VALLEY CENTER MUNICIPAL WATER DISTRICT

LOWER MOOSA CANYON
WATER RECLAMATION FACILITY
2023 MASTER PLAN UPDATE

February 2023

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ACKNOWLEDGEMENTS

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- Marlene Martinez and Michelle Wick for preparation of the exhibits and GIS analysis.
- Fernando Carrillo and Rick Beath for providing a significant amount of data and background as well as insights regarding treatment facilities needed upgrades and expansion considerations. They also provided background data for the hydrogeological study.
- John Christopher with Louis Berger for the initial preparation of the Master Plan update and Reclamation Feasibility Study
- Doug Roff with AECOM for preparation of the groundwater modeling of the Moosa percolation ponds

Section 1 – Introduction

1.1 Background

The Valley Center Municipal Water District (District) owns and operates the Lower Moosa Canyon Water Reclamation Facility, (Moosa Facility) providing wastewater service to over 1,500 customer accounts in the western region of the District. The Moosa Facility provides a secondary level of treatment and has a rated capacity of 0.44 MGD, according to Order No. 95-32, which is presented as Appendix A. In addition to the secondary wastewater treatment plant, the Moosa Facilities include a combination gravity sewer and low-pressure sewer Collection System and Discharge Line to a percolation pond site on Camino Del Rey, west of Interstate Route 15.

1.2 Purpose

The purpose of this document is to update the existing Master Plan to incorporate recommendations for maintaining, upgrading and expanding the wastewater facilities for the Lower Moosa Canyon WRF Service Area. The Master Plan Update addresses the following key issues:

- Review capacity needs of the service area,
- Address probable technical concerns of the Regional Water Quality Control Board (RWQCB),
- Outline recommended replacements of existing facilities, and
- Propose a course of action for implementing the recommended improvements.

To achieve this purpose, several key sources of information were considered, including:

- County General Plan Land Use Designations,
- Waste Discharge Requirements (WDRs) in the existing RWQCB permit, and expected WDRs in the RWQCB's anticipated permit renewal,
- Existing plant operational approaches and parameters,
- Recent plant flow and discharge information, and
- Comprehensive Annual Financial Reports, current Wastewater Rates and Capacity Charges

1.3 Summary

Limited development potential is expected in the service area over the 20-year planning horizon evaluated for the Master Plan Update, eliminating the need to consider expansion improvements. Previously proposed major developments in and adjacent to the service area were either served by another agency or were not able to secure the General Plan amendments needed and have since been abandoned. Projected development remaining within the service area is not expected to cause the average daily flows to exceed the current capcity of the

facilities. The 2023 Capital Improvement Program ("2023 CIP") proposed in the 2023 Master Plan Update is primarily for replacing aging infrastructure, replacing out dated technology, and improving reliability, redundancy and overall operating efficiencies of the facility. Funding strategies are proposed that center around leveraging the net revenues through a series of Clean Water State Revolving Fund ("CWSRF") Loans to finance the proposed improvements. A monthly Capital Improvement Charge, separate from, and in addition to, the monthly Sewer Service Charge is proposed to provide the revenues needed to fund the repayment of SRF Loans.

Financial Considerations Summary - Current Moosa Annual Operational Budget - $1.8M generates approximately $340K in net revenues.

An annual total of $690,000 in net revenues is needed to fund the proposed 2023 CIP over the proposed five-year construction time frame. This results in an 19.4% increase in total revenue to $2.19M and would require an increase in the monthly wastewater service charge of $12, over and above any rate increases needed to offset the effects of annual inflation on operation and maintenance costs. This rate increase could be accomplished by either a separate $12 monthly Capital Improvement Charge, a one-time 19.4 % increase in the Wastewater Service Charge or a combination of the two (for instance, a $10 Capital Improvement Charge and a 3.4% rate increase). All three methods would generate the same amount of revenue and have the same net effect on the customers total wastewater charges. The Capital Improvement Charge would tie the additional expense directly to the proposed 2023 CIP.

Section 2 – Service Area

2.1 Background.

The Lower Moosa Canyon WRF provides wastewater treatment for the western portions of the District; the area generally along the I-15 corridor from Deer Springs Road to Circle R Drive and inland to the Rimrock and Meadows Subdivisions. A map of the Service Area is presented in Figure 2-1. The Boundary in black represents the current service area boundary and the boundary in red represents the proposed Service Area Boundary.

2.2 Population.

Population estimates are based on 2.5 capital per connection for a current population estimate of 6,250 for the connected units. Ultimate build-out is estimated to range from 7,500 to 8,500. The wastewater treatment plant service area population is represented by connected customers and the estimated future connections. Table 2.1 is a summary of current and future connections.

2.3 Connected Customers.

The plant presently has 1,557 connected customers that represent total active connections of 2,490 EDUs.

2.4 Future Connections (Buildout Level 1).

Future connections are divided into two groups; Buildout Level 1 and Buildout Level 2. Buildout Level 1 includes potential customers that at one time had capacity in the Moosa facility, but whose agreements for capacity have expired and the property was never connected. The Buildout Level 1 group also includes properties whose owners have expressed interest in capacity in the past but never followed through in reserving capacity. Total estimated capacity through Buildout Level 1 is estimated at 3,000 EDUs, an additional 510 EDUs over the current number of active connections. This group is considered the most likely level of ultimate development in the service area.

Lilac Hills Ranch and the Meadowood Development were included in previous capacity estimates for planned buildout but are eliminated in this evaluation. The Meadowood Development was detached from the District and is now part of the Rainbow Municipal Water District. The Lilac Hills Ranch developer was unable to obtain the General Plan amendment needed for the development and is no longer considered a potential for development. Should the Lilac Hills Development, or similar major development, in or near the Moosa Service Area obtain County approval in the future, the Master Plan will need to be updated to include that

additional capacity.

The County's current land Use designations for property making up the Moosa Service Area were evaluated and adjustments to the service area boundary are proposed. The proposed revisions include eliminating conservation lands that will not be served with sewer, eliminating rural land use designation with 2 acre or more minimum lot requirements, and adding properties with land use designations allowing up to 1-acre minimum lot size. Figure 2-1 shows the proposed revisions to the service area boundary. The area outlined with the black boundary line represents the current service area boundary and the area outlined with the red boundary line represents the proposed Service Area Boundary

2.5 Ultimate Service Area Needs (Buildout Level 2).

Due to uncertainties in the density and extent of development within the service area the total number of parcels/connections an additional Buildout Level 2 is included to increase the ultimate buildout to 3400 EDUs, an additional 400 EDUs above the current active connections and Buildout Level 1. This expansion level represents the maximum number of units that could be added to the service area without having to expand the current onsite facilities, provided the average flow per EDU remains at its current levels. If the average flow per EDU increases above its current levels, then capacity increases would be required beginning with the percolation pond capacity, the limiting factor in the disposal of the treated effluent.

2.6 Capacity Requirements.

The impact on plant capacity represented by the Buildout Levels is presented in Table 2-1 for various ranges of average EDU flow rate. The current design value for the Average EDUs flow rate is 175 Gallons per Day (gpd). However, actual flow data indicates the current average is much closer to 120-130 gpd per EDU.

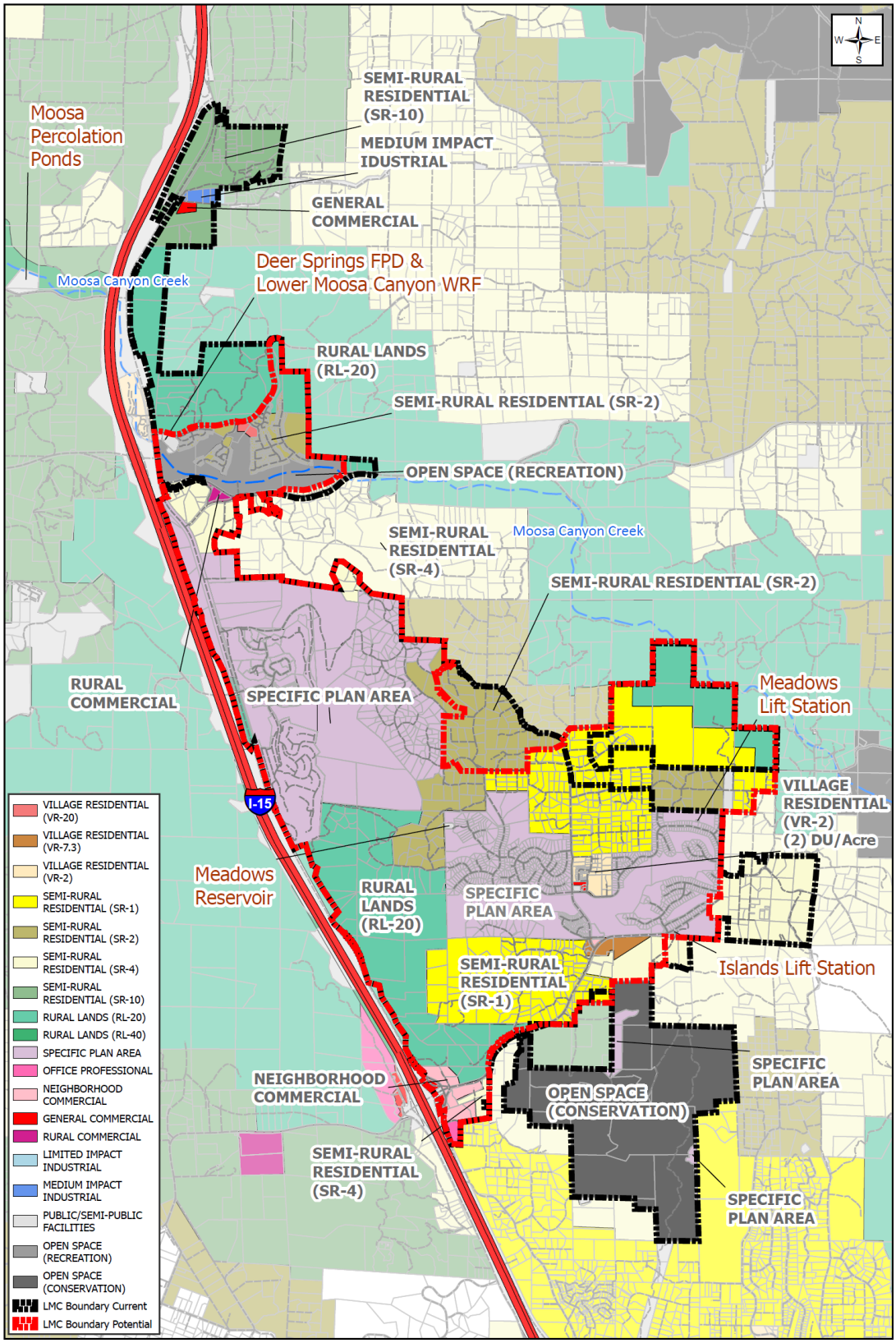
Table 2-1 Existing and Future Customers for Existing Service Area

	EDUs	Design Flow Rate (gpd)	Intermediate Flow Rate (gpd)	Actual Flow Rate (gpd)
GALLONS PER DAY PER EDU >>>		175	145	130
CURRENT CONNECTIONS	2,490	435,750	361,050	323,700
BUILDOUT LEVEL 1	510	89,250	73,950	66,300
SUBTOTAL 1	3,000	525,000	435,000	390,000
BUILDOUT LEVEL 2	400	70,000	58,000	52,000
PLANNED ULTIMATE	3,400	595,000	493,000	442,000

The majority of the recent development and new connections within the service area has been limited to the previously approved projects with committed capacity. With less than thirty new

connections over the last ten years and no new major developments on the horizon, additional capacity needs for the 20-year planning horizon are estimated to be in the range of 15,000 to 30,000 gpd. This level of capacity increase is well within the capacity range of the existing facilities. Thus, no expansion facilities are proposed for the 20-year planning horizon.

Figure 2-1 – Current Wastewater Service Area



Section 3 – Wastewater Treatment Flows and Characteristics

3.1 Introduction

Treatment plant processes are affected by the quantities and strengths of influent wastewater. Changes in either influent quantity or strength must be well understood to effectively analyze and develop concepts for process upgrades and plant expansions.

As an example, before implementing its water-conservation program, the District had a well-established correlation between the influent quantity and the number of equivalent dwelling units (EDUs). However, with the success of the water conservation program in recent years, the historical correlation no longer held. Through their water conservation efforts, customers were increasing the strength of the wastewater by using a lesser amount of water while generating the same number of pounds of organic wastes. While the relative hydraulic loads on unit processes generally decreased, the organic loads on unit processes continued to increase as EDUs were added.

3.2 Wastewater Flows

3.2.1 Current Wastewater Flows

The 2018 monthly average flow data is presented in Table 3.1. The average daily flow was 0.293 mgd. The District has adopted the approach of adding two standard deviations to average daily flow to calculate design daily flow. Statistically, this represents the 97.5 percentile of data. For 2018 the design daily flow was 0.345 mgd.

Table 3.1 2018 LMCWRF Discharge Flows

Month	Avg. Daily Flow (mgd)
Jan	0.273
Feb	0.271
Mar	0.322
Apr	0.251
May	0.294
Jun	0.319
Jul	0.338
Aug	0.320
Sept	0.283
Oct	0.274
Nov	0.282
Dec	0.290
AVERAGE	0.293
2 Standard Deviations	0.052
Calculated Design Daily Flow	0.345

After numerous discussions and reviews of multiple data sets, the District has decided to standardize on a wastewater generation rate of 175 gpd/EDU for wastewater flow projections. This is the observed wastewater generation rate at the Woods Valley Ranch WRF which features new development. It is felt that using this as a guideline will represent flow rates expected from new types of construction and the lifestyles associated with new development.

3.2.2 Future Wastewater Flows

Future wastewater flows are described in Section 2.6 Capacity Requirements. Flow rates for the Master Plan Update's 20-year planning horizon are projected in the range of 15,000 gpd to 30,000 based on extrapolating the number of connections over the past 20 years.

3.3 Influent Characteristics

Even though a reduction in the water use per EDU has been noted, the mass of solids received has not decreased significantly at the Lower Moosa Canyon WRF. This has resulted in increases in the concentrations of certain influent parameters.

Samples of influent from the Lower Moosa Canyon WRF were collected between April 26, 2018, and May 7, 2018, then September 6, 2018, and September 17, 2018. The results of the sample analyses are presented in Figure 3-1 for Nitrogen species and Figure 3-2 for BOD_5, suspended solids, and total dissolved solids. During these two sampling periods, certain samples produced extreme results on one or more parameters. Those data points were deemed outliers because they did not represent the wastewater characteristics that operators experienced at the plant during those times. These outliers were not considered in this evaluation.

To account for variability and limitations in sampling, as well as unknowns related to future development, both the District and Louis Berger, in their original analysis felt that it is prudent to adopt a conservative but reasonable approach to planning. It is recommended that concentrations of influent parameters representing the average influent concentrations plus one standard deviation be used for planning purposes. Influent planning values are presented in Table 3.2 for BOD5, TSS, TDS, Ammonia as N, and TKN.

Figure 3-1

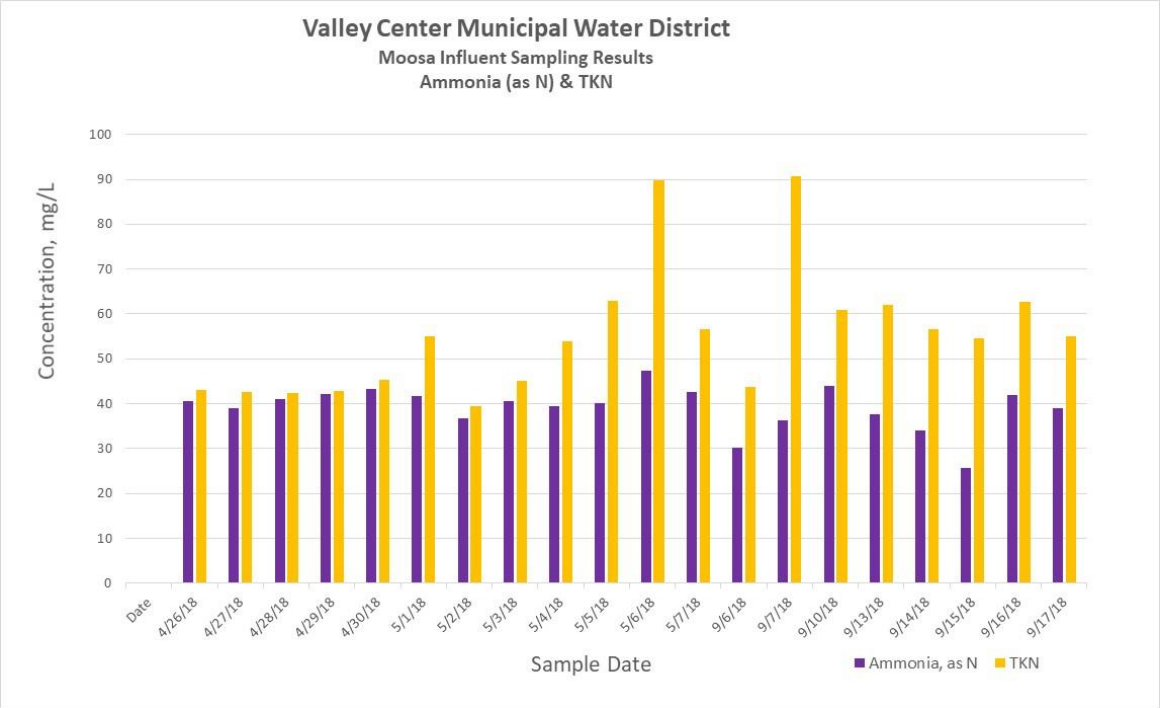


Figure 3-2

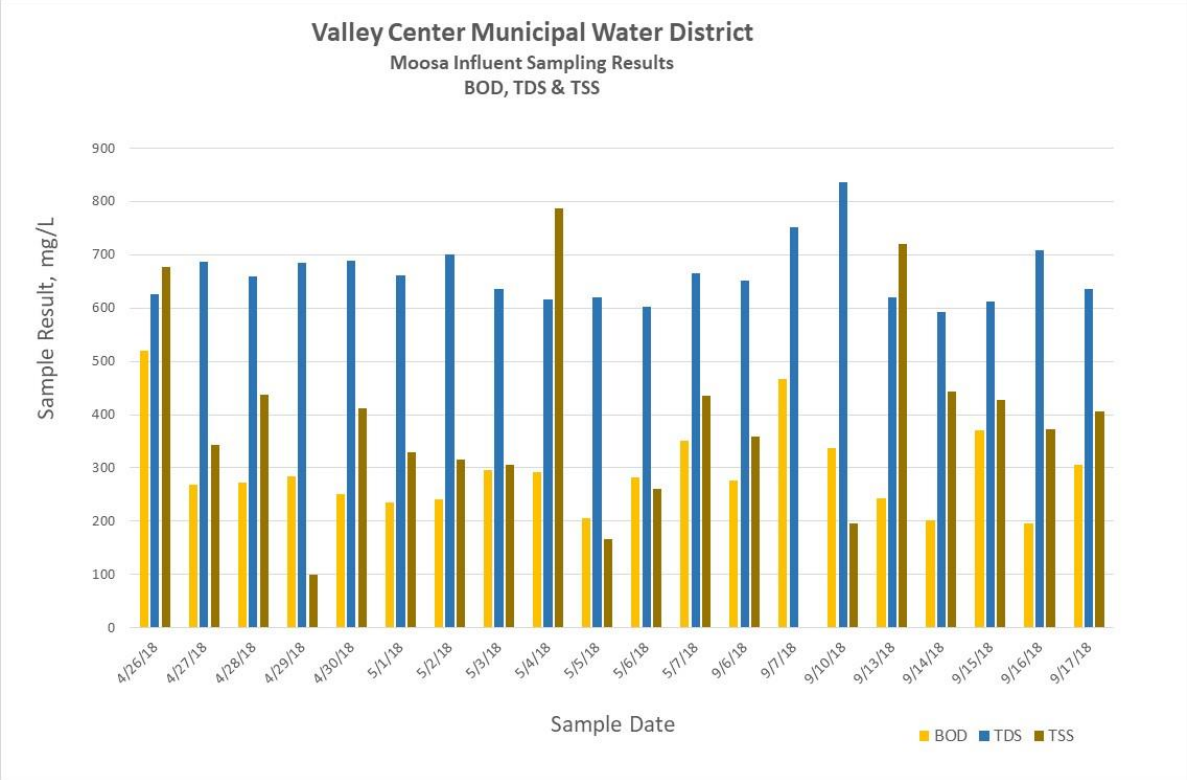


Table 3.2 - Recommended Influent Planning Values

	AVERAGE	STD DEVIATION	PLANNING VALUE
BOD	295	83	**378**
TSS	395	178	**572**
TDS	663	58	**720**
Ammonia, as N	39	5	**44**
TKN	55	14	**70**

3.4 Effluent Characteristics

Table 3.3 presents a summary of effluent wastewater results for composite samples collected for the fourth quarter of 2018. The Lower Moosa Canyon WRF has been consistently in compliance with the effluent standards established by the RWQCB.

Table 3.3
Lower Moosa Canyon WRF Effluent Results Compared to Discharge Standards

	Concentration			Existing Discharge Standards		
Parameter	**Units**	**30 Day Average**	**Daily Maximum**	**30 Day Average**	**Daily Maximum**	**12 Month Average**
BOD_5	**(mg/L)**			**20**	**30**	
October		**12.96**	**13.5**			
November		**12.5**	**14**			
December		**11.47**	**14.5**			
TSS	**(mg/L)**			**20**	**30**	
October		**6.24**	**6.8**			
November		**4.5**	**8.0**			
December		**6.2**	**12.8**			
Nitrate [1,2]	**(mg/L)**	**13.7**				**45**
TDS [2]	**(mg/L)**	**660**				**1200**
Chloride [2]	**(mg/L)**	**153**				**200**
Sulfate [2]	**(mg/L)**	**171**				**350**
Iron [2]	**(mg/L)**	**0.061**				**0.3**
Manganese [2]	**(mg/L)**	**0.015**				**0.05**
Boron	**(mg/L)**	**0.33**				**0.5**
Fluoride	**(mg/L)**	**0.82**				**1.0**
pH		**7.17 – 7.39**		**6.0 to 9.0**	**6.0 to 9.0**	**6.0 to 9.0**

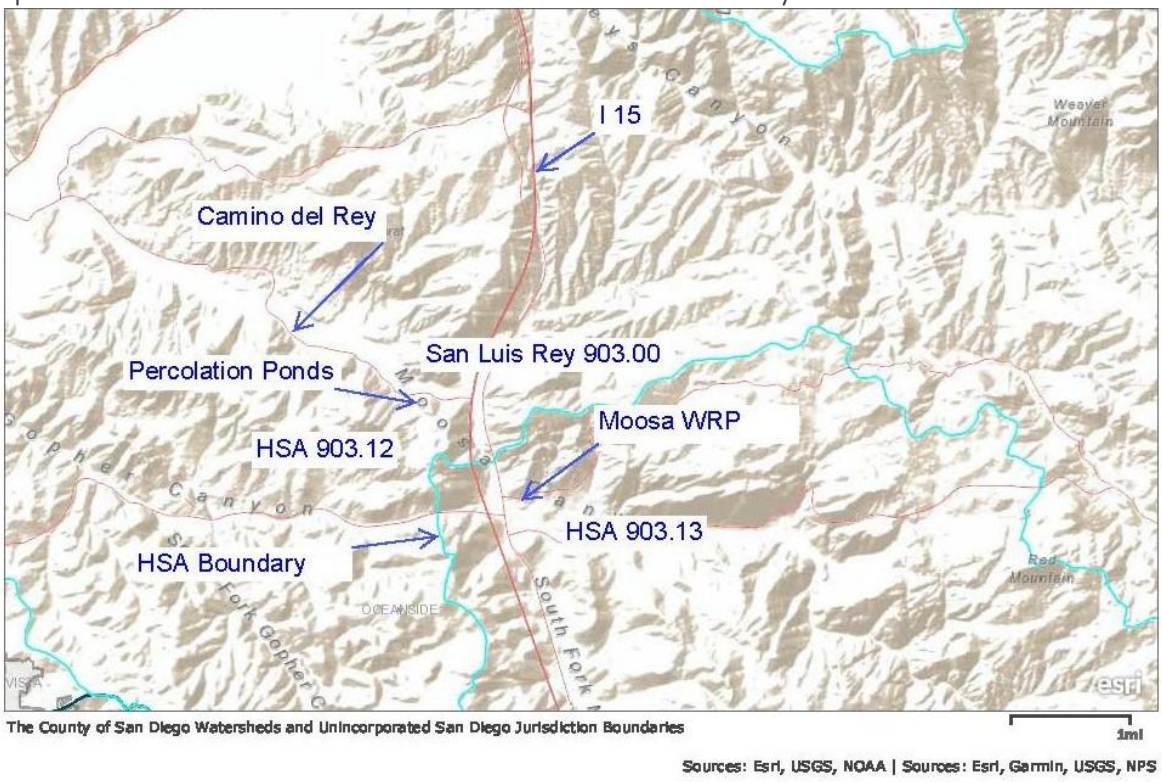
Notes: The sources of this information are the Monitoring Reports, 4th Quarter/Semi-Annual 2018 (Oct-Dec), Lower Moosa Canyon WRF.

1) The reported nitrogen concentration of 13.7 mg/L did not include the organic component.
2) These reported concentrations are annual averages.

3.5 Groundwater Quality

The percolation ponds are located in the Moosa Hydrologic Subarea (HAS) (903.13) of the San Luis Rey Hydrologic Unit (903.00) which is an impaired groundwater source Refer to Map 3-1 for Subarea 903.12 and 903.13 locations.

Map 3-1 Groundwater Basins Near Lower Moosa Canyon WRF



The groundwater quality data is presented below in Table 3.4. Three well locations are given: MW 1 – Upstream of Percolation Ponds; MW 2 – Near the bank of the Percolation Ponds; and MW 3 - Downstream of Percolation Ponds.

Mean and Median values are calculated using data from December 2006 to June 2015. The values in the recent column represents average data or single samples from the 4th Quarter of 2018 sampling.

Table 3.4 Monitoring Well Groundwater Quality

Parameter	**MW 1**				**MW 2**				MW 3			
mg/L)	**Avg**	**Min**	**Max**	**Recent**	**Avg**	**Min**	**Max**	**Recent**	**Avg**	**Min**	**Max**	**Recent**
TDS	1275	670	1470	1080	1138	750	1330	1330	866	690	1130	770
Chloride	288	104	345	231	258	152	345	275	182	127	246	175
Sodium	201	120	240	160	172	1	210	200	133	110	170	130
Sulfate	368	240	500	31	314	225	450	435	247	150	337	220
Nitrate, as N	13	0.59	45.8	6.5	11	0.63	32	6.9	31	2.9	66.3	2.5
Iron	6.58	0	60	0.092	3.52	0	20	<0.063	1.11	0.06	6.1	0.074
Manganese	0.85	0.03	2.7	0.29	2.50	0.01	19	0.60	5.51	0.11	20	0.23
Boron	0.16	0.11	0.20	0.13	0.24	0.16	0.33	0.16	0.26	0.12	0.47	0.34
Fluoride	.053	0.38	1.04	0.36	0.56	0.41	0.93	0.19	0.5	0.37	0.90	0.63

Section 4 – Permits and Effluent Discharge Standards

4.1 Waste Discharge Requirements

Discharges from the Lower Moosa Canyon WRF must comply with effluent limitations as specified in its WDR in the existing RWQCB permit. The current plant operation is regulated by the permit renewal in Order No. 95-32. A copy of this order is presented in Appendix A. Table 4-1 presents the effluent limitations specified in Order 95-32.

Table 4-1

Existing Lower Moosa Canyon WRF Discharge Specifications

Order No. 95-32

Constituent	Units	30-Day Average	Daily Maximum	12 Month Average
BOD	mg/L	20	30	
TSS	mg/L	20	30	
TDS	mg/L			1,000
Chloride	mg/L			200
Sulfate	mg/L			350
Fluoride	mg/L			1
Boron	mg/L			0.5
Iron	mg/L			0.85
Manganese	mg/L			0.15
Nitrate	mg/L			45
pH		6 to 9	6 to 9	6 to 9

The future plant expansion will require a new permit application. Currently, the District has no targeted timeframe in which the RWQCB will renew the Lower Moosa Canyon WRF's permit.

4.2 Groundwater Basin Standards

The RWQCB's Basin Plan for San Diego Region 9 establishes the water quality objectives for the Bonsall Hydrologic Subarea (903.12) and the Lower Moosa Canyon Hydrologic Subarea (903.13). Table 4-2 presents the objectives for both subareas. As shown in the table, effluent discharged to Subarea 903.12 because it is discharged via percolation ponds must meet the groundwater objectives of Subarea 903.12. The effluent discharged in Subarea 903.13 because

it would be reused on the golf course must meet the groundwater objectives of Subarea 903.13.

Table 4-2
Lower Moosa Canyon WRF Effluent Standards

Based on Basin Plan Water Quality Objectives

Basin Plan Water Quality Objectives			
	Effluent Discharged To Percolation Ponds Bonsall HSA 903.12	Effluent Reused For Golf Course Irrigation Lower Moosa Canyon HSA 903.13	Effluent Discharged to Moosa Creek
Constituent	Ground Water	Ground Water	Surface Water
TDS	1,500 mg/L	800 mg/L	
Chloride	500 mg/L	300 mg/L	
Sodium	60 mg/L	60 mg/L	
Sulfate	500 mg/L	400 mg/L	
Nitrate	45 mg/L	10 mg/L	
Iron	0.85 mg/L	0.3 mg/L	
Manganese	0.15 mg/L	0.05 mg/L	
Boron	0.5 mg/L	0.5 mg/L	
Turbidity	5 NTU	5 NTU	
Fluoride	1.0 mg/L	1.0 mg/L	
Color	15 Units	15 Units	

Note: 1) NTU is Nephelometric Turbidity Units.

4.3 Summary of Anticipated Standards

The anticipated standards for the expanded and upgraded Lower Moosa Canyon WRF will include several key parameters, including all of those in the existing order as outlined in Table 4-1, and

Total Nitrogen = 10 mg/L as Nitrogen

In 2007 in anticipation of the new standards the District added a nitrogen-removing anoxic zone in the treatment train. This process modification significantly reduced the Lower Moosa Canyon WRF's nitrogen loading to the groundwater basin, via the percolation ponds. The District has consistently achieved this anticipated standard.

4.3.1 List of WDR Updates

In 2010 the RWQCB first placed Moosa Canyon Creek as a category 5A river/stream on the 303D List of Water Quality Limited Segments. Per the current 2014 update of this list, the TMDL requirement for Nitrogen and Phosphorus is due 2023. This requirement is expected to result in a 10 mg/L as N effluent Nitrogen limit for the plant per recent discussions with RWQCB.

Section 5 – Collection System

5.1 Introduction

The Lower Moosa Canyon WRF Collection Systems consist of 27 miles of Gravity, Low-Pressure Sewer (LPS) and Forcemain collection lines, two Lift Stations (the Meadows Lift Station and the Islands Lift Station) and two Odor Control Facilities. The collection facilities are summarized in the following Table 5.1 and shown in Figures 5.1 and 5.2.

Table 5-1

TABLE 5-1
LOWER MOOSA CANYON WRF COLLECTION SYSTEM

	Total Pipe	2-inch	3-inch	4-inch	6-inch	8-inch	10-inch	12-inch	18-inch
Forcemains									
AC (Meadows Lift Station)	1,355			1,355					
PVC (Islands Lift Station)	1,139			1,139					
Total Forcemain	**2,494**	**0**	**0**	**2,494**	**0**	**0**	**0**	**0**	**0**
Low Pressure Sewer (PVC)	**28,612**	**11,573**	**10,370**	**6,669**	**0**	**0**	**0**	**0**	**0**
Gravity Mains									
DI	90							90	
PVC	47,025				2,086	44,051		888	
VCP	66,187			110	423	47,038	1,747	14,355	2,514
Total Gravity Main	**113,302**	**0**	**0**	**110**	**2,509**	**91,089**	**1,747**	**15,334**	**2,514**
Total Collection System (LF)	**144,408**	**11,573**	**10,370**	**9,273**	**2,509**	**91,089**	**1,747**	**15,334**	**2,514**
Total Collection System (Mile)	**27.4**	**2.2**	**2.0**	**1.8**	**0.5**	**17.3**	**0.3**	**2.9**	**0.5**

5.2 Capacity Evaluation.

The collection capacity is sufficient for the proposed service area and new development anticipated over the proposed 20-year planning horizon. No expansions or pipeline upsizing's are proposed with this Master Plan Update. Extension of the collection system is funded by project proponents requesting or requiring additional capacity. Approval of any significant proposed development would require an evaluation of the downstream collection facilities to ensure adequate capacity is available.

5.3 Operation and Maintenance Recommendations

While no pipeline upsizing is being recommended, there are certain collection system operation and maintenance procedures and inspections outlined in the District SSMP that are recommended to reduce inflow and infiltration and facilizing operation of the system reducing the potential for Sanitary Sewer Overflows. These recommendations include the annual video inspection of the of at least 20% of the gravity collection system, resulting in a complete inspection of the entire system every five years. Each year the video inspection may reveal areas of the collection system that need repair, replacement or relining. Operations and

Engineering staff will coordinate the execution of any capital improvement propjets needed as a result of the annual inspections and update the record drawings and asset management files for the collection system to document the improvements and adjustments to the facilities service life.

5.4 Sewer System Management Plan (SSMP)

On May 2, 2006, the State Water Resources Control Board (SWRCB) adopted Order Number 2006-0003-DWQ, Waste Discharge Requirements (WDRs), which requires all federal and state agencies, municipalities, counties, districts, and other public entities that own or operate a wastewater collection system greater than one (1) mile in length to develop and implement a system specific Sewer System Management Plan (SSMP). The SSMP must document how an agency manages its wastewater collection system.

The goals of the SSMP are to:

- Manage, operate, maintain and improve the condition of the collection system infrastructure to provide continual reliable service.
- Provide adequate sewer capacity to convey peak flows,
- Minimize the frequency and impact of sanitary sewer overflows (SSOs), and
- Effectively and efficiently mitigate the impacts of SSOs should they occur,

The District recently updated its SSMP in August 2022. The SSMP provides a summary of the action plan implemented by the District to comply with the requirements imposed by the WDRs. It includes a description of the activities and procedures that District staff follow to efficiently manage, operate, and maintain the sanitary sewer system and to minimize the risk of sanitary sewer overflows (SSOs).

5.4.1 SSMP Program Audits.

As part of the SSMP, the District must conduct periodic internal audits, appropriate to the size of the system and the number of SSOs. At a minimum, these audits must occur every two years and a report must be prepared and kept on file. This audit shall focus on evaluating the effectiveness of the SSMP and compliance with the SSMP requirements, including the identification of any deficiencies in the SSMP and steps to correct them.

5.4.2 SSMP Updates

The SSMP must be updated every five (5) years and must include any significant program changes. Re-certification by the Board of Directors is required when significant updates to the SSMP are made.

FIGURE 5.1 - Lower Moosa Canyon WRF Service Area - Collection System

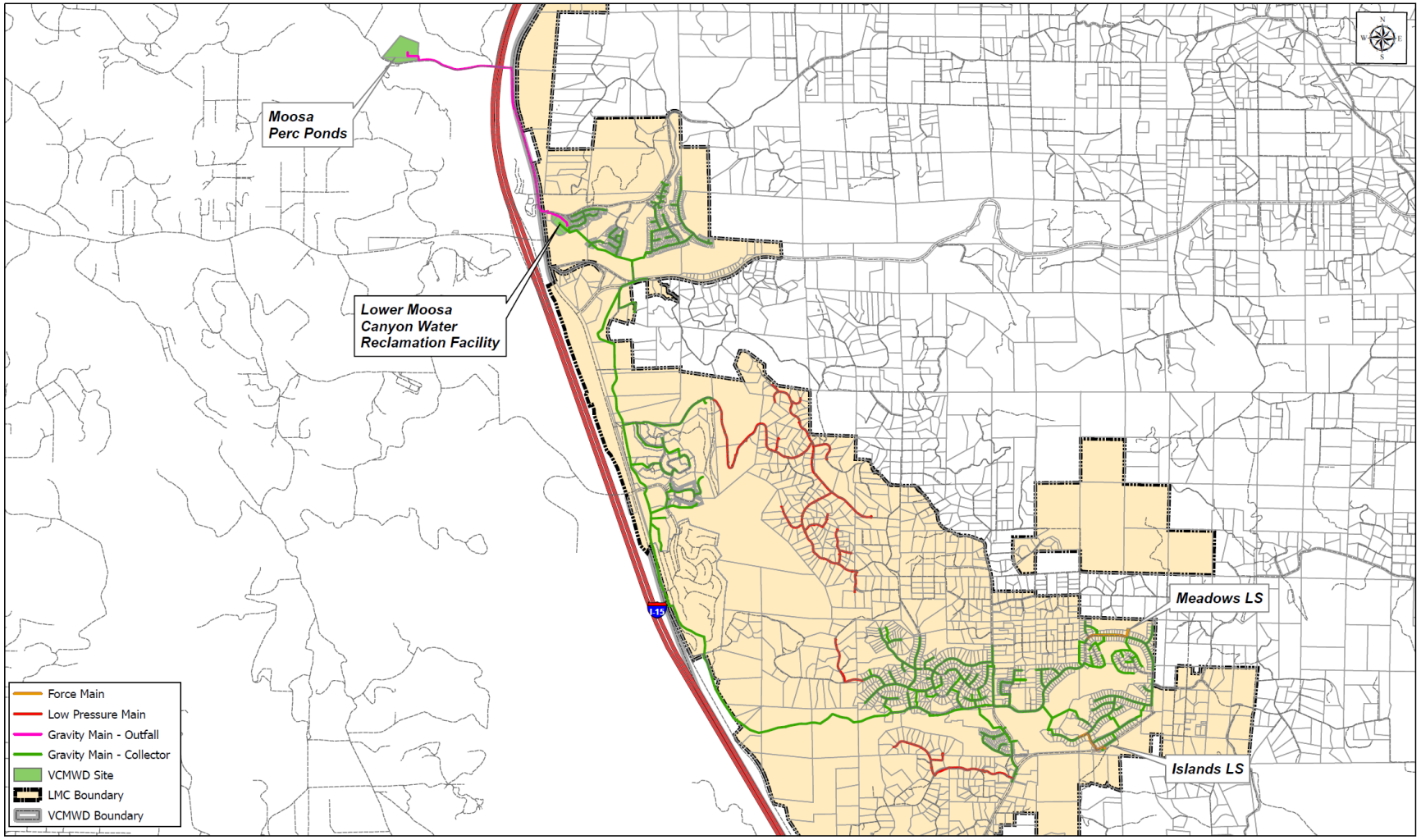
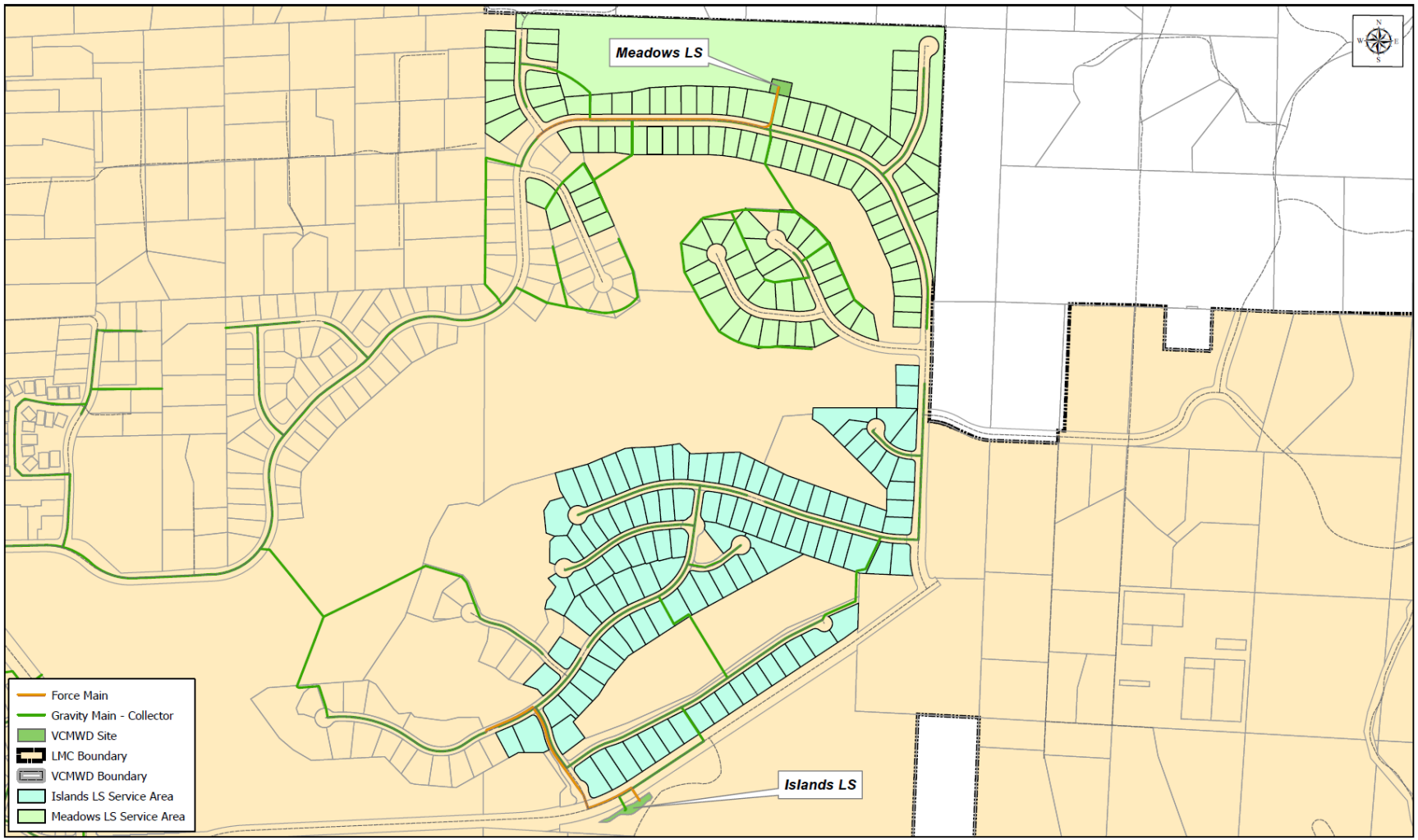


FIGURE 5.2 - Lower Moosa Canyon WRF – Meadows and Islands Lift Station Service Areas



5.5 Continuing Projects.

While no new expansion projects are being proposed with this Master Plan Update, there two continuing projects that have been funded in prior annual budgets and are in process of being completed, the Islands Lift Station Generator Replacement and the Meadows Lift Station Motor Control Center (MCC) Replacement Projects.

5.5.1 Islands Lift Station

The Islands Lift station was originally constructed in 2014. Other than normal maintenance there have been no major improvements or modifications made to the facility. The lift station consists of two progressive cavity pumps and 1,139 linear feet of 4-inch PVC forcemain. Replacement of the existing 30kW emergency generator and automatic transfer switch was funded with the FY 2020-2021 annual budget. The generator is used to power the facility in the event of an SDG&E power outage. The generator was manufactured in 2004 by Generic Industrial Power and is powered by a Kia Motor Corporation 3.0 Liter diesel engine. Repair parts for the engine are no longer available from the manufacturer or from an aftermarket supplier. The project was budgeted at a total cost of just over $55,000 and funded from the Moosa facility capital replacement reserves.

5.5.2 Meadows Lift Station

The Meadows Lift Station was initially constructed in 1976 and consisted of two progressive cavity pumps and 1355 linear feet of 4-inch AC forcemain. Since its original construction a 1000? Gallon wet well was added to provide emergency storage and recently one of the pumps failed and was replaced. Given the age of the facilities at the site, a project was funded to replace the MCC and bring the control systems up-to-date. Specifically, the project was to 1) upgrade the existing motor control center and instrumentation components 2) add Supervisory Control and Data Acquisition (SCADA) improvements to the facility and an in-line grinder to reduce wear on the pump components. The motor control center panels were original equipment and need to be replaced to bring the facility up to current codes and District standards. A new MCC electrical cabinet is proposed to be installed at a new location near the southside fence entrance. The MCC cabinet will include the new SCADA section, motor breaker and control sections and new Automatic Transfer Switch on a concrete pad with a small retaining wall, shade structure and AC unit for the SCADA equipment. Instrumentation components consist of a new electromagnetic flow meter, pressure indicator transmitters, pressure gauges and other appurtenant devices to connect the lift station to the SCADA network. Once completed, operators located at the Lower Moosa Canyon facility will be able to remotely monitor the operation, status and alarm conditions of the Meadows Lift Station.

Consultants would be used for designing the electrical portions and providing construction support and a separate integration consultant used to program and integrate the SCADA system. The project was budgeted at a total cost of just over $500,000 and funded from the Moosa facility capital replacement reserves.

Section 6 – Treatment Facilities

6.1 Introduction

The following is a review of existing processes and proposed replacement projects at the plant. The first portion of this section documents the current status of plant improvements and serves as a baseline/starting point for process review. The second portion presents proposed improvements with a focus on replacing aging infrastructure and improving treatment processes, redundancy, reliability and the working environment.

6.2 Existing Unit Process Description

A schematic diagram of existing plant processes is presented in Figure 6-1. A general site plan of the existing plant is presented in Figure 6-2.

6.2.1 Preliminary Treatment

Plant influent is measured by an ultrasonic flow meter located in a manhole just outside the fence on the south side of the WRF property. A grinder, which pulverizes coarse solids, is located in the influent channel.

During normal operations, after the grinder, flow passes through an inclined screen. When the inclined screen is either blocked or being maintained, the flow is diverted to a manual screen. Both the inclined screen and manual screen have 3/8-inch slot openings. During normal operations, screened solids from the inclined screen are continuously deposited into a bin and the screened solids are transported, once a week, to a landfill for final disposal.

6.2.2 Aeration Basins

The influent channel carries flow to two aeration basins, each 75 feet long by 25 feet wide with a side water depth of approximately 14.5 feet. During normal operations, both aeration basins are in service.

Each of the basins is divided into an upstream and a downstream section that are separated by a baffle wall. The configuration of the tanks represents a Modified Ludzack-Ettinger (MLE) a process widely used for nitrogen removal.
The upstream side of each basin is approximately 25 feet by 25 feet and is designed to serve as an anoxic zone for denitrification. Recycle flows are normally pumped from the downstream portion of the basin into this upstream anoxic zone which provides a carbon source for the denitrification reaction.

Figure 6-1 - Existing Plant Process Diagram

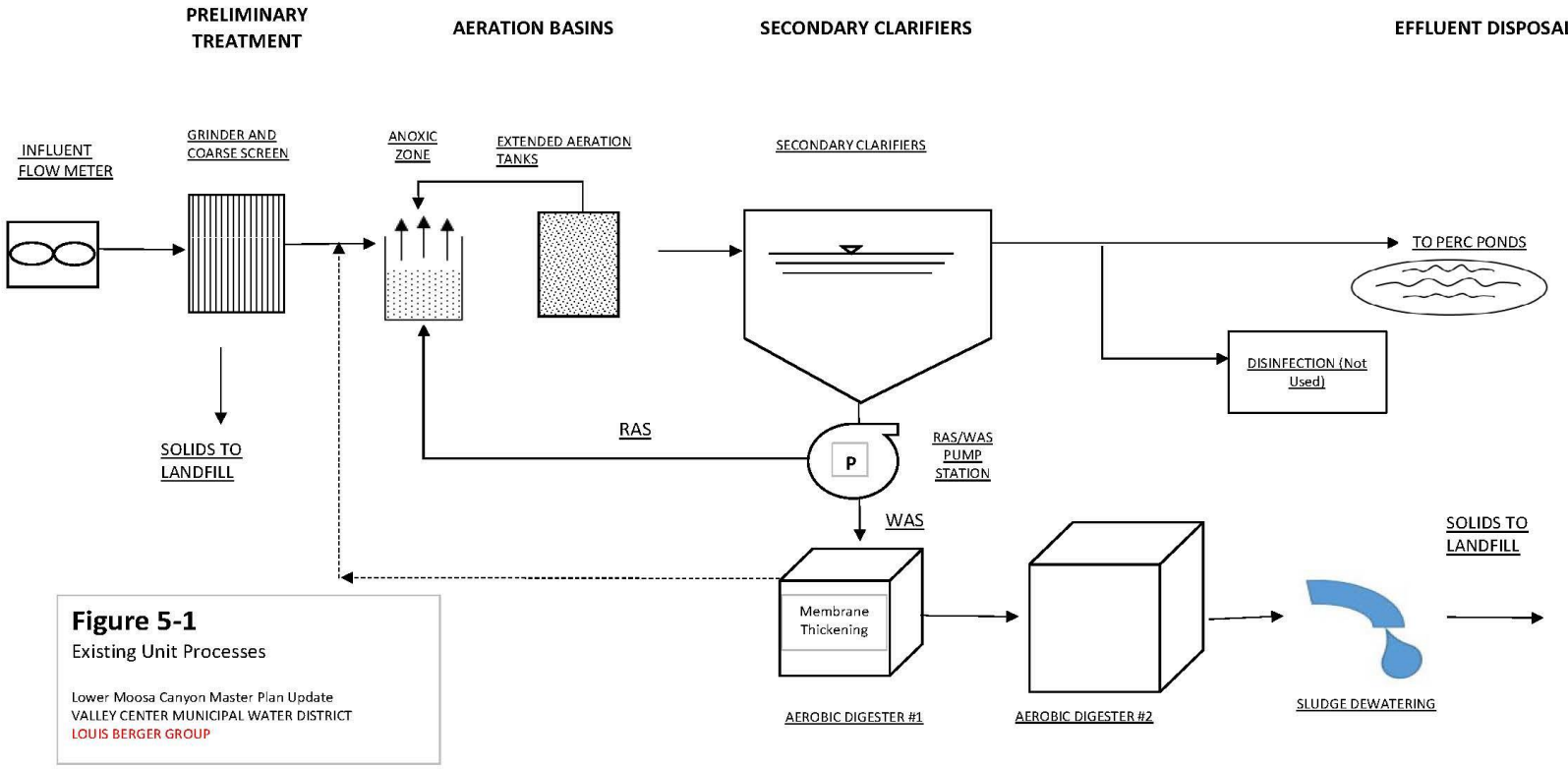


Figure 5-1
Existing Unit Processes

Lower Moosa Canyon Master Plan Update
VALLEY CENTER MUNICIPAL WATER DISTRICT
LOUIS BERGER GROUP

Copy of 190308 Process Figures REV7.xlsx

Figure 6-2 Existing Plant Site Plan

Presently, due to plant flow rates being significantly less than design capacity, one of the aeration basins is being used as an aerobic digester to reduce the amount of waste solids generated by the process and, thus, to reduce hauling costs.

Air is provided by positive displacement blowers and, during normal operations, two blowers are in service and one is on standby. Each 60-HP blower has a design capacity of approximately 1,000 scfm at 5 psia. The blowers are connected to a 12-inch steel supply air header with shut-off butterfly valves and check valves. At the control valve vault outside the blower room, the air header splits into two 8-inch branches, one to each aeration basin. Each aeration basin is fitted with a fixed grid fine bubble air diffusion system.

6.2.3 Secondary Clarifiers

There are two circular secondary clarifiers located just southeast of the aeration basins. Discharge from the aeration basins is allowed to settle in the secondary clarifiers. The sludge that settles to the bottom piped to the RAS/WAS Pump Station and the clear/clarified water at the top is piped to the chlorine contact tanks. The clarifiers are buried concrete structures, 34 feet in diameter with a side water depth of 8 feet. Each clarifier has a center-feed rotary-rake that directs solids to the center. The depth of the sludge blanket typically varies between several inches and two feet. Under normal recommended operations, both secondary clarifiers would be in service. During routine maintenance that requires a clarifier to be empty, the flows to that clarifier would be diverted to the other clarifier.

6.2.4 Disinfection

Currently, the plant is not required to disinfect the treated effluent being discharged to the percolation ponds and, as such, does not chlorinate its effluent. However, as designed, the facility is capable of disenffecting the treated effluent. Chlorination can be provided by sodium hypochlorite stored adjacent to the odor control unit, in a 2,000-gallon fiberglass tank. Chlorination is needed for the plant's washwater system to help control algae growth buildup in the washwater system and for operator protection, but does not require chlorination of the entire treated effluent. A project is recommended to replace the current washwater supply system and incorporate small chlorination equipment sized for only the washwater system.

6.2.5 Effluent Disposal

The discharge from the chlorine contact tank flows by gravity to the District's percolation ponds located on Camino Del Rey, approximately 1.6 miles from the Moosa Facility. The percolation ponds are described in Section 7.

6.2.6 RAS/WAS Pump Station

In the secondary clarifiers, solids that settle to the bottom (sludge) are scraped to a hopper in the center of the tank then flow to the RAS/WAS pump station wet well. From the RAS/WAS Pump Station the sludge is pumped to either the aerobic digestors and/or to the aeration basins. The sludge returned to the aeration basins as part of the activated sludge treatment

scheme is referred to as RAS (Return Activated Sludge). This sludge is pumped from the RAS/WAS wet well by the RAS pumps to the inlet channel of the aeration basins.

To maintain a solids balance in the process a portion of the sludge is wasted and this is referred to as WAS (Waste Activated Sludge). This sludge is pumped from the RAS/WAS wet well by the WAS pumps to the aerobic digesters.

6.2.7 Aerobic Digesters

Normal Operation - WAS from the RAS/WAS pump station is pumped to Aerobic Digester No 1. Average WAS flows are estimated by plant operations staff to be 22,000 gallons/day at concentrations ranging between 2,500 and 6,000 mg/L. Aerobic Digester No. 1 is a buried concrete structure 15 feet long, 12 feet wide and 18 feet deep. Originally, the air was provided through a coarse air distribution system that was fed by a common header in the blower room. Subsequently, Aerobic Digester No. 1 was retrofitted with fine bubble diffusers and piping was directly connected to the Innovair blower located in the Sludge Dewatering Building. With a usable volume of approximately 20,000 gallons, Aerobic Digester No. 1 provides 0.9 days of hydraulic detention time at average flow.

WVR Facility Solids Handling - Currently, the Moosa Facility also receives partially digested WAS from the Woods Valley Ranch Water Reclamations Facility (WVR Facility) for final treatment and dewatering. The quantity of WAS received is currently 20,000 gallons (Four 5000-gallon truckloads) every two weeks. The WVR Facility has approximately 660 EDUs connected and is anticipated to increase to 960 EDUs over the next two years. This would increase the WAS deliveries to approximately 30,000 gallons (Six 5,000-gallon truckloads) every two weeks.

Thickening - The sludge in Aerobic Digester No. 1 is thickened during the day. The air is turned off and the digester is allowed to settle. After the sludge has settled, the clear liquid is decanted off the top and piped to the aeration basins.

Aerobic Digester No. 2 is a concrete structure 33 feet long, 28 feet wide, and 28 feet deep with a side water depth of 24 feet. It has a 4-foot by 4-foot opening in the top deck for access to the interior of the digestor. Air is added to the digestor from the Innovair blower located in the Sludge Dewatering Building with coarse bubble diffusers. Hydraulic detention time in Aerobic Digester No. 2 is approximately 30 days at average flow.

The supernatant from Digester No. 2 is decanted on a regular basis to the aeration basin. Sludge removal is scheduled for twice a month. The transfer from Aerobic Digester No. 1 to Aerobic Digester No. 2 is by a single centrifugal pump.

6.2.8 Sludge Dewatering

Digested thickened sludge is pumped to a single centrifuge by one diaphragm sludge pump powered by a 7.5 HP motor. The 127 HP centrifuge has a capacity of 50 gpm. Ferric chloride and polymer are added to the centrifuge influent to promote dewatering. The final sludge cake has a solids concentration of approximately 25%.

Supernatant from the dewatering process flows to the headworks of the plant.

Currently, the operators run the centrifuge 4 days per week as a result of the additional sludge received from the District's Woods Valley Ranch WRF. This additional sludge volume represents about 660 more EDUs which represents solids loading than anticipated for the Moosa facility at the current planned ultimate buildout. Without the Woods Valley Ranch sludge, the digestor capacity is more than adequate and dewatering efforts would be significantly reduced.

6.3 Proposed Replacement Projects

Wastewater Operations and Engineering staff collaborated to develop replacement project recommendations for the facility. These replacement projects are driven by several factors including the need: 1) to replace aging outdated infrastructure that has served its useful life, 2) to correct deficiencies in unit process performance, and 3) to enhance, simplify or improve plant operations. Replacement projects do not increase the overall capacity of the facility, but will be designed to the capacity of the respective unit process. The projects will be designed and constructed for the capacity required for projected build-out of the existing service area or the next increment of plant expansion.

The proposed projects were prioritized into the following 5 categories:

- Continuing Projects –Major facility projects comprising the Continuing Projects include the Aeration Piping Replacement, Clarifier No.1 Equipment Replacement, Headworks Modifications and the Meadows Lift Station MCC Replacement.
- Priority 1 – Influent Channel Slide Gate, Discharge Line Appurtenances, Washwater System and Clarifier No. 2 Equipment Replacement, Server Room Relocation, Priority 2 Project Preliminary Design and Clean Water State Revolving Fund Loan Application
- Priority 2 – Headworks and Preliminary Treatment Phase 1.
- Priority 3 – Headworks and Preliminary Treatment Phase 2.
- Priority 4 – Secondary Treatment.

6.3.2 Continuing Projects

Major facility components of the continuing projects that are in the early stages of completion are described in the following paragraphs. The following Table 6-1 lists all the projects included in the continuing project category. The amounts listed in the Continuing Projects are the remaining budget amounts as of January 30, 2023. The Continuing Projects on the list, but not

described below, are either complete, in later stages of completion, or are non-process facility related projects.

Table 6-1 – Continuing Projects

Description	Cost
Continuing Projects	
Moosa Headworks Improvements	**$138,150**
Moosa Aeration Piping Upgrade	**$148,115**
Secondary Clarifier No. 1	**$193,966**
Sludge Transfer Pump Upgrade	**$963**
Moosa WRF MCC Replacement	**$78,058**
Moosa Solar Installation	**$23,051**
Vehicles	**$0**
Vehicles	**$19,126**
Utility Pump Truck (50/50 Funding)	**$67,500**
Service Truck (50/50 Funding)	**$50,046**
Studies	**$0**
O&M Manual	**$9,976**
Master Plan	**$49,930**
Feasibility Study	**$87,572**
Vitrified Clay Pipe Lining	**$54,300**
Meadows Lift Station MCC Replacement	**$483,752**
Islands Lift Station Generator	**$51,515**
Total Continuing Projects	**$1,456,020**

Aeration Piping Replacement (Item 1 in Figure 6-3) – This project consists of the installation of a new 8-inch steel aeration air pipe wrapped in protective tape. The new aeration air pipe will parallel the existing pipe that was installed in 2013. The new pipe will replace the original header that has corrosion pits and air leaks. With the installation of the new pipe, both Blower 1 and Blower 2 will have dedicated blower discharge piping to separate the aeration basins and Blower 3 will able to utilize either discharge pipe to supply air to either aeration basin.

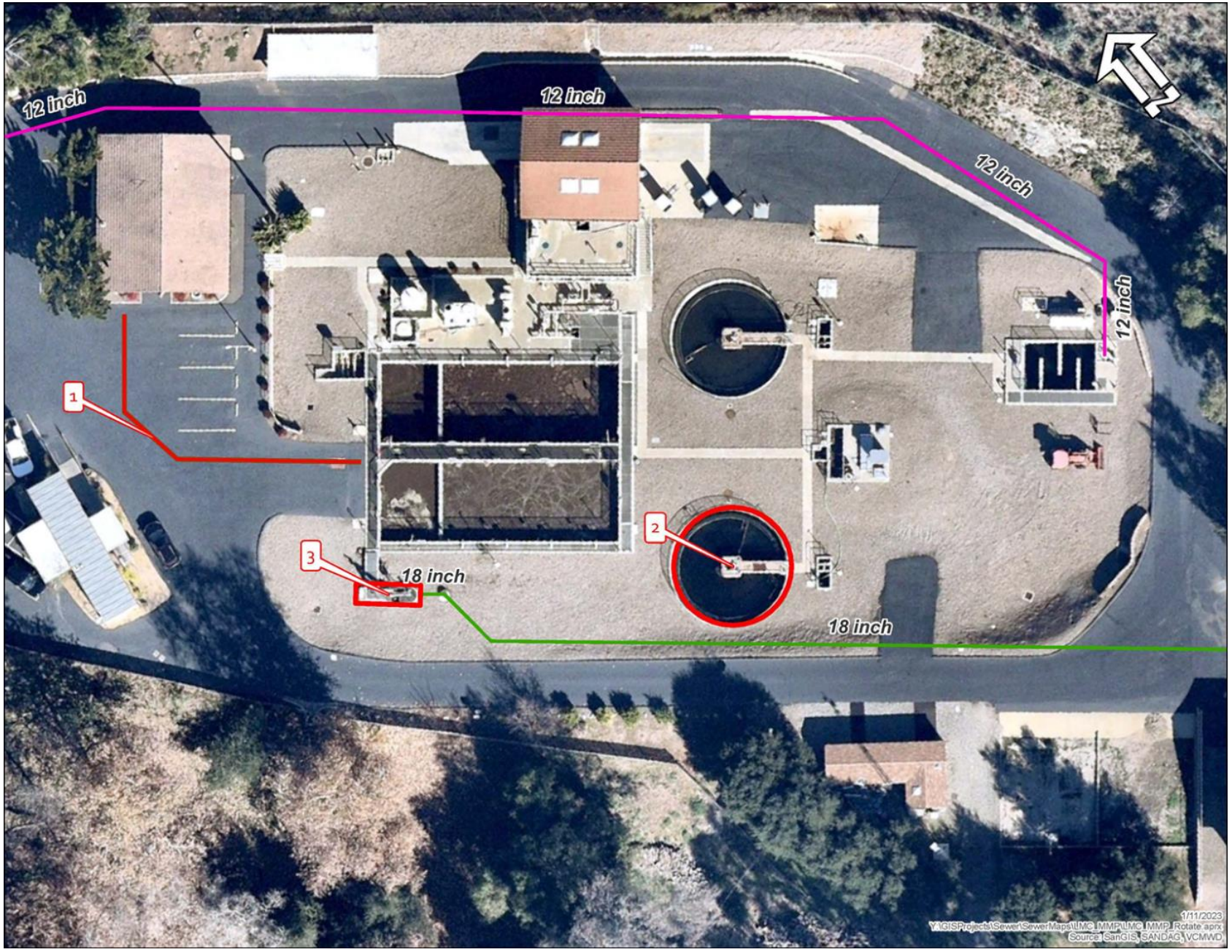
Clarifier No. 1 Mechanical Components Replacement (Item 2 in Figure 6-3) – This project consists of the demolition of the existing center column, rake system, motor, catwalk, and weirs in Clarifier No. 1. Once the existing system has been removed, an entirely new rake system, pre-purchase by the District, will be installed. The new rake system will replace the original system within the existing concrete clarifier structure. Minor modification will be required to the concrete floor and existing anchor bolts

Headworks Modifications (Item 3 in Figure 6-3) – This project was originally planned to modify the existing screenings area. The existing bar screen was to be removed and the channel slightly widened to allow the installation of a second angle auger screen pre-purchased by the District. With the completion of the proposed Priority 2 and 3 Projects, these proposed modifications to this portion of the headworks would not be required. Ultimately, this portion of the headworks will serve as a redundant influent screen in the event the lift station needs to be bypassed for maintenance. The pre-purchased screen will be utilized as an "on-the-shelf" replacement unit for the older existing screen.

6.3.3 Meadow Lift Station MCC Replacement

This project consists of the demolition of the existing electrical panel and the installation of a new MCC and SCADA Panels at the Meadows Lift Station site. This project will bring the electrical components up to current code requirements. A grinder will also be installed upstream of the two pumps to shred all large debris before getting to the pumps. New replacement instrumentation will also be installed to monitor flow and pressure on the inflow and discharge side of the pumps.

Figure 6-3 – Continuing Projects



6.3.4 Priority 1 Projects

The projects described in this section are relatively small projects that either replace aging infrastructure or upgrade the operation of the facility and provide much needed immediate benefit to the operators. The following Table 6-2 lists all the projects included in the Priority 1 category and their estimated cost.

Table 6-2 – Priority 1 Projects

Description	Cost
Priority 1 Projects	
Influent Channel Slide Gates	**$10,000**
Secondary Clarifier No. 2	**$350,000**
Chlorine Contact and Plant Water System	**$25,000**
Discharge Line Appurtenances	**$15,000**
Server Room Relocation	**$250,000**
SRF Application and Preliminary Design	**$50,000**
Priority 2 Project Preliminary Design	**$50,000**
Total Priority 1 Projects	**$750,000**

Influent Channel Slide Gate (Item 1 on Figure 6-4) – The influent channel is located after the screening unit on the northwesterly end of the aeration basin. Each aeration basin has two inlets from the influent channel. The new slide gate will be installed within the influent channel after the inlets to Aeration Basin 1 to provide the ability to close off the far (northerly) side of the influent channel to isolate that portion of the influent channel when Aeration Basin 2 is off-line. A significant amount of grit settles in that section of the influent channel during normal operation. Having a slide gate to isolate that portion of the influent channel will greatly facilitate the operator's ability to occasionally remove the accumulated grit.

Secondary Clarifier No. 2 Mechanical Equipment Component Replacement (Item 3 on Figure 6-4) – Similar to Clarifier No 1, the existing Clarifier No. 2 rake system will be demolished. The existing secondary clarifier concrete structures shall remain. The mechanical rakes, motors, center column, catwalk and all mechanical piping will be replaced. Work on the replacement Clarifier 2 mechanical equipment will be scheduled to begin after Clarifier 1 is complete and operating. Replacement of the secondary clarifier mechanical equipment is a high priority as the clarifiers are an essential component of the secondary treatment process and failure of the equipment could seriously affect effluent quality.

Chlorine Contact Tank Modifications and Plant Washwater System (Item 4 on Figure 6-4) – The following modifications to replace and enhance the existing washwater system are recommended. The current washwater system requires the entire plant effluent to be chlorinated to provide disinfected treated effluent to the washwater system and due to the

cost of hypochlorite has been discontinued. The RWQCB Waste Discharge Permit does not require disinfection of the treated effluent being discharged to the percolation ponds. The proposed improvements to the washwater system consist of installing separate chlorination equipment for just the washwater demand. This replacement of the washwater supply system is essential for operator safety. This project component would consist of the following work:

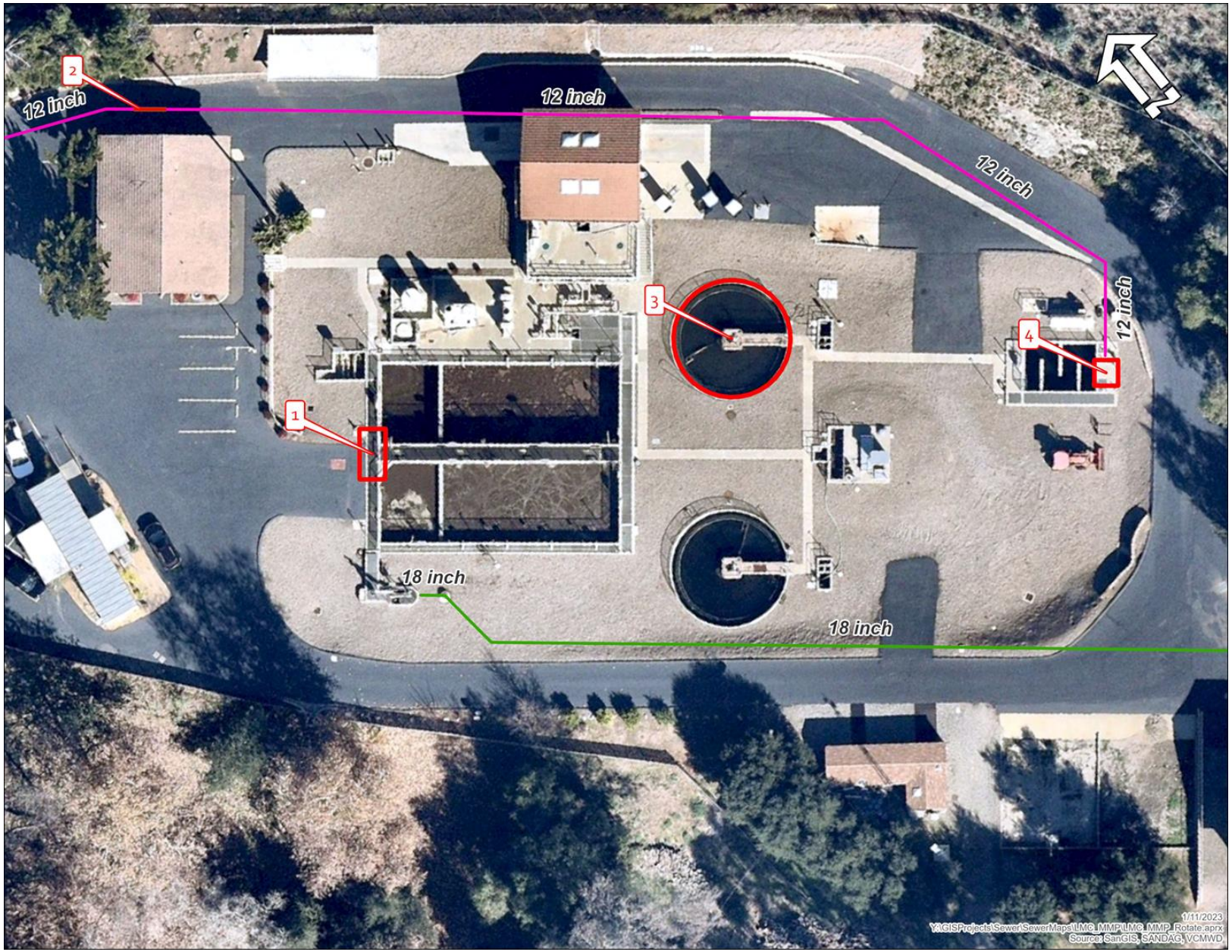
- Perform minor concrete repair work on the Chlorine Contact Tank
- Provide a washwater filtration system for the plant washwater system.
- Install new chlorination equipment for the washwater system consisting of a tank for hypochlorite storage, chlorinators and for injection/mixing equipment.

New Server Room - The existing servers for the Moosa Facility and backup servers for the District are located in the modular operations building at the Moosa Facility site. Reliability can be improved by relocating the servers to the original chlorination room in the Blower Building. The Blower Building houses the main blowers for the aeration basins, the generator and MCC, the lab and original chlorination room. The original chlorination room is adjacent to the MCC Room and currently used for supply storage and the solar power distribution switch gear. Being in the block building provides a more secure permanent location for the servers and frees up office space in the existing modular operations building.

Discharge Line Appurtenances (Item 2 in Figure 6-4 and Full Extent of the Discharge Line is shown in Figure 7-2) – Discharge effluent flow leaves the Moosa Facility via a 12-inch pipeline. On occasion, air is trapped in the line and causes flow issues within the pipeline. This proposed project includes the installation of air release stations to alleviate the air entrapment and clean-outs to provide access to the pipe for maintenance.

SRF Application and Priority 2 Project Preliminary Design – The Priority 1 Project includes funding to prepare preliminary design reports and preparation of the CWSRF loan application for funding the Priority 2 Projects.

Figure 6-4 – Priority 1 Projects



6.3.5 Priority 2 Projects

The projects described in this section are the first phase of improvements recommended for replacement of the headworks facilities. The following Table 6-3 lists all the project components included in the Priority 2 Project and their estimated cost.

Table 6-3 – Priority 2 Projects

Description	Cost
Priority 2 Projects	
Influent Pipeline and Diversion Structure	**$450,000**
Influent Pump Station with Flow EQ	**$660,000**
Influent Lift Station Overflow Pipeline	**$120,000**
WAS Pumps	**$150,000**
Site Electrical	**$225,000**
SCADA Upgrades	**$113,000**
Subtotal Construction	**$1,718,000**
Design, PM, CM & Insp. (50%)	**$859,000**
Contingency (15%)	**$387,000**
Total Priority 2 Projects	**$2,964,000**

Influent Pipeline and Diversion Structure - A new diversion structure will be installed on the existing 18-inch gravity main downstream of the existing influent flow meter at the proposed influent lift station location. Flow will be diverted to the new influent lift station through a new 18-inch gravity main. After the proposed Influent Lift Station and Flow Equalization ("Flow EQ") facility the influent flow will be redirected to the existing screenings unit via the existing 18-inch gravity main.

Influent Lift Station - Under higher flow conditions or when the screen plugs the existing flow meter does not function properly, the influent downstream of the flow meter backs up rendering the flow meter inaccurate. To rectify this situation an influent pump station near the east gate of the plant is proposed. This location will result in a much shorter pipeline with greater slope to alleviate the backup issues that now occur. Also, adding a pump station will 1) provide a wet well and a flow equalization basin to reduce and dampen the peak flow rates into the plant while also reducing the chance of spills, and 2) ultimately provide the additional head required to feed the proposed influent screens and grit removal system proposed for the Priority 3 Projects and allow for flow splitting between the aeration basins.

Influent Pump Station Overflow – In case there is ever an emergency/failure at the proposed Influent Lift Station, an overflow bypass line is recommended to be installed from the Influent

Lift Station back to the existing gravity sewer line. This will allow any flows that back up in the Influent Lift Station to overflow freely.

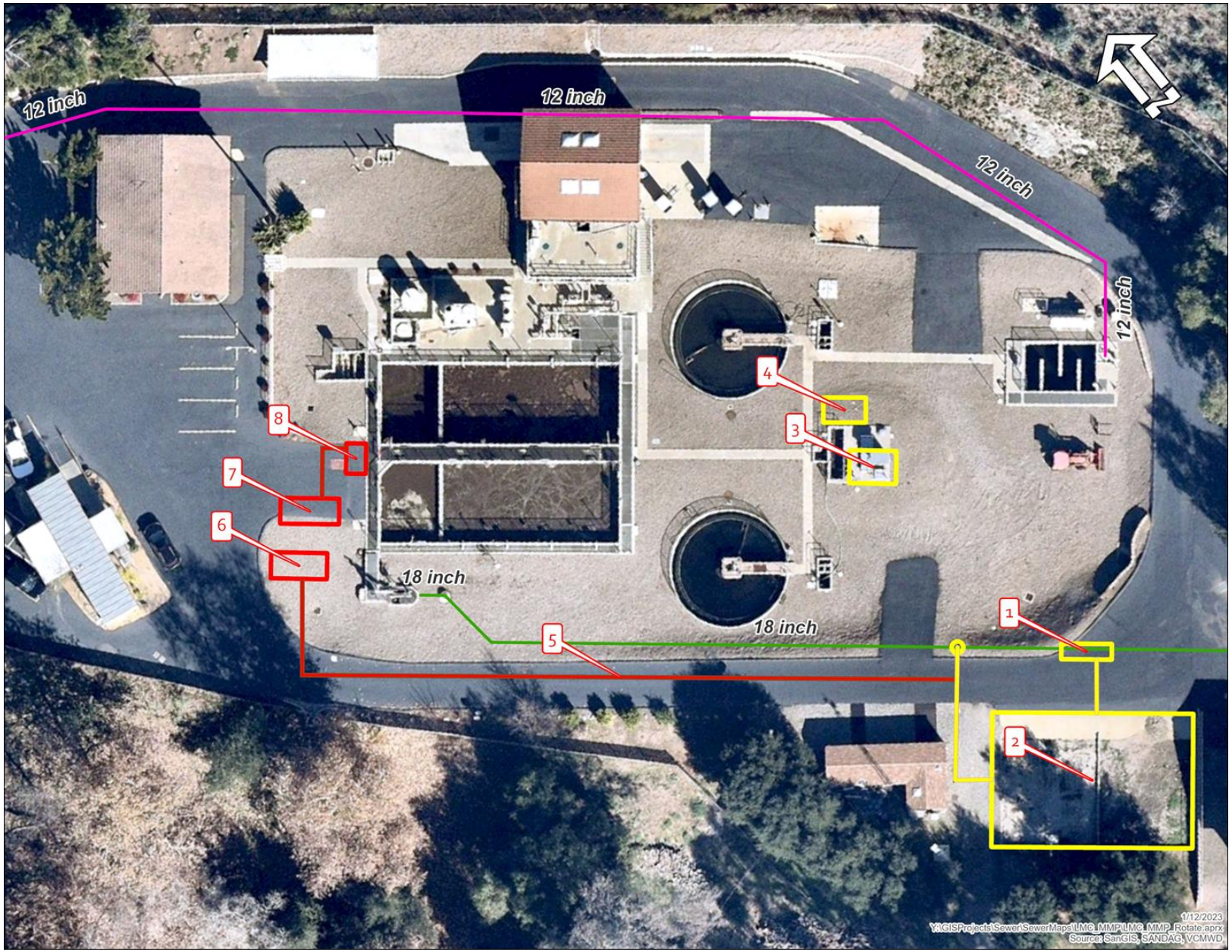
WAS Pumps (Item 4 on Figure 6-5) and RAS/WAS Access Hatch (Item 3 on Figure 6-5) - Replace the existing single door access with a double door hatch. The existing single door hatch is damaged and very difficult to open. Double door hatches are much lighter and easier to open. New WAS Pumps are recommended to be installed above ground on a slab-on-grade adjacent to the pump station deck. These pumps will be designed for the desired lower WAS flow rates, not available with the current combined RAS/WAS pump configuration.

Site Electrical

- Evaluate electrical service requirements for proposed facilities, if required, replace and relocate existing SDGE transformer.
- Replace and improve site lighting.
- Electrical Panel (CP-200) Replacement - As part of this upgrade, existing CP – 200 will be replaced. The existing outdoor MCC will be replaced with upgraded components, including VFD's for controlling the RAS/WAS pumps and new SCADA Control Panel to replace the existing SCADA Control Panel with upgraded PLC to match District standards. A new shade structure will be built to protect it from the elements.

SCADA Upgrades – With the installation of new pumps and instrumentation at the influent pump station and WAS area, new HMI screens will be required in the SCADA system. These screens would provide all information and alarms for the new equipment for use by the operators.

Figure 6-5 – Priority 2 Projects (Yellow)



6.3.6 Priority 3 Projects

The projects described in this section are the second phase of improvements recommended for replacement of the headworks facilities. The following Table 6-4 lists all the project components included in the Priority 3 Project and their estimated cost.

Table 6-4 – Priority 3 Projects

Description	Cost
Priority 3 Projects	
Forcemain	**$90,000**
Influent Screenings	**$810,000**
Grit Removal	**$660,000**
Influent Channel Slide Gates and Crossover Gate Removal	**$53,000**
Flow Splitter Box	**$225,000**
Site Electrical	**$150,000**
SCADA Upgrades	**$113,000**
Subtotal Construction	**$2,101,000**
Design, PM, CM & Insp. (50%)	**$1,051,000**
Contingency (15%)	**$473,000**
Total Priority 3 Projects	**$3,625,000**

Forcemain – New forcemain will need to be install from the influent pump station to the new Screeening unit. The new forcemain will allow for the screenings unit to be installed on an elevation position to allow gravity flow through the screenings to the grit removal and finally to the flow splitter box.

Influent Screens - An influent screening unit is recommended that would be located after the new pump station near the grit removal system. An augur screening unit is assumed for this study though other screening options may be selected during design. Screens remove large solids that might otherwise disrupt downstream processes. This installation will take advantage of the higher elevation due to the pump station being able to pump the influent flows to a higher elevation.

Grit Removal - An in-line grit removal system located upstream of the flow splitter box is the assumed for this upgrade. As an alternative solution, an aerated grit tank could be used for grit removal. The purpose of the grit system is the extraction of particles such as sand and smaller dense objects that pass through the screens.

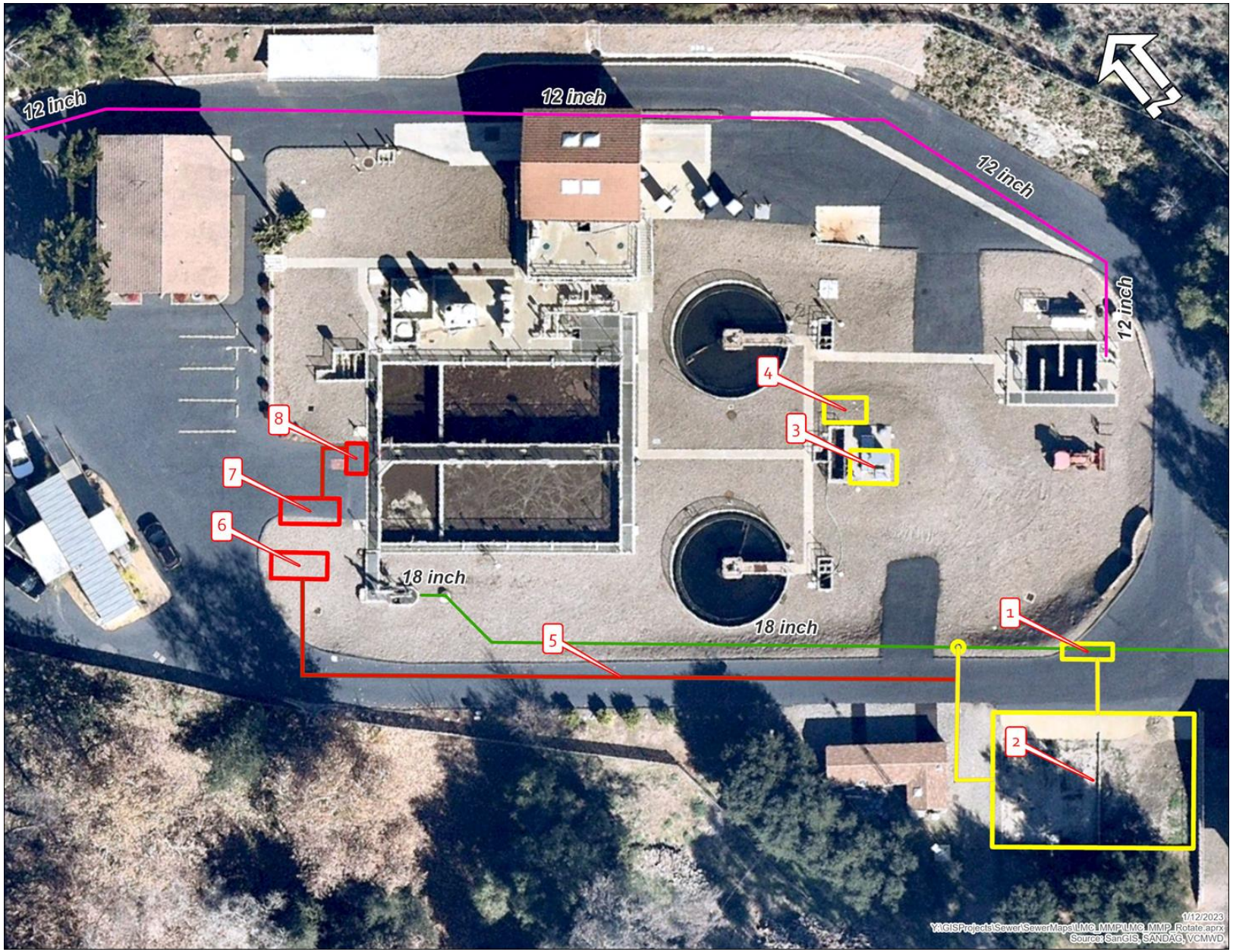
Influent Channel Slide Gates and Crossover Gate removal – This provides new hand-wheel operated 3-foot by 4-foot surface mounted slide gates on influent channel openings to the aeration basins to allow diversion and flow control options. Also, included in this recommendation are the installation of isolation gates in the influent channel to allow the operators to isolate flows to either Aeration Basin 1 or 2. There is an existing slide gate in between the two aeration basins (the "Crossover Gate") that was installed with the original facility construction to allow the operator to operate the basins as one large tank when opened. This gate has never been used and needs to be removed to prevent an emergency shut down should the aging gate fail. The hole left by the removal of the cross-over gate will be filled with concrete.

Flow Splitter Box - This feature consists of a central concrete box that is fed by an influent pipeline after the grit removal unit. The box is equipped with weirs to enhance control over the division of flows to the aeration basins. As the influent flows increase, the need to divide the influent flows, as desired between the aeration basins, becomes more critical from the standpoint of operational control. Piping for the RAS and centrifuge centrate would be rerouted to the splitter box.

Site Electrical – For installation of proposed screenings and grit removal equipment, new electrical conduit will need to be installed from that area back to MCC 1. New circuit breakers will need to be installed for each piece of equipment in the spare buckets. New lighting will need to be installed to illuminate the new head works area.

SCADA Upgrades – Installation of new screenings and grit removal equipment and the related instrumentation at the headworks area, new HMI screens in the SCADA system will be required. These screens shall provide all the information and alarms for the new equipment needed by the operators. **-**

Figure 6-4 – Priority 3 Projects (Red)



6.3.7 Priority 4 Projects

The projects described in this section are improvements recommended for replacement of the various secondary treatment process components. The following Table 6-5 lists all the project components included in the Priority 3 Project and their estimated cost.

Table 6-5 – Priority 4 Projects

Description	Cost
Priority 4 Projects	
Aeration Basin Retrofit	**$300,000**
Secondary Clarifier Influent Channel	**$150,000**
Blower Replacement	**$525,000**
Site Electrical	**$38,000**
SCADA Upgrades	**$113,000**
Subtotal Construction	**$1,126,000**
Design, PM, CM & Insp. (50%)	**$563,000**
Contingency (15%)	**$254,000**
Total Priority 4 Projects	**$1,943,000**

Aeration Basin Retrofit (Item 1 on Figure 6-6) - The following retrofit and replacement item are recommended for the existing aeration basins:

- Coat/line top 5 feet of the interior concrete to protect the concrete from deterioration in this aerosol zone.
- Add a baffle at the end of each basin to create another anoxic zone. Provide the ability to shut off air near the end of the basin for additional nitrogen removal.
- Provide two permanent Diversion Slide gates in the Effluent Channel, one on each side of the central discharge area to allow isolation of either aeration basin for maintenance.
- Provide new extension of Piping and Diffusers into the Effluent channel.
- Remove Aeration Basin Intertie Gate

Secondary Clarifier Influent Channel (Item 2 on Figure 6-6) - It is recommended that a concrete channel be provided instead of piping to replace the existing deteriorated aeration basin effluent piping from the aeration basins past the clarifiers to the flow splitter and from the flow splitter to the inlet boxes ahead of each clarifier. The inlet boxes are on the side opposite the aeration basins.

Blower Upgrades (Item 3 on Figure 6-6) - Construct these modifications to the blower room.

- Replace third blower.
- Add an overhead trolleycrane for blower removal and maintenance.

Site Electrical -

SCADA Upgrades – With the installation of new blower and instrumentation in the Blower Room, this will require new HMI screens in the SCADA system. These screens shall provide all the information and alarms for the new equipment.

.

Figure 6-6 – Priority 4 Projects

Section 7 – Effluent Disposal

7.1 Introduction

The current effluent disposal method is percolation provided by three ponds located adjacent to Lower Moosa Canyon Creek, northwest of the WRF (see figure 7-1). The ponds have a collective volume of approximately 60 acre-feet (i.e., 10 acres by 6 feet deep). Effluent is conveyed to the pond inlet structure by a 1.6-mile gravity outfall line (See Figure 7-2) and distributed by adjustments to gate valves at the inlet structure. The Outfall Line consist of approximately AC, DI and PVC pipe as shown in Table 7-1 below.

Table 7-1 – Lower Moosa Canyon WRF Outfall Line

TABLE 7-1 LOWER MOOSA CANYON WRF OUTFALL LINE				
	Total Pipe	**8-inch**	**10-inch**	**12-inch**
Pipe Material				
AC	5,358	3,971	550	837
DI	957			957
PVC	2,323			2,323
Total Outfall Line (LF)	**8,639**	**3,971**	**550**	**4,117**
Total Outfall Line (Mile)	**1.6**	**0.8**	**0.1**	**0.8**

In addition to the Outfall Line a parallel 12-inch PVC Recycled Water Line was installed in a portion of HWY 395 in 1992 (shown as the purple line in Figure 7-1 and summarized in Table 7-2 below). This line was installed when a portion of the Outfall line was replaced and relocated to the HWY 395 Roadway. The Recycled Water Line was intended to be a return line from future groundwater wells to be installed in the vicinity of the percolation ponds to bring recycled water groundwater for use on the Castle Creek Golf Course.

Table 7-2 – Lower Moosa Canyon WRF Recycled Water Return Line

TABLE 7-2 LOWER MOOSA CANYON WRF RECYCLED WATER RETURN LINE				
	Total Pipe	**8-inch**	**10-inch**	**12-inch**
Pipe Material				
DI	702			702
PVC	2,320			2,320
Total RW Return Line (LF)	**3,022**	**0**	**0**	**3,022**
Total RW Return Line (Mile)	**0.6**	**0.0**	**0.0**	**0.6**

7.2 Percolation Pond Capacity

An updated hydrogeological model of the existing percolation ponds was used to predict the effluent disposal capacity of the ponds. The hydrogeological technical memorandum describing this modeling in more detail is included in Appendix C. The existing ponds appear to be able to dispose of 0.44 mgd.

Additionally, it was noted that moving the pond berm nearest the creek to create a 100 ft. set back would bring the ponds into conformance with more accepted inland effluent disposal practices while not impacting their effluent disposal capacity.

In 2018, to accommodate wastewater treatment capacities in excess of 0.44 mgd, expansion of the ponds will be required. The hydrogeological technical memo presents two sites that were examined as options for expanding percolation capabilities. It appeared that both sites may provide sufficient disposal capabilities for the next phase of expansion, but further monitoring and testing will be required to confirm disposal capacity. The District determined that the downstream site (Alternate Pond 2) was less developed than the upstream site and might present less disruption to that landowner, so it was deemed more desirable (see Map 6-1).

7.3 Ongoing Monitoring and Testing Requirements

There is a need for on-going monitoring and testing and other actions to prepare the documentation required for approval by the Regional Water Quality Control Board of future percolation ponds capacity expansion. There are recommendations in the hydrogeological technical memorandum in Appendix C, pages 5 and 6. A few of those recommendations are highlighted below:

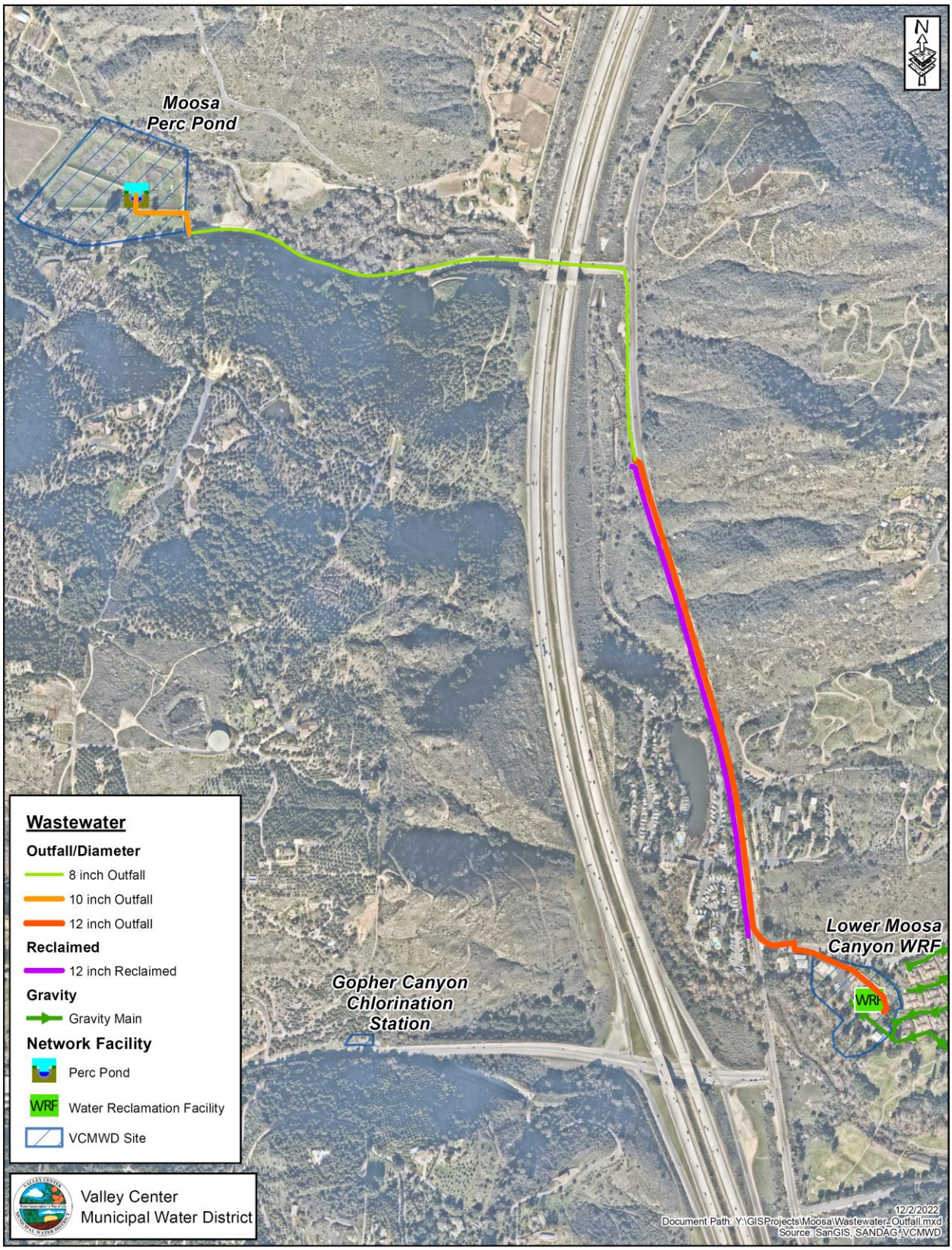
- Discuss with the Regional Water Quality Control Board guidance on wastewater disposal, preliminary modeling results, failure criteria, minimum setbacks, minimum residence time and maximum wastewater contribution to the basin.

- Identify existing unpumped wells in the basin (particularly near the eastern and western ends of the basin) and explore access to those wells for periodic monitoring.
- Initiate monthly monitoring of water levels at the existing and proposed monitoring wells, and existing unpumped wells elsewhere in the basin.
- Perform a round of water quality sampling, geochemical parameter monitoring and laboratory analysis in the new monitoring and existing unpumped wells.
- Investigate pumpage of existing alluvial groundwater wells within the model domain.
- Drill, log and install monitoring wells at the following locations:
    - Two locations closer than the existing monitoring wells to the creek in the vicinity of the Current Ponds
    - Four locations near Alternate Pond 2 (if that location proves viable from an acquisition standpoint)

Gravity Outfall Improvements - Address air trapping issues and provide cleanouts. Add sealed manholes to allow monitoring and maintenance.

Figure 7-1 – Lower Moosa Canyon WRF Percolation Pond

Figure 7-2 – Lower Moosa Canyon WRF Outfall Line



Section 8 – Implementation Plan

8.1 Introduction

A proposed implementation plan was developed to establish a funding recommendation for the proposed $10.7 Lower Moosa Canyon WRF 2023 Capital Improvement Program (2023 CIP). The 2023 CIP includes $1.5M in funded continuing projects and $9.0M in new projects. This implementation plan proposes a phased construction of four new project groupings over multiple years considering the importance and urgency of each project group while balancing annual capital expenditures with available revenues. Project group priorities were established as previously discussed. The Priority 1 projects are proposed to be funded using interim financing from the District's General Fund and repaid over a three to four-year period from the LMCWRF net revenues. Priority level 2 through 4 projects are proposed to be funded from Clean Water State Revolving Fund (CWSRF) Loans with repayment from net revenues. Current CWSRF terms are 1.875% for a 20-year loan and 2.125% for a 30-year loan.

8.2 Program Costs

A summary of the project priorities and their estimated costs are presented in the following table. The project costs are based on January 2023 estimates and should be re-evaluated annually. The table also projects estimate start dates, however, projects costs represented in the table are not adjusted for inflation. As expected, the actual project costs and the resulting debt service requirements would be sensitive to labor and material cost inflation from January 2023 to actual construction start dates. Effects of inflation on the project costs are considered in the financial project prepared for the evaluating funding recommendations.

LOWER MOOSA CANYON WRF CAPITAL IMPROVEMENT PROGRAM SUMMARY

Project Description	Funding Source	Estimated Cost [1]	Annual Debt Service [2]	Anticipated Construction Start Schedule
Continuing Projects	Continuing Projects Reserve	$1,456,020	N/A	FY 2022-2023
Priority 1 Projects	Replacement Reserves Interim Funding	$750,000	N/A	FY 2023-2024
Priority 2 Projects	SRF Loan	$2,964,000	$182,000	FY 2025-2026
Priority 3 Projects	SRF Loan	$3,625,000	$222,000	FY 2027-2028
Priority 4 Projects	SRF Loan	$1,943,000	$119,000	FY 2028-2029
Totals		$10,738,020	$523,000	

(1) January 2023 Dollars

(2) Annual Debt Service amounts are based on a 20-year term SRF Loan at a 2.0% Interest Rate

8.3 Spending Limit Ordinance Considerations

The District's Ordinance No. 171 ("Spending Limit Ordinance") provides for a maximum Authorized Debt Limits for capital improvement projects. A full complete copy of the ordinance is included as Appendix D and the current maximum debt limit authorization is included as Appendix E. Any maintenance or replacement project for existing facilities, pipelines, water tanks, reservoirs, or other capital improvements existing as of the effective date of the ordinance (April 14, 1988) are exempt from the ordinance. The current Authorized Debt Authorization for capital projects is $2.7M. The major projects included in the proposed Capital Improvement Program are replacement of facilities that were installed with the original construction of the facility in the mid-1970's and, as such, are exempt from the Ordinance. There a few minor facilities included in the program that are considered facility upgrades. However, these portions of the proposed project improvements are significantly less than the authorized debt limits

8.4 Proposed Timing

Cost represented in the table above are based on January 2023 cost values. No adjustments were made for inflation for the base cost estimates. The following table projects estimated project costs base on a 3 percent annual inflation rate. No adjustments were made for the Continuing Projects, as those projects are funded and currently in various levels of completion. Several of the Continuing Projects are anticipated to have excess funding available upon completion. Also, no adjustments were included for the Priority 1 Projects. Those projects are intended to be included in the FY 2023-2024 Annual Budget at the listed project costs. Funding for any excess costs due to inflation, or possible cost overruns, would be available from the remaining balances of the continuing projects.

The following table shows the adjustments made to account for labor and material inflationary cost increases for the Priority Level 2 through 4 Projects.

PROJECT TIMING ADJUSTMENTS

	Continuing Projects	Priority 1 Projects	Priority 2 Projects	Priority 3 Projects	Priority 4 Projects
Subtotal Construction Costs	1,456,020	750,000	1,718,000	2,101,000	1,126,000
Design, PM, CM & Insp.			859,000	1,051,000	563,000
Contingency			387,000	473,000	254,000
Total Project	1,456,020	750,000	2,964,000	3,625,000	1,943,000
Estimated Start Date	Authorized	Jan-2023	Jun-2025	Jun-2027	Jun-2028
Adjustment for Inflation	0	0	220,000	506,000	338,000
Adjusted Total Project	1,456,020	750,000	3,184,000	4,131,000	2,281,000

8.5 Project Funding

Funding for the 2023 CIP will ultimately come from the Lower Moosa Canyon WRF Net Sewer Service Charge Revenues, ("Net Revenues"). Net Revenues are the funds remaining from the Sewer Service Charges collected each year from customers within the sewer service area, less all operational and maintenance costs. Net revenues have averaged $340,000 annually and reflect the amount budgeted for replacement reserve contribution, which is based on the annual depreciation of the facilities. Capacity Charge Revenue can also be utilized for the 2023 CIP, however, as this revenue source is based on new connections and the timing of new connections is not dependable, this revenue source is not considered in the funding recommendations. The capacity charge would be increased each year by the unit connection amount of replacement reserves invested in the 2023-CIP. Thus, any new connections after the start of the 2023 CIP would be contributing an equal share of the 2023 CIP cost as the existing customers.

8.5.2 Continuing Projects

Funding for the continuing projects has been authorized and transferred to the Continuing Projects Reserve for the Moosa Facility. The continuing project authorizations included in the FY 2022-2023 Annual Budget along with the budgeted revenues and expenses are anticipated to leave a balance of $125,000 in the replacement reserve account as of June 30, 2023. This amount was utilized as the starting value for the Replacement Reserve in the financial model.

8.5.3 Priority 1 Projects – FY 2023-2024

The proposed 2023 CIP anticipates that the Priority 1 projects would be funded from the Moosa Replacement Reserves. However, at a total estimated cost of $750,000, there is not sufficient reserve funds available. Interim funding from the District's General Fund would be required to implement the Priority 1 Projects with the FY 2023-2024 Annual Budget. Funds provided by the General Fund would be scheduled to be paid back over a three to four-year period. The financial model assumed a three-year payback, but could be adjusted should Net Revenues be insufficient in subsequent years.

8.5.4 Priority Projects 2 thru 4

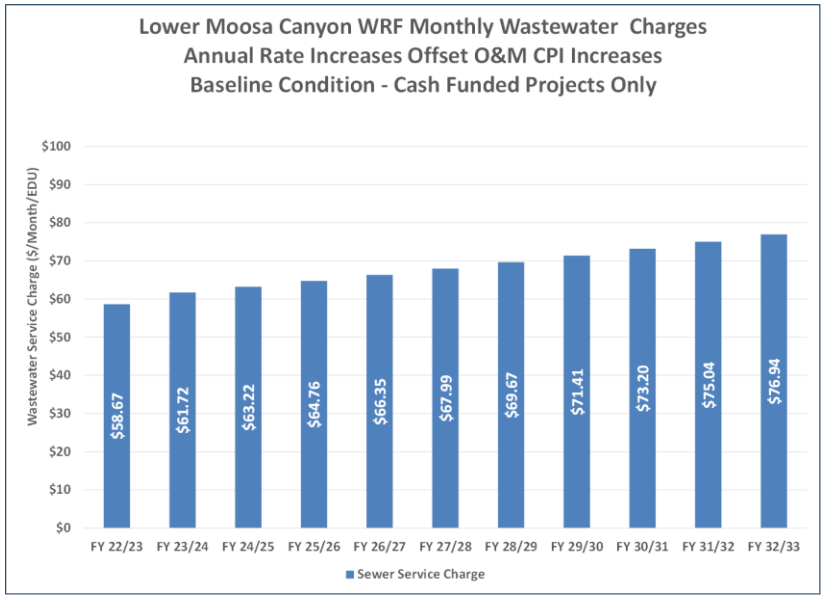
Priority Projects 2 through 4 would be funded through multiple CWSRF loans. Depending on the CWSRF interest rates and the term of the loans, the annual debt service requirement for all the recommended projects could range from $400K to $590K. At the current sewer service charge rate, the annual net sewer service charge revenues are $340,000 and not sufficient for the project debt service requirement. The debt service needed to fund the proposed 2023 CIP and provide the debt coverage required by the SWRCB would require increasing the total net revenues $690K, which would require a $12 per EDU increase in the monthly Wastewater Service Charge. This could be accomplished with either a separate $12 monthly Capital Improvement Charge, a 19.4% increase in the Wastewater Service Charge, or a combination of the two; a $10 Monthly Capital

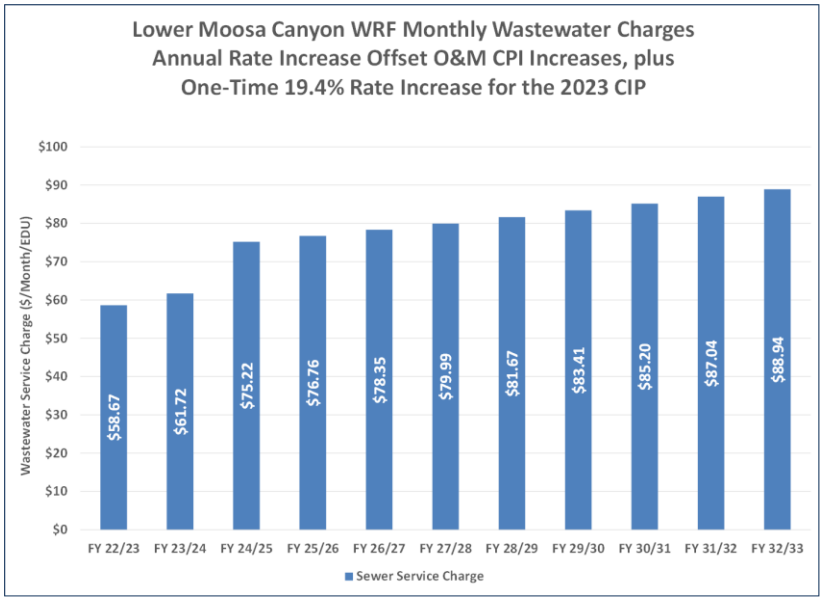
Improvement Charge rate with a concurrent 3.2% increase in the Wastewater Service Charge. These charges would be over and above any additional Wastewater Service Charge increases needed to offset any inflationary cost increases.

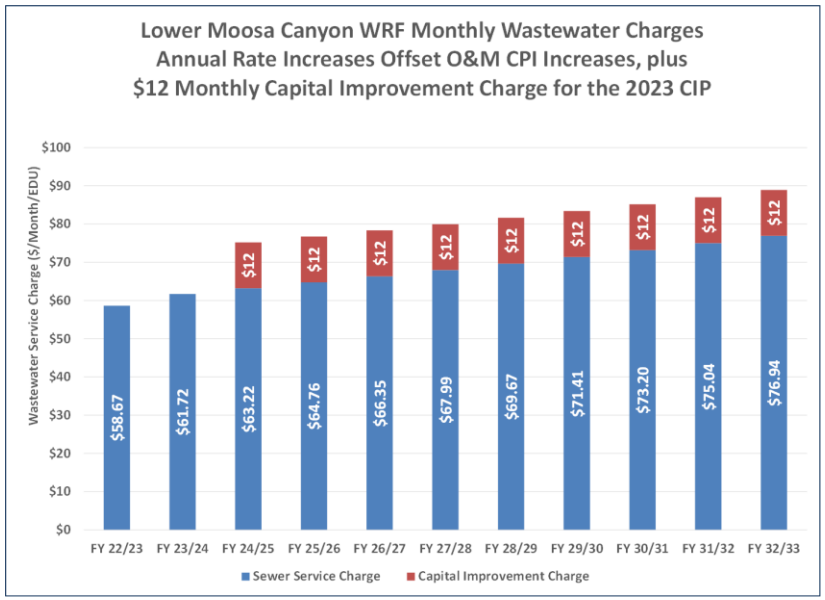
A financial model was prepared to evaluate the effects the proposed funding plan would have on annual budgeting and available Replacement Reserve funding. The financial model indicated the proposed additional funding, there would be sufficient funding for the proposed 2023 CIP debt service, establishment of the required one-year debt service reserve and SWRCB annual coverage requirements. The Replacement Reserve Balance would grow from its current $125K balance to $1.5M in the next 5 years and to approximately $5M toward the end of the 20-year term of the CWSRF loans. These funds would be used for the next round of replacement and upgrades projects as determined in future master plan updates.

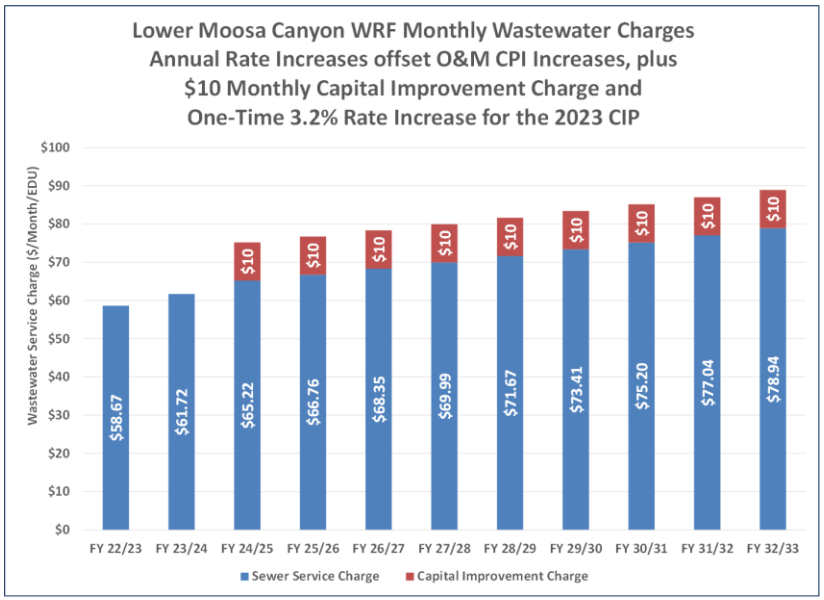
Four charts were prepared to represent the effects of the 2023 CIP on the Wastewater Service Charge over the next ten years. The first chart represents the baseline condition showing the rate increases needed to offset an annual 3% inflation rate for the Operation and Maintenance expense. No long-term financed projects were included, only the cash-funded Priority 1 Projects. The baseline annual rate increases average 2.6% per year.

The three other charts represent the $12 Monthly Capital Improvement Charge Option, the 19.4% monthly Wastewater Service Charge increase option and the combined option of a $10 capital charge and a 3.4% rate increase. Each option provides the same amount of funding for the 2023 CIP and has the same net effect on the total wastewater charges charged to the customers.

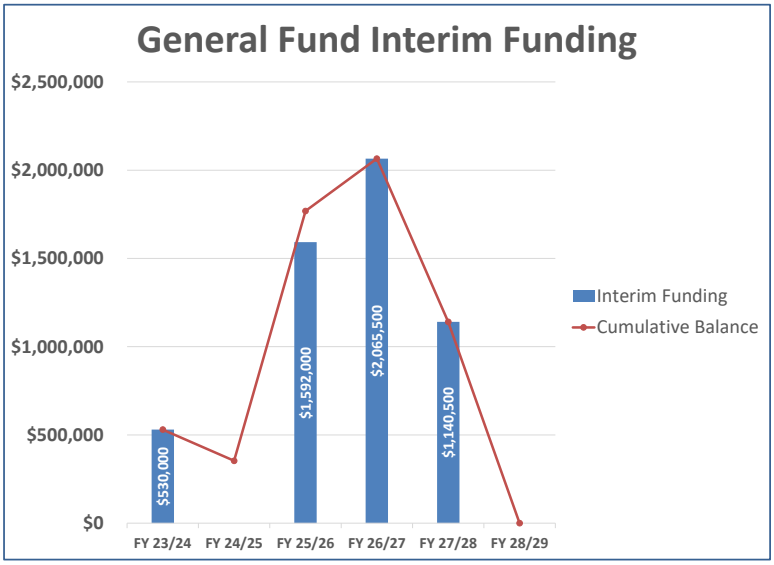

Lower Moosa Canyon WRF Monthly Wastewater Charges
Annual Rate Increases Offset O&M CPI Increases
Baseline Condition - Cash Funded Projects Only
Wastewater Service Charge ($/Month/EDU)
$0
$10
$20
$30
$40
$50
$60
$70
$80
$90
$100
$58.67
$61.72
$63.22
$64.76
$66.35
$67.99
$69.67
$71.41
$73.20
$75.04
$76.94
FY 22/23
FY 23/24
FY 24/25
FY 25/26
FY 26/27
FY 27/28
FY 28/29
FY 29/30
FY 30/31
FY 31/32
FY 32/33
Sewer Service Charge


Lower Moosa Canyon WRF Monthly Wastewater Charges
Annual Rate Increase Offset O&M CPI Increases, plus
One-Time 19.4% Rate Increase for the 2023 CIP
Wastewater Service Charge ($/Month/EDU)
$0
$10
$20
$30
$40
$50
$60
$70
$80
$90
$100
$58.67
$61.72
$75.22
$76.76
$78.35
$79.99
$81.67
$83.41
$85.20
$87.04
$88.94
FY 22/23
FY 23/24
FY 24/25
FY 25/26
FY 26/27
FY 27/28
FY 28/29
FY 29/30
FY 30/31
FY 31/32
FY 32/33
Sewer Service Charge


Lower Moosa Canyon WRF Monthly Wastewater Charges
Annual Rate Increases Offset O&M CPI Increases, plus
$12 Monthly Capital Improvement Charge for the 2023 CIP
Wastewater Service Charge ($/Month/EDU)
$0
$10
$20
$30
$40
$50
$60
$70
$80
$90
$100
$58.67
$61.72
$63.22
$64.76
$66.35
$67.99
$69.67
$71.41
$73.20
$75.04
$76.94
$12
$12
$12
$12
$12
$12
$12
$12
$12
$12
FY 22/23
FY 23/24
FY 24/25
FY 25/26
FY 26/27
FY 27/28
FY 28/29
FY 29/30
FY 30/31
FY 31/32
FY 32/33
Sewer Service Charge
Capital Improvement Charge


Lower Moosa Canyon WRF Monthly Wastewater Charges
Annual Rate Increases offset O&M CPI Increases, plus
$10 Monthly Capital Improvement Charge and
One-Time 3.2% Rate Increase for the 2023 CIP
Wastewater Service Charge ($/Month/EDU)
$0
$10
$20
$30
$40
$50
$60
$70
$80
$90
$100
$58.67
$61.72
$65.22
$66.76
$68.35
$69.99
$71.67
$73.41
$75.20
$77.04
$78.94
$10
$10
$10
$10
$10
$10
$10
$10
$10
$10
FY 22/23
FY 23/24
FY 24/25
FY 25/26
FY 26/27
FY 27/28
FY 28/29
FY 29/30
FY 30/31
FY 31/32
FY 32/33
Sewer Service Charge
Capital Improvement Charge

At the end of the SRF loans, the replacement reserve balance increases significantly. At this point in the future, there may be additional replacement projects that have been identified that will utilize the available funding or, if no projects are being scheduled, the Board of Directors could choose to reduce or eliminate the monthly Capital Improvement Charge at that time.



Interim Funding - Depending on the timing of the SRF Loan approvals, additional interim funding would be required to provide the cash flow needed for the project construction until the disbursements from the SRF Loan would be received from the SWRCB. The embedded chart illustrates the proposed interim funding needs and the balance of the funding advances from the General Fund. The $530K funding needed for the Priority 1 projects are included in the chart to track the total cost of the advances. It was assumed that half the project cost would be needed for this purpose; approximately $1.6M for the Priority 2 Project, $2.1M for the Priority 3 Project and 1.1 for the Priority 4 Project. Once the Priority 2 Project SRF loan was approved and loan the initial disbursements received, the interim funding would be returned to the General Fund to supplement the working capital needed for the next project. The Cumulative Balance line in the chart reflects the funding provided less the disbursements received from the SRF Loan. This initial seed funding would be used to establish the District's own revolving fund for the cash flow needs of the subsequent projects.

Section 9 – Environmental Considerations

It has been determined that adoption of the Moosa Master Plan February 2023 Update is exempt from environmental review under the California Environmental Quality Act ("CEQA"), Public Resources Code section 21000 et seq. pursuant to State CEQA Guidelines sections 15378 (not a project subject to CEQA review), 15262 (statutory exemption for planning studies), and 15061, subdivision (b)(3) (no possibility of significant environmental effect) and the District's Local Guidelines for Implementing the California Environmental Quality Act. The Moosa Master Plan February 2023 Update is a planning tool for the replacement and upgrade of existing District facilities and does not commit the District to any of the identified projects. Individual projects identified in the Master Plan would be subject to future environmental review, as required under the SWRCB's CEQA Plus provisions. The CEQA-Plus provisions are a combination of both CEQA and NEPA (National Environmental Policy Act) requirements the SWRCB developed for the SRF programs as a result of the combination of state and federal funds used for the programs.

Section 10 – Conclusions

Evaluation of the County of San Diego Land Use Designations in the service area resulted in recommendations to adjust the Lower Moosa Canyon WRF service area boundary. The review of the growth potential of the service area indicated that minimal new development is anticipated and the capacity existing facilities are sufficient for the twenty-year planning period.

The Master Plan establishes a $10.7M 2023 Capital Improvement Program to replace critical infrastructure that that is approaching the end of its service life. The proposed improvements reflect the needs of the facility over a 20-year planning horizon. The proposed improvements result in a more efficient reliable facility for treatment of the wastewater from the existing customers. Funding for the Capital Improvement Program would ultimately come from the Net Revenues of the facility, with interim funding from the District's General Fund for a portion of the initial Priority 1 Projects and Clean Water State Revolving Fund loans for the Priority 2, 3 and 4 Projects. Additional interim funding from the General Fund would be needed for working capital to bridge the time gap between funding project expense and receiving CWSRF Loan Disbursement. These funds would ultimately be reimbursed from proceeds of the CWSRF loans.

A monthly $12 per EDU Capital Improvement Charge is recommended for funding for the proposed 2023 Capital Improvement Program. This proposed fixed charge would be over and above any annual wastewater service charge rate increases needed to offset the effects of inflation on the annual operation and maintenance cost of the facility.

APPENDIX A – RWQCB ORDER No. 95-32

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN DIEGO REGION

ORDER NO. 95-32

WASTE DISCHARGE REQUIREMENTS
FOR
VALLEY CENTER MUNICIPAL WATER DISTRICT
LOWER MOOSA CANYON RECLAMATION FACILITY
SAN DIEGO COUNTY

The California Regional Water Quality Control Board, San Diego Region (hereinafter Regional Board) finds that:

1. On June 14, 1971, this Regional Board adopted Order No. 71-37, Waste Discharge Requirements for the Valley Center Municipal Water District Lower Moosa Canyon Facility. Order No. 71-37 established waste discharge requirements for the disposal of up to 0.50 million gallons per day (MGD) of treated effluent by spray irrigation on three golf courses and percolation into the Lower Moosa Canyon ground water basin.

2. On October 15, 1984, this Regional Board adopted Order No. 84-46, Waste Discharge Requirements for the Valley Center Municipal Waster District Lower Moosa Canyon Reclamation Facility. Order No. 84-46 superseded Order No. 71-37 and established waste discharge requirements for the disposal of up to 1.0 MGD of treated effluent into the Lower Moosa Canyon ground water basin.

3. The Lower Moosa Canyon Water Reclamation Facility (LMCWRF) is located in the NW ¼ of Section 1, T11S, R3W, SBB&M in the Moosa Hydrologic Subarea (HSA) (903.13) of the San Luis Rey Hydrologic Unit (903.00). The facility currently provides a secondary level of treatment and has a rated capacity of 0.5 MGD with current flow rates of approximately 0.25 MGD. The treatment facilities at LMCWRF include a barminutor, two activated sludge aeration tanks, two secondary clarifiers, chlorination facilities, an aerobic digester and four sludge drying beds. The effluent is discharged to three percolation ponds.

4. The District proposes to increase the LMCWRF plant capacity from 0.5 MGD to 1.0 MGD by providing a in-line aerated grit removal chamber, two additional activated sludge aeration tanks, an additional secondary clarifier, a new aerated sludge holding tank, and additional sludge drying beds.

5. Order No. 84-46 has been reviewed by the Regional Board staff in accordance with criteria established in the Administrative Procedures Manual adopted by the State Water Resources Control Board. This Order, which supersedes Order No. 84-46, consolidates and makes changes to the Findings, Requirements, and Monitoring and Reporting Program of Order No. 84-46.

6. The District submitted an Odor Control Plan on January 10, 1985. The plan included more frequent hauling of sludge, installation of mechanical sludge dewatering equipment, chlorination at the influent wet well and introduction of air under pressure into the pressure transmission line. On February 8, 1985, the District submitted a Revised Odor Control Plan that eliminated the option of installing mechanical sludge dewatering equipment and air scrubbers. The District has since installed covers over all influent channels, injects chlorine at the influent wet well and increased the frequency of sludge hauling.

7. The LMCWRF currently discharges to percolation ponds located adjacent to Lower Moosa Canyon Creek, in the N1/2 of Section 35, T10S, R3W, SBB&M in the Bonsall Hydrologic Subarea (HSA) (903.12) of the San Luis Rey Hydrologic Unit (903.00). The ponds are contained on an 11 acre site having a collective volume of approximately 60 acre-feet. Order No. 84-46 limits the discharge of 0.3 MGD to the percolation ponds to ensure that percolated effluent does not surface down gradient within the Bonsall HSA. The District is now investigating the basin's capacity to assimilate a volume of discharge greater than 0.3 MGD.

8. The District is currently considering three alternative disposal options for up to 1.0 MGD.

   a. percolation of 100% of the plant effluent to the percolation ponds;

   b. percolation of 100% of the plant effluent (treated to secondary level) and withdrawal of ground water from the Lower Moosa Basin for landscape irrigation;

   c. full Title 22 treatment of the effluent at the LMCWRF and direct transport from the facility to reclaimed water markets. Percolation ponds would be used to accommodate flows in excess of reclamation demands.

9. According to Title 22, Division 4, Chapter 3 of the California Code of Regulations, a direct beneficial use is defined as the use of reclaimed water which has been transported from the point of production to the point of use without an intervening discharge to water of the state. Therefore, ground water extraction from the Bonsall basin for reuse within the Lower Moosa basin does not constitute a direct benficial use.

10. The Valley Center Municipal Water District has prepared a final environmental impact report dated June 1984 for the Central Valley Center Sewage Project in accordance with the California Environmental Quality Act (Public Resources Code, Section 21000 et. seq.) and the State Guidelines.

11. The District identified the potential for surfacing of percolated effluent in the Lower Moosa Canyon basin as an adverse water resource related environmental impact of the project. In order to ensure that percolated effluent does not surface in the Lower Moosa Canyon basin, the District has proposed to implement a ground water basin management plan. The proposed ground water basin management plan, if implemented, would avoid the potential adverse water quality impacts of the project identified in the District's environmental impact report.

12. The Discharger reports that the reclaimed wastewater and Lower Moosa Canyon ground water supplied by the District to the Circle "R" and the Lawrence Welk Golf Courses will replace the current use of a poorer quality local ground water for irrigation at these golf courses. The data was obtained on March 1, 1984.

GROUND WATER QUALITY - LOWER MOOSA CANYON BASIN

Constituent	Unit	Circle "R" Wells (Combined)	Lawrence Welk's Well
Total Dissolved Solids	mg/l	1387	1055
Chloride	mg/l	341	245
Sodium	mg/l	170	130
Sulfate	mg/l	144	124
Total Kjeldahl Nitrogen	mg/l	0.03	0.03
Total Phosphorus	mg/l	0.01	0.01
Nitrate/N	mg/l	0.05	0.05
Boron	mg/l	0.17	0.23
Fluoride	mg/l	0.34	0.22

NOTE: mg/l = milligrams per liter

13. The Discharger reports that the estimated quality of the Lower Moosa Canyon Water Reclamation Facility (LMCWRF) effluent is as follows:

Constituent	Unit	LMCWRF Effluent 1994
Total Dissolved Solids	mg/l	877-1011
Chloride	mg/l	142-192.3
Percent Sodium	mg/l	48.5-55.6
Sulfate	mg/l	251-330
Biochemical Oxygen Demand	mg/l	2.0-3.0
Methylene Blue Active Substances	mg/l	0-0.14
Suspended Solids	mg/l	5.1-12.6
Turbidity	NTU	3.0-5.9
Boron	mg/l	0.33-0.40
Fluoride	mg/l	0.18-1.62

NOTE: mg/l = milligrams per liter
NTU = Nephelometric Turbidity Units

14. The "Comprehensive Water Quality Control Plan Report, San Diego Basin (9) (Basin Plan) was adopted by this Regional Board on March 17, 1975; and subsequently approved by the State Water Resources Control Board (State Board). Subsequent revisions to the Basin Plan have also been adopted by the Regional Board and approved by the State Board.

15. The Basin Plan establishes the following beneficial uses for the surface waters of the Lower Moosa Canyon Hydrologic Subarea (903.13):

BENEFICIAL USES IDENTIFIED IN BASIN PLAN FOR LOWER MOOSA CANYON HYDROLOGIC SUBAREA

BENEFICIAL USES		INLAND SURFACE WATER	GROUND WATER [1]
MUN	Municipal and Domestic Supply		X
AGR	Agriculture Supply	X	X
IND	Industrial Service Supply	X	X
PROC	Industrial Process Supply		
GRW	Groundwater Recharge		
FRSH	Freshwater Replenishment		
POW	Hydropower Generation		
REC-1	Water Contact Recreation	X	
REC-2	Non-Contact Water Recreation	X	
WARM	Warm Fresh-Water Habitat	X	
COLD	Cold Fresh-Water Habitat		
WILD	Wildlife Habitat	X	
RARE	Preservation of Rare & Endangered Species	X	
SPWN	Fish Spawning		
SAL	Saline Water Habitat		
MAR	Marine Habitat		

Note:

1. These beneficial uses do not apply westerly of the easterly boundary of the right-of-way of Interstate Highway 5. The beneficial uses for the remainder of the hydrologic area are as shown.

16. The Basin Plan established the following water quality objectives for the Bonsall Hydrologic Subarea (903.12) and the Lower Moosa Canyon Hydrologic Subarea (903.13):

BASIN PLAN WATER QUALITY OBJECTIVES

CONSTITUENT	Concentration not to be exceeded more than 10 % of the time during any one year period (mg/l or as noted)			
	BONSALL		LOWER MOOSA CANYON	
	SURFACE WATER	GROUND WATER	SURFACE WATER	GROUND WATER
Total Dissolved Solids	500	1500 $_{1,2}$	500	800
Chloride	250	500 $_{1,2}$	250	300
Percent Sodium	60 %	60 %	60 %	60 %
Sulfate	250	500$_{1,2}$	250	400
Nitrate (as NO_3)	----	45$_{1,2}$	----	10
Nitrogen and Phosphorus	*	----	*	----
Iron	0.3	0.85 $_{1,2}$	0.3	0.3
Manganese	0.05	0.15 $_{1,2}$	0.05	0.05
Boron	0.5	0.5 $_{1,2}$	0.5	0.5
Odor	None	None	None	None
Turbidity	20 NTU	5 NTU	20 NTU	5 NTU
Fluoride	1.0	1.0 $_{2}$	1.0	1.0
Color	20 UNITS	15 UNITS $_{2}$	20 UNITS	15 UNITS

Notes: mg/l = milligrams per liter
NTU = Nephelometric turbidity units

1. The recommended plan would allow for measurable degradation of ground water in this basin to permit continued agricultural land use. Point sources, however, would be controlled to achieve effluent quality corresponding to the tabulated numerical values. In future years demineralization may be used to treat ground water to the desired quality prior to use.

2. A portion of the Upper Mission Basin is being considered as an underground potable water storage reservoir for treated imported water. The area is located north of Highway 76 on the boundary of hydrologic subareas 3.11 and 3.12. If this program is adopted, local objectives approaching the quality of the imported water would be set and rigorously pursued.

* Concentrations of nitrogen and phosphorus, by themselves or in combination with other nutrients, shall be maintained at levels below those which stimulate algae and emergent plant growth. Threshold total Phosphorus (P) concentrations shall not exceed 0.05 mg/l in any stream at the point where it enters any standing body of water, nor 0.025 mg/l in any standing body of water. A desired goal in order to prevent plant nuisances in streams and other flowing waters appears to be 0.1 mg/l total P. These values are not to be exceeded more than 10% of the time unless studies of the specific water body in question clearly show that water quality objective changes are permissible and changes are approved by the Regional Board. Analogous threshold values have not been set for nitrogen compounds; however, natural ratios of nitrogen to phosphorus are to be determined be surveillance and monitoring and upheld. If data are lacking, a ratio of N:P = 10:1 shall be used.

17. The Basin Plan contains the following prohibitions applicable to the proposed discharge:

"Discharge of treated or untreated sewage or industrial wastes to a natural watercourse upstream of surface storage or diversion facilities used for municipal supply is prohibited."

"Discharge of treated or untreated sewage or industrial wastewater, exclusive of cooling water or other waters which are chemically unchanged, to a watercourse, is prohibited except in cases where the quality of said discharge complies with the receiving body's water quality objectives."

"Discharging of treated or untreated sewage or industrial wastes in such a manner or volume as to cause sustained surface flow or ponding on lands not owned or under the control of the discharger is prohibited except in cases defined in the previous paragraph and in cases in which the responsibility for all downstream adverse effects is accepted by the discharger."

"The dumping or deposition of oil, garbage, trash or other solid municipal, industrial or agricultural waste directly into inland waters or watercourses or adjacent to the watercourses in any manner which may permit its being washed into the watercourse is prohibited."

18. The discharge of reclaimed water to the areas authorized under this Order is in conformance with SWRCB Resolution No. 68-16, **Statement of Policy with Respect to Maintaining High Quality of Waters in California.** The existing wastewater reclamation project will:

a) Have maximum benefit to the people of the State, because in the absence of reclaimed wastewater, alternative water supply would be used for irrigation of the reclaimed water use area described in this Order;

b) Not unreasonably affect the beneficial uses of ground water in the Moosa HSA; and,

c) Not cause the ground water quality objectives in the Bonsall HSA to be exceeded.

19. Regional Board Resolution No. 90-61, **A Resolution Amending Resolution No. 90-40, A Region-wide Groundwater Amendment to the Comprehensive Water Quality Control Plan for the San Diego Region,** indicated that for areas down gradient of municipal supply reservoirs, effluent limitations for reclaimed water shall be at levels that are not less than constituent concentrations of water supply plus a typical incremental increase resulting from domestic water use, but not more than the **"Comprehensive Water Quality Control Plan Report, San Diego Basin (9)"** (Basin Plan) ground water quality objectives.

20. This Order establishes discharge limitations for the discharge of effluent to the percolation ponds located in the Bonsall Basin that are below the Basin Plan ground water objectives established for the Bonsall HSA (903.12).

21. As noted in Finding No. 8, the District proposes to discharge reclaimed water to the Lower Moosa Hydrologic Subarea (903.13). The LMCWRF's effluent concentration as described in Finding No. 12 for total dissolved solids exceeds the Basin Plan's ground water objective within the Lower Moosa HSA. This Order establishes an interim total dissolved solids limit above the Basin Plan's objective for 5 years to give the District time to do one of the following:

    a. demonstrate that the Basin Plan objective for total dissolved solids should be relaxed;

    b. to provide additional treatment at the LMCWRF that will produce an effluent total dissolved solids concentration below 800 mg/l; or

    c. to demonstrate that the discharge will not cause a violation of the Basin Plan and Regional Board Resolution No. 90-61.

22. The discharger reports that the individual unit wastewater treatment processes will meet all Title 22 reliability standards of the State Department of Health Services.

23. As noted in Finding No. 12 and 45 of Order No. 84-46, the discharger has submitted a final environmental impact report dated June 1984 in accordance with the California Environmental Quality Act (Public Resources Code, Section 21000 et. seq.) and the State Guidelines. This report described the all aspects of the expansion of the Lower Moosa Canyon Water Reclamation Facility to a treatment capacity of 1.0 MGD.

24. The Regional Board, in establishing the requirements contained herein, considered factors including, but not limited to, the following:

(a) Beneficial uses to be protected and the water quality objectives reasonably required for that purpose;
(b) Other waste discharges;
(c) The need to prevent nuisance;
(d) Past, present, and probable future beneficial uses of the hydrologic subunits under consideration;
(e) Environmental characteristics of the hydrologic subunits under consideration;
(f) Water quality conditions that could reasonably be achieved through the coordinated control of all factors which affect water quality in the area;
(g) Economic considerations;
(h) The need for additional housing within the region; and
(i) Need to develop and use recycled water.

25. The Regional Board has considered all water resource related environmental factors associated with the proposed discharge of waste from Valley Center Reclamation Facility.

26. The Regional Board has notified the Valley Center Municipal Water District and all known interested parties of the intent to prescribe waste discharge requirements for the proposed discharge.

27. The Regional Board in a public meeting heard and considered all comments pertaining to the proposed discharge of waste from the Valley Center Water Reclamation Facility.

IT IS HEREBY ORDERED THAT, Valley Center Municipal Water District, in order to meet the provisions contained in Division 7 of the California Water Code and Regulations adopted thereunder, shall comply with the following:

A. PROHIBITIONS

1. The discharge of a waste flow volume in excess of 1.0 million gallons per day is prohibited unless the discharger files a report of waste discharge for the proposed increased flow.

2. Neither the treatment, storage nor disposal of waste shall create a pollution, contamination or nuisance, as defined by Section 13050 of the California Water Code.

3. Discharges of treated or untreated solid or liquid waste to a navigable water or tributary of a navigable water are prohibited unless authorized by an NPDES permit issued by this Regional Board.

4. All irrigation shall be done by the District or a contracted entity. Connections to the irrigation system by individual residences is prohibited.

B. DISCHARGE SPECIFICATIONS

1. The discharge of effluent from the Lower Moosa Canyon Water Reclamation Facility shall not contain pollutants in excess of the following effluent limitations:

CONSTITUENT	UNITS	30-DAY AVERAGE[1]	DAILY MAXIMUM[2]	12 MONTH AVERAGE[3]
Biological Oxygen Demand (BOD @ 20° C)	mg/l	20	30	
Total Suspended Solids	mg/l	20	30	
Total Dissolved Solids	mg/l			1000[4] 6 1200 6
Chloride	mg/l			200
Sulfate	mg/l			350
Fluoride	mg/l			1.0
Boron	mg/l			0.5
Iron	mg/l			0.85[4]
Manganese	mg/l			0.15[4]
Nitrate (as NO_3)	mg/l			45[5]
pH	pH Units	Within the limits od 6.0 to 9.0 at all times		

Notes: mg/l = milligrams per liter

[1] The 30-day average effluent limitation shall apply to the arithmetic mean of the results all samples collected during any month.

[2] The daily maximum effluent limitation shall apply to the results of a single composite sample collected over a period of 24 hours or a grab sample.

[3] The 12 month average effluent limitation shall apply to the arithmetic mean of the results of all samples collected during any 12 consecutive calendar month period.

[4] The effluent limitation for these constituents are applicable for discharges to the Bonsall HSA (903.12) and for an interim period of five years to the Lower Moosa HSA (903.13). At the end of this interim five year period the discharge limitations for these constituents will return to the Lower Moosa HSA ground water objectives set forth in the Basin Plan.

[5] This effluent limitation is applicable only for a discharge to the percolation ponds.

6. Changed to 1200 mg/l by board resolution 95-48

2. Any effluent used for direct beneficial use shall conform with all applicable provisions of California Code of Regulations, Title 22, Division 4, Chapter 3.

3. All storage and percolation ponds shall be so managed that a dissolved oxygen concentration of not less than 2.0 milligrams per liter is maintained at all times.

4. Collected screenings, sludge, other solids removed from liquid wastes, and filter backwash shall be disposed in a manner described in the Findings of this Order or as approved by the Executive Officer. Sewage sludge treatment and disposal shall comply with all pertinent paragraphs of Part 503, Subchapter O, Chapter I of Title 40 Code of Federal Regulations.

C. FACILITY DESIGN AND OPERATION SPECIFICATIONS

1. *PROPER OPERATION*

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 conditions of this Order. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls including appropriate quality assurance procedures. This provision requires the operation of backup or auxiliary facilities or similar systems only when necessary to achieve compliance with the conditions of this Order.

2. *OPERATION MANUAL*

The discharger shall submit to the Executive Officer a facility operations manual within 90 days of the adoption of this Order. A copy of the facility operations manual shall be maintained at the dischargers facility and shall be available to personnel at all times.

3. *GROUND WATER MANAGEMENT PLAN REPORT*

Prior to initiation of discharge in excess of 0.3 MGD to the percolation ponds the discharger shall submit a report that provides a program for monitoring, management and forecasting of any future potential problems associated with balancing discharges to and extractions from the Bonsall HSA.

4. *CERTIFICATION REPORTS*

Prior to initiation of discharge in excess of 0.5 MGD from the LMCWRF the discharger shall submit a certification report, that contains a requirement by requirement analysis based on acceptable engineering practices, of how the process and physical designs of new treatment facilities will ensure compliance with these waste discharge requirements. The design engineer shall affix his/her signature and engineering license number to the certification report.

5. *ENGINEERING REPORT*

The discharger shall meet the design, operational, and reliability requirements of Articles 7, 8, 9 and 10 of the California Code of Regulations, Title 22, Division 4, Chapter 3. The discharger shall prepare an engineering report conforming to Section 60323, Article 7 of the California Code of Regulations, Title 22, Division 4, Chapter 3. The engineering report shall be submitted 120 days prior to initiation of a direct discharge to any reclaimed water use area, to the State Department of Health Services - Office of Drinking Water, County Department of Health Services, and the Regional Board Executive Officer for approval.

7. *OPERATORS' CERTIFICATION*

The discharger's wastewater treatment facilities shall be supervised and operated by persons possessing certificates of appropriate grade pursuant to Chapter 3, Subchapter 14, Title 23 of the California Code of Regulations.

8. *RECLAIMED WATER SUPERVISOR*

All reclaimed water users shall designate a reclaimed water supervisor responsible for the reclaimed water system at each use area under the user's control. Reclaimed water supervisors should be responsible for the installation, operation, and maintenance of the irrigation system, enforcement of the discharger/producer's reclaimed water user rules and regulation, prevention of potential hazards, and maintenance of the reclaimed water distribution system plans in "as built" form.

9. *FLOOD PROTECTION*

All waste treatment, containment and disposal facilities with the exception of landscape irrigation areas, shall be protected against 100-year peak stream flows as defined by the San Diego County flood control agency, unless the discharger obtains revised waste discharge requirements for less stringent flood protection requirements for landscape irrigation ponds.

10. *RUNOFF PROTECTION*

Effluent storage facilities shall be designed, constructed, operated, and maintained so as to prevent surfacing of wastes on property not owned or controlled by the discharger. All waste treatment, containment and disposal facilities with the exception of landscape irrigation areas, shall be protected against erosion, overland runoff, and other impacts resulting from a 100-year frequency 24-hour storm.

11. *OFFSITE DISCHARGES*

The discharger shall design, construct, operate, and maintain storage facilities and irrigation areas to prevent surfacing or runoff of wastewater on property not owned or controlled by the discharger.

12. *CROSS-CONNECTIONS*

The potable water supply shall not be used to supplement the reclaimed water supply except through an approved air gap. In other areas where the potable water supply is piped to premises where sewage is pumped, treated or reclaimed (e.g., sewage treatment plants or pumping stations, golf course, etc.) the potable water supply shall be protected at the property line in accordance with the State Department of Health Services' *Regulations Relating to Cross-Connections*.

13. *CAPACITY NOTIFICATION*

Whenever a publicly owned wastewater treatment plant will reach capacity within four years the discharger shall notify the Regional Board. A copy of such notification shall be sent to appropriate local elected officials, local permitting agencies and the press. The discharger must demonstrate that adequate steps are being taken to address the capacity problem. The discharger shall submit a technical report to the Regional Board showing flow volumes will be prevented from exceeding capacity, or how capacity will be increased, within 120 days after providing notification to the Regional Board, or within 120 days after receipt of notification from the Regional Board, of a finding that the treatment plant will reach capacity within four years. The time for filing the required technical report may be extended by the Regional Board. An extension of 30 days may be granted by the Executive Officer, and longer extensions may be granted by the Regional Board itself.

14. *MONITORING AND REPORTING*

The discharger shall comply with attached Monitoring and Reporting Program No. 95-32, and future revisions thereto as specified by the Executive Officer. Monitoring results shall be reported at the intervals specified in Monitoring and Reporting Program No. 95-32.

D. RECLAIMED WATER USE PROVISIONS

1. The Valley Center Municipal Water District (discharger/producer) shall have **Rule and Regulations for Reclaimed Water Users** governing the design and construction of reclaimed water use facilities and the use of reclaimed water. The Rules and Regulations shall be reviewed and updated if necessary by the discharger when a new Order or Addendum is adopted by the Regional Board, and shall, at a minimum, include the Standard Provisions for Rules and Regulations which are contained in Attachment No. 1 to this Order.

   The revised rules and regulations shall be subject to the approval of the Regional Board Executive Officer; the State Department of Health Services and the San Diego County Department of Health Services, Environmental Health Services. The revised rules and regulations or a letter certifying that the discharger/producer rules and regulations contain the updated provisions in the Order, shall be submitted to the Regional Board 90 days prior to any use of reclaimed water.

2. The Valley Center Municipal Water District (discharger/producer) shall implement and enforce the approved rules and regulations for reclaimed water users. Use of reclaimed water by the discharger/producer shall be consistent with item D.1 above. In addition, the discharger/producer shall submit an annual report certifying that the users have implemented the rules and regulations established by the discharger.

3. The Valley Center Municipal Water District (discharger/producer) shall, within 90 days of any use of reclaimed water, develop and submit to the Regional Board a program of Best Management Practices (BMP) for the reclaimed water users governing the irrigation practices, management and maintenance to avoid runoff, ponding and overspray. The discharger/producer shall oversee that the reclaimed water users have implemented the BMP upon approval of the BMP program by the Regional Board Executive Officer.

4. The Valley Center Municipal Water District (discharger/producer) shall, within 90 days of any use of reclaimed water, develop and submit to the Regional Board a program to conduct compliance inspections of reclaimed water reuse sites to determine the status of compliance with the approved rules and regulations for reclaimed water users. The discharger/producer shall implement the inspection program upon its approval by the Regional Board Executive Officer.

5. Reclaimed water shall not be supplied to parties who use, transport, or store such water in a manner which causes a pollution, contamination or nuisance, as defined by Section 13050 of the California Water Code.

6. Prior to delivering reclaimed water to any new user within the Valley Center Municipal Water District service area, the discharger shall submit a report to this Regional Board and the County of San Diego Department of Health Services discussing the delivering system, the use and the hydrologic Subareas where reclaimed water will be delivered.

E. STANDARD PROVISIONS

1. *DUTY TO COMPLY*

The discharger must comply with all conditions of this Order. Any noncompliance with this Order constitutes a violation of the California Water Code and is grounds for (a) enforcement action; (b) termination, revocation and reissuance, or modification of this Order; or (c) denial of a report of waste discharge in application for new or revised waste discharge requirements.

2. *ENTRY AND INSPECTION*

The discharger shall allow the Regional Board, or an authorized representative upon the presentation of credentials and other documents as may be required by law, to:

(a) Enter upon the discharger's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this Order;

(b) Have access to and copy, at reasonable times, any records that must be kept under the conditions of this Order;

(c) Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Order; and

(d) Sample or monitor at reasonable times, for the purposes of assuring compliance with this Order or as otherwise authorized by the California Water Code, any substances or parameters at any location.

3. *CIVIL MONETARY REMEDIES*

The California Water Code provides that any person who intentionally or negligently violates any waste discharge requirements issued, reissued, or amended by this Regional Board is subject to a civil monetary remedy of up to 20 dollars per gallon of waste discharged or, if a cleanup and abatement order is issued, up to 15,000 dollars per day of violation or some combination thereof.

4. *PENALTIES FOR INVESTIGATION, MONITORING OR INSPECTION VIOLATIONS*

The California Water Code provides that any person failing or refusing to furnish technical or monitoring program reports, as required under this Order, or falsifying any information provided in the monitoring reports is guilty of a misdemeanor and is subject to a civil liability of up to 5,000 dollars for each day in which the violation occurs.

5. *ENDANGERMENT OF HEALTH AND ENVIRONMENT*

The discharger shall report any noncompliance which may endanger health or the environment. Any such information shall be provided orally to the Executive Officer within 24 hours from the time the discharger becomes aware of the circumstances. A written submission shall also be provided within 5 days of the time the discharger becomes aware of the circumstances. The written submission 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 recurrence of the noncompliance. The Executive Officer, or an authorized representative, may waive the written report on a case-by-case basis if the oral report has been received within 24 hours. The following occurrence(s) must be reported to the Executive Officer within 24 hours:

(a) Any bypass from any portion of the treatment facility.

(b) Any discharge of treated or untreated wastewater resulting from sewer line breaks, obstruction, surcharge or any other circumstances.

(c) Any treatment plant upset which causes the effluent limitations of this Order to be exceeded.

6. *PRIOR NOTICE OF BYPASS*

If a need for a discharge bypass is known in advance, the discharger shall submit prior notice and, if at all possible, such notice shall be submitted at least 10 days prior to the date of the bypass.

7. *CORRECTIVE ACTION*

The discharger shall take all reasonable steps to minimize or correct any adverse impact on the environment resulting from noncompliance with this Order, including such accelerated or additional monitoring as may be necessary to determine the nature and impact of the noncompliance.

8. *TREATMENT FAILURE*

In an enforcement action, it shall not be a defense for the discharger that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with this Order. Upon reduction, loss, or failure of the treatment facility, the discharger shall, to the extent necessary to maintain compliance with this Order, control production or all discharges, or both, until the facility is restored or an alternative method of treatment is provided. This provision applies for example, when the primary source of power of the treatment facility is failed, reduced, or lost.

9. HAZARDOUS RELEASES

Except for a discharge which is in compliance with these waste discharge requirements, any person who, without regard to intent or negligence, causes or permits any hazardous substance or sewage to be discharged in or on any waters of the State, shall as soon as (a) that person has knowledge of the discharge, (b) notification is possible, and (c) notification can be provided without substantially impeding cleanup or other emergency measures, immediately notify the Director of Environmental Health Services, County of San Diego in accordance with California Health and Safety Code Section 5411.5 and the Office of Emergency Services of the discharge in accordance with the spill reporting provision of the State toxic disaster contingency plan adopted pursuant to Article 3.7 (commencing with Section 8574.7) of Chapter 7 of Division 1 of Title 2 of the Government Code, and immediately notify the State Board or the appropriate Regional Board of the discharge. This provision does not require reporting of any discharge of less than a reportable quantity as provided for under subdivisions (f) and (g) of Section 13271 of the Water Code unless the discharger is in violation of a prohibition in the applicable Water Quality Control Plan.

10. *PETROLEUM RELEASES*

Except for a discharge which is in compliance with these waste discharge requirements, any person who without regard to intent or negligence, causes or permits any oil or petroleum product to be discharged in or on any waters of the State, or discharged or deposited where it is, or probably will be, discharged in or on any waters of the State, shall, as soon as (a) such person has knowledge of the discharge, (b) notification is possible, and (c) notification can be provided without substantially impeding cleanup or other emergency measures, immediately notify the Office of Emergency Services of the discharge in accordance with the spill reporting provision of the State oil spill contingency plan adopted pursuant to Article 3.5 (commencing with Section 8574.1) of Chapter 7 of Division 1 of Title 2 of the Government Code. This requirement does not require reporting of any discharge of less than 42 gallons unless the discharge is also required to be reported pursuant to Section 311 of the Clean Water Act or the discharge is in violation of a prohibition in the applicable Water Quality Control Plan.

F. REPORTING AND RECORD KEEPING REQUIREMENTS

1. *PERMIT REPOSITORY*

A copy of this Order shall be maintained at the discharger's facility and shall be available to operating personnel at all times.

2. *GENERAL REPORTING REQUIREMENT*

The discharger shall furnish to the Executive Officer of this Regional Board, within a reasonable time, any information which the Executive Officer may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this Order. The discharger shall also furnish to the Executive Officer, upon request, copies of records required to be kept by this Order.

3. *RETENTION OF RECORDS*

The discharger shall retain records of all monitoring information, including all calibration and maintenance records, copies of all reports required by this Order, and records of all data used to complete the application for this Order. Records shall be maintained for a minimum of five years from the date of the sample, measurement, report, or application. This period may be extended during the course of any unresolved litigation regarding this discharge or when requested by the Regional Board Executive Officer.

4. *PERMIT REVISION*

This Order may be modified, revoked and reissued, or terminated for cause including, but not limited to, the following:

(a) Violation of any terms or conditions of this Order;

(b) Obtaining this Order by misrepresentation or failure to disclose fully all relevant facts; or

(c) A change in any condition that requires either a temporary or permanent reduction or elimination of the authorized discharge.

The filing of a request by the discharger for the modification, revocation and reissuance, or termination of this Order, or notification of planned changes or anticipated noncompliance does not stay any condition of this Order.

5. *CHANGE IN DISCHARGE*

The discharger shall file a new Report of Waste Discharge at least 120 days prior to the following:

(a) Addition of a major industrial waste discharge to a discharge of essentially domestic sewage, or the addition of a new process or product by an industrial facility resulting in a change in the character of the wastes.

(b) Significant change in the treatment or disposal method (e.g., change in the method of treatment which would significantly alter the nature of the waste.)

(c) Change in the disposal area from that described in the findings of this Order.

(d) Increase in flow beyond that specified in this Order.

(e) Other circumstances which result in a material change in character, amount, or location of the waste discharge.

(f) Any planned change in the regulated facility or activity which may result in noncompliance with this Order.

6. *CHANGE IN OWNERSHIP*

This Order is not transferrable to any person except after notice to the Executive Officer. The discharger shall submit this notice in writing at least 30 days in advance of any proposed transfer. The notice must include a written agreement between the existing and new discharger containing a specific date for the transfer of this Order's responsibility and coverage between the current discharger and the new discharger. This agreement shall include an acknowledgement that the existing discharger is liable for violations up to the transfer date and that the new discharger is liable from the transfer date on. The Regional Board may require modification or revocation and reissuance of this Order to change the name of the discharger and incorporate such other requirements as may be necessary under the California Water Code.

7. *INCOMPLETE REPORTS*

Where the discharger becomes aware that it failed to submit any relevant facts in a Report of Waste Discharge or submitted incorrect information in a Report of Waste Discharge or in any report to the Regional Board, it shall promptly submit such facts or information.

8. *REPORT DECLARATION*

All applications, reports, or information submitted to the Executive Officer shall be signed and certified as follows:

(a) The Report of Waste Discharge shall be signed as follows:

(1) For a corporation - by a principal executive officer of at least the level of vice-president.

(2) For a partnership or sole proprietorship - by a general partner or the proprietor, respectively.

(3) For a municipality, state, federal or other public agency - by either a principal executive officer or ranking elected official.

(b) All other reports required by this Order and other information required by the Executive Officer shall be signed by a person designated in paragraph (a) of this provision, or by a duly authorized representative of that person. An individual is a duly authorized representative only if:

(1) The authorization is made in writing by a person described in paragraph (a) of this provision;

(2) The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity; and

(3) The written authorization is submitted to the Executive Officer.

(c) Any person signing a document under this Section shall make the following certification:

"I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

9. *REGIONAL BOARD ADDRESS*

The discharger shall submit reports required under this Order, or other information required by the Executive Officer, to:

Groundwater Unit
California Regional Water Quality Control Board, San Diego Region
9771 Clairemont Mesa Blvd, Suite B
San Diego, California 92124-1331

G. NOTIFICATIONS

1. *VESTED RIGHTS*

This Order does not convey any property rights of any sort or any exclusive privileges. The requirements prescribed herein do not authorize the commission of any act causing injury to persons or property, nor protect the discharger from liability under federal, state or local laws, nor create a vested right for the discharger to continue the waste discharge.

2. *U.S. EPA REVIEW*

These requirements have not been officially reviewed by the United States Environmental Protection Agency and are not issued pursuant to Section 402 of the Clean Water Act.

3. *SEVERABILITY*

The provisions of this Order are severable, and if any provision of this Order, or the application of any provision of this Order to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this Order, shall not be affected thereby.

4. *ORDER NO. 84-46*

This Order supersedes Order No. 84-46, "Waste Discharge Requirements for the Valley Center Municipal Water District, Lower Moosa Canyon Reclamation Facility, San Diego County". This Order becomes effective on the date of adoption by the Regional Board.

I, Arthur L. Coe, 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, San Diego Region, on February 9, 1995

Arthur L. Coe
Executive Officer

STANDARD PROVISIONS
FOR
RULES AND REGULATIONS

(Attachment No. 1 to Order No. 95-32)

a. Provisions implementing Title 22, Division 4, Chapter 3, **Wastewater Reclamation Criteria**, and Title 17, Division 1, Chapter 5, Group 4, Article 1 & 2, of the California Code of Regulations;

b. Provisions implementing the State Department of Health Services (DOHS) **Guidelines For Use of Reclaimed Water** and **Guidelines for Use of Reclaimed Water for Construction Purposes** and measures that are deemed necessary for protection of public health, such as the American Water Works Association (AWWA) California/Nevada Section, **Guidelines for the Distribution of Non-Potable Water** or alternate measures, acceptable to DOHS, providing equivalent protection of public health;

c. Provisions authorizing the Regional Board, the discharger/producer, or an authorized representative of these parties, upon presentation of proper credentials, to inspect the facilities of any reclaimed water user to ascertain whether the user is complying with the discharger/producer's rules and regulations;

d. Provision for written notification, in a timely manner, to the discharger/producer by the reclaimed water user of any material change or proposed change in the character of the use of reclaimed water;

e. Provision for submission of a preconstruction report to the discharger/producer by the reclaimed water user in order to enable the discharger/producer to determine whether the user will be in compliance with the discharger/producer's rules and regulations;

f. Provision requiring reclaimed water users to designate a reclaimed water supervisor responsible for the reclaimed water system at each use area under the user's control. Reclaimed water supervisors should be responsible for the installation, operation, and maintenance of the irrigation system, enforcement of the discharger/producer's reclaimed water user rules and regulations, prevention of potential hazards, and maintenance of the reclaimed water distribution system plans in "as built" form;

g. Provision authorizing the discharger/producer to cease supplying reclaimed water to any person who uses, transports, or stores such water in violation of the discharger/producer's rules and regulations;

h. Provision requiring notification and concurrence of the State Department of Health Services and the San Diego County Department of Health Services, Environmental Health Services for new reclaimed water users. The notification of Environmental Health Services shall include a site distribution plan for new and retrofit facilities and a cross-connection control inspection plan for sites containing both potable and reclaimed water distribution lines;

i. Provision requiring all windblown spray and surface runoff of reclaimed water applied for irrigation onto property not owned or controlled by the discharger or reclaimed water user shall be prevented by implementation of best management practices;

j. Provision requiring all reclaimed water storage facilities owned and/or operated by reclaimed water users to be protected against erosion, overland runoff, and other impacts resulting from a 100-year, 24 hour frequency storm unless the Regional Board Executive Officer approves relaxed storm protection measures for the facility;

k. Provision requiring all reclaimed water storage facilities owned and/or operated by reclaimed water users to be protected against 100 - year frequency peak stream flows as defined by the Riverside County flood control agency unless the Regional Board Executive Officer approves relaxed storm protection measures for the facility;

l. Provision for notification to reclaimed water users that the Regional Board may initiate enforcement action against any reclaimed water user who discharges reclaimed water in violation of any applicable discharge prohibitions prescribed by the Regional Board or in a manner which creates, or threatens to create conditions of pollution, contamination, or nuisance, as defined in Water Code Section 13050; and

m. Provision for notification to reclaimed water users that the Regional Board may initiate enforcement action against the discharger/producer, which may result in the termination of the reclaimed water supply, if any person uses, transports, or stores such water in violation of the discharger/producer's rules and regulations or in a manner which creates, or threatens to create conditions of pollution, contamination, or nuisance, as defined in Water Code Section 13050.

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN DIEGO REGION

MONITORING AND REPORTING PROGRAM NO. 95-32
FOR
VALLEY CENTER MUNICIPAL WATER DISTRICT
LOWER MOOSA CANYON RECLAMATION FACILITY

A. MONITORING PROVISIONS

1. 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 points specified in this Order and, unless otherwise specified, before the effluent joins or is diluted by any other waste stream, body of water or substance. Monitoring points shall not be changed without notification to and the approval of the Executive Officer.

2. 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. The devices shall be installed, calibrated and maintained to ensure that the accuracy of the measurements are consistent with the accepted capability of that type of device. Devices selected shall be capable of measuring flows with a maximum deviation of less than +5 percent from true discharge rates throughout the range of expected discharge volumes. Guidance in selection, installation, calibration and operation of acceptable flow measurement devices can be obtained from the following references:

   (a) "A Guide to Methods and Standards for the Measurement of Water Flow," U. S. Department of Commerce, National Bureau of Standards, NBS Special Publication 421, May 1975, 97 pp. (Available from the U.S. Government Printing Office, Washington, D.C. 20402. Order by SD Catalog No. C13.10:421.)

   (b) "Water Measurement Manual," U.S. Department of Interior, Bureau of Reclamation, Second Edition, Revised Reprint, 1974, 327 pp. (Available from the U.S. Government Printing Office, Washington D.C. 20402. Order by Catalog No. 127,19/2:W29/2, Stock No. S/N 24003-0027.)

   (c) "Flow Measurement in Open Channels and Closed Conduits," U.S. Department of Commerce, National Bureau of Standards, NBS Special Publication 484, October 1977, 982 pp. (Available in paper copy or microfiche from National Technical Information Service (NTIS) Springfield, VA 22151. Order by NTIS No. PB-273-535/5ST.)

(d) "NPDES Compliance Sampling Manual," U.S. Environmental Protection Agency, Office of Water Enforcement. Publication MCD-51, 1977, 140 pp. (Available from the General Services Administration (8FFS), Centralized Mailing Lists Services, Building 41, Denver Federal Center, Denver, CO 80225.)

3. Monitoring must be conducted according to United States Environmental Protection Agency test procedures approved under Title 40, Code of Federal Regulations (CFR), Part 136, "Guidelines Establishing Test Procedures for Analysis of Pollutants Under the Clean Water Act" as amended, unless other test procedures have been specified in this Order.

4. All analyses shall be performed in a laboratory certified to perform such analyses by the California Department of Health Services or a laboratory approved by the Executive Officer.

5. Monitoring results must be reported on discharge monitoring report forms approved by the Executive Officer.

6. If the discharger monitors any pollutants more frequently than required by this Order, using test procedures approved under 40 CFR, Part 136, or as specified in this Order, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the discharger's monitoring report. The increased frequency of monitoring shall also be reported.

7. 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. Records shall be maintained for a minimum of five years from the date of the sample, measurement, report or application. This period may be extended during the course of any unresolved litigation regarding this discharge or when requested by the Regional Board Executive Officer.

8. Records of monitoring information shall include:

(a) The date, exact place, and time of sampling or measurements;
(b) The individual(s) who performed the sampling or measurements;
(c) The date(s) analyses were performed;
(d) The individual(s) who performed the analyses;
(e) The analytical techniques or method used; and
(f) The results of such analyses.

9. All monitoring instruments and devices which are used by the discharger to fulfill the prescribed monitoring program shall be properly maintained and calibrated as necessary to ensure their continued accuracy.

10. The discharger shall report all instances of noncompliance not reported under Provision D.5 of this Order at the time monitoring reports are submitted. The reports shall contain the information listed in Provision D.5.

11. The monitoring reports shall be signed by an authorized person as required by Report and Record Keeping Requirement E.9.

12. A composite sample is defined as a combination of at least eight sample aliquot of at least 100 milliliters, collected at periodic intervals during the operating hours of a facility over a 24 hour period. For volatile pollutants, aliquot must be combined in the laboratory immediately before analysis. The composite must be flow proportional; either the time interval between each aliquot or the volume of each aliquot must be proportional to either the stream flow at the time of sampling or the total stream flow since the collection of the previous aliquot. Aliquot may be collected manually or automatically.

13. A grab sample is an individual sample of at least 100 milliliters collected at a randomly selected time over a period not exceeding 15 minutes.

14. Sampling and analysis shall, at a minimum, shall be conducted in accordance with Article 6 of California Code of Regulations, Title 22, Division 4, Chapter 3 (Reclamation Criteria).

B. EFFLUENT MONITORING

1. Representative samples of the effluent discharged from the Lower Moosa Canyon Reclamation Facility shall be collected in accordance with the following criteria:

CONSTITUENT	UNIT	TYPE OF SAMPLE	SAMPLING FREQUENCY	REPORTING FREQUENCY
FLOW RATE	MGD	Continuous	Continuous	Quarterly
Biochemical Oxygen Demand (BOD_5 @ 20°C)	mg/l	Composite	Weekly	Quarterly
Total Suspended Solids	mg/l	Composite	Weekly	Quarterly
Volatile Suspended Solids	mg/l	Composite	Weekly	Quarterly
Total Dissolved Solids	mg/l	Composite	Quarterly[1]	Quarterly
Chloride	mg/l	Composite	Quarterly[1]	Quarterly
Sulfate	mg/l	Composite	Quarterly[1]	Quarterly
Fluoride	mg/l	Composite	Quarterly[1]	Quarterly
Boron	mg/l	Composite	Quarterly[1]	Quarterly
Percent Sodium	%	Composite	Quarterly	Quarterly
Iron	mg/l	Composite	Quarterly	Quarterly
Manganese	mg/l	Composite	Quarterly	Quarterly
Nitrate	mg/l	Composite	Quarterly	Quarterly
pH	Unit	Grab	Weekly	Quarterly
Adjusted Sodium Adsorption Ratio[2]	---	Composite	Quarterly	Quarterly
Methylene Blue Active Substances	mg/l	Composite	Quarterly	Quarterly
Turbidity[3]	NTU	Continuous	*	Monthly
Chlorine Residual[3]	mg/l	Continuous	**	Monthly
Settleable Solids[3]	ml/l	Grab	***	Monthly
Coliform[3]	MPN/100ml	Grab	***	Monthly
Aluminum	mg/l	Composite	Annually	Annually
Arsenic	mg/l	Composite	Annually	Annually
Barium	mg/l	Composite	Annually	Annually
Cadmium	mg/l	Composite	Annually	Annually
Chromium	mg/l	Composite	Annually	Annually
Copper	mg/l	Composite	Annually	Annually
Lead	mg/l	Composite	Annually	Annually
Zinc	mg/l	Composite	Annually	Annually
Mercury	mg/l	Composite	Annually	Annually

Selenium	mg/l	Composite	Annually	Annually
Silver	mg/l	Composite	Annually	Annually

Notes: MPN/100 ml = Most Probable Number per 100 milliliters
ml/l = milliliters per liter
mg/l = milligrams per liter
NTU = Nephelometric Turbidity Units

1 The discharger shall increase the sampling frequency from quarterly to monthly for any noted constituent that exceeds the limit specified by Discharger Specification B.1 of this Order. The monthly monitoring shall continue until the discharger achieves compliance with the limitations for two consecutive months. After compliance is achieved, the discharger shall resume sampling at the quarterly frequency.

2 The adjusted sodium adsorption ratio is calculated as follows:

Adjusted Sodium Adsorption Ratio (Adj. SAR): $\frac{Na}{(Ca_x + Mg)/2}$, where Na and Mg are in milliequivalent per liter (me/l)

Ca_x is a modified Ca value calculated using Table 3-2 contained in "Irrigation with Reclaimed Municipal Wastewater, A Guidance Manual."

3 The discharger is required to test for these constituents when there is a direct use of reclaimed water.

* Turbidity analysis shall be performed by a continuous recording turbidimeter. From the continuous recording turbidimeter, the discharger shall report on a daily log, whether the estimated average value is above or below 2 NTU's of each day. If the turbidity value exceeds 5 NTU's at any time, its duration shall also be reported on a daily log.

** Chlorine residual analysis shall be performed by a continuous recording meter. The average value of each day shall be estimated from the flow chart and shall be reported monthly.

*** Samples for settleable solids and coliform bacteria shall be collected at least daily and at a time when wastewater characteristics are most demanding on the treatment facilities and disinfection procedures.

C. SEWAGE SOLIDS

A log of the type, quantity, and manner of disposal of solids removed in the course of sewage treatment shall be maintained and submitted quarterly to this Regional Board containing monitoring results and vector attraction reduction requirements in accordance with 40 CFR, Part 503. Additionally, the District shall include any sludge test data generated from sludge sampling.

D. GROUND WATERS

Representative ground water samples shall be collected from the following well locations and in accordance with the following schedule. The method of sample collection shall be included with each report.

MONITORING WELLS

WELL NO.	APPROXIMATE LOCATION	GROUND WATER QUALITY
1	500 feet east of percolation ponds	upgradient of ponds
2	center of western percolation ponds dike	at ponds
3	750 to 1000 feet west of percolation ponds	downgradient of ponds
SAMPLING OF FUTURE WELLS SHALL OCCUR AS THEY ARE INSTALLED		

SAMPLING PROGRAM

CONSTITUENT	UNIT	TYPE OF SAMPLE	SAMPLING FREQUENCY	REPORTING FREQUENCY
Total Dissolved Solids	mg/l	Grab	Semiannual	Semiannual
Nitrate as NO_3	mg/l	Grab	Semiannual	Semiannual
Chloride	mg/l	Grab	Semiannual	Semiannual
Sulfate	mg/l	Grab	Semiannual	Semiannual
Sodium	mg/l	Grab	Semiannual	Semiannual
Iron	mg/l	Grab	Semiannual	Semiannual
Manganese	mg/l	Grab	Semiannual	Semiannual
Fluoride	mg/l	Grab	Semiannual	Semiannual
Boron	mg/l	Grab	Semiannual	Semiannual

E. RECLAIMED WATER USERS SUMMARY REPORT

A reclaimed water users summary report shall be submitted quarterly containing the following information:

1. **Reclaimed water use site summary information**

   The following information shall be submitted for each reclaimed water use site.

   a. Name of the reclaimed water reuse site
   b. Owner of the reclaimed water use facility
   c. Address of the reuse site
   d. Name of the reclaimed water user supervisor
   e. Phone number of the on-site water user supervisor
   f. Mailing address, if different from site address
   g. Basin Plan name of ground water basin underlying the reuse site
   h. Volume of reclaimed water delivered to the reuse site on a monthly basis

2. **Reclaimed Water Use Summary Information**

   a. Total gallons of reclaimed water supplied to all reclaimed water users for each month of the reporting period.

   b. Total number of reclaimed water user sites.

3. **Reclaimed water user site inspections**

   Number of reclaimed water reuse site inspections conducted by discharger/producer staff and identification of sites inspected for the reporting period.

4. **Reclaimed water user violations of the discharger/producer's rules and regulations.**

   The discharger/producer shall identify all reclaimed water users known by the discharger/producer to be in violation of the discharger/producer's rules and regulations for reclaimed water users. The report shall include a description of the noncompliance and its cause, including the period of noncompliance, 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 recurrence of the noncompliance.

F. ANNUAL SUMMARY OF MONITORING DATA

By January 30 of each year, the discharger shall submit an annual report to the Executive Officer. The report shall contain both tabular and graphical summaries of the monitoring data obtained during the previous year. In addition, the discharger shall discuss the compliance record and the corrective actions taken or planned which may be needed to bring the discharge into full compliance with the waste discharge requirements of this Order.

G. REPORT SCHEDULE

Monitoring reports shall be submitted to the Executive Officer in accordance with the following schedule:

Reporting Frequency	Report Period	Report Due
Monthly	January, February, March, April, May, June, July, August, September, October, November, December	By the 30th day of the following month
Quarterly	January - March April - June July - September October - December	April 30th July 30th, October 30th January 30th
Semiannual	January - June July - December	July 30th January 30th
Annually	January-December	January 31st

Monitoring reports shall be submitted to:

California Regional Water Quality Control Board
San Diego Region
9771 Clairemont Mesa Blvd., Suite B
San Diego, CA 92124-1331

Ordered by _____
ARTHUR L. COE
Executive Officer

APPENDIX B – RWQCB ORDER No. 2006-0003-DWQ

STATE WATER RESOURCES CONTROL BOARD
ORDER NO. 2006-0003-DWQ

STATEWIDE GENERAL WASTE DISCHARGE REQUIREMENTS FOR SANITARY SEWER SYSTEMS

The State Water Resources Control Board, hereinafter referred to as "State Water Board", finds that:

1. All federal and state agencies, municipalities, counties, districts, and other public entities that own or operate sanitary sewer systems greater than one mile in length that collect and/or convey untreated or partially treated wastewater to a publicly owned treatment facility in the State of California are required to comply with the terms of this Order. Such entities are hereinafter referred to as "Enrollees".

2. Sanitary sewer overflows (SSOs) are overflows from sanitary sewer systems of domestic wastewater, as well as industrial and commercial wastewater, depending on the pattern of land uses in the area served by the sanitary sewer system. SSOs often contain high levels of suspended solids, pathogenic organisms, toxic pollutants, nutrients, oxygen-demanding organic compounds, oil and grease and other pollutants. SSOs may cause a public nuisance, particularly when raw untreated wastewater is discharged to areas with high public exposure, such as streets or surface waters used for drinking, fishing, or body contact recreation. SSOs may pollute surface or ground waters, threaten public health, adversely affect aquatic life, and impair the recreational use and aesthetic enjoyment of surface waters.

3. Sanitary sewer systems experience periodic failures resulting in discharges that may affect waters of the state. There are many factors (including factors related to geology, design, construction methods and materials, age of the system, population growth, and system operation and maintenance), which affect the likelihood of an SSO. A proactive approach that requires Enrollees to ensure a system-wide operation, maintenance, and management plan is in place will reduce the number and frequency of SSOs within the state. This approach will in turn decrease the risk to human health and the environment caused by SSOs.

4. Major causes of SSOs include: grease blockages, root blockages, sewer line flood damage, manhole structure failures, vandalism, pump station mechanical failures, power outages, excessive storm or ground water inflow/infiltration, debris blockages, sanitary sewer system age and construction material failures, lack of proper operation and maintenance, insufficient capacity and contractor-caused damages. Many SSOs are preventable with adequate and appropriate facilities, source control measures and operation and maintenance of the sanitary sewer system.

SEWER SYSTEM MANAGEMENT PLANS

5. To facilitate proper funding and management of sanitary sewer systems, each Enrollee must develop and implement a system-specific Sewer System Management Plan (SSMP). To be effective, SSMPs must include provisions to provide proper and efficient management, operation, and maintenance of sanitary sewer systems, while taking into consideration risk management and cost benefit analysis. Additionally, an SSMP must contain a spill response plan that establishes standard procedures for immediate response to an SSO in a manner designed to minimize water quality impacts and potential nuisance conditions.

6. Many local public agencies in California have already developed SSMPs and implemented measures to reduce SSOs. These entities can build upon their existing efforts to establish a comprehensive SSMP consistent with this Order. Others, however, still require technical assistance and, in some cases, funding to improve sanitary sewer system operation and maintenance in order to reduce SSOs.

7. SSMP certification by technically qualified and experienced persons can provide a useful and cost-effective means for ensuring that SSMPs are developed and implemented appropriately.

8. It is the State Water Board's intent to gather additional information on the causes and sources of SSOs to augment existing information and to determine the full extent of SSOs and consequent public health and/or environmental impacts occurring in the State.

9. Both uniform SSO reporting and a centralized statewide electronic database are needed to collect information to allow the State Water Board and Regional Water Quality Control Boards (Regional Water Boards) to effectively analyze the extent of SSOs statewide and their potential impacts on beneficial uses and public health. The monitoring and reporting program required by this Order and the attached Monitoring and Reporting Program No. 2006-0003-DWQ, are necessary to assure compliance with these waste discharge requirements (WDRs).

10. Information regarding SSOs must be provided to Regional Water Boards and other regulatory agencies in a timely manner and be made available to the public in a complete, concise, and timely fashion.

11. Some Regional Water Boards have issued WDRs or WDRs that serve as National Pollution Discharge Elimination System (NPDES) permits to sanitary sewer system owners/operators within their jurisdictions. This Order establishes minimum requirements to prevent SSOs. Although it is the State Water Board's intent that this Order be the primary regulatory mechanism for sanitary sewer systems statewide, Regional Water Boards may issue more stringent or more

prescriptive WDRs for sanitary sewer systems. Upon issuance or reissuance of a Regional Water Board's WDRs for a system subject to this Order, the Regional Water Board shall coordinate its requirements with stated requirements within this Order, to identify requirements that are more stringent, to remove requirements that are less stringent than this Order, and to provide consistency in reporting.

REGULATORY CONSIDERATIONS

12. California Water Code section 13263 provides that the State Water Board may prescribe general WDRs for a category of discharges if the State Water Board finds or determines that:

    - The discharges are produced by the same or similar operations;
    - The discharges involve the same or similar types of waste;
    - The discharges require the same or similar treatment standards; and
    - The discharges are more appropriately regulated under general discharge requirements than individual discharge requirements.

    This Order establishes requirements for a class of operations, facilities, and discharges that are similar throughout the state.

13. The issuance of general WDRs to the Enrollees will:
    a) Reduce the administrative burden of issuing individual WDRs to each Enrollee;
    b) Provide for a unified statewide approach for the reporting and database tracking of SSOs;
    c) Establish consistent and uniform requirements for SSMP development and implementation;
    d) Provide statewide consistency in reporting; and
    e) Facilitate consistent enforcement for violations.

14. The beneficial uses of surface waters that can be impaired by SSOs include, but are not limited to, aquatic life, drinking water supply, body contact and non-contact recreation, and aesthetics. The beneficial uses of ground water that can be impaired include, but are not limited to, drinking water and agricultural supply. Surface and ground waters throughout the state support these uses to varying degrees.

15. The implementation of requirements set forth in this Order will ensure the reasonable protection of past, present, and probable future beneficial uses of water and the prevention of nuisance. The requirements implement the water quality control plans (Basin Plans) for each region and take into account the environmental characteristics of hydrographic units within the state. Additionally, the State Water Board has considered water quality conditions that could reasonably be achieved through the coordinated control of all factors that affect

water quality in the area, costs associated with compliance with these requirements, the need for developing housing within California, and the need to develop and use recycled water.

16. The Federal Clean Water Act largely prohibits any discharge of pollutants from a point source to waters of the United States except as authorized under an NPDES permit. In general, any point source discharge of sewage effluent to waters of the United States must comply with technology-based, secondary treatment standards, at a minimum, and any more stringent requirements necessary to meet applicable water quality standards and other requirements. Hence, the unpermitted discharge of wastewater from a sanitary sewer system to waters of the United States is illegal under the Clean Water Act. In addition, many Basin Plans adopted by the Regional Water Boards contain discharge prohibitions that apply to the discharge of untreated or partially treated wastewater. Finally, the California Water Code generally prohibits the discharge of waste to land prior to the filing of any required report of waste discharge and the subsequent issuance of either WDRs or a waiver of WDRs.

17. California Water Code section 13263 requires a water board to, after any necessary hearing, prescribe requirements as to the nature of any proposed discharge, existing discharge, or material change in an existing discharge. The requirements shall, among other things, take into consideration the need to prevent nuisance.

18. California Water Code section 13050, subdivision (m), defines nuisance as anything which meets all of the following requirements:
    a. Is injurious to health, or is indecent or offensive to the senses, or an obstruction to the free use of property, so as to interfere with the comfortable enjoyment of life or property.
    b. Affects at the same time an entire community or neighborhood, or any considerable number of persons, although the extent of the annoyance or damage inflicted upon individuals may be unequal.
    c. Occurs during, or as a result of, the treatment or disposal of wastes.

19. This Order is consistent with State Water Board Resolution No. 68-16 (Statement of Policy with Respect to Maintaining High Quality of Waters in California) in that the Order imposes conditions to prevent impacts to water quality, does not allow the degradation of water quality, will not unreasonably affect beneficial uses of water, and will not result in water quality less than prescribed in State Water Board or Regional Water Board plans and policies.

20. The action to adopt this General Order is exempt from the California Environmental Quality Act (Public Resources Code §21000 et seq.) because it is an action taken by a regulatory agency to assure the protection of the environment and the regulatory process involves procedures for protection of the environment. (Cal. Code Regs., tit. 14, §15308). In addition, the action to adopt

this Order is exempt from CEQA pursuant to Cal.Code Regs., title 14, §15301 to the extent that it applies to existing sanitary sewer collection systems that constitute "existing facilities" as that term is used in Section 15301, and §15302, to the extent that it results in the repair or replacement of existing systems involving negligible or no expansion of capacity.

21. The Fact Sheet, which is incorporated by reference in the Order, contains supplemental information that was also considered in establishing these requirements.

22. The State Water Board has notified all affected public agencies and all known interested persons of the intent to prescribe general WDRs that require Enrollees to develop SSMPs and to report all SSOs.

23. The State Water Board conducted a public hearing on February 8, 2006, to receive oral and written comments on the draft order. The State Water Board received and considered, at its May 2, 2006, meeting, additional public comments on substantial changes made to the proposed general WDRs following the February 8, 2006, public hearing. The State Water Board has considered all comments pertaining to the proposed general WDRs.

IT IS HEREBY ORDERED, that pursuant to California Water Code section 13263, the Enrollees, their agents, successors, and assigns, in order to meet the provisions contained in Division 7 of the California Water Code and regulations adopted hereunder, shall comply with the following:

A. DEFINITIONS

1. **Sanitary sewer overflow (SSO)** - Any overflow, spill, release, discharge or diversion of untreated or partially treated wastewater from a sanitary sewer system. SSOs include:
   (i) Overflows or releases of untreated or partially treated wastewater that reach waters of the United States;
   (ii) Overflows or releases of untreated or partially treated wastewater that do not reach waters of the United States; and
   (iii) Wastewater backups into buildings and on private property that are caused by blockages or flow conditions within the publicly owned portion of a sanitary sewer system.

2. **Sanitary sewer system** – Any system of pipes, pump stations, sewer lines, or other conveyances, upstream of a wastewater treatment plant headworks used to collect and convey wastewater to the publicly owned treatment facility. Temporary storage and conveyance facilities (such as vaults, temporary piping, construction trenches, wet wells, impoundments, tanks, etc.) are considered to be part of the sanitary sewer system, and discharges into these temporary storage facilities are not considered to be SSOs.

For purposes of this Order, sanitary sewer systems include only those systems owned by public agencies that are comprised of more than one mile of pipes or sewer lines.

3. **Enrollee** - A federal or state agency, municipality, county, district, and other public entity that owns or operates a sanitary sewer system, as defined in the general WDRs, and that has submitted a complete and approved application for coverage under this Order.

4. **SSO Reporting System** – Online spill reporting system that is hosted, controlled, and maintained by the State Water Board. The web address for this site is http://ciwqs.waterboards.ca.gov. This online database is maintained on a secure site and is controlled by unique usernames and passwords.

5. **Untreated or partially treated wastewater** – Any volume of waste discharged from the sanitary sewer system upstream of a wastewater treatment plant headworks.

6. **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 to which the sanitary sewer system is tributary.

7. **Nuisance** - California Water Code section 13050, subdivision (m), defines nuisance as anything which meets all of the following requirements:
    a. Is injurious to health, or is indecent or offensive to the senses, or an obstruction to the free use of property, so as to interfere with the comfortable enjoyment of life or property.
    b. Affects at the same time an entire community or neighborhood, or any considerable number of persons, although the extent of the annoyance or damage inflicted upon individuals may be unequal.
    c. Occurs during, or as a result of, the treatment or disposal of wastes.

B. APPLICATION REQUIREMENTS

1. Deadlines for Application – All public agencies that currently own or operate sanitary sewer systems within the State of California must apply for coverage under the general WDRs within six (6) months of the date of adoption of the general WDRs. Additionally, public agencies that acquire or assume responsibility for operating sanitary sewer systems after the date of adoption of this Order must apply for coverage under the general WDRs at least three (3) months prior to operation of those facilities.

2. Applications under the general WDRs – In order to apply for coverage pursuant to the general WDRs, a legally authorized representative for each agency must submit a complete application package. Within sixty (60) days of adoption of the general WDRs, State Water Board staff will send specific instructions on how to

apply for coverage under the general WDRs to all known public agencies that own sanitary sewer systems. Agencies that do not receive notice may obtain applications and instructions online on the Water Board's website.

3. Coverage under the general WDRs – Permit coverage will be in effect once a complete application package has been submitted and approved by the State Water Board's Division of Water Quality.

C. PROHIBITIONS

1. Any SSO that results in a discharge of untreated or partially treated wastewater to waters of the United States is prohibited.

2. Any SSO that results in a discharge of untreated or partially treated wastewater that creates a nuisance as defined in California Water Code Section 13050(m) is prohibited.

D. PROVISIONS

1. The Enrollee must comply with all conditions of this Order. Any noncompliance with this Order constitutes a violation of the California Water Code and is grounds for enforcement action.

2. It is the intent of the State Water Board that sanitary sewer systems be regulated in a manner consistent with the general WDRs. Nothing in the general WDRs shall be:

    (i) Interpreted or applied in a manner inconsistent with the Federal Clean Water Act, or supersede a more specific or more stringent state or federal requirement in an existing permit, regulation, or administrative/judicial order or Consent Decree;
    (ii) Interpreted or applied to authorize an SSO that is illegal under either the Clean Water Act, an applicable Basin Plan prohibition or water quality standard, or the California Water Code;
    (iii) Interpreted or applied to prohibit a Regional Water Board from issuing an individual NPDES permit or WDR, superseding this general WDR, for a sanitary sewer system, authorized under the Clean Water Act or California Water Code; or
    (iv) Interpreted or applied to supersede any more specific or more stringent WDRs or enforcement order issued by a Regional Water Board.

3. The Enrollee shall take all feasible steps to eliminate SSOs. In the event that an SSO does occur, the Enrollee shall take all feasible steps to contain and mitigate the impacts of an SSO.

4. In the event of an SSO, the Enrollee shall take all feasible steps to prevent untreated or partially treated wastewater from discharging from storm drains into

flood control channels or waters of the United States by blocking the storm drainage system and by removing the wastewater from the storm drains.

5. All SSOs must be reported in accordance with Section G of the general WDRs.

6. In any enforcement action, the State and/or Regional Water Boards will consider the appropriate factors under the duly adopted State Water Board Enforcement Policy. And, consistent with the Enforcement Policy, the State and/or Regional Water Boards must consider the Enrollee's efforts to contain, control, and mitigate SSOs when considering the California Water Code Section 13327 factors. In assessing these factors, the State and/or Regional Water Boards will also consider whether:

   (i) The Enrollee has complied with the requirements of this Order, including requirements for reporting and developing and implementing a SSMP;

   (ii) The Enrollee can identify the cause or likely cause of the discharge event;

   (iii) There were no feasible alternatives to the discharge, such as temporary storage or retention of untreated wastewater, reduction of inflow and infiltration, use of adequate backup equipment, collecting and hauling of untreated wastewater to a treatment facility, or an increase in the capacity of the system as necessary to contain the design storm event identified in the SSMP. It is inappropriate to consider the lack of feasible alternatives, if the Enrollee does not implement a periodic or continuing process to identify and correct problems.

   (iv) The discharge was exceptional, unintentional, temporary, and caused by factors beyond the reasonable control of the Enrollee;

   (v) The discharge could have been prevented by the exercise of reasonable control described in a certified SSMP for:
   - Proper management, operation and maintenance;
   - Adequate treatment facilities, sanitary sewer system facilities, and/or components with an appropriate design capacity, to reasonably prevent SSOs (e.g., adequately enlarging treatment or collection facilities to accommodate growth, infiltration and inflow (I/I), etc.);
   - Preventive maintenance (including cleaning and fats, oils, and grease (FOG) control);
   - Installation of adequate backup equipment; and
   - Inflow and infiltration prevention and control to the extent practicable.

   (vi) The sanitary sewer system design capacity is appropriate to reasonably prevent SSOs.

(vii) The Enrollee took all reasonable steps to stop and mitigate the impact of the discharge as soon as possible.

7. When a sanitary sewer overflow occurs, the Enrollee shall take all feasible steps and necessary remedial actions to 1) control or limit the volume of untreated or partially treated wastewater discharged, 2) terminate the discharge, and 3) recover as much of the wastewater discharged as possible for proper disposal, including any wash down water.

   The Enrollee shall implement all remedial actions to the extent they may be applicable to the discharge and not inconsistent with an emergency response plan, including the following:

   (i) Interception and rerouting of untreated or partially treated wastewater flows around the wastewater line failure;
   (ii) Vacuum truck recovery of sanitary sewer overflows and wash down water;
   (iii) Cleanup of debris at the overflow site;
   (iv) System modifications to prevent another SSO at the same location;
   (v) Adequate sampling to determine the nature and impact of the release; and
   (vi) Adequate public notification to protect the public from exposure to the SSO.

8. The Enrollee shall properly, manage, operate, and maintain all parts of the sanitary sewer system owned or operated by the Enrollee, and shall ensure that the system operators (including employees, contractors, or other agents) are adequately trained and possess adequate knowledge, skills, and abilities.

9. The Enrollee shall allocate adequate resources for the operation, maintenance, and repair of its sanitary sewer system, by establishing a proper rate structure, accounting mechanisms, and auditing procedures to ensure an adequate measure of revenues and expenditures. These procedures must be in compliance with applicable laws and regulations and comply with generally acceptable accounting practices.

10. The Enrollee shall provide adequate capacity to convey base flows and peak flows, including flows related to wet weather events. Capacity shall meet or exceed the design criteria as defined in the Enrollee's System Evaluation and Capacity Assurance Plan for all parts of the sanitary sewer system owned or operated by the Enrollee.

11. The Enrollee shall develop and implement a written Sewer System Management Plan (SSMP) and make it available to the State and/or Regional Water Board upon request. A copy of this document must be publicly available at the Enrollee's office and/or available on the Internet. This SSMP must be approved by the Enrollee's governing board at a public meeting.

12. In accordance with the California Business and Professions Code sections 6735, 7835, and 7835.1, all engineering and geologic evaluations and judgments shall be performed by or under the direction of registered professionals competent and proficient in the fields pertinent to the required activities. Specific elements of the SSMP that require professional evaluation and judgments shall be prepared by or under the direction of appropriately qualified professionals, and shall bear the professional(s)' signature and stamp.

13. The mandatory elements of the SSMP are specified below. However, if the Enrollee believes that any element of this section is not appropriate or applicable to the Enrollee's sanitary sewer system, the SSMP program does not need to address that element. The Enrollee must justify why that element is not applicable. The SSMP must be approved by the deadlines listed in the SSMP Time Schedule below.

Sewer System Management Plan (SSMP)

(i) **Goal**: The goal of the SSMP is to provide a plan and schedule to properly manage, operate, and maintain all parts of the sanitary sewer system. This will help reduce and prevent SSOs, as well as mitigate any SSOs that do occur.

(ii) **Organization**: The SSMP must identify:

(a) The name of the responsible or authorized representative as described in Section J of this Order.

(b) The names and telephone numbers for management, administrative, and maintenance positions responsible for implementing specific measures in the SSMP program. The SSMP must identify lines of authority through an organization chart or similar document with a narrative explanation; and

(c) The chain of communication for reporting SSOs, from receipt of a complaint or other information, including the person responsible for reporting SSOs to the State and Regional Water Board and other agencies if applicable (such as County Health Officer, County Environmental Health Agency, Regional Water Board, and/or State Office of Emergency Services (OES)).

(iii) **Legal Authority:** Each Enrollee must demonstrate, through sanitary sewer system use ordinances, service agreements, or other legally binding procedures, that it possesses the necessary legal authority to:

(a) Prevent illicit discharges into its sanitary sewer system (examples may include I/I, stormwater, chemical dumping, unauthorized debris and cut roots, etc.);

(b) Require that sewers and connections be properly designed and constructed;

(c) Ensure access for maintenance, inspection, or repairs for portions of the lateral owned or maintained by the Public Agency;

(d) Limit the discharge of fats, oils, and grease and other debris that may cause blockages, and

(e) Enforce any violation of its sewer ordinances.

(iv) **Operation and Maintenance Program**. The SSMP must include those elements listed below that are appropriate and applicable to the Enrollee's system:

(a) Maintain an up-to-date map of the sanitary sewer system, showing all gravity line segments and manholes, pumping facilities, pressure pipes and valves, and applicable stormwater conveyance facilities;

(b) Describe routine preventive operation and maintenance activities by staff and contractors, including a system for scheduling regular maintenance and cleaning of the sanitary sewer system with more frequent cleaning and maintenance targeted at known problem areas. The Preventative Maintenance (PM) program should have a system to document scheduled and conducted activities, such as work orders;

(c) Develop a rehabilitation and replacement plan to identify and prioritize system deficiencies and implement short-term and long-term rehabilitation actions to address each deficiency. The program should include regular visual and TV inspections of manholes and sewer pipes, and a system for ranking the condition of sewer pipes and scheduling rehabilitation. Rehabilitation and replacement should focus on sewer pipes that are at risk of collapse or prone to more frequent blockages due to pipe defects. Finally, the rehabilitation and replacement plan should include a capital improvement plan that addresses proper management and protection of the infrastructure assets. The plan shall include a time schedule for implementing the short- and long-term plans plus a schedule for developing the funds needed for the capital improvement plan;

(d) Provide training on a regular basis for staff in sanitary sewer system operations and maintenance, and require contractors to be appropriately trained; and

(e) Provide equipment and replacement part inventories, including identification of critical replacement parts.

(v) **Design and Performance Provisions**:

(a) Design and construction standards and specifications for the installation of new sanitary sewer systems, pump stations and other appurtenances; and for the rehabilitation and repair of existing sanitary sewer systems; and

(b) Procedures and standards for inspecting and testing the installation of new sewers, pumps, and other appurtenances and for rehabilitation and repair projects.

(vi) **Overflow Emergency Response Plan -** Each Enrollee shall develop and implement an overflow emergency response plan that identifies measures to protect public health and the environment. At a minimum, this plan must include the following:

(a) Proper notification procedures so that the primary responders and regulatory agencies are informed of all SSOs in a timely manner;

(b) A program to ensure an appropriate response to all overflows;

(c) Procedures to ensure prompt notification to appropriate regulatory agencies and other potentially affected entities (e.g. health agencies, Regional Water Boards, water suppliers, etc.) of all SSOs that potentially affect public health or reach the waters of the State in accordance with the MRP. All SSOs shall be reported in accordance with this MRP, the California Water Code, other State Law, and other applicable Regional Water Board WDRs or NPDES permit requirements. The SSMP should identify the officials who will receive immediate notification;

(d) Procedures to ensure that appropriate staff and contractor personnel are aware of and follow the Emergency Response Plan and are appropriately trained;

(e) Procedures to address emergency operations, such as traffic and crowd control and other necessary response activities; and

(f) A program to ensure that all reasonable steps are taken to contain and prevent the discharge of untreated and partially treated wastewater to waters of the United States and to minimize or correct any adverse impact on the environment resulting from the SSOs, including such accelerated or additional monitoring as may be necessary to determine the nature and impact of the discharge.

(vii) **FOG Control Program:** Each Enrollee shall evaluate its service area to determine whether a FOG control program is needed. If an Enrollee determines that a FOG program is not needed, the Enrollee must provide justification for why it is not needed. If FOG is found to be a problem, the Enrollee must prepare and implement a FOG source control program to reduce the amount of these substances discharged to the sanitary sewer system. This plan shall include the following as appropriate:

(a) An implementation plan and schedule for a public education outreach program that promotes proper disposal of FOG;

(b) A plan and schedule for the disposal of FOG generated within the sanitary sewer system service area. This may include a list of acceptable disposal facilities and/or additional facilities needed to adequately dispose of FOG generated within a sanitary sewer system service area;

(c) The legal authority to prohibit discharges to the system and identify measures to prevent SSOs and blockages caused by FOG;

(d) Requirements to install grease removal devices (such as traps or interceptors), design standards for the removal devices, maintenance requirements, BMP requirements, record keeping and reporting requirements;

(e) Authority to inspect grease producing facilities, enforcement authorities, and whether the Enrollee has sufficient staff to inspect and enforce the FOG ordinance;

(f) An identification of sanitary sewer system sections subject to FOG blockages and establishment of a cleaning maintenance schedule for each section; and

(g) Development and implementation of source control measures for all sources of FOG discharged to the sanitary sewer system for each section identified in (f) above.

(viii) **System Evaluation and Capacity Assurance Plan**: The Enrollee shall prepare and implement a capital improvement plan (CIP) that will provide hydraulic capacity of key sanitary sewer system elements for dry weather peak flow conditions, as well as the appropriate design storm or wet weather event. At a minimum, the plan must include:

(a) **Evaluation**: Actions needed to evaluate those portions of the sanitary sewer system that are experiencing or contributing to an SSO discharge caused by hydraulic deficiency. The evaluation must provide estimates of peak flows (including flows from SSOs

that escape from the system) associated with conditions similar to those causing overflow events, estimates of the capacity of key system components, hydraulic deficiencies (including components of the system with limiting capacity) and the major sources that contribute to the peak flows associated with overflow events;

(b) **Design Criteria:** Where design criteria do not exist or are deficient, undertake the evaluation identified in (a) above to establish appropriate design criteria; and

(c) **Capacity Enhancement Measures:** The steps needed to establish a short- and long-term CIP to address identified hydraulic deficiencies, including prioritization, alternatives analysis, and schedules. The CIP may include increases in pipe size, I/I reduction programs, increases and redundancy in pumping capacity, and storage facilities. The CIP shall include an implementation schedule and shall identify sources of funding.

(d) **Schedule:** The Enrollee shall develop a schedule of completion dates for all portions of the capital improvement program developed in (a)-(c) above. This schedule shall be reviewed and updated consistent with the SSMP review and update requirements as described in Section D. 14.

(ix) **Monitoring, Measurement, and Program Modifications:** The Enrollee shall:

(a) Maintain relevant information that can be used to establish and prioritize appropriate SSMP activities;

(b) Monitor the implementation and, where appropriate, measure the effectiveness of each element of the SSMP;

(c) Assess the success of the preventative maintenance program;

(d) Update program elements, as appropriate, based on monitoring or performance evaluations; and

(e) Identify and illustrate SSO trends, including: frequency, location, and volume.

(x) **SSMP Program Audits** - As part of the SSMP, the Enrollee shall conduct periodic internal audits, appropriate to the size of the system and the number of SSOs. At a minimum, these audits must occur every two years and a report must be prepared and kept on file. This audit shall focus on evaluating the effectiveness of the SSMP and the

Enrollee's compliance with the SSMP requirements identified in this subsection (D.13), including identification of any deficiencies in the SSMP and steps to correct them.

(xi) **Communication Program** – The Enrollee shall communicate on a regular basis with the public on the development, implementation, and performance of its SSMP. The communication system shall provide the public the opportunity to provide input to the Enrollee as the program is developed and implemented.

The Enrollee shall also create a plan of communication with systems that are tributary and/or satellite to the Enrollee's sanitary sewer system.

14. Both the SSMP and the Enrollee's program to implement the SSMP must be certified by the Enrollee to be in compliance with the requirements set forth above and must be presented to the Enrollee's governing board for approval at a public meeting. The Enrollee shall certify that the SSMP, and subparts thereof, are in compliance with the general WDRs within the time frames identified in the time schedule provided in subsection D.15, below.

    In order to complete this certification, the Enrollee's authorized representative must complete the certification portion in the Online SSO Database Questionnaire by checking the appropriate milestone box, printing and signing the automated form, and sending the form to:

    State Water Resources Control Board
    Division of Water Quality
    Attn: SSO Program Manager
    P.O. Box 100
    Sacramento, CA 95812

    The SSMP must be updated every five (5) years, and must include any significant program changes. Re-certification by the governing board of the Enrollee is required in accordance with D.14 when significant updates to the SSMP are made. To complete the re-certification process, the Enrollee shall enter the data in the Online SSO Database and mail the form to the State Water Board, as described above.

15. The Enrollee shall comply with these requirements according to the following schedule. This time schedule does not supersede existing requirements or time schedules associated with other permits or regulatory requirements.

Sewer System Management Plan Time Schedule

Task and Associated Section	**Completion Date**			
	Population > 100,000	Population between 100,000 and 10,000	Population between 10,000 and 2,500	Population < 2,500
Application for Permit Coverage ***Section C***	6 months after WDRs Adoption			
Reporting Program ***Section G***	6 months after WDRs Adoption[1]			
SSMP Development Plan and Schedule ***No specific Section***	9 months after WDRs Adoption[2]	12 months after WDRs Adoption[2]	15 months after WDRs Adoption[2]	18 months after WDRs Adoption[2]
Goals and Organization Structure ***Section D 13 (i) & (ii)***	12 months after WDRs Adoption[2]		18 months after WDRs Adoption[2]	
Overflow Emergency Response Program ***Section D 13 (vi)***	24 months after WDRs Adoption[2]	30 months after WDRs Adoption[2]	36 months after WDRs Adoption[2]	39 months after WDRs Adoption[2]
Legal Authority ***Section D 13 (iii)***				
Operation and Maintenance Program ***Section D 13 (iv)***				
Grease Control Program ***Section D 13 (vii)***				
Design and Performance ***Section D 13 (v)***	36 months after WDRs Adoption	39 months after WDRs Adoption	48 months after WDRs Adoption	51 months after WDRs Adoption
System Evaluation and Capacity Assurance Plan ***Section D 13 (viii)***				
Final SSMP, incorporating all of the SSMP requirements ***Section D 13***				

1. In the event that by July 1, 2006 the Executive Director is able to execute a memorandum of agreement (MOA) with the California Water Environment Association (CWEA) or discharger representatives outlining a strategy and time schedule for CWEA or another entity to provide statewide training on the adopted monitoring program, SSO database electronic reporting, and SSMP development, consistent with this Order, then the schedule of Reporting Program Section G shall be replaced with the following schedule:

Reporting Program ***Section G***	
Regional Boards 4, 8, and 9	8 months after WDRs Adoption
Regional Boards 1, 2, and 3	12 months after WDRs Adoption
Regional Boards 5, 6, and 7	16 months after WDRs Adoption

If this MOU is not executed by July 1, 2006, the reporting program time schedule will remain six (6) months for all regions and agency size categories.

2. In the event that the Executive Director executes the MOA identified in note 1 by July 1, 2006, then the deadline for this task shall be extended by six (6) months. The time schedule identified in the MOA must be consistent with the extended time schedule provided by this note. If the MOA is not executed by July 1, 2006, the six (6) month time extension will not be granted.

E. WDRs and SSMP AVAILABILITY

1. A copy of the general WDRs and the certified SSMP shall be maintained at appropriate locations (such as the Enrollee's offices, facilities, and/or Internet homepage) and shall be available to sanitary sewer system operating and maintenance personnel at all times.

F. ENTRY AND INSPECTION

1. The Enrollee shall allow the State or Regional Water Boards or their authorized representative, upon presentation of credentials and other documents as may be required by law, to:

    a. Enter upon the Enrollee's premises where a regulated facility or activity is located or conducted, or where records are kept under the conditions of this Order;

    b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this Order;

c. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Order; and

d. Sample or monitor at reasonable times, for the purposes of assuring compliance with this Order or as otherwise authorized by the California Water Code, any substances or parameters at any location.

G. GENERAL MONITORING AND REPORTING REQUIREMENTS

1. The Enrollee shall furnish to the State or Regional Water Board, within a reasonable time, any information that the State or Regional Water Board may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this Order. The Enrollee shall also furnish to the Executive Director of the State Water Board or Executive Officer of the applicable Regional Water Board, upon request, copies of records required to be kept by this Order.

2. The Enrollee shall comply with the attached Monitoring and Reporting Program No. 2006-0003 and future revisions thereto, as specified by the Executive Director. Monitoring results shall be reported at the intervals specified in Monitoring and Reporting Program No. 2006-0003. Unless superseded by a specific enforcement Order for a specific Enrollee, these reporting requirements are intended to replace other mandatory routine written reports associated with SSOs.

3. All Enrollees must obtain SSO Database accounts and receive a “Username” and “Password” by registering through the California Integrated Water Quality System (CIWQS). These accounts will allow controlled and secure entry into the SSO Database. Additionally, within 30days of receiving an account and prior to recording spills into the SSO Database, all Enrollees must complete the “Collection System Questionnaire”, which collects pertinent information regarding a Enrollee’s collection system. The “Collection System Questionnaire” must be updated at least every 12 months.

4. Pursuant to Health and Safety Code section 5411.5, any person who, without regard to intent or negligence, causes or permits any untreated wastewater or other waste to be discharged in or on any waters of the State, or discharged in or deposited where it is, or probably will be, discharged in or on any surface waters of the State, as soon as that person has knowledge of the discharge, shall immediately notify the local health officer of the discharge. Discharges of untreated or partially treated wastewater to storm drains and drainage channels, whether man-made or natural or concrete-lined, shall be reported as required above.

   Any SSO greater than 1,000 gallons discharged in or on any waters of the State, or discharged in or deposited where it is, or probably will be, discharged in or on any surface waters of the State shall also be reported to the Office of Emergency Services pursuant to California Water Code section 13271.

H. CHANGE IN OWNERSHIP

1. This Order is not transferable to any person or party, except after notice to the Executive Director. The Enrollee shall submit this notice in writing at least 30 days in advance of any proposed transfer. The notice must include a written agreement between the existing and new Enrollee containing a specific date for the transfer of this Order's responsibility and coverage between the existing Enrollee and the new Enrollee. This agreement shall include an acknowledgement that the existing Enrollee is liable for violations up to the transfer date and that the new Enrollee is liable from the transfer date forward.

I. INCOMPLETE REPORTS

1. If an Enrollee becomes aware that it failed to submit any relevant facts in any report required under this Order, the Enrollee shall promptly submit such facts or information by formally amending the report in the Online SSO Database.

J. REPORT DECLARATION

1. All applications, reports, or information shall be signed and certified as follows:

    (i) All reports required by this Order and other information required by the State or Regional Water Board shall be signed and certified by a person designated, for a municipality, state, federal or other public agency, as either a principal executive officer or ranking elected official, or by a duly authorized representative of that person, as described in paragraph (ii) of this provision. (For purposes of electronic reporting, an electronic signature and accompanying certification, which is in compliance with the Online SSO database procedures, meet this certification requirement.)

    (ii) An individual is a duly authorized representative only if:

        (a) The authorization is made in writing by a person described in paragraph (i) of this provision; and

        (b) The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity.

K. CIVIL MONETARY REMEDIES FOR DISCHARGE VIOLATIONS

1. The California Water Code provides various enforcement options, including civil monetary remedies, for violations of this Order.

2. The California Water Code also provides that any person failing or refusing to furnish technical or monitoring program reports, as required under this Order, or

falsifying any information provided in the technical or monitoring reports is subject to civil monetary penalties.

L. SEVERABILITY

1. The provisions of this Order are severable, and if any provision of this Order, or the application of any provision of this Order to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this Order, shall not be affected thereby.

2. This order does not convey any property rights of any sort or any exclusive privileges. The requirements prescribed herein do not authorize the commission of any act causing injury to persons or property, nor protect the Enrollee from liability under federal, state or local laws, nor create a vested right for the Enrollee to continue the waste discharge.

CERTIFICATION

The undersigned Clerk to the State Water Board does hereby certify that the foregoing is a full, true, and correct copy of general WDRs duly and regularly adopted at a meeting of the State Water Resources Control Board held on May 2, 2006.

AYE: Tam M. Doduc
Gerald D. Secundy

NO: Arthur G. Baggett

ABSENT: None

ABSTAIN: None

Song Her
Clerk to the Board

APPENDIX C – HYDROLOGICAL TECHNICAL MEMORANDUM

AECOM
401 West A Street
Suite 120
San Diego, CA 92101
aecom.com

Technical Memorandum

August 29, 2019

To: Wally Grabbe – Valley Center Municipal Water District

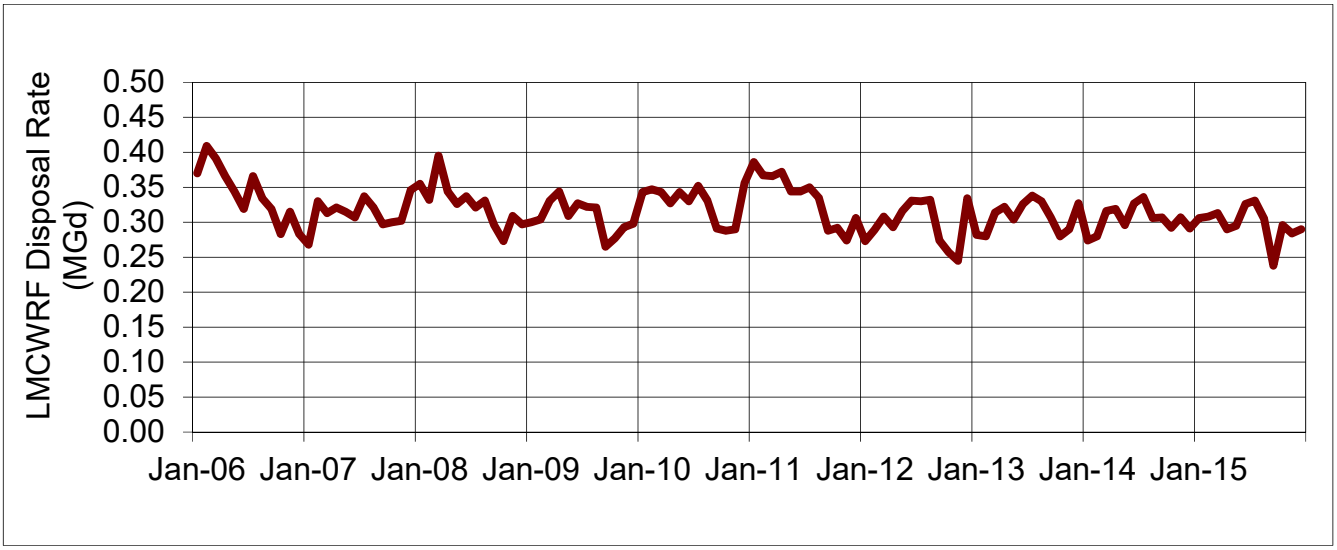
CC: John Christopher PE- HDR

From: Douglas F. Roff, CHg #293; Adam Yoerg

Subject: ***Preliminary Groundwater Modeling to Evaluate Potential Wastewater Disposal Strategies, Lower Moosa Canyon, Valley Center, San Diego County, CA***

Introduction & Objectives

In 1995 a groundwater model was developed for the Lower Moosa Canyon to evaluate effluent management strategies (Barrett 1995) for the Valley Center Municipal Water District (District). The report recommended that the District pursue authorization to discharge up to 0.44 MGd at the existing disposal ponds south of Moosa Creek and north of Camino del Rey. The Lower Moosa Canyon Water Reclamation Facility (LMCWRF) has been discharging approximately 0.3 million gallons per day (MGd) in the intervening years. Data from 2006 to 2015 are depicted below:



A continuing interest in increasing disposal rates and/or finding an alternative discharge location prompted this additional modeling. For this effort a new groundwater model was developed based on the descriptions and figures in the 1995 modeling report, while taking advantage of advances in modeling software.

In the new model, the domain was expanded so that alternate discharge locations could be evaluated. The goal was to simulate wastewater disposal in one or more potential pond locations without increasing daylighting of water to the ground surface. This criterion is discussed in more detail below. An additional objective was to identify data gaps that, if addressed, could reduce uncertainty in model predictions.

Approach

Based on work documented in the 1995 Barrett report, a conceptual site model (CSM) was developed. The current modeling effort was based on that CSM. Model uncertainty is discussed, and data gaps are identified for future work.

Conceptual Site Model

This is section is paraphrased from Barrett (1995).

Lower Moosa Canyon is in north central San Diego County within the Bonsall Hydrographic Subarea. The alluvial valley is westward-trending and has been eroded into the underlying crystalline basement rocks. Lower Moosa Canyon was formed by stream erosion of the basement rocks and subsequent deposition of alluvium along the stream channel. The canyon is approximately 3-1/2 miles long with widths varying between roughly 500 and 2,500 feet. At the upper end of the valley, near Interstate 15 (I-15), the valley floor elevation is approximately 290 feet above mean sea level (msl) and at the lower end of the valley, near the confluence with the San Luis Rey River, the elevation is around 170 feet above msl.

The crystalline bedrock comprises intrusive and metamorphic rock. Overlying that is weathered crystalline rock (residuum or colloquially as “decomposed granite”). This residuum has been estimated to be over 70 feet thick but may be much deeper in parts of the canyon valley. Alluvium underlies the narrow valley floor and is composed primarily of poorly-graded medium to coarse sand with silt. It is estimated to be up to 150 feet thick in the middle of the canyon and pinching out toward the valley walls.

The available data from 2004 to 2018 (not including 2017) for the three monitoring wells constructed near the existing LMCWRF ponds are summarized in **Table 1**. These values were used in an abbreviated calibration process, described below.

Table 1 – Depths to Water at LMCWRF Pond Monitoring Wells (2004-2015)

Well	Depth to Water (feet below top of casing)		
	Minimum	Maximum	Mean
MW-1	17.8	27.4	21.4
MW-2	21.9	26.9	24.4
MW-3	16.8	21.0	18.5

A pumping test was completed at MW-2 in 1994 and indicated a transmissivity of approximately 11,000 ft^2/day yielding a hydraulic conductivity of approximately 110 feet per day (assuming a saturated thickness of 100 feet). Previous modeling used a horizontal hydraulic conductivity of 110 feet per day for the flanks of the valley and higher values (250 feet per day) along centerline of the valley (Barrett 1995). The vertical to horizontal anisotropy ratio was assumed at 0.2.

Although there is a stream bed that conducts water along the Moosa Creek Valley, the creek reportedly flows only in response to precipitation. Barrett reports that in the wet season flow varies with rainfall. In the dry season flow is between zero and 3 cubic feet per second. It was assumed that surface water is not a significant part of the water budget. This may be an oversimplification but is not critical for relative comparison of potential new pond locations and disposal rates.

Groundwater enters the valley through the upper end of the valley and exits the lower end of the valley at/near the confluence with the San Luis Rey River (minus losses to evapotranspiration and pumpage). Groundwater exchange between bedrock and alluvium is unknown but assumed to be negligible for this modeling. Basin-wide recharge was estimated by multiplying the watershed drainage area above the existing ponds by approximately 0.09 acre-feet per year per acre (reduces to feet per year). This value has been found in many studies in the central portion of San Diego County to be a reasonable first-order estimation of average annual recharge from precipitation. It does not include the impacts of imported water usage, evapotranspiration from phreatophytes or pumpage. These rates are important boundary conditions for the numerical modeling.

Numerical modeling

Model Selection. Consistent with prior approaches, AECOM selected the USGS code MODFLOW for the three-dimensional groundwater flow modeling. GMS 10.4.4 was used for setting up, running, and processing the model input and outputs.

Set Up. The model domain is shown on **Figure 1**. The upgradient, eastern domain boundary coincides approximately with I-15 and the downgradient, western domain boundary coincides approximately with the confluence of the Lower Moosa Canyon and the greater San Luis Rey River valley.

The model grid is shown on **Figure 2**. A 50-foot by 50-foot grid was used; this is a refinement from the 1995 model where a 100-foot by 100-foot grid was used. Only one model layer was used, consistent with the 1995 approach. Digital elevation model (DEM) data were used to set the top of the model grid. The bottom of the model was developed using GMS tools to merge a data layer defining 40-foot thick aquifer thickness (interpolated from topography, geologic maps and well logs obtained from the California Department of Water Resources) with a data set defining the valley centerline depth as 120 feet bgs, possibly up to 150 feet bgs locally. This was interpolated to the model grid and subtracted on a cell-by-cell basis from the model top to yield a data array to define the bottom of the valley/model. The 120-foot depth along the centerline was an assumed value, though generally consistent with the geologic description and well logs. **Figure 3** summarizes well information available from the well logs. The model used steady-state conditions.

The distribution of hydraulic conductivity was initially set to that described from the 1995 model. Adjustments were made in the calibration process and are discussed below.

Distributed aerial rainfall recharge was not simulated directly. Groundwater that enters the valley/model through the upgradient boundary was simulated with the MODFLOW Well package, essentially putting water in the model at a specified constant rate equal to the assumed rainfall recharge in the tributary watershed (0.8 MGD). Water leaves the valley/model through the downgradient boundary with the MODFLOW Constant Head package, with the head set to 152 feet. Both boundary conditions represent significant uncertainty in the model results.

The MODFLOW Recharge package was used to simulate the wastewater disposal to the pond (current or potential) areas. The disposal rate (in MGd) was converted to feet per day using the area of the ponds.

Calibration. Calibration is a process by which model uncertainty can be reduced. Typically, successive iterations of a model are completed until the model-predicted groundwater elevations satisfactorily match the observed groundwater elevations. The measure of a match is typically a statistical target, among other things. In the absence of a robust data set, such as in this case, the match can be to the CSM or some hybrid of the CSM and a limited data set.

In this case the CSM is fairly straightforward. Water level data from the three District monitoring wells near the current LMCWRF disposal ponds and previously validated model results were used to guide calibration. Measured water levels are not available for the vast majority of the model domain. This is a source of significant uncertainty. The values reported on the well logs (summarized on **Figure 3**) are snapshots in time, and reflect various seasons and hydrologic conditions, as well as the possible effects of drilling and pump testing. As such, they are not suitable for model calibration. The available measured water level data used for calibration are on **Table 1**.

As discussed earlier, wastewater was being disposed of at a rate of about 0.3 MGD during the period used for calibration. The calibration of the current model was based on many runs until the predicted groundwater elevations and flow generally approximated what was expected based on the CSM and the available limited data. Calibration was deemed acceptable when a balance had been struck between existing model results and limited water level observations in the valley, however, substantial uncertainties persist. **Table 2** includes the simulated groundwater elevations and residuals (differences between modeled and observed water levels). Because of the lack of broadly-distributed and temporally-rich water level data across the valley, only a modified calibration based on the limited data and the CSM was performed. A rigorous quantitative calibration with statistical targets should be completed in the future when new data (discussed in Recommendations) become available. As is, the results should be viewed as first-order approximations and be used to direct future studies.

Table 2 – Simulated Groundwater Elevations for Current Operating Conditions (0.3 MGd)

Well	Simulated Groundwater Elevation (ft amsl)	Residual (ft)
MW-1	253.3	-1.8
MW-2	241.1	-0.4
MW-3	234.2	-6.3

The calibration focused on adjusting the groundwater flow into the model through the well package, changing hydraulic conductivity, and shifting the downgradient constant-head boundary. Once calibrated, the model was used to simulate water levels that were predicted to occur under the current permit limit (0.44 MGD at existing LMCWRF disposal ponds). This is the baseline run. All simulations thereafter were compared to the baseline run. The baseline run predicts where groundwater elevations are higher than the land surface elevations on a model cell-by-cell basis (these are hereinafter referred to as "flooded model cells"). The intent was to limit potential future discharge scenarios to those that did not increase the number of flooded cells.

Figure 4 shows the calibrated hydraulic conductivity distribution. **Figure 5** shows the calibrated groundwater contours near the discharge ponds, representative of current wastewater disposal operations. These contours generally match the CSM for flow. That is, groundwater enters the valley/model domain near I-15 and then flows westward along the valley to the downgradient/downstream portion of the valley, near the confluence with the San Luis Rey River.

Overall, it was difficult to achieve a good match for the three wells. More wells with broader spatial and more temporal data would provide increased resolution on groundwater conditions and more information about distribution of hydraulic conductivity. Ultimately the focus was on a best match at MW-1 and MW-2, around the current pond, and less import was given to MW-3. In general, the current model underpredicted water levels at all three monitoring wells and relative to prior model results. It should again be emphasized that these 3 wells represent a small portion of the overall model domain. Additional characterization and monitoring data will improve calibration. Despite the discrepancies and difficulties, the model is considered a good tool by which to compare the impact of potential alternative disposal ponds.

Simulations. Numerous simulations were conducted and allowed feasible options to be narrowed to utilizing a combination of the original pond and Alternate Pond Location No. 2 (Alternate Pond 2). Other scenarios were considered and presented informally to the District. That work evaluated another pond location. That scenario was not pursued further and is not presented herein. Simulations involving combinations of these two ponds (i.e., existing ponds and Alternate Pond 2) are summarized below.

1) Current Ponds at 0.44 MGd – baseline conditions based on the current permit limit and the output in the 1995 modeling report.
2) Current Pond shifted south about 100 feet at 0.44 MGd.
3) Current Ponds plus Alternate Pond 2 discharging at 0.05 MGd.
4) Current Ponds plus Alternate Pond 2 discharging at 0.10 MGd.
5) Current Ponds plus Alternate Pond 2 discharging at 0.15 MGd.

Figure 6 shows the current and potential ponds.

In each case the simulation was compared to the baseline condition (Simulation 1). Specifically, the baseline run identifies no flooded cells proximal to existing or proposed ponds. The GMS postprocessor identifies these cells with a blue marker, called out on the figures with a larger blue square. The model results are summarized below:

1) The baseline run used the current pond with discharge at 0.44 MGd. **Figure 7** shows the groundwater contours. The groundwater levels predicted in this simulation are generally lower than those from 1995 model results but are deemed within an acceptable range given the uncertainty associated with this model.
2) Discharging 0.44 MGd at the original pond shifted to the south. **Figure 8** shows no significant change in groundwater contours or daylighting of cells when the pond is shifted. Because there is no apparent improvement that would result from shifting the current ponds south, this alternative is not discussed further.

3) Discharging at the original ponds at 0.44 MGd and adding 0.05 MGd of discharge at Alternate Pond 2 causes water to daylight in two cells adjacent to the original ponds likely due to a gentle flattening of the hydraulic gradient between the existing and proposed ponds due to mounding at the proposed pond (**Figure 9**). Due to the uncertainty in model construction and parametrization, this daylighting may not imply true daylighting but should be further evaluated. Uncertainty and failure criteria are discussed below.
4) Discharging at the original ponds at 0.44 MGd and adding 0.10 MGd of discharge at Alternate Pond 2 causes water to daylight in three cells adjacent to the original pond, a slight increase from Simulation 3 (**Figure 10**).
5) Discharging at the original ponds at 0.44 MGd and adding 0.15 MGd of discharge at Alternate Pond 2 causes water to daylight in numerous cells adjacent to the original pond, a significant increase from Simulation 4 (**Figure 11**).

While daylighting of water adjacent to ponds was established as the criterion for this effort, numerous uncertainties in the model suggest that limited daylighting in model space may not occur under real field conditions. For instance, most daylighting cells occur in the vegetated river bed where true ground elevations are only approximate in the DEM, and where the effects of evapotranspiration are not currently considered.

Conclusions and Recommendations

In this effort a groundwater flow model was built so that current and potential future wastewater discharge scenarios could be evaluated. Current discharge is around 0.3 MGD and there are approximately 2 decades of periodic water level data at three nearby monitoring wells that were used for calibration, in addition to a qualitative match to previous model results simulating 0.44 MGD discharge. Between matches to observed water levels and previous model results, calibration was deemed adequate to compare alternatives at this stage. The model was then used to simulate higher discharge at the current pond in tandem with additional discharge at a new alternate pond. Criteria for evaluating discharge to these proposed areas were that the number of flooded cells in proximity to the ponds (within ~1000 feet of pond berms) could not significantly exceed the number in the baseline condition. Increased daylighting further than 1000 feet from the ponds is assumed to be essentially indistinguishable from native groundwater. This assumption should be discussed with the regulators.

While there is uncertainty about the significance of the small number of flooded cells in Simulations 3 and 4, the greatly increased number of flooded cells in Simulation 5, suggest that 0.10 MGd is the upper bound of likely additional disposal capacity by bringing Alternate Pond 2 into service. While some daylighting may occur near recharge ponds under increased discharge scenarios, enough uncertainty exists to warrant further evaluation. Primary sources of uncertainty (i.e., data gaps) include:

- Water budget from the tributary watershed in the form of groundwater inflow and outflow
- Surface water/groundwater interactions
- Detailed topography along the creek
- Depth, geometry and hydraulic properties of alluvium in the area of Alternate Pond 2
- Depths to water across the basin

A more robust and quantitatively-calibrated model requires better characterization of these parameters over different hydrologic conditions. Our recommendations to better constrain the model are presented below:

- Develop a better-constrained water budget from the tributary watershed. This includes:
    - Rainfall recharge
    - Basin-wide groundwater extraction
    - Infiltration of imported water from septic systems and applied irrigation (e.g., residential, agricultural, golf course) return flows
    - Recharge of groundwater from any unlined ponds

  - Evaporative losses of exposed groundwater (groundwater in communication with surface water)
  - Evapotranspiration losses from phreatophytes along Moosa Creek
  - Surface water/groundwater interactions
- Investigate pumpage of existing alluvial groundwater wells within the model domain
- Explore access and availability of Alternate Pond 2 and pipeline access between it and the existing ponds
- Obtain better quality topography in the areas of the Current Ponds, Alternate Pond Location 2, and the length of Lower Moosa Creek
- Drill, log and install monitoring wells at the following locations:
  - Two locations closer than the existing monitoring wells to the creek in the vicinity of the Current Ponds
  - Four locations near Alternate Pond 2
- Perform step and constant-rate aquifer testing at Alternate Pond 2
- Identify existing unpumped wells in the basin (particularly near the eastern and western ends of the basin) and explore access to those wells for periodic monitoring
- Initiate monthly monitoring of water levels at the existing and proposed monitoring wells, and existing unpumped wells elsewhere in the basin
- Perform a round of water quality sampling, geochemical parameter monitoring and laboratory analysis in the new monitoring and existing unpumped wells
- Discuss with the Regional Water Quality Control Board guidance on wastewater disposal, preliminary modeling results, failure criteria, minimum setbacks, minimum residence time and maximum wastewater contribution to the basin
- Perform additional groundwater flow modeling, including:
  - Calibrate model to the enhanced data set collected above
  - Perform sensitivity analysis to evaluate the importance of remaining data gaps
  - Comparison of results to failure criteria
- Perform transport modeling to estimate percent contribution of wastewater-effluent-derived groundwater downgradient of the current and proposed ponds

References

Barrett Consulting Group. 1995. Recommended Effluent Management Strategies for the Lower Moosa Canyon Water Reclamation Facility Technical Memorandum No. 2.

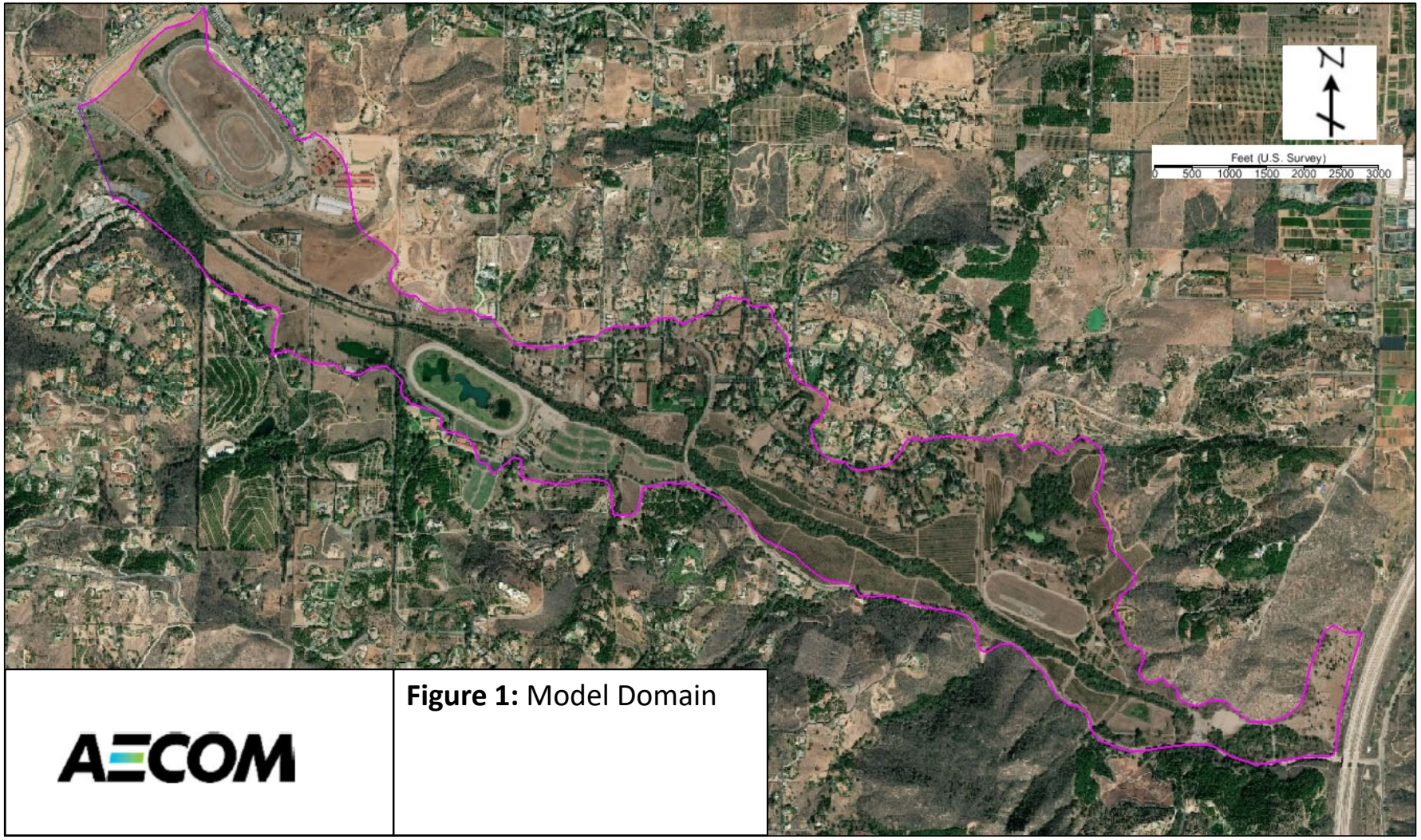


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Figure 1: Model Domain

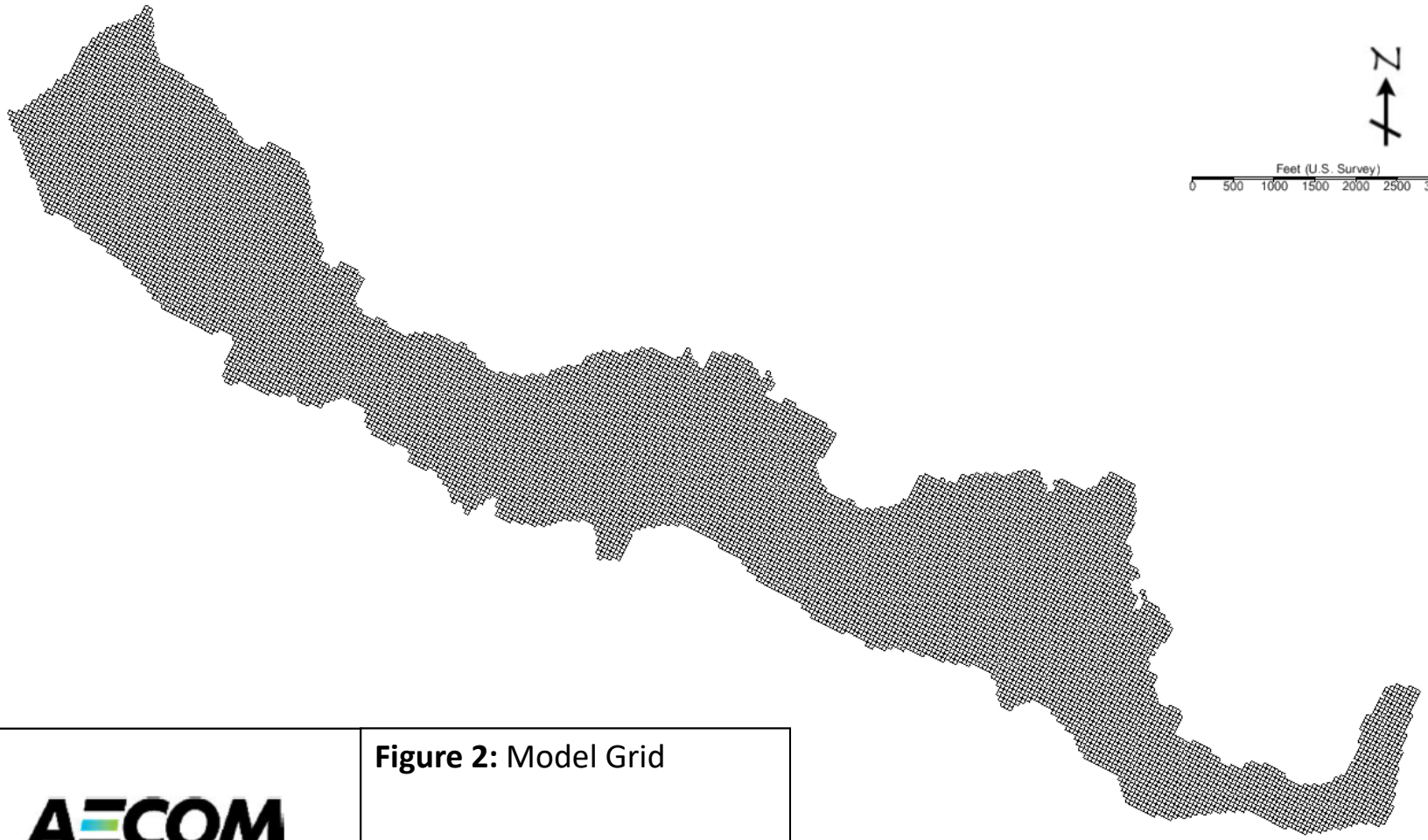

Figure 2: Model Grid

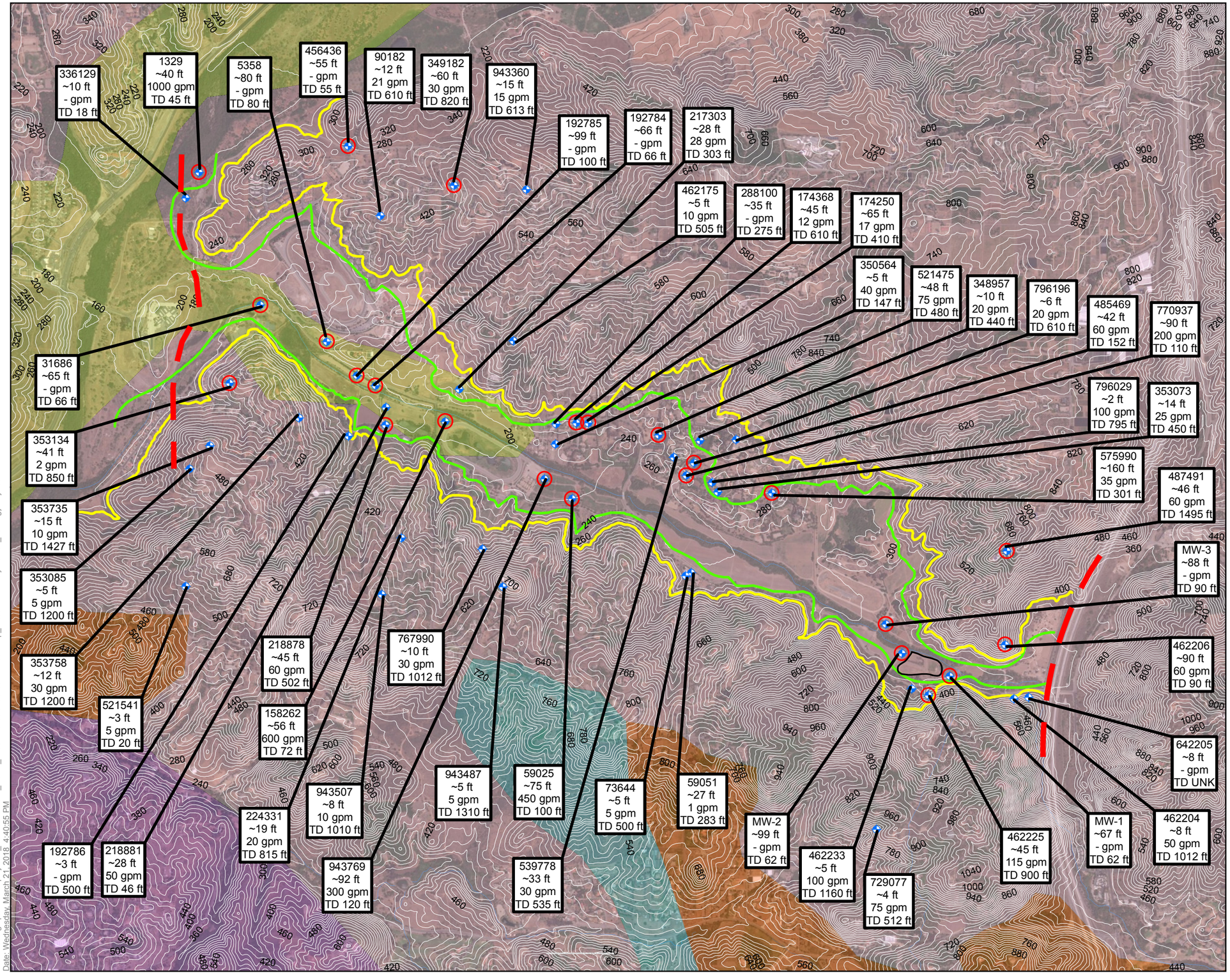

Figure 3

Geologic Map with Contours

and Well Locations

Valley Center - Lower Moosa Canyon

File: \\ussdg1fp001\data\projects_6056\6056067013_Lower_Moosa\900-CAD-GIS\920 GIS\map_docs\mxd\Valley Center_Geology Layers.mxd
Date: Wednesday, March 21, 2018 4:40:55 PM

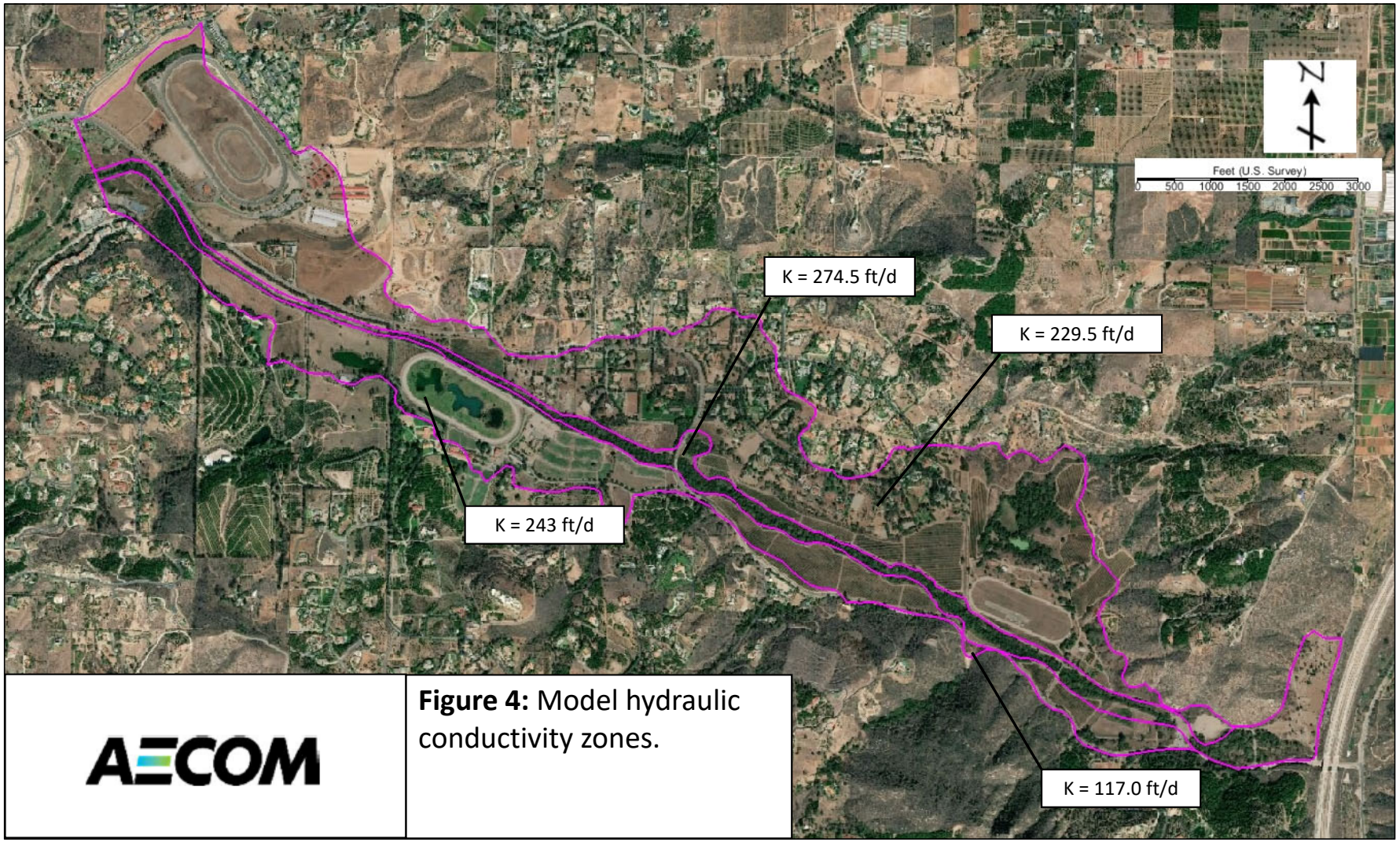

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Figure 4: Model hydraulic conductivity zones.

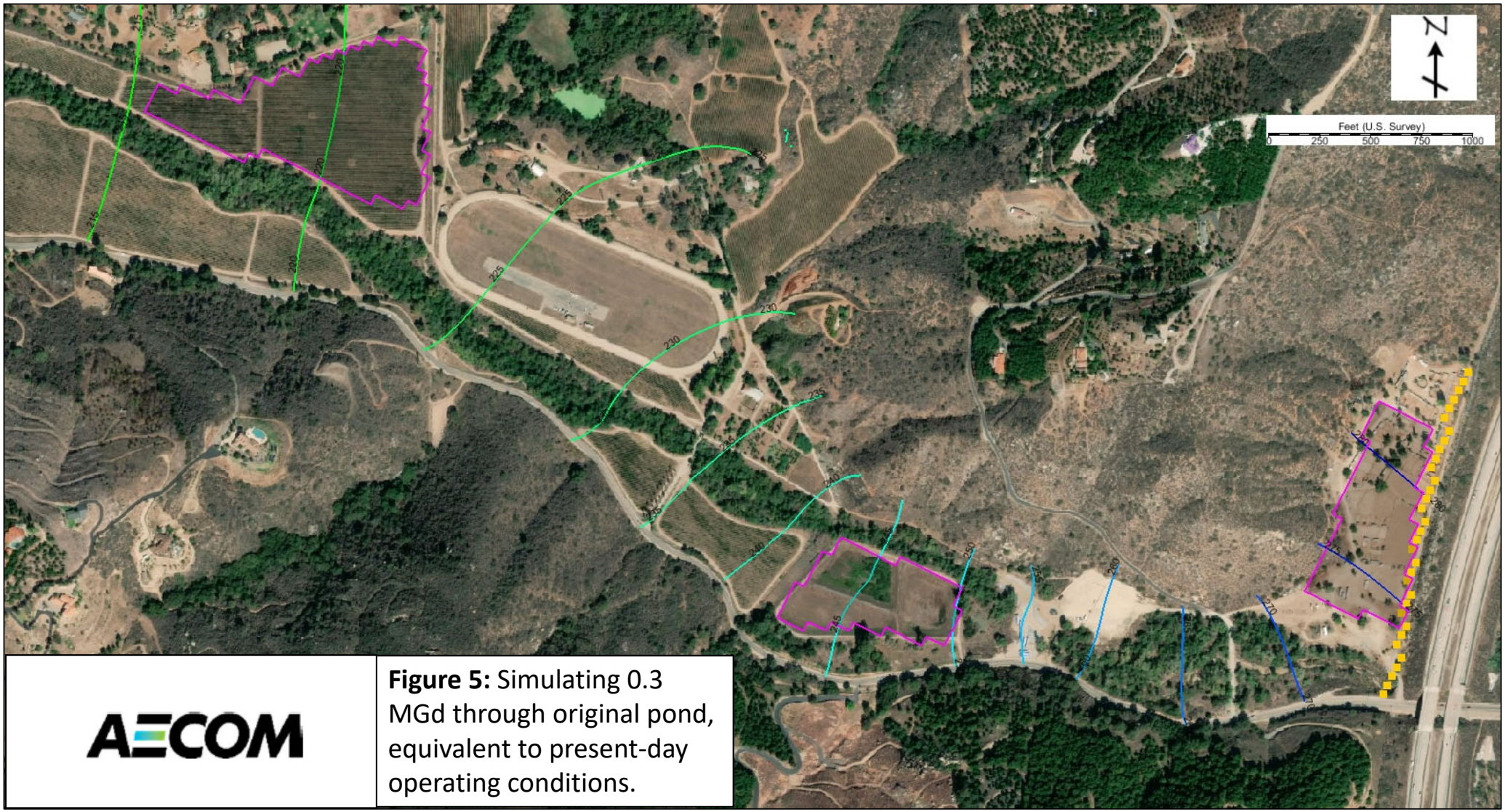

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Figure 5: Simulating 0.3 MGd through original pond, equivalent to present-day operating conditions.

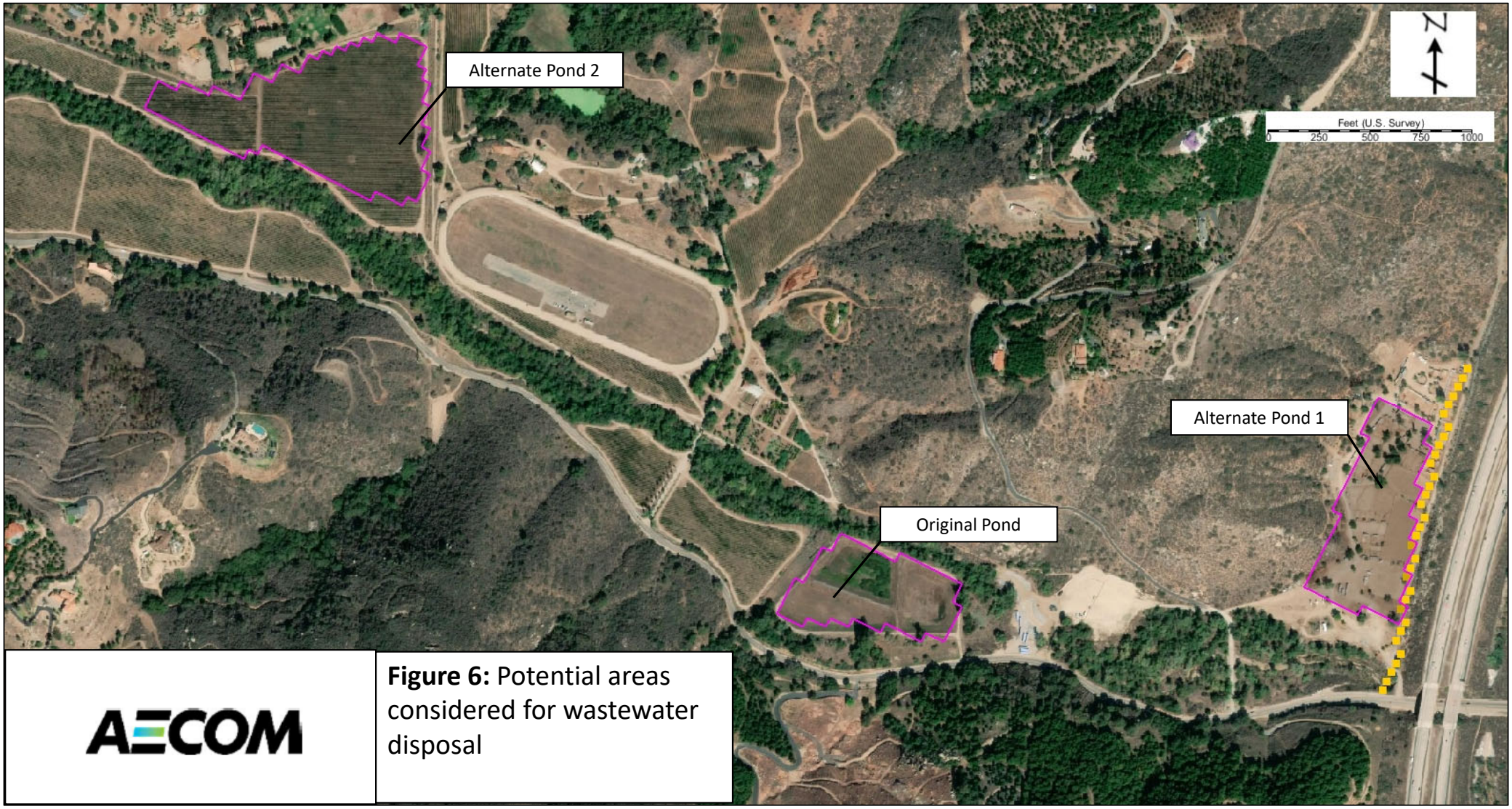

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Figure 6: Potential areas considered for wastewater disposal

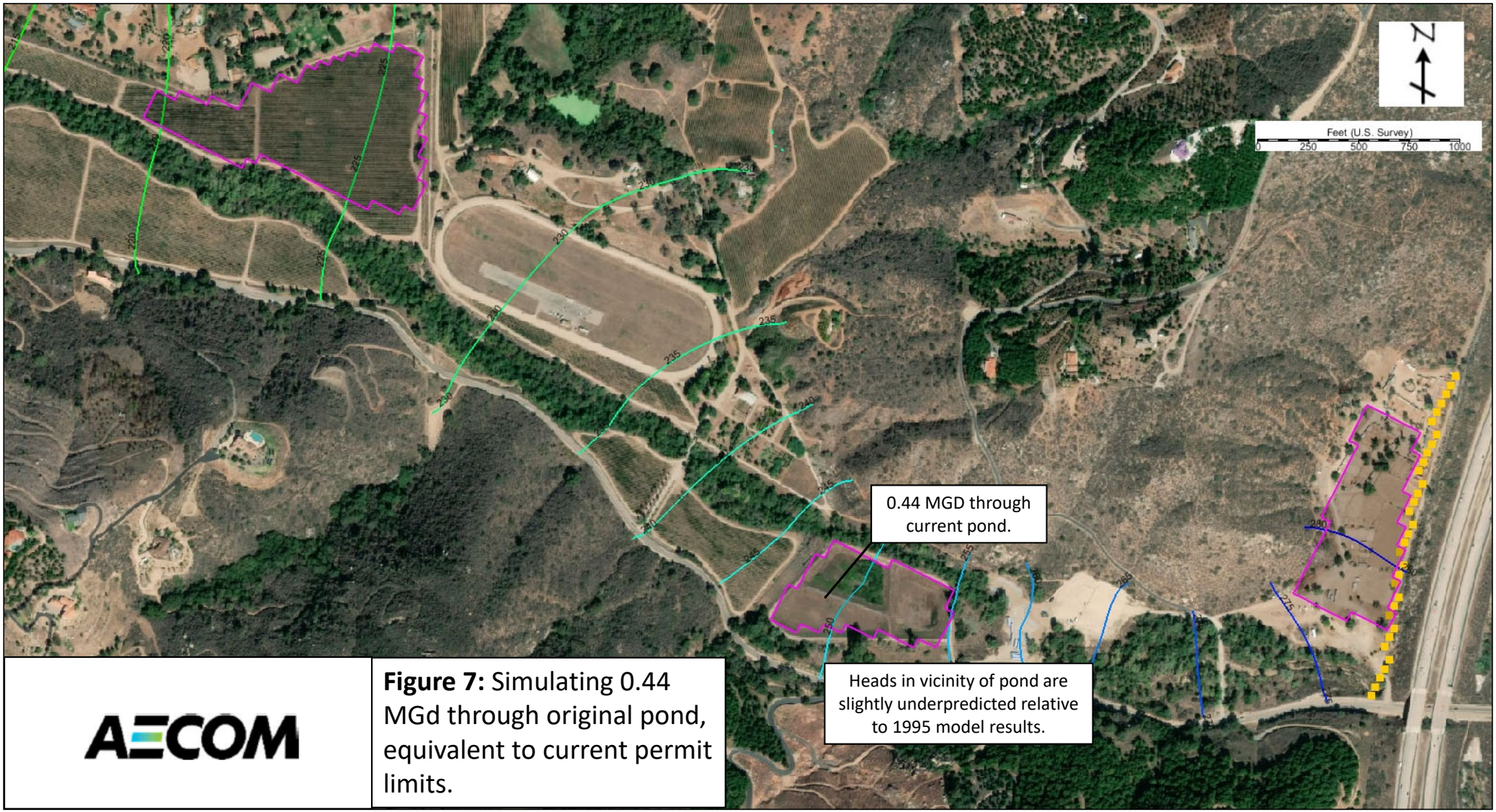

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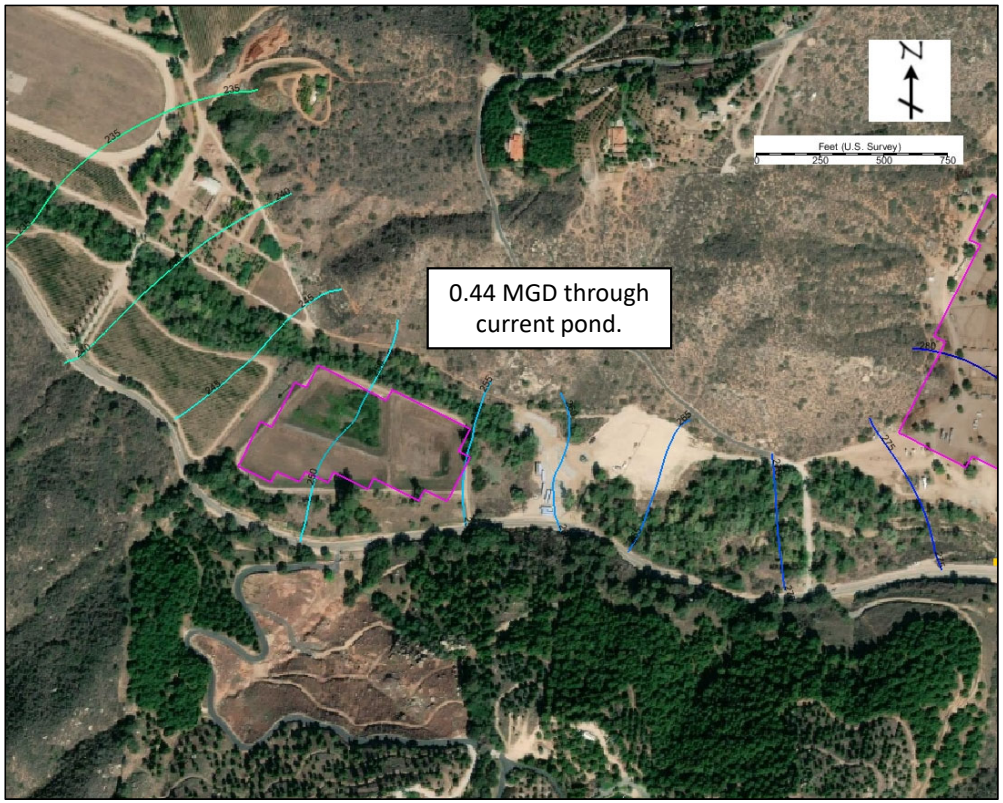
Figure 7: Simulating 0.44 MGd through original pond, equivalent to current permit limits.



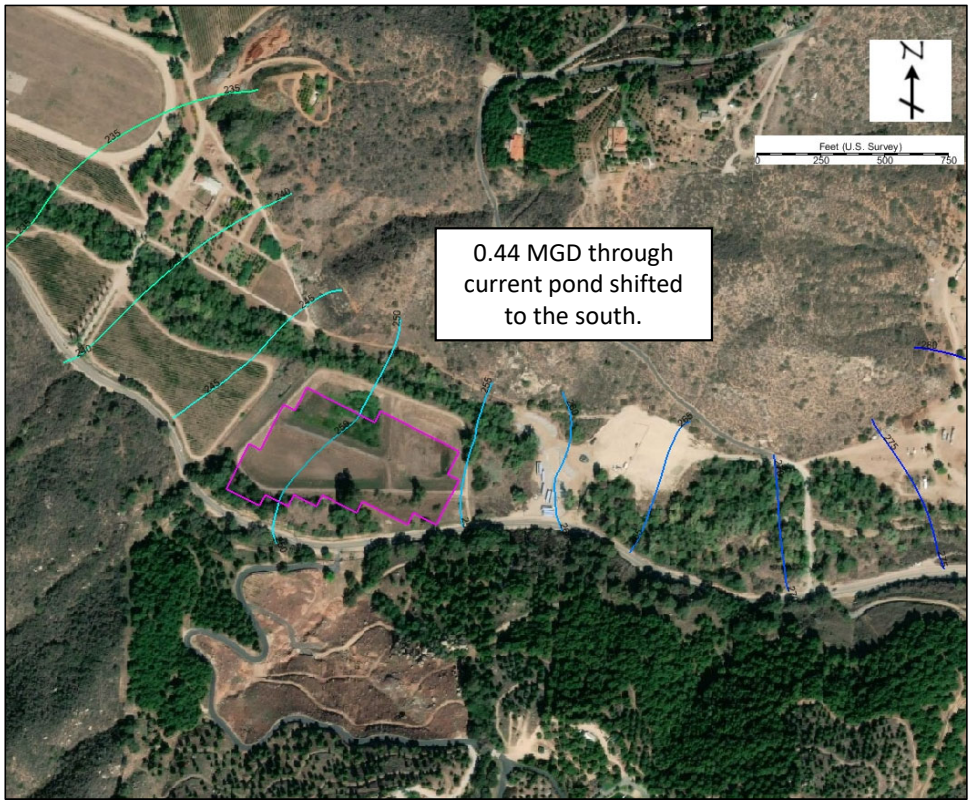


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Figure 8: Comparing 0.44 MGd at current pond location and shifted pond location.

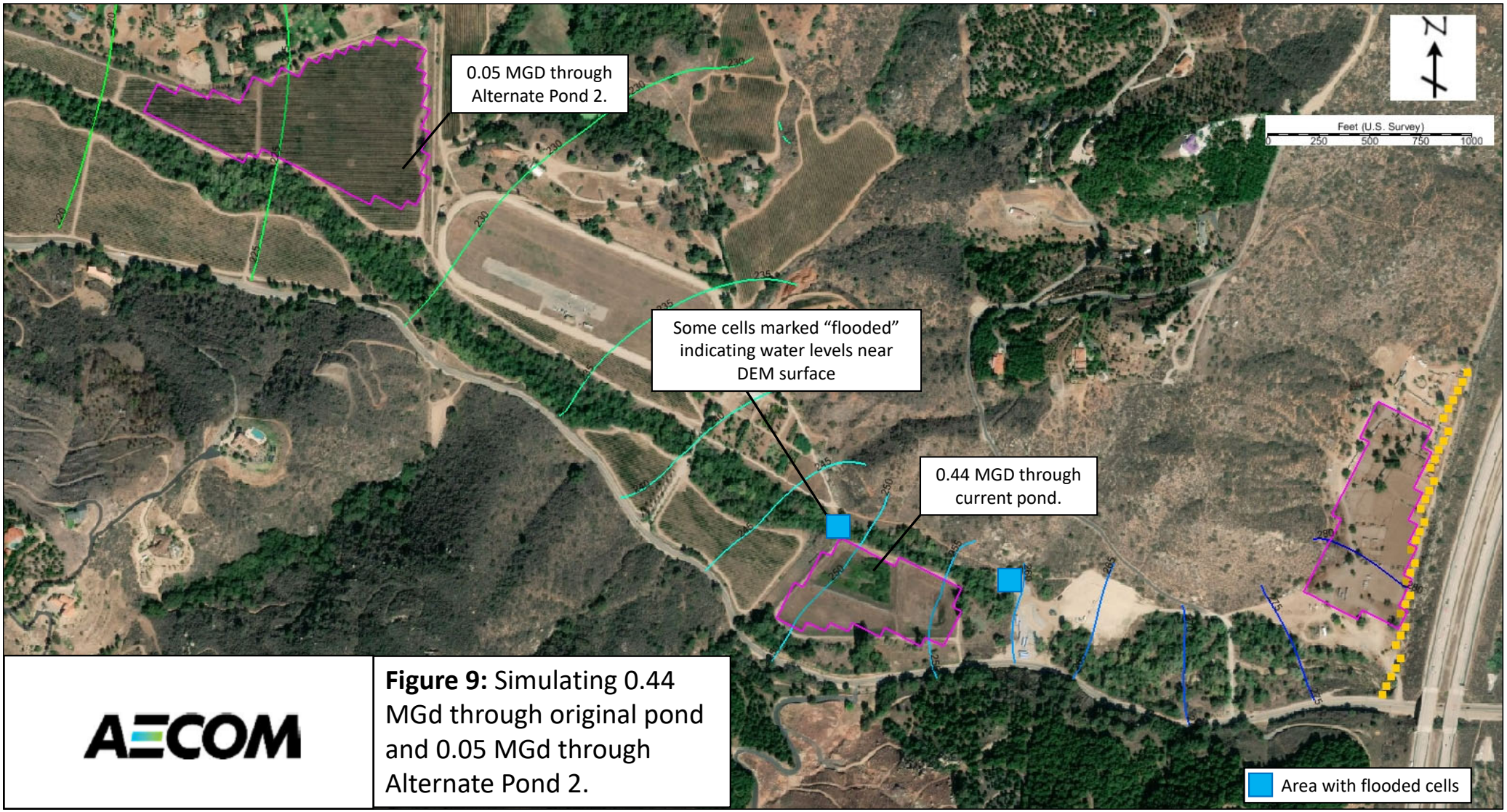

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Figure 9: Simulating 0.44 MGd through original pond and 0.05 MGd through Alternate Pond 2.

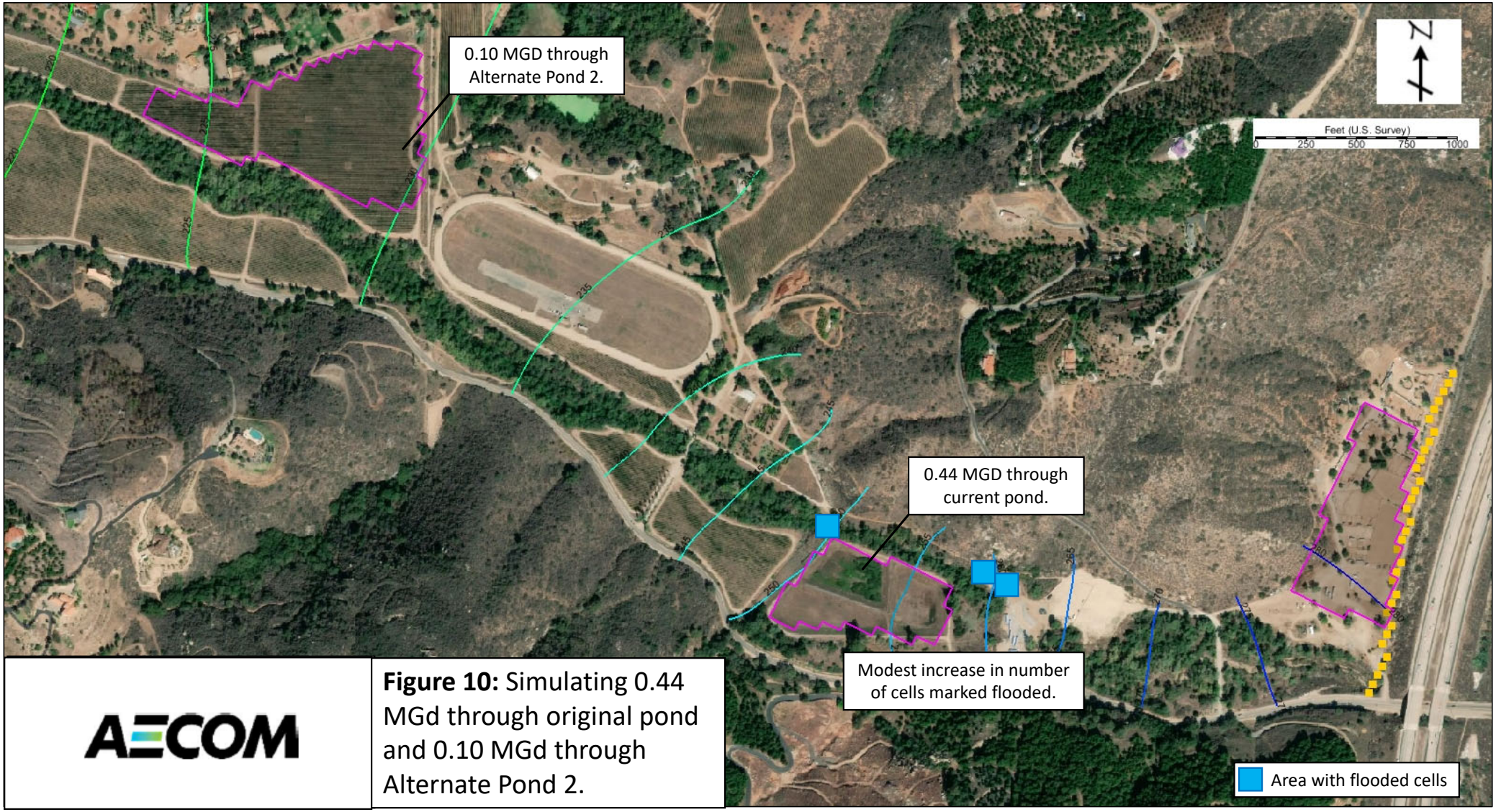

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Figure 10: Simulating 0.44 MGd through original pond and 0.10 MGd through Alternate Pond 2.

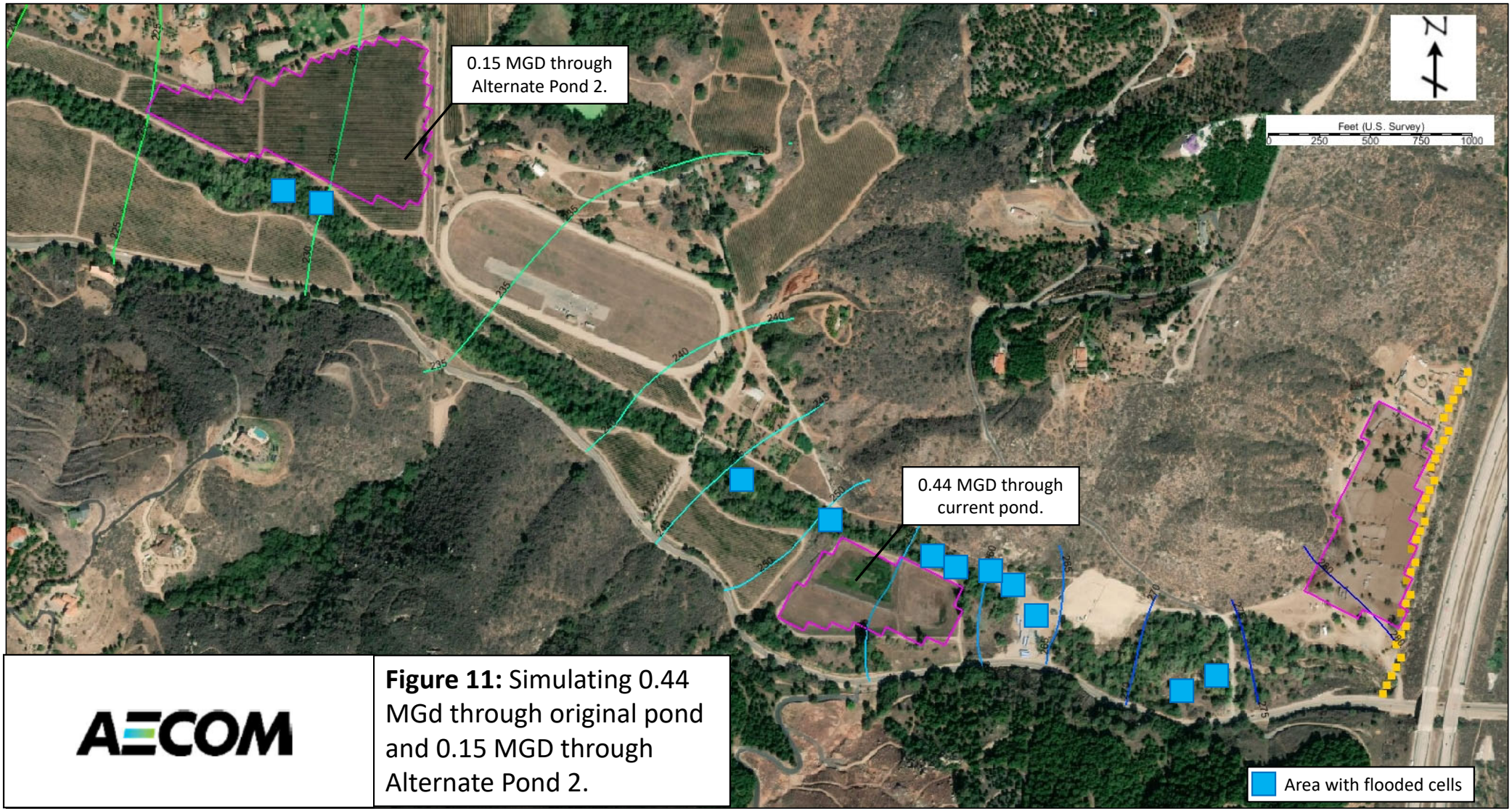

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Figure 11: Simulating 0.44 MGd through original pond and 0.15 MGD through Alternate Pond 2.

Number of blue icons not representative of actual number of flooded cells.

APPENDIX D – ORDINANCE 171

ORDINANCE NO. 171

AN ORDINANCE OF THE VALLEY CENTER MUNICIPAL WATER DISTRICT OF CALIFORNIA REQUIRING PUBLIC APPROVAL OF WATER DISTRICT EXPENDITURES FOR MAJOR PROJECTS

WHEREAS, major capital improvement projects and the acquisition and/or development of real estate by the Valley Center Municipal Water District (hereinafter referred to as "District") have profound financial impacts upon the budget of the District and upon the tax burden imposed upon the taxpayers; and

WHEREAS, it is essential for the taxpaying public to exercise direct control over public dollars to limit the size of public indebtedness; and

WHEREAS, it is the intent of this Ordinance to provide the citizens and taxpayers of the District with an opportunity to express directly their preference by vote prior to major District expenditures;

NOW, THEREFORE, the Valley Center Municipal Water District, California, DOES HEREBY ORDAIN as follows:

SECTION 1. Definitions. For the purposes of this Ordinance, the following words and phrases shall have the following definitions:

(a) "Effective Date" shall mean the date on which this Ordinance measure was adopted by the voters of the Valley Center Municipal Water District.

(b) "Real Property Acquisition" shall mean the purchase or lease of any real property, improved or unimproved, within or without the corporate limits of the Valley Center Municipal Water District to be paid for in whole or in part by District funds.

(c) "Improvement to Real Property" shall mean the actual physical construction on real property owned, leased, or controlled by the District, or the modification, enlargement, or alteration of existing structures on such property.

(d) "Capital Improvement Projects" shall mean the actual physical construction of improvements, or the modification, enlargement, or alteration of existing improvements on any project, including but not limited to water, sewer and waste disposal projects or special assessment districts, which is to be paid in whole or in part by District funds or by funds obtained by the District from whatever source, including but not limited to state and federal grants, and which are administered by the District.

(e) "District Funds" shall mean Valley Center Municipal Water District general fund monies, federal general revenue sharing monies and all other monies obtained by the District, including but not limited to, categorical federal and state grants available to the District for specific purposes or developer fees.

(f) "Public Debt" shall mean General Obligation Bonds, Revenue Bonds, Certificates of Participation, Bonds issued by a non-profit public benefit corporation or other entity, or similar

debt instruments, issued in lieu of traditionally accepted public financing techniques.

(g) "Authorized Debt Limit" shall mean the maximum amount of public debt which will be incurred in connection with any one project subject to the provisions of this Ordinance without complying with the election requirement of Section 2. Except as established in Section 6 herein, the Authorized Debt limit per project shall be $1,000,000.00 as of the effective date of this Ordinance, and shall not be retroactive, and shall be adjusted on January 1st of 1989, and shall be adjusted on January 1st of every year thereafter based on the percentage increase or decrease in the San Diego Area Consumer Price Index for all Urban Consumers as compiled by the United States Department of Labor, Bureau of Statistics. If such consumer price index is no longer published, then another similar, generally recognized index may be used subject to the approval of the District. For purposes of applying the Authorized Debt Limit, individual projects shall not be cumulated over any period of time; rather, the Authorized Debt Limit shall be applied on a per-project-basis.

(h) "Proceeds of Taxes or Fees" shall mean proceeds of property, business license, sales, any other taxes, developer fees, special assessment district fees, or other fees collected by the District.

SECTION 2. Vote Required. Except as otherwise provided for herein in Section 6, the District shall not participate in a Capital Improvement Project, property acquisition and/or make any improvement to real property for

which the amount of Public Debt incurred, or the Proceeds of Taxes or Fees used in such Project, or any combination thereof, will exceed the Authorized Debt Limit unless the proposed capital improvement project, property acquisition and/or improvement project and the proposed expenditure is first placed upon the ballot and approved by a majority of the voters voting thereon at an election.

SECTION 3. Splitting Project Not Permitted. It shall be unlawful to split or separate into smaller work orders or projects any project subject to this Ordinance for the purposes of evading the provisions of this Ordinance. This paragraph shall be construed in accordance with the law applicable to Government Code Section 37902.1 pertaining to splitting projects to avoid competitive bidding.

SECTION 4. Determination of Costs. In determining the cost of a proposed Capital Improvement Project, Real Propety Acquisition or Improvement to Real Property, the following costs shall be included:

(a) The contract price of all improvements;

(b) The purchase price of the real estate, including improvements, or the present value of a lease, as appropriate;

(c) All preliminary studies and reports directly related to the capital improvement project, acquisition or improvement, including but not limited to, Environmental Impact Reports, architectural rendering, soils analyses, engineering work, and the like;

(d) Finance costs.

(a) The proposed project has received its final discretionary approval in the form of the final issuance of a permit or other necessary approval by the District.

(b) Substantial expenditures have been made, as of September 1, 1987, in good faith reliance on the final discretionary approval;

(c) Substantial construction has been commenced in good faith reliance on the final discretionary approval, where construction is contemplated. For purposes of this section, substantial construction shall mean that no less than 25% of the final construction has been completed. Whether or not a vested right has been obtained in a particular case is a question of fact to be determined on a case by case basis by the District following notice and public hearing. In no event can the District make a finding of the existence of a vested right without a preponderance of the evidence showing compliance with each and every requirement contained herein.

(4) Any emergency expenditure of District funds required by act of war, natural catastrophe, act of God, or other emergency provided that such expenditure is for the purpose of repairing or replacing damaged facilities or to provide temporary services within the District which are of the same or similar level of service existing before the emergency, natural catastrophe, act of war or act of God.

SECTION 7. Amendment or Repeal. This measure may be amended or repealed only by a majority of the voters voting at an election thereon.

SECTION 5. Guidelines. The District may adopt by Resolution reasonable guidelines to implement this measure following notice and public hearing.

SECTION 6. Exemption of Certain Projects. This measure shall not apply to:

(1) Any maintenance or replacement project for existing facilities, pipelines, water tanks, reservoirs, or other capital improvements existing as of the effective date of this Ordinance;

(2) The acquisition and installation of water tanks and reservoirs to be used soley for water storage purposes provided that the District does not expend in excess of $1,500,000.00 per year for such acquisition and installation with such limit being adjusted on January 1st of 1989, and on January 1st of every year thereafter based on the percentage increase or decrease in the San Diego Area Consumer Price Index for all Urban Consumers as compiled by the United States Department of Labor, Bureau of Statistics. If such consumer price index is no longer published, then another similar, generally recognized index may be used subject to the approval of the District; and

(3) Any Capital Improvement Project, Real Property Acquisition or Improvement to Real Property which has obtained a vested right as of the effective date of this measure. For purposes of this measure, a "vested right" shall have been obtained if all of the following (if applicable) are met:

SECTION 8. Severability. If any section, subsection, sentence, clause, phrase, part, or portion of this ordinance is for any reason held to be invalid or unconstitutional by any court of competent jurisdiction, such decision shall not affect the validity of the remaining portions of this Ordinance. It is hereby declared that this Ordinance and each section, subsection, sentence, clause, phrase, part, or portion thereof, would have been adopted or passed irrespective of the fact that any one or more sections, subsections, sentences, clauses, phrases, parts, or portions be declared invalid or unconstitutional.

SECTION 9. That all ordinances, or parts of ordinances, in conflict herewith are hereby repealed.

ADOPTED by the voters as an initiative measure at an election held on the 22nd day of March, 1988, and effective April 14, 1988, as provided in Resolution No. 1175.

President

Secretary

(ET31:WPVCWD.I)

APPENDIX E – AUTHORIZED DEBT LIMIT

RESOLUTION NO. 2022-04

RESOLUTION OF THE BOARD OF DIRECTORS OF VALLEY CENTER MUNICIPAL WATER DISTRICT AFFIRMING THE DISTRICT'S "AUTHORIZED DEBT LIMIT" PER ORDINANCE NO. 171 WHICH ESTABLISHED A LIMITATION ON THE EXPENDITURE OF DISTRICT FUNDS

WHEREAS, Ordinance No. 171 established an "Authorized Debt Limit" per project of $1,000,000 as of the effective date of the ordinance and a limitation of $1,500,000 per year for the acquisition and installation of water tanks and reservoirs to be used solely for water storage purposes; and

WHEREAS, Ordinance No. 171 provides for the adjustment of such limitations as of January 1, 1989, and on January 1st of every year thereafter based on the percentage increase or decrease in the San Diego Area Consumer Price Index for All Urban Consumers as compiled by the United States Department of Labor, Bureau of Labor Statistics; and

WHEREAS, the "Authorized Debt Limit" was last adjusted effective January 1, 2021 by Resolution No. 2021-11 to $2,589,681 per project and to $3,884,535 per year for the acquisition and installation of water tanks and reservoirs to be used solely for water storage purposes; and

WHEREAS, the increase in the San Diego Area Consumer Price Index for All Urban Consumers for the 2021 calendar year as compiled by the United States Department of Labor, Bureau of Labor Statistics, was 6.3 percent.

NOW, THEREFORE, IT IS HEREBY RESOLVED, DETERMINED, AND ORDERED by the Board of Directors of the Valley Center Municipal Water District as follows:

1. That the "Authorized Debt Limit" as defined in Section 1(g) of Ordinance No. 171 of $2,752,831 is affirmed, effective January 1, 2022.

2. That the limitation established by Section 6(2) of Ordinance No. 171 for the acquisition and installation of water tanks and reservoirs to be used solely for water storage purposes of $4,129,261 per year is affirmed, effective January 1, 2022.

PASSED AND ADOPTED at a regular meeting of the Board of Directors of **Valley Center Municipal Water District** held on the 21st day of March 2022 by the following vote, to wit:

AYES: *Directors Polito, Ferro, Holtz, Smith, and Babineau*

NOES: None

ABSENT: None

Robert A. Polito, *President*

ATTEST:

Kirsten N. Peraino, *Secretary*