	NS	S		NS	S	
0-22700	0-12700	0-8200	0-5900	0-3600	1000	1000	1	1500	1500	2
22701-30200	12701-17000	8201-10900	5901-7900	3601-4800	1750	1000	NS: 2 S: 1	1750	1500	
30201-38700	17001-21800	10901-12900	7901-9800	4801-6200	2000	1000		2000	1500	
38701-48300	21801-24200	12901-17400	9801-12600	6201-7700	2250	1125		2250	1500	
48301-59000	24201-33200	17401-21300	12601-15400	7701-9400	2500	1250		2500	1500	
59001-70900	33201-39700	21301-25500	15401-18400	9401-11300	2750	1375		2750	1500	
70901-83700	39701-47100	25501-30100	18401-21800	11301-13400	3000	1500	NS: 3 S: 1	3000	1500	3
83701-97700	47101-54900	30101-35200	21801-25900	13401-15600	3250	1625		3250	1625	
97701-112700	54901-63400	35201-40600	25901-29300	15601-18000	3500	1750		3500	1750	
112701-128700	63401-72400	40601-46400	29301-33500	18001-20600	3750	1875		3750	1875	
128701-145900	72401-82100	46401-52500	33501-37900	20601-23300	4000	2000	NS: 4 S: 1	4000	2000	4
145901-164200	82101-92400	52501-59100	37901-42700	23301-26300	4250	2125		4250	2125	
164201-183400	92401-103100	59101-66000	42701-47700	26301-29300	4500	2250		4500	2250	
183401-203700	103101-114600	66001-73300	47701-53000	29301-32600	4750	2375		4750	2375	
203701-225200	114601-126700	73301-81100	53001-58600	32601-36000	5000	2500		5000	2500	
225201-247700	126701-139400	81101-89200	58601-65400	36001-39600	5250	2625		5250	2625	
247701-271200	139401-152600	89201-97700	65401-70600	39601-43400	5500	2750		5500	2750	
271201-295900	152601-166500	97701-106500	70601-77000	43401-47400	5750	2875		5750	2875	
295901+	166501+	106501-115800	77001-83700	47401-51500	6000	3000		6000	3000	
		115801-125500	83701-90600	51501-55700	6250	3125		6250	3125	
		125501-135500	90601-97900	55701-60200	6500	3250		6500	3250	
		135501-145800	97901-106800	60201-64800	6750	3375		6750	3375	
		145801-156700	106801-113200	64801-69600	7000	3500		7000	3500	
		156701-167900	113201-121300	69601-74600	7250	3625	7250	3625		
		167901-179400	121301-129600	74601-79800	7500	3750	7500	3750		
		179401-191400	129601-138300	79801-85100	7750	3875	7750	3875		
		191401+	138301+	85101+	8000	4000	8000	4000		

S: Provided with an approved sprinkler system throughout the structure NS: No fire sprinklers or partially protected with a sprinkler system

Parking Garage = IA = 315,018/565,806 SF = 0.56
0.56 * 3,000 = 1,680 gpm

Residential Units = IIIA = 250,788/565,806 SF = 0.44
0.44 * 3,000 = 1,320 gpm

Total Required = 1,680 + 1,320 = 3,000 gpm

Attachment C – Fire Flow Test Results



OCFA WATER AVAILABILITY FORM

SECTION A: To be completed by customer

Project Name: Oakbrook Plaza OCFA SR #: ASSIGNED UPON PLAN SUBMITTAL

Project Address: 24422 Avenida de la Carlota, Laguna Hills, CA City: Laguna Hills

Applicant Phone #: (949) 474-1960 Fax #: ()

Area of largest building 120,000 ft²; Construction type? (check one): IA IB IIA IIB IIIA IIIB IV VA VB

Is this building sprinklered throughout? (check one) N Y

SECTION B: To be completed by local water department/district

Customer to provide results to OCFA

Water Department/District: El Toro Water District

Test location (indicate address or cross-streets & provide reference map): 24422 Avenida de la Carlota, Laguna Hills, CA

Hydrant number(s) (if applicable): WHY-MB499-006

Elevation of test hydrant: 371.29 feet above sea level

Date of Test¹: 9/24/2024 Time of test¹: 11:00 am pm

¹ Test to be performed as close as possible to the time that the lowest flows and pressures are expected (e.g., M-F, 6:00 – 9:00 am and 5:00 - 9:00 pm)

FLOW TEST RESULTS			
TEST INFORMATION IS VALID FOR 6 MONTHS FROM DATE TEST IS PERFORMED			
Static pressure:	73 psi	Residual pressure:	20 psi
Observed flow:	0 gpm	Flow calc'd at 20 psi:	1,375 gpm

Check the box if the test information above was obtained in a manner other than an actual flow test (i.e. by computer modeling).

Based on fluctuations known to exist at the site of the test, provide estimated values for the following:

Maximum static pressure	86 psi	Minimum static pressure	73 psi
Minimum residual pressure	20 psi	Minimum residual flow	1,375 gpm

I have witnessed and/or reviewed this water flow information and by personal knowledge and/or on-site observation certify that the above information is correct.

Name: Hannah Ford Company/Agency: El Toro Water District

Signature: Hannah Ford Digitally signed by Hannah Ford
Reason: I am approving this document
Date: 2024.09.24 11:43:45-07'00' Title: Director of Engineering

Date: September 24, 2024



OCFA WATER AVAILABILITY FORM

SECTION A: To be completed by customer

Project Name: Oakbrook Plaza OCFA SR #: ASSIGNED UPON PLAN SUBMITTAL

Project Address: 24422 Avenida de la Carlota, Laguna Hills, CA City: Laguna Hills

Applicant Phone #: (949) 474-1960 Fax #: ()

Area of largest building 120,000 ft²; Construction type? (check one): IA IB IIA IIB IIIA IIIB IV VA VB

Is this building sprinklered throughout? (check one) N Y

SECTION B: To be completed by local water department/district Customer to provide results to OCFA

Water Department/District: El Toro Water District

Test location (indicate address or cross-streets & provide reference map): 24422 Avenida de la Carlota, Laguna Hills, CA

Hydrant number(s) (if applicable): WHY-MB499-009

Elevation of test hydrant: 369.70 feet above sea level

Date of Test¹: 9/13/2024 Time of test¹: 11:00 am pm

¹ Test to be performed as close as possible to the time that the lowest flows and pressures are expected (e.g., M-F, 6:00 – 9:00 am and 5:00 - 9:00 pm)

FLOW TEST RESULTS			
TEST INFORMATION IS VALID FOR 6 MONTHS FROM DATE TEST IS PERFORMED			
Static pressure:	73 psi	Residual pressure:	20 psi
Observed flow:	0 gpm	Flow calc'd at 20 psi:	1,350 gpm

Check the box if the test information above was obtained in a manner other than an actual flow test (i.e. by computer modeling).

Based on fluctuations known to exist at the site of the test, provide estimated values for the following:

Maximum static pressure	86 psi	Minimum static pressure	73 psi
Minimum residual pressure	20 psi	Minimum residual flow	1,350 gpm

I have witnessed and/or reviewed this water flow information and by personal knowledge and/or on-site observation certify that the above information is correct.

Name: Hannah Ford Company/Agency: El Toro Water District

Signature: Hannah Ford Digitally signed by Hannah Ford
Reason: I am approving this document
Date: 2024.09.24 11:44:03-07'00' Title: Director of Engineering

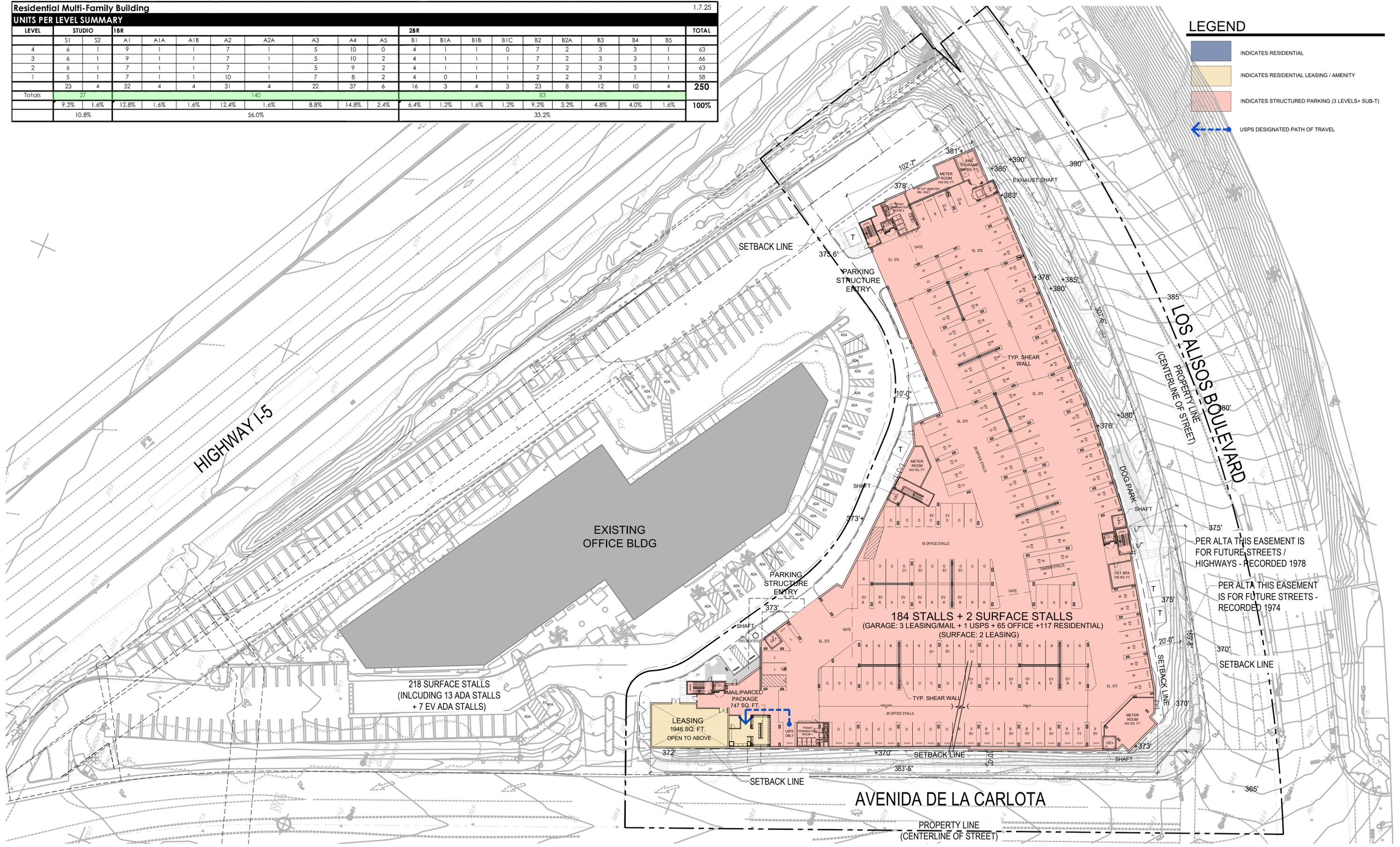
Date: September 24, 2024

Attachment D – Site Plan

Residential Multi-Family Building																				1.7.25																			
UNITS PER LEVEL SUMMARY																																							
LEVEL	STUDIO		1BR					2BR					TOTAL																										
	S1	S2	A1	A1A	A1B	A2	A2A	A3	A4	A5	B1	B1A	B1B	B1C	B2	B2A	B3	B4	B5																				
4	6	1	9	1	1	7	1	5	10	0	4	1	1	0	7	2	3	3	1	63																			
3	6	1	9	1	1	7	1	5	10	2	4	1	1	1	7	2	3	3	1	66																			
2	6	1	7	1	1	7	1	5	9	2	4	1	1	1	7	2	3	3	1	63																			
1	5	1	7	1	1	10	1	7	8	2	4	0	1	1	2	2	3	1	1	58																			
Totals	23	4	32	4	4	31	4	22	37	6	16	3	4	3	23	8	12	10	4	250																			
	9.2%		1.6%		12.8%		1.6%		1.6%		12.4%		1.6%		8.8%		14.8%		2.4%		6.4%		1.2%		1.6%		1.2%		9.2%		3.2%		4.8%		4.0%		1.6%		100%
	10.8%										56.0%										33.2%																		

LEGEND

- INDICATES RESIDENTIAL
- INDICATES RESIDENTIAL LEASING / AMENITY
- INDICATES STRUCTURED PARKING (3 LEVELS+ SUB-T)
- USPS DESIGNATED PATH OF TRAVEL



24422 AVENIDA DE LA CARLOTA
 LAGUNA HILLS, CA
 BUCHANAN STREET PARTNERS



RESIDENTIAL BUILDING
 Site Plan - Parking Level



A1.0
 Scale
 Job No. 2022-834
 Date 12-17-2024