



# Wet Weather Preparations Informational Update

Matt Fabry, P.E.

Deputy Director – Public Works Department

# Council Feedback & Direction

This is an informational update only, general City Council feedback is welcome.

# Immediate-term Actions

Project/Task	
A	Additional Marina Lagoon Pump Station pump vibration analysis at summer lagoon levels
B	Develop Marina Lagoon Alternatives Analysis for Pumping Below 95'
C	Install debris rack at 4000 Pacific Boulevard Pump Station
D	Provide data on City's website for Marina Lagoon levels and pumps running
E	Implement additional safety systems for trash rack cleaning at Marina Lagoon Pump Station
F	Develop an RFP to update the 2004 Storm Drain Master Plan and develop a prioritized implementation strategy
G	Inspect and clean all City-owned trash capture devices
H	Inspect and clean all City-owned trash racks
I	Inspect and clean all storm pump station wet wells
J	Prepare traffic control/closures and stage materials for roads with known flooding concerns
K	Coordinate with Office of Emergency Services on wet weather planning and training
L	Work with community on Marina Lagoon Pump Station Standard Operating Procedures
M	Establish a Marina Lagoon Resident Flood Watch communication program
N	Coordinate improved public outreach and messaging on emergency preparations

# Draft Alternatives Analysis for Pumping Below 95'

## DRAFT MEMORANDUM

DATE: January 29, 2024  
TO: Matt Fabry, PE (City of San Mateo)  
FROM: Leif Coponen, PE (CA CE #70139) and Yoshi Nakajima, EIT  
SUBJECT: Marina Lagoon SDPS – Dewatering Below Elevation 95 - Alternative Analysis

### Introduction

The City of San Mateo (City) contracted Schaaf & Wheeler to investigate potential short-term alternatives for lowering the Marina Lagoon water level below Elevation 95 based on the previously prepared memorandum titled "Marina Lagoon Storm Water Pump Station Study" (Schaaf & Wheeler, May 2023), which recommended the City to not operate the existing pump station below Elevation 95.

Schaaf & Wheeler has prepared four (4) conceptual alternative analysis for lowering the Marina Lagoon below Elevation 95. The purpose of this memorandum is to provide the City with an evaluation of each proposed alternative, benefits and drawbacks, and a conceptual engineer's cost estimate. The alternatives studied include:

1. Hydraulic Intake Analysis to determine if existing pumps can safely lower the water level and what hydraulic improvements are required to facilitate lowering the lagoon water level.
2. Installation of a temporary rental pump system to operate below Elevation 95.
3. Use one existing pump/gearbox/engine as a sacrificial pump with anticipated replacement.
4. Construction of a new low-flow pump station adjacent to the existing pump station.

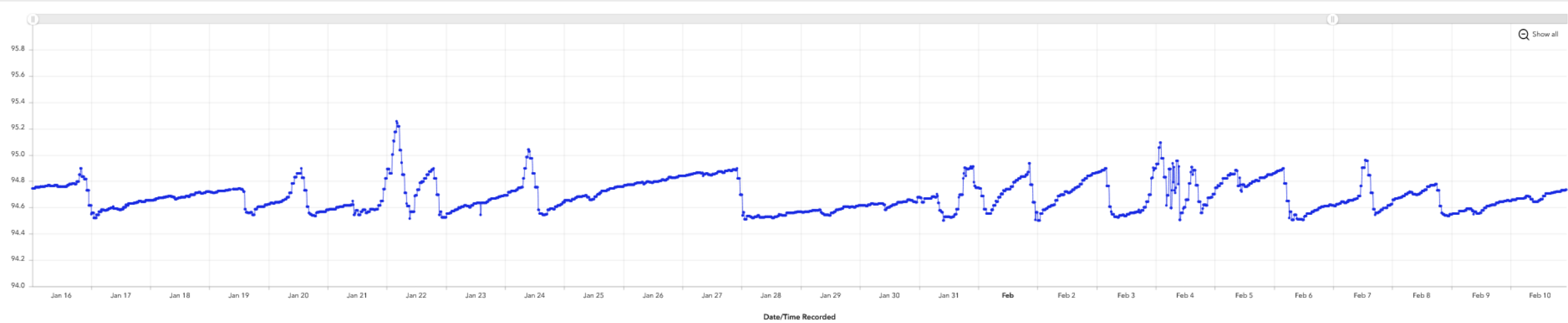
### Background

Marina Lagoon (Lagoon) water surface elevation is regulated by the City on a seasonal basis to optimize flood control, recreation, aesthetics, and ecological benefits. The Lagoon's primary water source is tidal flow from San Francisco Bay through O'Neill Slough during high tides. During the wet season, stormwater runoff from the City's drainage area can comprise a large proportion of inflow to the Lagoon.

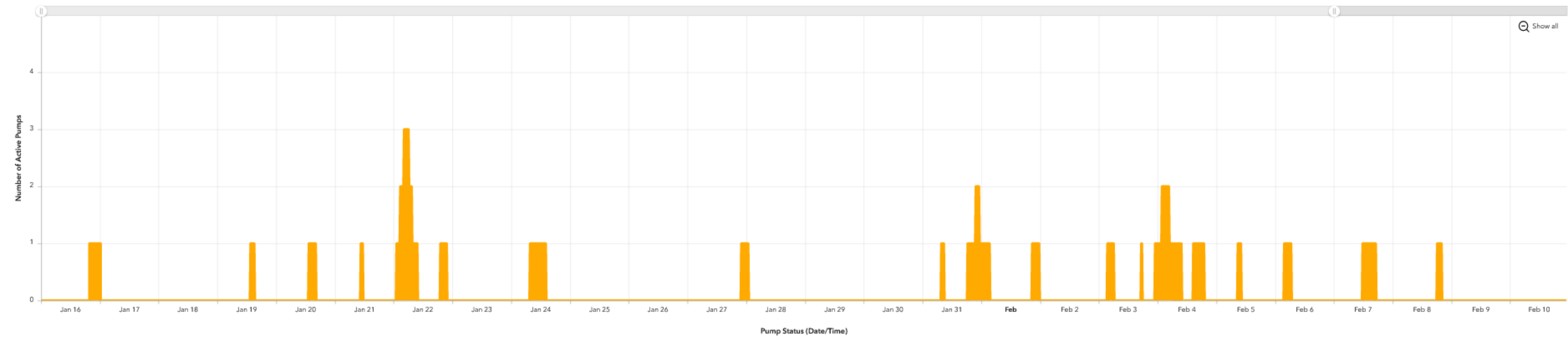
The water level of the Lagoon is controlled using the O'Neill Slough tide gate structure on the Lagoon's south end and the Marina Lagoon Pump Station on the north end (Figure 1). During the winter months, the water level of the Lagoon is lowered by 2.0 ft from summer operating level of 96.9 ft City of San Mateo datum (CSM) to 94.9 ft CSM to provide volume for the Lagoon to receive stormwater runoff and as a protection from lowland flooding. The City additionally lowers the Lagoon by 1.5 ft to 93.4 ft CSM for a duration of a month within the winter months for "Dock Maintenance Period". (Table 1)

# Marina Lagoon Levels & Pump Status Dashboard

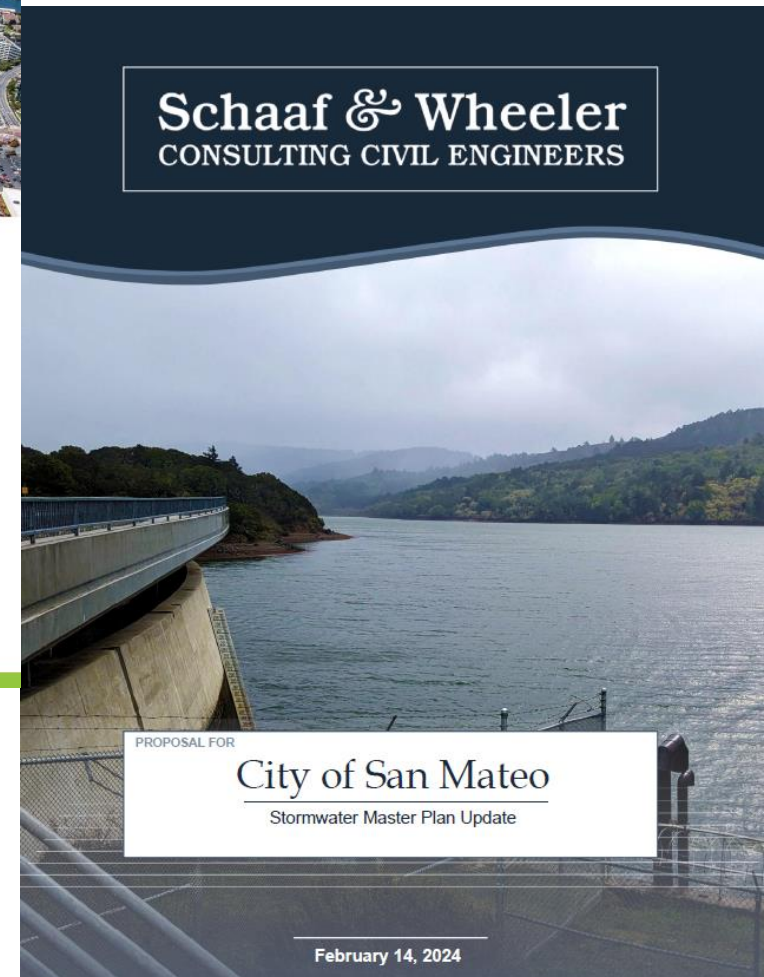
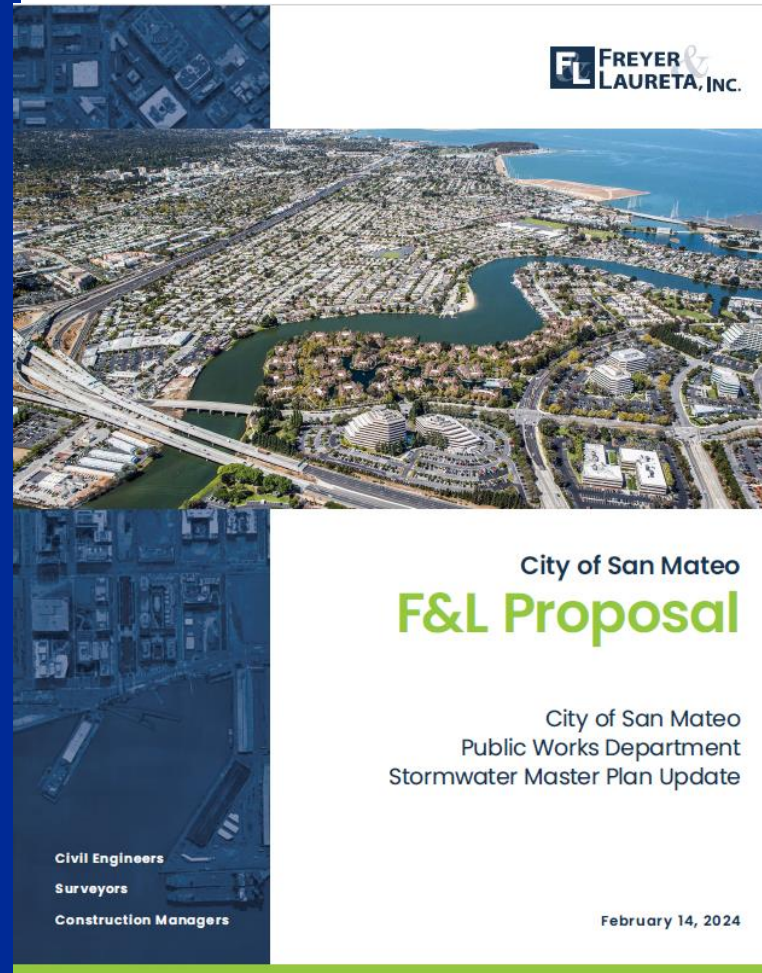
Marina Lagoon Water Level and Pump Status \*Elevation reference is the San Mateo datum +100



Last update: 59 seconds ago

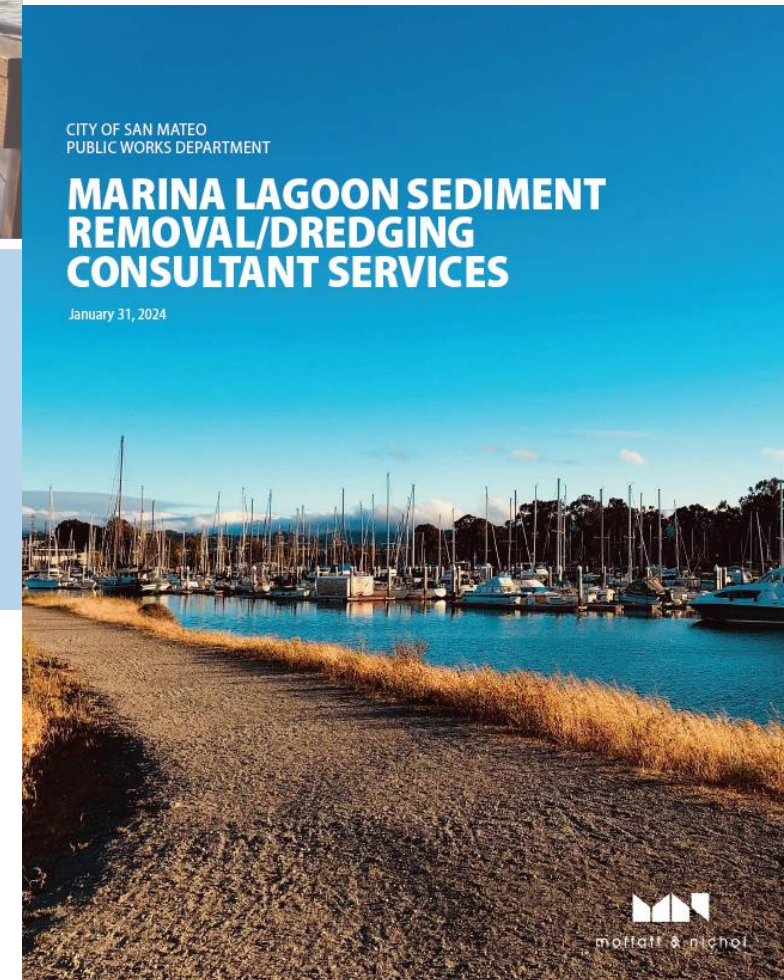
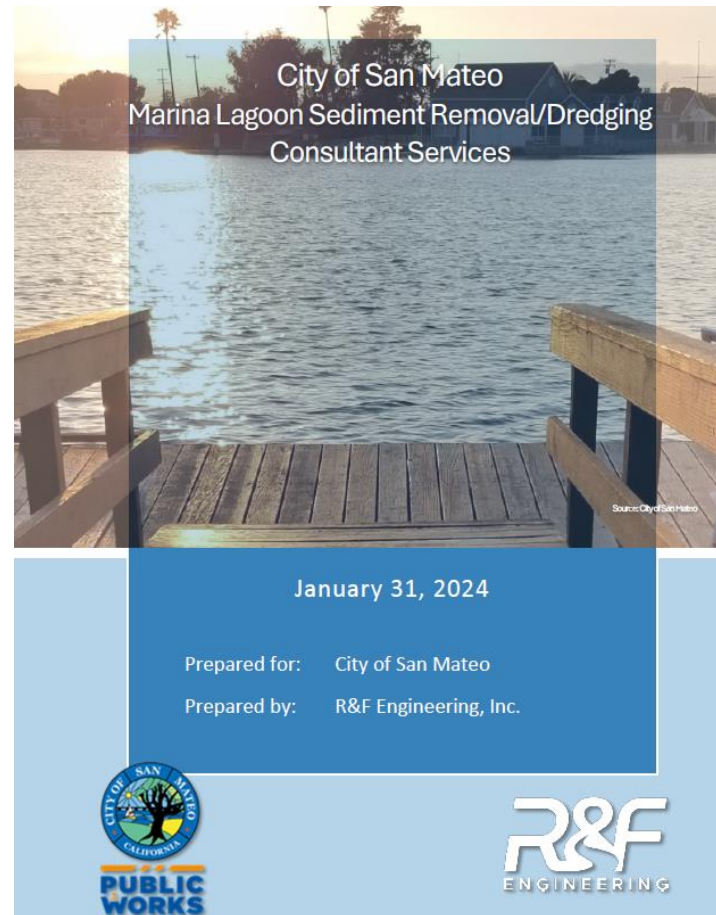


# Proposals for Storm Drain Master Plan Update/LiDAR





# Proposals for Lagoon Spot Dredging Design



# Immediate-term Actions

1	Perform maintenance on all five diesel engines, upgrade wiring, programming, and alarms, and purchase a spare pump lubricator system at Marina Lagoon Pump Station
2	Deploy up to five (5) Sand Bag stations throughout the City for upcoming rainy season, with focus on areas with history of flooding, and coordinate with community volunteers for filling bags, monitoring stations
3	Inspect and clean all catch basins before rainy season and recurring cleaning at hot spots throughout rainy season



# MLPS – New Raised Transducer and High Level Float



# MLPS – New Wet Well Transducer & Floats

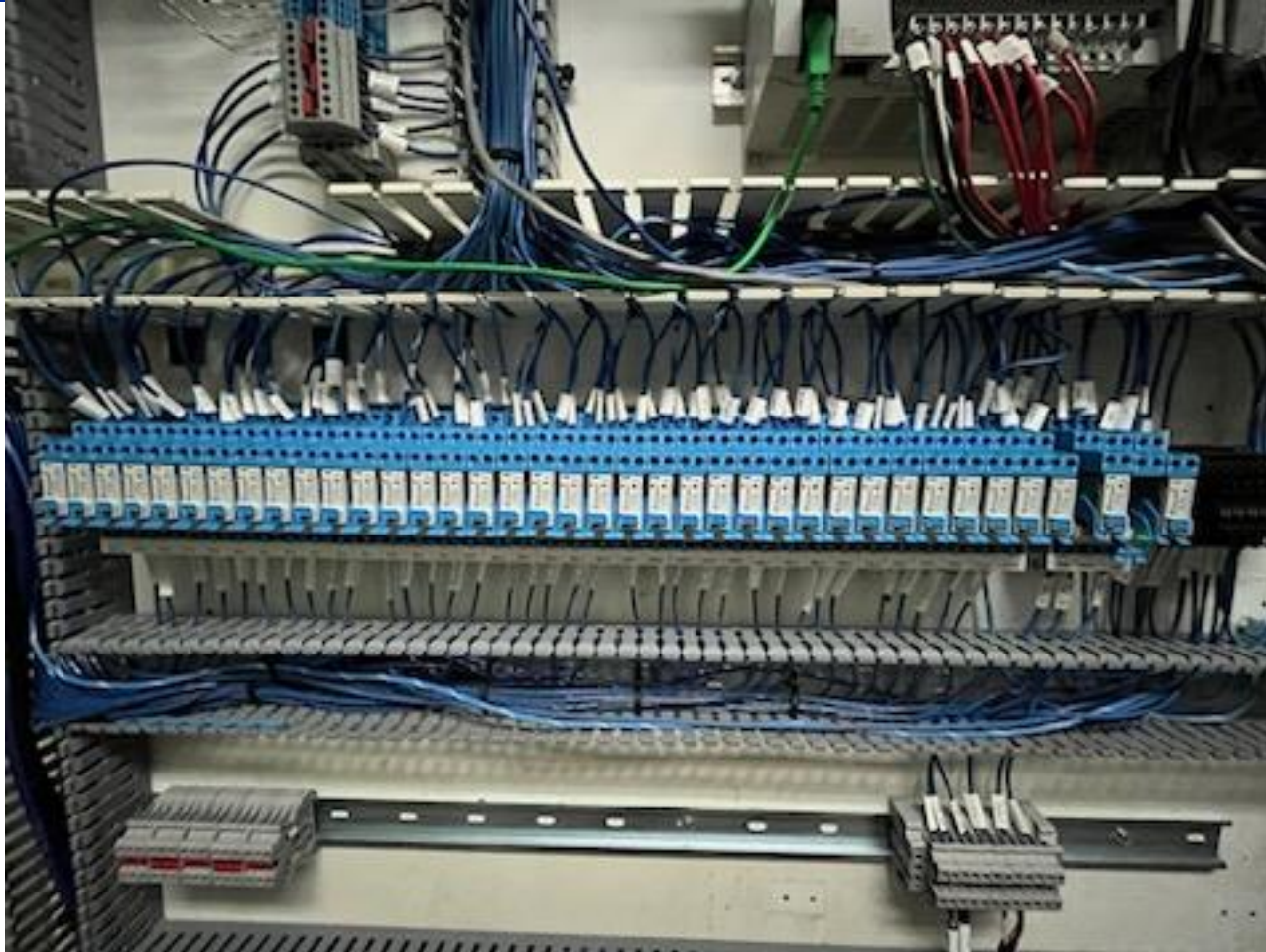




# MLPS – Spare Lubricator & New Cathodic Protection Rectifier

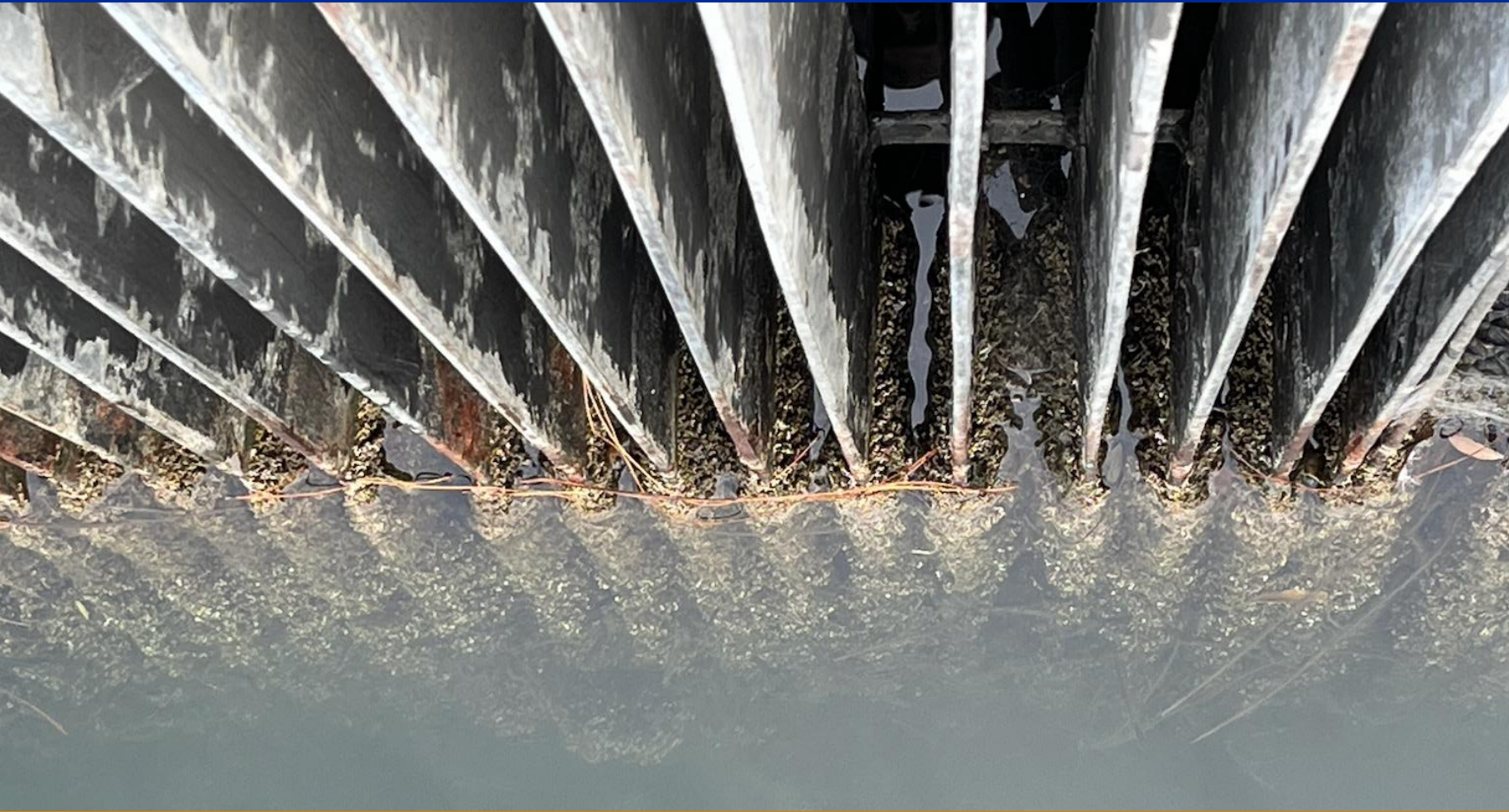


# MLPS – New Alarm Wiring





# MLPS – Trash Rack Barnacle Removal





# MLPS – Engine Oil Leak, Potential Rebuild Needed





# MLPS – Engine Oil Leak, Potential Rebuild Needed



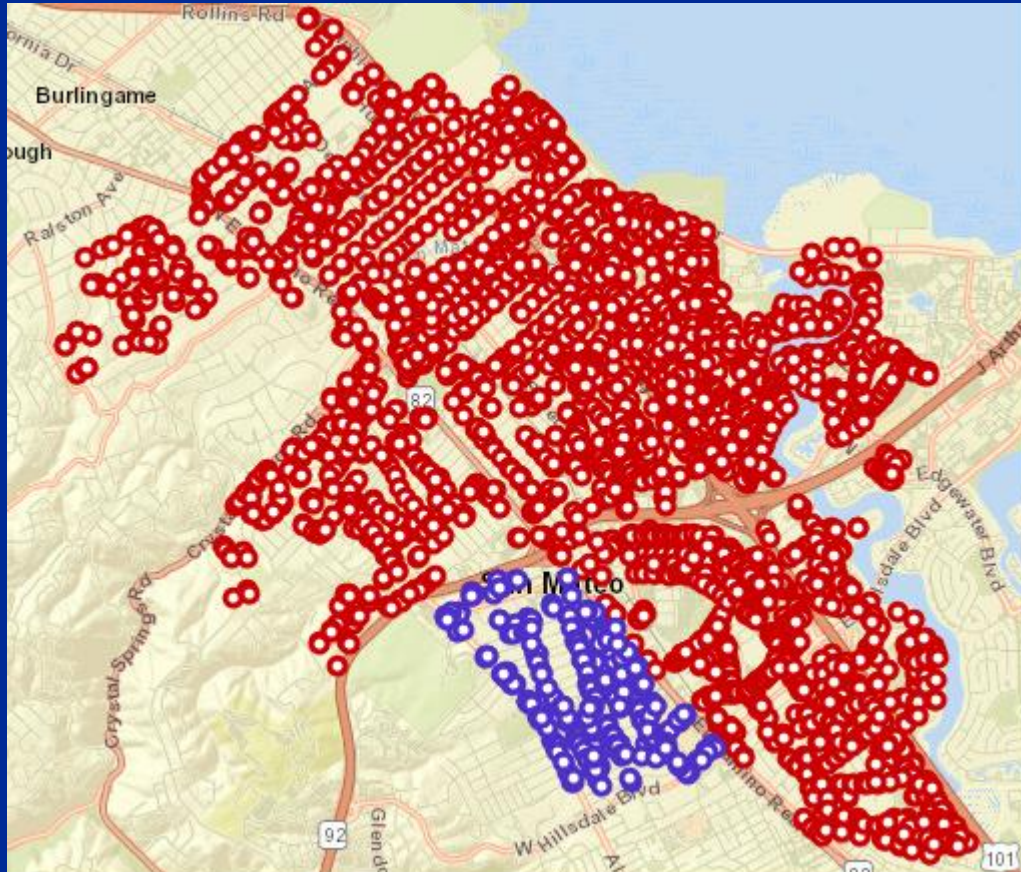


# Sandbag Stations – Four stations, 48 cubic yards of sand used to date (= ~5,000 bags)





# Catch Basin Cleaning



# Short- and Mid-term actions

4	Localized lagoon maintenance dredging under existing permit
5	Localized, small-scale drainage improvements
6	Camera monitoring of priority creeks/trash racks
7	LiDAR aerial survey (Ground surface, creeks, & lagoon bathymetric)
8	Storm Water Master Plan Update
	<i>Model Update, Alternatives Analysis, Prioritization, Report</i>
	<i>Storm Drain Condition Assessment</i>
	<i>Pump Station Condition Assessment</i>
9	Marina Lagoon Dredging: Design, Environmental, & Permitting
	<i>Environmental Study</i>
	<i>Permitting</i>
	<i>Design</i>
	Localized Lagoon Maintenance Dredging Under Existing Permit



# San Mateo Creek Crystal Springs Reservoir SFPUC/OneShoreline

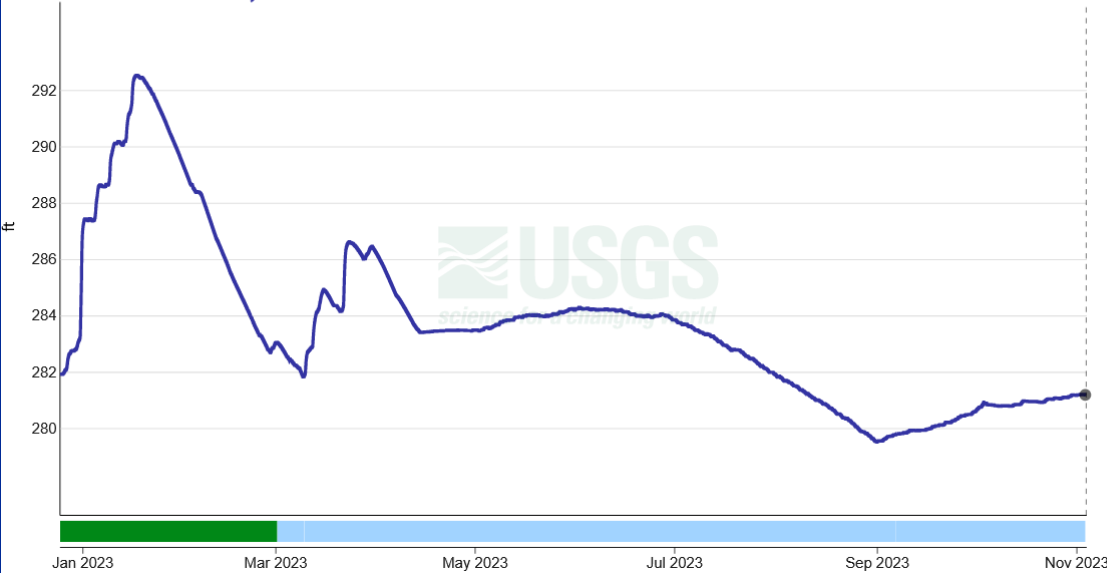


## Lower Crystal Springs Reservoir San Mateo CA - 11162750

December 25, 2022 - November 3, 2023

Lake or reservoir water surface elevation above NAVD 1988, feet

281.20 ft - Nov 03, 2023 01:30:00 PM PDT



# Status of Appropriations

OPERATING BUDGET SPEND CATEGORY		MARINA LAGOON	WET WEATHER PREPARATION	ENCUMBERED/ SPENT
Other Contractual Services		500,000	132,000	542,510
Maintenance & Repairs - Equipment Services			27,000	0
Maintenance & Repairs - Materials, Parts, & Supplies			50,000	46,496
Rents & Leases of Equipment			66,000	1,945
Salaries - Regular			125,000	162,000
<b>TOTAL</b>		<b>500,000</b>	<b>400,000</b>	752,951
Supplier	Description of Services	Amount	Liquidated	Remaining
Cummins	Marina Lagoon Engine Maintenance	303,563	143,939	159,624
Telstar	Marina Lagoon Pump Control Upgrades	96,889	0	96,889
Enterprise Automation	Marina Lagoon SCADA Programming	40,804	40,804	0
Exim Engineering	Marina Lagoon Pump Automatic Lubricator	27,455	27,455	0
JDH Corrosion Consultants	Purchase of Cathodic Protection Auto-Potential Rectifier	12,700	0	12,700
	<b>TOTAL</b>	<b>481,411</b>	<b>212,198</b>	<b>269,213</b>
<b>Capital Project Appropriation - Project 46c006: (\$2,100,000)</b>				
4	Localized lagoon maintenance dredging under existing permit			
5	Localized, small-scale drainage improvements			
6	Camera monitoring of priority creeks/trash racks			
7	LiDAR aerial survey (Ground surface, creeks, & lagoon bathymetric)			

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