

PLACER VINEYARDS SPECIFIC PLAN
PLACER COUNTY, CALIFORNIA

SANITARY SEWER MASTER PLAN

Prepared for:

County Of Placer
Department Of Facility Services

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TABLE OF CONTENTS

I.	EXECUTIVE SUMMARY	1
II.	INTRODUCTION.....	3
	Location	3
	Purpose.....	4
	Phasing.....	5
III.	PROJECT DESCRIPTION.....	6
	Plan Area Description	6
	Specific Plan Wastewater Sheds	7
	Treatment Plant Description	7
IV.	SEWER MASTER PLAN METHODOLOGY	9
	Analysis Procedure	9
	Pipeline Design	11
V.	WASTEWATER FLOWS	12
	Average Dry Weather Flows.....	12
	Factored Flows.....	12
	Peak Wet Weather Flows.....	13
VI.	WASTEWATER INFRASTRUCTURE IMPROVEMENTS.....	14
	Collection And Transmission	14
	Offsite Connections	14
	Force Mains And Lift Station	15
	Recycled Water	16
	Interim Improvements / Subshed Boundary Modifications.....	17
	Preliminary Opinion Of Quantities And Costs	18
VII.	REFERENCES	20

VIII.	ABBREVIATIONS.....	21
IX.	TABLES	
	Table 1 – Average Dry Weather Unit Flow Factors	
	Table 2A – Land Use Summary – Specific Plan Area	
	Table 2B - Placer Vineyards Land Use Ownership / Base Plan - July 2007 Plan	
	Table 3 – Land Use Summary – Shed A – West Of Watt Avenue	
	Table 4 – Land Use Summary – Shed B – East Of Watt Avenue	
	Table 5 – Wastewater Flow Summary – Specific Plan Area	
	Table 6 – Wastewater Flow Summary – Shed A – West Of Watt Avenue	
	Table 7 – Wastewater Flow Summary – Shed B – East Of Watt Avenue	
	Table 8 - Average Dry Weather Flow By Land Use Parcel	
	Table 9A – Wastewater Flows By Node – Shed A	
	Table 9B - Wastewater Base Sanitary Flows By Node - Shed A	
	Table 10 – Wastewater Flow By Node – Shed B	
	Table 11 – Preliminary Absorption Forecast	
	Table 12 – Wastewater Flow Comparison	
	Tables 8, 9A, 9B And 10 – Oversized Versions	
X.	FIGURES	
	Figure 1 – Specific Plan Location Map	
	Figure 2 – Specific Plan Land Use Map	
	Figure 3 – SPWA Partner Agencies And Ultimate Service Area Boundary	
	Figure 4 – Specific Plan Wastewater Sheds	
	Figure 5 – Shed A Onsite Improvements	
	Figure 6 – Shed A Offsite Wastewater Transmission	
	Figure 7 – Shed B Onsite Improvements	
	Figure 8 – Shed B Offsite Wastewater Transmission	

XI. OVERSIZED EXHIBITS

Exhibit SS1 – Wastewater Flow By Node

Exhibit SS2 – Preliminary Sewer Manhole Data

XII. ATTACHMENTS

Attachment 1 – Trunk Sewer Model for Placer Vineyards Wastewater Shed A
Technical Memorandum prepared by: RMC Water and Environment

Attachment 2 – Placer Vineyards Pump Station and Forcemain Capacity Analysis –
Final. Appendix K of the South Placer Regional Wastewater and
Recycled Water Systems Evaluation prepared by: RMC Water and
Environment

Attachment 3 – Riolo Vineyards Technical Memorandum – Dry Creek No. 1 Pump
Station Flows – Memo 1.1. Appendix M of the South Placer Regional
Wastewater and Recycled Water Systems Evaluation prepared by: RMC
Water and Environment

Attachment 4 – Technical Memorandum No. 2b – Dry Weather Flow Projections for
Ultimate Service Area (w/ UGAs). Appendix D of the South Placer
Regional Wastewater and Recycled Water Systems Evaluation
prepared by: RMC Water and Environment

Attachment 5 – Technical Memorandum No. 3a – Unit Flow Factor Sets and Sewer
Design Criteria. Appendix G of the South Placer Regional Wastewater
and Recycled Water Systems Evaluation prepared by: RMC Water and
Environment

Attachment 6 – Technical Memorandum No. 3b – Trunk Sewer Hydraulic Analysis.
Appendix M of the South Placer Regional Wastewater and Recycled
Water Evaluation prepared by: RMC Water And Environment

Attachment 7 - Placer Vineyards Specific Plan - Chapter III: Land Use - Pages 3-10
through 3-16

Attachment 8 - Special Planning Area - Wastewater Subshed Allocation

I. EXECUTIVE SUMMARY

The Placer Vineyards Specific Plan was adopted by a Resolution of the Placer County Board of Supervisors in July 2007. A condition of the Specific Plan Development Agreement requires that the original project Sewer Master Plan, dated March 27, 2006, be updated and approved by Placer County prior to the approval of the first Development Phase and Phasing Plan within any portion of the Specific Plan Area.

The Placer Vineyards Specific Plan Area consists of 5230± acres of land in southwestern Placer County that has land use entitlements for 14,132 residential units as well as a variety of non-residential land uses including commercial, retail, office, business park, school, park, and open space uses. The Plan Area will be developed in multiple phases over an extended period of time.

The Specific Plan Area does not currently generate any wastewater flows but, when fully developed, will generate an Average Dry Weather Flow of 2.831 MGD as shown in Tables 5 and 8. The Plan Area is divided into two primary wastewater sheds. Each shed will have an individual sewer system consisting of gravity collector and trunk pipelines that will deliver flows to a lift station. The lift station for the western sewer shed will be sized for a Peak Wet Weather Flow of 5.03 MGD and will deliver flows directly to the Dry Creek Wastewater Treatment Plant via a 16" force main. The lift station for the eastern sewer shed will serve the Placer Vineyards Specific Plan as well as the proposed Riolo Vineyards Specific Plan. It will be sized for a Peak Wet Weather Flow of 2.37 MGD and will deliver flows to an existing 12" force main stub constructed as a part of the Dry Creek West Placer Community Facilities District #1 sewer infrastructure. This force main will also deliver flows to the Dry Creek Wastewater Treatment Plant.

The Peak Wet Weather Flows for each shed were determined using hydraulic modeling. The results of the modeling for the western wastewater shed are described in the Technical Memorandum included as Attachment 1. The results of the modeling for the eastern shed are described in the Technical Memorandum included as Attachment 3.

The preliminary gravity sewer pipes, lift stations, and force mains within the Plan Area have been sized using the design criteria set forth in the South Placer Regional Wastewater and Recycled Water Systems Evaluation prepared on behalf of the South Placer Wastewater Authority by RMC Water And Environment.

II. INTRODUCTION

LOCATION

The Placer Vineyards Specific Plan Area consists of approximately 5230 acres of land located north of the city of Sacramento and west of the city of Roseville in an unincorporated area of Placer County. The Specific Plan Area is located at the southwest corner of Placer County and is bound by Base Line Road to the north, the Placer County / Sutter County line and Pleasant Grove Road to the west, the Placer County / Sacramento County line to the south, Dry Creek to the south and east, and an abandoned portion of Walerga Road to the east. Please refer to Figure 1 which depicts the location of the Plan Area.

The Placer Vineyards Specific Plan Area (PVSP) is identified as an Urban Growth Area (UGA) in the South Placer Regional Wastewater and Recycled Water Systems Evaluation prepared by RMC Water and Environment (RMC) for the South Placer Wastewater Authority (SPWA), an entity comprised of the City of Roseville, Placer County, and the South Placer Municipal Utility District (SPMUD). As defined by the Systems Evaluation the PVSP will be tributary to the Dry Creek Wastewater Treatment Plant (DCWWTP). Although the Specific Plan Area is within the Ultimate SPWA Service Area it is outside of the SPWA 2005 Service Area Boundary and approval will be required to join the Service Area and discharge to the DCWWTP. Please refer to Figure 3 which depicts the SPWA partner agencies and ultimate service area boundaries.

PURPOSE

The purpose of this master plan study is to update the previously prepared master plan and provide preliminary design and analysis for the sanitary sewer infrastructure to serve the Placer Vineyards Specific Plan Area. Information including current wastewater generation rates, peaking factors, proposed plan area land uses, and tributary areas will be used to plan the location and size of proposed sanitary sewer facilities for the PVSP. Elements of the sanitary sewer facilities within the Master Plan identified as backbone infrastructure will be included in the Public Facilities Financing Plan being prepared for the Plan Area.

The most significant update in this master plan will be the use of the design criteria set forth in the South Placer Regional Wastewater and Recycled Water Systems Evaluation which was completed in 2009 and established a new set of design parameters for sewer infrastructure within the boundaries of the South Placer Wastewater Authority, which Placer County is a member of. The System Evaluation established new unit flow factors, factored flows, and peaking factors as well as introducing the use of hydraulic modeling for large diameter pipes.

The wastewater sheds and sewer pipe system layout in this updated master plan is substantially the same as the layout in the original master plan. The primary difference in the original and current pipe layouts is the modification of the trunk sewer pipe in the western Plan Area which is depicted on Figure 5. The gravity trunk line in West Dyer Lane flowing to the western lift station now follows the 18Th Street alignment to Locust Road instead of bisecting the proposed community park located at the southwest corner of the intersection of West Dyer Lane and West Town Center Drive.

PHASING

The Placer Vineyards Specific Plan Area does not currently have a defined phasing plan for development of the project. Section 3.5 of the current project Development Agreement states, "From time to time, Developer, or the Development Group acting on behalf of Developer and/or one or more of the Participating Developers, may submit an application for approval of development within a designated portion of land owned by said Participating Developers within the Plan Area (a "**Development Phase**"). The application shall include, among other application requirements set forth in the Implementation Policies and Procedures Manual prepared in accordance with Section 4.4 herein, a Phasing Plan (a "**Phasing Plan**") describing the portions of the Core Backbone Infrastructure, Remaining Backbone Infrastructure, County Facilities and Community Park Improvements, together with any other interim or permanent public improvements or facilities, proposed to be installed to serve such Development Phase (collectively, the "**Phased Improvements**"). The completion and approval of this Sewer Master Plan is required prior to approval of the first "Development Phase" application.

Although a phasing plan has not been adopted, a Preliminary Absorption Forecast has been prepared to identify a possible scenario for buildout of the residential and non-residential land uses within the Specific Plan Area. A 30 year buildout forecast has been prepared and is shown on Table 10.

III. PROJECT DESCRIPTION

PLAN AREA DESCRIPTION

The Placer Vineyards Specific Plan Area consists of approximately 5230 acres of sparsely developed agricultural land located in the southwest corner of Placer County. Individual residences are scattered throughout the Plan Area with the heaviest concentration of homes occurring near the westerly portions of the site in an area known as Riego.

Base Line Road is contiguous to the northerly boundary of the Plan Area. Watt Avenue enters the Plan Area from Sacramento County to the south, crosses Dry Creek, and extends northerly, bisecting the Plan Area and intersecting Base Line Road in a tee intersection. Approximately 890 acres of the Plan Area lie east of Watt Avenue with the 4340 acre balance of the site lying to the west of Watt Avenue.

The topography within the Plan Area can generally be characterized as flat although the ground does slope gently from east to west. Ground elevations of 110.0 occur near the easterly boundary of the Plan Area and decline gradually over approximately 6 miles to elevations of 40.0 near the site's western boundary, an average gradient of 0.22 percent.

The Placer Vineyards Specific Plan Area will be developed with a variety of residential and non-residential land uses as well as school, park, public, and open space uses as shown on the Specific Plan Land Use Map prepared by EDAW/AECOM as shown on Figure 2. The westerly portion of the Plan Area, known as Riego, does not contain any proposed new development, and is identified as the Special Planning Area (SPA) on the Plan Area Land Use Map. A summary of the proposed land use acreages and residential unit counts for the area within the PVSP that will generate wastewater flows, including the SPA, is shown on Table 2.

Although the preliminary sewer system designed for the Plan Area in this master plan does not depict facilities within the Special Planning Area, the proposed sewer infrastructure will be sized to include the flows from the 411 residential units allocated to

the SPA. Flows from the 411 units have been allocated to Nodes 115, 125, 252, and 340 as shown on Oversized Exhibit SS-1 and tabulated by Assessor's Parcel Number in Attachment 8. The distribution of the flows from the SPA units was based on geographical and existing parcel zoning considerations.

SPECIFIC PLAN WASTEWATER SHEDS

Based on site topography and previously planned sewer infrastructure, the Placer Vineyards Specific Plan Area is divided into two primary wastewater sheds. Shed A is comprised of the portion of the Plan Area west of Watt Avenue and Shed B consists of the balance of the Plan Area east of Watt Avenue. The two wastewater sheds are depicted on Figure 4. Tables 3 and 4 contain summaries of the proposed land uses which will generate wastewater flows within Sheds A and B respectively.

Wastewater Shed B lies within the South Placer Wastewater Authority 2005 Service Area Boundary and was studied and included in the Dry Creek West Placer Community Facilities District (CFD) #1 Public Facilities Master Plan prepared by The Spink Corporation for Placer County in February 1988. Wastewater Shed A lies within the SPWA Ultimate Service Area Boundary but outside of the 2005 Service Area Boundary.

TREATMENT PLANT DESCRIPTION

Wastewater flows from the Placer Vineyards Specific Plan Area will be conveyed by new onsite and offsite transmission facilities, as well as existing offsite facilities constructed for Dry Creek West Placer Community Facilities District No. 1, to the Dry Creek Wastewater Treatment Plant (DCWWTP.) The DCWWTP is owned and operated by the City of Roseville for the benefit of the South Placer Wastewater Authority. The location of the DCWWTP and offsite transmission facilities are shown on Figures 6 and 8.

The City of Roseville uses average dry weather flow volumes when analyzing wastewater treatment plant capacity. According to the South Placer Regional Wastewater and Recycled Water Systems Evaluation prepared by RMC, the current average dry weather

flow capacity of the DCWWTP is 18.0 MGD. The measured dry weather flow in June 2004 was 10.5 MGD. The ultimate buildout dry weather flow projection for the DCWWTP is 21 MGD.

In Technical Memorandum No. 2b from Appendix D of the South Placer Regional Wastewater and Recycled Water Systems Evaluation, included as Attachment 4 in this master plan, an estimated ADWF of 2.81 MGD would be tributary to the DCWWTP from buildout of the Placer Vineyards Specific Plan Area. Buildout ADWF projections in the Technical Memorandum are based on ADWF unit flow factors and estimated buildout land use conditions as further described in Attachment 4. Wastewater from the Plan Area consists of 0.58 MGD of flow from that portion of the Plan Area within the SPWA 2005 Regional Service Area and 2.23 MGD of flow from that portion of the Plan Area outside of the 2005 Service Area boundary, identified as the Placer Vineyards UGA in the Technical Memorandum.

A comparison between the average dry weather flows calculated in this master plan and the flows calculated in Technical Memorandum No. 2b is shown in Table 12. Although the average dry weather flow generated by the PVSP as calculated in this report is slightly greater than the flow considered in the Systems Evaluation the conclusions and projections discussed in the Evaluation remain valid. The Systems Evaluation and related Technical Memorandum updates should be reviewed for information related to any required DCWWTP expansions necessary to provide service to the PVSP.

IV. SEWER MASTER PLAN METHODOLOGY

ANALYSIS PROCEDURE

The following procedure was used for the preliminary design and analysis of the sanitary sewer system proposed in the Placer Vineyards Sewer Master Plan:

- The primary wastewater sheds within the Plan Area were delineated. Two primary sheds were defined: Shed A, consisting of the area west of Watt Avenue and Shed B, consisting of the area east of Watt Avenue.
- A sewer trunk system alignment was defined to collect wastewater flows within each primary wastewater shed. The trunk systems were placed within the proposed road system shown on the Specific Plan Land Use Map wherever feasible.
- Node points were inserted into the sewer system alignment to define flow collection points within the sewer system.
- The primary wastewater subsheds were subdivided into secondary sheds to determine tributary areas into the trunk system node points.
- Proposed land use acreages and residential unit counts within each secondary wastewater shed were tabulated.
- Wastewater flows, including average dry weather flows, factored flows, and peak wet weather flows, were calculated at each node point using the design methodology defined in Technical Memorandum No. 3a: Unit Flow Factor Sets and Sewer Design Criteria, from Appendix G of the South Placer Regional Wastewater and Recycled Water Systems Evaluation, included as Attachment 5 in this master plan.
- Average dry weather flows were calculated using the Average Dry Weather Unit Flow Factors for the land use types within each secondary wastewater shed.

- Factored flows were calculated by multiplying average dry weather flows by a factor of safety of 2.0.
- Peak wet weather flows within the trunk system were calculated by summing factored flows at the nodes along the trunk system alignment and applying appropriate peaking factors from the Peaking Factor Curve shown as Figure 1 in the Unit Flow Factor Sets and Sewer Design Criteria technical memorandum.
- Trunk system pipe sizes were initially sized based on peak wet weather flows and pipe capacities based on minimum pipe slopes.
- Trunk sewer pipes initially calculated to be 18" or larger in Wastewater Shed A were reexamined using the hydraulic modeling methodology utilized for the South Placer Regional Wastewater and Recycled Water System Evaluation. Base sanitary wastewater flows were calculated at each node within Shed A for use in the hydraulic modeling process. Peak wet weather flows were recalculated using the hydraulic modeling and trunk sewer pipes originally 18" or larger were resized as appropriate based on the revised peak wet weather flows. The hydraulic modeling results can be found in Attachment 1 – Trunk Sewer Model for Placer Vineyards Wastewater Shed A.
- In Wastewater Shed B only two trunk sewer segments at the downstream end of the system were initially calculated as requiring pipes 18" or larger. Based on hydraulic modeling for the Placer Vineyards and Riolo Vineyards Specific Plan Areas prepared for the SPWA Systems Evaluation the peak wet weather flow from Shed B was estimated to be 1.62 MGD in the Placer Vineyards Pump Station and Forcemain Capacity Analysis Technical Memorandum (refer to Attachment 2) and 1.56 MGD in the Riolo Vineyards Technical Memorandum (refer to Attachment 3). On the basis of these previously modeled peak wet weather flows it was decided not to prepare additional hydraulic modeling and to retain the two 18" pipe segments.

- Finally, preliminary pipe inverts were calculated at each node and compared to existing ground grades and conceptual finished grades to check the ability to serve the secondary sheds with gravity sewer pipe systems.

PIPELINE DESIGN

The proposed pipe size diameters were selected using the following pipe criteria:

- A Manning’s “n” value of 0.013 was used for all pipe-sizing calculations.
- Pipes 10" and less in diameter and pipes with lateral connections are designed to have a maximum depth of flow 70% of the pipe diameter.
- Pipes 12" and larger with no lateral connections are designed to flow full. Pipe sizes have been selected assuming pipes will be installed at minimum slopes. The minimum slope for a pipe is a slope that yields a minimum 2 feet per second velocity when flowing at design capacity.

V. WASTEWATER FLOWS

AVERAGE DRY WEATHER FLOWS

Average Dry Weather Flows (ADWF) within the Placer Vineyards Specific Plan Area have been calculated using the Average Dry Weather Unit Flow Factors shown in Table 1 and the residential unit counts and non-residential acreages for the Plan Area parcels within the two wastewater sheds.

The Specific Plan Area will generate an estimated ADWF of 2.831 MGD. A summary of the average dry weather flows generated by each land use type is shown in Table 5. A summary of the average dry weather flows generated by each land use parcel is shown in Table 8. Wastewater Shed A will generate an estimated ADWF of 2.325 MGD as shown on Table 6. Table 9A identifies the average dry weather flow at each node in Shed A. Wastewater Shed B will produce an estimated ADWF of 0.505 MGD as shown on Table 7. Table 10 identifies the average dry weather flow at each node in Shed B.

On oversized Exhibit SS-1 the average dry weather flows for the Plan Area at each node are depicted graphically on an exhibit showing the proposed sanitary sewer pipe layout within the Placer Vineyards Specific Plan. The proposed land use parcels, the primary subsheds, and the secondary wastewater shed boundaries are also delineated on the exhibit.

FACTORED FLOWS

Factored wastewater flows are used in the design process to calculate peak wet weather flows. Factored flows are determined by multiplying average dry weather flows by a factor of 2.0 as stated in the design methodology defined in Technical Memorandum No. 3a: Unit Flow Factor Sets and Sewer Design Criteria, from Appendix G of the South Placer Regional Wastewater and Recycled Water Systems Evaluation. The factored flows are then multiplied by peaking factors to obtain peak wet weather flows. Factored flows are shown by node on oversized Exhibit SS-1.

PEAK WET WEATHER FLOWS

Peak wet weather flows have been calculated using the design methodology defined in Technical Memorandum No. 3a: Unit Flow Factor Sets and Sewer Design Criteria, from Appendix G of the South Placer Regional Wastewater and Recycled Water Systems Evaluation, to size trunk sewer pipelines in the Placer Vineyards Specific Plan Area sanitary sewer system.

Initially all sewer pipes in the proposed system were sized based on peak wet weather flows calculated using average dry weather flows, factored flows, and peaking factors as outlined in Technical Memorandum No. 3a. Trunk sewer pipes initially calculated to be 18" or larger were reexamined using the hydraulic modeling. Peak wet weather flows were recalculated using hydraulic modeling and trunk sewer pipes originally 18" or larger were resized as appropriate based on the revised peak wet weather flows.

The original hydraulic modeling for the Placer Vineyards Specific Plan was prepared in May 2006 and can be found in Attachment 2 – Placer Vineyards Pump Station and Forcemain Capacity Analysis – Final. This Technical Memorandum was also included as Appendix K of the South Placer Regional Wastewater and Recycled Water Systems Evaluation. Additional updated modeling has been prepared and supersedes the original modeling. The most recent hydraulic modeling results for Wastewater Shed A can be found in Attachment 1 – Trunk Sewer Model for Placer Vineyards Wastewater Shed A, and for Shed B in Attachment 3 – Riolo Vineyards Technical Memorandum, which is also Appendix M of the Systems Evaluation.

Wastewater Shed A is expected to generate a peak wet weather flow of 5.03 MGD. Table 9A identifies the peak wet weather flow at each node in Shed A. Wastewater Shed B is expected to generate a peak wet weather flow of 1.561 MGD. Table 10 identifies the peak wet weather flow at each Node in Shed B. On oversized Exhibit SS-1 the peak wet weather flows for the Plan Area at each node are also depicted graphically.

VI. WASTEWATER INFRASTRUCTURE IMPROVEMENTS

COLLECTION AND TRANSMISSION

Individual sanitary sewer trunk systems comprised of gravity pipelines, a lift station, and a force main were defined to collect wastewater flows within each of the two primary wastewater sheds in the Placer Vineyards Specific Plan Area. Future residential subdivisions and non-residential developments will be served by small diameter gravity pipelines which will discharge into the larger gravity collectors and trunk lines. The gravity pipelines and force mains were placed within the proposed project roads wherever feasible. Off road sewer pipelines will be placed within dedicated sewer easements and accessed by service roads, with turnouts required on service roads that do not provide through travel, as required by Placer County.

The proposed onsite transmission systems for Sheds A and B are shown schematically on Figures 5 and 7 respectively. The onsite transmission systems are also shown on oversized Exhibit SS-2. Exhibit SS-2 also shows proposed pipe sizing together with manhole data including preliminary pipe inverts, rim grades, and resultant manhole depths.

OFFSITE CONNECTIONS

The trunk sewer system proposed to serve Shed A collects flows from tributary subsheds and carries them westerly via gravity flow to a proposed lift station adjacent to Locust Road on the western side of the Plan Area. A 16" force main originating at the lift station will then follow internal Plan Area roads easterly to Watt Avenue, proceed south on Watt Avenue to PFE Road, proceed east on PFE Road to either Cook-Riolo Road or Hill Top Circle, proceed to the north crossing Dry Creek and terminate at the headworks of the Dry Creek Wastewater Treatment Plant located near the northwestern corner of the plant site, an overall distance of approximately 51,000 lineal feet. The Shed A offsite force main alignment is shown on Figure 6.

An existing gravity sewer pipeline stubbed from the existing Walerga Road sewer system has been designed to provide capacity for approximately 315 residential dwelling units within the northeastern portion of Shed B. As proposed in the Dry Creek West Placer CFD #1 Public Facilities Master Plan, wastewater flows from the balance of Shed B will be collected in an onsite system and discharge to a gravity trunk pipe which will flow southerly, crossing Dry Creek, and continue southerly to a lift station to be located on an adjoining parcel which is proposed to be developed as the Riolo Vineyards Specific Plan Area. This lift station is identified as Dry Creek No. 2 Pump Station in the Dry Creek West Placer CFD #1 Public Facilities Master Plan.

From the lift station, wastewater flows will be carried in a 12" force main to be installed along the southerly side of Dry Creek between the lift station and the end of an existing 12" force main stub located approximately 1400 feet east of Walerga Road as shown on Figure 8. The existing stub was constructed as part of the initial construction of sewer infrastructure to serve the Dry Creek West Placer CFD #1. The existing force main stub connects at a tee to second 12" force main pipe which originates from the existing Dry Creek No. 1 Pump Station. The flows from the two 12" force mains are combined and discharge into an existing 16" force main which continues along Dry Creek and discharges into the headwork as at the Dry Creek Wastewater Treatment Plant.

FORCE MAIN AND LIFT STATIONS

The conveyance of wastewater flows from each primary wastewater shed within the Placer Vineyards Specific Plan Area to the Dry Creek Wastewater Treatment Plant requires the use of a permanent sanitary sewer lift station and a force main.

The Shed A lift station is proposed to be placed adjacent to the east side of Locust Road, north of 18th Street, in the westerly portion of the Plan Area as shown on Figure 5 and oversized Exhibits SS-1 and SS-2. The lift station will be designed for a Peak Wet Weather Flow of 5.03 MGD as calculated in the hydraulic modeling for Shed A. A single 16" force main is proposed to carry flows from the lift station to the DCWWTP. Isolation

valves, air release valves, and blow-off valves shall be utilized along the force main alignment in conformance with County of Placer standards. Prior to the connection of the force main to the headworks at the treatment plant a check valve should be placed in the force main allowing flows into the headworks and preventing the reversal of flows from the headworks back into the force main. It is also suggested that a magnetic flow meter be placed to measure flows in the force main.

The Shed B lift station is proposed to be placed on an adjoining parcel south of the Placer Vineyards Specific Plan Area in the proposed Riolo Vineyards Specific Plan Area. This lift station was identified as Dry Creek No. 2 Pump Station in the Dry Creek West Placer CFD #1 Public Facilities Master Plan and will serve both the Riolo Vineyards and Placer Vineyards Specific Plan Areas. The lift station will be designed for a Peak Wet Weather flow of 2.37 MGD as calculated by the hydraulic modeling prepared for the Riolo Vineyards Technical Memorandum. A 12" force main is proposed to carry flows from the lift station to a point of connection with an existing 12" force main stub constructed as a part of the Dry Creek West Placer CFD #1 infrastructure.

During the final design process for the sanitary sewer lift stations and force mains serving Wastewater Sheds A and B, the use of dual rather than single force mains may be examined to determine if a dual force main configuration would be beneficial for operational or maintenance purposes for either shed.

RECYCLED WATER

The Placer Vineyards Specific Plan anticipates receiving a commitment for recycled water from the City of Roseville for an amount equal to the average daily dry weather wastewater flow generated and conveyed by the PVSP to the Dry Creek Wastewater Treatment Plant. As estimated in this master plan, the Plan Area will generate an ADWF of 2.831 MGD and would anticipate receiving this volume of recycled water from the city.

INTERIM IMPROVEMENTS / SUBSHED BOUNDARY MODIFICATIONS

This Master Plan provides a preliminary project wide sanitary sewer system to serve as a guide for development of the Plan Area sewer infrastructure. However, a future Development Phase applicant may propose interim sewer facilities or an alternative sewer infrastructure plan which may include revised pipe alignments and revised or additional lift station locations.

Interim sanitary sewer improvements shall be approved by the County of Placer and will be allowed on a temporary basis to provide sewer service for parcel development within the Plan Area. Interim improvements may include pipe alignments or points of connection that differ from those shown in the master plan for individual land use parcels, temporary sewer lift stations for individual land use parcels to provide sewer service until permanent infrastructure is constructed, as well as other types of interim improvements. All interim sanitary sewer improvements shall be designed and constructed per County of Placer standards and Department of Health Regulations.

It is likely that the first Development Phase proposal for properties in Wastewater Shed A will include a proposal to utilize excess capacity in the existing 16" force main between the existing Dry Creek Pump Station No. 1 and the Dry Creek Wastewater Treatment Plant. RMC prepared a Force Main Hydraulic Assessment, shown in Table 7 of Technical Memorandum No. 3b - Trunk Sewer Hydraulic Analysis, which is included as Appendix M of the SPWA Systems Evaluation and Attachment 6 of this Master Plan, which states that the Design Capacity of the 16" force main is 6.31 MGD. The Buildout Peak Wet Weather Flow from Dry Creek Pump Stations No. 1 and No. 2, which are tributary to the force main, is 4.29 MGD.

Based on these flow volumes there is approximately 2.02 MGD available capacity in the force main. Utilizing this available capacity would allow the development of up to 7200 residential units within Wastewater Shed A before a force main connection would need to be made directly between the Wastewater Shed A lift station and the Dry Creek Wastewater Treatment Plant. This would allow the deferral of construction of over

20,000 lineal feet of 16" force main and significantly reduce the initial construction cost for development in Shed A.

In order to utilize the 2.02 MGD excess capacity in the 16" force main, the force main originating at the Wastewater Shed A lift station would be connected to the 12" force main between Dry Creek Lift Station No. 2 and its point of connection to the existing 16" force main east of Walerga Road.

Future Development Phase proposals which include a request for a revised sewer infrastructure plan with significant pipe alignment modifications, or revisions to the location or number lift stations, may require a revised sewer master plan subject to the approval of Placer County.

During the final grading and utility design process for individual development projects within the Specific Plan Area, it may become apparent that there is a more efficient method of delivering wastewater flows to the sanitary sewer trunk system than at the node defined in the sewer master plan. Minor wastewater shed boundary adjustments may be necessary during the final design process. All wastewater shed adjustments will be subject to the review and approval of the County of Placer Department of Facility Services.

PRELIMINARY OPINION OF QUANTITIES AND COSTS

A portion of the proposed Placer Vineyards Specific Plan sewer system will be defined as backbone infrastructure. The term "backbone" is defined in the project Development Agreement and Public Facilities Financing Plan. Backbone infrastructure is further defined as either "Core" or "Remaining" in the two documents. The backbone sewer infrastructure generally consists of the sewer facilities to be installed in the backbone roads which include Base Line Road, Watt Avenue, West Dyer Lane, East Dyer Lane, 16th Street, 18th Avenue, and "A" Street, the sanitary sewer lift stations, the onsite and offsite pipelines between pipes in the roads and the lift stations, and the onsite and offsite

force mains between the lift stations and the proposed points of discharge into either the existing force main stub or the Dry Creek Wastewater Treatment Plant.

A Preliminary Opinion Of Quantities And Costs for the proposed Core And Remaining Backbone Sewer Infrastructure has been prepared and is included in the Placer Vineyards Specific Plan Public Facilities Financing Plan. The Financing Plan should be consulted for information regarding backbone sewer infrastructure costs.

VII. REFERENCES

Placer Vineyards Specific Plan – Preliminary Land Use Plan And Tables for July
2007 Land Use Plan

South Placer Regional Wastewater and Recycled Water Systems Evaluation
Updated Final Report – December 2009

VIII. ABBREVIATIONS

AC	Acres
ADW	Average Dry Weather
ADWF	Average Dry Weather Flow
CC	Community Commercial
CC/BP	Community Commercial/Business Park
CFD	Community Funding District
CMU	Commercial Mixed Use
DCWWTP	Dry Creek Wastewater Treatment Plant
DU	Dwelling Unit
EDU	Equivalent Dwelling Unit
GPD	Gallons per Day
HDR	High Density Residential
LDR	Low Density Residential
M&S	MacKay & Somps
MDR	Medium Density Residential
MGD	Million Gallons per Day
NPDES	National Pollution Discharge Elimination System
PGWWTP	Pleasant Grove Wastewater Treatment Plant
PQP	Public Quasi Public
PQPS	Public Quasi Public Schools
PR	Park Reserve
SPMUD	South Placer Municipal Utility District
SPWA	South Placer Wastewater Authority
UGA	Urban Growth Area
WRSP	West Roseville Specific Plan

TABLES

TABLE 1
AVERAGE DRY WEATHER UNIT FLOW FACTORS
PLACER VINEYARDS SPECIFIC PLAN

LAND USE	FLOW FACTOR ⁽¹⁾
LDR - Low Density Residential	190 gpd/du
MDR - Medium Density Residential	190 gpd/du
HDR - High Density Residential	130 gpd/du
CMU - Commercial Mixed Use	2300 gpd/ac
COM - Commercial	850 gpd/ac
OFF - Office	850 gpd/ac
BP/PC - Business Professional / Power Center	850 gpd/ac
PARK - Parks > 10 Acres	10 gpd/ac
PQP-PUB - Public Facilities and Services	660 gpd/ac
PQP-REL - Religious Facilities	660 gpd/ac
PQP-SCHOOLS - Schools	170 gpd/ac

Notes:

1. Per Table 1 : "Average Dry Weather Unit Flow Factors Used for Treatment Plant Analyses" - Technical Memorandum No. 3a - Unit Flow Factor Sets and Sewer Design Criteria (Appendix G of the South Placer Regional Wastewater and Recycled Water Systems Evaluation - Refer to Attachment 5) and Table 3-5: BSF and ADWF Unit Flow Factors - South Placer Regional Wastewater and Recycled Water Systemn Evaluation.

TABLE 2A
LAND USE SUMMARY
SPECIFIC PLAN AREA
PLACER VINEYARDS SPECIFIC PLAN

LAND USE	AREA SIZE (Acres)	UNITS
LDR - Low Density Residential	1001.0	3519
MDR - Medium Density Residential	1176.0	6474
HDR - High Density Residential	205.0	3092
CMU - Commercial Mixed Use	50.5	636
COM - Commercial	76.5	
OFF - Office	32.5	
BP / PC - Business Professional / Power Center	149.5	
PARK - Parks > 10 Acres	82.0	
PQP-PUB - Public Facilities and Services	50.5	
PQP-REL - Religious Facilities	91.0	
PQP-SCHOOLS - Schools	167.0	
SPA	979.0	411
SUBTOTAL	4060.5	14132
PARK - Parks < 10 Acres	129.0	
OS - Open Space	709.0	
MR - Major Roads	331.5	
SUBTOTAL	1169.5	
TOTAL	5,230.0	14,132

TABLE 2B

Placer Vineyards Land Use Ownership / Base Plan | July 2007 Plan

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
Property ID#	AP#	Property Owner	Gross Parcel Acreage	SPA		LDR 2-6 du/ac		MDR 4-8 du/ac.		HDR 7-21 du/ac.		COM.	OFF	CMU ⁽²⁾ 18 du/acre		BP/PC ⁽⁴⁾	Pub	Rel ⁽³⁾	Schools			Parks ⁽⁵⁾	OS	Major Roads	Total Units
				Acre	Units	Acre	Units	Acre	Units	Acre	Units			Acre	Units				ES Acres	MS Acres	HS Acres				
1A	23-200-005 23-221-002, 057, 058	Placer 400 Investors, LLC	402.0			264.0	931											8.0				22.0	88.0	20.0	931
1B	23-200-006	Hodel Family Enterprises, LP	56.0			10.0	35	18.0	128	6.0	90							9.0				2.0	4.0	7.0	253
2	23-200-017	Mourier Family Revocable Lifetime Trust	138.0			82.5	289	21.0	115									6.0				5.0	19.0	4.5	404
3	23-200-037	Baseline & Watt, LLC	100.5					26.5	153	7.0	105	25.0						4.0				4.0	26.0	8.0	258
4A	23-200-069	B&W 60 LP	65.0													59.7								5.3	0
4B	23-200-071	LDK-AREP III Placer Owner, LLC	114.2					38.0	225					7.0	88	31.0		7.0				6.0	20.0	5.2	313
5A	23-200-062	Richard Riolo (Non-Participant)	106.5			66.0	230	24.5	106	5.0	75											3.0		8.0	411
5B	23-200-063	Riolo (Non-Participant)	51.0			21.0	74	20.0	103														5.0	5.0	177
5C	23-200-015, 028	Riolo, LP (Non-Participant)	241.5			71.5	250	101.5	562	25.0	375	9.0		4.5	57			9.5				4.0	6.5	10	1244
6	23-200-018	O'Looney 1991 Living Trust, Frances Shadwick, Susan Pilarski	39.0					14.5	102								1.5						18.0	5.0	102
7	23-200-045, 066	BHT II Northern Cal 1	357.0					169.5	912	46.5	698			6.5	82		4.5	1.5	12.0	2.5		23.0	63.0	28.0	1692
8	23-200-041	Spinelli Investments, LLC Millspin Investments, LLC	120.0			32.0	112	25.5	117													32.0	24.5	6.0	229
9	23-200-010, 012, 013	Placer 1 Owners Receivership	326.0			145.0	515	56.5	359	8.0	120							12.0				13.0	61.5	30.0	994
10	23-200-009	Frank Stathos	242.0					148.0	819	10.5	158							12.0	20.0			6.5	30.0	15.0	977
11	23-200-011	P.G.G. Properties, GP	79.0			23.0	81	25.0	134													1.5	27.5	2.0	215
12A	23-200-067	Il Centro, LLC	196.0							57.0	871	42.5		11.5	144		7.0	5.0				11.5	20.0	41.5	1015
12B	23-200-068	Placer 102, LLC	102.0					64.0	342					3.0	38			12.0				4.0	6.5	12.5	380
13	23-010-024; 23-200-060	Cabral, et al (Non-Participant)	80.0					20.0	122	7.0	105		17.5				7.5					3.0	13.0	12.0	227
14	23-010-026	D.F. Properties, Inc.	80.0					12.0	58							35.0	4.5					1.0	20.0	7.5	58
15	23-010-004, 029; 23-200-008	Palladay Greens, LLC	202.0			20.0	70	117.0	639	10.0	150			3.0	38			7.0				6.5	23.0	15.5	897
16	23-010-006, 014	Placer Vineyards Development Group, LLC	94.0			43.0	151	20.0	126									5.5				4.0	16.0	5.5	277
17	23-010-013	J.A. Sioukas Family Partners, LP	19.5			12.0	42	7.5	38																80
18	23-200-042	Mamood Nasser (Non-Participant)	3.5			1.0	4																2.5		4
19	23-010-021, 022 & 023; 23-150-026, 027; 23-180-005, 006, 007, 008	Baseline A&B Holding, LLC, Lennar Winncrest, LLC	816.5			98.0	343	213.5	1,148	23.0	345		15.0	15.0	189	23.5	33.0	21.0	24.0	22.5	50.0	50.0	159.5	68.5	2025
20	23-200-029	Jack Garfield (Non-Participant)	0.3													0.3									0
21	23-019-016	Pandeleon	10.5			10.5	37																		37
22	23-010-028	Slight (Non-Participant)	22.5					14.0	73													2.0	6.5		73
23	23-160-011	PMF5C, LLC	92.5			49.5	173	8.5	41													5.0	22.5	7.0	214
24	23-160-004	Pandeleon, et al	94.0			52.0	182	11.0	52													2.0	26.5	2.5	234
SPA	Refer To Attachment 8	various	979.0	979.0	411																				411
Totals			5,230.0	979.0	411	1,001.0	3,519	1,176.0	6,474	205.0	3,092	76.5	32.5	50.5	636	149.5	50.5	91.0	72.0	45.0	50.0	211.0	709.0	331.5	14,132

Notes:

1. Acres and units are approximations and subject to change with more detailed mapping, final alignment of roadways, etc.
2. CMU units are calculated at 70% area coverage.
3. 3 acres of Religious site on property #13 are located under the powerlines
4. 31 acres of BP on property #4 may be a BP or PC land use
5. 22 acres of parks in the active adult community (property 1A) are private parks.

TABLE 3
LAND USE SUMMARY
SHED A - WEST OF WATT AVENUE
PLACER VINEYARDS SPECIFIC PLAN

LAND USE	AREA SIZE (Acres)	UNITS
LDR - Low Density Residential	557.5	1960
MDR - Medium Density Residential	1051.5	5767
HDR - High Density Residential	187.0	2822
CMU - Commercial Mixed Use	50.5	636
COM - Commercial	51.5	
OFF - Office	32.5	
BP/PC - Business Professional / Power Center	149.5	
PARK - Parks > 10 Acres	70.0	
PQP-PUB - Public Facilities and Services	49.0	
PQP-REL - Religious Facilities	64.0	
PQP-SCHOOLS - Schools	167.0	
SPA	979.0	411
SUBTOTAL	3409.0	11596
PARK - Parks < 10 Acres	105.0	
OS - Open Space	549.0	
MR - Major Roads	274.0	
SUBTOTAL	928.0	
TOTAL	4,337.0	11596

TABLE 4
LAND USE SUMMARY
SHED B - EAST OF WATT AVENUE
PLACER VINEYARDS SPECIFIC PLAN

LAND USE	AREA SIZE (Acres)	UNITS
LDR - Low Density Residential	443.5	1559
MDR - Medium Density Residential	124.5	707
HDR - High Density Residential	18.0	270
CMU - Commercial Mixed Use		
COM - Commercial	25.0	
OFF - Office		
BP/PC - Business Professional / Power Center		
PARK - Parks > 10 Acres	12.0	
PQP-PUB - Public Facilities and Services	1.5	
PQP-REL - Religious Facilities	27.0	
PQP-SCHOOLS - Schools		
UR - Urban Reserve		
SUBTOTAL	651.5	2536
PARK - Parks < 10 Acres	24.0	
OS - Open Space	160.0	
MR - Major Roads	57.5	
SUBTOTAL	241.5	
TOTAL	893.0	2,536

TABLE 5
WASTEWATER FLOW SUMMARY
SPECIFIC PLAN AREA
PLACER VINEYARDS SPECIFIC PLAN

LAND USE	AREA SIZE (Acres)	UNITS	ADWF FLOW FACTOR	ADWF (MGD)
LDR - Low Density Residential	1001.0	3519	190 gpd/du	0.669
MDR - Medium Density Residential	1176.0	6474	190 gpd/du	1.230
HDR - High Density Residential	205.0	3092	130 gpd/du	0.402
CMU - Commercial Mixed Use	50.5	636	2300 gpd/ac	0.116
COM - Commercial	76.5		850 gpd/ac	0.065
OFF - Office	32.5		850 gpd/ac	0.028
BP / PC - Business Professional / Power Center	149.5		850 gpd/ac	0.127
PARK - Parks > 10 Acres	92.0		10 gpd/ac	0.001
PQP-PUB - Public Facilities and Services	40.5		660 gpd/ac	0.027
PQP-REL - Religious Facilities	91.0		660 gpd/ac	0.060
PQP-SCHOOLS - Schools	167.0		170 gpd/ac	0.028
SPA	979.0	411	190 gpd/du	0.078
TOTAL	4,060.5	14,132.0		2.831

TABLE 6
WASTEWATER FLOW SUMMARY
SHED A - WEST OF WATT AVENUE
PLACER VINEYARDS SPECIFIC PLAN

LAND USE	AREA SIZE (Acres)	UNITS	ADWF FLOW FACTOR	ADWF (MGD)
LDR - Low Density Residential	557.5	1960	190 gpd/du	0.372
MDR - Medium Density Residential	1051.5	5767	190 gpd/du	1.096
HDR - High Density Residential	187.0	2822	130 gpd/du	0.367
CMU - Commercial Mixed Use	50.5	636	2300 gpd/ac	0.116
COM - Commercial	51.5		850 gpd/ac	0.044
OPF - Office	32.5		850 gpd/ac	0.028
BP/PC - Business Professional / Power Center	149.5		850 gpd/ac	0.127
PARK - Parks > 10 Acres	80.0		10 gpd/ac	0.001
PQP-PUB - Public Facilities and Services	39.0		660 gpd/ac	0.026
PQP-REL - Religious Facilities	64.0		660 gpd/ac	0.042
PQP-SCHOOLS - Schools	167.0		170 gpd/ac	0.028
SPA	979.0	411	190 gpd/du	0.078
TOTAL	3,409.0	11,596.0		2.325

TABLE 7
WASTEWATER FLOW SUMMARY
SHED B - EAST OF WATT AVENUE
PLACER VINEYARDS SPECIFIC PLAN

LAND USE	AREA SIZE (Acres)	UNITS	ADWF FLOW FACTOR	ADWF (MGD)
LDR - Low Density Residential	443.5	1559	190 gpd/du	0.296
MDR - Medium Density Residential	124.5	707	190 gpd/du	0.134
HDR - High Density Residential	18.0	270	130 gpd/du	0.035
CMU - Commercial Mixed Use			2300 gpd/ac	0.000
COM - Commercial	25.0		850 gpd/ac	0.021
OFF - Office			850 gpd/ac	0.000
BP/PC - Business Professional / Power Center			850 gpd/ac	0.000
PARK - Parks > 10 Acres	12.0		10 gpd/ac	0.000
PQP-PUB - Public Facilities and Services	1.5		660 gpd/ac	0.001
PQP-REL - Religious Facilities	27.0		660 gpd/ac	0.018
PQP-SCHOOLS - Schools			170 gpd/ac	0.000
UR - Urban Reserve			190 gpd/du	0.000
TOTAL	651.5	2,536.0		0.505

TABLE 9A
WASTEWATER FLOWS BY NODE - SHED A
PLACE VINEYARDS SPECIFIC PLAN

REFERENCE NODE	TRIBUTARY LAND USE PARCELS	CONTRIBUTING NODE	LDR / MDR (190 GPD / DU)			HDR (130 GPD / DU)			CMU (2300 GPD / ACRE)			SCHOOL (170 GPD / ACRE)			COM, OFF, BP/PC (850 GPD / ACRE)			POP-PUB, POP-REL (660 GPD / ACRE)			PARK - Parks > 10 Acres (10 GPD / ACRE)			TOTAL	FACTORED	PEAKING	TOTAL	PIPE	PIPE	PIPE	% FULL
			DU	CUM. DU	Q(ADWF)	DU	CUM. DU	Q(ADWF)	DU	CUM. DU	AREA	CUM. AREA	Q(ADWF)	AREA	CUM. AREA	Q(ADWF)	AREA	CUM. AREA	Q(ADWF)	AREA	CUM. AREA	MGD	AREA	CUM. AREA	Q(ADWF)	Q(ADWF)	MGD	MGD	FACTOR	Q(PWWF)	SIZE
830	CMU-2																							0.010	0.021	3.54	0.073	8	879	0.0035	13
825	MDR-13	830	105	105	0.020																		0.030	0.061	3.38	0.205	8	1061	0.0035	38	
820	LDR-13		100	100	0.019																		0.019	0.038	3.48	0.132	8	378	0.0035	24	
815	MDR-17, MDR-16, LDR-14, LDR-15, P-19		233	233	0.044																		0.045	0.089	3.27	0.292	8	1242	0.0035	54	
810		815, 820, 825		438	0.083				57		4.5	0.010											0.094	0.188	2.96	0.556	10	1868	0.0025	67	
805	HDR-5, HDR-6					292	292	0.038															0.038	0.076	3.32	0.252	8	550	0.0035	46	
800	MDR-12	805	84	84	0.016		292	0.038															0.054	0.108	3.20	0.345	8	1121	0.0035	64	
795	MDR-15	800	191	275	0.052		292	0.038															0.090	0.180	2.98	0.538	10	1306	0.0025	65	
790	MDR-20	795	182	457	0.087		292	0.038															0.125	0.250	2.80	0.699	12	592	0.0020	70	
785	REL-5														9.5	9.5	0.006						0.006	0.013	3.57	0.045	8	908	0.0035	8	
780		785, 790		457	0.087		292	0.038							9.5	9.5	0.006						0.131	0.262	2.78	0.729	12	786	0.0020	73	
775	LDR-16	780	150	607	0.115		292	0.038							9.5	9.5	0.006						0.160	0.319	2.65	0.846	12	683	0.0020	85	
770	LDR-18		128	128	0.024																		0.024	0.049	3.43	0.167	8	458	0.0035	31	
765	MDR-21	770	159	287	0.055																		0.055	0.109	3.19	0.348	8	546	0.0035	64	
760		765, 775, 810		1332	0.253		292	0.038	57		4.5	0.010			9.5	9.5	0.006		32.0	0.000			0.308	0.616	2.40	1.478	15	1332	0.0015	92	
755	LDR-18, LDR-19, LDR-20, LDR-21		379	379	0.072																		0.072	0.144	3.09	0.445	10	510	0.0025	54	
750	ES-2, LDR-17	755	89	468	0.089					12.0	12.0	0.002											0.091	0.182	2.98	0.542	10	599	0.0025	65	
745	MDR-22		66	66	0.013																		0.013	0.025	3.52	0.088	8	550	0.0035	16	
740		745, 750, 760		1866	0.355		292	0.038	57		4.5	0.010		12.0	0.002			9.5	0.006		32.0	0.000	0.411	N/A	N/A	0.900	15	1198	0.0015	57	
735	MDR-30	740	108	1974	0.375		292	0.038	57		4.5	0.010		12.0	0.002			9.5	0.006		32.0	0.000	0.432	N/A	N/A	0.930	15	204	0.0015	61	
730	ES-1, MS-1													34.5	34.5	0.006							0.006	0.012	3.57	0.042	8	1486	0.0035	8	
725	MDR-26, MDR-27	730	227	227	0.043									34.5	0.006								0.049	0.098	3.23	0.317	8	448	0.0035	58	
720	MDR-31		58	58	0.011																		0.011	0.022	3.53	0.078	8	350	0.0035	14	
715		720, 725		285	0.054									34.5	0.006								0.060	0.120	3.16	0.379	8	761	0.0035	70	
710	MDR-28	715	53	338	0.064									34.5	0.006								0.070	0.140	3.10	0.435	10	750	0.0025	52	
705	MDR-29	710	152	490	0.093									34.5	0.006								0.099	0.198	2.94	0.582	12	450	0.0055	58	
700		705, 735		2464	0.468		292	0.038	57		4.5	0.010		46.5	0.008			9.5	0.006		32.0	0.000	0.531	N/A	N/A	1.150	18	1272	0.0023	47	
695	COM-2, HDR-4, CMU-1, T					75	75	0.010	82		6.5	0.015					9.0	9.0	0.008	2.0	2.0	0.001		0.034	0.067	3.36	0.226	8	531	0.0035	42
690	F-1, HDR-7, MDR-11	695	152	152	0.029	83	158	0.021	82		6.5	0.015					9.0	9.0	0.008	2.5	4.5	0.003		0.075	0.150	3.07	0.460	10	2494	0.0025	56
685	MDR-19	690	146	298	0.057		158	0.021	82		6.5	0.015					9.0	9.0	0.008				0.103	0.205	2.92	0.600	12	500	0.0020	60	
680		685		298	0.057		158	0.021	82		6.5	0.015					9.0	9.0	0.008				0.103	0.205	2.92	0.600	12	1477	0.0020	60	
675	PC-1																40.0	40.0	0.034				0.034	0.068	3.36	0.228	8	1300	0.0035	42	
670	PC-2	675															20.0	60.0	0.051				0.051	0.102	3.21	0.327	8	876	0.0035	60	
665	BP/PC-1	670															31.0	91.0	0.077				0.077	0.155	3.06	0.473	10	529	0.0025	57	
660	CMU-3, REL-6						88		88		7.0	0.016						8.5	8.5	0.006			0.022	0.043	3.46	0.150	8	464	0.0035	28	
655	MDR-18	660	89	89	0.017		88		88		7.0	0.016						8.5	8.5	0.006			0.039	0.077	3.32	0.256	8	412	0.0035	47	
650	MDR-14	655, 665	136	225	0.043		88		88		7.0	0.016					91.0	0.077					0.142	0.284	2.72	0.771	12	1466	0.0020	77	
645	MDR-19, MDR-23	650	246	471	0.089		88		88		7.0	0.016					91.0	0.077					0.189	0.377	2.56	0.965	12	681	0.0020	97	
640		645, 680		769	0.146		158	0.021	170		13.5	0.031					100.0	0.085					0.291	0.583	2.42	1.410	15	725	0.0015	88	
635	MDR-24, MDR-25	640	244	1013	0.192		158	0.021	170		13.5	0.031					100.0	0.085					0.338	N/A	N/A	0.610	15	1334	0.0015	45	
630	HDR-10	635		1013	0.192	195	353	0.046	170		13.5	0.031					100.0	0.085					0.363	N/A	N/A	0.650	15	626	0.0015	47	
625	MDR-23		124	124	0.024																		0.024	0.047	3.44	0.162	8	415	0.0035	30	
620	ES-3	625		124	0.024									12.0	12.0	0.002							0.026	0.051	3.43	0.176	8	428	0.0035	32	
615	HDR-8	620		124	0.024	278	278	0.036						12.0	0.002								0.062	0.123	3.15	0.389	10	427	0.0025	47	
610		615		124	0.024		278	0.036						12.0	0.002								0.062	0.123	3.15	0.389	10	560	0.0025	47	
605	HDR-9	610		124	0.024	150	428	0.056						12.0	0.002								0.081	0.162	3.03	0.492	10	455	0.0025	59	
600		605, 630		1137	0.216		781	0.102	170		13.5	0.031					100.0	0.085					0.444	N/A	N/A	0.800	15	942	0.0015	53	
595	HDR-11	600		1137	0.216	158	939	0.122	170		13.5	0.031		12.0																	

TABLE 9A
WASTEWATER FLOWS BY NODE - SHED A
PLACE VINEYARDS SPECIFIC PLAN

REFERENCE NODE	TRIBUTARY LAND USE PARCELS	CONTRIBUTING NODE	LDR / MDR (190 GPD / DU)			HDR (130 GPD / DU)			CMU (2300 GPD / ACRE)			SCHOOL (170 GPD / ACRE)			COM, OFF, BP/PC (850 GPD / AC)			POP-PUB, POP-REL (660 GPD / AC)			PARK - Parks > 10 Acres (10 GPD / ACRE)			TOTAL	FACTORED	PEAKING	TOTAL	PIPE	PIPE	PIPE	% FULL	
			DU	CUM. DU	Q(ADWF)	DU	CUM. DU	Q(ADWF)	DU	CUM. DU	AREA	CUM. AREA	Q(ADWF)	AREA	CUM. AREA	Q(ADWF)	AREA	CUM. AREA	Q(ADWF)	AREA	CUM. AREA	Q(ADWF)	AREA	CUM. AREA	Q(ADWF)	Q(ADWF)	MGD	FACTOR	MGD	Q(PWWF)	SIZE	LENGTH
340	LDR-26, SPA-A		83	83	0.016																			0.016	0.032	3.49	0.110	8	560	0.0035	20	
335	LDR-25	340	42	125	0.024																			0.024	0.048	3.44	0.163	8	401	0.0035	30	
330	MDR-57	335	38	163	0.031																			0.031	0.062	3.37	0.209	8	288	0.0035	38	
325	MDR-44		153	153	0.029																			0.029	0.058	3.39	0.197	8	638	0.0035	36	
320	MDR-50	325	126	279	0.053																			0.053	0.106	3.20	0.339	8	776	0.0035	62	
315	MDR-53, MDR-54	320	144	423	0.080																			0.080	0.161	3.04	0.489	10	500	0.0025	59	
310	MS-2											22.5	22.5	0.004										0.004	0.008	3.59	0.027	8	431	0.0035	5	
305		310, 315		423	0.080								22.5	0.004										0.084	0.168	3.02	0.509	10	562	0.0025	61	
300	ES-5	305		423	0.080							12.0	34.5	0.006										0.086	0.172	3.00	0.517	10	887	0.0025	62	
295	CMU-8	300		423	0.080			38	38	3.0	3.0	0.007		34.5	0.006									0.093	0.186	2.97	0.553	10	180	0.0025	67	
290		295, 330, 345		5591	1.062	2477	0.322		447				105.0	0.018		156	0.133		59.5	0.039		32.0	0.000	1.656	N/A	N/A	3.320	24	2454	0.0008	70	
285	LDR-27	290	105	5696	1.082	2477	0.322		447				105.0	0.018		156	0.133		59.5	0.039		32.0	0.000	1.676	N/A	N/A	3.360	24	741	0.0008	71	
280	MDR-62	285	87	5783	1.099	2477	0.322		447				105.0	0.018		156	0.133		59.5	0.039		32.0	0.000	1.692	N/A	N/A	3.390	24	433	0.0008	71	
275	MDR-60		103	103	0.020																			0.020	0.039	3.47	0.136	8	1223	0.0035	25	
270		275, 280		5886	1.118	2477	0.322		447				105.0	0.018		156	0.133		59.5	0.039		32.0	0.000	1.712	N/A	N/A	3.420	24	1295	0.0008	72	
265	LDR-28, LDR-29, MDR-63	270	320	6206	1.179	2477	0.322		447				105.0	0.018		156	0.133		59.5	0.039		32.0	0.000	1.773	N/A	N/A	3.530	27	851	0.00070	61	
260	ES-6, MDR-65		58	58	0.011							12.0	12.0	0.002										0.013	0.026	3.52	0.092	8	488	0.0035	17	
255		260, 265		6264	1.190	2477	0.322		447				117.0	0.020		156	0.133		59.5	0.039		32.0	0.000	1.786	N/A	N/A	3.560	27	2933	0.00470	38	
252	SPA-B		65	65	0.012																			0.012	0.025	3.52	0.087	8	400	0.00350	16	
250	LDR-33, LDR-35	252, 255	182	6511	1.237	2477	0.322		447				117.0	0.020		156	0.133		59.5	0.039		32.0	0.000	1.833	N/A	N/A	3.680	27	443	0.00070	62	
245	MDR-68	250	52	6563	1.247	2477	0.322		447				117.0	0.020		156	0.133		59.5	0.039		32.0	0.000	1.843	N/A	N/A	3.690	27	259	0.00070	62	
240	LDR-31, MDR-67	245	191	6754	1.283	2477	0.322		447				117.0	0.020		156	0.133		59.5	0.039		32.0	0.000	1.879	N/A	N/A	3.750	27	274	0.00070	65	
235	MDR-43		122	122	0.023																			0.023	0.046	3.45	0.160	8	1117	0.0035	29	
230	BP-1, O-2	235		122	0.023										24.0	24.0	0.020							0.044	0.087	3.28	0.286	8	439	0.0035	53	
225	BP-2, SS	230		122	0.023										15.0	39.0	0.033	4.5	4.5	0.003				0.059	0.119	3.16	0.375	8	386	0.0035	69	
220	MDR-48		44	44	0.008																			0.008	0.017	3.55	0.059	8	411	0.0035	11	
215	MDR-49	220	14	58	0.011																			0.011	0.022	3.53	0.078	8	517	0.0035	14	
210		215		58	0.011																			0.011	0.022	3.53	0.078	8	408	0.0035	14	
205	F-2	210		58	0.011													2.0	2.0	0.001				0.012	0.025	3.52	0.087	8	362	0.0035	16	
200		205, 225		180	0.034											39.0	0.033		6.5	0.004				0.072	0.143	3.09	0.443	10	850	0.0025	53	
195	HS-1	200		180	0.034								50.0	0.009		39.0	0.033		6.5	0.004				0.080	0.160	3.04	0.487	10	1649	0.0025	59	
190	MDR-58	195	58	238	0.045								50.0	0.009		39.0	0.033		6.5	0.004				0.091	0.182	2.98	0.543	10	972	0.0025	66	
185	BP-3, CMU-9, O-3							76	76	6.0	6.0	0.014				38.5	0.033							0.047	0.093	3.26	0.303	8	500	0.0035	56	
180	HDR-31	185				83	83	0.011																0.057	0.115	3.18	0.365	8	350	0.0035	67	
175	HDR-33	180, 190		238	0.045	180	263	0.034		76			6.0	0.014		50.0	0.009		77.5	0.066		6.5	0.004		0.172	0.344	2.61	0.897	12	350	0.0020	90
170	HDR-32	175		238	0.045	82	345	0.045		76			6.0	0.014		50.0	0.009		77.5	0.066		6.5	0.004		0.183	0.365	2.58	0.942	12	398	0.0020	94
165	CMU-10, CMU-11	170		238	0.045		345	0.045	113	189	9.0	15.0	0.035		50.0	0.009		77.5	0.066		6.5	0.004			0.203	0.406	2.53	1.028	15	250	0.0015	64
160	REL-11																	21.0	21.0	0.014	15.0	15.0	0.000	0.014	0.028	3.51	0.098	8	469	0.0035	18	
155	CY	160																16.0	37.0	0.024		15.0	0.000	0.025	0.049	3.43	0.169	8	780	0.0035	31	
150	MDR-59	155	170	170	0.032														37.0	0.024		15.0	0.000	0.057	0.114	3.18	0.362	8	439	0.0035	67	
145	MDR-61	150	121	291	0.055														37.0	0.024		15.0	0.000	0.080	0.160	3.04	0.486	10	396	0.0025	59	
140		145, 165		529	0.101		345	0.045		189			15.0	0.035		50.0	0.009		77.5	0.066		43.5	0.029		0.283	0.566	2.43	1.376	15	1660	0.0015	86
135	MDR-64, P-54	140	250	779	0.148		345	0.045		189			15.0	0.035		50.0	0.009		77.5	0.066		43.5	0.029	33.0	0.331	N/A	N/A	0.620	15	2673	0.0015	46
130	MDR-66	135	35	814	0.155		345	0.045		189			15.0	0.035		50.0	0.009		77.5	0.066		43.5	0.029		0.338	N/A	N/A	0.640	15	452	0.0215	24
125	LDR-34, SPA-C		343	343	0.065																			0.065	0.130	3.13	0.408	10	935	0.0025	49	
120	LDR-32, MDR-69	125	102	445	0.085																											

TABLE 10
WASTEWATER FLOWS BY NODE - SHED B
PLACER VINEYARDS SPECIFIC PLAN

REFERENCE NODE	TRIBUTARY LAND USE PARCELS	CONTRIBUTING NODE	LDR / MDR (190 GPD / DU)			HDR (130 GPD / DU)			CMU (2300 GPD / ACRE)			SCHOOL (170 GPD / ACRE)			COM, OFF, BP/PC (850 GPD / ACRE)			PQP-PUB, PQP-REL (660 GPD / ACRE)			PARK - Parks > 10 Acres (10 GPD / ACRE)			TOTAL	FACTORED	PEAKING	TOTAL	PIPE	PIPE	PIPE	% FULL	
			DU	CUM. DU	Q(ADWF)	DU	CUM. DU	Q(ADWF)	DU	CUM. DU	AREA	CUM. AREA	Q(ADWF)	AREA	CUM. AREA	Q(ADWF)	AREA	CUM. AREA	Q(ADWF)	AREA	CUM. AREA	Q(ADWF)	AREA	CUM. AREA	Q(ADWF)	Q(ADWF)	FLOW	FACTOR	Q(PWWF)	SIZE	LENGTH	SLOPE
1160	LDR-1, LDR-2	#	315	315	0.060																			0.060	0.120	3.16	0.378	8			0.0035	70
1155	LDR-1, LDR-3		229	229	0.044																			0.044	0.087	3.28	0.285	8	962	0.0035	53	
1150	P-3	1155		229	0.044																	12.0	12.0	0.000	0.044	0.087	3.28	0.286	8	1275	0.0035	53
1145	LDR-4	1150	137	366	0.070																		12.0	0.000	0.070	0.139	3.10	0.432	10	1580	0.0025	52
1140	REL-1	1145		366	0.070										8.0	8.0	0.005						12.0	0.000	0.075	0.150	3.07	0.460	10	409	0.0166	56
1130	COM-1														25	25.0	0.021							0.021	0.043	3.46	0.147	8	1030	0.0035	27	
1125	HDR-1	1130				105	105	0.014								25.0	0.021							0.035	0.070	3.35	0.234	8	1175	0.0035	43	
1135	MDR-3		153	153	0.029																			0.029	0.058	3.39	0.197	8	564	0.0122	36	
1120	LDR-3	1130, 1135	250	403	0.077	105	105	0.014								25.0	0.021							0.111	0.223	2.87	0.640	12	316	0.0020	64	
1115	REL-3	1120		403	0.077	105	105	0.014								25.0	0.021	6.0	6.0	0.004				0.115	0.231	2.85	0.658	12	915	0.0020	66	
1110	LDR-6	1115, 1140	35	804	0.153	105	105	0.014								25.0	0.021		14.0	0.009			12.0	0.000	0.197	0.394	2.55	1.005	15	315	0.0015	63
1105	REL-4	1,110		804	0.153	105	105	0.014								25.0	0.021	7.0	21.0	0.014			12.0	0.000	0.202	0.403	2.54	1.024	15	700	0.0015	64
1100	MDR-4		29	29	0.006																			0.006	0.011	3.58	0.039	8	450	0.0035	7	
1095	HDR-2	1100		29	0.006	90	90	0.012																0.017	0.034	3.49	0.120	8	275	0.0642	22	
1090	MDR-1	1095, 1105	82	915	0.174		195	0.025								25.0	0.021		21.0	0.014			12.0	0.000	0.234	0.469	2.47	1.158	15	510	0.0015	72
1085	LDR-5	1,090	289	1204	0.229		195	0.025								25.0	0.021		21.0	0.014			12.0	0.000	0.289	0.579	2.42	1.400	15	355	0.0015	88
1080	LDR-7		45	45	0.009																			0.009	0.017	3.55	0.061	8	650	0.0035	11	
1075	HDR-3, MDR-6		41	41	0.008	75	75	0.010																0.018	0.035	3.49	0.122	8	563	0.0035	23	
1070	LDR-11	1075	70	111	0.021		75	0.010																0.031	0.062	3.37	0.208	8	404	0.0035	38	
1065		1070, 1080		156	0.030		75	0.010																0.039	0.079	3.31	0.261	8	524	0.0035	48	
1060	LDR-8		19	19	0.004																			0.004	0.007	3.60	0.026	8	276	0.0035	5	
1055		1060, 1065		175	0.033		75	0.010																0.043	0.086	3.28	0.282	8	815	0.0035	52	
1050	MDR-7		65	65	0.012																			0.012	0.025	3.52	0.087	8	515	0.0035	16	
1045	LDR-12	1050	68	133	0.025																			0.025	0.051	3.43	0.173	8	415	0.0179	32	
1040		1045, 1055		308	0.059		75	0.010																0.068	0.137	3.11	0.425	10	313	0.0025	51	
1035	LDR-9	1,040	28	336	0.064		75	0.010																0.074	0.147	3.08	0.453	10	700	0.0025	55	
1030	MDR-5	1035	99	435	0.083		75	0.010																0.092	0.185	2.97	0.549	10	600	0.0031	66	
1025	REL-2	1030, 1085		1639	0.311		270	0.035								25.0	0.021	6.0	27.0	0.018			12.0	0.000	0.386	0.771	2.36	1.821	18	414	0.0012	77
1020	LDR-10, MDR-8		177	177	0.034																			0.034	0.067	3.36	0.226	8	251	0.0035	42	
1015	MDR-9, MDR-10		102	102	0.019																			0.019	0.039	3.47	0.134	8	1162	0.0035	25	
1010	WATER	1015, 1020		279	0.053													1.5	1.5	0.001				0.054	0.108	3.20	0.346	8	1623	0.0048	64	
1005	MDR-2	1010, 1025	33	1951	0.371		270	0.035								25.0	0.021		28.5	0.019			12.0	0.000	0.446	N/A	N/A	1.561	18		0.0012	66
TOTAL				2266	0.431		270	0.035								25	0.021		28.5	0.019			12	0.000	0.506							

- NOTES:
1 Land use unit counts and acreages are based on the Placer Vineyards Specific Plan Land Use Plan dated July 2007.
2 The Peak Wet Weather Flow at Node 1005 is based on hydraulic modeling prepared by RMC. (Please refer to Attachment 3).
3 The sewer pipes downstream from Node 1005 are sized based on hydraulic modeling prepared by RMC. (Please refer to Attachment 3).

**TABLE 11
PRELIMINARY ABSORPTION FORECAST
PLACER VINEYARDS SPECIFIC PLAN**

TYPE OF USE	TOTAL EDU	Current 2014 EDUs
Residential	13,985	0
Non-Residential	1,186	0

FY 15-16	FY 16-17	FY 17-18	FY 18-19	FY 19-20	FY 20-21	FY 21-22	FY 22-23	FY 23-24	FY 24-25
350	350	350	350	350	450	450	450	450	450
8	8	16	16	24	24	24	24	60	60

Start

FY 25-26	FY 26-27	FY 27-28	FY 28-29	FY 29-30	FY 30-31	FY 31-32	FY 32-33	FY 33-34	FY 34-35
550	550	550	550	550	600	600	600	600	600
65	65	65	60	60	55	55	55	55	50

FY 35-36	FY 36-37	FY 37-38	FY 38-39	FY 39-40	FY 40-41	FY 41-42	FY 42-43	FY 43-44	FY 44-45
550	500	450	450	450	400	400	350	350	335
50	45	45	45	30	30	30	30	30	2

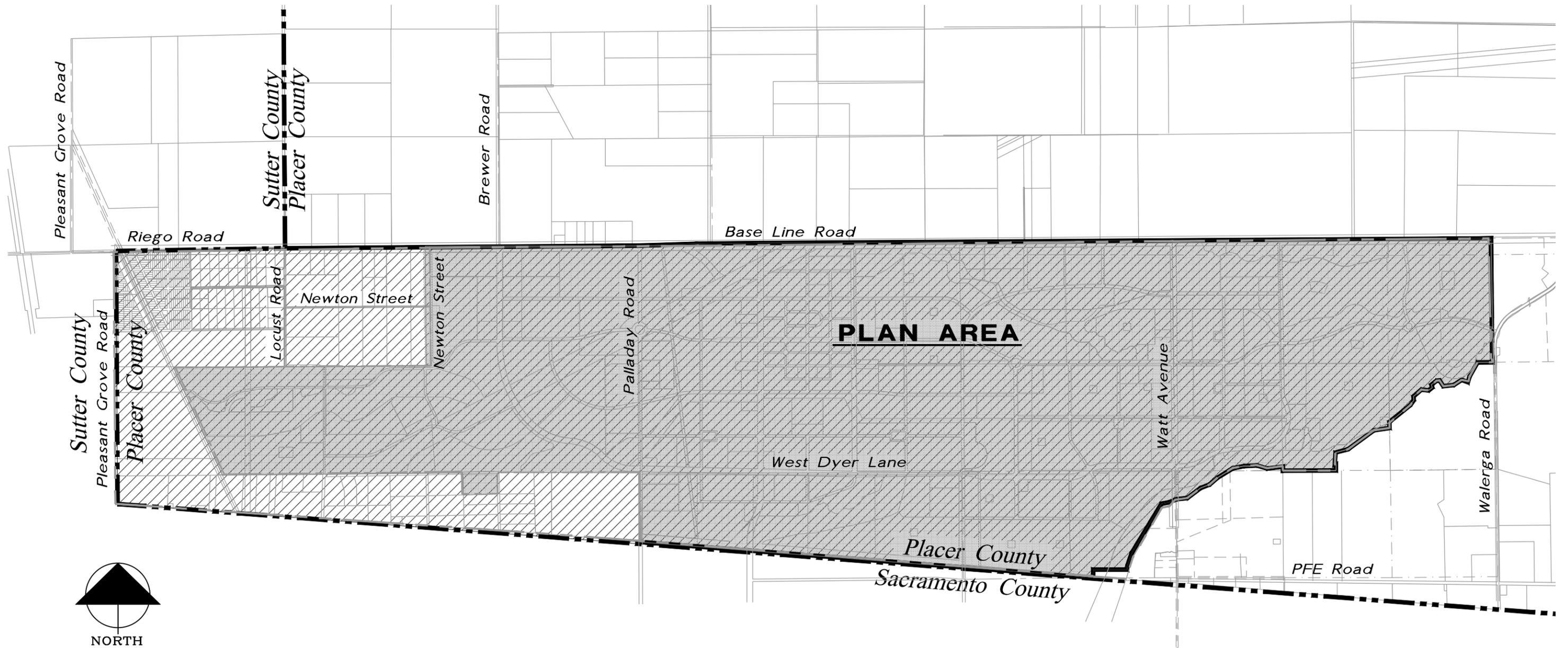
NOTE:
There are existing residential and non-residential land uses within the Placer Vineyards Specific Plan Area, particularly within the Special Planning Area, that are not currently served by a sanitary sewer system. These existing uses are anticipated to contribute future wastewater flows when a sewer system is constructed. It is estimated that the existing residential uses will contribute flows equivalent to the flows from 147 EDUs and the existing non-residential uses will contribute flows equivalent to the flows from 21 EDUs.

**TABLE 12
WASTEWATER FLOW COMPARISON
PLACER VINEYARDS SPECIFIC PLAN**

AVERAGE DRY WEATHER FLOW COMPARISON AT DRY CREEK WASTEWATER TREATMENT PLANT			
WASTEWATER STUDY	PLACER VINEYARDS SPECIFIC PLAN AREA		
	AREA WITHIN THE 2005 REGIONAL SERVICE AREA ADWF	PLACER VINEYARDS UGA (OUTSIDE 2005 REGIONAL SERVICE AREA) ADWF	TOTAL ADWF
SOUTH PLACER REGIONAL WASTEWATER AND RECYCLED WATER SYSTEMS EVALUATION - UPDATED FINAL REPORT (APPENDIX D - TECH MEMO 2b) DECEMBER 2009	0.58 MGD	2.23 MGD	2.81 MGD
PLACER VINEYARDS SPECIFIC PLAN SANITARY SEWER MASTER PLAN JULY 10, 2013			2.83 MGD
DIFFERENCE			(0.02 MGD)

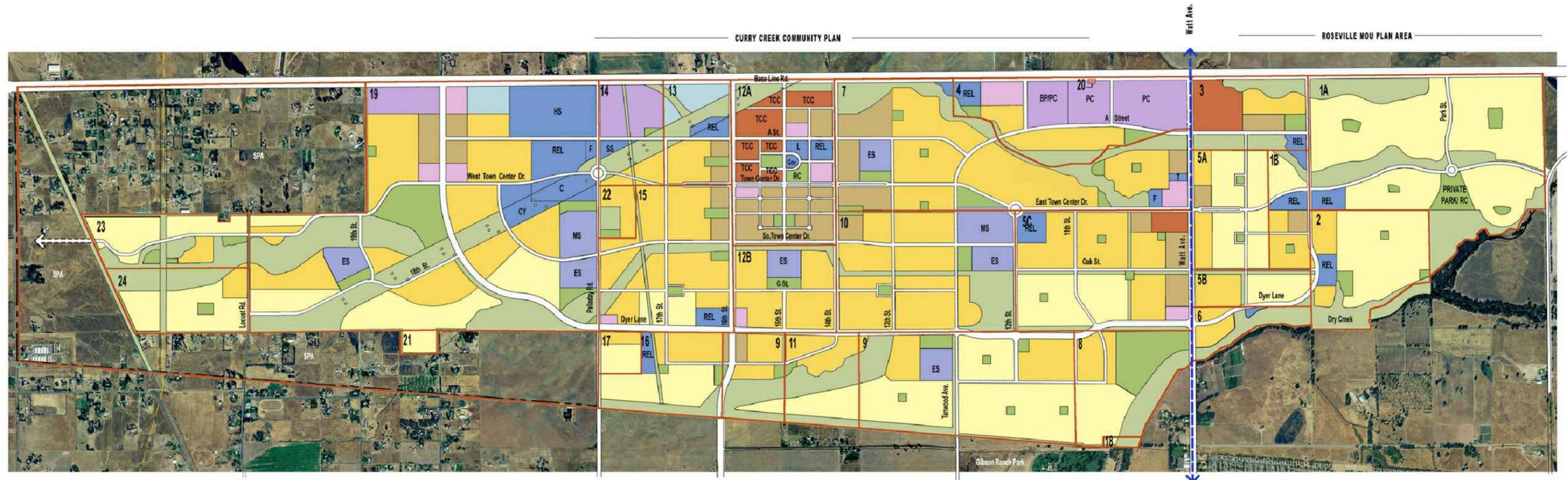
FIGURES

SPECIFIC PLAN LOCATION MAP PLACER VINEYARDS SPECIFIC PLAN



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SPECIFIC PLAN LAND USE MAP PLACER VINEYARDS SPECIFIC PLAN



EDAW | AECOM

Placer Vineyards Land Use Plan

LEGEND

C/MU COMMERCIAL / MIXED USE	SPA SPECIAL PLANNING AREA	ES ELEMENTARY SCHOOL	PUBLIC / QUASI-PUBLIC USES	OS OPEN SPACE
COM COMMERCIAL	LDR LOW DENSITY RESIDENTIAL	MS MIDDLE SCHOOL	REL RELIGIOUS FACILITY	P PARK
PC POWER CENTER	MDR MEDIUM DENSITY RESIDENTIAL	HS HIGH SCHOOL	F FIRE	RC RECREATION CENTER
BP BUSINESS PARK	HDR HIGH DENSITY RESIDENTIAL		Gov GOVERNMENT	
D OFFICE			L LIBRARY	
			P₂ POLICE	
			CY CORPORATE YARD	
			SS SUBSTATION	
			T TRANSIT	
			C CEMETERY	
				↔ BRT LINE

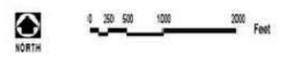
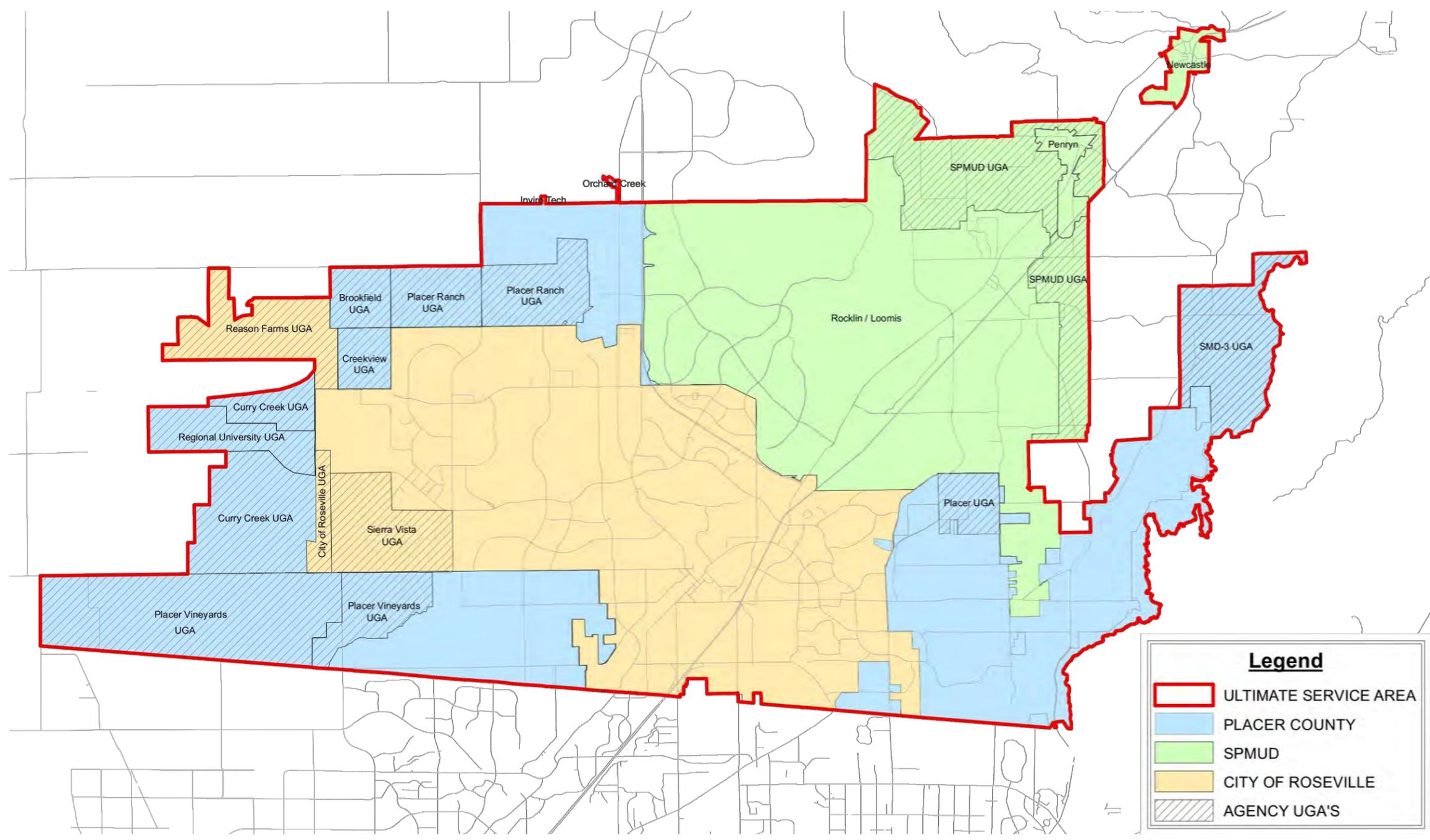


FIGURE 2

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There are no references in this drawing.

SPWA PARTNER AGENCIES & ULTIMATE SERVICE AREA BOUNDARY

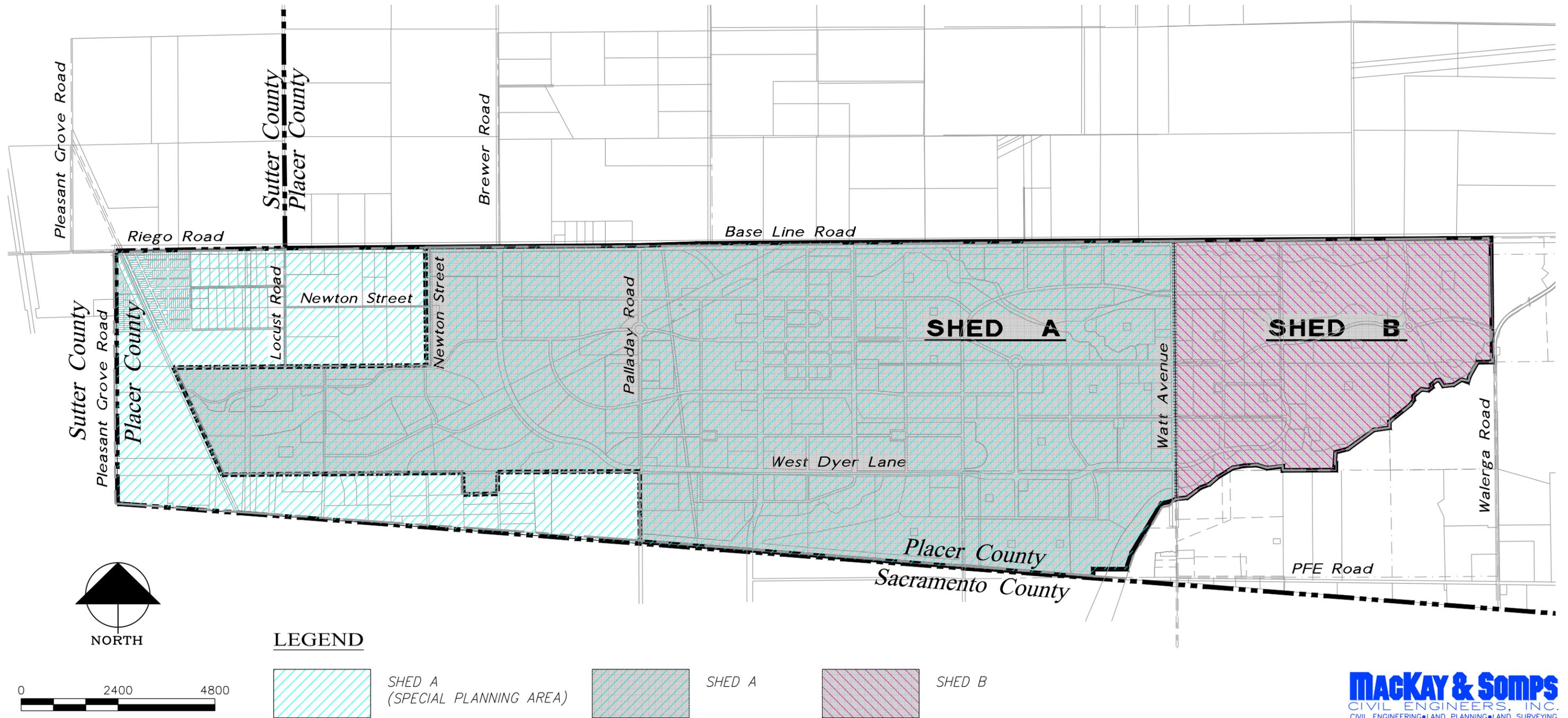


Legend

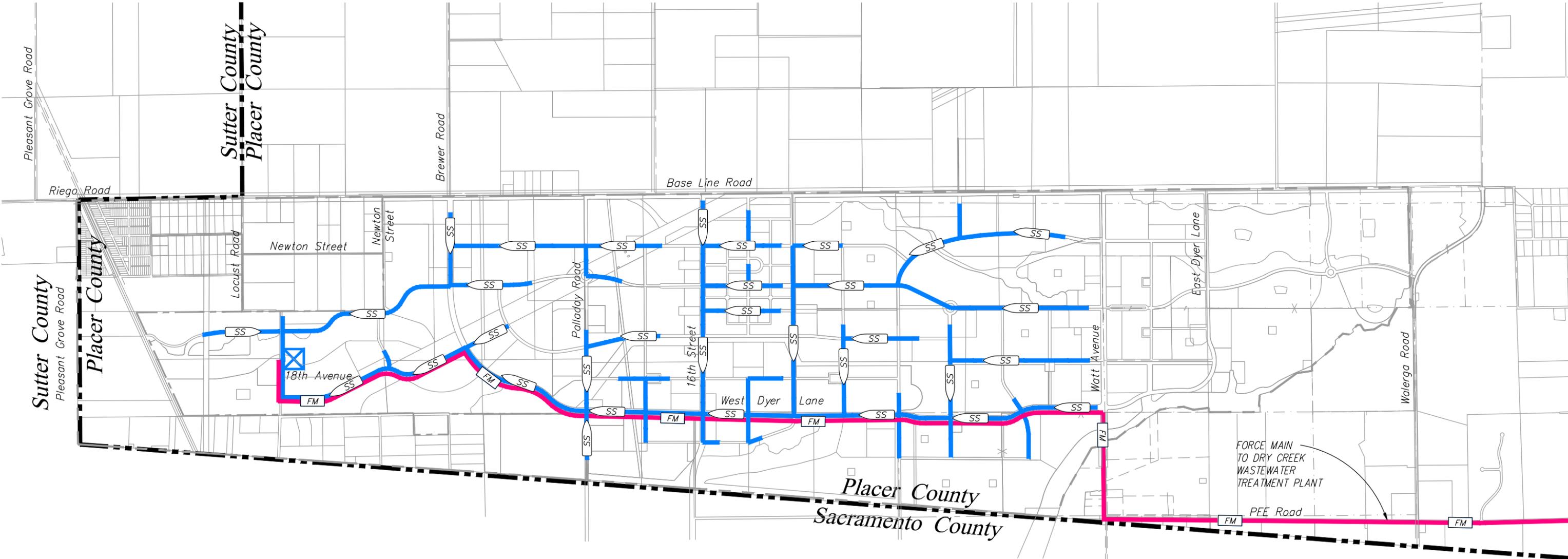
- ULTIMATE SERVICE AREA
- PLACER COUNTY
- SPMUD
- CITY OF ROSEVILLE
- AGENCY UGA'S

FIGURE 3

SPECIFIC PLAN WASTEWATER SHEDS PLACER VINEYARDS SPECIFIC PLAN



SHED A ONSITE IMPROVEMENTS PLACER VINEYARDS SPECIFIC PLAN



FORCE MAIN
TO DRY CREEK
WASTEWATER
TREATMENT PLANT



0 2400 4800

- LEGEND:**
- SPECIFIC PLAN BOUNDARY
 - FORCE MAIN
 - GRAVITY SEWER
 - SEWER LIFT STATION



**SHED A OFFSITE WASTEWATER TRANSMISSION
FORCE MAIN TO DRY CREEK WASTEWATER TREATMENT PLANT
PLACER VINEYARDS SPECIFIC PLAN**



REFER TO EXHIBIT SS-1
SHEET 2 OF 3, FOR
CONTINUATION FOR FORCE
MAIN ROUTE.

PROPOSED SEWER
FORCE MAIN ROUTE

MATCH LINE - SEE SHEET 2 OF 2

PROPOSE
FORCE M



NORTH

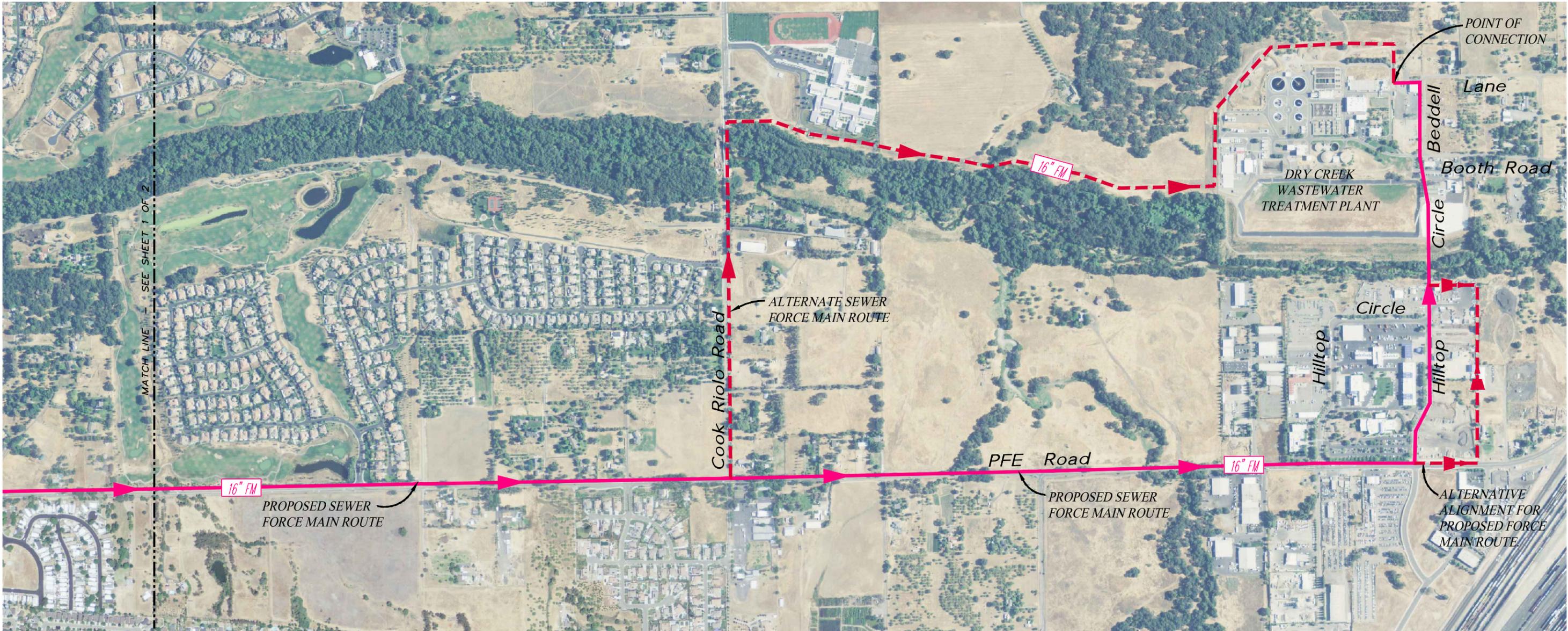
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FIGURE 6

SHEET 1 OF 2

**SHED A OFFSITE WASTEWATER TRANSMISSION
FORCE MAIN TO DRY CREEK WASTEWATER TREATMENT PLANT
PLACER VINEYARDS SPECIFIC PLAN**



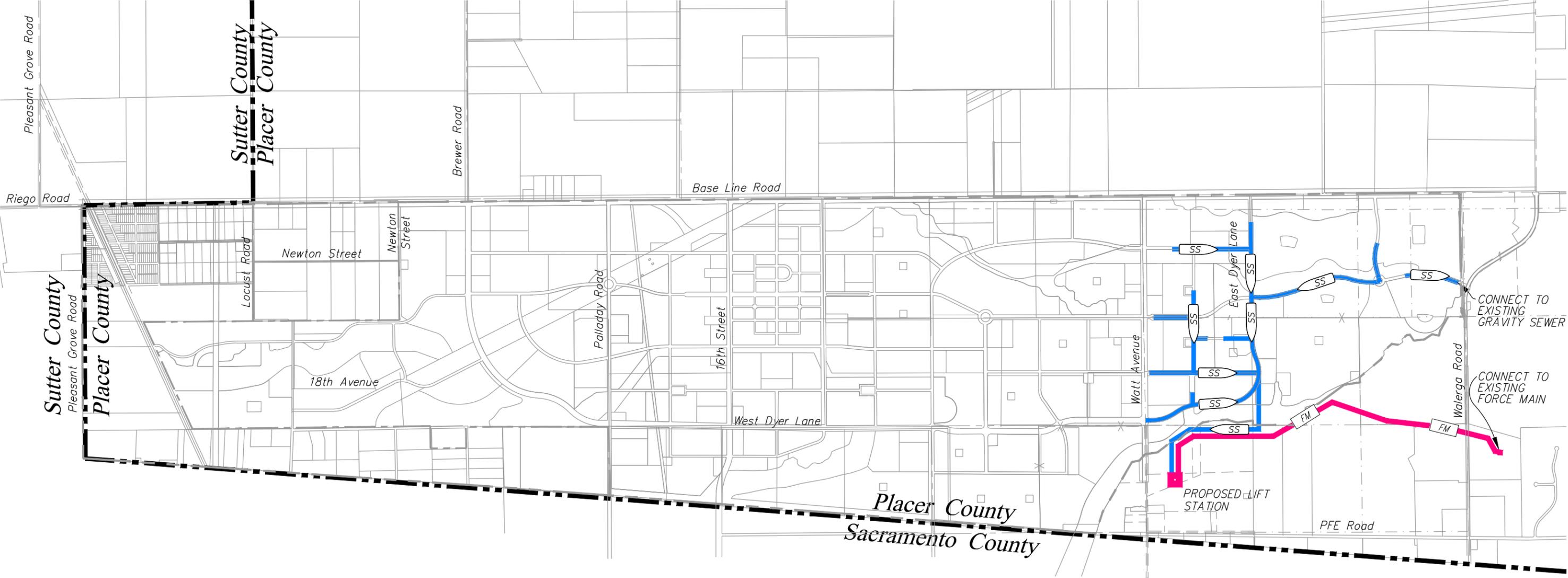
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There are no references in this drawing.

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FIGURE 6
SHEET 2 OF 2

SHED B ONSITE IMPROVEMENTS PLACER VINEYARDS SPECIFIC PLAN

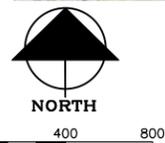


LEGEND:

- SPECIFIC PLAN BOUNDARY
- GRAVITY SEWER
- FORCE MAIN



SHED B OFFSITE WASTEWATER TRANSMISSION PLACER VINEYARDS SPECIFIC PLAN



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FIGURE 8