

**SEQUOIA WOODS MOUNTAIN RETREAT
WASTEWATER TREATMENT FACILITY**

252 Mountain Retreat Drive, Arnold
Calaveras County, California

**REPORT OF WASTE DISCHARGE
TECHNICAL REPORT**

For:

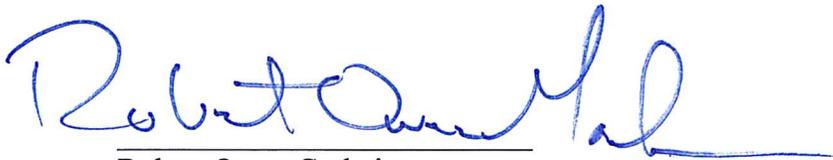
General Waste Discharge Requirements
for Small Domestic Wastewater Systems
WQ 2014-0153-DWQ

Calaveras County Water District
Post Office Box 846
San Andreas, California 95249
Phone (209) 754-3543

January 2, 2018

REMARKS AND SIGNATURE

The work described herein was performed by or under the direct supervision of the Civil Engineer, registered in the State of California, whose seal and signature appears below.



Robert Owen Godwin

CALAVERAS COUNTY WATER DISTRICT
Senior Civil Engineer



Date: January 2, 2018

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ITEMS TRANSMITTED SEPARATELY

1. Regional Water Quality Control Board - Form 200

1. INTRODUCTION

This Technical Report (report) has been prepared in response to a request from Central Valley Regional Water Quality Control Board, dated April 27, 2017, for Calaveras County Water District (District) to apply for new waste discharge requirements for Sequoia Woods Mountain Retreat Wastewater Treatment Facility, for future operation in compliance with General Waste Discharge Requirements for Small Domestic Wastewater Systems (General Order) WQ 2014-0153-DWQ.

The wastewater collection, treatment and disposal facilities which serve both Sequoia Woods Mountain Retreat are referred to as the “*Facility*” in this report. Portions of the Facility built as part of the Sequoia development are referred to as “*System 1*” and remaining portion as “*System 2*”.

Background

The Facility was constructed in two phases by the two developers who created Sequoia Woods and Mountain Retreat. The Sequoia Woods wastewater facilities were completed in 1974 and Mountain Retreat in 1984. The Facility’s design mirrors similar small residential community wastewater treatment facilities built during 1970s and early 1980s. These systems are no longer permitted in Calaveras County for new development, and the District allows no new connections at the Facility.

Location and Service Area

The Facility is located in the community of Blue Lake Springs approximately one miles east of Arnold, California adjacent to the Sequoia Woods Country Club. Location of the Facility is described in Table 1 and shown in Figure 1. All figures are located at the end of the report.

Table 1. Facility and Discharge Location

Facility Street Address	252 Mountain Retreat Drive, Arnold Calaveras County, California 95223
Site Elevation	Approximately 3,990 ft.
Latitude and Longitude	38° 15’ 25” N and 120° 19’ 34” W (System 1 and System 2) 38° 22’ 39” N and 120° 31’ 09” W (Discharge Point)
Section, Township, and Range	Section 28, T05N, and R15E, Mount Diablo Meridian
Assessor’s Parcel Number	026-058-003-000 and 026-058-002-000 (System 1), 026-060-032-000 (System 2), 026-060-032-000 (Discharge Point)
Watershed	Lower North Fork Stanislaus River - 180400100306

Potential Regionalization

The nearest wastewater service is the District’s Arnold system. The closest point in the Arnold collection system is approximately 2.2 miles distant, by public right-of-way, at the intersection of Hwy 4 and Dunbar Road. This distance, a 240 foot elevation increase, State highway right-of-way requirements, and capacity issues associated with the Arnold facility make regionalization impractical.

Ownership

The District is a public agency, responsible for water service and wastewater service within portions of Calaveras County, California. District ownership and responsibility for the subject wastewater facilities were accepted by Resolution 1757 and Resolution 84-38.

The Facility is located on property, land owned by Mountain Retreat Homeowners Association and Rossi de Meuse Company Etal (“and others”). Contact information in Table 2 was obtained from the associated Grant Deed. District access to the Facility is granted by two easements described on Calaveras County Subdivision Map Book 4, page 9, and Subdivision Map Book 5, page 46.

Table 2: Property Owner Contact Information

Property	Address
APN 026-058-002-000 (Lot C) APN 026-058-003-000 (Lot A)	Rossi De Meuse Company, Etal. 5138 Gadwell Circle Stockton, California 95207
APN 026-060-032-000 (Lot A)	Mountain Retreat Homeowners Association 25510 Commercentre Drive, Suite 100 Lake Forest, California 92630

Drinking Water Supply

Drinking water for the both communities is supplied by the District’s Hunter Water Treatment Plant (WTP), also referred to as the Ebbetts Pass WTP. The WTP source water is Hunter Reservoir which stores water diverted from the McKays Point Reservoir located on the North Fork Stanislaus River. Water quality is described in the 2016 Consumer Confidence Report located at:

<http://ccwd.org/wp-content/uploads/2013/12/CCR2016.pdf>

Flood Projection

The Facility is near, but not in, a FEMA one percent flood zone. The flood area and boundary in relationship to the Facility is shown on Figure 2. Moran Creek, a tributary to the Stanislaus River, flows north, around and crosses the development property, through a culvert, before entering a 48-inch diameter storm drain. A link to the FEMA flood map is located at:

<http://arcg.is/HT9rK>

2. WASTEWATER TREATMENT FACILITY

The Facility provides wastewater treatment and disposal for (47) Equivalent Dwelling Units (EDUs) comprised of (41) condominiums and one lodge equaling 6 EDU. Thirty (30) EDUs are treated by System 1, and (17) EDUs are treated by System 2. Housing in the community is generally for holiday visitors and weekend residences. Occupancy is highest in the spring, summer, and fall.

Facility Collection System

Wastewater is conveyed by a gravity sewer system. Service area and the collection system are shown on Figure 3. Collection system construction details are provided in Table 3.

Table 3. Facility Collection System Criteria

Component	Value
<u>Influent Sewer</u>	
Length, ft.	1,650
Diameter, inch.	6
Material of Construction	PVC
No. of Manholes	11

Facility Description

Facility treatment consists of two separate septic tank systems each with an effluent pump station. Each system treats a group of separate customer services as described above. Flow is only combined when System 1 effluent is conveyed to the System 2 pump station. The second pump station and forcemain then conveys combined effluent to a distribution manhole. There effluent flows by gravity through multiple perforated pipes located in separate infiltration trenches. Treatment details are provided in Table 4 and Table 6. A process flow diagram illustrating the process is shown on Figure 4.

Table 4. Facility Treatment Criteria

Component	Value
<u>Facility Treatment</u>	
System 1	
Type	Septic Tank
No. of Chambers	2
Material of Construction	Precast Concrete
Dimensions, width, length + length, ft.	4.75 x 40.25
Depth of Water, ft.	5.75
Total Volume, all chambers, gallons	8,200
System 2	
Type	Septic Tank
No. Chambers	2
Material of Construction	Concrete and CMU Block
Dimensions, width, length + length, ft.	6.67 x 30.00
Depth of Water, ft.	5.00
Total Volume, all chambers, gallons	7,500
<u>Effluent Distribution</u>	
Pump Station 1, System 1	
Type	Wetwell w/ Submersible Pumps
No. of Pumps	2, duty / standby
Capacity per Pump, gpm	30
Pump Station 2, System 2	
Type	Wetwell w/ Submersible Pumps
No. of Pumps	2, duty / standby
Capacity per Pump, gpm	30
Forcemain 1, System 1	
Material	PVC
Diameter, inch	2
Length, ft.	300 ft. (approx.)
Forcemain 2, System 2	
Material	PVC
Diameter, inch	2
Length, ft.	500 ft. (approx.)

Facility Flow Rate

Monthly daily flow averages 5,190 gpd. The Facility monthly average dry weather flow limit is 6,300 gpd, per Order 95-069. Facility monthly flow rates, for the most recent three years, are presented in Table 5 and graphically in Figure 5. The flow meter at the Facility records total flow requiring staff to subtract the previous recorded value to determine flow. This occurs every month at an interval of between 20 and 37 days. Therefore, the values in Table 5 have been adjusted to account for the interval involved between readings.

Table 5. Facility Flow Rate, (2014 - 2017), gpd

Month	Average Flow, gpd		
	2014-2015	2015-2016	2016-2017
October	3,570	4,460	4,510
November	3,560	4,300	4,220
December	4,670	4,610	4,430
January	3,080	6,230	8,750
February	4,660	4,860	9,320
March	3,840	4,810	8,190
April	4,640	5,330	7,360
May	4,050	3,850	5,740
June	4,290	4,750	5,510
July	4,980	5,920	6,550
August	4,980	6,550	6,060
September	4,300	4,830	5,070

Wastewater Characterization

The Facility is operated per the requirements of Order 95-069. These requirements do not include influent or effluent testing resulting in no availability of historical performance data for evaluation.

Influent quality at the Facility is anticipated to be typical of residential wastewater with highest concentrations in the summer, and highest flow and correspondingly lowest concentration strength in the winter. Influent BOD₅ concentrations are estimated at 150-250 mg/L. Influent total nitrogen is estimated to be 30-50 mg/L. Treatment quality is anticipated to equal that of a normal septic tank system. The majority of treatment occurs during infiltration at the leach field.

Facility Land Application System

Facility effluent disposal is accomplished utilizing a two application zone leach field. District staff alternate the application zone on a weekly basis. Disposal capacity is limited by the application rate of the leach field. As identified in Order 95-069, the leach field capacity is estimated at an average of 6,300 gpd. Design criteria for Facility land application site are provided in Table 6.

Table 6. Land Application Criteria

Component	Value
<u>Land Application System</u>	
Type	Gravity, Infiltration
<u>Infiltration Trench Details</u>	
Perforated Pipe Diameter, inch.	4
Length Zone 1 plus Zone 2, ft.	1,680
Trench Width, ft.	2.0
Cover above Pipe, ft.	1.2
Depth of Drain Rock below Pipe, ft.	3.0
Application Rate (@ 6,300 gpd), gpd/ft ²	1.9 (w/ Zones 1 and 2 operating)

Precipitation

Precipitation is not recorded at the Facility. The nearest weather station is located at the Calaveras Big Trees State Park approximately 1.6 miles distant. Station coordinates are 38° 16' 37" N and 120° 18' 40" W and the station is elevation is 4,680 feet. The Facility is located at elevation 3,990 feet. This station is identified as CVS or KQ22. Average monthly rainfall for this station along with last year's rainfall are presented in Table 7.

Table 7. Precipitation Arnold/Big Trees, inch.

Month	Normal	2016-2017
October	3.4	12.8
November	6.4	3.9
December	9.6	9.2
January	10.2	30.4
February	10.0	26.3
March	8.3	5.8
April	4.7	10.0
May	2.6	0.6
June	0.8	0.2
July	0.1	0.0
August	0.1	0.0
September	0.8	0.0
Total	57.0	99.1

Infiltration an Inflow

With the exception of the 2016-2017 winter, dry weather flow normally equals or exceeds average annual flow. A peak ratio of 2.0 is estimated for monthly versus annual average flow. This is primarily from infiltration and inflow.

Emergency Systems

Both effluent pump station are equipped with local alarms in the event of failure. These alarms are sent by radio to the District supervisory system which then pages to the duty operator. The Facility is equipped with an emergency generator near the System 2 septic tank. This generator provides power for all required Facility equipment.

Solids Management

The District annually removes accumulated solids deposited in both septic units. Solids are then transported to the Arnold WWTF for additional treatment, dewatering, and disposal in accordance with District standards. The District typically utilizes a vacuum truck for solids removal and transport.

3. OPERATIONS AND MAINTENANCE

The Facility requires a Grade I license. One District operator is responsible for the Facility. A summary of his qualifications are presented in Table 8.

Table 8. Facility Treatment Operators

Operator	Grade
Ron Rose (Chief Operator)	IV

Facility Operation and Maintenance Manual

The District operates and maintains the existing Facility equipment according to manufacturers' recommendations. A copy of the manufacturers' literature is located at the District Arnold Wastewater Facility. There are no facilities at Facility for storage of printed materials.

Spill Prevention

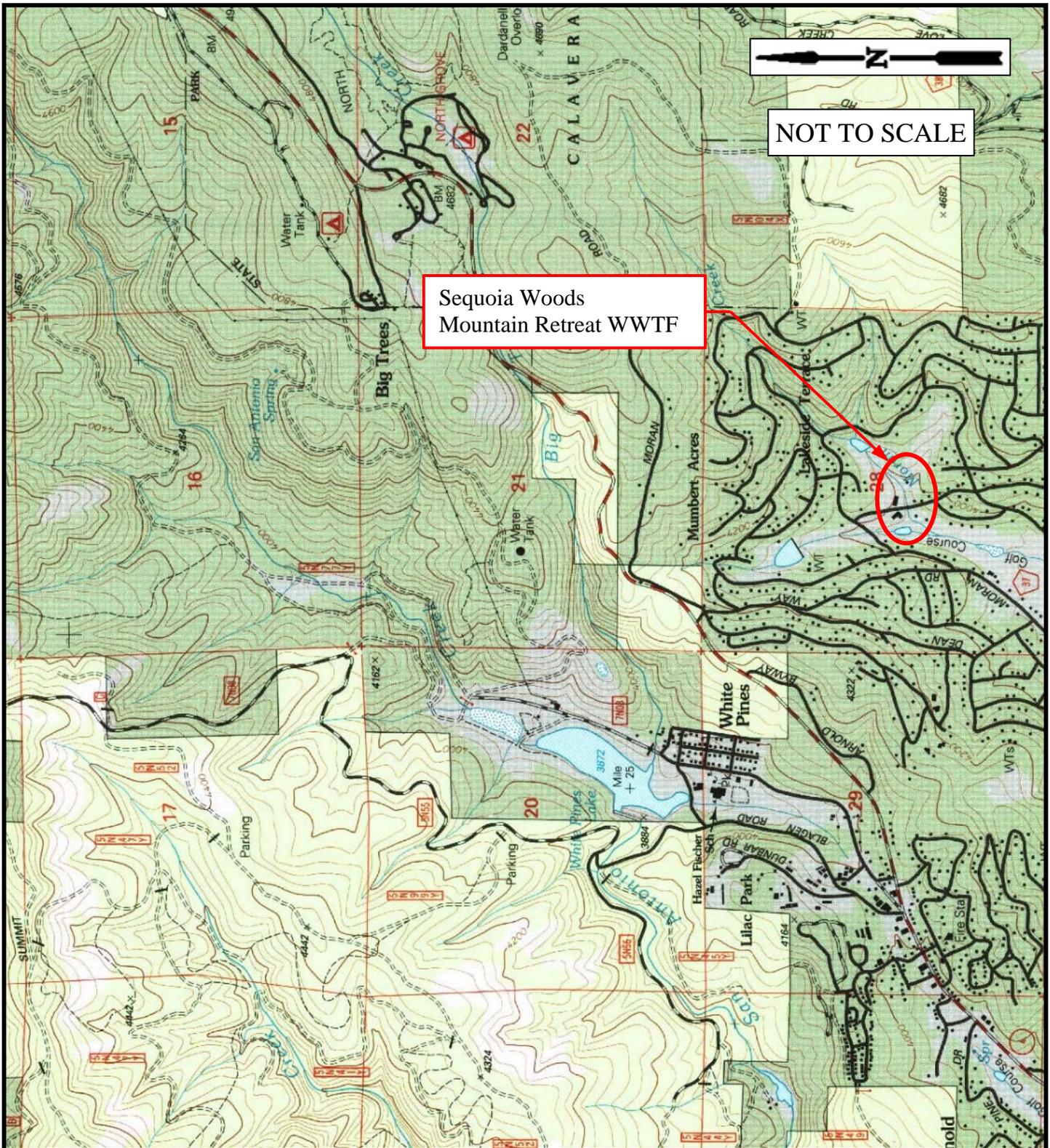
The District has a Sewer Spill Response Procedures that are part of its Sanitary Sewer Management Plan. This plan is a living document and updated regularly in response to Facility changes, regulatory requirements, or changes in District standards. These procedures outline cleanup measures, sampling and reporting procedures. All spills are reported in compliance with OES/FEMA and Regional Board requirements. All District operations staff have a copy of the procedures available at their vehicles.

4. GROUNDWATER QUALITY

No data is available to evaluated impacts to groundwater quality. No groundwater monitoring wells are located at the Facility.

4. CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA)

Replacement of Order 95-069 with the General Order is exempt under Title 14, Section 15301.

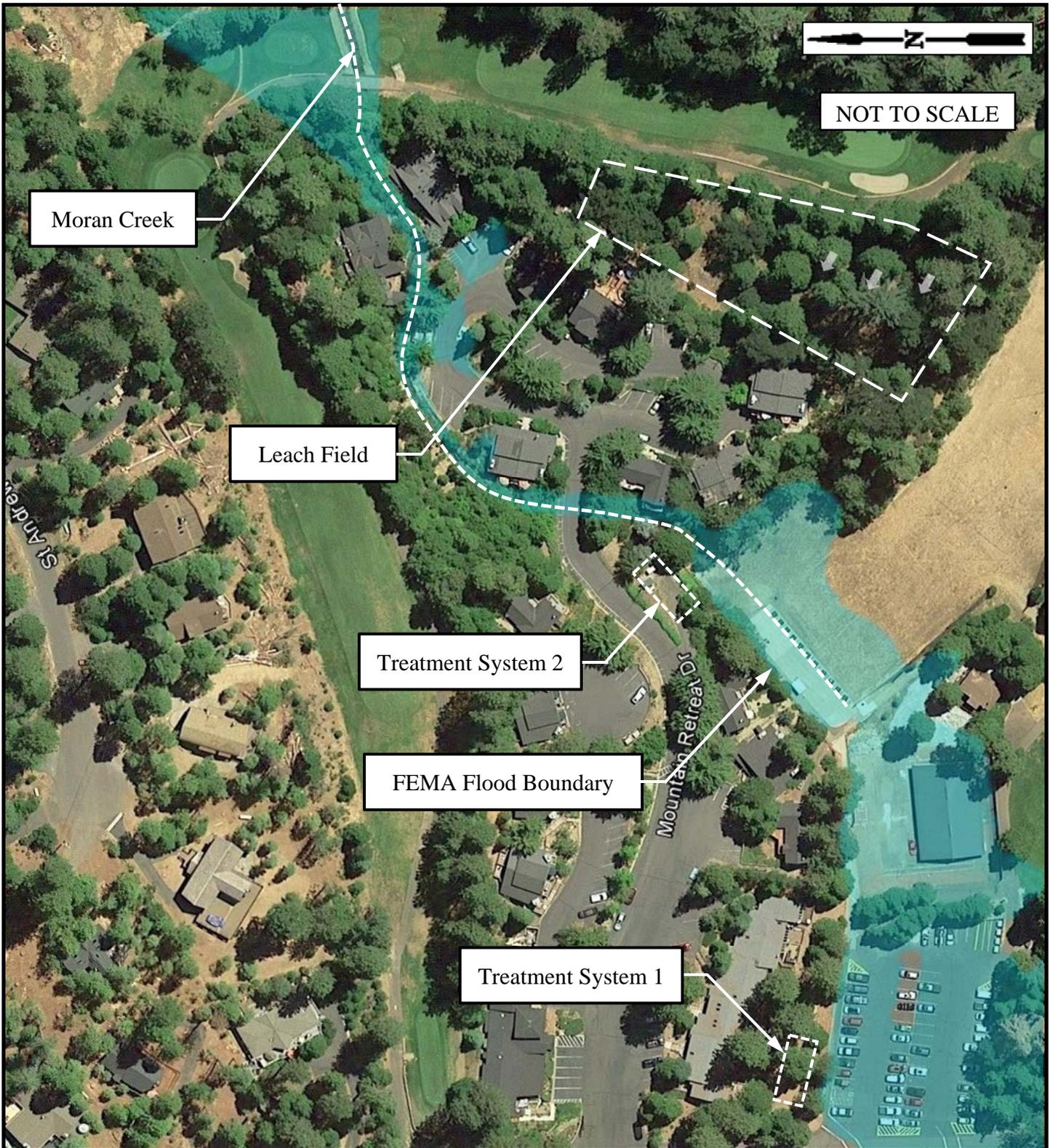


LOCATION MAP

Sequoia Woods Mountain Retreat
Wastewater Treatment Facility

Calaveras County Water District / Report of Waste Discharge / January 2018

FIGURE 1

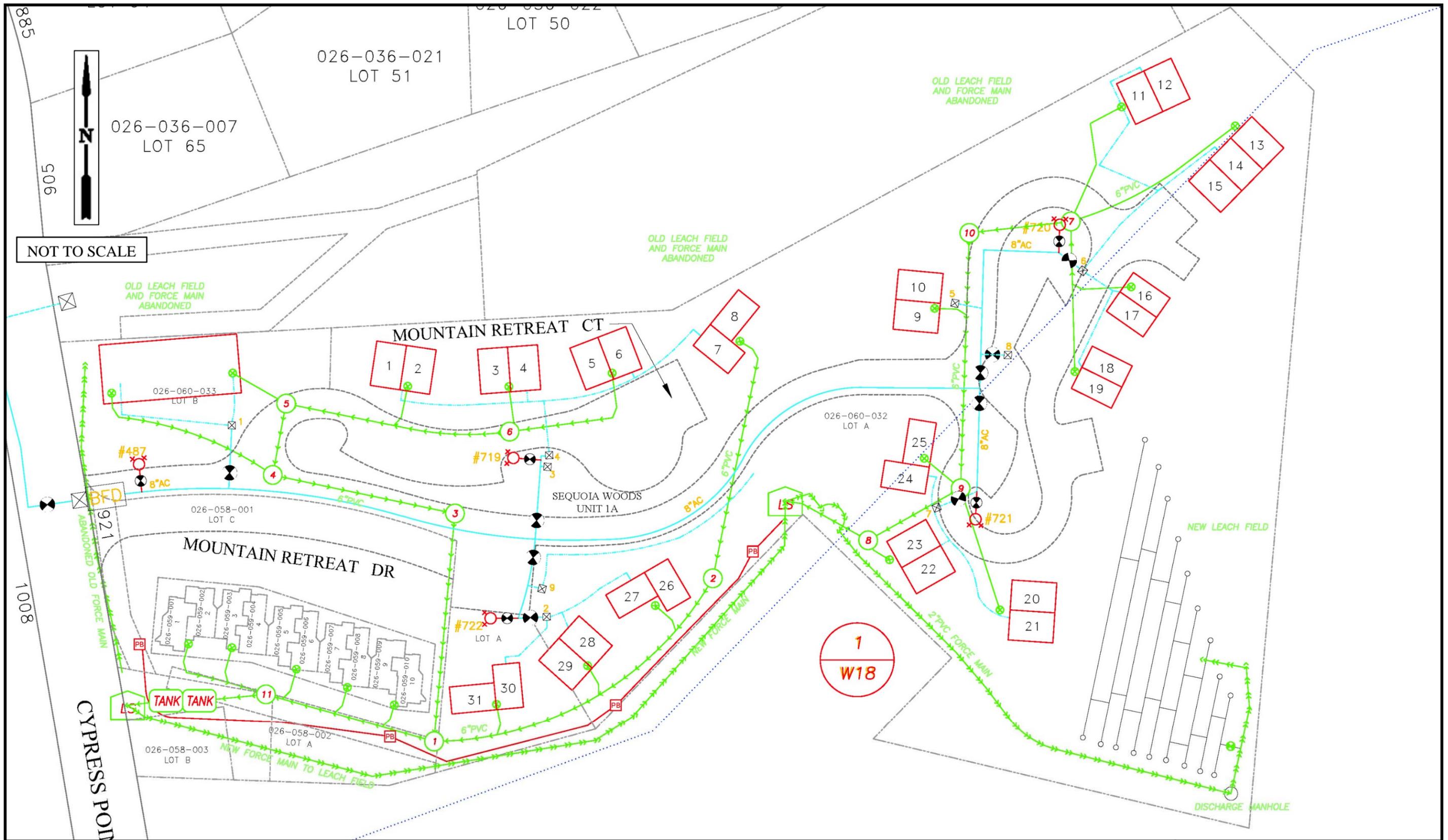


SITE PLAN

**Sequoia Woods Mountain Retreat
Wastewater Treatment Facility**

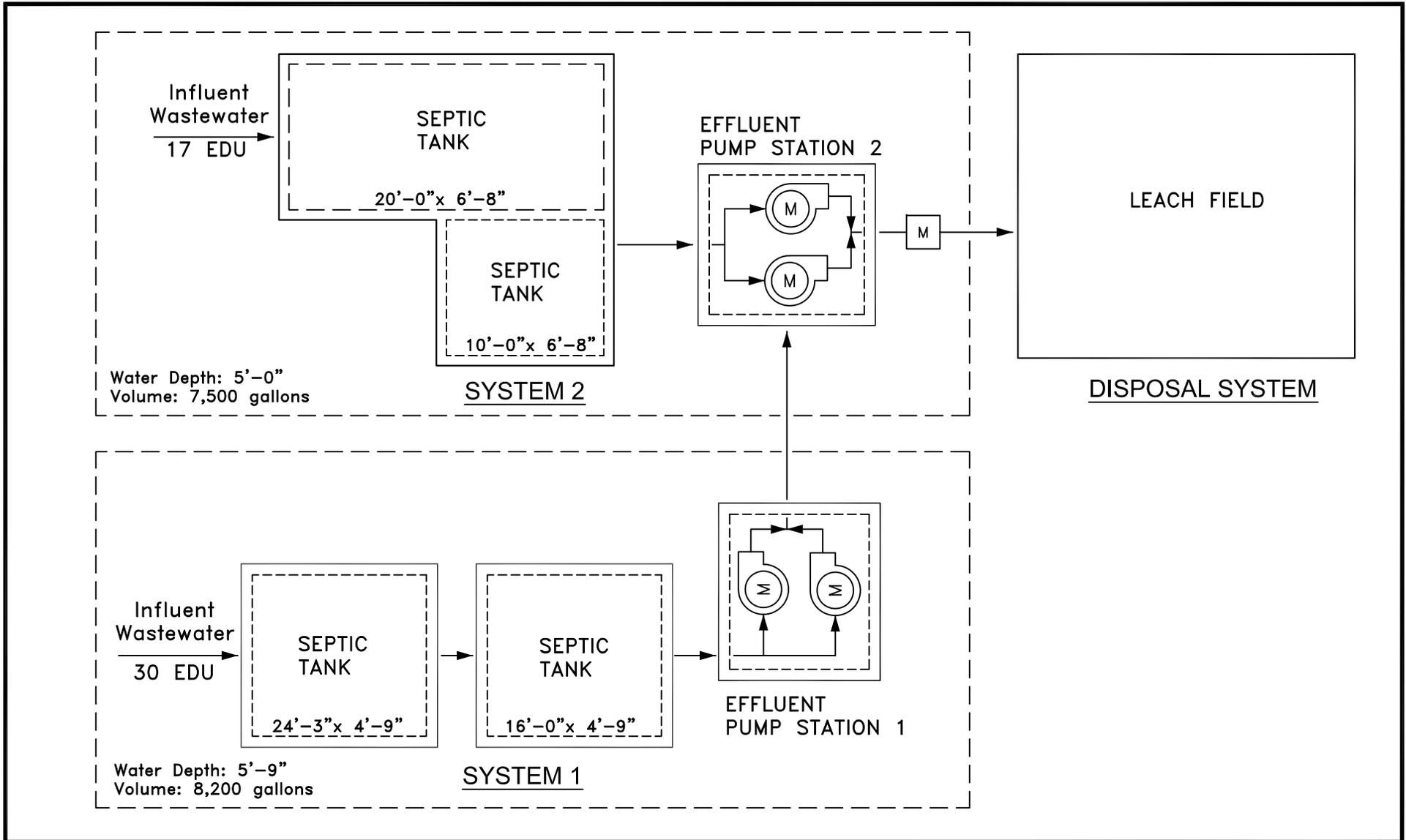
Calaveras County Water District / Report of Waste Discharge / January 2018

FIGURE 2



DISTRICT SYSTEM MAP
 Sequoia Woods Mountain Retreat Wastewater Treatment Facility
 Calaveras County Water District / Report of Waste Discharge / January 2018

FIGURE 3

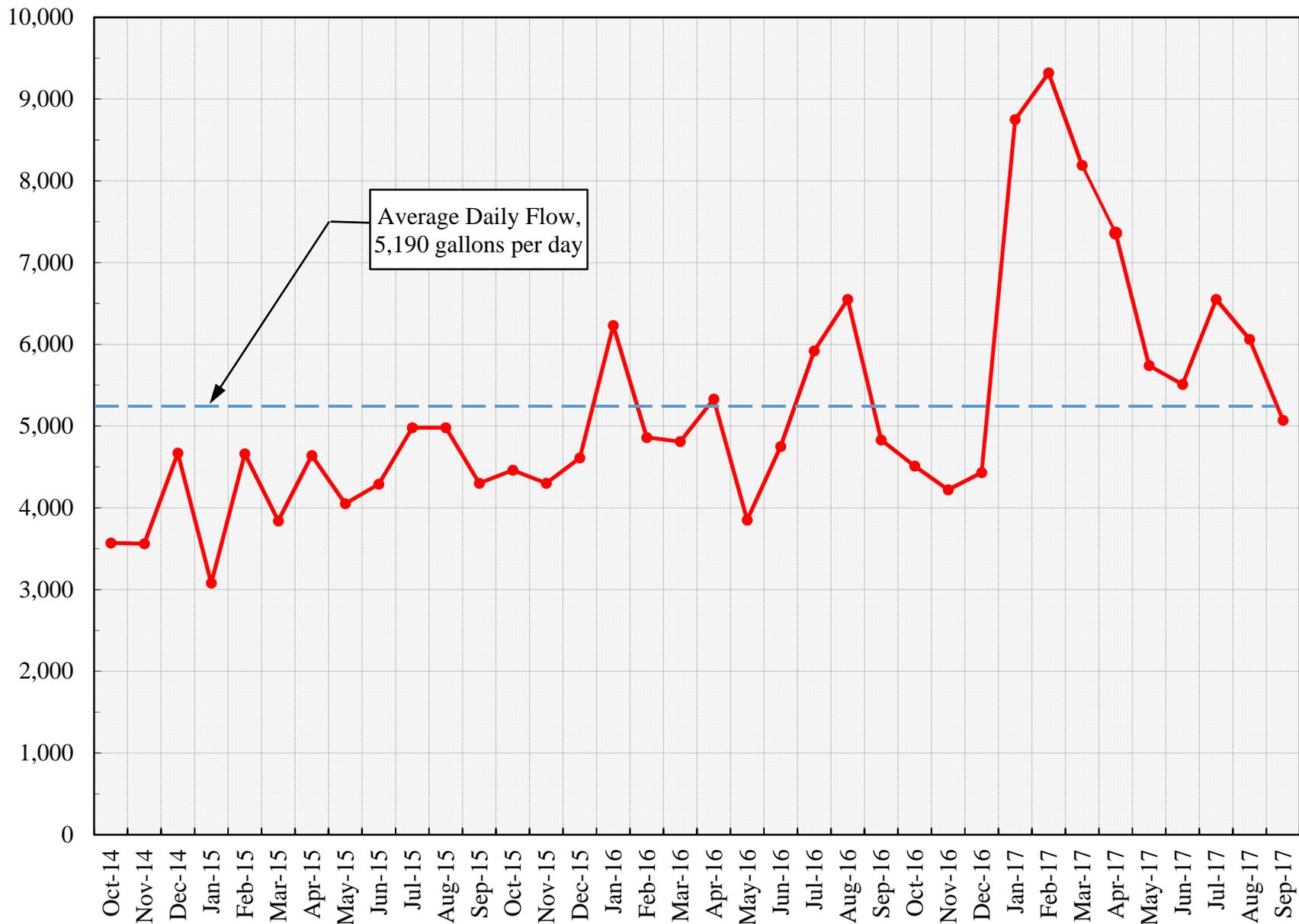


PROCESS FLOW DIAGRAM
Sequoia Woods Mountain Retreat Wastewater Treatment Facility

Calaveras County Water District / Report of Waste Discharge / January 2018

FIGURE 4

NO SCALE



DAILY WASTEWATER FLOW RATE

Sequoia Woods Mountain Retreat Wastewater Treatment Facility

Calaveras County Water District / Report of Waste Discharge / January 2018

FIGURE 5