Appendix L
Sewer and Water Study

VALLECITOS WATER DISTRICT

PACIFIC MULTI-FAMILY WATER AND SEWER STUDY

WORK ORDER # 260399

FINAL TECHNICAL MEMORANDUM

November 17, 2022

Prepared By: Elizabeth Lopez, Development Services Senior Engineer and
Lisa Whitesell, Engineering Technician III

INTRODUCTION

The proposed Pacific Multi-Family (Project) is composed of 5 separate lots with 449 residential multi-family units on a total of 33.19-acres. Lot 1 is 4.419 acres with 101 units, Lot 2 on 4.583 acres with 108 units, Lot 3 on 4.308 acres with 172 units, Lot 4 on 1.781 acres with 68 units and Lot A with remainder acreage of 18.099 acres to be a conservation easement open space for a grand total of 33.19 acres located between South Pacific Street, La Mirada Drive, Linda Vista Drive and Las Posas Road (APN's 219-222-01, 219-222-02, 219-222-03 & 219-222-04).

The Project is located within VWD's boundaries for water and wastewater service. The property does not need to annex, both water and wastewater services can be provided by the Vallecitos Water District (VWD).

All new projects undergo evaluation by VWD to determine if the current water and sewer infrastructure is sufficient to accommodate the proposed water demands and sewage generation.

This study projects water demand and sewage generation increases due to the project densification. It analyzes the following aspects of VWD's infrastructure and makes recommendations for capital improvements for impacts that are created due to the land use change:

- Water distribution system, including the need to upsize pipelines, install new pipelines, or install flow control facilities.
- Water storage, including the need for additional storage and the adequacy of existing storage tanks and reservoirs to serve the proposed development.
- Water pump stations, including the need to install new pump stations or upsize existing pump stations to serve the proposed development.
- Wastewater collection system, including the need to upsize pipelines and manholes, or the need to install new pipelines and manholes.
- Wastewater lift stations, including the need to install new lift stations or upsize existing lift stations to serve the proposed development.

- Wastewater land outfall, including the need to construct a parallel land outfall to serve this and other proposed developments.
- Wastewater treatment facilities, including the need for obtaining additional capacity at the Encina Water Pollution Control Facility (EWPCF) or for expanding the Meadowlark Water Reclamation Facility (MRF).
- Existing VWD water and/or sewer facilities not being utilized for proposed development will need to be abandoned per VWD Standards and Specifications. Asbestos cement pipe shall be properly removed and legally disposed of by the Developer.

WATER SYSTEM ANALYSIS

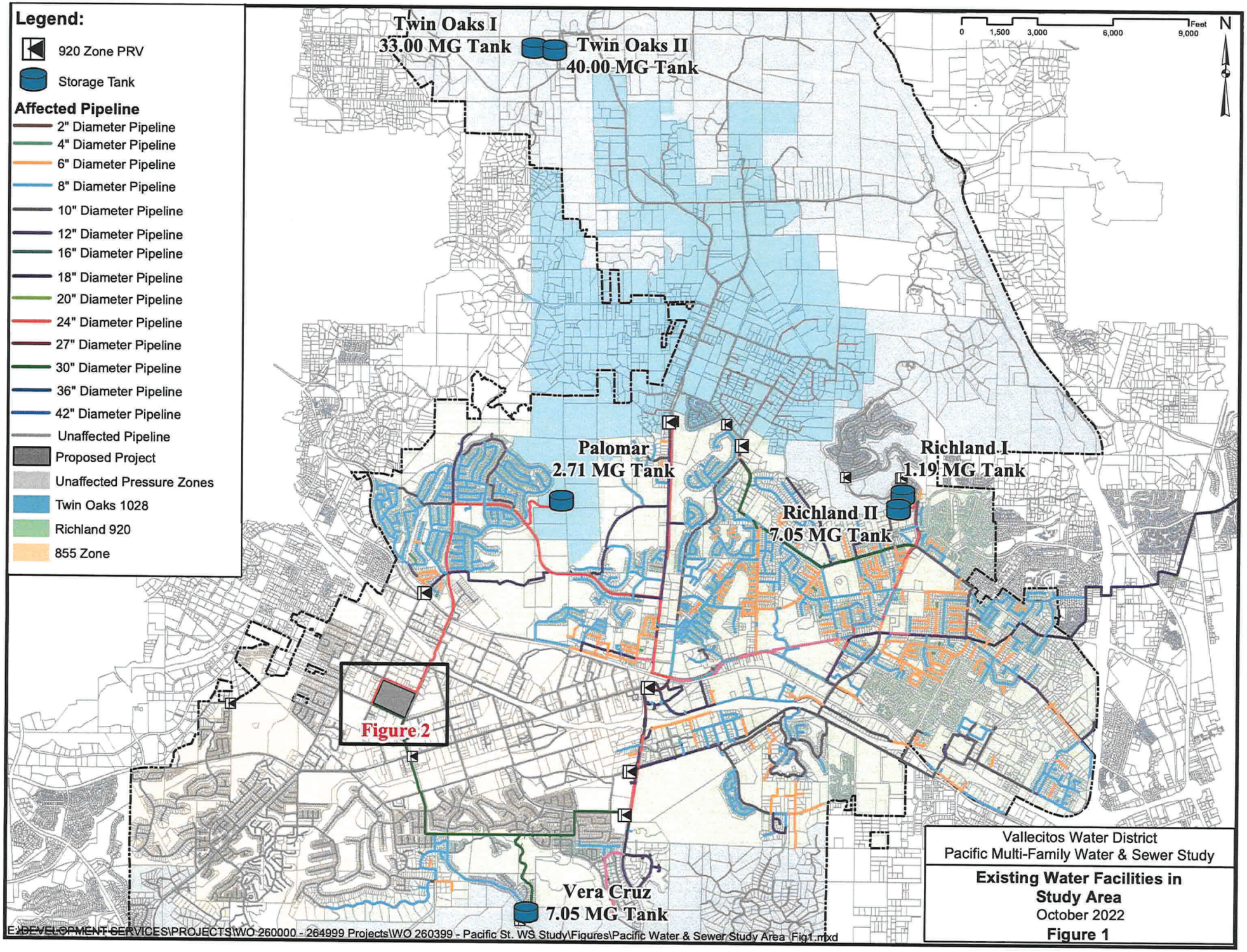
The proposed 33.19-acre Project lies completely within VWD's 855 Pressure Zone. Figures 1 and 2 show the development's location in relation to pressure zone boundaries, identify pipelines within the vicinity of the development, and identify storage reservoirs that supply the development area.

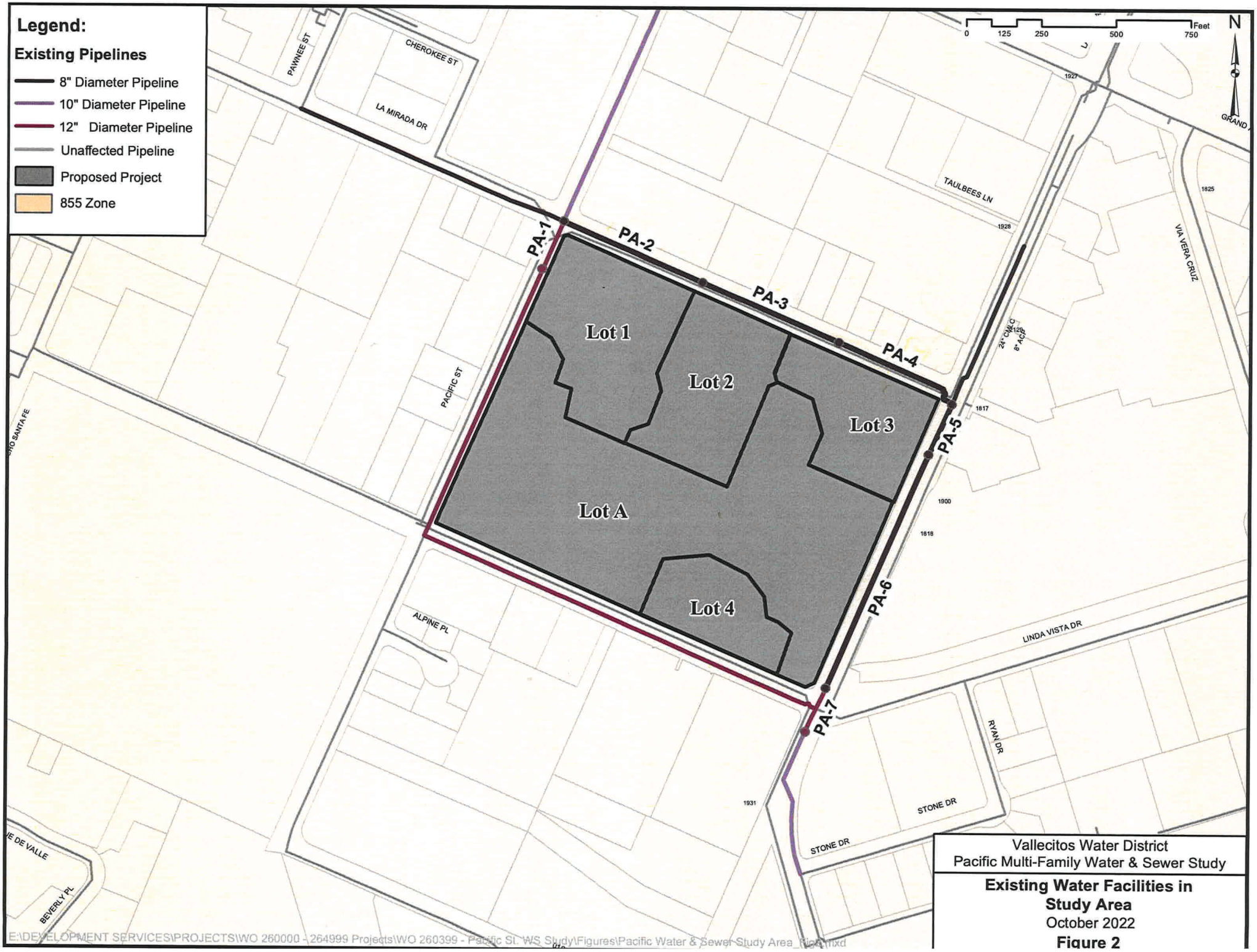
Water Demand Projections

The City of San Marcos approved land use designation for the proposed Project is Industrial. The 2018 VWD Master Plan based its ultimate water demand planning on the same land use, Industrial. Table 1 provides the average water demand generated both under the density planned for the 2018 Master Plan and with the proposed Project. The table shows that Pacific Multi-Family will increase the projected average water demand from the 2018 Master Plan land use by **73,703** gallons per day.

Table 1 – Project Estimated Water Demands for Pacific Multi-Family

Land Use Type	Area (acres)	Residential Units	Duty Factor (gpd/ac)	Water Demand (gpd)
2018 Master Plan Land Use Demand				
Industrial	33.19	-	800	26,552
Total	**33.19**	-	-	**26,552**
Proposed Project Demand				
Lot 1 - Residential 20-30 du/ac	4.419	101	6,000	26,514
Lot 2 - Residential 20-30 du/ac	4.583	108	6,000	27,498
Lot 3 - Residential 30-40 du/ac	4.308	172	7,000	30,156
Lot 4 - Residential 30-40 du/ac	1.781	68	7,000	12,467
Lot A - Open Space	18.099	-	200	3,620
Total	**33.19**	**449**	-	**100,255**
Water Demand Increase				**73,703**


Legend:
920 Zone PRV
Storage Tank
Affected Pipeline
2" Diameter Pipeline
4" Diameter Pipeline
6" Diameter Pipeline
8" Diameter Pipeline
10" Diameter Pipeline
12" Diameter Pipeline
16" Diameter Pipeline
18" Diameter Pipeline
20" Diameter Pipeline
24" Diameter Pipeline
27" Diameter Pipeline
30" Diameter Pipeline
36" Diameter Pipeline
42" Diameter Pipeline
Unaffected Pipeline
Proposed Project
Unaffected Pressure Zones
Twin Oaks 1028
Richland 920
855 Zone
Twin Oaks I
33.00 MG Tank
Twin Oaks II
40.00 MG Tank
Palomar
2.71 MG Tank
Richland I
1.19 MG Tank
Richland II
7.05 MG Tank
Vera Cruz
7.05 MG Tank
Figure 2
0 1,500 3,000 6,000 9,000 Feet
N
E:\DEVELOPMENT SERVICES\PROJECTS\WO 260000 - 264999 Projects\WO 260399 - Pacific St. WS Study\Figures\Pacific Water & Sewer Study Area Fig1.mxd
Vallecitos Water District
Pacific Multi-Family Water & Sewer Study
Existing Water Facilities in Study Area
October 2022
Figure 1


Legend:
Existing Pipelines
8" Diameter Pipeline
10" Diameter Pipeline
12" Diameter Pipeline
Unaffected Pipeline
Proposed Project
855 Zone
0 125 250 500 750 Feet
N
PA-1
PA-2
PA-3
PA-4
PA-5
PA-6
PA-7
Lot 1
Lot 2
Lot 3
Lot A
Lot 4
PAWNEE ST
CHEROKEE ST
LA MIRADA DR
TAULBEES LN
VIA VERA CRUZ
PACIFIC ST
ALPINE PL
LINDA VISTA DR
RYAN DR
STONE DR
STONE DR
BEVERLY PL
1927
1928
1825
1817
1900
1618
1931
24" CMLC
8" ACP
Vallecitos Water District
Pacific Multi-Family Water & Sewer Study
Existing Water Facilities in Study Area
October 2022
Figure 2
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Water Distribution System Analysis

The 2018 Master Plan water system distribution and pressure criteria are as follows:

Water Distribution Infrastructure Criteria

The water service pressure criteria to be met by this development are as follows:

- Minimum allowable pressure at peak hour demand: 40 psi
- Minimum allowable pressure at max day plus fire demand: 20 psi
- Maximum allowable pressure: 150 psi

The City of San Marcos Fire Marshall has set the required fire demand at 2,875 gpm for the Project.

To avoid excessive velocity and headloss within the distribution system, the following pipeline design criteria was also utilized:

- Maximum allowable velocity: 7 feet per second
- Maximum allowable headloss gradient: 15 feet per 1,000 feet
- Hazen-Williams C-factor: 130

Water Model Scenarios

The following scenarios were modeled to identify system impacts that may be created by the proposed water demands, and to recommend any improvements required to provide service to the Project:

- Average Day Demand with existing demands at the Project site
- Average Day Demand with the proposed Project
- Maximum Day Demand with existing demands at the Project site
- Maximum Day Demand with the proposed Project
- Peak Hour Demand with existing demands at the Project site
- Peak Hour Demand with the proposed Project
- Maximum Day Demand plus Fire Flow with existing demands at the Project site
- Maximum Day Demand plus Fire Flow with the proposed Project

Per the 2018 Master Plan, maximum day demands for this project are 300% those of average day demands, and peak hour demands are 620% those of average day demands.

Water Model Results

Modeling focused on the infrastructure in the direct vicinity of the Project. The model found that the Project did not create any distribution system deficiencies under average day demand but did create system deficiencies under maximum day plus fire flow demand conditions.

Table 2 presents a summary of the modeling results for this analysis including proposed off-site pipelines, also shown in Figure 2.

Table 2 – Potable Water Pipeline Results under Maximum Day Demand plus Fire Flow Conditions

Pipe ID Number	Length (ft)	Existing Pipe Diameter (in)	Velocity under existing Average Day Demand (ft/s)	Velocity under Maximum Day + Fire Flow (ft/s) (Ex. Pipe Diameter)	Upsized Pipe Diameter (in)	Velocity under Maximum Day + Fire Flow w/ Upsized Pipe (ft/s)
PA-1	269	12	1.50	4.33	-	-
PA-2	501	8	0.87	**9.81**	**12**	6.02
PA-3	583	8	0.87	**9.49**	**12**	5.88
PA-4	374	8	0.87	**8.86**	**12**	2.28
PA-5	270	8	0.90	5.07	-	-
PA-6	775	8	0.90	5.39	-	-
PA-7	73	12	0.90	2.61	-	-

Water Storage Analysis

The 2018 Master Plan outlines VWD's potable water storage reservoirs for each pressure zone as follows:

> 1.5 times ADD (operational storage) + 3.0 times ADD (emergency storage) + fire flow demand = 4.5 times ADD + fire flow demand
>
> OR
>
> 5.0 times ADD, whichever is greater.

The Project is located entirely within the VWD 855 pressure zone. Water storage for this zone is located within the 920 zone and 1028 Twin Oaks pressure zones, as shown in Figure 1. Table 3 shows the required storage in the 855, 920, and 1028 Twin Oaks pressure zones for existing and ultimate build-out (Master Plan) conditions relative to the existing storage provided within each zone.

Table 3 – Existing Reservoir Storage Capacity and Requirements

Pressure Zone	Existing ADD (MGD)	Existing Storage Requirement (MG)	Ultimate ADD (MGD)	Ultimate Storage Requirement (MG)	Existing Storage Available (MG)
855	3.74	50.05	6.79	101.25	0
920	5.61		10.40		18
1028 Twin Oaks	0.66		3.06		73
Totals	10.01	**50.05**	20.25	**101.25**	**91**

The Project will increase the projected average water demand by approximately **73,703** gallons per day as shown in Table 1.

The amount of additional reservoir storage required is 500% of the development's average day demand or:

73,703 gallons * 500% = 368,515 gallons

The analysis finds that water storage capacity is currently available to serve the Project's increased storage requirements. Master Plan projects address and accommodate the ultimate build-out storage deficiency and Water Capital Facility Fees paid by this project will be used for the increase in storage necessitated by the Project's demand calculated above.

Water Pump Station Analysis

Since the proposed Project is located in a pressure zone that is not served by pumping, there are no impacts to existing or proposed pump stations by this Project.

WASTEWATER SYSTEM ANALYSIS

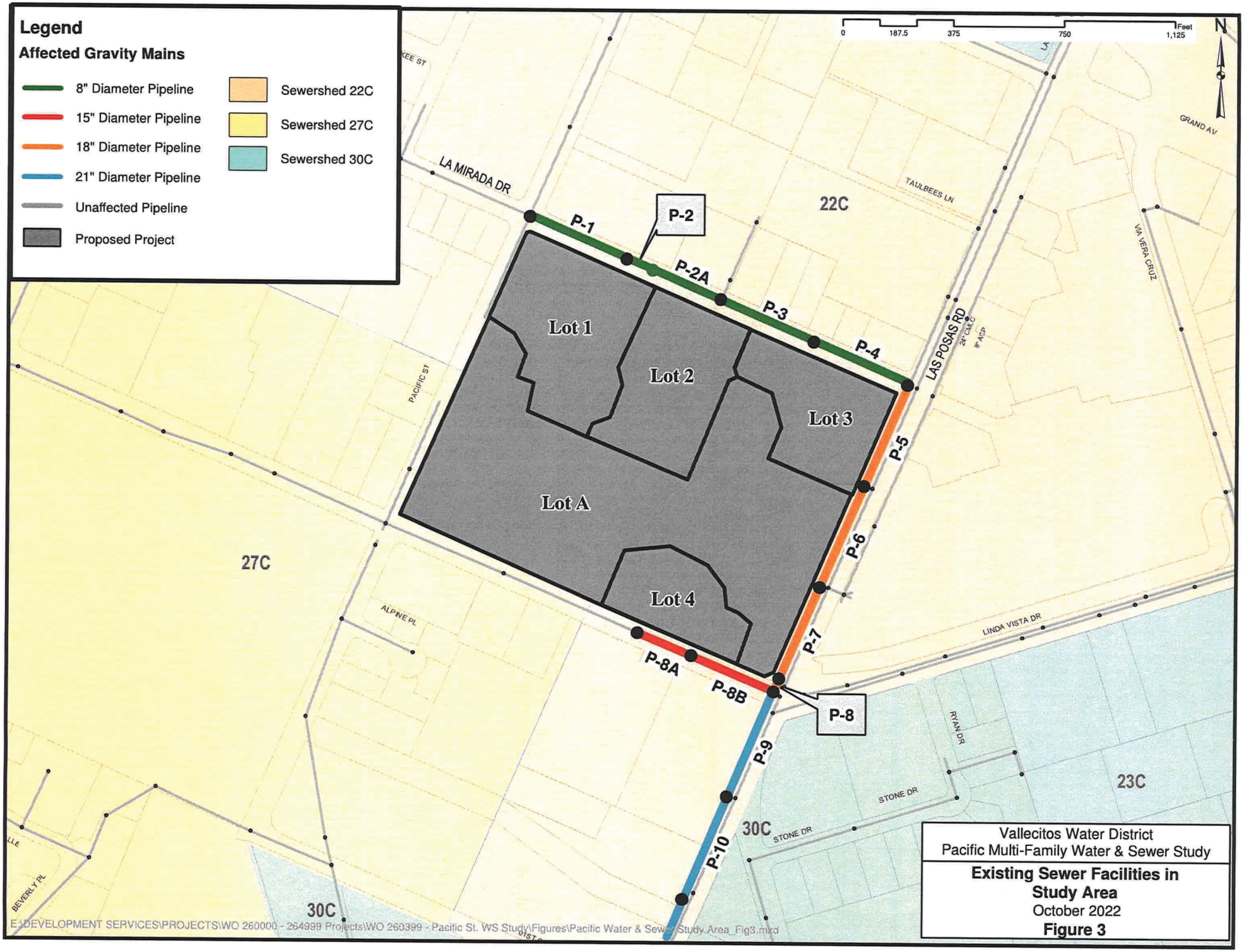
The proposed 33.19-acre Project lies completely within VWD sewer shed 22C. Figures 3 through 4 show the development's location in relation to sewer shed boundaries, identify wastewater infrastructure within the vicinity of the development, and identify the downstream collection infrastructure that will be impacted by the development.

Wastewater Flow Projections

The City of San Marcos' approved land use designation for the proposed Project is Industrial. The 2018 VWD Master Plan based its ultimate wastewater generation planning on the same land use, Industrial. Table 4 provides the average wastewater flow generated both under the density planned for the 2018 Master Plan and with the proposed Project. The table shows that the Pacific Multi-Family project will increase the projected average wastewater generation from the 2018 Master Plan land use by **55,637** gallons per day.

Table 4 – Project Estimated Wastewater Flows for Pacific Multi-Family

Land Use Type	Area (acres)	Residential Units	Duty Factor (gpd/ac)	Wastewater Flow (gpd)
2018 Master Plan Land Use Flows				
Industrial	**33.19**	-	**700**	23,233
Total	**33.19**	-	-	**23,233**
Proposed Project Demand				
Lot 1 - Residential 20-30 du/ac	4.419	101	4,500	19,886
Lot 2 - Residential 20-30 du/ac	4.583	108	4,500	20,624
Lot 3 - Residential 30-40 du/ac	4.308	172	6,300	27,140
Lot 4 - Residential 30-40 du/ac	1.781	68	6,300	11,220
Lot A - Open Space	18.099	-	-	-
Total	**33.19**	**449**		**78,870**
Sewer Generation Increase				**55,637**


Legend
Affected Gravity Mains
8" Diameter Pipeline
15" Diameter Pipeline
18" Diameter Pipeline
21" Diameter Pipeline
Unaffected Pipeline
Proposed Project
Sewershed 22C
Sewershed 27C
Sewershed 30C
0
187.5
375
750
1,125
Feet
N
LA MIRADA DR
TAULBEES LN
GRAND AV
VIA VERA CRUZ
LAS POSAS RD
24" CMP
6" ACP
PACIFIC ST
ALPINE PL
LINDA VISTA DR
RYAN DR
STONE DR
BEVERLY PL
22C
27C
30C
23C
P-1
P-2
P-2A
P-3
P-4
P-5
P-6
P-7
P-8A
P-8B
P-8
P-9
P-10
Lot 1
Lot 2
Lot 3
Lot A
Lot 4
Vallecitos Water District
Pacific Multi-Family Water & Sewer Study
Existing Sewer Facilities in Study Area
October 2022
Figure 3
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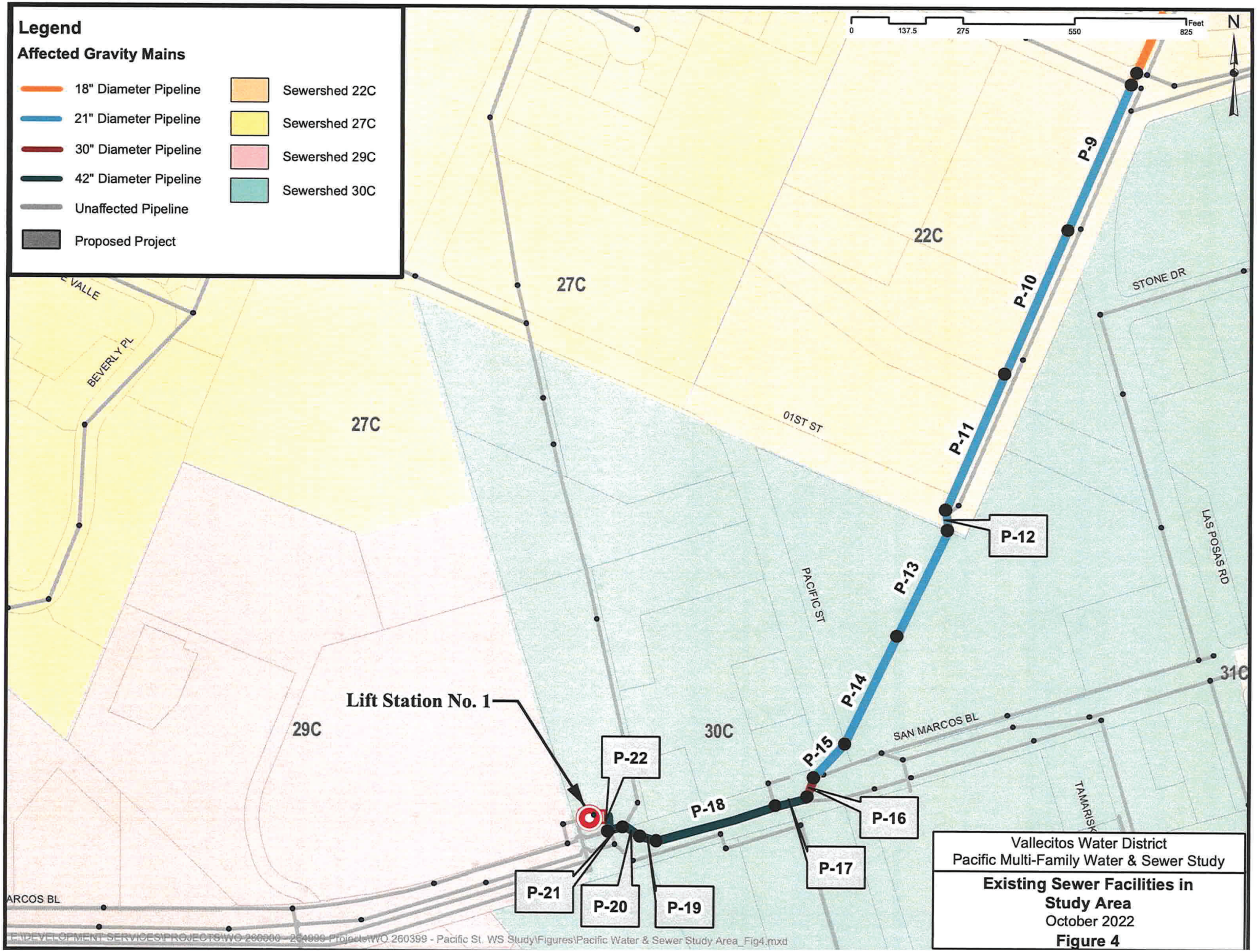
Legend
Affected Gravity Mains
18" Diameter Pipeline
21" Diameter Pipeline
30" Diameter Pipeline
42" Diameter Pipeline
Unaffected Pipeline
Proposed Project
Sewershed 22C
Sewershed 27C
Sewershed 29C
Sewershed 30C
0
137.5
275
550
825
Feet
N
22C
27C
27C
29C
30C
31C
P-9
P-10
P-11
P-12
P-13
P-14
P-15
P-16
P-17
P-18
P-19
P-20
P-21
P-22
Lift Station No. 1
STONE DR
01ST ST
PACIFIC ST
SAN MARCOS BL
LAS POSAS RD
TAMARISK
BEVERLY PL
VALLE
ARCOS BL
Vallecitos Water District
Pacific Multi-Family Water & Sewer Study
Existing Sewer Facilities in Study Area
October 2022
Figure 4
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Wastewater Collection System Analysis

The 2018 Master Plan outlines VWD's wastewater system design criteria which are as follows:

Wastewater Collection Infrastructure Criteria

The wastewater pipeline criteria to be met both within and downstream of the development are as follows:

- Pipes 12 inches in diameter and smaller: ½ full maximum at peak flow
- Pipes over 12 inches in diameter: ¾ full maximum at peak flow
- Minimum velocity: 2 feet per second
- Maximum velocity: 10 feet per second
- Manning's n for gravity pipes: .013
- Hazen-Williams C-factor for force mains/siphons: 120
- Slope for pipes 8 inches in diameter and smaller: 0.4% minimum
- Slope for pipes over 8 inches in diameter: to be determined by VWD

When flow depth in gravity pipes exceeds maximum levels as stated above, a pipe upsize will be specified.

Wastewater Model Scenarios

The following scenarios were modeled to identify system impacts that may be created by the proposed sewer generation, and to recommend any improvements required to provide service to the Project:

- Average Dry Weather Flow with existing flows at the Project site
- Average Dry Weather Flow with the proposed Project
- Peak Dry Weather Flow with existing flows at the Project site
- Peak Dry Weather Flow with the proposed Project
- Peak Wet Weather Flow with existing flows at the Project site
- Peak Wet Weather Flow with the proposed Project

The peak dry weather curve is:

$$\text{Peak Dry Weather Factor} = 2.16 \times (\text{Average Dry Weather Flow Rate})^{-0.1618}$$

The wet weather peak curve is:

$$\text{Peak Wet Weather Factor} = 2.78 \times (\text{Average Dry Weather Flow Rate})^{-0.087}$$

Wastewater Model Results

Modeling focused not only on the sewer collection infrastructure in the direct vicinity of the Project, but also on all downstream infrastructure from the development to Lift Station No. 1 on San Marcos Boulevard that would be impacted by the Project flows (see Figures 3 through 4).

Table 5 presents a summary of the modeling results from this analysis. The modeling results showed that no deficiencies were identified under the currently approved density under peak wet weather flows during ultimate build-out conditions.

Pacific Multi-Family Table 5 - Wastewater Model Results and Recommended Gravity Main Improvements

				Wastewater Flows with Existing Density				Wastewater Flows with Proposed Density			
Pipe ID Number	Length (ft)	Diameter (in)	Slope	Peak Wet Weather Flow (gpm)	PWWF Depth-to-Diamter Ratio	Replacement Diamater (in)	Replacement PWWF Depth-to-Diamater Ratio	Peak Wet Weather Flow (gpm)	PWWF Depth-to-Diamter Ratio	Replacement Diameter (In)	Replacement PWWF Depth-to-Diamater Ratio
P-1	364	8	0.0150	42	0.18			90	0.25		
P-2	72	8	0.0120	46	0.19			94	0.27		
P-2A	303	8	0.0090	46	0.21			144	0.37		
P-3	360	8	0.0100	54	0.22			152	0.37		
P-4	353	8	0.0130	57	0.21			155	0.35		
P-5	385	18	0.0080	2,314	0.53			2,478	0.56		
P-6	380	18	0.0080	2,322	0.53			2,486	0.56		
P-7	370	18	0.0080	2,324	0.53			2,488	0.56		
P-8	13	18	0.0080	3,056	0.64			3,220	0.66		
P-8A	214	15	0.0210	500	0.63			526	0.65		
P-8B	285	15	0.0220	502	0.67			528	0.70		
P-9	385	21	0.0050	3,565	0.63			3,755	0.65		
P-10	312	21	0.0041	3,569	0.67			3,759	0.70		
P-11	380	21	0.0041	3,573	0.68			3,763	0.70		
P-12	33	21	0.0041	3,715	0.69			3,905	0.72		
P-13	297	21	0.0064	3,717	0.59			3,907	0.61		
P-14	295	21	0.0064	3,719	0.59			3,909	0.61		
P-15	112	21	0.0064	3,724	0.59			3,914	0.61		
P-16	15	42	0.0053	14,032	0.46			14,222	0.46		
P-17	138	42	0.0030	14,034	0.54			14,224	0.55		

PROPOSED DENSITY: 190 GPM

P-1 (48 GPM - ADDING LOT 1) P-2A (98 GPM - ADDING LOT 1 & 2) P-5 (164 GPM - ADDING LOT 1, 2 & 3) P-8A & P-8B (26 GPM FOR LOT 4) & P-9 (190 GPM - ADDING LOT 1, 2 ,3 & 4)

Pacific Multi-Family Table 5 - Wastewater Model Results and Recommended Gravity Main Improvements

				Wastewater Flows with Existing Density				Wastewater Flows with Proposed Density			
Pipe ID Number	Length (ft)	Diameter (in)	Slope	Peak Wet Weather Flow (gpm)	PWWF Depth-to-Diamter Ratio	Replacement Diamater (in)	Replacement PWWF Depth-to-Diamater Ratio	Peak Wet Weather Flow (gpm)	PWWF Depth-to-Diamter Ratio	Replacement Diameter (In)	Replacement PWWF Depth-to-Diamater Ratio
P-18	347	42	0.0030	14,044	0.54			14,234	0.55		
P-19	18	42	0.0030	14,046	0.54			14,236	0.55		
P-20	10	42	0.0340	14,048	0.28			14,238	0.28		
P-21	10	42	0.0100	14,236	0.39			14,426	0.39		
P-22	73	42	0.0040	14,810	0.52			15,000	0.52		
PROPOSED DENSITY:		**190**	**GPM**								

P-1 (48 GPM - ADDING LOT 1) P-2A (98 GPM - ADDING LOT 1 & 2) P-5 (164 GPM - ADDING LOT 1, 2 & 3) P-8A & P-8B (26 GPM FOR LOT 4) & P-9 (190 GPM - ADDING LOT 1, 2 ,3 & 4)

Wastewater Lift Station Analysis

Lift stations are sized for peak wet weather flow with manufacturer's recommended cycling times for pumping equipment. Since the proposed Project is not located in a sewer shed that is served by a lift station, there are no lift station upgrade requirements for this project.

Parallel Land Outfall Analysis

VWD's existing land outfall is shown in Figure 5. The outfall is approximately 8 miles in length and consists of 4 gravity pipeline sections and 3 siphon sections varying in diameter from 20 inches to 54 inches. VWD maintains the entire pipeline from Lift Station No. 1 to the Encina Water Pollution Control Facility (EWPCF). From Lift Station No. 1 to El Camino Real, VWD is the sole user of this pipeline. From El Camino Real to the EWPCF, the ownership capacity is as shown in Table 6 below:

Table 6 – Land Outfall Capacity Ownership by Agency

Agency	Ownership Percentage	Capacity (MGD)
Carlsbad	23.98%	5.00
Vista	17.99%	3.75
VWD	58.03%	12.10
Totals	**100.00%**	**20.85**

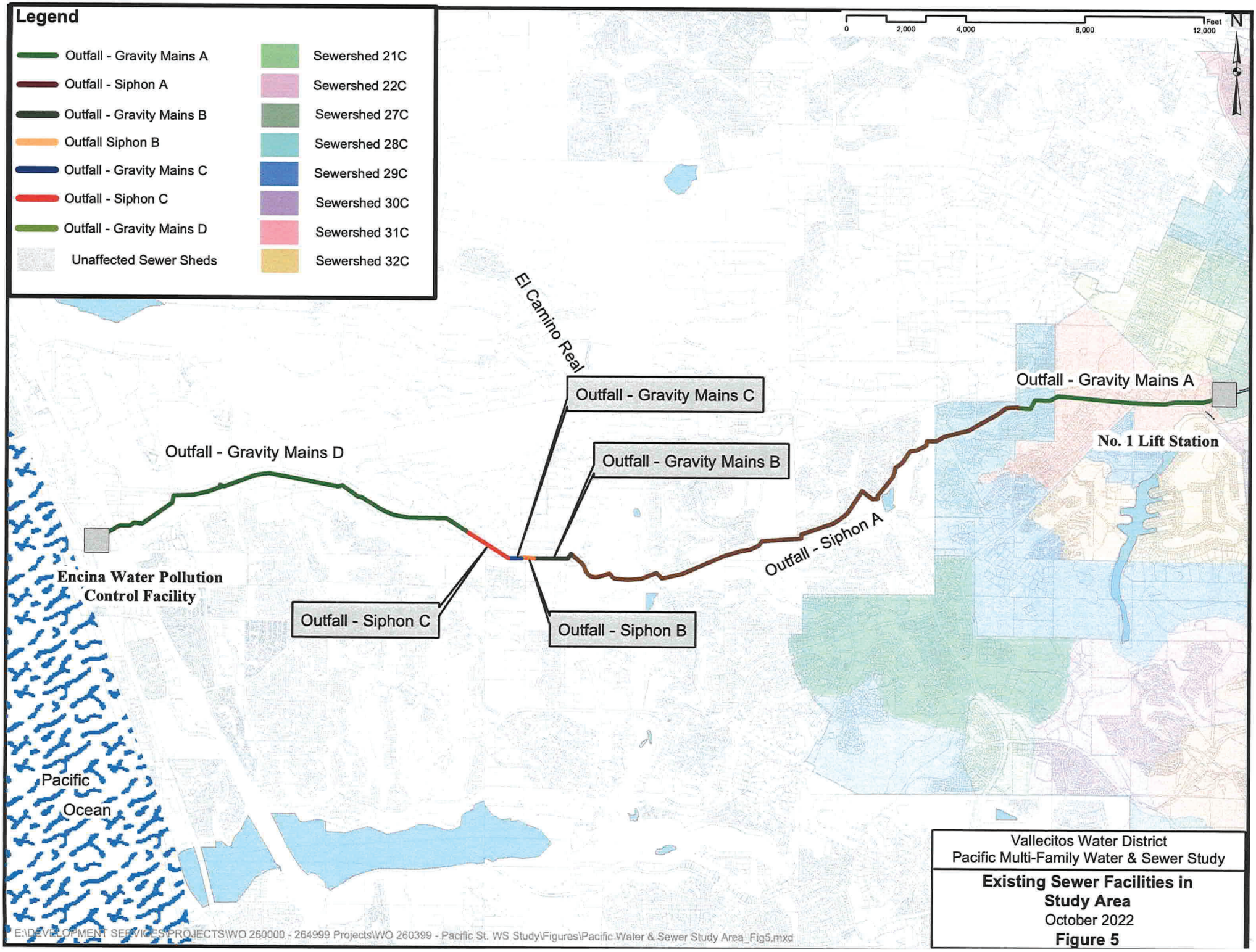
The Meadowlark Water Reclamation Facility (MRF) has a capacity of 5.0 MGD with a peak wet weather capacity of 8.0 MGD. Therefore, VWD has a combined peak wet weather wastewater collection capacity of 20.10 MGD (12.10 MGD + 8.0 MGD).

VWD's 2014 average daily wastewater flow through the land outfall was 7.5 MGD. This corresponds to a peak wet weather flow of 17.5 MGD, which falls within VWD's combined peak wet weather collection capacity.

The 2018 Master Plan estimated that, under approved land uses, VWD has an ultimate build-out average dry weather flow of 14.4 MGD. This corresponds to a peak wet weather flow of 31.7 MGD, which exceeds VWD's combined peak wet weather collection capacity. To accommodate additional wastewater flows from planned development, the 2018 Master Plan recommended conveyance of peak flows to the EWPCF through a parallel land outfall.

The Project proposes to generate **55,637** gallons per day of additional average wastewater flow that was not accounted for in the Land Outfall's capacity studied in the 2018 Master Plan.

The analysis finds that outfall capacity is currently available to serve the Project's proposed wastewater generation. Wastewater Capital Facility Fees paid by this Project will be used toward design and construction of a parallel land outfall to be sized to accommodate ultimate build-out wastewater flows.


Legend
Outfall - Gravity Mains A
Outfall - Siphon A
Outfall - Gravity Mains B
Outfall Siphon B
Outfall - Gravity Mains C
Outfall - Siphon C
Outfall - Gravity Mains D
Unaffected Sewer Sheds
Sewershed 21C
Sewershed 22C
Sewershed 27C
Sewershed 28C
Sewershed 29C
Sewershed 30C
Sewershed 31C
Sewershed 32C
0
2,000
4,000
8,000
12,000
Feet
N
El Camino Real
Outfall - Gravity Mains C
Outfall - Gravity Mains A
Outfall - Gravity Mains B
No. 1 Lift Station
Outfall - Gravity Mains D
Outfall - Siphon A
Encina Water Pollution Control Facility
Outfall - Siphon C
Outfall - Siphon B
Pacific Ocean
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Pacific Multi-Family Water & Sewer Study
Existing Sewer Facilities in Study Area
October 2022
Figure 5
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Wastewater Treatment Facility Analysis

VWD utilizes two wastewater treatment facilities to treat wastewater collected within its sewer service area.

- The Meadowlark Reclamation Facility (MRF) has liquids treatment capacity of up to 5.0 MGD with a peak wet weather capacity of 8.0 MGD. MRF does not have solids treatment capacity, and therefore all solids are treated at the Encina Water Pollution Control Facility (EWPCF).
- The EWPCF is located in the City of Carlsbad. This is a regional facility with treatment capacity of up to 40.51 MGD. VWD's current ownership capacity is noted below.

Solids Treatment Capacity

VWD currently owns 10.47 MGD of solids treatment capacity at EWPCF. VWD's 2014 average daily wastewater flow was 7.5 MGD. Therefore, the analysis finds that adequate solids treatment capacity exists at this time to serve the Project.

The ultimate average wastewater flow identified in the 2018 Master Plan is 14.4 MGD, resulting in a projected solids treatment capacity deficiency of 3.93 MGD. Wastewater Capital Facility Fees paid by this Project will be used towards the deficiency to accommodate the solid treatment capacity wastewater flow.

Liquids Treatment Capacity

VWD currently owns 7.67 MGD of liquids treatment capacity at the EWPCF in addition to the liquid's treatment capacity of 5.0 MGD at MRF for a total of 12.67 MGD of liquids treatment capacity. VWD's 2014 average daily wastewater flow was 7.5 MGD. Therefore, the analysis finds that adequate liquids treatment capacity exists at this time to serve the Project.

The ultimate average wastewater flow identified in the 2018 Master Plan is 14.4 MGD, resulting in a projected liquids treatment capacity deficiency of 1.73 MGD. Wastewater Capital Facility Fees paid by this Project will be used towards the deficiency to accommodate the ultimate average wastewater flow.

Ocean Disposal Capacity

VWD currently owns 10.47 MGD of ocean disposal capacity at the EWPCF. VWD's 2014 average daily wastewater flow was 7.5 MGD. Therefore, the analysis finds that adequate ocean disposal capacity exists at this time to serve the Project.

The ultimate average wastewater flow identified in the 2018 Master Plan is 14.4 MGD, resulting in an ocean disposal deficiency of 3.93 MGD. Wastewater Capital Facility Fees paid by this Project will be used towards the deficiency to accommodate the ocean disposal wastewater flow.

The District has determined that adequate wastewater treatment and disposal capacity exists for the proposed Project at this time subject to the qualifications referenced in the Conclusions and Conditions.

CONCLUSION AND CONDITIONS

The proposed Pacific Multi-Family Project is expected to increase average daily water demands by 73,703 gallons per day and wastewater flows by 55,637 gallons per day over the ultimate flows projected in the 2018 Master Plan.

The study concludes that the proposed development will result in the following impacts:

- An increase of 73,703 gallons per day in water demand for proposed project.
- An increase of 368,515 gallons of potable water storage requirement.
- An increase of 55,637 gallons per day in solids handling, liquids handling and ocean disposal capacity requirements at Encina Water Pollution Control Facility.
- An increase of 55,637 gallons per day in the parallel land outfall's capacity requirement.

The following items are required for providing service to the proposed Project:

- Upsize approximately 1,458 feet of existing 8-inch ACP to 12-inch PVC along La Mirada Drive from S. Las Posas Road to Pacific Street (PA-2 through PA-4).
- Payment of all applicable Water and Wastewater Capital Facility Fees in affect at the time service is committed in accordance with District rules and regulations.
- Construction and Final Acceptance by the VWD Board of Directors of all on-site and off-site water and sewer facilities prior to service.

The District currently has water and sewer capacity available to serve the Project as proposed with the conditions herein addressed by the Developer. However, the ability to provide water and sewer service in the future depends upon ultimate build-out of the Project and could change depending upon the timing of the build-out, as well as build-outs of other development projects, continued reliable water supplies from the San Diego County Water Authority, the District's treatment capacity at the EWPCF and other factors affecting growth in the District which may change over time.

This Study is based on the current adopted land use utilized in VWD's 2018 Master Plan. The study addresses the incremental facility impacts of this Project only and does not include or consider any additional projects within VWD's service area that have deviated from adopted Master Plan land uses. Any land use changes upstream and/or downstream of the Study area may necessitate a revision of any onsite and offsite studies. VWD shall determine if and when revisions to the Study are necessary. Costs for revising this Study shall be borne by the Developer. The results of this study are not the accepted conditions for the development, final conditions shall be part of the construction agreement process or issued separately by the District.

VALLECITOS WATER DISTRICT
Water and Wastewater Specialists since 1955

AVAILABILITY RESPONSE AND PRELIMINARY COMMENT – ENGINEERING

PROJECT NO.: Upham APN(s): 219-222-01,02,03,04

APPLICANT: Integral Partners Funding,LLC TOTAL ACREAGE: 33.19

LOCATION: La Mirada & Las Posas WORK ORDER#: NA

1) Located within the Vallecitos Water District (VWD) boundary:
   - ■ Water ☐ Wastewater (sewer) ☐ Sphere of Influence
   - ☐ Annexation Required: ☐ Water ☐ Sewer ☐ Water and Sewer
   - ☐ Not in VWD District. Please contact: _____

2) Proposed Dwelling Units: 325 Master Plan Land Use: heavy and light industry
   Proposed Land Use: Multi-Family
   - ■ Density Change

3) Will require: ■ Water/Sewer Study ☐ Water Supply Assessment (WSA)
   Water pressure zone (HGL) of 855 above sea level. ☐ Pump Zone: _____

4) The existing water mains available: ■ Frontage _____

Located	Size	Material	Distance from Property
S Pacific St	12"	ACP	0 LF approx.
La Mirada Dr, S Las Posas Dr	8"	ACP	0 LF approx.
Linda Vista Dr	12"	ACP	0 LF approx.

5) The existing sewer mains available: ■ Frontage _____

Located	Size	Material	Distance from Property
S Pacific, La Mirada Dr	8"	VCP	0 LF approx.
S Las Posas Dr	10 &18"	VCP	0 LF approx.
Linda Vista Dr	15"	VCP	0 LF approx.

6) VWD easements existing in proposed development area? ☐ Yes ■ No
   ☐ Water ☐ Sewer ☐ Easement(s) Attached _____ Per Map #: _____

7) Existing facilities on site: ☐ Water Meter(s) Quantity: _____ Size(s): _____
   ☐ Water Capacity OK ☐ Sewer Capacity OK ☐ _____
   ☐ Water Capacity deficient ☐ Sewer Capacity deficient ☐ Additional Capacity needed.

8) Additional Comments:* ■ Plan Check required ■ Water Demand Form required.
   - ■ Conditions will be provided at a later date determined by Water/Sewer Study & Plan Check.
   - ■ Other: Water / Sewer Study Required
   - ☐ Other: _____
   - ☐ Other: _____

Name: Ann Gomez Title: Eng Tech Signature: Ann Gomez Date: 9/2/2020

*All equipment on site must meet current Vallecitos Water District Standards. Drought declarations may determine availability. Water and Wastewater is periodically monitored & increased usage may require additional capacity. Please see back side of sheet for general terms and conditions associated with water and wastewater availability statements.

VALLECITOS WATER DISTRICT
Water and Wastewater Specialists since 1955

WATER & SEWER AVAILABILITY

Water and sewer service will be provided under the rules and regulations of the District, under normal operating conditions after all required fees have been paid and all conditions of the District have been satisfied.

All new projects are required to complete a water and sewer study to assess the impacts of any increased density and identify measures which will be required to mitigate those impacts.

Existing District pipelines located within the boundaries of the project that are in conflict with the proposed development will require relocation within the public right-of-way or District easements at the developer's expense. Drivable access to, and along, the facilities must be maintained at all times. District policy requires that all newly created parcels have frontage on the District main and extensions of facilities to serve each newly created parcel will be required.

Water or Sewer facilities not within the public right-of-way will require a minimum 20-foot easement granted to the District. The District may require additional easements through the project or private properties for future extensions. The owner of the project is responsible for obtaining any easements including expenses incurred. Joint use of these easements is not allowed by the District and easements for storm drain and other facilities should be analyzed early so that adequate sizing of easements for all facilities and various agencies is provided.

No structures will be allowed over District facilities. This includes but is not limited to, walls, entrance medians, landscaping, gates, guard house structures, curbs and gutters, or driveways that will be constructed over District facilities.

For protection of District facilities, any areas with water pressures near or higher than 150 psi will require water pressure regulators before the meter.

The Fire Department should be contacted to verify fire flow requirements and location of fire flow facilities required for the proposed project. A hydraulic analysis prepared by the District will be required to determine the available fire flow for the project. The owner/developer is responsible for all costs incurred in obtaining the hydraulic analysis. Looping or upgrades to the existing facilities both onsite and offsite may be required based on results of the required Water and Sewer Study or Fire Flow Analysis.

The District adopted Ordinance No. 162 on May 6, 2009, which identifies various water conservation measures as they relate to current and future drought conditions including the curtailment of availability letters and limiting new service connections at level 3.

This letter is issued for planning purposes only, and is not a representation, expressed or implied that the District will provide service at a future date. The Vallecitos Water District relies one hundred percent on imported water supplies. Water may not be available at the time the project is built. Commitments to provide service are made by the District Board of Directors and are subject to compliance with District fees, charges, rules and regulations.

VALLECITOS WATER DISTRICT
201 Vallecitos de Oro
San Marcos, CA 92069
(760) 744-0460