

VALLECITOS WATER DISTRICT

MISSION SAN MARCOS INDUSTRIAL PARK WATER AND SEWER STUDY

WORK ORDER # 320434

FINAL TECHNICAL MEMORANDUM

August 5, 2026

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INTRODUCTION

The proposed Mission San Marcos Industrial Park project (Project) is a light industrial development with 132,810 square feet industrial building. The Project is situated on 10.36-acres, located at 528 E. Mission Road (APN 220-210-26) near the intersection of Mulberry Drive and E. Mission Road.

The Project is currently located within Vallecitos Water District's (VWD) water and sewer service boundaries and is eligible to receive both water and wastewater service from VWD. The property does not need to annex.

All new projects undergo a Water and Sewer Study evaluation by VWD to determine if the existing water and wastewater infrastructure is sufficient to accommodate the proposed water demands and wastewater generation. 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

- The requirement to upsize existing or install new water infrastructure, including:
 - distribution system (water pipelines and associated valving/appurtenances)
 - flow control facilities (pump stations, pressure reducing stations, etc.)
 - storage (tanks, reservoirs, pipelines)

Wastewater

- The requirement to upsize or rehabilitate existing wastewater infrastructure or to install new wastewater infrastructure, including:
 - collection and conveyance systems (gravity and forced sewer pipelines, trunk mains and manholes)
 - flow control facilities (lift stations)
 - land outfall, including the need to construct a parallel land outfall to serve this and other proposed developments.

- treatment facilities, including the need to obtain additional capacity at the Encina Water Pollution Control Facility (EWPCF) or to expand the Meadowlark Water Reclamation Facility (MRF).

Based on the evaluation of the Project's impacts to the VWD water and wastewater system, which determined that there is no increase in either water demand or sewage generation due to no Project densification, no capital improvements are required. Existing VWD water and/or sewer facilities not being utilized for the Project are required to be abandoned per VWD Standards and Specifications. Removal and disposal of asbestos cement (AC) pipe shall be in accordance with the California Code of Regulations, Title 8, Section 1529 and all appropriate and applicable state and federal laws.

WATER SYSTEM ANALYSIS

The proposed 10.36-acre Project lies completely within VWD's 920 Pressure Zone. Figures 1 and 2 show the Project's location; affected water pressure zones, water mains within the Project vicinity; and water storage reservoirs that are proposed to serve the Project.

Water Demand Projections

The City of San Marcos' approved land use designation for the proposed Project is Light Industrial. The VWD 2018 Master Plan based its ultimate water demand planning on Light Industrial. Table 1 provides Project water demand under both the land use designation assigned in the 2018 VWD Master Plan and the current proposed land use designation defined by the City of San Marcos. Table 1 provides the average water demand generated both under the density planned for the 2018 Master Plan and for the proposed Project. The table shows that the Project will increase the projected average water demand from the 2018 Master Plan land use by **0** gallons per day.

Table 1 –Estimated Water Demands for Project

Land Use Type	Area (acres)	Residential Units	Duty Factor (gpd/ac)	Water Demand (gpd)
VWD 2018 Master Plan Land Use Demand				
Light Industrial	10.36		1,500	15,540
Total	10.36			15,540
Proposed Project Demand				
Light Industrial	10.36		1,500	15,540
Total	10.36			15,540
Water Demand Increase				0

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

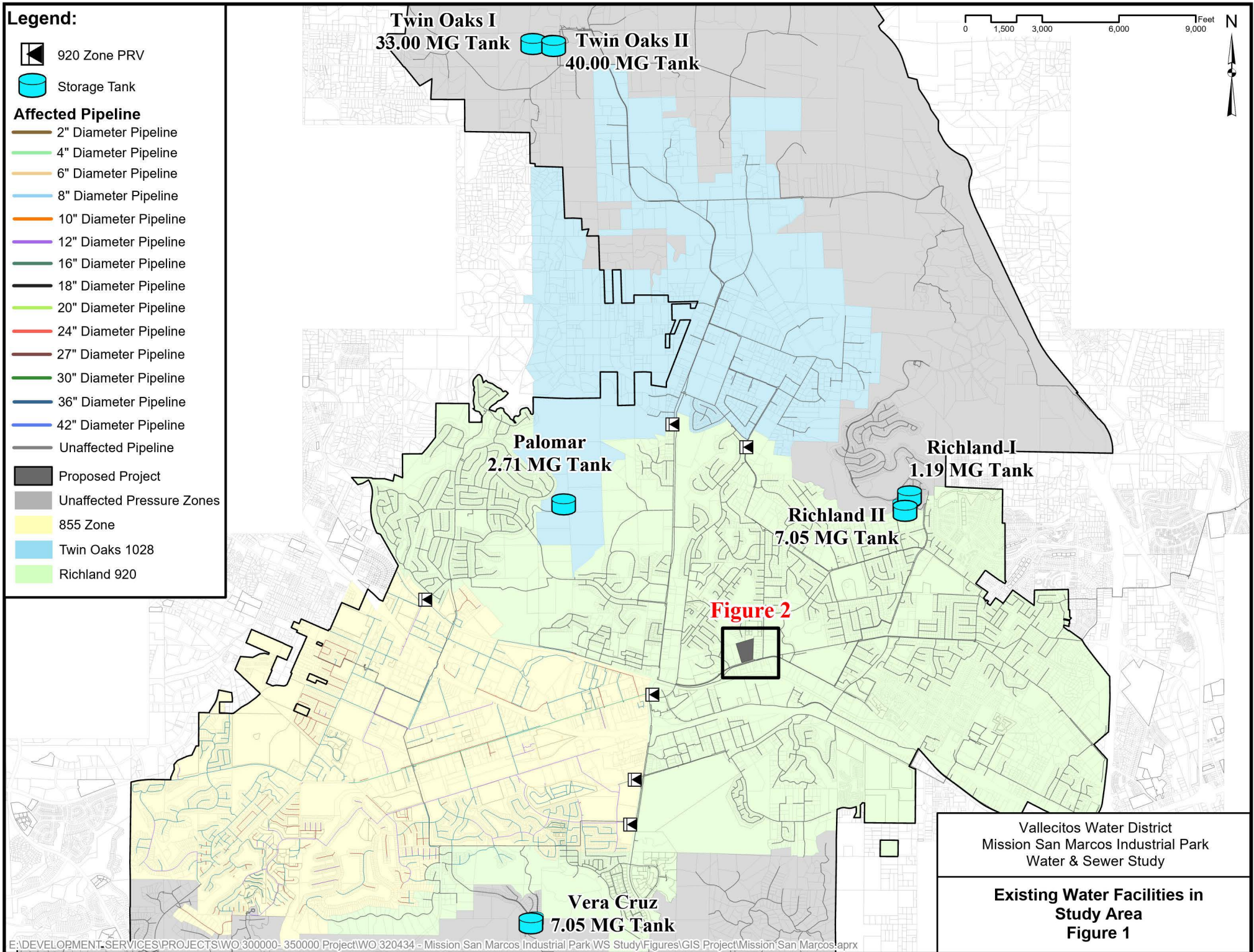
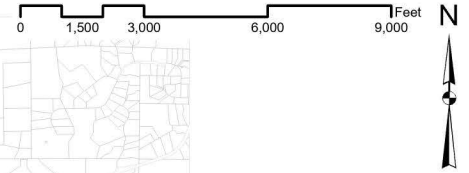
Proposed Project

Unaffected Pressure Zones

855 Zone

Twin Oaks 1028

Richland 920



Vallecitos Water District
Mission San Marcos Industrial Park
Water & Sewer Study

**Existing Water Facilities in
Study Area
Figure 1**

Legend

Affected Pipeline

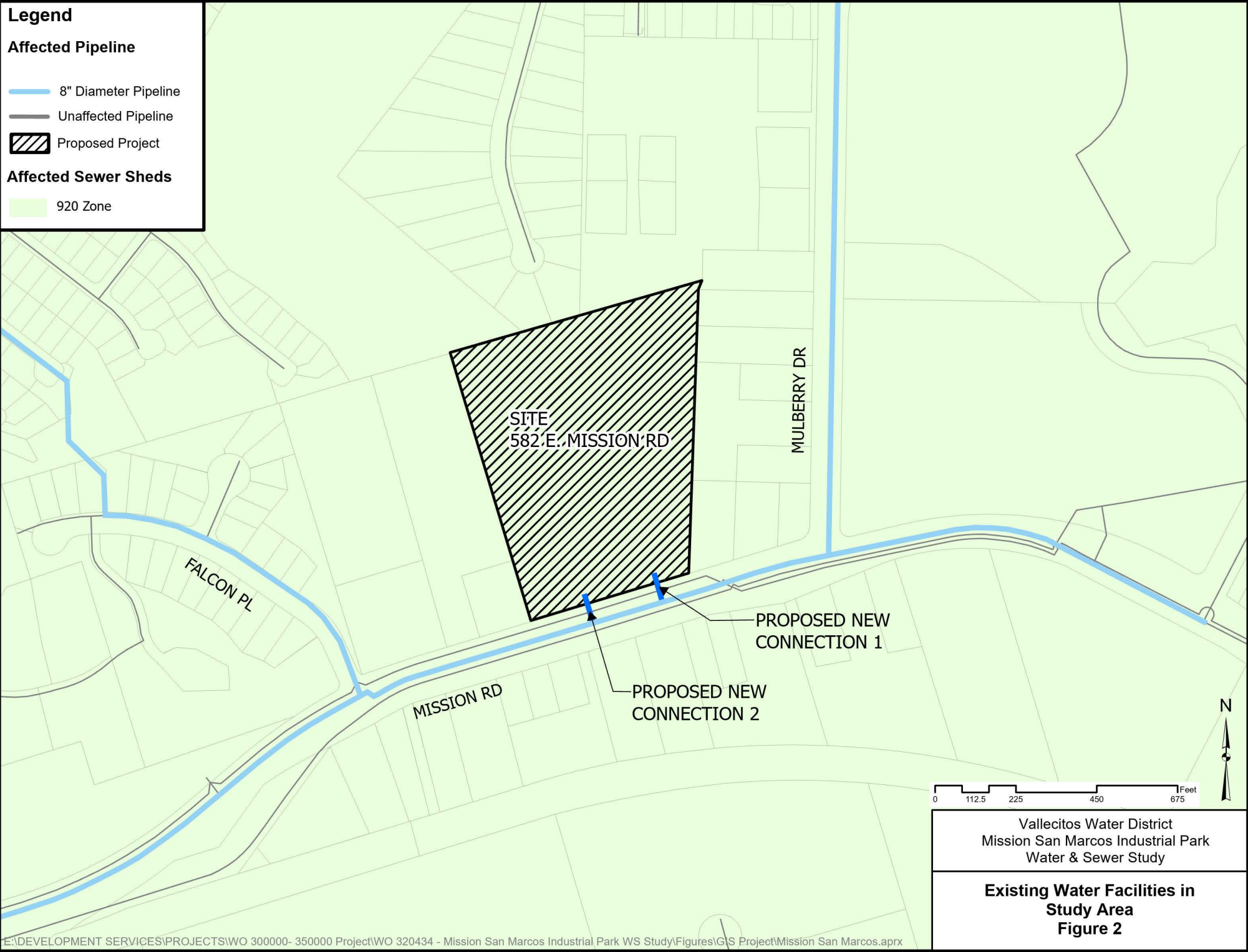
8" Diameter Pipeline

Unaffected Pipeline

Proposed Project

Affected Sewer Sheds

920 Zone



Vallecitos Water District
Mission San Marcos Industrial Park
Water & Sewer Study

**Existing Water Facilities in
Study Area
Figure 2**

Water Distribution System Analysis

The VWD 2018 Master Plan outlines applicable water distribution system criteria as follows:

Water Distribution Facilities Evaluation Criteria

The water service pressure design 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 1,625 gpm for the Project.

To avoid excessive velocity and headloss, which can lead to scouring/erosion, collapse, cavitation, and other damage to the water 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

To provide safe and adequate water service, the following scenarios were modeled for existing water demand conditions and existing plus proposed Project water demand conditions 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
- Maximum Day Demand
- Peak Hour Demand
- Maximum Day Demand plus Fire Flow

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

Water modeling focused on existing water 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 or under maximum day plus fire flow demand conditions.

Water Storage Analysis

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

$$1.5 \text{ times ADD (operational storage)} + 3.0 \text{ times ADD (emergency storage)} + \text{fire flow demand} = 4.5 \text{ times ADD} + \text{fire flow demand}$$

OR

5.0 times ADD, whichever is greater.

The Project is located entirely within the VWD 920 pressure zone. Water storage for this zone is located within the 920 zone and 1028 pressure zones, as shown in Figure 1. Table 2 shows the required storage per criteria (MG) in the VWD 855, VWD 920, and VWD 1028 pressure zones for existing and ultimate build-out conditions, relative to the existing storage provided within each pressure zone.

Table 2– Pressure Zone Storage Capacity and Requirements

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

The Project will increase the projected average water demand by approximately 0 gallons per day as shown in Table 1.

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

$$0 \text{ gallons} * 500\% = 0 \text{ gallons}$$

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

WASTEWATER SYSTEM ANALYSIS

The proposed 10.36-acre Project lies completely within VWD sewer shed 18C. Figures 3 through 7 show the Project's location in relation to sewer shed boundaries, identifies wastewater infrastructure within the vicinity of the development, and identifies 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 Light Industrial. The VWD 2018 Master Plan based its ultimate wastewater generation planning on Light Industrial. Table 3 calculates the average wastewater flow generated using the density in the District's 2018 Master Plan and with the proposed Project. The table shows that the Project will not increase the projected average wastewater generation from the 2018 Master Plan land use.

Table 3 – Project Estimated Wastewater Flows for Project

Land Use Type	Area (acres)	Residential Units	Duty Factor (gpd/ac)	Wastewater Flow (gpd)
VWD 2018 Master Plan Land Use Flows				
Light Industrial	10.36		1,300	13,468
Total	10.36			13,468
Proposed Project Demand				
Light Industrial	10.36		1,300	13,468
Total	10.36			13,468
Sewer Generation Increase				0

Legend

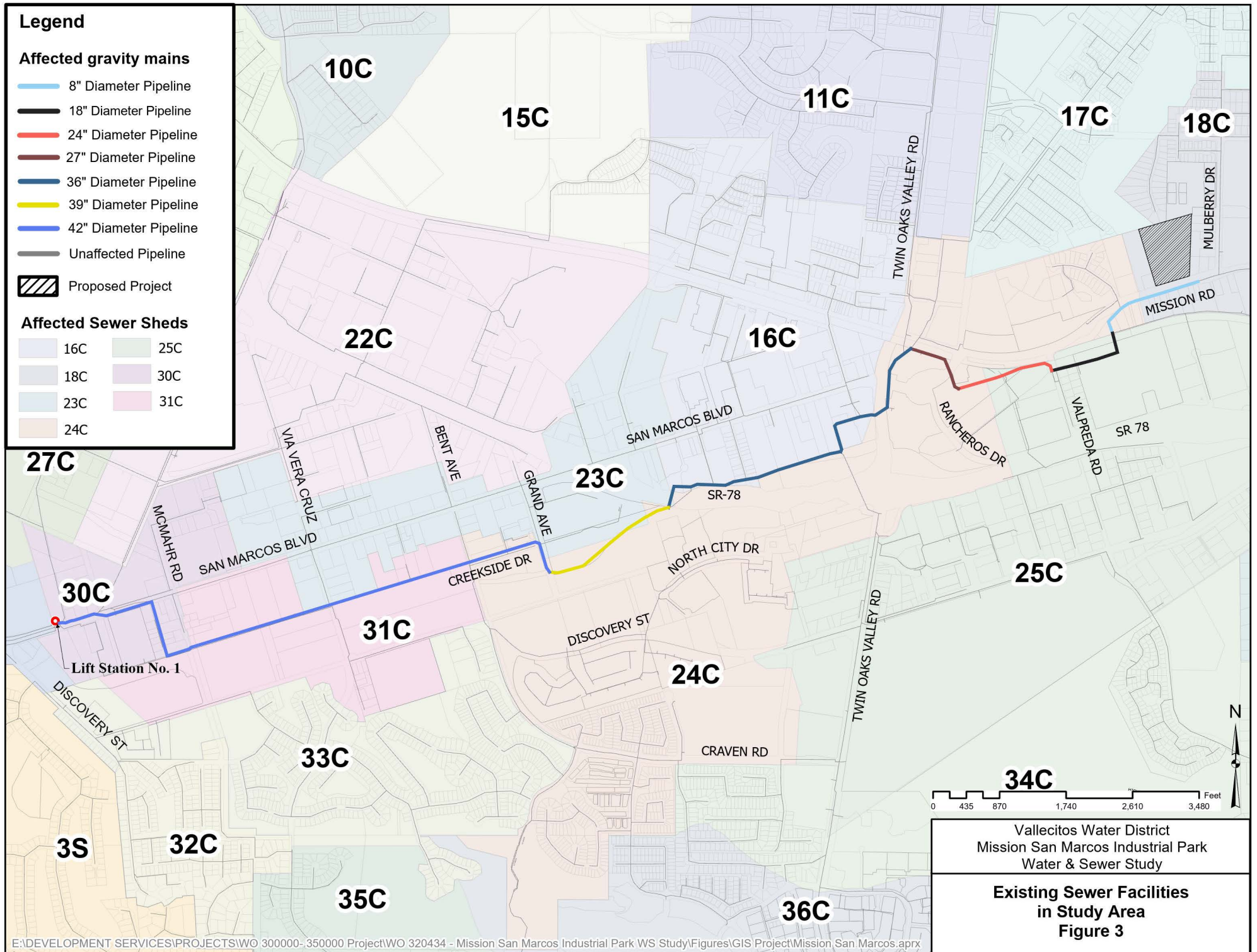
Affected gravity mains

- 8" Diameter Pipeline
- 18" Diameter Pipeline
- 24" Diameter Pipeline
- 27" Diameter Pipeline
- 36" Diameter Pipeline
- 39" Diameter Pipeline
- 42" Diameter Pipeline
- Unaffected Pipeline

- Proposed Project

Affected Sewer Sheds

- | | | | |
|--|-----|--|-----|
| | 16C | | 25C |
| | 18C | | 30C |
| | 23C | | 31C |
| | 24C | | |



Vallecitos Water District
Mission San Marcos Industrial Park
Water & Sewer Study

**Existing Sewer Facilities
in Study Area
Figure 3**

Legend

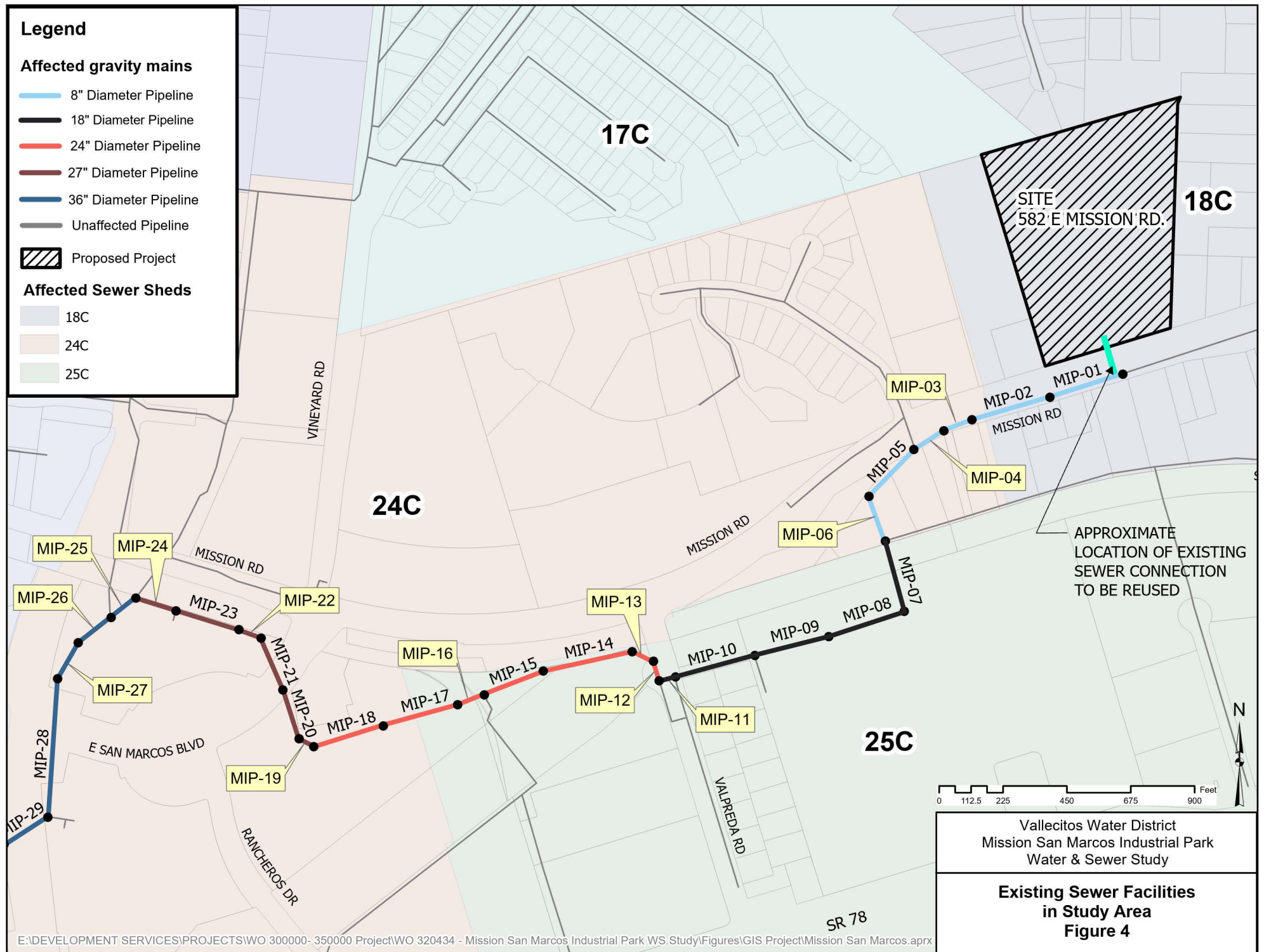
Affected gravity mains

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-  24" Diameter Pipeline
-  27" Diameter Pipeline
-  36" Diameter Pipeline
-  Unaffected Pipeline

-  Proposed Project

Affected Sewer Sheds

- 18C
24C
25C



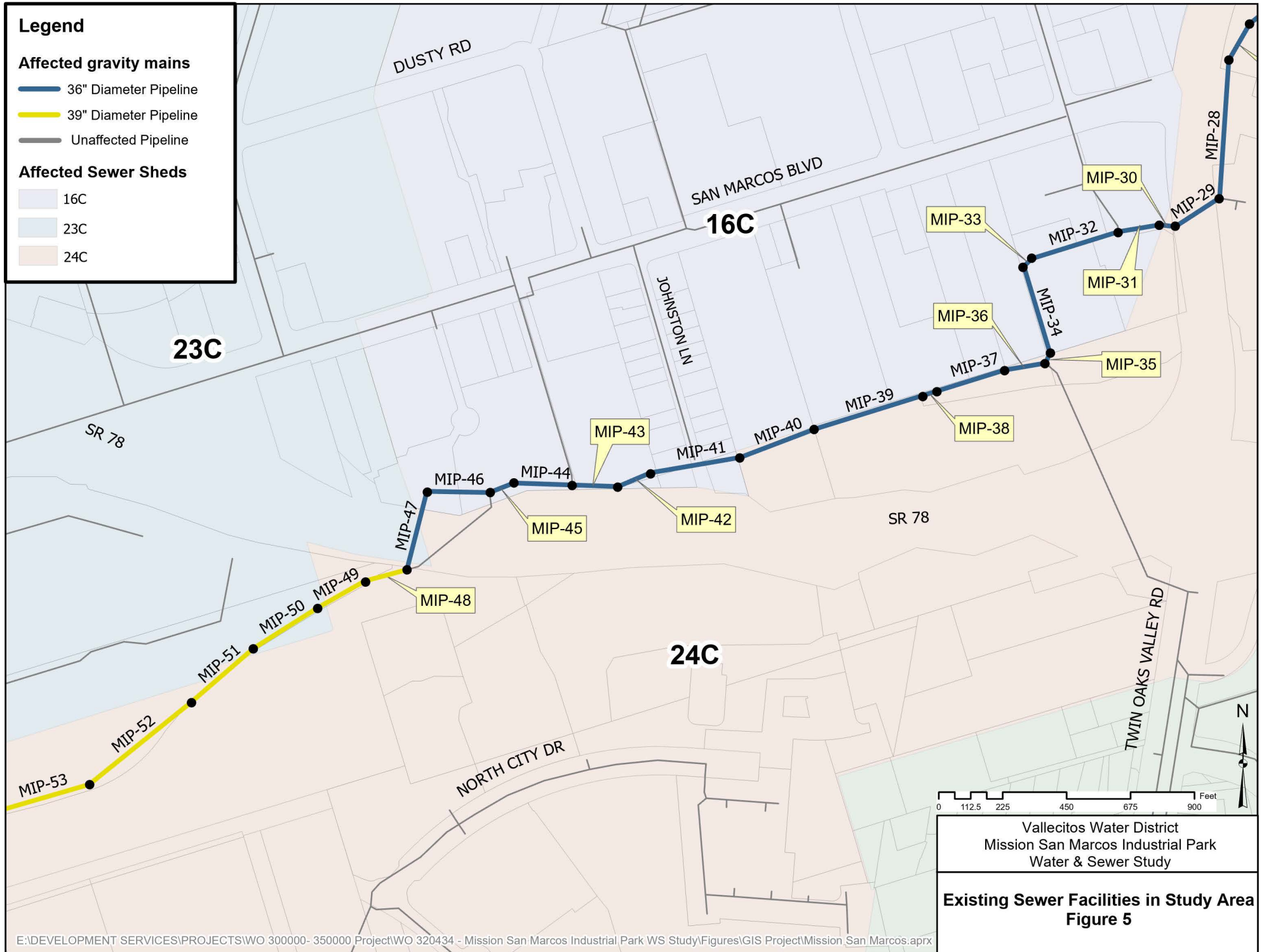
Legend

Affected gravity mains

- 36" Diameter Pipeline
- 39" Diameter Pipeline
- Unaffected Pipeline

Affected Sewer Sheds

- 16C
- 23C
- 24C



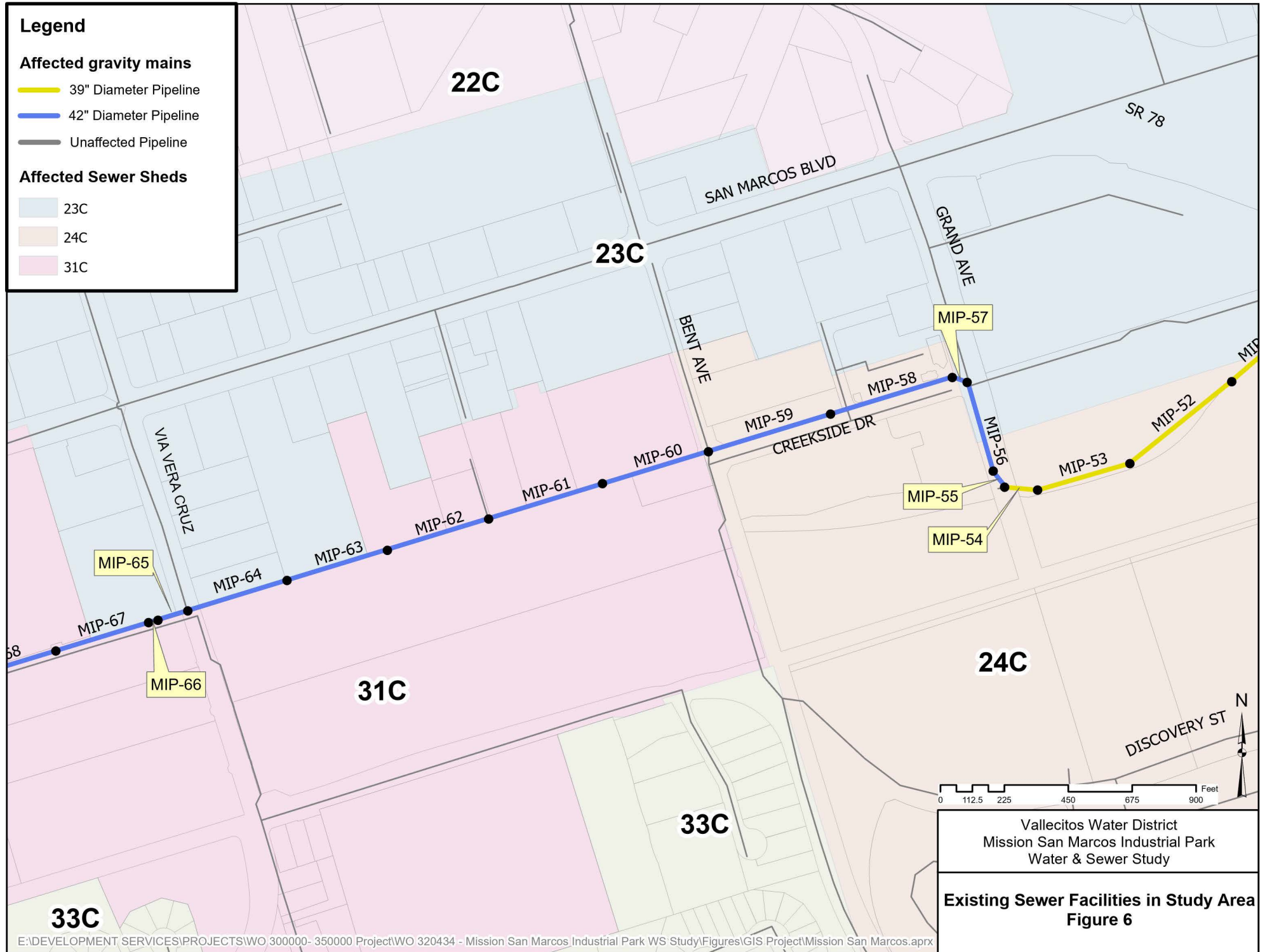
Legend

Affected gravity mains

- 39" Diameter Pipeline
- 42" Diameter Pipeline
- Unaffected Pipeline

Affected Sewer Sheds

- 23C
- 24C
- 31C



Legend

Affected gravity mains

— 42" Diameter Pipeline

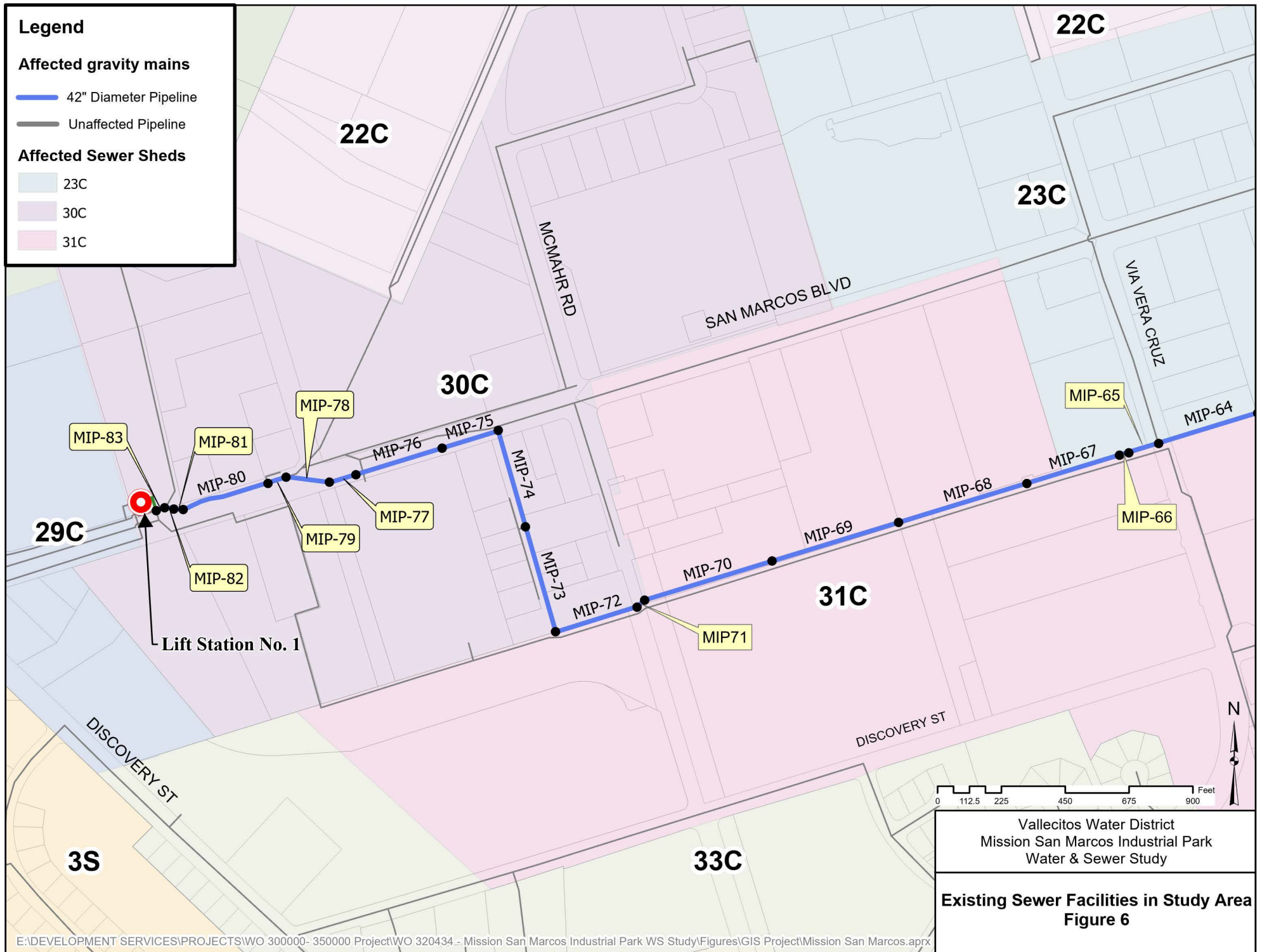
— Unaffected Pipeline

Affected Sewer Sheds

23C

30C

31C



Wastewater Collection System Analysis

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

Wastewater Collection Infrastructure Criteria

The VWD 2018 Master Plan outlines wastewater system design criteria as follows:

- Pipes 12 inches in diameter and smaller: maximum ½ full at peak flow
- Pipes over 12 inches in diameter: maximum ¾ full at peak flow
- Minimum velocity: 2 feet per second
- Maximum velocity: 8 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 wastewater pipes exceeds the maximum levels as stated above, the existing sewer main will be required to be upsized..

Wastewater Model Scenarios

The following scenarios were modeled for existing wastewater generation conditions and existing plus proposed Project wastewater generation conditions to calculate Project impact to VWD's wastewater system and to identify any required improvements:

- Average Dry Weather Flow
- Peak Dry Weather Flow
- Peak Wet Weather Flow

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 proposed Project flows (see Figures 3 - 7).

Table 4 presents a summary of the wastewater modeling results from this analysis. The modeling results showed that deficiencies have been identified under the 2018 Master Plan land use density (pipeline segments MIP-01 through MIP-10). The modeling results also showed that the proposed

Project resulted in deficiencies under peak wet weather flows during ultimate build-out conditions in pipe segments MIP-01 through MIP-10. Pipeline segments MIP-01 through MIP-06 will require upsizing from 8-inch to 10-inch diameter and pipeline segments MIP-07 through MIP-10 will require upsizing from 18-inch to 24-inch diameter to mitigate the deficiencies. However, segments MIP-01 through MIP-06 must be upsized to 12-inch diameter pipelines per CIP SP-35 in VWD's 2018 Master Plan.

VWD's 2018 Master Plan identifies CIP projects SP-35, SP-25, SP-11 and SP-12 which affects pipe sections that were used as part of the Project's wastewater modeling analysis. CIP projects SP-11 and SP-12 are Phase 1 projects and have been completed. CIP projects SP-35 and SP-25 are Phase 3 projects and are expected to be completed in the 2026 through 2030 timeframe.

- The 1,189-foot section of 8-inch sewer main located Mission Road from approximately Mulberry Drive to Falcon Place (MIP-01 through MIP-06) has been identified for upsizing to 12-inch as part of CIP SP-35. SP-35 is a Phase 3 project and is planned for construction in the 2026-2030 time horizon.
- The 806-foot section of 18-inch sewer main located primarily within the Twin Oaks Valley Park residential community (MIP-07 through MIP-09) has been identified for upsizing to 24-inch as part of CIP SP-25. SP-25 is a Phase 3 project and is planned for construction in the 2026-2030 time horizon.
- The 1,632-foot section of 21-inch sewer main located along San Marcos Creek from South Bent Avenue to McMahr Road (MIP-65, MIP-68 through MIP-70) has been identified for upsizing to 42-inch as part of CIP SP-11. SP-11 has been completed as a Phase 1 improvement.
- The 485-foot section of 21-inch sewer main located in San Marcos Boulevard west of Las Posas Road (MIP-79 through MIP-83) has been identified for upsizing to 42-inch as part of CIP SP-12.

Mission San Marcos Industrial Park Table 4 - 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-Diameter Ratio	Replacement Diameter (in)	Replacement PWWF Depth-to-Diameter Ratio	Peak Wet Weather Flow (gpm)	PWWF Depth-to-Diameter Ratio	Replacement Diameter (in)	Replacement PWWF Depth-to-Diameter Ratio
MIP-01	290	8	0.0069	409.65	0.75	12	0.39	410	0.75	12	0.39
MIP-02	290	8	0.0069	423.11	0.77	12	0.39	423	0.77	12	0.39
MIP-03	98	8	0.0102	429.16	0.67	12	0.36	429	0.67	12	0.36
MIP-04	120	8	0.0103	429.96	0.67	12	0.36	430	0.67	12	0.36
MIP-05	260	8	0.0106	453.78	0.69	12	0.36	454	0.69	12	0.36
MIP-06	131	8	0.0458	456.86	0.44	12	0.25	457	0.44	12	0.25
MIP-07	247.1	18	0.0048	3569.97	>1	24	0.51	3,570	>1	24	0.51
MIP-08	278.4	18	0.0048	3570.19	>1	24	0.51	3,570	>1	24	0.51
MIP-09	280	18	0.0048	3570.57	>1	24	0.51	3,571	>1	24	0.51
MIP-10	280	18	0.0048	3603.45	>1	24	0.51	3,603	>1	24	0.51
MIP-11	30	18	0.1630	2704.08	0.26			2,704	0.26		
MIP-12	103.7	24	0.0069	3579.15	0.46			3,579	0.46		
MIP-13	56.6	24	0.0072	3581.29	0.45			3,581	0.45		
MIP-14	334.7	24	0.0058	3581.99	0.48			3,582	0.48		
MIP-15	197.1	24	0.0057	3598.3	0.49			3,598	0.49		
MIP-16	87.5	24	0.0065	3741.57	0.48			3,742	0.48		
MIP-17	304	24	0.0029	3741.77	0.61			3,742	0.61		
MIP-18	292	24	0.0032	3740.56	0.59			3,741	0.59		
MIP-19	20	27	0.0150	3742.31	0.32			3,742	0.32		
MIP-20	204	27	0.0034	3743.29	0.48			3,743	0.48		

CIP PROJECTS: MIP-01 THROUGH MIP-06 (SP-35) MIP-07 THROUGH MIP-09 (SP-25)

PROPOSED DENSITY: 0 GPM

Mission San Marcos Industrial Park Table 4 - 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-Diameter Ratio	Replacement Diameter (in)	Replacement PWWF Depth-to-Diameter Ratio	Peak Wet Weather Flow (gpm)	PWWF Depth-to-Diameter Ratio	Replacement Diameter (In)	Replacement PWWF Depth-to-Diameter Ratio
MIP-21	200	27	0.0024	1831.83	0.36			1,832	0.36		
MIP-22	85	27	0.0062	1832.06	0.28			1,832	0.28		
MIP-23	230	27	0.0043	1832.29	0.31			1,832	0.31		
MIP-24	170	27	0.0059	1836.56	0.29			1,837	0.29		
MIP-25	135	36	0.0030	2983.1	0.29			2,983	0.29		
MIP-26	128	36	0.0047	2992.27	0.26			2,992	0.26		
MIP-27	140	36	0.0071	2992.89	0.24			2,993	0.24		
MIP-28	470	36	0.0043	2993.5	0.27			2,994	0.27		
MIP-29	184	36	0.0029	3000.77	0.30			3,001	0.30		
MIP-30	36	36	0.0022	3001.39	0.32			3,001	0.32		
MIP-31	146	36	0.0053	3001.39	0.26			3,001	0.26		
MIP-32	318	36	0.0038	3136.81	0.28			3,137	0.28		
MIP-33	39	36	0.0036	3136.81	0.29			3,137	0.29		
MIP-34	319	36	0.0038	3136.81	0.28			3,137	0.28		
MIP-35	38	36	0.0037	3136.81	0.29			3,137	0.29		
MIP-36	139	36	0.0037	3898.8	0.32			3,899	0.32		
MIP-37	294	36	0.0026	3899.41	0.35			3,899	0.35		
MIP-38	12	36	0.0167	3899.41	0.22			3,899	0.22		
MIP-39	438	36	0.0046	3900.03	0.30			3,900	0.30		
MIP-40	229	36	0.0052	3900.65	0.29			3,901	0.29		

CIP PROJECTS:

PROPOSED DENSITY: 0 GPM

Mission San Marcos Industrial Park Table 4 - Wastewater Model Results and Recommended Gravity Main Improvements

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Pipe ID Number	Length (ft)	Diameter (in)	Slope	Peak Wet Weather Flow (gpm)	PWWF Depth-to-Diameter Ratio	Replacement Diameter (in)	Replacement PWWF Depth-to-Diameter Ratio	Peak Wet Weather Flow (gpm)	PWWF Depth-to-Diameter Ratio	Replacement Diameter (In)	Replacement PWWF Depth-to-Diameter Ratio
MIP-41	371.2	36	0.0057	3901.27	0.29			3,901	0.29		
MIP-42	123.6	36	0.0049	3901.88	0.30			3,902	0.30		
MIP-43	167.2	36	0.0050	3902.5	0.30			3,903	0.30		
MIP-44	201	36	0.0044	4023.14	0.31			4,023	0.31		
MIP-45	91.2	36	0.0052	4023.76	0.30			4,024	0.30		
MIP-46	220.4	36	0.0046	4024.38	0.31			4,024	0.31		
MIP-47	285.7	36	0.0047	4024.99	0.31			4,025	0.31		
MIP-48	210	39	0.0044	4026.23	0.28			4,026	0.28		
MIP-49	176	39	0.0028	4026.85	0.31			4,027	0.31		
MIP-50	271	39	0.0022	4027.46	0.33			4,027	0.33		
MIP-51	297	39	0.0024	4028.08	0.33			4,028	0.33		
MIP-52	452	39	0.0024	4028.7	0.33			4,029	0.33		
MIP-53	337	39	0.0024	4029.32	0.33			4,029	0.33		
MIP-54	123	39	0.0076	4029.94	0.24			4,030	0.24		
MIP-55	58	42	0.0045	4030.55	0.25			4,031	0.25		
MIP-56	308	42	0.0031	4031.17	0.28			4,031	0.28		
MIP-57	69	42	0.0009	4032.41	0.38			4,032	0.38		
MIP-58	448	42	0.0035	4033.02	0.27			4,033	0.27		
MIP-59	448	42	0.0033	4033.64	0.27			4,034	0.27		
MIP-60	404	42	0.0056	4221.07	0.24			4,221	0.24		

CIP PROJECTS:

PROPOSED DENSITY: 0 GPM

Mission San Marcos Industrial Park Table 4 - 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-Diameter Ratio	Replacement Diameter (in)	Replacement PWWF Depth-to-Diameter Ratio	Peak Wet Weather Flow (gpm)	PWWF Depth-to-Diameter Ratio	Replacement Diameter (In)	Replacement PWWF Depth-to-Diameter Ratio
MIP-61	404	42	0.0057	4221.69	0.24			4,222	0.24		
MIP-62	368	42	0.0030	4222.92	0.28			4,223	0.28		
MIP-63	368	42	0.0030	4223.54	0.28			4,224	0.28		
MIP-64	368	42	0.0029	4224.16	0.29			4,224	0.29		
MIP-65	120	42	0.0020	4248.18	0.32			4,248	0.32		
MIP-66	14	42	0.0207	4248.8	0.18			4,249	0.18		
MIP-67	352	42	0.0040	4248.8	0.27			4,249	0.27		
MIP-68	185.2	42	0.0199	4248.8	0.18			4,249	0.18		
MIP-69	650	42	0.0031	4249.42	0.28			4,249	0.28		
MIP-70	677	42	0.0028	4250.03	0.29			4,250	0.29		
MIP-71	8	42	0.0288	4252.88	0.17			4,253	0.17		
MIP-72	310	42	0.0048	4252.88	0.25			4,253	0.25		
MIP-73	372	42	0.0044	4252.88	0.26			4,253	0.26		
MIP-74	355	42	0.0046	4257.72	0.26			4,258	0.26		
MIP-75	190	42	0.0047	4257.72	0.26			4,258	0.26		
MIP-76	316	42	0.0044	4257.72	0.26			4,258	0.26		
MIP-77	94	42	0.0059	4257.72	0.24			4,258	0.24		
MIP-78	119.9	42	0.0060	4257.72	0.24			4,258	0.24		
MIP-79	100	42	0.0017	5766.06	0.39			5,766	0.39		
MIP-80	347	42	0.0018	5770.13	0.38			5,770	0.38		

CIP PROJECTS: **MIP-70 THROUGH MIP-70 (SP-11)** **MIP-79 THROUGH MIP-82 (SP-12)**

PROPOSED DENSITY: **0** GPM

PROPOSED DENSITY: 0 GPM

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 upgrades required for this project.

Parallel Land Outfall Analysis

VWD's existing land outfall is shown in Figure 8. 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 5 below:

Table 5 – 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

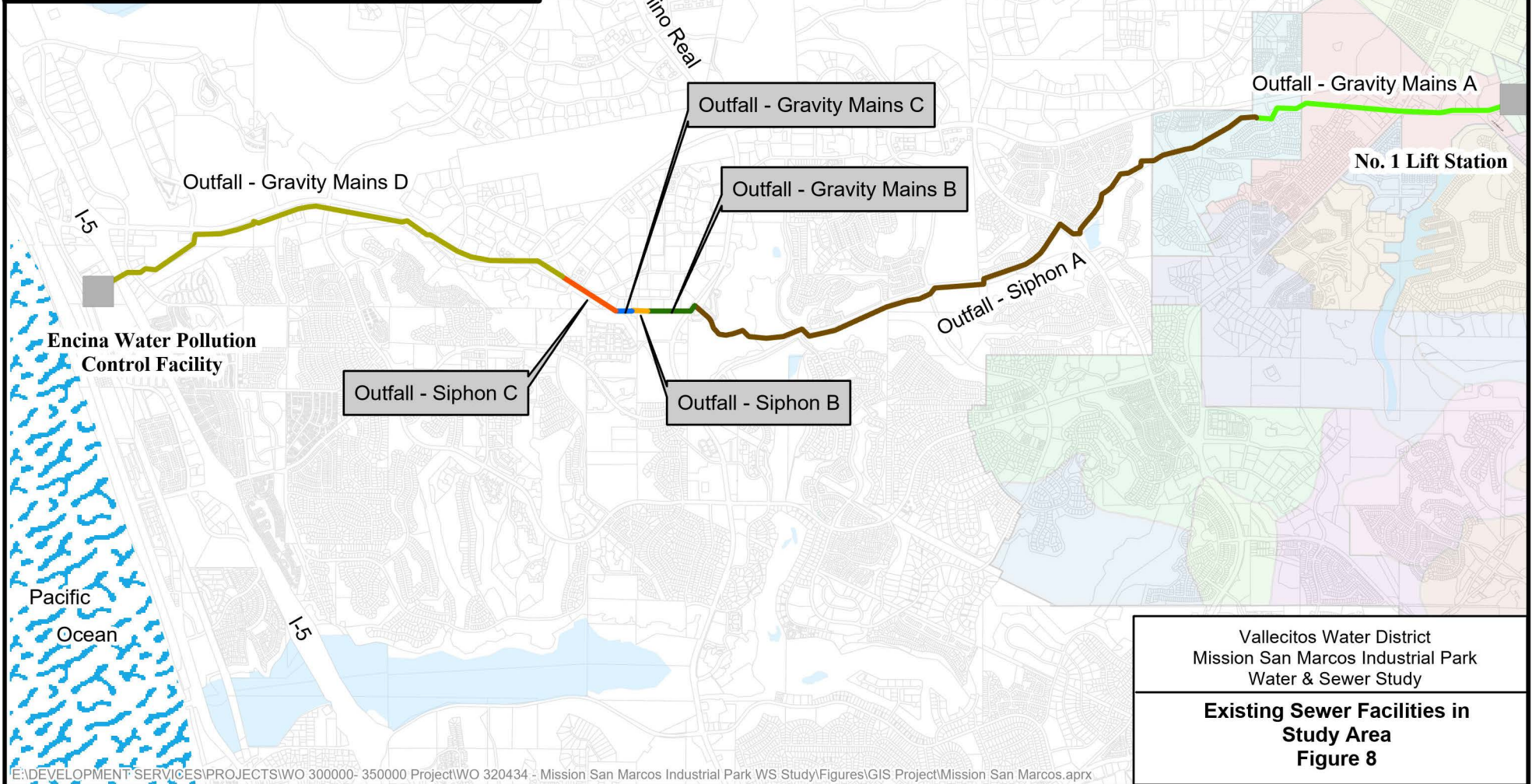
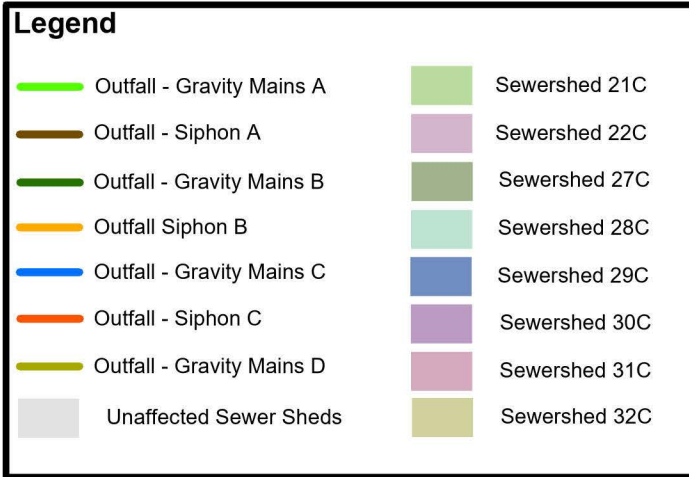
The Meadowlark Water Reclamation Facility (MRF) has a capacity of 5.0 MGD with a peak wet weather capacity of 8.0 MGD. Therefore, VWD has a combined peak wet weather wastewater collection capacity of 20.10 MGD (12.10 MGD + 8.0 MGD).

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 0 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.



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.

CONCLUSION

The proposed Project is expected to increase average daily water demands by 0 gallons per day and wastewater flows by 0 gallons per day over the ultimate flows projected in the VWD 2018 Master Plan.

The study concludes the proposed Project will result in the following impacts:

- An increase of 0 gallons per day in water demand for proposed project.
- An increase of 0 gallons of potable water storage requirement.
- An increase of 0 gallons per day in solids handling, liquids handling and ocean disposal capacity requirements at Encina Water Pollution Control Facility.
- An increase of 0 gallons per day in the parallel land outfall's capacity requirement.

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

- 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 Board acceptance of all water and sewer facilities prior to service.
- Construction and acceptance of all off-site water and sewer facilities prior to service being provided including but not limited to the following:
 - Approximately 1,189 feet of 8-inch diameter sewer main (MIP-01 through MIP-06) must be upsized to 12-inch.
 - Approximately 806 feet of 18-inch diameter sewer main (MIP-07 through MIP-09) must be upsized to 24-inch.
 - Approximately 280 feet of 18-inch diameter sewer main (MIP-10) must be upsized to 24-inch.

The District currently has water and sewer capacity available to serve the Project as proposed with the improvements identified (if any) in this study. 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. All final studies

prepared by Vallecitos Water District shall be incorporated into the CEQA documentation for the proposed Project.