



Water Pollution Control Plant

Recycled Water

Annual Report
Order No. 94-069



Sunnyvale

2022

2022 RECYCLED WATER ANNUAL REPORT

City of Sunnyvale

Prepared for:

Ms. Eileen White

California Regional Water Quality Control Board

San Francisco Bay Region

1515 Clay Street, Suite #1400

Oakland, CA 94612

Prepared by:

City of Sunnyvale

Environmental Services Department

Regulatory Programs Division

P.O. Box 3707

Sunnyvale, CA 94088-3707

March 15, 2023



Sunnyvale

March 15, 2023

Water Pollution Control Plant
1444 Borregas Avenue
Sunnyvale, CA 94088-3707
TDD/TYY 408-730-7501
sunnyvale.ca.gov

Ms. Eileen White
California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite #1400
Oakland, CA 94612

Attn: Melissa Gunter

Re: 2022 Annual Self-Monitoring Report, City of Sunnyvale Recycled Water Program

The attached annual Self-Monitoring Report for the City of Sunnyvale's Water Recycling Program is submitted in accordance with Order No. 94-069, with revised Self-Monitoring Program consisting of Attachments C and D from Order 96-011.

Certification

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Please contact me at 408-730-7788 or Cameron Kostigen Mumper at 408-730-7729 with any questions regarding this report.

Sincerely,

RAWikramanayake

[RAWikramanayake \(Mar 13, 2023 14:51 PDT\)](#)

Rohan Wikramanayake, P.E.

WPCP Division Manager

Attachment: 2022 Recycled Water Annual Report

TABLE OF CONTENTS

I. INTRODUCTION	3
1.0. Recycled Water Program Overview	3
1.1. Program Administration	3
1.2. Recycled Water Production	4
1.3. Recycled Water Distribution System	6
1.4. Permitting of Recycled Water Use Sites	8
II. REPORTING REQUIREMENTS	9
1.0. Certification (C.2)	9
2.0. Recycled Water Analyses (C.2.a)	9
3.0. Tabular Summary of Recycled Water Use (C.2.b)	10
4.0. List of New Authorized Recycled Water Customers (C.2.c)	12
5.0. Summary of Daily Recycled Water Delivered by the Producer (C.2.d)	13
6.0. Tabulation of Customer Site Inspections (C.2.e)	13
7.0. Summary of Violations and Corrective Actions (C.2.f)	16
7.1. Production & Distribution	16
7.2. Use Sites	16
8.0. Current and Future Development Update (C.2.g)	16
8.1. Facilities Construction Completed in 2022	16
8.2. Current Facilities Construction	16
8.3. Future Recycled Water Connections	17
8.4. Required Reports and Technical Documents	18
9.0. Progress and Evaluation of Special Studies or Projects (C.2.h)	19
ATTACHMENTS	20
ATTACHMENT A	21
ATTACHMENT B	22

LIST OF FIGURES

Figure 1: WPCP Process Flow Diagram	4
Figure 2: Recycled water distribution modes	6
Figure 3: Recycled water distribution system and service areas	7
Figure 4: Recycled water permit process	8
Figure 5: Historical trends in recycled water production and delivery from 2013 through 2022.....	11
Figure 6: Monthly recycled water production and potable water additions in 2022	11
Figure 7: Recycled water delivered and number of active sites in 2022.....	11
Figure 8: Map of future recycled water connection projects.....	17

LIST OF TABLES

Table 1: New, Renewed, and Cancelled Permits in 2022.....	12
Table 2: Summary of Recycled Water System Deliveries in 2022	14
Table 3: Tabulation of Recycled Water Site Inspections Performed during 2022	14

I. INTRODUCTION

This report is submitted pursuant to Regional Water Quality Control Board (RWQCB) Order No. R2-94-069, *Water Reclamation Requirements for the City of Sunnyvale Water Pollution Control Plant*. This report is prepared in accordance with the Order's Self-Monitoring Program, which has been revised for consistency with the requirements of the Regional General Water Reuse Order No. R2-96-011.

1.0. RECYCLED WATER PROGRAM OVERVIEW

This section provides an overview of the City of Sunnyvale's (City) Recycled Water Program (Program), including program administration and the production, distribution, and permitting of recycled water.

1.1. Program Administration

The Program is administered by the City's Environmental Services Department (ESD). Divisions within ESD that support the Program include the Water Pollution Control Plant (WPCP), Water and Sewer Systems, and Regulatory Programs. The WPCP Division is responsible for recycled water production, including the Recycled Water Pump Station and the co-located San Lucar Pump Station and Wolfe Road Pump Station. The Water and Sewer Systems Division (WSSD) is responsible for recycled water customer permitting and monitoring, overall program coordination, and shares the distribution responsibilities with the WPCP Division. Regulatory Programs supports both of these Divisions and is responsible for recycled water quality monitoring conducted at the ESD's laboratory and preparing this annual report.

Recycled Water

System Mains (ft)	56,300
System Lines (ft)	34,000
Active Sites	108
RW Production (MG) WPCP	40
Potable Water Added (MG) WPCP	10
Potable Water Added (MG) San Lucar Facility	287
Total Delivered (MG)	337

Written guidance for the Program is provided in the City's *Recycled Water Program Manual*, which includes the City's *Administrative Procedures for Program Staff, Rules and Regulations*, and *Design and Construction Standards*. Copies of the *Rules and Regulations* and *Design and Construction Standards* are provided to Site Supervisors of permitted recycled water facilities and can be found on the City's website along with additional information pertinent to recycled water customers. The City also provides periodic training for Site Supervisors of recycled water facilities that focuses on compliance with the *Rules and Regulations*. In August 2022, the City submitted an updated Engineering Report to DDW via GeoTracker.

1.2. Recycled Water Production

Influent wastewater is treated at the WPCP using physical, biological, and chemical processes to produce a product that meets or exceeds the California Code of Regulations Title 22 and RWQCB Order No. R2-94-069 requirements for disinfected tertiary recycled water shown below. The WPCP Division is responsible for the operation and maintenance of the facilities associated with the production of recycled water, including the Recycled Water Pump Station (RWPS), San Lucar Pump Station (SLPS), and Wolfe Road Pump Station (WRPS). The WPCP Division utilizes a computerized maintenance management system (CMMS) to generate and track preventative and corrective maintenance work orders. Detailed schematics of the treatment process and recycled water facilities supplemental to **Figure 1** are included in **Attachment A**.

CBOD <i>5-day, 20°C</i>	20 mg/L daily maximum 10 mg/L monthly average
Dissolved Oxygen	1.0 mg/L minimum
Dissolved Sulfide	0.1 mg/L maximum
Turbidity	<2 NTU daily average <5 NTU 95% of the time <10 NTU at all times
Disinfection <i>C*T</i>	450 mg/L-minute, with T ≥ 90 minutes (modal basis)
Total Coliform Bacteria	<2.2 MPN/100 mL (7-day median) <23 MPN/100 mL (may be exceeded by one sample in a 30-day period) <240 MPN/100 mL (single sample maximum)

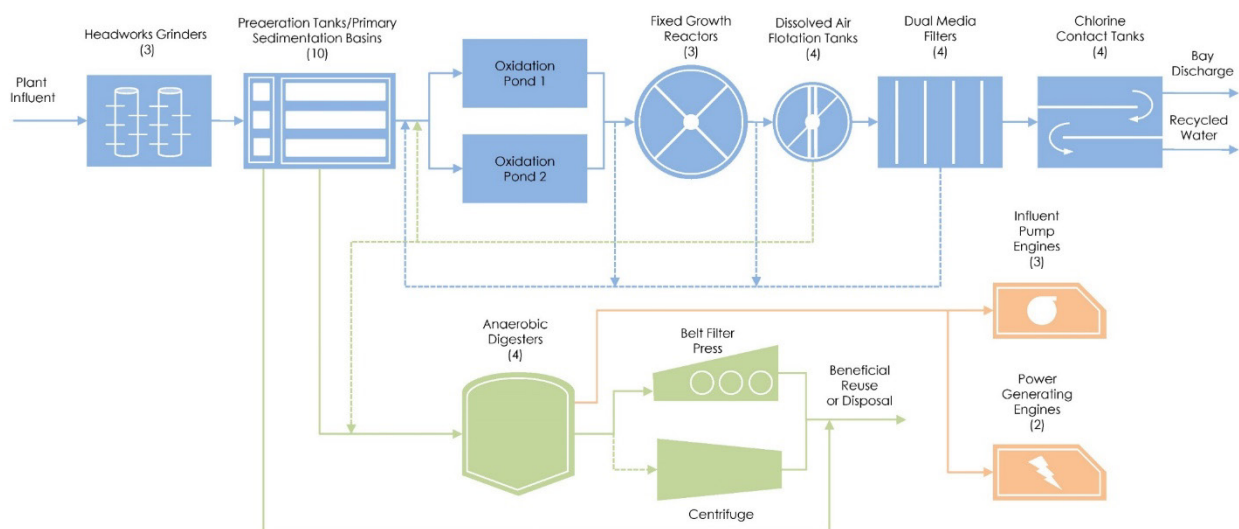


Figure 1: WPCP Process Flow Diagram. Blue lines correspond to liquid, green lines to solids, and orange lines to gas flows. Dashed lines indicate return flows or an alternate flow path

During periods of recycled water production, a portion of the effluent from the Fixed Growth Reactors (FGRs) is sent to a dedicated Dissolved Air Floatation Tank (DAFT) and pair of Dual Media Filters (DMFs) for further treatment to achieve CBOD and turbidity requirements for disinfected tertiary recycled water. Filtered effluent is conveyed to the Recycled Water Sump and into dedicated Chlorine Contact Tanks (CCT) for disinfection. Disinfected recycled water that meets disinfection (C^*T)¹ requirements, as described below, is then drawn into the RWPS where it is partially dechlorinated using sodium bisulfite, metered, and pumped into the distribution system. The WPCP also has the flexibility of using the dedicated DAFT, DMFs, and CCTs for NPDES discharge during periods of higher flows.

Under normal operating conditions, CCT #1 and CCT #2 are operated in series. Recycled water that has met turbidity and C^*T requirements in CCT #1 is transferred into CCT #2, which provides temporary storage and additional contact time since there is still a significant chlorine residual present. Recycled water is then drawn from the end of CCT #2 through an automatic valve on the 24-inch RWPS intake line. The flow is metered, and sodium bisulfite is added to reduce the chlorine residual from 5-10 mg/L to 2-3 mg/L into the distribution system. The RWPS consists of six pumps with a nominal maximum pumping capacity of approximately 8 million gallons per day (MGD), or 5,600 gallons per minute (gpm), that operate based on the demand, which is sensed by the pressure in the distribution system. The actual maximum pumping rate depends on the pressure setting at the SLPS storage tank's pressure sustaining valve and is currently about 4,500 gpm.

Operators at the WPCP follow a series of steps documented in the WPCP's O&M Manual and closely monitor local Supervisory Control and Data Acquisition (SCADA) displays during periods of recycled water production and respond to alarms as needed. Compliance with turbidity and C^*T limits is ensured by an automatic control system that continuously monitors turbidity (pre- and post-filtration), chlorine residual, flow through the CCTs, and equipment status. The control system responds to a failure to meet C^*T (and other conditions) by generating a "Fail" condition and issuing an alarm. As a result of the "Fail" condition, the control system closes valves on the lines leading from the dedicated recycled water DMFs to the Recycled Water Sump and simultaneously opens valves to divert that flow into the NPDES stream's Filtered Water Sump. The diverted filtered water would then undergo chlorination/dechlorination for NPDES discharge. Any treated water transferred into CCT #1 before the "Fail" condition could be drained or held to meet the required contact time. Full compliance with all turbidity, C^*T , equipment status conditions, and Operator intervention is required to re-establish a "Ready" condition.

As shown in **Figure 2**, recycled water is primarily used to fill a storage tank located at the SLPS during periods of low to moderate demand (fall/winter), with a small portion distributed directly from the WPCP to certain customers. During periods of higher demand (spring/summer), the storage tank is used as the primary source of recycled water supply with a portion sent directly from the WPCP to certain customers. When demand exceeds production, or when operational challenges or construction activities at the WPCP prevent or reduce production, potable water from the San Francisco Public Utilities Commission (Hetch Hetchy system) is used to supplement the recycled water supply to ensure continued service to

¹ The product of total chlorine residual (C) and modal contact time (T) measured at the same point.

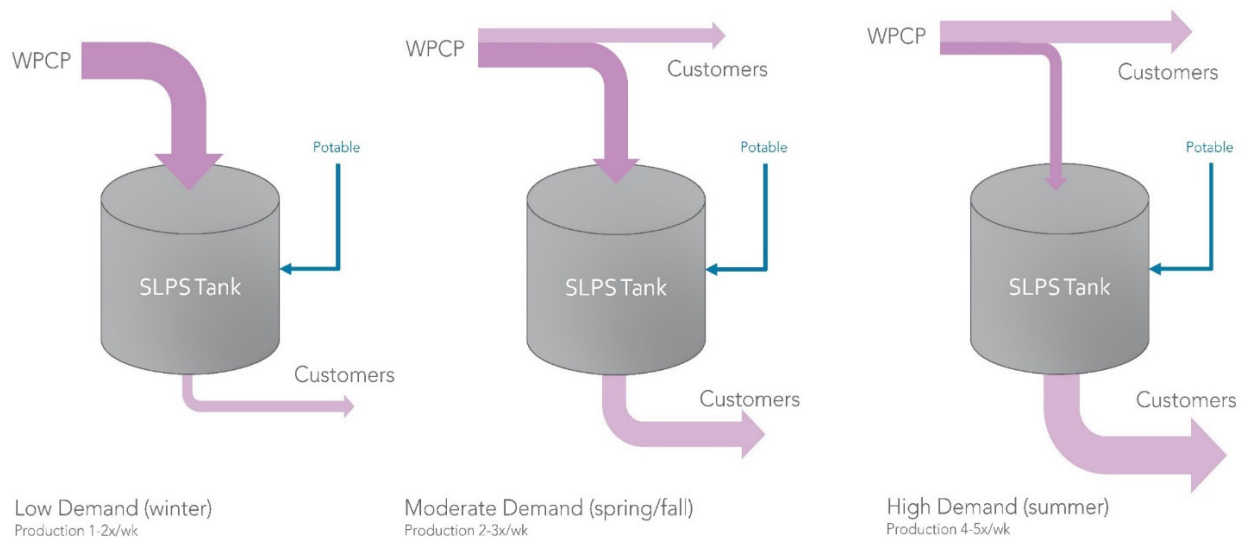


Figure 2: Recycled water distribution modes

customers. The majority of potable water additions occur at the SLPS but it can also be added at the WPCP. In either case, potable water is metered separately from recycled water.

1.3. Recycled Water Distribution System

WSSD is responsible for operating and maintaining the recycled water distribution system, which consists of approximately 56,300 feet of 12- to 36-inch mains and 34,000 feet of 8-inch distribution lines. Areas served by the system are shown in **Figure 3**.

The SLPS is located on the “east main” near Wolfe Road and Kifer Road. The facility contains a storage tank capable of providing approximately 1.5 million gallons (MG) of “working” storage capacity, and a nominal maximum pumping capacity (from the tank) of approximately 8 MGD (5,600 gpm). The SLPS can serve as the sole source of recycled water during low to moderate demand periods or can be operated in parallel with the WPCP during periods of peak demand. Potable water can also be added to the SLPS storage tank through an air gap. Potable water additions are metered separately from recycled water produced at the WPCP and are not included in the volume of recycled water produced.

The WRPS was completed in 2018 as part of the Wolf Road Pipeline Extension Project and is co-located at the SLPS site. The WRPS pulls recycled water from the distribution system and currently services only the Apple II Campus, located in Cupertino. WPCP Operators monitor the SLPS and WRPS and make adjustments remotely from SCADA displays and controls at the WPCP. The WRPS and the 13,000 linear foot pipeline extension are owned by Valley Water but operated remotely from the same SCADA system by Operators at the WPCP and maintained by WSSD. In general, WSSD performs routine inspections of the SLPS and WRPS, and the WPCP’s Maintenance group responds to corrective and preventative maintenance work orders. WPCP Operators also generate work orders through the WPCP’s CMMS and/or conduct inspections of the SLPS and WRPS if they are alerted by the local SCADA display that an anomalous condition is present.

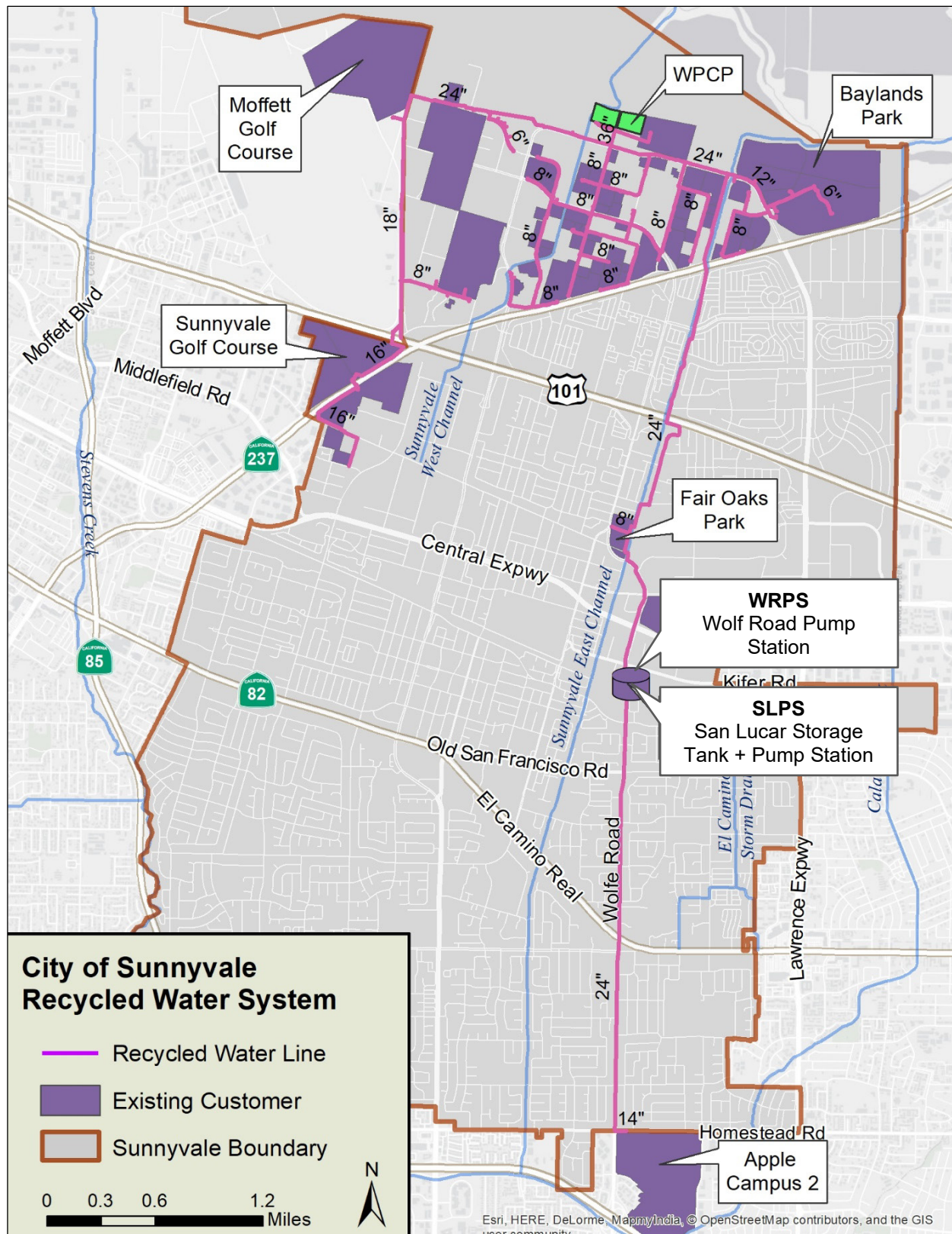


Figure 3: Recycled water distribution system and service areas

1.4. Permitting of Recycled Water Use Sites

WSSD is responsible for permitting recycled water use sites, in addition to verifying that customer's recycled water facilities meet applicable requirements, performing cross-connection testing, conducting periodic site inspections, and taking enforcement actions if needed. The permitting process involves several steps before a site can be approved for recycled water service, and the process is typically initiated by a customer completing a permit application. Before issuing a *Permit to Use Recycled Water*, WSSD reviews the application, requests additional information as needed, visits the site, and conducts an inspection and cross-connection test (**Figure 4**).

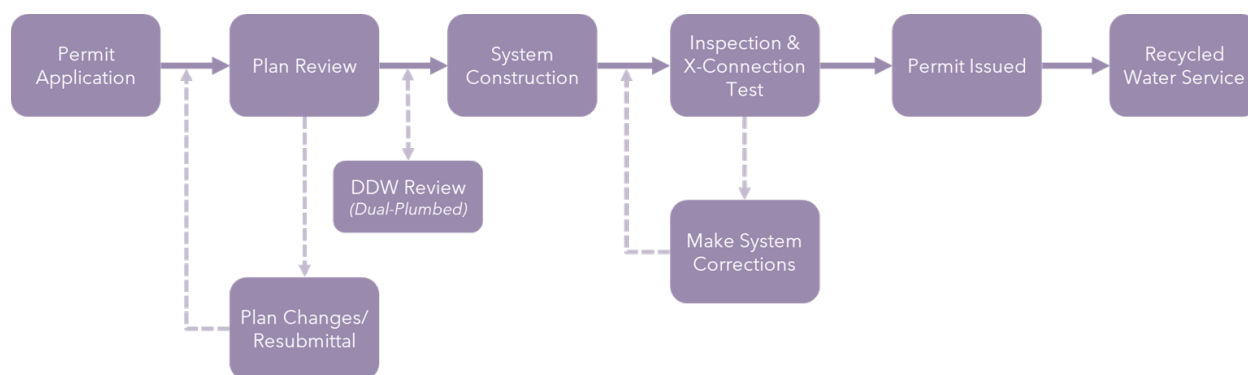


Figure 4: Recycled water permit process

The State Water Resource Control Board, Division of Drinking Water (DDW), and the City review Engineering Reports for applications involving dual-plumbing. Permitting proceeds once DDW has approved the Engineering Report. While the permitting process varies depending upon the type of project, it can generally be categorized into either a new site development, tenant improvement, retrofit, modification, or new owner. The City's permit process is designed to ensure that all regulatory requirements related to the use of recycled water are met and documented according to project-specific details and categorization. An electronic Recycled Water Permit database is used to track current use sites, and paper forms are also available to provide all recordkeeping functions of the permit database.

The City's *Rules and Regulations* contain forms to document periodic inspections of customer sites by City staff. A separate form is used for customer self-monitoring and reporting. Site records are maintained as hard copies in individual site files and/or electronically in the database. The City provides a copy of its *Rules and Regulations* to all recycled water customers. The *Rules and Regulations*, along with the *Design and Construction Standards* and *Standard Details and Specifications*, document the design, installation, and operation and maintenance requirements for recycled water systems used for irrigation, water features, dual-plumbed buildings, and industrial facilities. These documents cover requirements for both existing sites and new developments and provide information for recycled water customers to meet applicable regulations. Additional program administration information is covered in **Section 1.1**.

II. REPORTING REQUIREMENTS

This Chapter provides information required by Reuse Order No. R2-94-069. The applicable paragraph numbers from the Self-Monitoring Program are listed parenthetically in section headers.

1.0. CERTIFICATION (C.2)

A transmittal letter with certification is included at the front of this report.

2.0. RECYCLED WATER ANALYSES (C.2.A)

In accordance with RWQCB Order No. R2-94-069, as amended by Order R2-96-011, tabulations of recycled water quality data are not submitted with this report but are maintained on-site at the WPCP. The applicable sampling and analysis requirements are as follows:

Flow Rate <i>Continuous Monitoring Daily Reporting</i>	Flow rates are monitored from the following locations: 1) Pre-chlorination between the Recycled Water Sump and CCT #1 (recycled water) 2) Post-chlorination at the RWPS (recycled water + WPCP potable additions) 3) SLPS (recycled water pumped from San Lucar tank + SLPS potable additions) 4) Reuse areas (calculated from water billing records)
Total Coliform <i>Grab Samples</i>	Collected daily at the RWPS during recycled water production
Turbidity <i>Continuous Monitoring Daily Reporting</i>	Monitored pre- and post-filtration before the Recycled Water Sump and chlorination
Dissolved Oxygen <i>Grab Samples</i>	Collected daily at the RWPS during recycled water production
Dissolved Sulfides <i>Grab Samples</i>	Collected at the RWPS during recycled water production and if the DO <1 mg/L

Data for recycled water flow, pressure, turbidity, chlorine residual, and C*T, as well as potable water flow are recorded continuously by the WPCP's SCADA system. A similar SCADA system at the SLPS monitors recycled and potable water flows, pressure, and tank level and can be operated locally or from the WPCP. Trend plots of real-time and historical data can be viewed at the SCADA terminal. The SCADA system also generates daily compliance summary reports. Total coliform and dissolved oxygen samples are collected from the RWPS sample point for analysis at the WPCP's Laboratory. Samples are analyzed for sulfides only in cases where the dissolved oxygen is below 1 mg/L. A [Recycled Water Quality Report](#) containing three years of additional water quality data is posted to the City's website. All analytical results met the requirements listed above and those in **Section 1.1** during the 2022 reporting period.

3.0. TABULAR SUMMARY OF RECYCLED WATER USE (C.2.B)

In 2022, the WPCP produced 40 MG of recycled water compared to the 337 MG delivered to the recycled water distribution system (**Figure 5**). The difference between the two values reflects potable water additions either at the WPCP or the SLPS, which is used to offset the difference between demand and production. **Figure 6** shows the monthly volume of recycled water produced and potable water additions. The pattern illustrates a demand-based system driven primarily by irrigation, wherein demand and production are highest in the warmer, drier months and lowest in colder, wetter months.

In addition to the measured flow data from the WPCP and SLPS, the City also tracks usage at permitted sites through monthly meter readings used for billing purposes. The customer billing data indicates an annual total usage of 369 MG for all sites, of which approximately 44 MG (12%) was recycled water. The roughly 9% difference between customer billing data and production and distribution data is attributed to differences in the types of flow meters used in the system, errors in flow meter readings, and billing periods that do not exactly match the calendar months. A listing of recycled water use sites, with water usage shown for each site by billing period and total for the year, is included as **Attachment B**. As shown in **Figure 7**, the three largest usage types, in descending order, were Commercial/Industrial Landscape Irrigation, Golf Courses, and Parks.

Recycled water production in 2022 was lower than previous years due to challenges in meeting turbidity requirements. The single-cell picoplankton *Synechocystis sp.*, which was first observed in 2021 and rapidly dominated the algal community in the Oxidation Ponds, continued to present significant process challenges by outcompeting other algae species that are generally easier to remove in DAFTs. Furthermore, the chemical polymer and coagulant used historically to achieve consistent water quality requirements for tertiary disinfected recycled water was less effective against the novel picoplankton. This resulted in higher turbidity throughout the year and prevented the WPCP from reliably meeting turbidity requirements. Significant operational efforts and chemical expenditures allowed for the limited production of 40 MGD in July through September but were deemed unsustainable over the long term.

In response to these challenges, the City initiated several projects to mitigate process and compliance impacts. These projects included a chemical trial and competitive bidding process that successfully identified a more effective coagulant/flocculant product, construction of an Alum Tank System to allow for feeding alum into the DAFT influent stream to assist in the coagulation of algae and extension of filter runtimes, and physical modifications to a pair of DAFTs to provide the flexibility for in-series treatment as an alternative to the normal parallel operation of the system. Pilot projects are also underway to determine whether it is possible to biologically catalyze a shift in the algal community to a more favorable assemblage of species that are easier to treat and similar to historical populations. Construction of a new secondary treatment system based on the conventional activated sludge process (CAS-1), which is scheduled to begin in 2023, will greatly improve the effluent water quality and mitigate these process and compliance impacts to a large extent. While the new system will operate in parallel with the existing secondary treatment system (Oxidation Ponds, FGRs, DAFTs) under a split-flow regime until 2035, recycled water will be produced using only the higher quality effluent from the CAS-1 system. CAS-1 is currently scheduled to be operational by the end of 2027.

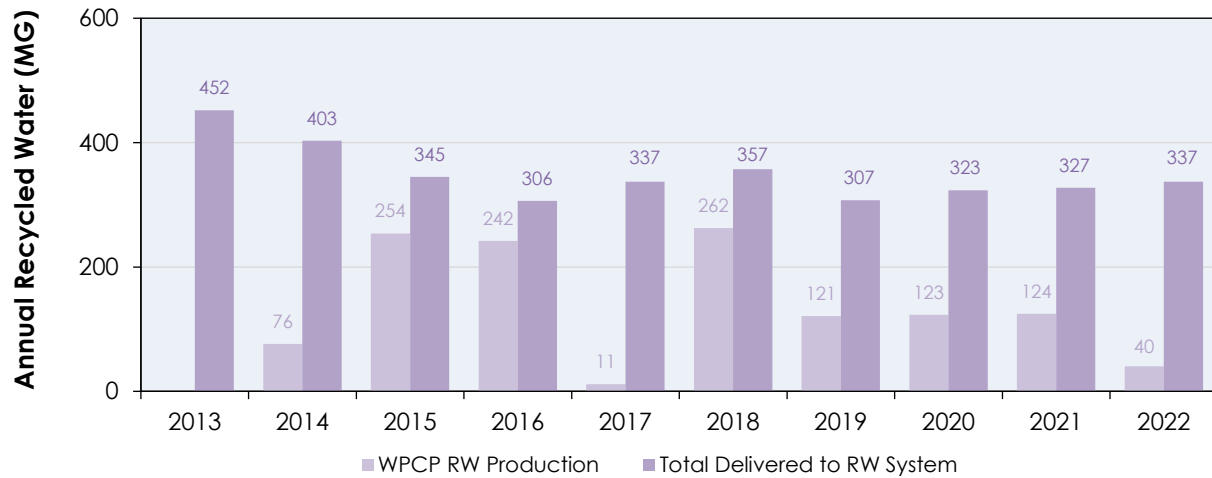


Figure 5: Historical trends in annual recycled water production and delivery from 2013 through 2022

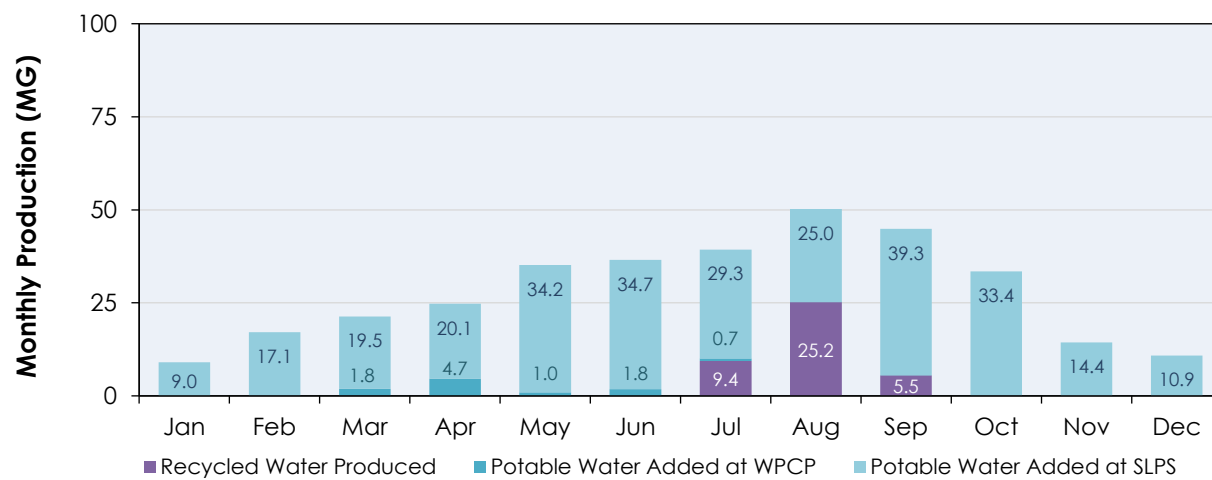


Figure 6: Monthly recycled water production and potable water additions in 2022

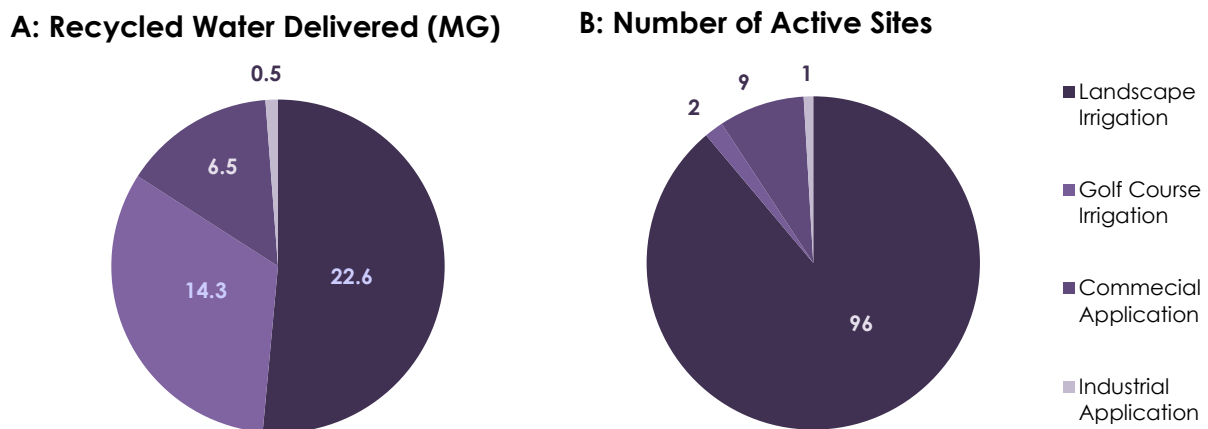


Figure 7: A) Recycled water delivered (MG), and B) number of active sites within a specific category of use in 2022

4.0. LIST OF NEW AUTHORIZED RECYCLED WATER CUSTOMERS (C.2.C)

As shown in **Table 1**, there were 9 new permits to use recycled water issued, 15 permit renewals, and 3 canceled permits during the 2022 reporting period.

Table 1: New, Renewed, and Cancelled Permits in 2022

Account Number	Site Name	Site Address	Permit Date
<i>New Permits</i>			
170477-312	Google, Inc.	212 Gibraltar Dr	4/22/22
170477-78602	Google, Inc.	225 Humboldt Ct	5/24/22
170477-326	Google, Inc.	227 Humboldt Ct	5/24/22
170477-75940	Google, Inc.	242 Humboldt Ct	6/3/22
170477-76062	Google, Inc.	244 Humboldt Ct	6/3/22
148109-292	Google, Inc.	1190 Borregas Ave	10/19/22
148109-786	Google, Inc.	1196 Borregas Ave	10/19/22
209115-192	T2 Hospitality	1235 Borregas Ave	2/9/22
165603-272	Google, Inc.	1265 Borregas Ave	8/29/22
<i>Renewed Permits</i>			
3387-72868	City of Sunnyvale	0000 Java Dr SW Corner	12/3/22
3387-72870	City of Sunnyvale	0000 Java Dr SE Corner	12/3/22
148109-528	Google, Inc.	222 Caspian Dr	3/26/22
187175-412	Google, Inc.	241 Java Dr	9/9/22
148407-70298	Bay Counties SMaRT Station	301 Carl Rd	5/20/22
104849-73570	VTA	813 11 th Ave	3/8/22
168393-720	Cepheid	904-918 Caribbean Dr	11/25/22
193851-76826	Amazon	905 11 th Ave	4/9/22
180717-76834	Moffett Towers	1170 Discovery Wy	3/26/22
166775-76832	Meta	1180 Discovery Wy	4/9/22
179609-202	BaiDu	1195 Bordeaux Dr	3/26/22
555-396	JO-EL Associates	1200 Crossman Ave	9/8/22
213081-194	Oepic Semiconductors	1231 Bordeaux Dr	9/9/22

Account Number	Site Name	Site Address	Permit Date
<i>Renewed Permits</i>			
187175-68	Google, Inc.	1320 Orleans Dr	9/9/22
187175-632	Google, Inc.	1344 Crossman Ave	9/9/22
<i>Cancelled Permits</i>			
107531-266	Juniper	160 Gibraltar Dr	2/16/18
98117-73600	City of Sunnyvale	600 Caribbean Dr	11/28/19
206403-728	Finisar	1389 Moffett Park Dr	7/18/18

5.0. SUMMARY OF DAILY RECYCLED WATER DELIVERED BY THE PRODUCER (C.2.D)

Daily recycled water deliveries are measured by a flowmeter on the RWPS inflow line and recorded in the WPCP's SCADA system. Daily deliveries from the SLPS are also recorded in the SCADA system and included in the RWPS flows but will always be less by the amount that does not pass through the SLPS. Both systems also measure and record potable water additions at their respective locations. The majority (>90%) of potable water addition occurs at the SLPS.

Table 2 lists monthly totals of water delivered through the recycled water system based on SCADA records. A total of 337 MG was delivered into the recycled water system, which includes recycled water produced at the WPCP and potable water additions at both the WPCP and SLPS. The 337 MG total compares to a total usage of 369 MG determined from customer billing data, as reported in **Section 3.0**. The roughly 9% difference between customer billing data and production and distribution data is consistent with historical measurements and reflects differences in the types of flow meters used in the system, errors in flow meter readings, and billing periods that do not exactly match the calendar months.

6.0. TABULATION OF CUSTOMER SITE INSPECTIONS (C.2.E)

As part of the permit renewal and issuance process for recycled water use sites, WSSD conducted a total of 15 cross-connections tests at the sites listed in **Table 1**. This corresponds to 15 site inspections performed by WSSD during the 2022 reporting period and is in addition to the 74 annual inspections shown in **Table 3**. Discrepancies between the total number of inspections performed and the number of active sites listed in **Appendix A** is the result of a site becoming inactive at some point during the reporting period and/or the inability to perform an inspection due to unforeseen field conditions, such as construction or the site being out-of-business.

Inspections performed as part of cross-connection tests include observing all areas of recycled water use during periods of recycled water application. Annual inspections include checking for system deficiencies, and reviewing general permit compliance, backflow devices, and cross-connection testing needs.

Table 2: Summary of Recycled Water System Deliveries in 2022

Month	Recycled Water Produced (gallons)	Potable Water Added at WPCP (gallons)	Potable Water Added at San Lucar Storage Tank (gallons)	Total Flow into Recycled Water System ¹ (gallons)
January	0	4,082	8,988,614	8,992,696
February	0	53,782	17,094,961	17,148,743
March	80,000	1,781,758	19,476,497	21,338,255
April	0	4,663,201	20,107,555	24,770,756
May	0	965,569	34,235,521	35,201,090
June	0	1,789,177	34,731,287	36,520,464
July	9,380,000	681,915	29,262,179	39,324,094
August	25,160,000	66,651	25,027,908	50,254,559
September	5,480,000	92,452	39,292,022	44,864,474
October	0	48,058	33,387,428	33,435,486
November	0	0	14,390,492	14,390,492
December	0	1,440	10,856,954	10,858,394
Totals	40,100,000	10,148,085	286,851,418	337,099,503

Notes:

1. Includes recycled water and potable water added to the recycled water system.

Table 3: Tabulation of Recycled Water Site Inspections Performed during 2022

2022	Cross-Connection Tests & Inspections	Annual Inspections	Site Inspection Reports	Total Inspections	Number of Active Sites	Number of Permitted Sites	Percent of Active Sites Inspected
WSSD	15	74	---	89	108	118	82%
Customer	---	---	72	72			67%

Notes:

WSSD conducts inspections at every site that receives a cross-connection test as part of the permit renewal process.

Results from annual inspections are documented on the *City Inspectors Monitoring Report*, whereas cross-connection test results are documented on the *Cross-Connection Testing Report*. In addition to the pressure testing of the potable and recycled water systems, a cross-connection test includes checking on-site recycled water equipment and signage. Annual inspections are typically coordinated with a site's designated Site Supervisor, though the City reserves the right to make unannounced inspections of facilities during reasonable hours of operation. The following are examples of deficiencies checked for during annual inspections:

- Improperly posted warning signs, tags, and/or labels
- Excessive runoff and/or spraying
- Odor of wastewater at or near the site
- Ponding and/or mosquitoes breeding due to ponded water
- Leaks or breakage in the irrigation system
- Plugged, broken, or otherwise defective sprinklers or emitters
- Any overflows or leaks from storage facilities or impoundments
- Plumbing configuration changes not approved by the City

The City places primary responsibility for monitoring onto customers, with WSSD providing the periodic inspections mentioned above to monitor customer compliance, in accordance with Provision C.6 and Provision B of Attachment C (Self-Monitoring Program) of RWQCB Order No. R2-94-069. Results from site inspections performed by recycled water customers are recorded on the *Site Inspection Report – Irrigation Services*, or the *Site Inspection Report – Industrial, Cooling Tower, and Dual-Plumbed Service*, as appropriate. The *Site Inspection Report* forms were developed to follow those used by WSSD during cross-connection and annual inspections. Reports are due to WSSD by July 1 of each year and can be submitted via email, mail, or delivered in-person to the Sunnyvale Corporation Yard. WSSD received 72 self-monitoring reports during the 2022 reporting period, which comprises 67% of the 108 active recycled water sites. The high responsiveness relative to past years is attributed to WSSD's considerable effort in contacting Site Supervisors through a combination of emails, phone calls, and site visits.

WSSD reviews *Site Inspection Reports*, paying special attention to the on-site problems or changes. Incomplete *Site Inspection Reports* are returned to the customer for revision. In some cases, a follow-up inspection by WSSD may be warranted to ensure that reported problems are remedied in a proper and timely manner. All *Site Inspection Reports* are recorded by WSSD staff. Any violations identified during this process are addressed by WSSD and conveyed to the Regulatory Programs Division for inclusion in this *Recycled Water Annual Report*. Self-monitoring is also one of the topics covered in the Site Supervisor Training provided by the City to its recycled water customers and is documented in the *Rules and Regulations*.

7.0. SUMMARY OF VIOLATIONS AND CORRECTIVE ACTIONS (C.2.F)

This Section summarizes the effluent violations related to recycled water use, violations found during an inspection of reuse sites, corrective actions taken, and any changes to or the revocation of customer authorizations by the producer.

7.1. Production & Distribution

No violations were observed during this reporting period.

7.2. Use Sites

No violations were observed during this reporting period.

8.0. CURRENT AND FUTURE DEVELOPMENT UPDATE (C.2.G)

This Section summarizes current and future developments throughout the City that pertain to recycled water production and any planned future connections.

8.1. Facilities Construction Completed in 2022

In response to the challenges in achieving 2 NTU turbidity brought about by the novel cyanobacteria in the Oxidation Ponds, the City constructed a small tank farm (10,000 gal) at the WPCP for dosing aluminum chloride (alum) into the DAFTs. Alum was identified as an effective supplemental coagulant in promoting the flocculation and removal of algae during the chemical trials conducted in mid-2022. The other effective chemicals identified during the trial can either be fed through the existing chemical dosing system or did not require significant construction or system modifications.

8.2. Current Facilities Construction

There are capital construction projects currently underway at the WPCP that will influence and improve recycled water production. Pilot projects are also planned for 2023 to determine whether it is possible to biologically catalyze a shift in the algal community to a more favorable assemblage of species that are easier to treat and similar to historical populations.

The Existing Plant Rehabilitation Project will replace most of the electrical/controls portions in the tertiary side of the WPCP, as well as rehabilitating the structural parts of the FGRs, DAFTs, DMFs and the CCTs. This project is essential to address aging infrastructure challenges and ensure continued operation of the WPCP through the 20+ year lifespan of the [Sunnyvale Cleanwater Program](#) (SCWP). Refer to **Section 9.0** for information on planned Capital Improvement Projects with the potential to impact recycled water production.

Under the SCWP, the City is preparing to begin construction of a new Conventional Activated Sludge (CAS) system that will consist of bioreactors and secondary clarifiers configured as a Modified Ludzak-Ettinger system. Construction of the new CAS system will occur in two stages. For the Stage 1 project, a portion of the CAS system will be constructed to consist of two aeration basins, four secondary clarifiers, and associated appurtenances. This system (CAS-1) will operate in parallel with the existing secondary

treatment system (Oxidation Ponds, FGRs, DAFTs) under a split-flow regime until 2035 when Stage 2 will be constructed, and the existing secondary treatment system will be phased-out. The CAS-1 system will greatly improve water quality and the consistency and reliability at which recycled water can be produced at the WPCP. CAS-1 is currently scheduled to be operational by the end of 2027.

8.3. Future Recycled Water Connections

There are several upcoming Google, Inc. projects within the Moffett Park area in north Sunnyvale involving recycled water. All of these projects are within the existing service area and do not require an expansion of the distribution system. Each project proposes to use recycled water for irrigation and dual-plumbing purposes and are therefore required to have an associated Dual Plumbing Engineering Report subject to review and approval by the City and DDW according to the City's permitting pathway. Project details and a status update are included below. The location and extent of each project is shown in **Figure 8**.

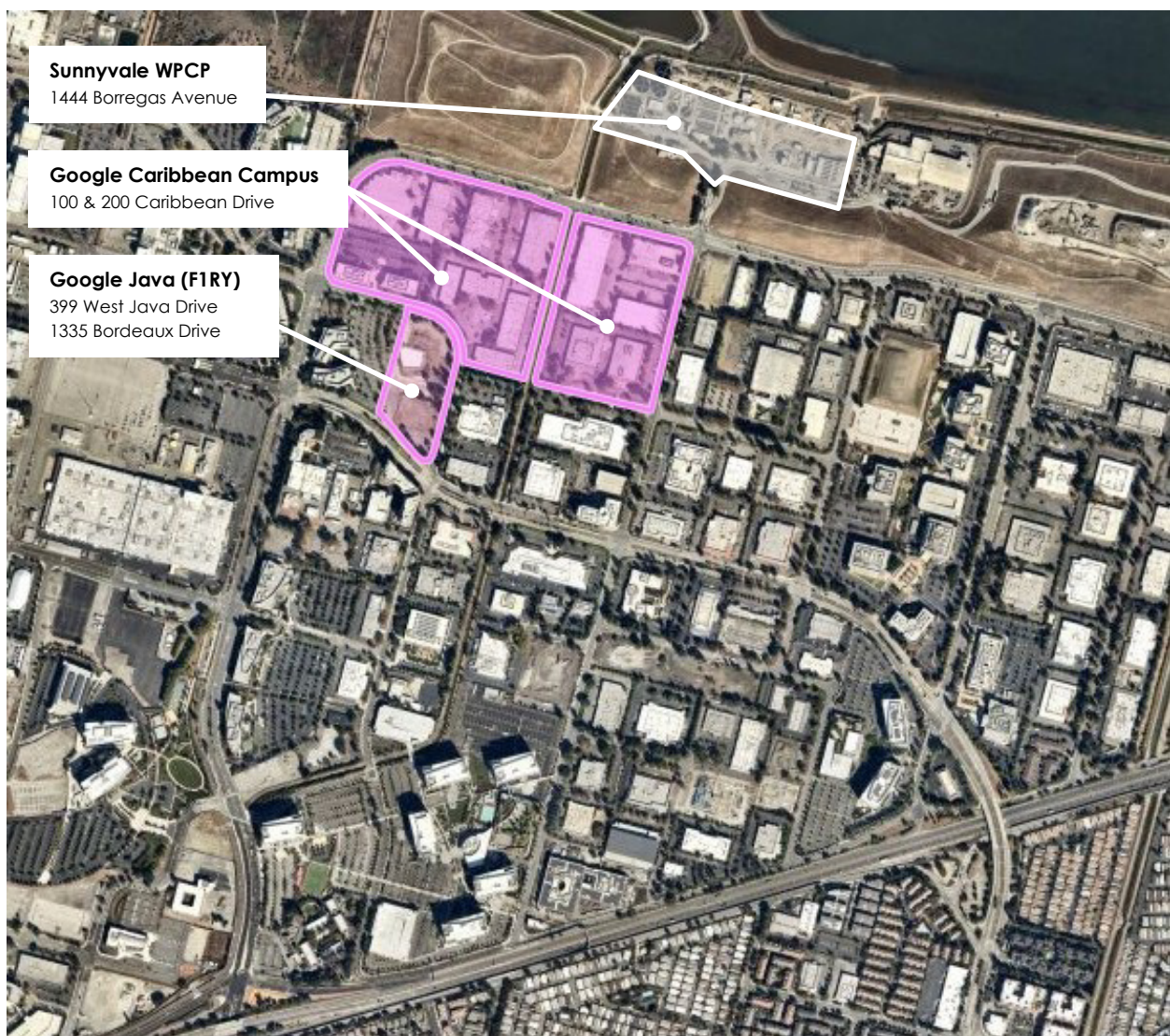


Figure 8: Map of future recycled water connection projects

Google Caribbean Campus – 100 & 200 West Caribbean Drive

The project consists of two new 5-story buildings on adjacent properties bisected by the Sunnyvale West Channel that are expected to host around 12,000 persons. Each building is being constructed with rooftop landscaping that will be irrigated with recycled water in addition to other landscaping on the properties. The irrigation line will supply recycled water to a blending tank in the plumbing tank room on the first level of the buildings to blend potable and non-potable water to serve as irrigation water for plants and trees around the project site. For each of the two new 5-story buildings, recycled water service will be the primary water source for toilet (300) and urinal (50) flushing. The estimated total annual irrigation usage for the two sites is 8.6 million gallons/yr (mgy), approximately half of which would consist of recycled water. If fully occupied, the project's total recycled water usage for toilet/urinal flushing would be on the order of 15-20 mgy. The project is currently under construction, with the building shells largely completed.

The City completed a review of the Engineering Reports and provided a summary of the project to DDW in 2021. The City received comments back from DDW, and received a revised report from Google's construction contractor in September 2022 for Building 200 only. Upon review of the revised report, the City noted that several of DDW's comments had not been fully addressed and notified the contractor. The City expects to receive a second revision in 2023, plus a resubmittal for Bld.100. These will be reviewed by the City and forwarded to DDW for its review. Due to the size and complexity of this project, the City does not expect to provide recycled water service in 2023. The City is closely tracking the project's progress and will provide additional updates in subsequent annual reports.

Google Java (F1RY) – 399 West Java Drive & 1335 Bordeaux Drive

Google is constructing a new 6-story office building, a new 2-story fitness building, and a new 6-story parking garage. The primary function of the 2-story (Commons) building is a fitness center, including locker rooms and showers. The 6-story garage will not have any restrooms and is intended for parking use and includes mechanical spaces for the campus HVAC system. The existing site will be regraded and landscaped and provided with an all-new irrigation system. This new construction project proposes to use recycled water for irrigation of 3.47 acres of landscaping at a rate of 12.3 ac-ft/yr (4.0 mgy) and dual-plumbed service connections for 141 toilets at a rate of 8.21 ac-ft/yr (2.67 mgy). The project will include a backup potable water supply to the recycled water flushing system at the Office and Commons buildings. The potable water supply will be protected with a break tank with an air gap. A duplex booster pump system will be provided to pressurize the system if the City's recycled water system is unavailable. This campus project will be phased such that the Garage, Commons Building, and Site landscaping will be completed around August 2023, and the Office building will be completed around January 2024. The City sent revised Engineering Reports to DDW in November 2021 and August 2022 and expects a response and to establish service in 2023, pending cross connection testing.

8.4. Required Reports and Technical Documents

The City submitted this report to the RWQCB on March 15, 2023, and will submit the 2022 Annual Volumetric Flow Report to the State's GeoTracker system by April 30, 2023. In August 2022, the City submitted an updated Engineering Report for the Recycled Water Program and Production System to GeoTracker in response to a 2021 letter from the DDW.

9.0. PROGRESS AND EVALUATION OF SPECIAL STUDIES OR PROJECTS (C.2.H)

WPCP Rebuild Update

In August 2016, Sunnyvale's City Council voted to approve the Sunnyvale Clean Water Program's Master Plan and Programmatic Environmental Impact Report (PEIR), thereby authorizing the City to begin implementing the design and construction of the various components necessary to reconstruct the WPCP. The WPCP Master Plan identifies a series of essential improvements over the next 20-plus years as part of a massive reconstruction program known as the Sunnyvale Cleanwater Program (SCWP). More information on the progress of the rebuilding effort can be found on the [Sunnyvale Clean Water Program](#) webpage.

Partnership with Valley Water

The City continues to track State and regional developments and participates in regional and national water recycling associations. The City has also partnered with Valley Water on their Countywide Water Reuse Master Plan (Plan). The Plan calls for alternatives to expand recycled water use beyond the City's borders, including options for constructing advanced recycled water treatment facilities and ultimately potable reuse subject to regulatory approval. The City and Valley Water have established a Recycled Water Joint Committee, which provides policy direction on partnership opportunities between the two agencies, including expanding the non-potable use of recycled water and exploring the potential longer-term application of recycled water as the regulations continue to evolve.

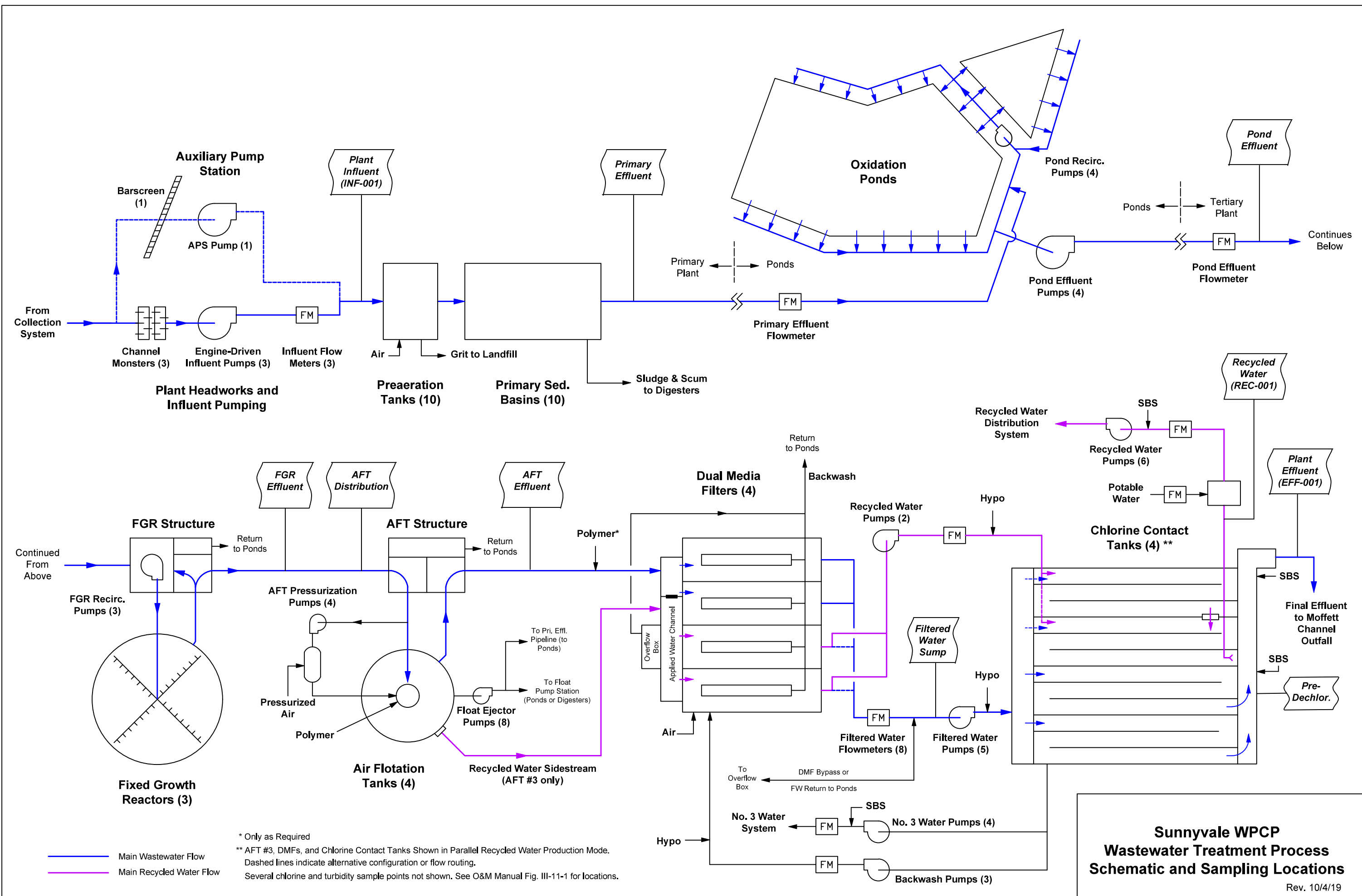
Recycled Water Feasibility Study

In 2013, the City completed a feasibility study that established the basis for the potential expansion of the recycled water system. The Feasibility Study presented the next phase of near-term recycled water demand forecasts for the City as well as the water quality requirements and needs associated with specified uses and demands, and the treatment and system expansion requirements to meet those needs. The City is in the process of updating the 2013 study to capture recent changes to the production system, construction progress of the WPCP's Cleanwater Program, potential system and service area expansions, and forecasted changes in demand and reuse category based on system capacity and expansion.

ATTACHMENTS

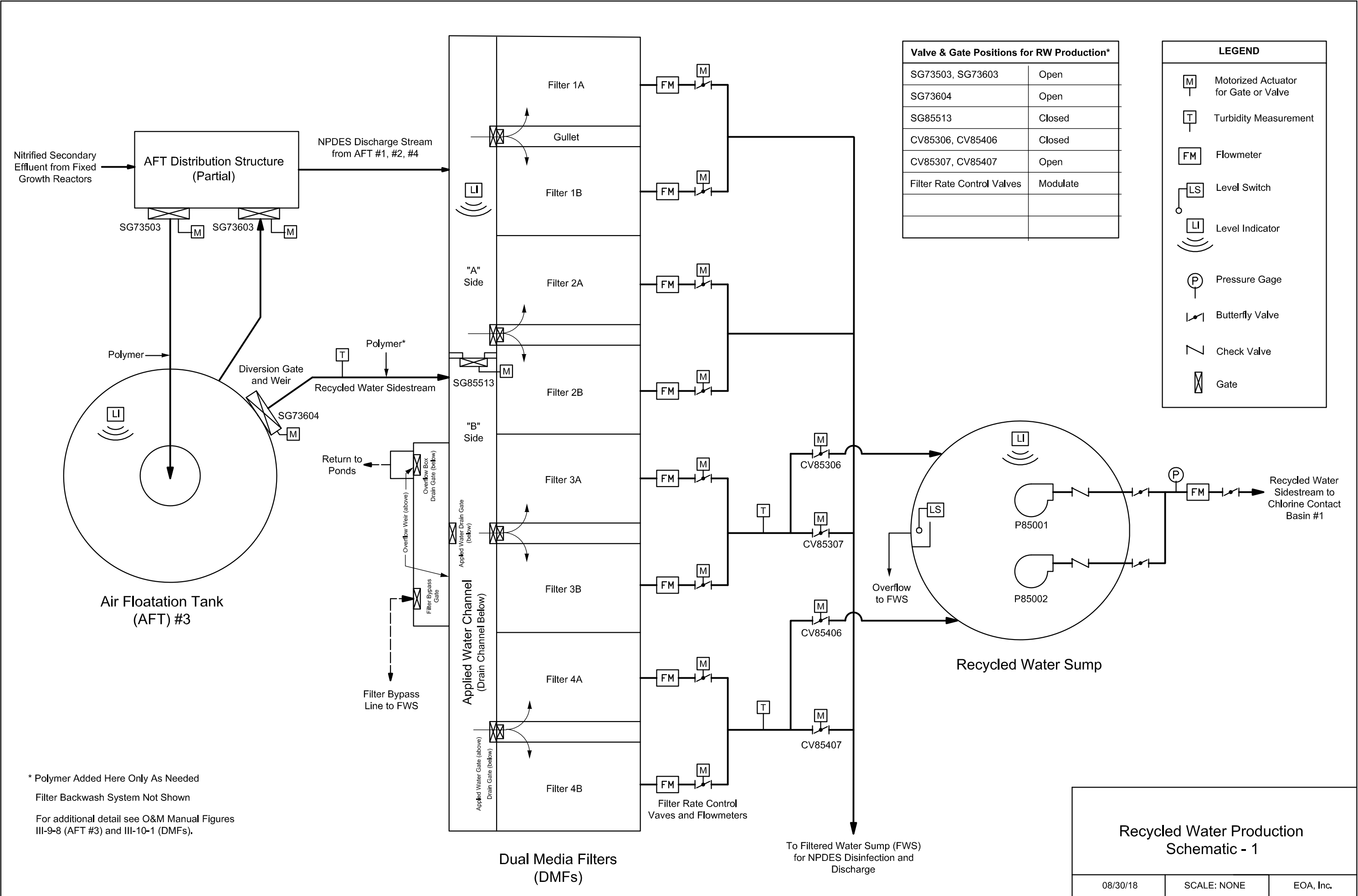
ATTACHMENT A

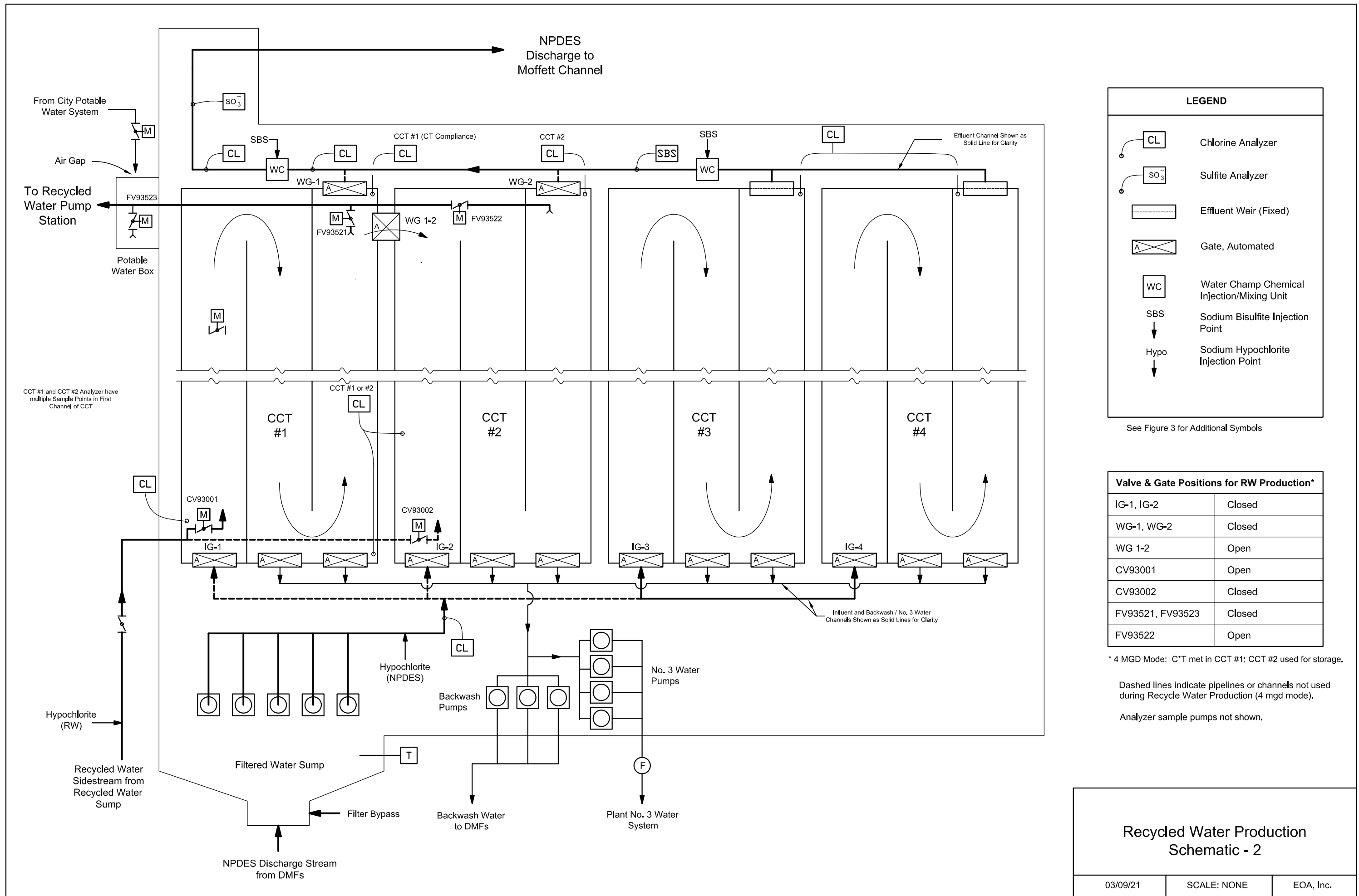
Wastewater Treatment and Recycled Water Facilities Schematics

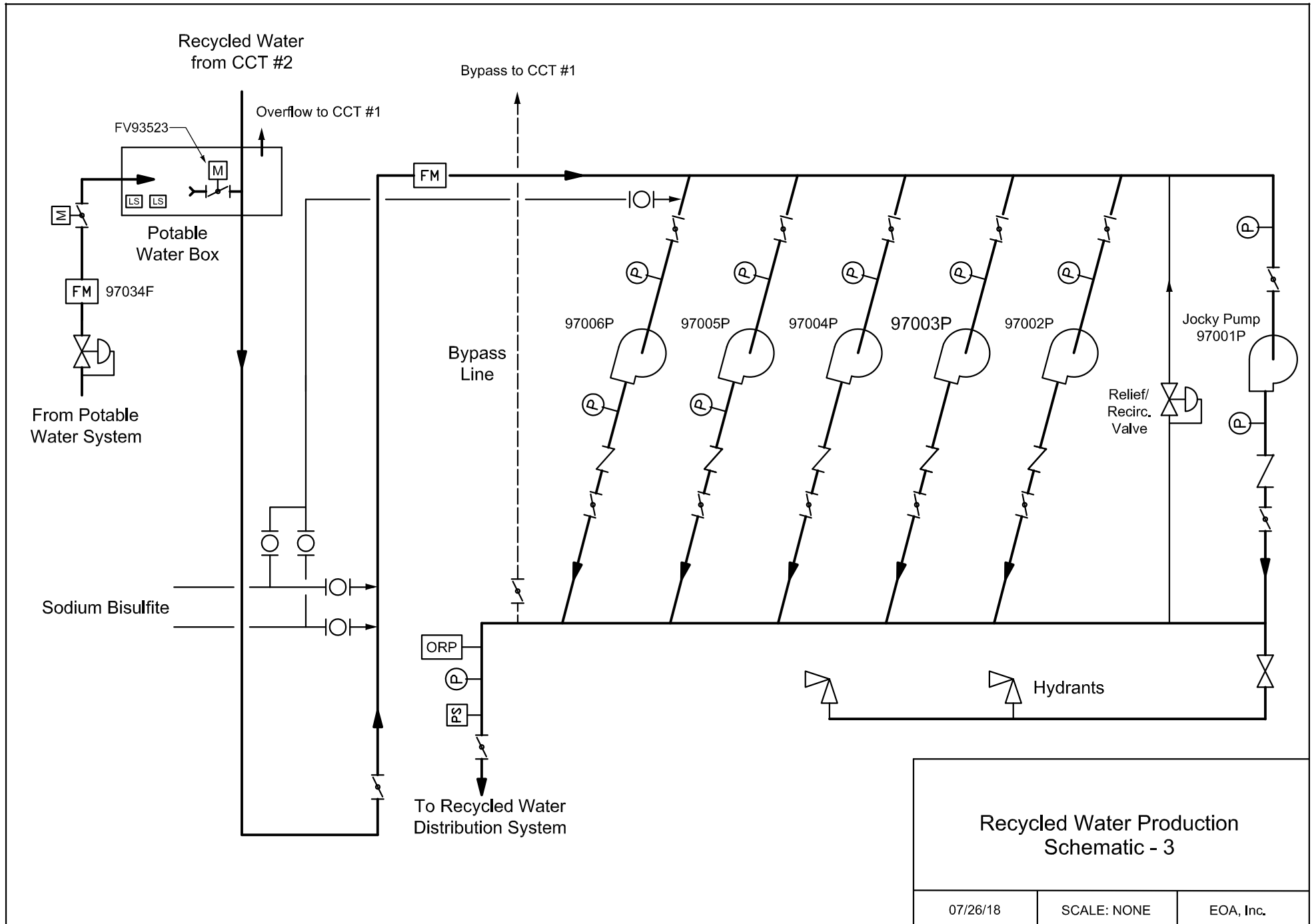


* Only as Required

** AFT #3, DMFs, and Chlorine Contact Tanks Shown in Parallel Recycled Water Production Mode. Dashed lines indicate alternative configuration or flow routing. Several chlorine and turbidity sample points not shown. See O&M Manual Fig. III-11-1 for locations.







ATTACHMENT B

2022 Recycled Water Site Listing and Consumption

Attachment B - 2022 Recycled Water Site Listing and Consumption

Account No.	Site Name	Site Address	Use ¹	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total Usage ² ccf/yr	Total Usage ² mgal/yr	Adjusted RW Total ² mgal/yr
Landscape Irrigation ³																		
98117-73600	City of Sunnyvale	0 Caribbean at Crossman Drive	irr	0	0	---	0	0	0	0	0	0	3	---	0	3	0.00	0.00
3387-57780	City of Sunnyvale	0 Caribbean Drive	irr	0	0	---	0	0	0	0	0	0	0	---	0	0	0.00	0.00
150261-72090	Moffett Towers Lot #1 MT SPE LLC	0 Enterprise Way	irr	0	171	398	263	513	653	499	616	424	508	233	354	4,632	3.46	0.41
104849-73072	VTA / City of Sunnyvale	0 LRT34 @ 232 Java Drive	irr	---	1	---	3	---	3	---	3	---	2	---	0	12	0.01	0.00
95725-73074	VTA / City of Sunnyvale	0 LRT35 @ 399 Java Drive	irr	0	0	---	0	0	0	0	0	0	0	---	0	0	0.00	0.00
104849-73570	VTA / City of Sunnyvale	0 LRT42 @ 813 11th Avenue	irr,oth	---	0	---	1	---	0	---	0	---	0	---	0	1	0.00	0.00
3387-77394	City of Sunnyvale (215011/5390)	0 Median Fifth Avenue @ Discovery Way	irr	14	13	---	33	32	38	39	39	37	45	---	9	299	0.22	0.03
3387-72868	City of Sunnyvale	0 NW Java / Crossman	irr	0	0	---	0	0	1	1	1	0	1	---	0	4	0.00	0.00
3387-72870	City of Sunnyvale	0 SE Java / Crossman	irr	0	1	---	0	0	0	0	0	0	0	---	0	1	0.00	0.00
173259-75216	MT SPE, LLC	1000 Enterprise Way @ 11th St	irr	459	542	1,116	446	1,070	1,147	1,252	2,058	1,551	2,034	979	884	13,538	10.13	1.20
6429-238	City of Sunnyvale Fire Station #5	1012 Bordeaux Drive	irr	0	1	---	0	0	0	0	0	0	0	---	0	1	0.00	0.00
167091-73270	BMC Software	1030 W Maude Avenue	irr	0	45	151	232	158	306	133	288	178	97	61	42	1,691	1.26	0.15
180717-76828	Level 10 Construction	1100 Discovery Way, Buidling 1	irr	1	219	510	281	644	615	705	769	581	688	324	79	5,416	4.05	0.48
149407-75348	Moffett Towers # 3	1100-1180 Enterprise Way	irr	271	116	373	207	367	322	299	412	233	483	226	356	3,665	2.74	0.33
148109-414	Google, Inc.	111 W Java Drive	irr	1	27	60	126	52	171	44	88	169	98	60	16	912	0.68	0.08
112059-73516	LMSSC Bldg.156 / Lmera	1111 Lockheed Way	irr	481	504	0	1,668	666	2,051	1,329	1,463	4,898	693	178	341	14,272	10.68	1.27
148109-800	Google, Inc.	1150 Bordeaux Drive	irr	613	1,241	2,061	3,313	850	3,732	1,471	3,854	3,315	2,833	996	182	24,461	18.30	2.18
148109-160	Google, Inc.	1160 N Mathilda Avenue	irr	407	630	957	1,359	416	1,140	434	1,070	1,622	754	418	2	9,209	6.89	0.82
148109-162	Google, Inc.	1160 N Mathilda Avenue	irr	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
159507-75180	Moffett Towers Lot #3	1120 Enterprise Way	irr	43	265	939	673	611	1,262	962	1,517	1,018	1,132	650	705	9,777	7.31	0.87
107531-75152	Juniper Network	1133 Innovation Way	irr	2	315	920	376	1,478	972	1,777	1,538	976	887	359	116	9,716	7.27	0.86
159507-75184	Moffett Towers Lot #3	1160 Enterprise Way	irr	63	194	675	472	748	1,095	889	997	982	853	496	649	8,113	6.07	0.72
170477-228	Google, Inc.	1170 Bordeaux Drive	irr	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
170477-73984	Google, Inc.	1185 Borregas Avenue	irr	214	0	0	0	0	0	0	0	0	0	0	0	214	0.16	0.02
170477-236	Dean Fisher Properties, LLC.	1190 Bordeaux Drive B	irr	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
179609-202	Baidu USA, LLC.	1195 Bordeaux Drive	irr	1	0	13	186	52	115	41	89	68	64	54	14	697	0.52	0.06
148109-292	Google, Inc.	1190-1192 Borregas Avernue		---	---	---	---	---	---	---	---	0	0	142	14	156	0.12	0.01
148109-784	Google, Inc.	1195 Borregas Avenue	irr	0	0	0	0	0	0	0	0	1,880	0	0	0	1,880	1.41	0.17
148109-786	Google, Inc.	1196 Borregas Avenue		---	---	---	---	---	---	---	---	0	0	656	51	707	0.53	0.06
170477-232	Google, Inc.	1200 Bordeaux Drive	irr	111	144	223	374	118	322	124	360	245	242	50	2	2,315	1.73	0.21
555-396	Jo-EI Associates	1200 Crossman Avenue - A	irr	0	29	58	87	32	142	68	160	160	105	38	36	915	0.68	0.08
170477-240	Google, Inc.	1212 Bordeaux Drive	irr	3	65	149	339	146	464	242	523	540	335	163	0	2,969	2.22	0.26
140505-352	Aerohive Networks, Inc.	1213 Innsbruck Drive	irr	0	14	84	175	49	160	54	149	0	0	463	47	1,195	0.89	0.11
148109-198	CBRE Richard Ellis	1215 Bordeaux Drive	irr	3	43	122	209	69	198	34	66	49	21	18	1	833	0.62	0.07
170477-362	Google, Inc.	1221 Crossman Avenue	irr	220	522	635	907	400	1,413	773	2,079	1,546	964	341	172	9,972	7.46	0.89
145017-194	Oepic Semiconductors, Inc.	1231 Bordeaux Drive	irr	9	11	24	32	6	---	---	---	---	---	---	---	82	0.06	0.01
210933-194	Nanosys, Inc.	1231 Bordeaux Drive	irr	---	---	---	---	0	15	13	28	24	17	---	---	97	0.07	0.01
213081-194	Avincena Tech Corporation	1231 Bordeaux Drive	irr	---	---	---	---	---	---	---	---	---	6	17	26	49	0.04	0.00
209115-192	T2 Hospitality	1235 Bordeaux Drive	irr	0	---	6,994	-2,460	279	505	168	385	62	31	93	188	6,245	4.67	0.56
164955-112	Dr. Stephens IND Partners, LLC.	1250 Borregas Drive	irr	0	11	45	112	43	123	49	116	110	89	40	8	746	0.56	0.07
98989-71848	Homestead Studio Suites Hotel	1255 Orleans Drive	irr	279	245	268	454	139	194	53	166	22	0	0	0	1,820	1.36	0.16
170477-73154	Google, Inc.	1260 Crossman Drive, Building B	irr	0	101	202	285	127	582	172	431	451	250	156	12	2,769	2.07	0.25
165603-272	Google, Inc.	1265 Borregas Avenue														0	0.00	0.00
206401-72384	NetApp	1275 Crossman Drive	irr	7	90	264	260	315	285	178	---	---	---	---	---	1,399	1.05	0.12

Attachment B - 2022 Recycled Water Site Listing and Consumption

<i>Account No.</i>	<i>Site Name</i>	<i>Site Address</i>	<i>Use¹</i>	<i>Jan</i>	<i>Feb</i>	<i>Mar</i>	<i>Apr</i>	<i>May</i>	<i>Jun</i>	<i>Jul</i>	<i>Aug</i>	<i>Sep</i>	<i>Oct</i>	<i>Nov</i>	<i>Dec</i>	<i>Total Usage² ccf/yr</i>	<i>Total Usage² mgal/yr</i>	<i>Adjusted RW Total² mgal/yr</i>
211753-72384	1275 Crossman Owner, LLC.	1275 Crossman Drive	irr	---	---	---	---	---	---	81	322	212	204	219	69	1,107	0.83	0.10
199185-73606	Borregas Associate	1277 Borregas Avenue	irr	0	11	34	71	24	203	113	83	89	84	34	16	762	0.57	0.07
187595-668	Bloom Energy Corp	1299 Orleans Drive	irr	0	0	8	54	18	47	14	34	31	30	22	4	262	0.20	0.02
198815-57604	Country Inns & Suites	1300 Chesapeake Terrace	irr, F	8	0	55	124	28	83	27	70	64	66	30	50	605	0.45	0.05
187175-764	Google, Inc.	1308 - 1310 E Moffett Park Drive		0	6	57	105	30	105	32	79	64	57	39	13	587	0.44	0.05
143359-764	Bloom Energy Corp.	1308 - 1310 E Moffett Park Drive		0	---	---	---	---	---	---	---	---	---	---	---	0	0.00	0.00
187175-756	Aetna Life Insurance Co.	1309 Moffett Park Drive	irr	0	0	1	3	2	9	2	5	8	10	8	12	60	0.04	0.01
187275-58662	Google, Inc.	1310 Chesapeake Terrace	irr, F	0	11	51	69	29	118	43	108	94	55	50	22	650	0.49	0.06
187175-620	Google, Inc.	1312 Crossman Avenue	irr	0	1	88	63	1	11	7	49	66	70	33	53	442	0.33	0.04
187275-58560	Google, Inc.	1315 Chesapeake Terrace	irr, F	343	309	254	134	49	184	75	168	1,007	148	45	21	2,737	2.05	0.24
391-58664	Cepheid	1320 Chesapeake Terrace	irr	16	32	89	140	58	237	97	210	189	141	70	53	1,332	1.00	0.12
187175-686	Arden Realty LP	1320 Orleans Drive	irr	86	81	107	242	59	175	61	194	154	99	58	72	1,388	1.04	0.12
187175-624	Aruba Networks	1322 Crossman Avenue	irr	0	0	0	0	0	4	0	22	27	21	0	0	74	0.06	0.01
187275-58566	Google, Inc.	1325 Chesapeake Terrace	irr, F	11	30	105	167	62	246	89	214	204	130	53	36	1,347	1.01	0.12
187275-546	Ghilotti Bros., Inc.	1330 Geneva Drive A	irr	17	20	178	370	26	168	69	211	247	204	155	60	1,725	1.29	0.15
195827-692	Aruba Networks	1330 Orleans Drive A	irr	3	0	1	11	3	31	44	3	26	0	1	4	127	0.09	0.01
187175-632	Arden Realty LP	1344 Crossman Avenue	irr	2	1	20	97	29	100	42	100	58	5	0	23	477	0.36	0.04
211755-70008	1345-1395 Crossman Owner, LLC.	1345 Crossman Avenue	irr	---	---	---	---	---	---	40	192	186	163	138	65	784	0.59	0.07
206401-57594	NetApp	1350 Geneva Drive	irr	0	0	0	0	0	0	0	---	---	---	---	---	0	0.00	0.00
206401-70008	NetApp	1350 Geneva Drive	irr	11	1	19	41	15	232	36	---	---	---	---	---	355	0.27	0.03
187175-578	Google, Inc.	1362-1366 Borregas Avenue		---	---	---	---	---	---	0	0	0	0	0	0	0	0.00	0.00
206401-75338	Devcon Construction, Inc.	1375 Crossman Avenue	irr	78	148	445	427	408	571	306	---	---	---	---	---	2,383	1.78	0.21
211755-75338	1345-1395 Crossman Owner, LLC.	1375 Crossman Avenue	irr	---	---	---	---	---	---	203	790	362	241	289	70	1,955	1.46	0.17
184477-72768	Magic Leap, Inc.	1376 Bordeaux Drive	irr	45	4	45	223	81	288	89	133	71	69	51	69	1,168	0.87	0.10
204381-466	Bordeaux Research Center	1380 Bordeaux Drive	irr	13	54	87	151	80	323	98	231	176	104	58	33	1,408	1.05	0.13
206845-590	Lendlease UC Construction, Inc.	1390-1398 Borregas Avenue		---	---	---	---	---	---	0	---	---	---	---	---	0	0.00	0.00
206401-75246	NetApp	1395 Crossman Avenue	irr	3	2	0	0	0	0	0	---	---	---	---	---	5	0.00	0.00
211755-75246	1345-1395 Crossman Owner, LLC.	1395 Crossman Avenue	irr	---	---	---	---	---	---	0	0	0	0	0	0	0	0.00	0.00
785-594	City of Sunnyvale-WPCP	1444 Borregas Avenue	irr	0	0	---	0	1	2	14	7	0	0	---	93	117	0.09	0.01
99373-78594	Devcon Construction, Inc.	100 Caribbean Drive		---	---	---	---	---	---	---	0	---	---	0	0	0	0.00	0.00
204549-518	G F Properties, Inc.	140 Caspian Court B	irr	1	36	9	81	9	0	0	168	151	115	47	7	624	0.47	0.06
201521-258	Nuvation Research Corporation	151 Gibraltar Court	irr	0	0	0	57	21	74	31	68	67	70	54	56	498	0.37	0.04
187275-73434	Devcon Construction, Inc.	165 Gibraltar Court	irr	105	97	47	31	9	27	11	20	2	5	33	11	398	0.30	0.04
204551-424	Flextronics	169 Java Drive	irr	6	0	0	0	0	0	0	10	9	63	11	-3	96	0.07	0.01
99685-72438	Lockheed-Martin Bld #159	1st & E Street	irr	230	1,130	573	629	167	477	95	189	640	332	759	511	5,732	4.29	0.51
187175-266	Google, Inc.	160 Gibraltar Court		0	1	0	---	---	---	---	---	---	---	---	---	1	0.00	0.00
99373-78592	Devcon Construction, Inc.	200 Caribbean Drive		---	---	---	---	---	---	---	---	---	---	1	0	1	0.00	0.00
35049-526	US Post Office	207-209 Java Drive	irr	0	4	27	45	16	38	11	28	28	29	24	7	257	0.19	0.02
170477-312	Google, Inc.	212 Gibraltar Drive		---	---	---	---	---	---	---	---	---	---	0	14	14	0.01	0.00
170477-75940	Google, Inc	244 Humboldt Court		---	---	---	---	---	---	---	---	---	---	0	16	16	0.01	0.00
170477-76062	Google, Inc	244 Humboldt Court		---	---	---	---	---	---	---	---	---	---	0	133	133	0.10	0.01
170477-78602	Google, Inc	225 Humboldt Court		---	---	---	---	---	---	---	---	---	---	0	0	0	0.00	0.00
170477-78926	Google, Inc	212 Gibraltar Drive		0	---	---	---	---	---	---	---	---	---	0	53	53	0.04	0.00
186475-326	Devcon Construction, Inc.	212 Gibraltar Drive		0	---	---	---	---	0	1	8	5	9	1	---	24	0.02	0.00
186475-324	Devcon Construction, Inc.	212 Gibraltar Drive		---	0	---	---	---	---	---	---	---	---	---	---	0	0.00	0.00

Attachment B - 2022 Recycled Water Site Listing and Consumption

Account No.	Site Name	Site Address	Use ¹	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total Usage ² ccf/yr	Total Usage ² mgal/yr	Adjusted RW Total ² mgal/yr
186475-75940	Devcon Construction, Inc.	212 Gibraltar Drive		---	---	---	39	0	147	6	73	84	59	-113	---	295	0.22	0.03
186475-76062	Devcon Construction, Inc.	212 Gibraltar Drive		---	---	---	7	3	5	2	18	8	21	52	---	116	0.09	0.01
186475-78602	Devcon Construction, Inc.	212 Gibraltar Drive		0	---	---	---	---	0	0	0	0	0	0	---	0	0.00	0.00
186475-78926	Devcon Construction, Inc.	212 Gibraltar Drive		0	---	---	---	---	---	---	---	---	0	2,183	---	2,183	1.63	0.19
186475-312	Google, Inc.	212 Gibraltar Drive	irr	0	2	7	11	27	0	198	95	75	54	193	---	662	0.50	0.06
143983-302	Batton Associates	220 Humboldt Court	irr	72	37	82	137	39	112	29	96	95	104	68	29	900	0.67	0.08
148109-528	Google, Inc.	222 Caspian Drive	irr	10	103	59	172	74	199	53	115	122	83	35	2	1,027	0.77	0.09
170477-326	Google, Inc.	227 Humboldt Court														0	0.00	0.00
170477-290	Google, Inc.	237-257 Moffett Park Drive	irr	81	199	257	320	127	474	125	610	835	519	341	318	4,206	3.15	0.37
187175-412	Google, Inc.	241 Java Drive	irr	0	0	0	0	0	2	0	0	0	1	0	5	8	0.01	0.00
187175-532	Dollinger Rock Associates	246 Caspian Drive	irr	2	0	0	0	0	11	3	3	0	0	0	2	21	0.02	0.00
173535-556	D.R. Stephens & Co	310 Caribbean Drive	irr	1	14	31	73	32	85	35	76	57	46	30	5	485	0.36	0.04
171-144	Cilker Orchards	333-385 Moffett Park Drive	irr	0	46	170	179	72	258	130	352	335	---	---	---	1,542	1.15	0.14
212889-144	BEP Moffett Park, LLC.	333-385 Moffett Park Drive	irr	---	---	---	---	---	---	---	---	0	292	233	45	570	0.43	0.05
169737-256	Ruckus Wireless	350 Java Drive	irr	34	12	62	294	106	378	158	271	374	313	97	4	2,103	1.57	0.19
189803-248	Arris Group, Inc.	390 Java Drive	irr	2	2	9	16	4	158	67	83	145	108	73	0	667	0.50	0.06
187275-72952	Google, Inc.	400 Caribbean Drive	irr	4	21	60	125	42	151	65	136	97	73	62	15	851	0.64	0.08
200605-74988	LinkedIn	445 N Mary Avenue	irr	8	142	361	447	266	472	183	503	347	159	158	124	3,170	2.37	0.28
187275-73238	Google, Inc.	475 Java Drive	irr	0	16	97	112	22	151	120	146	146	100	65	16	991	0.74	0.09
192357-59102	Google, Inc.	495 Java Drive	irr	0	29	112	136	59	192	56	115	115	87	61	3	965	0.72	0.09
2481-52164	Fair Oaks Park	540 N Fair Oaks Avenue	irr	0	0	---	0	0	0	0	0	0	0	---	0	0	0.00	0.00
187175-710	Google, Inc.	549 Baltic Way	irr	0	0	0	0	0	3	0	1	0	0	0	0	4	0.00	0.00
192357-73684	Google, Inc.	589 W Java Drive, Building G	irr	52	49	70	69	46	106	36	125	69	91	77	130	920	0.69	0.08
179403-1096	FUCMS 2001 C2 WEDDELL Drive LP	610 E Weddell Drive	irr	81	43	163	198	138	114	678	314	216	169	89	134	2,337	1.75	0.21
187175-702	Google, Inc.	611 Baltic Way	irr	1	0	1	0	0	13	90	53	0	0	0	3	161	0.12	0.01
192357-73642	Google, Inc.	700 1st Avenue, Building E	irr	-464	56	436	356	179	282	165	398	360	369	268	117	2,522	1.89	0.22
187175-73508	Google, Inc.	701 & 781 1st Avenue	irr	81	165	98	243	165	329	102	332	86	236	187	31	2,055	1.54	0.18
187175-73512	Google, Inc.	721 & 741 1st Avenue	irr	73	108	123	436	184	593	3	710	581	0	0	1,101	3,912	2.93	0.35
170477-73548	Google, Inc.	799 11th Avenue	irr	50	58	117	58	137	134	164	178	86	64	35	1	1,082	0.81	0.10
170477-73518	Google, Inc.	807 11th Avenue	irr	-923	252	586	396	1,164	1,164	2,092	529	1,441	1,158	425	58	8,342	6.24	0.74
139855-69992	Lowe's Hardware	811 E Arques Avenue	irr	50	71	112	733	551	793	462	1,000	823	113	49	31	4,788	3.58	0.43
180717-76836	Facebook	900 5th Avenue, Building 4	irr	4	136	340	301	648	445	367	616	424	370	175	71	3,897	2.91	0.35
168393-720	Aetna Life Insurance	904-918 Caribbean Drive	irr	41	8	82	103	25	71	27	68	70	63	52	88	698	0.52	0.06
180717-76826	MT II, LLC	905 11th Avenune, Building 2	irr	183	256	1,042	521	1,592	1,300	1,122	1,614	1,183	939	712	406	10,870	8.13	0.97
1099-770	Twin Creeks/Baylands	969 Caribbean Drive	irr	---	---	---	---	---	---	0	9	0	---	---	---	9	0.01	0.00
169-71038	CalTrans 237/Caribbean	999 Caribbean Drive - F	irr	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
97067-71100	City of Sunnyvale (221540/550)	999 Caribbean Drive - G	irr	0	0	---	0	---	0	0	0	0	0	---	0	0	0.00	0.00
99313-72092	Baylands Park	999 E Caribbean Drive	irr,imp	11,939	395	---	570	0	5,080	2	2	0	0	---	0	17,988	13.46	1.60
2481-73348	Encinal Park	999 Corte Madera Drive	irr	0	0	---	218	284	623	411	519	552	411	---	22	3,040	2.27	0.27
Number of Active Sites ⁸ =											96	Category Total Use				253,874	189.9	22.6
Golf Course Irrigation ⁴																		
77719-48114	S'Vale Golf Course - irr / 1	605 Macara Avenue	irr	104	1,075	---	1,638	1,708	3,599	3,542	3,482	3,221	2,809	---	429	21,607	16.16	1.92
77719-75176	S'Vale Golf Course - irr / 2	605 Macara Avenue	irr	0	0	---	0	0	0	0	0	0	0	---	0	0	0.00	0.00
77719-75834	S'Vale Golf Course - irr / 3	605 Macara Avenue	irr	1,759	1,096	---	3,105	3,853	5,815	6,308	5,906	0	11,189	---	1,257	40,288	30.14	3.58
	S'Vale Golf Course - lake	605 Macara Avenue	imp													0	0.00	0.00
179849-71090	Moffett Field Golf Couse	m/s 19 -1 Moffett Field	irr	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00

Attachment B - 2022 Recycled Water Site Listing and Consumption

Account No.	Site Name	Site Address	Use ¹	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total Usage ² ccf/yr	Total Usage ² mgal/yr	Adjusted RW Total ² mgal/yr
179849-71092	Moffett Field Golf Couse	m/s 19 -1 Moffett Field	irr	12	1,555	6,840	7,689	7,695	14,793	16,033	16,030	12,735	8,064	5,970	1,560	98,976	74.03	8.81
Number of Active Sites ⁸ =												2	Category Total Use			160,871	120.3	14.3

Commercial Application ⁵

170981-57484	Foothill Community College	1070 Innovation Way	irr,DP	757	508	881	461	770	91	147	260	625	400	176	265	5,341	4.00	0.48
107531-75898	Juniper Networks (3 Bldgs.)	1081-1137 Innovation Way	irr,DP	184	86	350	296	807	783	781	1,203	930	809	515	341	7,085	5.30	0.63
170555-76828	A2Z Development Center, Inc.	1100 Disocvery Way, Building 1	DP	25	14	31	17	35	28	26	40	28	32	28	38	342	0.26	0.03
112059-75140	Lockheed Martin # 176-178	1111 Lockheed Martin Way	DP	36	24	-2	96	47	137	79	83	496	104	58	42	1,200	0.90	0.11
180717-76834	Level 10 Construction	1170 Discovery Way	DP	2	8	1	15	9	9	4	8	5	6	6	6	79	0.06	0.01
166775-76832	Meta Platforms, Inc.	1180 Discovery Way, Building 5	DP	47	33	65	42	92	82	77	125	90	98	75	94	920	0.69	0.08
166775-76830	Meta Platforms, Inc.	1190 Discovery Way, Building 3	DP	45	31	64	46	92	88	81	115	75	86	71	100	894	0.67	0.08
170477-240	Google, Inc.	1212 Bordeaux Drive	DP	3	4	1	5	5	22	8	23	27	30	27	29	184	0.14	0.02
170477-618	Google, Inc.	1260 Crossman Drive, Building D	DP	3	2	0	0	0	0	0	4	12	12	9	14	56	0.04	0.00
164383-48732	Apple Central Wolfe	222 N Wolfe Road	irr,DP	41	35	52	67	101	82	41	70	73	95	92	87	836	0.63	0.07
	Apple Campus II	1 Apple Park Way, Cupertino	irr,DP	2,275	2,990	3,352	3,776	4,779	5,808	6,870	8,069	5,914	4,245	3,015	2,421	53,513	40.03	4.76
99373-78592	Devcon Construction, Inc.	200 Caribbean Drive	DP	---	---	---	---	---	---	---	---	---	---	---	0	0	0.00	0.00
170477-290	Google, Inc.	237-257 Moffett Park Drive	DP	14	14	0	0	0	0	0	0	0	0	0	0	28	0.02	0.00
148407-70298	Specialty Solid Waste & Recycling	301 Carl Road	irr,DP	7	13	16	18	12	49	293	140	127	125	116	94	1,010	0.76	0.09
166775-76836	Meta Platforms, Inc.	900 5th Avenue, Building 4	DP	40	27	51	30	62	53	51	78	57	64	51	61	625	0.47	0.06
193851-76826	A2Z Development Center, Inc.	905 11th Avenune, Building 2	DP	34	21	42	24	43	39	33	53	36	41	32	44	442	0.33	0.04
Number of Active Sites ⁸ =												9	Category Total Use			72,555	54.3	6.5

Industrial Application ⁶

161885-71856	Stevens Creek Quarry	600 Caribbean Avenue	oth	41	271	273	682	505	1,353	316	760	640	510	342	272	5,965	4.46	0.53
	Permit RW tanker usage from WPCP	1444 Borregas Avenue	irr,oth													0	0.00	0.00
Number of Active Sites ⁸ =												1	Category Total Use			5,965	4.5	0.5

Total Active Sites	108	Grand Total Use	493,265	369	44
--------------------	-----	-----------------	---------	-----	----

Notes:

1. Use Type: Irr=irrigation; Imp= impoundment; F=fountain or water feature; C=cooling tower (used as backup source only); DP=dual plumbed; Oth=other.

2. Total usage includes recycled water and potable water delivered through the recycled water system. Adjusted RW total is 11.9% of total usage to account for the potable water fraction.

3. Reuse Category includes any irrigation of parks, greenbelts, and playgrounds; school yards; athletic fields; cemeteries; residential landscaping, common areas; commercial landscaping; industrial landscaping; and freeway, highway, and street landscaping.

4. Reuse Cateogry includes any irrigation of golf courses, including water used to maintain aesthetic impoundments within golf courses.

5. Reuse Category includes commercial facilities, business use (such as laundries and office buildings), car washes, retail nurseries, and appurtenant landscaping that is not separately metered.

6. Reuse Category includes manufacturing facilities, cooling towers, process water, construction applications, soil compaction, dust control, etc.

7. Recycled water is used as a backup water source for a colling tower. Consumption is included in Landscape Irrigation reuse category. Site is considered active.

8. Multiple accounts at the same site are counted as one site (generally indicates change of ownership or dual-plumbed system). Sites that are listed in Finance database but had no water usage in 2022 are not considered active sites.

Billing period does not correspond exactly to calendar month, and not all meters are read each billing period. 1 ccf = 748 gallons.

Negative usage values indicate an adjustment made by the Finance Department, typically as a result of a previous meter reading error.

--- entry for a given month indicates that no meter reading was collected. Whereas, a zero-value indicates a meter reading but no usage.