

Calaveras County Water District

COPPER COVE WASTEWATER SYSTEM MASTER PLAN

JUNE 2018



**Copper Cove
Wastewater System Master Plan**

June 2018



Prepared under the responsible charge of
Kevin Kennedy
Registration No. C61206



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RESOLUTION NUMBER 2018 - 35

**A RESOLUTION OF THE BOARD OF DIRECTORS
OF THE CALAVERAS COUNTY WATER DISTRICT**

**ADOPTION OF THE FINAL COPPER COVE WASTEWATER MASTER PLAN,
CCWD CIP 15059C**

WHEREAS, in order to better serve current and future wastewater customers in the Copper Cove service area, a wastewater master plan update has been developed for the community; and

WHEREAS, Kennedy Jenks Consultants, with Mr. Kevin Kennedy servicing as the project manager and engineer of record, was retained by the District in 2016 to prepare the wastewater master plan update to replace the prior 2005 plan (Resolution 2005-27); and

WHEREAS, the Board of Directors received the Draft Copper Cove Wastewater Master Plan at a public meeting on January 10, 2018 at which time a presentation was given for the purpose of receiving Board, staff, and public comments which have been incorporated into the final version being submitted herein to the Board for further consideration; and

WHEREAS, upon change of employer by Mr. Kennedy, LEE & RO Inc. was retained to complete the master plan update with Mr. Kennedy continuing to serve as the project manager and engineer of record; and


WHEREAS, the Board of Directors recognizes that funding of the construction costs of facilities recommended within said Master Plan update will be addressed by a separate financial analysis and evaluation of capacity fees and other funding sources; and

NOW, THEREFORE, BE IT RESOLVED, the Board of Directors of the CALAVERAS COUNTY WATER DISTRICT finds that the recommendations presented by the master plan are critical to serve the community, address operational goals, and comply with regulatory standards hereby adopts the Final Copper Cove Wastewater Master Plan, attached hereto and made a part hereof.

PASSED AND ADOPTED this 27th day of June, 2018 by the following vote:

AYES: Directors Thomas, Underhill, Strange, Davidson, and Ratterman
NOES: None
ABSTAIN: None
ABSENT: None

CALAVERAS COUNTY WATER DISTRICT



Scott Ratterman, President
Board of Directors

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- CCWD. 2009 (January). Calaveras County Water District Design and Construction Standards. Prepared by Calaveras County Water District. San Andreas, CA.
- CCWD. 2017 (March). Copper Cove Wastewater Treatment and Wastewater Reclamation Facility Report of Waste Discharge Technical Report Draft. Prepared by Calaveras County Water District, San Andreas, CA.
- HDR. 2005 (May). Copper Cove Wastewater Facility Plan.
- HDR. 2007 (February). Copper Cove Wastewater Facility Plan Update.

List of Abbreviations and Acronyms

AA	average annual
AAF	average annual flow
ac-ft	acre-foot or acre-feet
ADWF	average dry weather flow
BOD ₅	Biochemical Oxygen Demand, five-day
CAGR	compound annual growth rate
CCWD	Calaveras County Water District
CCWWS	Copper Cove Wastewater System
CCWWTF	Copper Cove Wastewater Treatment Facility
CMDF	cloth media disk filter
DAF	dissolved air flotation
DDW	Division of Drinking Water (under State Water Resources Control Board)
DIP	ductile iron piping
DSOD	Department of Safety of Dams (under Department of Water Resources)
ESFUs	equivalent single-family units
ft	feet
gpd	gallons per day
gpm	gallons per minute
HP	horsepower
I&I	infiltration and inflow
lb	pound
LAA	land application area
LCWWS	La Contenta Wastewater System
MD	maximum day
MDF	maximum day flow
MGD	million gallons per day
MM	maximum month
MMF	maximum month flow
MPN	most probable number
PVC	polyvinyl chloride
PWWF	peak wet weather flow
RAS	return activated sludge
RWF	recycled water facility
RWQCB	Regional Water Quality Control Board, Central Valley Region
SCGC	Saddle Creek Golf Course
SFF	submerged fixed film
SSO	sanitary sewer overflow
su	standard units
SWRCB	State Water Resources Control Board
TKN	Total Kjeldahl Nitrogen
TSS	total suspended solids
UV	ultra-violet light
VCP	vitrified clay piping
WAS	waste activated sludge
WDR	Waste Discharge Requirements

Executive Summary

The Copper Cove Wastewater System (CCWWS) Master Plan (Master Plan) was developed to describe a series of cost-effective, phased improvements to accommodate planned growth, comply with current and future regulations and improve operations. Review of the CCWWS indicates that current wastewater flows and operating conditions require it to operate near or above its rated capacity. Service to infill and/or future developments may be limited unless capacity upgrades are implemented relatively soon.

Phase 1 and Buildout average dry weather flows (ADWFs) are projected to increase from 0.17 million gallons per day (MGD) to about 0.36 and 0.54 MGD, respectively. This degree of growth represents an increase of 55 and 110 percent, respectively. **Table ES1** presents a summary of the improvements and estimated costs recommended to accommodate Phase 1 and Buildout conditions. In addition, it is recommended that CCWD develop a Repair and Replacement Program (R&R) for the CCWWS. At a minimum, assets with the highest consequence and risk of failure should be assessed.

Table ES1. Recommended Improvements and Estimated Costs¹

CCWWS Component	Estimated Improvement Cost	Expansion	Repair and Replacement
NEAR-TERM IMPROVEMENTS			
Secondary Treatment (Oxidation Ditch, Clarifier, RAS/WAS Pumping Station)	\$5,790,000	\$2,970,000	\$2,820,000
Tertiary Filter	\$1,190,000	\$610,000	\$580,000
UV Disinfection	\$1,490,000	\$760,000	\$730,000
Solids Dewatering Facility	\$1,180,000	\$600,000	\$580,000
Site Piping	\$970,000	\$500,000	\$470,000
Construction Subtotal	\$10,620,000	\$5,440,000	\$5,180,000
Design Engineering (10%)	\$1,062,000	\$544,000	\$518,000
Legal/Administration (5%)	\$531,000	\$272,000	\$259,000
Construction Management (10%)	\$1,062,000	\$544,000	\$518,000
Total	\$13,280,000	\$6,800,000	\$6,475,000
PHASE 1 IMPROVEMENTS			
Town Square/Sawmill Estates Conveyance and Collection System Improvements	Developer provided ²		
Tuscany Hills/Red Mountain Conveyance and Collection System	Developer provided		
Lift Stations (Existing; Allocation)	\$2,500,000	\$1,280,000	\$1,220,000
Force Main (Existing Allocation)	\$1,000,000	\$510,000	\$490,000
Influent Pumps (CCWWTF Headworks)	\$110,000	\$110,000	\$0
Screen (CCWWTF Headworks)	\$390,000	\$390,000	\$0
Construction Subtotal	\$4,000,000	\$2,290,000	\$1,710,000
Design Engineering (10%)	\$400,000	\$229,000	\$171,000
Legal/Administration (5%)	\$200,000	\$114,000	\$86,000
Construction Management (10%)	\$400,000	\$229,000	\$171,000
Total	\$5,000,000	\$2,860,000	\$2,140,000

CCWWS Component	Estimated Improvement Cost	Expansion	Repair and Replacement
BUILDOUT IMPROVEMENTS			
Seasonal Storage	\$6,000,000	\$6,000,000	\$0
Construction Subtotal	\$6,000,000	\$6,000,000	\$0
Design Engineering (10%)	\$600,000	\$600,000	\$0
Legal/Administration (5%)	\$300,000	\$300,000	\$0
Construction Management (10%)	\$600,000	\$600,000	\$0
Total	\$7,500,000	\$7,500,000	\$0
Grand Total (All Phases)	\$25,780,000	\$17,170,000	\$8,610,000

¹ Estimated costs reflect 2017 Engineering News Record (ENR) 20-City Average Construction Cost Index of 10737.

² See Appendix; CCWD Resolution No. 2008-28 for further details.

Section 1: Introduction

The Copper Cove Wastewater System (CCWWS) Master Plan (Master Plan) was developed to describe a series of cost-effective, phased improvements to accommodate planned growth, comply with current and impending future regulations and improve operations. This section presents the background along with Master Plan goals and objectives.

1.1: Background

Calaveras County Water District (CCWD) was formed in 1946 to provide water and sewer service to the residents of Calaveras County. CCWD is a not-for-profit public agency, governed by a publicly elected five-member Board of Directors. CCWD owns and operates six wastewater treatment plants, the largest being the Copper Cove Wastewater Treatment Facility (CCWWTF).

The CCWWTF was constructed in the early 1970's and is used to treat the wastewater generated from the communities of Copper Cove, Conner Estates, Copper Meadows, Saddle Creek and Lake Tulloch. As of March 2017, there are approximately 1,679 residential connections and 26 commercial connections serving approximately 4,500 people. Altogether, current connections equate to a total of 1,770 equivalent single-family units (ESFUs) as defined by CCWD's Wastewater Design and Construction Standards (District Standards) (CCWD, 2009) and the Calaveras County General Plan Land Use Designations for commercial properties. Recent average dry weather flows (ADWFs)¹ have been between 0.15 and 0.18 million gallons per day (MGD). CCWWTF currently has a permitted ADWF capacity of 0.230 MGD.²

The CCWWS consists of the collection system, CCWWTF and treated effluent storage and disposal facilities. Disinfected tertiary effluent as defined by the California Code of Regulations, Title 22 is produced by the CCWWTF and used to irrigate the Saddle Creek Golf Course (SCGC) in accordance with Order No. R5-2013-0072-01, R5-2010-0070 and R5-2018-0021. CCWD filed a permit renewal application with the Regional Water Quality Control Board, Central Valley Region (RWQCB). A renewed Waste Discharge Requirements/NPDES Permit R5-2018-0040 was issued and adopted at the May 31, 2018 RWQCB Meeting.

Several wastewater planning documents have been prepared for the Copper Cove service area in the past. The last planning documents were prepared in May 2005 and later updated in February 2007. As described later in this report, there have been development and regulatory requirement changes over the past 10 to 15 years that have significantly impacted wastewater infrastructure needs.

1.2: Goals and Objectives

The goal of this project has been to develop a Master Plan that:

- Is tailored specifically for the District's CCWWS,
- Accommodates planning growth and current and impending regulatory requirements,
- Represents a series of phased and cost-effective improvements, and
- Is leveraged in the District's upcoming capital improvement and financial plans.

¹ ADWF measured in July, August and September in accordance with R5-2010-0070 Section B.1

² As described in the draft Report of Waste Discharge (CCWD, March 18, 2017).

Review of the CCWWS indicates that current wastewater flows and operating conditions require it to operate near or above its rated capacity. Service to infill and/or future developments may be limited unless capacity upgrades are implemented relatively soon.

Master Plan objectives are to:

- Define existing and planned growth within the service area and project influent flows and loads,
- Compare approaches to increase capacity, comply with regulations and improve operations, and
- Identify and describe phased, cost-effective improvements recommended for implementation.

Section 2: Wastewater System Planning Criteria

This section describes CCWWS planning criteria, including the service area, wastewater characteristics and phasing requirements. This information served as the basis for subsequent evaluations, comparisons and recommendations.

2.1: Service Area

The CCWWS provides wastewater service for CCWD's largest wastewater system. The existing service area is approximately 1,336 acres, and includes the communities of Copper Cove, Conner Estates, Copper Meadows, Saddle Creek and Lake Tulloch. As shown in **Figure 1**, residential homes are located along both sides of the Black Creek Arm of Lake Tulloch, which requires the conveyance and collection system to circumvent a large portion of the shoreline.

Figure 1 shows the service area boundary and locations of the CCWWTF and the SCGC. The CCWWS service area consists of existing development, infill and 3 potential future developments. Several developments adjacent to the service area are served by individual septic systems and, as indicated in **Figure 1**, are not anticipated to be served by the CCWWS in the future.

2.1.1: Existing Customers and Occupied Parcels

As of 2016, the CCWWS served 1,679 ESFUs and 26 commercial connections for a total of 1,770 ESFUs. Existing customers and occupied parcels within the CCWWS are shown in **Figure 2**.

2.1.2: Future Developments

For the purposes of the Master Plan, a future development is defined as large vacant parcels that would require extension of the existing CCWWS collection system to provide wastewater service.

Figure 3 shows the 3 potential future developments. **Table 1** lists projections associated with the potential future developments.

Table 1. Future Development Projections^a

No.	Future Developments	Description and Status	ESFUs
1	Copperopolis Town Square	Residential (Condominiums)	28
2	Sawmill Estates	Residential (Multi-family)	580 ^b
3	Tuscany Hills / Red Mountain	Residential	335
Potential Future Development			943

^a Some proposed developments identified in prior planning documents have changed names. To allow for easier comparison and reference, this report uses development names provided in these prior documents, where possible.

^b This particular development has not been approved by Calaveras County and is shown as a future specific planning area in the 2016 Draft General Plan.

The Calaveras County Planning Commission Draft General Plan (September 2016) served as the basis for future development projections. The draft general plan is currently undergoing environmental review and will, at the earliest, be adopted in July 2019. If the draft general plan is not approved or significantly changed, there may consequences and/or implications to the master plan planning elements and its recommendations. This master plan report is not intended to induce growth or development, rather, it is intended to provide the District with the recommendations needed to proactively respond to orderly service area development approved by the Calaveras Local Agency Formation Commission.

2.1.3: Infill

For the purposes of the Master Plan, infill is defined as empty parcels within the existing CCWWS service area that are neither occupied, categorized as future development, nor require extension of the existing CCWWS collection system for service. Infill parcels are shown in **Figure 3**. The estimated number of infill connections in terms of ESFUs is 1,196..

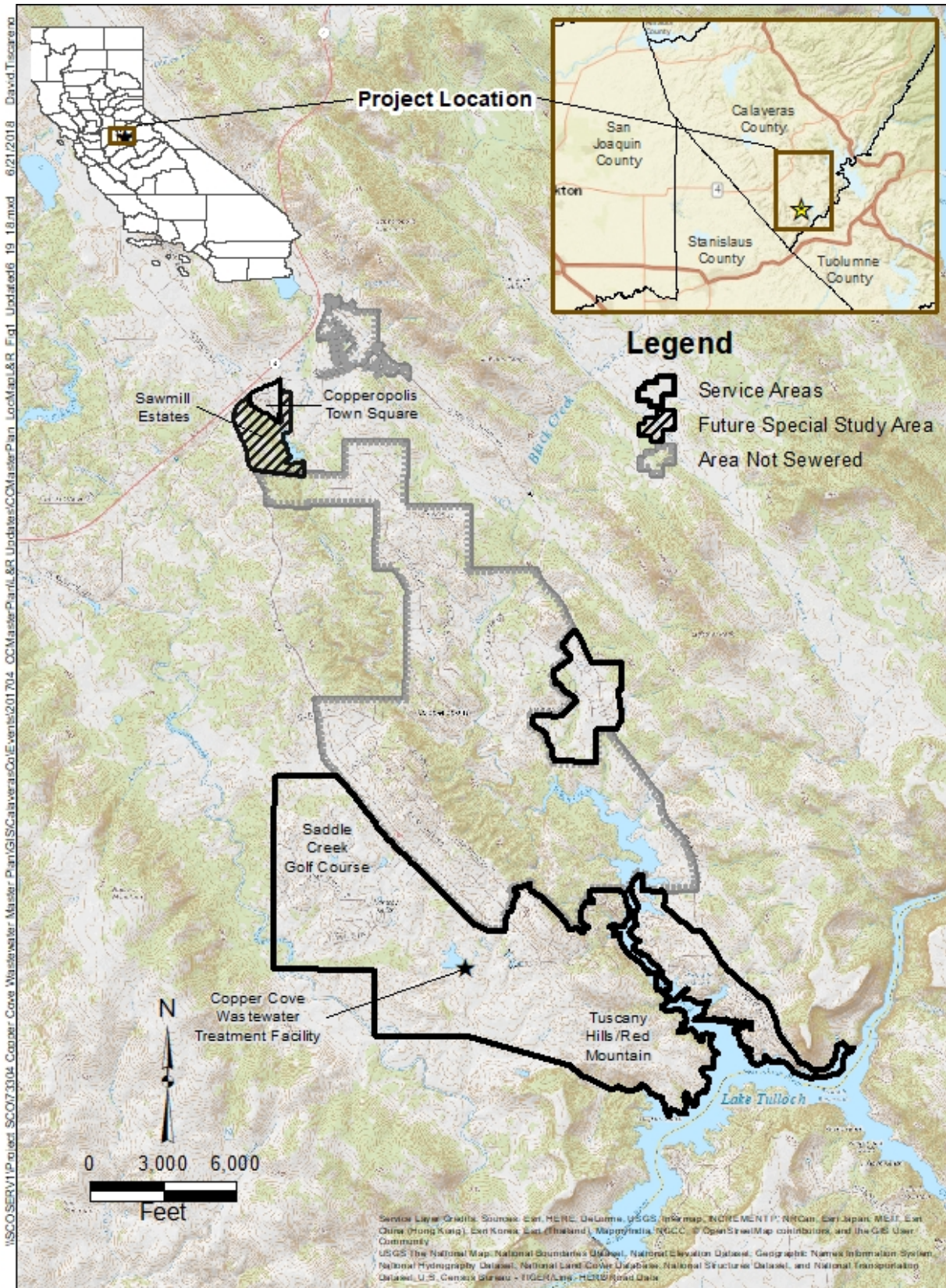


Figure 1. Copper Cove Wastewater System Service Area

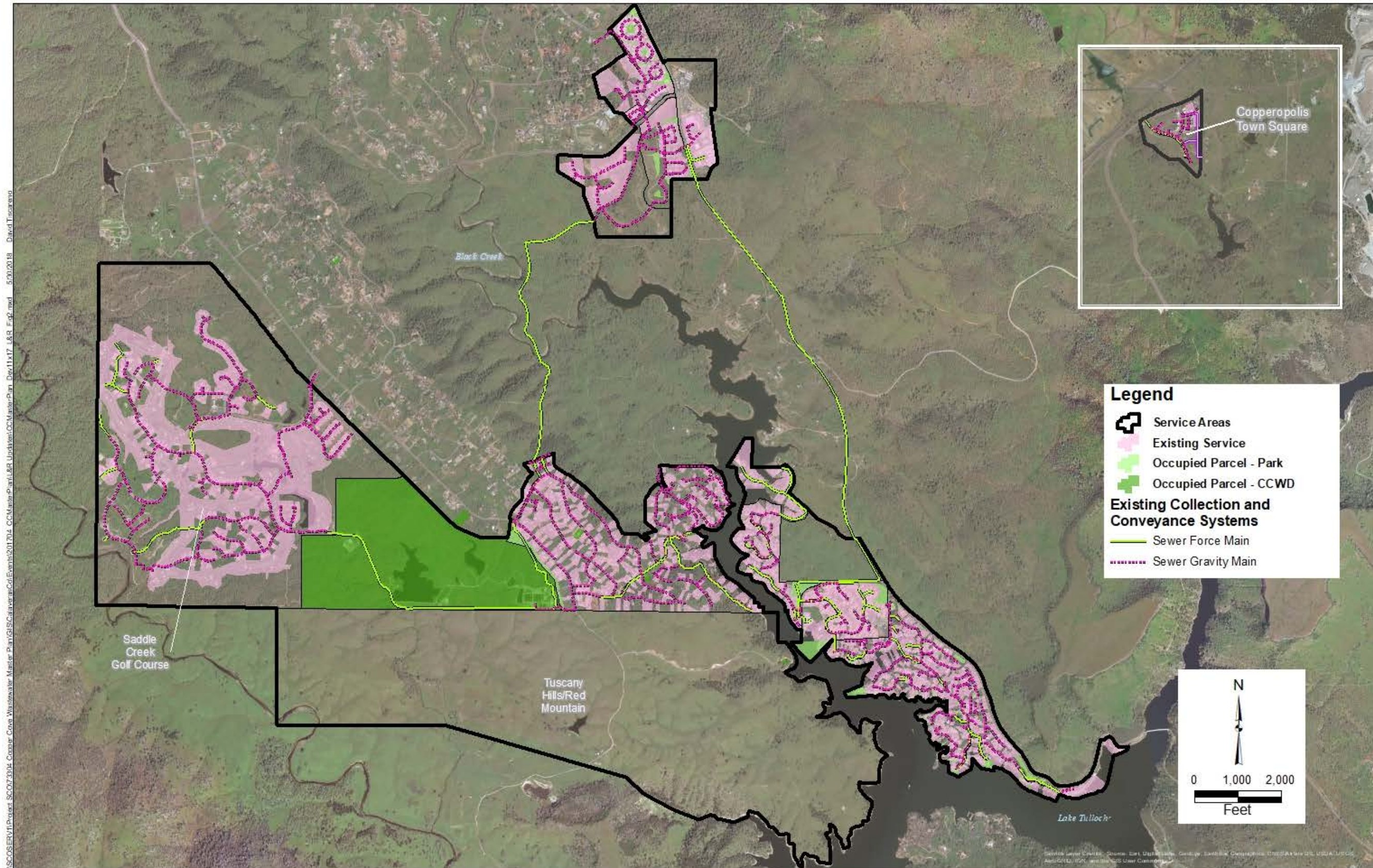


Figure 2. Existing Customers and Occupied Parcels

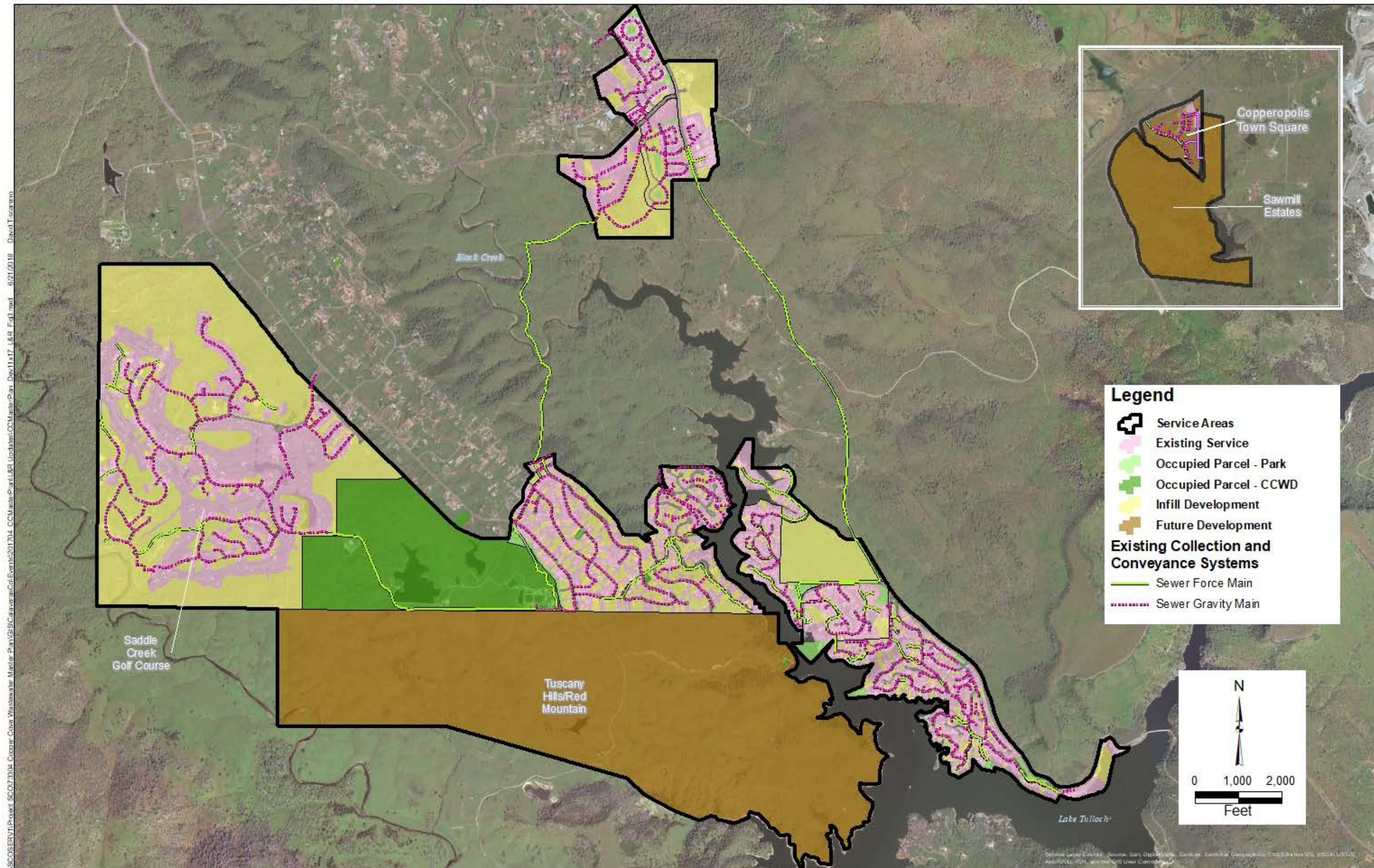


Figure 3. Infill and Future Developments

2.1.4: Summary of Existing, Infill and Future Service Area Connections

Table 2 presents a summary of existing, infill and potential future development service area projections. These projections, in combination with unit flow factors serve as the basis for projecting wastewater influent flows. Buildout projections indicate that the number of connections within the service is anticipated to increase by about 120 percent.

Table 2. Service Area Projections (ESFUs)

Service Area Component	Existing	Phase 1	Buildout
Existing and Occupied Parcels	1,770	1,770	1,770
Infill	0	598	1,196
Future Development	0	472	943
Total	1,770	2,840	3,909

2.2: District Standards

The District Standards were adopted by the Board of Directors in 2009 (CCWD, 2009), and provide procedures and minimum guidelines for the planning, design, and construction of CCWD wastewater systems and facilities. District Standards apply to existing wastewater systems being expanded, modified, upgraded and rehabilitated as well as to the construction of new facilities.

2.2.1: Unit Flow Factor

The District Standards identify equivalent single-family dwelling units, ESFUs, to standardize flows for different types of service connections based on typical wastewater production. ESFUs are used to project future wastewater flows. The District Standards state a unit flow factor of 195 gallons per day (gpd) per ESFU (gpd/ESFU) shall be used for projecting future development wastewater contributions.

Table 3 presents a summary of the historic number of connections in terms of ESFUs and average dry weather flows (ADWFs). As indicated in **Table 3** and illustrated in **Figure 4**, the highest historic value of 106 gpd/ESFU occurred in 2011, and the next highest value of 97 gpd/ESFU occurred in 2013. As anticipated, averages for the last three to five years are lower, due to drought and mandatory water conservation cutbacks, and are between 88 and 97 gpd/ESFU.

Table 3. Historic Number of Connections and ADWFs

Year	No. of Connections ¹	Growth Rate (%) ²	ESFUs ³	ADWF ⁴ (MGD)	Unit ADWF Factor ⁵ (gpd/ESFU)
2010	1,736	0.35	1,720	0.16 ⁷	93
2011	1,742	0.40	1,726	0.18	106
2012	1,749	0.46	1,733	0.16	92
2013	1,757	1.02	1,741	0.17	97
2014	1,775	0.06	1,759	0.16	92
2015	1,776	0.06	1,760	0.16	89
2016	1,777	0.45	1,761	0.16	88
2017	1,785	-na-	1,769	0.17	93
				Average	92⁶

1. Number of connections provided by CCWD and reflects historic 2010-2017 data

2. Growth rate calculated based on number of connections

3. 2010 through 2017 ESFU estimates based on the current number of ESFUs (1,769 for 2017 provided by CCWD) and calculated growth rates

4. ADWFs provided by CCWD, reflect historic data and are based on ADWF measured in July, August, and September per R5-2010-0070 Section B.1
5. ADWF/ESFU calculated by dividing ADWFs by the number of ESFUs
6. Running 5-year average of Unit ADWF Factors (2013 through 2017); 2010 through 2017 average is 94 gpd/ESFU

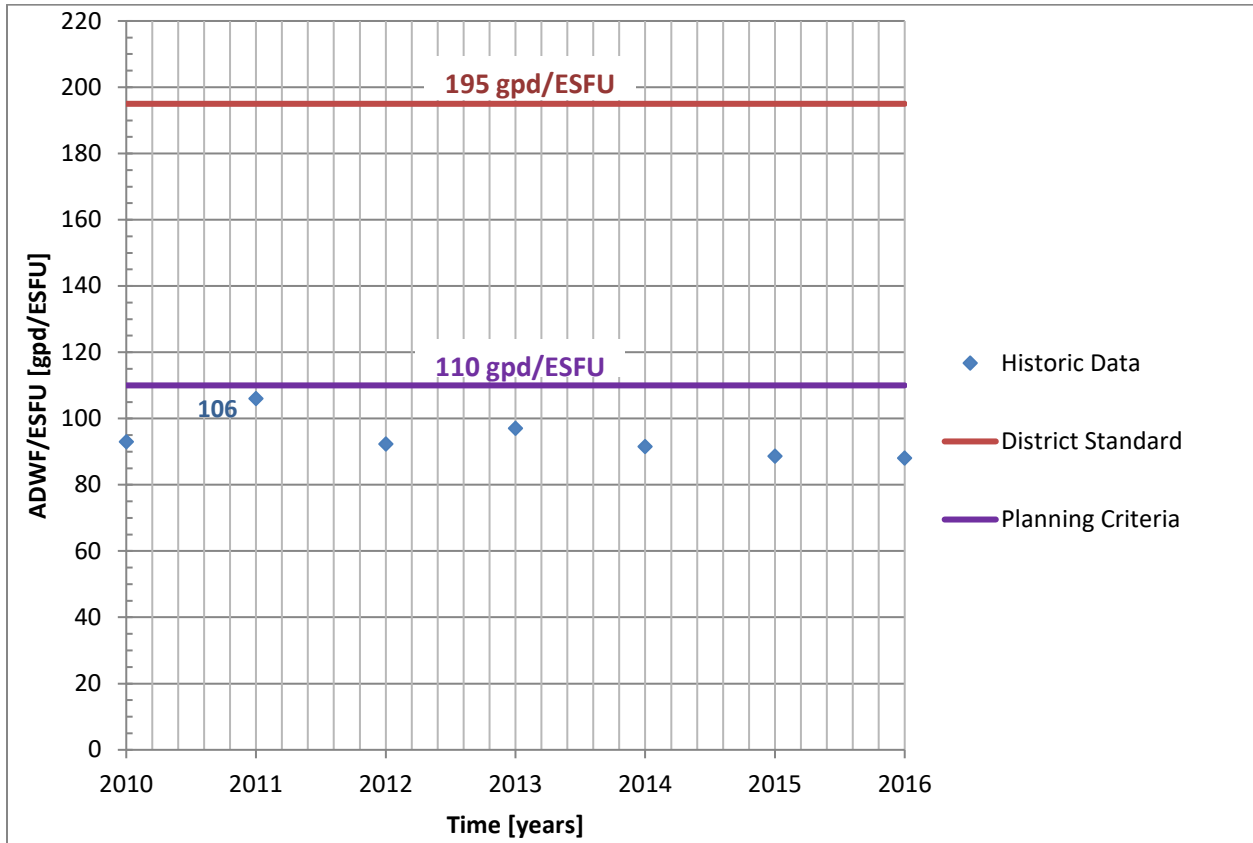


Figure 4. Historic and Recommended Flow Factors

Historic flow factors and the District standard of 195 gpd/ESFU were discussed with CCWD staff during the kickoff meeting on September 9, 2016 (CCWD, 2016a). During these discussions, it was decided that for the purposes of the Master Plan, a flow factor of 195 gpd/ESFU and one other value would be used to establish a range of projected future influent flows. As shown in **Figure 4**, a value of 110 gpd/ESFU is recommended because (1) it is greater than all historic unit flow factors, which is a desirable outcome, and (2) provides a relatively small cushion (i.e., 3.8%) above the highest historic flow factor of 106 gpd/ESFU. The District Standard of 195 gpd/ESFU provides a relatively large cushion above the highest historic flow factor. (i.e., 85% compared to the historic 2011 value of 106 gpd/ESFU).

2.3: Wastewater Characteristics

Existing wastewater characteristics representing current flows and pollutant loadings were developed. Characteristics were compared to current CCWWTF operation conditions described later in this report to (1) determine the relative degree of loading as compared to established governing design/operating criteria for specific facilities and each major individual unit process within the CCWWTF and (2) identify future improvements needed to accommodate future development projections.

Table 4 summarizes historic ADWFs, average annual flows (AAFs), maximum month flows (MMFs) and maximum day flows (MDFs) developed from historic operating data obtained from CCWD. Characteristics for these specific conditions (e.g., average annual, maximum month and maximum day) were developed because these conditions correspond to specific regulatory requirements.

Table 4. Historic Influent Flows and Peaking Factors

Year	ADWF ¹ (MGD)	AAF (MGD)	MMF (MGD)	MDF (MGD)
2011	0.183	0.191	0.355	0.705
2012	0.160	0.180	0.247	0.503
2013	0.168	0.160	0.190	0.296
2014	0.160	0.157	0.209	0.517
2015	0.156	0.153	0.210	0.763
2016	0.163	0.189	0.268	0.738
2017	0.166	0.214	0.373	0.943
Average	0.17	0.18	0.26	0.64
Peaking Factors (ratio to ADWF, unitless)				
2011	1.00	1.04	1.94	3.85
2012	1.00	1.13	1.54	3.14
2013	1.00	0.95	1.13	1.76
2014	1.00	0.98	1.31	3.23
2015	1.00	0.98	1.35	4.89
2016	1.00	1.16	1.64	4.53
2017	1.00	1.29	2.25	5.68
Average	1.00	1.08	1.59	3.87

1. ADWF measured in July, August, and September in accordance with R5-2010-0070 Section B.1.

The methodology described in **Table 4** and the District Standards were used to project PWWFs. District Standard 1.2.1 defines projected PWWFs as the number of ESFUs multiplied by a unit flow factor of 195 gpd/ESFU and a peaking factor of 3.0. Review of historic MDFs indicate that the

application of District Standard 1.2.1 will likely result in low PWWF projections, given that most historic MDF peaking factors are higher than 3.0 as indicated in **Table 4**.

ADWFs shown in **Table 4** are the arithmetic average of daily influent flows for July through September. As described in **Table 4**, the current ADWF is 0.17 MGD. ADWFs are anticipated to provide an approximation of the CCWWS service area base wastewater flows with no or limited direct rainfall contribution, infiltration or inflow and will serve as the basis for projecting future AAFs, MMFs and MDFs.

2.3.1: Future Flow Projections

Historic flows and peaking factors were averaged to estimate current AAF, MMF, and MDF conditions and project future AAFs, MMFs and MDFs. The current PWWF was estimated using District Standard 1.2.1, and historic data obtained from CCWD for the 2016/2017 wet season. During that season, actual rainfall totals measured at the CCWWTF were 38.0 inches, which is within 3% of the 100-yr annual level of precipitation of 39.0 inches per year for the CCWWTF. The PWWF measured during the 2016/2017 wet season at the CCWWTF was 0.94 MGD and occurred on January 11, 2017. Analysis of the historic data indicates that:

1. PWWF infiltration and inflow (I&I) rates for the existing service area (i.e., 756 acres) is estimated at 1,032 gpd/acre and
2. PWWF I&I rates for the Lift Station 22 service area (i.e., 301.4 acres) is estimated at 1,299 gpd/acre.

These results indicate that existing development located along the east side of Black Creek Arm of the Lake Tulloch contributes about 55% of the overall estimated PWWF I&I, whereas existing development located west side of the Black Creek Arm of Lake Tulloch (i.e., 454.6 acres) only contributes about 45% even though it is 50% larger.

Future ADWFs were projected using unit flow factors of 110 and 195 for new connections and adding the projected additional ADWF to the current ADWF of 0.17 MGD. AAF, MMF and MDF were estimated using the average peaking factors indicated in **Table 4**. PWWFs were estimated by adding ADWF and I&I projections. Future I&I contributions were assumed to be equal to the historic average of 1,032 gpd/acre. As shown in **Table 5**, projections are estimated using both the District Standard of 195 gpd/ESFU and historic average of 110 gpd/ESFU.

Table 5. Projected Phase 1 and Buildout Flows

Condition	Current ³	Phase 1 - Infill (MGD) ⁴		Buildout (MGD) ⁵	
		110 gpd/ESFU	195 gpd/ESFU	110 gpd/ESFU	195 gpd/ESFU
ADWF	0.17	0.29	0.38	0.41	0.59
AAF	0.18	0.32	0.42	0.45	0.65
MMF	0.26	0.50	0.66	0.71	1.03
MDF	0.64	1.15	1.51	1.62	2.34
PWWF ¹	1.03	1.66	1.66	2.29	2.29
PWWF ²	0.94	2.14	2.23	3.55	3.73

1. PWWF calculated from CCWD Standard 1.2.1: PWWF = 195 gpd/ESFU, multiplied by number of ESFUs, multiplied by a peaking factor of 3.
2. CCWWTF Station flow record from roughly 10 pm, January 10, 2017 through 20 minutes past midnight on January 11, 2017 indicate a PWWF of 655 gallons per minute (gpm) which is equivalent to 0.94 MGD.
3. Existing occupied sewer area = 756 acres (does not include roads, streets, highways, open space, etc.).
4. Estimated Phase 1 sewer area = 1,796 acres (1,040 acres of infill added).
5. Estimated Buildout sewer area = 3,043 acres (developments totaling 1,247 acres added to Phase 1).

2.3.2: Historic and Future Pollutant Load Projections

Table 6 is a summary of historic pollutant loading conditions, including average annual (AA), maximum month (MM) and maximum day (MD), for five-day Biochemical Oxygen Demand (BOD₅) and total suspended solids (TSS). Historic data were plotted using a lognormal cumulative probability density function to determine the 50-, 91.7- and 99.7-percentile probabilities correlating to the AA, MM and MD conditions. AA represents the 50-percentile value; MM reflects 11 out of 12 months or the 91.7-percentile value and MD reflects 364 out of 365 days or the 99.7 percentile value. Pollutant load peaking factors are also presented in **Table 6** which reflects the ratio to the AA pollutant loads. The AA, MM, and MD BOD₅ and TSS pollutant loadings and peaking factors for the last 5 years (2013 – 2017) were averaged, and used to reflect current and project future loading conditions.

Table 6. Historic Raw Wastewater Pollutant Loadings and Peaking Factors

Year	AA	MM	MD	AA	MM	MD
Historic BOD₅ Loadings (lbs/day)			BOD₅ Loading Peaking Factors			
2012	258	358	420	1.00	1.39	1.63
2013	275	348	362	1.00	1.26	1.31
2014	341	502	533	1.00	1.47	1.56
2015	292	467	501	1.00	1.60	1.72
2016	302	474	508	1.00	1.57	1.68
2017	394	587	624	1.00	1.49	1.58
Average	321	476	506	1.0	1.48	1.57
Historic TSS Loadings (lbs/day)			TSS Loading Peaking Factors			
2012	304	720	1,011	1.00	2.37	3.33
2013	330	520	557	1.00	1.58	1.69
2014	392	733	799	1.00	1.87	2.04
2015	402	815	895	1.00	2.03	2.22
2016	343	695	763	1.00	2.03	2.22
2017	419	714	772	1.00	1.71	1.84
Average	377	695	757	1.0	1.84	2.00

Current AA BOD₅ and TSS loads of 321 and 377 lbs/day, were divided by the current number of connections (i.e., 1,770 ESFUs) to determine unit pollutant loading factors of 0.18 lb BOD₅/d ESFU and 0.21 lb TSS/d ESFU, respectively. These values will serve as the basis for projecting future average annual pollutant loading conditions.

Raw wastewater influent samples were collected on May 9, 16, 23 and 30, 2017 and analyzed for Total Kjeldahl Nitrogen (TKN) by an outside, certified laboratory. Analyses results, shown in **Table 7**, indicate that TKN concentrations were 86, 54, 120 and 67 mg-N/L, respectively. Estimated TKN loads were 108, 70, 148 and 125 lb-N/d, respectively. The overall average TKN load was 113 lb-N/day, which is equivalent to 0.064 lb-N/d ESFU.

Table 7. Existing TKN Loads

Sample Date	TKN Concentration (mg-N/L)	Total Influent Flow (MGD)	TKN (lb-N/day)
May 9, 2017	86	0.150	107.6
May 16, 2017	54	0.156	70.3
May 23, 2017	120	0.148	148.1
May 30, 2017	67	0.223	124.6
Average	82	0.169	112.6

2.3.3: Projected Flows and Loads

Table 8 is a summary of projected raw wastewater flows and pollutant loadings to the CCWWTF for Phase 1 and Buildout. Projected flows for Phase 1 and Buildout were estimated and added to existing conditions using both 110 and 195 gpd/ESFU. Projected TKN loads represent an average of the data collected in May 2017, found in **Table 7**, and BOD₅ peaking factors found in **Table 6**.

Table 8. Projected Flows and Pollutant Loads

Parameter	Average Dry Weather	Average Annual	Maximum Month	Maximum Day	Peak Wet Weather
Current					
Flow (MGD)	0.17	0.18	0.26	0.64	0.94
BOD ₅ (lbs/day)	na	321	476	506	na
TSS (lbs/day)	na	377	695	757	na
TKN (lb-N/day)	na	113	167	177	na
Phase 1					
Flow (MGD) 195 gpd/ESFU	0.38	0.42	0.66	1.51	1.95
Flow (MGD) 110 gpd/ESFU	0.29	0.32	0.50	1.15	1.90
BOD ₅ (lbs/day)	na	515	764	812	na
TSS (lbs/day)	na	605	1,115	1,215	na
TKN (lb-N/day)	na	181	268	285	na
Buildout					
Flow (MGD) 195 gpd/ESFU	0.59	0.65	1.03	2.34	3.01
Flow (MGD) 110 gpd/ESFU	0.41	0.45	0.71	1.62	2.82
BOD ₅ (lbs/day)	na	709	1,051	1,118	na
TSS (lbs/day)	na	833	1,535	1,672	na
TKN (lb-N/day)	na	249	369	392	na

na = not available.

2.4: Phasing Requirements

The following will serve as guidelines for the phasing of recommended improvements:

- Phase 1 and Buildout development to be based on projections of 2,840 and 3,909 ESFUs, respectively
- ADWFs to be based on unit flow factors of 110 and 195 gpd/ESFU.
- Existing permitted ADWF capacity of the CCWWTF is 0.23 MGD.
- Seasonal storage improvements would likely be limited to a single expansion of Pond 6 and/or wet season discharge.
- The scope of this Master Plan is limited to identifying CCWWS improvements and estimated budgeted costs required to serve planned growth. Other requirements (e.g., environmental, traffic, etc.) may have an impact on development timing but are NOT considered in this report.

Section 3: Regulatory Requirements

Regulatory requirements specific to the Copper Cove collection, secondary wastewater treatment, storage and tertiary treatment facilities are specified in Waste Discharge Requirements Order No. R5-2010-0070 and R5-2018-0021. Requirements specific to tertiary wastewater treatment and recycled water irrigation reuse at the SCGC are specified in National Pollution Discharge Elimination System Order R5-2016-0065 (NPDES Permit). These permits are described below along with the recently renewed permit adopted at the May 31, 2018 RWQCB Meeting.

3.1: Waste Discharge Requirements Order

Waste Discharge Requirements Order No. R5-2010-0070 and R5-2018-0021 (WDR) prescribe specific requirements for the District's CCWWS with respect to wastewater collection, secondary treatment and storage facilities. The WDR was originally adopted by the RWQCB on June 16, 2000 as WDR Order No. 5-00-136³. The following are summaries of key requirements derived from the WDR:

1. The CCWWTF consists of the headworks, two aerated ponds operated in parallel (Ponds 1 and 2; each pond is equipped with 4, 15 HP aerators), a partially aerated and settling pond (Pond 4), polishing and storage pond (Pond 6), coagulation-flocculation, two stage filtration and ultraviolet light (UV) disinfection.
2. Currently the CCWWTF has a permitted ADWF⁴ capacity of 0.23 MGD, 0.28 MGD MMF capacity and maximum annual total flow rate of 92.95 million gallons per year.
3. The annual average level of precipitation measured at the CCWWTF is approximately 21.6 inches per year; the 100-year return period annual precipitation is estimated to be 39.0 inches per year.
4. Treated effluent, prior to discharge to Pond 6 shall not exceed the numerical limits described in **Table 9** nor the total coliform and pH requirements described below.
 - Median total coliform concentration shall not exceed most probable number (MPN) of 23 per 100 milliliters using results of the last seven (7) days of analyses.
 - Median total coliform concentration shall not exceed MPN of 240 per 100 milliliters in more than one (1) sample in any 30-day period.
 - pH measured in ponds shall be greater than or equal to 6.5 standard units (su) and less or equal to 10 su.
5. The operation of the CCWWTF shall not cause groundwater to contain constituent concentrations in excess of the following concentrations (see **Table 10**).

Table 9. Numerical Treatment Effluent Limitations – Copper Cove WDR

Constituent	Units	Numerical Limit	
		Monthly Average	Daily Maximum
BOD ₅	mg/L	30	80
Total Nitrogen	mg-N/L	10	--
Total Dissolved Solids	mg/l	450	600
Sodium	mg/L	69	--
Chloride	mg/L	106	--

³ Order No. 5-00-136 has been rescinded and superseded Order No. R5-2010-0070 and R5-2018-0021.

⁴ Based on July, August and September flows as described in Article B.1.

Table 10. Groundwater Numerical Limitations

Constituent	Units	Limit
Chloride	mg/L	106
Boron	mg/L	0.7
Iron	mg/L	0.3
Manganese	mg/L	0.05
Sodium	mg/L	69
Total Dissolved Solids	mg/L	450
Nitrate	mg-N/L	10
Bromoform	µg/L	4
Bromodichloromethane	µg/L	0.27
Chloroform	µg/L	1.1
Dibromochloromethane	µg/L	0.37
Total Coliform Organisms	MPN/100 mL	< 2.2

3.2: NPDES Permit

The NPDES Permit, adopted on May 31, 2013, was scheduled to expire May 1, 2018 and required CCWD to apply for permit renewal no later than November 2, 2017. The District submitted a permit renewal application on November 1, 2017.

The jurisdictional wetland system is regulated by a US Army Corps of Engineers Clean Water Action Section 404 Permit (404 Permit). The wetland system also includes several man-made and natural lakes, including Mitchell Lake. The 404 Permit requires that all ponds and wetland areas have a continuous supply of water to maintain minimum levels. Therefore, SCGC uses water from Pond NC-2D when necessary to supply makeup water to the wetlands, excluding Mitchell Lake which is a tributary to Little Johns Creek. The District discharges tertiary treated effluent to Pond NC-2D and at times this water is discharged to the jurisdictional wetlands, which have been defined as waters of the United States, within the Middle San Joaquin, Lower Merced, Lower Stanislaus Watershed. The following are summaries of key requirements derived from the NPDES Permit:

1. Treated effluent can be discharged to SCGC Pond NC-2D between April 1 and December 31 (defined in the NPDES Permit as discharge season).
2. Surface water discharge of up to 0.95 MGD of disinfected tertiary treated wastewater to the SCGC during the discharge season.
3. During the discharge season, tertiary treated effluent is collected in the Recycled Water Storage Tank and conveyed to Pond NC-2D located on the SCGC to be used for golf course irrigation or to provide makeup water for the wetland system.
4. Tertiary filtration and UV disinfection are typically started up in April 1 and operated until Pond 6 is empty (e.g., treat Pond 6 effluent flows through the remainder of the year). When the demand for irrigation water exceeds recycled water production capacity of the existing tertiary filtration and UV disinfection systems, raw water from Lake Tulloch is used for makeup.
5. The NPDES Permit Amendment added a new monitoring location, REC-002, located in Pond NC-2D prior to discharge to the jurisdictional wetlands. The new monitoring location provides representative samples of the discharge to the jurisdictional wetland and is used to evaluate compliance with the effluent limitations for ammonia and nitrate plus nitrite.

6. The District completed construction of a UV disinfection system in September 2006 and has entirely discontinued the use of liquid hypochlorite. All recycled water is now disinfected via UV and chlorine is no longer used in any stage of the treatment process. Therefore, the District no longer demonstrates reasonable potential to cause or contribute to an exceedance of the applicable water quality objectives for total residual chlorine and dichlorobromomethane, and will not produce disinfection byproducts such as chloroform. The NPDES Permit Amendment removed effluent limitations specific to total residual chlorine and dichlorobromomethane as well as monitoring requirements for total residual chlorine, chloroform, and dichlorobromomethane indicated above in **Table 9** and **Table 10**.
7. Treated effluent discharged into Pond NC-2D shall maintain compliance with the limitations shown in **Table 11**.
 - a. pH shall be greater than or equal to 6.5 su and less than or equal to 8.5 su.
 - b. There shall be no chronic toxicity in the effluent. Survival of aquatic organisms in 96-hour bioassays of undiluted effluent shall be no less than:
 - o 70%, minimum for any one bioassay; and
 - o 90%, median for any three consecutive bioassays.
 - c. Total Coliform Organisms shall not exceed:
 - o 2.2 MPN/100 mL, as a 7-day median;
 - o 23 MPN/100 mL, more than once in any 30-day period; and
 - o 240 MPN/100 mL, at any time.

Table 11. NPDES Permit Limitations

Parameter	Units	Effluent Limitations		
		Monthly Average	Weekly Average	Daily Maximum
BOD ₅	mg/L	10	15	20
	lb/d ¹	79	119	158
TSS	mg/L	10	15	20
	lb/d ¹	79	119	158
Aluminum ²	µg/L	310	623	
Ammonia	mg-N/L	0.74		2.2
	lb-N/d ¹	5.9		17
Electrical Conductivity	µmhos/cm	900		
Manganese ²	µg/L	97	242	
Nitrate Plus Nitrite	mg-N/L	10		

1. Mass-based effluent limitations are based on a flow of 0.95 MGD.

2. Total recoverable.

3.3: Tentative Permit

Tentative Order R5-2018-0040, NPDES No. CA0084620 was issued for public comment on February 28, 2018 and was adopted at the May 31, 2018 RWQCB Meeting. This permit superseded the Waste Discharge Requirements Order and NPDES Permit previously described.

The following are summaries of key requirements derived from the recently adopted permit:

1. Final effluent at Discharge Point No. 001 shall comply with limitations specified in **Table 12**.

Table 12. Tentative Permit Limitations

Constituent	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
BOD ₅	mg/L	30	45	--	--	--
TSS	mg/L	30	45	--	--	--
pH	su	--	--	--	6.5	8.5
Ammonia Nitrogen, Total	mg-N/L	0.5	1.4	--	--	--
Nitrate Plus Nitrite	mg-N/L	10	17	--	--	--

2. **Total Coliform Organisms:** Treated effluent total coliform organisms shall not exceed the following immediately after disinfection:
 - a. 2.2 Most Probable Number (MPN) per 100 mL, as a 7-day median;
 - b. 23 MPN/100mL, more than once in any 30-day period; and
 - c. 240 MPN/100 mL at any time

3. **Filtration System Operating Specifications:** Turbidity of the filter effluent shall not exceed:
 - a. 2 NTU as a daily average;
 - b. 5 NTU more than 5 percent of the time within a 24-hour period; and
 - c. 10 NTU, at any time

4. **UV Disinfection System Operating Specifications:**
 - a. Operate in accordance with operations and maintenance program;
 - b. Minimum hourly average UV dose shall be 100 mJ/cm²; and
 - c. UV dose calculated according to prescribed equation

Section 4: Existing Wastewater System

This section describes the existing collection, treatment, storage and disposal facilities that make up the CCWWS along with their rated capacities where applicable.

4.1: Sewer Collection and Conveyance System

The following are descriptions of the existing sewer collection system, force mains, gravity sewers, and lift stations that convey wastewater from the service area to the CCWWTF for subsequent treatment, storage and disposal.

The existing collection system, shown in **Figure 5** was originally constructed in the early 1970s to serve the Copper Cove subdivision. The Lake Tulloch Shores subdivision was also being developed around the same time, and rather than building its own wastewater treatment plant, it was connected to Copper Cove facilities using a 6-inch sewer pipeline located below the Lake Tulloch water surface. The O'Byrne's Ferry force main replaced this sewer pipeline in June 1993. Other similar pipelines located below Lake Tulloch have already or are in the process of being removed and replaced to limit the potential impact of a sanitary sewer overflow (SSO).

The collection system is comprised of approximately 98,675 lineal feet (18.7 miles) of sewer piping and 32 lift stations. The collection system begins in Lake Tulloch Unit 2 where the sewers carry raw wastewater from Manhole 1 to Manhole 102 in a combination of 4-inch and 8-inch PVC pipelines. Within Lake Tulloch Unit 2 are Lift Stations 1 through 9. These stations convey raw wastewater from the Poker Flat Lodge along O'Byrne's Ferry Road and Poker Flat Road to Lift Stations 12 and 13, located in Lake Tulloch Unit 1 along Lake View Court. Together with wastewater pumped from Lift Stations 10 and 11, wastewater is conveyed from Lake Tulloch Unit 1 to Lift Station 40 located in Connors Estates Unit 2. Lift Station 43, located along Bluff View Road, conveys raw wastewater from Connors Estates Unit 1 to Connor Estates Unit 2, which has five lift stations, (Lift Stations 40, 41, 42, 44 and 45). Raw wastewater is then pumped to Lift Station 21 (located at the extreme north end of Lake Tulloch), which in turn conveys it around the lake to Lift Station 22 located on the northwest side Lake Tulloch. Lift Stations 15 through 20 are in Copper Cove Unit 7 and convey raw wastewater from that unit to the trunk sewer from where it is conveyed by gravity to the CCWWTF. Lift Station 23, located along the Oak Creek Drive, conveys wastewater from the Saddle Creek service area to the CCWWTF. **Figure 5** shows the location of the District's lift stations within the CCWWS.

Lift Stations 12 and 13 are located along Lake View Court near Lake Tulloch. Most of the wastewater generated from Lake Tulloch Units 1 and 2 is currently routed through these stations. To minimize the potential for a SSO, a bypass around these lift stations is to be installed. The bypass will route wastewater directly from Lift Station 8 to Lift Station 40 or to Lift Station 40's force main. This interconnection is estimated to decrease PWWFs routed through Lift Stations 12 and 13 by 80 percent and reduce the level of improvements required for Lift Stations 12 and 13.

The collection system is known to consists of at least three different types of pipe material- polyvinyl chloride (PVC), ductile iron piping, and vitrified clay piping (VCP). The District has a CCTV truck which is used to monitor the collection system. **Table 13** is a summary of the number of lineal feet, manholes and piping material in specific developments.

Table 13. Summary of Existing Collection System

Development	Sewer Length (ft)	Diameter (inch)	Material	Number of Manholes
Lake Tulloch				
Unit 1	4,300	6 and 8	PVC	21
Unit 2	16,500	6 and 8	PVC	111
Connor Estates				
Unit 1	1,300	6	PVC	6
Unit 2	3,800	6	PVC	25
Copper Meadows	1,275	8		5
Copper Cove				
Unit 7	37,000	6	VCP	153
Unit 8A	7,500	6 and 8	PVC	32
Saddle Creek				
Unit 1	11,800	6 and 10	PVC	61
Unit 2A	3,200	6 and 10	PVC	18
Unit 2B, 2C, 2D	7,000	6	PVC	35
Unit 3A	4,100	6	PVC	18
Unit 3B	900	6	PVC	5

Source: Report of Waste Discharge (CCWD, 2017)

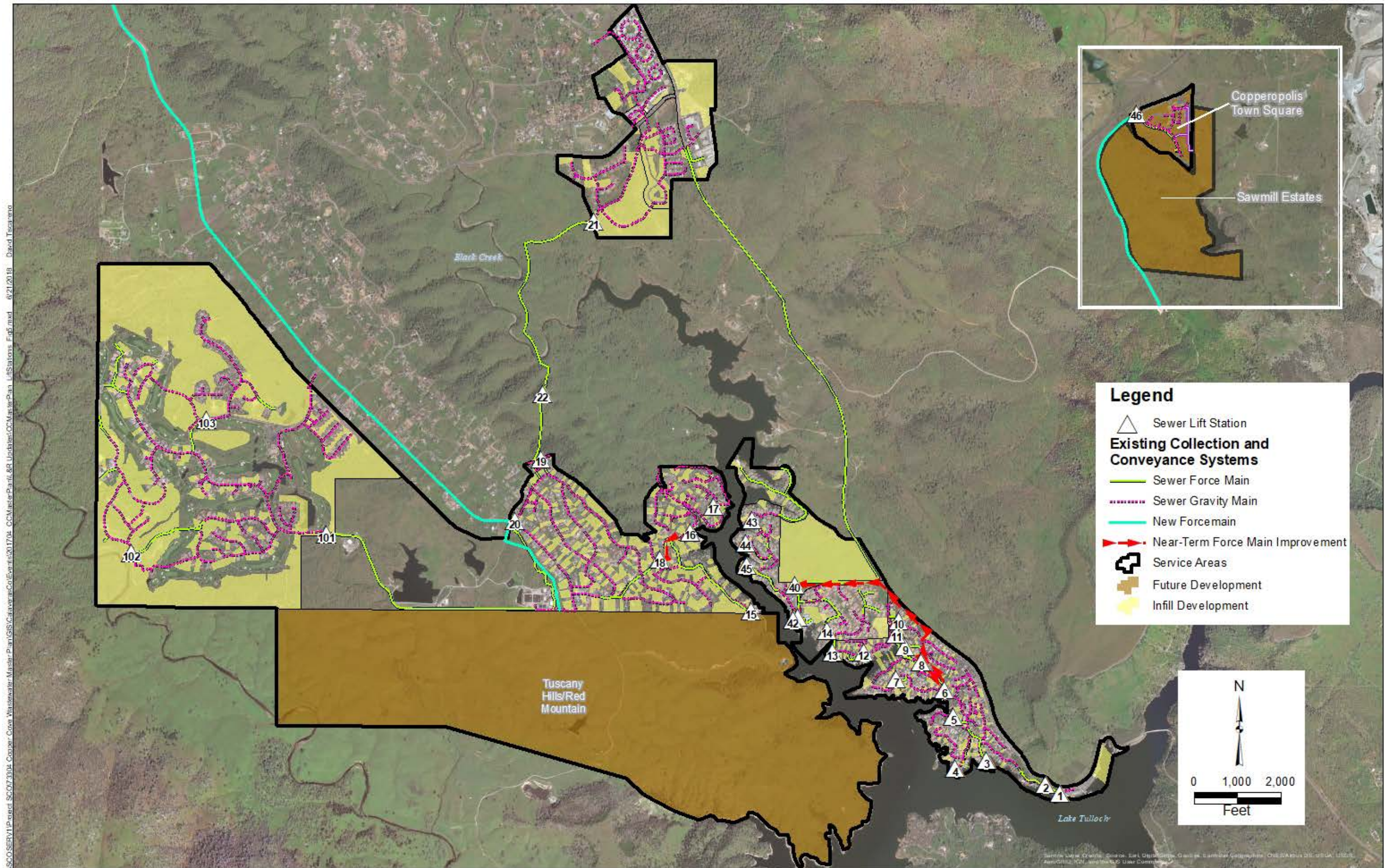
4.2: Lift Station Evaluation

All Copper Cove lift stations are continuously monitored through Supervisory Control and Data Acquisition (SCADA). The SCADA feeds information back to the CCWWTF. Unusual conditions (e.g., power failure) are sent to the CCWWTF and an alarm is sent to the District collection staff. The SCADA system consists of a series of PLC's, radio transmitters and Wonderware Operating System. The lift stations are checked a minimum of once per week and cleaned a minimum of once per year.

Most of Copper Cove lift stations have standby generators which come on automatically in the event of loss of power from PG&E. The generators are inspected on a bi-weekly basis. Each generator is equipped with a smart transfer switch, which has a downloadable program that District staff use to troubleshoot if there is a problem.

A summary of design and estimated operating parameters for each lift station is presented in **Table 14**. Most of the data reported in this table were obtained from the 2005 Copper Cove Wastewater Facility Plan (CCWD, 2005). Firm capacities are based on the estimated pumping capacity with the largest pump out of service. Estimated PWWFs are based on the number of connections (i.e., ESFUs), 195 gpd/ESFUs, I&I contribution of 1,032 gpd/acre and include upstream lift station contributions. As indicated in **Table 14** by the **bold red font**, the current capacities of Lift Stations 14, 21 and 40 are insufficient to accommodate potential future growth (future PWWFs are projected to exceed the firm pumping capacities of these lift stations).

In addition to lift station improvements, additional conveyance capacity will be required as well as repair and replacement of existing gravity and force main pipelines. A specific example is the replacement of the existing 6-inch force main located between Lift Stations 21 and 22 with a higher capacity force main (e.g., 12-inch).



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Figure 5. Copper Cove Collection System, Force Mains and Lift Stations

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Table 14. Copper Cove Lift Station Design and Operating Parameters

LS	Subdivision	Firm Capacity (gpm)	Wet Well Type	Wet Well Volume (gal)	Buildout Connections (ESFUs)	Service Area (acres)	PWWF (gpm, min)	Proximity to Lake Tulloch
1	Poker Flat Lodge	130	Fiberglass	2000	5	16.9	13	Yes
2	Poker flat Road	50	Fiberglass	2000	10	8.8	20	Yes
3	Mother Shipton	100	Fiberglass	2000	45	17.6	39	Yes
4	Sandy Bar Drive	100	Fiberglass	2000	96	27.3	72	Yes
5	Foothill Drive	130	Fiberglass	2000	30	7.0	9	
6	Sunrise Road	352	Concrete	3400	121	32.6	177	
7	Bret Harte Drive	100	Concrete	2000	23	9.8	10	
8	Jimmy Way	376	Concrete	3000	119	36.7	47	
9	Millie Court	77	Concrete	2000	14	3.6	4	
10	Poker Flat Road	146	Concrete	1800	28	8.4	10	
11	Eagle Point	244	Concrete	1800	7	1.8	2	
12	Lower Thompson Lane	430	Concrete	1500	61	20.9	35	Yes
13	Lakeview Road	430	Concrete	1800	17	5.1	41	Yes
14	Calypso Beach Drive	53	Fiberglass	570	129	62.9	63	Yes
15	Lakeshore Drive	450	Concrete	5500	114	50.3	51	Yes
16	Kiva Drive	500	Concrete	3800	109	46.0	68	Yes
17	Lacross Court	270	Fiberglass	2000	51	18.8	20	Yes
18	Kiva Drive/Tewa Court	500	Concrete	7200	203	80.7	205	
19	Moccasin Court	15	Concrete	350	12	5.1	5	
20	Little John Road	300	Concrete	1200	139	55.7	64	
21	Lower Cross Country	300	Fiberglass	6200	453	309.6	644	
22	Upper Cross Country	626	Fiberglass	2600	no sewer shed		634	
40	Connors Estates Drive	300	Concrete	30000	no sewer shed		350	Yes
41	Connors Estates Drive	282	Steel	1500	21	8.5	79	Yes
42	Connors Estates Drive	100	Fiberglass	1500	8	2.5	3	
43	Passeo Delago	92	Fiberglass	1750	88	44.2	44	Yes
44	Brandon Court	50	Fiberglass	1750	23	9.6	10	Yes
45	Shoreline Court	50	Fiberglass	1750	35	13.1	68	Yes
46	Town Square	Not applicable	Fiberglass	1000	27	86.3	65	
101	Saddle Creek Main	1200	Concrete	10000	335	516.2	718	
102	Saddle Creek Drive	100	Fiberglass	9000	132	168.4	138	
103	Oak Creek Drive	420	Fiberglass	8500	133	204.2	164	

Source: 2005 Facilities Plan (CCWD, 2005)

NIA = no information available

4.3: Wastewater Treatment Facility

The CCWWTF was originally constructed in the early 1970s and consisted of a flow diversion box, two aerated ponds (Pond 1 and Pond 2) followed by a partially-aerated pond (Pond 4). The facility went through several modifications after the original construction. Currently the CCWWTF has a permitted ADWF capacity of 0.23 MGD.

Summaries of existing unit treatment processes, criteria governing the unit's capacity and current loading conditions are presented in **Table 15**. A site plan and process flow schematic of the existing CCWWTF are shown in **Figure 6** and **Figure 7**, respectively.

4.3.1: Headworks

The headworks at the CCWWTF consists of a pumping station, ultrasonic flow meter, mechanical screen with integral washer/compactor and bypass Parshall flume. Screened wastewater flows are conveyed by the Influent Pump Station through the screen to the Diversion Box where the flow is split, then conveyed to Ponds 1 and 2. Both the headworks and secondary treatment ponds are equipped with standby power and can operate in the event of loss of power supply.

CCWWTF operators collect grit and screenings in a bag and, when the bag is full, empty the bag into a dumpster. Dumpsters are taken to the Calaveras County Rock Creek Landfill for subsequent disposal. CCWWTF screenings represent approximately 600 pounds per year.

4.3.2: Secondary Treatment

Ponds 1 and 2 received screened wastewater, operate in parallel and are equipped with 4, 15 horsepower (HP) mechanical aerators to provide complex mix and aerobic conditions to support biological treatment. Combined flows from Ponds 1 and 2 are conveyed by gravity to Pond 4. Pond 4 is equipped with a single 15 HP mixer/aerator. Pond 4 functions as a settling/polishing pond.

In 1990, a storage pond (Pond 6) and a 35-acre spray field were added. Pond 6 has a capacity of 210 acre-feet at the height of the spillway and is used for storage of secondary effluent prior to processing at the recycled water facility to meet disinfected tertiary standards. During the irrigation season, Pond 4 and 6 contents are blended and processed by the recycled water facility prior to conveyance to the SCGC.

4.3.3: Tertiary Treatment and Disinfection

In 2000, the District installed the recycled water facility to produce disinfected tertiary effluent for subsequent use at the SCGC in accordance with applicable regulatory requirements. The tertiary treatment plant originally consisted of a packaged Microfloc® Adsorption Clarifier and Mixed Media Tertiary Filtration System and chlorine disinfection. The District installed and switched to UV disinfection in 2008.

Filtered effluent is disinfected in an open channel Trojan UV3000 Plus system which has been in operation since September 2008. The UV system has five banks (four duty/one standby), each with 24 lamps per bank, 120 lamps total. The tertiary filtration and UV disinfection systems are single units (no standby units) and are NOT equipped with standby power.

The UV system was designed based on a hydraulic capacity between 0.5 and 1.0 MGD with the following criteria:

- Minimum Dose (with one bank out of service): < 100,000 $\mu\text{Ws}/\text{cm}^2$
- End of Lamp Adjust Factor: 82 %
- Fouling Factor: 0.95
- Disinfection Standard (7-day median): ≤ 2.2 coliform/100 mL
- Theoretical Dose (with one bank out of service): 108,680 $\mu\text{Ws}/\text{cm}^2$

The UV system was designed in accordance with NWRI/AWWARF guidelines and dose requirements as prescribed by the California Division of Drinking Water (DDW). A Checkpoint Bioassay Report was prepared by the District in 2012 at the request of the DDW. The report was prepared to determine best operating control practices and validate the treatment capacity of the system. Results shown in **Table 15** reflect the Checkpoint Bioassay Report results as opposed to the theoretical UV disinfection capacity previously described.

4.3.4: Storage and Disposal

The location of the CCWWTF and SCGC are shown in **Figure 8**. The District and SCGC owners intend to maximize the use of recycled water use for golf course irrigation and continue to provide water to the jurisdictional irrigation wetlands as required by a 404 permit. Historic SCGC irrigation demands are estimated to be between 445 and 630 acre-ft per year with an average of 515 acre-ft per year.

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Table 15. Unit Processes, Governing Criteria and Operating Conditions

Facility and/or Unit Process	Governing Criterion or Criteria	Units	Operating Conditions		Rated Capacity		Notes	
			Current	At Capacity	% Loaded	MGD		
Headworks								
	Influent chopper pumps. 3 pumps, two duty; one standby.	Pumping capacity with 1 standby unit, PWWF	Each 15 HP pump has rated capacity of 875 gpm.	652 gpm	1,750 gpm	37	2.5	Replace with larger capacity pumps to serve Buildout
	Mechanically cleaned screen w/integral washer-compactor	PWWF of 2.0 MGD	Raptor Fine Screen Model 31FS-0.250	652 gpm	1,388 gpm	47	2.0	Add second 2.0 MGD unit when PWWF exceeds 2.0 MGD.
	Bypass Parshall flume		12-inch throat	652 gpm	7,220 gpm	9	10.4	
Secondary Treatment Ponds								
	Pond 1 - aerated, complete mix; parallel to Pond 2	Maximum day Hydraulic Retention Time (HRT) of 9 days (minimum)	Volume of 6.8 acre-ft, surface area of 0.7 acres, 12 ft depth, 4-15 HP surface aerators	222 gpm	6.9 days	130	0.13	
	Pond 2 - aerated, complete mix; parallel to Pond 1	Maximum day HRT of 9 days (minimum)	Volume of 6.8 acre-ft, surface area of 0.7 acres, 12 ft depth, 4-15 HP surface aerators	222 gpm	6.9 days	130	0.13	
	Pond 4 - partially aerated/partially mixed facultative	Maximum day HRT of 6 days (minimum)	Volume of 9.3 acre-ft, surface area of 1.0 acres, 12 ft depth, 1-15 HP surface aerators	444 gpm	4.7 days	190	0.09	
Recycled Water Facility								
	Adsorption Clarifier and Mixed Media Filter	Maximum Hydraulic Loading Rate (5 gpm/sf) with one unit out of service (assumed to be equivalent to Maximum Day Conditions)	Trident 700; 140 ft ² media area	659 gpm	350 gpm	188	0.5	Maximum throughput is reported to be limited to about 0.5 MGD under some circumstances
	UV Disinfection	Capacity with 1 module in standby and 55% UVT. Per Checkpoint Bioassay Results (May 2012)	4 Trojan UV3000 Plus banks - 4 modules per bank, 6 lamps per module	111 gpm	375 gpm	30	0.5	Reflects capacity described in <i>Checkpoint Bioassay Results for the Trojan UV3000PLUSTM Systems at the La Contenta and Copper Cove WRPS</i> (May 2012)
		Capacity with all but 1 bank in standby mode and 65% UVT. Per Checkpoint Bioassay Results (May 2012)	4 Trojan UV3000 Plus banks - 4 modules per bank, 6 lamps per module	729 gpm	924 gpm	79	1.3	
Storage - Pond 6		Adequate storage to accommodate 100-yr levels of annual precipitation. ADWF equal to 0.23 MGD	210 acre-ft storage capacity (at spillway)	335 acre-ft	210 acre-ft	160	0.14	Based on water balance submitted to RWQCB in July 2017. Assumes no surface water discharge
Effluent Disposal (Saddle Creek Golf Course)		Effluent disposal at agronomic rates	503.2 acre-ft per year at average levels of precipitation and 454.8 AFY at 100-yr conditions	374 AFY	455 AFY	82	0.19	Based on water balance submitted to RWQCB in July 2017. Pond 6 evaporation subtracted from estimated recycled water production. Assumes no surface water discharge.

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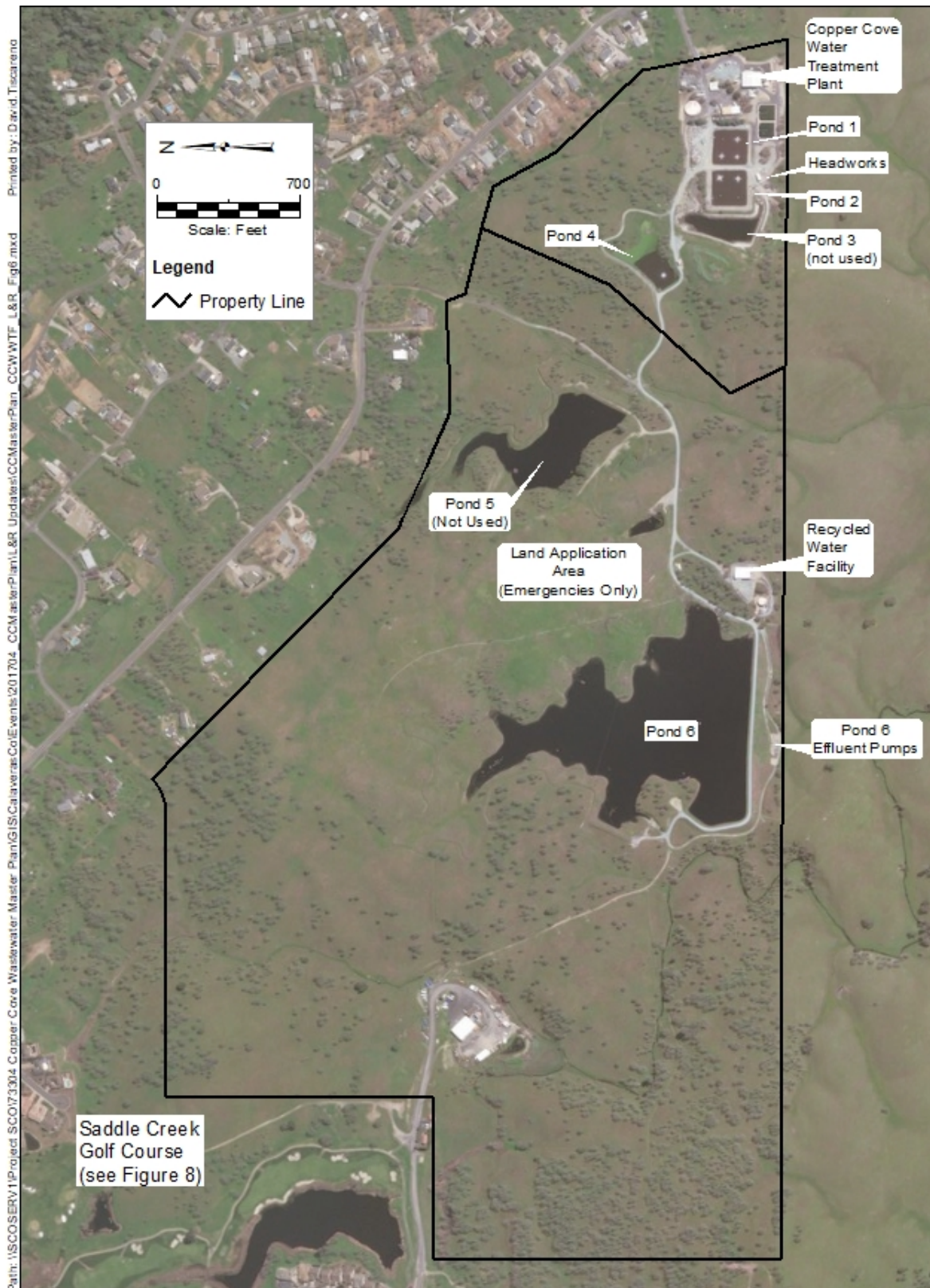


Figure 6. Copper Cove Wastewater Treatment Facility Site Plan

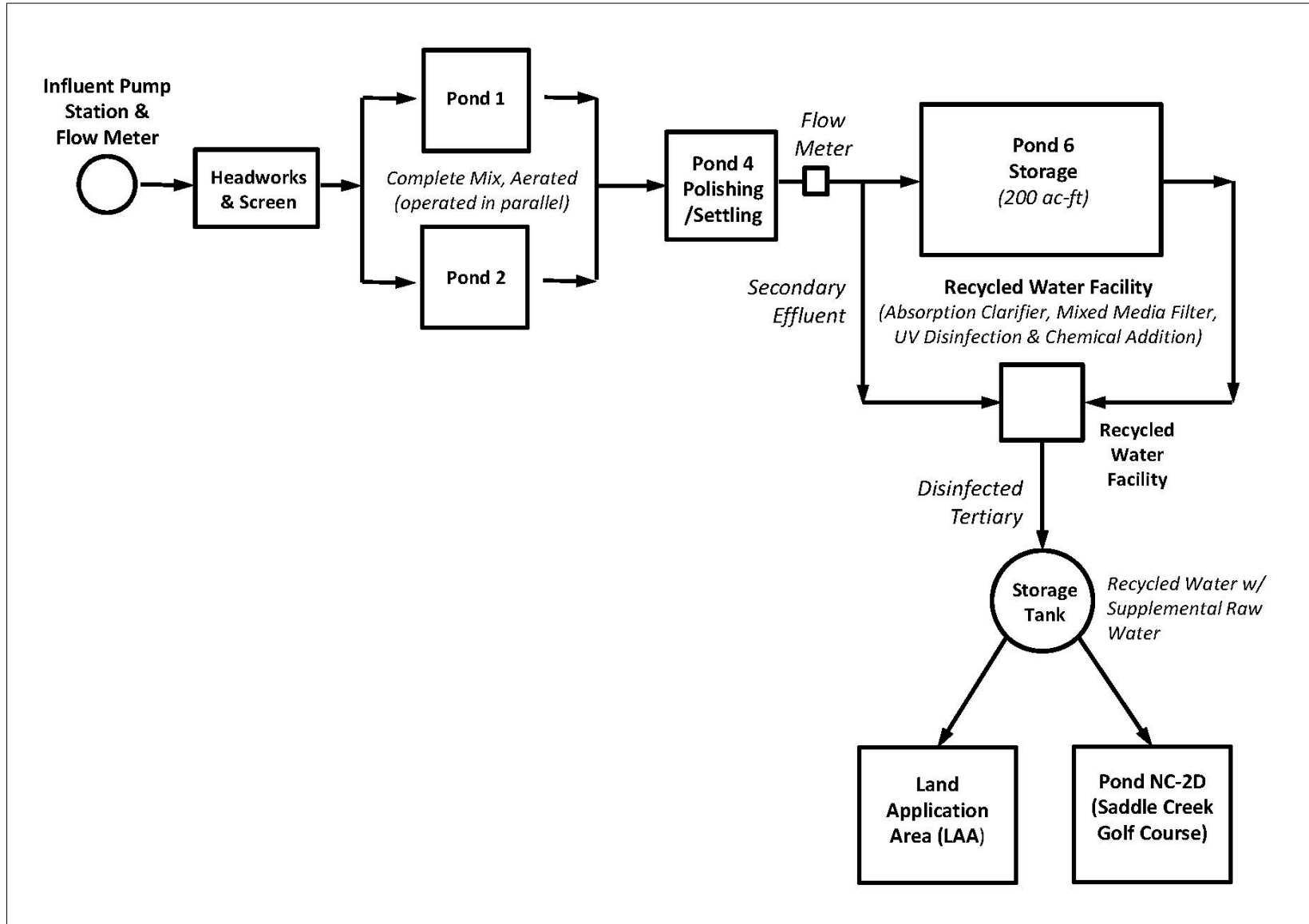


Figure 7. Process Flow Schematic

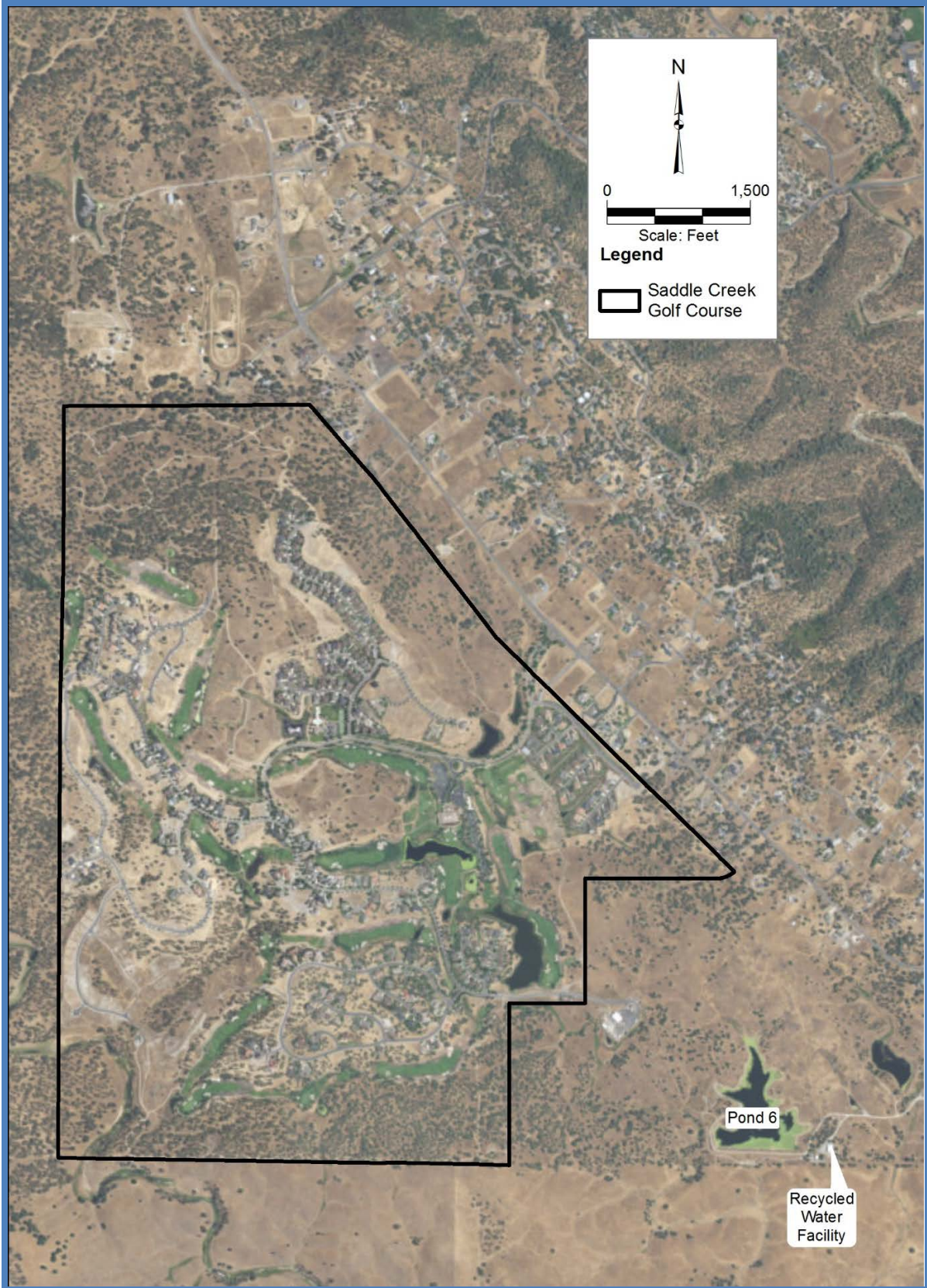


Figure 8. Saddle Creek Golf Course Property

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Section 5: Evaluation of Alternatives

This section describes the development, evaluation and comparison of alternatives to accommodate planned growth and address deficiencies.

5.1: Collection and Conveyance System Evaluation

An evaluation of the existing lift stations was conducted. Results presented in **Table 14** indicate the need to expand the capacity of at least 3 of the existing lift stations (Lift Stations 14, 21 and 40) and one force main to accommodate projected growth. In addition, it is anticipated that other lift station and pipeline improvements will be required to improve operator safety and reliability attributed to aging infrastructure. It is recommended that funding for future collection and conveyance system improvements be added to the capital improvement program for improvements. For budgeting purposes, an allocation of \$3,500,000 has been shown.

In addition to existing lift station and pipeline improvements, expansion of the existing collection and conveyance system will be required to serve potential future developments as described below.

5.1.1: Tuscany Hills/Red Mountain

Review of local topography, location of this proposed future development relative to the CCWWTF and existing collection and conveyance system led to the recommendation that the Tuscan Hills/Red Mountain development be served by a new lift station or series of new lift stations. The number and locations of the lift stations serving Tuscan Hills/Red Mountain will likely be influenced by development phasing. It is anticipated that wastewater from this potential future development would be routed directly to the CCWWTF and therefore would have no impact on the existing conveyance and collection system.

5.1.2: Copperopolis Town Square and Sawmill Estates

Due to the low flow rates, wastewater from Copperopolis Town Square is currently conveyed to Lift Station 46, collected and hauled to the CCWWTF via tanker truck in accordance with CCWD Resolution No. 2008-22. The force main connecting Lift Station 46 to the wastewater treatment facility shown in **Figure 5** has not been installed. It has been assumed that a force main would be installed by the developer with expansion of Copperopolis Town Square and/or development of Sawmill Estates in accordance with CCWD Resolution No. 2008-28 (see **Appendix** for further details). This force main would be used to convey wastewater from Lift Station 46 to the CCWWTF.

Alternatively, the length of the force main could be reduced by routing wastewater to Lift Stations 21 or 22 to reduce capital costs. However, this approach may require the capacity of Lift Station 21 to be increased or the force main located between Lift Stations 21 and 22 to be replaced with larger diameter pipe before this connection is made. In addition, depending on future development timing and the selected force main alignment, solids deposition within the force main may be problematic due to low flows/velocities. A settling/Imhoff tank could be installed upstream of Lift Station 46 to reduce the potential for solids deposition and subsequent odors within the force main. However, this approach would require accumulated solids to be periodically pumped out of the settling/Imhoff tank and trucked to the CCWWTF for subsequent treatment and disposal.

5.2: Wastewater Treatment and Recycled Water Facilities

An evaluation of the existing wastewater treatment and recycled water facilities was conducted. Results presented in **Table 15** indicate the need to expand the capacity of the existing headworks, secondary treatment pond system, adsorption clarifier/mixed media filter and storage to service

existing connections and projected growth. Additional disposal capacity is also required to accommodate ADWFs above 0.20 MGD.

5.2.1: Headworks

The headworks consist of a pumping station, mechanical screen and bypass flume. Both the pumping station and screen will require improvement to accommodate future flows as described below.

5.2.1.1: Influent Pumps

Replace the three (3) existing pumps with larger capacity units (e.g., 1,040 gpm) when PWWFs exceed 2.5 MGD to accommodate projected flows at Buildout.

5.2.1.2: Influent Screening

The existing mechanical screen is less than 10 years old and was placed into service around 2009 as part of the Phase 1 Expansion Project. The anticipated useful life expectancy of mechanical equipment similar to the screen is typically 20 to 30 years of service depending on several factors such as the application, frequency and duration of operation, degree of maintenance and history and installation / construction methods.

Replacement of the screen is recommended when the existing units approaches or exceeds its useful life expectancy which is anticipated to occur well into the future (around 2030 to 2040 timeline). Furthermore, it is recommended that a second screen be installed when PWWFs exceed the existing screen capacity of 2.0 MGD.⁵ It is recommended that the type of screen be reviewed in the future given that screening technology will continue to evolve over time.

5.2.2: Secondary Treatment Process Alternatives

Review of the existing secondary treatment system, historic performance, tentative permit requirements and discussion with CCWD staff indicates the need for improvement and consideration of alternative secondary treatment technologies. Technologies suitable for this application include pond (status quo) and activated sludge treatment processes as those described in **Table 16**.

During review and discussion of the potential alternatives, CCWD staff indicated their initial preference for an oxidation ditch based on its relatively low cost, ease of operation and process stability. Based on this selection, oxidation ditch will serve as the basis for the recommended improvements.

⁵ Projected PWWFs estimated to exceed 2 MGD in about 75 years based on maximum historic growth rates of 1% per year.

Table 16. Secondary Treatment Alternatives and Relative Advantages and Disadvantages

Secondary Treatment Process Alternatives	Advantage	Disadvantage
Pond System (Status Quo)	Lowest capital costs	Land intensive; less robust/lower degree of reliability; solids deposition/resuspension; washout during high flows; high filter and disinfection costs
Pond System with Internal Recycle	Low capital, operation and maintenance costs	Land intensive; less robust/lower degree of reliability; solids deposition/resuspension; high filter and disinfection costs
Oxidation Ditch (Activated Sludge)	Inexpensive, robust process; high degree of reliability/stability, proven; low filter and disinfection costs	Tends to be sized for buildout
Biolac® Extended Aeration (Activated Sludge)	Lowest installation costs (w/integral clarifier) and earthwork requirements for activated sludge type processes	Reduced performance, tends to be sized for buildout, limited monitoring & process control capabilities, solids deposition & resuspension; washout during high flows; higher filter and disinfection costs
Sequencing Batch Reactor (Activated Sludge)	Customized for specific treatment needs, lower capital costs	Batch process, multiple units needed to maintain continuous operation; higher filter and disinfection costs
Membrane Bioreactor (Activated Sludge)	Minimal land requirements; customized for specific treatment needs; effluent quality independent of settleability	Highest capital, operation and maintenance costs; highest degree of complexity

5.2.3: Filtration and Disinfection

Treatment via oxidation ditch can produce high-quality secondary effluent with turbidities typically in the range of 2 to 5 NTU. Based on this effluent quality, cloth media disk filters (CMDf) followed by UV disinfection are the recommended filtration and disinfection processes.

5.3: Storage and Disposal

Approximately 500 acre-ft of storage and 910 acre-ft/yr of disposal capacity are required to accommodate buildout projections. Existing facilities currently provide about half of this capacity.

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Section 6: Recommended Improvements

This section describes the recommended collection and conveyance system, CCWWTF, storage and disposal improvements and estimated costs.

6.1: Collection and Conveyance System

Evaluation results indicate the need to expand the capacity of at least 3 lift stations and one force main to accommodate projected growth. Although, this need is not expected to be required for several years, some of the existing collection and conveyance system assets are 40 to 50 years old, approaching the end of their useful lives and will require rehabilitation and/or replacement within the next 10 years. Given this likely potential need, an allocation of \$3,500,000 has been included in improvements recommended for Phase 1.

6.2: Wastewater Treatment Facility

Recommended improvements for the CCWWTF include headworks improvements and replacement of the existing secondary treatment process as described below:

6.2.1: Headworks

In the future, PWWFs conveyed to the CCWWTF are anticipated to be on the order of 3 MGD, which will require the capacities of the existing influent pumps and screen and washer/compactor to be expanded. Recommended improvements are described below:

- Add second screen with washer/compactor and parallel train when PWWFs exceed 2.0 MGD. (listed as Phase 1 Improvement in **Table 17**).
- Replace the three (3) existing influent chopper pumps with larger capacity units (e.g., 1,040 gpm) when PWWFs exceed 2.5 MGD. (listed as Phase 1 Improvement in **Table 17**).

6.2.2: Secondary Treatment

Estimated costs for a new extended aeration activated sludge process were developed based on projected influent flows and loads and the following design criteria and features. The process includes an oxidation ditch, secondary clarifier, RAS/WAS Pumping Station and solids dewatering via belt filter press dewatering. (listed as Near-Term Improvement in **Table 17**).

- Oxidation Ditch:
 - Number of Units: 1
 - Hydraulic Retention Time (hours): 24 (maximum month condition)
 - Pre-Anoxic Zone (%): 25
- Secondary Clarifier:
 - Number of Units: 1
 - Surface Overflow Rate (gpd/sf): 800 (maximum)
 - RAS/ADWF Influent Flow (%): ≤ 150

- Solids Dewatering Facility:
 - Type: Belt Filter Press
 - Number of Units: 1
 - Size: 2 meter
 - Appurtenances: Concrete slab on grade with metal awning and area to stockpile solids

6.3: Recycled Water Facility

Costs for a new recycled water facility were developed based on a firm production rate of 2.0 MGD. It has been assumed that secondary effluent flows in excess of 2.0 MGD would be diverted to an equalization basin for storage and subsequent treatment and disposal after influent flows have decreased below 2.0 MGD. The recycled water facility process is assumed to include two cloth media disk filters (one duty; one standby) and UV disinfection (with one standby bank). (listed as Near-Term Improvement in **Table 17**).

6.4: Seasonal Storage and Treated Effluent Disposal / Beneficial Reuse

Storage improvement costs are based on expansion of Pond 6 to provide 500 acre-ft of storage capacity. Funds or costs for increased treated effluent disposal/beneficial reuse have not been provided for in **Table 17**.

6.5: Summary of Recommended Improvements and Estimated Costs

Table 17 presents a summary of the recommended improvements and estimated costs. Estimated costs are based on the following:

- Equipment manufacturer quotations and cost estimates and bids for comparable projects
- Major equipment, concrete, site piping, electrical, instrumentation, contractor overhead and profit, etc. associated with each recommended improvement
- 30% budgeting contingency has been provided to account for items not specifically listed above
- 2% for contractor mobilization/demobilization
- 1% for contractor bonds and insurance
- Design, legal, administration and construction management as described in **Table 17**

Table 17. Recommended Improvements and Estimated Costs¹

CCWWS Component	Estimated Improvement Cost	Expansion	Repair and Replacement
NEAR-TERM IMPROVEMENTS			
Secondary Treatment (Oxidation Ditch, Clarifier, RAS/WAS Pumping Station)	\$5,790,000	\$2,970,000	\$2,820,000
Tertiary Filter	\$1,190,000	\$610,000	\$580,000
UV Disinfection	\$1,490,000	\$760,000	\$730,000
Solids Dewatering Facility	\$1,180,000	\$600,000	\$580,000
Site Piping	\$970,000	\$500,000	\$470,000
Construction Subtotal	\$10,620,000	\$5,440,000	\$5,180,000
Design Engineering (10%)	\$1,062,000	\$544,000	\$518,000
Legal/Administration (5%)	\$531,000	\$272,000	\$259,000
Construction Management (10%)	\$1,062,000	\$544,000	\$518,000
Total	\$13,280,000	\$6,800,000	\$6,475,000
PHASE 1 IMPROVEMENTS			
Town Square/Sawmill Estates Conveyance and Collection System Improvements	Developer provided ²		
Tuscany Hills/Red Mountain Conveyance and Collection System	Developer provided		
Lift Stations (Existing; Allocation)	\$2,500,000	\$1,280,000	\$1,220,000
Force Main (Existing Allocation)	\$1,000,000	\$510,000	\$490,000
Influent Pumps (CCWWTF Headworks)	\$110,000	\$110,000	\$0
Screen (CCWWTF Headworks)	\$390,000	\$390,000	\$0
Construction Subtotal	\$4,000,000	\$2,290,000	\$1,710,000
Design Engineering (10%)	\$400,000	\$229,000	\$171,000
Legal/Administration (5%)	\$200,000	\$114,000	\$86,000
Construction Management (10%)	\$400,000	\$229,000	\$171,000
Total	\$5,000,000	\$2,860,000	\$2,140,000
BUILDOUT IMPROVEMENTS			
Seasonal Storage	\$6,000,000	\$6,000,000	\$0
Construction Subtotal	\$6,000,000	\$6,000,000	\$0
Design Engineering (10%)	\$600,000	\$600,000	\$0
Legal/Administration (5%)	\$300,000	\$300,000	\$0
Construction Management (10%)	\$600,000	\$600,000	\$0
Total	\$7,500,000	\$7,500,000	\$0
Grand Total (All Phases)	\$25,780,000	\$17,170,000	\$8,610,000

¹ Estimated costs reflect 2017 Engineering News Record (ENR) 20-City Average Construction Cost Index of 10737.² See **Appendix**; CCWD Resolution No. 2008-28 for further details.

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APPENDIX

Order No. R5-2018-0021
Order No. R5-2018-0040
CCWD Resolution No. 2008-0028

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CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER R5-2018-0021

AMENDING WASTE DISCHARGE REQUIREMENTS ORDER R5-2010-0070
FOR
CALAVERAS COUNTY WATER DISTRICT
COPPER COVE WASTEWATER TREATMENT PLANT
CALAVERAS COUNTY

The California Regional Water Quality Control Board, Central Valley Region (hereafter Central Valley Water Board), finds:

Waste Discharge Requirements Order R5-2010-0070

1. On 27 May 2010, the Central Valley Water Board adopted Waste Discharge Requirements (WDRs) Order R5-2010-0070, prescribing requirements for Copper Cove Wastewater Treatment Plant (WWTP) in Calaveras County. The Calaveras County Water District (CCWD, the “Discharger”) owns and operates the WWTP.
2. The WWTP includes collection, secondary and tertiary wastewater treatment and storage facilities, and on-site 35 acres of land application area (LAA). The WDRs Order prescribes requirements for the collection, secondary treatment and storage facilities, and the LAA. The LAA serves as a backup means of effluent disposal. The requirements for tertiary wastewater treatment and recycled water irrigation reuse at Saddle Creek Golf Course (SCGC) are specified in the existing National Pollutant Discharge Elimination System (NPDES) Order for Calaveras County Water District & Saddle Creek Golf Course L.P., Copper Cove Wastewater Reclamation Facility, NPDES Order R5-2006-0081, and amended Order R5-2016-0065 or subsequent Order.
3. The secondary treatment system consists of a headworks, a flow diverter, aerated unlined treatment Ponds 1 and 2 operated in parallel, and an additional aerated Pond 4. Pond 6 is an unlined effluent storage pond. Pond 3 is currently out of service and Pond 5 is a storage pond only used for emergencies. The tertiary treatment system includes microfloc, coagulation-flocculation, two stage filtration and ultraviolet (UV) light disinfection.
4. Section B, Discharge Specifications B.15 of WDRs Order R5-2010-0070 contains requirements for the use of Pond 5.
5. Section C, Land Application Area Specifications C.1 of WDRs Order R5-2010-0070 contains setback requirements for the application of secondary disinfected wastewater.
6. Effluent Limitations E.1 and E.2 of WDRs Order R5-2010-0070 contain effluent limits for the effluent prior to discharge to the effluent storage Pond 6.
7. Effluent Limitations E.1 of WDRs Order R5-2010-0070 contains effluent limits for secondary chlorine disinfected wastewater.

8. Groundwater Limitations F.1.a of WDRs Order R5-2010-0070 contains groundwater limits for chlorine disinfection by-products bromoform, bromodichloromethane, chloroform and dichlorobromomethane that were required due to the past use of chlorine for disinfection.

Proposed Amendment

9. On 2 August 2017, the Discharger submitted a letter requesting WDRs amendment to include recent operational changes discussed in the following Findings.
10. The Discharger no longer operates Pond 5 for the storage of treated wastewater and has requested the removal of Pond 5 from the WDRs. The volume of local drainage to the pond due to precipitation often equals or exceeds total pond storage capacity. Therefore, this Order authorizes discontinued use of Pond 5. This Order amends WDRs Order R5-2010-0070 to remove Discharge Specifications B.15 for the use of Pond 5.
11. The Discharger previously discharged secondary chlorine disinfected wastewater into Pond 6 and then to the LAA or to the tertiary treatment system as described in existing WDRs R5-2010-0070. Since 2009, wastewater has been treated and disinfected with a combination of filtration and ultra violet (UV) disinfection through a tertiary treatment facility. As of April 2013, the Discharger has discontinued the use of chlorine in order to reduce disinfection by-products. Currently, all flows from either Pond 4 or Pond 6 are diverted to the tertiary treatment facility using UV disinfection prior to discharge to the SCGC or LAA. Only tertiary disinfected wastewater is applied to the onsite LAA when the recycled water flow rates exceed the Golf Course's irrigation demand.
12. This Order amends setback requirements in Section C.1. Land Application Area Specifications of WDRs Order R5-2010-0070. Although the LAA serves as a backup means of effluent disposal, the LAA is required to be maintained in operational condition and this requirement is added to Section C as C.8.
13. Because the use of chlorine for disinfection has been discontinued, the discharge no longer demonstrates reasonable potential to cause or contribute to an exceedance of the applicable water quality objectives for chloride and disinfection byproducts. This Order amends WDRs Order R5-2010-0070 to remove the effluent limits for chloride and the groundwater monitoring requirements for disinfection byproducts. In addition, this Order amends effluent and groundwater limits for other constituents, such as total coliform bacteria, based on evaluation of improved effluent quality.
14. This Order authorizes storage of undisinfected secondary treated wastewater in Pond 6. In addition, this Order changes the effluent sampling location at the UV channel outlet instead of a location prior to the discharge to Pond 6 as described in WDRs Order R5-2010-0070. An updated wastewater treatment process schematic is shown on Attachment, which is attached hereto and made part of this Order by reference.

California Environment Quality Act

15. The action of prescribing these WDRs, which impose regulatory requirements on the existing discharge in order to ensure the protection of groundwater resources, is exempt from the provisions of the California Environmental Quality Act (Pub. Resources Code, § 21000 et seq.) in accordance with California Code of Regulations, title 14, section 15301, which exempts the “operation, repair, maintenance, [and] permitting ... of existing public or private structures, facilities, mechanical equipment, or topographical features” from environmental review.

Public Notice

16. The Central Valley Water Board has notified the Discharger and interested agencies and persons of its intent to amend waste discharge requirements for this discharge and has provided them with an opportunity for a public hearing and an opportunity to submit their written views and recommendations.
17. The Central Valley Water Board, in a public meeting, heard, and considered all comments pertaining to the discharge.

IT IS HEREBY ORDERED that Order R5-2010-0070 is amended solely to accommodate recent operational changes discussed in the Findings. Pursuant to Water Code sections 13263 and 13267, the Discharger, its agents, successors and assigns, in order to meet the provisions contained in Division 7 of the Water Code and regulations adopted thereunder, shall comply with amended Order R5-2010-0070 as follows:

18. Section B, Discharge Specifications B.15 of WDRs Order R5-2010-0070 shall be deleted:

Pond 5 may be used to store wastewater under emergency conditions only. If used, all seepage shall be collected at the base of the dam and returned to Pond 5.

19. Section C, Land Application Area Specifications C.1 of WDRs Order R5-2010-0070 shall be amended as follows:

Application of effluent shall comply with the following setback requirements:

Setback Definition ¹	Minimum Irrigation Setback (feet)
Edge of LAA to domestic well ²	50
Toe of recycled water impoundment berm to domestic water supply well	100

1. As defined by the wetted area produced during irrigation.
2. Unless all of the following condition have been met:
 - a. A geological investigation demonstrates that an aquitard exists at the well between the uppermost aquifer being drawn from the ground and the surface.
 - b. The well contains an annular seal that extends from the surface into the aquitard.
 - c. The well is housed to prevent any recycled water spray from coming into contact with the wellhead facilities.
 - d. The ground surface immediately around the wellhead is contoured to allow surface water to drain away from the well.
 - e. The owner of the well approves of the elimination of the buffer zone requirement.

20. Section C.8 should be added to Section C, Land Application Area Specifications of WDRs Order R5-2010-0070 as follows:

Section C.8: The LAA shall be in operating condition.

21. Section E, Effluent Limitations E.1 of WDRs Order R5-2010-0070 shall be amended as follows:

Effluent prior to discharge to the LAA shall not exceed the following limits:

<u>Constituent</u>	<u>Units</u>	<u>Monthly Average</u>	<u>Daily Maximum</u>
BOD ₅ ¹	mg/L	30	80
Nitrate as Nitrogen	mg/L	10	--
<u>Total Dissolved Solids</u>	mg/L	450	600

¹ 5-day biochemical oxygen demand at 20° C.

22. Section E, Effluent Limitations E.2 of WDRs Order R5-2010-0070 shall be amended as follows:

Prior to discharge to the LAA, effluent shall not exceed the following limits for total coliform organisms:

- a. The median concentration of total coliform bacteria measured in the disinfected effluent shall not exceed a most probable number (MPN) of 2.2 per 100 milliliters utilizing the bacteriological results of the last seven days for which analyses have been completed.
- b. The number of total coliform bacteria shall not exceed an MPN of 23 per 100 milliliters in more than one sample in any 30-day period.
- c. No sample shall exceed an MPN of 240 total coliform bacteria per 100 milliliters.

23. Section F, Groundwater Limitations F.1.a. of WDRs Order R5-2010-0070 shall be amended as follows:

Release of waste constituents from any portion of the WWTP and LAA shall not cause groundwater to:

- a. Contain constituent concentrations in excess of the concentrations specified below or natural background quality, whichever is greater:

<u>Constituent</u>	<u>Units</u>	<u>Limitation</u>
Total Dissolved Solids	mg/L	450
Nitrate as Nitrogen	mg/L	10
Total Coliform Organisms	MPN/100 mL	<2.2

24. This order modifies Attachment C of WDRs Order R5-2010-0070 as shown in the Attachment.

Any person aggrieved by this action of the Central Valley Water Board may petition the State Water Board to review the action in accordance with Water Code section 13320 and California Code of Regulations, title 23, sections 2050 and following. The State Water Board must receive the petition by 5:00 p.m., 30 days after the date of this Order, except that if the thirtieth day following the date of this Order falls on a Saturday, Sunday, or state holiday, the petition must be received by the State Water Board by 5:00 p.m. on the next business day. Copies of the law and regulations applicable to filing petitions may be found on the Internet at:

http://www.waterboards.ca.gov/public_notices/petitions/water_quality

or will be provided upon request.

I, PAMELA C. CREEDON, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on 6 April 2018.

Original signed by

PAMELA C. CREEDON, Executive Officer

LFU: 4/16/18

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION**

11020 Sun Center Drive, #200 Rancho Cordova, California 95670-6114
Phone (916) 464-3291 • Fax (916) 464-4645
<http://www.waterboards.ca.gov/centralvalley>

**ORDER R5-2018-0040
NPDES NO. CA0084620**

**WASTE DISCHARGE REQUIREMENTS FOR
CALAVERAS COUNTY WATER DISTRICT
SADDLE CREEK GOLF COURSE, L.P.
COPPER COVE WASTEWATER RECLAMATION FACILITY
CALAVERAS COUNTY**

The following Discharger is subject to waste discharge requirements (WDR's) set forth in this Order:

Table 1. Discharger Information

Discharger	Calaveras County Water District and Saddle Creek Golf Course, L.P.
Name of Facility	Copper Cove Wastewater Reclamation Facility
Facility Address	5130 Kiva Place
	Copper Cove, CA 95228
	Calaveras County

Table 2. Discharge Location

Discharge Point	Effluent Description	Discharge Point Latitude (North)	Discharge Point Longitude (West)	Receiving Water
001	Tertiary Municipal Wastewater	Multiple Discharge Locations (Refer to Attachment B)		Saddle Creek Golf Course Jurisdictional Wetlands

Table 3. Administrative Information

This Order was adopted on:	31 May 2018
This Order shall become effective on:	1 July 2018
This Order shall expire on:	30 June 2023
The Discharger shall file a Report of Waste Discharge as an application for reissuance of WDR's in accordance with title 23, California Code of Regulations, and an application for reissuance of a National Pollutant Discharge Elimination System (NPDES) permit no later than:	30 June 2022
The U.S. Environmental Protection Agency (U.S. EPA) and the California Regional Water Quality Control Board, Central Valley Region have classified this discharge as follows:	Minor

I, Patrick Pulupa, Executive Officer, do hereby certify that this Order with all attachments is a full, true, and correct copy of the Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on **31 May 2018**.

ORIGINAL SIGNED BY
PATRICK PULUPA, Executive Officer

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I. FACILITY INFORMATION

Information describing the Copper Cove Wastewater Reclamation Facility (Facility) is summarized in Table 1 and in sections I and II of the Fact Sheet (Attachment F). Section I of the Fact Sheet also includes information regarding the Facility's permit application.

II. FINDINGS

The California Regional Water Quality Control Board, Central Valley Region (hereinafter Central Valley Water Board), finds:

- A. Legal Authorities.** This Order serves as waste discharge requirements (WDR's) pursuant to article 4, chapter 4, division 7 of the California Water Code (commencing with section 13260). This Order is also issued pursuant to section 402 of the federal Clean Water Act (CWA) and implementing regulations adopted by the U.S. EPA and chapter 5.5, division 7 of the Water Code (commencing with section 13370). It shall serve as a National Pollutant Discharge Elimination System (NPDES) permit authorizing the Discharger to discharge into waters of the United States at the discharge location described in Table 2 subject to the WDR's in this Order.
- B. Background and Rationale for Requirements.** The Central Valley Water Board developed the requirements in this Order based on information submitted as part of the application, through monitoring and reporting programs, and other available information. The Fact Sheet (Attachment F), which contains background information and rationale for the requirements in this Order, is hereby incorporated into and constitutes Findings for this Order. Attachments A through E and G through H are also incorporated into this Order.
- C. California Environmental Quality Act (CEQA).** Under Water Code section 13389, this action to adopt an NPDES permit is exempt from the provisions of Chapter 3 of CEQA, (commencing with section 21100) of Division 13 of the Public Resources Code. Additionally, the adoption of the Title 22 water reclamation requirements for the Facility for reuse on the SCGC constitutes permitting of an existing facility that is categorically exempt from the provisions of CEQA pursuant to California Code of Regulations, title 14, section 15301.
- D. Provisions and Requirements Implementing State Law.** The provisions/requirements in subsections IV.B, IV.C, and V.B are included to implement state law only. These provisions/requirements are not required or authorized under the federal CWA; consequently, violations of these provisions/requirements are not subject to the enforcement remedies that are available for NPDES violations.
- E. Monitoring and Reporting.** 40 C.F.R. section 122.48 requires that all NPDES permits specify requirements for recording and reporting monitoring results. Water Code sections 13267 and 13383 authorize the Central Valley Water Board to require technical and monitoring reports. The Monitoring and Reporting Program establishes monitoring and reporting requirements to implement federal and State requirements. The Monitoring and Reporting Program is provided in Attachment E.

The technical and monitoring reports in this Order are required in accordance with Water Code section 13267, which states the following in subsection (b)(1), *"In conducting an investigation specified in subdivision (a), the regional board may require that any person who has discharged, discharges, or is suspected of having discharged discharging, or who proposes to discharge waste within its region, or any citizen or domiciliary, or political agency or entity of this state who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge, waste outside of its region could affect the quality of waters within its region shall furnish, under penalty of perjury, technical or monitoring program reports which the regional board requires. The burden, including costs, of these*

reports shall bear a reasonable relationship to the need for the report and the benefits to be obtained from the reports. In requiring those reports, the regional board shall provide the person with a written explanation with regard to the need for the reports, and shall identify the evidence that supports requiring that person to provide the reports.”

The Discharger owns and operates the Facility subject to this Order. The monitoring reports required by this Order are necessary to determine compliance with this Order. The need for the monitoring reports is discussed in the Fact Sheet.

- F. Notification of Interested Persons.** The Central Valley Water Board has notified the Discharger and interested agencies and persons of its intent to prescribe WDR’s for the discharge and has provided them with an opportunity to submit their written comments and recommendations. Details of the notification are provided in the Fact Sheet.
- G. Consideration of Public Comment.** The Central Valley Water Board, in a public meeting, heard and considered all comments pertaining to the discharge. Details of the Public Hearing are provided in the Fact Sheet.

THEREFORE, IT IS HEREBY ORDERED that Order R5-2013-0072-01 is rescinded upon the effective date of this Order except for enforcement purposes, and, in order to meet the provisions contained in division 7 of the Water Code (commencing with section 13000) and regulations adopted thereunder, and the provisions of the CWA and regulations and guidelines adopted thereunder, the Discharger shall comply with the requirements in this Order. This action in no way prevents the Central Valley Water Board from taking enforcement action for past violations of the previous Order.

III. DISCHARGE PROHIBITIONS

- A.** Discharge of wastewater from the Facility, as the Facility is specifically described in the Fact Sheet in section II.B, in a manner different from that described in this Order is prohibited.
- B.** The by-pass or overflow of wastes to surface waters is prohibited, except as allowed by Federal Standard Provisions I.G. and I.H. (Attachment D).
- C.** Neither the discharge nor its treatment shall create a nuisance as defined in section 13050 of the Water Code.

IV. EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

A. Effluent Limitations – Discharge Point No. 001

1. Final Effluent Limitations – Discharge Point No. 001

The Discharger shall maintain compliance with the following effluent limitations at Discharge Point No. 001. Unless otherwise specified, compliance shall be measured at Monitoring Location REC-002 as described in the Monitoring and Reporting Program, Attachment E:

- a. The Discharger shall maintain compliance with the effluent limitations specified in Table 4:

Table 4. Effluent Limitations

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Conventional Pollutants						
Biochemical Oxygen Demand (5-day @ 20°C) ¹	mg/L	30	45	--	--	--
Total Suspended Solids ¹	mg/L	30	45	--	--	--
pH ¹	standard units	--	--	--	6.5	8.5
Non-Conventional Pollutants						
Ammonia Nitrogen, Total (as N)	mg/L	0.5	1.4	--	--	--
Nitrate Plus Nitrite (as N)	mg/L	10	17	--	--	--

¹ Compliance to be measured at Monitoring Location REC-001

- b. **Percent Removal:** The average monthly percent removal of 5-day biochemical oxygen demand (BOD₅) and total suspended solids (TSS) shall not be less than 85 percent.
- c. **Acute Whole Effluent Toxicity.** Survival of aquatic organisms in 96-hour bioassays of undiluted waste shall be no less than:
 - i. 70%, minimum for any one bioassay; and
 - ii. 90%, median for any three consecutive bioassays.

2. Interim Effluent Limitations – Not Applicable

B. Land Discharge Specifications – Set forth in WDR Order R5-2010-0070

C. Recycling Specifications

1. Recycling Prohibitions

- a. The use of recycled water in a manner different than described in this Order is prohibited.
- b. The use of recycled water, pursuant to this Order, for individually owned residences is prohibited.
- c. In conformance with Title 22 Requirements, recycled water shall not be used for direct human consumption or for the processing of food or drink intended for human consumption.
- d. The use of recycled water on water-saturated or frozen ground or during periods of precipitation such that runoff is induced, is prohibited.

- e. The application of recycled water within 50 feet of a domestic well, and impoundment of recycled water within 100 feet of a domestic well, unless approved by the State Water Resources Control Board, Division of Drinking Water (DDW), is prohibited.
- f. Use or installation of hose bibs in areas accessible by the public on any irrigation system presently operating or designed to operate with recycled water, regardless of construction or identification, is prohibited.
- g. Use of any equipment or facilities that have been used to convey recycled water (e.g., tanks, temporary piping or valves, and portable pumps) also used for potable water supply conveyance, is prohibited.
- h. The discharge or use of recycled water in a manner that causes or contributes to an exceedance of an applicable water quality objective is prohibited.
- i. The use of recycled water for landscape irrigation shall not cause or threaten to cause pollution or nuisance as defined in Water Code section 13050.

2. Recycling Specifications

- a. Recycled water shall be managed in conformance with the applicable regulations contained in the Title 22 Requirements.
- b. All recycled water provided to Users pursuant to this Order, shall be treated in and managed in conformance with all applicable provisions of the State Water Board's Recycled Water Policy¹.
- c. The recycled water shall meet the standards for disinfected tertiary recycled water as described in CCR Title 22, sections 60301.230 and 60301.320.
- d. Application of recycled water on the Saddle Creek Golf Course (Use Area) shall be at reasonable agronomic rates and shall consider soil, climate, and nutrient demand. Application rates shall ensure that a nuisance is not created. Degradation of groundwater, considering soil, climate, and nutrient demand, shall be minimized consistent with applicable provisions of the Recycled Water Policy.
- e. The seasonal nutritive loading of the Use Area including the nutritive value of organic and chemical fertilizers and of the recycled water, shall not exceed the nutritive demand of the landscape.
- f. The portions of the Use Area that are spray irrigated and allow public access shall be irrigated during periods of minimal use. Consideration shall be given to allow maximum drying time prior to subsequent public use.
- g. All newly installed or any accessible reclamation equipment, pumps, piping, valves, and outlets shall be appropriately marked to differentiate them from potable facilities. All newly installed or any accessible reclamation distribution system piping shall be purple or adequately identified with purple tape, tags, or stickers per Section 116815(a) of the California Health and Safety Code.

¹ State Water Board Resolution No. 2009-0011 adopted 3 February 2009.

- h. Except as allowed under CCR Title 17, Section 7604, no physical connection shall be made or allowed to exist between any recycled water system and any separate system conveying potable water. Supplementing recycled water with potable water shall not be allowed except as approved by DDW.
- i. A 4-foot horizontal and 1-foot vertical separation² shall be maintained between all new pipelines transporting recycled water and those transporting domestic water, unless approved by DDW. Domestic water pipelines shall be configured above recycled water pipelines, unless approved by DDW.
- j. All recycled water valves, outlets, and quick couplers should be of a type or secured in a manner that only permits operation by authorized personnel.
- k. The main shutoff valve of the recycled water meter shall be tagged with a recycled water warning sign. The valve shall be equipped with an appropriate locking device to prevent unauthorized operation of the valve.
- l. Except where DDW has approved alternative signage and wording or an educational program pursuant to Title 22 Requirements, (1) all use areas where recycled water is used that are accessible to the public shall be posted with signs that are visible to the public in a size no less than four inches high by eight inches wide that include the following wording "RECYCLED WATER-DO NOT DRINK", and (2) each sign shall display an international symbol similar to that shown in Attachment J.
- m. Spray, mist, or runoff of recycled water shall not enter dwellings, designated outdoor eating areas, or food handling facilities. Drinking water fountains shall be protected against contact with recycled water spray, mist or runoff.
- n. Recycled water shall be managed to minimize contact with workers.
- o. Best Management Practices (BMPs) shall be developed and implemented to achieve a safe and efficient irrigation system. At a minimum, the Discharger shall implement the BMPs identified in subsections i – iii, below:
 - i. Implementation of operations and management plan that provides for detection of leaks, and correction either within 72 hours of learning of a leak, or prior to the release of 1,000 gallons.
 - ii. Proper design and operation of sprinkler heads.
 - iii. Refraining from application during precipitation events.
- p. Recycled water shall not be allowed to escape from the Use Area by overspray, mist or by surface flow except in minor amounts such as that associated with BMPs for good irrigation practices.
- q. Areas irrigated with recycled water shall be managed to prevent ponding and conditions conducive to the proliferation of mosquitoes and other vectors, and to avoid creation of a

² As measured from the nearest outside edge of the respective pipelines.

public nuisance or health hazard. The following practices shall be implemented, at a minimum:

- i. Irrigation water must infiltrate completely within a 48-hour period.
- ii. Ditches receiving irrigation runoff, not serving as wildlife habitat, shall be maintained free of emergent, marginal, and floating vegetation.
- iii. Low-pressure and unpressurized pipelines and ditches that may be accessible to mosquitoes shall not be used to store recycled water.

The Discharger shall discontinue delivery of recycled water during any period in which there is reason to believe that the requirements for use as specified herein or the requirements of DDW are not being met. The delivery of recycled water shall not resume until all conditions have been corrected.

3. Recycled Water Operation Specifications

- a. **Total Coliform Organisms.** Effluent total coliform organisms shall not exceed the following with compliance measured at immediately after disinfection, as described in the MRP, Attachment E:
 - i. 2.2 most probable number (MPN) per 100 mL, as a 7-day median;
 - ii. 23 MPN/100 mL, more than once in any 30-day period; and
 - iii. 240 MPN/100 mL at any time.
- b. **Filtration System Operating Specifications.** To ensure the filtration system is operating properly to provide adequate disinfection of the wastewater, the turbidity of the filter effluent measured at Monitoring Location FIL-001 shall not exceed:
 - i. 2 NTU as a daily average;
 - ii. 5 NTU more than 5 percent of the time within a 24-hour period; and
 - iii. 10 NTU, at any time.
- c. **Ultraviolet (UV) Disinfection System Operating Specifications.** The UV disinfection system must be operated in accordance with an operations and maintenance program that assures adequate disinfection, and shall meet the following minimum specifications to provide virus inactivation equivalent to Title 22 Disinfected Tertiary Recycled Water:
 - i. **UV Dose.** The minimum hourly average UV dose in the UV reactor shall be 100 millijoules per square centimeter (mJ/cm²).
 - ii. The equation below must be used as part of the automatic UV disinfection control system for calculating UV dose. Site specific power factors (0.775 for 60% power and 1.14 for 100% power) must be used:

$$\text{Dose} = (\text{PF}) * (\text{FF}) * (\text{EOLL}) * (1.71 \times 10^{-4}) * Q^{-0.645} * \text{UVT}^{3.44}$$

Where:

Dose = Delivered UV dose per bank (mJ/cm²);

PF = Power factor= 0.775 for 60% power; and 1.14 for 100% power

FF = 0.95 Fouling Factor based upon a cleaning frequency of once every
24 hours

EOLL = End of Lamp Life factor = 0.82 at 9,000 hours for the LSI lamp

UVT = UV transmittance at 254 nm (%);

Q = Flow rate per lamp [gallons per minute (gpm)/lamp], with gpm/lamp
calculated as gpm divided by the number of lamps in one bank;

- iii. Until adequate redundancy and reliability is provided and demonstrated, the Facility UV disinfection system flow is limited to specific capacities; at a UVT less than 67% (typical UVT is > 70%). This limit on operational conditions is to provide adequate redundancy in the UV disinfection system. The existing UV system consists of one channel, each with four banks in series. The NWRI UV Guidance states that redundancy should consist of either a standby bank in a single treatment train (channel) or an entire standby train (channel): Title 22, Section 60355, allows other alternatives to the reliability requirements only if DDW agrees that the proposed alternative provides an equal degree of reliability.
- iv. **UV Transmittance.** To provide adequate redundancy, the UV disinfection system is limited to the following operational parameter ranges under normal operating conditions:
 - (a) Flow up to 1.00 MGD or 694 gpm, at or above 67% UVT
 - (b) Flow up to 0.915 MGD or 636 gpm, at or above 66% UVT
 - (c) Flow up to 0.844 MGD or 586 gpm, at or above 65% UVT
 - (d) Flow up to 0.777 MGD or 539 gpm, at or above 64% UVT
 - (e) Flow up to 0.714 MGD or 496 gpm, at or above 63% UVT
 - (f) Flow up to 0.656 MGD or 455 gpm; at or above 62% UVT
 - (g) Flow up to 0.601 MGD or 417 gpm, at or above 61% UVT
 - (h) Flow up to 0.550 MGD or 382 gpm, at or above 60% UVT
- v. Four banks per channel shall only be used under emergency conditions for a short period of time, provided the UVT is 62% or greater and the UV dose is 100 mJ/cm² or greater.
- vi. To maintain a Fouling Factor of 0.95, clean/wipe the quartz sleeves once every twenty-four hours.
- vii. The UV lamps shall be maintained below the maximum value of 9,000 hours of operation.
- viii. Flow meters and UVT monitors must be properly calibrated to ensure proper disinfection.
- ix. UVT meter must be inspected and checked against a reference bench-top unit weekly to document accuracy.

- x. If the on-line analyzer UVT reading varies from the bench-top spectrophotometer UVT reading by 2% or more, the on-line UVT analyzer must be recalibrated by a procedure recommended by the manufacturer.
- xi. Flow meters measuring the flow through a UV reactor must be verified to determine accuracy at least monthly via checking the flow reading against other flow determination methods.
- xii. The facility should be operated in accordance with an approved operations plan, which specifies clearly the operational limits and responses required for critical alarms. The operations plan should be submitted and approved prior to issuance of the operating permit. A copy of the approved operations plan should be maintained at the Facility and be readily available to operations personnel and regulatory agencies. A quick reference plant operations data sheet should be posted at the treatment plant and include the following information:
 - a. The alarm set points for secondary and tertiary turbidity, high and low flow, UV dose and transmittance, UV lamp operation hours, and power.
 - b. The values of secondary and tertiary turbidity, high and low flow, UV dose and transmittance, UV lamp operation hours, and power when flow must be diverted to waste.
 - c. The values of high daily and weekly median total coliform when flow must be diverted to waste.
 - d. The required frequency of calibration for all meters measuring turbidity, flow, UV transmittance, and power.
 - e. The required frequency of mechanical cleaning/wiping and equipment inspection.
 - f. The UV lamp age tracking procedures and replacement intervals.
- xiii. The UV system must be operated with a built-in automatic reliability feature that must be triggered when the system is below the target UV dose. If the measured UV dose goes below the minimum UV dose, the UV reactor in question must alarm and startup the next available UV lamp bank or reactor.
- xiv. Conditions that should shut a reactor down and divert flow include: inability to meet the target dose, high flow, low UVT, or reactor failure.
- xv. Equivalent or substitutions of equipment are not acceptable without an adequate demonstration of equivalent disinfection performance.

V. RECEIVING WATER LIMITATIONS

A. Surface Water Limitations

The discharge shall not cause the following in the jurisdictional wetlands:

1. **Bacteria.** The fecal coliform concentration, based on a minimum of not less than five samples for any 30-day period, to exceed a geometric mean of 200 MPN/100 mL, nor more than 10 percent of the total number of fecal coliform samples taken during any 30-day period to exceed 400 MPN/100 mL.

2. **Biostimulatory Substances.** Water to contain biostimulatory substances which promote aquatic growths in concentrations that cause nuisance or adversely affect beneficial uses.
3. **Chemical Constituents.** Chemical constituents to be present in concentrations that adversely affect beneficial uses.
4. **Color.** Discoloration that causes nuisance or adversely affects beneficial uses.
5. **Dissolved Oxygen:**
 - a. The monthly median of the mean daily dissolved oxygen concentration to fall below 85 percent of saturation in the main water mass;
 - b. The 95 percentile dissolved oxygen concentration to fall below 75 percent of saturation; nor
 - c. The dissolved oxygen concentration to be reduced below 7.0 mg/L at any time.
6. **Floating Material.** Floating material to be present in amounts that cause nuisance or adversely affect beneficial uses.
7. **Oil and Grease.** Oils, greases, waxes, or other materials to be present in concentrations that cause nuisance, result in a visible film or coating on the surface of the water or on objects in the water, or otherwise adversely affect beneficial uses.
8. **pH.** The pH to be depressed below 6.5 nor raised above 8.5.
9. **Pesticides:**
 - a. Pesticides to be present, individually or in combination, in concentrations that adversely affect beneficial uses;
 - b. Pesticides to be present in bottom sediments or aquatic life in concentrations that adversely affect beneficial uses;
 - c. Total identifiable persistent chlorinated hydrocarbon pesticides to be present in the water column at concentrations detectable within the accuracy of analytical methods;
 - d. Pesticide concentrations to exceed those allowable by applicable antidegradation policies (see State Water Board Resolution No. 68-16 and 40 CFR 131.12.);
 - e. Pesticide concentrations to exceed the lowest levels technically and economically achievable;
 - f. Pesticides to be present in concentration in excess of the maximum contaminant levels set forth in CCR, Title 22, division 4, chapter 15; nor
 - g. Thiobencarb to be present in excess of 1.0 µg/L.

10. Radioactivity:

- a. Radionuclides to be present in concentrations that are harmful to human, plant, animal, or aquatic life nor that result in the accumulation of radionuclides in the food web to an extent that presents a hazard to human, plant, animal, or aquatic life.
- b. Radionuclides to be present in excess of the maximum contaminant levels (MCLs) specified in Table 64442 of section 64442 and Table 64443 of section 64443 of Title 22 of the California Code of Regulations.

11. **Suspended Sediments.** The suspended sediment load and suspended sediment discharge rate of surface waters to be altered in such a manner as to cause nuisance or adversely affect beneficial uses.

12. **Settleable Substances.** Substances to be present in concentrations that result in the deposition of material that causes nuisance or adversely affects beneficial uses.

13. **Suspended Material.** Suspended material to be present in concentrations that cause nuisance or adversely affect beneficial uses.

14. **Taste and Odors.** Taste- or odor-producing substances to be present in concentrations that impart undesirable tastes or odors to fish flesh or other edible products of aquatic origin, or that cause nuisance, or otherwise adversely affect beneficial uses.

15. **Temperature.** The natural temperature to be increased by more than 5°F.

16. **Toxicity.** Toxic substances to be present, individually or in combination, in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.

17. Turbidity

- a. Shall not exceed 2 Nephelometric Turbidity Units (NTU) where natural turbidity is less than 1 NTU;
- b. Shall not increase more than 1 NTU where natural turbidity is between 1 and 5 NTUs;
- c. Shall not increase more than 20 percent where natural turbidity is between 5 and 50 NTUs;
- d. Shall not increase more than 10 NTU where natural turbidity is between 50 and 100 NTUs; nor
- e. Shall not increase more than 10 percent where natural turbidity is greater than 100 NTUs.

B. Groundwater Limitations – Set forth in WDR Order R5-2010-0070

VI. PROVISIONS

A. Standard Provisions

1. The Discharger shall comply with all Standard Provisions included in Attachment D.
2. The Discharger shall comply with the following provisions. In the event that there is any conflict, duplication, or overlap between provisions specified by this Order, the more stringent provision shall apply:
 - a. If the Discharger's wastewater treatment plant is publicly owned or subject to regulation by California Public Utilities Commission, it shall be supervised and operated by persons possessing certificates of appropriate grade according to Title 23, CCR, division 3, chapter 26.
 - b. After notice and opportunity for a hearing, this Order may be terminated or modified for cause, including, but not limited to:
 - i. violation of any term or condition contained in this Order;
 - ii. obtaining this Order by misrepresentation or by failing to disclose fully all relevant facts;
 - iii. a change in any condition that requires either a temporary or permanent reduction or elimination of the authorized discharge; and
 - iv. a material change in the character, location, or volume of discharge.

The causes for modification include:

- i. *New regulations.* New regulations have been promulgated under section 405(d) of the CWA, or the standards or regulations on which the permit was based have been changed by promulgation of amended standards or regulations or by judicial decision after the permit was issued.
- ii. *Land application plans.* When required by a permit condition to incorporate a land application plan for beneficial reuse of sewage sludge, to revise an existing land application plan, or to add a land application plan.
- iii. *Change in sludge use or disposal practice.* Under 40 CFR section 122.62(a)(1), a change in the Discharger's sludge use or disposal practice is a cause for modification of the permit. It is cause for revocation and reissuance if the Discharger requests or agrees.

The Central Valley Water Board may review and revise this Order at any time upon application of any affected person or the Central Valley Water Board's own motion.

- c. If a toxic effluent standard or prohibition (including any scheduled compliance specified in such effluent standard or prohibition) is established under section 307(a) of the CWA, or amendments thereto, for a toxic pollutant that is present in the discharge authorized herein, and such standard or prohibition is more stringent than any limitation upon such pollutant in this Order, the Central Valley Water Board will revise or modify this Order in accordance with such toxic effluent standard or prohibition.

The Discharger shall comply with effluent standards and prohibitions within the time provided in the regulations that establish those standards or prohibitions, even if this Order has not yet been modified.

- d. This Order shall be modified, or alternately revoked and reissued, to comply with any applicable effluent standard or limitation issued or approved under sections 301(b)(2)(C) and (D), 304(b)(2), and 307(a)(2) of the CWA, if the effluent standard or limitation so issued or approved:
 - i. Contains different conditions or is otherwise more stringent than any effluent limitation in the Order; or
 - ii. Controls any pollutant limited in the Order.

The Order, as modified or reissued under this paragraph, shall also contain any other requirements of the CWA then applicable.
- e. The provisions of this Order are severable. If any provision of this Order is found invalid, the remainder of this Order shall not be affected.
- f. The Discharger shall take all reasonable steps to minimize any adverse effects to waters of the State or users of those waters resulting from any discharge or sludge use or disposal in violation of this Order. Reasonable steps shall include such accelerated or additional monitoring as necessary to determine the nature and impact of the non-complying discharge or sludge use or disposal.
- g. The Discharger shall ensure compliance with any existing or future pretreatment standard promulgated by USEPA under section 307 of the CWA, or amendment thereto, for any discharge to the municipal system.
- h. A copy of this Order shall be maintained at the discharge facility and be available at all times to operating personnel. Key operating personnel shall be familiar with its content.
- i. Safeguard to electric power failure:
 - i. The Discharger shall provide safeguards to assure that, should there be reduction, loss, or failure of electric power, the discharge shall comply with the terms and conditions of this Order.
 - ii. Upon written request by the Central Valley Water Board, the Discharger shall submit a written description of safeguards. Such safeguards may include alternate power sources, standby generators, retention capacity, operating procedures, or other means. A description of the safeguards provided shall include an analysis of the frequency, duration, and impact of power failures experienced over the past 5 years on effluent quality and on the capability of the Discharger to comply with the terms and conditions of the Order. The adequacy of the safeguards is subject to the approval of the Central Valley Water Board.
 - iii. Should the treatment works not include safeguards against reduction, loss, or failure of electric power, or should the Central Valley Water Board not approve the existing safeguards, the Discharger shall, within 90 days of having been advised in writing by the Central Valley Water Board that the existing safeguards are inadequate, provide to the Central Valley Water Board and USEPA a schedule of compliance for providing safeguards such that in the event of reduction, loss, or failure of electric power, the Discharger shall comply with the terms and conditions of this Order. The schedule of compliance shall, upon approval of the Central Valley Water Board, become a condition of this Order.

- j. The Discharger, upon written request of the Central Valley Water Board, shall file with the Board a technical report on its preventive (failsafe) and contingency (cleanup) plans for controlling accidental discharges, and for minimizing the effect of such events. This report may be combined with that required under the Central Valley Water Board Standard Provision contained in section VI.A.2.i of this Order.

The technical report shall:

- i. Identify the possible sources of spills, leaks, untreated waste by-pass, and contaminated drainage. Loading and storage areas, power outage, waste treatment unit outage, and failure of process equipment, tanks and pipes should be considered.
- ii. Evaluate the effectiveness of present facilities and procedures and state when they became operational.
- iii. Predict the effectiveness of the proposed facilities and procedures and provide an implementation schedule containing interim and final dates when they will be constructed, implemented, or operational.

The Central Valley Water Board, after review of the technical report, may establish conditions which it deems necessary to control accidental discharges and to minimize the effects of such events. Such conditions shall be incorporated as part of this Order, upon notice to the Discharger.

- k. A publicly owned treatment works whose waste flow has been increasing, or is projected to increase, shall estimate when flows will reach hydraulic and treatment capacities of its treatment and disposal facilities. The projections shall be made in January, based on the last 3 years' average dry weather flows, peak wet weather flows and total annual flows, as appropriate. When any projection shows that capacity of any part of the facilities may be exceeded in 4 years, the Discharger shall notify the Central Valley Water Board by 31 January. A copy of the notification shall be sent to appropriate local elected officials, local permitting agencies and the press. Within 120 days of the notification, the Discharger shall submit a technical report showing how it will prevent flow volumes from exceeding capacity or how it will increase capacity to handle the larger flows. The Central Valley Water Board may extend the time for submitting the report.
- l. The Discharger shall submit technical reports as directed by the Executive Officer. All technical reports required herein that involve planning, investigation, evaluation, or design, or other work requiring interpretation and proper application of engineering or geologic sciences, shall be prepared by or under the direction of persons registered to practice in California pursuant to California Business and Professions Code, sections 6735, 7835, and 7835.1. To demonstrate compliance with Title 16, CCR, sections 415 and 3065, all technical reports must contain a statement of the qualifications of the responsible registered professional(s). As required by these laws, completed technical reports must bear the signature(s) and seal(s) of the registered professional(s) in a manner such that all work can be clearly attributed to the professional responsible for the work.
- m. The Central Valley Water Board is authorized to enforce the terms of this permit under several provisions of the Water Code, including, but not limited to, sections 13385, 13386, and 13387.

- n. In the event of any change in control or ownership of land or waste discharge facilities presently owned or controlled by the Discharger, the Discharger shall notify the succeeding owner or operator of the existence of this Order by letter, a copy of which shall be immediately forwarded to the Central Valley Water Board.

To assume operation under this Order, the succeeding owner or operator must apply in writing to the Executive Officer requesting transfer of the Order. The request must contain the requesting entity's full legal name, the state of incorporation if a corporation, address and telephone number of the persons responsible for contact with the Central Valley Water Board and a statement. The statement shall comply with the signatory and certification requirements in the federal Standard Provisions (Attachment D, section V.B) and state that the new owner or operator assumes full responsibility for compliance with this Order. Failure to submit the request shall be considered a discharge without requirements, a violation of the Water Code. Transfer shall be approved or disapproved in writing by the Executive Officer.

- o. Failure to comply with provisions or requirements of this Order, or violation of other applicable laws or regulations governing discharges from this facility, may subject the Discharger to administrative or civil liabilities, criminal penalties, and/or other enforcement remedies to ensure compliance. Additionally, certain violations may subject the Discharger to civil or criminal enforcement from appropriate local, state, or federal law enforcement entities.
- p. In the event the Discharger does not comply or will be unable to comply for any reason, with any prohibition, maximum daily effluent limitation, hourly average effluent limitation, or receiving water limitation of this Order, the Discharger shall notify the Central Valley Water Board by telephone (916) 464-3291 within 24 hours of having knowledge of such noncompliance, and shall confirm this notification in writing within five days, unless the Central Valley Water Board waives confirmation. The written notification shall state the nature, time, duration, and cause of noncompliance, and shall describe the measures being taken to remedy the current noncompliance and prevent recurrence including, where applicable, a schedule of implementation. Other noncompliance requires written notification as above at the time of the normal monitoring report.

B. Monitoring and Reporting Program (MRP) Requirements

The Discharger shall comply with the MRP, and future revisions thereto, in Attachment E.

C. Special Provisions

1. Reopener Provisions

- a. Conditions that necessitate a major modification of a permit are described in 40 CFR section 122.62, including, but not limited to:
 - i. If new or amended applicable water quality standards are promulgated or approved pursuant to section 303 of the CWA, or amendments thereto, this permit may be reopened and modified in accordance with the new or amended standards.
 - ii. When new information, that was not available at the time of permit issuance, would have justified different permit conditions at the time of issuance.

- b. This Order may be reopened for modification, or revocation and reissuance, as a result of the detection of a reportable priority pollutant generated by special conditions included in this Order. These special conditions may be, but are not limited to, fish tissue sampling, whole effluent toxicity, monitoring requirements on internal waste stream(s), and monitoring for surrogate parameters. Additional requirements may be included in this Order as a result of the special condition monitoring data.
- c. **Whole Effluent Toxicity.** As a result of a Toxicity Reduction Evaluation (TRE) or Toxicity Evaluation Study (TES), this Order may be reopened to include a new chronic toxicity effluent limitation, a revised acute toxicity effluent limitation, and/or an effluent limitation for a specific toxicant identified in a TRE. Additionally, if the State Water Board revises the SIP's toxicity control provisions, this Order may be reopened to implement the new provisions.

2. Special Studies, Technical Reports and Additional Monitoring Requirements

- a. **Toxicity Reduction Evaluation Requirements.** This Provision requires the Discharger to investigate the causes of, and identify corrective actions to reduce or eliminate effluent toxicity. If the discharge exceeds the chronic toxicity thresholds defined in this Provision, the Discharger is required to initiate a Toxicity Reduction Evaluation (TRE) in accordance with an approved TRE Work Plan, and take actions to mitigate the impact of the discharge and prevent recurrence of toxicity. A TRE is a site-specific study conducted in a stepwise process to identify the source(s) of toxicity and the effective control measures for effluent toxicity. TREs are designed to identify the causative agents and sources of whole effluent toxicity, evaluate the effectiveness of the toxicity control options, and confirm the reduction in effluent toxicity. Alternatively, under certain conditions as described in this provision below, the Discharger may participate in an approved Toxicity Evaluation Study (TES) in lieu of conducting a site-specific TRE.
 - i. **Numeric Toxicity Monitoring Trigger.** The numeric toxicity monitoring trigger is 1 TUc (where $TUc = 100/NOEC$). The monitoring trigger is not an effluent limitation; it is the toxicity threshold at which the Discharger is required to initiate additional actions to evaluate effluent toxicity as specified in subsection iii, below.
 - iii. **Chronic Toxicity Monitoring Trigger Exceeded.** When a chronic whole effluent toxicity result during routine monitoring exceeds the chronic toxicity monitoring trigger, the Discharger shall proceed as follows:
 - (a) **Initial Toxicity Check.** If the result is less than or equal to 1.3 TUc (as $100/EC_{25}$) AND/OR the percent effect is less than 25 percent at 100 percent effluent, check for any operation or sample collection issues and return to routine chronic toxicity monitoring.³ Otherwise, proceed to step (b).
 - (b) **Evaluate 6-week Median.** The Discharger may take two additional samples within 6 weeks of the initial routine sampling event exceeding the chronic toxicity monitoring trigger to evaluate compliance using a 6-week median. If the 6-week median is greater than 1.3 TUc (as $100/EC_{25}$) and the percent effect is greater than 25 percent at 100 percent effluent,

³ The Discharger may participate in an approved Toxicity Evaluation Study if the chronic toxicity monitoring trigger is exceeded twice or more in the past 12-month period and the cause is not identified and/or addressed.

proceed with subsection (c). Otherwise, the Discharger shall check for any operation or sample collection issues and return to routine chronic toxicity monitoring.

- (c) **Toxicity Source Easily Identified.** If the source(s) of the toxicity is easily identified (e.g., temporary plant upset), the Discharger shall make necessary corrections to the facility and shall resume routine chronic toxicity monitoring; If the source of toxicity is not easily identified the Discharger shall conduct a site-specific TRE or participate in an approved TES as described in the following subsections.
- (d) **Toxicity Evaluation Study.** If the percent effect is ≤ 50 percent at **100** percent effluent, as the median of up to three consecutive chronic toxicity tests within a 6 week period, the Discharger may participate in an approved TES in lieu of a site-specific TRE. The TES may be conducted individually or as part of a coordinated group effort with other similar dischargers. If the Discharger chooses not to participate in an approved TES, a site-specific TRE shall be initiated in accordance with subsection (e)(1), below. Nevertheless, the Discharger may participate in an approved TES instead of a TRE if the Discharger has conducted a site-specific TRE within the past 12 months and has been unsuccessful in identifying the toxicant.
- (e) **Toxicity Reduction Evaluation.** If the percent effect is > 50 percent at **100** percent effluent, as the median of three consecutive chronic toxicity tests within a 6 week period, the Discharger shall initiate a site-specific TRE as follows:
- (1) **Within thirty (30) days** of exceeding the chronic toxicity monitoring trigger, the Discharger shall submit a TRE Action Plan to the Central Valley Water Board including, at minimum:
- Specific actions the Discharger will take to investigate and identify the cause(s) of toxicity, including a TRE WET monitoring schedule;
 - Specific actions the Discharger will take to mitigate the impact of the discharge and prevent the recurrence of toxicity; and
 - A schedule for these actions.

3. Best Management Practices and Pollution Prevention

- a. **Salinity Evaluation and Minimization Plan.** The Discharger shall continue to implement a salinity evaluation and minimization plan to identify and address sources of salinity discharged from the Facility.

The Discharger shall evaluate the effectiveness of the salinity evaluation and minimization plan and provide a summary with the Report of Waste Discharge, due 1 year prior to the permit expiration date. Furthermore, if the effluent annual average calendar year electrical conductivity concentration exceeded 900 $\mu\text{mhos/cm}$ during the term of this Order, the salinity evaluation and minimization plan shall be reviewed and updated.

- 4. Construction, Operation and Maintenance Specifications – Not Applicable**
- 5. Special Provisions for Publicly-Owned Treatment Works (POTWs) – Not Applicable**
- 6. Other Special Provisions – Not Applicable**
- 7. Compliance Schedules – Not Applicable**

VII. COMPLIANCE DETERMINATION

- A. BOD₅ and TSS Effluent Limitations (Section IV.A.1.a and IV.A.1.b).** Compliance with the final effluent limitations for BOD₅ and TSS required in Waste Discharge Requirements section IV.A.1.a shall be ascertained by 24-hour composite samples collected at monitoring location REC-001. Compliance with effluent limitations required in Waste Discharge Requirements section IV.A.1.b. for percent removal shall be calculated using the arithmetic mean of BOD₅ and TSS in effluent samples collected at monitoring location REC-001 over a monthly period as a percentage of the arithmetic mean of the values for influent samples collected at approximately the same times during the same period.
- B. Reporting Due Dates.** Reporting requirements shall be in accordance with due dates specified in this Order. If the due date is on a Saturday, Sunday, State holiday, or a day the corresponding Water Board(s) office(s) is(are) closed, the due date shall be on the next business day.

ATTACHMENT A – DEFINITIONS

Arithmetic Mean (μ)

Also called the average, is the sum of measured values divided by the number of samples. For ambient water concentrations, the arithmetic mean is calculated as follows:

$$\text{Arithmetic mean} = \mu = \Sigma x / n \quad \text{where: } \Sigma x \text{ is the sum of the measured ambient water concentrations, and } n \text{ is the number of samples.}$$

Average Monthly Effluent Limitation (AMEL)

The highest allowable average of daily discharges over a calendar month, calculated as the sum of all daily discharges measured during a calendar month divided by the number of daily discharges measured during that month.

Average Weekly Effluent Limitation (AWEL)

The highest allowable average of daily discharges over a calendar week (Sunday through Saturday), calculated as the sum of all daily discharges measured during a calendar week divided by the number of daily discharges measured during that week.

Bioaccumulative

Those substances taken up by an organism from its surrounding medium through gill membranes, epithelial tissue, or from food and subsequently concentrated and retained in the body of the organism.

Carcinogenic

Pollutants are substances that are known to cause cancer in living organisms.

Coefficient of Variation (CV)

CV is a measure of the data variability and is calculated as the estimated standard deviation divided by the arithmetic mean of the observed values.

Daily Discharge

Daily Discharge is defined as either: (1) the total mass of the constituent discharged over the calendar day (12:00 am through 11:59 pm) or any 24-hour period that reasonably represents a calendar day for purposes of sampling (as specified in the permit), for a constituent with limitations expressed in units of mass or; (2) the unweighted arithmetic mean measurement of the constituent over the day for a constituent with limitations expressed in other units of measurement (e.g., concentration).

The daily discharge may be determined by the analytical results of a composite sample taken over the course of one day (a calendar day or other 24-hour period defined as a day) or by the arithmetic mean of analytical results from one or more grab samples taken over the course of the day.

For composite sampling, if 1 day is defined as a 24-hour period other than a calendar day, the analytical result for the 24-hour period will be considered as the result for the calendar day in which the 24-hour period ends.

Detected, but Not Quantified (DNQ)

DNQ are those sample results less than the RL, but greater than or equal to the laboratory's MDL. Sample results reported as DNQ are estimated concentrations.

Dilution Credit

Dilution Credit is the amount of dilution granted to a discharge in the calculation of a water quality-based effluent limitation, based on the allowance of a specified mixing zone. It is calculated from the

dilution ratio or determined through conducting a mixing zone study or modeling of the discharge and receiving water.

Effect Concentration (EC)

A point estimate of the toxicant concentration that would cause an observable adverse effect (e.g. death, immobilization, or serious incapacitation) in a given percent of the test organisms, calculated from a continuous model (e.g. Probit Model). EC_{25} is a point estimate of the toxicant concentration that would cause an observable adverse effect in 25 percent of the test organisms.

Effluent Concentration Allowance (ECA)

ECA is a value derived from the water quality criterion/objective, dilution credit, and ambient background concentration that is used, in conjunction with the coefficient of variation for the effluent monitoring data, to calculate a long-term average (LTA) discharge concentration. The ECA has the same meaning as waste load allocation (WLA) as used in U.S. EPA guidance (Technical Support Document For Water Quality-based Toxics Control, March 1991, second printing, EPA/505/2-90-001).

Enclosed Bays

Enclosed Bays means indentations along the coast that enclose an area of oceanic water within distinct headlands or harbor works. Enclosed bays include all bays where the narrowest distance between the headlands or outermost harbor works is less than 75 percent of the greatest dimension of the enclosed portion of the bay. Enclosed bays include, but are not limited to, Humboldt Bay, Bodega Harbor, Tomales Bay, Drake's Estero, San Francisco Bay, Morro Bay, Los Angeles-Long Beach Harbor, Upper and Lower Newport Bay, Mission Bay, and San Diego Bay. Enclosed bays do not include inland surface waters or ocean waters.

Endpoint

An effect that is measured in a toxicity study. Endpoints in toxicity tests may include, but are not limited to survival, reproduction, and growth.

Estimated Chemical Concentration

The estimated chemical concentration that results from the confirmed detection of the substance by the analytical method below the ML value.

Estuaries

Estuaries means waters, including coastal lagoons, located at the mouths of streams that serve as areas of mixing for fresh and ocean waters. Coastal lagoons and mouths of streams that are temporarily separated from the ocean by sandbars shall be considered estuaries. Estuarine waters shall be considered to extend from a bay or the open ocean to a point upstream where there is no significant mixing of fresh water and seawater. Estuarine waters included, but are not limited to, the Sacramento-San Joaquin Delta, as defined in Water Code section 12220, Suisun Bay, Carquinez Strait downstream to the Carquinez Bridge, and appropriate areas of the Smith, Mad, Eel, Noyo, Russian, Klamath, San Diego, and Otay rivers. Estuaries do not include inland surface waters or ocean waters.

Inhibition Concentration

Inhibition Concentration (IC) is a point estimate of the toxicant concentration that would cause a given percent reduction in a non-lethal biological measurement (e.g., reproduction or growth), calculated from a continuous model (i.e., Interpolation Method). IC_{25} is a point estimate of the toxic concentration that would cause a 25-percent reduction in a non-lethal biological measurement.

Inland Surface Waters

All surface waters of the state that do not include the ocean, enclosed bays, or estuaries.

Instantaneous Maximum Effluent Limitation

The highest allowable value for any single grab sample or aliquot (i.e., each grab sample or aliquot is independently compared to the instantaneous maximum limitation).

Instantaneous Minimum Effluent Limitation

The lowest allowable value for any single grab sample or aliquot (i.e., each grab sample or aliquot is independently compared to the instantaneous minimum limitation).

Maximum Daily Effluent Limitation (MDEL)

The highest allowable daily discharge of a pollutant, over a calendar day (or 24-hour period). For pollutants with limitations expressed in units of mass, the daily discharge is calculated as the total mass of the pollutant discharged over the day. For pollutants with limitations expressed in other units of measurement, the daily discharge is calculated as the arithmetic mean measurement of the pollutant over the day.

Median

The middle measurement in a set of data. The median of a set of data is found by first arranging the measurements in order of magnitude (either increasing or decreasing order). If the number of measurements (n) is odd, then the median = $X_{(n+1)/2}$. If n is even, then the median = $(X_{n/2} + X_{(n/2)+1})/2$ (i.e., the midpoint between the n/2 and n/2+1).

Method Detection Limit (MDL)

MDL is the minimum concentration of a substance that can be measured and reported with 99 percent confidence that the analyte concentration is greater than zero, as defined in 40 C.F.R. part 136, Attachment B, revised as of July 3, 1999.

Minimum Level (ML)

ML is the concentration at which the entire analytical system must give a recognizable signal and acceptable calibration point. The ML is the concentration in a sample that is equivalent to the concentration of the lowest calibration standard analyzed by a specific analytical procedure, assuming that all the method specified sample weights, volumes, and processing steps have been followed.

Mixing Zone

Mixing Zone is a limited volume of receiving water that is allocated for mixing with a wastewater discharge where water quality criteria can be exceeded without causing adverse effects to the overall water body.

No-Observed-Effect-Concentration (NOEC)

The highest concentration of toxicant to which organisms are exposed in a full life-cycle or partial life-cycle (short-term) test, that causes no observable adverse effects on the test organisms (i.e., the highest concentration of toxicant in which the values for the observed responses are not statistically significantly different from the controls).

Not Detected (ND)

Sample results which are less than the laboratory's MDL.

Ocean Waters

The territorial marine waters of the State as defined by California law to the extent these waters are outside of enclosed bays, estuaries, and coastal lagoons. Discharges to ocean waters are regulated in accordance with the State Water Board's California Ocean Plan.

Percent Effect

The percent effect at the instream waste concentration (IWC) shall be calculated using untransformed data and the following equation:

$$\text{Percent Effect of the Sample} = \frac{\text{Mean Control Response} - \text{Mean Sample Response}}{\text{Mean Control Response}} \cdot 100$$

Persistent Pollutants

Persistent pollutants are substances for which degradation or decomposition in the environment is nonexistent or very slow.

Pollutant Minimization Program (PMP)

PMP means waste minimization and pollution prevention actions that include, but are not limited to, product substitution, waste stream recycling, alternative waste management methods, and education of the public and businesses. The goal of the PMP shall be to reduce all potential sources of a priority pollutant(s) through pollutant minimization (control) strategies, including pollution prevention measures as appropriate, to maintain the effluent concentration at or below the water quality-based effluent limitation. Pollution prevention measures may be particularly appropriate for persistent bioaccumulative priority pollutants where there is evidence that beneficial uses are being impacted. The Central Valley Water Board may consider cost effectiveness when establishing the requirements of a PMP. The completion and implementation of a Pollution Prevention Plan, if required pursuant to Water Code section 13263.3(d), shall be considered to fulfill the PMP requirements.

Pollution Prevention

Pollution Prevention means any action that causes a net reduction in the use or generation of a hazardous substance or other pollutant that is discharged into water and includes, but is not limited to, input change, operational improvement, production process change, and product reformulation (as defined in Water Code section 13263.3). Pollution prevention does not include actions that merely shift a pollutant in wastewater from one environmental medium to another environmental medium, unless clear environmental benefits of such an approach are identified to the satisfaction of the State Water Resources Control Board (State Water Board) or Central Valley Water Board.

Satellite Collection System

The portion, if any, of a sanitary sewer system owned or operated by a different public agency than the agency that owns and operates the wastewater treatment facility that a sanitary sewer system is tributary to.

Source of Drinking Water

Any water designated as municipal or domestic supply (MUN) in a Central Valley Water Board Basin Plan.

Standard Deviation (σ)

Standard Deviation is a measure of variability that is calculated as follows:

$$\sigma = (\sum[(x - \mu)^2]/(n - 1))^{0.5}$$

where:

x is the observed value;

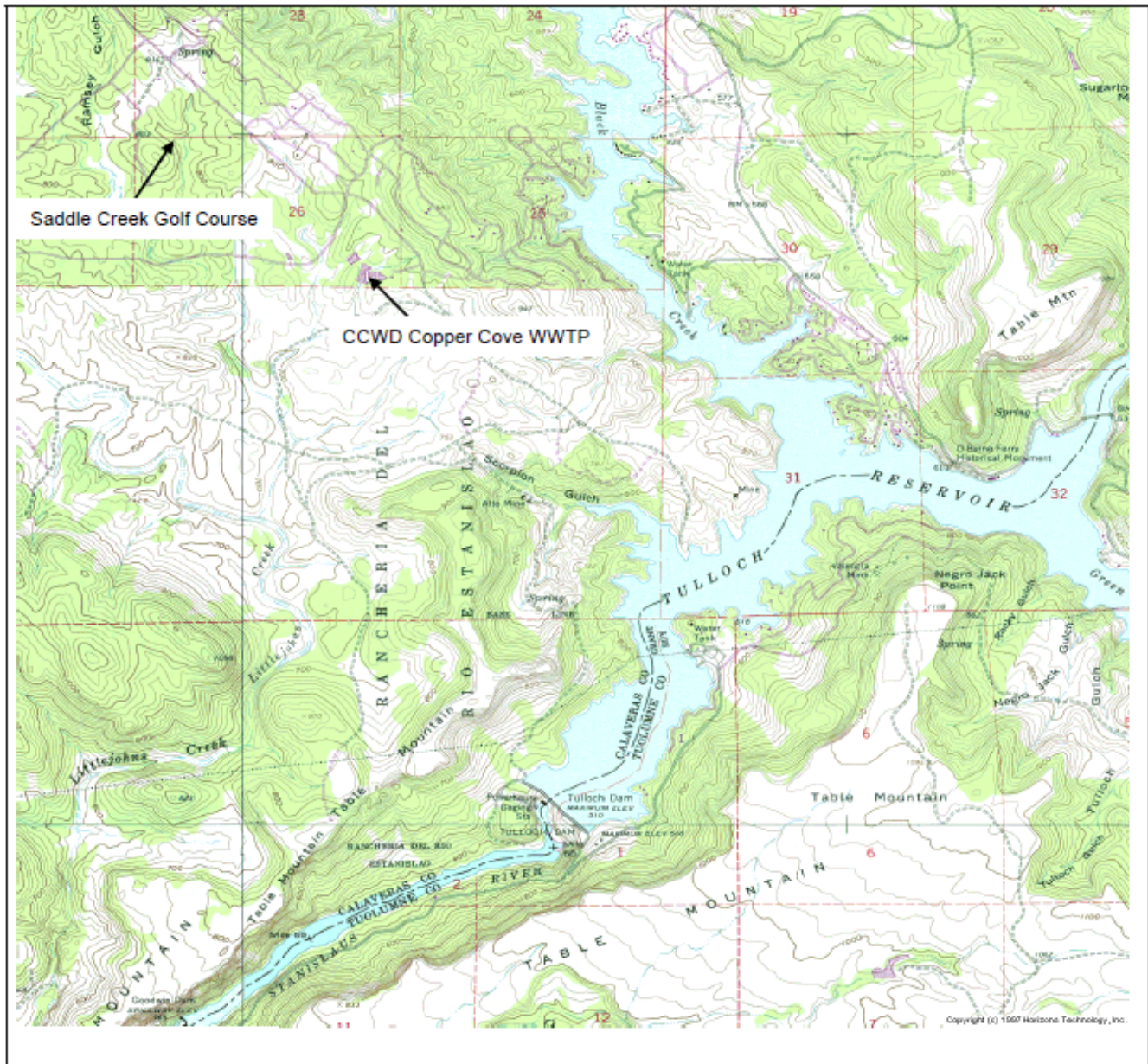
μ is the arithmetic mean of the observed values; and


n is the number of samples.

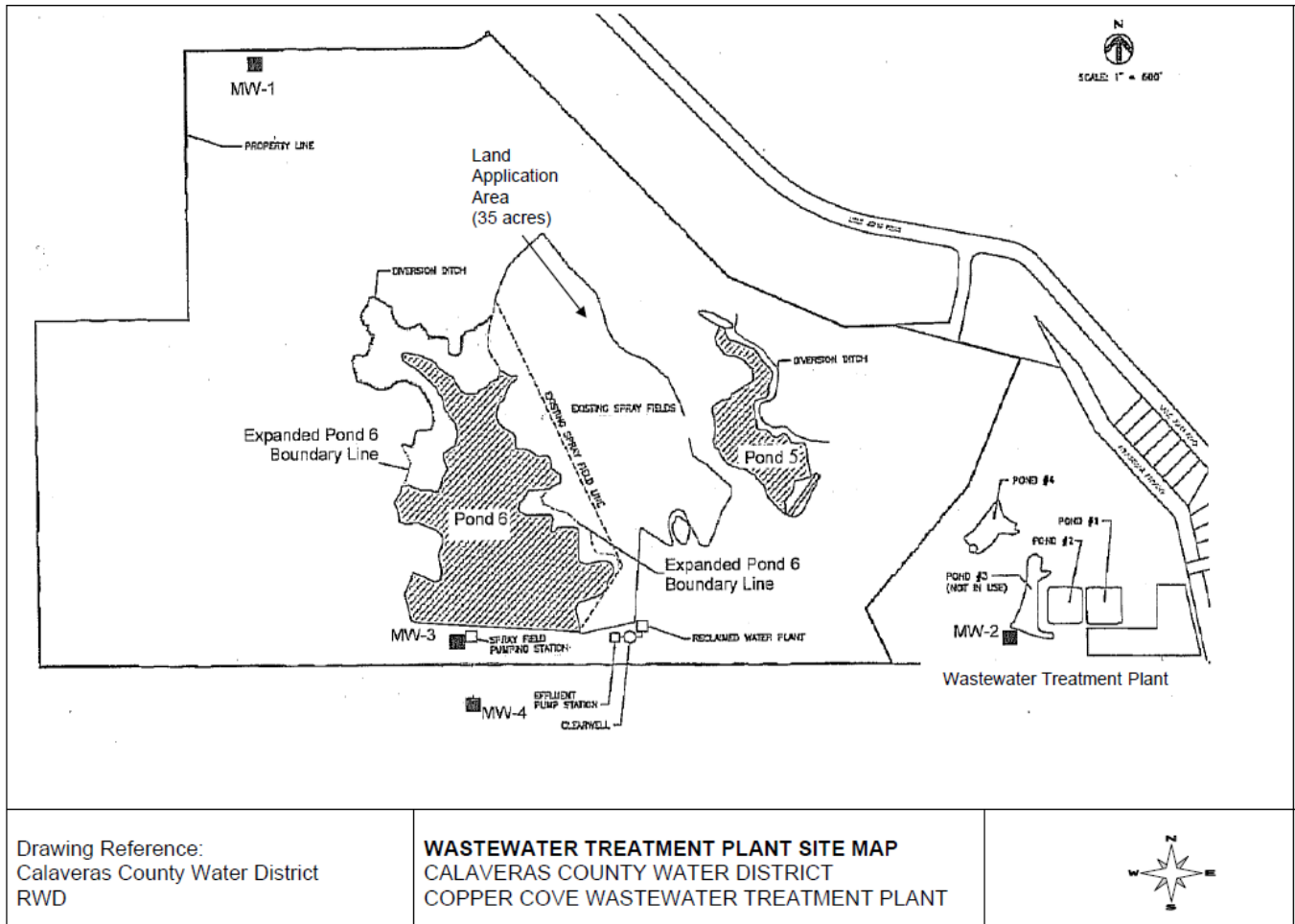
Toxicity Reduction Evaluation (TRE)

TRE is a study conducted in a step-wise process designed to identify the causative agents of effluent or ambient toxicity, isolate the sources of toxicity, evaluate the effectiveness of toxicity control options, and then confirm the reduction in toxicity. The first steps of the TRE consist of the collection of data relevant to the toxicity, including additional toxicity testing, and an evaluation of facility operations and maintenance practices, and best management practices. A Toxicity Identification Evaluation (TIE) may be required as part of the TRE, if appropriate. (A TIE is a set of procedures to identify the specific chemical(s) responsible for toxicity. These procedures are performed in three phases (characterization, identification, and confirmation) using aquatic organism toxicity tests.)

ATTACHMENT B – MAP



<p>Drawing Reference: U.S.G.S TOPOGRAPHIC MAP 7.5 MINUTE QUADRANGLE</p>	<p>SITE LOCATION MAP CALAVERAS COUNTY WATER DISTRICT COPPER COVE WWTP</p>	 <p>approx. scale 1 in. = 3300 ft.</p>
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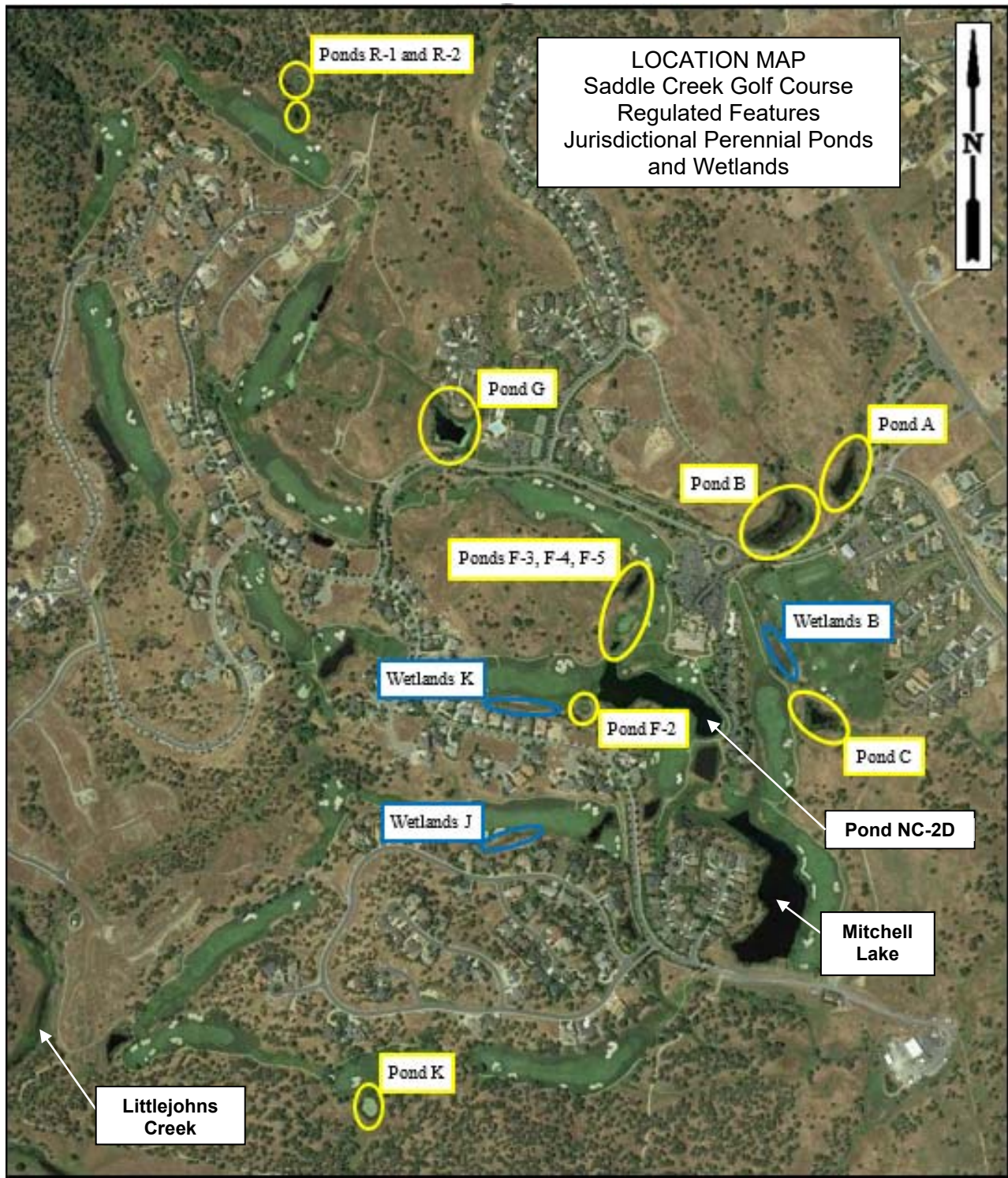
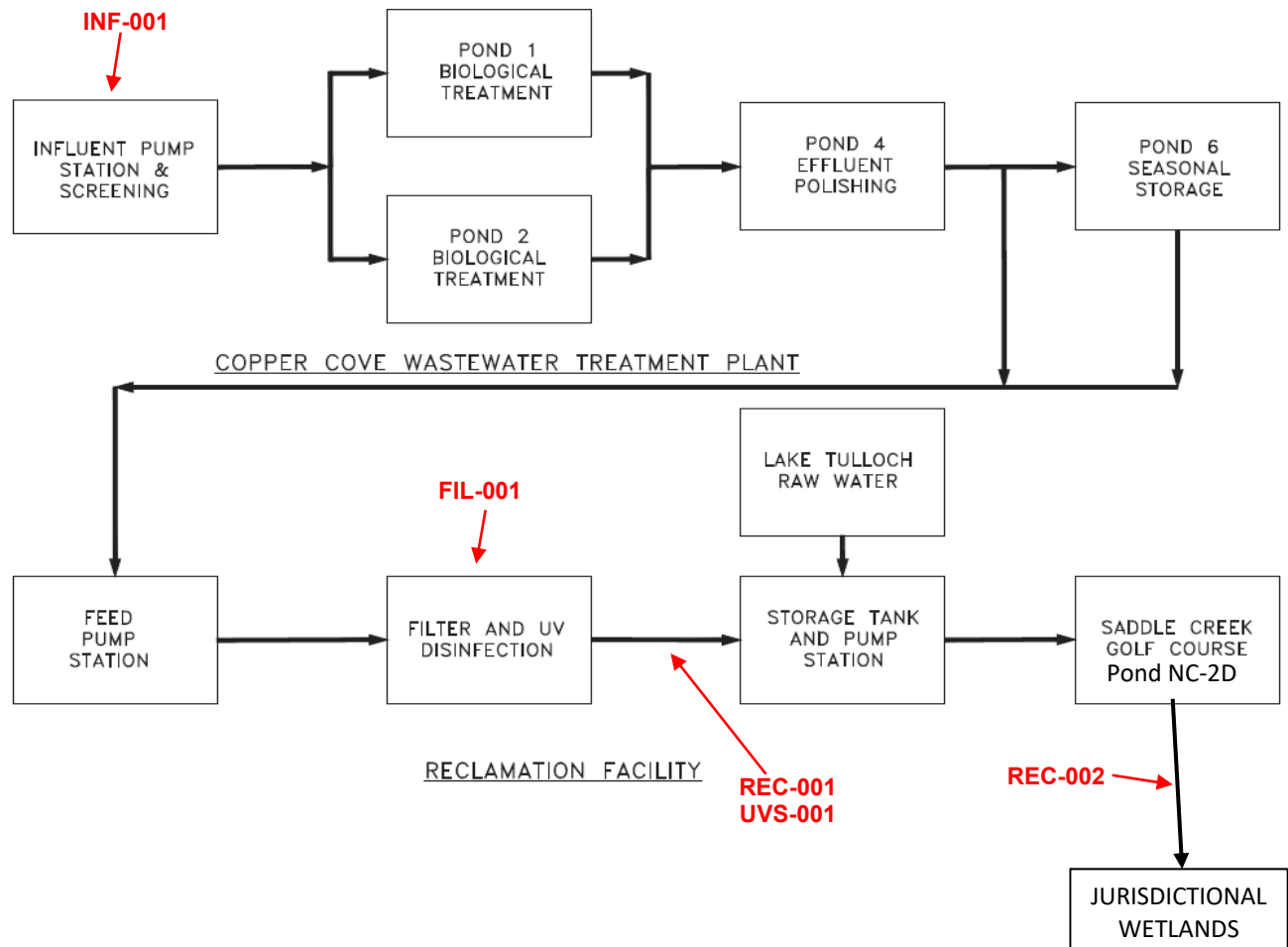


Table B. Regulated Features - Saddle Creek Golf Course							
FEATURE	Ralph J. Alexander Numbering	Sierra Engineering Assoc. Numbering	Latitude	Longitude	Area	Units	
1	Perennial Ponds	A	PM-7-C	37° 55' 14" N	120° 38' 07" W	0.31	
2		B	PM-6-C	37° 55' 11" N	120° 38' 10" W	0.55	
3		C	PM-5-C	37° 55' 00" N	120° 38' 05" W	0.19	
4		F-2	PM-13-E	37° 54' 58" N	120° 38' 22" W	0.12	
5		F-3	NC-3-D	37° 55' 02" N	120° 38' 21" W	0.08	
6		F-4	PM-10-D	37° 55' 03" N	120° 38' 20" W	0.15	
7		F-5	PM-11-D	37° 55' 05" N	120° 38' 20" W	0.18	
8		G	PM-12-D	37° 55' 05" N	120° 38' 21" W	0.65	
9		K	PM-19-S	37° 54' 32" N	120° 38' 32" W	0.16	
10		R-1	PM-16-J	37° 55' 30" N	120° 38' 52" W	0.13	
11		R-2	PM-16-J	37° 55' 28" N	120° 38' 52" W	0.13	
Subtotal Area of Perennial Ponds					2.65	acres	
12	Perennial Wetlands	B	PM-4-C, PM-5-C	37° 55' 04" N	120° 38' 10" W	0.39	
13		J	PM-14-F	37° 54' 49" N	120° 38' 26" W	0.38	
14		K	PM-13-E, NC-12-E	37° 54' 57" N	120° 38' 28" W	0.18	
Subtotal of Perennial Wetlands					0.95	acres	
TOTAL AREA OF JURISDICTIONAL PERENNIAL PONDS AND WETLANDS					3.60	acres	

ATTACHMENT C – FLOW SCHEMATIC



ATTACHMENT D – STANDARD PROVISIONS

I. STANDARD PROVISIONS – PERMIT COMPLIANCE

A. Duty to Comply

1. The Discharger must comply with all of the terms, requirements, and conditions of this Order. Any noncompliance constitutes a violation of the Clean Water Act (CWA) and the California Water Code and is grounds for enforcement action; permit termination, revocation and reissuance, or modification; denial of a permit renewal application; or a combination thereof. (40 C.F.R. § 122.41(a); Wat. Code, §§ 13261, 13263, 13265, 13268, 13000, 13001, 13304, 13350, 13385.)
2. The Discharger shall comply with effluent standards or prohibitions established under Section 307(a) of the CWA for toxic pollutants within the time provided in the regulations that establish these standards or prohibitions, even if this Order has not yet been modified to incorporate the requirement. (40 C.F.R. § 122.41(a)(1).)

B. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for a Discharger in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this Order. (40 C.F.R. § 122.41(c).)

C. Duty to Mitigate

The Discharger shall take all reasonable steps to minimize or prevent any discharge in violation of this Order that has a reasonable likelihood of adversely affecting human health or the environment. (40 C.F.R. § 122.41(d).)

D. Proper Operation and Maintenance

The Discharger shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the Discharger to achieve compliance with the conditions of this Order. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of backup or auxiliary facilities or similar systems that are installed by a Discharger only when necessary to achieve compliance with the conditions of this Order. (40 C.F.R. § 122.41(e).)

E. Property Rights

1. This Order does not convey any property rights of any sort or any exclusive privileges. (40 C.F.R. § 122.41(g).)
2. The issuance of this Order does not authorize any injury to persons or property or invasion of other private rights, or any infringement of state or local law or regulations. (40 C.F.R. § 122.5(c).)

F. Inspection and Entry

The Discharger shall allow the Central Valley Water Board, State Water Board, U.S. EPA, and/or their authorized representatives (including an authorized contractor acting as their representative), upon the presentation of credentials and other documents, as may be required by law, to (33 U.S.C. § 1318(a)(4)(B); 40 C.F.R. § 122.41(i); Wat. Code, § 13267, 13383):

1. Enter upon the Discharger's premises where a regulated facility or activity is located or conducted, or where records are kept under the conditions of this Order (33 U.S.C § 1318(a)(4)(B)(ii); 40 C.F.R. § 122.41(i)(1); Wat. Code, §§ 13267, 13383);
2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this Order (33 U.S.C. § 1318(a)(4)(B)(ii); 40 C.F.R. § 122.41(i)(2); Wat. Code, §§ 13267, 13383);
3. Inspect and photograph, at reasonable times, any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Order (33 U.S.C § 1318(a)(4)(B)(ii); 40 C.F.R. § 122.41(i)(3); Wat. Code, § 13267, 13383); and
4. Sample or monitor, at reasonable times, for the purposes of assuring Order compliance or as otherwise authorized by the CWA or the Water Code, any substances or parameters at any location. (33 U.S.C § 1318(a)(4)(B); 40 C.F.R. § 122.41(i)(4); Wat. Code, §§ 13267, 13383.)

G. Bypass

1. Definitions
 - a. "Bypass" means the intentional diversion of waste streams from any portion of a treatment facility. (40 C.F.R. § 122.41(m)(1)(i).)
 - b. "Severe property damage" means substantial physical damage to property, damage to the treatment facilities, which causes them to become inoperable, or substantial and permanent loss of natural resources that can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production. (40 C.F.R. § 122.41(m)(1)(ii).)
2. Bypass not exceeding limitations. The Discharger may allow any bypass to occur which does not cause exceedances of effluent limitations, but only if it is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions listed in Standard Provisions – Permit Compliance I.G.3, I.G.4, and I.G.5 below. (40 C.F.R. § 122.41(m)(2).)
3. Prohibition of bypass. Bypass is prohibited, and the Central Valley Water Board may take enforcement action against a Discharger for bypass, unless (40 C.F.R. § 122.41(m)(4)(i)):
 - a. Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage (40 C.F.R. § 122.41(m)(4)(i)(A));
 - b. There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass that occurred during normal periods of equipment downtime or preventive maintenance (40 C.F.R. § 122.41(m)(4)(i)(B)); and
 - c. The Discharger submitted notice to the Central Valley Water Board as required under Standard Provisions – Permit Compliance I.G.5 below. (40 C.F.R. § 122.41(m)(4)(i)(C).)

4. The Central Valley Water Board may approve an anticipated bypass, after considering its adverse effects, if the Central Valley Water Board determines that it will meet the three conditions listed in Standard Provisions – Permit Compliance I.G.3 above. (40 C.F.R. § 122.41(m)(4)(ii).)
5. Notice
 - a. Anticipated bypass. If the Discharger knows in advance of the need for a bypass, it shall submit prior notice, if possible at least 10 days before the date of the bypass. The notice shall be sent to the Central Valley Water Board. As of 21 December 2020, all notices shall be submitted electronically to the initial recipient (State Water Board), defined in Standard Provisions – Reporting V.J below. Notices shall comply with 40 C.F.R. part 3, section 122.22, and 40 C.F.R. part 127. (40 C.F.R. § 122.41(m)(3)(i).)
 - b. Unanticipated bypass. The Discharger shall submit a notice of an unanticipated bypass as required in Standard Provisions - Reporting V.E below (24-hour notice). The notice shall be sent to the Central Valley Water Board. As of 21 December 2020, all notices shall be submitted electronically to the initial recipient (State Water Board), defined in Standard Provisions – Reporting V.J below. Notices shall comply with 40 C.F.R. part 3, section 122.22, and 40 C.F.R. part 127. (40 C.F.R. § 122.41(m)(3)(ii).)

H. Upset

Upset means an exceptional incident in which there is unintentional and temporary noncompliance with technology based permit effluent limitations because of factors beyond the reasonable control of the Discharger. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation. (40 C.F.R. § 122.41(n)(1).)

1. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology based permit effluent limitations if the requirements of Standard Provisions – Permit Compliance I.H.2 below are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review. (40 C.F.R. § 122.41(n)(2).)
2. Conditions necessary for a demonstration of upset. A Discharger who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs or other relevant evidence that (40 C.F.R. § 122.41(n)(3)):
 - a. An upset occurred and that the Discharger can identify the cause(s) of the upset (40 C.F.R. § 122.41(n)(3)(i));
 - b. The permitted facility was, at the time, being properly operated (40 C.F.R. § 122.41(n)(3)(ii));
 - c. The Discharger submitted notice of the upset as required in Standard Provisions – Reporting V.E.2.b below (24-hour notice) (40 C.F.R. § 122.41(n)(3)(iii)); and
 - d. The Discharger complied with any remedial measures required under Standard Provisions – Permit Compliance I.C above. (40 C.F.R. § 122.41(n)(3)(iv).)

3. Burden of proof. In any enforcement proceeding, the Discharger seeking to establish the occurrence of an upset has the burden of proof. (40 C.F.R. § 122.41(n)(4).)

II. STANDARD PROVISIONS – PERMIT ACTION

A. General

This Order may be modified, revoked and reissued, or terminated for cause. The filing of a request by the Discharger for modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any Order condition. (40 C.F.R. § 122.41(f).)

B. Duty to Reapply

If the Discharger wishes to continue an activity regulated by this Order after the expiration date of this Order, the Discharger must apply for and obtain a new permit. (40 C.F.R. § 122.41(b).)

C. Transfers

This Order is not transferable to any person except after notice to the Central Valley Water Board. The Central Valley Water Board may require modification or revocation and reissuance of the Order to change the name of the Discharger and incorporate such other requirements as may be necessary under the CWA and the Water Code. (40 C.F.R. § 122.41(l)(3); 122.61.)

III. STANDARD PROVISIONS – MONITORING

- A. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. (40 C.F.R. § 122.41(j)(1).)
- B. Monitoring must be conducted according to test procedures approved under 40 C.F.R. part 136 for the analyses of pollutants unless another method is required under 40 C.F.R. subchapters N or O. Monitoring must be conducted according to sufficiently sensitive test methods approved under 40 C.F.R. part 136 for the analysis of pollutants or pollutant parameters or as required under 40 C.F.R. chapter 1, subchapter N or O. For the purposes of this paragraph, a method is sufficiently sensitive when the method has the lowest ML of the analytical methods approved under 40 C.F.R. part 136 or required under 40 C.F.R. chapter 1, subchapter N or O for the measured pollutant or pollutant parameter, or when:
 1. The method minimum level (ML) is at or below the level of the most stringent effluent limitation established in the permit for the measured pollutant or pollutant parameter, and:
 - a. The method ML is at or below the level of the most stringent applicable water quality criterion for the measured pollutant or pollutant parameter, or;
 - b. The method ML is above the applicable water quality criterion but the amount of the pollutant or pollutant parameter in the facility's discharge is high enough that the method detects and quantifies the level of the pollutant or pollutant parameter in the discharge;

In the case of pollutants or pollutant parameters for which there are no approved methods under 40 C.F.R. part 136 or otherwise required under 40 C.F.R. chapter 1, subchapters N or O, monitoring must be conducted according to a test procedure specified in this Order for such pollutants or pollutant parameters. (40 C.F.R. § 122.21(e)(3), 122.41(j)(4); 122.44(i)(1)(iv).)

IV. STANDARD PROVISIONS – RECORDS

- A.** Except for records of monitoring information required by this Order related to the Discharger's sewage sludge use and disposal activities, which shall be retained for a period of at least five years (or longer as required by 40 C.F.R. part 503), the Discharger shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this Order, and records of all data used to complete the application for this Order, for a period of at least three (3) years from the date of the sample, measurement, report or application. This period may be extended by request of the Central Valley Water Board Executive Officer at any time. (40 C.F.R. § 122.41(j)(2).)
- B.** Records of monitoring information shall include:
1. The date, exact place, and time of sampling or measurements (40 C.F.R. § 122.41(j)(3)(i));
 2. The individual(s) who performed the sampling or measurements (40 C.F.R. § 122.41(j)(3)(ii));
 3. The date(s) analyses were performed (40 C.F.R. § 122.41(j)(3)(iii));
 4. The individual(s) who performed the analyses (40 C.F.R. § 122.41(j)(3)(iv));
 5. The analytical techniques or methods used (40 C.F.R. § 122.41(j)(3)(v)); and
 6. The results of such analyses. (40 C.F.R. § 122.41(j)(3)(vi).)
- C.** Claims of confidentiality for the following information will be denied (40 C.F.R. § 122.7(b)):
1. The name and address of any permit applicant or Discharger (40 C.F.R. § 122.7(b)(1)); and
 2. Permit applications and attachments, permits and effluent data. (40 C.F.R. § 122.7(b)(2).)

V. STANDARD PROVISIONS – REPORTING

A. Duty to Provide Information

The Discharger shall furnish to the Central Valley Water Board, State Water Board, or U.S. EPA within a reasonable time, any information which the Central Valley Water Board, State Water Board, or U.S. EPA may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this Order or to determine compliance with this Order. Upon request, the Discharger shall also furnish to the Central Valley Water Board, State Water Board, or U.S. EPA copies of records required to be kept by this Order. (40 C.F.R. § 122.41(h); Wat. Code, §§ 13267, 13383.)

B. Signatory and Certification Requirements

1. All applications, reports, or information submitted to the Central Valley Water Board, State Water Board, and/or U.S. EPA shall be signed and certified in accordance with Standard Provisions – Reporting V.B.2, V.B.3, V.B.4, V.B.5, and V.B.6 below. (40 C.F.R. § 122.41(k).)
2. All permit applications shall be signed by either a principal executive officer or ranking elected official. For purposes of this provision, a principal executive officer of a federal agency includes: (i) the chief executive officer of the agency, or (ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of U.S. EPA). (40 C.F.R. § 122.22(a)(3).)

3. All reports required by this Order and other information requested by the Central Valley Water Board, State Water Board, or U.S. EPA shall be signed by a person described in Standard Provisions – Reporting V.B.2 above, or by a duly authorized representative of that person. A person is a duly authorized representative only if:
 - a. The authorization is made in writing by a person described in Standard Provisions – Reporting V.B.2 above (40 C.F.R. § 122.22(b)(1));
 - b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.) (40 C.F.R. § 122.22(b)(2)); and
 - c. The written authorization is submitted to the Central Valley Water Board and State Water Board. (40 C.F.R. § 122.22(b)(3).)
4. If an authorization under Standard Provisions – Reporting V.B.3 above is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of Standard Provisions – Reporting V.B.3 above must be submitted to the Central Valley Water Board and State Water Board prior to or together with any reports, information, or applications, to be signed by an authorized representative. (40 C.F.R. § 122.22(c).)
5. Any person signing a document under Standard Provisions – Reporting V.B.2 or V.B.3 above shall make the following 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.” (40 C.F.R. § 122.22(d).)
6. Any person providing the electronic signature for such documents described in Standard Provision – V.B.1, V.B.2, or V.B.3 that are submitted electronically shall meet all relevant requirements of Standard Provisions – Reporting V.B, and shall ensure that all of the relevant requirements of 40 C.F.R. part 3 (Cross-Media Electronic Reporting) and 40 C.F.R. part 127 (NPDES Electronic Reporting Requirements) are met for that submission. (40 C.F.R § 122.22(e).)

C. Monitoring Reports

1. Monitoring results shall be reported at the intervals specified in the Monitoring and Reporting Program (Attachment E) in this Order. (40 C.F.R. § 122.41(l)(4).)
2. Monitoring results must be reported on a Discharge Monitoring Report (DMR) form or forms provided or specified by the Central Valley Water Board or State Water Board for reporting the results of monitoring, sludge use, or disposal practices. As of 21 December 2016 all reports and forms must be submitted electronically to the initial recipient,

defined in Standard Provisions – Reporting V.J, and comply with 40 C.F.R. part 3, section 122.22, and 40 C.F.R. part 127. (40 C.F.R. § 122.41(l)(4)(i).)

3. If the Discharger monitors any pollutant more frequently than required by this Order using test procedures approved under 40 C.F.R. part 136, or another method required for an industry-specific waste stream under 40 C.F.R. subchapters N or O, the results of such monitoring shall be included in the calculation and reporting of the data submitted in the DMR or sludge reporting form specified by the Central Valley Water Board. (40 C.F.R. § 122.41(l)(4)(ii).)
4. Calculations for all limitations, which require averaging of measurements, shall utilize an arithmetic mean unless otherwise specified in this Order. (40 C.F.R. § 122.41(l)(4)(iii).)

D. Compliance Schedules

Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this Order, shall be submitted no later than 14 days following each schedule date. (40 C.F.R. § 122.41(l)(5).)

E. Twenty-Four Hour Reporting

1. The Discharger shall report any noncompliance which may endanger health or the environment. Any information shall be provided orally within 24 hours from the time the Discharger becomes aware of the circumstances. A report shall also be provided within five (5) days of the time the Discharger becomes aware of the circumstances. The report shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

For noncompliance events related to combined sewer overflows, sanitary sewer overflows, or bypass events, these reports must include the data described above (with the exception of time of discovery) as well as the type of event (combined sewer overflows, sanitary sewer overflows, or bypass events), type of sewer overflow structure (e.g., manhole, combined sewer overflow outfall), discharge volumes untreated by the treatment works treating domestic sewage, types of human health and environmental impacts of the sewer overflow event, and whether the noncompliance was related to wet weather.

As of 21 December 2020 all reports related to combined sewer overflows, sanitary sewer overflows, or bypass events must be submitted electronically to the initial recipient (State Water Board) defined in Standard Provisions – Reporting V.J. The reports shall comply with 40 C.F.R. part 3. The may also require the Discharger to electronically submit reports not related to combined sewer overflows, sanitary sewer overflows, or bypass events under this section. (40 C.F.R. § 122.41(l)(6)(i).)

F. Planned Changes

The Discharger shall give notice to the Central Valley Water Board as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required under this provision only when (40 C.F.R. § 122.41(l)(1)):

1. The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in section 122.29(b) (40 C.F.R. § 122.41(l)(1)(i)); or

2. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants that are not subject to effluent limitations in this Order. (40 C.F.R. § 122.41(l)(1)(ii).)

- G.** The alteration or addition results in a significant change in the Discharger's sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan. (40 C.F.R. § 122.41(l)(1)(iii).) Anticipated Noncompliance

The Discharger shall give advance notice to the Central Valley Water Board of any planned changes in the permitted facility or activity that may result in noncompliance with this Order's requirements. (40 C.F.R. § 122.41(l)(2).)

H. Other Noncompliance

The Discharger shall report all instances of noncompliance not reported under Standard Provisions – Reporting V.C, V.D, and V.E above at the time monitoring reports are submitted. The reports shall contain the information listed in Standard Provision – Reporting V.E above. For noncompliance events related to combined sewer overflows, sanitary sewer overflows, or bypass events, these reports shall contain the information described in Standard Provision – Reporting V.E and the applicable required data in appendix A to 40 C.F.R. part 127. The Central Valley Water Board may also require the Discharger to electronically submit reports not related to combined sewer overflows, sanitary sewer overflows, or bypass events under this section. (40 C.F.R. § 122.41(l)(7).)

I. Other Information

When the Discharger becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Central Valley Water Board, State Water Board, or U.S. EPA, the Discharger shall promptly submit such facts or information. (40 C.F.R. § 122.41(l)(8).)

J. Initial Recipient for Electronic Reporting Data

The owner, operator, or the duly authorized representative is required to electronically submit NPDES information specified in appendix A to 40 C.F.R. part 127 to the appropriate initial recipient, as determined by U.S. EPA, and as defined in 40 C.F.R. section 127.2(b). U.S. EPA will identify and publish the list of initial recipients on its website and in the Federal Register, by state and by NPDES data group [see 40 C.F.R. section 127.2(c)]. U.S. EPA will update and maintain this listing. (40 C.F.R. § 122.41(l)(9).)

VI. STANDARD PROVISIONS – ENFORCEMENT

- A.** The Central Valley Water Board is authorized to enforce the terms of this permit under several provisions of the Water Code, including, but not limited to, sections 13385, 13386, and 13387.

VII. ADDITIONAL PROVISIONS – NOTIFICATION LEVELS

A. Publicly-Owned Treatment Works (POTW's)

All POTW's shall provide adequate notice to the Central Valley Water Board of the following (40 C.F.R. § 122.42(b)):

1. Any new introduction of pollutants into the POTW from an indirect discharger that would be subject to sections 301 or 306 of the CWA if it were directly discharging those pollutants (40 C.F.R. § 122.42(b)(1)); and
2. Any substantial change in the volume or character of pollutants being introduced into that POTW by a source introducing pollutants into the POTW at the time of adoption of the Order. (40 C.F.R. § 122.42(b)(2).)
3. Adequate notice shall include information on the quality and quantity of effluent introduced into the POTW as well as any anticipated impact of the change on the quantity or quality of effluent to be discharged from the POTW. (40 C.F.R. § 122.42(b)(3).)

ATTACHMENT E – MONITORING AND REPORTING PROGRAM

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ATTACHMENT E – MONITORING AND REPORTING PROGRAM (MRP)

The Code of Federal Regulations (40 C.F.R. § 122.48) requires that all NPDES permits specify monitoring and reporting requirements. Water Code sections 13267 and 13383 also authorize the Central Valley Water Board to require technical and monitoring reports. This MRP establishes monitoring and reporting requirements that implement federal and California regulations.

I. GENERAL MONITORING PROVISIONS

- A.** Samples and measurements taken as required herein shall be representative of the volume and nature of the monitored discharge. All samples shall be taken at the monitoring locations specified below and, unless otherwise specified, before the monitored flow joins or is diluted by any other waste stream, body of water, or substance. Monitoring locations shall not be changed without notification to and the approval of the Central Valley Water Board.
- B.** Final effluent samples shall be taken downstream of the last addition of wastes to the treatment or discharge works where a representative sample may be obtained prior to mixing with the receiving waters. Samples shall be collected at such a point and in such a manner to ensure a representative sample of the discharge.
- C.** Chemical, bacteriological, and bioassay analyses of any material required by this Order shall be conducted by a laboratory accredited for such analyses by the State Water Resources Control Board (State Water Board), Division of Drinking Water (DDW; formerly the Department of Public Health). Laboratories that perform sample analyses must be identified in all monitoring reports submitted to the Central Valley Water Board. In the event an accredited laboratory is not available to the Discharger for any onsite field measurements such as pH, dissolved oxygen (DO), turbidity, temperature, and residual chlorine, such analyses performed by a non-accredited laboratory will be accepted provided a Quality Assurance-Quality Control Program is instituted by the laboratory. A manual containing the steps followed in this program for any onsite field measurements such as pH, DO, turbidity, temperature, and residual chlorine must be kept onsite in the treatment facility laboratory and shall be available for inspection by Central Valley Water Board staff. The Discharger must demonstrate sufficient capability (qualified and trained employees, properly calibrated and maintained field instruments, etc.) to adequately perform these field measurements. The Quality Assurance-Quality Control Program must conform to USEPA guidelines or to procedures approved by the Central Valley Water Board.
- D.** Appropriate flow measurement devices and methods consistent with accepted scientific practices shall be selected and used to ensure the accuracy and reliability of measurements of the volume of monitored discharges. All monitoring instruments and devices used by the Discharger to fulfill the prescribed monitoring program shall be properly maintained and calibrated as necessary, at least yearly, to ensure their continued accuracy. All flow measurement devices shall be calibrated at least once per year to ensure continued accuracy of the devices.
- E.** Monitoring results, including noncompliance, shall be reported at intervals and in a manner specified in this Monitoring and Reporting Program.
- F.** Laboratories analyzing monitoring samples shall be accredited by DDW, in accordance with the provision of Water Code section 13176, and must include quality assurance/quality control data with their reports.

- G. The Discharger shall ensure that the results of the Discharge Monitoring Report-Quality Assurance (DMR-QA) Study or the most recent Water Pollution Performance Evaluation Study are submitted annually to the State Water Resources Control Board at the following address:

State Water Resources Control Board
 Quality Assurance Program Officer
 Office of Information Management and Analysis
 1001 I Street, Sacramento, CA 95814

- H. The Discharger shall file with the Central Valley Water Board technical reports on self-monitoring performed according to the detailed specifications contained in this Monitoring and Reporting Program.
- I. The results of all monitoring required by this Order shall be reported to the Central Valley Water Board, and shall be submitted in such a format as to allow direct comparison with the limitations and requirements of this Order. Unless otherwise specified, discharge flows shall be reported in terms of the monthly average and the daily maximum discharge flows.

II. MONITORING LOCATIONS

The Discharger shall establish the following monitoring locations to demonstrate compliance with the effluent limitations, discharge specifications, and other requirements in this Order:

Table E-1. Monitoring Station Locations

Discharge Point Name	Monitoring Location Name	Monitoring Location Description
--	INF-001	A location where a representative sample of the influent into the Facility at the headworks can be obtained, prior to entry into any treatment process
--	REC-001	A location where a representative sample of the tertiary treated effluent can be obtained, after final treatment and prior to commingling with raw water from Lake Tulloch in the recycled water storage tank.
001	REC-002	A location in Pond NC-2D where a representative sample of water being used to irrigate the SCGC Jurisdictional Wetlands can be obtained. Latitude: 37° 54' 55" N, Longitude: 120° 37' 10" W
--	UVS-001	Ultraviolet Light (UV) Disinfection System
--	FIL-001	A location where a representative sample of effluent from the tertiary filtration system can be collected immediately following the filter and before UV disinfection

The North latitude and West longitude information in Table E-1 are approximate for administrative purposes.

III. INFLUENT MONITORING REQUIREMENTS

A. Monitoring Location INF-001

During months where direct discharges occur to the jurisdictional wetlands at Discharge Point 001 the Discharger shall monitor influent to the Facility at Monitoring Location INF-001 as follows:

Table E-2. Influent Monitoring

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Biochemical Oxygen Demand (5-day @ 20°C)	mg/L	24-hr Composite ²	1/Month	1
Total Suspended Solids	mg/L	24-hr Composite ²	1/Month	1

¹ Pollutants shall be analyzed using the analytical methods described in 40 CFR part 136; or by methods approved by the Central Valley Water Board or the State Water Board.

² 24-hour flow proportional composite.

IV. EFFLUENT MONITORING REQUIREMENTS

A. Monitoring Locations REC-001 and REC-002

- When discharging directly to the jurisdictional wetlands at Discharge Point 001, the Discharger shall monitor the effluent at monitoring locations REC-001 or REC-002 as follows. If more than one analytical test method is listed for a given parameter, the Discharger must select from the listed methods and corresponding Minimum Level.

Table E-3. Effluent Monitoring

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method	Monitoring Location
Flow to jurisdictional wetlands	MGD	Calculated ⁴	1/Day	--	REC-002
Conventional Pollutants					
pH	standard units	Grab	1/Week ³	1	REC-001
Biochemical Oxygen Demand (5-day at 20°C)	mg/L	24-hour composite ⁵	1/Week	1	REC-001
Total Suspended Solids	mg/L	24-hour composite ⁵	1/Week	1	REC-001
Non-Conventional Pollutants					
Ammonia Nitrogen, Total (as N)	mg/L	Grab	1/Month ²	1	REC-002
Nitrate plus Nitrite, (as N)	mg/L	Grab	1/Month	1	REC-002
Temperature	°F	Grab	1/Month ³	1	REC-002
Dissolved Oxygen	mg/L	Grab	1/Month ³	1	REC-002
Electrical Conductivity @ 25°C	µmhos/cm	Grab	1/Month ³	1	REC-002
Hardness, Total (as CaCO ₃)	mg/L	Grab	1/Quarter	1	REC-002

¹ Pollutants shall be analyzed using the analytical methods described in 40 CFR Part 136 or by methods requested by the Discharger that have been approved by the Central Valley Water Board or the State Water Board.

² pH and temperature shall be recorded at the time of ammonia sample collection. A hand-held field meter may be used as discussed in footnote 3, below.

³ A hand-held field meter may be used, provided the meter utilizes a USEPA-approved algorithm/method and is calibrated and maintained in accordance with the manufacturer's instructions. A calibration and maintenance log for each meter used for monitoring required by this Monitoring and Reporting Program shall be maintained at the Facility.

⁴ Flow may be estimated based on pumping records for the irrigation pumps at Pond NC-2D.

⁵ 24-hour flow proportional composite.

V. WHOLE EFFLUENT TOXICITY TESTING REQUIREMENTS

A. Acute Toxicity Testing. The Discharger shall conduct acute toxicity testing to determine whether the effluent is contributing acute toxicity to the receiving water. The Discharger shall meet the following acute toxicity testing requirements:

1. Monitoring Frequency – When discharging directly to the jurisdictional wetlands at Discharge Point 001, the Discharger shall perform **once per permit term** acute toxicity testing, concurrent with effluent ammonia sampling.
2. Sample Types – The Discharger may use flow-through or static renewal testing. For static renewal testing, the samples shall be flow proportional 24-hour composite samples and shall be representative of the volume and quality of the discharge. The effluent samples shall be taken at Monitoring Location REC-001.
3. Test Species – Test species shall be fathead minnows (*Pimephales promelas*).
4. Methods – The acute toxicity testing samples shall be analyzed using EPA-821-R-02-012, Fifth Edition. Temperature, total residual chlorine, and pH shall be recorded at the time of sample collection. No pH adjustment may be made unless approved by the Executive Officer.
5. Test Failure – If an acute toxicity test does not meet all test acceptability criteria, as specified in the test method, the Discharger must re-sample and re-test as soon as possible, not to exceed 7 days following notification of test failure.

B. Chronic Toxicity Testing. The Discharger shall meet the following chronic toxicity testing requirements:

1. Monitoring Frequency – When discharging directly to the jurisdictional wetlands at Discharge Point 001, the Discharger shall perform routine **once per permit term** chronic toxicity testing. If the result of the routine chronic toxicity testing event exhibits toxicity, demonstrated by a result greater than 1.3 TU_c (as 100/EC₂₅) **AND** a percent effect greater than 25 percent at 100 percent effluent, the Discharger has the option of conducting two additional compliance monitoring events and perform chronic toxicity testing using the species that exhibited toxicity in order to calculate a median. The optional compliance monitoring events shall occur at least one week apart, and the final monitoring event shall be initiated no later than 6 weeks from the routine monitoring event that exhibited toxicity.

Sample Types – Effluent samples shall be flow proportional 24-hour composite samples and shall be representative of the volume and quality of the discharge. The effluent samples shall be taken at Monitoring Location REC-001.

Sample Volumes – Adequate sample volumes shall be collected to provide renewal water to complete the test in the event that the discharge is intermittent.

3. Test Species – Chronic toxicity testing measures sublethal (e.g., reduced growth, reproduction) and/or lethal effects to test organisms exposed to an effluent compared to that of the control organisms. The Discharger shall conduct chronic toxicity tests with:
 - a. The cladoceran, water flea, *Ceriodaphnia dubia* (survival and reproduction test);
 - b. The fathead minnow, *Pimephales promelas* (larval survival and growth test); and
 - c. The green alga, *Pseudokirchneriella subcapitata* (growth test).

Methods – The presence of chronic toxicity shall be estimated as specified in *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, Fourth Edition*, EPA/821-R-02-013, October 2002.

Reference Toxicant – As required by the SIP, all chronic toxicity tests shall be conducted with concurrent testing with a reference toxicant and shall be reported with the chronic toxicity test results.

Dilutions –For routine and compliance chronic toxicity monitoring, the chronic toxicity testing shall be performed using the dilution series identified in Table E-4, below. For TRE monitoring, the chronic toxicity testing shall be performed using the dilution series identified in Table E-4, below, unless an alternative dilution series is detailed in the submitted TRE Action Plan. Laboratory water control shall be used as the diluent.

Table E-4. Chronic Toxicity Testing Dilution Series

Sample	Dilutions ^a (%)					Control
	100	75	50	25	12.5	
% Effluent	100	75	50	25	12.5	0
% Control Water	0	25	50	75	87.5	100

^a Laboratory water control shall be used as the diluent.

Test Failure – The Discharger must re-sample and re-test as soon as possible, but no later than fourteen (14) days after receiving notification of a test failure. A test failure is defined as follows:

- a. The reference toxicant test or the effluent test does not meet all test acceptability criteria as specified in the *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, Fourth Edition*, EPA/821-R-02-013, October 2002 (Method Manual), and its subsequent amendments or revisions; or
 - b. The percent minimum significant difference (PMSD) measured for the test exceeds the upper PMSD bound variability criterion in the Method Manual.
- C. WET Testing Notification Requirements.** The Discharger shall notify the Central Valley Water Board within 24-hours after the receipt of test results exceeding the monitoring trigger during regular or accelerated monitoring, or an exceedance of the acute toxicity effluent limitation.
- D. WET Testing Reporting Requirements.** All toxicity test reports shall include the contracting laboratory’s complete report provided to the Discharger and shall be in accordance with the appropriate “Report Preparation and Test Review” sections of the method manuals. At a minimum, whole effluent toxicity monitoring shall be reported as follows:
1. **Chronic WET Reporting.** Routine and compliance chronic toxicity monitoring results shall be reported to the Central Valley Water Board with the once per permit term self-monitoring report, and shall contain, at minimum:
 - a. The results expressed in TU_c, measured as 100/NOEC, and also measured as 100/LC50, 100/EC25, 100/IC25, and 100/IC50, as appropriate.
 - b. The statistical methods used to calculate endpoints;
 - c. The statistical output page, which includes the calculation of the percent minimum significant difference (PMSD);

- d. The dates of sample collection and initiation of each toxicity test; and
- e. The results compared to the numeric toxicity monitoring trigger.

Additionally, the once per permit term self-monitoring reports shall contain an updated chronology of chronic toxicity test results expressed in TUC, and organized by test species, type of test (survival, growth or reproduction), and monitoring type, i.e., routine, compliance, TES, or TRE monitoring.

- 2. **Acute WET Reporting.** Acute toxicity test results shall be submitted with the monthly discharger self-monitoring reports and reported as percent survival.
- 3. **TRE Reporting.** Reports for TREs shall be submitted in accordance with the schedule contained in the Discharger's approved TRE Workplan, or as amended by the Discharger's TRE Action Plan.
- 4. **Quality Assurance (QA).** The Discharger must provide the following information for QA purposes:
 - a. Results of the applicable reference toxicant data with the statistical output page giving the species, NOEC, LOEC, type of toxicant, dilution water used, concentrations used, PMSD, and dates tested.
 - b. The reference toxicant control charts for each endpoint, which include summaries of reference toxicant tests performed by the contracting laboratory.
 - c. Any information on deviations or problems encountered and how they were dealt with.

VI. LAND DISCHARGE MONITORING REQUIREMENTS

Land discharge monitoring requirements for the Facility are contained in Order R5-2010-0070.

VII. RECYCLING MONITORING REQUIREMENTS

A. Saddle Creek Golf Course

- 1. Monitoring of the Saddle Creek Golf Course shall be conducted as specified in the table below and the results shall be included in the monthly SMRs. Monitoring of the golf course shall include the following:

Table E-5. Reclamation Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency
Recycled Water flow to Pond NC-2D ¹	MGD	Meter	Continuous
Recycled Water volume to Pond NC-2D ¹	acre-feet	Calculate	1/Month
Raw Water volume to Pond NC-2D	acre-feet	Calculate	1/Month
Volume of Recycled Water Applied	acre-feet	Calculate	1/Month
Application Rate ²	gal/acre/day	Calculate	1/Month
Soil Saturation/Ponding	--	Observation	1/Month
Nuisance Odors/Vectors	--	Observation	1/Month
Discharge Off-Site	--	Observation	1/Month
Notification Signs ³	--	Observation	1/Month

Parameter	Units	Sample Type	Minimum Sampling Frequency
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- ¹ Measured at Monitoring Location REC-001
- ² May be estimated based on available data
- ³ Notification signs shall be consistent with the requirements of Title 22, Section 60310(g).

- 2. The entire irrigated area shall be inspected at least monthly during or immediately following an irrigation event to identify any equipment malfunction or other circumstances that might allow irrigation runoff to leave the irrigation area and/or create ponding conditions that violate the waste discharge requirements. Evidence of erosion, saturation, irrigation runoff, or the presence of nuisance conditions shall be evaluated. A daily log of these inspections shall be kept at the Facility and made available for review upon request.

B. Ultraviolet (UV) Disinfection System

- 1. When supplying recycled water to Pond NC-2D the Discharger shall monitor the UV disinfection system as follows:

Table E-6. UV Disinfection System Monitoring

Parameter	Units	Sample Type	Minimum Sampling Frequency
Flow	MGD	Meter ¹	Continuous ⁴
Turbidity ⁷	NTU	Meter ²	Continuous ^{4,5}
Total Coliform Organisms ⁷	MPN/100 mL	Grab ³	1/Day
Number of UV banks in operation	Number	Meter ¹	Continuous ⁴
UV Transmittance	Percent (%)	Meter ¹	Continuous ⁴
UV Dose ⁶	MW-sec/cm	Calculated ¹	Continuous ⁴

- ¹ Measured at Monitoring Location UVS-001
- ² Measured at Monitoring Location FIL-001
- ³ Measured immediately after disinfection
- ⁴ For continuous analyzers, the Discharger shall report documented routine meter maintenance activities including date, time of day, and duration, in which the analyzer(s) is not in operation. If analyzer(s) fail to provide continuous monitoring for more than two hours and influent and/or effluent from the disinfection process is not diverted for retreatment, the Discharger shall obtain and report hourly manual and/or grab sample results. The Discharger shall not decrease power settings or reduce the number of UV lamp banks in operation while the continuous analyzers are out of service and water is being disinfected.
- ⁵ Report daily average and maximum turbidity.
- ⁶ Report daily minimum hourly UV dose and daily average UV dose. The daily minimum hourly UV dose shall consist of lowest hourly average dose provided in any channel that had at least one bank of lamps operating during the hour interval. For channels that did not operate for the entire hour interval, the dose shall be averaged based on the actual operation time.
- ⁷ Pollutants shall be analyzed using the analytical methods described in 40 CFR Part 136 or by methods requested by the Discharger that have been approved by the Central Valley Water Board or the State Water Board.

VIII. RECEIVING WATER MONITORING REQUIREMENTS

Receiving water monitoring is not required by this Order. Sampling for compliance with the receiving surface water limitations will be established through monitoring of the Facility's effluent at monitoring locations REC-001 and REC-002.

IX. OTHER MONITORING REQUIREMENTS

A. Municipal Water Supply

Water supply monitoring requirements for the Facility are contained in Order R5-2010-0070.

B. Effluent and Receiving Water Characterization

1. **Once Per Permit Term Monitoring.** Once per permit term, when discharging directly to the jurisdictional wetlands at Discharge Point 001, a sample shall be collected from the effluent (Monitoring Location REC-001) and analyzed for the constituents listed in Table E-7, below. Monitoring shall be conducted during 2021 and the results of such monitoring be submitted to the Central Valley Water Board with the monthly self-monitoring reports. The monitoring event shall provide representative sample results for the effluent.
2. **Sample Type.** Effluent samples shall be taken as described in Table E-7, below.

Table E-7. Effluent Characterization Monitoring

Parameter	Units	Sample Type	Maximum Reporting Level ¹
2- Chloroethyl vinyl ether	µg/L	Grab	1
Acrolein	µg/L	Grab	2
Acrylonitrile	µg/L	Grab	2
Benzene	µg/L	Grab	0.5
Bromoform	µg/L	Grab	0.5
Carbon Tetrachloride	µg/L	Grab	0.5
Chlorobenzene	µg/L	Grab	0.5
Chloroethane	µg/L	Grab	0.5
Chloroform	µg/L	Grab	2
Chloromethane	µg/L	Grab	2
Dibromochloromethane	µg/L	Grab	0.5
Dichlorobromomethane	µg/L	Grab	0.5
Dichloromethane	µg/L	Grab	2
Ethylbenzene	µg/L	Grab	2
Hexachlorobenzene	µg/L	Grab	1
Hexachlorobutadiene	µg/L	Grab	1
Hexachloroethane	µg/L	Grab	1
Methyl bromide (Bromomethane)	µg/L	Grab	1
Naphthalene	µg/L	Grab	10
3-Methyl-4-Chlorophenol	µg/L	Grab	
Tetrachloroethene	µg/L	Grab	0.5
Toluene	µg/L	Grab	2
trans-1,2-Dichloroethylene	µg/L	Grab	1
Trichloroethene	µg/L	Grab	2
Vinyl chloride	µg/L	Grab	0.5
Methyl-tert-butyl ether (MTBE)	µg/L	Grab	
Trichlorofluoromethane	µg/L	Grab	
1,1,1-Trichloroethane	µg/L	Grab	0.5
1,1,2- Trichloroethane	µg/L	Grab	0.5
1,1-dichloroethane	µg/L	Grab	0.5
1,1-dichloroethylene	µg/L	Grab	0.5
1,2-dichloropropane	µg/L	Grab	0.5
1,3-dichloropropylene	µg/L	Grab	0.5

Parameter	Units	Sample Type	Maximum Reporting Level ¹
1,1,2,2-tetrachloroethane	µg/L	Grab	0.5
1,1,2-Trichloro-1,2,2-Trifluoroethane	µg/L	Grab	0.5
1,2,4-trichlorobenzene	µg/L	Grab	1
1,2-dichloroethane	µg/L	Grab	0.5
1,2-dichlorobenzene	µg/L	Grab	0.5
1,3-dichlorobenzene	µg/L	Grab	0.5
1,4-dichlorobenzene	µg/L	Grab	0.5
Styrene	µg/L	Grab	
Xylenes	µg/L	Grab	
1,2-Benzanthracene	µg/L	Grab	5
1,2-Diphenylhydrazine	µg/L	Grab	1
2-Chlorophenol	µg/L	Grab	5
2,4-Dichlorophenol	µg/L	Grab	5
2,4-Dimethylphenol	µg/L	Grab	2
2,4-Dinitrophenol	µg/L	Grab	5
2,4-Dinitrotoluene	µg/L	Grab	5
2,4,6-Trichlorophenol	µg/L	Grab	10
2,6-Dinitrotoluene	µg/L	Grab	5
2-Nitrophenol	µg/L	Grab	10
2-Chloronaphthalene	µg/L	Grab	10
3,3'-Dichlorobenzidine	µg/L	Grab	5
3,4-Benzofluoranthene	µg/L	Grab	10
4-Chloro-3-methylphenol	µg/L	Grab	5
4,6-Dinitro-2-methylphenol	µg/L	Grab	10
4-Nitrophenol	µg/L	Grab	10
4-Bromophenyl phenyl ether	µg/L	Grab	10
4-Chlorophenyl phenyl ether	µg/L	Grab	5
Acenaphthene	µg/L	Grab	1
Acenaphthylene	µg/L	Grab	10
Anthracene	µg/L	Grab	10
Benzidine	µg/L	Grab	5
Benzo(a)pyrene (3,4-Benzopyrene)	µg/L	Grab	2
Benzo(g,h,i)perylene	µg/L	Grab	5
Benzo(k)fluoranthene	µg/L	Grab	2
Bis(2-chloroethoxy) methane	µg/L	Grab	5
Bis(2-chloroethyl) ether	µg/L	Grab	1
Bis(2-chloroisopropyl) ether	µg/L	Grab	10
Bis(2-ethylhexyl) phthalate	µg/L	Grab	5
Butyl benzyl phthalate	µg/L	Grab	10
Chrysene	µg/L	Grab	5
Di-n-butylphthalate	µg/L	Grab	10
Di-n-octylphthalate	µg/L	Grab	10
Dibenzo(a,h)-anthracene	µg/L	Grab	0.1
Diethyl phthalate	µg/L	Grab	10
Dimethyl phthalate	µg/L	Grab	10
Fluoranthene	µg/L	Grab	10
Fluorene	µg/L	Grab	10
Hexachlorocyclopentadiene	µg/L	Grab	5
Indeno(1,2,3-c,d)pyrene	µg/L	Grab	0.05

Parameter	Units	Sample Type	Maximum Reporting Level ¹
Isophorone	µg/L	Grab	1
N-Nitrosodiphenylamine	µg/L	Grab	1
N-Nitrosodimethylamine	µg/L	Grab	5
N-Nitrosodi-n-propylamine	µg/L	Grab	5
Nitrobenzene	µg/L	Grab	10
Pentachlorophenol	µg/L	Grab	1
Phenanthrene	µg/L	Grab	5
Phenol	µg/L	Grab	1
Pyrene	µg/L	Grab	10
Aluminum	µg/L	24-hr Composite ⁴	
Antimony	µg/L	24-hr Composite ⁴	5
Arsenic	µg/L	24-hr Composite ⁴	10
Asbestos	MFL	24-hr Composite ⁴	
Barium	µg/L	24-hr Composite ⁴	
Beryllium	µg/L	24-hr Composite ⁴	2
Cadmium	µg/L	24-hr Composite ⁴	0.5
Chromium (Total)	µg/L	24-hr Composite ⁴	10
Chromium (VI)	µg/L	24-hr Composite ⁴	10
Copper	µg/L	24-hr Composite ⁴	0.5
Cyanide	µg/L	24-hr Composite ⁴	5
Fluoride	µg/L	24-hr Composite ⁴	
Iron	µg/L	24-hr Composite ⁴	
Lead	µg/L	24-hr Composite ⁴	0.5
Mercury	µg/L	Grab	0.5
Manganese	µg/L	24-hr Composite ⁴	
Molybdenum	µg/L	24-hr Composite ⁴	
Nickel	µg/L	24-hr Composite ⁴	20
Selenium	µg/L	24-hr Composite ⁴	5
Silver	µg/L	24-hr Composite ⁴	0.25
Thallium	µg/L	24-hr Composite ⁴	1
Tributyltin	µg/L	24-hr Composite ⁴	
Zinc	µg/L	24-hr Composite ⁴	20
4,4'-DDD	µg/L	24-hr Composite ⁴	0.05
4,4'-DDE	µg/L	24-hr Composite ⁴	0.05
4,4'-DDT	µg/L	24-hr Composite ⁴	0.01
alpha-Endosulfan	µg/L	24-hr Composite ⁴	0.02
alpha-Hexachlorocyclohexane (BHC)	µg/L	24-hr Composite ⁴	0.01
Alachlor	µg/L	24-hr Composite ⁴	
Aldrin	µg/L	24-hr Composite ⁴	0.005
beta-Endosulfan	µg/L	24-hr Composite ⁴	0.01
beta-Hexachlorocyclohexane	µg/L	24-hr Composite ⁴	0.005
Chlordane	µg/L	24-hr Composite ⁴	0.1
delta-Hexachlorocyclohexane	µg/L	24-hr Composite ⁴	0.005
Dieldrin	µg/L	24-hr Composite ⁴	0.01
Endosulfan sulfate	µg/L	24-hr Composite ⁴	0.01
Endrin	µg/L	24-hr Composite ⁴	0.01
Endrin Aldehyde	µg/L	24-hr Composite ⁴	0.01
Heptachlor	µg/L	24-hr Composite ⁴	0.01
Heptachlor Epoxide	µg/L	24-hr Composite ⁴	0.02

Parameter	Units	Sample Type	Maximum Reporting Level ¹
Lindane (gamma-Hexachlorocyclohexane)	µg/L	24-hr Composite ⁴	0.5
PCB-1016	µg/L	24-hr Composite ⁴	0.5
PCB-1221	µg/L	24-hr Composite ⁴	0.5
PCB-1232	µg/L	24-hr Composite ⁴	0.5
PCB-1242	µg/L	24-hr Composite ⁴	0.5
PCB-1248	µg/L	24-hr Composite ⁴	0.5
PCB-1254	µg/L	24-hr Composite ⁴	0.5
PCB-1260	µg/L	24-hr Composite ⁴	0.5
Toxaphene	µg/L	24-hr Composite ⁴	
Atrazine	µg/L	24-hr Composite ⁴	
Bentazon	µg/L	24-hr Composite ⁴	
Carbofuran	µg/L	24-hr Composite ⁴	
2,4-D	µg/L	24-hr Composite ⁴	
Dalapon	µg/L	24-hr Composite ⁴	
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	24-hr Composite ⁴	
Di(2-ethylhexyl)adipate	µg/L	24-hr Composite ⁴	
Dinoseb	µg/L	24-hr Composite ⁴	
Diquat	µg/L	24-hr Composite ⁴	
Endothal	µg/L	24-hr Composite ⁴	
Ethylene Dibromide	µg/L	24-hr Composite ⁴	
Methoxychlor	µg/L	24-hr Composite ⁴	
Molinate (Ordrum)	µg/L	24-hr Composite ⁴	
Oxamyl	µg/L	24-hr Composite ⁴	
Picloram	µg/L	24-hr Composite ⁴	
Simazine (Princep)	µg/L	24-hr Composite ⁴	
Thiobencarb	µg/L	24-hr Composite ⁴	
2,3,7,8-TCDD (Dioxin)	µg/L	24-hr Composite ⁴	
2,4,5-TP (Silvex)	µg/L	24-hr Composite ⁴	
Diazinon	µg/L	24-hr Composite ⁴	
Chlorpyrifos	µg/L	24-hr Composite ⁴	
Ammonia (as N)	mg/L	24-hr Composite ⁴	
Boron	µg/L	24-hr Composite ⁴	
Chloride	mg/L	24-hr Composite ⁴	
Flow	MGD	Meter	
Hardness (as CaCO ₃)	mg/L	Grab	
Foaming Agents (MBAS)	µg/L	24-hr Composite ⁴	
Mercury, Methyl	ng/L	Grab	
Nitrate (as N)	mg/L	24-hr Composite ⁴	
Nitrite (as N)	mg/L	24-hr Composite ⁴	
pH	Std Units	Grab	
Phosphorus, Total (as P)	mg/L	24-hr Composite ⁴	
Specific conductance (EC)	µmhos/cm	24-hr Composite ⁴	
Sulfate	mg/L	24-hr Composite ⁴	
Sulfide (as S)	mg/L	24-hr Composite ⁴	
Sulfite (as SO ₃)	mg/L	24-hr Composite ⁴	
Temperature	°C	Grab	
Total Dissolved Solids (TDS)	mg/L	24-hr Composite ⁴	

¹ The reporting levels required in this table for priority pollutant constituents are established based on Section 2.4.2 and Appendix 4 of the SIP.

- ² In order to verify if bis (2-ethylhexyl) phthalate is truly present, the Discharger shall take steps to assure that sample containers, sampling apparatus, and analytical equipment are not sources of the detected contaminant.
- ³ The Discharger is not required to conduct effluent monitoring for constituents that have already been sampled in a given month, as required in Table E-3, except for hardness, pH, and temperature, which shall be conducted concurrently with the effluent sampling.
- ⁴ 24-hour flow proportional composite.

X. REPORTING REQUIREMENTS

A. General Monitoring and Reporting Requirements

1. The Discharger shall comply with all Standard Provisions (Attachment D) related to monitoring, reporting, and recordkeeping.
2. Upon written request of the Central Valley Water Board, the Discharger shall submit a summary monitoring report. The report shall contain both tabular and graphical summaries of the monitoring data obtained during the previous year(s).
3. **Compliance Time Schedules.** For compliance time schedules included in the Order, the Discharger shall submit to the Central Valley Water Board, on or before each compliance due date, the specified document or a written report detailing compliance or noncompliance with the specific date and task. If noncompliance is reported, the Discharger shall state the reasons for noncompliance and include an estimate of the date when the Discharger will be in compliance. The Discharger shall notify the Central Valley Water Board by letter when it returns to compliance with the compliance time schedule.
4. The Discharger shall report to the Central Valley Water Board any toxic chemical release data it reports to the State Emergency Response Commission within 15 days of reporting the data to the Commission pursuant to section 313 of the "*Emergency Planning and Community Right to Know Act*" of 1986.

B. Self-Monitoring Reports (SMRs)

1. The Discharger shall electronically submit SMRs using the State Water Board's California Integrated Water Quality System (CIWQS) Program website <http://www.waterboards.ca.gov/water_issues/programs/ciwqs/>. The CIWQS website will provide additional information for SMR submittal in the event there will be a planned service interruption for electronic submittal.
2. The Discharger shall report in the SMR the results for all monitoring specified in this MRP under sections III through IX. The Discharger shall submit **quarterly** SMRs including the results of all required monitoring using U.S. EPA-approved test methods or other test methods specified in this Order. SMRs are to include all new monitoring results obtained since the last SMR was submitted. If the Discharger monitors any pollutant more frequently than required by this Order, the results of this monitoring shall be included in the calculations and reporting of the data submitted in the SMR. Monthly SMRs are required even if there is no discharge. If no discharge occurs during the month, the monitoring report must be submitted stating that there has been no discharge.
3. Monitoring periods and reporting for all required monitoring shall be completed according to the following schedule:

Table E-8. Monitoring Periods and Reporting Schedule

Sampling Frequency	Monitoring Period Begins On...	Monitoring Period	SMR Due Date
Continuous	Permit effective date	All	Submit with monthly SMR
1/Day	Permit effective date	(Midnight through 11:59 PM) or any 24-hour period that reasonably represents a calendar day for purposes of sampling.	Submit with monthly SMR
1/Week	Permit effective date	Sunday through Saturday	Submit with monthly SMR
1/Month	Permit effective date	1 st day of calendar month through last day of calendar month	First day of second calendar month following month of sampling
1/Quarter	Permit effective date	1 January through 31 March 1 April through 30 June 1 July through 30 September 1 October through 31 December	1 May 1 August 1 November 1 February of following year
1/Year	Permit effective date	1 January through 31 December	1 February of following year
1/Permit Term	Permit effective date	Once during the third or fourth year following the date of permit adoption	First day of second calendar month following month of sampling

4. **Reporting Protocols.** The Discharger shall report with each sample result the applicable Reporting Level (RL) and the current laboratory’s Method Detection Limit (MDL), as determined by the procedure in 40 C.F.R. part 136.

The Discharger shall report the results of analytical determinations for the presence of chemical constituents in a sample using the following reporting protocols:

- a. Sample results greater than or equal to the RL shall be reported as measured by the laboratory (i.e., the measured chemical concentration in the sample).
- b. Sample results less than the RL, but greater than or equal to the laboratory’s MDL, shall be reported as “Detected, but Not Quantified,” or DNQ. The estimated chemical concentration of the sample shall also be reported.

For the purposes of data collection, the laboratory shall write the estimated chemical concentration next to DNQ. The laboratory may, if such information is available, include numerical estimates of the data quality for the reported result. Numerical estimates of data quality may be percent accuracy (\pm a percentage of the reported value), numerical ranges (low to high), or any other means considered appropriate by the laboratory.

- c. Sample results less than the laboratory’s MDL shall be reported as “Not Detected,” or ND.
- d. Dischargers are to instruct laboratories to establish calibration standards so that the Minimum Level (ML) value (or its equivalent if there is differential treatment of

samples relative to calibration standards) is the lowest calibration standard. At no time is the Discharger to use analytical data derived from extrapolation beyond the lowest point of the calibration curve.

5. **Multiple Sample Data.** When determining compliance with an AMEL for priority pollutants and more than one sample result is available, the Discharger shall compute the arithmetic mean unless the data set contains one or more reported determinations of "Detected, but Not Quantified" (DNQ) or "Not Detected" (ND). In those cases, the Discharger shall compute the median in place of the arithmetic mean in accordance with the following procedure:
 - a. The data set shall be ranked from low to high, ranking the reported ND determinations lowest, DNQ determinations next, followed by quantified values (if any). The order of the individual ND or DNQ determinations is unimportant.
 - b. The median value of the data set shall be determined. If the data set has an odd number of data points, then the median is the middle value. If the data set has an even number of data points, then the median is the average of the two values around the middle unless one or both of the points are ND or DNQ, in which case the median value shall be the lower of the two data points where DNQ is lower than a value and ND is lower than DNQ.
6. The Discharger shall submit SMRs in accordance with the following requirements:
 - a. The Discharger shall arrange all reported data in a tabular format. The data shall be summarized to clearly illustrate whether the facility is operating in compliance with interim and/or final effluent limitations. The Discharger is not required to duplicate the submittal of data that is entered in a tabular format within CIWQS. When electronic submittal of data is required and CIWQS does not provide for entry into a tabular format within the system, the Discharger shall electronically submit the data in a tabular format as an attachment.
 - b. The Discharger shall attach a cover letter to the SMR. The information contained in the cover letter shall clearly identify violations of the waste discharge requirements; discuss corrective actions taken or planned; and the proposed time schedule for corrective actions. Identified violations must include a description of the requirement that was violated and a description of the violation.
 - c. The Discharger shall attach all laboratory analysis sheets, including quality assurance/quality control information, with all its SMRs for which sample analyses were performed.

C. Discharge Monitoring Reports (DMR's) – Not Applicable

D. Other Reports

1. **Within 60 days of permit adoption**, the Discharger shall submit a report electronically via CIWQS submittal outlining reporting levels (RL's), method detection limits (MDL's), and analytical methods for the constituents listed in tables E-2, E-3, and E-7. The Discharger shall comply with the monitoring and reporting requirements for CTR constituents as outlined in section 2.3 and 2.4 of the SIP. The maximum required reporting levels for priority pollutant constituents shall be based on the Minimum Levels (ML's) contained in Appendix 4 of the SIP, determined in accordance with Section 2.4.2 and Section 2.4.3 of the SIP. In accordance with Section 2.4.2 of the SIP, when there is more than one ML value for a given substance, the Central Valley Water Board shall include as RL's, in the permit, all ML values, and their associated analytical methods,

listed in Appendix 4 that are below the calculated effluent limitation. The Discharger may select any one of those cited analytical methods for compliance determination. If no ML value is below the effluent limitation, then the Central Valley Water Board shall select as the RL, the lowest ML value, and its associated analytical method, listed in Appendix 4 for inclusion in the permit. Table E-7 provides required maximum reporting levels in accordance with the SIP.

ATTACHMENT F – FACT SHEET

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ATTACHMENT F – FACT SHEET

As described in section II.B of this Order, the Central Valley Water Board incorporates this Fact Sheet as findings of the Central Valley Water Board supporting the issuance of this Order. This Fact Sheet discusses the legal requirements and technical rationale that serve as the basis for the requirements of this Order.

This Order has been prepared under a standardized format to accommodate a broad range of discharge requirements for Dischargers in California. Only those sections or subsections of this Order that are specifically identified as “not applicable” have been determined not to apply to this Discharger. Sections or subsections of this Order not specifically identified as “not applicable” are fully applicable to this Discharger.

I. PERMIT INFORMATION

The following table summarizes administrative information related to the Facility.

Table F-1. Facility Information

WDID	5B05NP00001
CIWQS Facility Place ID	255003
Discharger	Calaveras County Water District and Saddle Creek Golf Course, L.P.
Name of Facility	Copper Cove Wastewater Reclamation Facility
Facility Address	5130 Kiva Place
	Copper Cove, CA 95228
	Calaveras County
Facility Contact, Title and Phone	Bill Cardinal, Plant Manager, (209) 785-0519
Authorized Person to Sign and Submit Reports	Jesse Hampton, Acting Director of Operations, (209)754-3316
Mailing Address	P.O. Box 846, San Andreas, CA 95249
Billing Address	Same as above
Type of Facility	Publicly Owned Treatment Works
Major or Minor Facility	Minor
Threat to Water Quality	2
Complexity	B
Pretreatment Program	Not applicable
Recycling Requirements	Title 22 Tertiary Recycled Water
Facility Permitted Flow	Not applicable
Facility Design Flow	0.95 MGD
Watershed	Middle San Joaquin – Lower Merced – Lower Stanislaus Watershed
Receiving Water	Jurisdictional Wetlands
Receiving Water Type	Inland Surface Water

- A.** Calaveras County Water District (CCWD) is the owner and operator of the Copper Cove Wastewater Reclamation Facility (hereinafter Facility), a POTW. Saddle Creek Golf Course, L.P. is the owner and operator of the Saddle Creek Golf Course (SCGC). Together CCWD and SCGC are hereinafter referred to as Discharger.

For the purposes of this Order, references to the “discharger” or “permittee” in applicable federal

and state laws, regulations, plans, or policy are held to be equivalent to references to the Discharger herein.

- B.** The Facility discharges wastewater to SCGC's jurisdictional wetlands, waters of the United States, and was regulated by Order R5-2013-0072-01 which was adopted 31 May 2013, amended on 19 August 2016, and expires on 1 May 2018. The terms and conditions of Order R5-2013-0072-01 are automatically continued and remain in effect until new Waste Discharge Requirements (WDRs) and National Pollutant Discharge Elimination System (NPDES) permit are effective pursuant to this Order.
- C.** The Discharger filed a report of waste discharge (ROWD) and submitted an application for renewal of its WDRs and NPDES permit on 1 November 2017 to discharge a maximum daily flow of 0.95 MGD of tertiary treated wastewater from the Facility. The application was deemed complete on 4 December 2017. A site visit was conducted on 15 August 2017 to observe operations and collect additional data to develop permit limitations and conditions.
- D.** Regulations at 40 C.F.R. section 122.46 limit the duration of NPDES permits to a fixed term not to exceed five years. Accordingly, Table 3 of this Order limits the duration of the discharge authorization. However, pursuant to California Code of Regulations, title 23, section 2235.4, the terms and conditions of an expired permit are automatically continued pending reissuance of the permit if the Discharger complies with all federal NPDES requirements for continuation of expired permits.

II. FACILITY DESCRIPTION

The Facility provides sewerage service for portions of the Copper Cove Community, located in the southwestern part of Calaveras County. The sewage system has approximately 1,800 connections and serves a population of around 4,200. The current design average dry weather flow for the secondary treatment and storage system is 0.35 MGD.

A. Description of Wastewater and Biosolids Treatment and Controls

The Facility consists of a secondary treatment system and a Title 22 tertiary treatment system. The secondary treatment system at the Facility consists of a headworks and flow diverter, two aerated ponds (Ponds 1 and 2) operated in parallel, followed by an additional aerated pond (Pond 4) for settling and polishing, followed by tertiary filtration and ultraviolet light (UV) disinfection. Pond 3 is currently out of service and Pond 5 is no longer used for storage of treated wastewater. Un-disinfected, secondary treated wastewater is stored on-site in an unlined storage reservoir (Pond 6).

The reclamation portion of the Facility produces recycled water for irrigation of the SCGC, to supply water to the jurisdictional wetlands, and for land application via spray irrigation on 35 acres of spray irrigation fields. The Title 22 tertiary treatment system consists of a filter and UV disinfection. The tertiary treatment portion of the Facility is operated intermittently depending on demand and water availability. The design treatment capacity of the tertiary treatment system ranges from 0.54 MGD to 1 MGD depending on UV transmittance. The collection system, secondary treatment and storage facilities, sludge treatment and control, and land disposal of tertiary treated effluent onsite are regulated under separate WDR Order R5-2010-0070.

Title 22 tertiary treated effluent is collected in a reclaimed water storage tank and then conveyed to Pond NC-2D at the SCGC to be used for golf course irrigation or to provide makeup water for the wetland system. CCWD also provides raw water from Lake Tulloch to the SCGC for

irrigation. The raw water is piped to the recycled water storage tank at the Facility where it commingles with recycled water, if present, and is then conveyed to Pond NC-2D.

This Order regulates the discharge of tertiary-treated wastewater mixed with raw water from Lake Tulloch from Pond NC-2D to the jurisdictional wetlands at Discharge Point 001. This Order also includes the Title 22 water reclamation requirements for the Facility for reuse on the SCGC.

B. Discharge Points and Receiving Waters

1. This Facility is located in Section 26, T1N, R12E, MDB&M, as shown in Attachment B, a part of this Order.
2. In 1994, the US Army Corps of Engineers authorized fill activity pursuant to a Clean Water Act Section 404 general permit, Nationwide Permit 26 (404 permit), at what is now the jurisdictional wetland system. The wetland system includes several man-made and natural lakes, including Mitchell Lake. The 404 permit required that several perennial ponds and wetland areas (jurisdictional wetlands) have a continuous supply of water to maintain minimum levels. The SCGC has sole responsibility to fulfill the mitigation requirements of supplying water to the wetlands. Therefore, SCGC uses water from Pond NC-2D when necessary to supply make-up water to the jurisdictional wetlands shown in Attachment B. Mitchell Lake, which is tributary to Littlejohns Creek, is not supplied with reclaimed water from Pond NC-2D. During severe wet weather events, some of the jurisdictional wetlands receiving reclaimed water may overflow to Mitchell Lake and thence to Littlejohns Creek; however, the fraction of reclaimed water in overflows to Littlejohns Creek is expected to be minimal since reclaimed water supplemented with raw water from Lake Tulloch is used for make-up water only as necessary and will be diluted by the large amounts of storm water runoff into the jurisdictional wetlands. Pond NC-2D does not receive irrigation runoff or storm water runoff, as a 54-inch bypass pipe diverts all runoff in order to minimize the potential for overflows of reclaimed water from Pond NC-2D to Littlejohns Creek.

Incidental runoff from golf course irrigation may enter Littlejohns Creek at eight locations. Neither the use of reclaimed water for golf course irrigation nor the incidental runoff of excess irrigation water is considered a point source discharge to waters of the United States and does not require an NPDES permit.

3. Tertiary treated municipal wastewater mixed with raw water from Lake Tulloch is discharged at Discharge Point No. 001 to the jurisdictional wetlands, waters of the United States, at multiple discharge locations (refer to Attachment B).

C. Summary of Existing Requirements and Self-Monitoring Report (SMR) Data

1. Effluent limitations and discharge specifications contained in Order R5-2013-0072-01 for discharges of UV disinfected effluent from the Discharge Point No. 001 (Monitoring Locations REC-001 and REC-002) and representative monitoring data from the term of Order R5-2013-0072-01 are as follows:

Table F-2. Historic Effluent Limitations and Monitoring Data

Parameter	Units	Effluent Limitation			Monitoring Data (From December 2013 to December 2016)		
		Average Monthly	Average Weekly	Maximum Daily	Highest Average Monthly Discharge	Highest Average Weekly Discharge	Highest Daily Discharge
Flow	MGD	0.95	--	0.95	0.48	--	0.66
Biochemical Oxygen Demand (5-Day @ 20°C)	mg/L	10	15	20	1.6	5.1	5.1
	lbs/day ¹	79	119	158	12.7	40.4	40.4
	% Removal	85	--	--	98	--	--
Total Suspended Solids	mg/L	10	15	20	5.8	8	8
	lbs/day ¹	79	119	158	46.0	63.4	63.4
	% Removal	85	--	--	96	--	--
pH	standard units	--	--	6.5 – 8.5	--	--	8.54
Electrical Conductivity @ 25°C	µmhos/cm	900 ²	--	--	617	--	--
Aluminum	µg/L	310	623	--	130	130	--
Manganese, Total Recoverable	µg/L	97	242	--	90	90	--
Nitrate Plus Nitrite (as N) ³	mg/L	10	--	--	1.7	--	--
Total Ammonia (as N) ³	mg/L	0.74	--	2.2 ⁴	0.36	--	0.53 ⁴
	lbs/day ¹	5.9	--	17	2.9	--	4.2
Total Coliform Organisms	MPN/100 mL	23 ⁵	2.2 ⁶	240 ⁷	1.5	0.9	7.8
Acute Toxicity	% Survival	--	--	20	--	--	95

NR = Not Reported

¹ Based upon a design treatment capacity of 0.95 MGD.

² Final effluent limitation effective 1 June 2009.

³ Compliance at REC-002, monitoring data results from September 2016 to September 2017

⁴ Applied as a 1-hour average effluent limitation.

⁵ Not to be exceeded more than once in any 30-day period.

⁶ Applied as a 7-day median effluent limitation.

⁷ Not to be exceeded at any time.

⁸ Survival of aquatic organisms in 96-hour bioassays of undiluted waste shall be no less than:

Minimum for any one bioassay: 70%

Median for any three consecutive bioassays: 90%

D. Compliance Summary

There are no major compliance issues and no ACLs have been issued for violations of the current permit.

E. Planned Changes

The District is currently evaluating the Facility's storage and disposal capacity and may request changes to the Facility in the future.

III. APPLICABLE PLANS, POLICIES, AND REGULATIONS

The requirements contained in this Order are based on the requirements and authorities described in this section.

A. Legal Authorities

This Order serves as WDR's pursuant to article 4, chapter 4, division 7 of the California Water Code (commencing with section 13260). This Order is also issued pursuant to section 402 of the federal Clean Water Act (CWA) and implementing regulations adopted by the U.S. EPA and chapter 5.5, division 7 of the Water Code (commencing with section 13370). It shall serve as an NPDES permit for point source discharges from this Facility to surface waters.

B. California Environmental Quality Act (CEQA)

Under Water Code section 13389, this action to adopt an NPDES permit is exempt from the provisions of Chapter 3 of CEQA, (commencing with section 21100) of Division 13 of the Public Resources Code. Additionally, the adoption of the Title 22 water reclamation requirements for the Facility for reuse on the SCGC constitutes permitting of an existing facility that is categorically exempt from the provisions of CEQA pursuant to California Code of Regulations, title 14, section 15301.

C. State and Federal Laws, Regulations, Policies, and Plans

1. **Water Quality Control Plan.** Requirements of this Order specifically implement the applicable Water Quality Control Plans.
 - a. **Basin Plan.** The Central Valley Water Board adopted a Water Quality Control Plan for the Water Quality Control Plan, Fourth Edition (Revised July 2016), for the Sacramento and San Joaquin River Basins (hereinafter Basin Plan) that designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan. Requirements in this Order implement the Basin Plan. In addition, the Basin Plan implements State Water Board Resolution 88-63, which established state policy that all waters, with certain exceptions, should be considered suitable or potentially suitable for municipal or domestic supply. Beneficial uses applicable to the jurisdictional wetlands are as follows:

Table F-3. Basin Plan Beneficial Uses

Discharge Point	Receiving Water Name	Beneficial Use(s)
001	Jurisdictional Wetlands	<p><u>Existing uses from Table II-1 of the Basin Plan:</u> Municipal and domestic supply (MUN); Agricultural supply, including irrigation and stock watering (AGR); Industrial process supply (PROC); Industrial service supply (IND); Water contact recreation (REC-1) Non-contact water recreation (REC-2); Warm freshwater habitat (WARM); Cold freshwater habitat (COLD); Migration of aquatic organisms, warm and cold (MIGR); Spawning, reproduction, and/or early development, warm (SPWN); Wildlife habitat (WILD); and Navigation (NAV). <u>Suitable uses from State Water Board Resolution No. 88-63:</u> Municipal and domestic supply (MUN).</p>
	Groundwater	<p><u>Existing:</u> Municipal and domestic supply (MUN); Agricultural supply, including irrigation and stock watering (AGR); Industrial process supply (PROC); and Industrial service supply (IND).</p>

2. **National Toxics Rule (NTR) and California Toxics Rule (CTR).** U.S. EPA adopted the NTR on 22 December 1992, and later amended it on 4 May 1995 and 9 November 1999. About forty criteria in the NTR applied in California. On 18 May 2000, U.S. EPA adopted the CTR. The CTR promulgated new toxics criteria for California and, in addition, incorporated the previously adopted NTR criteria that were applicable in the state. The CTR was amended on 13 February 2001. These rules contain federal water quality criteria for priority pollutants.
3. **State Implementation Policy.** On 2 March 2000, the State Water Board adopted the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (State Implementation Policy or SIP). The SIP became effective on 28 April 2000, with respect to the priority pollutant criteria promulgated for California by the U.S. EPA through the NTR and to the priority pollutant objectives established by the Central Valley Water Board in the Basin Plan. The SIP became effective on 18 May 2000, with respect to the priority pollutant criteria promulgated by the U.S. EPA through the CTR. The State Water Board adopted amendments to the SIP on 24 February 2005 that became effective on 13 July 2005. The SIP establishes implementation provisions for priority pollutant criteria and objectives and provisions for chronic toxicity control. Requirements of this Order implement the SIP.

4. **Antidegradation Policy.** Federal regulation 40 C.F.R. section 131.12 requires that the state water quality standards include an antidegradation policy consistent with the federal policy. The State Water Board established California's antidegradation policy in State Water Board Resolution 68-16 ("Statement of Policy with Respect to Maintaining High Quality of Waters in California") (State Anti-Degradation Policy). The State Anti-Degradation Policy is deemed to incorporate the federal antidegradation policy where the federal policy applies under federal law. The State Anti-Degradation Policy requires that existing water quality be maintained unless degradation is justified based on specific findings. The Central Valley Water Board's Basin Plan implements, and incorporates by reference, both the State and federal antidegradation policies. The permitted discharge must be consistent with the antidegradation provision of 40 C.F.R. section 131.12 and the State Anti-Degradation Policy. The Board finds this order is consistent with the Federal and State Water Board antidegradation regulations and policy.
5. **Anti-Backsliding Requirements.** Sections 402(o) and 303(d)(4) of the CWA and federal regulations at 40 C.F.R. section 122.44(l) restrict backsliding in NPDES permits. These anti-backsliding provisions require that effluent limitations in a reissued permit must be as stringent as those in the previous permit, with some exceptions in which limitations may be relaxed.
6. **Domestic Water Quality.** In compliance with Water Code section 106.3, it is the policy of the State of California that every human being has the right to safe, clean, affordable, and accessible water adequate for human consumption, cooking, and sanitary purposes. This Order promotes that policy by requiring discharges to meet maximum contaminant levels designed to protect human health and ensure that water is safe for domestic use.
7. **Endangered Species Act Requirements.** This Order does not authorize any act that results in the taking of a threatened or endangered species or any act that is now prohibited, or becomes prohibited in the future, under either the California Endangered Species Act (Fish and Game Code, §§ 2050 to 2097) or the Federal Endangered Species Act (16 U.S.C.A. §§ 1531 to 1544). This Order requires compliance with effluent limits, receiving water limits, and other requirements to protect the beneficial uses of waters of the state. The Discharger is responsible for meeting all requirements of the applicable Endangered Species Act.

D. Impaired Water Bodies on CWA 303(d) List

1. Under section 303(d) of the 1972 CWA, states, territories and authorized tribes are required to develop lists of water quality limited segments. The waters on these lists do not meet water quality standards, even after point sources of pollution have installed the minimum required levels of pollution control technology. On 11 October 2011 USEPA gave final approval to California's 2008-2010 section 303(d) List of Water Quality Limited Segments. The Basin Plan references this list of Water Quality Limited Segments (WQLSs), which are defined as "*...those sections of lakes, streams, rivers or other fresh water bodies where water quality does not meet (or is not expected to meet) water quality standards even after the application of appropriate limitations for point sources (40 C.F.R. part 130, et seq.).*" The Basin Plan also states, "*Additional treatment beyond minimum federal standards will be imposed on dischargers to [WQLSs]. Dischargers will be assigned or allocated a maximum allowable load of critical pollutants so that water quality objectives can be met in the segment.*" There are no 303(d) listings for the jurisdictional wetlands.
2. **Total Maximum Daily Loads (TMDL's).** TMDLs have not been adopted for the jurisdictional wetlands.

E. Other Plans, Polices and Regulations

1. **Title 27.** The discharge authorized herein and the treatment and storage facilities associated with the discharge of treated municipal wastewater, except for discharges of residual sludge and solid waste, are exempt from the requirements of Title 27, California Code of Regulations (CCR), section 20005 *et seq* (hereafter Title 27). The exemption, pursuant to Title 27 CCR section 20090(a), is based on the following:
 - a. The waste consists primarily of domestic sewage and treated effluent;
 - b. The waste discharge requirements are consistent with water quality objectives; and
 - c. The treatment and storage facilities described herein are associated with a municipal wastewater treatment plant.

IV. RATIONALE FOR EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

Effluent limitations and toxic and pretreatment effluent standards established pursuant to sections 301 (Effluent Limitations), 302 (Water Quality Related Effluent Limitations), 304 (Information and Guidelines), and 307 (Toxic and Pretreatment Effluent Standards) of the CWA and amendments thereto are applicable to the discharge.

The CWA mandates the implementation of effluent limitations that are as stringent as necessary to meet water quality standards established pursuant to state or federal law [33 U.S.C., §1311(b)(1)(C); 40 C.F.R. § 122.44(d)(1)]. NPDES permits must incorporate discharge limits necessary to ensure that water quality standards are met. This requirement applies to narrative criteria as well as to criteria specifying maximum amounts of particular pollutants. Pursuant to federal regulations, 40 C.F.R. section 122.44(d)(1)(i), NPDES permits must contain limits that control all pollutants that “are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any state water quality standard, including state narrative criteria for water quality.” Federal regulations, 40 C.F.R. section 122.44(d)(1)(vi), further provide that “[w]here a state has not established a water quality criterion for a specific chemical pollutant that is present in an effluent at a concentration that causes, has the reasonable potential to cause, or contributes to an excursion above a narrative criterion within an applicable State water quality standard, the permitting authority must establish effluent limits.”

The CWA requires point source dischargers to control the amount of conventional, non-conventional, and toxic pollutants that are discharged into the waters of the United States. The control of pollutants discharged is established through effluent limitations and other requirements in NPDES permits. There are two principal bases for effluent limitations in the Code of Federal Regulations: 40 C.F.R. section 122.44(a) requires that permits include applicable technology-based limitations and standards; and 40 C.F.R. section 122.44(d) requires that permits include WQBEL's to attain and maintain applicable numeric and narrative water quality criteria to protect the beneficial uses of the receiving water where numeric water quality objectives have not been established. The Basin Plan at page IV-17.00 contains an implementation policy, “Policy for Application of Water Quality Objectives”, that specifies that the Central Valley Water Board “will, on a case-by-case basis, adopt numerical limitations in orders which will implement the narrative objectives.” This Policy complies with 40 C.F.R. section 122.44(d)(1). With respect to narrative objectives, the Central Valley Water Board must establish effluent limitations using one or more of three specified sources, including: (1) USEPA's published water quality criteria, (2) a proposed state criterion (i.e., water quality objective) or an explicit state policy interpreting its narrative water

quality criteria (i.e., the Central Valley Water Board’s “Policy for Application of Water Quality Objectives”)(40 C.F.R. § 122.44(d)(1)(vi)(A), (B) or (C)), or (3) an indicator parameter.

The Basin Plan includes numeric site-specific water quality objectives and narrative objectives for toxicity, chemical constituents, discoloration, radionuclides, and tastes and odors. The narrative toxicity objective states: “*All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.*” (Basin Plan at III-8.00) The Basin Plan states that material and relevant information, including numeric criteria, and recommendations from other agencies and scientific literature will be utilized in evaluating compliance with the narrative toxicity objective. The narrative chemical constituents objective states that waters shall not contain chemical constituents in concentrations that adversely affect beneficial uses. At minimum, “*...water designated for use as domestic or municipal supply (MUN) shall not contain concentrations of chemical constituents in excess of the maximum contaminant levels (MCLs)*” in Title 22 of CCR. The Basin Plan further states that, to protect all beneficial uses, the Central Valley Water Board may apply limits more stringent than MCLs. The narrative tastes and odors objective states: “*Water shall not contain taste- or odor-producing substances in concentrations that impart undesirable tastes or odors to domestic or municipal water supplies or to fish flesh or other edible products of aquatic origin, or that cause nuisance, or otherwise adversely affect beneficial uses.*”

A. Discharge Prohibitions

- 1. Prohibition III.A (No discharge or application of waste other than that described in this Order).** This prohibition is based on Water Code section 13260 that requires filing of a ROWD before discharges can occur. The Discharger submitted a ROWD for the discharges described in this Order; therefore, discharges not described in this Order are prohibited.
- 2. Prohibition III.B (No bypasses or overflow of untreated wastewater, except under the conditions at CFR section 122.41(m)(4)).** As stated in section I.G of Attachment D, Standard Provisions, this Order prohibits bypass from any portion of the treatment facility. Federal regulations, 40 C.F.R. section 122.41(m), define “bypass” as the intentional diversion of waste streams from any portion of a treatment facility. This section of the federal regulations, 40 C.F.R. section 122.41(m)(4), prohibits bypass unless it is unavoidable to prevent loss of life, personal injury, or severe property damage. In considering the Regional Water Board’s prohibition of bypasses, the State Water Board adopted a precedential decision, Order No. WQO 2002-0015, which cites the federal regulations, 40 C.F.R. section 122.41(m), as allowing bypass only for essential maintenance to assure efficient operation.
- 3. Prohibition III.C (No controllable condition shall create a nuisance).** This prohibition is based on Water Code section 13050 that requires water quality objectives established for the prevention of nuisance within a specific area. The Basin Plan prohibits conditions that create a nuisance

B. Technology-Based Effluent Limitations

1. Scope and Authority

Section 301(b) of the CWA and implementing U.S. EPA permit regulations at 40 C.F.R. section 122.44 require that permits include conditions meeting applicable technology-based requirements at a minimum, and any more stringent effluent limitations necessary to meet applicable water quality standards. The discharge authorized by this Order must meet minimum federal technology-based requirements based on Secondary Treatment Standards at 40 C.F.R. part 133.

Regulations promulgated in 40 C.F.R. section 125.3(a)(1) require technology-based effluent limitations for municipal Dischargers to be placed in NPDES permits based on Secondary Treatment Standards or Equivalent to Secondary Treatment Standards.

The Federal Water Pollution Control Act Amendments of 1972 (PL 92-500) established the minimum performance requirements for POTW's [defined in section 304(d)(1)]. Section 301(b)(1)(B) of that Act requires that such treatment works must, as a minimum, meet effluent limitations based on secondary treatment as defined by the U.S. EPA Administrator.

Based on this statutory requirement, U.S. EPA developed secondary treatment regulations, which are specified in 40 C.F.R. part 133. These technology-based regulations apply to all municipal wastewater treatment plants and identify the minimum level of effluent quality attainable by secondary treatment in terms of biochemical oxygen demand (BOD₅), total suspended solids (TSS), and pH.

2. Applicable Technology-Based Effluent Limitations

- a. **BOD₅ and TSS.** Federal regulations at 40 C.F.R. part 133, establish the minimum weekly and monthly average level of effluent quality attainable by secondary treatment for BOD₅ and TSS. In addition, 40 C.F.R. section 133.102, in describing the minimum level of effluent quality attainable by secondary treatment, states that the 30-day average percent removal shall not be less than 85 percent. This Order contains a limitation requiring an average of 85 percent removal of BOD₅ and TSS over each calendar month.
- b. **pH.** The secondary treatment regulations at 40 C.F.R. part 133 also require that pH be maintained between 6.0 and 9.0 standard units. This Order, however, requires more stringent WQBEL's for pH to comply with the Basin Plan's water quality objectives for pH.

**Summary of Technology-based Effluent Limitations
 Discharge Point No. 001**

Table F-4. Summary of Technology-based Effluent Limitations

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Biochemical Oxygen Demand (5-Day @ 20°C) ¹	mg/L	30	45	--	--	--
	% Removal	85	--	--	--	--
Total Suspended Solids ¹	mg/L	30	45	--	--	--
	% Removal	85	--	--	--	--
pH	Standard Units	--	--	--	6.0	9.0

¹ Note that more stringent WQBEL's for pH are applicable and are established as final effluent limitations in this Order (see section IV.C.3.c of this Fact Sheet).

C. Water Quality-Based Effluent Limitations (WQBEL's)

1. Scope and Authority

CWA Section 301(b) and 40 C.F.R. section 122.44(d) require that permits include limitations more stringent than applicable federal technology-based requirements where necessary to achieve applicable water quality standards.

Section 122.44(d)(1)(i) of 40 C.F.R. requires that permits include effluent limitations for all pollutants that are or may be discharged at levels that have the reasonable potential to cause or contribute to an exceedance of a water quality standard, including numeric and narrative objectives within a standard. Where reasonable potential has been established for a pollutant, but there is no numeric criterion or objective for the pollutant, WQBEL's must be established using: (1) U.S. EPA criteria guidance under CWA section 304(a), supplemented where necessary by other relevant information; (2) an indicator parameter for the pollutant of concern; or (3) a calculated numeric water quality criterion, such as a proposed state criterion or policy interpreting the state's narrative criterion, supplemented with other relevant information, as provided in section 122.44(d)(1)(vi).

The process for determining reasonable potential and calculating WQBEL's when necessary is intended to protect the designated uses of the receiving water as specified in the Basin Plan, and achieve applicable water quality objectives and criteria that are contained in other state plans and policies, or any applicable water quality criteria contained in the CTR and NTR.

2. Applicable Beneficial Uses and Water Quality Criteria and Objectives

The Basin Plan designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan. In addition, the Basin Plan implements State Water Board Resolution No. 88-63, which established state policy that all waters, with certain exceptions, should be considered suitable or potentially suitable for municipal or domestic supply.

The Basin Plan on page II-1.00 states: "*Protection and enhancement of existing and potential beneficial uses are primary goals of water quality planning...*" and with respect to disposal of wastewaters states that "*...disposal of wastewaters is [not] a prohibited use of waters of the State; it is merely a use which cannot be satisfied to the detriment of beneficial uses.*"

The federal CWA section 101(a)(2), states: "*it is the national goal that wherever attainable, an interim goal of water quality which provides for the protection and propagation of fish, shellfish, and wildlife, and for recreation in and on the water be achieved by July 1, 1983.*" Federal Regulations, developed to implement the requirements of the CWA, create a rebuttable presumption that all waters be designated as fishable and swimmable. Federal Regulations, 40 CFR sections 131.2 and 131.10, require that all waters of the State regulated to protect the beneficial uses of public water supply, protection and propagation of fish, shell fish and wildlife, recreation in and on the water, agricultural, industrial and other purposes including navigation. 40 C.F.R. section 131.3(e) defines existing beneficial uses as those uses actually attained after 28 November 1975, whether or not they are included in the water quality standards. Federal Regulation, 40 C.F.R. section 131.10 requires that uses be obtained by implementing effluent limitations, requires that all downstream uses be protected and states that in no case shall a state adopt waste transport or waste assimilation as a beneficial use for any waters of the United States.

- a. **Receiving Water and Beneficial Uses.** Refer to III.C.1. above for a complete description of the receiving water and beneficial uses.
- b. **Effluent Data.** The reasonable potential analysis (RPA), as described in section IV.C.3 of this Fact Sheet, was based on data from December 2013 through December 2016 at Monitoring Location REC-001, which includes effluent data submitted in SMRs and a priority pollutant scan from 2016 and 2017. Additional data outside of this range was also analyzed where there was inadequate data to perform an analysis. Ammonia, nitrate plus nitrite, pH, and temperature data from September 2016 to September 2017 at Monitoring Location REC-002 was also analyzed in order to determine reasonable potential for the effluent from Pond NC-2D to cause or contribute to an excursion above a water quality objective in the jurisdictional wetlands.
- c. **Assimilative Capacity/Mixing Zone.** The Central Valley Water Board finds that based on the available information and on the Discharger's application, that the jurisdictional wetlands are comprised primarily of effluent and raw water from Lake Tulloch; therefore, no credit for receiving water dilution is available. The lack of dilution results in more stringent effluent limitations to protect contact recreational uses, drinking water standards, agricultural water quality goals and aquatic life. Consistent with Order R5-2013-0072-01, dilution and assimilative capacity within the receiving water were not considered in establishing effluent limitations. For pollutants that demonstrated reasonable potential, effluent limitations were applied at the point of discharge.
- d. **Conversion Factors.** The CTR contains aquatic life criteria for arsenic, cadmium, chromium III, chromium VI, copper, lead, nickel, silver, and zinc which are presented in dissolved concentrations. USEPA recommends conversion factors to translate dissolved concentrations to total concentrations. The default USEPA conversion factors contained in Appendix 3 of the SIP were used to convert the applicable dissolved criteria to total recoverable criteria.
- e. **Hardness-Dependent CTR Metals Criteria.** The CTR and the NTR contain water quality criteria for seven metals that vary as a function of hardness. The lower the hardness the lower the water quality criteria. The metals with hardness-dependent criteria include cadmium, copper, chromium III, lead, nickel, silver, and zinc.

This Order has established the criteria for hardness-dependent metals based on the hardness of the receiving water (actual ambient hardness) as required by the SIP¹ and the CTR². The SIP and the CTR require the use of "receiving water" or "actual ambient" hardness, respectively, to determine effluent limitations for these metals. The CTR requires that the hardness values used shall be consistent with the design discharge conditions for design flows and mixing zones³. Where design flows for aquatic life criteria include the lowest one-day flow with an average reoccurrence frequency of once in ten years (1Q10) and the lowest average seven consecutive day flow with an average reoccurrence frequency of once in ten years (7Q10).⁴

¹ The SIP does not address how to determine the hardness for application to the equations for the protection of aquatic life when using hardness-dependent metals criteria. It simply states, in Section 1.2, that the criteria shall be properly adjusted for hardness using the hardness of the receiving water.

² The CTR requires that, for waters with a hardness of 400 mg/L (as CaCO₃), or less, the actual ambient hardness of the surface water must be used (40 C.F.R. § 131.38(c)(4)).

³ 40 C.F.R. §131.38(c)(4)(ii)

⁴ 40 C.F.R. §131.38(c)(2)(iii) Table 4

This section of the CTR also indicates that the design conditions should be established such that the appropriate criteria are not exceeded more than once in a three year period on average.⁵ The CTR requires that when mixing zones are allowed the CTR criteria apply at the edge of the mixing zone, otherwise the criteria apply throughout the water body including at the point of discharge.⁶ The CTR does not define the term “ambient,” as applied in the regulations. Therefore, the Central Valley Water Board has considerable discretion to consider upstream and downstream ambient conditions when establishing the appropriate water quality criteria that fully complies with the CTR and SIP.

i. **Summary findings**

At design discharge conditions, the jurisdictional wetlands are effluent dominated. Under these regularly occurring critical conditions the effluent is the receiving water that is used to define the ambient receiving water conditions to define the appropriate water quality criteria in accordance with the CTR and SIP, otherwise if ambient downstream hardness was collected on the same day as effluent hardness, the downstream ambient hardness value is used. The Sacramento Superior Court has previously upheld the Central Valley Water Board’s use of effluent hardness levels in effluent-dominated streams when developing effluent limitations for hardness-dependent metals. (*California Sportsfishing Protection Alliance v. California Regional Water Quality Control Board, Central Valley Region*, Super. Ct. Sacramento County, 2012, No. 34-2009-80000309) (Order Denying Petitioners’ Motion to Strike Respondent’s Return of Writ of Mandate and Granting Discharge of the Writ)). The ambient hardness for the jurisdictional wetlands is represented by the data in Figure F-1, below, which shows ambient hardness ranging from 97 mg/L to 174 mg/L based on all collected ambient data from 2 April 2014 through 1 August 2017. Given the high variability in ambient hardness values, there is no single hardness value that describes the ambient receiving water for all possible scenarios (e.g., minimum, maximum). Because of this variability, staff has determined that based on the ambient hardness concentrations measured in the receiving water, the Central Valley Water Board has discretion to select ambient hardness values within the range of 97 mg/L (minimum) up to 174 mg/L (maximum). Staff recommends that the Board use the ambient hardness values shown in Table F-5 for the following reasons.

- (a) The ambient receiving water hardness values shown in Table F-5 are consistent with design discharge conditions and will result in criteria and effluent limitations that ensure protection of beneficial uses under all ambient receiving water conditions.
- (b) The Water Code mandates that the Central Valley Water Board establish permit terms that will ensure the reasonable protection of beneficial uses. In this case, using the lowest measured ambient hardness to calculate effluent limitations is not required to protect beneficial uses. Calculating effluent limitations based on the lowest measured ambient hardness is not required by the CTR or SIP, and is not reasonable as it would result in overly conservative limits that will impart substantial costs to the Discharger and

⁵ 40 C.F.R. §131.38(c)(2)(iii) Table 4, notes 1 and 2

⁶ 40 C.F.R. §131.38(c)(2)(i)

ratepayers without providing any additional protection of beneficial uses. In compliance with applicable state and federal regulatory requirements, after considering the entire range of ambient hardness values, Board staff has used the ambient hardness values shown in Table F-5 to calculate the proposed effluent limitations for hardness-dependent metals. The proposed effluent limitations are protective of beneficial uses under all flow conditions.

- (c) Using an ambient hardness that is higher than the minimum observed ambient hardness will result in limits that may allow increased metals to be discharged to the jurisdictional wetlands, but such discharge is allowed under the State Antidegradation Policy (State Water Board Resolution 68-16). The Central Valley Water Board finds that this degradation is consistent with the antidegradation policy (see antidegradation findings in Section IV.D.4 of the Fact Sheet). The State Antidegradation Policy requires the Discharger to meet waste discharge requirements which will result in the best practicable treatment or control of the discharge necessary to assure that: a) a pollution or nuisance will not occur, and b) the highest water quality consistent with maximum benefit to the people of the State will be maintained.
- (d) Using the ambient hardness values shown in Table F-5 is consistent with the CTR and SIP's requirements for developing metals criteria.

Table F-5. Summary of CTR Criteria for Hardness-dependent Metals

CTR Metals	Ambient Hardness (mg/L) ²	CTR Criteria (µg/L, total recoverable) ¹	
		acute	chronic
Copper	97	14	9.1
Chromium III	97	1,694	202
Cadmium	97	4.4	2.4
Lead	97	79	3.1
Nickel	97	460	51
Silver	97	3.9	--
Zinc	97	120	120

¹ Metal criteria rounded to two significant figures in accordance with the CTR (40 C.F.R. §131.38(b)(2)).

² The ambient hardness values in this table represent actual observed receiving water hardness measurements from the dataset shown in Figure F-1.

ii. **Background**

The State Water Board provided direction regarding the selection of hardness in two precedential water quality orders; WQO 2008-0008 for the City of Davis Wastewater Treatment Plant (Davis Order) and WQO 2004-0013 for the Yuba City Wastewater Treatment Plant (Yuba City Order). The State Water Board recognized that the SIP and the CTR do not discuss the manner in which hardness is to be ascertained, thus regional water boards have considerable

discretion in determining ambient hardness so long as the selected value is protective of water quality criteria under the given flow conditions. (Davis Order, p.10). The State Water Board explained that it is necessary that, “The [hardness] value selected should provide protection for all times of discharge under varying hardness conditions.” (Yuba City Order, p. 8). The Davis Order also provides that, “Regardless of the hardness used, the resulting limits must always be protective of water quality criteria under all flow conditions.” (Davis Order, p. 11)

The equation describing the total recoverable regulatory criterion, as established in the CTR, is as follows:

$$\text{CTR Criterion} = \text{WER} \times (e^{m[\ln(H)]+b}) \text{ (Equation 1)}$$

Where:

H = ambient hardness (as CaCO₃)⁷

WER = water-effect ratio

m, b = metal- and criterion-specific constants

The direction in the CTR regarding hardness selection is that it must be based on ambient hardness and consistent with design discharge conditions for design flows and mixing zones. Consistent with design discharge conditions and design flows means that the selected “design” hardness must result in effluent limitations under design discharge conditions that do not result in more than one exceedance of the applicable criteria in a three year period.⁸ Where design flows for aquatic life criteria include the lowest one-day flow with an average reoccurrence frequency of once in ten years (1Q10) and the lowest average seven consecutive day flow with an average reoccurrence frequency of once in ten years (7Q10). Since **the jurisdictional wetlands** regularly contain no upstream flow, the critical design flow is zero.

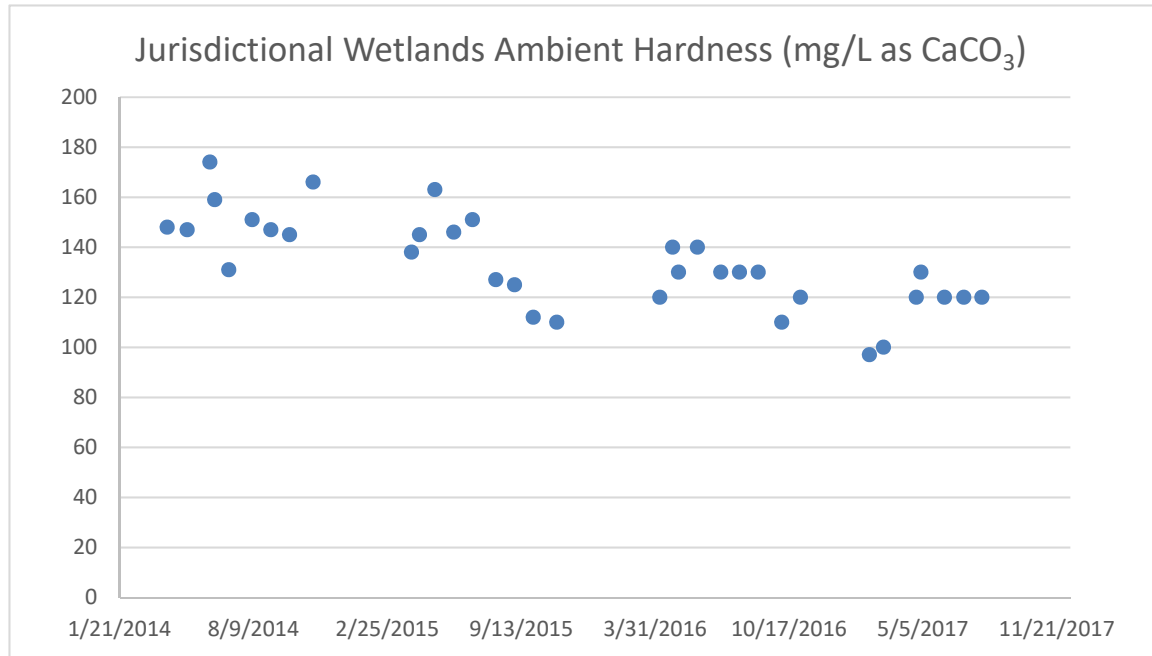
iii. ***Ambient conditions***

The ambient receiving water hardness varied from 97 mg/L to 174 mg/L, based on 34 samples from 2 April 2014 through 1 August 2017 (see Figure F-1).

⁷ For this discussion, all hardness values are expressed in mg/L as CaCO₃.

⁸ 40 C.F.R. §131.38(c)(2)(iii) Table 4, notes 1 and 2

Figure F-1. Ambient Hardness (April 2014 through August 2017)



In this analysis, the entire range of ambient hardness concentrations shown in Figure F-1 were considered to determine the appropriate ambient hardness to calculate the CTR criteria and effluent limitations that are protective under all discharge conditions.

iv. **Approach to derivation of criteria**

As shown above, ambient hardness is variable. Because of the variation, there is no single hardness value that describes the ambient receiving water for all possible scenarios (e.g., minimum, maximum, mid-point). While the hardness selected must be hardness of the ambient receiving water, selection of an ambient receiving water hardness that is too high would result in effluent limitations that do not protect beneficial uses. Also, the use of minimum ambient hardness would result in criteria that may not be representative considering the wide range of ambient conditions.

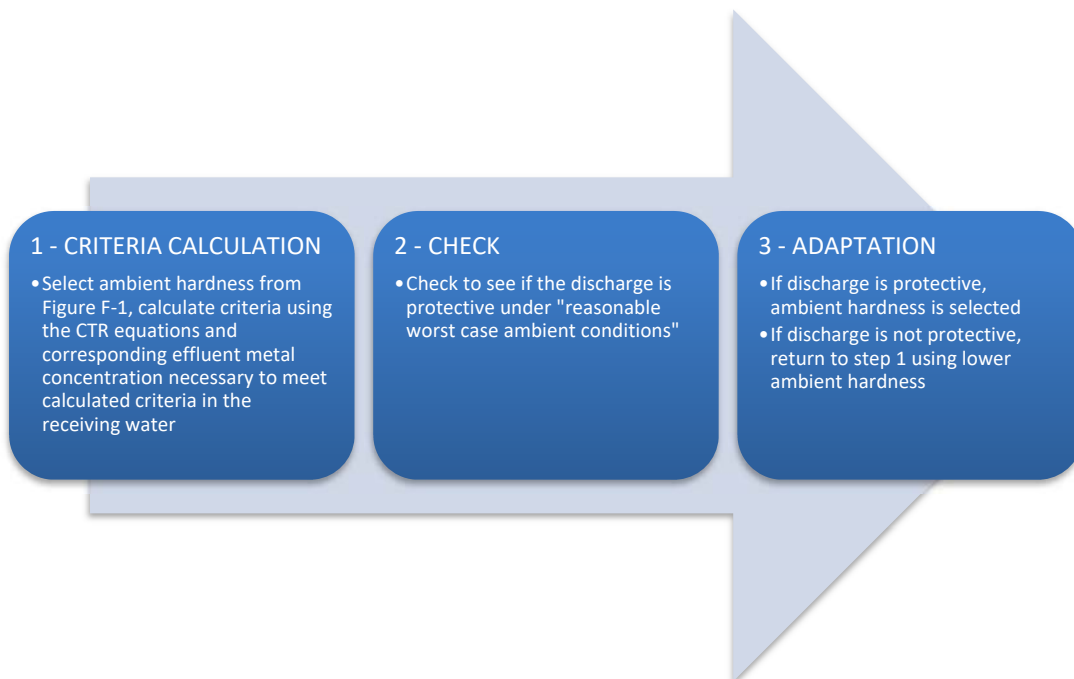
Reasonable worst-case ambient conditions. To determine whether a selected ambient hardness value results in effluent limitations that are fully protective while complying with federal regulations and state policy, staff have conducted an analysis considering varying ambient hardness and flow conditions. To do this, the Central Valley Water Board has ensured that the receiving water hardness and criteria selected for effluent limitations are protective under “reasonable-worst case ambient conditions.” These conditions represent the receiving water conditions under which derived effluent limitations would ensure protection of beneficial uses under all ambient flow and hardness conditions.

Reasonable worst-case ambient conditions:

- (a) "Low receiving water flow." CTR design discharge conditions (1Q10 and 7Q10) have been selected to represent reasonable worst-case receiving water flow conditions.
- (b) "High receiving water flow (maximum receiving water flow)." This additional flow condition has been selected consistent with the Davis Order, which required that the hardness selected be protective of water quality criteria under all flow conditions.
- (c) "Low receiving water hardness." The minimum receiving water hardness condition of 53 mg/L was selected to represent the reasonable worst case receiving water hardness.
- (d) "Background ambient metal concentration at criteria." This condition assumes that the metal concentration in the background receiving water is equal to CTR criteria (upstream of the Facility's discharge). Based on data in the record, this is a design condition that does not regularly occur in the receiving water and is used in this analysis to ensure that limits are protective of beneficial uses even in the situation where there is no assimilative capacity.

Iterative approach. An iterative analysis has been used to select the ambient hardness to calculate the criteria that will result in effluent limitations that protect beneficial uses under all flow conditions.

The iterative approach is summarized in the following algorithm and described below in more detail.



1. **CRITERIA CALCULATION.** CTR criteria are calculated using the CTR equations based on actual measured ambient hardness sample results, starting with the maximum observed ambient hardness of 174 mg/L. Effluent metal concentrations necessary to meet the above calculated CTR criteria in the receiving water are calculated in accordance with the SIP.⁹ This should not be confused with an effluent limit. Rather, it is the Effluent Concentration Allowance (ECA), which is synonymous with the wasteload allocation defined by USEPA as “a definition of effluent water quality that is necessary to meet the water quality standards in the receiving water.”¹⁰ If effluent limits are found to be needed, the limits are calculated to enforce the ECA considering effluent variability and the probability basis of the limit.
2. **CHECK.** USEPA’s simple mass balance equation¹¹ is used to evaluate if discharge at the computed ECA is protective. Resultant downstream metal concentrations are compared with downstream calculated CTR criteria under reasonable worst-case ambient conditions.
3. **ADAPT.** If step 2 results in:
 - (A) receiving water metal concentration that complies with CTR criteria under reasonable worst-case ambient conditions, then the hardness value is selected.
 - (B) receiving water metal concentration greater than CTR criteria, then return to bullet 1, selecting a lower ambient hardness value.

The CTR’s hardness dependent metals criteria equations contain metal-specific constants, so the criteria vary depending on the metal. Therefore, steps 1 through 3 must be repeated separately for each metal until ambient hardness values are determined that will result in criteria and effluent limitations that comply with the CTR and protect beneficial uses for all metals.

v. ***Results of iterative analysis***

The above iterative analysis for each CTR hardness-dependent metal results in the selected ambient hardness values shown in Table F-5, above. Using these hardness values to calculate criteria, which are actual ambient sample results, will result in effluent limitations that are protective under all ambient flow conditions. Zinc and silver are used as examples below to illustrate the results of the analysis. Tables F-6 and F-7 below summarize the numeric results of the three step iterative approach for zinc and silver. As shown in the example tables, ambient hardness values of 97 mg/L (zinc) and 97 mg/L (silver) are used in the CTR equations to derive criteria and effluent limitations. Then under the “check” step, worst-case ambient receiving water conditions are

⁹ SIP Section 1.4.B, Step 2, provides direction for calculating the Effluent Concentration Allowance.

¹⁰ U.S. EPA Technical Support Document for Water Quality-based Toxics Control (TSD), pg. 96.

¹¹ U.S. EPA NPDES Permit Writers’ Handbook (EPA 833-K-10-001 September 2010, pg. 6-24)

used to test whether the discharge results in compliance with CTR criteria and protection of beneficial uses.

The results of the above analysis, summarized in the tables below, show that the ambient hardness values selected using the three-step iterative process results in protective effluent limitations that achieve CTR criteria under all flow conditions. Tables F-6 and F-7 summarize the critical flow conditions. However, the analysis evaluated all flow conditions to ensure compliance with the CTR criteria at all times.

Table F-6. Verification of CTR Compliance for Zinc

Receiving water hardness used to compute effluent limitations				97 mg/L
Effluent Concentration Allowance (ECA) for Zinc ²				116.8 µg/L
	Downstream Ambient Concentrations Under Worst-Case Ambient Receiving Water Conditions			Complies with CTR Criteria?
	Hardness	CTR Criteria (µg/L)	Ambient Zinc Concentration ¹ (µg/L)	
1Q10	97	116.8	116.8	Yes
7Q10	97	116.8	116.8	Yes
Max receiving water flow	97	116.8	116.8	Yes

- ¹ This concentration is derived using worst-case ambient conditions. These conservative assumptions will ensure that the receiving water always complies with CTR criteria.
- ² The ECA defines effluent quality necessary to meet the CTR criteria in the receiving water. There is no effluent limitation for zinc as it demonstrates no reasonable potential.

Table F-7. Verification of CTR Compliance for Silver

Receiving water hardness used to compute effluent limitations				97 mg/L
Effluent Concentration Allowance (ECA) for Silver ²				3.85 µg/L
	Downstream Ambient Concentrations Under Worst-Case Ambient Receiving Water Conditions			Complies with CTR Criteria?
	Hardness	CTR Criteria (µg/L)	Ambient Silver Concentration ¹ (µg/L)	
1Q10	97	3.9	3.9	Yes
7Q10	97	3.9	3.9	Yes
Max receiving water flow	97	3.9	3.9	Yes

- ¹ This concentration is derived using worst-case ambient conditions. These conservative assumptions will ensure that the receiving water always complies with CTR criteria.
- ² The ECA defines effluent quality necessary to meet the CTR criteria in the receiving water. There is no effluent limitation for silver as it demonstrates no reasonable potential.

3. Determining the Need for WQBEL's

Federal regulations at 40 C.F.R 122.44(d)(1)(i) state, "Limitations must control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) which the Director determines are or may be discharged at a level that will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality." The process to determine whether a WQBEL is required is referred to as a *reasonable potential analysis or RPA*. Central Valley Water Board staff conducted RPA's for nearly 200 constituents, including the 126 USEPA priority toxic pollutants. This section includes details of the RPA's for constituents of concern for the Facility. The entire RPA is included in the administrative record and a summary of the constituents of concern is provided in Attachment G. For priority pollutants, the SIP dictates the procedures for conducting the RPA. For non-priority pollutants the Central Valley Water Board is not restricted to one particular RPA method, therefore, the RPA's have been conducted based on EPA guidance considering multiple lines of evidence and the site-specific conditions of the discharge.

- a. **Constituents with No Reasonable Potential.** Central Valley Water Board staff conducted reasonable potential analyses for nearly 200 constituents, including the 126 USEPA priority toxic pollutants. All reasonable potential analyses are included in the administrative record and a summary of the constituents of concern is provided in Attachment G. WQBEL's are not included in this Order for constituents that do not demonstrate reasonable potential to cause or contribute to an instream excursion of an applicable water quality objective; however, monitoring for those pollutants is established in this Order as required by the SIP. If the results of effluent monitoring demonstrate reasonable potential, this Order may be reopened and modified by adding an appropriate effluent limitation.

Most constituents with no reasonable potential are not discussed in this Order. This section only provides the rationale for the reasonable potential analyses for the following constituents of concern that were found to have no reasonable potential after assessment of the data:

i. Aluminum

- (a) **WQO.** The State Water Board Division of Drinking Water has established secondary MCLs to assist public drinking water systems in managing their drinking water for aesthetic conditions such as taste, color, and odor. The Secondary MCL for aluminum is 200 ug/L. Waste Discharge Requirements Order R5-2013-0072-01 established an effluent limitation for aluminum based on the Secondary MCL.
- (b) **RPA Results.** Secondary MCLs are drinking water standards contained in Title 22 of the California Code of Regulations. Title 22 requires compliance with these standards on an annual average basis, when sampling at least quarterly. Aluminum is not a priority pollutant and the RPA procedures in section 1.3 of the SIP are not required. To be consistent with how compliance with the standards is determined, the RPA was conducted based on the calendar annual average aluminum concentrations. The maximum observed annual average aluminum concentration was

39 µg/L based on 27 samples collected between April 2014 and November 2016. Receiving water data for aluminum is not available. Therefore, aluminum in the discharge does not demonstrate reasonable potential to cause or contribute to an in-stream excursion above the Secondary MCL of 200 µg/L, and the effluent limitation for aluminum has not been retained in this Order. Removal of these effluent limitations is in accordance with federal anti-backsliding regulations (see section IV.D.3 of the Fact Sheet).

ii. **Manganese**

- (a) **WQO.** The Secondary MCL – Consumer Acceptance Limit for manganese is 50 µg/L, which is used to implement the Basin Plan’s chemical constituent objective for the protection of municipal and domestic supply.
- (b) **RPA Results.** Secondary MCLs are drinking water standards contained in Title 22 of the California Code of Regulations. Title 22 requires compliance with these standards on an annual average basis, when sampling at least quarterly. Manganese is not a priority pollutant and the RPA procedures in section 1.3 of the SIP are not required. To be consistent with how compliance with the standards is determined, the RPA was conducted based on the calendar annual average manganese concentrations. The maximum annual average effluent concentration for manganese was 24 µg/L based on 27 samples collected between April 2014 and November 2016. Receiving water data for manganese is not available. Therefore, manganese in the discharge does not demonstrate reasonable potential to cause or contribute to an in-stream excursion above the Secondary MCL of 50 µg/L, and the effluent limitation for aluminum has not been retained in this Order. Removal of these effluent limitations is in accordance with federal anti-backsliding regulations (see section IV.D.3 of the Fact Sheet).

iii. **Pathogens**

- (a) **WQO.** DDW has developed reclamation criteria, CCR, Division 4, Chapter 3 (Title 22), for the reuse of wastewater. Title 22 requires that for spray irrigation of food crops, parks, playgrounds, schoolyards, and other areas of similar public access, wastewater be adequately disinfected, oxidized, coagulated, clarified, and filtered, and that the effluent total coliform levels not exceed 2.2 MPN/100 mL as a 7-day median; 23 MPN/100 mL, not to be exceeded more than once in a 30-day period; and 240 MPN/100 mL, at any time.

Title 22 also requires that recycled water used as a source of water supply for non-restricted recreational impoundments be disinfected tertiary recycled water that has been subjected to conventional treatment. A non-restricted recreational impoundment is defined as “...an impoundment of recycled water,

in which no limitations are imposed on body-contact water recreational activities.” Title 22 is not directly applicable to surface waters; however, the Central Valley Water Board finds that it is appropriate to apply an equivalent level of treatment to that required by the DDW’s reclamation criteria because the receiving water is used for irrigation of agricultural land and for contact recreation purposes. The stringent disinfection criteria of Title 22 are appropriate since the undiluted effluent may be used for the irrigation of food crops and/or for body-contact water recreation. Coliform organisms are intended as an indicator of the effectiveness of the entire treatment train and the effectiveness of removing other pathogens.

- (b) **RPA Results.** This Order requires that the wastewater conveyed to Pond NC-2D is adequately disinfected to meet the requirements of Title 22 disinfected tertiary recycled water in accordance with CCR § 60301.230, which ensures a pathogen-free wastewater is provided for reuse on the SCGC. Reclamation requirements include effluent limitations for total coliform organisms and operating specifications for filter effluent turbidity and UV disinfection. Therefore, the discharge from Pond NC-2D is protective of beneficial uses and does not have reasonable potential for pathogens. The WQBELs for total coliform organisms have not been retained in this Order. Furthermore, the WQBELs for BOD and TSS included in the previous Order, which were based on the technical capability of the tertiary process, have also not been retained in this Order. Removal of these effluent limitations is in accordance with federal anti-backsliding regulations (see section IV.D.3 of the Fact Sheet).

iv. **Salinity**

- (a) **WQO.** The Basin Plan contains a chemical constituent objective that incorporates state MCLs, contains a narrative objective, and contains numeric water quality objectives for certain specified water bodies for electrical conductivity, total dissolved solids, sulfate, and chloride. The USEPA Ambient Water Quality Criteria for Chloride recommends acute and chronic criteria for the protection of aquatic life. There are no USEPA water quality criteria for the protection of aquatic life for electrical conductivity, total dissolved solids (TDS), and sulfate. Additionally, there are no USEPA numeric water quality criteria for the protection of agricultural, live stock, and industrial uses. Numeric values for the protection of these uses are typically based on site specific conditions and evaluations to determine the appropriate constituent threshold necessary to interpret the narrative chemical constituent Basin Plan objective. The Central Valley Water Board must determine the applicable numeric limit to implement the narrative objective for the protection of agricultural supply. The Central Valley Water Board is currently implementing the CV SALTS initiative to develop a Basin Plan Amendment that will establish a salt and nitrate Management Plan for the Central

Valley. Through this effort the Basin Plan will be amended to define how the narrative water quality objective is to be interpreted for the protection of agricultural use. All studies conducted through this Order to establish an agricultural limit to implement the narrative objective will be reviewed by and consistent with the efforts currently underway by CV SALTS.

Table F-8. Salinity Water Quality Criteria/Objectives

Parameter	Agricultural WQ Objective ¹	Secondary MCL ¹	USEPA NAWQC	Effluent	
				Average	Maximum
EC (µmhos/cm)	Varies	900, 1600, 2200	N/A	552	670
TDS (mg/L)	Varies	500, 1000, 1500	N/A	283	310
Sulfate (mg/L)	Varies	250, 500, 600	N/A	47	47
Chloride (mg/L)	Varies	250, 500, 600	860 1-hr 230 4-day	50	50

- ¹ Narrative chemical constituent objective of the Basin Plan. Procedures for establishing the applicable numeric limitation to implement the narrative objective can be found in the Policy for Application of Water Quality, Chapter IV, Section 8 of the Basin Plan. However, the Basin Plan does not require improvement over naturally occurring background concentrations. In cases where the natural background concentration of a particular constituent exceeds an applicable water quality objective, the natural background concentration will be considered to comply with the objective.
- ² The secondary MCLs are for protection of public welfare and are stated as a recommended level, upper level, and a short-term maximum level.
- ³ Maximum calendar annual average
 - i. **Chloride.** The Secondary MCL for chloride is 250 mg/L, as a recommended level, 500 mg/L as an upper level, and 600 mg/L as a short-term maximum.
 - ii. **Electrical Conductivity or Total Dissolved Solids.** The Secondary MCL for EC is 900 µmhos/cm as a recommended level, 1600 µmhos/cm as an upper level, and 2200 µmhos/cm as a short-term maximum, or when expressed as TDS is 500 mg/L as a recommended level, 1000 mg/L as an upper level, and 1500 mg/L as a short-term maximum.
 - iii. **Sulfate.** The secondary MCL for sulfate is 250 mg/L as a recommended level, 500 mg/L as an upper level, and 600 mg/L as a short-term maximum.
 - iv. **Total Dissolved Solids.** The secondary MCL for TDS is 500 mg/L as a recommended level, 1000 mg/L as an upper level, and 1500 mg/L as a short-term maximum.

(b) RPA Results.

- i. **Chloride.** There was one effluent result for chloride of 50 mg/L from the Discharger's effluent characterization sampling. This level does not exceed the Secondary MCL. Upstream receiving water data is not available.

- ii. **Electrical Conductivity.** A review of the Discharger's monitoring reports shows a maximum annual average effluent electrical conductivity of 552 $\mu\text{mhos/cm}$, with a range from 170 $\mu\text{mhos/cm}$ to 670 $\mu\text{mhos/cm}$. These levels do not exceed the Secondary MCL. Upstream receiving water data for electrical conductivity is not available.
- iii. **Sulfate.** There was one effluent result for sulfate of 47 mg/L from the Discharger's effluent characterization sampling. This level does not exceed the Secondary MCL. Upstream receiving water data is not available.
- iv. **Total Dissolved Solids.** TDS concentrations in the effluent ranged from 220 mg/L to 310 mg/L, with an average of 283 mg/L. These levels do not exceed the Secondary MCL. Upstream receiving water data is not available.

Therefore, salinity in the discharge does not demonstrate reasonable potential to cause or contribute to an in-stream excursion above the Secondary MCLs and the effluent limitation for salinity has not been retained in this Order. Removal of these effluent limitations is in accordance with federal anti-backsliding regulations (see section IV.D.3 of the Fact Sheet).

- b. **Constituents with Reasonable Potential.** The Central Valley Water Board finds that the discharge has a reasonable potential to cause or contribute to an in-stream excursion above a water quality standard for ammonia, nitrate plus nitrite, and pH. WQBEL's for these constituents are included in this Order. A summary of the RPA is provided in Attachment G, and a detailed discussion of the RPA for each constituent is provided below.

- i. **Ammonia**

- (a) **WQO.** The NAWQC for the protection of freshwater aquatic life for total ammonia, recommends acute (1-hour average; criteria maximum concentration or CMC) standards based on pH and chronic (30-day average; criteria continuous concentration or CCC) standards based on pH and temperature. USEPA also recommends that no 4-day average concentration should exceed 2.5 times the 30-day CCC. USEPA found that as pH increased, both the acute and chronic toxicity of ammonia increased. Salmonids were more sensitive to acute toxicity effects than other species. However, while the acute toxicity of ammonia was not influenced by temperature, it was found that invertebrates and young fish experienced increasing chronic toxicity effects with increasing temperature. Because Littlejohns Creek has a beneficial use of cold freshwater habitat and the presence of salmonids and early fish life stages in Littlejohns Creek is well-documented, the recommended criteria for waters where salmonids and early life stages are present were used.

The maximum permitted effluent pH is 8.5, as the Basin Plan objective for pH in the receiving stream is the range of 6.5 to 8.5. In order to protect against the worst-case short-term exposure of an organism, a pH value of 8.5 was used to derive the acute criterion. The resulting acute criterion is 2.14 mg/L.

A chronic criterion was calculated for each day when paired temperature and pH were measured using effluent data for pH and temperature from the Discharger's monthly monitoring reports from April 2014 through November 2016. Rolling 30-day average criteria were calculated from the data using the criteria calculated for each day and the minimum observed 30-day average criterion was established as the applicable 30-day average chronic criterion, or 30-day CCC. The resulting 30-day CCC is 0.53 mg/L (as N). The 4-day average concentration is derived in accordance with the USEPA criterion as 2.5 times the 30-day CCC. Based on the 30-day CCC of 0.53 mg/L (as N), the 4-day average concentration that should not be exceeded is 1.33 mg/L (as N).

- (b) **RPA Results.** Federal regulations at 40 CFR 122.44(d)(1)(i) require that, "*Limitations must control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) which the Director determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality.*" For priority pollutants, the SIP dictates the procedures for conducting the RPA. Ammonia is not a priority pollutant. Therefore, the Central Valley Water Board is not restricted to one particular RPA method. Due to the site-specific conditions of the discharge, the Central Valley Water Board has used professional judgment in determining the appropriate method for conducting the RPA for this non-priority pollutant constituent.

USEPA's September 2010 NPDES Permit Writer's Manual, page 6-30, states, "*State implementation procedures might allow, or even require, a permit writer to determine reasonable potential through a qualitative assessment process without using available facility-specific effluent monitoring data or when such data are not available...A permitting authority might also determine that WQBELs are required for specific pollutants for all facilities that exhibit certain operational or discharge characteristics (e.g., WQBELs for pathogens in all permits for POTWs discharging to contact recreational waters).*" USEPA's TSD also recommends that factors other than effluent data should be considered in the RPA, "*When determining whether or not a discharge causes, has the reasonable potential to cause, or contributes to an excursion of a numeric or narrative water quality criterion for individual toxicants or for toxicity, the regulatory authority can use a variety of factors and information where facility-specific effluent*

monitoring data are unavailable. These factors also should be considered with available effluent monitoring data.” With regard to POTWs, USPEA recommends that, “POTWs should also be characterized for the possibility of chlorine and ammonia problems.” (TSD, p. 50)

The Facility is a POTW that treats domestic wastewater. Untreated domestic wastewater contains ammonia. Nitrification is a biological process that converts ammonia to nitrite and nitrite to nitrate. Denitrification is a process that converts nitrate to nitrite or nitric oxide and then to nitrous oxide or nitrogen gas, which is then released to the atmosphere. The Discharger currently uses nitrification to remove ammonia from the waste stream. Inadequate or incomplete nitrification may result in the discharge of ammonia to the receiving stream. Ammonia is known to cause toxicity to aquatic organisms in surface waters. Discharges of ammonia in concentrations that produce detrimental physiological responses to human, plant, animal, or aquatic life would violate the Basin Plan narrative toxicity objective. Although the Discharger nitrifies the discharge, inadequate or incomplete nitrification creates the potential for ammonia to be discharged and provides the basis for the discharge to have a reasonable potential to cause or contribute to an in-stream excursion above the NAWQC.

- (c) **WQBELs.** The Central Valley Water Board calculates WQBELs in accordance with SIP procedures for non-CTR constituents, and ammonia is a non-CTR constituent. The SIP procedure assumes a 4-day averaging period for calculating the long-term average discharge condition (LTA). However, USEPA recommends modifying the procedure for calculating permit limits for ammonia using a 30-day averaging period for the calculation of the LTA corresponding to the 30-day CCC. Therefore, while the LTAs corresponding to the acute and 4-day chronic criteria were calculated according to SIP procedures, the LTA corresponding to the 30-day CCC was calculated assuming a 30-day averaging period. The lowest LTA representing the acute, 4-day CCC, and 30-day CCC is then selected for deriving the AMEL and the MDEL. The remainder of the WQBEL calculation for ammonia was performed according to the SIP procedures. This Order contains a final AMEL and AWEL for ammonia of 0.5 mg/L and 1.4 mg/L, respectively, based on the NAWQC (chronic criterion).
- (d) **Plant Performance and Attainability.** Since September 2016, the MEC for ammonia in Pond NC-2D was 0.53 mg/L out of 37 samples. The Central Valley Water Board concludes, therefore, that immediate compliance with these effluent limitations is feasible.

ii. **Nitrate and Nitrite**

- (a) **WQO.** DDW has adopted Primary MCLs for the protection of human health for nitrite and nitrate that are equal to 1 mg/L and 10 mg/L (measured as nitrogen), respectively. DDW has also adopted a Primary MCL of 10 mg/L for the sum of nitrate and nitrite, measured as nitrogen.

USEPA has developed a primary MCL and an MCL goal of 1 mg/L for nitrite (as nitrogen). For nitrate, USEPA has developed Drinking Water Standards (10 mg/L as Primary MCL) and NAWQC for protection of human health (10 mg/L for non-cancer health effects).

- (b) **RPA Results.** The Facility is a POTW that treats domestic wastewater. Untreated domestic wastewater contains ammonia in concentrations that is harmful to aquatic life and exceed the Basin Plan's narrative toxicity objective. This Order, therefore, requires removal of ammonia (i.e., nitrification). Nitrification is a biological process that converts ammonia to nitrate and nitrite, and will result in effluent nitrate concentrations above the Primary MCL for nitrate plus nitrite. Nitrate concentrations in a drinking water supply above the Primary MCL threatens the health of human fetuses and newborn babies by reducing the oxygen-carrying capacity of the blood (methemoglobinemia).

Federal regulations at 40 C.F.R. section 122.44(d)(1)(i) requires that, "*Limitations must control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) which the Director determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality.*" For priority pollutants, the SIP dictates the procedures for conducting the RPA. Nitrate and nitrite are not priority pollutants. Therefore, the Central Valley Water Board is not restricted to one particular RPA method. Due to the site-specific conditions of the discharge, the Central Valley Water Board has used professional judgment in determining the appropriate method for conducting the RPA for this non-priority pollutant constituent.

USEPA's September 2010 NPDES Permit Writer's Manual, page 6-30, states, "*State implementation procedures might allow, or even require, a permit writer to determine reasonable potential through a qualitative assessment process without using available facility-specific effluent monitoring data or when such data are not available...A permitting authority might also determine that WQBEL's are required for specific pollutants for all facilities that exhibit certain operational or discharge characteristics (e.g., WQBEL's for pathogens in all permits for POTW's discharging to contact recreational waters).*" USEPA's TSD also recommends that factors other than effluent data should be considered in the

RPA, “When determining whether or not a discharge causes, has the reasonable potential to cause, or contributes to an excursion of a numeric or narrative water quality criterion for individual toxicants or for toxicity, the regulatory authority can use a variety of factors and information where facility-specific effluent monitoring data are unavailable. These factors also should be considered with available effluent monitoring data.” With regard to POTW’S, USEPA recommends that, “POTW’s should also be characterized for the possibility of chlorine and ammonia problems.” (TSD, p. 50)

The concentration of nitrogen in raw domestic wastewater is sufficiently high that the resultant treated wastewater has a reasonable potential to exceed or threaten to exceed the Primary MCL for nitrate plus nitrite unless the wastewater is treated for nitrogen removal, and therefore an effluent limit for nitrate plus nitrite is required. Denitrification is a process that converts nitrate to nitrite or nitric oxide and then to nitrous oxide or nitrogen gas, which is then released to the atmosphere. The Discharger currently uses nitrification/denitrification to remove ammonia, nitrite, and nitrate from the waste stream. Inadequate or incomplete denitrification may result in the discharge of nitrate and/or nitrite to the receiving stream. Discharges of nitrate plus nitrite in concentrations that exceed the Primary MCL would violate the Basin Plan’s narrative chemical constituents objective. Although the Discharger denitrifies the discharge, inadequate or incomplete denitrification creates the potential for nitrate and nitrite to be discharged and provides the basis for the discharge to have a reasonable potential to cause or contribute to an in-stream excursion above the Primary MCL.

- (c) **WQBEL’s.** This Order contains an AMEL and AWEL for nitrate plus nitrite of 10 mg/L and 17 mg/L, respectively, based on the Basin Plan’s narrative chemical constituents objective for protection of the MUN beneficial use. These effluent limitations are included in this Order to assure the treatment process adequately nitrifies and denitrifies the waste stream to protect the beneficial use of municipal and domestic supply.
- (d) **Plant Performance and Attainability.** Since September 2016, the MEC for nitrate plus nitrite in Pond NC-2D was 1.7 mg/L out of 9 samples. The Central Valley Water Board concludes, therefore, that immediate compliance with these effluent limitations is feasible.

iii. **pH**

- (a) **WQO.** The Basin Plan includes a water quality objective for surface waters (except for Goose Lake) that the “...pH shall not be depressed below 6.5 nor raised above 8.5.”
- (b) **RPA Results.** Raw domestic wastewater inherently has variable pH. Additionally, some wastewater treatment processes can

increase or decrease wastewater pH which if not properly controlled, would violate the Basin Plan's numeric objective for pH in the receiving water. Therefore, reasonable potential exists for pH and WQBEL's are required.

Federal regulations at 40 C.F.R. §122.44(d)(1)(i) requires that, "*Limitations must control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) which the Director determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality.*" For priority pollutants, the SIP dictates the procedures for conducting the RPA. pH is not a priority pollutant. Therefore, the Central Valley Water Board is not restricted to one particular RPA method. Due to the site-specific conditions of the discharge, the Central Valley Water Board has used professional judgment in determining the appropriate method for conducting the RPA for this non-priority pollutant constituent.

USEPA's September 2010 NPDES Permit Writer's Manual, page 6-30, states, "*State implementation procedures might allow, or even require, a permit writer to determine reasonable potential through a qualitative assessment process without using available facility-specific effluent monitoring data or when such data are not available...A permitting authority might also determine that WQBEL's are required for specific pollutants for all facilities that exhibit certain operational or discharge characteristics (e.g., WQBEL's for pathogens in all permits for POTW's discharging to contact recreational waters).*" USEPA's TSD also recommends that factors other than effluent data should be considered in the RPA, "*When determining whether or not a discharge causes, has the reasonable potential to cause, or contributes to an excursion of a numeric or narrative water quality criterion for individual toxicants or for toxicity, the regulatory authority can use a variety of factors and information where facility-specific effluent monitoring data are unavailable. These factors also should be considered with available effluent monitoring data.*" (TSD, p. 50)

- (c) **WQBEL's.** Effluent limitations for pH of 6.5 as an instantaneous minimum and 8.5 as an instantaneous maximum are included in this Order based on protection of the Basin Plan objectives for pH.
 - a. **Plant Performance and Attainability.** Based on an analysis of the effluent data at REC-001 the Central Valley Water Board concludes that immediate compliance with these effluent limitations is feasible.

4. WQBEL Calculations

- a. This Order includes WQBEL's for ammonia, nitrate plus nitrite, and pH. The general methodology for calculating WQBEL's based on the different criteria/objectives is described in subsections IV.C.5.b through e, below. See Attachment H for the WQBEL calculations.
- i. **Effluent Concentration Allowance.** For each water quality criterion/objective, the ECA is calculated using the following steady-state mass balance equation from Section 1.4 of the SIP:

$$\begin{aligned} ECA &= C + D(C - B) && \text{where } C > B, \text{ and} \\ ECA &= C && \text{where } C \leq B \end{aligned}$$

where:

ECA	= effluent concentration allowance
D	= dilution credit
C	= the priority pollutant criterion/objective
B	= the ambient background concentration.

According to the SIP, the ambient background concentration (B) in the equation above shall be the observed maximum with the exception that an ECA calculated from a priority pollutant criterion/objective that is intended to protect human health from carcinogenic effects shall use the arithmetic mean concentration of the ambient background samples.

- ii. **Primary and Secondary MCLs.** For non-priority pollutants with primary MCL's to protect human health (e.g., nitrate plus nitrite), the AMEL is set equal to the primary MCL and the AWEL is calculated using the MDEL/AMEL multiplier from Table 2 of the SIP.

For non-priority pollutants with secondary MCL's that protect public welfare (e.g., taste, odor, and staining), WQBEL's were calculated by setting the LTA equal to the secondary MCL and using the AMEL multiplier to set the AMEL. The AWEL was calculated using the MDEL/AMEL multiplier from Table 2 of the SIP.

- iii. **Aquatic Toxicity Criteria.** For priority pollutants with acute and chronic aquatic toxicity criteria, the WQBEL's are calculated in accordance with Section 1.4 of the SIP. The ECAs are converted to equivalent long-term averages (i.e. LTAacute and LTAchronic) using statistical multipliers and the lowest LTA is used to calculate the AMEL and MDEL using additional statistical multipliers. For non-priority pollutants, WQBEL's are calculated using similar procedures, except that an AWEL is determined utilizing multipliers based on a 98th percentile occurrence probability.
- iv. **Human Health Criteria.** For priority pollutants with human health criteria, the WQBEL's are calculated in accordance with Section 1.4 of the SIP. The AMEL is set equal to the ECA and the MDEL is calculated using the MDEL/AMEL multiplier from Table 2 of the SIP. For non-priority pollutants with human health criteria, WQBEL's are calculated using similar procedures, except that an AWEL is established using the MDEL/AMEL multiplier from Table 2 of the SIP.

$$\begin{aligned}
 AMEL &= mult_{AMEL} \left[\min \left(\overbrace{M_A ECA_{acute}}^{LTA_{acute}}, M_C ECA_{chronic} \right) \right] \\
 MDEL &= mult_{MDEL} \left[\min \left(M_A ECA_{acute}, \underbrace{M_C ECA_{chronic}}_{LTA_{chronic}} \right) \right] \\
 MDEL_{HH} &= \left(\frac{mult_{MDEL}}{mult_{AMEL}} \right) AMEL_{HH}
 \end{aligned}$$

where:

- $mult_{AMEL}$ = statistical multiplier converting minimum LTA to AMEL
- $mult_{MDEL}$ = statistical multiplier converting minimum LTA to MDEL
- M_A = statistical multiplier converting acute ECA to LTA_{acute}
- M_C = statistical multiplier converting chronic ECA to $LTA_{chronic}$

**Summary of Water Quality-Based Effluent Limitations
 Discharge Point No. 001**

Table F-9. Summary of Water Quality-Based Effluent Limitations

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Ammonia Nitrogen, Total (as N)	mg/L	0.5	1.4	--	--	--
pH	standard units	--	--	--	6.5	8.5
Nitrate Plus Nitrite (as N)	mg/L	10	17	--	--	--

5. Whole Effluent Toxicity (WET)

For compliance with the Basin Plan’s narrative toxicity objective, this Order requires the Discharger to conduct whole effluent toxicity testing for acute and chronic toxicity, as specified in the Monitoring and Reporting Program (Attachment E section V.). This Order also contains effluent limitations for acute and chronic toxicity and requires the Discharger to implement best management practices to investigate the causes of, and identify corrective actions to reduce or eliminate effluent toxicity.

- a. **Acute Aquatic Toxicity.** The Basin Plan contains a narrative toxicity objective that states, “All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.” (Basin Plan at page III-8.00) The Basin Plan also states that, “...effluent limits based upon acute biotoxicity tests of effluents will be prescribed where appropriate...”.

For priority pollutants, the SIP dictates the procedures for conducting the RPA. Acute toxicity is not a priority pollutant. Therefore, the Central Valley Water Board is not restricted to one particular RPA method. Acute whole effluent toxicity is not a priority pollutant. Therefore, due to the site-specific conditions of the discharge, the Central Valley Water Board has used professional judgment in determining the appropriate method for conducting the RPA . USEPA’s September 2010 NPDES Permit Writer’s Manual, page 6-30, states, “*State implementation procedures might allow, or even require, a permit writer to determine reasonable potential through a qualitative assessment process without using available facility-specific effluent monitoring data or when such data are not available...A permitting authority might also determine that WQBEL’s are required for specific pollutants for all facilities that exhibit certain operational or discharge characteristics (e.g., WQBEL’s for pathogens in all permits for POTW’s discharging to contact recreational waters).*” Although the discharge has been consistently in compliance with the acute effluent limitations, the Facility is a POTW that treats domestic wastewater containing ammonia and other acutely toxic pollutants. Acute toxicity effluent limits are required to ensure compliance with the Basin Plan’s narrative toxicity objective.

USEPA Region 9 provided guidance for the development of acute toxicity effluent limitations in the absence of numeric water quality objectives for toxicity in its document titled "Guidance for NPDES Permit Issuance", dated February 1994. In section B.2. "Toxicity Requirements" (pgs. 14-15) it states that, "*In the absence of specific numeric water quality objectives for acute and chronic toxicity, the narrative criterion 'no toxics in toxic amounts' applies. Achievement of the narrative criterion, as applied herein, means that ambient waters shall not demonstrate for acute toxicity: 1) less than 90% survival, 50% of the time, based on the monthly median, or 2) less than 70% survival, 10% of the time, based on any monthly median. For chronic toxicity, ambient waters shall not demonstrate a test result of greater than 1 TUc.*" Accordingly, effluent limitations for acute toxicity have been included in this Order as follows:

Acute Toxicity. Survival of aquatic organisms in 96-hour bioassays of undiluted waste shall be no less than:

Minimum for any one bioassay -----	70%
Median for any three consecutive bioassays -----	90%

- b. **Chronic Aquatic Toxicity.** The Basin Plan contains a narrative toxicity objective that states, “*All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.*” (Basin Plan at page III-8.00). The table below is chronic WET testing performed by the Discharger from 2014 through 2016. This data was used to determine if the discharge has reasonable potential to cause or contribute to an in-stream excursion above the Basin Plan’s narrative toxicity objective.

Table F-10. Whole Effluent Chronic Toxicity Testing Results

Date	Fathead Minnow <i>Pimephales promelas</i>		Water Flea <i>Ceriodaphnia dubia</i>		Green Algae <i>Selenastrum capricornutum</i>
	Survival (Tuc)	Growth (Tuc)	Survival (Tuc)	Reproduction (Tuc)	Growth (Tuc)
6/17/2014	1	1	1	1	1
11/3/2015	1	1	1	1	1
8/22/2016	1	1	1	1	1

- i. **RPA.** No dilution has been granted for chronic whole effluent toxicity. Chronic toxicity testing results exceeding 1 chronic toxicity units (TUc) (as 100/NOEC) and a percent effect at 100 percent effluent exceeding 25 percent demonstrates the discharge has a reasonable potential to cause or contribute to an exceedance of the Basin Plan’s narrative toxicity objective. Based on chronic toxicity testing conducted between 17 June 2014 and 22 August 2016 the maximum chronic toxicity result was 1 TUc on 22 August 2016 with a percent effect of 8.3 percent, therefore, the discharge does not have reasonable potential to cause or contribute to an instream exceedance of the Basin Plan’s narrative toxicity objective.

D. Final Effluent Limitation Considerations

1. Mass-based Effluent Limitations

40 C.F.R section 122.45(f)(1) requires effluent limitations be expressed in terms of mass, with some exceptions, and 40 C.F.R. section 122.45(f)(2) allows pollutants that are limited in terms of mass to additionally be limited in terms of other units of measurement. This Order includes effluent limitations expressed in terms of mass and concentration. In addition, pursuant to the exceptions to mass limitations provided in 40 CF.R. section 122.45(f)(1), some effluent limitations are not expressed in terms of mass, such as pH and temperature, and when the applicable standards are expressed in terms of concentration (e.g., CTR criteria and MCL’s) and mass limitations are not necessary to protect the beneficial uses of the receiving water.

Mass-based effluent limitations were calculated based upon the design flow (Average Dry Weather Flow) permitted in section III.D of this Order.

2. Averaging Periods for Effluent Limitations

40 C.F.R. section 122.45 (d) requires average weekly and average monthly discharge limitations for POTW’s unless impracticable. For pH, weekly average effluent limitations have been replaced or supplemented with effluent limitations utilizing shorter averaging periods. The rationale for using shorter averaging periods for these constituents is discussed in section IV.C.3 of this Fact Sheet.

3. Satisfaction of Anti-Backsliding Requirements

The CWA specifies that a revised permit may not include effluent limitations that are less stringent than the previous permit unless a less stringent limitation is justified based on exceptions to the anti-backsliding provisions contained in CWA sections 402(o) or 303(d)(4), or, where applicable, 40 C.F.R. section 122.44(l).

The effluent limitations in this Order are at least as stringent as the effluent limitations in the previous Order, with the exception of effluent limitations for aluminum, manganese, electrical conductivity, BOD, and TSS. The effluent limitations for these pollutants are less stringent than those in Order R5-2013-0072-01. This relaxation of effluent limitations is consistent with the anti-backsliding requirements of the CWA and federal regulations.

- b. **CWA section 402(o)(1) and 303(d)(4).** CWA section 402(o)(1) prohibits the establishment of less stringent water quality-based effluent limits “*except in compliance with Section 303(d)(4).*” CWA section 303(d)(4) has two parts: paragraph (A) which applies to nonattainment waters and paragraph (B) which applies to attainment waters.
- i. For waters where standards are not attained, CWA section 304(d)(4)(A) specifies that any effluent limit based on a TMDL or other WLA may be revised only if the cumulative effect of all such revised effluent limits based on such TMDL’s or WLAs will assure the attainment of such water quality standards.
 - ii. For attainment waters, CWA section 303(d)(4)(B) specifies that a limitation based on a water quality standard may be relaxed where the action is consistent with the antidegradation policy.

The jurisdictional wetlands are considered an attainment water for aluminum, electrical conductivity, manganese, BOD, and TSS because the receiving water is not listed as impaired on the 303(d) list for these constituents.¹² As discussed in section IV.D.4, below, removal of the effluent limits complies with federal and state antidegradation requirements. Thus, removal of the effluent limitations for aluminum, electrical conductivity, manganese, BOD, and TSS from Order R5-2013-0072-01 meets the exception in CWA section 303(d)(4)(B).

- c. **CWA section 402(o)(2).** CWA section 402(o)(2) provides several exceptions to the anti-backsliding regulations. CWA 402(o)(2)(B)(i) allows a renewed, reissued, or modified permit to contain a less stringent effluent limitation for a pollutant if information is available which was not available at the time of permit issuance (other than revised regulations, guidance, or test methods) and which would have justified the application of a less stringent effluent limitation at the time of permit issuance.

As described further in section IV.C.3.b of this Fact Sheet, updated information that was not available at the time Order R5-2013-0072-01 was issued indicates that aluminum, electrical conductivity, and manganese do not exhibit reasonable potential to cause or contribute to an exceedance of water quality objectives in the receiving water. The updated information that supports the relaxation of effluent limitations for these constituents includes the following:

- i. **Aluminum.** Effluent monitoring data collected between April 2014 and November 2016 indicates that aluminum in the discharge does not exhibit reasonable potential to cause or contribute to an exceedance of the Secondary MCL.

¹² “The exceptions in Section 303(d)(4) address both waters in attainment with water quality standards and those not in attainment, i.e. waters on the section 303(d) impaired waters list.” State Water Board Order WQ 2008-0006, Berry Petroleum Company, Poso Creek/McVan Facility.

- ii. **Manganese.** Effluent monitoring data collected between April 2014 and November 2016 indicates that manganese in the discharge does not exhibit reasonable potential to cause or contribute to an exceedance of the Secondary MCL.
- iii. **Electrical Conductivity.** Effluent and receiving water monitoring data collected between December 2013 and November 2016 for electrical conductivity indicates that the discharge does not exhibit reasonable potential to cause or contribute to an exceedance of the Basin Plan narrative objective for settleable solids.

Thus, removal of the effluent limitations for aluminum, manganese, and EC from Order R5-2013-0072-01 is in accordance with CWA section 402(o)(2)(B)(i), which allows for the removal of effluent limitations based on information that was not available at the time of permit issuance.

- iv. **Total Coliform Organisms.** Previous Order R5-2013-0072-01 included WQBELs for total coliform organisms that have not been retained in this Order. This Order requires the wastewater conveyed to Pond NC-2D is adequately disinfected to meet the requirements of Title 22 disinfected tertiary recycled water in accordance with CCR § 60301.230, which ensures a pathogen-free wastewater is provided for reuse on the SCGC. Reclamation requirements include effluent limitations for total coliform organisms equivalent to the WQBELs implemented in previous Order R5-2013-0072-01. Thus removal of the WQBELs in this Order does not constitute backsliding.

4. Antidegradation Policies

This Order does not allow for an increase in flow or mass of pollutants to the receiving water. Therefore, a complete antidegradation analysis is not necessary. The Order requires compliance with applicable federal technology-based standards and with WQBEL's where the discharge could have the reasonable potential to cause or contribute to an exceedance of water quality standards. The permitted discharge is consistent with the antidegradation provisions of 40 C.F.R. section 131.12 and the State Anti-Degradation Policy. Compliance with these requirements will result in the use of best practicable treatment or control of the discharge. The impact on existing water quality will be insignificant.

This Order removes or relaxes the effluent limitations for aluminum, manganese, electrical conductivity, BOD, and TSS based on updated monitoring data demonstrating that the effluent does not cause or contribute to an exceedance of the applicable water quality criteria or objectives in the receiving water. The relaxation of WQBEL's for these parameters will not result in an increase in pollutants concentration or loading, a decrease in the level of treatment or control, or a reduction of water quality. Therefore, the Central Valley Water Board finds that the relaxation of the effluent limitations does not result in an increase in pollutants or any additional degradation of the receiving water. Thus, the relaxation of effluent limitations is consistent with the antidegradation provisions of 40 C.F.R. section 131.12 and State Water Board Resolution No. 68-16.

5. Stringency of Requirements for Individual Pollutants

This Order contains both technology-based effluent limitations and WQBEL's for individual pollutants. The technology-based effluent limitations consist of restrictions on BOD₅ and TSS. Restrictions on BOD₅ and TSS are discussed in section IV.B.2 of this Fact Sheet. This Order's technology-based pollutant restrictions implement the minimum, applicable federal technology-based requirements. These limitations are not more stringent than required by the CWA.

WQBEL's have been derived to implement water quality objectives that protect beneficial uses. Both the beneficial uses and the water quality objectives have been approved pursuant to federal law and are the applicable federal water quality standards. To the extent that toxic pollutant WQBEL's were derived from the CTR, the CTR is the applicable standard pursuant to 40 C.F.R. section 131.38. The procedures for calculating the individual water quality-based effluent limitations for priority pollutants are based on the CTR implemented by the SIP, which was approved by U.S. EPA on 18 May, 2000. All beneficial uses and water quality objectives contained in the Basin Plan were approved under state law and submitted to and approved by U.S. EPA prior to 30 May, 2000. Any water quality objectives and beneficial uses submitted to U.S. EPA prior to 30 May, 2000, but not approved by U.S. EPA before that date, are nonetheless "applicable water quality standards for purposes of the CWA" pursuant to 40 C.F.R. section 131.21(c)(1). Collectively, this Order's restrictions on individual pollutants are no more stringent than required to implement the requirements of the CWA.

**Summary of Final Effluent Limitations
 Discharge Point 001**

Table F-11. Summary of Final Effluent Limitations

Parameter	Units	Effluent Limitations					Basis ¹
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum	
Conventional Pollutants							
Biochemical Oxygen Demand (5-day @ 20°C)	mg/L	30	45		--	--	CFR
	% Removal	85	--	--	--	--	CFR
pH	standard units	--	--	--	6.5	8.5	BP
Total Suspended Solids	mg/L	30	45		--	--	CFR
	% Removal	85	--	--	--	--	CFR
Non-Conventional Pollutants							
Ammonia Nitrogen, Total (as N)	mg/L	0.5	1.4	--	--	--	NAWQC
Nitrate Plus Nitrite (as N)	mg/L	10	17	--	--	--	MCL

Parameter	Units	Effluent Limitations					Basis ¹
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum	

¹ DC – Based on the design capacity of the Facility.
 CFR – Based on secondary treatment standards contained in 40 CFR Part 133.
 BP – Based on water quality objectives contained in the Basin Plan.
 CTR – Based on water quality criteria contained in the California Toxics Rule and applied as specified in the SIP.
 NAWQC – Based on USEPA’s National Ambient Water Quality Criteria for the protection of freshwater aquatic life.
 SEC MCL – Based on the Secondary Maximum Contaminant Level.
 MCL – Based on the Primary Maximum Contaminant Level.

E. Interim Effluent Limitations – Not Applicable

F. Land Discharge Specifications – Set forth in WDRs Order R5-2010-0070

G. Recycling Specifications

1. The Discharger uses tertiary treated wastewater for golf course irrigation. The State Water Board adopted Resolution No. 2009-0011 on 3 February 2009 adopting the Recycled Water Policy. The purpose of the Recycled Water Policy was to increase the use of recycled water from municipal wastewater sources that meets the definition in Water Code Section 13050(n), in a manner that implements state and federal water quality laws. When used in compliance with the Policy, Title 22, and all applicable state and federal water quality laws, the State Water Board found that recycled water is safe for the approved uses, and strongly supports recycled water as a safe alternative to potable water for such approved uses. On 7 July 2009, the State Water Board adopted Water Quality Order (WQO) No. 2009-0006-DWQ, General WDRs for Landscape Irrigation Uses of Municipal Recycled Water, the purpose of which was to streamline the regulatory process for uses of recycled water for landscape irrigation. In keeping with the intent of the Recycled Water Policy, this Order contains recycled water prohibitions consistent with WQO No. 2009-0006-DWQ. These requirements are necessary to ensure that the use of reclaimed water does not unreasonably affect present and anticipated beneficial uses of groundwater and surface water.
2. The Discharger uses tertiary treated wastewater for golf course irrigation. In keeping with the intent of the Recycled Water Policy, this Order contains recycled water specifications consistent with WQO No. 2009-006-DWQ. These requirements are necessary to ensure that the use of reclaimed water does not unreasonably affect present and anticipated uses of groundwater and surface water.
3. DDW requires that American Water Works Association (AWWA) *Guidelines for Distribution of Non-Potable Water* and *Guidelines for the On-site Retrofit of Facilities Using Disinfected Tertiary Recycled Water* be implemented in design and construction of recycling equipment. The guidelines require installation of purple pipe, adequate signs, etc. Adequate separation between the recycled lines and domestic water lines and sewer lines is also required.
4. DDW has established statewide water recycling criteria in Title 22. DDW revised the water recycling criteria contained in Title 22 on 2 December 2000. The Facility produces effluent that meets Title 22 disinfected tertiary standards for filtration. The Reclamation Specifications in this Order require that effluent meet Title 22 requirements for disinfected tertiary recycled water, suitable for use on a restricted access golf course and as a source for landscape impoundments.

5. Section 60323(a) of Title 22 states that no person shall produce or supply reclaimed water for direct reuse from a proposed water reclamation plant unless an engineering report is submitted for review and approval by DDW and Central Valley Water Board. Irrigation of golf courses and other landscaping is considered a beneficial reuse, which DDW has granted approval for.
6. The Basin Plan encourages water recycling. The Facility uses treated tertiary effluent for golf course irrigation.
7. **Filtration System Operating Specifications.** Turbidity is included as an operational specification as an indicator of the effectiveness of the filtration system for providing adequate disinfection. The tertiary treatment process utilized at this Facility is capable of reliably meeting a turbidity limitation of 2 nephelometric turbidity units (NTU) as a daily average. Failure of the treatment system such that virus removal is impaired would normally result in increased particles in the effluent, which result in higher effluent turbidity and could impact UV dosage. Turbidity has a major advantage for monitoring filter performance, allowing immediate detection of filter failure and rapid corrective action. The operational specification requires that turbidity prior to disinfection shall not exceed 2 NTU as a daily average; 5 NTU, more than 5 percent of the time within a 24-hour period, and an instantaneous maximum of 10 NTU.
8. **Ultraviolet (UV) Disinfection System Operating Specifications.** This Order requires that wastewater shall be oxidized, coagulated, filtered, and adequately disinfected pursuant to the DDW reclamation criteria, CCR, Title 22, division 4, chapter 3, (Title 22). To ensure that the UV disinfection system is operated to achieve the required pathogen removal, this Order includes filtration system operating specifications and UV disinfection system operating specifications. Compliance with effluent limits and the filtration system and UV disinfection operating specifications demonstrates compliance with the Title 22 disinfection requirement.

The Discharger submitted a site-specific UV engineering study in May 2012 titled, *Checkpoint Bioassay Results for the Trojan UV3000Plus Systems at the La Contenta and Copper Cove WRPs*, which was certified by DDW in a letter dated 5 July 2012, and included UV operating specifications for compliance with Title 22. UV disinfection system operating specifications were added to this Order in Section IV.C.3.c, which were not included in the previous permit. The UV system shall conform to all requirements and operating specifications certified by DDW.

Since the Facility uses a media filter, the UV system must be operated to deliver a minimum hourly average UV dose of 100 mJ/cm². Therefore, this Order includes UV operating specifications requiring a minimum hourly average UV dose of 100 mJ/cm² and variable minimum hourly average UV transmittance depending on flows, per the DDW certification letter.

V. RATIONALE FOR RECEIVING WATER LIMITATIONS

A. Surface Water

1. CWA section 303(a-c), requires states to adopt water quality standards, including criteria where they are necessary to protect beneficial uses. The Central Valley Water Board adopted water quality criteria as water quality objectives in the Basin Plan. The Basin Plan states that “[t]he numerical and narrative water quality objectives define the least

stringent standards that the Regional Water Board will apply to regional waters in order to protect the beneficial uses.” The Basin Plan includes numeric and narrative water quality objectives for various beneficial uses and water bodies. This Order contains receiving surface water limitations based on the Basin Plan numerical and narrative water quality objectives for ammonia, bacteria, biostimulatory substances, color, chemical constituents, dissolved oxygen, floating material, oil and grease, pH, pesticides, radioactivity, suspended sediment, settleable substances, suspended material, tastes and odors, temperature, toxicity, and turbidity.

B. Groundwater

1. The beneficial uses of the underlying groundwater are municipal and domestic supply, industrial service supply, industrial process supply, and agricultural supply.
2. Basin Plan water quality objectives include narrative objectives for chemical constituents, tastes and odors, and toxicity of groundwater. The toxicity objective requires that groundwater be maintained free of toxic substances in concentrations that produce detrimental physiological responses in humans, plants, animals, or aquatic life. The chemical constituent objective states groundwater shall not contain chemical constituents in concentrations that adversely affect any beneficial use. The tastes and odors objective prohibits taste- or odor-producing substances in concentrations that cause nuisance or adversely affect beneficial uses. The Basin Plan also establishes numerical water quality objectives for chemical constituents and radioactivity in groundwaters designated as municipal supply. These include, at a minimum, compliance with MCLs in Title 22 of the CCR. The bacteria objective prohibits coliform organisms at or above 2.2 MPN/100 mL. The Basin Plan requires the application of the most stringent objective necessary to ensure that waters do not contain chemical constituents, toxic substances, radionuclides, taste- or odor-producing substances, or bacteria in concentrations that adversely affect municipal or domestic supply, agricultural supply, industrial supply or some other beneficial use.
3. State Water Board Resolution No. 68-16 (hereafter Resolution 68-16) requires the Central Valley Water Board in regulating discharge of waste to maintain high quality waters of the State until it is demonstrated that any change in quality will be consistent with maximum benefit to the people of the State, will not unreasonably affect beneficial uses, and will not result in water quality less than that described in the Central Valley Water Board's policies (e.g., quality that exceeds water quality objectives). Resolution 68-16 requires that the discharge be regulated to meet best practicable treatment or control to assure that pollution or nuisance will not occur and the highest water quality consistent with the maximum benefit to the people of the State be maintained.
4. The Discharger utilizes aeration lagoons and disposal ponds. Domestic wastewater contains constituents such as total dissolved solids, specific conductivity, pathogens, nitrates, organics, metals and oxygen demanding substances (BOD). Percolation from the lagoons and ponds may result in an increase in the concentration of these constituents in groundwater. The increase in the concentration of these constituents in groundwater must be consistent with Resolution 68-16. Any increase in pollutant concentrations in groundwater must be shown to be necessary to allow wastewater utility service necessary to accommodate housing and economic expansion in the area and must be consistent with maximum benefit to the people of the State of California. Some degradation of groundwater by the Discharger is consistent with Resolution 68-16 provided that:

- a. The degradation is limited in extent;
 - b. The degradation after effective source control, treatment, and control is limited to waste constituents typically encountered in municipal wastewater as specified in the groundwater limitations in this Order;
 - c. The Discharger minimizes the degradation by fully implementing, regularly maintaining, and optimally operating best practicable treatment and control (BPTC) measures; and,
 - d. The degradation does not result in water quality less than that prescribed in the Basin Plan.
5. Groundwater limitations are required to protect the beneficial uses of the underlying groundwater.

VI. RATIONALE FOR PROVISIONS

A. Standard Provisions

Standard Provisions, which apply to all NPDES permits in accordance with 40 C.F.R. section 122.41, and additional conditions applicable to specified categories of permits in accordance with 40 C.F.R. section 122.42, are provided in Attachment D. The discharger must comply with all standard provisions and with those additional conditions that are applicable under section 122.42.

Sections 122.41(a)(1) and (b) through (n) of 40 C.F.R. establish conditions that apply to all state-issued NPDES permits. These conditions must be incorporated into the permits either expressly or by reference. If incorporated by reference, a specific citation to the regulations must be included in the Order. Section 123.25(a)(12) of 40 C.F.R. allows the state to omit or modify conditions to impose more stringent requirements. In accordance with 40 C.F.R. section 123.25, this Order omits federal conditions that address enforcement authority specified in 40 C.F.R. sections 122.41(j)(5) and (k)(2) because the enforcement authority under the Water Code is more stringent. In lieu of these conditions, this Order incorporates by reference Water Code section 13387(e).

B. Special Provisions

1. Reopener Provisions

- a. **Whole Effluent Toxicity.** This Order requires the Discharger to investigate the causes of, and identify corrective actions to reduce or eliminate effluent toxicity through a site-specific Toxicity Reduction Evaluation (TRE) or, under certain circumstances, may be allowed to participate in an approved Toxicity Evaluation Study (TES) in lieu of conducting a site-specific TRE. This Order may be reopened to include a new chronic toxicity limitation, a new acute toxicity limitation, and/or a limitation for a specific toxicant identified in the TRE and/or TES

2. Special Studies and Additional Monitoring Requirements

- a. **Chronic Whole Effluent Toxicity Requirements.** The Basin Plan contains a narrative toxicity objective that states, "*All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.*" (Basin Plan at page III-8.00) Based on whole effluent chronic toxicity testing performed by the Discharger from June 2014 through

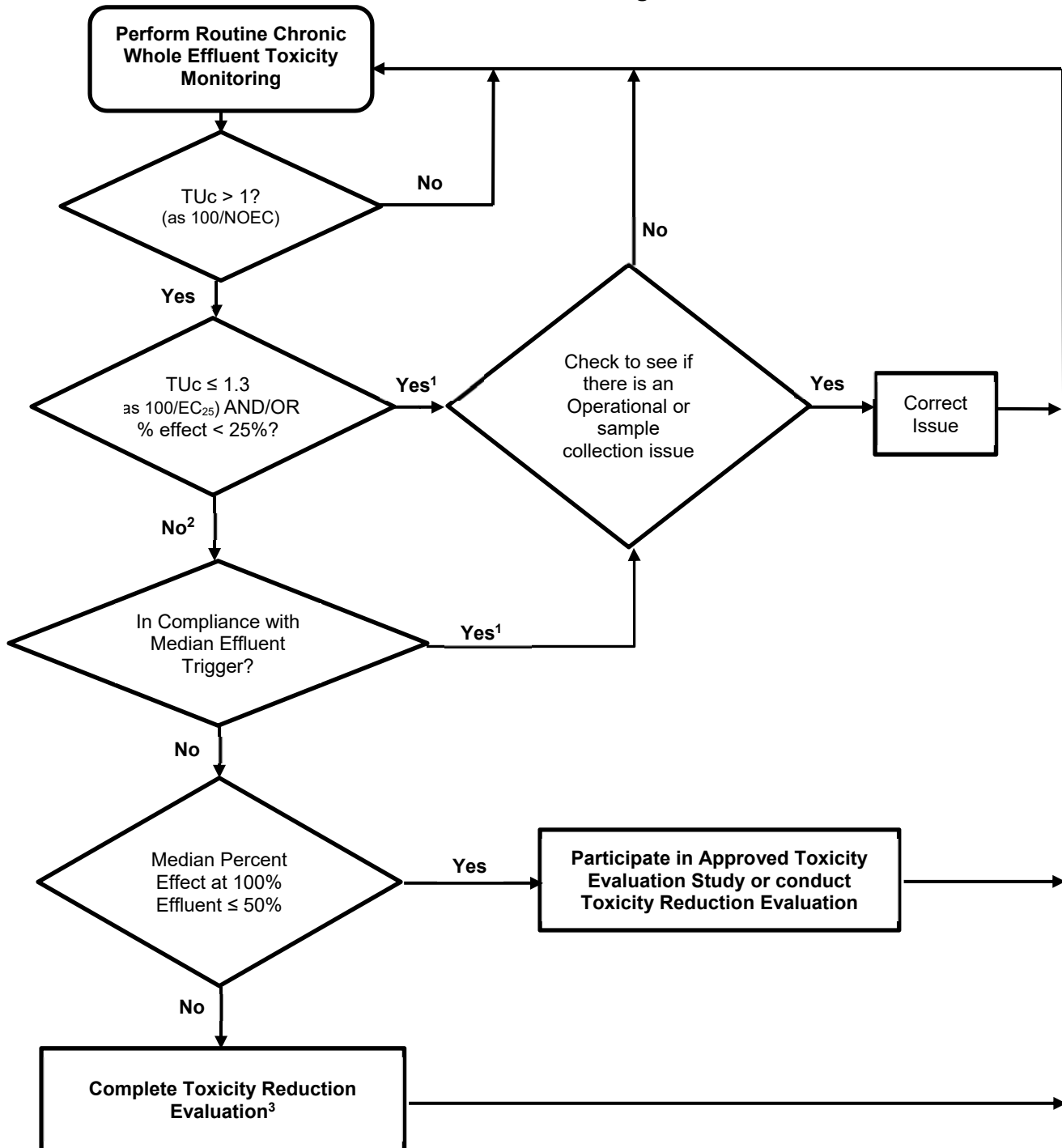
August 2016, the discharge does not have reasonable potential to cause or contribute to an in-stream excursion above of the Basin Plan's narrative toxicity objective.

The Monitoring and Reporting Program of this Order requires chronic WET monitoring to demonstrate compliance with the Basin Plan's narrative toxicity objective. If the discharge exceeds the chronic toxicity monitoring trigger this provision requires the Discharger either participate in an approved Toxicity Evaluation Study (TES) or conduct a site-specific Toxicity Reduction Evaluation (TRE).

A TES may be conducted in lieu of a TRE if the percent effect at 100 percent effluent is less than or equal to 50 percent. Determining the cause of toxicity can be challenging when the toxicity signal is low. Several Central Valley facilities with similar treatment systems have been experiencing intermittent low level toxicity. The dischargers have not been successful identifying the cause of the toxicity because of the low toxicity signal and the intermittent nature of the toxicity. Due to these challenges, the Central Valley Clean Water Association (CVCWA), in collaboration with staff from the Central Valley Water Board, has initiated a Special Study to Investigate Low Level Toxicity Indications (Group Toxicity Study). This Order allows the Discharger to participate in an approved TES, which may be conducted individually or as part of a coordinated group effort with other similar dischargers that are exhibiting toxicity. Although the current CVCWA Group Toxicity Study is related to low-level toxicity, participation in an approved TES is not limited to only low-level toxicity issues.

See the WET Monitoring Flow Chart (Figure F-2), below, for further clarification of the decision points for determining the need for TES/TRE initiation.

Figure F-1
WET Accelerated Monitoring Flow Chart



¹ The Discharger may participate in an approved TES if the discharge has exceeded the chronic toxicity monitoring trigger twice or more in the past 12 month period and the cause is not identified and/or addressed.
² The Discharger may elect to take additional samples to determine the 3 sample median. The samples shall be collected at least one week apart and the final sample shall be within 6 weeks of the initial sample exhibiting toxicity.
³ The Discharger may participate in an approved TES instead of a TRE if the Discharger has conducted a TRE within the past 12 months and has been unsuccessful in identifying the toxicant.

3. Best Management Practices and Pollution Prevention

- a. **Salinity Evaluation and Minimization Plan.** An Evaluation and Minimization Plan for salinity is required to be maintained in this Order to ensure adequate measures are developed and implemented by the Discharger to reduce the discharge of salinity to the jurisdictional wetlands. If the effluent annual average calendar year electrical conductivity concentration exceeds 900 $\mu\text{mhos/cm}$ during the term of this Order, the salinity evaluation and minimization plan shall be reviewed and updated.

4. Construction, Operation, and Maintenance Specifications – Not Applicable

5. Special Provisions for Publicly-Owned Treatment Works (POTWs) – Not Applicable

6. Compliance Schedules – Not Applicable

VII. RATIONALE FOR MONITORING AND REPORTING REQUIREMENTS

CWA section 308 and 40 C.F.R. sections 122.41(h), (j)-(l), 122.44(i), and 122.48 require that all NPDES permits specify monitoring and reporting requirements. Water Code sections 13267 and 13383 also authorize the Central Valley Water Board to establish monitoring, inspection, entry, reporting, and recordkeeping requirements. The Monitoring and Reporting Program (MRP), Attachment E of this Order establishes monitoring, reporting, and recordkeeping requirements that implement federal and state requirements. The following provides the rationale for the monitoring and reporting requirements contained in the MRP for this facility.

A. Influent Monitoring

1. Influent monitoring is required to collect data on the characteristics of the wastewater and to assess compliance with effluent limitations (e.g., BOD₅ and TSS reduction requirements).

B. Effluent Monitoring

1. Pursuant to the requirements of 40 C.F.R. section 122.44(i)(2) effluent monitoring is required for all constituents with effluent limitations. Effluent monitoring is necessary to assess compliance with effluent limitations, assess the effectiveness of the treatment process, and to assess the impacts of the discharge on the receiving stream and groundwater.
2. Effluent monitoring at monitoring location REC-002 has been included for flow (1/day), ammonia (1/month)¹³, nitrate plus nitrite (1/month), dissolved oxygen (1/week), electrical conductivity (1/month), and hardness (1/quarter) to determine compliance with effluent limitations for these parameters (i.e., ammonia and nitrate plus nitrite), and to determine efficacy of best management practices implementation for these parameters (e.g. temperature, pH, dissolved oxygen, electrical conductivity, and hardness).
3. Monitoring of the Reclamation Facility effluent at monitoring location REC-001 has been included for pH (1/week) to evaluate compliance with the pH effluent limitations and for BOD₅ (1/week) and TSS (1/week) to evaluate compliance with the technology-based effluent limitations for these parameters. Monitoring is included at REC-001, which provides a more accurate assessment of the effectiveness of the treatment process than

¹³ Temperature and pH measurements are also required at time of ammonia sampling.

if the sampling was conducted at REC-002 after being stored in Pond NC-2D. This is because algae growth and decomposition can occur in Pond NC-2D, which can increase BOD and TSS concentrations and may cause naturally occurring pH fluctuations.

4. Monitoring data collected over the previous permit term for aluminum, manganese, and oil and grease did not demonstrate reasonable potential to exceed water quality objectives/criteria. Thus, specific monitoring requirements for these parameters have not been retained from Order No. R5-2013-0072-01.
5. Water Code section 13176, subdivision (a), states: *“The analysis of any material required by [Water Code sections 13000-16104] shall be performed by a laboratory that has accreditation or certification pursuant to Article 3 (commencing with Section 100825) of Chapter 4 of Part 1 of Division 101 of the Health and Safety Code.”* The DDW accredits laboratories through its Environmental Laboratory Accreditation Program (ELAP).

Section 13176 cannot be interpreted in a manner that would violate federal holding time requirements that apply to NPDES permits pursuant to the CWA. (Wat. Code §§ 13370, subd. (c), 13372, 13377.) Section 13176 is inapplicable to NPDES permits to the extent it is inconsistent with CWA requirements. (Wat. Code § 13372, subd. (a).) The holding time requirements are 15 minutes for chlorine residual, dissolved oxygen, and pH, and immediate analysis is required for temperature. (40 C.F.R. § 136.3(e), Table II)

C. Whole Effluent Toxicity Testing Requirements

1. **Acute Toxicity.** Once per permit term 96-hour bioassay testing is required to demonstrate compliance with the effluent limitation for acute toxicity.
2. **Chronic Toxicity.** Once per permit term chronic whole effluent toxicity testing is required in order to demonstrate compliance with the Basin Plan’s narrative toxicity objective.

D. Receiving Water Monitoring

1. Surface Water

This Order contains receiving surface water limitations as required to comply with the Basin Plan’s water quality objectives. However, receiving surface water monitoring is not feasible and, therefore, not required in this Order. Sampling for compliance with the receiving surface water limitations will be established through monitoring of the Facility’s effluent at monitoring locations REC-001 and REC-002.

2. Groundwater

Groundwater monitoring requirements for the Facility are contained in Order R5-2010-0070. Therefore, consistent with Order R5-2013-0072-01, this Order does not contain groundwater monitoring requirements.

E. Other Monitoring Requirements

1. Water Supply Monitoring

Water supply monitoring requirements for the Facility are contained in Order R5-2010-0070. Therefore, consistent with Order R5-2013-0072-01, this Order does not contain water supply monitoring requirements.

2. UV Disinfection System Monitoring

UV system monitoring and reporting are required to ensure that the UV system is operated to adequately inactivate pathogens in the wastewater. UV disinfection system monitoring is imposed to achieve requirements established by the DDW.

3. Land Discharge Monitoring

Land discharge monitoring requirements for the Facility are contained in Order R5-2010-0070. Therefore, consistent with Order R5-2013-0072-01, this Order does not contain land discharge monitoring requirements.

4. Reclamation Monitoring

Reclamation monitoring is required to assess compliance with Reclamation Specifications and the water recycling criteria contained in Title 22, CCR Section 60301 et. seq. Monitoring is also required to identify any equipment malfunction or other circumstances that might allow irrigation runoff to leave the irrigation area and/or create ponding conditions that violate the WDRs. The reclamation monitoring in this Order is consistent with the State Water Board's General Waste Discharge Requirements for Landscape Irrigation Uses of Municipal Recycled Water.

5. Effluent Characterization Study

An effluent monitoring study is required to ensure adequate information is available for the next permit renewal. Once during 2021, the Discharger is required to conduct monitoring of the effluent at Monitoring Location REC-001 for all priority pollutants and other constituents of concern shown in Table E-7 of the MRP.

VIII. PUBLIC PARTICIPATION

The Central Valley Water Board has considered the issuance of WDR's that will serve as an NPDES permit for the Copper Cove Wastewater Reclamation Facility. As a step in the WDR adoption process, the Central Valley Water Board staff has developed tentative WDR's and has encouraged public participation in the WDR adoption process.

A. Notification of Interested Persons

The Central Valley Water Board notified the Discharger and interested agencies and persons of its intent to prescribe WDR's for the discharge and provided an opportunity to submit written comments and recommendations. Notification was provided through posting of the Notice of Public Hearing (Notice) at the Calaveras County Courthouse and the Calaveras County Water District main office on 5 March 2018, and posting of the Notice at the Copperopolis Post Office on 6 March 2018. The Notice and tentative Order were also posted on the Central Valley Water Board's website on 28 February 2018.

The public had access to the agenda and any changes in dates and locations through the Central Valley Water Board's website at:

http://www.waterboards.ca.gov/centralvalley/board_info/meetings/

B. Written Comments

Interested persons were invited to submit written comments concerning tentative WDR's as provided through the notification process. Comments were due either in person or by mail to

the Executive Office at the Central Valley Water Board at the address on the cover page of this Order.

To be fully responded to by staff and considered by the Central Valley Water Board, the written comments were due at the Central Valley Water Board office by 5:00 p.m. on 30 March 2018.

C. Public Hearing

The Central Valley Water Board held a public hearing on the tentative WDR's during its regular Board meeting on the following date and time and at the following location:

Date: 31 May/1 June 2018
Time: 8:30 a.m.
Location: Regional Water Quality Control Board, Central Valley Region
11020 Sun Center Drive, Suite #200
Sacramento, CA 95670

Interested persons were invited to attend. At the public hearing, the Central Valley Water Board heard testimony pertinent to the discharge, WDR's, and permit. For accuracy of the record, important testimony was requested in writing.

D. Reconsideration of Waste Discharge Requirements

Any person aggrieved by this action of the Central Valley Water Board may petition the State Water board to review the action in accordance with Water Code section 13320 and California Code of Regulations, title 23, sections 2050 and following. The State Water Board must receive the petition by 5:00 p.m., within 30 calendar days of the date of adoption of this Order at the following address, except that if the thirtieth day following the date of this Order falls on a Saturday, Sunday, or state holiday, the petition must be received by the State Water Board by 5:00 p.m. on the next business day:

State Water Resources Control Board
Office of Chief Counsel
P.O. Box 100, 1001 I Street
Sacramento, CA 95812-0100

Or by email at waterqualitypetitions@waterboards.ca.gov

For instructions on how to file a petition for review, see http://www.waterboards.ca.gov/public_notices/petitions/water_quality/wqpetition_instr.shtml

E. Information and Copying

The Report of Waste Discharge, other supporting documents, and comments received are on file and may be inspected at the address above at any time between 8:30 a.m. and 4:45 p.m., Monday through Friday. Copying of documents may be arranged through the Central Valley Water Board by calling (916) 464-3291.

F. Register of Interested Persons

Any person interested in being placed on the mailing list for information regarding the WDR's and NPDES permit should contact the Central Valley Water Board, reference this facility, and provide a name, address, and phone number.

G. Additional Information

Requests for additional information or questions regarding this order should be directed to Danielle Siebal at (916) 464-4843.

ATTACHMENT G – SUMMARY OF REASONABLE POTENTIAL ANALYSIS

Constituent	Units	MEC	B	C	CMC	CCC	Water & Org	Org. Only	Basin Plan	MCL	Reasonable Potential
Manganese	ug/L	24 ¹	--	50	--	--	--	100	--	50	No
Aluminum	ug/L	39 ¹	--	200	750	--	--	--	--	200	No
Specific Conductance (EC)	umhos/cm	670 ¹	--	900	--	--	--	--	--	900	No
Ammonia	mg/L	0.53	--		2.14	1.11	--	--	--	--	Yes ⁽²⁾
Nitrate as Nitrogen	mg/L	1.7	--	10	--	--	--	--	--	10	Yes ⁽²⁾

General Note: All inorganic concentrations are given as a total recoverable.

MEC = Maximum Effluent Concentration

B = Maximum Receiving Water Concentration or lowest detection level, if non-detect

C = Criterion used for Reasonable Potential Analysis

CMC = Criterion Maximum Concentration (CTR or NTR)

CCC = Criterion Continuous Concentration (CTR or NTR)

Water & Org = Human Health Criterion for Consumption of Water & Organisms (CTR or NTR)

Org. Only = Human Health Criterion for Consumption of Organisms Only (CTR or NTR)

Basin Plan = Numeric Site-specific Basin Plan Water Quality Objective

MCL = Drinking Water Standards Maximum Contaminant Level

NA = Not Available

ND = Non-detect

Footnotes:

(1) Represents the maximum observed annual average concentration for comparison with the MCL.

(2) See Section IV.D.3

ATTACHMENT H – CALCULATION OF QBEL'S

Human Health QBEL's Calculations										
Parameter	Units	Criteria	Mean Background Concentration	CV Eff	Dilution Factor	MDEL/AMEL Multiplier	AMEL Multiplier	AMEL	MDEL	AWEL
Nitrate Plus Nitrite, Total (as N)	mg/L	10	--	0.6	--	2.01	1.55	10	--	17

- ¹ Calculated by setting the LTA equal to the Secondary MCL of 200 µg/L and using the AMEL multiplier to set the AMEL. The AWEL was calculated from the AMEL using the MDEL/AMEL multiplier. (Table 2 of the SIP)
- ² Coefficient of Variation (CV) was established in accordance with section 1.4 of the SIP.

Aquatic Life QBEL's Calculations																	
Parameter	Units	Criteria		B	CV Eff	Dilution Factors		Aquatic Life Calculations							Final Effluent Limitations		
		CMC	CCC			CMC	CCC	ECA Multiplier _{acute}	LTA _{acute}	ECA Multiplier _{chronic}	LTA _{chronic}	AMEL Multiplier ₉₅	AWEL Multiplier	MDEL Multiplier ₉₉	AMEL ¹	AWEL ²	MDEL ³
Ammonia Nitrogen, Total (as N)	mg/L	2.14	0.53	--	1.12 ⁴	--	--	0.18	0.4	0.64	0.34	1.37	4.24	--	0.5	1.4	--

- ¹ Average Monthly Effluent Limitations are calculated according to Section 1.4 of the SIP using a 95th percentile occurrence probability.
- ² Average Weekly Effluent Limitations are calculated according to Section 1.4 of the SIP using a 98th percentile occurrence probability.
- ³ Maximum Daily Effluent Limitations are calculated according to Section 1.4 of the SIP using a 99th percentile occurrence probability.
- ⁴ Coefficient of Variation (CV) was established in accordance with section 1.4 of the SIP.

RESOLUTION NO. 2008 - 28

BE IT RESOLVED, that the attached Water and Wastewater Service Facilities Agreement for **COPPEROPOLIS TOWN SQUARE CONDOMINIUM PROJECT TSTM 2006-200** of the Division 4 / Copper Cove service area is hereby approved with modifications as determined by counsel.

BE IT FURTHER RESOLVED, that the General Manager is hereby authorized to execute said Agreement.

PASSED AND ADOPTED this 9th day of April 2008 by the following vote:

AYES: Directors Davidson, Underhill, McCartney, and Dean

NOES: None

ABSTAIN: Director Rich

ABSENT: None

CALAVERAS COUNTY WATER DISTRICT



Robert T. Dean
President

ATTEST:



Mona Walker
Clerk to the Board

WATER AND WASTEWATER SERVICE FACILITIES AGREEMENT

THIS AGREEMENT is executed on April 9, 2008, by and between CALAVERAS COUNTY WATER DISTRICT, a County Water District organized pursuant to Water Code §§ 30000 *et seq.*, hereinafter called DISTRICT, and **CASTLE & COOKE CALAVERAS, INC.**, hereinafter called OWNER.

OWNER filed with the County of Calaveras a General Plan Amendment (GPA), Zoning Amendment (ZA), and Development Agreement (DA) No. 2004-15 for APN 054-006-036 for a development called **COPPER MILL**. OWNER also has filed a Tentative Subdivision Tract Map (TSTM) No. 2006-200 for APN 054-006-036 for a 25-lot subdivision called **COPPEROPOLIS TOWN SQUARE CONDOMINIUM PROJECT**, hereinafter called Project. Project consists of general commercial, office, professional, and residential units on approximately 26.75 acres as follows:

- 13 Building Lots (B)
- 6 Parking Lots (P)
- 4 Landscaping Lots (PK)
- 1 Street Lot (S)
- 1 Town Square Lot (PK-1)

TSTM 2006-200 was filed with the Calaveras County Surveyor on August 29, 2007, in Book 8 of Subdivisions at Page 46, and recorded with the Calaveras County Recorder on August 29, 2007, Document No. 2007-15449. Twenty-eight (28) new legal parcels were created from the original APN 054-006-036. A copy of the recorded TSTM 2006-200 Final Map is attached hereto as Attachment "A" and incorporated herein by reference.

WHEREAS, OWNER has requested that DISTRICT provide water and wastewater service to the Project, and DISTRICT agrees to provide such services consistent with the terms and conditions set forth herein.

IT IS MUTUALLY AGREED by and between DISTRICT and OWNER as follows:

1. INCORPORATION OF RECITALS. The foregoing recitals are hereby incorporated by reference.
2. IMPROVEMENT PLAN. Prior to construction of the Project, OWNER shall prepare and submit to DISTRICT for review all design and engineering calculations, plans, specifications, cost estimates, and construction schedules for water and wastewater systems required by DISTRICT to serve the Project. OWNER shall prepare and submit legal property descriptions and public utility easements intended to be dedicated to DISTRICT. Conveyance to the DISTRICT of interests in real property shall be free and

clear of encumbrance, liability, or obligation. The foregoing calculations, plans, specifications, cost estimates, schedules, conveyances, and assurances, and any related submissions required by DISTRICT, are hereafter collectively referred to as the "Improvement Plan." The Improvement Plan shall be reviewed by DISTRICT for conformance with DISTRICT Improvement Standards and Standard Construction Specifications ("Improvement Standards") and other DISTRICT rules, as those Improvement Standards and rules may be amended from time to time. Hereafter, where this Agreement references Improvement Standards and other DISTRICT rules, it is understood and agreed that DISTRICT may, at its sole discretion, amend those Improvement Standards and other DISTRICT rules from time to time, and that DISTRICT reserves the right to determine, at its sole discretion, which version of the Improvement Standards and rules apply to the Improvement Plan and Improvement System. The Improvement Plan and/or Improvement System shall be promptly modified by OWNER to conform to DISTRICT Improvement Standards and other DISTRICT rules, as requested by DISTRICT. DISTRICT shall bear no responsibility for the accuracy or reliability of the Improvement Plan, design, and engineering calculations, plans, specifications, or underlying data.

3. IMPROVEMENT SYSTEM. OWNER shall design, construct, and install the water and wastewater facilities identified by DISTRICT ("Improvement System") in compliance with the Improvement Plan, Improvement Standards, and other DISTRICT rules, and in compliance with all other requirements of each and every governmental authority having any jurisdiction whatsoever in connection with the Project. OWNER is solely responsible for ensuring that the Improvement System is in compliance with all applicable legal requirements, including the Improvement Standards and other DISTRICT rules, and DISTRICT shall have no responsibility for same. Once DISTRICT has reviewed the Improvement Plan for conformity with the Improvement Standards and other DISTRICT rules, and the Improvement Plan is "Released for Construction" per Improvement Standards § 507, OWNER shall at its sole expense construct all facilities and do all other work required by the Improvement Plan and this Agreement.

4. COSTS. OWNER shall pay all costs identified by DISTRICT including, but not limited to, those costs identified in this Agreement and Attachment "B," Costs and Mitigation, attached hereto and incorporated herein by reference. Where "costs," "fees," or "charges," and similar terms are referenced in this Agreement, the use of a particular term may incorporate references to other terms such as, for example, rates, fees, charges, assessments, or other levies by DISTRICT. Regardless of the terminology used, in all instances OWNER is solely responsible for any and all costs associated with the Improvement Plan and Improvement System, and OWNER is solely responsible for full and timely payment of any and all costs identified by DISTRICT.

5. CONVEYANCE TO DISTRICT.

a. Upon completion of construction by OWNER, and final inspection by DISTRICT that confirms construction of the Improvement System conforms to the Improvement Plan, Improvement Standards, and other DISTRICT rules, OWNER shall dedicate the Improvement System and related property as identified in the Improvement Plan (the "Improvement Property") to DISTRICT. Upon the request of OWNER, DISTRICT may, at its sole discretion, allow OWNER to dedicate the Improvement Property incrementally. DISTRICT reserves the right to require a new written Agreement of the parties for different phases of construction, which right DISTRICT may exercise at its sole discretion.

b. DISTRICT will not accept the Improvement Property until such time as the Improvement Plan has been "Released for Construction" by DISTRICT and the Improvement Property is in full compliance with this Agreement, Improvement Standards, and other DISTRICT rules, as required by DISTRICT. Upon completion of the Improvement Property, OWNER shall promptly file a "Notice of Completion" with the County Recorder; and OWNER shall grant, transfer, and assign the entire Improvement Property to DISTRICT free and clear of any and all encumbrance, liability, or obligation. At the time of conveyance, OWNER shall provide to DISTRICT the cost breakdown and total construction cost to OWNER of the water and wastewater systems being transferred to DISTRICT.

c. OWNER covenants, represents, and warrants to DISTRICT as follows, that:

- (i) OWNER owns the Improvement Property in fee simple title;
- (ii) OWNER has the full right, power, and authority, without the consent or approval of any other party, to enter into this Agreement, to convey the Improvement Property to DISTRICT, and to perform the obligations on the part of the OWNER to be kept and performed under this Agreement;
- (iii) The Improvement Property is now and shall be as of the date of the conveyance of the Improvement Property, free and clear of all liens, encumbrances, and restrictions, including, without limitation, any easements which interfere with OWNER's use, operation, or maintenance of the Improvement Property;
- (iv) Upon conveyance of the Improvement Property to DISTRICT, no encumbrance, restriction, or easement granted or imposed upon the Improvement Property, whether or not described in this Agreement, shall impair or restrict any right granted to DISTRICT or derived by DISTRICT under this Agreement. The covenants, warranties, and representations

included in this Paragraph 5 shall be deemed remade as of the date of conveyance of the Improvement Property to DISTRICT.

6. DISTRICT OPERATION OF SYSTEM. As long as the Improvement System complies with the Improvement Plan, Improvement Standards, and other DISTRICT rules, and OWNER is current with payments and otherwise in compliance with this Agreement, after acceptance, DISTRICT agrees to operate and maintain the Improvement System and to provide service to the Project via the Improvement System in the manner provided for by law. OWNER acknowledges that availability and quality of water and wastewater service depends on many factors including, but not limited to, hydrologic conditions, infrastructure, staffing, and regulatory limitations; and OWNER understands and agrees that this Agreement does not guarantee or warrant availability or quality of service. Acceptance, operation, or maintenance of the Improvement System by DISTRICT does not relieve OWNER of its indemnification or warranty obligations or other obligations as provided for by this Agreement.

7. DETERMINATION OF SYSTEM IMPACTS. DISTRICT and OWNER acknowledge and understand the obligation of DISTRICT pursuant to California Constitution, Article XIIID, Water Code §§ 30000 *et seq.*, Government Code § 66013 and other authorities, to fairly allocate costs and benefits by determining and properly allocating to OWNER the cost of mitigating the impacts of the Project on DISTRICT's system and resources. In accordance with said understanding, the parties hereto further agree as follows:

a. DISTRICT has determined that there are impact costs as set forth in Attachment "B," Costs and Mitigation. DISTRICT reserves the right to amend its determination of these costs for good cause at any time before dedication of the Improvement System is accepted by DISTRICT.

b. This Agreement when presented to OWNER for execution is notice of determination of impact costs. Execution of this Agreement by OWNER without protest constitutes acceptance and approval of said impact costs and is a complete waiver of protest or any other challenge to the validity of said costs.

c. OWNER agrees that the determination, allocation, and imposition of impact costs payable by OWNER as set forth in Attachment "B" are matters of binding contract as memorialized in this Agreement, pursuant to arms-length negotiation between DISTRICT and OWNER.

d. OWNER agrees to timely pay the cost obligations as set forth in Attachment "B." In the absence of timely payment by OWNER, DISTRICT reserves the right to enforce the terms of bonds or other assurance, to suspend any or all DISTRICT performance under this Agreement, and to take any other action that DISTRICT, at its sole discretion, deems appropriate, including, but not limited to, suspension of

Improvement Plan processing and/or prohibition of Project construction where such construction would create a demand for water and wastewater services.

e. Payment of costs by OWNER does not relieve successors in interest of the obligation to pay other DISTRICT charges, including, but not limited to, water and wastewater rates, administrative fees, connection fees, and capacity charges.

f. If lump-sum OWNER impact costs are not adequate to construct necessary improvements, OWNER shall be required to provide additional funding or construct necessary additional facilities subject to approval of DISTRICT's Board of Directors. Additional funding or construction shall be the subject of a supplemental written contract by the parties hereto and bonding and/or other assurances to be provided by OWNER. OWNER shall be solely responsible to make additional payments.

8. WARRANTY. OWNER warrants that the Improvement System and the work performed on it shall be free of defects for a period of **TWO (2) YEARS** after final acceptance by DISTRICT ("warranty period"). During the warranty period, at DISTRICT's request and at DISTRICT's sole discretion, OWNER shall fully repair or replace any defective installation or other deficiency at no cost to DISTRICT. Warranty work shall be performed within three (3) business days of notice by DISTRICT that such work is required. DISTRICT shall be entitled to allow extensions of this three (3) day period to accommodate delays not within the control of OWNER, without waiving any protections or benefits of the warranty provided herein. Upon completion of the warranty work, OWNER shall promptly provide written notification to DISTRICT of:

- (1) The specific warranty work completed; and
- (2) The date the warranty work was completed.

If DISTRICT requests warranty work on any aspect or component of the Improvement System, OWNER understands and agrees that the warranty period for the entire Improvement System shall be automatically extended for an additional **TWO (2) YEARS**. This extended warranty shall begin on the date that the warranty work is completed. OWNER shall provide DISTRICT with a rider to the warranty guarantee or other form of proof of warranty extension.

This section shall not waive any other rights or remedies available to DISTRICT under this Agreement or applicable law.

9. IMPROVEMENT DISTRICTS. DISTRICT operates, maintains, and provides water and wastewater service facilities to portions of Calaveras County; specifically, DISTRICT operates, maintains, and provides water and wastewater service facilities to properties in the vicinity of said Project by and through DISTRICT's **COPPER COVE WATER IMPROVEMENT DISTRICT NO. 7** and **COPPER COVE SEWER IMPROVEMENT DISTRICT NO. 8S**. Improvement System is outside any existing Improvement or

Assessment District, and approval of connection of the Project to existing DISTRICT facilities is in the absolute discretion of DISTRICT's Board of Directors granted upon the terms and conditions of this Agreement. When the Improvement System has been completed and transferred to DISTRICT for operation and maintenance, the Improvement System and Project shall be governed in all respects like an Improvement District as provided by the applicable laws of the State of California and DISTRICT rules.

10. NO WAIVER. The waiver at any time by a party of its rights with respect to a default or other matter arising in connection with this Agreement will not be deemed to be a waiver with respect to any subsequent default or matter.

11. SUCCESSORS IN INTEREST. The rights and obligations under this Agreement shall accrue to the benefit of and be binding upon the successors and assigns of the parties hereto; however, except for the sale of lots in the ordinary course of business, OWNER shall not assign or transfer (by operation of law or otherwise) its interests or any part thereof without the prior written consent of DISTRICT, which consent shall not be unreasonably withheld.

12. SECURITY. Upon request by DISTRICT's General Manager, OWNER shall promptly execute and deliver to DISTRICT, or other appropriate authority as designated by DISTRICT's General Manager, a faithful performance bond in an amount and form acceptable to DISTRICT's General Manager, to be released by DISTRICT in whole or in part upon acceptance of the Improvement System by DISTRICT and upon receipt of a written statement from OWNER confirming payment of all persons furnishing labor and materials in the performance of the work. Alternative forms of security may be accepted at the sole discretion and prior approval of DISTRICT's General Manager. The determination of whether security is required shall be at the sole discretion of DISTRICT's General Manager

In addition to the security requirements above, OWNER shall provide a performance bond, or at OWNER's discretion a cash security, payable to DISTRICT in the amount of **\$35,000**. Such performance bond, or cash security shall be payable to DISTRICT for any failure by OWNER to pay for the costs associated with the operation, maintenance, and / or repair of the "Temporary Collection System" identified in Attachments "B" and "C" of this Agreement. Such performance bond or cash security shall remain in effect until such time as the DISTRICT has accepted the "Permanent Collection System" as identified in Attachments "B" and "D" of this Agreement and the "Temporary Collection System" has been properly abandoned.

13. INSURANCE. At all times during the performance of the work called for herein, including coverage during the warranty period and any extension of said warranty period, OWNER shall maintain, and shall require any contractor engaged to perform work on the Improvement System to maintain, a separate policy or policies of insurance in forms, types, and amounts acceptable to DISTRICT's General Manager. All policies

shall name DISTRICT as an additional insured, and shall further provide that such insurance is primary insurance to any insurance or self-insurance maintained by DISTRICT and that the insurance of the additional insured shall not be called upon to contribute to any loss. OWNER shall provide proof of insurance requirements, as designated by the General Manager, to DISTRICT **TWO (2) WEEKS** prior to start of construction.

14. INDEMNITY. OWNER agrees, to the fullest extent permitted by law, to accept all responsibility for injury (including death), loss, or damage to any person or entity, or damage to property or natural resources. OWNER shall indemnify, hold harmless, release, and defend DISTRICT, its Directors, officers, employees, agents, contractors, and authorized volunteers from and against any and all liability, demands, payment, actions, claims, damages, disabilities, or expenses arising in any way from acts or omissions related to the design, construction, operation, maintenance, repair, or replacement of the Improvement Plan and Improvement System called for by this Agreement, or resulting directly or indirectly from the breach of the covenants, warranties, and representations included in Paragraph 5 of this Agreement. OWNER shall defend with counsel of DISTRICT's choice. The foregoing obligations shall not be affected by any determination by DISTRICT that the Improvement System or Improvement Plan complies with the Improvement Standards and other DISTRICT rules. The foregoing obligations are not limited in any way by the financial viability of the Project or by any limitation on the amount or type of damages or compensation payable to or for OWNER or its agents under insurance, Workers' Compensation acts, disability benefits acts, or other employee benefit acts.

OWNER agrees to include the following clause in all contracts with construction contractors, equipment, or materials suppliers:

"Contractors, subcontractors, and equipment and material suppliers on the Project, or their sureties, shall maintain no action against DISTRICT, its Directors, officers, employees, agents, contractors, or authorized volunteers for any claim arising out of, in connection with, or resulting from the Improvement Plan or the Improvement System or actions undertaken pursuant to this Agreement."

This section shall not be deemed to require OWNER to indemnify DISTRICT against liability for damage or loss arising from the sole negligence or willful misconduct of DISTRICT, its Directors, officers, employees, agents, contractors, or authorized volunteers, or damage or loss arising from the active negligence of DISTRICT.

15. BENEFIT ASSESSMENT, ASSET REPLACEMENT RESERVE. Conveyance of the Improvement System to DISTRICT will create an obligation to establish reserves over the life of the Improvement System for replacement. DISTRICT rates for service are low and do not have a sufficient replacement reserve component. Therefore, OWNER

and DISTRICT agree that it will cooperate in the adoption by DISTRICT of an annual benefit assessment of Project lots pursuant to California Constitution, Article XIIID. Approval (i.e., landowner ballot in favor) of the benefit assessment amount by OWNER shall not be unreasonably withheld. The landowner ballot approving the annual benefit assessment shall occur prior to DISTRICT's acceptance of the Improvement System.

16. DISCLOSURE OF FEES TO BUYERS. OWNER agrees to disclose to all buyers of Project lots the existence of, and obligation of buyers to pay as conditions of water and wastewater service, any and all DISTRICT fees, including, specifically and without limitation, water and wastewater rates, connection fees, capacity charges, impact costs, and the annual benefit assessment described herein. When the amounts of said fees have been determined by DISTRICT, OWNER shall disclose said amounts to buyers and note in the disclosure that protest or challenge of the fees identified in this Agreement for addressing Project impacts has been waived by OWNER as predecessor in interest to the buyers. DISTRICT's fees are subject to change from time to time in order to reflect actual costs of providing service.

17. ATTORNEYS' FEES. If either party brings any action to enforce this Agreement, or for the breach thereof, the losing party shall pay the prevailing party's costs and reasonable attorneys' fees. Such action shall be brought and tried in Calaveras County, California.

18. DISTRICT COSTS / OWNER LIABILITY.

a. OWNER shall pay within thirty (30) days of billing all costs incidental to DISTRICT's review of calculations, plans, specifications, cost estimates, property descriptions, rights-of-way, permits, and other aspects of the Improvement Plan and Improvement System and shall pay all costs incidental to the construction, inspection, permits, licenses, bonds, administration, mitigation of system impacts identified in Attachment "B," etc. DISTRICT reserves the right to review Improvement Plans and related documents as many times as necessary for conformance with the Improvement Standards and other DISTRICT rules, and OWNER acknowledges that it will pay invoices for same as specified below. In addition, DISTRICT reserves the right to conduct the number of inspections deemed necessary to ensure the proper installation of Improvement System facilities, and OWNER acknowledges that it will pay invoices for same as specified below.

b. Prior to Improvement Plan review, checking, and construction of the Improvement System, OWNER shall deposit Plan Checking and Inspection Deposits with DISTRICT in accordance with DISTRICT's Improvement Standards. Unless payment in advance is required by DISTRICT, OWNER also agrees to pay within thirty (30) days after receipt of billing all DISTRICT fees associated with review of the Improvement Plans and inspection of the Improvement System. DISTRICT may contract with an engineering firm to provide inspection, testing, or other services and charge the direct

billings plus ten percent (10%) for DISTRICT's overhead. DISTRICT's personnel will be charged out at the rate of direct time (based on salary x 2.5), plus expenses such as mileage, soil testing, etc.

c. In the event OWNER fails to pay DISTRICT costs associated with the review of Improvement Plans and inspection of the Improvement System in a timely manner, review of the Improvement Plans and inspection of the Improvement System will be stopped. DISTRICT will not accept construction work that has not been inspected.

d. Any Improvement System facilities installed without being inspected by DISTRICT will be automatically rejected and will be required to be re-installed in the presence of a DISTRICT inspector, at OWNER's sole expense.

e. Section 3800 of DISTRICT's Standard Specifications, relative to closed circuit television inspection (TV inspection) of the sewer pipeline system (conducted prior to acceptance and prior to expiration of two-year warranty period, and any extensions thereof) currently allows DISTRICT to require OWNER to submit a retainer for said TV inspection and authorizes DISTRICT to invoice OWNER for expenses exceeding the retainer. DISTRICT is proceeding to amend various policies and rules relative to TV inspection and authorization to invoice OWNER for said TV inspection. **UPON EXECUTION OF THIS AGREEMENT, REGARDLESS OF WHETHER SECTION 3800 HAS BEEN FINALLY AMENDED, OWNER HEREBY GUARANTEES TIMELY PAYMENT OF RETAINER AND/OR CHARGES PERTAINING TO TV INSPECTION AS REQUIRED BY DISTRICT's GENERAL MANAGER.**

f. The foregoing paragraphs shall not waive any other rights or remedies available to DISTRICT under this Agreement or applicable law.

19. **WATER AND WASTEWATER FEES.** Water and wastewater connection, capacity, monthly service, and account establishment fees are due and payable at the time service is requested. OWNER is advised to confirm these fees with DISTRICT's Customer Service Department. DISTRICT reserves the right to establish new fees or modify existing fees from time to time, at its sole discretion.

In addition to the above fees, any fees allocated to individual lot developers are due and payable at the time service is requested.

Applications for service connections shall not be made until after acceptance of the Improvement System by DISTRICT, and service will not be provided until all fees are paid in full. Service connections to commercial establishments shall not be made until the type of business or establishment is declared to DISTRICT and all applicable fees are paid.

20. CALIFORNIA ENVIRONMENTAL QUALITY ACT / RESPONSIBLE AGENCY. The County of Calaveras acts as lead agency for development projects within the County, including the Project. An Environmental Impact Report, SCH# 2004082058, was prepared for General Plan Amendment (GPA), Zoning Amendment (ZA), and Development Agreement (DA) No. 2004-15 for the **COPPER MILL** development, and constitutes CEQA review of the Project. Said Final Environmental Impact Report was adopted by the County of Calaveras Planning Commission on December 1, 2005, Resolution No. 2005-95. DISTRICT shall review the CEQA documentation as a Responsible Agency prior to determining whether or not the Improvement System will be "Released for Construction." OWNER shall pay the cost of such review and any associated environmental and filing fees within thirty (30) days of billing by DISTRICT, and shall ensure implementation of any mitigation measures required by DISTRICT. If additional CEQA or other environmental review by DISTRICT becomes appropriate, OWNER shall pay any and all costs associated with such review within thirty (30) days of billing by DISTRICT.

21. OWNER DILIGENCE REQUIREMENTS / TERMINATION OF DISTRICT OBLIGATIONS. DISTRICT and OWNER agrees that, to facilitate orderly planning and for other DISTRICT purposes, it is intended that the Improvement System and Project be diligently pursued by OWNER. Accordingly, OWNER agrees to submit the Improvement Plan required by this Agreement to DISTRICT within **TWO (2) YEARS** of the date of execution of this Agreement by both parties, and to promptly make any changes necessary to ensure the Improvement Plan conforms with the Improvement Standards and other DISTRICT rules. After an Improvement Plan is "Released for Construction," the timeline for commencing and completing construction of the Improvement System is governed by the Improvement Standards and other DISTRICT rules.

If OWNER does not submit and DISTRICT does not "Release for Construction" the Improvement Plan within **TWO (2) YEARS** of the date of execution of this Agreement by both parties, or commence or complete construction of the Improvement System within the timelines specified above, **any and all rights of OWNER and obligations of DISTRICT to provide water and wastewater service under this Agreement shall immediately terminate.** OWNER shall remain responsible for timely payment of any and all costs identified by DISTRICT. At the request of OWNER, DISTRICT may, at its sole discretion, extend this Agreement for a specified period of time, on terms required by DISTRICT. Such extension shall be in writing and signed by both parties.

22. ENTIRE AGREEMENT. This instrument constitutes the entire Agreement of the parties. Specifically and without limitation, DISTRICT's Concept Review Approval is not an agreement of the parties and may not be relied upon by OWNER for any purpose. The Improvement System and Project may be built only under the terms of this Agreement and pursuant to an Improvement Plan "Released for Construction" by DISTRICT. This instrument may not be changed orally. It may only be changed in

writing signed by the party(ies) against whom enforcement of any waiver, changes, modification, extension, or discharge is sought. The parties shall promptly do all acts and execute and deliver all instruments required or convenient to carry out the purpose and intent thereof.

This Agreement applies only to the facilities included in the Improvement Plan provided for herein, as "Released for Construction" by DISTRICT. After an Improvement Plan is "Released for Construction," any future additions, extensions, or modifications to the Improvement System identified in the Improvement Plan shall be covered by a separate written agreement.

23. DEFAULT BY OWNER. In the event DISTRICT incurs any costs whatsoever in performing any work with respect to the Improvement System that is required to be performed by OWNER under this Agreement, all such costs shall be billed to OWNER or OWNER's successor as shown on the latest adopted County Assessment Roll and shall, immediately upon billing, become a lien upon the real property served by, or to be served by, the Improvement System. Any such billing may, at the option of DISTRICT, be recorded in the Office of the County Recorder. Such billing shall be paid to DISTRICT within thirty (30) days of billing. If the billing is not paid within thirty (30) days, the obligation shall include interest from the date of initial billing until paid in full, and the interest rate shall be that interest rate set by the Wall Street Journal's bank survey Prime Interest Rate (WSJ Prime Rate) as of the date of initial billing. In the event all such costs are not paid within thirty (30) days of initial billing, OWNER shall be deemed in default of this Agreement and DISTRICT may bring such legal action as may be permitted by law. In any such action in which DISTRICT prevails, DISTRICT shall be awarded all costs of suit, including attorneys' fees, which costs and fees shall also be a lien upon the real property served by, or to be served by, the Improvement System.

This section shall not waive any other rights or remedies available to DISTRICT under this Agreement or applicable law.

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24. NOTICES. All notices and demands or other communications under this Agreement shall be in writing and shall be given by one party to the other at the following addresses for each:

OWNER CASTLE & COOKE CALAVERAS, INC.
100 TOWN SQUARE ROAD
COPPEROPOLIS, CA 95228
V (209) 785-8553 / F (209) 785-8551

DISTRICT GENERAL MANAGER
CALAVERAS COUNTY WATER DISTRICT
PO Box 846
San Andreas, CA 95249
V (209) 754-3543 / F (209) 754-1069

Any such notice or other communication shall be deemed delivered on the day on which it is mailed by U.S. Postal Service First Class or, in the case of any such notice or other communications mailed by U.S. Postal Service Certified Mail or other delivery service, on the date of actual receipt.

25. REVIEW BY COUNSEL. It is agreed and acknowledged by OWNER and DISTRICT that the provisions of this Agreement have been arrived at through negotiation and that OWNER and DISTRICT have had a full and fair opportunity to revise the provisions of this Agreement and to have such provisions reviewed by legal counsel. Therefore, the normal rule of construction that any ambiguities are to be resolved against the drafting party shall not apply in construing or interpreting this Agreement.

26. CAPTIONS. The captions in this Agreement are solely for convenience of reference. They are not a part of this Agreement and shall have no effect on its construction or interpretation.

27. NO JOINT VENTURE. Nothing in this Agreement will be construed to create an association, joint venture, trust, or partnership, or to impose a trust or partnership covenant, obligation, or liability between the parties.

28. NO THIRD-PARTY BENEFICIARIES. Nothing contained in this Agreement shall be construed to create, and the parties do not intend to create, any rights in third parties.

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29. TERM OF AGREEMENT. This Agreement shall be deemed to be fully performed only upon expiration of any and all warranty periods applicable to the Improvement System and Project pursuant to Paragraph 8 above, except that the disclosure obligations set forth in Paragraph 16 above shall continue to apply beyond expiration of any and all warranty periods.

IN WITNESS WHEREOF, the parties have executed this Agreement the day and year first written above.

Approved by DISTRICT's Board of Directors by Resolution No. 2008-28 on April 9, 2008.

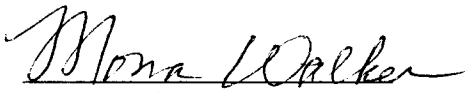
DISTRICT

CALAVERAS COUNTY WATER DISTRICT



David J. Andres
General Manager

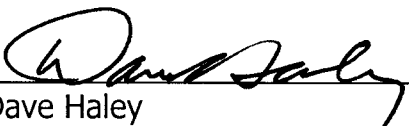
ATTEST:



Mona Walker
Clerk to the Board

OWNER

CASTLE & COOKE CALAVERAS, INC.



Dave Haley
Vice President, Division Manager



Paul Stein
Vice President, Land Planning

SIGNATURES MUST BE NOTARIZED

CALIFORNIA ALL-PURPOSE ACKNOWLEDGMENT

State of California

County of Calaveras }

On April 11, 2008 before me, Angela R. Cronney, notary public
Date Here Insert Name and Title of the Officer

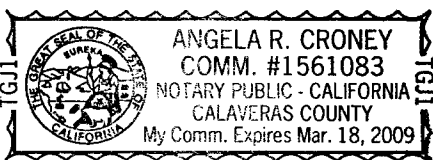
personally appeared Dave Haley and Paul Stein
Name(s) of Signer(s)

who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature Angela R. Cronney
Signature of Notary Public



Place Notary Seal Above

OPTIONAL

Though the information below is not required by law, it may prove valuable to persons relying on the document and could prevent fraudulent removal and reattachment of this form to another document.

Description of Attached Document

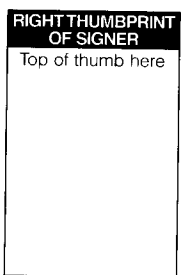
Title or Type of Document: _____

Document Date: _____ Number of Pages: _____

Signer(s) Other Than Named Above: _____

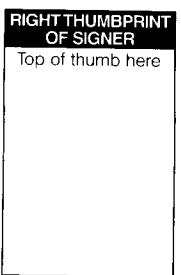
Capacity(ies) Claimed by Signer(s)

- Signer's Name: _____
- Individual
 - Corporate Officer — Title(s): _____
 - Partner — Limited General
 - Attorney in Fact
 - Trustee
 - Guardian or Conservator
 - Other: _____



Signer Is Representing: _____

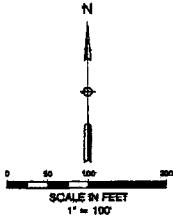
- Signer's Name: _____
- Individual
 - Corporate Officer — Title(s): _____
 - Partner — Limited General
 - Attorney in Fact
 - Trustee
 - Guardian or Conservator
 - Other: _____



Signer Is Representing: _____

FINAL MAP OF COPPERPOLIS TOWN SQUARE CONDOMINIUM PROJECT

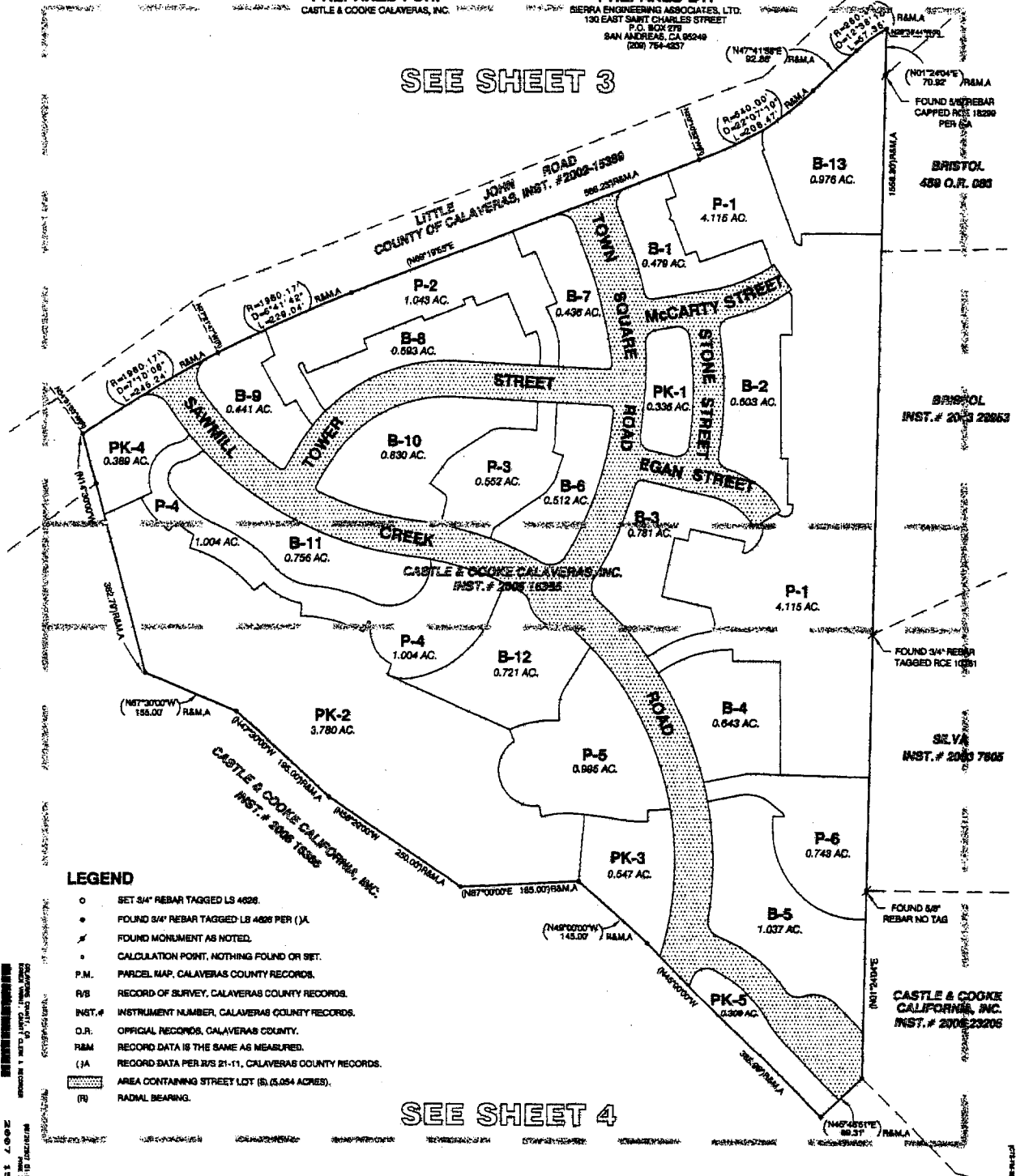
BEING ADJUSTED PARCEL 1 OF THAT CERTAIN RECORD OF SURVEY
FILED IN BOOK 21 OF RECORD OF SURVEYS AT PAGE 11, AND
AREAS 'A' AND 'B' RECORDED PER INSTRUMENT NO. 2006-20412,
CALAVERAS COUNTY RECORDS, LYING WITHIN A PORTION OF THE
NORTHEAST 1/4 OF SECTION 4, T.1N., R.12E., M.D.M.
CALAVERAS COUNTY, CALIFORNIA
APRIL, 2007



PREPARED FOR:
CASTLE & COOKE CALAVERAS, INC.

PREPARED BY:
SIERRA ENGINEERING ASSOCIATES, LTD.
130 EAST SAINT CHARLES STREET
P.O. BOX 279
SAN ANTONIO, CA 95249
(209) 754-4837

SEE SHEET 3



LEGEND

- SET 3/4" REBAR TAGGED LS 4626.
- FOUND 3/4" REBAR TAGGED LS 4626 PER (JA).
- ✕ FOUND MONUMENT AS NOTED.
- ✱ CALCULATION POINT, NOTHING FOUND OR SET.
- P.M. PARCEL MAP, CALAVERAS COUNTY RECORDS.
- R/S RECORD OF SURVEY, CALAVERAS COUNTY RECORDS.
- INST.# INSTRUMENT NUMBER, CALAVERAS COUNTY RECORDS.
- O.R. OFFICIAL RECORDS, CALAVERAS COUNTY.
- R.M. RECORD DATA IS THE SAME AS MEASURED.
- (JA) RECORD DATA PER R/S 21-11, CALAVERAS COUNTY RECORDS.
- ▨ AREA CONTAINING STREET LOT (S) (5,054 ACRES).
- (R) RADIAL BEARING.

SEE SHEET 4

BOUNDARY DIMENSIONS, SHEET INDEX & ADJOINERS

T.S.T.M. 2006-200

FINAL MAP

COPPEROPOLIS TOWN SQUARE CONDOMINIUM PROJECT

BEING ADJUSTED PARCEL 1 OF THAT CERTAIN RECORD OF SURVEY FILED IN BOOK 21 OF RECORD OF SURVEYS AT PAGE 11, AND AREAS 'A' AND 'B' RECORDED PER INSTRUMENT NO. 2006-20412, CALAVERAS COUNTY RECORDS, LYING WITHIN A PORTION OF THE NORTHEAST 1/4 OF SECTION 4, T.1N., R.12E., M.D.M. CALAVERAS COUNTY, CALIFORNIA

PREPARED BY:
 SIERRA ENGINEERING ASSOCIATES, LTD.
 150 EAST 19TH STREET
 SAN ANTONIO, TEXAS 78207
 (512) 341-4271

APRIL, 2007

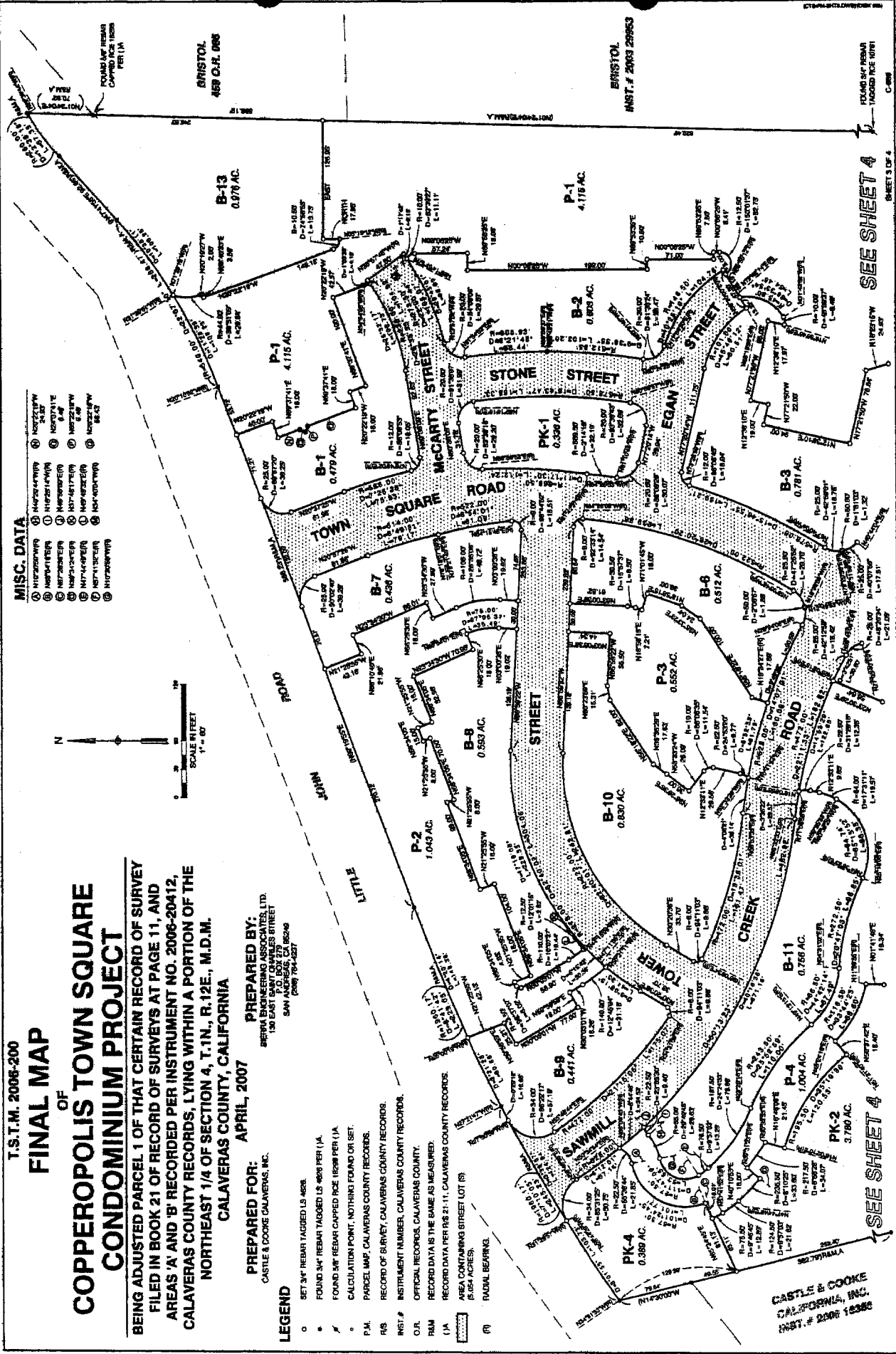
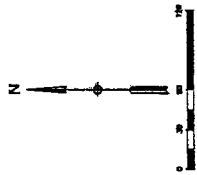
PREPARED FOR:
 CASTLE & COOKE CALAVERAS, INC.

LEGEND

- SET 3"4" REBAR TAGGED LS AREA
- FOUND 3"4" REBAR TAGGED LS AREA PER (A)
- FOUND 5/8" REBAR CAPPED RICE HEAD PER (A)
- CALCULATION POINT, NOTHING FOUND ON SET.
- P.M. PARCEL MAP, CALAVERAS COUNTY RECORDS.
- R.B. RECORD OF SURVEY, CALAVERAS COUNTY RECORDS.
- I.N.S.T.# INSTRUMENT NUMBER, CALAVERAS COUNTY RECORDS.
- O.R. OFFICIAL RECORDS, CALAVERAS COUNTY.
- R.M. RECORD DATA IS THE SAME AS MEASURED.
- (A) RECORD DATA PER RIS 21-11, CALAVERAS COUNTY RECORDS. (5.65 ACRES).
- (R) RADIAL BEARING.

MISC. DATA

- ① HORIZONTAL
- ② HORIZONTAL
- ③ HORIZONTAL
- ④ HORIZONTAL
- ⑤ HORIZONTAL
- ⑥ HORIZONTAL
- ⑦ HORIZONTAL
- ⑧ HORIZONTAL
- ⑨ HORIZONTAL
- ⑩ HORIZONTAL



CASTLE & COOKE
 CALIFORNIA, INC.
 INST. # 2006 12882

SEE SHEET 4

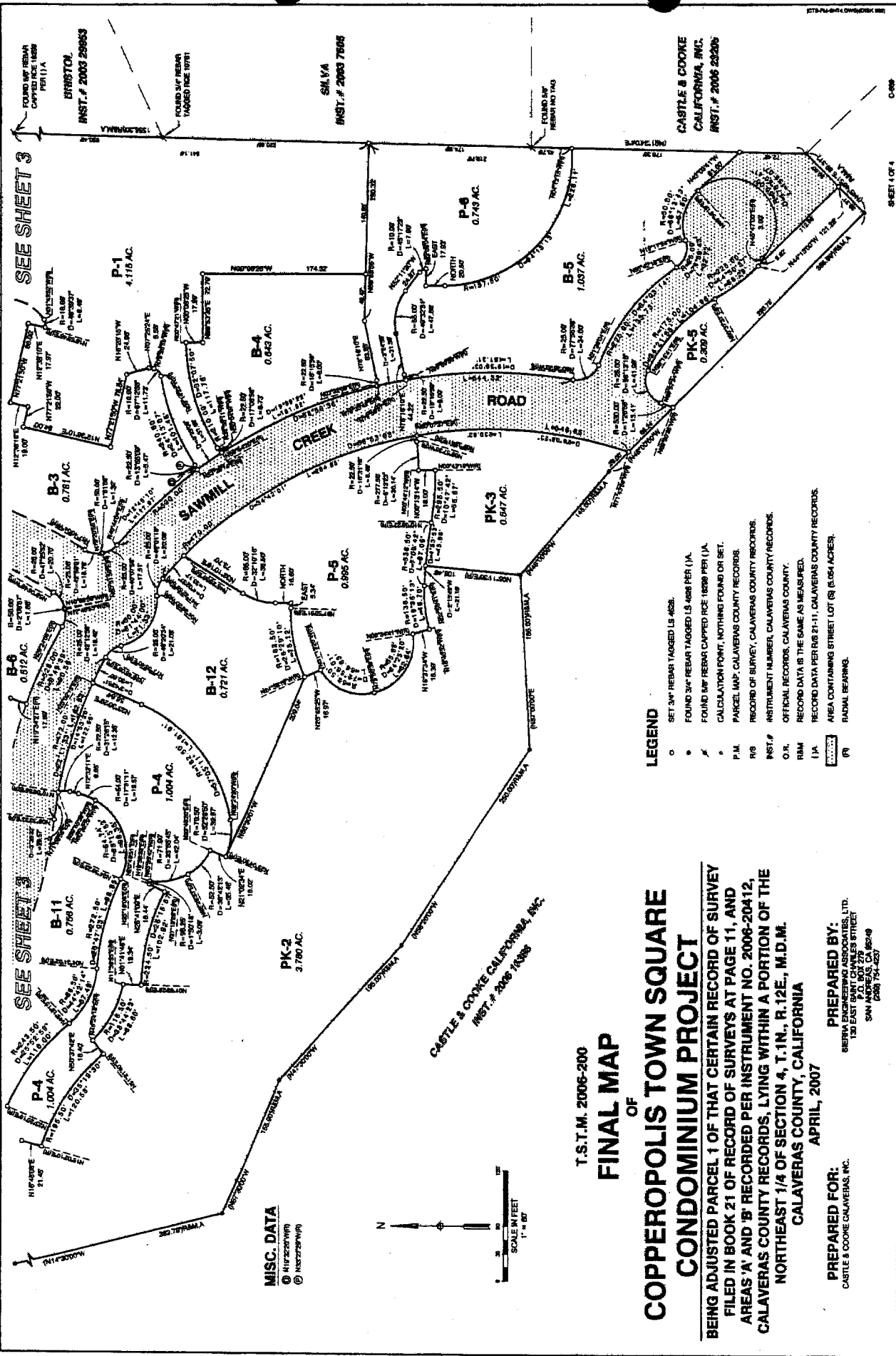
SEE SHEET 4

SHEETS OF 4
 CALAVERAS COUNTY RECORDS
 INSTRUMENT # 2006 12882

FOOTAGE OF REBAR TAGGED RICE HEADS
 C-088
 2007 124438

SEE SHEET 3

SEE SHEET 3



MISC. DATA
 (S) SURVEY POINT
 (C) CENTER POINT

LEGEND

- (O) SET 3/4" REBAR TAGGED LS 4628.
- (*) FOUND 3/4" REBAR TAGGED LS 4628 PER (A).
- (x) FOUND 3/4" REBAR TAGGED RCE 1828 PER (A).
- (C) CALCULATION POINT, NOTHING FOUND OR SET.
- (P.M.) PARCEL MAP, CALAVERAS COUNTY RECORDS.
- (R.S.) RECORD OF SURVEY, CALAVERAS COUNTY RECORDS.
- (INST.#) INSTRUMENT NUMBER, CALAVERAS COUNTY RECORDS.
- (O.R.) OFFICIAL RECORDS, CALAVERAS COUNTY.
- (R.M.) RECORD DATA IS THE SAME AS MEASURED.
- (I.A.) RECORD DATA PER R/S 21-11, CALAVERAS COUNTY RECORDS.
- (A) AREA CONTAINING STREET LOT (S) (S.64 ACRES).
- (R) RADIAL BEARING.

T.S.T.M. 2006-200

FINAL MAP
 OF
COPPEROPOLIS TOWN SQUARE
CONDOMINIUM PROJECT

BEING ADJUSTED PARCEL 1 OF THAT CERTAIN RECORD OF SURVEY FILED IN BOOK 21 OF RECORD OF INSTRUMENTS AT PAGE 11, AND AREAS 'A' AND 'B' RECORDED PER INSTRUMENT NO. 2006-20412, CALAVERAS COUNTY RECORDS, LYING WITHIN A PORTION OF THE NORTHEAST 1/4 OF SECTION 4, T.1N., R.12E., M.D.M. CALAVERAS COUNTY, CALIFORNIA

PREPARED BY:
 BIERMAN ENGINEERING ASSOCIATES, LTD.
 120 EAST P.O. BOX 276
 SAN JOSE, CA 95129
 (408) 734-2529

PREPARED FOR:
 CASTLE & COOKE CALAVERAS, INC.

APRIL, 2007

ATTACHMENT B

Costs / Mitigation of System Impacts Facilities Description

WATER FACILITIES

The impacts to the existing water system for the Copperopolis zone are generally described in the DISTRICT's Copper Cove Water Facilities Master Plan adopted February 9, 2005, Resolution No. 2005-07, hereinafter referred to as Water Master Plan. Specifically, a 12-inch transmission main, a 450,000-gallon storage tank, and a new booster pump station are to be constructed in order to provide service to the Project.

1. 12-inch Transmission Main

Approximately 7,300 feet of 12-inch pipeline are to be installed. A portion of the pipeline provides upgraded service to existing customers and qualifies for partial reimbursement from the District. A separate "Off-Site Water Facilities Reimbursement Agreement," approved by the DISTRICT's Board of Directors on June 13, 2007, Resolution No. 2007-50, details the cost allocation.

2. Storage Tank

A 450,000-gallon water storage tank, gate and fencing, hereinafter referred to as Tank, is to be constructed. The existing 100,000-gallon tank does not have capacity for the Project. A portion of the cost of the new Tank qualifies for reimbursement because the new Tank will provide the required fire flow volume for the existing DISTRICT customers. The "Off-Site Water Facilities Reimbursement Agreement," approved by the DISTRICT's Board of Directors on June 13, 2007, Resolution No. 2007-50, details the allocation of costs.

3. Booster Pump Station

A new booster pump station to the new Tank is to be constructed. The existing 100-gpm pump station provides the daily demands for the current customers. The estimated capacity required for the new pump station with the addition of the Copperopolis Town Square Project is 200 gpm. The existing pump station with the additional demand and, at its present location, will be insufficient. The Water Master Plan shows that this pump station is to be relocated to a lower elevation to provide for future demands. The booster pump station does not qualify for reimbursement because the expansion is solely for service to the Project. One Hundred Percent (100%) of the cost of the pump station is allocated to the Project.

4. Landscape Irrigation

Landscape demands are not to be provided through the domestic/commercial services/meters. Should irrigation for landscaping be provided by the potable water system, a separate service connection and meter with an approved backflow prevention assembly are to be installed. Each landscape meter will be charged at the current water capacity fee for the corresponding meter size.

5. Fire Flow

While the DISTRICT's water system has been planned for and designed for a commercial fire flow of 1,500 gpm, fire flow standards required by other agencies will be the sole responsibility of the OWNER. The DISTRICT makes no representation as to the actual delivery of water supply and water pressure to the Project. Provisions for fire flows, by agreement between other entities and the OWNER, are not part of this Agreement.

6. Flushing Program / Temporary Irrigation Meter

Because of low water flows to the Project, a water hydrant flushing program, hereinafter referred to as "flushing program," shall be required. Such flushing program shall be the responsibility of the OWNER and at the sole expense of OWNER. DISTRICT shall oversee the collection of data under the flushing program and determine the frequency, methods, and procedures associated with the flushing program. Such flushing program shall remain in effect until DISTRICT, at its sole discretion, has determined it is no longer necessary. OWNER shall reimburse DISTRICT for all costs and expenses, including the cost of water, incurred in the operation of this flushing program.

DISTRICT shall allow OWNER the temporary use of an irrigation meter to assist in the flushing program. Such irrigation meter shall be installed in accordance with all DISTRICT Standards and Specifications, and the monthly charge shall be billed at the current DISTRICT rate for such meters, exclusive of capacity fees. Such use under this provision shall be limited to a period determined by the DISTRICT's General Manager, but not to exceed two (2) years from the initial date of this Agreement, after which the OWNER shall either convert to an alternative water supply or pay to the DISTRICT the appropriate capacity fees to continue the use of the DISTRICT's water supply.

7. Temporary Building Meters

The District authorizes four (4) water meters for temporary non-potable use to be installed at the buildings designated by the OWNER. The OWNER will be charged for the costs of the meters and installation and be billed at the current Monthly Base Rate for such meters, exclusive of capacity fees. Upon acceptance of the Project by DISTRICT, the OWNER shall make written application for a permanent meter for each temporary meter, pay applicable account establishment fees, capacity fees, and any other current fees as determined by the DISTRICT.

WASTEWATER FACILITIES

The DISTRICT's wastewater collection system does not extend to the Copperopolis zone. DISTRICT's Copper Cove Wastewater Facilities Master Plan adopted May 25, 2005, Resolution No. 2005-27, is hereinafter referred to as Wastewater Master Plan. The Project shall be responsible for One Hundred Percent (100%) of the cost to provide collection of the wastewater and the transport of the wastewater to the DISTRICT's treatment plant, subject to the following:

1. Temporary Collection System

A temporary wastewater collection system is to be installed by the Project as shown on Attachment "C," attached hereto and incorporated herein by reference. The temporary system consists of the following:

- The pipeline from Manhole No. 7 in Town Square Road to the Lift Station (ref. Copperopolis Town Square Improvement Plans, Sheet 5);
- The sewer lift station;
- The pipeline from the lift station to the temporary storage tank; and
- The temporary storage tank.

OWNER will be One Hundred Percent (100%) responsible for the costs and operation of the temporary collection system. This system will remain in place until the DISTRICT, at its sole discretion, determines that the temporary storage tank is no longer practical, based on anticipated flow rates through the collection system, and authorizes the construction of permanent facilities as part of the overall area plan. The sewage from the temporary tank is to be discharged at Saddle Creek's Main Lift Station or such other location(s) as directed by the DISTRICT from time to time.

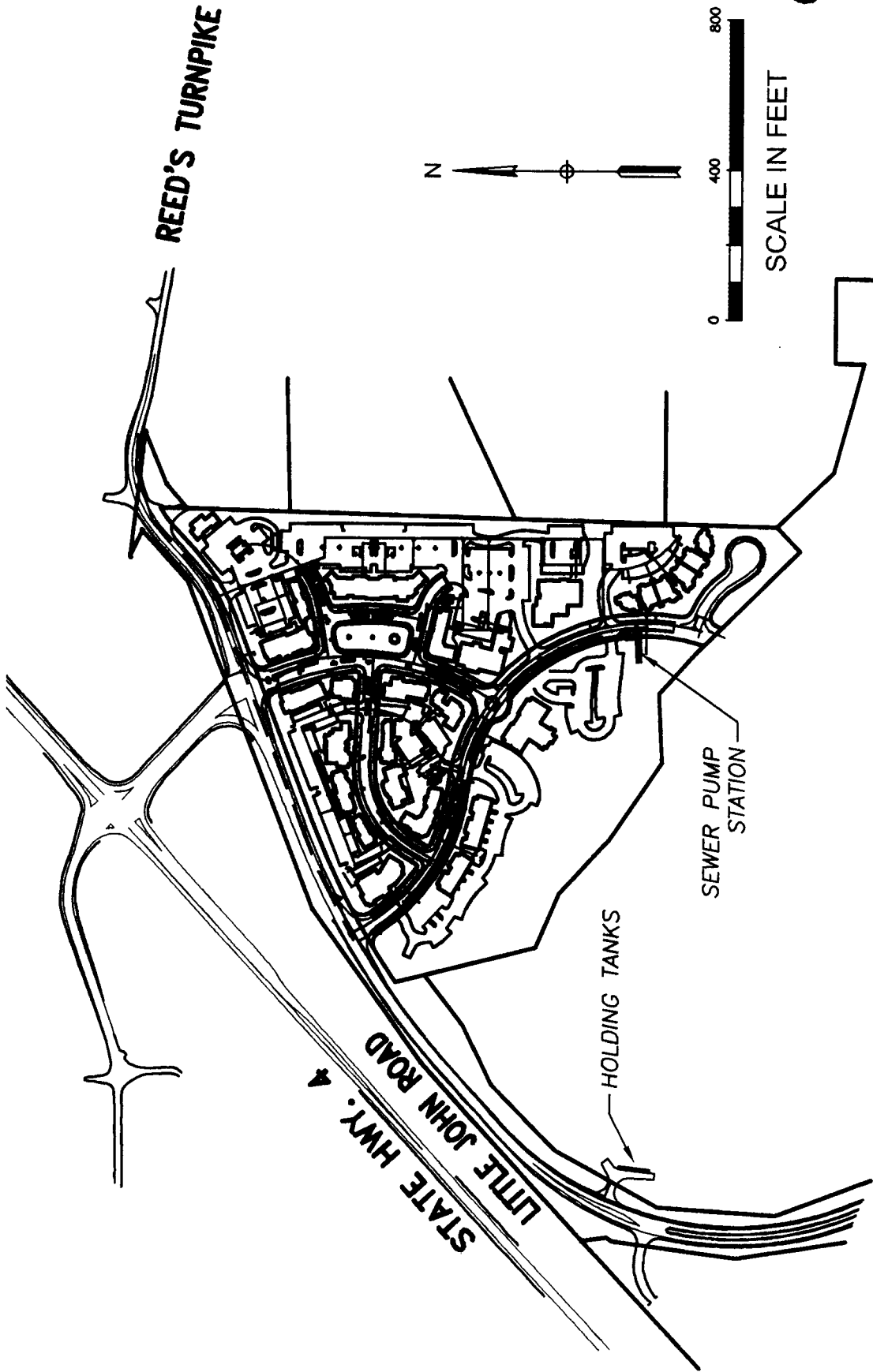
2. Permanent Collection System

The DISTRICT's preferred Permanent Collection System is proposed to be a shared project with the Oak Canyon Ranch Development (OCRD). This preferred Permanent Collection System is provided in Attachment "D," attached hereto and incorporated herein by reference. OWNER agrees to participate in the shared project with OCRD and pay for a proportional share of the costs as determined by the DISTRICT, unless there is cost-sharing agreement between OWNER and OCRD.

If the DISTRICT determines that it is necessary to construct the Permanent Collection System and, in the event that OCRD has not provided the DISTRICT with the necessary easements, right-of-ways, funding, permits, and other required bonds and sureties to initiate construction, the collection system identified in General Plan Amendment No. 2004-15 for APN 054-006-036 for the development of the Copper Mill Project on Pages 3-19 and 20 of the EIR for this Project shall become the DISTRICT's Alternative Permanent Collection System. If the Alternative Permanent Collection System is constructed and later the OCRD collection system is constructed, the OWNER may be required, at DISTRICT's sole discretion, to connect to the OCRD system at a location determined by the DISTRICT, or at a location as determined by agreement between OWNER and OCRD and approved by DISTRICT, and to abandon the existing collection system at OWNER's sole cost and expense. However, OWNER will not be obligated to participate in the costs of the OCRD system.

The timing of the construction of a Permanent Collection System or the Alternative Permanent Collection System shall be at the sole discretion of the DISTRICT based on anticipated wastewater flow rates through the collection system or other regulatory or economical factors as determined by DISTRICT.

END



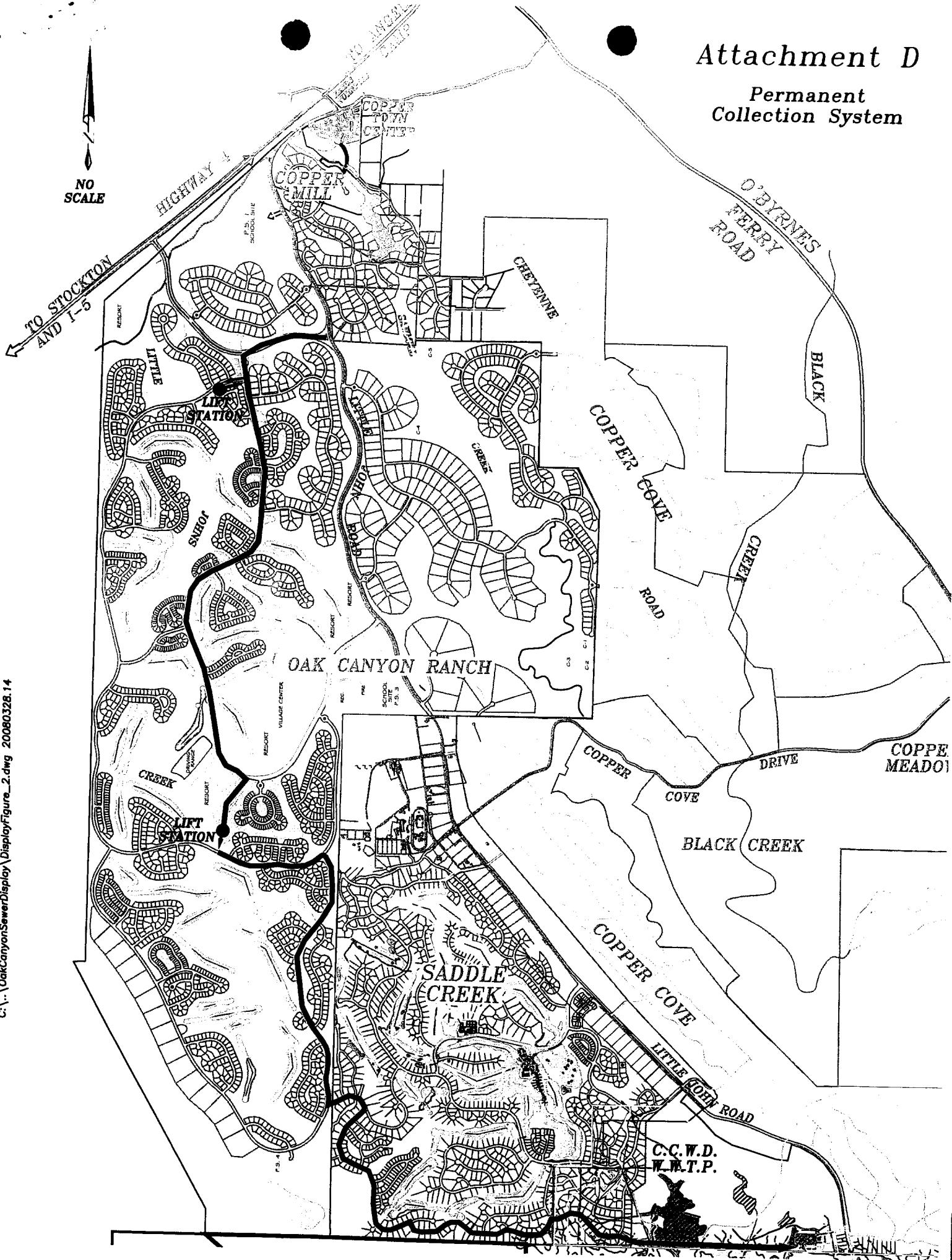
ATTACHMENT "C"

TEMPORARY WASTEWATER COLLECTION SYSTEM

COPPEROPOLIS TOWN SQUARE
 PORTION OF APN 054-006-036
 CALAVERAS COUNTY, CALIFORNIA

Attachment D

Permanent Collection System



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