REGULAR MEETING OF THE FLORIN RESOURCE CONSERVATION DISTRICT BOARD OF DIRECTORS

Agenda

Tuesday, September 20, 2022

6:00 PM

Join Zoom Meeting: https://zoom.us/j/88087813278

Join by Phone: Dial US +1 669 900 6833 Meeting ID: 880 8781 3278

Compliance with Government Code Section 54957.5

Public records, including writings related to an agenda item for an open session of a regular meeting of the Florin Resources Conservation District that are distributed less than 72 hours before the meeting, are available by email request. In addition, such writings may be posted, whenever possible, on the Elk Grove Water District website at www.egwd.org. The Board will discuss all items on the agenda and may take action on any item listed as an "Action" item. The Board may discuss items that do not appear on the agenda but will not act on those items unless there is a need to take immediate action and the Board determines by a two-thirds (2/3) vote that the need for action arose after posting of the agenda. If necessary, the Meeting will be adjourned to Closed Session to discuss items on the agenda listed under "Closed Session." At the conclusion of the Closed Session, the meeting will reconvene to "Open Session."

CALL TO ORDER, ROLL CALL AND PLEDGE OF ALLEGIANCE

Public Comment

This is the opportunity for the public to comment on non-agenda items within the subject matter jurisdiction. Comments are limited to three (3) minutes.

Page Numbers

1. Future Florin Resource Conservation District Board Meetings by Teleconference — 4-6

(Stefani Phillips, Human Resources Administrator/Board Secretary)

Associate Director Comment

Public Comment

Recommended Action/Information: **Consider finding by a majority vote under Gov. Code § 54953, subd. (e)(1)(B) that as a result of the COVID-19 emergency: (i) meeting in person would present imminent risks to the health or safety of attendees; and (ii) the meeting is authorized to be held by teleconference pursuant to Gov. Code § 54953, subd. (e)(1)(C).**

2. Proclamations and Announcements

Associate Director Comment

Public Comment

Page Numbers

3. Consent Calendar **7-8**

(Stefani Phillips, Board Secretary and Patrick Lee, Treasurer)

a. Minutes of Regular Board Meeting of August 16, 2022 **9-11**
b. Accounts Payable Check History – August 2022 **12-16**
c. Board and Employee Expense/Reimbursements – August 2022 **17**
d. Active Accounts – August 2022 **18**
e. Bond Covenant Status for FY 2022-23 – August 2022 **19**
f. CASH - Detail Schedule of Investments – August 2022 **20**
g. Consultants Expenses – August 2022 **21**
h. Major Capital Improvement Projects – August 2022 **22**

Associate Director Comment

Public Comment

Recommended Action/Information: **Approve Florin Resource Conservation District Consent Calendar items a – h.**

4. Year to Date Revenues and Expenses Compared to Budget – August 2022 **23-25**

(Patrick Lee, Finance Manager)

Associate Director Comment

Public Comment

Recommended Action/Information: **Information only.**

5. Professional Services Agreement for Preparation of the 2024-2028 Water Rate and Connection Fee Study **26-96**

(Patrick Lee, Finance Manager)

Associate Director Comment

Public Comment

Recommended Action/Information: **Authorize:**

1) **The General Manager to execute a professional services agreement with Raftelis in an amount not-to-exceed $68,746 for the preparation of the 2024-2028 Water Rate and Connection Fee Study for the Elk Grove Water District; and**

2) **Staff to proceed with forming a Community Advisory Committee to assist with providing input on the Study.**

6. Water Professionals Appreciation Week **97-100**

(Bruce Kamilos, General Manager)

Associate Director Comment

Public Comment

Recommended Action/Information: **Adopt Resolution No. 09.20.22.01, declaring October 1-9, 2022, Water Professionals Appreciation Week.**

7. Groundwater Workshop – Groundwater Substitution Transfers **101-111**
(Bruce Kamilos, General Manager)

Associate Director Comment

Public Comment

Recommended Action/Information: Information only.

8. Elk Grove Water District Well Siting and Design Study and Source Capacity Update **112-176**
(Bruce Kamilos, General Manager)

Associate Director Comment

Public Comment

Recommended Action/Information: Accept and file the Elk Grove Water District Well Siting and Design Study.

9. General Manager's Report **177-178**
(Bruce Kamilos, General Manager)

Associate Director Comment

Public Comment

Recommended Action/Information: Information only.

10. Elk Grove Water District Operations Report – August 2022 **179-227**
(Bruce Kamilos, General Manager)

Associate Director Comment

Public Comment

Recommended Action/Information: Information only.

11. Directors Comments

12. Closed Session

a. THREAT TO PUBLIC SERVICES OR FACILITIES
Consultation with: Bruce Kamilos, General Manager

Adjourn to Regular Meeting – October 18, 2022

September 20, 2022

TO: Chair and Directors of the Florin Resource Conservation District

FROM: Stefani Phillips, Human Resources Administrator/Board Secretary

SUBJECT: **FUTURE FLORIN RESOURCE CONSERVATION DISTRICT BOARD MEETINGS BY TELECONFERENCE**

RECOMMENDATION

This item is being presented to the Florin Resource Conservation District Board of Directors to consider finding by a majority vote under Gov. Code § 54953, subd. (e)(1)(B) that as a result of the COVID-19 emergency: (i) meeting in person would present imminent risks to the health or safety of attendees; and (ii) the meeting is authorized to be held by teleconference pursuant to Gov. Code § 54953, subd. (e)(1)(C).

SUMMARY

The Florin Resource Conservation District (FRCD) Board of Directors (Board) has conducted board meetings by teleconference since April 21, 2020. On September 15, 2021, the Governor passed Assembly Bill (AB) 361 extending the allowance of public board meetings to be conducted by teleconference effective October 1, 2021, through December 31, 2023. The Board voted that meetings continue to be conducted by teleconference in accordance with AB-361 and concurred that this item be brought back each month for action.

DISCUSSION

Background

Governor Newsom issued Executive Order N-29-20 which allows public agencies to hold board meetings by teleconference without violating the Brown Act. On April 21, 2020, the Board began conducting board meetings by teleconference. Fast forward, Governor Newsom passed AB-361 extending the allowance of public board meetings to be conducted by teleconference through December 31, 2023.

The Board voted that meetings continue to be conducted by teleconference in accordance with AB-361 and concurred that this item be brought back each month for action.

In light of the Governor's declaration that a state of emergency exists due to the incidence and spread of the novel coronavirus, and the pandemic caused by the resulting disease

COVID-19, the Board should consider whether meeting in person would present imminent risks to the health or safety of meeting attendees.

The Centers for Disease Control indicates that COVID-19 is a highly transmissible virus that is spread when an infected person breathes out droplets and very small particles that contain the virus, and such droplets and particles are breathed in by other people. Variants of the virus continue to emerge, presenting an imminent risk to the health and safety of meeting attendees.

Present Situation

Conducting meetings by teleconference would directly reduce the risk of transmission among meeting attendees, including members of the public and staff, which has the ancillary effect of reducing risk of serious illness and death, as well as reducing community spread of the virus.

To meet by teleconference under AB-361, local agency boards must include an initial agenda item, such as this, to consider finding that the circumstances allowing a teleconference meeting under AB-361 exist. At the October 2021 regular board meeting, the Board reviewed this commencing agenda item and voted that meetings continue to be conducted by teleconference in accordance with AB-361. They also concurred that this item be brought back each month for action.

If the authorization to meet by teleconference is not approved by a majority vote, then the meeting will adjourn after this item and the remaining agenda items will be rescheduled to a future in-person meeting.

If authorization to meet by teleconference is approved by a majority vote, staff will continue to bring a re-authorization to the Board as an action item, at every regular board meeting, until such time the Board determines meetings will continue in person.

Staff recommends that the Board consider finding by a majority vote, that as a result of the COVID-19 emergency, meeting in person would present imminent risks to the health or safety of attendees, and the meeting should be held by teleconference as authorized by subdivision (e)(1)(C) of section 54943 of the Government Code.

ENVIRONMENTAL CONSIDERATIONS

There are no direct environmental considerations associated with this report.

STRATEGIC PLAN CONFORMITY

This item conforms with Strategic Goal No. 1, Governance and Customer Engagement, of the Strategic Plan 2020-2025.

FINANCIAL SUMMARY

There is no direct financial impact associated with this report.

Respectfully submitted,

STEFANI PHILLIPS,
HUMAN RESOURCES ADMINISTRATOR/BOARD SECRETARY

September 20, 2022

TO: Chair and Directors of the Florin Resource Conservation District

FROM: Stefani Phillips, Board Secretary and Patrick Lee, Treasurer

SUBJECT: **CONSENT CALENDAR**

RECOMMENDATION

It is recommended that the Florin Resource Conservation District Board of Directors approve Florin Resource Conservation District Consent Calendar items a – h.

SUMMARY

Consent Calendar items a – h are standing items on the Regular Board Meeting agenda.

By this action, the Florin Resource Conservation District (FRCD) Board of Directors will approve FRCD Consent Calendar items a – h.

DISCUSSION

Background

Consent Calendar items are standing items on the Regular Board Meeting agenda.

Present Situation

Consent Calendar items a – h are standing items on the Regular Board Meeting agenda.

ENVIRONMENTAL CONSIDERATIONS

There are no direct environmental considerations associated with this report.

STRATEGIC PLAN CONFORMITY

This item conforms to the FRCD/Elk Grove Water District 2020-2025 Strategic Plan. The monthly Consent Calendar report provides transparency, which aligns with Goal No. 1, Governance and Customer Engagement, of the Strategic Plan 2020-2025.

FINANCIAL SUMMARY

There is no financial impact associated with this report.

Respectfully Submitted,

STEFANI PHILLIPS
BOARD SECRETARY

And

PATRICK LEE
TREASURER

Attachments

MINUTES OF THE REGULAR MEETING OF THE FLORIN RESOURCE CONSERVATION DISTRICT BOARD OF DIRECTORS

Tuesday, August 16, 2022

The regular meeting of the Florin Resource Conservation District Board of Directors was called to order at 6:05 p.m. by Chair Sophia Scherman via Zoom.

Call to Order, Roll Call, and Pledge of Allegiance.

Directors Present:	Sophia Scherman, Lisa Medina, Elliot Mulberg
Directors Absent:	Tom Nelson, Paul Lindsay
Staff Present:	Bruce Kamilos, General Manager; Patrick Lee, Finance Manager/Treasurer; Stefani Phillips, Human Resources Administrator/ Board Secretary; Donella Murillo, Finance Supervisor: Ben Voelz, Associate Engineer; Travis Franklin, Program Manager; Amber Kavert, Human Resources Technician; Steve Shaw; Water Treatment Supervisor
Staff Absent:	None
Associate Directors Present:	None
Associate Directors Absent:	None
General Counsel Present:	Ren Nosky, JRG Attorneys at Law
Consultant Present:	Steve Schweigerdt, Sacramento County Conservancy

Public Comment

No comment.

1. Future Florin Resource Conservation District Board Meeting by Teleconference

Board Secretary Stefani Phillips presented the item to the Florin Resource Conservation District (District) Board of Directors (Board).

In summary, the Board has conducted board meetings by teleconference since April 21, 2020. On September 30, 2021, Executive Order No. N-29-20, which allows for board meetings to be conducted by teleconference expired. On September 15, 2021, the Governor passed Assembly Bill (AB) 361 extending the allowance of public board meetings to be conducted by teleconference effective October 1, 2021, through December 31, 2023. At the September regular board meeting, the Board concurred that meetings continue to be conducted by teleconference in accordance with AB-361. To meet by teleconference under AB-361, local agency boards must include an initial agenda item to consider finding that the circumstances allowing a teleconference meeting under AB-361 exist. After the initial meeting, if 30 days or less have elapsed since the last meeting, an agenda item should be included to renew the determination that meeting in person presents health risks. However, if more than 30 days have passed, an initial agenda item must be included to re-authorize meeting by teleconference under AB-361.

MSC (Mulberg/Medina), to find by a majority vote under Gov. Code § 54953, subd. (e)(1)(B) that as a result of the COVID-19 emergency: (i) meeting in person would present imminent risks to the health or safety of attendees; and (ii) the meeting is authorized to be held by teleconference pursuant to Gov. Code § 54953, subd. (e)(1)(C). 3/0: Ayes: Medina, Mulberg and Scherman.

2. Proclamations and Announcements

Nothing to report.

3. Consent Calendar

a. Minutes of Regular Board Meeting of July 19, 2022
b. Accounts Payable Check History – July 2022
c. Board and Employee Expense/Reimbursements – July 2022
d. Active Accounts – July 2022
e. Bond Covenant Status for FY 2022-23 – July 2022
f. CASH - Detail Schedule of Investments – July 2022
g. Consultants Expenses – July 2022
h. Major Capital Improvement Projects – July 2022

Item e pulled for questions and comments.

MSC (Mulberg/Scherman) to approve Florin Resource Conservation District Consent Calendar items a-h. 3/0: Ayes: Medina, Mulberg, and Scherman.

4. Year to Date Revenues and Expenses Compared to Budget – August 2022

Finance Manager Patrick Lee presented the item to the Board.

5. Sacramento Valley Conservancy Support Letter for Sustainable Agricultural Lands Conservation Capacity Grant Application

Mr. Kamilos presented the item to the Board.

In summary, the Sacramento Valley Conservancy (SVC) requested a grant application support letter from the District. The SVC was applying for a Sustainable Agricultural Lands Conservation Capacity Grant to pursue conserving agricultural and range land along the southeastern edge of the Sacramento urban area. The FRCD has limited all future activities to water-related activities that benefit the Elk Grove Water District (EGWD) ratepayers. Conserving land and additional open areas for groundwater recharge could promote sustainable groundwater management and benefit EGWD ratepayers, providing water-intensive crops are not planted on the land. Staff asked the Board to provide direction on how to proceed.

After a brief discussion, the Board agreed to support the SVC.

MSC (Mulberg/Medina) to provide a support letter to Sacramento Valley Conservancy for a Sustainable Agricultural Lands Conservation Capacity Grant Application. 3/0: Ayes: Medina, Mulberg and Scherman

6. Elk Grove Water District Fiscal Year 2023-27 Capital Improvement Program Revision

Associate Engineer Ben Voelz presented the item to the Board.

In summary, on June 21, 2022, by Resolution No. 06.21.22.01, the Board adopted the EGWD Fiscal Year (FY) 2023-27 Capital Improvement Program (CIP) and appropriated $1,684,000, from reserves, for capital improvement projects for FY 2022-23. Certain capital projects approved and funded by the EGWD FY 2021-22 CIP are required to be carried over into FY 2022-23 for completion. Due to this, the EGWD FY 2023-27 CIP needs to be revised to include the necessary funding to complete these projects.

MSC (Mulberg/Medina) to adopt Resolution No. 08.16.22.01, amending the Elk Grove Water District Fiscal Year 2023-27 Capital Improvement Program and approving an additional appropriation of $1,430,316 from future capital improvement reserve funds to the Fiscal Year 2022-23 Capital Improvement Program Budget and amending the Elk Grove Water District Fiscal

Year 2022-23 Operating Budget appropriating an additional $1,430,316 from operating reserves to fund expenditures in excess of revenues for fiscal year 2022-23.

7. Legislative Matters and Potential Direction to Staff

Program Manager Travis Franklin presented the item to the Board.

8. General Managers Report

Mr. Kamilos presented the item to the Board.

In summary, Mr. Kamilos provided an update on the Administration Office Tenant Improvement Project, as well as the targeted date of October 7, 2022, for the Grand Opening of the new administration office. He announced he was appointed to the Regional Water Authority Policy 200.2 Ad Hoc Committee. Lastly, Mr. Kamilos provided a water conservation update.

9. Elk Grove Water District Operations Report – July 2022

Mr. Kamilos presented the EGWD Operations Report – July 2022 to the Board.

Chair Sophia Scherman asked that staff recognize the ratepayers for their successful effort in conserving water. Staff will add this to the next Water Drop.

10. Directors Comments

Nothing to report.

Adjourn to Regular Board Meeting on September 20, 2022.

Respectfully submitted,

Stefani Phillips

Stefani Phillips, Board Secretary

AK/SP

Check History Report

8/1/2022 to 8/31/2022
Elk Grove Water District

Check Number	Check Date	Vendor Number	Name	Check Amount	Explanation
055714	8/3/2022	A.P.THO	A.P. THOMAS CONSTRUCTION, INC	403,280.48	9829 Waterman Road - Improvements (construction)
055715	8/3/2022	ACWAJPI	CB&T/ ACWA-JPIA	67,529.73	Medical Benefits - September 2022
055716	8/3/2022	AMAZON	AMAZON CAPITAL SERVICES	201.44	
055717	8/3/2022	AQUA ME	AQUA-METRIC SALES, CO.	1,554.44	Meter Reading Equipment - Auto Gun
055718	8/3/2022	BATTER	BATTERIES PLUS	148.12	
055719	8/3/2022	BAY 3	BAY ALARM COMPANY	1,954.66	
055720	8/3/2022	BEN RES	BENEFIT RESOURCE, INC	125.00	
055721	8/3/2022	BRENNTA	BRENNTAG PACIFIC, INC	4,776.28	Materials - Treatment
055722	8/3/2022	BSK4	BSK ASSOCIATES	162.00	Sampling - Treatment
055723	8/3/2022	CASTEAM	CALIFORNIA STEAM	105.97	
055724	8/3/2022	CINTAS2	CINTAS	171.29	
055725	8/3/2022	COVER A	COVERALL NORTH AMERICA, INC	360.00	
055726	8/3/2022	CR STED	STAN EDWARDS	889.19	Account Closed - Customer Refund
055727	8/3/2022	CR VSS	VSS INTERNATIONAL	2,684.58	Account Closed - Customer Refund
055728	8/3/2022	CRF BSI	BAHADUR SINGH	564.44	Account Closed - Customer Refund
055729	8/3/2022	CRF LEN	LENNAR HOMES CA, INC	19.73	Account Closed - Customer Refund
055730	8/3/2022	EARL CO	EARL CONSULTING CO., LLC	2,205.00	Project Management - New ADMIN Building
055731	8/3/2022	FRONT C	FRONTIER COMMUNICATIONS	252.58	
055732	8/3/2022	GRAINGE	GRAINGER	464.45	
055733	8/3/2022	HANFORD	HANDFORD SAND & GRAVEL, INC	2,912.52	(2) Invoices - Materials - CIP Truman/Adams St.
055734	8/3/2022	HEWITT	Aaron Hewitt	172.32	Boot Reimbursement
055735	8/3/2022	JAYS	JAY'S TRUCKING SERVICE	1,794.00	(2) Invoices - Rental Equipment/Materials - CIP Truman/Adams St.
055736	8/3/2022	OREILLY	O'REILLY AUTO PARTS	109.20	
055737	8/3/2022	PACE	PACE SUPPLY CORP	5,633.37	(4) Invoices - Materials - CIP Truman/Adams St.
055738	8/3/2022	RADIAL	RADIAL TIRE OF ELK GROVE	331.61	
055739	8/3/2022	REPUBLI	REPUBLIC SERVICES #922	3,178.78	
055740	8/3/2022	S CHEM	SIERRA CHEMICAL COMPANY	1,280.45	Materials - Treatment
055741	8/3/2022	SIERRA	SIERRA OFFICE SUPPLIES	323.04	
055742	8/3/2022	SMUD	SMUD	736.75	
055743	8/3/2022	SMUD	SMUD	921.14	
055744	8/3/2022	SOUTHWE	SOUTHWEST ANSWERING SERVICE,	1,053.69	
055745	8/3/2022	SUMMIT	AIR WORKS INC	735.99	
055746	8/3/2022	SWRCB2	SWRCB-DWOCP	90.00	
055747	8/3/2022	TEICH A	TEICHERT AGGREGATES	322.58	
055748	8/3/2022	UNDER	UNDERGROUND SERVICE ALERT	1,960.36	*California State Fee for Regulatory Costs July 2022 - June 2023
055749	8/3/2022	WALKER	WALKER KREATIVE	1,800.00	Social Media Public Outreach Campaign
055750	8/3/2022	AQUA	AQUA SIERRA CONTROLS, INC	50,769.07	Water Treatment Improvements for Wells 4D & 11D
055751	8/3/2022	BAY 3	BAY ALARM COMPANY	5.33	
055752	8/3/2022	COUNTY3	COUNTY OF SACRAMENTO	45.00	
055753	8/3/2022	INLAND2	INLAND BUSINESS SYSTEMS	174.04	
055754	8/3/2022	JAYS	JAY'S TRUCKING SERVICE	2,250.00	Dump & Recycle Fees - CIP Truman/Adams St.
055755	8/3/2022	YOUNGDA	YOUNGDAHL CONSULTING GROUP	4,082.50	Special Inspection Services - 9829 Waterman Rd.
055756	8/10/2022	BATTER	BATTERIES PLUS	69.91	
055757	8/10/2022	COUNTY4	SACRAMENTO COUNTY UTILITIES	1,311.39	
055758	8/10/2022	CRFKAWC	KAWAME CURRY	7.17	Void
055758	8/10/2022	CRFKAWC	KAWAME CURRY	7.17-	Void

055759	8/10/2022	FAC	FORENSIC ANALYTICAL	1,850.00	Abestos Cement Pipe Training - OPS
055760	8/10/2022	ACWA JP	ACWA JPIA	4,168.95	*Cyber Liability Program - July 2022 - June 2023
055761	8/10/2022	AMAZON	AMAZON CAPITAL SERVICES	208.48	
055762	8/10/2022	BG SOLU	SOLUTIONS BY BG INC.	10,042.50	Daily Tasks/Help Tickets
055763	8/10/2022	BRENNTA	BRENNTAG PACIFIC, INC	2,270.65	Materials - Treatment
055764	8/10/2022	BSK4	BSK ASSOCIATES	221.00	Sampling - Treatment
055765	8/10/2022	CHECK P	CHECK PROCESSORS, INC	344.80	
055766	8/10/2022	CINTAS2	CINTAS	171.29	
055767	8/10/2022	COVER A	COVERALL NORTH AMERICA, INC	499.00	
055768	8/10/2022	CR FID	FIDELITY NATIONAL TITLE	157.35	Account Closed - Customer Refund
055769	8/10/2022	CR FIRA	FIRST AMERICAN TITLE	14.49	Account Closed - Customer Refund
055770	8/10/2022	CRCT1	CHICAGO TITLE CO	91.96	Account Closed - Customer Refund
055771	8/10/2022	CRCT1	CHICAGO TITLE CO	163.67	Account Closed - Customer Refund
055772	8/10/2022	CRF KEH	KERRI HANSUM	37.48	Account Closed - Customer Refund
055773	8/10/2022	CRF LBU	LORNA BUECHLER	9.44	Account Closed - Customer Refund
055774	8/10/2022	CRF OPL	OPENDOOR LAB, INC	61.15	Account Closed - Customer Refund
055775	8/10/2022	CRF RLI	RANDY LIGHTLE	39.61	Account Closed - Customer Refund
055776	8/10/2022	CRF RMI	RONALD MITCHELL	39.40	Account Closed - Customer Refund
055777	8/10/2022	CRF TAY	TAYLOR MORRISON	41.83	Account Closed - Customer Refund
055778	8/10/2022	CRF YCT	YING CHAN TAN	53.19	Account Closed - Customer Refund
055779	8/10/2022	CRFFNC	FIDELITY NATIONAL TITLE COMP	56.02	Account Closed - Customer Refund
055780	8/10/2022	CRFFTC	FIRST AMERICAN TITLE COMPANY	107.61	Account Closed - Customer Refund
055781	8/10/2022	CRFID10	FIRST AMERICAN TITLE CO	18.39	Account Closed - Customer Refund
055782	8/10/2022	CRFRISI	RICARDO SILAHUA	22.95	Account Closed - Customer Refund
055783	8/10/2022	CS BK	CARD SERVICES	229.06	Meals, Hotel (CSDA Mulberg), Software Programs
055784	8/10/2022	CS DM	CARD SERVICES	42.09	Supplies, Software Programs
055785	8/10/2022	CS SP	CARD SERVICES	4,605.61	Employee Recongnition, Materials, Software programs, Storage
055786	8/10/2022	CS TF	CARD SERVICES	1,053.98	Safety Materials - Treatment
055787	8/10/2022	CSPL	CARD SERVICES	345.00	*BAP Submission GFOA
055788	8/10/2022	DATAPRO	DATAPROSE LLC	6,241.78	July 2022 Billing, Inserts & Postage
055789	8/10/2022	DB COLS	DB CONSTRUCTIONAL LANDSCAPE	3,150.00	Landscape & Maintenance - Wellsite's & Offices
055790	8/10/2022	HEWITT	AARON HEWITT	50.00	CDL Renewal Reimbursement - Class A
055791	8/10/2022	KINETIC	KINETICO WATER SYSTEMS	225.00	
055792	8/10/2022	KNOW	KnowBe4, Inc.	1,015.65	*Cyber Security User Awareness Training
055793	8/10/2022	METRO2	METRO MAILING SERVICE	3,410.47	Summer Water Drop Postage
055794	8/10/2022	OREILLY	O'REILLY AUTO PARTS	38.77	
055795	8/10/2022	PIT 5	PURCHASE POWER	587.14	Postage Machine - ADMIN
055796	8/10/2022	SMUD	SMUD	7,885.01	
055797	8/10/2022	SMUD	SMUD	2,056.52	
055798	8/10/2022	SMUD	SMUD	8,684.22	
055799	8/10/2022	SMUD	SMUD	17,357.40	
055800	8/10/2022	SMUD	SMUD	1,862.17	
055801	8/10/2022	SMUD	SMUD	54.80	
055802	8/10/2022	SMUD	SMUD	8,614.60	
055803	8/10/2022	SMUD	SMUD	2,676.57	
055804	8/10/2022	VALLEYO	VALLEY OAK PRESS, INC.	32.00	
055805	8/10/2022	WHITECA	WHITE CAP L.P.	1,369.36	Safety & Tools - Utility Crew
055806	8/17/2022	AMAZON	AMAZON CAPITAL SERVICES	889.34	(8) Invoices - Supplies, Materials, Tools.
055807	8/17/2022	BACK TE	BACKFLOW TECHNOLOGIES, INC	3,445.00	Contracted Services - Backflow Testing
055808	8/17/2022	BSK4	BSK ASSOCIATES	393.00	Sampling - Treatment
055809	8/17/2022	CINTAS2	CINTAS	171.29	
055810	8/17/2022	COEG	CITY OF ELK GROVE	1,865.86	General Maintenance - Encroachment & Overhead Allocation
055811	8/17/2022	CRF ENH	ENIANG HONH	31.75	Account Closed - Customer Refund
055812	8/17/2022	CRF GNW	GARRET & NOEL WILLINGMYRE	70.75	Account Closed - Customer Refund

055813	8/17/2022	CRF HEP	HEIDI PEDERSEN	17.36	Account Closed - Customer Refund
055814	8/17/2022	CRF KFI	KF INVESTMENTS, INC	131.68	Account Closed - Customer Refund
055815	8/17/2022	CRF LEN	LENNAR HOMES CA, INC	25.04	Account Closed - Customer Refund
055816	8/17/2022	CRF LEN	LENNAR HOMES CA, INC	92.38	Account Closed - Customer Refund
055817	8/17/2022	CRF LEN	LENNAR HOMES CA, INC	70.75	Account Closed - Customer Refund
055818	8/17/2022	CRF LEN	LENNAR HOMES CA, INC	9.31	Account Closed - Customer Refund
055819	8/17/2022	CRF LEN	LENNAR HOMES CA, INC	259.38	Account Closed - Customer Refund
055820	8/17/2022	CRF LEN	LENNAR HOMES CA, INC	116.12	Account Closed - Customer Refund
055821	8/17/2022	CRF LEN	LENNAR HOMES CA, INC	9.05	Account Closed - Customer Refund
055822	8/17/2022	CRF LEN	LENNAR HOMES CA, INC	76.93	Account Closed - Customer Refund
055823	8/17/2022	CRF LEN	LENNAR HOMES CA, INC	78.19	Account Closed - Customer Refund
055824	8/17/2022	CRF MPT	MORGAN PICKS TWO, LLC	262.17	Account Closed - Customer Refund
055825	8/17/2022	CRF OPL	OPENDOOR LAB, INC	71.35	Account Closed - Customer Refund
055826	8/17/2022	CRF WJC	WILLIAM & JUDITH CRANDALL	164.19	Account Closed - Customer Refund
055827	8/17/2022	CS AA	CARD SERVICES	3,650.92	Materials, Tools, Fuel
055828	8/17/2022	CS SH	CARD SERVICES	1,221.29	Postage, Maintenance, Tools
055829	8/17/2022	ESRI	ENVIRONMENTAL SYSTEMS RESEARCH INSTITUTE, INC	27,500.00	*ArcGIS - Three Year Commitment. This is the First Year Installment
055830	8/17/2022	HOLY TR	H.T.E.O.C.	620.00	Construction Rental Yard - CIP Adams St.
055831	8/17/2022	INNOVY	INNOVYZE, LLC	1,930.00	*InfoWater Pro Annual Renewal
055832	8/17/2022	INT STA	INTERSTATE OIL COMPANY	2,457.86	Fuel
055833	8/17/2022	JAYS	JAY'S TRUCKING SERVICE	1,508.00	(2) Invoices - Materials - CIP Truman St/Adams St
055834	8/17/2022	ONEWORK	ONE WORKPLACE	81,453.51	Furniture for 9829 Waterman Road
055835	8/17/2022	OREILLY	O'REILLY AUTO PARTS	7.11	
055836	8/17/2022	PACE	PACE SUPPLY CORP	3,213.70	(4) Invoices - Materials - CIP Truman/Adams St.
055837	8/17/2022	PEST	PEST CONTROL CENTER INC	84.00	
055838	8/17/2022	RDO	RDO EQUIPMENT CO.	209.29	
055839	8/17/2022	SAC 5	SACRAMENTO COUNTY	20.00	Lien Release
055840	8/17/2022	SAC 5	SACRAMENTO COUNTY	20.00	Lien Release
055841	8/17/2022	SAC 5	SACRAMENTO COUNTY	20.00	Lien Release
055842	8/17/2022	SAC LAF	SACRAMENTO LAFCO	2,083.00	*Annual Membership Dues - 2022 - 2023
055843	8/17/2022	SCHETTE	SCHETTER ELECTRIC LLC	22,050.00	(3) Invoices - Voice/Data cabling 9829 Waterman Rd.
055844	8/17/2022	SIERRA	SIERRA OFFICE SUPPLIES	215.13	
055845	8/17/2022	SUMMIT	AIR WORKS INC	5,429.00	AC Unit Repair - MOC
055846	8/17/2022	TEICH A	TEICHERT AGGREGATES	1,904.15	(3) Invoices - Materials - CIP Water Main Replacement Project, Distribution
055847	8/17/2022	TRAFF S	TRAFFIC SIGN SPECIALTIES	975.14	Rental Equipment - CIP 2nd Ave
055848	8/17/2022	TRE&TRA	TRENCH & TRAFFIC SUPPLY	1,628.21	Rental Equipment - CIP 2nd Ave
055849	8/17/2022	ULTRA	ULTRA TRUCK WORKS, INC	19.40	
055850	8/17/2022	USS	UNITED SITE SERVICES	1,845.74	
055851	8/17/2022	WHITECA	WHITE CAP L.P.	182.68	
055852	8/24/2022	AFLAC	AFLAC	1,444.92	
055853	8/24/2022	AMAZON	AMAZON CAPITAL SERVICES	399.69	
055854	8/24/2022	BATTER	BATTERIES PLUS	70.43	
055855	8/24/2022	BATTER	BATTERIES PLUS	64.65	
055856	8/24/2022	BAY 3	BAY ALARM COMPANY	2,160.37	
055857	8/24/2022	BSK4	BSK ASSOCIATES	459.00	Sampling - Treatment
055858	8/24/2022	CD&POW	CD & POWER	3,750.00	(2) Invoices - Repairs & Maintenance of Equipment Generator - Treatment
055859	8/24/2022	CFFNT	FIDELITY NATIONAL TITLE	59.15	Account Closed - Customer Refund
055860	8/24/2022	CHIC12	CHICAGO TITLE COMPANY	166.42	Account Closed - Customer Refund
055861	8/24/2022	CINTAS2	CINTAS	171.29	Account Closed - Customer Refund
055862	8/24/2022	CONSOLI	CONSOLIDATED COMMUNICATIONS	1,044.88	Ethernet Service/Phones-MOC/ADMIN
055863	8/24/2022	CRF FN3	FIDELITY NATIONAL TITLE	344.96	Account Closed - Customer Refund
055864	8/24/2022	CRF LNT	LENNAR TITLE	132.60	Account Closed - Customer Refund
055865	8/24/2022	CRF OR5	ORANGE COAST TITLE	108.79	Account Closed - Customer Refund

055866	8/24/2022	CRF STC	SPRUCE TITLE CO.	28.31	Account Closed - Customer Refund
055867	8/24/2022	CRF STC	SPRUCE TITLE CO.	93.01	Account Closed - Customer Refund
055868	8/24/2022	CRFAT 1	FIRST AMERICAN TITLE	25.32	Account Closed - Customer Refund
055869	8/24/2022	CRFCHT	CHICAGO TITLE	310.60	Account Closed - Customer Refund
055870	8/24/2022	CRFCHT	CHICAGO TITLE	16.91	Account Closed - Customer Refund
055871	8/24/2022	CRFFID1	FIDELITY NATIONAL TITLE	179.81	Account Closed - Customer Refund
055872	8/24/2022	CRFFTC	FIRST AMERICAN TITLE COMPANY	75.93	Account Closed - Customer Refund
055873	8/24/2022	CRFOCT2	ORANGE COAST TITLE CO.	100.79	Account Closed - Customer Refund
055874	8/24/2022	CRFPLA9	PLACER TITLE CO	47.73	Account Closed - Customer Refund
055875	8/24/2022	CRFST6	STEWART TITLE OF SACRAMENTO	28.77	Account Closed - Customer Refund
055876	8/24/2022	CS SS	CARD SERVICES	959.33	Yagi Antenna (Treatment), AWWA Conference (Aaron)
055877	8/24/2022	DMV	DMV	9.00	
055878	8/24/2022	EGPOWER	ELK GROVE POWER EQUIPMENT	942.64	(3) Invoices - Chemicals - Treatment
055879	8/24/2022	GRAINGE	GRAINGER	464.45	
055880	8/24/2022	HACH	HACH COMPANY	930.20	(3) Invoices - Service Line Replacement & Materials
055881	8/24/2022	KEVIN Y	KEVIN YOUNG CONCRETE	2,250.00	Remove and Replace Concrete - 9065 N. Camden Dr.
055882	8/24/2022	OREILLY	O'REILLY AUTO PARTS	14.00	
055883	8/24/2022	PEST	PEST CONTROL CENTER INC	84.00	
055884	8/24/2022	ROCKET	ROCKET RESTROOMS & FENCING,	1,533.00	Fence Rental - CIP Truman/Adam St.
055885	8/24/2022	S CHEM	SIERRA CHEMICAL COMPANY	2,486.88	Materials - Treatment
055886	8/24/2022	TEICH A	TEICHERT AGGREGATES	1,244.09	(2) Invoices - Materials - CIP Truman St/Adam St.
055887	8/24/2022	VERIZON	VERIZON WIRELESS	540.64	
055888	8/26/2022	BG SOLU	SOLUTIONS BY BG INC.	9,904.06	Daily Tasks/Help Tickets
055889	8/31/2022	AMAZON	AMAZON CAPITAL SERVICES	408.98	
055890	8/31/2022	AWWA	AMERICAN WATER WORKS ASSOC.	302.00	*Membership Dues - Steve Shaw
055891	8/31/2022	AWWA	AMERICAN WATER WORKS ASSOC.	302.00	*Membership Dues - Aaron Hewitt
055892	8/31/2022	BADAWI	BADAWI & ASSOCIATES	11,778.75	FY 2022 Audit - Progress Billing #2
055893	8/31/2022	BAY 3	BAY ALARM COMPANY	529.40	
055894	8/31/2022	BSK4	BSK ASSOCIATES	334.00	Sampling - Treatment
055895	8/31/2022	CAMCITY	CAMELIA CITY MILLWORK INC.	5,205.00	Modifications - 9829 Waterman Rd.
055896	8/31/2022	CAP BAR	CAPITOL BARRICADE, INC	1,321.86	Materials - Distribution Crew
055897	8/31/2022	CHI TI	CHICAGO TITLE CO	82.10	Account Closed - Customer Refund
055898	8/31/2022	CHI TI	CHICAGO TITLE CO	25.20	Account Closed - Customer Refund
055899	8/31/2022	CINTAS2	CINTAS	171.29	
055900	8/31/2022	CORE&MA	CORE & MAIN LP	15,179.82	Materials - CIP 2nd Ave
055901	8/31/2022	COUNTY4	SACRAMENTO COUNTY UTILITIES	1,637.07	
055902	8/31/2022	COUNTY4	SACRAMENTO COUNTY UTILITIES	288.23	
055903	8/31/2022	COUNTY6	COUNTY OF SACRAMENTO	664.00	*Annual Fee for Hazardous Materials Permit 9715 RR
055904	8/31/2022	COUNTY6	COUNTY OF SACRAMENTO	848.00	*Annual Fee for Hazardous Materials Permit Well # 13 Hampton Oak Dr.
055905	8/31/2022	COUNTY6	COUNTY OF SACRAMENTO	664.00	*Annual Fee for Hazardous Materials Permit Well #8 Ranch Park Way
055906	8/31/2022	COUNTY6	COUNTY OF SACRAMENTO	664.00	*Annual Fee for Hazardous Materials Permit Well #9 9035 Polhemus Dr
055907	8/31/2022	CR FIRA	FIRST AMERICAN TITLE	50.85	Account Closed - Customer Refund
055908	8/31/2022	CR ORT1	OLD REPUBLIC TITLE	70.76	Account Closed - Customer Refund
055909	8/31/2022	CRCT	CHICAGO TITLE	78.28	Account Closed - Customer Refund
055910	8/31/2022	CRCTC	CHICAGO TITLE CO.	61.49	Account Closed - Customer Refund
055911	8/31/2022	CRF DOL	DAVID OLSON	0.45	Account Closed - Customer Refund
055912	8/31/2022	CRF DSE	DIANE SENNA	9.31	Account Closed - Customer Refund
055913	8/31/2022	CRF DTC	DOMA TITLE OF CA	66.43	Account Closed - Customer Refund
055914	8/31/2022	CRF FN3	FIDELITY NATIONAL TITLE	306.39	Account Closed - Customer Refund
055915	8/31/2022	CRF LEN	LENNAR HOMES CA, INC	0.55	Account Closed - Customer Refund
055916	8/31/2022	CRF LEN	LENNAR HOMES CA, INC	135.19	Account Closed - Customer Refund
055917	8/31/2022	CRF PLA	PLACER TITLE COMPANY	17.19	Account Closed - Customer Refund
055918	8/31/2022	CRF STC	SPRUCE TITLE CO.	116.52	Account Closed - Customer Refund
055919	8/31/2022	CRF TAY	TAYLOR MORRISON	0.33	Account Closed - Customer Refund

055920	8/31/2022	CRF WMO	WILLIAM MOORE	80.35	Account Closed - Customer Refund
055921	8/31/2022	CRFGRAH	GRAHAM CONSTRUCTION	3,000.00	Account Closed - Customer Refund
055922	8/31/2022	CRFID15	FIDELITY NATIONAL TITLE	30.35	Account Closed - Customer Refund
055923	8/31/2022	CRFORA	ORANGE COAST TITLE	31.27	Account Closed - Customer Refund
055924	8/31/2022	DLT	DLT SOLUTIONS	3,316.62	*Annual AutoCAD Software - Tech Services
055925	8/31/2022	EG MAS	ELK GROVE MASONIC LODGE #173	6,000.00	September Rent - 9257 Elk Grove Blvd
055926	8/31/2022	FLUID T	FLUID TECH HYDRAULICS INC.	214.90	
055927	8/31/2022	FRONT C	FRONTIER COMMUNICATIONS	266.97	
055928	8/31/2022	HACH	HACH COMPANY	112.34	
055929	8/31/2022	HANFORD	HANDFORD SAND & GRAVEL, INC	2,685.15	Materials - CIP Adams St.
055930	8/31/2022	HOLT	HOLT OF CALIFORNIA	4,433.73	Equipment Rental - CIP 2nd Ave
055931	8/31/2022	INT STA	INTERSTATE OIL COMPANY	2,743.34	Fuel
055932	8/31/2022	JAYS	JAY'S TRUCKING SERVICE	1,110.00	Equipment Rental - Utility Crew
055933	8/31/2022	JRG	JRG ATTORNEYS, LLP	1,224.00	Legal - July 2022
055934	8/31/2022	MFDB AC	MFDB ARCHITECTS INC.	7,314.28	EGWD Administration Building Tenant Improvements
055935	8/31/2022	MULBERG	ELLIOT MULBERG	798.87	CSDA Travel Expense Reimbursement
055936	8/31/2022	NORCAL	NOR*CAL ASPHALT	84,382.00	(3) Invoices - Service Line Replacement & Materials
055937	8/31/2022	OREILLY	O'REILLY AUTO PARTS	62.46	
055938	8/31/2022	PACE	PACE SUPPLY CORP	13,329.12	(8) Invoices - Materials - CIP 2nd Ave, Distribution & Utility Crew
055939	8/31/2022	PG&E	PACIFIC GAS & ELECTRIC COMPANY	15.63	
055940	8/31/2022	PG&E	PACIFIC GAS & ELECTRIC COMPANY	15.04	
055941	8/31/2022	PIT 5	PURCHASE POWER	587.14	Postage Machine - ADMIN
055942	8/31/2022	PRESCRI	PRESCRIPTIVE DATA SOLUTIONS,	9,079.73	Upgrade Parts for ESXI Server Hosts - MOC/ADMIN
055943	8/31/2022	REPUBLI	REPUBLIC SERVICES #922	3,117.24	
055944	8/31/2022	ROOCO	ROOCO RENTS	1,266.35	Materials - CIP 2nd Ave
055945	8/31/2022	SIERRA	SIERRA OFFICE SUPPLIES	2,628.29	(10) invoices - Supplies - ADMIN
055946	8/31/2022	SIGN CE	THE SIGN CENTER	5,319.03	(2) Invoices - Monument Sign & Address Numbers - 9829 Waterman Road
055947	8/31/2022	SOUTHWE	SOUTHWEST ANSWERING SERVICE,	1,292.94	
055948	8/31/2022	SWRCB2	SWRCB-DWOCP	80.00	Water Distribution Certification D2 - Jaylyn Gordon-Ford
055949	8/31/2022	SWRCB2	SWRCB-DWOCP	60.00	Water Treatment Certification T2 - Stefan Chanh
055950	8/31/2022	USBANK	U.S. BANK EQUIPMENT FINANCE	752.14	Copier - ADMIN
055951	8/31/2022	VALLEYO	VALLEY OAK PRESS, INC.	507.63	Public Notice - Unclaimed Funds
055952	8/31/2022	YOUNGDA	YOUNGDAHL CONSULTING GROUP	2,530.00	Materials Testing - Structural - 9829 Waterman Rd.
			Total:	**1,062,642.82**	

BOARD AND EMPLOYEE MONTHLY EXPENSE/REIMBURSEMENTS

As of 08/31/2022

INDIVIDUAL	DESCRIPTION	AMOUNT PAID
Aaron Hewitt	AWWA Conference	$524.00
Aaron Hewitt	Boot Reimbursement	$172.32
Aaron Hewitt	AWWA Membership Dues	$302.00
Elliot Mulberg	CSDA Travel Expense Reimbursement	$798.87
Steve Shaw	AWWA Membership Dues	$302.00
		$2,099.19

Active Account Information
As of 08/31/2022

	JULY	AUG	SEPT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUNE
Water Accounts:												
Metered												
Residential	12,303	12,292										
Commercial	361	361										
Irrigation	185	187										
Fire Service	186	186										
Total Accounts	13,035	13,026	-	-	-	-	-	-	-	-	-	-

Active Account Information
FY 2021/2022

	JULY	AUG	SEPT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUNE
Water Accounts:												
Metered												
Residential	12,305	12,318	12,300	12,309	12,299	12,312	12,300	12,293	12,312	12,297	12,293	12,314
Commercial	362	363	362	362	362	363	362	362	362	366	361	361
Irrigation	183	183	183	183	183	183	184	184	185	186	184	185
Fire Service	183	183	183	183	183	184	184	184	185	188	185	186
Total Accounts	13,033	13,047	13,028	13,037	13,027	13,042	13,030	13,023	13,044	13,037	13,023	13,046

Elk Grove Water District
Bond Covenant Status
For Fiscal Year 2022-23
As of 08/31/2022

Operating Revenues:			
Charges for Services	$	3,164,836	
Operating Expenses:			
Salaries & Benefits		554,211	
Seminars, Conventions and Travel		2,420	
Office & Operational		260,570	
Purchased Water		665,352	
Outside Services		116,644	
Equipment Rent, Taxes, and Utilities		125,612	
Total Operating Expenses		1,724,808	
Net Operating Income	$	1,440,028	
Annual Interest & Principal Payments $3,883,204	$	647,201	(1)
Debt Service Coverage Ratio, YTD Only:		**2.23**	
Required		**1.15**	

Notes

1. Reflects budget divided by number of months year to date. However, first Principal/Interest Payments made in September. Projected Annual Budget Coverage Ratio is **1.29**

CASH - Detail Schedule of Investments
As of 08/31/2022

G/L Account : Fund	Account number / name	Investment Name	Investment Type		Restrictions	Market Value
HELD BY BOND TRUSTEE:						
1110-000-20 Water	BNY 892744 FRCD 2014A DEBT SERVICE	Dreyfus Inst Treasury	MM Mutual Fund		Restricted	3,252,149.38
1112-000-20 Water	BNY 743850 FRCD 2016A DEBT SERVICE	Dreyfus Inst Treasury	MM Mutual Fund		Restricted	0.00
					Subtotal	**$ 3,252,149.38**
1001-000-20 Water	Cash on Hand				Unrestricted	**$ 300.00**
HELD BY F&M BANK:						
1011-000-10 FRCD	F&M 08-032009-01 CHECKING ACCOUNT				Unrestricted	**Closed Out Account**
1011-000-20 Water	F&M 08-032017-01 OPERATING ACCOUNT				Unrestricted	1,495,478.26
1084-000-20 Water	F&M 08-03201702-31 MONEY MARKET			0.25%	Unrestricted	100,867.39
1031-000-20 Water	F&M 08-032912-01 CREDIT CARD ACCOUNT				Unrestricted	1,568,273.99
1061-000-20 Water	F&M 08-032890-01 PAYROLL ACCOUNT				Unrestricted	144,851.90
1071-000-20 Water	F&M 08-032920-01 DRAFTS ACCOUNT				Unrestricted	48,873.77
					Subtotal	**$ 3,358,345.31**
INVESTMENTS						
1080-000-20 Water	Office of the Treasurer - Sacramento California	LAIF	Investment Pool	1.28%	Unrestricted	**$ 5,491,403.78**
						.
1081-000-20 Water	CALTrust Medium Term		Investment	0.55%	Unrestricted	**$ 1,338,611.81**

1082-000-20 Water

PURCHASE DATE	CUSIP	ISSUED BY	CALL DATE	MATURITY DATE	% of Portfolio	Current Yield	COST BASIS	MARKET VALUE
9/30/2016	N/A	US Bank	N/A	N/A	1.50%	2.01%	$ 57,217.65	$ 57,217.65
11/19/2020	3135GA5H0	Federal Home Loan (FHLB)	07/10/20 - qrtly	11/25/2025	24.30%	0.640%	$ 1,000,000.00	904,250.00
7/31/2020	3133ELQ56	Federal Home Loan (FHLB)	11/25/20 - qrtly	7/2/2024	25.30%	0.600%	$ 1,000,000.00	944,240.00
7/29/2021	3133EMT36	Federal Home Loan (FHLB)	04/15/26- qrtly	4/26/2026	24.30%	0.960%	$ 1,000,000.00	904,100.00
7/31/2020	3136G4YP2	Federal Natl MTG ASSN	07/09/2021 - qrtly	7/9/2025	24.60%	0.780%	$ 1,000,000.00	918,350.00
							$ 4,057,217.65	**$ 3,728,157.65**

YTM = Yield to Maturity
qtrly = quarterly
cont. = continuous

Total	**$ 17,168,967.93**
Total Restricted	**$ 3,252,149.38**
Total Unrestricted	**$ 13,916,818.55**

Call Date	CUSIP	Issued by:	Call Date	Maturity Date	Interest Rate	YTM	Price	Market Value
							$ -	$ -

Authorized Signers
Bruce Kamilos
Patrick Lee
Donella Murillo
Stefani Phillips

$ -

Consultant Expenses
As of 08/31/2022

Fiscal Retainer Contracts

Consultant	Description	Total Contract	Current Month	Paid to date	2022-2023 FY Budget	Percent of year (17%)
JRG Attorneys, LLP	Task orders	TBD	$ 1,244	$ 4,508		
Liebert Cassidy Whitmore	Task orders	TBD	$ -	$ 608		
Total			$ 1,244	$ 5,116	$ 145,000	3.53%
Solutions by BG, Inc.	Task orders	792,676	$ 19,947	$ 41,649	$ 255,840	16.28%

Major Contracts

Consultant	Description	Total Contract		Paid to date	2022-2023 FY Budget	Percent of Contract Amount
*Earl Consulting	PSA	$ 78,000	$ 2,205	$ 70,069		89.83%
**MFDB Architects	PSA	$ 205,270	$ 7,315	$ 197,171		96.05%
A.P. Thomas (Construction)	PSA	$ 2,554,565	$ 403,280	$ 2,012,641		78.79%
$28,000 on 2/25/22. Original Contract amount was $40,000.						
**Change Order to Amend Contract for an additional $12,770.00. Original Contract amount was $192,500.		$ 2,837,835	$ 412,800	$ 2,279,881		80.34%

Major Capital Improvement Project
Budget vs Actuals
As of 08/31/2022

Capital Project	Total Project Budget	Total Project Exp to Date	Percent Spent	Capitalized Labor	Fund Type	Project Type	2022-23 Budget	August Project Exp	Total YTD (1)	YTD % Spent	
Locust/Summit Alley Water Main	635,000	-	0.00%	$ -	R&R	Supply/Distribution	$ 635,000	$ -	$ -	0.00%	
2nd Ave Water Main	188,000	47,283	25.15%	13,354	R&R	Supply/Distribution	188,000	44,597	44,597	23.72%	
Truman St/Adams St Water Main	129,000	78,053	60.51%	54,277	R&R	Supply/Distribution	129,000	38,510	78,053	60.51%	
Elk Grove Blvd/Grove Street Alley Water Main	376,000	-	0.00%	-	R&R	Supply/Distribution	376,000	-	-	0.00%	
Chlortech System Replacements	150,000	-	0.00%	-	R&R	Treatment	150,000	-	-	0.00%	
Media Replacement - RRWTP Filter Vessel	90,000	-	0.00%	-	R&R	Treatment	90,000	-	-	0.00%	
Backup IT Service Replacements	30,000	-	0.00%	-	R&R	Building and Site	30,000	-	-	0.00%	
9829 Waterman Rd	3,238,028	2,480,751	76.61%	-	CIP	Building and Site	1,281,316	524,038	524,038	40.90%	
Brinkman Transmission Main	50,000	-	0.00%	-	CIP	Supply/Distribution	50,000	-	-	0.00%	
Service Line Replacements (Paving)	85,000	83,932	98.74%	-	CIP	Supply/Distribution	85,000	83,932	83,932	98.74%	
Unforeseen Capital Projects	100,000	435	0.44%	-	-	-	100,000	435	435	0.44%	(2)
Sub-Total	$ 5,071,028	$ 2,690,455	53.06%	$ 67,631			$ 3,114,316	$ 691,513	$ 731,056	23.47%	

(1) Includes $67,631 in capitalized labor through 08/31/2022
(2) Includes unforseen capital projects, including:

Radio Antenna Well 4D	435
Total	$ 435

September 20, 2022

TO: Chair and Directors of the Florin Resource Conservation District

FROM: Patrick Lee, Finance Manager/Treasurer

SUBJECT: **YEAR TO DATE REVENUES AND EXPENSES COMPARED TO BUDGET – AUGUST 2022**

RECOMMENDATION

This item is presented for discussion purposes only. No action by the Florin Resource Conservation District Board of Directors is requested at this time.

SUMMARY

Per the Florin Resource Conservation District (District) Board of Directors (Board) request, consent item g – Year-To-Date Revenues and Expenses Compared to Budget is being included in the Board packet as a standalone agenda item.

DISCUSSION

Background

The Year-To-Date Revenues and Expenses Compared to Budget was a standing item included in the monthly consent calendar presented to the Board each month. The Board has requested that staff remove the report from consent calendar and include it as a standalone agendized item for discussion purposes for all future Board meetings.

Present Situation

The Year-To-Date Revenues and Expenses Compared to Budget report for August 2022 is being provided to the Board for review and discussion.

ENVIRONMENTAL CONSIDERATIONS

There are no direct environmental considerations associated with this report.

STRATEGIC PLAN CONFORMITY

This item conforms to the FRCD/Elk Grove Water District 2020-2025 Strategic Plan Goal No. 1, Governance and Customer Engagement by providing transparency in the District's financial operations.

FINANCIAL SUMMARY

There is no financial impact associated with this report.

Respectfully Submitted,

PATRICK LEE
TREASURER

Attachment

Elk Grove Water District
Year to Date Revenues and Expenses Compared to Budget
As of August 31, 2022

	General Ledger Reference	YTD Activity	Annual Budget	2/12=16.67% % Realized
Revenues	4100 - 4900	$ 3,164,836	$ 15,873,385	19.94%
Operating Expenses				
Salaries & Benefits	5100 - 5280	628,500	4,847,546	12.97%
less Capitalized Labor		(67,631)	(459,089)	14.73%
Less CalPERS Prepayment for Remainder of Year: (1)		(6,658)		
Adjusted Salaries and Benefits:		$ 554,211	$ 4,388,457	12.63%
Seminars, Conventions and Travel	5300 - 5350	2,420	40,393	5.99%
Office & Operational	5410 - 5494	260,570	1,402,320	18.58%
Purchased Water est. (1)	5495 - 5495	665,352	3,455,261	19.26%
Outside Services	5505 - 5580	116,644	1,077,032	10.83%
Equipment Rent, Taxes, Utilities	5620 - 5760	125,612	499,674	25.14%
Total Operational Expenses		$ 1,724,808	$ 10,863,137	15.88%
Net Operating Income		$ 1,440,028	$ 5,010,248	28.74%
Non-Operating Revenues				
Interest Received	9910 - 9910	16,860	25,000	67.44%
Unrealized Gains/(Losses)	9911 - 9911	15,854	-	100.00%
Other Income/(Expense)	9920 - 9973	88,491	221,000	40.04%
Total Non-Operating Revenues		$ 121,206	$ 246,000	49.27%
Non-Operating Expenses				
Election Costs	9950 - 9950	-	250,000	0.00%
Capital Expenses (2):				
Capital Improvements	1705 - 1760	607,970	1,416,316	42.93%
Capital Replacements	1705 - 1760	122,650	1,598,000	7.68%
Unforeseen Capital Projects	1705 - 1760	435	100,000	0.44%
Total Capital Expenses:		$ 731,056	$ 3,114,316	23.47%
Bond Interest Accrued (3)	7300 - 7300	220,534	1,323,204	16.67%
Total Non Operating Expenses		$ 951,590	$ 4,687,520	20.30%
Bond Retirement (3):		$ 426,667	$ 2,560,000	16.67%
Total Expenditures		2,981,859	17,864,657	16.69%
Revenues in Excess of All Expenditures, including Capital		$ 182,977	$ (1,991,272)	-9.19%

Notes:

1. There is a lag in water billings from the Sacramento County Water Agency. Included above is an estimate of costs to date based on water used.
2. YTD Activity includes $67,631 in capitalized labor charged to capital projects.
3. Bond retirement payments are made two times a year in September and March
4. Accounts receivable balance, which represents the difference between the total amount billed and total amount collected, as of August 31, 2022 is $223,828.76

September 20, 2022

TO: Chair and Directors of the Florin Resource Conservation District

FROM: Patrick Lee, Finance Manager/Board Treasurer

SUBJECT: **PROFESSIONAL SERVICES AGREEMENT FOR PREPARATION OF THE 2024-2028 WATER RATE AND CONNECTION FEE STUDY**

RECOMMENDATION

It is recommended that the Florin Resource Conservation District Board of Directors authorize:

1. The General Manager to execute a professional services agreement with Raftelis in an amount not-to-exceed $68,746 for the preparation of the 2024-2028 Water Rate and Connection Fee Study for the Elk Grove Water District; and

2. Staff to proceed with forming a Community Advisory Committee to assist with providing input on the Study.

SUMMARY

As part of the Florin Resource Conservation District (District) 2020-2025 Strategic Plan, the District is due to conduct a review of the Elk Grove Water District (EGWD) water rates to ensure sufficient revenue requirement coverage for its operational, debt service and capital expenses for the years 2024-2028. The last water rate study was completed and adopted by the District Board of Directors (Board) in June 2018 and a new study was identified by the Board as a key objective for fiscal year 2023-2024.

If approved, this action will retain Raftelis through a Professional Services Agreement (Attachment 1) to conduct a water rate and connection fee study to determine the future financial needs of the EGWD over the next five (5) years. Also, if approved, this action will authorize staff to proceed with forming a Community Advisory Committee (CAC) to assist with providing input on the water rate and connection fee study.

DISCUSSION

Background

In 2018, the District contracted with HDR Engineering, Inc. to conduct a water rate and connection fee study to determine the necessary water rates to meet the EGWD's operational, capital and debt services needs for years 2019-2023. The study was

completed and adopted by the Board in June 2018 after a Proposition 218 public hearing. This plan is now in its final year and the District will need to conduct another water rate and connection fee study for years 2024-2028.

Present Situation

On August 1, 2022, staff issued a Request for Proposals (RFP) for a Water Rate and Connection Fee Study for the EGWD to determine the EGWD's revenue requirements to cover operational, capital and debt service costs for years 2024-2028.

Staff posted the RFP on the California Society of Municipal Finance Officers (CSMFO) website and the California Special District's Association (CSDA) website within the RFP sections, as well as on the District's website to solicit proposals. Proposals were due to the District by August 18, 2022 at 5:00 pm.

The District only received one (1) proposal from Raftelis (Attachment 2) with a proposed not-to-exceed cost of $68,746. Staff reviewed the proposal and conducted reference checks with the three (3) references submitted and have made the determination that the firm is very qualified in performing water rate and connection fee studies. Staff believes that Raftelis' day-to-day project team will be able to work with staff to conduct the necessary study in an efficient and cost-effective manner. In addition, staff was impressed with Raftelis' overall understanding of the District's current rate structure, operating activity and the legislative activity occurring in the State of California that could potentially impact the study.

If the Board approves the recommendations, Raftelis will provide the EGWD with a five-year financial plan, a cost-of-service study and an AB 1600 Nexus Study. The five-year financial plan will give recommendations to the EGWD on future water rates needed for operations, capital and debt expenditures over the next five (5) years. The cost-of-service study will recommend the future water rates and rate structure for the EGWD's customer service types, which primarily include residential, nonresidential, irrigation and fire service. The AB 1600 Nexus Study will make recommendations to the EGWD for water connection fees that reflect the cost of adding new customers to the EGWD's water system based on their related costs of additional facilities and capacity needed to service them.

ENVIRONMENTAL CONSIDERATIONS

There are no environmental considerations associated with this report.

STRATEGIC PLAN CONFORMITY

The recommendations made in this report conform to Strategic Goal 2 – Fiscal Responsibility of the Districts Fiscal Year 2020-2025 Strategic Plan to conduct the 2024-2028 Water Rate and Connection Fee Study.

FINANCIAL SUMMARY

The financial impact of the professional services agreement for the preparation of the Water Rate and Connection Fee Study is an amount not to exceed $68,746. Staff has included funding for this study in the District's Fiscal Year 2022-2023 Operating Budget.

Respectfully submitted,

PATRICK LEE
FINANCE MANAGER/TREASURER

Attachments

FLORIN RESOURCE CONSERVATION DISTRICT
PROFESSIONAL SERVICES AGREEMENT FOR
WATER RATE AND CONNECTION FEE STUDY

1. PARTIES AND DATE.

This Agreement is made and entered into this _____ day of [Month, Year], by and between the Florin Resource Conservation District, a resource conservation district organized under the laws of the State of California with its principal place of business at 9257 Elk Grove Boulevard, Elk Grove, California ("District") and [Company,] a California corporation, with its principal place of business at [Address] ("Consultant"). District and Consultant are sometimes individually referred to herein as "Party" and collectively as "Parties."

2. RECITALS.

2.1 Consultant.

Consultant desires to perform and assume responsibility for the provision of certain consultant services required by District on the terms and conditions set forth in this Agreement. Consultant represents that it is experienced in providing consultant services to public clients, is licensed in the State of California, and is familiar with the plans of District.

2.2 Project.

District desires to engage Consultant to render such services for Water Rate and Connection Fee Study ("Project") as set forth in this Agreement.

3. TERMS.

3.1 Scope of Services and Term.

3.1.1 General Scope of Services. Consultant promises and agrees to furnish to District all labor, materials, tools, equipment, services, and incidental and customary work necessary to fully and adequately supply the consultant services necessary for the Project ("Services"). The Services are more particularly described in Exhibit "A" attached hereto and incorporated herein by reference. All Services shall be subject to, and performed in accordance with, this Agreement, the exhibits attached hereto and incorporated herein by reference, and all applicable local, state and federal laws, rules and regulations.

3.1.2 Term. The term of this Agreement shall be from the date that the Agreement is executed by both Parties until [Date] or the Services are completed (whichever occurs first), unless earlier terminated as provided herein. Consultant shall complete the Services within the term of this Agreement and shall meet any other established schedules and deadlines.

3.2 Responsibilities of Consultant.

3.2.1 Control and Payment of Subordinates; Independent Contractor. The Services shall be performed by Consultant or under its supervision. Consultant will determine the means, methods and details of performing the Services subject to the requirements of this Agreement. District retains Consultant on an independent contractor basis and not as an employee. Consultant retains the right to perform similar or different services for others during the term of this Agreement. Any additional personnel performing the Services under this Agreement on behalf of Consultant shall also not be employees of District and shall at all times be under Consultant's exclusive direction and control. Consultant shall pay all wages, salaries, and other amounts due such personnel in connection with their performance of Services under this Agreement and as required by law. Consultant shall be responsible for all reports and obligations respecting such additional personnel, including, but not limited to: social security taxes, income tax withholding, unemployment insurance, disability insurance, and workers' compensation insurance.

Notwithstanding any other District, state, or federal policy, rule, regulation, law, or ordinance to the contrary, Consultant and any of its employees, agents, and subcontractors providing services under this Agreement shall not qualify for or become entitled to, and hereby agree to waive any and all claims to, any compensation, benefit, or any incident of employment by District, including but not limited to eligibility to enroll in the California Public Employees Retirement System (PERS) as an employee of District and entitlement to any contribution to be paid by District for employer contributions and/or employee contributions for PERS benefits.

Consultant shall indemnify, defend, and hold harmless District for the payment of any employee and/or employer contributions for PERS benefits on behalf of Consultant or its employees, agents, or subcontractors, as well as for the payment of any penalties and interest on such contributions, which would otherwise be the responsibility of District. Consultant and District acknowledge and agree that compensation paid by District to Consultant under this Agreement is based upon Consultant's estimated costs of providing the Services, including salaries and benefits of employees, agents and subcontractors of Consultant.

Consultant shall indemnify, defend, and hold harmless District from any lawsuit, administrative action, or other claim for penalties, losses, costs, damages, expense and liability of every kind, nature and description that arise out of, pertain to, or relate to such claims, whether directly or indirectly, due to Consultant's failure to secure workers' compensation insurance for its employees, agents, or subcontractors.

Consultant agrees that it is responsible for the provision of group healthcare benefits to its fulltime employees under 26 U.S.C. § 4980H of the Affordable Care Act. To the extent permitted by law, Consultant shall indemnify, defend and hold harmless District from any penalty issued to District under the Affordable Care Act resulting from the performance of the Services by any employee, agent, or subcontractor of Consultant.

3.2.2 Schedule of Services. Consultant shall perform the Services expeditiously, within the term of this Agreement, and in accordance with the Schedule of Services set forth in Exhibit "B" attached hereto and incorporated herein by reference. Consultant represents that it has the professional and technical personnel required to perform the Services in conformance with such conditions. In order to facilitate Consultant's conformance with the Schedule of Services, District shall respond to Consultant's submittals in a timely manner. Upon request of District, Consultant shall provide a more detailed schedule of anticipated performance to meet the Schedule of Services.

3.2.3 Conformance to Applicable Requirements. All work prepared by Consultant shall be subject to the approval of District.

3.2.4 Substitution of Key Personnel. Consultant has represented to District that certain key personnel will perform and coordinate the Services under this Agreement. Should one or more of such personnel become unavailable, Consultant may substitute other personnel of at least equal competence upon written approval of District. In the event that District and Consultant cannot agree as to the substitution of key personnel, District shall be entitled to terminate this Agreement for cause. As discussed below, any personnel who fail or refuse to perform the Services in a manner acceptable to District, or who are determined by District to be uncooperative, incompetent, a threat to the adequate or timely completion of the Project or a threat to the safety of persons or property, shall be promptly removed from the Project by Consultant at the request of District. The key personnel for performance of this Agreement are as follows: [Contact Name].

3.2.5 District's Representative. District hereby designates Bruce Kamilos, or his designee, to act as its representative for the performance of this Agreement ("District's Representative"). District's Representative shall have the power to act on behalf of District for all purposes under this Contract. Consultant shall not accept direction or orders from any person other than District's Representative or his or her designee.

3.2.6 Consultant's Representative. Consultant hereby designates [Contact Name], or his designee, to act as its representative for the performance of this Agreement ("Consultant's Representative"). Consultant's Representative shall have full authority to represent and act on behalf of Consultant for all purposes under this Agreement. Consultant's Representative shall supervise and direct the Services, using his best skill and attention, and shall be responsible for all means, methods, techniques, sequences and procedures and for the satisfactory coordination of all portions of the Services under this Agreement.

3.2.7 Coordination of Services. Consultant agrees to work closely with District staff in the performance of Services and shall be available to District's staff, consultants and other staff at all reasonable times.

3.2.8 Standard of Care; Performance of Employees. Consultant shall perform all Services under this Agreement in a skillful and competent manner, consistent with the standards generally recognized as being employed by professionals in the same discipline in the State of California. Consultant represents and maintains that it is skilled in the professional calling necessary to perform the

Services. Consultant warrants that all employees and sub- consultants shall have sufficient skill and experience to perform the Services assigned to them. Finally, Consultant represents that it, its employees and sub-consultants have all licenses, permits, qualifications and approvals of whatever nature that are legally required to perform the Services, including a business license, and that such licenses and approvals shall be maintained throughout the term of this Agreement. As provided for in the indemnification provisions of this Agreement, Consultant shall perform, at its own cost and expense and without reimbursement from District, any services necessary to correct errors or omissions which are caused by Consultant's failure to comply with the standard of care provided for herein. Any employee of Consultant or its sub-consultants who is determined by District to be uncooperative, incompetent, a threat to the adequate or timely completion of the Project, a threat to the safety of persons or property, or any employee who fails or refuses to perform the Services in a manner acceptable to District, shall be promptly removed from the Project by Consultant and shall not be re-employed to perform any of the Services or to work on the Project.

3.2.9 Laws and Regulations. Consultant shall keep itself fully informed of and in compliance with all local, state and federal laws, rules and such laws and regulations in connection with Services. If Consultant performs any work knowing it to be contrary to such laws, rules and regulations and without giving written notice to District, Consultant shall be solely responsible for all costs arising therefrom. Consultant shall defend, indemnify and hold District, its officials, directors, officers, employees, and agents free and harmless, pursuant to the indemnification provision of this Agreement, from any claim or liability arising out of any failure or alleged failure to comply with such laws, rules or regulations.

3.2.10 Insurance.

3.2.10.1. Time for Compliance. Consultant shall not commence work under this Agreement until it has provided evidence satisfactory to District that it has secured all insurance required under this section. In addition, Consultant shall not allow any sub-consultant to commence work on any subcontract until it has provided evidence satisfactory to District that the sub-consultant has secured all insurance required under this section.

3.2.10.2. Types of Required Coverages. As a condition precedent to the effectiveness of this Agreement for work to be performed hereunder and without limiting the indemnity provisions of the Agreement, Consultant in partial performance of its obligations under such Agreement, shall procure and maintain in full force and effect during the term of the Agreement, the following policies of insurance.

(a) Commercial General Liability: Commercial General Liability Insurance which affords coverage at least as broad as Insurance Services Office "occurrence" form CG 0001, with minimum limits of at least $1,000,000 per occurrence. Defense costs shall be paid in addition to the limits.

The policy shall contain no endorsements or provisions limiting coverage for (1) products and completed operations; (2) contractual liability; (3) third party action over claims; or (4) cross liability exclusion for claims or suits by one insured against another.

(b) Automobile Liability Insurance: Automobile Liability Insurance with coverage at least as broad as Insurance Services Office Form CA 0001 covering "Any Auto" (Symbol 1) with minimum limits of $1,000,000 each accident.

(c) Workers' Compensation: Workers' Compensation Insurance, as required by the State of California and Employer's Liability Insurance with a limit of not less than $1,000,000 per accident for bodily injury and disease.

(d) Professional Liability: Professional Liability insurance for errors and omissions with minimum limits of $1,000,000. Covered Professional Services shall specifically include all work to be performed under the Agreement.

If coverage is written on a claims-made basis, the retroactive date shall precede the effective date of the initial Agreement and continuous coverage will be maintained or an extended reporting period will be exercised for a period of at least three (3) years from termination or expiration of this Agreement.

3.2.11 Endorsements.

The policy or policies of insurance required by Section 3.2.10.2 (a) Commercial General Liability and (b) Automobile Liability Insurance shall be endorsed to provide the following:

3.2.11.1 Additional Insured: The indemnified parties shall be additional insureds with regard to liability and defense of suits or claims arising out of the performance of the Agreement. Additional Insured Endorsements shall not (1) be restricted to "ongoing operations"; (2) exclude "contractual liability"; (3) restrict coverage to "sole" liability of Consultant; or (4) contain any other exclusions contrary to the Agreement.

3.2.11.2 Primary Insurance and Non-Contributing Insurance: This insurance shall be primary and any other insurance, deductible, or self-insurance maintained by the indemnified parties shall not contribute with this primary insurance.

3.2.11.3 Severability: In the event of one insured, whether named or additional, incurs liability to any other of the insureds, whether named or additional, the policy shall cover the insured against whom claim is or may be made in the same manner as if separate policies had been issued to each insured, except that the limits of insurance shall not be increased thereby.

3.2.11.4 Cancellation: The policy shall not be canceled, or the coverage suspended, voided, reduced or allowed to expire until a thirty (30) day prior written notice of cancellation has been served upon District except ten (10) days prior written notice shall be allowed for non-payment of premium.

3.2.11.5 Duties: Any failure by the named insured to comply with reporting provisions of the policy or breaches or violations of warranties shall not affect coverage provided to the indemnified parties.

3.2.11.6 Applicability: That the coverage provided therein shall apply to the obligations assumed by Consultant under the indemnity provisions of the Agreement unless the policy or policies contain a blanket form of contractual liability coverage.

3.2.11.7 The policy or policies of insurance required by Section 3.2.10.2 (c) Workers' Compensation shall be endorsed, as follows:

a) Waiver of Subrogation: A waiver of subrogation stating that the insurer waives all rights of subrogation against the indemnified parties.

b) Cancellation: The policy shall not be canceled, or the coverage suspended, voided, reduced or allowed to expire until a thirty (30) day prior written notice of cancellation has been served upon District except ten (10) days prior written notice shall be allowed for non-payment of premium.

3.2.11.8 The policy or policies of insurance required by Section 3.2.10.2 (d) Professional Liability shall be endorsed, as follows:

a) Cancellation: The policy shall not be canceled, or the coverage suspended, voided, reduced or allowed to expire until a thirty (30) day prior written notice of cancellation has been served upon District except ten (10) days prior written notice shall be allowed for non-payment of premium.

3.2.11.9 Deductible. Any deductible or self-insured retention must be approved in writing by District and shall protect the indemnified parties in the same manner and to the same extent as they would have been protected had the policy or policies not contained a deductible or self-insured retention.

3.2.11.10 Evidence of Insurance. Consultant, concurrently with the execution of the Agreement, and as a condition precedent to the effectiveness thereof, shall deliver either certified copies of the required policies, or original certificates and endorsements on forms approved by District. The certificates and endorsements for each insurance policy shall be signed by a person authorized by that insurer to bind coverage on its behalf. At least fifteen (15) days prior to the expiration of any such policy, evidence of insurance showing that such insurance coverage has been renewed or extended shall be filed with District. If such coverage is cancelled or reduced, Consultant shall, within ten (10) days after receipt of written notice of such cancellation or

reduction of coverage, file with District evidence of insurance showing that the required insurance has been reinstated or has been provided through another insurance company or companies.

3.2.11.11 Failure to Maintain Coverage. Consultant agrees to suspend and cease all operations hereunder during such period of time as the required insurance coverage is not in effect and evidence of insurance has not been furnished to District. District shall have the right to withhold any payment due Consultant until Consultant has fully complied with the insurance provisions of this Agreement. In the event that Consultant's operations are suspended for failure to maintain required insurance coverage, Consultant shall not be entitled to an extension of time for completion of the Work because of production lost during suspension.

3.2.11.2. Acceptability of Insurers. Each such policy shall be from a company or companies with a current A.M. Best's rating of no less than A:VII and authorized to do business in the State of California, or otherwise allowed to place insurance through surplus line brokers under applicable provisions of the California Insurance Code or any federal law.

3.2.11.3. Insurance for Sub-consultants. All sub-consultants shall be included as additional insureds under Consultant's policies, or Consultant shall be responsible for causing sub-consultants to purchase the appropriate insurance in compliance with the terms of this Agreement, including adding District as an Additional Insured to the sub-consultant's policies.

3.2.12 Safety. Consultant shall execute and maintain its work so as to avoid injury or damage to any person or property. In carrying out its Services, Consultant shall at all times be in compliance with all applicable local, state and federal laws, rules and regulations, and shall exercise all necessary precautions for the safety of employees appropriate to the nature of the work and the conditions under which the work is to be performed. Safety precautions as applicable shall include, but shall not be limited to: (A) adequate life protection and lifesaving equipment and procedures; (B) instructions in accident prevention for all employees and sub- consultants, such as safe walkways, scaffolds, fall protection ladders, bridges, gang planks, confined space procedures, trenching and shoring, equipment and other safety devices, equipment and wearing apparel as are necessary or lawfully required to prevent accidents or injuries; and (C) adequate facilities for the proper inspection and maintenance of all safety measures.

3.3 Fees and Payments.

3.3.1 Compensation. Consultant shall receive compensation, including authorized reimbursements, for all Services rendered under this Agreement at the rates set forth in Exhibit "C" attached hereto and incorporated herein by reference. The total compensation shall not exceed [Amount Written Out] Dollars ($XX,XXX) without written approval of District's General Manager. Extra Work may be authorized, as described below, and if authorized, will be compensated at the rates and manner set forth in this Agreement.

3.3.2 Payment of Compensation. Consultant shall submit to District a monthly itemized statement which indicates work completed and hours of Services rendered by Consultant. The statement shall describe the amount of Services and supplies provided since the initial commencement date, or since the start of the subsequent billing periods, as appropriate, through the date of the statement. District shall, within 45 days of receiving such statement, review the statement and pay all approved charges thereon.

3.3.3 Reimbursement for Expenses. Consultant shall not be reimbursed for any expenses unless authorized in writing by District.

3.3.4 Extra Work. At any time during the term of this Agreement, District may request that Consultant perform Extra Work. As used herein, "Extra Work" means any work which is determined by District to be necessary for the proper completion of the Project, but which the parties did not reasonably anticipate would be necessary at the execution of this Agreement. Consultant shall not perform, nor be compensated for, Extra Work without written authorization from District's Representative.

3.4 Accounting Records.

3.4.1 Maintenance and Inspection. Consultant shall maintain complete and accurate records with respect to all costs and expenses incurred under this Agreement. All such records shall be clearly identifiable. Consultant shall allow a representative of District during normal business hours to examine, audit, and make transcripts or copies of such records and any other documents created pursuant to this Agreement. Consultant shall allow inspection of all work, data, documents, proceedings, and activities related to the Agreement for a period of three (3) years from the date of final payment under this Agreement.

3.5 General Provisions.

3.5.1 Termination of Agreement.

3.5.1.1. Grounds for Termination. District may, by written notice to Consultant, terminate the whole or any part of this Agreement at any time and without cause by giving written notice to Consultant of such termination, and specifying the effective date thereof, at least seven (7) days before the effective date of such termination. Upon termination, Consultant shall be compensated only for those services which have been adequately rendered to District, and Consultant shall be entitled to no further compensation. Consultant may not terminate this Agreement except for cause.

3.5.1.2. Effect of Termination. If this Agreement is terminated as provided herein, District may require Consultant to provide all finished or unfinished Documents and Data and other information of any kind prepared by Consultant in connection with the performance of Services under this Agreement. Consultant shall be required to provide such document and other information within fifteen (15) days of the request.

3.5.1.3. Additional Services. In the event this Agreement is terminated in whole or in part as provided herein, District may procure, upon such terms and in such manner as it may determine appropriate, services similar to those terminated.

3.5.2 Delivery of Notices. All notices permitted or required under this Agreement shall be given to the respective parties at the following address, or at such other address as the respective parties may provide in writing for this purpose:

Consultant:

[Company Name]
[Street Address] [City, State, Zip] Attn:
[Contact Name]

District:

Florin Resource Conservation District
9257 Elk Grove Boulevard
Elk Grove, CA 95624
Attn: Bruce Kamilos

Such notice shall be deemed made when personally delivered or when mailed, forty-eight (48) hours after deposit in the U.S. Mail, first class postage prepaid and addressed to the party at its applicable address. Actual notice shall be deemed adequate notice on the date actual notice occurred, regardless of the method of service.

3.5.3 Ownership of Materials and Confidentiality.

3.5.3.1. Records Created as Part of Consultant's Performance. All reports, data, maps, models, charts, studies, surveys, photographs, memoranda, plans, studies, specifications, records, files, or any other documents or materials, in electronic or any other form, that Consultant (or any sub-consultant) prepares or obtains pursuant to this Agreement and that release to the matters covered hereunder ("Documents & Data") shall be the property of the District.

3.5.3.2. Confidentiality. All ideas, memoranda, specifications, plans, procedures, drawings, descriptions, computer program data, input record data, written information, and other Documents and Data either created by or provided to Consultant in connection with the performance of this Agreement shall be held confidential by Consultant. Such materials shall not, without the prior written consent of District, be used by Consultant for any purposes other than the performance of the Services. Nor shall such materials be disclosed to any person or entity not connected with the performance of the Services or the Project. Nothing furnished to Consultant which is otherwise known to Consultant or is generally known, or has become known, to the related industry shall be deemed confidential. Consultant shall not use District's name or insignia, photographs of the Project, or any publicity

pertaining to the Services or the Project in any magazine, trade paper, newspaper, television or radio production or other similar medium without the prior written consent of the District.

3.5.4 Cooperation; Further Acts. The Parties shall fully cooperate with one another, and shall take any additional acts or sign any additional documents as may be necessary, appropriate or convenient to attain the purposes of this Agreement.

3.5.5 Attorneys' Fees. If either party commences an action against the other party, either legal, administrative, or otherwise, arising out of or in connection with this Agreement, the prevailing party in such litigation shall be entitled to have and recover from the losing party reasonable attorneys' fees and all other costs of such action.

3.5.6 Indemnification. Consultant shall defend, indemnify and hold District, its officials, officers, employees, volunteers and agents free and harmless from any and all claims, demands, causes of action, costs, expenses, liability, loss, damage or injury, in law or equity, to property or persons, including wrongful death, in any manner arising out of or incident to any alleged acts, omissions, negligence or willful misconduct of Consultant, its officials, officers, employees, agents, subcontractors and sub-consultants arising out of or in connection with the performance of the Services, the Project or this Agreement, including without limitation the payment of all consequential damages and attorney's fees and other related costs and expenses. Consultant shall defend, at Consultant's own cost, expense and risk, any and all such aforesaid suits, actions or other legal proceedings of every kind that may be brought or instituted against District, its directors, officials, officers, employees, agents or volunteers. Consultant shall pay and satisfy any judgment, award or decree that may be rendered against District or its directors, officials, officers, employees, agents or volunteers, in any such suit, action or other legal proceeding. Consultant shall reimburse District and its directors, officials, officers, employees, agents and/or volunteers, for any and all legal expenses and costs incurred by each of them in connection therewith or in enforcing the indemnity herein provided. Consultant's obligation to indemnify shall not be restricted to insurance proceeds, if any, received by District, its directors, officials, officers, employees, agents or volunteers. Consultant's obligations to defend, hold harmless, and indemnify the District shall not apply to the extent the liabilities are caused by the sole or gross negligence of the District.

3.5.7 Entire Agreement. This Agreement contains the entire Agreement of the parties with respect to the subject matter hereof, and supersedes all prior negotiations, understandings, or agreements. This Agreement may only be modified by a writing signed by both parties.

3.5.8 Governing Law. This Agreement shall be governed by the laws of the State of California. Venue shall be in Sacramento County.

3.5.9 Time of Essence. Time is of the essence for each and every provision of this Agreement.

3.5.10 District's Right to Employ Other Consultants. District reserves right to employ other consultants in connection with this Project.

3.5.11 Successors and Assigns. This Agreement shall be binding on the successors and assigns of the parties.

3.5.12 Assignment or Transfer. Consultant shall not assign, hypothecate, or transfer, either directly or by operation of law, this Agreement or any interest herein without the prior written consent of District. Any attempt to do so shall be null and void, and any assignees, hypothecates or transferees shall acquire no right or interest by reason of such attempted assignment, hypothecation or transfer.

3.5.13 Construction; References; Captions. Since the Parties or their agents have participated fully in the preparation of this Agreement, the language of this Agreement shall be construed simply, according to its fair meaning, and not strictly for or against any Party. Any term referencing time, days or period for performance shall be deemed calendar days and not workdays. All references to Consultant include all personnel, employees, agents, and sub-consultants of Consultant, except as otherwise specified in this Agreement. All references to District include its elected officials, officers, employees, agents, and volunteers except as otherwise specified in this Agreement. The captions of the various articles and paragraphs are for convenience and ease of reference only, and do not define, limit, augment, or describe the scope, content, or intent of this Agreement.

3.5.14 Amendment; Modification. No supplement, modification, or amendment of this Agreement shall be binding unless executed in writing and signed by both Parties.

3.5.15 Waiver. No waiver of any default shall constitute a waiver of any other default or breach, whether of the same or other covenant or condition. No waiver, benefit, privilege, or service voluntarily given or performed by a Party shall give the other Party any contractual rights by custom, estoppel, or otherwise.

3.5.16 No Third-Party Beneficiaries. There are no intended third-party beneficiaries of any right or obligation assumed by the Parties.

3.5.17 Invalidity; Severability. If any portion of this Agreement is declared invalid, illegal, or otherwise unenforceable by a court of competent jurisdiction, the remaining provisions shall continue in full force and effect.

3.5.18 Prohibited Interests. Consultant maintains and warrants that it has not employed nor retained any company or person, other than a bona fide employee working solely for Consultant, to solicit or secure this Agreement. Further, Consultant warrants that it has not paid, nor has it agreed to pay any company or person, other than a bona fide employee working solely for Consultant, any fee, commission, percentage, brokerage fee, gift or other consideration contingent upon or resulting from the award or making of this Agreement. For breach or violation of this warranty, District shall have the right to rescind this Agreement without liability. For the term of this

Agreement, no member, officer or employee of District, during the term of his or her service with District, shall have any direct interest in this Agreement, or obtain any present or anticipated material benefit arising therefrom.

3.5.19 Equal Opportunity Employment. Consultant represents that it is an equal opportunity employer, and it shall not discriminate against any sub-consultant, employee or applicant for employment because of race, religion, color, national origin, handicap, ancestry, sex or age. Such non-discrimination shall include, but not be limited to, all activities related to initial employment, upgrading, demotion, transfer, recruitment or recruitment advertising, layoff or termination. Consultant shall also comply with all relevant provisions of any minority business enterprise program, affirmative action plan or other related programs or guidelines currently in effect or hereinafter enacted.

3.5.20 Labor Certification. By its signature hereunder, Consultant certifies that it is aware of the provisions of Section 3700 of the California Labor Code which require every employer to be insured against liability for Workers' Compensation or to undertake self-insurance in accordance with the provisions of that Code and agrees to comply with such provisions before commencing the performance of the Services.

3.5.21 Authority to Enter Agreement. Consultant has all requisite power and authority to conduct its business and to execute, deliver, and perform the Agreement. Each Party warrants that the individuals who have signed this Agreement have the legal power, right, and authority to make this Agreement and bind each respective Party.

3.5.22 Counterparts. This Agreement may be signed in counterparts, each of which shall constitute an original.

3.6 Subcontracting.

3.6.1 Prior Approval Required. Consultant shall not subcontract any portion of the work required by this Agreement, except as expressly stated herein, without prior written approval of District. Subcontracts, if any, shall contain a provision making them subject to all provisions stipulated in this Agreement.

[Signature page follows]

Florin Resource Conservation District

By: _____
Bruce Kamilos
General Manager

[Company Name]

By: _____
[Name]
[Position]

Attest:

By: _____
Stefani Philips
Board Secretary

Approved as to Form:

By: _____
Richard E. Nosky, Jr.
Attorney for Florin Resource Conservation District

Please forward all invoices to accountspayable@egwd.org

The Consultant has provided a proposal which combines the scope of services, schedule of services and compensation into one document. Therefore, references to Exhibit A, Exhibit B and Exhibit C in the contract shall refer to the Consultant's proposal dated [Date] (attached).

EXHIBIT “A”
SCOPE OF SERVICES

EXHIBIT “B”
SCHEDULE OF SERVICES

EXHIBIT “C”
COMPENSATION

RAFTELIS

Florin Resource Conservation District – Elk Grove Water District

Water Rate and Connection Fee Study

PROPOSAL / AUGUST 18, 2022

Photo courtesy of Matt Gush (Adobe Stock)

August 18, 2022

Mr. Patrick Lee
Finance Manager/Treasurer
Florin Resource Conservation District
9257 Elk Grove Boulevard
Elk Grove, CA 95624

Subject: Proposal for Water Rate and Connection Fee Study

Dear Mr. Lee:

Raftelis is pleased to submit this proposal to assist the Florin Resource Conservation District's (FRCD) Elk Grove Water District (EGWD) with water utility rate and connection fee studies. We have conducted thousands of rate studies across the U.S. and hundreds in California. Recent engagements in Northern California include the Vallejo Flood and Wastewater District, Placer County Water District, City of Hayward, City of Dixon, City of Tracy, Marin Municipal Water District, City of Pleasanton, and City of Santa Cruz. We appreciate the opportunity to submit this proposal, which details our project approach to meet FRCD's objectives as well as our qualifications and experience within the water utility industry.

Raftelis was established in 1993 to provide financial, rate, and management consulting services of the highest quality to local government. Since that time, Raftelis has grown to have the largest utility rate and financial consulting practice in the country, with more than 130 consultants. We have 13 west coast-based consultants and continue to grow. While financial planning and rate setting are our key services, what sets us apart from most firms is that we also offer stakeholder communications, capital program review, and organizational assessments.

Raftelis understands that the FRCD would like to develop a financial roadmap for the EGWD that can become a decision-support tool for FRCD staff. We understand that FRCD would like to cash finance future capital projects to bring down the amount of overall debt financing.

I will serve as Project Director of the study, ensuring FRCD's objectives are fully met. I am a Senior Manager authorized to bind and negotiate for the firm in contracts up to $250,000. I will work closely with the Project Manager, Theresa Jurotich, P.E., PMP, who will manage the day-to-day aspects of the project ensuring it is within budget and on schedule and who will serve as FRCD's main point of contact for the study. Charles Diamond will lead the consulting staff in conducting water analyses and preparing deliverables for the project. Kevin Kostuik will provide technical review of the models and documents. Raftelis acknowledges that we received answers to our questions via email on August 8, 2022.

If you have any questions, please do not hesitate to contact me at 213-262-9308 or sgagnon@raftelis.com.

Sincerely,

Steve Gagnon, PE (AZ)
Senior Manager

Statement of Understanding

UNDERSTANDING

The Florin Resource Conservation District (FRCD) is seeking assistance with water rate and connection fee studies for the Elk Grove Water District (EGWD) including a comprehensive cost of service analysis, assessment of methodology and update of rates, and public engagement. Based on our review of FRCD's Request for Proposals (RFP), Raftelis has focused on several drivers for the study.

Funding Capital Improvements with Cash (Pay-as-you-go)
FCWD is interested in funding future capital projects with cash to help reduce long-term debt obligations. At the end of FY 2021, FRCD had a debt to net investment in capital assets ratio of about 1.2. Lowering this ratio is one factor in helping FRCD maintain its Aaa (Moody's) and AA+ (S&P) credit ratings.

Generating Sufficient Revenue to Continue Meeting FRCD/EGWD Mission
The FRCD's mission is to supply customers with high quality and safe drinking water along with outstanding customer service.

Fund Retirement and Other Post-Employment Benefits
The February 2020 Strategic Plan included a goal to increase retirement and OPEB. Raftelis has included funding different levels as part of financial scenario planning to understand the impact on water rates / required revenues due to meeting various funding levels.

PROJECT APPROACH

We have developed the following proposed services based on our extensive experience in completing comprehensive water rate studies for other utilities while taking into account the considerations identified by FRCD in its Request for Proposals (RFP). The approach has been tailored to address the specific objectives and concerns identified in the RFP while maintaining those elements that we believe are essential for a successful project. We have used a similar project approach on many of our rate study projects for utilities throughout California.

Task 1: Project Initiation and Management

Project Initiation

We believe that the execution of a productive kick-off meeting is the most effective way to begin a project of this nature. The goals for this meeting include:

- Providing a forum to finalize the scope of the project, work plan, and schedule with FRCD staff
- Discussing FRCD's preliminary pricing objectives
- Ensuring that we have an understanding of the overall goals of the study
- Providing an opportunity for FRCD staff to meet and become comfortable with the project staff from Raftelis
- Reviewing the data needs for the project

Accomplishing these objectives will help to ensure that the project progresses as smoothly as possible.

Prior to the kick-off meeting, we will prepare a detailed data request list that will identify the information needed to complete the various analyses. Information that is typically required to perform a comprehensive cost-of-service study includes recent Annual Comprehensive Financial Reports (ACFR), recent and current utility budgets, a description of service areas, current and historical billing data, utility plant in service records, debt service schedules, water master plan,

and long-term capital improvement plans. Some of this information will be readily available, whereas other components may require more detailed analyses of operational data, customer billing information, and costs.

Project Management

In order to successfully complete the project, Raftelis will be in regular communication with FRCD staff regarding data requests, data validation, data decisions, and reviewing preliminary and final results. Much of this can be accomplished through conference calls, emails, and demonstrations using tools such as Microsoft Teams or Zoom. These efforts provide for consistent and competent project management to ensure that all deadlines and objectives are met in a timely and efficient manner. We believe in a no-surprises approach so that FRCD is always aware of the project status.

Data Request

The data request will include customer billing data and financial documents such as operating budgets, capital plans, master/strategic plans, etc. Raftelis will utilize this data, such as operating costs, water use and wastewater flows, capital spending plans, and revenues generated, to develop financial forecasts, units of service for water rate design, and utility valuations for the capacity fee framework. The kickoff workshop will provide an opportunity to discuss data availability.

PLANNED MEETINGS:

- Web-based kick-off meeting

DELIVERABLES:

- Data request list
- Agenda for kick-off meeting
- Documentation summarizing the kick-off meeting

Task 2: Develop Financial Plan and Revenue Requirements

An important element in conducting a comprehensive rate study is to establish a comprehensive short- and long-term financial plan for FRCD's water enterprise. In preparing this plan, we will analyze FRCD's current policies and practices for funding its operations, capital facilities plans, and debt service requirements. As appropriate, and as discussed with FRCD staff, we will consider various financing options, or a combination of options, such as operating revenue and miscellaneous fees. Raftelis understands that FRCD wants to cash-finance future capital expenditures.

We will assist FRCD in achieving a suitable balance among the financing options when developing the proposed financial plans, which will accomplish the following:

- Ensure financial sufficiency to meet operating and capital costs as well as prudent reserves
- Meet FRCD's service policies and objectives
- Fairly distribute financing responsibility to appropriate users
- Result in an appropriate capital structure so that FRCD maintains a high rating with bond rating agencies

Maintaining detailed financial plans will ensure that EGWD is operating in a revenue self-sufficient manner and meets debt covenant requirements.

The financial plan for EGWD will include a capital improvement financing component that ensures the enterprise can fully finance the proposed capital improvement program while minimizing impacts to existing ratepayers and complying with existing revenue bond covenants.

Develop Revenue Requirements

This task will include the projection of budget items, such as annual costs related to labor, power, materials, capital expenditures, plant investment, O&M expenses, transfers, reserve contributions, and debt service coverage using assumptions based on different economic factors and growth trends.

We will develop forecasts of revenue requirements over the multi-year planning period. Revenue requirements will be projected over the rate-setting period based on historical results, the current budget, capital improvement plans, master planning studies, existing debt service, other obligations, and current economic trends. We will examine the effect of variations in factors that impact the utility's revenue requirements and provide comparisons of potential revenue requirement scenarios for review with FRCD to identify the most appropriate revenue requirements for proposed rates. Projecting revenue adjustments over a multi-year planning horizon can illustrate future rate impacts and potential challenges to EGWD's financial situation. This will allow EGWD to adjust its expenses, transfers, and reserve balances or schedule capital projects to smooth rate impacts and maintain financial stability.

Develop Ten-year Cash Flow Analysis

We will develop a ten-year cash flow analysis to determine the revenue adjustments needed to meet projected revenue requirements for the multi-year planning period while minimizing sharp rate fluctuations. The cash flow worksheet incorporates revenues generated from different sources, expenses needed to maintain the utility systems, any transfers in and out of the enterprise funds, as well as the coverage needed to meet current and proposed debt service requirements.

PLANNED MEETINGS:

- Web-based meeting to review ten-year financial plan

DELIVERABLES:

- Ten-year financial plan

Task 3: Projected Cost-of-Service and Rate Calculation

Although we take care to tailor a utility's cost-of-service analysis to meet the needs of the individual utility, we always make sure to follow the basic premise of cost-of-service allocations set forth by state and local laws, the American Water Works Association's (AWWA) *Manual M1, Principles of Water Rates, Fees, and Charges* and other authoritative bodies.

Cost-of-Service

Using the financial plan projections including growth or declines in water use, changes in operations and maintenance including staffing levels, inflation assumptions, capital improvement plan, and funding strategies from Task 2, the cost-of-service will be developed for a test year. Raftelis will pay particular attention to the allocation of costs to fixed and variable categories.

The first step of a cost-of-service analysis is to complete a cost functionalization to allocate costs to the various functions within the utility. For example, in the water utility, these categories may include source of supply, treatment plant, transmission, and distribution. The next step is the classification of costs based on cost-causative parameters. In water, these parameters would be average day demand, maximum day demand, maximum hour demand, meters, and customer service. Finally, the cost of serving each customer class will be determined based on each class' usage characteristics.

Rate Calculation

After conducting the cost-of-service analysis, the water rates will be calculated for the current rate structures. We recognize that ratemaking is in part art, so Raftelis works within broad industry guidelines and Proposition 218

requirements to meet the strategic objectives of FRCD while ensuring that any proposed rates are based on cost-of-service and defensible.

At the heart of any successful cost-of-service and rate study is the computer model that is used to develop revenue requirements; perform cost functionalization, classification, and allocation; and calculate rates. During our analysis, we will examine how the current tier definitions and class structures for each customer class serve FRCD's objectives and align with potential new demand patterns. Raftelis may recommend adjustments to the tier structures to achieve high priority policy objectives, aid in the defensibility of water rates, and/or aid in communicating rates to customers.

We will project these rates for the forecast period to ensure that all covenant requirements are met and to ensure that customer impacts of rate increases do not lead to rate shock. At the end of this task, we will conduct a virtual meeting with FRCD staff. At this meeting, Raftelis will review the entire cost-of-service and rate-setting process and present preliminary rates. Prior to the meeting, FRCD staff will be provided with the draft rate model and preliminary rates so that they will be able to review our methodology and suggest changes. We will discuss all suggested changes and then work with FRCD to come up with our final rate recommendations.

PLANNED MEETINGS:

- Web-based meeting with FRCD staff to review costs by customer classes and resulting rates

DELIVERABLES:

- Functional rate model for FRCD's future use and update

Task 4: Survey of Comparable Agencies' Water Rates

We will work with FRCD staff to identify 10 agencies for comparison focusing on similar size, mix of customers, and services. The comparison will be presented in a graphic format and will include EGWD's current rates and proposed rates along with the 10 comparison agencies.

DELIVERABLES:

- Included in final report

Task 5: Water Rate Reporting

Draft and Final Reports

The draft report will align with Prop 218 requirements and document the rate development process, describe any recommended changes to the existing rate structures and the reason for such. An electronic copy of the draft report will be presented to FRCD staff for their review and comment. Comments will be incorporated into the final report.

DELIVERABLES:

- Draft and final reports in Adobe PDF

Task 6: Connection Fee Study & Report

Framework

Several methodologies exist for calculating connection fees. The various approaches have largely evolved on the basis of changing public policy, legal requirements, and the unique and special circumstances of each agency. Raftelis will evaluate EGWD's capacity fees based on the buy-in and incremental methodologies, or a hybrid methodology, whichever

is most applicable. The calculation of the fees will depend on current fixed assets, planned (future) capital improvements, capital financing assumptions, system capacities, and the level of service (or demand requirements) of new customers. Proposed fees will meet applicable regulatory requirements (i.e., Government Code 66000) in developing impact fees. Raftelis will work with staff to develop the capacity fee framework that is most appropriate for EGWD.

Calculation of Water Connection Fees

Raftelis will review EGWD's asset database as well as current and future potential demand based on existing master and strategic plan documents. The goal of this sub-task is to ensure that total demand at build-out is considered for purposes of developing the capacity fees. Raftelis will develop a Connection Fee Model that will reflect future demand and associated facilities costs that benefit new development in whole or in part. Raftelis will review the resulting connection fees with FRCD staff.

PLANNED MEETINGS:

- One web-based meeting to discuss results
- Deliverables:

DELIVERABLES:

- Capacity Fee Model in Microsoft Excel

Report Development

The process for developing proposed connection fees and the associated methodology will be described in a detailed draft report. Proposed fees and the report will meet applicable regulatory requirements (Government Code 66000). Comments from FRCD staff will be incorporated into a Final Report.

DELIVERABLES:

- Draft and Final Connection Fee Reports in Adobe PDF

Task 7: Board Meetings, Prop 218 Support, and Public Hearing Process

Board (and Possibly CAC) Introductory Meeting(s)

Raftelis will deliver an introductory rate making presentation to the Board. If a CAC is created, Raftelis will also make this presentation to the CAC. The presentation will provide an overview of the rate making process and key inputs/policy decisions in light of Prop 218.

Board (and Possibly CAC) Review Sessions

Once a financial plan has been created with FRCD staff input and review, Raftelis will present the key inputs and assumptions used in the financial plan to the Board, and to the CAC, if created. Comments and direction will be incorporated into the financial plan.

Once preliminary rates have been developed based on the finalized financial plan as well as the connection fee recommendations, Raftelis will present the results to the Board and CAC, if created, for final direction and input.

Prop 218 Notice Support

Raftelis will be available to assist FRCD staff in drafting and reviewing Proposition 218 notices to its customers. While Raftelis will assist in the process, the customer notice is a legal document and should be drafted by FRCD and reviewed by FRCD's Attorney's office.

Public Hearing

We will prepare a PowerPoint presentation summarizing the rate study process, findings, and recommendations in a clear and concise manner. We will provide a draft of this presentation to FRCD staff for their review and comment prior to delivering the final version. Raftelis will present our findings using this presentation at a public hearing.

PLANNED MEETINGS:

- An on-site introductory meeting to Board and CAC, if created
- Two on-site review meetings to Board and CAC, if created
- One on-site public hearing

DELIVERABLES:

- PowerPoint presentations

Qualifications

Our staff has assisted more than 1,200 public agencies and utilities across the U.S., including some of the largest and most complex agencies in the nation. In the past year alone, Raftelis worked on more than 900 financial, organizational, and/or technology consulting projects for over 600 agencies in 44 states, the District of Columbia, and Canada. Below, we have provided three project descriptions and references that are similar in scope to FRCD's project. We urge you to contact them to better understand our capabilities and the quality of service that we provide. Please see Appendix A for a select listing of water rate and connection fee studies.

Placer County Water Agency CA

Reference: Joe Parker, Director of Financial Services
144 Ferguson Road, Auburn, CA 95603 / P: 530.823.4850 / E: jparker@pcwa.net
Project Team Members: Kevin Kostiuk, Project Manager, 30%, Charlie Diamond, Lead Analyst, 50%

In 2015, Placer County Water Agency (PCWA) engaged Raftelis to conduct a cost-of-service study for its water service. The agency was consolidating its water service area zones and reorganizing budgetary items to align with the new, single Western Water System. Additionally, PCWA provides water to a wide range of customers across an expansive service area. The system itself includes unlined canals as part of a gravity fed system, several water treatment facilities, pump stations, several sources of supply, and numerous customer classes. Over time, the water rate structures for the agency's various user groups and zones had become difficult to administer, explain, and justify. Raftelis held initial meetings with PCWA to understand the Agency's water system, cost centers, and cost drivers. A series of meetings followed to discern the unique cost components to the system and develop an appropriate cost-of-service analysis.

In 2016, Raftelis developed a cost-of-service model with the ability to allocate various costs based on different variables including user class, water sales, accounts, among others. Considerations for water availability and reliability, retail versus wholesale water, and raw versus treated water were incorporated to appropriately allocate costs first to user groups and then to customer classes. The Agency provides four types of water service: raw, treated, wholesale, and retail. The first step in the cost of service was a cost allocation between the four services, before continuing to a cost-of-service analysis for each. The study was completed in October 2017 with a new water system organization, amended rate structures, and updated rates implemented January 1, 2018.

Additional to the water system evaluation and cost-of-service study, Raftelis developed a water budget model for PCWA's internal use. The water budget model allows PCWA to examine their Single Family Residential (SFR)

customers' usage patterns relative to efficiency standards, climate, and account level characteristics. The model will aid in water management and give insight into water demand pattern changes with the Agency's new rate structure and rates.

Mesa Water District CA

Reference: Marwan Khalifa, CPA, MBA, Chief Financial Officer
1965 Placentia Avenue, Costa Mesa, CA 92627 / P: 949.207.5456 / E: marwank@mesawater.org
Project Team Members: Steve Gagnon, Project Manager, 40%, Theresa Jurotich, Lead Consultant, 60%

Raftelis completed a water cost-of-service rate study for the Mesa Water District (District), working closely with staff. Raftelis created several financial plan options so that the District could examine the impacts of different self-insurance program funding levels while meeting reserve targets and other revenue requirements. Once the committee selected a funding plan, the cost-of-service was updated to reflect current demands and use of the water system. Raftelis also explored capturing a portion of the revenue requirements through a charge collected by the Orange County Treasurer-Tax Collector's office. The rates and new structure were unanimously approved by the Board on January 12, 2022.

City of Hayward CA

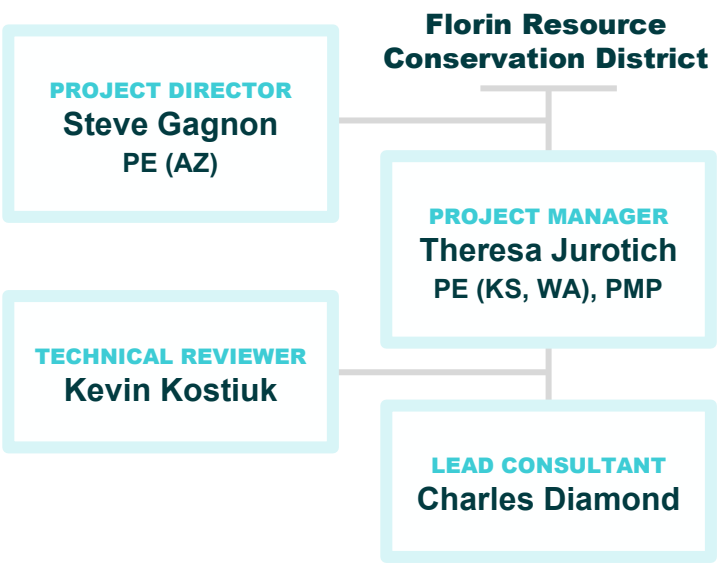
Reference: Alex Ameri, PE, Director of Public Works
777 B Street, Hayward, CA 94541 / P: 510.583.4720 / E: alex.ameri@hayward-ca.gov
Project Team Members: Kevin Kostiuk, Project Manager, 20%

The City of Hayward (City) engaged Raftelis in 2021 to assist the City in conducting a comprehensive water cost-of-service and rate study. The City is a part of the Bay Area Water Supply and Conservation Agency and purchases all of its water from the San Francisco Public Utilities Commission (SFPUC). The increasing, and sometimes unpredictable, costs of purchasing water from SFPUC was the main financial driver for the rate study. The 10-year financial plan was developed to ensure revenue sufficiency to meet operating and capital costs (including SFPUC water purchases) and to build up sufficient water reserves over the planning period. The cost-of-service and rate study involved reallocating water system costs to determine the cost to serve each of the City's customer classes. Additionally, the water rate structure was updated to improve equity among classes, enhance customer understanding, and ensure affordability for essential use. Raftelis developed two years of water rates that were then successfully approved and implemented by the City Council.

Personnel

We have developed a team of consultants who specialize in the specific elements that will be critical to the success of FRCD's project.

Our team includes senior-level professionals to provide experienced project leadership with support from talented consultant staff. Key personnel are shown in the organizational chart and full resumes are included in Appendix B.



Project Schedule

The project schedule is shown in Appendix C.

Staff-Hour Allocation and Fees

The following table provides a breakdown of our proposed fee for this project. This table includes the estimated level of effort required for completing each task and the hourly billing rates for our project team members. Expenses include costs associated with travel and a $10 per hour technology charge covering computers, networks, telephones, postage, etc.

Tasks	Web Meetings	In-person Meetings	Hours							Total Fees & Expenses
			SG	TJ	CD	AC	KK	Admin	Total	
1. Project Initiation and Management	1		2	14	2	2			20	$5,050
2. Develop Financial Plan and Revenue Requirements	1		1	2	8	40	4		55	$10,735
3. Projected Cost-of-Service and Rate Calculation	1		1	2	12	20	4		39	$8,175
4. Survey of Comparable Agencies' Water Rates				1	2	8			11	$2,130
5. Water Rate Reporting			1	6	8	30	4	2	51	$10,225
6. Connection Fee Study & Report	1		1	4	8	30	2	2	47	$9,185
7. Board Meetings, Prop 218 Support, and Public Hearing Process		4	4	48	8	24		2	86	$23,246
Total Meetings / Hours	4	4	10	77	48	154	14	6	309	
Hourly Billing Rate			$285	$250	$225	$165	$250	$90		
Total Professional Fees			$2,850	$19,250	$10,800	$25,410	$3,500	$540	$62,350	
									Total Fees	$62,350
									Total Expenses	$6,396
									Total Fees & Expenses	$68,746

SG - Steve Gagnon
TJ - Theresa Jurotich
CD - Charles Diamond
AC - Associate Consultant
KK - Kevin Kostiuk
Administration

Agreement

We request that the FRCD consider making the following modifications, shown in red below, to the Professional Services Agreement. Please contact us if you have any questions or concerns about these modifications.

3.5.6. Indemnification. Consultant shall defend, indemnify and hold District, its officials, officers, employees, volunteers and agents free and harmless from ~~any and all~~ third party claims, demands, causes of action, costs, expenses, liability, loss, damage or injury, in law or equity, to property or persons, including wrongful death, ~~in any manner arising out of or incident to any~~ caused by alleged or negligent acts, omissions, negligence or willful misconduct of Consultant, its officials, officers, employees, agents, subcontractors and sub-consultants arising out of or in connection with the performance of the Services, the Project or this Agreement, including without limitation the payment of all consequential damages and attorney's fees and other related costs and expenses. Consultant shall defend, at Consultant's own cost, expense and risk, ~~any and all~~ such aforesaid suits, actions or other legal proceedings ~~of every kind~~ that may be brought or instituted against District, its directors, officials, officers, employees, agents or volunteers. Consultant shall pay and satisfy any judgment, award or decree that may be rendered against District or its directors, officials, officers, employees, agents or volunteers, in any such suit, action or other legal proceeding. Consultant shall reimburse District and its directors, officials, officers, employees, agents and/or volunteers, for any and all legal expenses and costs incurred by each of them in connection ~~there~~with ~~or in~~ enforcing the indemnity herein provided. Consultant's obligation to indemnify shall not be restricted to insurance proceeds, if any, received by District, its directors, officials, officers, employees, agents or volunteers. Consultant's obligations to defend, hold harmless, and indemnify the District shall not apply to the extent the liabilities are caused by the sole or gross negligence of the District.

Signed Copy of NDA

The signed copy of the NDA is included in Appendix D.

Certificate of Liability Insurance

Raftelis' certificate of liability insurance is included in Appendix E.

APPENDIX A:

Qualifications

Northern California Experience

This table lists the California utilities that Raftelis has assisted over the past five years on financial, rate, and/or management consulting projects.

Client	Affordability Analysis & Program Development	Debt Issuance Support	Dispute Resolution	Financial and Capital Improvements Planning	Rate Case Support	Rate Design	Risk Analysis	Cost of Service	Development / Impact Fees	Stormwater Utility Development	Organizational Optimization	Water/Wastewater Utility Valuation
Alameda County Water District		●		●		●	●	●	●			
Atwater, City of				●	●	●		●				
Benicia, City of									●			
Brentwood (CA), City of				●		●	●	●				
Central Contra Costa Sanitary District				●		●		●				
Chowchilla, City of				●		●	●	●				
Delta Diablo Sanitation District											●	
East Bay Municipal Utility District				●				●	●			
East Valley Water District				●		●	●	●				
Elk Grove Water District	●			●		●	●	●	●			
Galt, City of		●		●		●		●	●			
Glendora, City of						●						
Henderson, City of				●		●		●	●			
Hollister, City of				●		●		●	●			
Lake Valley Fire Protection District				●			●	●				
Livermore, City of				●		●		●	●			
Mammoth Community Water District				●		●		●				
Marin Municipal Water District					●							
Merced, City of				●		●		●	●			
Modesto Irrigation District						●		●				
Napa Sanitation District				●		●		●				
Palo Alto, City of				●		●	●	●				
Placer County Water Agency					●			●				
Pleasant Hill Recreation & Park District				●				●				
Roseville, City of		●		●					●			
Sacramento Regional County Sanitation District						●						
Sacramento, City of				●		●		●				
San Jose, City of								●				
Santa Clara Valley Water District			●	●	●							
Santa Rosa, City Attorney's Office									●			
Scotts Valley Water District		●		●		●	●	●	●			
Shasta Lake, City of				●		●	●	●				
Sonoma, City of				●		●		●				
South Pasadena, City of				●		●		●				
South San Francisco, City of				●				●				
Sunnyslope County Water District				●		●	●	●	●			
Union Sanitary District				●		●	●	●	●			
Watsonville, City of	●			●		●	●	●				
West Basin Municipal Water District				●		●	●	●				
Zone 7 Water Agency				●		●		●				

Diversity and inclusion are an integral part of Raftelis' core values.

We are committed to doing our part to fight prejudice, racism, and discrimination by becoming more informed, disengaging with business partners that do not share this commitment, and encouraging our employees to use their skills to work toward a more just society that has no barriers to opportunity.

REGISTERED MUNICIPAL ADVISOR

Raftelis is registered with the U.S. Securities and Exchange Commission (SEC) and the Municipal Securities Rulemaking Board (MSRB) as a Municipal Advisor.

Registration as a Municipal Advisor is a requirement under the Dodd-Frank Wall Street Reform and Consumer Protection Act. All firms that provide financial forecasts that include assumptions about the size, timing, and terms for possible future debt issues, as well as debt issuance support services for specific proposed bond issues, including bond feasibility studies and coverage forecasts, must be registered with the SEC and MSRB to legally provide financial opinions and advice. Raftelis' registration as a Municipal Advisor means our clients can be confident that Raftelis is fully qualified and capable of providing financial advice related to all aspects of financial planning in compliance with the applicable regulations of the SEC and the MSRB.

APPENDIX B:

Resumes

Steve Gagnon PE (AZ)

PROJECT DIRECTOR
Senior Manager

ROLE

Steve will be responsible for overall project accountability and will be available to provide quality assurance and control, industry perspective, and insights into the project.

PROFILE

Steve has 24 years of experience in financial analysis and environmental engineering. For the past 14 years Steve has provided financial planning and rate setting services to agencies all over California. He has also helped utilities make major investment decisions such as whether to invest in food waste to energy projects. He has also managed the construction and installation of water treatment equipment and oversaw Superfund remediation for the U.S. Army.

KEY PROJECT EXPERIENCE

Utility Rate Studies and Long-Range Planning Experience

City of Manhattan Beach (CA)
Steve is helping the City of Manhattan Beach to create a water financial plan and set rates. The City had two major concerns; 1) wells were impaired in the near term and the city would have to purchase more imported water and 2) the City was unsure about tiered rates given recent litigation. Steve worked with city staff to discuss the pros and cons of tiered rates. After reviewing these pros and cons with the city attorney and manager, staff is recommending cost based tiered rates as of this writing. Steve will present the financial need and rate study results to city council and the public.

City of Tracy (CA)
In 2019, the City of Tracy (City) engaged Raftelis to perform a wastewater rate study. Raftelis is currently working with City staff to best plan for expenses to minimize customer impacts, and Steve is serving as Project Manager.

City of San Diego (CA)
The City of San Diego (City) is considering a renewable energy project to take landfill gas and create electricity. Steve prepared a financial model evaluating three alternatives: 1) do nothing and purchase electricity from a regional provider, 2) enter into a contract with a private entity to run and the renewable energy facility and sell electricity to the City at an agreed upon rate, 3) to purchase the facility and run it with City staff. The analysis gives the City a range of acceptable electricity rates for negotiating with a private party for option 2.

Specialties
- Utility cost-of-service & rate structure studies
- Conservation rate studies
- Economic feasibility studies
- Capital budgeting studies
- Wastewater rate studies
- Capital recovery/capacity fee studies
- Survey research of water & wastewater utility characteristics & rates

Professional History
- Raftelis: Senior Manager (2020-present); Manager (2017-2019); Senior Consultant (2014-2016)
- APTwater, Inc. (Now Ultura): project manager (2011-2014)
- PBS&J (now ATKINS): project manager - Utility Finance (2005-2011)
- Earth Tech (now AECOM): Senior project manager (2004-2005)
- Malcolm Pirnie, Inc. (now ARCADIS): Consultant (2002-2003)
- National Parks Conservation Association - Business Plan Initiative: Business Plan Consultant (2000)
- U.S. Army Corps of Engineers - New England Division: project manager (1995-1999)
- Geophex, Limited: Graduate Research Assistant (1994)

Education
- Master of Business Administration - University of Southern California (2001)
- Master of Science in Environmental Engineering - University of Massachusetts (1995)
- Bachelor of Science in Civil Engineering - University of Massachusetts (1994)

Certifications
- Registered Professional Environmental Engineer in Arizona
- Series 50 Municipal Advisor Representative

Professional Memberships
- AWWA

Delta Diablo Sanitary District (CA)
Steve, as a sub-consultant to HDR, is preparing the financial analysis for a potential food waste to energy project in which the Delta Diablo Sanitary District (District) would take food waste slurry, convert it to biogas and sell electricity. There are many unknowns in the project including exact operations and maintenance costs and the tipping fee from the nearby landfill. Steve is performing a Monte Carlo simulation to help the District visualize the probability of a financially viable project given all the unknowns.

Running Springs Water District (CA)
Steve is assisting the Running Springs Water District (District) establish water and wastewater rates and evaluate the financial health of the Fire and Ambulance Department. The District is unique in that many residents are absentee owners of vacation homes. As such, the District is maintaining a higher than average level of fixed charges for both water and sewer to equitably distribute costs among full-time and part time residents. Steve also prepared a 10-year financial plan for the Fire and Ambulance Department showing its financial health under different property tax, other revenue and expenses assumptions, including fire engine replacement.

Encina Wastewater Authority (CA)
Steve is helping the Encina Wastewater Authority (Authority) analyze the Net Present Value of three large capital investments: 1) their co-generation facility, 2) the heat dryer and 3) the fats, oils and greases (FOG) receiving facility that supports Encina's co-digestion facility operation. For the co-gen facility, the analysis involves calculating the Net Present Value of electricity purchase costs with and without the co-gen facility. The heat dryer analysis involves calculating the equivalent annual cost of operating solely the centrifuge (with the associated disposal cost of sludge) versus operating the heat dryer and its reduced sludge disposal costs. Lastly, he is helping the Authority analyze its options for alternative digester fuels for co-digestion to enhance digester gas production - FOG versus beer waste - based on the tipping fees and associated maintenance costs of each.

Hi-Desert Water District (CA)
Steve is helping the Hi-Desert Water District (District) establish defensible and affordable water rates for a District with a high number of low-income residents. The study includes an update of their miscellaneous fees. The District has one main source of water, which limits the rate differentiation between tiers. The study includes an extensive outreach program to educate customers as to the need for rate adjustments.

City of Port Hueneme (CA)
The City of Port Hueneme (City) has some of the highest water rates in the area due to the amount of capital reinvestment needed to maintain the system. Steve is helping City Council and Staff assess the impacts of their decisions, including capital reinvestment, loan refinancing and fixed charge pricing on customer bills. The study included a rate workshop with City Council to show the Council the effects of their decisions.

Mesa Water District (CA)
Mesa Water District (District) prides itself on the fact that it is no longer dependent on imported water. Steve helped the District revise their water and recycled water rates in a few months during a fast-paced rate study. The study included over 10 financial plan options for the Board to select from.

City of Pomona (CA)
Steve is currently helping the City of Pomona (City) establish water, recycled water and wastewater rates. He is establishing defensible tiered rates based on the City's multiple sources of water and use characteristics. He is also establishing pumping charges based on the costs associated with serving water to high elevation customers. The engagement includes working with rate committee members, Staff and council members to ascertain their rate setting goals. It also includes a 10-year financial plan and modeling rates under industry standard reserve targets.

City of Lakewood (CA)
Steve helped the City of Lakewood (City) develop cost-of-service based tiered water rates. Of note, Steve recommended revising the current practice of providing free water for the first four units of water in single family first tier. To ease the impacts of this change, the City decided to transition the rates over a 5-year period. The study included a full five-year financial plan and a review and recommendations on reserve levels.

City of Orange (CA)
Steve is helping the City of Orange (City) update its water rates and rate structure to ensure that rates are based on cost-of-service principles. The study includes a financial plan to fully fund operational and capital expenses and reserves. Steve also helped the City establish wastewater rates for its sanitation enterprise. The rates were revised to reflect sewer whereas they were previously based on water use.

Channel Islands Beach Community Services District (CA)
Steve helped the Channel Islands Beach Community Services District (District) establish equitable water and wastewater rates. Particularly noteworthy in this study was a class of customers that required the District to reserve capacity in the water treatment plant for possible future growth. Steve explained the cost causation-based rate for this customer class at Board meetings and the Public Hearing. Steve also held special web-based workshops with this customer class to explain cost-of-service principles and the basis for the rates.

City of Shasta Lake (CA)
The City of Shasta Lake's (City) water revenue dropped significantly during the recent drought - while their water costs increased due to emergency water purchases from expensive sources. In addition, the City's infrastructure was over 80 years old which necessitated significant capital expenditures. Steve worked with City staff to develop a water financial plan that fully funded their capital program, reserves and operational expenses. The financial plan called for a 30% revenue increase in one year. Steve presented the basis for revenue adjustments and rate development at a well-attended public hearing at City Hall.

Santa Fe Irrigation District (CA)
Santa Fe Irrigation District (District) has one of the largest per capita water use rates in the State due to its large lots, many of which have orchards and other agriculture requiring irrigation. Steve worked with City Staff and Board members to establish water cost-of-service based rates which included a complete restructuring of their fixed charges so that the District could pass through their fixed wholesaler charges. The consumption rates were based on the peaking characteristics of each class. Steve presented at a contentious Public Hearing, in which that rates were adopted, to answer Board and the Public's questions.

City of Encinitas (San Dieguito Water District, CA)
Steve helped the City of Encinitas (City) establish water rates that are based on cost-of-service principles. Cost-of-service based rates creates large bill impacts for the agricultural class. Steve worked with City staff and the Board rate setting committee to evaluate rates and explain rate setting basics to the committee and public in a Proposition 218 public hearing.

Trabuco Canyon Water District (CA)
Steve helped the Trabuco Canyon Water District (District) establish water, wastewater and recycled water rates. The Trabuco Canyon Water District's revenue plummeted significantly during the recent drought. Steve helped the District established rates, including drought rates, that fully funded operations, capital expenses and reserves. The District previously had a 7-tier rate structure. Steve helped the district establish a 4-tier rate structure in which the rates were based on the supply costs and peaking costs to serve water in each tier - as required by Proposition 218. The study started with a

pricing objectives exercise so that the Board could communicate its most important rate setting goals. Steve presented financial plan options and rate study results and a public hearing.

Sweetwater Authority (CA)

Steve is evaluated water rates, including drought rates, for the Sweetwater Authority in light of recent legal concerns over their current rate structure. The evaluation includes a cost-of-service study to clearly demonstrate the nexus between the rate for each single-family tier and the associated costs to serve that tier. The study started by soliciting input from Board members regarding their water pricing objectives so that rates could be designed accordingly. Steve concluded the study with presentations to the District Board of Directors and the Public.

Moulton Niguel Water District (CA)

Steve prepared water and wastewater capacity fees and miscellaneous fees in June of 2016. The water and wastewater capacity fees were calculated using the buy-in methodology and varied by meter size. The Moulton Niguel Water District (District) also decided to implement a water demand offset fee for new water connections based on the premise that the recycled water system offsets potable water use and benefits potable water users. Steve attended Board meetings to help staff explain the rationale and basis for the capacity fees.

Steve also helped calculate miscellaneous fees by interviewing staff to assess the time and effort involved with the fees, benefit burden rates and material charges to properly calculate over three dozen fees for the water and wastewater systems. The deliverable included an excel model with which the District could update the miscellaneous fees in the future.

City of Henderson (NV)

Steve is creating water and wastewater rate and financial planning models for the City of Henderson as well as updating their water and sewer system development charges. The models will be used over the next 5 to 10 years not only to calculate water and wastewater rates but also to create yearly financial statements.

City of Redlands (CA)

Steve updated the City of Redland's (City) water and wastewater rates and development impact fees. The rate study process included workshops with the City's Utility Advisory Committee in which he presented the basics of rate setting and the financial environment of the utilities. The interactive workshops solicited input from committee members and staff regarding revenue adjustments and rates.

Rainbow Municipal Water District (CA)

Steve created water conservation-based sewer rates to complement the Rainbow Municipal Water District's (District) conservation-based water rate structure. These rates will be based on the actual water usage of each customer within the District. In addition, appropriate sewage strengths will be incorporated into the District's sewer user rates.

County of San Diego (CA)

Steve prepared integrated financial models for a landmark study for the County of San Diego. The study will not only be updating the sewer user, capacity, and annexation fees for the nine dependent sewer districts but will also include the economic analysis of creating one "super sanitation district." Long-range financial plans will be prepared for all of the districts as well as the super district including 10 years of operational and capital costs.

Town of Quartzsite (AZ)

Steve performed a third-party rate review of a recently completed water and wastewater rate study for the Town of Quartzsite (Town). The Town is concerned with insuring that their winter RV population is paying their fair share of the water and sewer expenses.

Town of Parker (AZ)
Steve updated the Town of Parker's (Town) water rates. One of the Town's main concerns was the fairness and equity of water system cost distribution given the Town's large population of Native Americans who do not pay sales or utility taxes yet benefit from Town parks and other Town amenities. He also helped the Town establish operating and capital reserves.

Walnut Valley Water District (CA)
Steve performed the Walnut Valley Water District's (District) first professional rate study which included updating the rate structure. Steve created a three-tier residential rate structure to help decrease discretionary consumption and ensure the District avoids or reduces water purchase surcharges from the Metropolitan Water District. He presented his findings to District staff and the District's Board of Directors.

Fallbrook Public Utility District (CA)
With water shortages looming in Southern California, this progressive water and sewer district asked for help creating water conservation-based sewer rates to complement their conservation-based water structure. Steve created rates based on the actual water usage of each customer within the Fallbrook Public Utility District (District). In addition, appropriate sewage strengths were incorporated into the District's sewer user rates.

Otay Water District (CA)
The Otay Water District (District) performs an update to their capacity and annexation fees every five years. In this update they changed their capacity fee from an incremental fee based on future costs to a combined fee structure using replacement costs less depreciation. They are also revised their annexation fee to recover taxes and availability charges paid by existing users who are currently inside the District's boundaries. In addition, they added a new water supply fee to recover the expansion costs of their water system. This is a new fee that addresses the issue of new development bringing their own water supply or pay for offsets.

Steve was also the lead economist on a fast track study to assist the District in adding further conservation incentives into their potable and reclaimed water user rates. Specifically, he added rate blocks into their non-residential and landscaping user rate structures based on specific base extra capacity cost allocations per user class. In addition, he assisted the District in the preparation of a drought/shortage rate structure that overlays their new conservation rate structure. This drought rate structure is based on the guidelines provided by the Metropolitan Water District of Southern California and the San Diego County Water Authority.

Rowland Water District (CA)
Steve updated the Rowland Water District's (District) water rates for the second time. The District had several concerns for the most recent study which included a large debt issue for a recycled water system as well as staff increases and wholesale water rate increases. The model helped the district size its debt issue by performing a rate sensitivity analysis to the size of the debt issue.

Olivenhain Municipal Water District (CA)
Steve created a drought rate model to help the Olivenhain Municipal Water District (District) develop a drought rate ordinance. The model calculated commodity rate adjustments for four drought stages. It allowed for customer voluntary cutbacks in consumption as well as cutbacks due to higher water prices using the price elasticity of water. The model will help ensure the District maintains adequate revenue in times of drought.

Steve helped the District update their wastewater rates and developed a customized model for its unique rate structure. The District's residential rates are a flat charge per Equivalent Dwelling Unit (EDU) and the commercial rate structure includes a service charge per EDU and a variable rate based on measured water consumption.

Steve also prepared valuation calculations for the system capacity required for update of water and wastewater connection and annexation fees for the District. The analysis showed that the District would benefit by changing capacity fee calculation methodologies from a growth method to a combined method, thereby imposing less restrictions on the use of capacity fee revenue.

Steve modeled the long-term cost of several different water sources for the District. Options included purchasing treated water, expanding their water treatment plant and purchasing untreated water from the Metropolitan Water District or partnering with other local agencies to desalinate ocean water. The model contained many variable inputs to allow "what-if" scenario analysis. Although purchasing treated water was the least costly option, the authority favored plant expansion due to other benefits such as reliability of water supply.

City of Poway (CA)

Steve completely rebuilt the City of Poway's water and wastewater rate models to reflect the latest rate setting practices.

Helix Water District (CA)

Steve created an economic model to add life-line and a water waster tier to the Helix Water District's (District) three-tier rate structure. In addition, budget-based water rates were created for all irrigation accounts. The District is transitioning slowly to budget-based rates due to staffing limitations. In 2010 they will implement budget-based rates for all commercial accounts.

Steve also performed all of the economic modeling in the preparation of the District's first Capacity Fee study. The capacity fee was designed to collect a buy-in portion based on replacement costs of the District's current water system and the incremental cost of adding a new water supply, the El Monte Valley Ground Water Recharge project.

City of Anaheim (CA)

Steve prepared a commercial and residential wastewater rate study for the City of Anaheim (City). The proposed rate structure was based on water consumption to replace the antiquated structure based on the number of toilets. Proper water use and wastewater return to sewer analysis is required to ensure proper revenue generation for the City.

City of Coronado (CA)

Steve is helping restructure the City of Coronado's wastewater rates from a flat parcel-based fee for residential users to one with a consumption-based charge and a fixed charge.

City of Lemon Grove (CA)

Steve helped update the commercial and residential wastewater rates for the City of Lemon Grove. The rate structure included 20 different user classes for residential, commercial, and institutional customers.

Western Municipal Water District (CA)

Steve prepared a long-range financial plan to help ensure the Western Municipal Water District's (District) financial health. Based on the District's five-year CIP, inflationary water rate adjustments, and reserve policies, the plan showed that a debt issue was needed to execute the CIP and maintain adequate reserves.

Julian and Pine Valley Sanitation Districts (CA)

Steve updated the wastewater rates and connection fees for both sanitation districts. The wastewater fees had not been updated for several years in one district and over 15 years in the other necessitating large rate increases. He developed a few different scenarios which included postponing CIP projects or lowering reserve balances, to ease ratepayers into higher rates.

San Antonio Water System (TX)

Steve prepared a sewer impact fee economic model and study for the City of San Antonio. This included a valuation of the system's facilities using several asset-based approaches. Ultimately the total net book value without depreciation was selected as the basis for the valuation of the System's assets. In addition, an equity residual model was prepared that included the allocation of the present value of past and future debt service payments. The study also analyzed a number of impact fee structures to determine the most fair and equitable fee.

La Habra Heights County Water District (CA)

Steve assisted with the update in water user rates, capacity charges, and long-range financial plan for the La Habra Heights County Water District (District). The 2001 study set the District's user rates for five years and expired in 2005. The District had recently completed an updated Water Master Plan and wished to incorporate the new cost of replacement capital facilities for the next 10 years into their long-range financial plan and user rates.

City of La Habra (CA)

Steve helped prepare the City of La Habra's (City) first professional sewer user rate study. This study followed industry standards and an EPA approved rate structure. The City plans to create a formal enterprise fund for their sewer utility to properly finance their sewer operations and maintenance. He developed the long-range financial plan modeled year-end cash reserves to ensure execution of the City's $21 million capital improvement program and to fund operations and maintenance.

City of Webster (TX)

Steve is constructing a stormwater model for the City of Webster (City). The rates are based on the impervious surface of each parcel. The City plans using water meters to bill customers.

City of Norman (OK)

Steve is constructing a stormwater rate model for the City of Norman. The model is constructed in several different ways to allow the city council to choose from alternative rate structures, including the contentious issue of whether or not Oklahoma University, which owns large parcels of impervious surface area, will support the stormwater utility.

Boxelder County (UT)

Steve assisted Boxelder County in the determination of how they will finance their required stormwater improvements. They plan to create a stormwater utility through diverse funding sources including impact and user fees, a community financing district, and grants and loans. The goal of this study was to identify and size a system of improvements which will achieve the greatest defined economic benefit (both local and regional) per dollar of cost, based on the 100-year floodplain extents.

City of Fullerton (CA)

Steve conducted a field audit to determine appropriate return to sewer flows as well as fats, oils and greases surcharge rates for the top 50 industrial water customers in the City of Fullerton.

PROJECT LIST

- City of Anaheim (CA) - Wastewater rate study
- Boxelder County (CO) - Stormwater funding research
- Blue Plains Wastewater Treatment Plant (DC) - Valuation study
- Confidential Fortune 500 Aerospace Corporation (CA) - Strategic remediation financial planning and analysis
- City of Coronado (CA) - Wastewater rate study
- Earth Tech (CA) - Operation excellence plan
- Fallbrook Public Utility District (CA) - Water conservation-based sewer rates
- City of Fullerton (CA) - Sewer fee assessment
- Helix Water District (CA) - Conservation based water rates; capacity fee study
- Julian and Pine Valley Sanitation Districts (CA) - Wastewater rate study
- Keweenaw National Historical Park, National Park Service (MI) - Business plan
- City of La Habra (CA) - Sewer rate study and long-range financial plan
- La Habra Heights County Water District (CA) - Water user rate study and long-range financial plan
- City of Lemon Grove (CA) - Wastewater rate study
- Marine Corps Base Camp Pendleton (CA) - Utility privatization
- Metro Wastewater Joint Powers Authority (CA) - Valuation of treatment capacity
- City of Norman (OK) - Stormwater rate study
- Olivenhain Municipal Water District (CA) - Drought water rates; wastewater rate update; capacity and annexation fee update; long-term water planning financial model; water supply cost benefit analysis
- Otay Water District (CA) - Capacity fees update; water rate structure update and drought phasing plan; performance metrics
- Town of Parker (AZ) - Water rate study; benchmarking and efficiency analysis
- City of Pico Rivera (CA) - Valuation of groundwater
- pumping rights
- City of Poway (CA) - Water and wastewater rate models
- Town of Quartzsite (AZ) - Third party rate review
- Rainbow Municipal Water District (CA) - Water conservation-based sewer rates
- Rowland Water District (CA) - Water rate study
- San Antonio Water System (TX) - Sewer impact fee study
- County of San Diego (CA) - Sewer utility rate study
- Sweetwater Authority (CA) - Water rate study
- U.S. Army Sudbury Annex Superfund Site (MA) - Base realignment and closure
- Walnut Valley Water District (CA) - Water rate study

Theresa Jurotich PE, PMP

PROJECT MANAGER
Manager

ROLE

Theresa will manage the day-to-day aspects of the project ensuring it is within budget, on schedule, and effectively meets FRCD's objectives. Theresa will serve as FRCD's main point of contact for the project.

PROFILE

Theresa has 24 years of experience in the water and wastewater industries and in the energy industry, split between traditional and alternative technologies. She is skilled in leading asset management projects, feasibility studies and economic analyses (including development of pro forma model inputs) for water and wastewater system capital improvement projects, as well as a variety of traditional and renewable energy technologies. Theresa routinely performs water and wastewater rate studies, including investigating alternative rate structures, conducting utility-basis evaluations of outside-city rates, and bond financing feasibility studies. Her Asset Management efforts include leading the development of asset management strategies, training users on how to collect asset data and use asset management tools, performing gap assessments, and designing likelihood and consequence of failure definitions and risk scoring protocols.

RATE STUDY / FINANCIAL PROJECT EXPERIENCE

San Benito County Water District (CA)
Between 2021 and 2022, Theresa is managing a water rate study for San Benito County Water District (SBCWD). The SBCWD has a unique water system driven by allocations of purchased water, groundwater sources, and maintaining adequate water reserves in storage. The study is developing longer term financial plan to capture planned major capital improvements that will come from the pending water master plan, as well as updating the cost allocating methodology.

Mesa Water District (CA)
Mesa Water District (District) prides itself on the fact that it is no longer dependent on imported water. For the District's FY23 – FY27 rate setting period, Theresa developed the financial plan, cost-of-service and rate setting model to support the District's update to its water and recycled water rates in a few months during a fast-paced rate study. She summarized the work in the nexus report.

East Orange County Water District (CA)
In 2021 and 2022, Raftelis is performing a wholesale water, retail water and sewer rate study incorporating financial plans, cost-of-service (water) and recommended rates. Theresa is serving as the assistant project manager as well as making updates to the model as inputs are refined.

Specialties
- Financial planning
- Cost-of-service and rate structure studies
- System development charge studies
- Asset management and risk assessment

Professional History
- Raftelis: Manager (2021 – Present)
- CDM Smith: Project Manager & Senior Consultant (2007 – 2021)
- Det Norske Veritas (formerly Global Energy Concepts): Engineer/ Consultant (2003 – 2007)
- Black & Veatch: Engineer/ Consultant (1996 – 2001)

Education
- Bachelor of Science in Mechanical Engineering – University of Missouri – Columbia (1996)
- Bachelor of Arts in English – University of Missouri – Columbia (1996)
- Master of Science in Science and Technology Studies – Virginia Polytechnic and State University (2003)

Certifications
- PE – Kansas
- PE – Washington
- PMP
- Series 50 Municipal Advisor Representative

Professional Memberships
- AWWA: Pacific Northwest Section
- WEF: Pacific Northwest Section
- Project Management Institute
- Institute of Asset Management

Santa Ynez River Water Conservation District (CA)
In 2022, Theresa created a multi-year financial plan that allowed for the determination of groundwater pumping unit rates for the next fiscal year for producers within the District. The cost-of-service analysis indicated that cost differentials currently did not exist; therefore, a uniform rate for all producer types was developed.

City of Camarillo/ Camarillo Sanitation District (CA)
Raftelis is performing a water and wastewater rate study for the City of Camarillo/ Camarillo Sanitation District. Theresa is serving as assistant project manager and performing the capacity fee updates for water and sewer.

Otay Water District (CA)
In 2021 and 2022, Raftelis is performing a water rate study that will eventually incorporate the data from AMI meters to support tiered rates. Theresa is providing quality assurance/ quality control for this project.

City of Long Beach (CA)
In 2021 and 2022, Raftelis is providing a cost-of-service study for the Department's water, reclaimed water, and sewer rates. The analysis includes performing a cost-of-service analysis on an historical test year, updating the cost-of-service analysis for the rate study period. Particular focus will be on the tiers, including the best use of AMI data.

Santa Ana Watershed Project Authority (SAWPA) (CA)
In 2021 and 2022, Raftelis is reviewing the reserve policies related to SAWPA's Inland Empire Brine Line. Theresa is focusing on the capital-related reserve policies including developing minimum levels and maximum targets incorporating the results from a recent risk analysis.

NEW Water (WI)
Theresa managed and updated the cost allocation procedure to reflect the current plant asset inventory, incorporate the acquisition of a neighboring facility, and apply the allocations to the current budget to support rate development. Follow on work on regularly updating the cost allocation procedure and inputs to the cost-of-service model continues as the design and construction of a new solids process, R2E2, proceeds and additional facilities are replaced. She has performed this work since 2007.

City of Glendale (AZ)
In 2021, Theresa performed the water and wastewater cost-of-service analysis and rate setting for the City of Glendale (Glendale). Work entailed updating the existing model with new information from Glendale, working directly with the client to refine assumptions, and summarizing the recommended water and wastewater rates in a report.

City of Littleton (CO)
In 2021, Theresa built wastewater and stormwater rate models to develop financial plans for each enterprise, a cost-of-service analysis for the wastewater enterprise, and updated rates for both enterprises. A major challenge was getting accurate water data from all the water purveyors that supply water to the wastewater customers served by Littleton.

City of Lockwood (MT)
In 2021, Theresa helped update the impact fee for the Lockwood Water and Sewer District (District) as part of a system development fee advisory committee, as required by Montana Code Annotated, to review and refine proposed water and sewer system development fees. The sewer utility has been recently installed with effluent being conveyed to the City of Billings wastewater treatment plant for treatment and disposal. Previously water customers had individual septic systems and there are many such systems still in place, which will be connected to the District's sewer system as drain fields fail and/or through future phases of the sewer system expansion. The District will also be conveying pre-treated wastewater flows to the City of Billings generated by ExxonMobil at a refinery adjacent to the District service area and Raftelis

assisted the District during the contracting phases as well as development of the one-time system development fee to be assessed to ExxonMobil upon connection to the District's system.

Board of Water Supply City and County of Honolulu (HI)

Between 2017 and 2021 Theresa conducted a water rate study starting with developing revenue requirements as part of a larger Master Plan effort for the Board of Water Supply. The work included a ten-year financial plan, cost-of-service analysis, rate structure evaluation, and 5-year rate setting period. Work included monthly Stakeholder Advisory Group meetings where financial policies, level of capital improvement program, cost-of-service and alternative rate structures were discussed. Theresa also prepared a long range (30-year) financial planning document covering a similar period to the Water Master Plan. Theresa trained key financial staff at the BWS on the use of the financial planning, cost-of-service and rate setting model. Theresa also updated the water system facilities charges and managed and performed an update to the Long Range Financial Plan to address the current financial status and test pandemic-related impacts to the cashflow.

City of Kansas City (MO)

Between 2010 and 2021, Theresa has managed and conducted several rate studies for updating water and wastewater rates for the City of Kansas City. The studies include a 5-year financial plan as well as cost-of-service rate setting using the utility-basis for wholesale customers. Theresa created new water and wastewater rate models and user manuals, which include a financial planning dashboard as well as updates to how information is input into the model based on how the information is provided in source documents. In 2011 – 2012, Theresa also performed bond feasibility studies for the sale of $82,605,000 in wastewater revenue bonds issued in November 2011 and $47,725,000 in water revenue bonds issued in February 2012 on behalf of the City of Kansas City, Missouri to support their capital improvement program. This work entailed reviewing the city's rate and debt models, independently verifying cash flows, and accessing the city's ability to meet reserve requirements and minimum debt service coverage ratios.

Village of Sauget (IL)

Since 2008, Theresa has annually managed and evaluated the current cost-of-service for the American Bottoms Regional Wastewater Treatment Facility to determine if a rate adjustment is needed for the next fiscal year. The analysis includes updating the rate model with the latest operations and maintenance, debt service, reserve fund, and customer information as well as projecting industrial customer flows. Every two years, Theresa conducts a deep-dive into the strengths received at the treatment plant from industrial customers.

USAID (Jordan)

Between 2019 – 2020, Theresa conducted the financial analysis of wastewater treatment plant and effluent reuse options for wastewater treatment at two locations in Jordan. Results of the analysis are documented in reports. Based on review of each project's initial engineering, financial and economic results, the client chose a desired mix of wastewater treatment and effluent reuse. A revised analysis was conducted for this option.

City of Minneapolis (MN)

In 2016, Theresa developed a water rate assessment tool and decision-making toolbox for utility managers to access at a high level whether or not the current rate structure meets the goals and objectives of the utility, as well as if the necessary data is available to create alternative rate structures.

City of Council Bluffs (IA)

In 2014 – 2015, Theresa completed a financial plan and cost-of-service study for the wastewater department of the City of Council Bluffs. A cost-of-service study had last been completed by the city in 2000 but not implemented. The financial plan developed a 5 year plan for getting the wastewater department to be a stand-alone enterprise. The cost-of-service study developed a 5-year phase in plan to move back to cost-of-service based rates.

County of Maui (HI)
In 2013 – 2014, Theresa managed and updated the County of Maui's cashflow, cost-of-service and rate setting model. The update included adding a financial planning dashboard, updating the input structure to better match the format of source data, review and update of allocation factors, and updated mass balance.

City of Klamath Falls (OR)
Between 2013 – 2014, Theresa performed a rate study following upon the Facility Plan economic assessment. The study incorporates examining the timing of capital improvement projects and how those projects are funded (bonds, cash, revenue rate increases). The iterative process seeks to optimize the capital improvement program while keeping rate increases in check. Theresa also developed system development charges for the city. In 2009, Theresa developed financial plans for two proposed alternative facility plans for the City of Klamath Fall's sewer treatment plant. The evaluation included determining the feasibility of the plans using the Environmental Protection Agency's affordability guidelines.

NAVFAC (US)
Between 2014 – 2015, Theresa worked with a team to collect data from Navy bases to convert the hazardous waste operations from general fund to navy working capital fund. She has developed a template for data collection and calculation of rate components. The second phase of the project will review the process and make recommendations for how best collect data and update rates on an annual basis. Between 2014 – 2016, Theresa also trained NAVFAC personnel on how to collect utility asset information for electrical generation, transmission and distribution systems; water supply, transmission, treatment, and distribution systems; and wastewater collection and treatment systems—the type of information to collect, and how to determine if an asset was to be collected. Once the database at each site was updated, team members performed a risk assessment. Visited sites to train personnel on how to conduct the risk assessment on the collected assets, as well as how to build projects to fix critical items. Led refresh training on the risk tool for some of the Navy bases. Between 2019 – 2020, Theresa supported the Pacific Northwest Naval bases with identifying appropriate job plans and frequency for its utility assets, as well preventative maintenance routing. Theresa also uploaded/modified job plans, created routes and entered preventative maintenance plans in Maximo. Between 2018 – 2021, Theresa also managed a project to write a manual in a wiki environment for a proprietary software as well as write scripts and produce demonstration videos.

City of Springfield (MA)
Between 2014 – 2015, Theresa lead the study, which required personnel to visit the water and wastewater treatment facilities, assess the condition of those facilities, and opine on the adequacy of operations and maintenance as well as the capital program to keep the facility in good operating condition. Theresa also conducted the financial review of the water and wastewater enterprises, which focused on the adequacy of budgeted operations and maintenance versus actual costs and the ability to continue making debt service coverage ratios.

ASSET MANAGEMENT PROJECT EXPERIENCE

City of Hillsboro (OR)
In 2021 and 2022, Theresa managed the City of Hillsboro's (Hillsboro) asset management strategy implementation study. The focus of the study is to assess the current level of asset management business processes for each department compared to a desired level of asset management maturity. Once current processes are known and understood, Raftelis is developing an asset management framework for the City that will work across all departments (e.g., fire, public works, library). The goal is to provide the City with a framework and culture that supports the City's asset management strategy and that can be conducted as a matter of day-to-day business by City staff.

Camino Real Regional Utility Authority (NM)

Between 2020 – 2021, Theresa managed an asset management plan study covering CRRUA's wastewater collection system. The plan focused on creating a simple excel-based asset listing from various sources, developing definitions and standardized scoring for likelihood and consequence of failure, and the risk calculation. For high risk assets, mitigations and budget-level costs were developed.

NEW Water (WI)

Between 2019 – 2020, Theresa managed the effort to review the Top 20 non-asset business risks (e.g., financial, communications, operations, environmental, regulatory) developed by each department within New Water. The review addressed any potential risks that may have been missed and best ways to identify the Top 20 risks. Once the list of Top 20 was finalized, subject matter experts developed mitigations strategies and key performance indicators for the top risks. Theresa also served as the financial subject matter expert. All risks, scores, mitigations and key performance indicators were placed into a web-based tool for periodic update by NEW Water staff (at least annually) to track progress on implementing mitigations and measuring the success or lack thereof for those mitigations by reporting on the key performance indicators. The tool also allows for new risks to be added and for scores to be updated. The tool also identifies the staff with lead responsibility for tracking a particular high risk.

NAVFAC (US)

Between 2014 – 2016, Theresa also trained NAVFAC personnel on how to collect utility asset information for electrical generation, transmission and distribution systems; water supply, transmission, treatment, and distribution systems; and wastewater collection and treatment systems—the type of information to collect, and how to determine if an asset was to be collected. Once the database at each site was updated, team members performed a risk assessment. Visited sites to train personnel on how to conduct the risk assessment on the collected assets, as well as how to build projects to fix critical items. Led refresh training on the risk tool for some of the Navy bases. Between 2019 – 2020, Theresa supported the Pacific Northwest Naval bases with identifying appropriate job plans and frequency for its utility assets, as well preventative maintenance routing. Theresa also uploaded/modified job plans, created routes, and entered preventative maintenance plans in Maximo. Between 2018 – 2021, Theresa also managed a project to write a manual in a wiki environment for a proprietary software as well as write scripts and produce demonstration videos.

City of Fort Smith (AR)

In 2019, Theresa facilitated the reconciliation of data between what is in Fort Smith's CMMS and GIS databases for sewer assets as part of a consent decree. She is reviewing and tracking process and facilitating discussion of complex reconciliation issues during weekly calls. She is also developing the order of next steps for final data reconciliation for each individual asset that needs reconciliation. The order is important as changing or deleting a manhole will leave any pipe segments linked to that manhole without an end. Similarly, if you are adding manholes, those need to be added before the pipe segment can be moved to that manhole.

City of Eklutna (AK)

Between 2016 – 2017, Theresa wrote the asset management plan for the Eklutna Water Treatment Facility in conjunction with its Facility Plan. The plan addresses both process and non-process infrastructure in light of the assets' ability to meet current and forthcoming regulatory requirements, compliance with current and applicable codes and operational concerns. The plan focuses on identifying high-risk assets and prioritizes risk mitigation. After initial scores were assigned based on condition assessment and review of work orders, the scores were reviewed and refined with facility staff.

OTHER PROJECT EXPERIENCE

Bureau of Reclamation (OR)

In 2015 – 2016, the Bureau of Reclamation, along with other groups, was evaluating ways to help irrigators in the Klamath Basin offset their electric costs associated with pumping water. Theresa reviewed the economic analysis, performed site visits of potential solar sites, analyzed legislation and policies related to renewable energy, and wrote portions of the Engineer's Report.

Confidential Client

In 2015, Theresa assisted with the development of the commercial terms and templates for a build-operate-transfer project. Theresa also assisted with the financial evaluation of the levelized cost and review of the bidder's project cashflow models.

PROJECT LIST

- Santa Ynez River Water Conservation District (CA) – financial plan and rate study
- City of Hillsboro (OR) – asset management strategic plan and implementation
- Mesa Water District (CA) – water rate study
- San Benito County Water District (CA) – water rate study
- Santa Ana Watershed Project Authority (CA) – brine line reserve policy review
- City of Long Beach (CA) – xxx
- Otay Water District – water rate study
- East Orange County Water District – wholesale and retail water rate study, wastewater rate study
- NEW Water (WI) – wastewater cost-of-service allocation studies, rate studies, business risk analysis
- City of Glendale (AZ) – water and wastewater cost-of-service analysis and rate setting.
- City of Littleton (CO) – wastewater and stormwater rate study
- City of Lockwood (MT) – water and wastewater system development charges
- Board of Water Supply City and County of Honolulu (HI) – water financial plan, cost-of-service, rate studies, and system facilities charge
- City of Kansas City (MO) – water and wastewater financial plan, cost-of-service and rate studies, water and wastewater bond feasibility studies
- Village of Sauget (IL) – wastewater financial plan, cost-of-service and rate studies
- City of Minneapolis (MN) – regional water billing analysis tool
- Council Bluffs (IA) – wastewater financial plan, cost-of-service and rate study
- County of Maui (HI) – wastewater financial plan, cost-of-service and rate study
- City of Gallup (NM) – water financial plan and rate schedule
- Department of the Navy (WA) – wastewater feasibility study
- City of Billings (MT) – water and wastewater rate studies
- City of Evanston (IL) – wholesale water rate study
- City of Bloomington (IL) – water rate restructuring study
- City of Peralta (NM) – collection system cost recuperation
- City of Hammond (IL) – water financial plan and rate study.
- City of Tacoma (WA) – water system development charges
- Louisville Water Company (KY) – water rate study, water bond feasibility study, annual inspection report
- City of Indianapolis (IN) – water rate restructuring study
- City of Klamath Falls (OR) – wastewater economic assessment and rate study, facility plan
- City of Camarillo (CA) – water rate study, capacity fees
- City of Coachella (CA) – water and wastewater system development fees and miscellaneous service fees
- City of El Cajon (CA) – wastewater rate study
- City of Glendale (CA) – water rate structure study
- City of Goleta (CA) – water rate study

- City of Inglewood (CA) – water and sewer financial plan and rate study
- City of Pasadena (CA) – capital and stewardship charges
- Santa Clarita Water Division (CA) – water rate study
- City of Vallejo (CA) – stormwater rate evaluation
- New York City Water Board (NY) – water conservation rate structure benchmarking
- City of Rochester (NH) – leachate surcharge study
- City of Brockton (MA) – water rate evaluation
- NAVFAC (US) – hazardous waste rates; risk assessment data collection and scoring; preventative maintenance job plans, routing, and Maximo entry; software wiki manual and demonstration videos
- City of Springfield (MA) – water and wastewater bond triennial study
- City of San Diego (CA) – bond feasibility study
- Massachusetts Water Resources Authority (MA) – bond feasibility study
- USAID (Jordan) – water infrastructure project financial analysis
- City of Fort Smith (AR) – GIS/CMMS data reconciliation facilitator
- City of Eklutna (AK) – asset management plan
- Colorado Springs Utilities (CA) – condition assessment model
- Camino Real Regional Utilities Authority (NM) – asset management plan wastewater collection system
- Bureau of Reclamation (OR) – alternative energy analysis
- Marion County (OR) – financial analysis of waste-to-energy facility
- Spokane Regional Solid Waste System (WA) – assessment of a solid waste system
- King County (WA) – assessment of beneficial use of digester gas
- City of Encina (CA) – electric tariff determination for on-site generation
- City of Detroit (MI) – peak load study
- South Bayside Authority (CA) – wind energy feasibility study
- City of Edmonton (Canada) – biogas energy evaluation
- Confidential Client – development of commercial terms and templates for a build-operate-transfer project.
- City of Park City (UT) – supporting purchase of mothballed water treatment plant
- Environmental Protection Agency (US) – technical report review
- City of Austin (TX) – financial analysis of construction costs and timing scenarios
- Sammamish Plateau (WA) – cost optimization model and handbook for optimizing mix of groundwater and purchased water
- City of Modesto (CA) – peer review of storm water O&M cost allocation
- City of Dallas (TX) – bid review and contract negotiation support
- Catawba County (NC) – feasibility study of upgrade versus new sludge handling facility
- City of Salt Lake City (UT) – landfill RFP preparation

PUBLICATIONS

- "Principles of Water Rates, Fees, and Charges", Seventh Edition, 2017
- "Financing and Charges for Wastewater Systems", Fourth Edition, 2018

PRESENTATIONS

- "Getting Started with Asset Management", California Water Environment Association, 2019
- "Don't Get Behind! Keep Up With Your Revenue Needs," California-Nevada Regional AWWA Conference, Spring 2013
- "Developing Water Tariffs for a Sustainable Future," Utility Management Conference, 2012
- "Developing Water Tariffs for a Sustainable Future," Arab Water Week, 2010

Charles Diamond

LEAD CONSULTANT

Senior Consultant

Specialties

- Utility financial analysis
- Data collection & analysis
- Statistical analysis

Professional History

- Raftelis: Senior Consultant (2021-present); Consultant (2019-2020); Associate Consultant (2017-2018)

Education

- Master of Environmental Science & Management (Water Resources Management) - University of California, Santa Barbara (2017)
- Bachelor of Science in Environmental Economics & Policy - University of California, Berkeley (2013)

ROLE

Charles will serve as the Lead Consultant and will work at the direction of Theresa in conducting analyses and preparing deliverables for the project.

PROFILE

Charles has a background in natural resource economics and water resources management. His expertise lies in financial modeling and data analysis. He joined Raftelis initially in 2017 as an associate consultant upon receiving a master's degree from the University of California, Santa Barbara's Bren School of Environmental Science & Management. Charles has developed financial models and conducted analyses for water and wastewater rate studies as well as capacity fee studies.

KEY PROJECT EXPERIENCE

Alameda County Water District (CA)

Alameda County Water District (ACWD) engaged Raftelis in 2017 to provide multi-year rate design and financial advisory services. Charles provided ACWD staff with technical support in updating the existing financial plan model that Raftelis had developed for ACWD's previous financial plan update. Additionally, Charles designed alternative inclining tiered rates for consideration by the ACWD Board and developed drought rates to be activated during ACWD's varying drought stages as defined in the agency's Urban Water Management Plan. Charles developed a study report for ACWD staff that outlined the financial plan update and the newly proposed drought rates. Charles also assisted other Raftelis staff in conducting a facility capacity fee study for ACWD during this time.

Antelope Valley-East Kern Water Agency (CA)

The Antelope Valley-East Kern Water Agency (Agency) engaged Raftelis in 2019 to provide an annual update of the Agency's five-year financial plan and to propose rates for 2020. Charles served as lead analyst on the study update. He updated the existing financial plan model, and also worked with Agency staff to evaluate potential rate structure alternatives to be considered in future years. Charles developed a study report to document the key results of the study.

Antelope Valley State Water Contractors Association (CA)

The Antelope Valley State Water Contractors Association (AVSWCA) engaged Raftelis in 2018 to conduct a financial analysis study to develop a proposed replacement water assessment for groundwater users in the area. Charles conducted financial analyses necessary to develop an equitable and defensible replacement water assessment that accounts for State Water Project costs incurred by AVSWCA's member agencies. As the lead analyst on the project, Charles developed an Excel-based replacement water assessment model and drafted a study report for AVSWCA staff.

City of Brentwood (CA)

The City of Brentwood (City) engaged Raftelis to conduct a water and wastewater rate study. In 2017, Raftelis helped the City evaluate the current water and wastewater utilities' cost-of-service and adjusted rates accordingly. Recently Charles updated a financial plan model and performed a cost-of-service analysis for the City's wastewater utility. Charles assisted with the update of existing rates as well as the development of a proposed alternative rate structure and rates.

Cucamonga Valley Water District (CA)

The Cucamonga Valley Water District (District) engaged Raftelis in 2019 to conduct a water financial plan and cost-of-service study. The Study included the development of a five-year financial plan, a cost-of-service analysis, and the development of a proposed five-year schedule of rates. Raftelis also developed drought rates to be implemented during periods of declared water supply shortages per the District's Water Supply Shortage Contingency Plan. Charles served as lead analyst, conducting technical analysis and preparing key deliverables for the study. The study was temporarily postponed due to the COVID-19 pandemic, and proposed rates were successfully adopted by the District's Board of Directors in September 2021.

City of Dixon (CA)

The City of Dixon (City) engaged Raftelis in 2018 to conduct a water rate study to develop updated water rates for the City's water utility. Charles developed a 10-year financial plan model, performed a cost-of-service analysis, and developed a five-year schedule of proposed water rates. Charles also assisted in the preparation of presentation materials for water rate workshops with the City Council.

City of El Monte (CA)

The City of El Monte (City) engaged Raftelis in 2019 to conduct a water rate study. Charles attended meetings with City staff, collected and reviewed necessary data for the study, developed a user-friendly five-year financial plan model, and developed a proposed rate schedule over a five-year period. Additionally, Charles developed water shortage rates to be implemented by the City during times of declared water supply shortages. He also developed a Cost Allocation Plan model in concurrence with the water rate study to assist the City in allocating personnel costs associated with providing water service to the City's water utility.

Goleta Water District (CA)

The Goleta Water District (District) engaged Raftelis in 2019 to conduct a water rate study. Charles developed a multi-year financial plan model, performed a cost-of-service analysis, and developed a five-year schedule of proposed water rates as Raftelis' lead analyst on the study. Additionally, Charles prepared presentation materials for meetings with the District's Board of Directors tings and the rate study report and drafted the study report to serve as an administrative record.

La Cañada Irrigation District (CA)

La Cañada Irrigation District (District) engaged Raftelis to conduct a water rate study. Since the last rate study was performed in 2008, Raftelis helped the District evaluate the cost-of-service and adjusted rates accordingly. In 2017, Charles developed a financial plan model for the District to support the financial plan development for fiscal years 2018 to 2027. Charles also recently performed a cost-of-service analysis to assist with the update of the District's rates.

City of Long Beach (CA)

The City of Long Beach (City) engaged Raftelis in 2018 to develop an updated financial plan model for the City's water and wastewater utilities. Raftelis had previously conducted a comprehensive water and wastewater cost-of-service rate study in 2016 for the City. Charles developed an updated financial plan model to be used by City staff in future financial planning efforts. The financial plan model was designed specifically to facilitate ease of use and understanding while providing for convenient and flexible scenario analysis. Charles worked with City staff to provide customized model features with specific functionalities based on requests and input from City staff.

Olivenhain Municipal Water District (CA)

Olivenhain Municipal Water District (District) engaged Raftelis in 2019 to conduct a comprehensive water rate study. As a member agency of the San Diego County Water Authority (SDCWA), the District provides water service to over

80,000 people in northern San Diego County. Raftelis had conducted the previous cost-of-service analysis and rate study for the District in 2014. As part of the rate study effort, Charles developed a new financial plan model for the District's water enterprise, performed a cost-of-service analysis, and developed updated tiered rates based on current customer usage characteristics. Additionally, Charles assisted in redesigning the District's water supply shortage rates, which are activated during periods of reduced water demand in order to recover reduced revenues from volumetric rates.

Municipal Water District of Orange County (CA)

The Municipal Water District of Orange County (District) engaged Raftelis in 2020 to conduct a study to establish service charges for the District (which is a wholesale water importer) to recover its costs from its member agencies. Raftelis evaluated the District's existing rate structure and recommended changes as necessary. Charles conducted all technical analysis and prepared deliverables to be presented to District staff and its member agencies. Charles documented the results of the study in a final report to District staff.

National Water and Sewerage Authority of Grenada (Eastern Caribbean)

The National Water and Sewerage Authority of Grenada (NAWASA) engaged Raftelis in 2019 to conduct a water and sewer rate study for the eastern Caribbean country of Grenada's national water and sewer utility. Charles developed a water and wastewater financial plan and rate model in Microsoft Excel and travelled out to Grenada for a week of onsite meetings with NAWASA staff. Charles worked directly with NAWASA staff to develop and refine model results, and assisted with the development of a study report to document the key results of the study.

Rancho California Water District (CA)

Rancho California Water District (District) engaged Raftelis in 2017 to conduct a water capacity fees study. Raftelis reviewed and updated the existing methodology for calculating the District's water capacity fees, developed a water capacity fee model for use in calculating updated capacity fees. As part of the study, Charles developed the water capacity fee model, calculated updated water capacity fees, and drafted the study report.

The District engaged Raftelis in 2018 to conduct a two-year water, recycled water, and wastewater rate study. Raftelis developed a cost-of-service rate model to allocate costs and calculate rates for fiscal years 2019 and 2020. Charles assisted with rate model revisions, prepared presentation materials for meetings with the District's Board of Directors, and drafted the rate study report.

Santa Ana Watershed Project Authority (CA)

The Santa Ana Watershed Project Authority (Authority) engaged Raftelis in 2017 to develop a rate model for the Inland Empire Brine Line, which is a pipeline used to divert non-reclaimable wastewater of high brine content from the upper Santa Ana River Basin. Raftelis reviewed and recommended changes to the Authority's reserve policies, developed a 10-year financial plan for the Brine Line Enterprise Fund, performed a multi-year cost-of-service analysis, and developed a rate model for use in calculating rates assessed to the Brine Line's dischargers. Additionally, Raftelis assessed and recommended potential methodologies to be used in the development of long-term capacity leasing rates and rental charges. Charles developed the financial plan, assisted with the cost-of-service analysis and rate calculation, drafted the study report, and attended multiple meetings with the Authority's staff.

Scotts Valley Water District (CA)

The Scotts Valley Water District (District) engaged Raftelis in 2020 to conduct a water cost-of-service study for the District's potable water and recycled water funds. The Study included the development of a five-year financial plan, a cost-of-service analysis, and the development of proposed five-year rate schedules for the potable water fund and recycled water fund. Charles served as lead analyst, conducting all technical analysis and preparing all key deliverables for the study. The proposed rates were successfully adopted by the District's Board of Directors in October 2021.

City of Simi Valley (CA)

The City of Simi Valley (City) engaged Raftelis in 2019 to conduct a water rate study for the City's water utility. The Study included the development of a five-year financial plan, a cost-of-service analysis, and the development of proposed water rates over a five-year period. Charles served as lead analyst and conducted the vast majority of the technical analyses required for the study.

City of Sonoma (CA)

The City of Sonoma (City) engaged Raftelis in 2018 to conduct a water rate study for the City's water utility. The study included the development of a five-year financial plan, a cost-of-service analysis, and the development of proposed water rates for fiscal years 2019-2023. Charles processed and analyzed account level billed water consumption data, assisted in development of the water rate model, and drafted the water rate study report.

City of Thousand Oaks (CA)

The City of Thousand Oaks (City) engaged Raftelis in 2021 to conduct a water cost-of-service and wastewater financial plan update study for the City's water and wastewater utilities. The Study included the development of a five-year financial plan for water and wastewater, a cost-of-service analysis for water, and the development of proposed water and wastewater rates. Charles served as project manager for the study. The proposed rates were successfully adopted by City Council in December 2021.

City of Watsonville (CA)

Raftelis was engaged to develop 10-year financial plans for the City of Watsonville's (City) water, wastewater, and solid waste enterprise funds. The goal was to develop a financial plan model that could be used as a financial planning tool to determine the necessary rate adjustments and bond issuances for maintaining operations as well as handling several large capital projects. Charles assisted with developing a water, wastewater, and solid waste financial plan and cost of service rate model as part of the study.

PROJECT LIST

- Alameda County Water District (CA) – Water rate update study
- Antelope Valley-East Kern Water Agency (CA) – Water rate update study
- Antelope Valley State Water Contractors Association (CA) – Replacement water assessment study
- Borrego Water District (CA) – Water affordability assessment
- City of Brentwood (CA) – Water and wastewater rate study
- Castaic Lake Water Agency (CA) – Facility capacity fee update study
- Cucamonga Valley Water District (CA) –Multi-year water and drought rate study
- City of Dixon (CA) – Water rate study
- City of El Monte – Water rate study and cost allocation plan
- Goleta Water District (CA) – Water rate study
- City of Huntington Beach (CA) – Water rate study update
- County of Inyo (CA) – Water rate study
- La Cañada Irrigation District (CA) – Water rate study
- Las Virgenes Municipal Water District (CA) – Water and wastewater rate study
- City of Lincoln (CA) – Water rate study
- City of Long Beach (CA) – Water and wastewater financial plan development
- Marin Municipal Water District (CA) – Miscellaneous fee study
- Mojave Water Agency (CA) – Strategic financial plan
- Municipal Water District of Orange County (CA) – Core service charge allocation study
- National Water and Sewerage Authority of Grenada (Eastern Caribbean) – Water and sewer rate study
- Olivenhain Municipal Water District (CA) – Water rate study
- Rancho California Water District (CA) – Water capacity fee study

- Rancho California Water District (CA) – Water cost of service study
- Sacramento Suburban Water District (CA) – Water rate study
- Santa Ana Watershed Project Authority (CA) – Inland Empire Brine Line rate model
- Santa Rosa Plain, Sonoma Valley, & Petaluma Valley Groundwater Sustainability Agencies (CA) – Groundwater sustainability agency fee analysis and rate setting services
- Scotts Valley Water District (CA) – Water and recycled water rate study
- South Mesa Water Company (CA) – Water rate study and connection fee update
- City of Simi Valley (CA) – Water rate study
- City of Sonoma (CA) – Water rate study
- South Mesa Water Company (CA) – Water rate study
- City of Thousand Oaks (CA) – Water financial plan update and wastewater cost of service rate study
- City of Thousand Oaks (CA) – Water cost of service and wastewater financial plan update study
- City of Ventura (CA) – Water and wastewater rate study
- Victor Valley Wastewater Reclamation Authority (CA) – Wastewater rate study and capacity fee study
- City of Watsonville (CA) – Water, wastewater, and solid waste rate study

Kevin Kostiuk

TECHNICAL REVIEWER

Manager

ROLE

Kevin will provide technical review of the project deliverables.

PROFILE

Kevin has a background in economics and accounting and possesses extensive analytical skills. His expertise lies in water resources management, environmental economics, environmental policy, and federal water supply and flood control policy. Kevin is a member of the American Water Works Association (AWWA) Young Professionals and the Young Professionals Summit Committees in conjunction with the AWWA Utility Management Conference (UMC). He has authored an article on potable reuse in Journal AWWA discussing the treatment, financing structures, and pricing of treated water at advanced purification treatment plants; an article on municipal water demand pattern changes during the recent State-wide drought; and an article on proactive financial planning in times of drought for California Society of Municipal Finance Officers (CSMFO) Magazine. Most recently Kevin presented at the AWWA UMC discussing a recent evaluation of the conceptual CustomerSelect rate model for Soquel Creek Water District.

Specialties

- Water & Drought rate design
- Water budget rate structures
- Utility cost-of-service
- Sustainable Groundwater Management Act
- Data analysis
- Environmental policy analysis

Professional History

- Raftelis: Manager (2020-present); Senior Consultant (2014-2019); Consultant (2014-2015)
- Turner New Zealand, Inc.: Director of Operations (2009-2012); Accounting Manager (2007-2009)
- Lesley, Thomas, Schwarz & Postma, Inc.: Staff Accountant (2007)

Education

- Master of Environmental Management - Duke University (2014)
- Bachelor of Arts in Business-Economics & History - University of California, Santa Barbara (2006)

KEY PROJECT EXPERIENCE

City of Hayward (CA)

Raftelis assisted the City with reviewing water rate structures, financial planning, and water cost-of-service. The City serves an urban retail base with very low per capita demands and has a relatively large share of low-income customers. Raftelis assisted the City of Hayward (City) with a comprehensive water cost-of-service and rate study in 2021. Kevin served as the project manager for this engagement, which involved developing a 10-year financial plan, a two-year rate proposal, a water rate model, and a technical report (or administrative record). The City receives 100% of its water supply from the San Francisco Public Utilities Commission (SFPUC); the increasing costs of purchasing water from SFPUC is often unpredictable. The key drivers in the financial plan included developing a reserve policy which mitigated the risk of volatile SFPUC costs and minimizing the financial impact to customers to the greatest extent possible. Additionally, Raftelis recommended a simplified rate structure based on a detailed cost-of-service allocation. The proposed rate structure helped improve equity among customer classes, provided affordability for low water users, and enhanced customer understanding. The water rates were successfully approved and implemented by City Council.

Crescenta Valley Water District (CA)

Kevin developed a combined water and sewer financial plan and rate model for the Crescenta Valley Water District (District) in 2016. The cost-of-service and rate study included several workshops with the District Board which culminated in structural changes to the District's existing water and sewer rate structures. In addition to the tiered water rate structure, which was ultimately adopted, Kevin developed a water budget rate model for evaluation by District staff and the District Board.

Prior to the cost-of-service and rate study, Kevin performed an economic analysis for the District to determine the feasibility of offsetting imported water supply with the production of local groundwater. Kevin created a customized model for the District to use under different scenarios of capital requirements, lease options, and contract lengths. As part of the study, he reviewed the District's prior consultant's work, determined internal rate of returns, calculated the net present value of district savings, and determined the cost at which the District should lease water rights for groundwater production.

East Valley Water District (CA)

Raftelis contracted with East Valley Water District (District) in 2014 to develop budget-based rates to replace the District's existing uniform rate structure. Kevin assisted the District with design and implementation of budget-based water rates for their 23,000 accounts including residential, commercial and irrigation customers. The study included creation of a long-term financial plan and full cost-of-service study for the water enterprise. Kevin developed the 10 year financial plan model, rate model, and water budget model for the District.

Kevin worked closely with the District's finance, IT, and, billing departments in the early stages to analyze customer account level data including monthly use. He also worked with the District's GIS and other outside consultants to develop the water budget model using irrigable landscape area, customer class, assessor parcel number (APN), etc. for construction of indoor and outdoor allocations, or budgets.

The project incorporated significant public outreach whereby Raftelis led meetings with ratepayers to receive input, provide study updates, and answer questions of the public. The ratepayer meetings assisted adoption of the new rate structure and implementation. The rate structure that the Board adopted allows for the most precise, scientific and equitable design of rate structures, tailored specifically to an individual account.

Goleta Water District (CA)

Kevin completed a full water cost-of-service study for the Goleta Water District (District) which included design of inclining tiered rates for their single-family residential class, as well as agricultural rates for two classes. Complexities in customer classes' access to District water supplies, interruptibility during times of drought, and benefit (or lack thereof) from treatment made the analysis unique and challenging. The study included development of a long term financial plan model, rate model, and corresponding bill impacts.

To achieve the District's demand reduction targets as outlined in their Drought Management Plan, the District wished to explore drought rates/drought surcharges to curb demand. Ultimately, Kevin developed three options of revenue neutral drought surcharges for the Board's consideration. These various options ranged from targeted surcharges on an inter and intra-class basis, to a surcharge applied to non-drought commodity rates, to a uniform commodity surcharge irrespective of customer class or use. The proposed rates and drought surcharges were adopted and implemented July 1, 2015.

City of Redlands (CA)

Kevin updated prior financial plans developed by Raftelis for the City of Redlands (City) for their water and sewer enterprises. The update included building in more flexibility to the model for ease of use and for future updates, as well as, making the model dashboards more user friendly.

The state-wide drought in California called for a mandatory 25% reduction for all water service agencies in the state. The City's target was to reduce residential consumption by 35%. Kevin assisted the City in design and implementation of drought surcharges to achieve a 35% reduction and to recover lost revenue from reduced water sales.

Additional work for the City included updating the City's Storm Drain Impact Fee and miscellaneous fee for National Pollutant Discharge Elimination System (NPDES) inspections as part of the MS4 permit requirement. The storm drain

fee had not been reevaluated in 20 years. Additionally, the City had recently completed a Storm Drain Master Plan which called for $83 million in improvements to system deficiencies. Kevin developed a methodology to retain the existing impact fee structure while updating the fee paid by different land use classes.

In 2015 and 2016 Kevin developed a water budget rate model for the City to evaluate a new rate structure. The model integrated with the existing water financial plan model and designed parallel water budget rates for consideration by City staff and the Council.

City of Camarillo (CA)

Raftelis has provided rate consulting services to the City of Camarillo (City) for the past seven years with Kevin serving as lead analyst the past three years. In the current rate cycle Kevin serves as project manager. The City adopts rates on a two-year cycle and the most recent study included rebuilding long term financial plan models, revising the wastewater utility's rate structure, and performing a cost-of-service analysis for the sewer utility. Kevin has made presentations to the City Manager, City's Utility Committee, and City Council in consecutive years. Kevin successfully presented rates to City Council in December 2016, November 2017, and November 2018.

During the height of the most recent state-wide drought, the City contracted with Raftelis to evaluate emergency drought rates as a conservation and revenue recovery tool. Kevin adapted the existing financial plan model and developed multiple scenarios based upon the City's water supply condition stages. Kevin developed drought rates utilizing the City's financial plan at each stage and estimating water reductions. The rates were not adopted prior to the end of the state-wide drought however the drought tool is available for quick implementation should drought conditions return. Raftelis is currently contracted with the City for another two-year rate and capacity fee study for 2019 with Kevin as project manager.

City of Tustin (CA)

Raftelis contracted with the City of Tustin (City) to develop a 10-year financial plan and evaluate a budget-based rate structure for its customers. Kevin worked extensively with City staff, Raftelis' data services team, and outside consultants of the City to develop the water budget allocation and rate model for the City's approximately 14,000 customer accounts. As part of the model build, data from GIS consultants had to be organized and validated for each of the City customers' parcels. Raftelis' data services team worked internally to ensure matches between assessor's data and GIS data for integration to the water budget model. Rates and customer impacts have been presented to City staff and a public outreach campaign is being devised in anticipation of the council workshop. The project is ongoing.

Placer County Water Agency (CA)

In 2015 Placer County Water Agency (PCWA) contracted with Raftelis to evaluate its water system. PCWA provides retail and wholesale water service to treated water and raw water users throughout western Placer County. In Phase I of the project Kevin evaluated the current system's four service zones and numerous service classes and customer classes. Raftelis then provided recommendations to consolidate and simplify the water system organization and structure. In Phase II Raftelis performed a cost allocation study between the four proposed classes of service to identify the cost of providing service to these distinct users. Phase III consisted of performing cost-of-service analyses for PCWA's four service classes and developing corresponding rates. The study was completed in October 2017 with new organization, rate structures, and associated rates implemented January 1, 2018.

Additional to the water system evaluation and cost-of-service study, Kevin developed a water budget model for PCWA's internal use. The water budget model allows PCWA to examine their Single Family Residential (SFR) customer's usage patterns relative to efficiency standards, climate, and account level characteristics. The model will aid in water management and give insight into water demand pattern changes with the Agency's new rate structure and rates.

Mammoth Community Water District (CA)

Raftelis provided the Mammoth Community Water District (District) with a 10-year financial plan model for both the water and wastewater enterprises, as well as performing a cost-of-service analysis for the water enterprise. The district carries out operating and capital activities that are indirectly assigned to the two enterprises. Kevin worked with District staff to carry out a cost allocation study to distribute administrative costs appropriately. Raftelis recommended changes to the water rate structure as part of the study to simplify the rates and make them more legally defensible.

The study took place at the height of the statewide drought and as part of the project Kevin developed drought rates for the District to implement in times of mandatory conservation or water supply shortage. Being an agency with a large seasonal population Raftelis worked with staff to determine the most appropriate and effective means of charging the drought rates. Kevin designed drought rates for each stage of the District's water conservation plan, effective on the meter-based fixed charge of a customer's bill. This ensured that every connection in the water system shared in the burden caused by the drought, irrespective of water use. Raftelis also evaluated existing capacity fees for both enterprises. This task is ongoing. The water rates, wastewater rates, and drought rates were adopted and implemented January 2016.

In 2018 the District again contracted with Raftelis to conduct a wastewater cost-of-service and rate study as well as a capacity fee study for both utilities. Raftelis developed updated water and wastewater capacity fees which meet the District's financial and policy objectives. Capacity are scheduled for adoption in Summer 2019. The cost-of-service study is ongoing.

Borrego Water District (CA)

Raftelis contracted with the Borrego Water District (District) to evaluate the impact of county growth projections as well as the Sustainable Groundwater Management Act (SGMA) of 2014. Kevin utilized the existing financial plan model, water supply analyses provided by other District consultants, and assumptions on land acquisitions to determine the effect of SGMA on long term water rates. The Borrego Groundwater Basin is critically over drafted, and users will need to decrease water production significantly to achieve sustainable yield by 2040. This will require the District to reduce per capita water use and acquire production credits within the basin by fallowing agricultural land. Kevin estimated water rates in each year through 2040 incorporating assumptions on groundwater production, market values of land in the basin, debt financing, and water source alternatives.

In 2017 Kevin examined the affordability of water rates charged to the District's customers. The assessment analyzed both existing and future rates and affordability under the SGMA scenario identified in 2016. The affordability assessment relied upon the SGMA Impact Assessment and corresponding demand projections, basin yield assumptions, financing assumptions, and projected rates to the year 2040. The project allowed the District to understand affordability of existing rates and water allocation and to estimate the affordability impacts of SGMA compliance in the Borrego Groundwater Basin over the long term.

Borrego Valley Groundwater Sustainability Agency (CA)

Raftelis was contracted by the Borrego Valley Groundwater Sustainability Agency (Agency) to develop a financial planning model and fee options for the new entity as mandated by the Sustainable Groundwater Management Act (SGMA). Tasks included working with the core project team to develop policy options for fee structuring and various fee recovery mechanisms. Project deliverables included a financing plan memorandum, an Excel-based financial plan Model, operating and administrative budget creation, and a user manual for the Excel Model. The deliverables were used in the submission of the Groundwater Sustainability Plan (GSP) to the State Department of Water Resources (DWR) in 2019.

Soquel Creek Water District (CA)

The Soquel Creek Water District (District) contracted with Raftelis in 2017 to evaluate a novel rate structure for its ratepayers. Kevin participated in several workshops with the District's citizen Water Rates Advisory Committee and

Board of Directors to develop of policy framework for the rate structure and conduct pricing objectives exercises with both groups. Kevin developed a report for the District which informed the rate design in 2018.

In 2018 Raftelis contracted with the District for a long-term financing plan and rate study. Kevin served as the assistant project manager and oversaw the model creation for the financial plan, tiered rate model, and CustomerSelect rate model. The District adopted our recommended three years of rates in February 2019.

Summerland Sanitary District (CA)

Raftelis contracted with the Summerland Sanitary District (District) in 2016 to perform a cost-of-service and rate study for wastewater services. The study included a 10 year financial plan model, cost-of-service analysis, and review of the existing equivalency definitions for the District's user classes. Additional work included adoption of a formal financial reserves policy to ensure long term fiscal health as well as updates and additions to the District's miscellaneous fee schedule. Kevin served as project manager and lead analyst for the project and held several meetings with District staff, the Finance Committee, and the Board of Directors. Five years of rates were adopted in December 2017.

Monterey County Water Resources Agency - New Source Water Evaluation (CA)

In 2017, Kevin performed a cost analysis and evaluation of new source waters from recycled water for its coastal agricultural users. Recycled water production from the several sources will require new infrastructure, treatment, and maintenance. Kevin built an electronic model which incorporated different climate scenarios, costs of capital, operating, maintenance, and treatment, and the water available from all sources under different weather conditions and water rights. The project is ongoing with a series of meetings with the Agency's agricultural customers, County Board of Supervisors, and stakeholder agencies.

City of Buenaventura (Ventura)

Raftelis developed long-range financial plans so that the water and wastewater utilities could be financially stable and save costs in the long run. Raftelis also assisted the City of Buenaventura (City) with developing different water and wastewater rate alternatives with various scenarios based upon estimated water sales and capital improvement plan (CIP) funding. The study is being conducted with several meetings and input from stakeholders comprised of customers within the City. Raftelis educates the Water Commission on the basics of rates, cost allocations, and rate design to obtain their buy-in using the dashboards in the rate models that were developed. This allows us to demonstrate the impacts of various revenue adjustments on the long-term financial stability of the enterprises. As of May 2019 the studies are ongoing.

City of Riverside (CA)

Kevin completed a study for the City of Riverside (City) to determine the value of an elevation fee credit for present and future customers in a special district. The project required calculation of asset replacement values for infrastructure serving the special district, specific to booster capacity, and within the context of a historical assessment. The findings from the study were used to defend the City's move to assess its elevation fee schedule.

City of Simi Valley (CA)

The City of Simi Valley (City) had last raised sewer rates in fiscal year 2008-2009 and was facing a backlog of sewer system improvements and repair and replacement. Kevin updated the existing sewer financial plan with recent data, as well as updated the cost-of-service analysis. As part of the study, tier definitions were changed for non-residential customers to reduce the base charge on small users without impacting revenue recovery. Working with City staff, and with presentations to City management, Raftelis assisted in getting Council authorization for proposition 218 notices of a rate increase to the City's customers. The revenue increases will allow the City to commence the public works department's capital improvement schedule while maintaining reserve funds at target levels.

City of Henderson (NV)
Kevin created water and wastewater rate and financial planning models for the City of Henderson (City) as well as updated their water and sewer system development charges. The project created a combined model for the water and sewer enterprises which incorporated finance department reporting tools. The combined model allows the utility (water and sewer) to be viewed as a one, with impacts and reporting available to the user. The models will be used over the next 10 years to calculate water and wastewater rates as well as to create annual financial statements.

City of Corona (CA)
Kevin assisted the City of Corona (City) in updating its financial plans for the water and reclaimed water enterprises. The study included performing cost-of-service analyses for both utilities and updating the water budget rate structure. In addition, Kevin developed a framework and corresponding rates for contract reclaimed water customers.

City of Raleigh Public Utilities Department- American Rivers (NC)
Kevin served as project leader for a study of alternatives to meet Raleigh's long term water supply shortfall. The project examined four options in extending the life of the existing federal reservoir, thereby postponing capital expenditures on a new raw water supply. Results were delivered to city staff, their consultants and the United States Army Corps of Engineers.

Lower Cape Fear Water Quality Trading Program - The Nature Conservancy (NC)
To reduce nutrient loading and decrease utility costs, The Nature Conservancy proposed a Water Fund to improve water quality through improved agricultural practices on private landholdings in the watershed. Kevin was in charge of researching comparable programs and providing options for a financial mechanism and governance approach between various stakeholders in the region including utilities, agriculture, environmental organizations and community groups.

City of San Jose (CA)
Raftelis contracted with the City in 2016 to perform a cost-of-service and rate study for the City's water enterprise. The study included creation of a 10 year financial plan model, cost-of-service analysis, and redesign of the City's water rate structures. Kevin as lead analyst developed the financial plan model and worked closely with City staff to incorporate the City's budgetary information as part of the planning exercise. Additionally, Kevin worked with the City's water resources manager and water system engineer to identify future supply and demand in each of the City's different service areas, with differentiated water rates for each area. At the conclusion of the study Kevin held a session to train staff on use of the electronic financial plan model. The project was completed in 2017.

Santa Cruz Mid-County Groundwater Agency (CA)
Raftelis was contracted by the Agency to evaluate funding criteria for Santa Cruz Mid-County Groundwater Sustainability Agency (GSA) fees and calculate preliminary fees. Kevin served as the project manager. Raftelis conducted multiple meetings and webinars with County staff and the Advisory Committee to produce a financial budget for management activities, discuss fee structure options, and develop a pricing objectives exercise for the GSA Board. The project culminated with fee analysis and production of a White Paper to assist the Agency in navigating their financing plan as part of the GSP submittal process, as well as recovering costs of management over the long term. The project is complete as of May 2019.

APPENDIX C:

Project Schedule

Project Schedule

Raftelis will complete the scope of services within the timeframe shown in the schedule below. The proposed schedule assumes a notice-to-proceed by October 19, 2022, that Raftelis will receive the needed data in a timely manner, and that Raftelis will be able to schedule meetings as necessary. Project completion is estimated for May 2023.

	2022			2023					
TASKS	**Oct**	**NOV**	**DEC**	**JAN**	**FEB**	**MAR**	**APR**	**MAY**	**JUN**
1. Project Initiation and Management	NTP								
2. Develop Financial Plan and Revenue Requirements									
3. Projected Cost-of-Service and Rate Calculation									
4. Survey of Comparable Agencies' Water Rates									
5. Water Rate Reporting									
Client Review									
6. Connection Fee Study & Report									
7. Board Meetings, Prop 218 Support, and Public Hearing Process									
Public Hearing Noticing Period									

- *In-person Meetings*
- *Web Meetings*
- *Deliverables*

NTP = Notice to Proceed

APPENDIX D:

Signed NDA

EXHIBIT "B"

FLORIN RESOURCE
CONSERVATION DISTRICT
NON-DISCLOSURE AGREEMENT

This Non-Disclosure Agreement ("Agreement") by and between the Florin Resource Conservation District, a political subdivision of the state of California ("District") and [Raftelis Financial Consultants, Inc.], a [Los Angeles, California] company ("Company") (collectively, "Parties").

RECITALS

A. District is a resource conservation district formed under the California Public Resources Code.

B. The District has solicited proposals ("RFP") to conduct a Water Rate and Connection Fee Study and Company wishes to submit a proposal to provide such services. Execution of this Agreement is a condition both of submitting a proposal to provide such services, and of actually providing the services.

C. In order to complete the services, Company may require access to District documents and records and may conduct interviews with District staff. The purpose of this Agreement is to ensure any information obtained as a result of Company's investigation, evaluation and study will be kept confidential.

In consideration of the foregoing recitals, the mutual understandings contained in this Agreement, and other good, valuable, and sufficient consideration, the Parties hereto agree as follows:

1. Recitals. The recitals set forth above are true and correct and are hereby incorporated into this Agreement as though set forth in full below.

2. Definition of Confidential Information. "Confidential Information" means any oral, written, graphic or machine-readable information accessed by Company in the course of its performance of the Professional Services Agreement including employee records, customer data, financial records and transactions and all other electronically stored data. Confidential Information also includes information regarding the District's servers such as types, models, operating systems, and internal addresses. Confidential Information expressly includes all information protected from disclosure under the California Public Records Act by Government Code section 6254.16.

3. Non-Disclosure. Company shall keep confidential and otherwise not disclose any Confidential Information it receives from District to third parties or to employees of the party receiving Confidential Information, other than directors, officers, employees, consultants, and agents who are required to have the information in order to carry out the Parties' negotiation, execution and performance of the Professional Services Agreement. Company shall take all necessary measures to protect the secrecy of and avoid unauthorized disclosure of Confidential Information to prevent it from falling into the public domain or

the possession of persons other than those persons authorized under this Agreement to have any such information. Any employee, agent or consultant of Company given access to any Confidential Information shall be bound in writing to maintain the confidentiality and degree of non-disclosure and protection of Confidential Information contemplated herein. Company shall notify the District in writing of any actual or suspected misuse or unauthorized disclosure of Confidential Information.

4. Return of Confidential Information. If requested to do so in writing, Company shall, within fifteen (15) days of such request, destroy the Confidential Information. Within such time, Company, if requested to do so, shall also submit to District an affidavit stating that, to the best of its knowledge, all Confidential Information has been destroyed. Notwithstanding the foregoing, or anything to the contrary in this Agreement, Company shall be permitted to retain Confidential Information to the extent incorporated into its working papers. To the extent Confidential Information is not returned or destroyed, it shall remain subject to the Agreement.

5. Compelled Disclosure. In the event that a court or other governmental authority of competent jurisdiction issues an order, subpoena, or other lawful process requiring the disclosure of any Confidential Information, Company shall notify District immediately upon receipt thereof to facilitate District's efforts to prevent such disclosure, or otherwise preserve the confidentiality of the Confidential Information. Company shall not be in violation of the Agreement if it complies with an order of such court or governmental authority to disclose Confidential Information, after providing District with notice of the requested or ordered disclosure, whether or not District has sought to maintain the confidentiality of such information as provided herein or has notified Company in writing that it will take no action to maintain such confidentiality.

6. Authority to Enter Agreement. Each Party warrants that the individual(s) who have signed this Agreement have the legal power, right, and authority to make this Agreement and bind each respective Party.

7. Amendment / Modification. No supplement, modification, or amendment of this Agreement shall be binding unless executed in writing and signed by the Parties.

8. Waiver. No waiver of any default shall constitute a waiver of any other default or breach, whether of the same or other covenant or condition.

9. Entire Agreement. This Agreement contains the entire agreement between the Parties related to the matters specified herein and supersedes any prior oral or written statements or agreements between the Parties related to such matters.

10. Binding on Successors. This Agreement shall be binding on and inure to the benefit of the successors and permitted assignees of the respective parties. Any reference to the "District" or "Company" shall be deemed to refer to any authorized agent of such referenced party.

11. Severability. If any provision of this Agreement is invalid or unenforceable with respect to any party, the remainder of this Agreement or the application of such provision to persons other than those as to whom it is held invalid or unenforceable, shall not be affected and each provision of this Agreement shall be valid and enforceable to the fullest extent permitted by law.

12. Attorneys' Fees. In the event legal action by either Party is brought to enforce any term hereof or in the recovery of damages for any breach hereof, or to determine any rights of the Parties under this Agreement, the prevailing Party in such actions may recover reasonable attorneys' fees to be fixed by the court.

13. Indemnification. Company shall indemnify, defend and hold harmless District, its directors, officials, officers, employees, agents, or volunteers, and each of them from and against any and all claims, demands, causes of action, damages, costs, expenses, losses or liabilities (including attorney's fees, costs and expenses of defending against such claims), in law or in equity, of every kind and nature whatsoever for arising out of or connected with the Agreement except to the extent caused by the negligent acts, errors or omissions or willful misconduct of the District. The foregoing indemnities shall survive the expiration or termination of this Agreement.

14. Notices. Any notice, demand or payment required to be given herein shall be made by certified or registered mail, return receipt requested, or reliable overnight courier to the address of the respective parties set forth below:

Owner: Florin Resource Conservation District
9257 Elk Grove Boulevard
Elk Grove, CA 95624
Attention: Bruce Kamilos
General Manager

Company: [Raftelis Financial Consultants]
[445 S. Figueroa Street, Suite 1925]
[Los Angeles, CA, 90071]
Attention: [Steve Gagnon, PE (AZ)]
[Senior Manager]

The Parties may from time to time designate any other address for this purpose by written notice to the other Party.

15. Jurisdiction and Venue. Any legal action or proceeding concerning this Agreement shall be filed and prosecuted in the appropriate California state court in the County of Sacramento, California. Each Party hereto irrevocably consents to the personal jurisdiction of that court. The Parties each hereby expressly waive the benefit of any provision of federal or state law or judicial decision providing for the filing, removal, or change of venue to any other court or jurisdiction, including, without implied limitation, federal district court, due to any diversity of citizenship between the Parties, due to the fact that either or both of the Parties is a Party to such action or proceeding or due to the fact that a federal question or federal right is involved or alleged to be involved. Without limiting the generality of the foregoing, the Parties each specifically waive any rights provided to it pursuant to California Code of Civil Procedure Section 394. The Parties acknowledge that the provisions of this paragraph are material consideration to the Parties' entry into this Agreement, in that the Parties will avoid the potential cost, expense and inconvenience of litigating in a distant forum.

16. Counterparts. This Agreement may be executed in two or more counterparts, all of which shall be considered one and the same Agreement.

IN WITNESS WHEREOF, the Parties have entered into this Agreement as of the date of execution by the last party to sign.

DISTRICT:
Florin Resource Conservation District, a political subdivision of the state of California

By:_____
Bruce Kamilos
General Manager

Date:_____

Attest:

By:_____
Stefani Phillips
Board Secretary

Approved as to Form:

By:_____
Richard E. Nosky Jr
Attorney for Florin Resources Conservation District

COMPANY:
[Raftelis Financial Consultants, Inc.]

By: _____
[Steve Gagnon, PE (AZ)]
[Senior Manager]

Date: August 18, 2022

APPENDIX E:

Certificate of Insurance

Client#: 1722483 RAFTEFIN

ACORD™ CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY) 8/09/2022

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer any rights to the certificate holder in lieu of such endorsement(s).

PRODUCER	CONTACT NAME:	
Cameron M Harris & Co, LLC Div USI Ins 6100 Fairview Road Ste 1400 Charlotte, NC 28210	PHONE (A/C, No, Ext): 980-495-0832	FAX (A/C, No):
	E-MAIL ADDRESS:	
	INSURER(S) AFFORDING COVERAGE	NAIC #
	INSURER A : National Fire Insurance Co. of Hartford	20478
	INSURER B : Continental Insurance Company	35289
	INSURER C : American Casualty Company of Reading PA	20427
	INSURER D : Continental Casualty Company	20443
	INSURER E :	
	INSURER F :	

INSURED	
Raftelis Financial Consultants, Inc. 227 West Trade Street, Ste. 1400 Charlotte, NC 28202	

COVERAGES CERTIFICATE NUMBER: REVISION NUMBER:

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSR	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	X COMMERCIAL GENERAL LIABILITY CLAIMS-MADE X OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: X POLICY PRO-JECT X LOC OTHER:	x	x	6076000011	01/21/2022	01/21/2023	EACH OCCURRENCE DAMAGE TO RENTED PREMISES (Ea occurrence) MED EXP (Any one person) PERSONAL & ADV INJURY GENERAL AGGREGATE PRODUCTS - COMP/OP AGG	$1,000,000 $500,000 $15,000 $1,000,000 $2,000,000 $2,000,000
D	AUTOMOBILE LIABILITY ANY AUTO X OWNED AUTOS ONLY X HIRED AUTOS ONLY SCHED AUTOS X NON-OWNED AUTOS ONLY	x	x	BUA6076000025	01/21/2022	01/21/2023	COMBINED SINGLE LIMIT (Ea accident) BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE (Per accident)	$1,000,000
B	X UMBRELLA LIAB X OCCUR EXCESS LIAB CLAIMS-MADE DED X RETENTION $10000			CUE6076000039	01/21/2022	01/21/2023	EACH OCCURRENCE AGGREGATE	$5,000,000 $5,000,000
C	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? Y/N N (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below	N/A	x	WC676305637 WC676000042-CA	01/21/2022 01/21/2022	01/21/2023 01/21/2023	X PER STATUTE OTH-ER E.L. EACH ACCIDENT E.L. DISEASE - EA EMPLOYEE E.L. DISEASE - POLICY LIMIT	$1,000,000 $1,000,000 $1,000,000
D	Professional			652071235	01/21/2022	01/21/2023	$5,000,000 Aggregate $5,000,000 Occurrence	

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

Florin Resource Conservation District additional insured with respect to General Liability (CNA75079XX) and Automobile Liability (CNA83700XX) policies. The coverage afforded to the additional insured is on a primary and non-contributory basis for General Liability (CNA74879XX) and Business Auto (CNA83700XX) if required by written contract. A Waiver of Subrogation applies to General Liability (CNA750089XX), Auto Liability (CNA83700XX) and Workers Compensation G19160-B policies in favor of the above listed additional insured per (See Attached Descriptions)

CERTIFICATE HOLDER	CANCELLATION
Florin Resource Conservation District 9257 Elk Grove Blvd Elk Grove, CA 95624	SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS. AUTHORIZED REPRESENTATIVE Paula B Bulman

DESCRIPTIONS (Continued from Page 1)

written contract. 30 day notice of cancellation will be given except for non-payment of premium will be 10 days if required by written contract Worker's Compensation, General Liability, Business Auto and Professional Liability

September 20, 2022

TO: Chair and Directors of the Florin Resource Conservation District

FROM: Bruce Kamilos, General Manager

SUBJECT: **WATER PROFESSIONALS APPRECIATION WEEK**

RECOMMENDATION

It is recommended that the Florin Resource Conservation District Board of Directors adopt Resolution No. 09.20.22.01, declaring October 1-9, 2022, Water Professionals Appreciation Week.

SUMMARY

California's sixth annual Water Professionals Appreciation Week will kick off October 1, 2022, highlighting the important role of water industry professionals and local public water agencies in ensuring safe and reliable water, wastewater and recycled water operations in California. To extend its appreciation to Elk Grove Water District employees and all water professionals, staff recommends that the Florin Resources Conservation District (District) Board of Directors (Board) adopt Resolution No. 09.20.22.01, declaring October 1-9, 2022, Water Professionals Appreciation Week.

DISCUSSION

Background

Water Professionals Appreciation Week was established by Senate Concurrent Resolution (SCR) 80, approved by the California State Legislature in 2017. The resolution, authored by Senator Bill Dodd (D-Napa), was sponsored by the Association of California Water Agencies (ACWA) in partnership with WateReuse California, California Municipal Utilities Association, California Association of Sanitation Agencies, California Water Association and California Water Environment Association. Under SCR 80, Water Professionals Appreciation Week begins on the first Saturday of October and ends on the Sunday of the following weekend each year.

Present Situation

California's sixth annual Water Professionals Appreciation Week will kick off October 1, 2022, highlighting the important role of water industry professionals and local public water agencies in ensuring safe and reliable water, wastewater and recycled water operations in California.

As part of the designated week, staff is planning to have multiple social media posts and has reached out to the City of Elk Grove and Regional Water Authority to promote the week. The

kickoff weekend of Water Professionals Appreciation Week coincides with Elk Grove's Giant Pumpkin Festival. Staff will have an opportunity to promote the essential services water professionals provide to our community at this venue.

Staff recommends the Board adopt Resolution No. 09.20.22.01, declaring October 1-9, 2022, Water Professionals Appreciation Week.

ENVIRONMENTAL CONSIDERATIONS

There are no direct environmental considerations associated with this report.

STRATEGIC PLAN CONFORMITY

Participating with local and regional water associations complies with the District's Water Industry Leadership goals of the 2020-2025 Strategic Plan.

FINANCIAL SUMMARY

There is no direct financial impact associated with this item at this time.

Respectfully submitted,

B. M. Kamilos

BRUCE KAMILOS
GENERAL MANAGER

Attachment

RESOLUTION NO. 09.20.22.01

A RESOLUTION OF THE FLORIN RESOURCE CONSERVATION DISTRICT BOARD OF DIRECTORS DECLARING OCTOBER 1-9, 2022, WATER PROFESSIONALS APPRECIATION WEEK

WHEREAS, water is the lifeblood of California and without safe and reliable water, no community and no sector of the economy – from high tech to manufacturing to agriculture – can thrive or expand; and

WHEREAS, now more than ever, the water industry is proud of the important role our essential workers play in making sure our communities have safe and reliable drinking water; and

WHEREAS, thanks to technological advances by highly skilled and trained water professionals and the dedication of thousands of industry professionals in the state, California drinking water and treated wastewater meets some of the most stringent water quality standards in the nation; and

WHEREAS, depending on where you live in California, your water may come from a nearby well or river, or it may travel hundreds of miles through canals or pipelines to reach your tap. Regardless of where it originates, your drinking water is filtered, cleaned, tested, and distributed in a process carefully managed by trained water professionals; and

WHEREAS, California is steadily expanding the reuse of treated wastewater and pioneering the use of advanced purified recycled water to replenish aquifers, prevent seawater intrusion and improve local water supply reliability; and

WHEREAS, water professionals at local public water and wastewater agencies work 24/7 to plan for the future, maintain and upgrade their systems and improve the safety and resiliency of local water supplies for their communities; and

WHEREAS, according to the Public Policy Institute of California, local public water and wastewater agencies invest more than $25 billion a year on local water-related programs and projects that protect public health and the environment, improve local water supply reliability, replenish, and clean up groundwater basins, provide water for fire protection and protect against floods; and

WHEREAS, thousands of essential water, wastewater and recycled water industry professionals in the state dedicate their careers to keeping drinking water, recycled water and treated wastewater safe and reliable for use by Californians;

NOW THEREFORE, THE FLORIN RESOURCE CONSERVATION DISTRICT BOARD OF DIRECTORS, DOES HEREBY RESOLVE:

SECTION 1. The Board of Directors hereby declares October 1-9, 2022, Water Professionals Appreciation Week and extends its sincere gratitude and appreciation to the water and wastewater professionals who work 24/7 to provide excellent essential services to our community every day, even though a pandemic.

SECTION 2. The Board Secretary shall certify to the adoption of this Resolution.

SECTION 3. This Resolution shall take effect immediately upon its adoption.

PASSED, APPROVED, AND ADOPTED this 20th day of September 2022.

AYES:
NOES:
ABSENT:
ABSTAIN:

_____
Sophia Scherman
Chair

Attest:

_____
Stefani Phillips
Board Secretary

Approved as to form:

_____
Richard E. Nosky
District Legal Counsel

September 20, 2022

TO: Chair and Directors of the Florin Resource Conservation District

FROM: Bruce Kamilos, General Manager

SUBJECT: **GROUNDWATER WORKSHOP – GROUNDWATER SUBSTITUTION TRANSFERS**

RECOMMENDATION

This item is presented to the Florin Resource Conservation District Board of Directors for information only.

SUMMARY

Staff will present a series of short workshops to the Florin Resource Conservation District/Elk Grove Water District (District) Board of Directors (Board) on important regional issues related to groundwater sustainability. This month's topic is Groundwater Substitution Transfers.

DISCUSSION

Background

At the January 18, 2022 board meeting, the Board agreed that it would be a good idea to have staff present a series of short workshops to educate the Board on important regional issues related to groundwater sustainability.

Present Situation

This month's workshop is on the topic of Groundwater Substitution Transfers.

ENVIRONMENTAL CONSIDERATIONS

There are no direct environmental considerations associated with this report.

STRATEGIC PLAN CONFORMITY

This item conforms to Strategic Goal 7, Water Industry Leadership, of the District's 2020-2025 Strategic Plan. Understanding the important issues that face the water industry in our region and the state allows the Board to make informed decisions around issues.

FINANCIAL SUMMARY

There is no financial impact associated with this report.

Respectfully submitted,

BRUCE KAMILOS
GENERAL MANAGER

Groundwater Substitution Transfers

Maximizing the Sacramento Regional Water Bank

Florin Resource Conservation District / Elk Grove Water District Board Meeting

September 20, 2022

What are Groundwater Substitution Transfers?

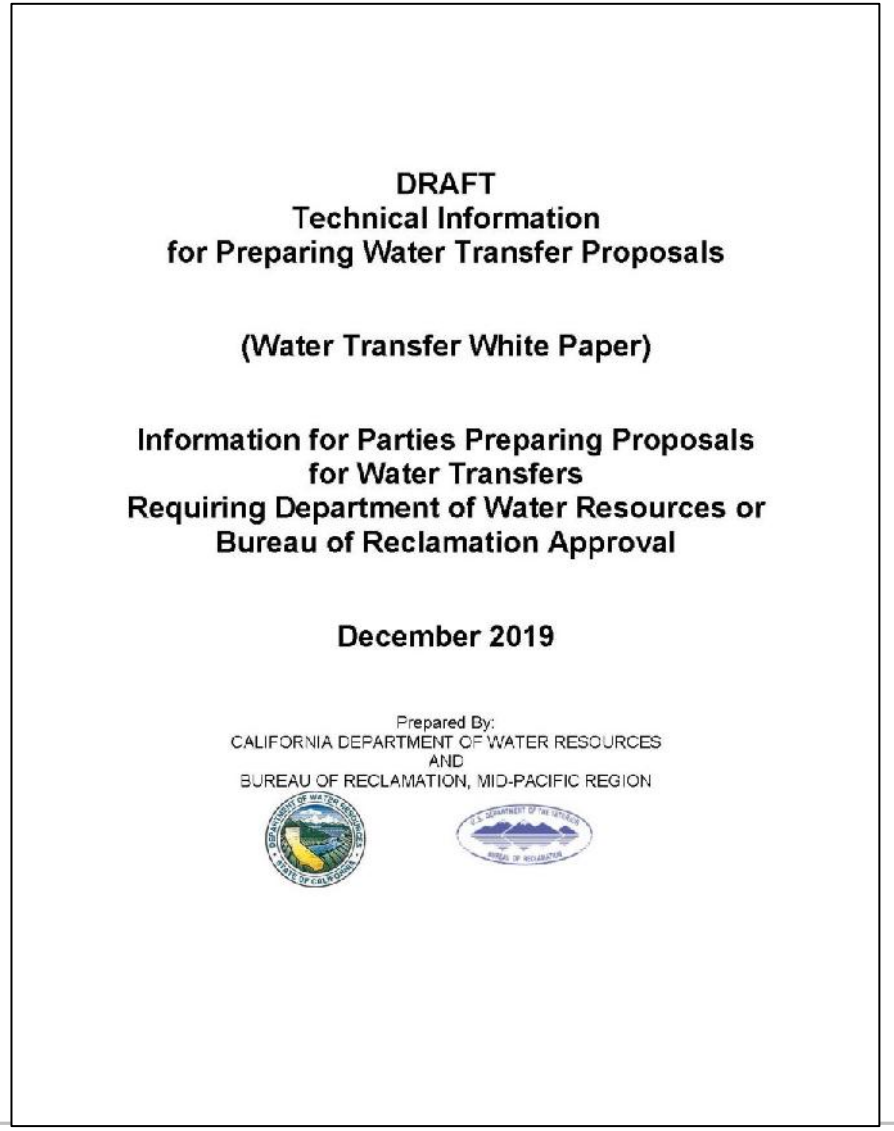
- Water agencies with surface water rights forgo using surface water
- Groundwater pumped instead for regional water consumption
- Allows freed up surface water to flow to other water agencies in need
- Freed up surface water sold at market price

Are Groundwater Substitution Transfers good?

- Yes, provided there are no detrimental impacts to the groundwater basin
- Responsibility of Transferer to monitor the condition of the groundwater basin
- Role of Groundwater Sustainability Agency is to provide oversight

How are Water Transfers governed?

- California Department of Water Resources
- United States Bureau of Reclamation
- DWR and USBR support Water Transfers
  - 2019 Water Transfer White Paper (57-page document)



DRAFT
Technical Information
for Preparing Water Transfer Proposals

(Water Transfer White Paper)

Information for Parties Preparing Proposals
for Water Transfers
Requiring Department of Water Resources or
Bureau of Reclamation Approval

December 2019

Prepared By:
CALIFORNIA DEPARTMENT OF WATER RESOURCES
AND
BUREAU OF RECLAMATION, MID-PACIFIC REGION

Highlights of Water Transfer White Paper

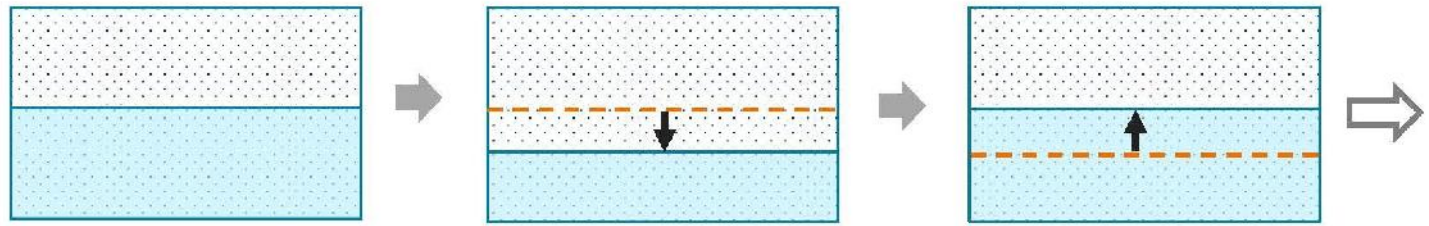
- Instructional information for parties preparing proposals for Water Transfers
- Sellers enter into Conveyance Agreement with DWR for water transfers
- Streamflow depletion factor must be approved by DWR for water conveyed to Buyers
- Groundwater pumped to facilitate the Transfer must be within safe yield of groundwater basin
- Sellers must notify their respective Groundwater Sustainability Agency
- Seller must develop groundwater monitoring, reporting and mitigation plan

Single-Year Groundwater Substitution Transfer

- Seller substitutes pumping groundwater for local consumption during year of Water Transfer
- After Water Transfer over, Seller stops pumping groundwater and returns to surface water for local consumption
- Return to surface water allows groundwater basin to naturally recharge over time
  - Natural recharge takes time, so there is a lag to groundwater basin recovery

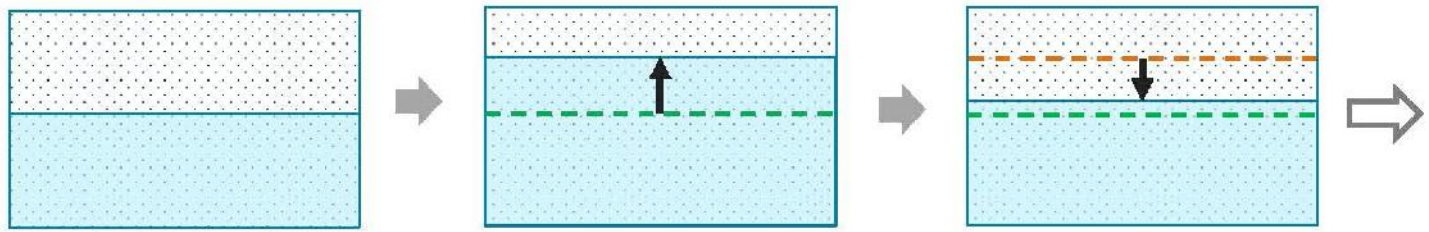
How our Water Bank approach is different

Single-Year Groundwater Substitution Transfers



- Not universally popular

Water Bank



- Avoids potential or perceived impacts (pre-mitigate) due to prior storage
- Reduces depletion of surface waters (due to quicker recovery)
- Contributes to groundwater sustainability

Fluoridated Water / Non-fluoridated Water

- Effect on Water Transfers

Benefits of Water Transfers

- Allows Sacramento Region to participate in statewide solution to provide water users with a reliable water supply
- Buyers will use water for agricultural operations
  - Benefits state economy and food supply
- Financial benefit helps Sellers reinvest in infrastructure without ratepayers footing all of the bill

September 20, 2022

TO: Chair and Directors of the Florin Resource Conservation District

FROM: Bruce Kamilos, General Manager

SUBJECT: **ELK GROVE WATER DISTRICT WELL SITING AND DESIGN STUDY AND SOURCE CAPACITY UPDATE**

RECOMMENDATION

It is recommended that the Florin Resource Conservation District Board of Directors accept and file the Elk Grove Water District Well Siting and Design Study.

SUMMARY

Engineering consultant Wood Rodgers conducted the Elk Grove Water District Well Siting and Design Study (Attachment 1) to help the Elk Grove Water District (District) plan for a new well in the future as part of its asset management program. Staff also conducted a source capacity update (Attachment 2) to determine if the District has sufficient source capacity to meet maximum day demand and peak hour demand.

DISCUSSION

Background

A key objective for last fiscal year was to complete an update of the District's source capacity. A source capacity study evaluates a water agency's capacity to meet anticipated growth in water demand. On February 15, 2022, the Florin Resource Conservation District Board of Directors (Board) revised this key objective to include conducting a new well siting and design study. Staff recommended, and the Board agreed, that conducting a Well Siting and Design Study (Study) was important as it would help the District plan for a new well in the future as part of its asset management program.

Present Situation

To complete the Study, the District contracted with Wood Rodgers. Wood Rodgers is well qualified as they have a high degree of experience designing and installing municipal supply wells in the South American subbasin (SASb). The SASb is the subbasin from which the District produces water. The Study analyzed available parcels within the District that would meet minimum space requirements to accommodate a drilling rig and regulatory clearances from existing utilities. The results of that analysis yielded six (6) potential well site locations, and Wood Rodgers ultimately narrowed its recommendations to two (2) well sites. The Study also evaluated well design considerations, methods of water quality treatment, and estimated capital costs specific to each proposed well site location. Recommendations on

well location, the best aquifer to target, treatment methods for water quality, and site-specific hydrogeology are provided in section 11.0 of the Study.

Additionally, staff conducted a source capacity update by following the procedures outlined in section 64554 of Title 22, California Code of Regulations. The source capacity update is meant to determine if the District has sufficient source capacity to meet maximum day demand and peak hour demand.

At this time, staff recommends the Board accept and file the Elk Grove Water District Well Siting and Design Study.

ENVIRONMENTAL CONSIDERATIONS

There are no environmental considerations associated with this item.

STRATEGIC PLAN CONFORMITY

The recommendation made in this staff report conforms to Strategic Goal 3, Planning and Operational Efficiency, of the FRCD/EGWD 2020-2025 Strategic Plan. Strategic Goal 3 directs the District to practice ongoing infrastructure renewal and organizational improvement through planning and increased operational efficiency.

FINANCIAL SUMMARY

There is no financial impact associated with this item at this time.

Respectfully submitted,

B. M. Kamilos

BRUCE M. KAMILOS
GENERAL MANAGER

Attachments

Elk Grove Water District
Well Siting and Design Study

Prepared For:

Elk Grove Water District

August 3, 2022

Prepared By:

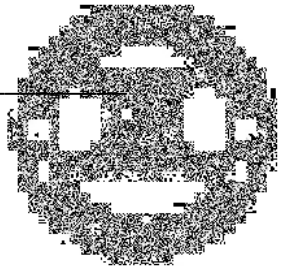
WOOD RODGERS

ELK GROVE WATER DISTRICT
WELL SITING AND DESIGN STUDY

Prepared For:

Elk Grove Water District

Jeff Lodge, PE
PE No. C 55828
Wood Rodgers, Inc.



Sean J. Spaeth, PG, CHG
CHG No. 1004
Wood Rodgers, Inc.

WOOD RODGERS
BUILDING RELATIONSHIPS ONE PROJECT AT A TIME
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Job No. 8860.001

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1.0 INTRODUCTION

1.1 BACKGROUND

The Elk Grove Water District (District) is conducting a Well Siting Study (Study) to identify a location within its Service Area to develop a new municipal water well for its potable water system. The location of the new municipal water well needs to consider satisfying the minimum distances to regulated features identified as possible contamination sources, a minimum area to construct the necessary improvements, and will target the best possible water quality. This Study includes a characterization and discussion of the hydrogeologic conditions within the primary aquifers, the anticipated level of treatment necessary to meet the State of California Safe Drinking Water Act requirements for potable water supply, a recommended location to develop a municipal groundwater well (including total depth and target aquifer), and the associated estimated capital cost for construction.

Wood Rodgers, Inc. (Wood Rodgers) is presenting the following Study to summarize our analyses and recommendation for a new well site. Analysis and opinion of the probable cost for the construction of the most economically feasible alternative and suggested water treatment technology is also provided for District consideration. The primary objectives of this Study are:

- Characterize the hydrogeologic conditions within the primary aquifers.
- Provide two locations within Service Area No. 1 suitable to drill, construct and permit a municipal water supply well.
- Provide recommendations on the most economic and sustainable aquifer to target extraction.
- Recommend total well depth, design considerations, and anticipated water quality.
- Provide planning level cost estimates associated with the development, treatment, and distribution of produced groundwater.

1.2 PROJECT LOCATION

Located within the City of Elk Grove, California, the District provides potable water to approximately 12,890 (2020 Elk Grove Water District Urban Water Management Plan) service connections within a 13 square mile service area. The water system (Public Water System CA341008) is bound by Sheldon Road to the north, Highway 99 to the west, Grant Line Road to the east, and the Union Pacific Industrial Park to the south, as shown in **Figure 1**.

The District provides potable water to its customers across two service areas, Service Area No. 1 and Service Area No. 2. Service Area No. 1, the focus of this Study, is supplied solely by groundwater, whereas Service Area No. 2 is supplied potable water by the Sacramento County Water Agency (SCWA) which wholesales water to the District.

2 WATER SYSTEM

The District has historically extracted groundwater from fifteen production wells throughout its Service Area No. 1, as shown in Figure 1. Of these fifteen wells, seven are active and eight are inactive or destroyed, as shown in **Table 1** and **Figure 2**.

The State Water Resources Control Board (Water Board) Division of Drinking Water (DDW) regulates the water system regarding permitting of water sources for municipal supply and enforcing drinking water regulations, as codified by the California Safe Drinking Water Act.

Groundwater produced from the shallow aquifers is treated to reduce the concentration of arsenic at the District's Hampton Well Site. Groundwater produced from the deep aquifers is pumped to the District's Railroad Treatment Plant and treated to reduce concentrations of manganese below drinking water standards.

2.1 GROUNDWATER WELLS

The District pumps groundwater from two primary aquifer systems (described in more detail in Section 3) - four wells produce groundwater from the "deep aquifer" and three wells produce groundwater from the "shallow aquifer."

The shallow aquifer wells are largely constructed between depths of 100 and 600 feet, whereas the District's deep aquifer wells are constructed between depths of 1,020 and 1,045 feet. One well, School Street (Well 1D) produces groundwater from both aquifers. Well 1D presents a unique groundwater chemistry profile, as compared to the other deep wells, and represents a composite of both the shallow and deep aquifers.

Table 1
District Well Construction Summary

Well Number	Well Name	Status	Drilling Method	Total Depth	Top Screen (feet, bgs)	Bottom Screen (feet, bgs)	Aquifer	Water Quality Issue
Well 1	School	Abandoned	Cable Tool	n/a	n/a	n/a	n/a	n/a
Well 1D	School Street	Active	Reverse	1,010	490	990	Deep	As, Mn
Well 3	Marvel	Inactive	Cable Tool	450	103	337	Shallow	None
Well 4D	Webb Street	Active	Reverse	1,055	820	1,045	Deep	Mn
Well 5	Emerald Park	Abandoned	Cable Tool	492	204[1]	492[1]	Shallow	As, Mn
Well 6	Emerald Oak	Abandoned	Cable Tool	560	170	560[1]	Shallow	As, Mn
Well 7	Parkside	Abandoned	Cable Tool	407	200	407	Shallow	Non-potable

Well Number	Well Name	Status	Drilling Method	Total Depth	Top Screen (feet, bgs)	Bottom Screen (feet, bgs)	Aquifer	Water Quality Issue
Well 8	Williams Ranch	Active	Cable Tool	565	139	564	Shallow	As, Mn
Well 9	Polhemus	Active	Cable Tool	556	180	556[1]	Shallow	As, Mn
Well 10	Feickert Ranch	Abandoned	Cable Tool	600	207	600[1]	Shallow	As, Mn
Well 11	Dino	Abandoned	Cable Tool	n/a	n/a	n/a	n/a	n/a
Well 11D	Dino	Active	Reverse	1,035	780	1,025	Deep	Mn
Well 12	Fallbrook	Abandoned	Reverse	450	160	440	Shallow	As, Mn
Well 13	Hampton	Active	Mud Rotary	472	294	452	Shallow	As, Mn
Well 14D	Railroad	Active	Reverse	1,020	840	1,010	Deep	Mn

[1] Open Borehole; n/a – not available; As – arsenic; Mn – manganese

2.2 GROUNDWATER TREATMENT

A summary of the existing treatment is provided below. A comparative analysis of different types of treatment for both arsenic and manganese is provided in the attached Technical Memorandum, entitled "Elk Grove Water District – Groundwater Quality Treatment Analysis."

2.2.1 SHALLOW AQUIFER WELLS

Groundwater pumped from the shallow aquifers is treated onsite for elevated concentrations of arsenic via well head treatment prior to the distribution system at the Hampton Well Site. There is currently no additional treatment required to meet drinking water regulations.

2.2.2 DEEP AQUIFER WELLS

Groundwater pumped from the deep aquifers is delivered to the Railroad Water Treatment and Storage Facility (Railroad Treatment Plant) for treatment to reduce concentrations of manganese to below the DDW maximum contaminant level (MCL) of 50 micrograms per liter (µg/L). The Railroad Treatment Plant has a maximum day capacity of 10.4 million gallons per day (2020, UWMP).

Except for elevated concentrations of manganese, groundwater pumped from the deep aquifer meets all DDW drinking water regulations.

HYDROGEOLOGY SETTING

3.1 HYDROGEOLOGY

The District overlies the South American Subbasin of the Sacramento Valley Groundwater Basin, as shown in **Figure 1**. The freshwater bearing aquifers underlying the District consist of various alluvial formations consisting of shallow deposits, the Laguna Formation, and the Mehrten Formation. Data from the District and surrounding water purveyors including well construction, production, specific capacity, and water quality was aggregated to prepare a conceptual hydrogeologic model of the underlying geologic formations and groundwater conditions. The conceptual hydrogeologic model is provided as a geologic cross section (**Figure 3**) to illustrate the primary geologic formations underlying the District and provide a predictive tool to site and plan new groundwater wells. Groundwater quality data from District and nearby wells is included to provide context to spatial and depth-specific trends for select constituents.

The various shallow deposits in this area include valley alluvium, floodplain deposits, basin deposits and the Victor Formation. These deposits outcrop at the ground surface in the vicinity the Districts well field and are generally less than 50 feet thick. The valley alluvium is present along current stream channels, and consists of sand, gravel, silt and clay. The floodplain and basin deposits exist in the flood zones along streams and rivers and consist primarily of fine-grained materials such as silt and clay. Because of their shallow depth, these deposits are not a practical source for municipal groundwater development and are generally found at depths shallower than 100 feet.

The Laguna Formation underlies the various shallow deposits and consists of interbedded layers of sand, gravel, silt and clay. The sediments of the Laguna Formation are generally brown or reddish-brown, with tan or white clay. Although the Laguna Formation is overlain by other deposits, some of which are relatively impermeable, it is generally considered to be unconfined because of a lack of continuity in overlying sediments over large areas. The Laguna Formation ranges in depth between approximately 200 to 300 feet. Below the Laguna Formation is a transitional formation that is intermixed with sediments from the Laguna and the underlying Mehrten Formation. This sequence is difficult to differentiate in the subsurface and is informally referred to in this Study as the Laguna/Mehrten transition zone. This sequence of sediments largely extends to the definitive black sands of the Mehrten Formation.

The Mehrten Formation underlies the Laguna Formation and consists of two primary groups of material. The first group consists of distinctive black sands interbedded with gravel and blue or brown clay and represents the primary water-bearing unit of the Mehrten Formation. The second group is a cemented tan or gray tuff-breccia, which can have significant secondary porosity and water-bearing capability. The top of the definitive Mehrten Formation ranges between a depth of 700 and 900 feet within the District's Service Area No. 1.

3.2 GEOLOGIC STRUCTURE

The alluvial formations were deposited overtime by sediment transport under alluvial and fluvial conditions, which originated from the erosion of the ancestral Sierra Nevada Mountains to the east. These sediments were deposited in relative flat sequences; however, regional tectonic forces over time resulted in the uplift of the Sierra Nevada Mountains, which also raised, or tilted, the sedimentary formations on the east relative to the west. This tilting, or dip of the sedimentary layers, results in the Mehrten Formation increasing with depth towards the west, as shown in Figure 3. Wells constructed in the eastern portion of Service Area No. 1 will encounter the Mehrten Formation at shallower depths as compared to wells constructed in the western portion.

3.3 AQUIFERS

For this Study, the underlying aquifers are classified as either the "shallow aquifer" or the "deep aquifer." District's wells constructed in the shallow aquifer (shallow wells) are constructed to depths up to 600 feet and largely target the Laguna Formation and Laguna/Mehrten transition zone. Wells constructed in the deep aquifer (deep wells) are constructed to depths of 1,045 feet and largely target the Mehrten Formation.

Groundwater conditions are markedly different between each aquifer and can be defined by differences in both groundwater elevations and water chemistry, as discussed below.

4.0 GROUNDWATER CONDITIONS

4.1 GROUNDWATER ELEVATIONS

Groundwater elevation data (in feet relative to mean sea level [MSL]) obtained from each of the District's wells under non-pumping conditions (i.e., static groundwater levels) provide groundwater basin conditions over time. The District-provided groundwater data for each of its wells from 2011 through 2022 indicate groundwater elevations are different between the two aquifers. Because groundwater elevations are similar among wells constructed in each aquifer, one well from each aquifer was selected to represent groundwater conditions. For the shallow aquifer, Well 9 was selected and for the deep aquifer, Well 14-D, as shown in **Figures 4 and 5** respectively. Groundwater elevations are lower in the deep aquifer as compared to the shallow aquifer, illustrating hydraulic separation between the two aquifer zones. Differing water chemistry further supports the separate aquifer systems.

As illustrated on Figures 4 and 5, groundwater level measurements collected by the District indicate the groundwater elevations are very stable. Comparing annual spring measurements in both aquifer systems, groundwater elevations have increased in the shallow aquifer over the last ten years and in the deep aquifer, groundwater elevations have remained relatively flat. The trend observed in the shallow aquifer suggests overall annual groundwater recharge exceeds groundwater extraction; and within the deep aquifer, annual groundwater recharge equals groundwater extraction. Overall, these trends represent a healthy groundwater system.

Of note and significance is the difference in groundwater elevation between the shallow and deep aquifer. Because groundwater elevations in confined aquifers represent a pressure head (potentiometric surface), a differential in pressure heads can result in groundwater in an aquifer with a higher-pressure head moving to an aquifer with a lower pressure head – if a mechanism exists. One such mechanism is the borehole annulus of a well structure, which can act as a conduit for this movement of water. Other mechanisms are wells screened in both aquifer systems, which provide a direct conduit for movement of groundwater from a high pressure to a lower pressure.

4.2 GROUNDWATER QUALITY

Water quality data from the publicly available DDW online database (California Drinking Water Watch), District records, and the State Water Resources Control Board GeoTracker (GeoTracker) Program were reviewed to identify additional potential constituents of concern.

The potential for anthropogenic groundwater contamination from accidental leaks or spills from overlying land uses can impair the groundwater resource. The State Water Resources Control Board maintains an interactive online database, Geo Tracker, which aggregates known groundwater contamination, known leaking underground storage tanks (LUST), and permitted underground storage tanks (UST). In addition, the State Department of Toxic Substances Control maintains an online database to track cleanup, permitting, enforcement and investigation of

hazardous waste facilities with known contamination. Knowledge of previous, existing, or potential sources of contamination is critical in selecting a location for new municipal supply wells to avoid potential poor-quality or impaired groundwater. These databases were reviewed as discussed in Section 4.2.5.

Groundwater quality variations within the underlying geologic formations were identified to occur both spatially and with depth. The District's main water quality issues are elevated concentrations of arsenic in the shallow aquifers and elevated concentrations of manganese in the deep aquifers. In addition to these constituents with established maximum contaminant levels (MCLs), hexavalent chromium was reviewed due to the pending promulgation of a new MCL. Concentrations of arsenic and manganese are included on the geologic cross section (Figure 3) to illustrate spatial variations.

4.2.1 ARSENIC

As shown in **Table 2**, Concentrations of arsenic have historically been reported near or above the DDW primary (health based) MCL of 10 µg/L in Well 8 and Well 13, and 50 percent of the MCL in Well 3 and Well 9. Elevated concentrations of arsenic in the District's deep wells are only observed in Well 1D, which exceeds the DDW MCL. Well 1D is constructed with well screen in both the shallow and deep aquifers, whereas Wells 11D and 14D are screened only in the deep aquifer and have reported concentrations of arsenic below the laboratory detection level of 2 µg/L.

Of note, and as mentioned above, groundwater elevations are higher in the shallow aquifer than the deep aquifers which under non-pumping conditions, can allow shallow groundwater (and the respective groundwater chemistry) to migrate into the deeper aquifers.

Table 2
Historical Arsenic (µg/L) Concentrations

	Deep Wells				Shallow Wells			
Well Name	**Well 1D**	**Well 4D**	**Well 11D**	**Well 14D**	**Well 3**	**Well 8**	**Well 9**	**Well 13**
Min	11	< 2	< 2	< 2	< 2	< 2	< 2	< 2
Max	14	< 2	13	< 2	4.3	9.2	5.2	17
Most Recent	11 4/26/22	< 2 4/18/22	< 2 4/5/22	< 2 4/5/22	2.7 12/27/18	5.3 4/5/22	2.8 4/18/22	3.1 5/9/22

4.2.2 MANGANESE

As shown in **Table 3**, concentrations of manganese have historically exceeded the DDW MCL of 50 µg/L in the deep wells; whereas manganese in the shallow wells is reported as non-detect, below the laboratory detection level of 20 µg/L. There have been anomalous high concentrations

of manganese reported in the shallow wells; however, the most recent reported concentrations are below the laboratory detection level of 20 µg/L.

Concentrations of manganese in wells constructed in the shallow aquifers are anticipated to be below laboratory detection levels (< 20 µg/L), whereas wells constructed in the deep aquifers are anticipated to have concentrations of manganese well over the MCL of 50 µg/L.

As shown on Figure 3, groundwater quality from the District's wells and adjoining water purveyors indicates concentrations of manganese decrease from east to west. Even though concentrations of manganese are lower, they have been reported to be at or above the DDW MCL.

Table 3
Historical Manganese (µg/L) Concentrations

	Deep Wells				Shallow Wells			
Well Name	**Well 1D**	**Well 4D**	**Well 11D**	**Well 14D**	**Well 3**	**Well 8**	**Well 9**	**Well 13**
Min	140	180	150	160	< 20	< 20	< 20	< 2
Max	220	350	350	240	< 20	23	120	210
Most Recent	140 4/26/22	180 4/18/22	180 4/5/22	190 4/5/22	< 20 12/27/18	< 20 4/5/22	< 20 4/18/22	< 20 5/9/22

4.2.3 HEXAVALENT CHROMIUM

Hexavalent chromium is both naturally occurring and introduced into the environment through industrial uses. In July 2014, the DDW promulgated a drinking water standard for hexavalent chromium which established an MCL of 10 µg/L; however, in May 2017, this MCL was invalidated due to a technicality. Currently, hexavalent chromium is regulated by the DDW under the Total Chromium standards with an MCL of 50 µg/L. It is currently understood that DDW is working to re-establish an MCL. Per recent published notices by DDW, it appears the target MCL will likely be 10 µg/L; however, the State Water Board is still working through the process and there is a chance this could change to be higher or lower.

For this Study, concentrations of hexavalent chromium are compared to the previously established MCL of 10 µg/L. As shown in **Table 4**, concentrations of hexavalent chromium in the deep aquifers were reported below the laboratory detection level of 1 µg/L (non-detect). Concentrations of hexavalent chromium in the shallow wells range between 4.5 and 6.2 µg/L. These concentrations are below the anticipated MCL; however, if the State Water Board establishes a lower MCL, it is possible treatment would be required should the average concentration be within 75% of promulgated MCL.

Wells constructed in the shallow aquifers will have higher concentrations of hexavalent chromium as compared to wells in the deep aquifer. Even though the concentrations will likely be below the new MCL, the District should anticipate increased monitoring requirements for this constituent. Concentrations of hexavalent chromium in the deep aquifer are anticipated to remain very low.

Table 4
Historical Hexavalent Chromium (µg/L) Concentrations

	Deep Wells				Shallow Wells			
Well Name	**Well 1D**	**Well 4D**	**Well 11D**	**Well 14D**	**Well 3**	**Well 8**	**Well 9**	**Well 13**
Min	< 1	< 1	< 1	< 2	5.4	4.5	5.4	2.2
Max	< 1	< 1	< 1	< 2	5.9	5.7	6.2	2.4
Most Recent	< 1 5/12/20	< 1 8/18/20	< 1 11/24/20	< 2 4/7/2020	5.4 2/27/17	5.1 4/7/20	5.7 6/15/20	2.2 6/15/20

4.2.4 POLY-FLUOROALKYL SUBSTANCE COMPOUNDS

The United States Environmental Protection Agency (US EPA) is continuing to develop drinking water standards for PFAS compounds, short for poly-fluoroalkyl substances compounds. The District sampled its wells for PFAS compounds in the third round of the US EPA Unregulated Monitoring Contaminant Rule (UCMR3) in 2015 and most recently in 2020. For the compounds analyzed in 2020, all but Well 8 returned non-detect concentrations, as shown in **Table 5**.

Table 5
Detected PFAS Compounds

PFAS Compound	Regulatory Limit	Units	Well 8
PFOS	6.5[1]/40[2]	ng/L	ND
PFOA	5.1[1]/10[2]	ng/L	1.5
PFHxS	N/A	ng/L	3
PFHxA	N/A	ng/L	1.9
PFBS	0.5[1]/5[2]	ng/L	ND
PFHpA	N/A	ng/L	1.4

[1]Notification Level (NL)
[2]Response Level (RL)
ng/L - nanograms per liter
N/A - not applicable; No regulatory limit established
ND - non-detect (concentration below the laboratory detection limit)

Detected concentrations in Well 8 are below the notification level; however, the US EPA is continuing research and establishment of safe concentrations in drinking water.

The District should anticipate ongoing revisions to PFAS regulations in drinking water and continued monitoring of its shallow wells. The presence of PFAS in Well 8 suggests it is present in the shallow aquifer; however the extent is currently poorly understood.

4.2.5 GeoTracker (Point Source Contamination)

A review of the State Water Board GeoTracker Program website for potential point source groundwater contamination returned 21 leaky underground storage tank (LUST) sites within Service Area 1, which are all listed as "closed" but indicate at one point had open investigations for potential groundwater contamination. One closed cleanup site, located in the southern portion of the District, did not require cleanup action and has been closed since 1995.

There is one site that is currently listed as "open" and as undergoing remedial action as of July 16, 2018. This site, located at 10090 Waterman Road, is reported to be associated with diesel fuel contamination of the soil with no threat to the underlying groundwater resource. The case is still open, but records do not indicate any ongoing cleanup or abatement activity.

There is one closed military cleanup site located near the intersection of Waterman Road and Bond Road. This site was identified due to the possibility of the land being used as an auxiliary airfield (former Elk Grove – Mather Auxiliary Field #5). The site was planned to be converted to a military airfield in 1942; however it was deemed to be insufficient in size for the military's use and was returned to the original owners in 1944.

4.3 Specific Capacity

Specific capacity defines the volume of water a well produces for every foot the groundwater level is lowered while pumping. It is calculated by dividing the flow rate (gallons per minute [gpm]) by the drawdown (difference between the pumping water level and the static water level in feet) and is reported as gallons per minute per foot of drawdown (gpm/foot of drawdown). The specific capacity of a well inherently degrades over time due to several reasons, including biologic or chemical plugging of the gravel envelope and well screen. A well's specific capacity is associated with groundwater levels, hydrogeologic properties of the aquifer material, and the hydraulics of the well structure. Because of this, it is useful to utilize a wells' original specific capacity to understand the potential for a new well.

Within the District's Service Area 1, the specific capacity of the shallow aquifer wells is higher than wells constructed in the deep aquifer. Several reasons can be attributed to this, including well construction methods, aquifer properties, and to a lesser extent, groundwater basin conditions.

Most of the District's shallow aquifer wells were constructed using the cable tool drilling method, except for Well 12 and Well 13 (Fallbrook and Hampton), which were constructed using the reverse rotatory drilling method. The cable tool drilling method typically yields higher efficient well structures due to the absence of a gravel envelope within the annulus of the well structure. Due to the absence of a gravel envelope, the geologic formations are not stabilized, and it is typical for these wells to produce elevated volumes of sand which require removal prior to distribution. Elevated production of sand also increases wear on pumping components and can result in premature failure of a well structure.

Table 6
District Well Specific Capacity Values

Aquifer	Well Name	Original	2015	2016	2017	2018	2019	2020
Shallow	Well 3	106	93.7	98.1	96.1	91.8	101.3	0
	Well 8	66	58.8	59.0	57.4	62.4	60.6	62.7
	Well 9	38	33.5	36.4	37.3	38.6	37.2	31.0
	Well 13	62	58.8	61.9	58.6	57.2	61.2	57.3
Deep	Well 1D	27	20.8	20.6	21.5	27.1	20.6	21.2
	Well 4D	35	23.1	19.5	18.2	17.1	17.2	16.6
	Well 11D	32	15.2	23.0	26.5	23.3	15.5	16.7
	Well 14D	20	16.2	15.0	16.3	17.4	15.7	9.3

Table 6 shows average annual quarterly specific capacity data for the District wells from 2015 to 2020. The original specific capacity for each well provided is a comparison for not only what to expect from a new well, but the rate of decline over time.

Averaged specific capacity values have ranged from 38 to 106 gpm/foot of drawdown in the shallow aquifer wells as compared to 20 to 35 gpm/foot of drawdown in the deep aquifer wells.

Declines in specific capacity are largely observed to occur in the deep aquifer wells, and to a much lesser extent in the shallow aquifer wells. This might be related to groundwater chemistry, specifically dissolved manganese oxidizing and precipitating manganese oxide in the pore space of the gravel envelope.

When comparing specific capacity values of the District's deep wells to those in neighboring water systems surrounding the District, the District wells are reported to have slightly lower specific capacity values. Specific capacity values in these deep aquifer wells range between 20 and 87 gpm/foot of drawdown. These wells were all reported to have been constructed using the reverse rotary drilling method; however, it is unknown if similar well development processes were utilized to develop each well following construction.

4.4 SPECIFIC CAPACITY DECLINE IN DEEP AQUIFER WELLS

Reduction in specific capacity in the District's deep aquifer wells has required a higher frequency of well rehabilitations, as compared to its shallow aquifer wells. As noted above, declines in specific capacity can be attributed to well structure issues, incomplete development/re-development, plugging of the well screen/gravel envelope, well design (e.g., small gravel envelope gradation), or changes in regional groundwater basin conditions. The latter can be ruled out because groundwater elevations have remained stable in the deep aquifer for the last ten years.

To provide perspective, data from the District's wells and those of other water purveyors in the vicinity, were reviewed to evaluate if well design can be a function of the rapid degradation in specific capacity. As shown in **Table 7**, well design and specific capacity data (from the time of construction and as reported on the DWR WCR) indicate the performance of the District's wells were consistent with wells constructed to similar depths within the same deep aquifer.

Similarities between the District's wells include drilling method, gravel envelope gradation and well screen slot size. The only apparent major difference being the type of well screen used. The District's deep aquifer wells are constructed with wire-wrapped well screen as compared to louvered well screen in other's wells. The primary advantage of utilizing wire-wrapped well screen is it offers the maximum open area as compared to all other well screen types. Maximizing the open area results in reduced well screen entrance velocities, which is a design component to minimize the risk of premature wear of the well screen. It is possible that the use of wire-wrap well screen has reduced the entrance velocity sufficiently that flow from the aquifer through the gravel envelope and into the well structure is such that mobilization and removal of any particulate material is not sufficient. Further analysis will need to be done; but the thought would be that oxidized manganese that would otherwise be removed with higher entrance velocities remains in the gravel envelope, restricting and reducing the overall porosity of the gravel.

Table 7
Comparison of Deep Aquifer Wells

	Deep Wells				SCWA Wells		
Well Name	Well 1D	Well 4D	Well 11D	Well 14D	W120	W116	W119
Construction Method	Reverse	Reverse	Reverse	Reverse	Reverse	Reverse	Reverse
Depth (feet)	1,010	1,055	1,035	1,020	1,340	1,342	1,380
Well Screen Type	Wire-wrap	Wire-wrap	Wire-wrap	Wire-wrap	Ful Flo Louvered	Ful Flo Louvered	Ful Flo Louvered
Gravel Envelope (gradation)	8 x 16	8 x 16	n/a	n/a	6 x 12 8 x 20	8 x 16	8 x 16
Slot size (inches)	0.050	0.050	0.050	0.065	0.050 0.040	0.055	0.050
Original Specific Capacity*	28	56	40	36	56	60	25
Tested Capacity* (gpm)	1,800	1,500	1,800	2,200	1,552	1,557	1,500

*as reported on DWR WCR

Conventual well rehabilitation techniques, including the use of dual swab airlifting, chemical (acid) injection has not been very successful in restoring lost specific capacity. Standard well rehabilitation techniques, and limitations placed on those within Sacramento County, have reduced the effectiveness of well rehabilitation programs (i.e., neutralizing any acid treatment downhole). It is likely the chemicals used in well rehabilitation dissolve the manganese oxide with a low pH, but when pH increases, these deposits can re-precipitate and remain in the well.

More aggressive mechanical rehabilitation techniques are available which may provide more successful results through physical removal of these deposits (i.e., focused intake pumping). Focused intake pumping consists of rapid vertical surge blocking (mechanical agitation) coupled with proprietary chemicals to remove precipitated minerals. Immediately following surge block agitation, a high-capacity submersible pump is installed, with the intake isolated between two rubber discs to focus the extraction energy to a ten-foot interval. This process can remove particulate matter (including residual drilling fluid) and re-develops the gravel envelope to promote more efficient groundwater flow.

5 WELL SITE SELECTION

5.1 METHODOLOGY

Potential locations for a new municipal well were evaluated within the entirety of Service Area No. 1. Municipal well sites need to satisfy regulatory requirements for the construction and design elements, enforced by the Sacramento County Environmental Management Department (SACEMD) and DDW. Combined, there are almost 30 features identified which require a minimum distance from a municipal well for it to be permitted, as shown in **Table 8** (attached).

Selecting a location for a new municipal well involves identifying the defined features and requirements for both well construction and regulatory requirements. Consideration for hydrogeologic variations in the underlying aquifers is also significant to allow the highest chance of constructing a well that meets capacity and water quality objectives. The following objectives guided the identification and selection of potential municipal well sites:

- Satisfy regulatory offset requirements
- Site is accessible and can accommodate a drilling rig and support equipment
- Proximity to existing infrastructure (i.e., electrical, distribution system, storm drain)

For this Study, a conservative but comprehensive approach was defined to identify parcels within the boundary of Service Area No. 1 that had the best chance of satisfying all regulatory requirements and a minimum area to physically drill and construct a municipal well. A geodatabase was built within the ESRI ArcGIS Pro environment to contain the comprehensive database of features which require minimum regulatory offsets, pertinent to permitting a municipal supply well as a drinking water source. This includes data from:

- Sacramento County Assessor Office (parcels)
- Elk Grove Water District (wells and distribution system)
- Sacramento Regional San (sanitary sewer)
- City of Elk Grove (stormwater system)
- National Hydrography Dataset (streams and creeks)
- Federal Emergency Management Agency (FEMA) Flood Hazard Maps
- National Pipeline Mapping System (hazardous material pipelines)

A systematic identification of suitable parcels started with removing non-contiguous parcels of less than 10,000 square feet from consideration. This is the minimum recommended parcel size defined by this Study capable of accommodating the construction of municipal well. In addition, the minimum square footage also provides the opportunity to locate a future replacement well on the same parcel, should this ever need to be considered. Prescribed offsets, as defined in Table 8, were then applied to each feature identified to have a minimum regulatory offset for a municipal supply well, with the intent to remove parcels from consideration which did not meet these requirements. It should be noted, that on a case-by-case basis, DDW will evaluate applications to

waive a specific requirement; however, it is best practice to identify a site that meets all the required criteria.

The following sections briefly annotate the process used to identify and remove parcels that do not meet the minimum requirement.

5.1.1 Minimum Parcel Size

The drilling and permitting of a municipal supply well require a minimum area to accommodate a drilling rig, associated equipment, as well as to meet certain regulatory requirements. Sacramento County Assessor Parcel data created the foundation for our assessment. Parcels with less than 10,000 square feet were removed from consideration due to likely limitations of accommodating a drilling rig and to maintain the minimum well site control zone requirement. The well site control zone, which requires the well owner to maintain ownership of land within a radius of 50 feet reduces the available area to permit a municipal well on most parcels.

The remaining parcels, those with over 10,000 square feet, was further evaluated by overlaying and cross referencing the digital footprints of buildings to characterized parcels as either developed or undeveloped. Developed parcels would require demolition of structures to facilitate construction of a well, which was viewed unfavorably and removed those parcels from consideration.

5.1.2 City of Elk Grove Stormwater

Data from the City of Elk Grove storm drain mains, drop inlets, and manholes was added to the geodatabase. Defined offsets of 50-feet from storm drain mains and 100-feet from manholes/drop inlets were applied to these features to remove parcels that were fully impacted. Parcels partially impacted by this regulatory offset and that were not removed from consideration from the previous filter remained to be further evaluated.

Location of storm drain mains are also important to consider for the pump station discharge-to-waste piping.

5.1.3 Sacramento Area Sewer District

Data from the Sacramento Areas Sewer District (SASD) was added to the geodatabase to locate sewer mains and manholes. The defined offsets of 50-feet from a sewer main and 100-feet from a sewer manhole were applied to each feature to remove parcels that were fully impacted. Those parcels that remained viable, which were not removed from consideration by previous filters were further evaluated for the remaining criteria.

Location of sewer mains are important to consider for disposal of any onsite waste related to any treatment waste streams.

5.1.4 USGS National Hydrography Dataset

The United States Geological Survey maintains a National Hydrography Dataset (NHD) which provides location for mapped surface water features. Surface water features within Service Area No. 1 from the NHD dataset were assigned the minimum 100-foot offset. Parcels that were fully impacted by this offset were removed from consideration; however, parcels partially impacted were further evaluated against the remaining criteria.

5.1.5 FEMA Flood Hazard Maps

FEMA Flood Hazard Map data was added to the geodatabase to overlay areas that are defined as having increased flood hazard, and those that would require additional mitigation in the event of a flood. Parcels within mapped flood zones were removed from consideration; however, where portions of a parcel were outside the flood plain and of which satisfied other criteria remained to be further evaluated.

5.1.6 National Pipeline Mapping System

The National Pipeline Mapping System, maintained by the U.S. Department of Transportation, provides general information on the location of hazardous liquid pipelines (e.g., petroleum and liquified petroleum gas) and related incidents involving those pipelines. A 500-foot minimum offset is applied to municipal wells from hazardous pipelines. Where municipal wells are located within this envelope, DDW places significant scrutiny on the well, including review of annual pipeline testing and operations, and established risk management by the pipeline operator.

Parcels located within 500 feet of these hazardous pipelines were largely removed from consideration; however, portions of parcels that are outside of this offset were further considered.

5.1.7 Elk Grove Water District/District Owned Property

Locating a municipal well on District owned property removes the need for land acquisition, which is viewed highly favorable. Parcels owned by the District were evaluated to determine the feasibility of constructing a replacement well on property, including distance to existing well(s), available area, and ability to meet regulatory requirements.

District owned parcels which at one time had a municipal supply well, or have a permitted municipal supply well, were evaluated to identify opportunities to re-use the land. Several additional considerations that were considered include proximity to wells (abandoned/destroyed and active), ability to site and drill a replacement well within the context of regulatory constraints, and if sufficient area is available for construction. A minimum distance of 1,500 feet from existing wells was applied to remove parcels which could impact operation of existing wells. **Table 9** lists the District's historical wells and the possibility of constructing replacement wells at these sites.

Table 9
Possible Replacement Wells

Well Number	Well Name	Parcel Size (sq ft.)	Limiting Constraint	Replacement Well
Well 1D	School Street	3,841	Well site control	No
Well 3	Marvel	2,396	Well site control	No
Well 4D	Webb Street	13,939	Sewer/well site control	No
Well 5	Emerald Park	871	Well site control	No
Well 6	Emerald Oak	1,307	Well site control	No
Well 7	Parkside	1,307	Well site control	No
Well 8	Williams Ranch	1,170	Well site control	No
Well 9	Polhemus	70,693	Hazardous pipeline	No
Well 10	Feickert Ranch	206,474	Well site control	No
Well 11	Dino	4,000	Well site control	No
Well 11D	Dino	3,750	Well site control	No
Well 12	Fallbrook	8,100	Well site control	No
Well 13	Hampton	18,236	Constructability	Possible*
Well 14D	Railroad	155,945	Possible	Possible

Two District well sites were identified to have potential to construct and permit a municipal supply well: The Hampton Well Site (Hampton) and the Railroad Treatment Plant. An acceptable area at Hampton was identified that can meet regulatory offset requirements; however, it is in the middle of the parcel directly in front of the operations building. Drilling and constructing a well at this location would negate the use and access to the site infrastructure.

The Railroad Treatment Plant was identified as a possible site to locate a municipal supply well. This site is further discussed in Section 6.0.

SELECTED PARCELS

The well site selection query resulted in approximately 100 parcels where adequate area to permit a municipal well was identified, ranging from a couple square feet upwards of several hundred square feet. To further refine the list of potential well sites, parcels with very limited available area to permit a well and those that were a significant distance from a minimum eight-inch diameter distribution pipe were removed from consideration. The list of parcels was also evaluated to maximize benefit to the District, including the ability to locate a replacement well onsite, proximity to existing distribution piping capable of 2,000 gpm flow, and location within the distribution system.

Our evaluation identified five locations within Service Area No. 1 that appear suitable for the permitting and construction of a municipal supply well. At the request of the District, a sixth parcel was added to the list consisting of District owned property at its new Administrative Office. This site was not initially considered because it is located adjacent to but outside of Service Area No. 1. The six parcels were ranked to identify the top two that would benefit the system, including cost considerations and total well depth, as shown in **Table 10**.

Table 10
Recommended Parcels

Site Number	Site Name	Cross Street	APN	Parcel Size (sq ft.)	Land Acquisition
1	Masonic Lodge	Waterman Road/ Charolais Way	134-110-123	144,619	No
2	Aster Crest	Aster Crest Court	116-026-0003	18,500	Yes
3	Elk Grove Blvd.	Elk Grove Blvd./Webb	134-007-2015 134-007-2014	20,473 20,473	Yes
4	Baker Park	Elk Grove Blvd./Williamson	125-012-0025	395,525	Easement
5	Windsor Elk Grove	Rancho Drive/ Batey	127-018-0020	53,143	Yes
6	Railroad Treatment Plant	Railroad Street	134-005-0087	155,945	No

6.1.1 SITE NO. 1 – MASONIC LODGE

Site No. 1 is located within Service Area No. 2, adjacent to Service Area No. 1. The District identified this parcel as a potential location for a new municipal supply well and requested it be evaluated for regulatory offset and constructability. The parcel consists of an existing building, parking lot and undeveloped land. The site is located at the intersection of Waterman Road and Charolais Way (**Figure 6**), immediately east of the boundary for Service Area No. 1.

An intertie between the two service areas is located immediately south of the site and within Charolais Way. Proximity to this intertie can allow groundwater produced from this parcel to be connected directly to Service Area No. 1. There is sufficient area onsite to accommodate well head treatment; however, the distribution system piping is eight-inch diameter, which may need to be upsized to accommodate a flow of 2,000 gpm. Conversely, a raw water pipeline could be constructed within Waterman Road to Dino Drive, and west within Dino Drive to connect to the existing raw water pipeline. The approximated length of pipeline would be 2,400 feet.

To satisfy regulatory offset requirements, a municipal well at this location would need to be located east of the existing building and parking lot, in the undeveloped portion of the property as shown in Figure 6. A United States Bureau of Reclamation (USBR) easement in the far eastern portion of the parcel restricts land use, however, does not remove this parcel as a viable location.

6.1.2 SITE NO. 2 – ASTER CREST

Site No. 2 is located at the end of Aster Crest Court in the northwest area of the service area, as shown in **Figure 7**. The parcel provides sufficient area to drill, construct and permit a municipal supply well. This site is adjacent to residential lots; however, limited to two facing sides of the parcel. Existing distribution infrastructure includes a 10-inch pipeline to the west which may need to be upsized to accommodate 2,000 gpm. However, the proximity to existing distribution is a positive for the site. If raw water is pumped to the Railroad Treatment Plant, an approximate 11,000-foot pipeline would need to be constructed from the well site west to East Stockton Boulevard and south towards Elk Grove Boulevard. The pipeline would extend east within Elk Grove Boulevard, with an undercrossing under the railroad tracks to Railroad Street where it would connect to the existing raw water pipeline.

The advantage of constructing a well at this location will provide the District the ability to introduce water supply to the northern portion of Service Area No. 1 to help overall circulation of the system. The geographic location does afford the opportunity to potentially target slightly better water quality from the Mehrten Formation; however, it likely will still require treatment to reduce manganese below the DDW MCL. A shallow well at this location will likely produce groundwater with elevated concentrations of arsenic, possibly requiring treatment to reduce below the DDW MCL. It is also possible groundwater produced from the shallow aquifer may have concentrations of hexavalent chromium around 5 µg/L.

6.1.3 SITE NO. 3 – ELK GROVE BOULEVARD

Site No. 3 is located immediately south of Elk Grove Boulevard and east of Webb Street, as shown in **Figure 8**. The available area consists of three contiguous undeveloped parcels. The western parcel has very limited area to permit a municipal supply well; however the two parcels to the east would need to be combined to satisfy regulatory requirements. As shown on Figure 8, combining the two parcels would provide sufficient area to develop a new municipal supply

well, but also contain necessary infrastructure, including onsite treatment facilities and a future replacement well.

There is also a 16-inch transmission main within Elk Grove Boulevard which would reduce overall cost to connect to the system. This location provides the lowest level of effort to connect a new well to the distribution system; however, discussion with the District revealed previous efforts to acquire this parcel for other purposes resulted in an excessively high asking price for the land.

A shallow well at this location will likely contain elevated concentrations of arsenic and possibly concentrations of hexavalent chromium near 5 µg/L, whereas a deep well at this location will likely contain elevated concentrations of manganese.

6.1.4 SITE NO. 4 – BAKER PARK

Site No. 4 is located at the southeast corner of the intersection of Elk Grove Boulevard and Williamson Street. The parcel provides sufficient area to drill and construct a municipal supply well, in addition to satisfying the regulatory offset requirements. The site has sufficient area to construct onsite treatment if needed. The parcel is located within a park and adjacent to and possibly within a planned nature park behind the Consumnes Community Services District Administration Building. Constructing a municipal well at this location is possible, however, a project of this nature might be viewed unfavorable by the public and the Consumnes Community Services District.

A shallow well at this location will likely contain elevated concentrations of arsenic, in addition to potential detections for PFAS compounds (as detected in Well 8) and slightly elevated concentrations of hexavalent chromium. A shallow well is not recommended at this location. A deep well would be recommended to target the Mehrten Formation, of which would likely produce groundwater with slightly elevated concentrations of manganese, above the DDW MCL.

6.1.5 SITE NO. 5 – WINDSOR ELK GROVE

Site No. 5 is located at the southeast corner of the intersection of Rancho Drive and Batey Avenue. The parcel provides sufficient area to drill and construct a municipal supply well, in addition to satisfying the regulatory offset requirements. The parcel is located within a residential community, adjacent to the Windsor Elk Grove Care and Rehabilitation Center.

A shallow well at this location will likely contain elevated concentrations of arsenic; whereas a deep well will likely contain elevated concentrations of manganese. There is sufficient area to develop onsite treatment to satisfy drinking water regulations; however, the site is a significant distance to the Railroad Treatment Plant to be economically feasible to pipe raw water for treatment. Onsite treatment would be required for either a shallow or deep well at this location.

6.1.6 SITE NO. 6 – RAILROAD TREATMENT PLANT

Site No. 6 is located at the District's Railroad Treatment Plant, at the terminus of Railroad Street. A well at this location would need to be in the northeast corner of the property to satisfy most regulatory offset requirements. Existing site infrastructure, a hazardous pipeline located parallel to the railroad tracks (500-foot offset) and the mapped stream channel immediately north of the parcel limits the available area to site a municipal supply well. The mapped stream channel would likely require the elevation of the well head to be above the base flood elevation (BFE), as determined by FEMA.

A shallow well at this location would likely require treatment to reduce concentrations of arsenic with an onsite treatment facility; however, depending on the concentration of arsenic, it may be possible to blend with the treated water prior to distribution. A deep well constructed at this location would require removal of elevated concentrations of manganese, per current regulatory requirements.

7.0 FUTURE REGULATORY CONSIDERATIONS

Current legislation and discussion at the federal and state level provide a glimpse at potential regulations for drinking water. At a minimum, the State of California is required to adopt and enforce all federally mandated drinking water requirements, as codified in the Safe Drinking Water Act. However, the State of California can adopt more stringent requirements, as well as requirements not stipulated under the Safe Drinking Water Act.

Groundwater management also has the potential to effect availability and extraction of groundwater; however, this arena is complex and better addressed by reference to the local Groundwater Sustainability Agency and its adopted Groundwater Sustainability Plan (GSP). Of note, municipal water agencies and the associated infrastructure are largely exempt from permitting requirements; however, it is recommended the District engage and participate in any groundwater management activities to the benefit of the region.

It is important to consider potential changes in regulations as well as formulate an educated assumption on potential regulations as to how they will impact future permitting and treatment requirements.

7.1 WATER QUALITY - PFAS COMPOUNDS REGULATIONS

As noted in Section 3.2.4, the State and Federal governments are continuing its scrutiny on PFAS compounds in drinking water. Currently, there are no maximum contaminant levels established for PFAS compounds; however, there are established notification and response levels defined for several compounds. As regulations continue to be promulgated, these concentrations may change as well as additional compounds added to the existing regulations, in addition to establishment of maximum contaminant levels. Only Well 8 has concentrations of PFAS compounds detected. It is possible as detection levels decrease, PFAS compounds may be detected in additional wells. It is unlikely that PFAS compounds will be detected in the deep aquifer wells; however, where well structures connect the shallow with the deep aquifers, inter aquifer mixing may result in migration of shallow groundwater with deeper groundwater.

7.2 WATER QUALITY - MANGANESE PRIMARY MCL

The California State Legislature is currently reviewing SB 1124 (bill) in the 2021-2022 legislative session which is drafted to establish a public health goal (PHG) and a primary drinking water standard (MCL) for manganese. The bill will require the Office of Environmental Health Hazard Assessment (OEHHA) to prepare a PHG for manganese by July 1, 2025. Following establishment of the PHG, the State Water Board will be required to adopt a primary drinking water standard. On or before January 31, 2024, the State Water Board will consider establishing a notification or response level for manganese, which will remain in place until the primary standard is adopted.

Manganese is currently regulated in the State of California through a secondary drinking water standard, with an MCL of 50 µg/L. The District already treats groundwater produced form the deep aquifer wells for concentrations of manganese above the secondary MCL; however, it is noteworthy to include as the concentration of the primary MCL is undetermined at this time. If the primary MCL is lower than that established for the secondary MCL, additional treatment may be required.

7.3 WATER QUALITY - HEXAVALENT CHROMIUM MCL

The State of California adopted a primary MCL of 10 µg/L for hexavalent chromium in 2014; however, in 2017, the Superior Court of Sacramento County issued a judgement invalidating the MCL based on a technicality citing the State Water Board failed to consider the economic feasibility of compliance with the MCL and ordered the State Water Board to remove the MCL. As of September 11, 2017, the MCL was no longer in effect and relegated to the total chromium MCL of 50 µg/L. The court also ordered the State Water Board to adopt a new MCL for hexavalent chromium.

In March 2022, the State Water Board re-issued its recommended MCL of 10 µg/L for public review and comment. The timeline for review, finalization, and promulgation of the new MCL is currently unknown, but is likely anticipated sometime over the next year, followed by a phased compliance date of two years for water system with 10,000 or more service connections.

Groundwater produced by the District's shallow wells is below the proposed MCL with an average concentration of approximately 5 µg/L; however, it is noted here in the event the recommended MCL is lower than 10 µg/L, it may affect operation of these wells. Concentrations of hexavalent chromium in groundwater produced from the District's deep wells have remained below the detection levels (< 2µg/L).

7.4 WELL DESIGN – UPDATE TO DWR BULLETIN 74 (WATER WELL STANDARDS)

In addition to water quality regulations, the State of California Department of Water Resources is currently updating its Water Well Standards (Bulletin 74-81 and its supplement Bulletin 74-90) to revise minimum design standards for groundwater wells, including guidelines for sealing materials, well siting, and design for municipal supply wells (among other types of wells). The updated standards are anticipated to be finalized and published by Fall 2023.

The updated Water Well Standards likely will not impact the ability of the District to construct municipal supply wells. The revisions are largely to minimum design standards, which will apply to new wells following adoption of the revised standard. These revisions are largely seen as furthering the protection to the groundwater resource by incorporating updated standards and design guidelines for all types of groundwater wells. The revised standards likely will not affect the ability of the District to construct new wells in the future.

WELL DESIGN CONSIDERATIONS

The District's shallow aquifer wells have largely provided reliable and consistent production over their respective service life. Updated design consideration for new wells in the shallow aquifer include utilizing the reverse rotary drilling method, restricting well screens to target formations only within the saturated portion of the Laguna Formation and Laguna/Mehrten transition zone, and sufficient annular seals to seal against shallow groundwater.

The District's deep aquifer wells have experienced rapid declines in specific capacity, and suboptimal success following well rehabilitation programs. Comparing historical specific capacity values in municipal supply wells constructed in surrounding districts in the same aquifer, with similar well design components, it appears the primary mechanism is likely related to groundwater chemistry and well screen type. It is common that where concentrations of metals, such as manganese, are elevated in groundwater, oxidation of these metals can clog the gravel envelope and reduce the overall effective porosity and reduce well efficiency.

As for well design of new municipal supply wells, appropriate casing material will need to be selected to not only provide the anticipated service life, but also satisfy DDW requirements for NSF certification. These materials include high strength low allow (HSLA) steel and stainless steel. Gravel envelope material and well screen aperture selection are dependent on the grain size distribution of the geologic formations encountered. Data obtained from an exploratory test hole can provide the information necessary to properly design a gravel gradation to provide acceptable sand control, and subsequent well screen aperture size to retain the selected gravel envelope.

It is also recommended to selectively place well screen adjacent to the aquifer material, avoiding screening fine grained silts and clay layers. It is also important to only screen within the target geologic formation. For example, a deep aquifer well will only have well screen in the Mehrten Formation and avoid screening any aquifers in the Laguna or Laguna/Mehrten transition zone. This is to reduce the likelihood of mixing groundwater from different aquifers with different chemistry, eliminating the possibility of creating a conduit for shallow groundwater to migrate into the deep aquifer.

8.1 SHALLOW AQUIFER WELLS

A conceptual shallow well design is provided in **Figure 9**. This design accounts for a hybrid of NSF 60 certified high-strength low-alloy (HSLA) steel in the portion of the structure, which is encapsulated by the cement annular seal, transitioning to a stainless-steel blank and "Ful Flo" louvered well screens. This material will likely provide a service life of 75+ years. Louvered well screens were selected due to the possibility of longer continuous well screen intervals as well as successful performance in nearby wells. The gravel envelope gradation and subsequent well screen aperture will need to be selected based on site and depth-specific data from the

geologic formations. The well structure includes a gravel fill pipe and one sounding pipe to allow for direct measurement of groundwater levels.

8.2 DEEP AQUIFER WELLS

The District's deep aquifer wells have exhibited declines in specific capacity overtime, with limited success during well rehabilitation. Updated design considerations should include replacing wire-wrapped well screen with "Ful Flo" louvered well screen. A conceptual deep well design is provided in **Figure 10**. This design accounts for a hybrid of NSF 60 certified HSLA steel and stainless steel, like the shallow well design. Wire-wrapped well screen is not recommended to be used. Utilizing louvered well screen will allow the District to evaluate the changes in performance as compared to the existing deep aquifer wells.

The well design also includes for a deep cement annular seal. This is necessary to reduce the possibility of shallow groundwater, with different chemistry, entering the well structure over time, either through migration within the gravel envelope or should a hole in the casing develop, through said hole.

ESTIMATED CAPITAL COSTS

For the technologies and recommended well designs discussed above and in the attached Technical Memorandum, planning level cost estimates were prepared for a 2,000-gpm groundwater well. Estimated costs provided herein are based on recent and similar projects designed and/or constructed in 2022. Factors affecting cost in the current market, of note, include significant supply chain issues, the current drought, and inflation. These factors have resulted in variable and generally increasing cost, which make it more difficult to provide planning level opinions of probable cost. This is due to potential continued increases in materials and labor which are largely unpredictable currently.

An estimated cost to drill and construct the below grade portion of a shallow and deep well are provided in **Table 11** and **Table 12**, and an estimated cost breakdown for pump station improvements is provided in **Table 13** (attached). A detailed analysis of treatment alternatives is provided in the attached Water Treatment Analysis Technical Memorandum. An Opinion of Probable Cost to construct a well, pump station capable of 2,000 gpm, associated treatment technologies (well head) at the preferred location (Site No. 1), and pipelines to convey pumped water (raw or treated) is summarized below in **Table 14.**

Table 14
Opinion of Probable Capital Improvement Costs Site No. 1

Item	Shallow[1]	Deep[2]
Below Grade Drilling/Construction	$877,325	$1,138,850
Well Site Improvements (pump station)	$1,689,973	$1,689,973
Well Head Treatment	$4,259,630	$4,245,468
Centralized Treatment (plant upgrade)	$3,441,665	$2,976,582
Raw Water Pipeline	n/a	$423,200
Treated Water Pipeline	$73,600	$73,600

[1]assumes arsenic removal; [2]assumes manganese removal

CONCLUSIONS

Service Area No. 1 relies solely on groundwater to meet system demands. Spatial and vertical variations in groundwater chemistry, as characterized in this Study, suggest groundwater quality varies with respect to geographic location as well as with depth. A review of probable production potential, groundwater quality, and feasible locations to drill a municipal well identified the Masonic Lodge as a viable well site.

10.1 AQUIFERS

Groundwater produced from the shallow aquifer, primarily comprised of the Laguna and Laguna/Mehrten Transition zone, is more susceptible to contaminating activities from overlying land uses, as evidenced by the presence of PFAS compounds in Well 8 and slightly elevated concentrations of hexavalent chromium. In addition, the shallow aquifer is largely impacted by elevated concentrations of arsenic, which require treatment prior to distribution. With upcoming establishment of an MCL for hexavalent chromium and likely for PFAS compounds, continued use of the shallow aquifer has the potential to result in additional groundwater treatment prior to serving to the District's customers. Changes in the regulatory landscape and MCLs make it more difficult to determine the appropriate treatment technology at this time, as well as the degree of treatment that will be required.

Groundwater produced from the deep aquifer is largely devoid of the contaminants identified in the shallow aquifer; however, there is elevated concentrations of manganese which is required to be reduced due to the secondary MCL. Concentrations of manganese have been characterized to improve from east to west, from concentrations as high as 290 µg/L in the east to less than 50 µg/L west of Service Area No. 1. Within the District, it is likely treatment will be required for all wells constructed in the deep aquifer. Potential revisions to, and establishment of a primary MCL for manganese will likely not impact the District, as it already treats groundwater for elevated concentrations of manganese. Once the primary MCL is established, the District will need to evaluate its current treatment technology to determine appropriate removal.

Based on the hydrogeologic review and characterization of the groundwater aquifers, the deep aquifer provides a more stable and predictive environment for future municipal wells.

10.2 WELL SITE LOCATION

Two locations have been identified for the District's next two municipal well locations. The site located at the District's new Administrative Building - the Masonic Lodge site (Site No. 1) – and the site located on Aster Court (Site No. 2) are recommended to further pursue for the drilling, construction and testing of new municipal supply wells.

Each location provides opportunities to develop a municipal supply well with a design capacity of up to 2,000 gpm. Site-specific evaluations will need to be conducted to characterize the depth-specific aquifers and to assess the potential for meeting the District's design capacity objective.

Both sites will likely require treatment to reduce concentrations of manganese to below the drinking water standard. The Masonic Lodge site offers the benefit of intersecting the Mehrten Formation at a shallower depth, as compared to the Aster Court site, reducing overall below grade construction cost. The Aster Court site offers the opportunity to target groundwater in the Mehrten Formation with lower concentrations of manganese, reducing the overall operations and maintenance of treatment costs, and providing the ability to increase circulation within the distribution system and increase system redundancy.

10.3 WELL DESIGN CONSIDERATIONS

Regarding production capability and specific capacity of a well, a correlation was identified where wells constructed with wire-wrapped well screen appear to require more frequent well rehabilitation to attempt to restore lost specific capacity. At this time, this is not proven, but as compared to wells constructed using louvered well screen, further evaluation is warranted.

There is no overall downside including louvered well screen on the District's next municipal well, as this screen type is widely used in industry and within the region.

10.4 WATER TREATMENT

Constructing a municipal supply well in the deep aquifer will require treatment to reduce concentrations of manganese. Two options exist, constructing a well head treatment plant or connecting the new well to the Railroad Treatment Plant. With existing capacity at the Railroad Treatment Plant, constructing a raw water pipeline will be the most cost-effective solution.

11.0 RECOMMENDATIONS

11.1 WELL LOCATION

Based on the review of available data, two sites have been identified which appear to meet constructability and regulatory requirements to permit the construction of a municipal supply well, Site No. 1 (Masonic Lodge) and Site No. 2 (Aster Court).

Site No. 1 is recommended to progress planning for the drilling and construction of a municipal well. Site No. 1 satisfies multiple project objectives, including ownership of the parcel, sufficient area to construct a well, ability to satisfy regulatory requirements, and proximity to existing distribution and available power.

11.2 TARGET AQUIFER

It is recommended the District target the deep aquifer which is anticipated to produce groundwater that meets all DDW drinking water requirements, except for manganese. Additionally, avoidance of the shallow aquifer removes the potential for future regulatory actions on chemicals identified in the shallow aquifer will allow the District to plan its water supply more reliably. Anticipated production rates should be like that of Well 1D, 11D and 14D, between 1,500 and 2,000 gpm.

11.3 WATER QUALITY TREATMENT

Concentrations of manganese are anticipated to range between 250 and 300 µg/L, above the DDW secondary MCL of 50 µg/L requiring treatment prior to distribution. Constructing onsite well head treatment would provide overall system operational flexibility; however, the most cost-effective approach would be to construct a new raw water pipeline from the Masonic Lodge to tie into the existing raw water pipeline (within Dino Drive) to be treated at the Railroad Treatment Plant. Discussion with the District indicate that the Railroad Treatment Plant can accommodate production from a new well, within typical District operational parameters.

11.4 SITE-SPECIFIC HYDROGEOLOGIC ASSESSMENT

The District should conduct an exploratory drilling program at the recommended location to obtain depth-specific data to design the municipal supply well. This exploratory drilling program should include the drilling of a test hole to a depth of 1,200 feet to fully characterize the underlying formations. The actual production well depth will likely be like that of Well 4D. The exploratory program should include conducting geophysical surveys to delineate the geologic formations, and the construction of depth-specific monitoring wells to confirm groundwater quality. The depth-specific monitoring wells will provide multiple benefits, including allowing for repeat collection of water samples for chemical analysis, measurement and documentation of groundwater levels, and to provide a mechanism for ongoing monitoring for overall groundwater management.

Data obtained from the exploratory drilling program can then be used to finalize a municipal well design, including for annular seal depth, targeted well screen intervals, appropriate gravel envelope gradation for sand control, and associated well screen aperture size. This data can then be used to prepare the project plans and specifications.

Table 8
Municipal Well Regulatory Offset Requirements

Item	*Minimum Offset (feet)*	*Basis*
Dwelling	25	DHS[1] Sacramento District Memorandum (5/01)
Well Site Control Zone[2]	50	Proposed Waterworks Standards
Sewer or Storm Drain Mains or Laterals; Drainage Channel	50	DWR[3] Bulletin 74-90
Application of Disinfected Tertiary Recycled Water	50	California Water Code
Pit or Vault Privy	50	DHS Sacramento District Memorandum (5/01)
Abandoned Conduit	50	DHS Sacramento District Memorandum (5/01)
Pond, Lake or Stream	50 - 100	DHS Sacramento District Memorandum (5/01)
Sewer or Storm Drain Manhole or Pumping Station	100	DHS Sacramento District Memorandum (5/01)
Septic Tanks or Subsurface Sewer Leaching Fields	100	DWR Bulletin 74-90
Animal or Fowl Enclosures (Barnyard, Feedlot, Stable, and Pasture)	100	DWR Bulletin 74-90, DHS Sacramento District Memorandum (5/01)
Impoundment of Disinfected Tertiary Recycled Water	100	California Water Code
Irrigation or Impoundment of Disinfected Secondary Recycled Water	100	California Water Code
Underground Petroleum Storage Tanks	100	DHS Sacramento District Memorandum (5/01)
Wastewater Treatment Plant	150	DHS Sacramento District Memorandum (5/01)
Cesspools or Seepage Pits	150	DWR Bulletin 74-90
Irrigation or Impoundment of Undisinfected Secondary Recycled Water	150	California Water Code
Lined Effluent Discharge Channel	200	DHS Sacramento District Memorandum (5/01)
Petroleum Transmission Mains	500	DHS Sacramento District Memorandum (5/01)

[1] California Department of Public Health
[2] The "Well Site Control Zone" is an area that can be protected from vandalism, tampering, or other threats, through ownership of the land within the zone, easement, zoning, lease, or other approved approach.
[3] California Department of Water Resources

Table 8 (cont.)
Municipal Well Regulatory Offset Requirements

Item	*Minimum Offset (feet)*	*Basis*
Wastewater Lagoons	500	DHS Sacramento District Memorandum (5/01)
Class 3 Solid Waste Disposal Site	500	DHS Sacramento District Memorandum (5/01)
Surface Spreading Recharge of Recycled Water	500[4]	DHS Draft Regulations for Groundwater Recharge and Reuse (12/04)
Class 2 Solid Waste Disposal Site	2000	DHS Sacramento District Memorandum (5/01)
Subsurface Injection Recharge of Recycled Water	2000[5]	DHS Draft Regulations for Groundwater Recharge and Reuse (12/04)
100-Year Flood Plain	Above High Water Line	DWR Bulletin 74-90
Industrial Waste Sewers, Holding Tanks, Ponds, and Storage Areas	Case-by-case	DHS Sacramento District Memorandum (5/01)
Class 1 Solid Waste Disposal Site	Case-by-case	DHS Sacramento District Memorandum (5/01)
Wells Destroyed in Accordance with DWR Bulletin 74-90	None Required	DHS Sacramento District Memorandum (5/01)
Abandoned and Improperly Destroyed Wells	Case-by-case **and** 50	DHS Sacramento District Memorandum (5/01) **and** DHS Sacramento District Well Siting Checklist

[4] Also requires a minimum of six months residence time.
[5] Also requires a minimum of twelve months residence time.

Table 11
Conceptual Shallow Well - Opinion of Probable Cost

Item No.	Description	Unit	Quantity	Unit Cost	Item Cost
1	Project Mobilization and Demobilization	LS	1	$ 135,000	$ 135,000
2	Site Protection and Noise Mitigation	LS	1	$ 35,000	$ 35,000
3	Testing and Disposal of Drill Cuttings/Fluids	LS	1	$ 40,000	$ 40,000
4	NPDES Permit; Compliance with Discharge Requirements, including conveyance, monitoring, and reporting	LS	1	$ 15,000	$ 15,000
5	36-inch O.D. x 3/8-inch Wall Conductor Casing and Sanitary Seal	LF	50	$ 650	$ 32,500
6	Borehole Drilling, 30-inch	LF	570	$ 200	$ 114,000
7	Geophysical (E-Logs), Borehole Geometry & X-Y Caliper Surveys	LS	1	$ 7,500	$ 7,500
8	18.625-inch O.D. x 5/16-inch Wal ASTM A-606 HSLA Steel	LF	183	$ 300	$ 54,900
9	18.625-inch O.D. x 5/16-inch Wall Type 304L S.S. Blank Well Casing	LF	145	$ 610	$ 88,450
10	18.625-inch O.D. x 5/16-inch Wall Type 304L S.S. “Ful-Flo” Louvered Well Screen	LF	275	$ 700	$ 192,500
11	Sounding Pipe, 2-inch Sch 40 A-53 Grade B Steel	LF	183	$ 15	$ 2,745
12	Gravel Fill Pipe, 3-inch Sch 40 A-53 Grade B	LF	218	$ 25	$ 5,450
13	Gravel Envelope – Gillibrand 8 x 16	LF	415	$ 115	$ 47,725
14	Annular Seal, Fine Sand Transition and Sand-Cement Grout	LF	205	$ 75	$ 15,375
15	Airlift Well Development	LS	1	$ 45,000	$ 45,000
16	Test Pump Installation	LS	1	$ 14,000	$ 14,000
17	Pump Well Development	LS	1	$ 10,000	$ 10,000
18	Well and Aquifer Testing (Test Pumping)	HR	24	$ 320	$ 7,680
19	Plumbness & Alignment Tests	LS	1	$ 7,500	$ 7,500
20	Video Camera Survey, Full Length	LS	1	$ 2,000	$ 2,000
21	Well Disinfection	LS	1	$ 2,500	$ 2,500
22	Site Cleanup and Records/Wellhead Security	LS	1	$ 2,500	$ 2,500

Total: $ 877,325

Table 12
Conceptual Deep Well - Opinion of Probable Cost

Item No.	Description	Unit	Quantity	Unit Cost	Item Cost
1	Project Mobilization and Demobilization	LS	1	$ 135,000	$ 135,000
2	Site Protection and Noise Mitigation	LS	1	$ 35,000	$ 35,000
3	Testing and Disposal of Drill Cuttings/Fluids	LS	1	$ 40,000	$ 40,000
4	NPDES Permit; Compliance with Discharge Requirements, including conveyance, monitoring, and reporting	LS	1	$ 15,000	$ 15,000
5	36-inch O.D. x 3/8-inch Wall Conductor Casing and Sanitary Seal	LF	50	$ 650	$ 32,500
6	Borehole Drilling, 30-inch	LF	1070	$ 200	$ 214,000
7	Geophysical (E-Logs), Borehole Geometry & X-Y Caliper Surveys	LS	1	$ 8,500	$ 8,500
8	18.625-inch O.D. x 5/16-inch Wal ASTM A-606 HSLA Steel	LF	783	$ 300	$ 234,900
9	18.625-inch O.D. x 5/16-inch Wall Type 304L S.S. Blank Well Casing	LF	150	$ 610	$ 91,500
10	18.625-inch O.D. x 5/16-inch Wall Type 304L S.S. “Ful-Flo” Louvered Well Screen	LF	170	$ 700	$ 119,000
11	Sounding Pipe, 2-inch Sch 40 A-53 Grade B Steel	LF	353	$ 15	$ 5,295
12	Gravel Fill Pipe, 3-inch Sch 40 A-53 Grade B	LF	815	$ 25	$ 20,375
13	Gravel Envelope – Gillibrand 8 x 16	LF	315	$ 115	$ 36,225
14	Annular Seal, Fine Sand Transition and Sand-Cement Grout	LF	805	$ 75	$ 60,375
15	Airlift Well Development	LS	1	$ 45,000	$ 45,000
16	Test Pump Installation	LS	1	$ 14,000	$ 14,000
17	Pump Well Development	LS	1	$ 10,000	$ 10,000
18	Well and Aquifer Testing (Test Pumping)	HR	24	$ 320	$ 7,680
19	Plumbness & Alignment Tests	LS	1	$ 7,500	$ 7,500
20	Video Camera Survey, Full Length	LS	1	$ 2,000	$ 2,000
21	Well Disinfection	LS	1	$ 2,500	$ 2,500
22	Site Cleanup and Records/Wellhead Security	LS	1	$ 2,500	$ 2,500

Total: $ 1,138,850

Table 13
Well Siting Study
Topside Improvements
Conceptual Cost Estimate

Item	Description	Unit	Unit Price	Quantity	Cost, $
Bid Schedule: Well Site Improvements					
C.1	Mobilization	LS	5%	1	$51,418
C.2	Traffic Control	LS	$12,000	1	$12,000
C.3	SWPPP	LS	$12,000	1	$12,000
C.4	Clear & Grub	SY	$3	1,111	$3,400
C.5	Demolition and Civil Site Work	LS	$20,000	1	$20,000
C.6	Well Site AC Paving	SF	$9	7,000	$63,000
C.7	Well Site AB	SF	$2	1,500	$3,000
C.8	Chain link Fencing	LF	$32	350	$11,200
C.9	Chain link Swing Gate	EA	$1,500	1	$1,500
C.10	Chemical Shed	LS	$28,000	1	$28,000
C.11	Chemical Tank, Metering Pump, & Appurtenances	LS	$17,000	1	$17,000
C.12	Analyzer Panel	LS	$30,000	1	$30,000
C.13	Well Pedestal	LS	$9,000	1	$9,000
C.14	Well Pump & Motor	LS	$130,000	1	$130,000
C.15	Misc Piping, Valves and Ancillary Items	LS	$34,000	1	$34,000
C.16	12” Restrained PVC C900 Water Pipeline	LF	$170	80	$13,600
C.17	Pump to Waste 6" Discharge	LF	$130	40	$5,200
C.18	Discharge Gooseneck and Outlet	LS	$8,500	1	$8,500
C.19	48" Drainage Manhole	EA	$12,000	1	$12,000
C.20	36" Drain Inlet w/ Frame and Grate	EA	$8,000	2	$16,000
C.21	6" PCC Mow Curb	LF	$80	120	$9,600
C.22	Meter/Main, ATS, Distribution, Switchboard	LS	$80,000	1	$80,000
C.23	Pump Variable Frequency Drive	LS	$95,000	1	$95,000
C.24	PLC Control Panel	LS	$130,000	1	$130,000
C.25	Sunshade Structure	LS	$25,000	1	$25,000
C.26	Instrumentation	LS	$26,000	1	$26,000
C.27	SCADA System	LS	$30,000	1	$30,000
C.28	Generator Foundation	CY	$700	6	$4,356
C.29	Permanent Generator w/ Sound Enclosure	LS	$125,000	1	$125,000
C.30	Site Electrical	LS	$98,000	1	$98,000
				Subtotal Bid Schedule: Well Site Improvements	$1,103,773
				eneral Contractor Overhead (10%)	$102,800
				General Contractor Profit (15%)	$154,300
				Bonds & Insurance (2%)	$20,600
				Subtotal Bid Schedule	**$1,381,473**
				Contingency (30%)	$308,500
				Total Bid Schedule	**$1,689,973**

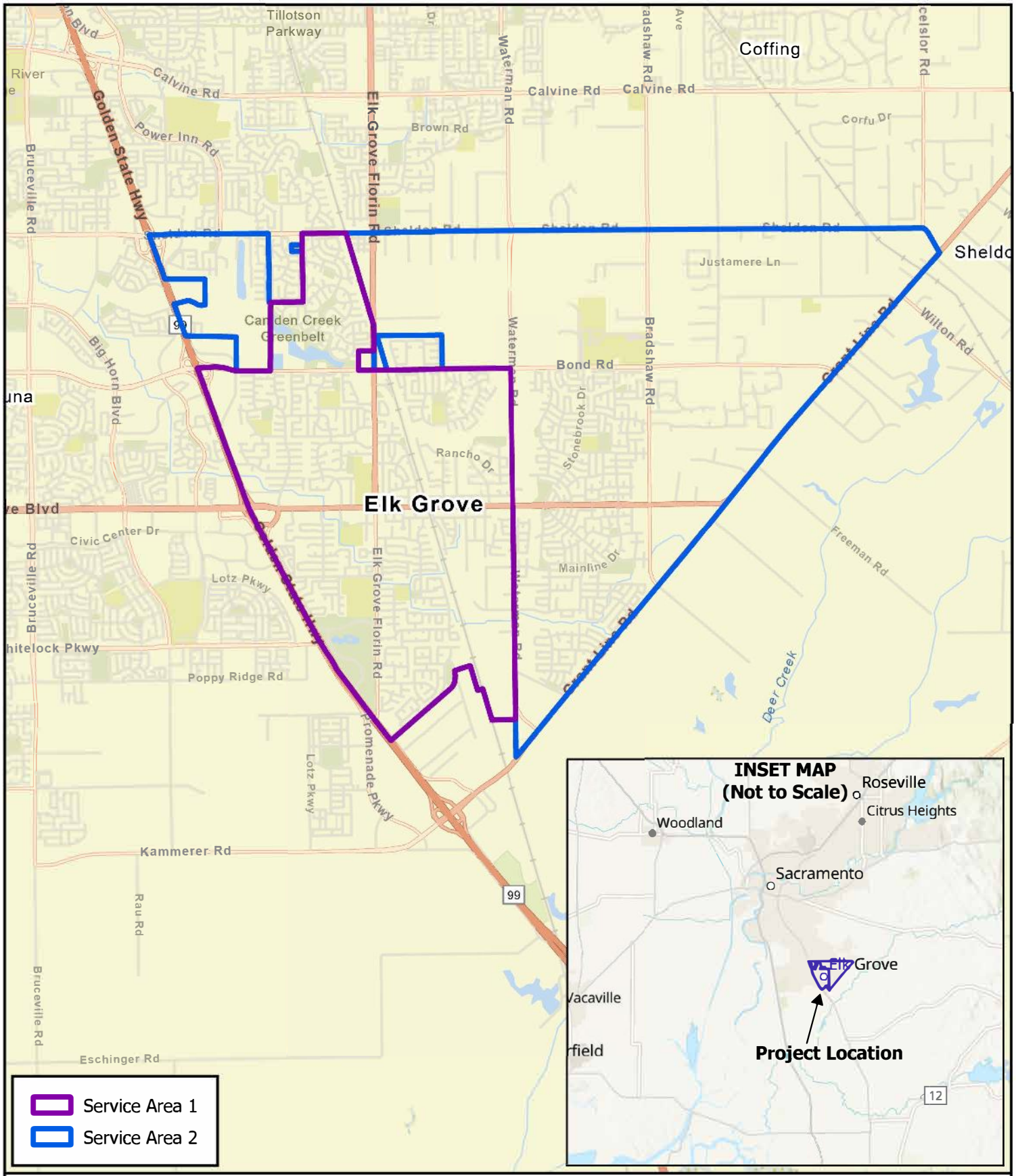

FIGURE 1

LOCATION MAP

EGWD WELL SITING STUDY

ELK GROVE, CA

MAY 2022

0 2,500 5,000

Feet

NORTH

WOOD RODGERS

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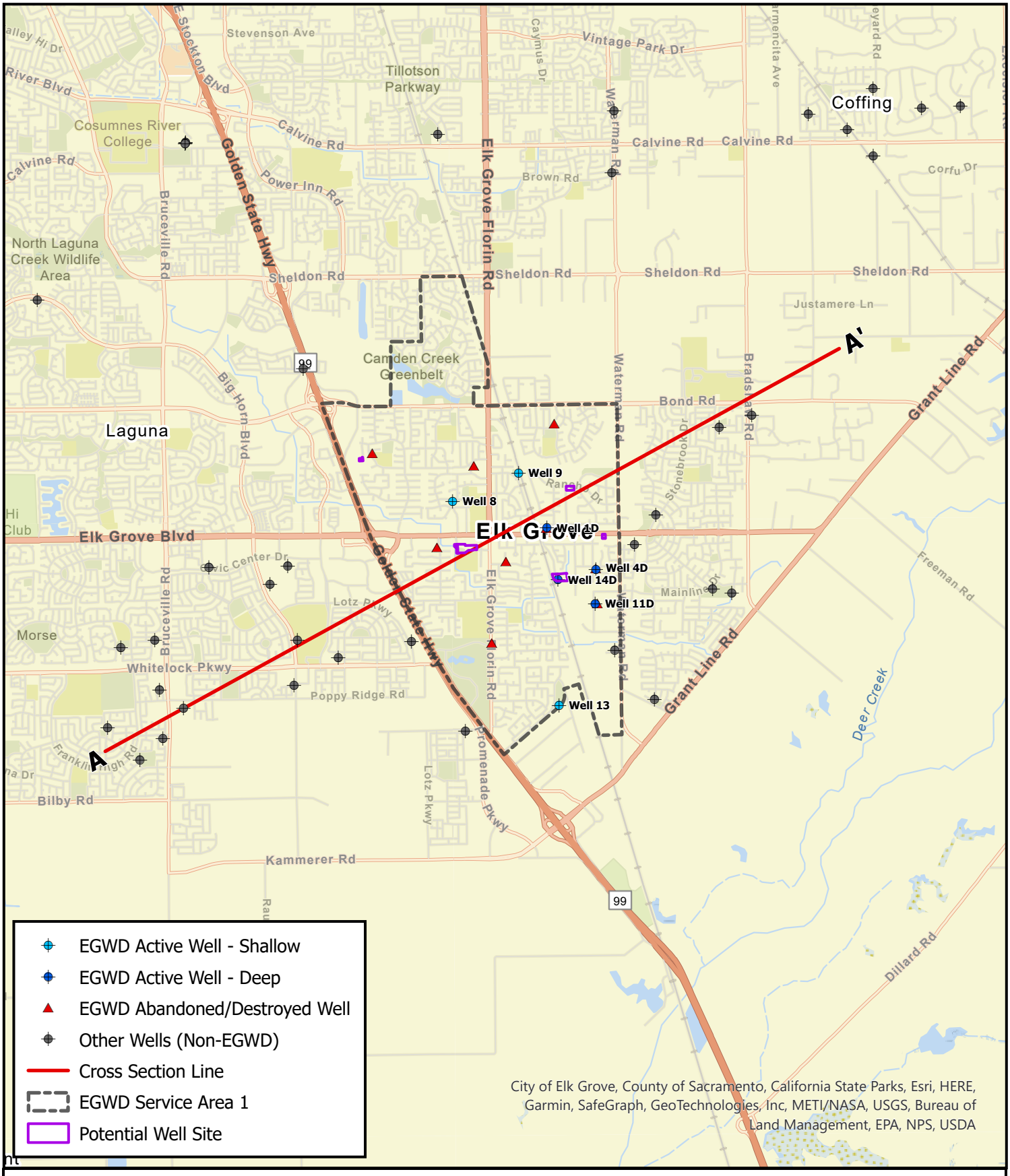

FIGURE 2

SERVICE AREA 1 WELL LOCATION MAP

EGWD WELL SITING STUDY

ELK GROVE, CA

MAY 2022

0 0.5 1

Miles

NORTH

WOOD RODGERS

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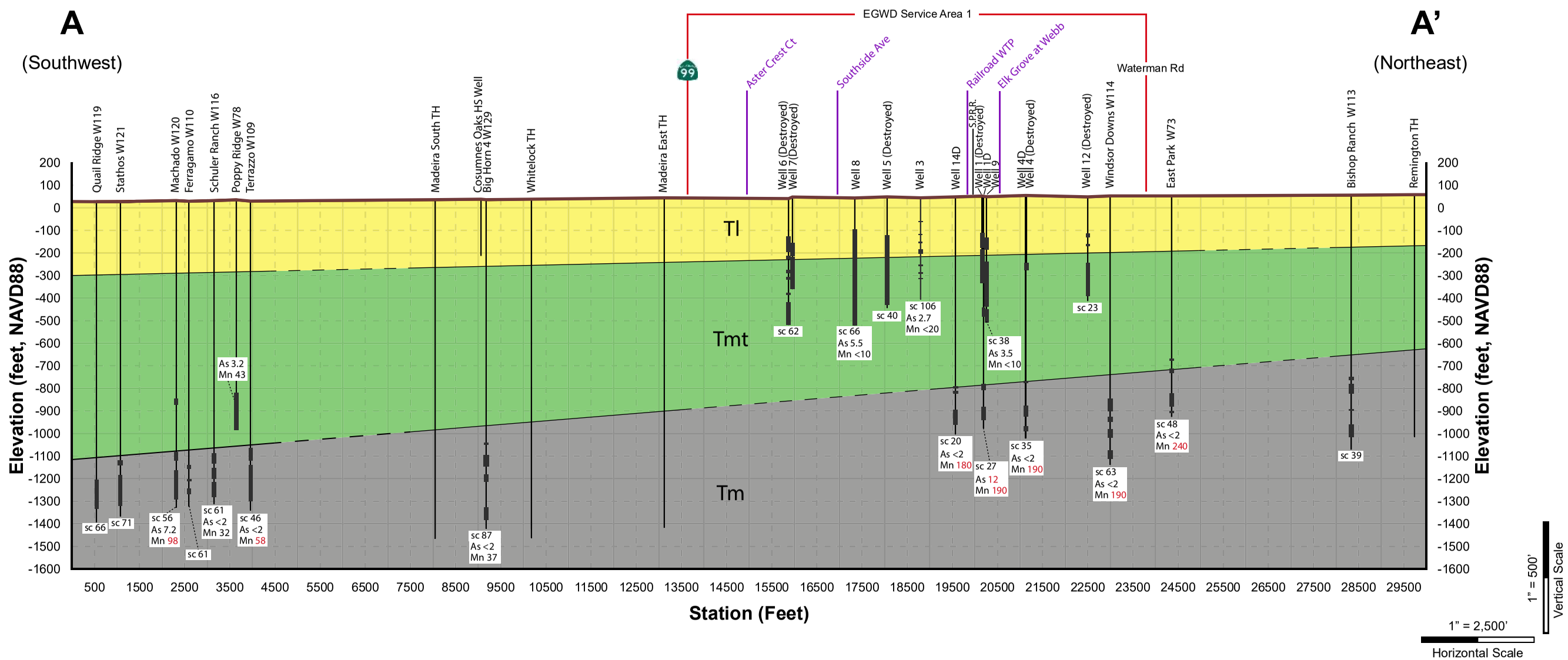

EXPLANATION

Well Name
Well Casing or Open Borehole
Well Screen
Total Well Depth
sc 58 — Specific Capacity (gpm/ft of drawdown)
As <2 — Arsenic (micrograms per liter, µg/L)
Mn 58 — Manganese (µg/L)
*Red values are concentrations detected at or above the Primary or Secondary Maximum Contaminant Level

LEGEND

- Ground Surface
- Geologic Contact
- Geologic Contact, Inferred
- Tl — Laguna Formation
- Tmt — Laguna/Mehrten Transition
- Tm — Mehrten Formation

WOOD RODGERS
BUILDING RELATIONSHIPS ONE PROJECT AT A TIME

FIGURE 3
CONCEPTUAL GEOLOGIC CROSS-SECTION A-A'

ELK GROVE WATER DISTRICT
WELL SITING STUDY

Prepared By: Wood Rodgers	Profile: 1
Job No. 8860.001	Date: Apr 08, 2022
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Figure 4
Shallow Aquifer Hydrograph (Well 9)

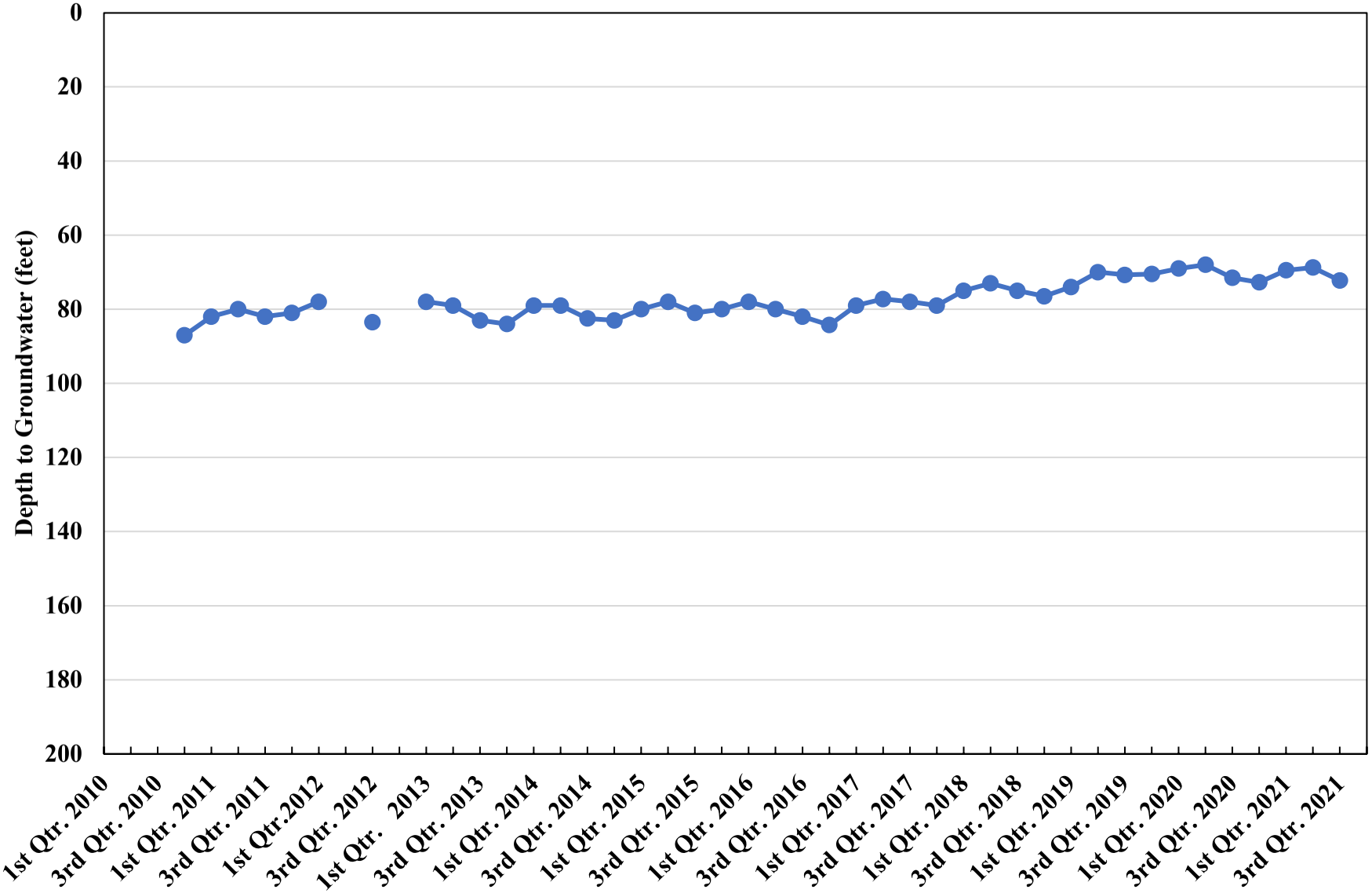
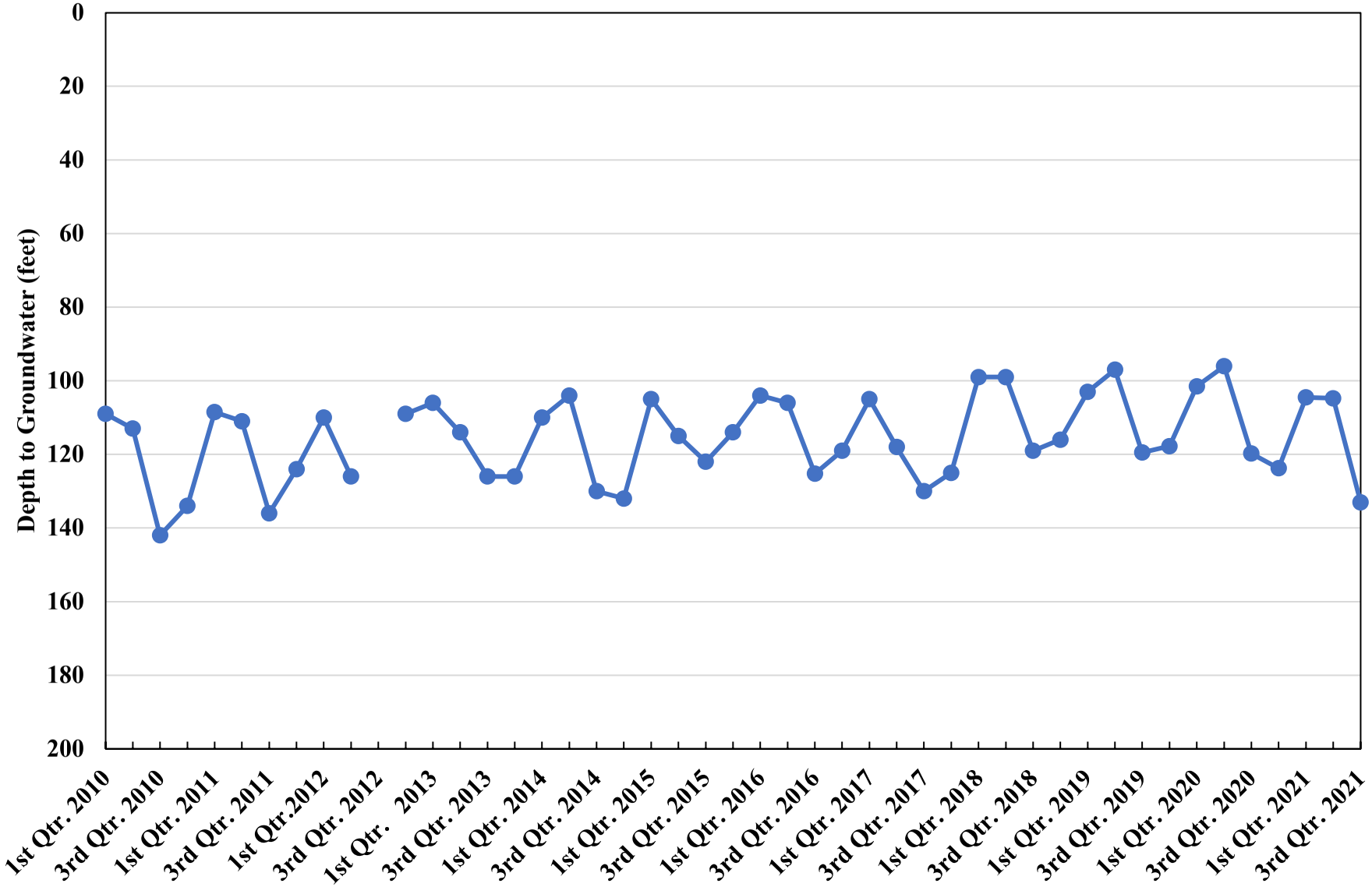


Figure 5
Deep Aquifer Hydrograph (Well 14D)



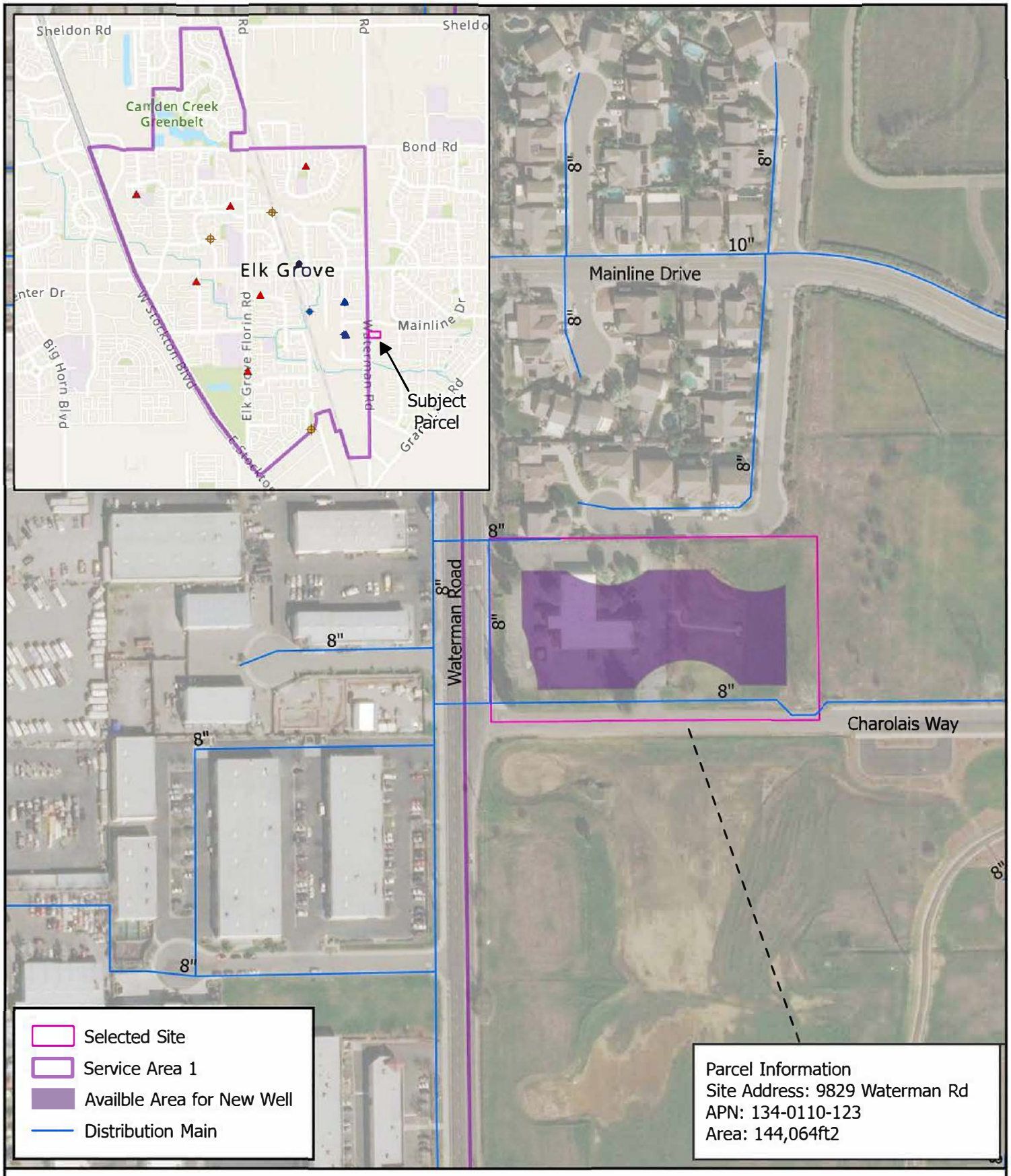


FIGURE 6

SITE No. 1 - Masonic Lodge

EGWD WELL SITING STUDY

ELK GROVE, CA

JUNE 2022

WOOD RODGERS

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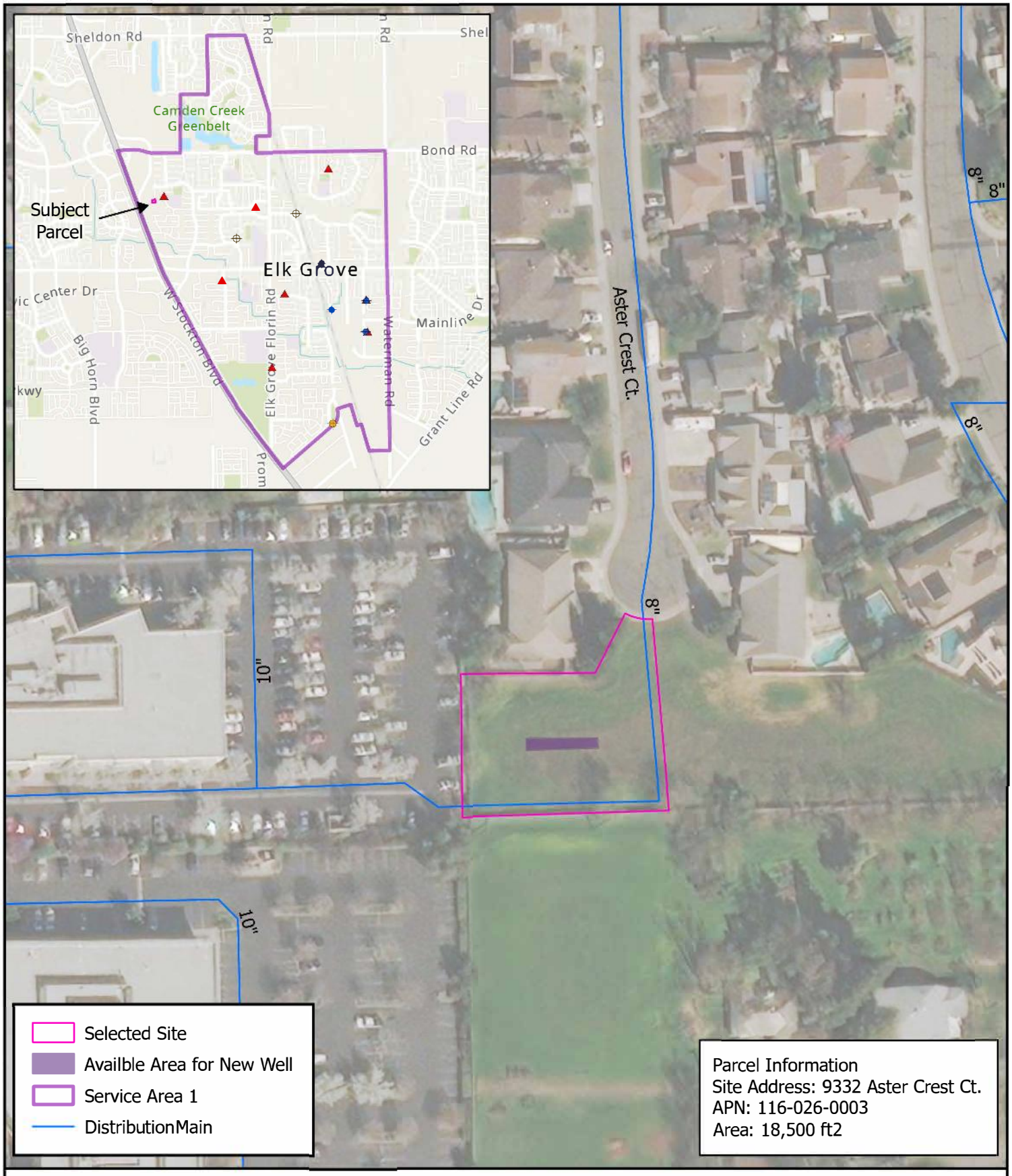

FIGURE 7

SITE No. 2 - Aster Court

EGWD WELL SITING STUDY

ELK GROVE, CA

MAY 2022

0 50 100

Feet

NORTH

WOOD RODGERS

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FIGURE 8

SITE No. 3 - Elk Grove Blvd

EGWD WELL SITING STUDY

ELK GROVE, CA

MAY 2022

0 50 100

Feet

NORTH

WOOD RODGERS

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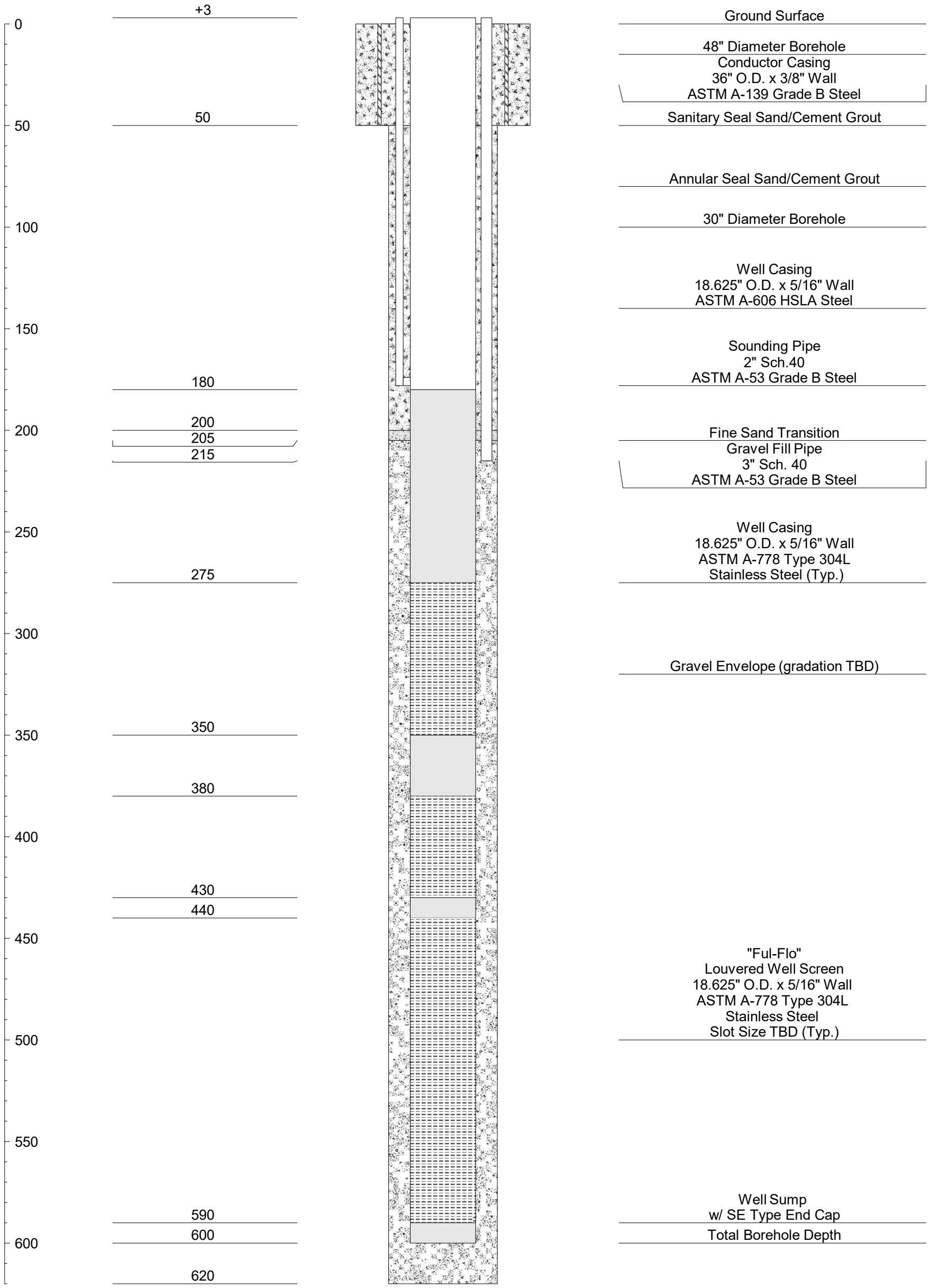
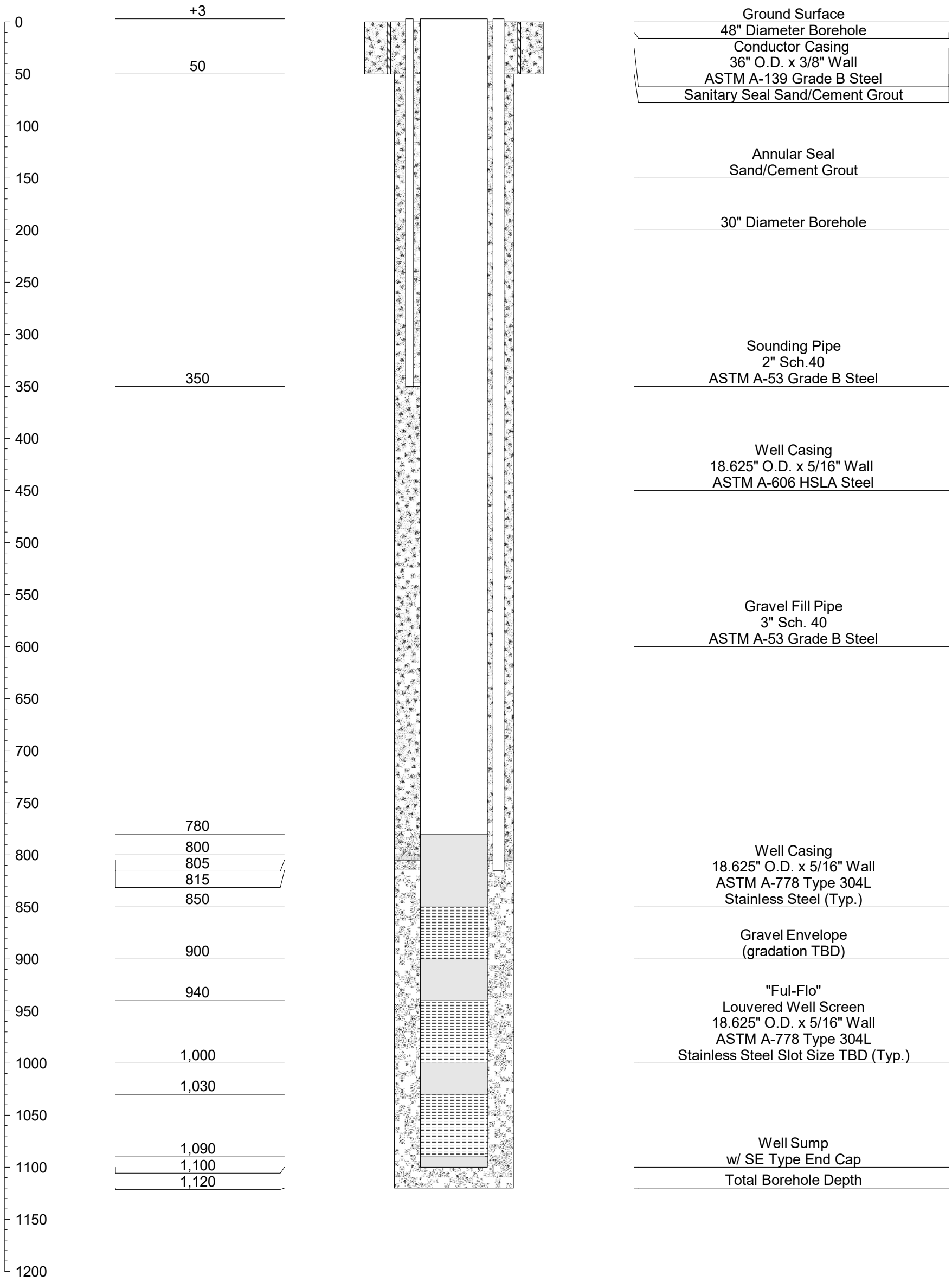
CONCEPTUAL WELL DESIGN
(Shallow Option)



PROJECT NO. **8860.001**	CONCEPTUAL WELL DESIGN FOR **ELK GROVE WATER DISTRICT** "SHALLOW WELL" ELK GROVE, CA	WOOD RODGERS BUILDING RELATIONSHIPS ONE PROJECT AT A TIME 3301 C Street, Bldg 100-B Sacramento, CA 95816 Tel: 916.341.7760 Fax: 916.341.7767	DATE: **6/21/22 13:27** SCALE: V: **1" = 50'** DRAWN BY: DESIGNED BY: CHECKED BY:	J:\Jobs\8860_FRCD\8860001_Well_Siting_Study\Strater\Conceptual_Designs
FIGURE NO. 9				NO. DESCRIPTION ENGR. INIT BY DATE APPROVED

CONCEPTUAL WELL DESIGN
(Deep Option)



PROJECT NO. **8860.001**	CONCEPTUAL WELL DESIGN FOR **ELK GROVE WATER DISTRICT** "DEEP WELL" ELK GROVE, CA	WOOD RODGERS BUILDING RELATIONSHIPS ONE PROJECT AT A TIME 3301 C Street, Bldg 100-B Sacramento, CA 95816 Tel: 916.341.7760 Fax: 916.341.7767	DATE: **6/21/22 13:29** SCALE: V: **1" = 100'** DRAWN BY: DESIGNED BY: CHECKED BY:	J:\Jobs\8860_FRCD\8860001_Well_Siting_Study\Strater\Conceptual_Designs NO. DESCRIPTION ENGR. INIT BY DATE APPROVED
FIGURE NO. 10				

Memorandum

WOOD RODGERS
BUILDING RELATIONSHIPS ONE PROJECT AT A TIME

To: Mr. Bruce Kamillos, PE
General Manager
Elk Grove Water District

From: Jeff Lodge, PE
Principal Engineer

Date: June 22, 2022

Subject: Elk Grove Water District – Groundwater Quality Treatment Analysis

Introduction

The purpose of this Technical Memorandum (TM) is to provide an overview of the most common and effective types of treatment for the removal of arsenic and manganese from raw water to meet the State Water Resources Control Board Division of Drinking Water (DDW) requirements for a potable water supply. Those alternative treatments will be described and approximate project costs for design and construction will be estimated. This TM is presented to assist the Elk Grove Water District (EGWD) in making decisions on moving forward with addition of well capacity to the EGWD system and the impact of taking water from the various aquifers that they have available to them.

Arsenic

Arsenic is a common element in the earth's crust, natural groundwater, and even the human body (organic arsenic compounds found in seafood). It is an odorless and tasteless semi-metal (metalloid) that is naturally present in aquifers throughout the U.S. and the world. On June 22, 2000, the U.S. Environmental Protection Agency (EPA) proposed lowering the maximum contaminant level (MCL) for arsenic from 50 down to 5 ppb (Federal Register, 2000). The EPA proposal followed the recommendation of the National Academy of Sciences report, which concluded that the current 50 ppb standard was not sufficiently protective of public health, and should be lowered as soon as possible (NAS, 1999). The EPA estimated that the proposed 5 ppb standard would provide additional protection for 22.5 million Americans against cancer and other health problems. Because of anticipated objections from both environmentalists and water suppliers, MCLs of 3, 10 and 20 ppb were also considered. The final MCL was announced as 10 ppb in late January of 2001, for compliance by 2006.

Manganese

Manganese occurs naturally in the earth's crust and is released into water by weathering processes. This element is very common in groundwater amongst deep wells in the area, the amount of which will vary widely depending on the local geology and groundwater chemistry. Depending on localized pH and oxygen levels within the aquifer, this constituent may be found in a reduced, soluble form as Mn^{2+} or as oxidized, colloidal, particulate forms.

Manganese is only a secondary or aesthetic contaminant for staining of plumbing fixtures and laundry. The federal and state secondary or aesthetic standards, established under the Safe Drinking Water Act of 1974, for manganese was set at 0.05 mg/L.

Water Treatment

There are various treatment techniques for removal of arsenic and manganese from the source water supply. There are of course treatment techniques that are only applicable for one or the other. Treatment alternatives that we have evaluated are as follows:

Arsenic

- Oxidation Coagulation and Filtration
- Adsorption

Manganese

- Oxidation and Filtration
- Aeration and Filtration
- Adsorption

The techniques for removal of each of the constituents is described in more detail below.

Oxidation, Coagulation and Filtration (Arsenic)

The most effective type of treatment for arsenic is very much dependent on the form of arsenic that is in the water to be treated. Oxidation of arsenic to transform it from As(III) to As(V) has been proven to improve the performance of the technologies for removal of this constituents. Several oxidants have been used as a pretreatment to achieve this including chlorination chemicals (dissolved gaseous chlorine, sodium hypochlorite, and calcium hypochlorite), potassium permanganate, and dissolved ozone (refer to Oxidants section). This process for removal of the arsenic will require an additional step of coagulation and precipitation. The chemical process of coagulation and precipitation changes the state of the constituent so that it may be filtered out by the physical process. This process is similar to oxidation/filtration treatment but has an additional step of coagulation prior to the filtration process. Common coagulants used for arsenic treatment are iron salts and aluminum sulfate (alum). Alum coagulation is generally less efficient than iron coagulation, so alum would only be appropriate for systems with low arsenic concentrations. Typical iron salts used are ferric chloride and ferric sulfate. Following coagulation, filtration is the physical process typically used to remove precipitated arsenic. (see Media section).

Adsorption (Arsenic)

Adsorptive media is another common technology for arsenic removal that can be used in place of or to augment coagulation filtration (CF). As with coagulants, most adsorptive media are iron-based; variations include titanium dioxide, zirconium, and other ion exchange resins. As with CF systems, a variety of equipment and materials suppliers are available. Reducing pH to the 5 to 7 range can enhance adsorptive media's effectiveness. In adsorption, solutes (contaminants) concentrate at the surface of a sorbent, thereby reducing their concentration in the bulk liquid phase. The adsorption media is usually packed into a column. As contaminated water is passed through the column and flows through the void space between the adsorptive media particles, contaminants are adsorbed

onto the media surface. When adsorption sites become filled, the column must be regenerated, or disposed of and replaced with new media.

Oxidation and Filtration (Manganese)

The most effective types of treatment for manganese are very much dependent on the form of manganese within the water to be treated. Oxidation of manganese to transform dissolved Mn(II) to particulate Mn(IV) has been proven to enhance the performance of the technologies for removal of these constituents. Several oxidants have been used as a pretreatment to achieve this including chlorination chemicals, potassium permanganate, and dissolved ozone (refer to Oxidants section).

Following oxidation, a very cost-effective method for precipitate removal consists of filtration through a bed of specific media (see Media section).

Aeration and Filtration (Manganese)

The aeration and filtration method of treatment for removal of manganese is similar to the oxidation/filtration method, however the oxidant is not a chemical but is dissolved oxygen mechanically injected into the water for conversion of manganese from manganous to an insoluble oxidized manganic form. After aeration, the water is filtered (refer to Media section) and the manganese is removed from the water. This option is attractive to some municipalities because it reduces the amount of chemical that is added to the water, however the flow control must be carefully monitored. Higher flow with low oxygen will not allow proper mixing and will result inefficient or no removal of manganese. Low water flow with high oxygen will create water that is saturated with oxygen and is corrosive to the distribution system.

Adsorption (Manganese)

Adsorptive media is also used for removal of manganese from source water supplies. This technique allows for continued use of free chlorination for removal of Mn(II) while also minimizing Disinfection By Product (DBP) formation. In this method, effluent from a particle removal filter flows to reactors whose sole purpose is to provide a manganese oxide (MnOx) surface for Mn(II) adsorption and catalytic oxidation by free chlorine. The contactor contains coarse media that are coated with MnOx and can operate at high hydraulic loading rates. A chlorine dose sufficient for Mn(II) catalytic oxidation or greater, typically controlled by primary disinfection or desired plant effluent residual chlorine levels, is added to the filter effluent, becoming the contactor influent. Delaying chlorination until after removal of coagulated natural organic matter and other particles minimizes DBP formation.

Of the treatment methods described above, Oxidation and Filtration has been a proven successful and economical method for removal of manganese at multiple water treatment facilities of various water utility purveyors. This is the type of treatment that the EGWD is currently using for manganese treatment at the Railroad Water Treatment Plant. For planning and layout purposes, Oxidation/Filtration is the preferred manganese treatment alternative for wellhead treatment.

Oxidants

Chlorination is widely used for oxidation of divalent ***arsenic and manganese***. One of the most prevalent forms for chlorine for oxidation in potable water treatment is sodium hypochlorite. However, the formation of trihalomethanes (THMs) in highly colored waters may be a problem. Chlorine feed rates and contact time requirements can be determined by simple jar tests.

As an oxidant for ***manganese***, potassium permanganate (KMnO4) is normally more expensive than chlorine and ozone, but for manganese removal, it has been reported to be as efficient and it requires considerably less equipment and capital investment. The dose of potassium permanganate, however, must be carefully controlled. Too little permanganate will not oxidize all the manganese, and too much will allow permanganate to enter the distribution system and cause a pink colored water. Permanganate can also form precipitates that cause mudball formations on filters. These are difficult to remove and compromise filter performance.

Ozone may be used for ***arsenic and manganese*** oxidation, but may not be effective for oxidation in the presence of humic or fulvic materials. In addition, if not dosed carefully, ozone can oxidize reduced manganese to permanganate and result in pink water formation as well. Manganese dioxide particles, also formed by oxidation of reduced manganese, must be carefully coagulated to ensure removal.
For arsenic, ozone has been extremely effective and the complete oxidation occurs withing 15 seconds, however it can be slower in the presence of sulfide in the water.

Another oxidant for ***manganese*** involves a low-cost method of using oxygen in air as the oxidizing agent in a tray aerator. Water is simply passed down a series of porous trays to provide contact between air and water, with concurrent counter-flow of air. No chemical dosing is required, which allows for unattended operation. This method is not effective for water in which the iron is complexed with humic materials or other large organic molecules. Oxygen is not a strong enough oxidizing agent to break the strong complexes formed between iron and manganese and large organic molecules. Furthermore, the rate of reaction between oxygen and manganese is very slow below pH values of 9.5.

The presence of other oxidizable species in water hinders oxidation of the desired reduced compounds. Volatile organic chemicals, other organic compounds, or taste- and odor-causing compounds may result in an oxidant demand. This additional oxidant demand must be accounted for when dosing the oxidant. The expense of operation derives from the chemical use in most cases, and therefore is directly related to the source water quality.

<u>Media</u>
There are different filtration media types suitable for the removal of ***arsenic and manganese***, including manganese greensand, anthra/sand or ironman sand, electromedia, ceramic, and membranes. Typically, the filtration media is contained within a closed vessel in which the water to be treated is pumped through under pressure at a controlled flow rate, to allow for the filtering out of the precipitated constituent particles to be removed. In addition, these pressure vessels have piping and automatic valves controlling the water flow into and out of them, along with an automated backwash cycle that sections off specific compartments of the vessels for backwash cleaning and disposal of the backwash water. The presence and amount of iron in the source water once oxidized can result in arsenic, iron and manganese co-precipitating out within the filter vessels. The various media types are described below.

> *Manganese Greensand* is a common medium in use for removal of arsenic and manganese through pressure filtration. Greensand is a processed material consisting of nodular grains of the zeolite mineral glauconite. The material is coated with manganese oxide. The ion exchange properties of the glauconite facilitates the bonding of the coating. This treatment gives the media a catalytic effect in the chemical oxidation-reduction reactions necessary for manganese removal. This coating is maintained through either continuous or intermittent feed of potassium permanganate.
>
> *Anthra/Sand* (also iron-man sand) are other types of media available for removal of manganese. They consist of select anthracite as well as sand with a chemically bonded manganese oxide coating.

Unlike manganese greensand, these media are conditioned in the filter after media installation but are less expensive than the more common manganese greensand medium for initial installation and for future media replacement.

Electromedia provides a slightly different option from the manganese oxide coated media. This is a proprietary multi-media formulation which uses a naturally occurring zeolite and does not require potassium permanganate regeneration.

Macrolite, unlike the other media discussed so far, is not a naturally occurring material which then undergoes processing for iron and manganese removal purposes. It is a manufactured ceramic material with a spherical shape and a rough, textured surface. The principal removal mechanism is physical straining rather than contact oxidation or adsorption.

Membrane filtration is an alternate filtering method to capture precipitate particles which does not use media. The technology consists of bundled hollow tubular membrane strands of a specially designed material that is engineered for the particular constituent to be removed from the water. There are a variety of membrane types that are used today including microfiltration, ultrafiltration, nanofiltration reverse osmosis and electrodialysis. Membranes are susceptible to membrane fouling, require higher pressures and typically require a higher capital cost for construction.

Each medium has its advantages and disadvantages. Selection of a medium and oxidant should be based on pilot testing from which all necessary design criteria can be determined. Pressure filtration system manufacturers who offer the indicated media also offer fully automated systems.

Capital Cost of Construction

For the technologies discussed above, planning level costs for a 2,000 gpm groundwater well have been compiled as shown in Table 1. These costs are based on inclusion of the following and would be appropriate for a new site:

- Similarly sized sites
- A building to house chemical storage and feed equipment
- A generator for emergency/back-up power
- PLC and SCADA provisions

Table 1 - Conceptual Treatment Cost Estimates					
Description	**Oxidation Coagulation Filtration - Arsenic**	**Adsorption - Arsenic**	**Oxidation Filtration - Manganese**	**Aeration Filtration - Manganese**	**Adsorption - Manganese**
Mob, site work, piping bldg subtotal	$590,376	$574,041	$583,375	$658,680	$551,079
Treatment equipment/mechanical subtotal	$1,518,296	$1,408,043	$1,500,293	$1,646,663	$1,351,721
Electrical and instumentation subtotal	$765,527	$750,300	$756,450	$773,820	$720,288
	$2,874,199	$2,732,384	$2,840,118	$3,079,163	$2,623,088
Insurance (2.5%)	$71,855	$55,536	$71,003	$76,979	$65,577
Bonds (2%)	$57,484	$44,429	$56,802	$61,583	$52,462
Overhead and Profit (10%)	$287,420	$222,145	$284,012	$307,916	$262,309
Engineering (10%)	$287,420	$222,145	$284,012	$307,916	$262,309
Total	$3,578,378	$3,276,639	$3,535,946	$3,833,557	$3,265,745
Contingency (30%)	$1,073,513	$982,992	$1,060,784	$1,150,067	$979,723
Total	$4,651,891	$4,259,630	$4,596,730	$4,983,625	$4,245,468
1. Estimate accuracy: -30% to + 50%					

Cost of Centralized Treatment

Centralized Treatment involves conveyance of the raw water from one or more well sites to a well/treatment site within the EGWD service area that already has treatment for removal of the same constituent that the new well water requires for compliance. The cost associated for Centralized Treatment evaluated the existing sites that have treatment equipment and process already constructed and have the available expansion capacity for additional treatment. For these sites that have planned for future expansion, there are already some facilities in place to accommodate expansion so those costs would not be as high as if a new site were to have treatment constructed on it. Those items that would have been already planned for include the electrical service, panel breaker sizing, panel amperage, conduits, wiring, space on site, generator sizing, pipelines, meters, valves and other ancillary components.

We have estimated the cost of expansion of an existing site to accommodate additional treatment (centralized treatment). These costs assume that the electrical and the mobilization would be less than for a new site since some of those facilities were planned for and the mass excavation, grading and paving are typically much less than for a greenfield site. Refer to Table 2 for the Conceptual Cost of Centralized Treatment.

Table 2 - Conceptual Centralized Treatment Cost Estimates

Description	Oxidation Coagulation Filtration - Arsenic	Adsorption - Arsenic	Oxidation Filtration - Manganese	Aeration Filtration - Manganese	Adsorption - Manganese
Mob, site work, piping bldg subtotal	$249,434	$373,127	$379,194	$428,142	$343,874
Treatment equipment/mechanical subtotal	$1,295,984	$1,196,836	$1,275,249	$1,399,663	$976,618
Electrical and instumentation subtotal	$581,035	$692,152	$697,825	$783,493	$518,607
	$2,126,453	$2,262,115	$2,352,268	$2,611,298	$1,839,099
Insurance (2.5%)	$53,161	$55,536	$58,807	$65,282	$45,977
Bonds (2%)	$42,529	$44,429	$47,045	$52,226	$36,782
Overhead and Profit (10%)	$212,645	$222,145	$235,227	$261,130	$183,910
Engineering (10%)	$212,645	$222,145	$235,227	$261,130	$183,910
Total	$2,647,434	$2,806,370	$2,928,573	$3,251,066	$2,289,678
Contingency (30%)	$794,230	$841,911	$878,572	$975,320	$686,904
Total	$3,441,665	$3,648,281	$3,807,145	$4,226,386	$2,976,582
1. Estimate accuracy: -30% to + 50%					

The exception for these centralized treatment costs involves those sites where flow can be conveyed to the Railroad Water Treatment Plant (WTP). The Railroad WTP has capacity to take the additional raw water and treat it for manganese removal without the need for adding treatment equipment. The cost addition for these sites will be for the construction of a pipeline to the Railroad WTP.

Raw Water Conveyance Pipeline

In order to treat the water from the new well site, either there will be wellhead treatment onsite or the water will be pumped to a centralized treatment site. The sites to be considered include the Masonic Lodge Site, Aster Crest Site, and the Elk Grove Blvd Site. For the purpose of cost estimating, we have evaluated those costs based on a 14-inch diameter pipeline. The diameter of pipeline and type of materials are based on conversations with EGWD and should be further evaluated prior to design. The cost of ductile iron pipe (DIP) was estimated at $253/ft. and Polyvinyl Chloride Pipe (PVC) at $184/ft. reflective of inflationary conditions.

Planning Level Estimated Cost for Pipelines

Site 1 – Masonic Lodge
Raw water pipeline length = 2,300 feet (DIP = $581,900, PVC = $423,200)
Treatment water pipeline length = 400 feet (DIP = $101,200, PVC = $73,600)

Site 2 – Aster Crest
Raw water pipeline length = 11,000 feet (DIP = $2,783,000, PVC = $2,024,000)
Treated water pipeline length = 700 feet (DIP = $177,100, PVC = $128,800)

Site 3 – Elk Grove Blvd
Raw water pipeline length = 120 feet (DIP = $30,360, PVC = $22,080)
Treated water pipeline length = 120 feet (DIP = $30,360, PVC = $22,080)

EGWD Source Capacity Update - May 2022

Source	Current Production Capacity (gpm)	
Well 1D	1,700	
Well 4D	1,700	
Well 8	475	
Well 9	475	
Well 11D	1,700	
Well 13	950	
Well 14D	1,500	
Total	**8,500**	Source capacity total
	3,600	SCWA emergency source connections
	12,100	Source capacity total with SCWA emergency source

Scenario A (realistic - based on Conservation a Way of Calif. Life)

Max. Day Demand		Notes
6,526,607	gals.	Highest MDD since 2013 (historic drought and the beginning of water conservation a way of Calif. life)
4532	gpm	Source capacity of 8,500 gpm > MDD (okay)
Peak Hour Demand		Must sustain for 4 hours w/source capacity, storage, and emergency source connections
9,789,911	gals.	Peaking factor = 1.5, MDD x 1.5 (PHD for 24-hr day)
6,799	gpm	PHD expressed in gpm
1,631,652	gals.	PHD for 4 hours.
2,040,000	gals.	Source capacity for 4 hours > PHD for 4 hours (okay)
3,782,700	gals.	[1]Source capacity for 4 hours plus storage capacity
4,646,700	gals.	Source capacity for 4 hours + storage + SCWA emergency source

Scenario B (based on Calif. Water Works Standards)

Max. Day Demand		Notes
9,140,081	gals.	Highest MDD over past 10 years occurred in Aug. 2012
6347	gpm	Source capacity of 8,500 gpm > MDD (okay)
Peak Hour Demand		Must sustain for 4 hours w/source capacity, storage, and emergency source connections
13,710,122	gals.	Peaking factor = 1.5, MDD x 1.5
9,521	gpm	PHD express in gpm
2,285,020	gals.	PHD for 4 hours.
2,040,000	gals.	Source capacity for 4 hours
3,782,700	gals.	[1]Source capacity for 4 hours plus storage capacity > PHD for 4 hours (okay)
4,646,700	gals.	Source capacity for 4 hours + storage + SCWA emergency source

Footnotes:

1 Storage capacity equals 871,350 gals. x 2 tanks = 1,742,700 gals. per attached Exhibit "2 MG Storage Tank Allocations"

Scenario A
Highest Max. Day Demand (MDD)
Since 2013 (historic drought, beginning of Cons. a Calif. Way of Life

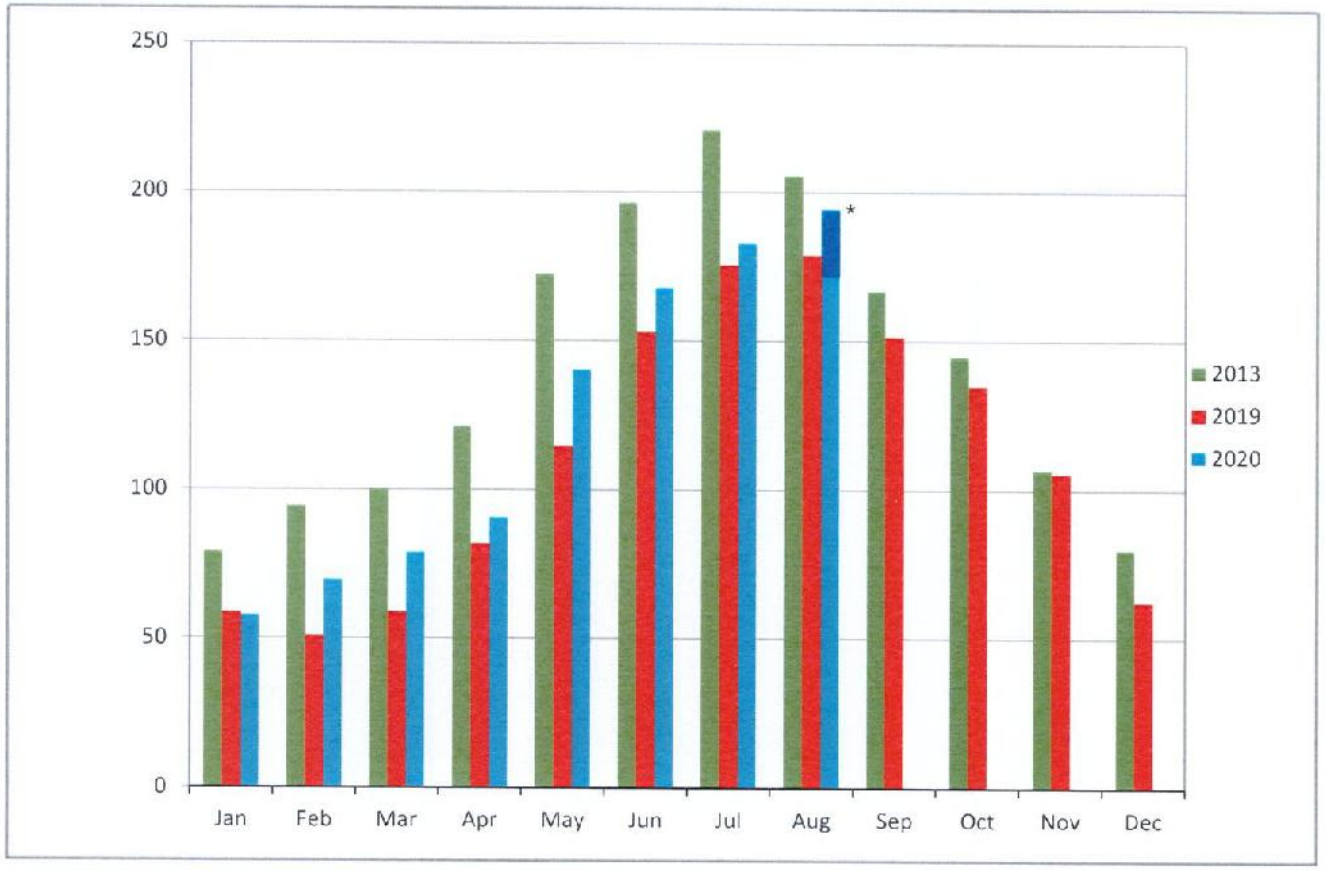
Elk Grove Water District

Combined Total Production

Service Area 1

* An additional 18 million gallons of water was purchased from Sacramento County Water Agency as a result of the emergency repair of the 36" transmission main

Aug-2020



Current Month Production:
171,801,764 Gallons
(189,801,764 Gallons)*

Highest Day Demand of the Month:	Date of Occurance
6,526,607	18-Aug-20

Highest Day Demand of the Calender Year:	Date of Occurance
6,526,607	18-Aug-20

"Water Year" Rainfall: (Oct-19 to Sep-20)

Current Month:	0.02 in
Year To Date:	9.73 in

"Water Year" Rainfall: (Oct-18 to Sep-19)

August 2019	0.00 in
Year To Date:	24.25 in
Last Year Total:	24.37 in

Temperature:

This Month High	112 F
This Month Low	56 F
This Month Average	79.55 F
AUG-19 High	105 F
AUG-19 Low	56 F
AUG-19 Average	77.9 F

Scenario B

Highest MDD over past 10 years

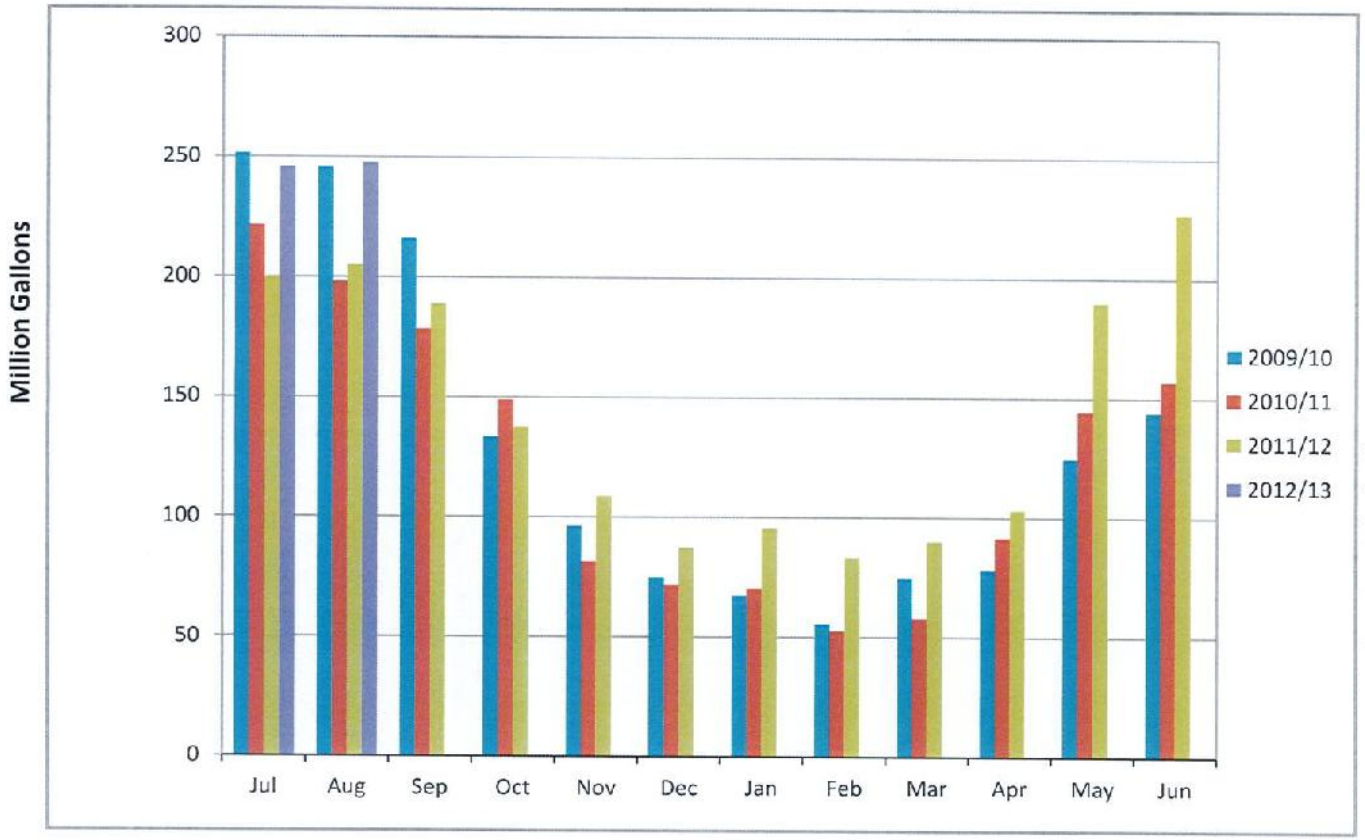
Elk Grove Water District

Combined Total Production

Aug-2012

Current Month Production:
247,678,516 Gallons

Highest Day Demand:	**Date of Occurance**
9,140,081	13-Aug-12

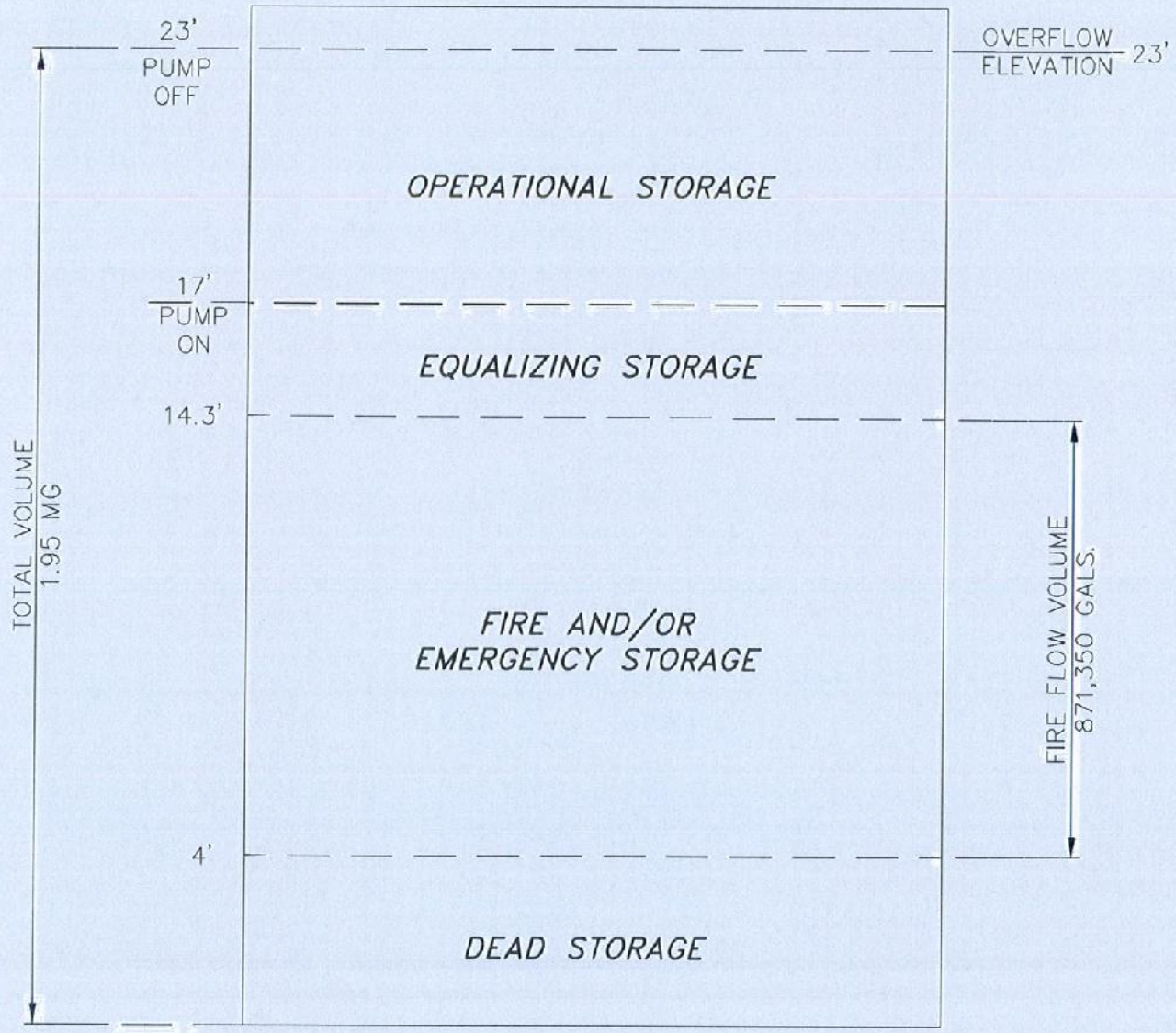


Rainfall: (Oct to Oct)

Current Month:	0.00 in
YTD:	14.77 in
Last Year (Month)	0.00 in
Last Year (Total)	21.44 in

Temperature:

This Month High	105 F
This Month Low	54 F
Last Year High	97 F
Last Year Low	55 F



FIRE FLOW REQUIREMENT: 3,500 GPM FOR 3 HRS (PER COSUMNES F.D. & AWWA MANUAL M31)

DEDICATED FIRE FLOW VOLUME: 871,350 GALS X 2 TANKS = 1,742,700 GALS

AVAILABLE FIRE FLOW: 1,742,700 GALS/3500 GPM = 498 MINUTES (8.3 HOURS)

Elk Grove Water District

A DEPARTMENT OF THE
Florin Resource Conservation District

EXHIBIT
ELK GROVE WATER DISTRICT
2MG STORAGE TANK ALLOCATIONS

SHEET 1 OF 1 JULY 20, 2012

C:\Users\bkamilos\Desktop\Bruce's Documents\Storage Tank Justification\Storage Tank Figure

Extract from. Chap. 16 - Calif. Waterworks Standards

adequate to do so, such as, but not limited to, well pump tests, the capacities of all pumping facilities, and the hydraulic capacity of surface water treatment facilities,

(A) If the system plans to use surface water, the system shall demonstrate that it holds a valid water right to that amount of water including any allowable reductions or limitations on its availability, as stated in the water rights contract;

(B) If groundwater is to be used, the system shall demonstrate that the groundwater aquifer is sufficient, or in the case of adjudicated groundwater basins, that approval has been obtained to allow that amount of sustained withdrawal including any allowable reductions or limitations on its availability, as stated in the water rights contract;

(C) If purchased water is to be used, the system shall provide contracted amount and the hydraulic capacity at each turnout and any allowable reductions or limitations on its availability, as stated in the purchased water contract; and

(7) Information that demonstrates how the system proposes to reliably meet four hours of PHD using, but not limited to, available source capacity and distribution reservoirs.

(b) The information in subsection (a) shall be prepared by a professional civil engineer registered in the State of California with experience in water supply engineering.

§64554. New and Existing Source Capacity.

(a) At all times, a public water system's water source(s) shall have the capacity to meet the system's maximum day demand (MDD). MDD shall be determined pursuant to subsection (b).

(1) For systems with 1,000 or more service connections, the system shall be able to meet four hours of peak hourly demand (PHD) with source capacity, storage capacity, and/or emergency source connections.

(2) For systems with less than 1,000 service connections, the system shall have storage capacity equal to or greater than MDD, unless the system can demonstrate that it has an additional source of supply or has an emergency source connection that can meet the MDD requirement.

(3) Both the MDD and PHD requirements shall be met in the system as a whole and in each individual pressure zone.

(b) A system shall estimate MDD and PHD for the water system as a whole (total source capacity and number of service connections) and for each pressure zone within the system (total water supply available from the water sources and interzonal transfers directly supplying the zone and number of service connections within the zone), as follows:

(1) If daily water usage data are available, identify the day with the highest usage during the past ten years to obtain MDD; determine the average hourly flow during MDD and multiply by a peaking factor of at least 1.5 to obtain the PHD.

(2) If no daily water usage data are available and monthly water usage data are available:

(A) Identify the month with the highest water usage (maximum month) during at least the most recent ten years of operation or, if the system has been operating for less than ten years, during its period of operation;

(B) To calculate average daily usage during maximum month, divide the total water usage during the maximum month by the number of days in that month; and

(C) To calculate the MDD, multiply the average daily usage by a peaking factor that is a minimum of 1.5; and

(D) To calculate the PHD, determine the average hourly flow during MDD and multiply by a peaking factor that is a minimum of 1.5.

(3) If only annual water usage data are available:

(A) Identify the year with the highest water usage during at least the most recent ten years of operation or, if the system has been operating for less than ten years, during its years of operation;

(B) To calculate the average daily use, divide the total annual water usage for the year with the highest use by 365 days; and

(C) To calculate the MDD, multiply the average daily usage by a peaking factor of 2.25.

(D) To calculate the PHD, determine the average hourly flow during MDD and multiply by a peaking factor that is a minimum of 1.5.

(4) If no water usage data are available, utilize records from a system that is similar in size, elevation, climate, demography, residential property size, and metering to determine the average water usage per service connection. From the average water usage per service connection, calculate the average daily demand and follow the steps in paragraph (3) to calculate the MDD and PHD.

(c) Community water systems using only groundwater shall have a minimum of two approved sources before being granted an initial permit. The system shall be capable of meeting MDD with the highest-capacity source off line.

(d) A public water system shall determine the total capacity of its groundwater sources by summing the capacity of its individual active sources. If a source is influenced by concurrent operation of another source, the total capacity shall be reduced to account for such influence. Where the capacity of a source varies seasonally, it shall be determined at the time of MDD.

(e) The capacity of a well shall be determined from pumping data existing prior to March 9, 2008, or in accordance with subsection (f) or (g). Prior to conducting a well capacity test pursuant to subsection (g), a system shall submit the information listed below to the State Board for review and approval. For well capacity tests conducted pursuant to subsection (f), the information shall be submitted to the State Board if requested by the State Board.

September 20, 2022

TO: Chair and Directors of the Florin Resource Conservation District

FROM: Bruce Kamilos, General Manager

SUBJECT: **GENERAL MANAGER'S REPORT**

RECOMMENDATION

This item is presented to the Florin Resource Conservation District Board of Directors for information, discussion, and in some instances, to provide direction to staff.

SUMMARY

The General Manager's Report is a standing item on the regular board meeting agenda. The report is intended to inform the Florin Resource Conservation District/Elk Grove Water District (District) Board of Directors (Board) of notable, miscellaneous items the General Manager would like to share with the Board. The report also provides an opportunity for the Board to discuss the items, and in some instances provide direction to staff.

DISCUSSION

Background

Each month, the General Manager provides a report to the Board of any notable, miscellaneous items.

Present Situation

- Administration Building Tenant Improvements Project Update – Staff will provide an update of the Administration Building Tenant Improvements Project.

- County Election Notification – On August 24, 2022, Board Secretary Stefani Phillips received notification from the County Election Supervisor that the total number of candidates for the FRCD Board equaled the number of positions to be filled. Therefore, the candidates will be appointed in lieu of an election and will not appear on the General Election ballot. As a result, the District will save $250,000 in election costs.

- Water Loss Update – The California Water Code requires the State Water Board to develop water loss performance standards for urban retail water suppliers. Water loss targets are derived from a model and standards must be met by January 1, 2028. Based on the latest water loss model, the District will not need to reduce its water loss number as it already meets the standard.

- Groundwater Recharge Pilot Project – Staff will provide an update on the proposed groundwater recharge pilot project.

ENVIRONMENTAL CONSIDERATIONS

There are no direct environmental considerations associated with this report.

STRATEGIC PLAN CONFORMITY

This item conforms to the FRCD/EGWD 2020-2025 Strategic Plan. Due to the varied subject matters presented in the General Manager's Report, the report over time will likely touch on every strategic goal contained in the plan.

FINANCIAL SUMMARY

There is no financial impact associated with this report.

Respectfully submitted,

BRUCE KAMILOS
GENERAL MANAGER

September 20, 2022

TO: Chair and Directors of the Florin Resource Conservation District

FROM: Bruce Kamilos, General Manager

SUBJECT: **ELK GROVE WATER DISTRICT OPERATIONS REPORT – AUGUST 2022**

RECOMMENDATION

This item is presented for information only. No action by the Florin Resource Conservation District Board of Directors is proposed at this time.

SUMMARY

The Elk Grove Water District (EGWD) Operations Report is a standing item on the regular board meeting agenda.

All regulatory requirements were met for the month of August. Other notable events are described below.

DISCUSSION

Background

Every month, staff presents an update of the activities related to the operations of the EGWD. Included for the Florin Resource Conservation District Board of Director's review is the EGWD's August 2022 Operations Report.

Present Situation

The EGWD August 2022 Operations Report highlights are as follows:

- **Operations Activities Summary –** 394 door hangers were placed for past due balances, which resulted in 62 shut offs. We received one (1) water pressure complaint and zero water quality complaints. The one (1) complaint was unsubstantiated.

- **Production –** The Combined Total Service Area 1 production graph on page 13 shows that production during the month of August decreased 5.44 percent compared to August 2021 and is 13.32 percent less than what was produced in 2020. Year 2020 is the new baseline year the State Water Resources Control Board adopted for water usage. The Total Demand/Production for both service

areas on page 14 shows that customer use during the month of August compared to 2020 was down by 12.81 percent.

- **Static and Pumping Level Graphs –** The third quarter soundings are shown and indicate that the static water levels are stable compared to the third quarter of 2021.

- **Treatment (Compliance Reporting) –** All samples taken during the month comply with all regulatory permit requirements. No exceedances of any maximum contaminant levels were found, and all water supplied to EGWD's customers met or exceeded safe drinking water standards.

- **Corrective Maintenance Program –** The tables included in this section of the report also include certain activities completed to date. Below is a list of out-of-ordinary maintenance work completed in August:

    - Staff installed a new discharge pressure transducer on VFD/booster #6 after the existing unit failed.

- **Safety Meetings/Training –** Three (3) safety training sessions were conducted for the month which is compliant with OSHA standards.

- **Service and Main Leaks Map –** There were four (4) service line leaks and no main line leaks during August.

- **System Pressures –** Pressures in Service Area 1 generally remained stable during the month of August. Pressures in Service Area 2, which are controlled by Sacramento County Water Agency, were also stable as compared to the previous month.

ENVIRONMENTAL CONSIDERATIONS

There are no direct environmental considerations associated with this report.

STRATEGIC PLAN CONFORMITY

This item conforms to the FRCD/EGWD 2020-2025 Strategic Plan. The EGWD Operations Report provides an ongoing review of EGWD's operations, and therefore, conforms with Strategic Goal No. 1, Governance and Customer Engagement.

FINANCIAL SUMMARY

There is no financial impact associated with this report.

Respectfully submitted,

BRUCE KAMILOS
GENERAL MANAGER

BMK/ac

Attachment

EGWD

OPERATIONS REPORT

August 2022

Elk Grove Water District

Elk Grove Water District
A DEPARTMENT OF THE
Florin Resource Conservation District

Elk Grove Water District
Operations Report
Table of Contents

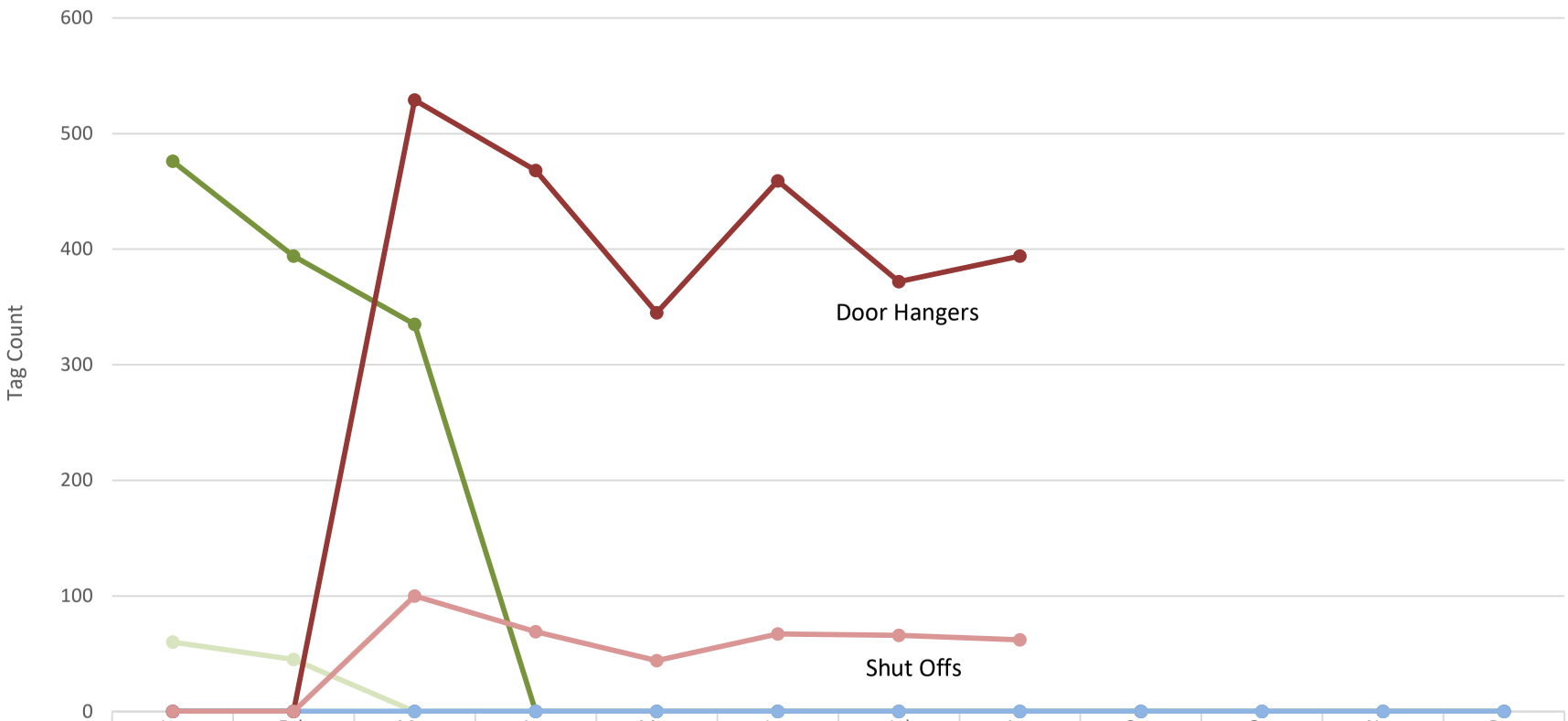
Operations Activities Summary

Service Requests:	August -22		YTD (Since Jan. 1, 2022)	
Department	Service Request	Hours	Service Request	Hours
Distribution				
Door Hangers	394	12	2,567	104.6
Shut offs	62	12	408	85.25
Turn ons	55	12	373	88
Investigations	65	16.25	350	87.5
USA Locates	601	150.25	3,439	859.75
Customer Complaints				
-Pressure	1	0.5	9	4.5
-Water Quality	0	0	6	3
-Other	0	0	0	0

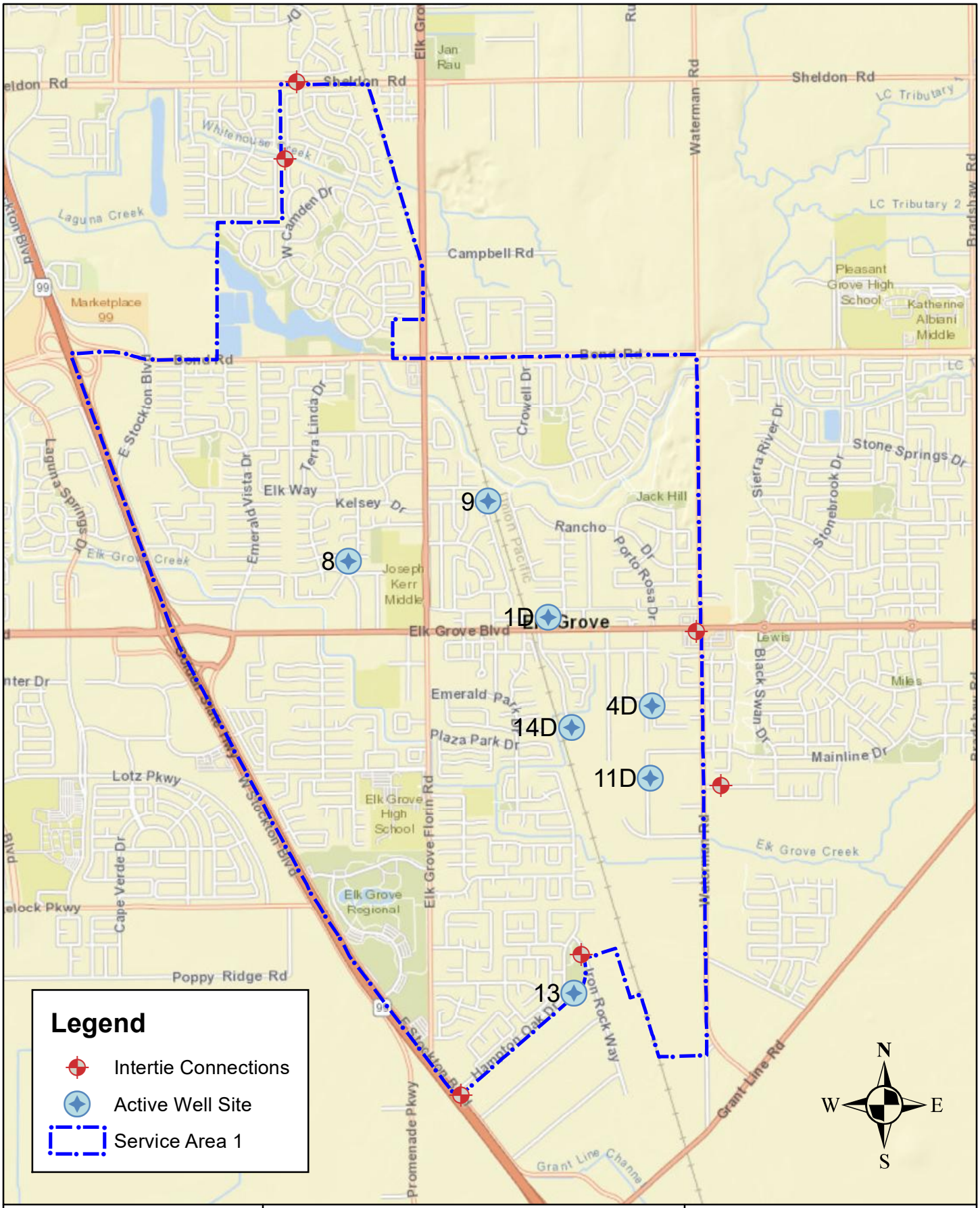
Work Orders:	August -22		YTD (Since Jan. 1, 2022)	
Department	Work Orders	Hours	Work Orders	Hours
Treatment:				
Preventative Maint.	23	37	129	425
Corrective Maint.	9	26.5	41	394.5
Water Samples	18	79	134	413.5
Distribution:				
Meters Installed	2	2	14	6.3
Meter Change Out	35	21	186	99.25
Preventative Maint.				
-Hydrant Maintenance (45)	48	10	279	53
-Valve Exercising (127)	111	22.25	713	140.5
-Other	0	0	0	0
Corrective Maint.				
-Leaks	4	40.5	43	574.2
-Other	21	16.25	130	416.5
Valve Locates	0	0	0	0
Utility:				
Corrective Maint.	0	0	0	0

Elk Grove Water District

Door Hangers and Shut Off Tags

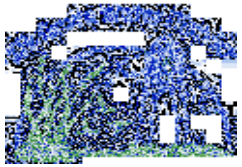


	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2020 Door Hangers	476	394	335	0	0	0	0	0	0	0	0	0
2020 Shut Offs	60	45	0	0	0	0	0	0	0	0	0	0
2021 Door Hangers	0	0	0	0	0	0	0	0	0	0	0	0
2021 Shut Offs	0	0	0	0	0	0	0	0	0	0	0	0
2022 Door Hangers	0	0	529	468	345	459	372	394				
2022 Shut Offs	0	0	100	69	44	67	66	62				



Active Well Sites & Intertie Connections

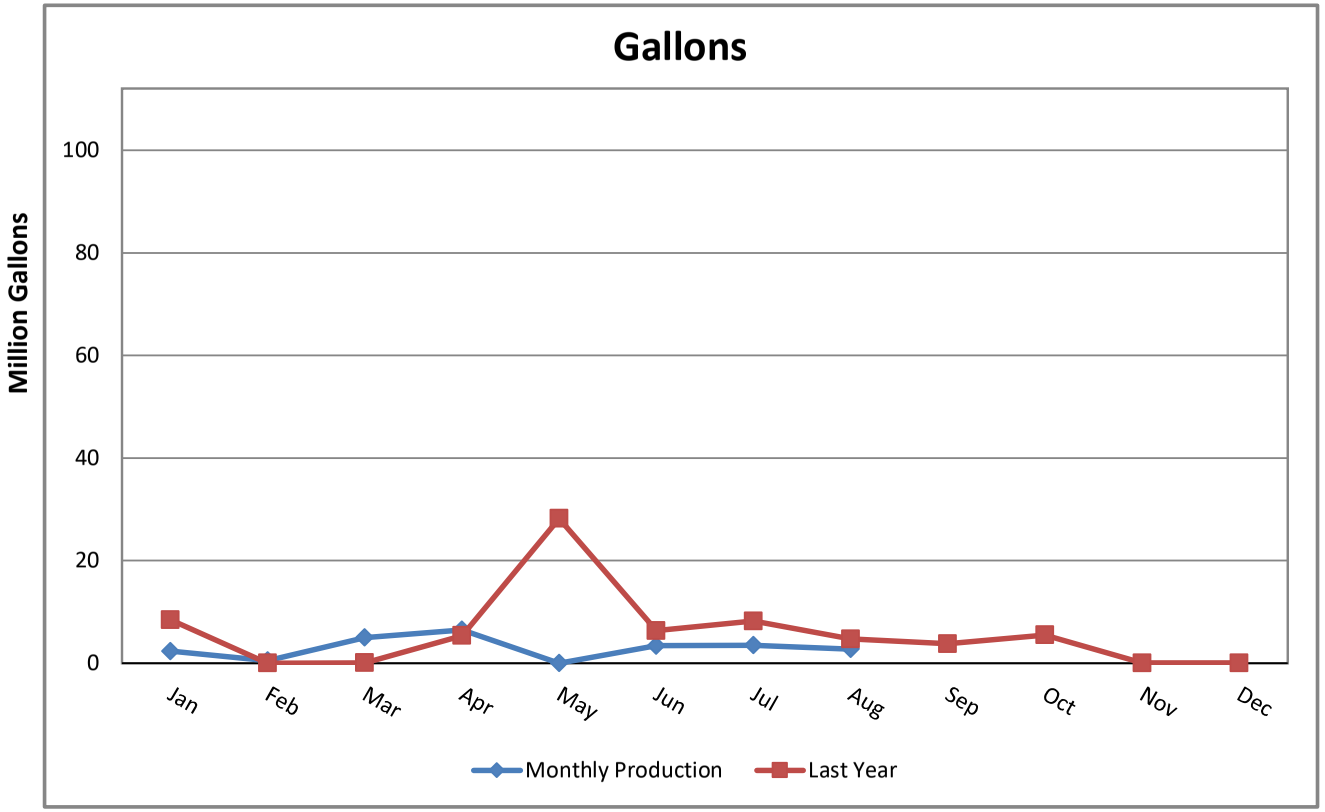
Elk Grove Water District



Elk Grove Water District

Monthly Production

Well 1D School -- August 2022



Selected Month Production
2,776,207 Gallons

Average GPM:	1,682
Pump depth:	275 ft
Well depth:	1025 ft

Motor:

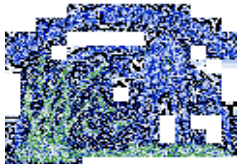
Volts:	466
Volts (Rated):	460
RPM:	1788
RPM (Rated):	2115
Amps A:	180
Amps A (Rated):	222
Amps B:	179
Amps B (Rated):	222
Amps C:	172
Amps C (Rated):	222
Motor Temp:	122.9 F
Hour Meter:	27.50
KW Hour Total:	4,240

Chlorine:

Dosing:	1.68 mg/L
Demand:	0.70 mg/L
Residual:	0.98 mg/L

Vibration Reading:

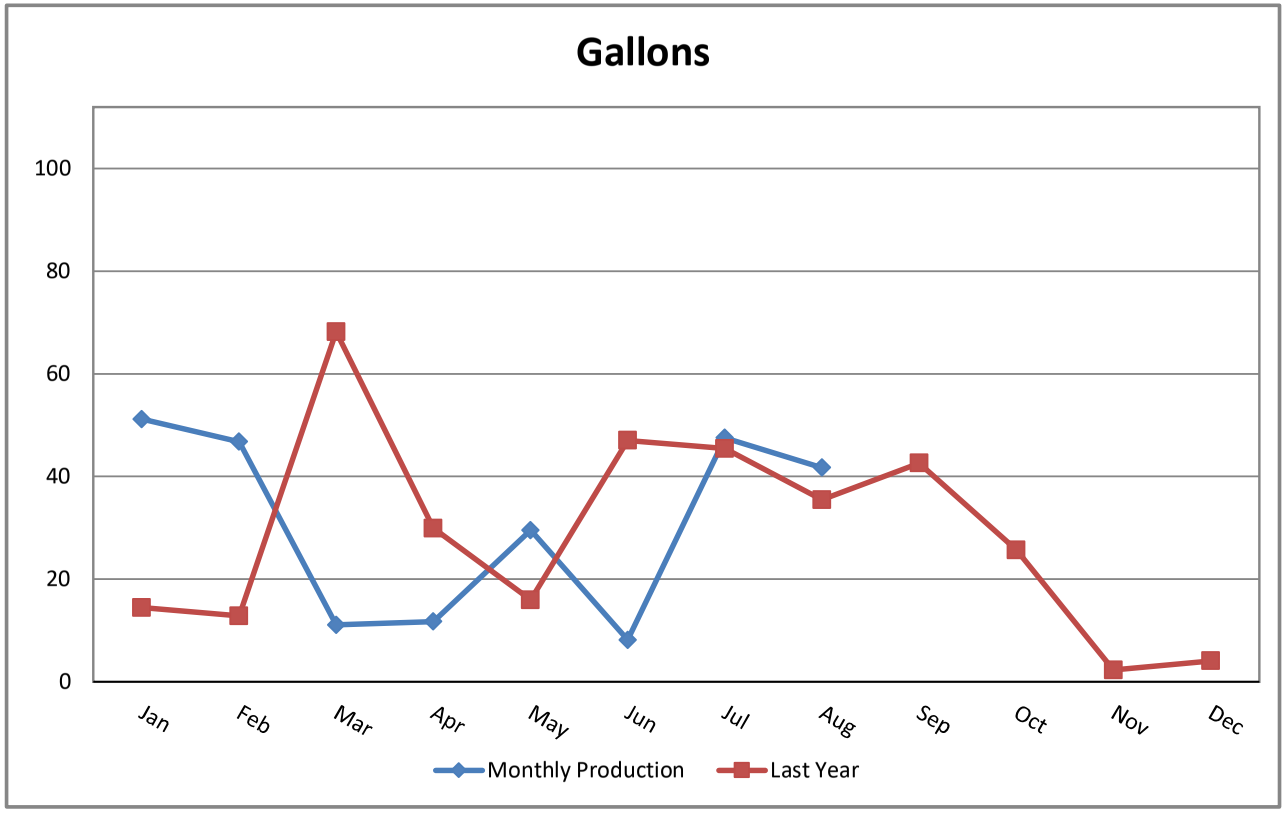
Base Line:	0.05 in/sec
Current:	0.03 in/sec



Elk Grove Water District

Monthly Production

Well 4D Webb -- August 2022



Selected Month Production
41,702,569 Gallons

Average GPM:	1732
Pump depth:	340 ft
Well depth:	1075 ft

Motor:

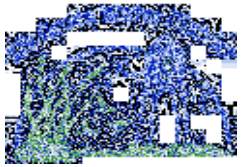
Volts:	477
Volts (Rated):	460
RPM:	1698
RPM (Rated):	1775
Amps A:	209
Amps A (Rated):	225
Amps B:	207
Amps B (Rated):	225
Amps C:	207
Amps C (Rated):	225
Motor Temp:	167.3 F
Hour Meter:	401.20
KW Hour Total:	62,160

Chlorine:

Dosing:	1.64 mg/L
Demand:	0.63 mg/L
Residual:	1.01 mg/L

Vibration Reading:

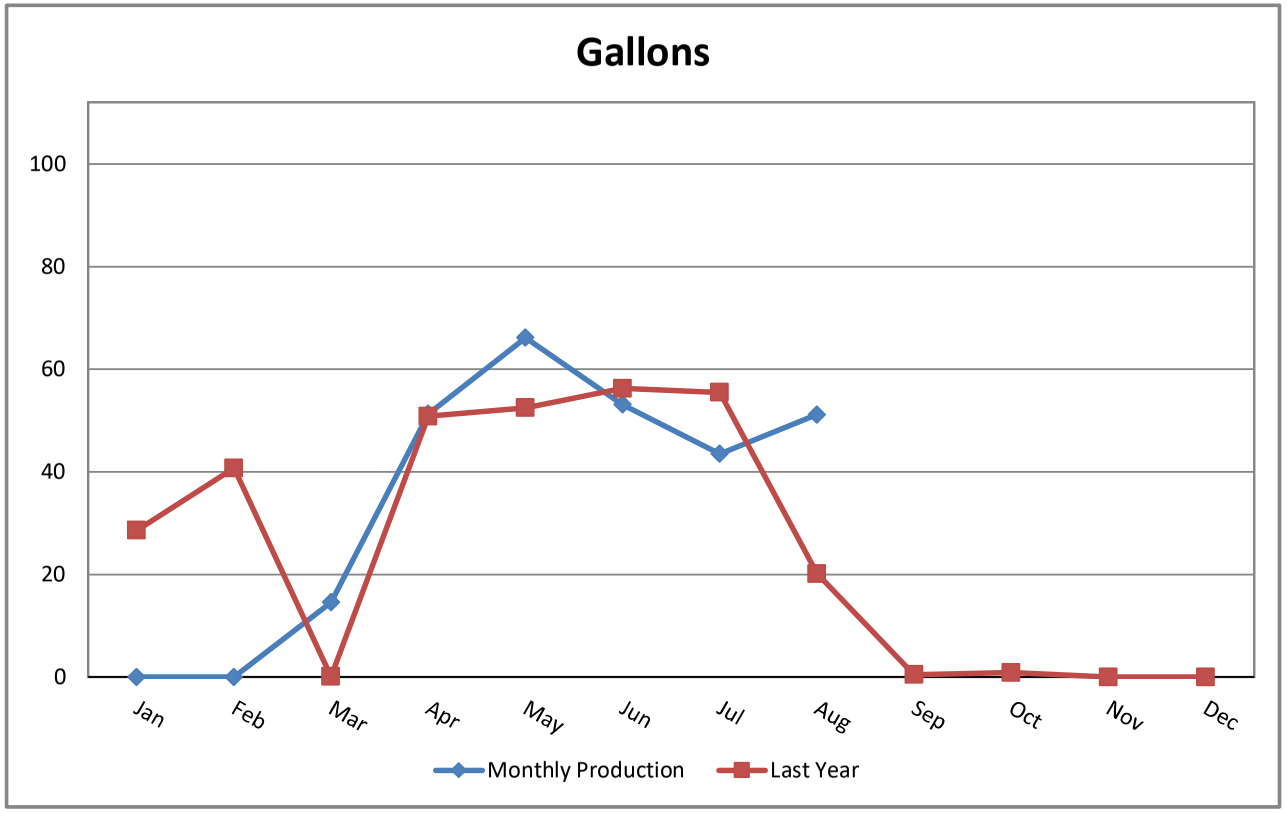
Base Line:	0.05 in/sec
Current:	0.01 in/sec



Elk Grove Water District

Monthly Production

Well 11D Dino -- August 2022



Selected Month Production
51,139,261 Gallons

Average GPM:	1736
Pump depth:	340 ft
Well depth:	1038 ft

Motor:

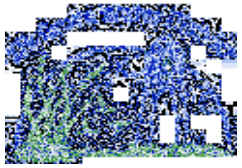
Volts:	478
Volts (Rated):	460
RPM:	1657
RPM (Rated):	1775
Amps A:	204
Amps A (Rated):	225
Amps B:	198
Amps B (Rated):	225
Amps C:	192
Amps C (Rated):	225
Motor Temp:	152.2 F
Hour Meter:	490.70
KW Hour Total:	72,180

Chlorine:

Dosing:	1.64 mg/L
Demand:	0.71 mg/L
Residual:	0.93 mg/L

Vibration Reading:

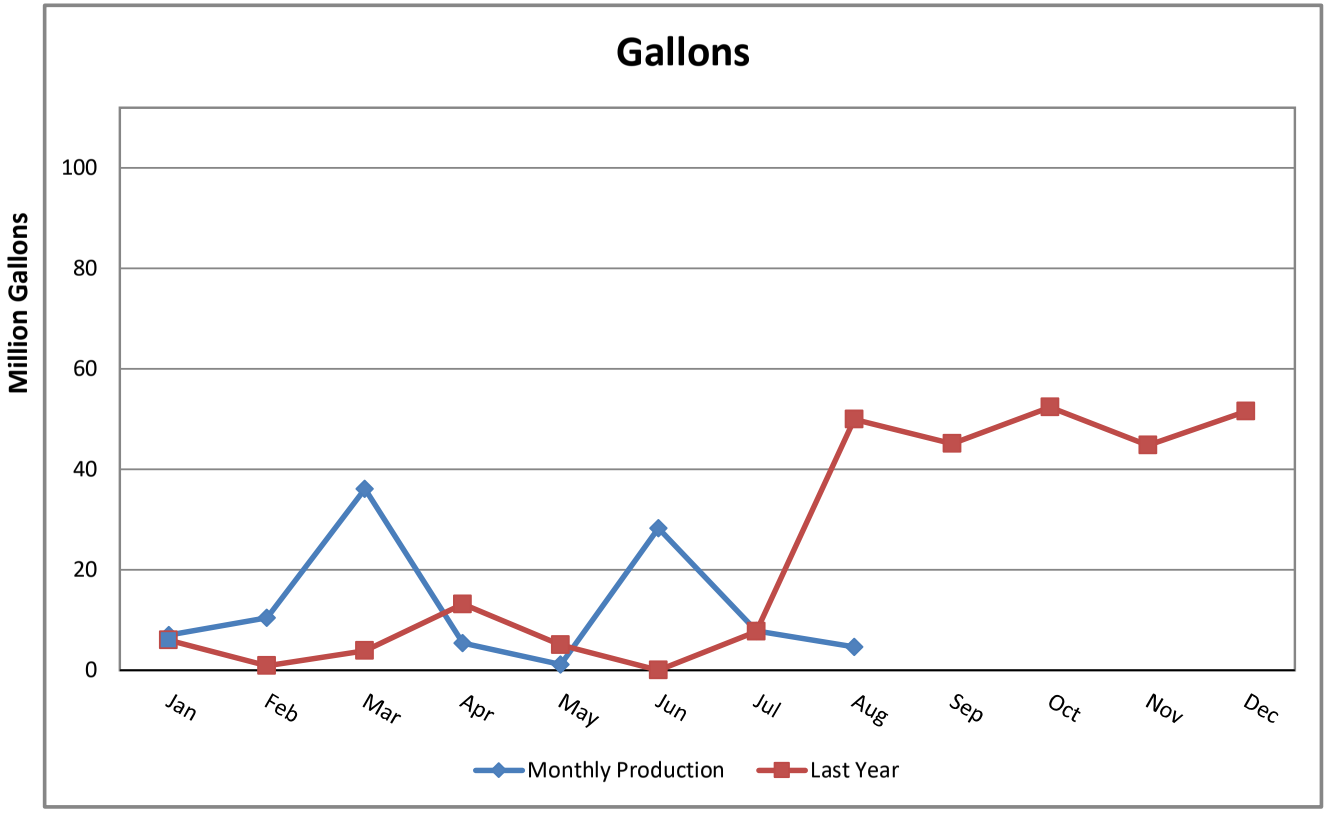
Base Line:	0.05 in/sec
Current:	0.01 in/sec



Elk Grove Water District

Monthly Production

Well 14D Railroad -- August 2022



Selected Month Production
4,603,141 Gallons

Average GPM:	1389
Pump depth:	340 ft
Well depth:	1051 ft

Motor:

Volts:	478
Volts (Rated):	460
RPM:	1783
RPM (Rated):	1785
Amps A:	163
Amps A (Rated):	171
Amps B:	162
Amps B (Rated):	171
Amps C:	161
Amps C (Rated):	171

Motor Temp.:	130.6 F
Hour Meter:	55.20
KW Hour Total:	80,320

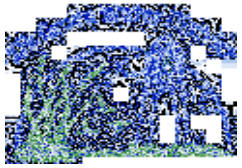
(KWH total is for the entire facility)

Chlorine:

Dosing:	1.93 mg/L
Demand:	0.95 mg/L
Residual:	0.98 mg/L

Vibration Reading:

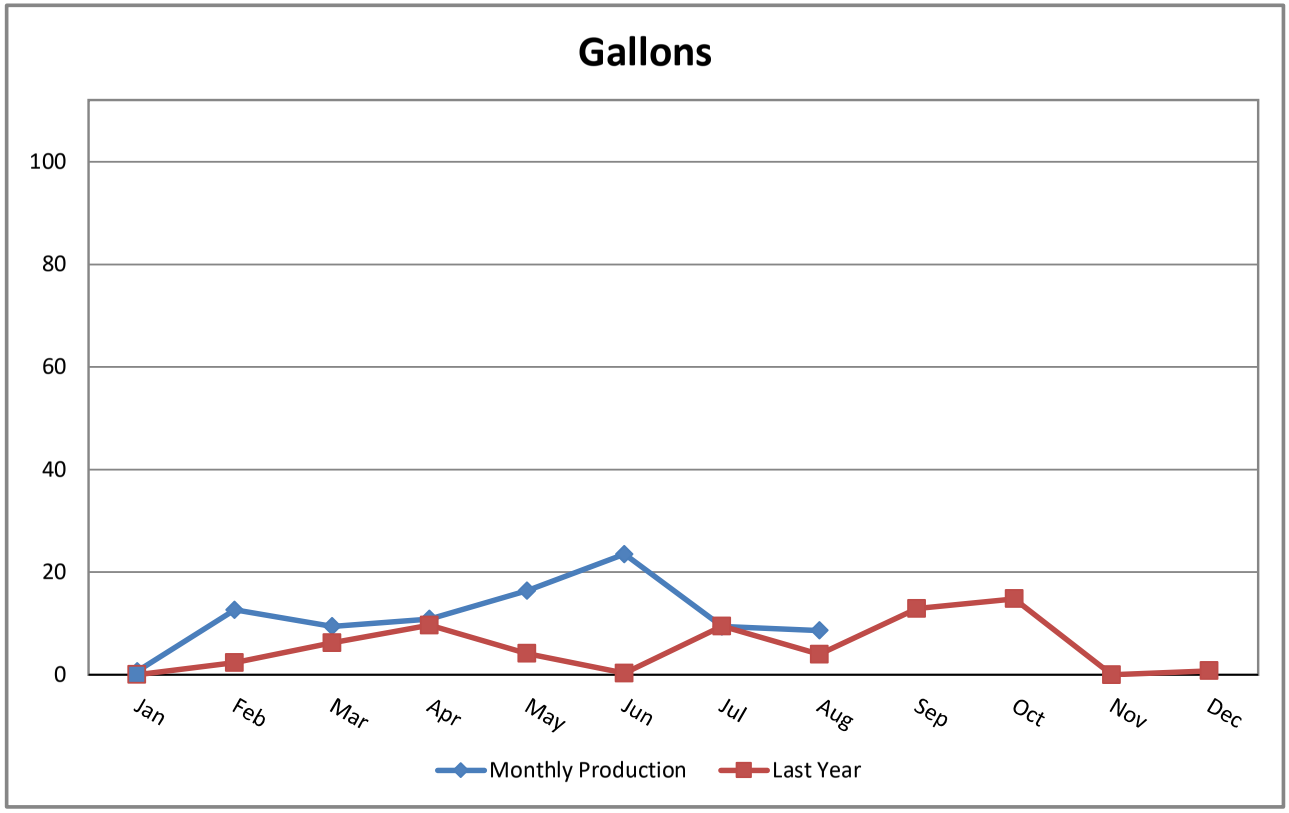
Base Line:	0.02 in/sec
Current:	0.01 in/sec



Elk Grove Water District

Monthly Production

Well 8 Williamson -- August 2022
(Submersible)



Selected Month Production
8,641,869 Gallons

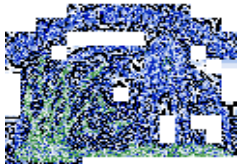
Average GPM:	543
Pump depth:	150 ft
Well depth:	564 ft

Motor:

Volts:	461
Volts (Rated):	460
Amps A:	61
Amps A (Rated):	65
Amps B:	59
Amps B (Rated):	65
Amps C:	58
Amps C (Rated):	65
Hour Meter:	264.80
KW Hour Total:	10,638

Chlorine:

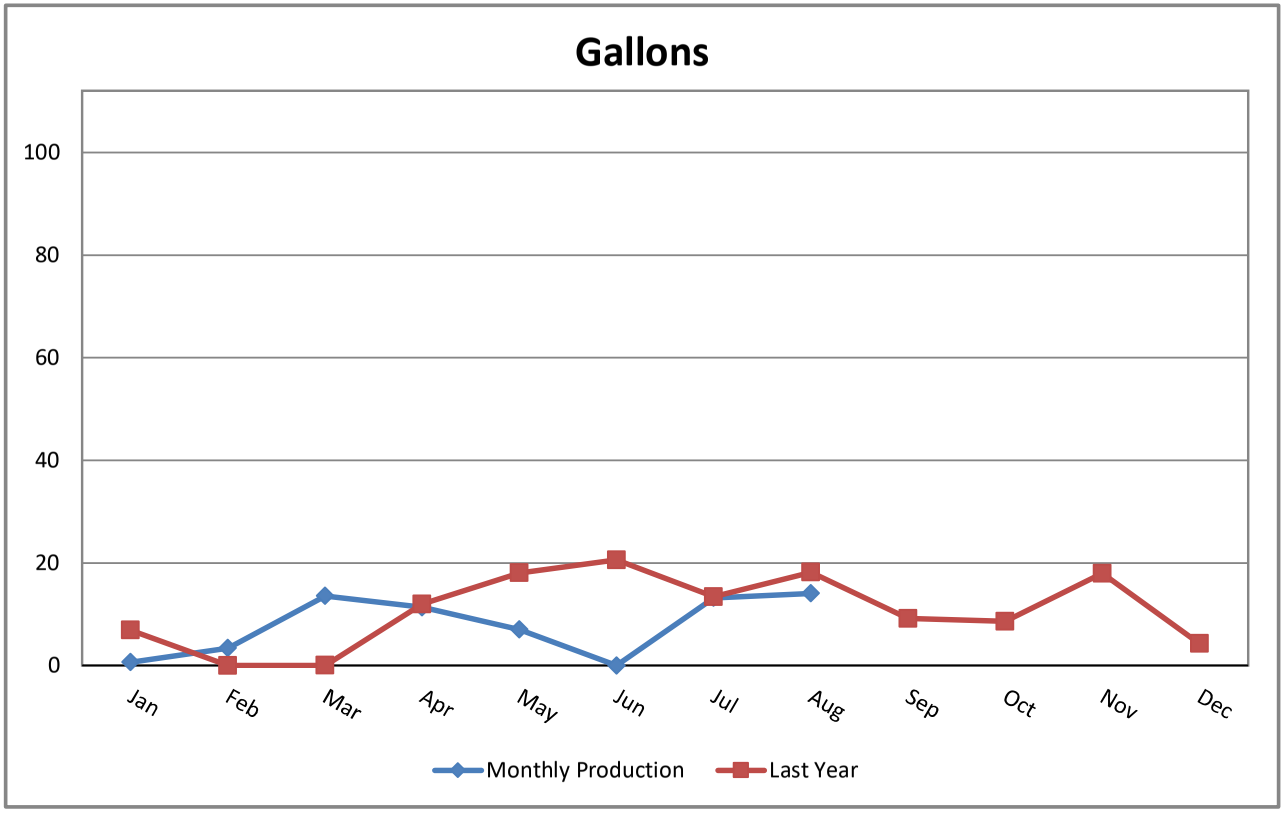
Dosing:	1.29 mg/L
Demand:	0.46 mg/L
Residual:	0.83 mg/L



Elk Grove Water District

Monthly Production

Well 9 Polhemus -- August 2022
(Submersible)



Selected Month Production
14,070,754 Gallons

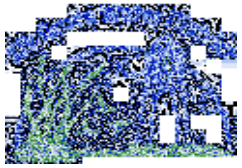
Average GPM:	494
Pump depth:	150 ft
Well depth:	556 ft

Motor:

Volts:	479
Volts (Rated):	460
Amps A:	58
Amps A (Rated):	65
Amps B:	58
Amps B (Rated):	65
Amps C:	60
Amps C (Rated):	65
Hour Meter:	474.30
KW Hour Total:	19,101

Chlorine:

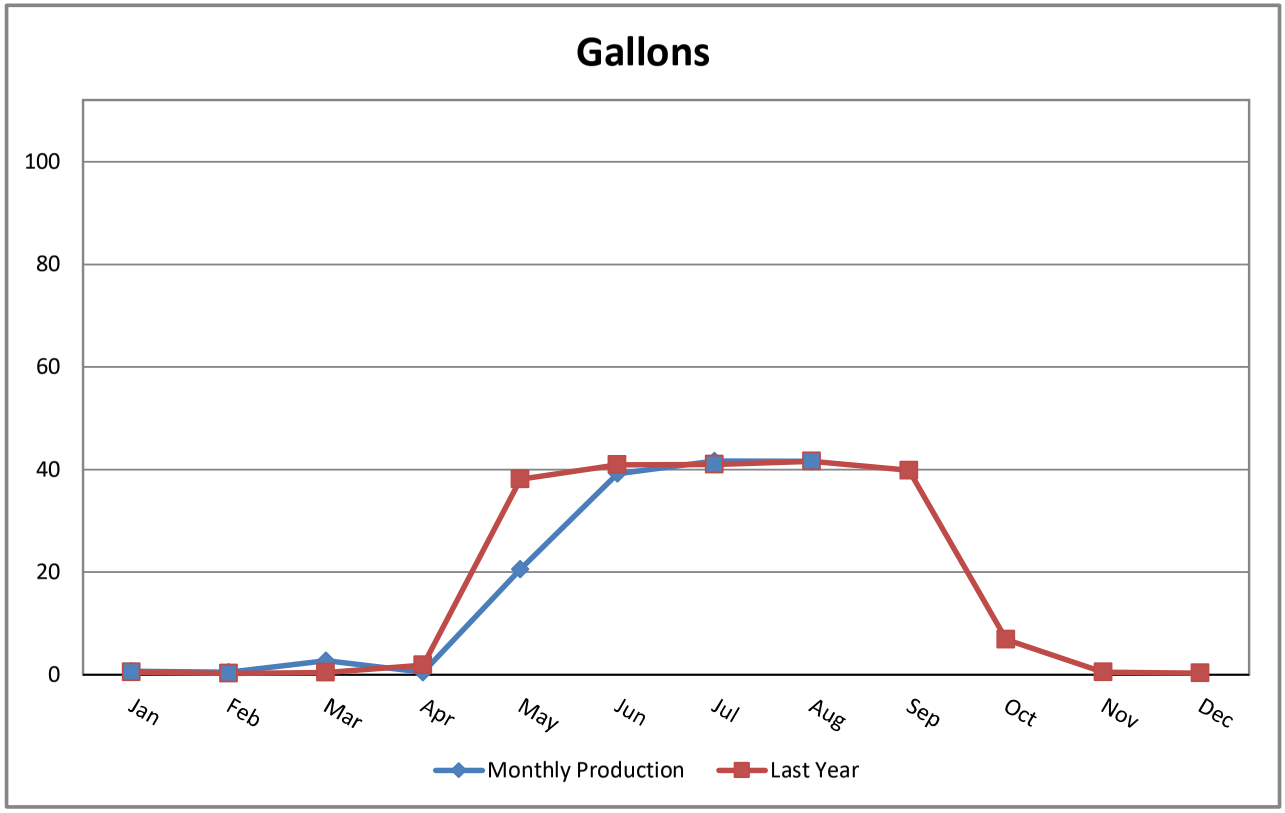
Dosing:	1.42 mg/L
Demand:	0.31 mg/L
Residual:	1.11 mg/L



Elk Grove Water District

Monthly Production

Well 13 Hampton -- August 2022



Selected Month Production
41,579,238 Gallons

Average GPM:	932
Pump depth:	200 ft
Well depth:	500 ft

Motor:

Volts:	474
Volts (Rated):	460
RPM:	1786
RPM (Rated):	1785
Amps A:	103
Amps A (Rated):	141
Amps B:	105
Amps B (Rated):	141
Amps C:	105
Amps C (Rated):	141
Motor Temp.:	174.7 F
Hour Meter:	743.5
KW Hour Total:	55,500

Chlorine:

Dosing:	1.29 mg/L
Demand:	0.41 mg/L
Residual:	0.88 mg/L

Vibration Reading:

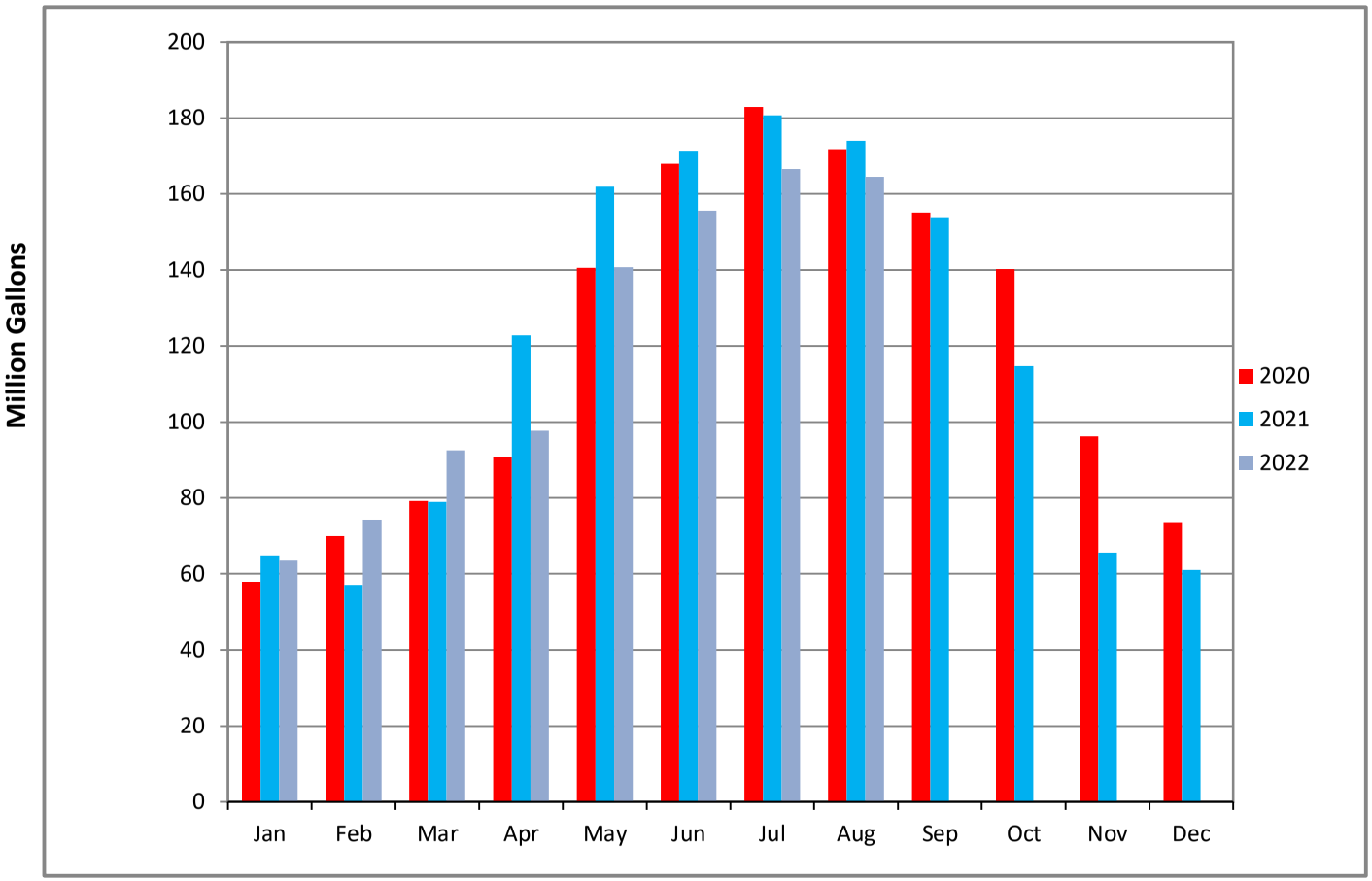
Base Line:	0.02 in/sec
Current:	0.02 in/sec

Elk Grove Water District

Combined Total Production

Service Area 1

Aug-2022



Current Month Production:
164,513,039 Gallons

Highest Day Demand of the Month:	Date of Occurance
5,859,955	16-Aug-22

Highest Day Demand of the Calender Year:	Date of Occurance
5,881,540	12-Jul-22

"Water Year" Rainfall: (Oct-21 to Sep-22)

Current Month:	0.00 in
Year To Date:	16.54 in

"Water Year" Rainfall: (Oct-20 to Sep-21)

August 2021	0.00 in
Year To Date:	6.56 in
Entire Year Total:	6.61 in

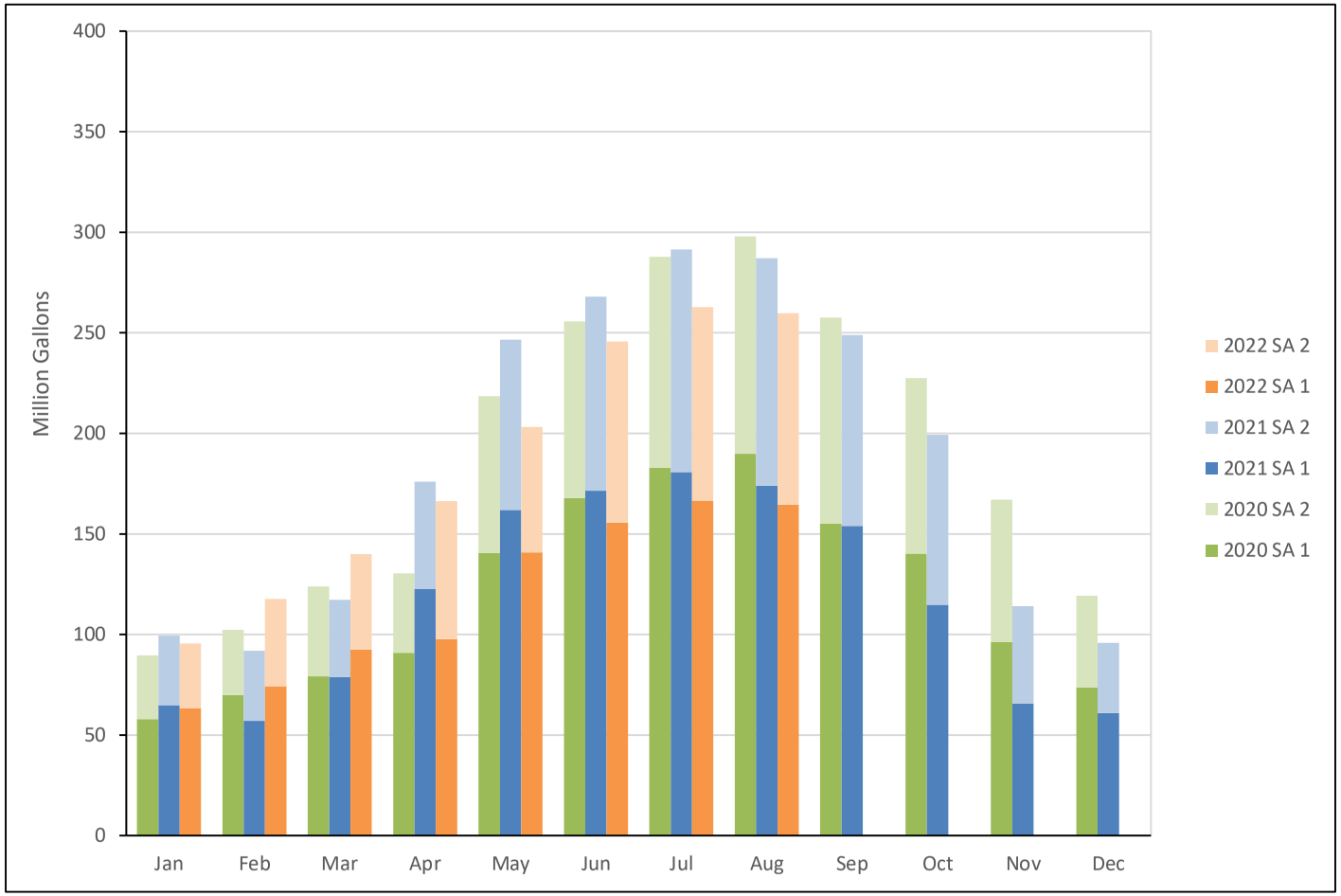
Temperature:

This Month High	106 F
This Month Low	59 F
This Month Average	78.75 F
AUG-21 High	101 F
AUG-21 Low	54 F
AUG-21 Average	75.65 F

Elk Grove Water District

Total Demand/Production

Aug-2022



Current Month Demand/Production:
244,395,536 Gallons
***Change From August 2020:** -12.81%
GPCD: 178.3 Gallons per Day
R-GPCD: 137.8 Gallons per Day

Service Area 1
Active Connections: 7,936
Current Month Demand/Production:
164,513,039 Gallons
***Change From August 2020:** -13.32%
GPCD: 184.7 Gallons per Day
R-GPCD: 144.2 Gallons per Day

Service Area 2
Active Connections: 4,912
Current Month Demand/Production:
95,299,688 Gallons
***Change From August 2020:** -11.90%
GPCD: 168.2 Gallons per Day
R-GPCD: 127.8 Gallons per Day

*Percent reduction has been changed to percent change. Negative change is reduction and positive change is increase.

Elk Grove Water District Water Usage

---------- Monthly Production (gallons) ----------

2020	January	February	March	April	May	June	July	August	September	October	November	December	Total
GW (SA1)	57,904,843	69,920,851	79,195,437	90,851,253	140,575,760	167,942,394	182,964,721	189,801,764*	155,126,225	140,229,242	96,201,714	73,624,502	1,444,338,706
Purchased (SA2)	31,743,624	32,416,076	44,764,808	39,523,572	77,964,788	87,759,848	104,799,288	108,177,256	102,434,860	87,187,628	70,876,740	45,577,136	833,225,624
Total	89,648,467	102,336,927	123,960,245	130,374,825	218,540,548	255,702,242	287,764,009	297,979,020	257,561,085	227,416,870	167,078,454	119,201,638	2,277,564,330

2021	January	February	March	April	May	June	July	August	September	October	November	December	Total
GW (SA1)	64,881,378	57,088,452	78,904,998	122,759,415	161,903,489	171,428,103	180,693,083	173,985,025	153,922,309	114,717,480	65,607,814	61,008,401	1,406,899,947
Purchased (SA2)	34,553,112	34,867,272	38,268,428	53,156,620	84,725,960	96,521,920	110,862,576	113,081,144	94,977,300	84,569,628	48,501,816	34,885,972	828,971,748
Total	99,434,490	91,955,724	117,173,426	175,916,035	246,629,449	267,950,023	291,555,659	287,066,169	248,899,609	199,287,108	114,109,630	95,894,373	2,235,871,695

2022	January	February	March	April	May	June	July	August	September	October	November	December	Total
GW (SA1)	63,469,715	74,242,203	92,483,924	97,643,001	140,747,995	155,597,114	166,596,675	164,513,039					955,293,666
Purchased (SA2)	32,115,380	43,369,788	47,452,372	68,588,608	62,494,652	90,110,812	96,146,424	95,299,688					535,577,724
Total	95,585,095	117,611,991	139,936,296	166,231,609	203,242,647	245,707,926	262,743,099	259,812,727	0	0	0	0	1,490,871,390

---------- Monthly Percent Change - Comparing 2020 to 2022 ----------

% Change	January	February	March	April	May	June	July	August	September	October	November	December	Total
GW (SA1)	9.61%	6.18%	16.78%	7.48%	0.12%	-7.35%	-8.95%	-13.32%	-	-	-	-	-
Purchased (SA2)	1.17%	33.79%	6.00%	73.54%	-19.84%	2.68%	-8.26%	-11.90%	-	-	-	-	-
Total	6.62%	14.93%	12.89%	27.50%	-7.00%	-3.91%	-8.69%	-12.81%	-	-	-	-	-
% Cumulative Change	6.62%	11.05%	11.77%	16.37%	8.69%	5.19%	1.88%	-1.02%	-	-	-	-	-

*Notes

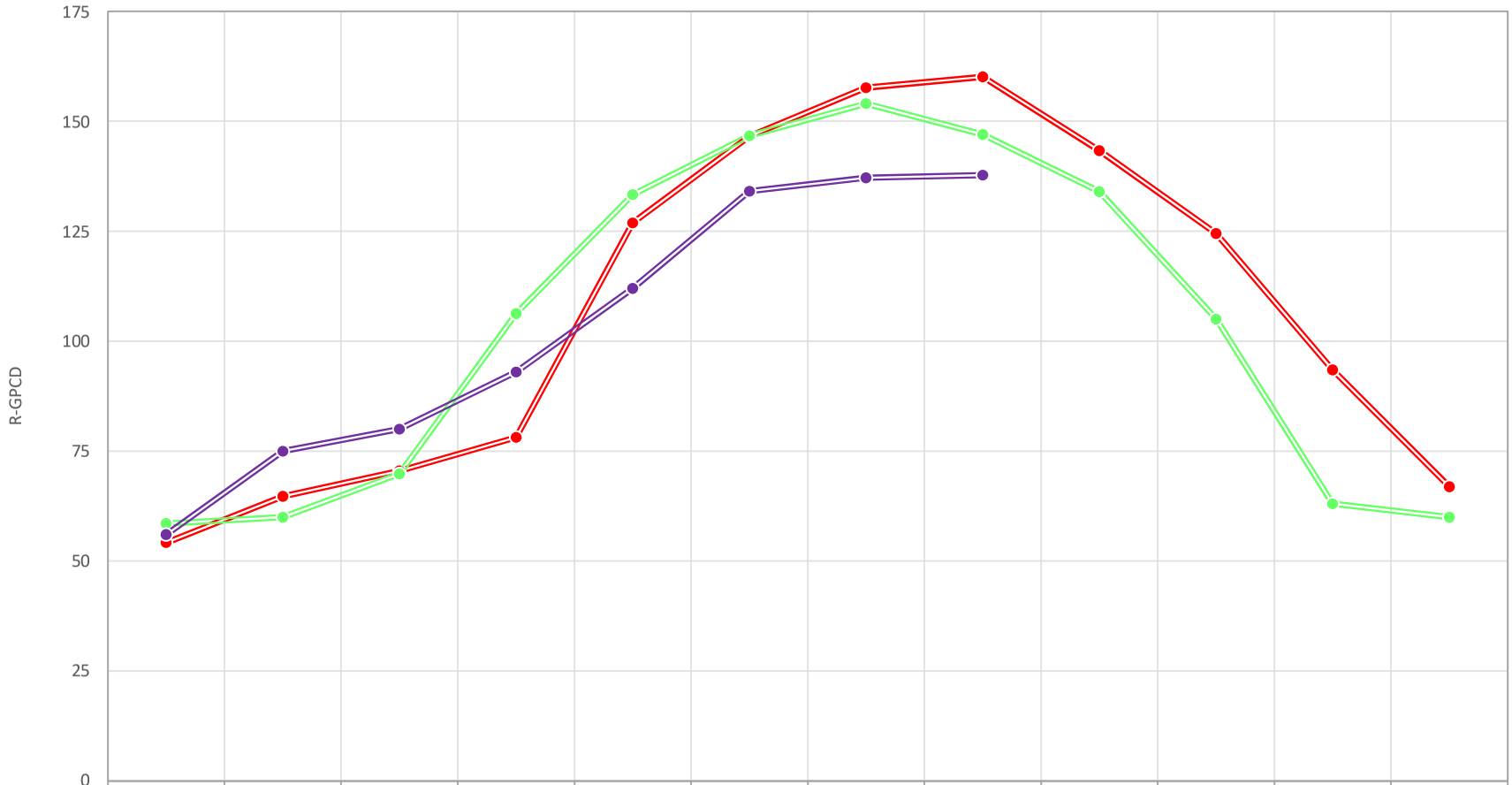
2020 August production number for SA1 includes water delivered through open interties with SA2.

SA1 = Service Area 1, SA2 = Service Area 2. SA1 is all groundwater (GW) production. SA2 is all purchased water from SCWA.

Charlois and Springhurst Intertie	18,000,000	Gallons	
Charlois Intertie (Aug 2020)	8,706,529	Gallons	(Determined from Bruce Kamilos calculations)
Springhurst Intertie (Aug 2020)	14,511,000	Gallons	(Number provided from meter read by SCWA)

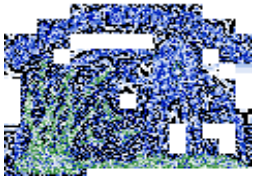
Service Area 2		Consumption	
2022	# Accts	CCF	Gallons
Jan	4,902	42,935	32,115,380
Feb	4,906	57,981	43,369,788
Mar	4,908	63,439	47,452,372
Apr	4,908	91,696	68,588,608
May	4,908	83,549	62,494,652
Jun	4,912	120,469	90,110,812
Jul	4,889	128,538	96,146,424
Aug	4,912	127,406	95,299,688
Sep			
Oct			
Nov			
Dec			

EGWD COMBINED R-GPCD



	January	February	March	April	May	June	July	August	September	October	November	December
2020	54	65	71	78	127	147	158	160	143	125	93	67
2021	59	60	70	106	133	147	154	147	134	105	63	60
2022	56	75	80	93	112	134	137	138				

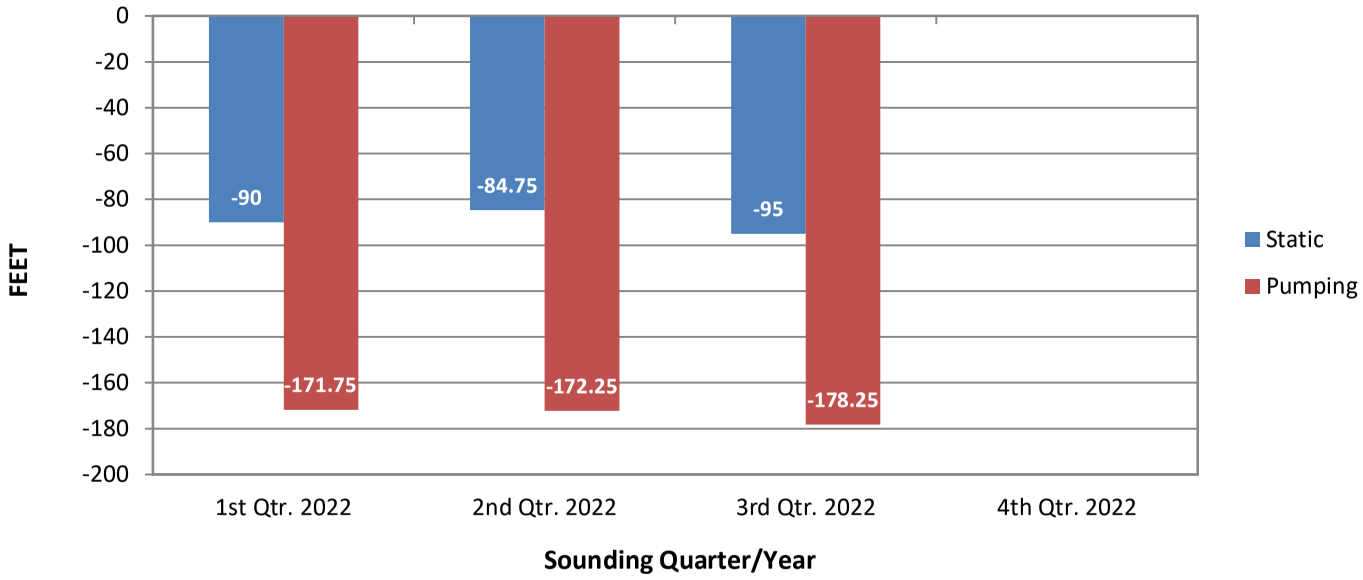
R-GPCD = Residential Gallons per Capita per Day

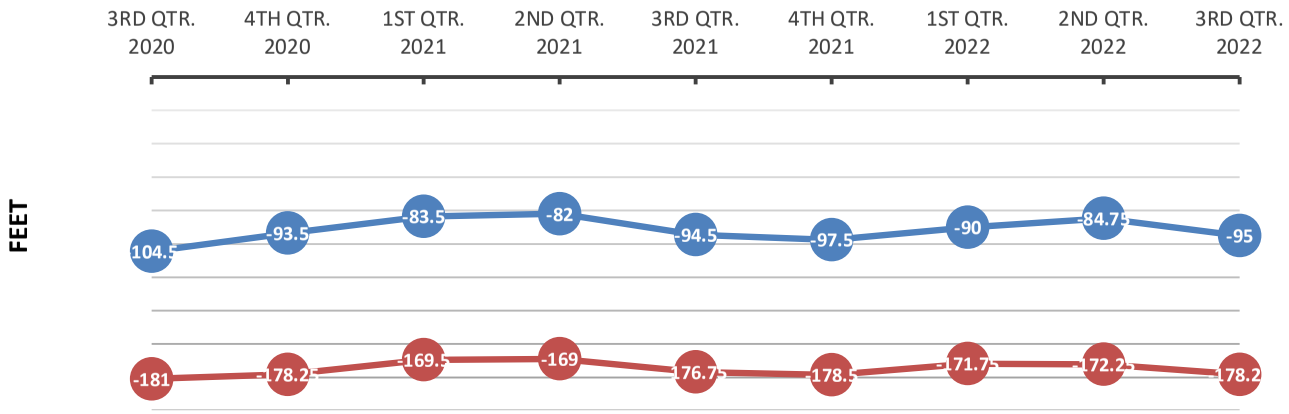


Elk Grove Water District

Static and Pumping Levels

Well 1D School St



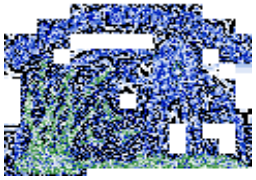


Latest Well Sounding

Static:	95 Ft
Pumping:	178.25 Ft
Drawdown:	83.25 Ft
GPM:	1,709
Specific Capacity:	20.526

Latest Sand Tester Results:

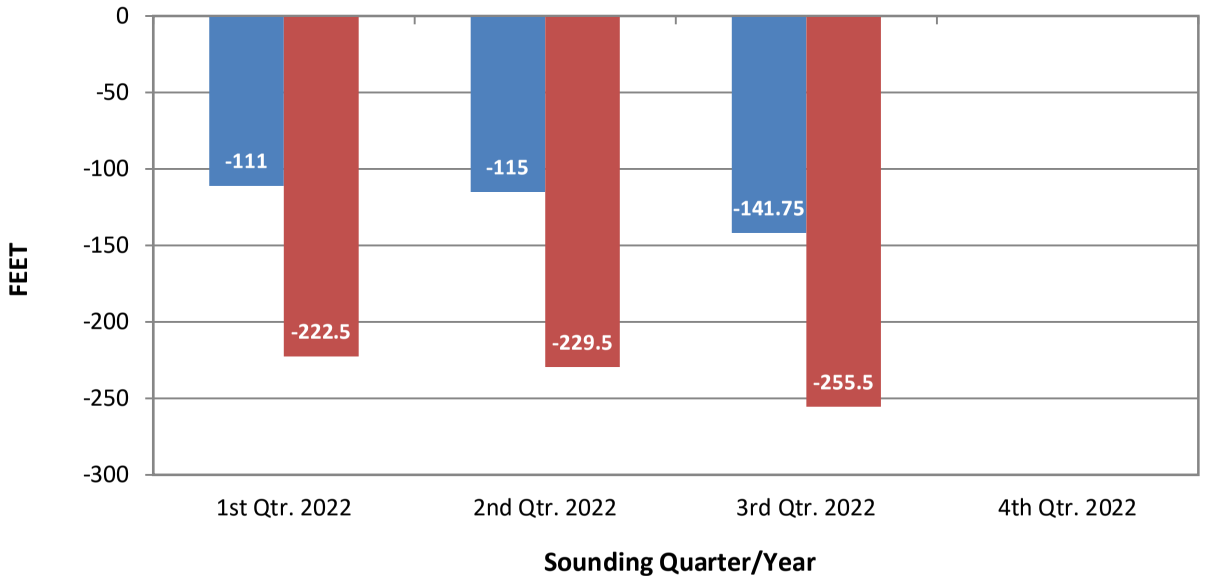
15 Min:	< 5 ppm



Elk Grove Water District

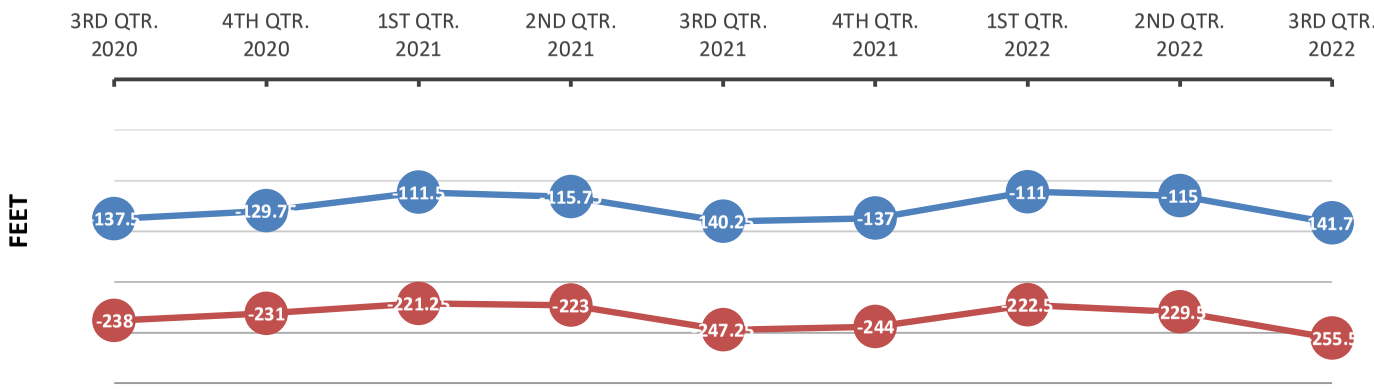
Static and Pumping Levels

Well 4D Webb St



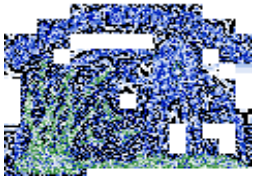
Latest Well Sounding

Static:	141.75 Ft
Pumping:	255.5 Ft
Drawdown:	113.75 Ft
GPM:	1,725
Specific Capacity:	15.161



Latest Sand Tester Results:

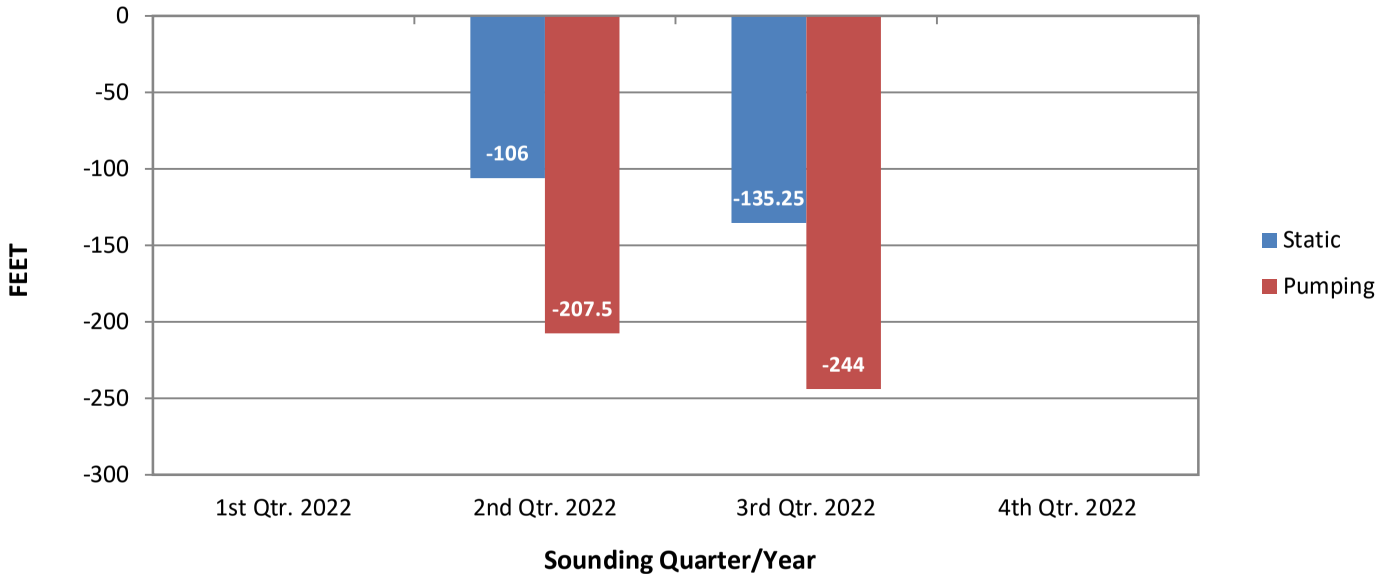
15 Min: < 5 ppm



Elk Grove Water District

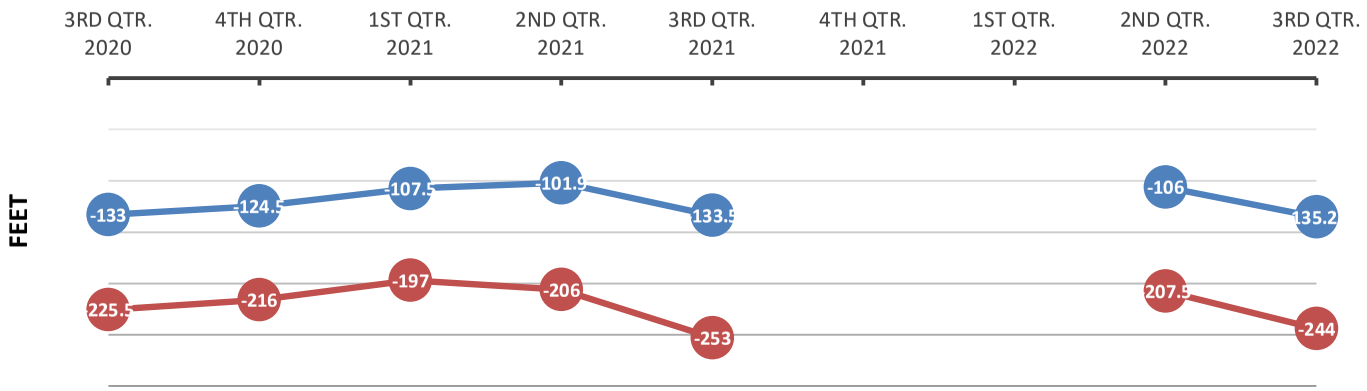
Static and Pumping Levels

Well 11D Dino



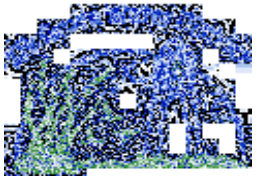
Latest Well Sounding

Static:	135.25 Ft
Pumping:	244 Ft
Drawdown:	108.75 Ft
GPM:	1,700
Specific Capacity:	15.632



Latest Sand Tester Results:

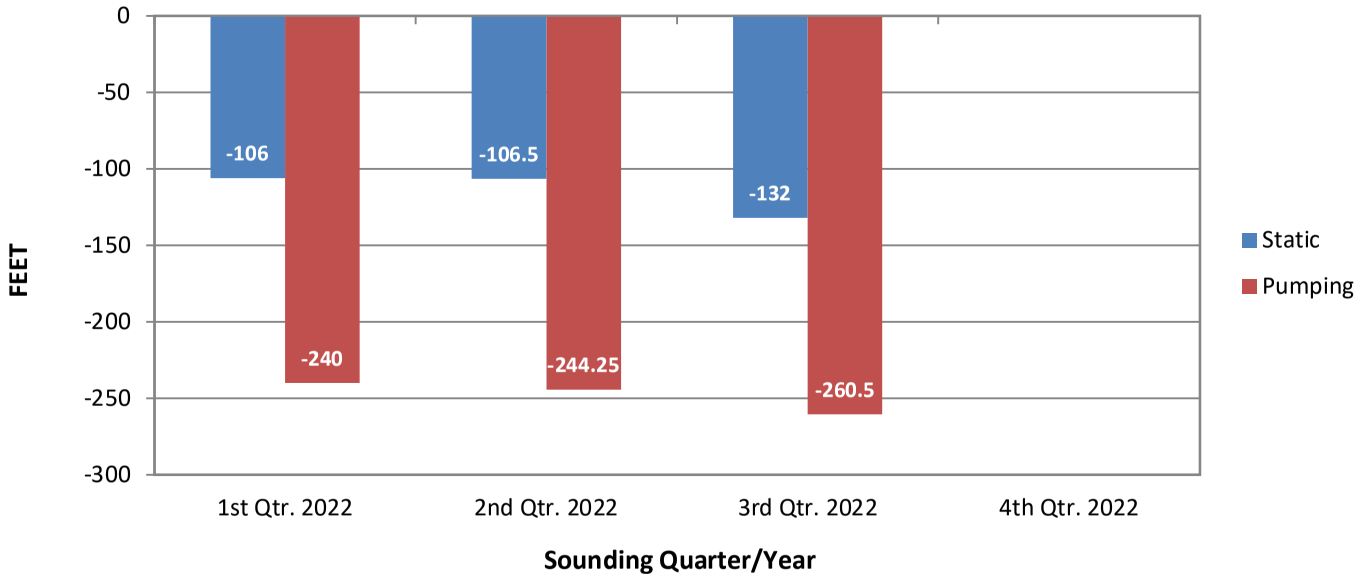
15 Min:	< 5 ppm

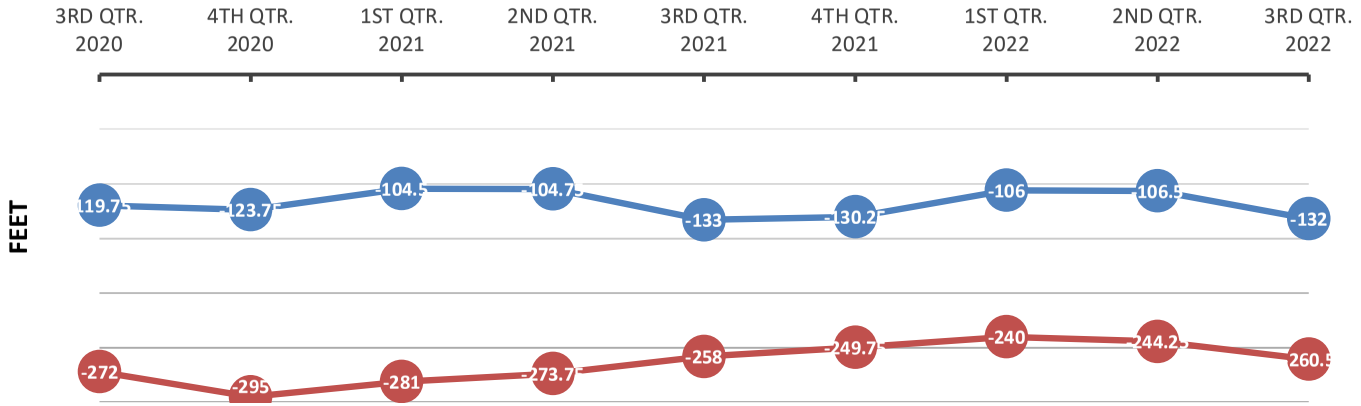


Elk Grove Water District

Static and Pumping Levels

Well 14D Railroad



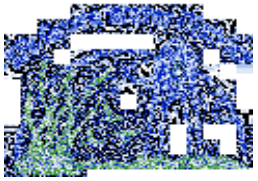


Latest Well Sounding

Static:	132 Ft
Pumping:	260.5 Ft
Drawdown:	128.5 Ft
GPM:	1,436
Specific Capacity:	11.176

Latest Sand Tester Results:

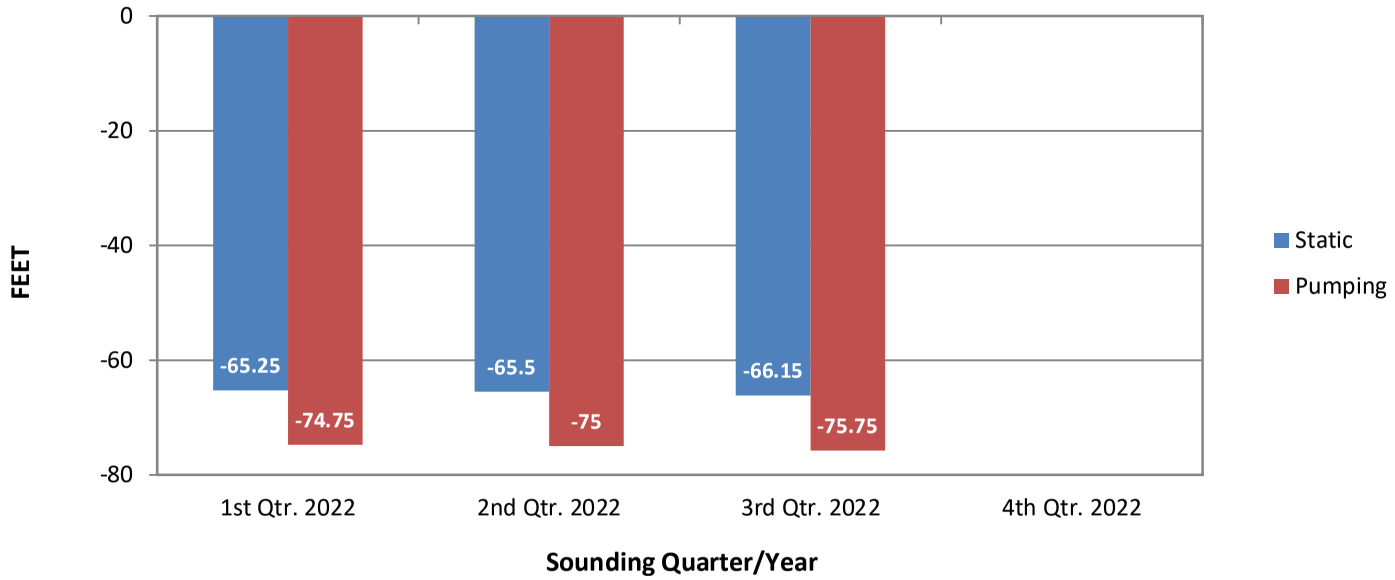
15 Min:	< 5 ppm



Elk Grove Water District

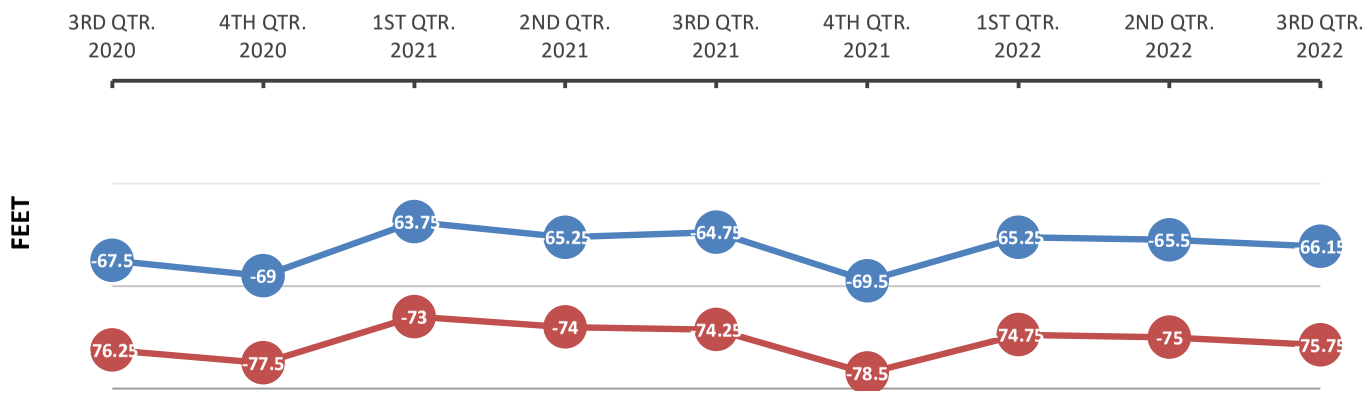
Static and Pumping Levels

Well 8 Williamson



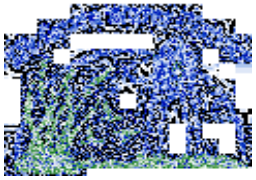
Latest Well Sounding

Static:	66.15 Ft
Pumping:	75.75 Ft
Drawdown:	9.6 Ft
GPM:	547
Specific Capacity:	56.965



Latest Sand Tester Results:

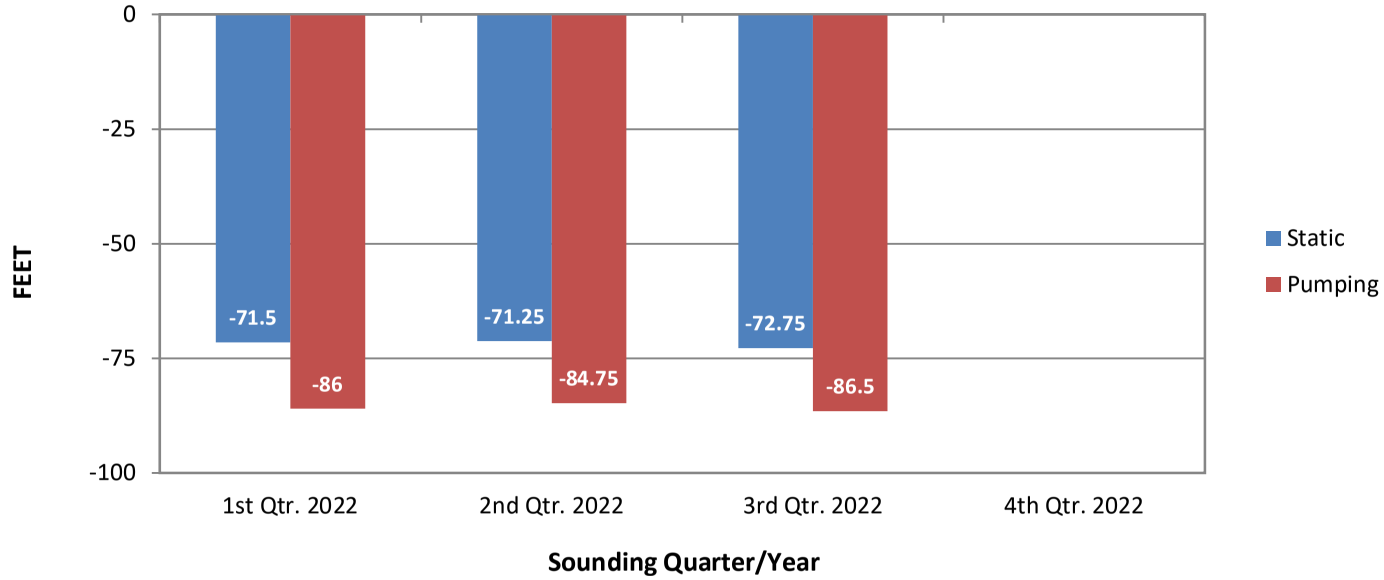
15 Min:	< 5 ppm



Elk Grove Water District

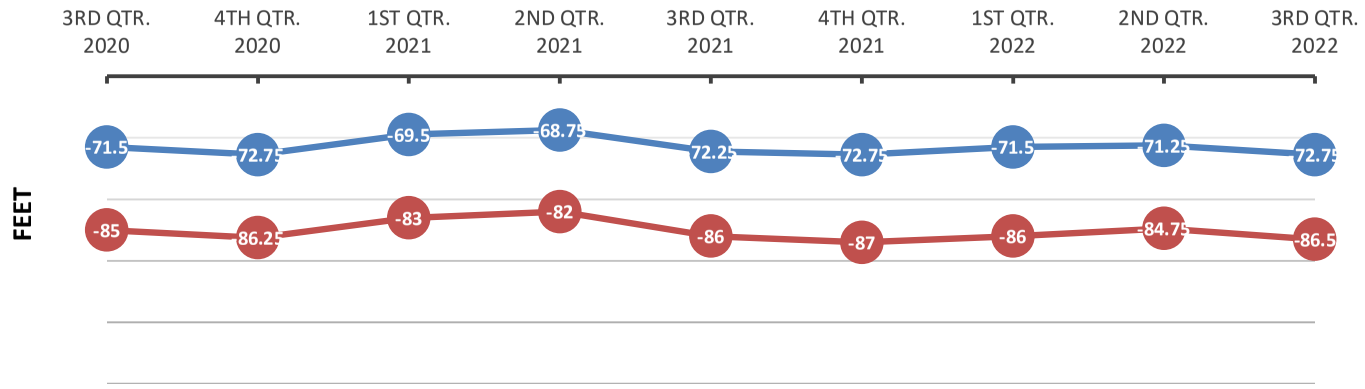
Static and Pumping Levels

Well 9 Polhemus



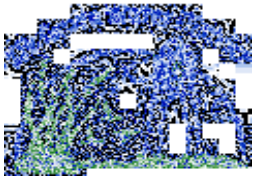
Latest Well Sounding

Static:	72.75 Ft
Pumping:	86.5 Ft
Drawdown:	13.75 Ft
GPM:	493
Specific Capacity:	35.840



Latest Sand Tester Results:

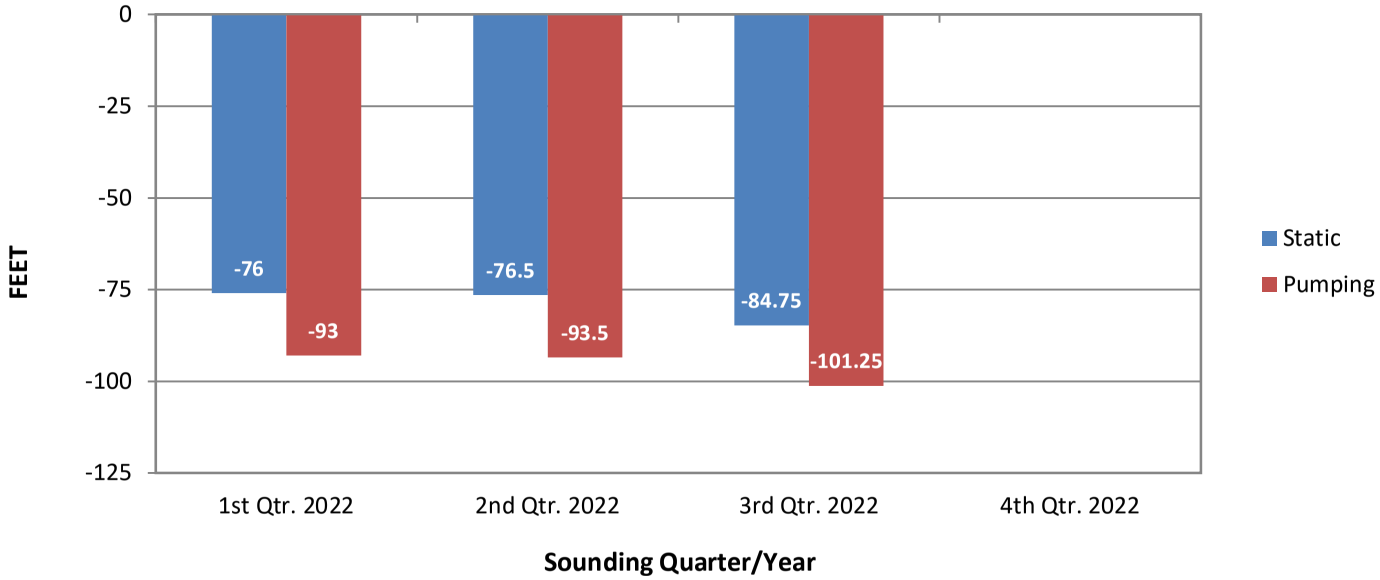
15 Min: < 5 ppm



Elk Grove Water District

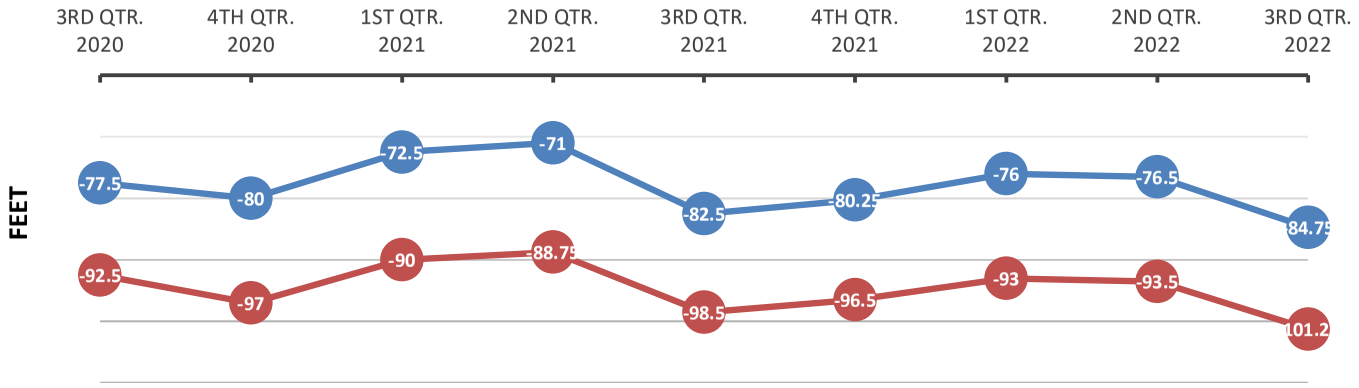
Static and Pumping Levels

Well 13 Hampton



Latest Well Sounding

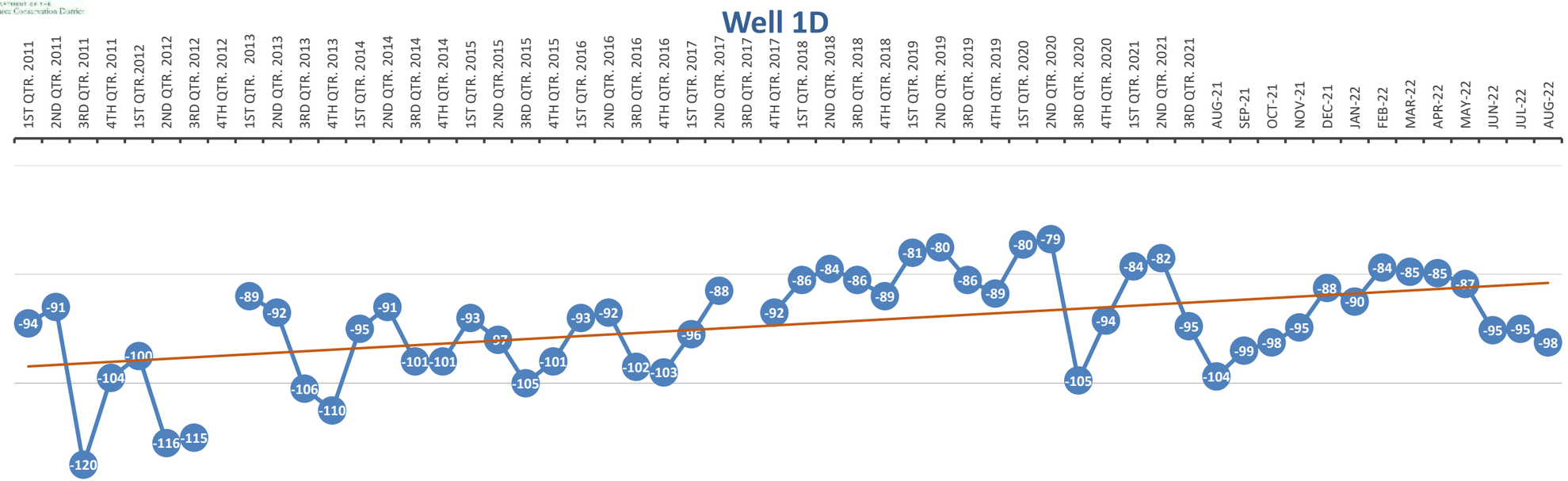
Static:	84.75 Ft
Pumping:	101.25 Ft
Drawdown:	16.5 Ft
GPM:	951
Specific Capacity:	57.663

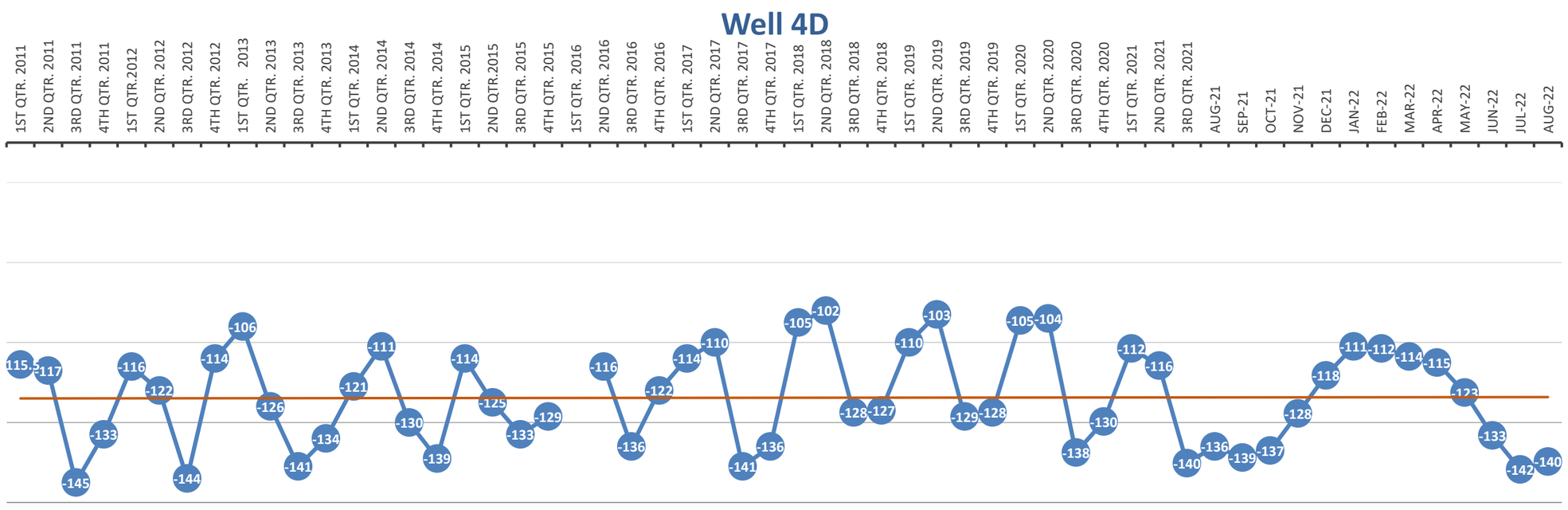


Latest Sand Tester Results:

15 Min:	< 5 ppm

Historic Static Well Levels





Well 11D

Well 14D

Well 8

1ST QTR. 2011
2ND QTR. 2011
3RD QTR. 2011
4TH QTR. 2011
1ST QTR.2012
2ND QTR. 2012
3RD QTR. 2012
4TH QTR. 2012
1ST QTR. 2013
2ND QTR. 2013
3RD QTR. 2013
4TH QTR. 2013
1ST QTR. 2014
2ND QTR. 2014
3RD QTR. 2014
4TH QTR. 2014
1ST QTR. 2015
2ND QTR.2015
3RD QTR. 2015
4TH QTR. 2015
1ST QTR. 2016
2ND QTR. 2016
3RD QTR. 2016
4TH QTR. 2016
1ST QTR. 2017
2ND QTR. 2017
3RD QTR. 2017
4TH QTR. 2017
1ST QTR. 2018
2ND QTR. 2018
3RD QTR. 2018
4TH QTR. 2018
1ST QTR. 2019
2ND QTR. 2019
3RD QTR. 2019
4TH QTR. 2019
1ST QTR. 2020
2ND QTR. 2020
3RD QTR. 2020
4TH QTR. 2020
1ST QTR. 2021
2ND QTR. 2021
3RD QTR. 2021
AUG-21
SEP-21
OCT-21
NOV-21
DEC-21
JAN-22
FEB-22
MAR-22
APR-22
MAY-22
JUN-22
JUL-22
AUG-22
-76 -75 -75 -75 -72 -79 -79 -75 -78 -80 -79 -73 -78 -73 -74 -73 -73 -75 -73 -72 -81 -77 -73 -71 -70 -73 -68 -66 -66 -65 -63 -65 -68 -69 -64 -65 -65 -66 -66 -70 -67 -65 -67 -65 -66 -65 -66 -70

Well 9

1ST QTR. 2011
2ND QTR. 2011
3RD QTR. 2011
4TH QTR. 2011
1ST QTR.2012
2ND QTR. 2012
3RD QTR. 2012
4TH QTR. 2012
1ST QTR. 2013
2ND QTR. 2013
3RD QTR. 2013
4TH QTR. 2013
1ST QTR. 2014
2ND QTR. 2014
3RD QTR. 2014
4TH QTR. 2014
1ST QTR. 2015
2ND QTR.2015
3RD QTR. 2015
4TH QTR. 2015
1ST QTR. 2016
2ND QTR. 2016
3RD QTR. 2016
4TH QTR. 2016
1ST QTR. 2017
2ND QTR. 2017
3RD QTR. 2017
4TH QTR. 2017
1ST QTR. 2018
2ND QTR. 2018
3RD QTR. 2018
4TH QTR. 2018
1ST QTR. 2019
2ND QTR. 2019
3RD QTR. 2019
4TH QTR. 2019
1ST QTR. 2020
2ND QTR. 2020
3RD QTR. 2020
4TH QTR. 2020
1ST QTR. 2021
2ND QTR. 2021
3RD QTR. 2021
AUG-21
SEP-21
OCT-21
NOV-21
DEC-21
JAN-22
FEB-22
MAR-22
APR-22
MAY-22
JUN-22
JUL-22
AUG-22
-82 -80 -82 -81 -78 -83.5 -78 -79 -83 -84 -79 -79 -83 -83 -80 -78 -81 -80 -78 -80 -82 -84 -79 -77 -78 -79 -75 -73 -75 -77 -74 -70 -71 -71 -69 -68 -72 -73 -70 -69 -72 -74 -73 -73 -75 -72 -72 -71 -70 -71 -73 -72 -73 -73

Monthly Sample Report - August 2022
Water System: Elk Grove Water System

Sampling Point: 01 - 8693 W. Camden			
Sample Date	**Sample Class**	**Sample Name**	**Collection Occurrence**
8/2/2022	Distribution System	Bacteriological	Week
8/9/2022	Distribution System	Bacteriological	Week
8/16/2022	Distribution System	Bacteriological	Week
8/23/2022	Distribution System	Bacteriological	Week
8/30/2022	Distribution System	Bacteriological	Week

Sampling Point: School Well 01D - Raw Water			
Sample Date	**Sample Class**	**Sample Name**	**Collection Occurrence**

Sampling Point: 02 - 9425 Emerald Vista			
Sample Date	**Sample Class**	**Sample Name**	**Collection Occurrence**
8/2/2022	Distribution System	Bacteriological	Week
8/9/2022	Distribution System	Bacteriological	Week
8/16/2022	Distribution System	Bacteriological	Week
8/23/2022	Distribution System	Bacteriological	Week
8/30/2022	Distribution System	Bacteriological	Week

Sampling Point: 03 - 8809 Valley Oak			
Sample Date	**Sample Class**	**Sample Name**	**Collection Occurrence**
8/2/2022	Distribution System	Bacteriological	Week
8/9/2022	Distribution System	Bacteriological	Week
8/16/2022	Distribution System	Bacteriological	Week
8/23/2022	Distribution System	Bacteriological	Week
8/30/2022	Distribution System	Bacteriological	Week

Sampling Point: Webb Well 04D - Raw Water			
Sample Date	**Sample Class**	**Sample Name**	**Collection Occurrence**

Sampling Point: 04 - 10122 Glacier Point			
Sample Date	**Sample Class**	**Sample Name**	**Collection Occurrence**
8/2/2022	Distribution System	Bacteriological	Week
8/9/2022	Distribution System	Bacteriological	Week
8/16/2022	Distribution System	Bacteriological	Week
8/23/2022	Distribution System	Bacteriological	Week
8/30/2022	Distribution System	Bacteriological	Week

Sampling Point: 05 - 9230 Amsden Ct.			
Sample Date	**Sample Class**	**Sample Name**	**Collection Occurrence**
8/2/2022	Distribution System	Bacteriological	Week
8/9/2022	Distribution System	Bacteriological	Week
8/16/2022	Distribution System	Bacteriological	Week
8/23/2022	Distribution System	Bacteriological	Week
8/30/2022	Distribution System	Bacteriological	Week

Sampling Point: 06 - 9227 Rancho Dr.			
Sample Date	**Sample Class**	**Sample Name**	**Collection Occurrence**
8/2/2022	Distribution System	Bacteriological	Week
8/9/2022	Distribution System	Bacteriological	Week
8/16/2022	Distribution System	Bacteriological	Week
8/23/2022	Distribution System	Bacteriological	Week
8/30/2022	Distribution System	Bacteriological	Week

Sampling Point: 07 - Al Gates Park Mainline Dr.			
Sample Date	**Sample Class**	**Sample Name**	**Collection Occurrence**
8/2/2022	Distribution System	Bacteriological	Week
8/9/2022	Distribution System	Bacteriological	Week
8/16/2022	Distribution System	Bacteriological	Week
8/23/2022	Distribution System	Bacteriological	Week
8/30/2022	Distribution System	Bacteriological	Week

Sampling Point: - Williamson Well 8 Raw Water			
Sample Date	**Sample Class**	**Sample Name**	**Collection Occurrence**

Sampling Point: 08 - 9436 Hollow Springs Wy.			
Sample Date	**Sample Class**	**Sample Name**	**Collection Occurrence**
8/2/2022	Distribution System	Bacteriological	Week
8/9/2022	Distribution System	Bacteriological	Week
8/16/2022	Distribution System	Bacteriological	Week
8/23/2022	Distribution System	Bacteriological	Week
8/30/2022	Distribution System	Bacteriological	Week

Sampling Point: Polhemus Well 9 Raw Water			
Sample Date	**Sample Class**	**Sample Name**	**Collection Occurrence**

Sampling Point: 09 - 8417 Blackman Wy.			
Sample Date	**Sample Class**	**Sample Name**	**Collection Occurrence**
8/2/2022	Distribution System	Bacteriological	Week
8/9/2022	Distribution System	Bacteriological	Week
8/16/2022	Distribution System	Bacteriological	Week
8/23/2022	Distribution System	Bacteriological	Week
8/30/2022	Distribution System	Bacteriological	Week
8/2/2022	Distribution System	Fluoride	Week

Sampling Point: 10 - 9373 Oreo Ranch Cir.			
Sample Date	**Sample Class**	**Sample Name**	**Collection Occurrence**
8/2/2022	Distribution System	Bacteriological	Week
8/9/2022	Distribution System	Bacteriological	Week
8/16/2022	Distribution System	Bacteriological	Week
8/23/2022	Distribution System	Bacteriological	Week
8/30/2022	Distribution System	Bacteriological	Week

Sampling Point: 11 - 9907 Kapalua Ln.			
Sample Date	**Sample Class**	**Sample Name**	**Collection Occurrence**
8/2/2022	Distribution System	Bacteriological	Week
8/9/2022	Distribution System	Bacteriological	Week
8/16/2022	Distribution System	Bacteriological	Week
8/23/2022	Distribution System	Bacteriological	Week
8/30/2022	Distribution System	Bacteriological	Week

Sampling Point: 12-9205 Meadow Grove Dr.			
Sample Date	**Sample Class**	**Sample Name**	**Collection Occurrence**
8/2/2022	Distribution System	Bacteriological	Week
8/9/2022	Distribution System	Bacteriological	Week
8/16/2022	Distribution System	Bacteriological	Week
8/23/2022	Distribution System	Bacteriological	Week
8/30/2022	Distribution System	Bacteriological	Week

Sampling Point: Dino Well 11D - Raw Water			
Sample Date	**Sample Class**	**Sample Name**	**Collection Occurrence**

Sampling Point: Hampton Well 13 - Raw Water			
Sample Date	**Sample Class**	**Sample Name**	**Collection Occurrence**
8/1/2022	Source Water	Fe, Mn, As, Total	Weekly
8/8/2022	Source Water	Fe, Mn, As, Total	Weekly
8/15/2022	Source Water	Fe, Mn, As, Total	Weekly
8/22/2022	Source Water	Fe, Mn, As, Total	Weekly
8/30/2022	Source Water	Fe, Mn, As, Total	Weekly

Sampling Point: Hampton WTP Effluent			
Sample Date	**Sample Class**	**Sample Name**	**Collection Occurrence**
8/1/2022	Treated Effluent	Fe, Mn, As, Total	Weekly
8/8/2022	Treated Effluent	Fe, Mn, As, Total	Weekly
8/15/2022	Treated Effluent	Fe, Mn, As, Total	Weekly
8/22/2022	Treated Effluent	Fe, Mn, As, Total	Weekly
8/30/2022	Treated Effluent	Fe, Mn, As, Total	Weekly

Sampling Point: Hampton WTP Backwash Tank			
Sample Date	**Sample Class**	**Sample Name**	**Collection Occurrence**
			BiAnnual

Sampling Point: Railroad Well 14D - Raw Water			
Sample Date	**Sample Class**	**Sample Name**	**Collection Occurrence**

Sampling Point: Railroad WTP Effluent			
Sample Date	**Sample Class**	**Sample Name**	**Collection Occurrence**
8/2/2022	Treated Plant Effluent	WTP Eff - Fe,Mn,As,Al Total	Month

Sampling Point: Railroad WTP Backwash Tank			
Sample Date	**Sample Class**	**Sample Name**	**Collection Occurrence**
			BiAnnual

Sampling Point: Special Distribution/Construction Samples			
Sample Date	**Sample Class**	**Sample Name**	**Collection Description**
8/2/2022	Distribution System	Bacteriological	10251 E.Stockton Blvd. New U-Haul Building
8/26/2022	Distribution System	Bacteriological	Adams St. Mainline Replacement
8/30/2022	Distribution System	Bacteriological	Elliott Springs Unit #1 (20 Samples Taken for the new distrubition system)
8/30/2022	Distribution System	Bacteriological	9500 Elk Grove Florin Rd. New Service Line Install

Colors	Monthly Total	Yearly Total
Black = Scheduled	72	595
Green = Unscheduled	23	57
Red = Incomplete Sample	0	

Elk Grove Water District
A DEPARTMENT OF THE
Florin Resource Conservation District

September 8, 2022

Sacramento Regional County
Sanitation District
Environmental Specialist
10060 Goethe Rd.
Sacramento, CA. 95827

WASTEWATER DISCHARGE COMPLIANCE REPORT FORM

Enclosed is the Wastewater Discharge Compliance Report Form from Elk Grove Water District August 2022.

If you have any further questions, you may contact me at 916-585-9386

STEVE SHAW
WATER TREATMENT SUPERVISOR

COMPLIANCE REPORT FORM

Attn: Ursula Bigler	E-mail: bigleru@sacsewer.com	Wastewater Source Control Section
Phone (916) 875-9093		Fax (916) 875-6374
From: Steve Shaw		
Company: **Elk Grove Water District**		Permit #: **WTP010**

The following reports and information are attached (check all that apply):

Month:	**August**	**Year:**	**2022**

__X_ Water use/flow meter report

	Total Gallons
Hampton WTP	1,171,586
Railroad WTP	0
Analyzer Water	35,712

____ Monitoring results/analytical report

Discharge Rate

Check the statement below that applies to this report:

____ ____ Based on a review of this facility's flow data, discharge rate limit was exceeded.

____ __X__ I certify that this facility is in compliance with the discharge rate limit.

____ Attached is a description of anticipated changes that may significantly alter the nature, quality, or volume of the wastewater discharged.

____ Flow monitoring equipment certification (Flow or pH meter, etc.)

____ Other (describe):

Domestic Calculation

Domestic Usage	Number of Employees	Business Days per Month	Allowance (gallons per day)	Gallons
Production	11	21	15	3,465
Office	4	21	10	840
Drivers/Field	3	21	3	189
			Total	4,494

Certification Statement

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

SIGNATURE of Authorized Representative: 

PRINTED NAME, TITLE: Steve Shaw (Name) Water Treatment Supervisor (Title)

DATE: 9-8-2022

Elk Grove Water District
A DEPARTMENT OF THE
Florin Resource Conservation District

September 8, 2022

State Water Resources Control Board
Division of Drinking Water
1001 I Street
13th Floor
Sacramento, CA. 95814

MONTHLY SUMMARY OF DISTRIBUTION SYSTEM COLIFORM MONITORING

Enclosed is the Monthly Summary of Distribution System Coliform Monitoring report from Elk Grove Water District for August 2022.

If you have any further questions, you may contact me at 916-585-9386.

STEVE SHAW
WATER TREATMENT SUPERVISOR

MONTHLY SUMMARY OF REVISED TOTAL COLIFORM RULE DISTRIBUTION SYSTEM MONITORING

(including triggered source monitoring for systems subject to the Groundwater Rule)

System Name	System Number
Elk Grove Water District	3410008

Sampling Period – Month	Year
August	2022

	Number Required	Number Collected	Number Total Coliform Positives	Number E.coli Positives
1. Routine Samples (see note 1)	60	60	0	0
2. Repeat Samples following samples that are Total Coliform Positive and *E.coli* **Negative** (see notes 10 and 11)		0	0	0
3. Repeat Samples following Routine Samples that are **Total Coliform Positive** and ***E. coli* Positive** (see notes 10 and 11)		0	0	0
4. Treatment Technique (TT)/MCL Violation Computation for Total Coliform/*E. coli* Positive Samples a. Totals (sum of columns)	60	60	0	0
b. If 40 or more samples collected in month, determine percent of samples that are total coliform positive [(total number positive/total number collected) x 100] =	0 %			
c. Did the system trigger… a **Level 2** Assessment TT? (see notes 2, 3, 4, 5 and 6 for trigger info)			☐ Yes ☑ No	
If a Level 2 Assessment is triggered, see note 8 below. a **Level 1** Assessment TT? (see note 7 for trigger info)			☐ Yes ☑ No	
If a Level 1 Assessment is triggered, see note 9 below.				
5. Triggered Source Samples per Groundwater Rule (see notes 12 and 13)		0	0	0

6. Invalidated Samples

(Note what samples, if any, were invalidated; who authorized the invalidation; and when replacement samples were collected. Attach additional sheets, if necessary.)

7. Summary Completed By: Steve Shaw

Signature	Title	Date
	Water Treatment Supervisor	9/8/2022

NOTES AND INSTRUCTIONS:

1. Routine samples include:
   a. Samples required pursuant to 22 CCR Section 64423 and any additional samples required by an approved routine sample siting plan established pursuant to 22 CCR Section 64422.
   b. Extra samples are required for systems collecting less than five routine samples per month that had one or more total coliform positives in previous month;
   c. Extra samples for systems with high source water turbidities that are using surface water or groundwater under direct influence of surface water and do not practice filtration in compliance with regulations;
2. Note: For a repeat sample following a total coliform positive sample, any *E.coli* positive repeat (boxed entry) **constitutes an MCL violation and requires immediate notification to the Division** (22, CCR, Section 64426.1).
3. Note: For repeat sample following a *E.coli* positive sample, any total coliform positive repeat (boxed entry) **constitutes an MCL violation and requires immediate notification to the Division** (22, CCR, Section 64426.1).
4. Note: Failure to take all required repeat samples following an *E. coli* positive routine sample (22, CCR, Section 64426.1) **constitutes an MCL violation and requires immediate notification to the Division** (22, CCR, Section 64426.1).
5. Note: Failure to test for *E. coli* when any repoeat sample tests postive for total coliform (22, CCR, Section 64426.1) **constitutes an MCL violation and requires immediate notification to the Division** (22, CCR, Section 64426.1).
6. Note: Second Level 1 treatment technique trigger in a rolling 12-month period.
7. Total coliform Treatment Technique (TT) Violation **(Notify Department within 24 hours of TT violation):**
   a. For systems collecting less than 40 samples, if two or more samples are total coliform positive, then the TT is violated and a Level 1 Assessment is required.
   b. For systems collecting 40 or more samples, if more than 5.0 percent of samples collected are total coliform positive, then the TT is violated and a Level 1 Assessment is required.
8. Contact the Division as soon as practical to arrange for the division to conduct a Level 2 Assessment of the water system. The water system shall complete a Level 2 Assessment and sumbit it to the Division within 30 days of learning of the trigger exceedance.
9. Conduct a Level 1 Assessment in accordance with as soon as practical that covers the minimum elements (22, CCR, Section 64426.8 (a), (2). Submit the report to the Division within 30 days of learing of the trigger exceedance.
10. Positive results and their associated repeat samples are to be tracked on the Coliform Monitoring Worksheet.
11. Repeat samples must be collected within 24 hours of being notified of the positive results. For systems collecting more than one routine sample per month, three repeat samples must be collected for each total coliform positive sample. For systems collecting one or fewer routine samples per month, four repeat samples must be collected for each total coliform positive sample. At least three samples shall be taken the month following a total coliform positive.
12. For systems subject to the Groundwater Rule: Positive results and the associated triggered source samples are to be tracked on the Coliform Monitoring Worksheet.
13. For triggered sample(s) required as a result of a total coliform routine positive sample, an *E.coli*-positive triggered sample (boxed entry) **requires immediate notification to the Division, Tier 1 public notification, and corrective action.**

Elk Grove Water District
A DEPARTMENT OF THE
Florin Resource Conservation District

September 8, 2022

State Water Resources Control Board
Division of Drinking Water
1001 I Street
13th Floor
Sacramento, CA. 95814

MONTHLY SUMMARY OF THE HAMPTON GROUNDWATER TREATMENT PLANT

Enclosed is the Monthly Summary of the Hampton GWTP report from Elk Grove Water District for August 2022.

If you have any further questions, you may contact me at 916-585-9386.

STEVE SHAW
WATER TREATMENT SUPERVISOR

Elk Grove Water District

Hampton GWTP Monthly Report

PWS Number 3410008-013 Month: August

GWTP Name Hampton Water Treatment Plant

Date	Hour Meter	Run Hours	Production Meter	Well Production	Backwash Meter	Backwash Waste
last day	23553.8		382593316		29158743	35663790
1	23578.1	24.3	383952705	1359389	29190168	35707177
2	23602	23.9	385300196	1347491	29222312	35754411
3	23626.9	24.9	386695965	1395769	29254419	35793464
4	23650.3	23.4	388005195	1309230	29283166	35827210
5	23674.6	24.3	389372664	1367469	29315406	35864705
6	23698.6	24	390718335	1345671	29347665	35900876
7	23722.3	23.7	392039929	1321594	29376212	35937660
8	23746.1	23.8	393367814	1327885	29415578	35981683
9	23769.8	23.7	394698527	1330713	29444175	36016230
10	23793.9	24.1	396045525	1346998	29476390	36053087
11	23818	24.1	397392320	1346795	29508514	36089520
12	23841.6	23.6	398715612	1323292	29537150	36126258
13	23866.6	25	400109370	1393758	29569390	36164064
14	23890	23.4	401415923	1306553	29601696	36201883
15	23913.3	23.3	402718179	1302256	29637421	36242183
16	23937	23.7	404052090	1333911	29666032	36277245
17	23961.5	24.5	405420862	1368772	29698651	36315043
18	23985.7	24.2	406772943	1352081	29730730	36352933
19	24009.6	23.9	408708424	1935481	29763254	36390933
20	24033.3	23.7	409433079	724655	29795616	36428796
21	24057.2	23.9	410763244	1330165	29827999	3646672
22	24081	23.8	412091084	1327840	29860304	36504593
23	24105.4	24.4	413458644	1367560	29892743	36542516
24	24129.5	24.1	414805289	1346645	29925096	365803389
25	24153.1	23.6	416122260	1316971	29957314	36618012
26	24177.3	24.2	417476720	1354460	29989589	36652888
27	24200.3	23	418760455	1283735	30021969	36686968
28	24224.7	24.4	420116455	1356000	30054443	36724454
29	24249.5	24.8	421498408	1381953	30086733	36763183
30	24273.3	23.8	422835163	1336755	30118665	36798941
31	24297.3	24	424172554	1337391	30147771	36835376
Total		743.5		41,579,238	989,028	1,171,586

Weekly In-House Monitoring (mg/L) R (Raw) T (Treated)As (ug/L)

Date	Fe, R	Fe, T	Mn, R	Mn, T	As, R	As, T
8/1/2022	0.006	0.047	0.003	0	11	2
8/8/2022	0.028	0.067	0.014	0.006	12	2
8/15/2022	0.014	0.049	0.012	0.003	10	<2
8/22/2022	0	0.111	0.028	0.017	12	3
8/29/2022	0.018	0.046	0.024	0.002	12	2

Total Gallons Sodium Hypochlorite: 374.7 Gal
Pounds per day 15.11 Lbs/Day
Dosage (Milligrams Per Liter @ 12.5% Cl) 1.8 mg/L

Total Gallons Ferric Chloride: 263.8 Gal
Dosage (Milligrams Per Liter @ 38% FeCl) .65mg/L

Total Gallons Sodium Hydroxide: 343.5 Gal
Dosage (Gallons Per Hour @ 30% NaOH) 0.48 Gal/Hr

Total Gallons Sulfuric Acid : 265.4 Gal
Dose (Gallons Per Hour @ 93% H2SO4) 0.33 Gal/Hr

Weekly Average	Inf. pH	Eff. pH
Week 1: 7.0 to 7.1		
Cl2		0.86
Week 2: 7.0 to 7.1		
Cl2		0.83
Week 3: 7.0 to 7.1		
Cl2		0.91
Week 4: 7.0 to 7.0		
Cl2		0.83
Week 5: 7.0 to 7.0		
Cl2		0.82

Total Backwashed	989,028 Gal
Total Water Pumped	41,579,238 Gal

Total Run Hours	743.5Hours
Total Backwash Waste	1,171,586Gal

Reporting Limits/Units
Iron = 0.100 mg/L
Manganese = 0.010 mg/L
Arsenic = 1.0 µg/L

Maximum Contaminant Levels (MCLs)
Iron (Fe) = 0.300 mg/L (Secondary)
Manganese (Mn) = 0.050 mg/L (Secondary)
Arsenic (As) = 10 µg/L (Primary)

Prepared By: Steve Shaw Date: 9/8/2022

Elk Grove Water District
A DEPARTMENT OF THE
Florin Resource Conservation District

September 8, 2022

State Water Resources Control Board
Division of Drinking Water
1001 I Street
13th Floor
Sacramento, Ca. 95814

MONTHLY FLUORIDATION MONITORING REPORT

Enclosed is the Monthly Summary of the Fluoridation Monitoring from Elk Grove Water District for August 2022.

If you have any further questions, you may contact me at 916-585-9386.

STEVE SHAW
WATER TREATMENT SUPERVISOR

ELK GROVE WATER DISTRICT AREA 2

DISTRIBUTION SYSTEM

MONTHLY FLUORIDATION MONITORING REPORT

August 2022

Week	Location of Sample		Monitoring Results (mg/L)		
			Date	Time	Results
1	Hollow Springs		8/2/2022	9:30 AM	0.77
1	Kapalua		8/2/2022	9:44 AM	0.67
1	Al Gates Park		8/2/2022	10:18 AM	0.52
1	Oreo Ranch		8/2/2022	10:40 AM	0.57
1	Blackman		8/2/2022	12:05 PM	0.60
2	Hollow Springs		8/9/2022	9:24 AM	0.79
2	Kapalua		8/9/2022	10:02 AM	0.72
2	Al Gates Park		8/9/2022	10:33 AM	0.75
2	Oreo Ranch		8/9/2022	10:53 AM	0.68
2	Blackman		8/9/2022	12:09 AM	0.7
3	Hollow Springs		8/16/2022	9:53 AM	0.67
3	Kapalua		8/16/2022	10:08 AM	0.71
3	Al Gates Park		8/16/2022	10:24 AM	0.7
3	Oreo Ranch		8/16/2022	10:36 AM	0.67
3	Blackman		8/16/2022	11:31 AM	0.8
4	Hollow Springs		8/23/2022	8:32 AM	0.68
4	Kapalua		8/23/2022	8:50 AM	0.6
4	Al Gates Park		8/23/2022	9:11 AM	0.77
4	Oreo Ranch		8/23/2022	9:30 AM	0.54
4	Blackman		8/23/2022	11:26 PM	0.79
5	Hollow Springs		8/30/2022	10:05 AM	0.76
5	Kapalua		8/30/2022	10:27 AM	0.84
5	Al Gates Park		8/30/2022	10:47 AM	0.71
5	Oreo Ranch		8/30/2022	11:15 AM	0.76
5	Blackman		8/30/2022	12:36 PM	0.45

Monthly fluoride split sample results:

Date: 8/2/2022

Water System Results: 0.6 mg/L

Approved Lab: 0.63 mg/L

Contact Name: Steve Shaw

Telephone : (916) 585-9386

System PWS Number: 3410008

Year: 2022

Elk Grove Water District

Preventative Maintenance Program

Groundwater Wells

			Monthly												Semi-annual			Annual	
		Refer.	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Refer.	1ST 6-MO.	2ND 6-MO.	Refer.	2022
Well 14D Railroad	Initials	Sect: 7.1	AH	BW	AH	AH	BW	AH	AH	AH					Sect: 7.2	AH		Sect: 7.3	
	Date		1/3/22	2/24/22	3/2/22	4/14/22	5/16/22	6/22/22	7/13/22	8/11/22						6/21/22			
	W.O. #		20385	20463	20536	20622	20689	20827	20915	20972						20834			
Well 4D Webb	Initials	Sect: 8.1	AH	BW	BW	AH	AH	AH	BW	BW					Sect: 8.2	AH/BW		Sect: 8.3	
	Date		1/4/22	2/11/22	3/10/22	4/14/22	5/4/22	6/30/22	7/15/22	8/1/22						6/16/22			
	W.O. #		20386	20464	20537	20623	20690	20828	20916	20973						20835			
Well 11D Dino	Initials	Sect: 9.1	AH	AH	AH	AH	BW	AH	AH	BW					Sect: 9.2	AH		Sect: 9.3	
	Date				3/28/22	4/19/22	5/2/22	6/27/22	7/12/22	8/1/22						6/21/22			
	W.O. #		20387	20465	20538	20624	20691	20829	20917	20974						20836			
Well 1D School	Initials	Sect: 13.1	AH	BW	AH	AH	AH	AH	AH	AH					Sect: 13.2	AH/BW		Sect: 13.3	
	Date		1/5/22	2/24/22	3/1/22	4/19/22	5/20/22	6/27/22	7/13/22	8/11/22						6/16/22			
	W.O. #		20388	20466	20539	20625	20692	20830	20918	20975						20837			
Well 8 Williamson	Initials	Sect: 11.1	BW	BW	BW	BW	BW	BW	BW	BW								Sect: 11.4	
	Date		1/6/22	2/7/22	3/2/22	4/19/22	5/2/22	6/6/22	7/14/22	8/1/22									
	W.O. #		20389	20467	20540	20626	20693	20831	20919	20976									
Well 9 Polhemus	Initials	Sect: TBD	BW	BW	BW	BW	BW	BW	BW	BW								Sect: TBD	
	Date		1/3/22	2/7/22	3/2/22	4/4/22	5/5/22	6/6/22	7/1/22	8/1/22									
	W.O. #		20390	20468	20541	20627	20694	20832	20920	20977									
Well 13 Hampton	Initials	Sect: TBD	AH	AH	AH	AH	AH	AH	AH	BW					Sect: TBD	AH/BW		Sect: TBD	
	Date		1/6/22	2/22/22	3/28/22	4/4/22	5/18/22	6/22/22	7/18/22	8/2/22						6/16/22			
	W.O. #		20391	20469	20542	20628	20695	20833	20921	20978						20838			

= Well Rehab.

Year: 2022

Elk Grove Water District

Preventative Maintenance Program

Railroad Water Treatment and Storage Facility

Item		Monthly													Quarterly					Semi-annual			Annual	
		Refer.	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Refer.	1st	2nd	3rd	4th	Refer.	1ST 6-MO.	2ND 6-MO.	Refer.	2022
Clor-Tec System	Initials	Section: 4.2	AH/BW	AH	AH	AH	AH	AH	AH	AH					Section: 4.3	AH	AH	AH					Section: 4.4	
	Date		1/14/22	2/17/22	3/7/22	4/22/22	5/19/22	6/22/22	7/25/22	8/11/22						2/9/22	4/22/22	7/11/22						
	W.O. #		20392	20477	20547	20633	20681	20850	20905	20979						20481	20637	20909						
Filter System	Initials	Section: 5.1	AH/BW	AH	AH	AH/BW	AH	AH	AH	AH/BW										Section: 5.2	AH		Section: 5.3	
	Date		1/12/22	2/11/22	3/9/22	4/18/22	5/17/22	6/14/22	7/28/22	8/10/22											6/30/22			
	W.O. #		20393	20478	20548	20634	20682	20851	20906	20980											20847			
Backwash Ssytem	Initials	Section: 2.1	BW	AH	BW	BW	AH	AH	AH	BW										Section: 2.2	AH		Section: 2.3	
	Date		1/28/22	2/15/22	3/9/22	4/25/22	5/18/22	6/28/22	7/25/22	8/8/22											6/16/22			
	W.O. #		20394	20479	20549	20635	20683	20852	20907	20981											20848			
Booster Pumps	Initials	Section: 3.1	BW	AH	BW	BW	BW	AH	BW	BW										Section: TBD	AH/BW		Section: 3.2	
	Date		1/19/22	2/11/22	3/7/22	4/25/22	5/9/22	6/29/22	7/25/22	8/11/22											6/29/22			
	W.O. #		20395	20480	20550	20636	20684	20853	20908	20982											20846			
LAB	Initials														Section: 1.1	AH	AH							
	Date															3/20/22	6/29/22							
	W.O. #															20551	20846							
Clear Wells	Initials																						Section: 2.4	AH
	Date																							3/10/22
	W.O. #																							20504
MCC	Initials																						Section: 1.2	
	Date																							
	W.O. #																							

Year: 2022

Elk Grove Water District

Preventative Maintenance Program

Hampton Village Water Treatment Plant

Item		Monthly													Quarterly					Semi-annual			Annual	
		Refer.	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Refer.	1st	2nd	3rd	4th	Refer.	1ST 6-MO.	2ND 6-MO.	Refer.	2022
Chemical Systems	Initials	Section: TBD	AH	AH	AH	AH	AH	AH	AH	BW					Section: TBD	AH	AH	AH					Section: TBD	
	Date		1/6/22	2/15/22	3/3/22	4/27/22	5/18/22	6/22/22	7/18/22	8/2/22						3/3/22	6/22/22	8/18/22						
	W.O. #		20396	20470	20552	20638	20678	20839	20902	20983						20555	20842	21037						
Filter System	Initials	Section: TBD	AH	AH	AH	AH	AH	AH	AH	BW										Section: TBD	AH		Section: TBD	
	Date		1/6/22	2/15/22	3/3/22	4/27/22	5/18/22	6/22/22	7/18/22	8/2/22											6/30/22			
	W.O. #		20397	20471	20553	20639	20679	20840	20903	20984											20844			
Backwash Ssytem	Initials	Section: TBD	AH	AH	AH	AH	AH	AH	AH	BW										Section: TBD	AH		Section: TBD	
	Date		1/6/22	2/15/22	3/3/22	4/27/22	5/18/22	6/22/22	7/18/22	8/2/22											6/30/22			
	W.O. #		20398	20472	20554	20640	20680	20841	20904	20985											20845			
LAB	Initials														Section: TBD	AH	AH	AH						
	Date															3/3/22	6/22/22	8/24/22						
	W.O. #															20556	20843	21038						
MCC	Initials																						Section: TBD	
	Date																							
	W.O. #																							

Year: 2022

Elk Grove Water District

Preventative Maintenance Program

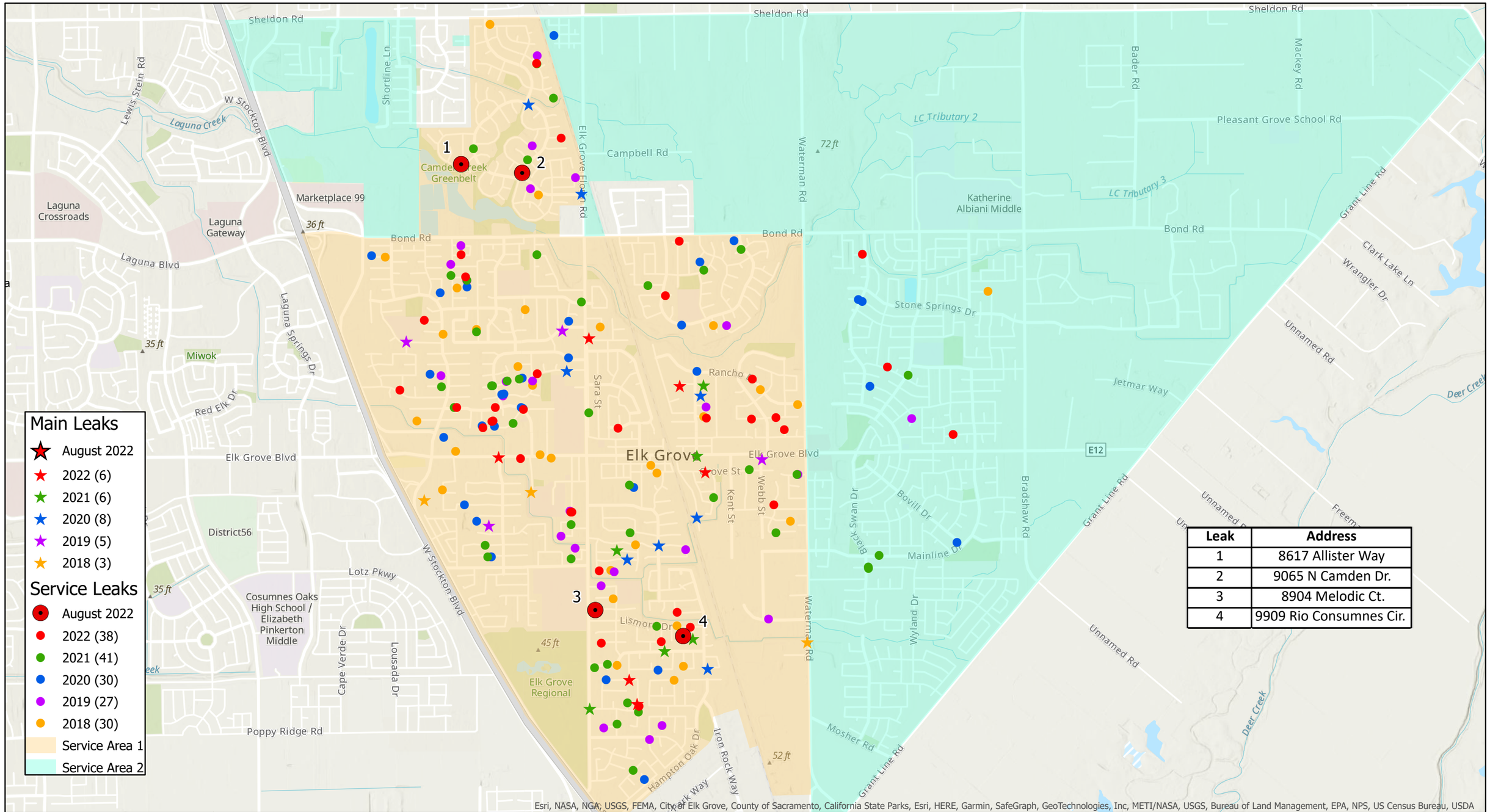
Standby Generators

Item		Refer.	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Annual Refer.	Annual 2022
			Monthly												Annual	
Railroad	Initials	Section: TBD	AH	AH	AH	AH	AH	AH	AH/BW	AH					Section: TBD	
	Date		1/14/22	2/22/22	3/25/22	4/26/22	5/20/22	6/23/22	7/28/22	8/11/22						
	W.O. #		20399	20473	20543	20629	20685	20854	20911	20986						
Webb	Initials	Section: TBD	AH	BW	BW	AH/BW	BW	AH	AH	BW					Section: TBD	BW
	Date		1/12/22	2/10/22	3/2/22	4/27/22	5/9/22	6/28/22	7/26/22	8/17/22						8/17/22
	W.O. #		20400	20474	20544	20630	20686	20855	20912	20987						21033
Dino	Initials	Section: TBD	AH	BW	BW	AH/BW	BW	AH	AH	BW					Section: TBD	BW
	Date		1/12/22	2/23/22	3/7/22	4/25/22	5/2/22	6/27/22	7/20/22	8/17/22						8/17/22
	W.O. #		20401	20475	20545	20631	20687	20856	20913	20988						21035

= Load test

Elk Grove Water District
Safety Meetings/Training
August 2022

Date	Topic	Attendees	Hosted By
8/1/2022	Hand Tool Safety	Alan Aragon, Stefan Chanh, David Frederick, Jaylyn Gordon-Ford, Aaron Hewitt, Sean Hinton, James Hinegardner, Brandon Kent, Justin Mello, Jose Mendoza, Michael Montiel, Chris Phillips, Steve Shaw, John Vance, Brandon Wagner, Marcell Wilson, Vue Xiong	Steve Shaw & Sean Hinton
8/15/2022	Back Injuries and Prevention	Alan Aragon, Stefan Chanh, David Frederick, Jaylyn Gordon-Ford, Aaron Hewitt, Sean Hinton, James Hinegardner, Brandon Kent, Justin Mello, Sal Mendoza, Michael Montiel, Chris Phillips, Steve Shaw, John Vance, Brandon Wagner, Marcell Wilson, Vue Xiong	Steve Shaw & Sean Hinton
8/29/2022	Lock Out Tag Out	Stefan Chanh, David Frederick, Jaylyn Gordon-Ford, Aaron Hewitt, Sean Hinton, James Hinegardner, Jose Mendoza, Sal Mendoza, Chris Phillips, Steve Shaw, John Vance, Brandon Wagner, Marcell Wilson, Vue Xiong	Steve Shaw & Sean Hinton



Leak	Address
1	8617 Allister Way
2	9065 N Camden Dr.
3	8904 Melodic Ct.
4	9909 Rio Consumnes Cir.

August 2022	
Main Line Leaks: 0	YTD: 6
Service Line Leaks: 4	YTD: 38
Total Leaks: 4	YTD: 44

Elk Grove Water District

Main and Service Line Leaks Map

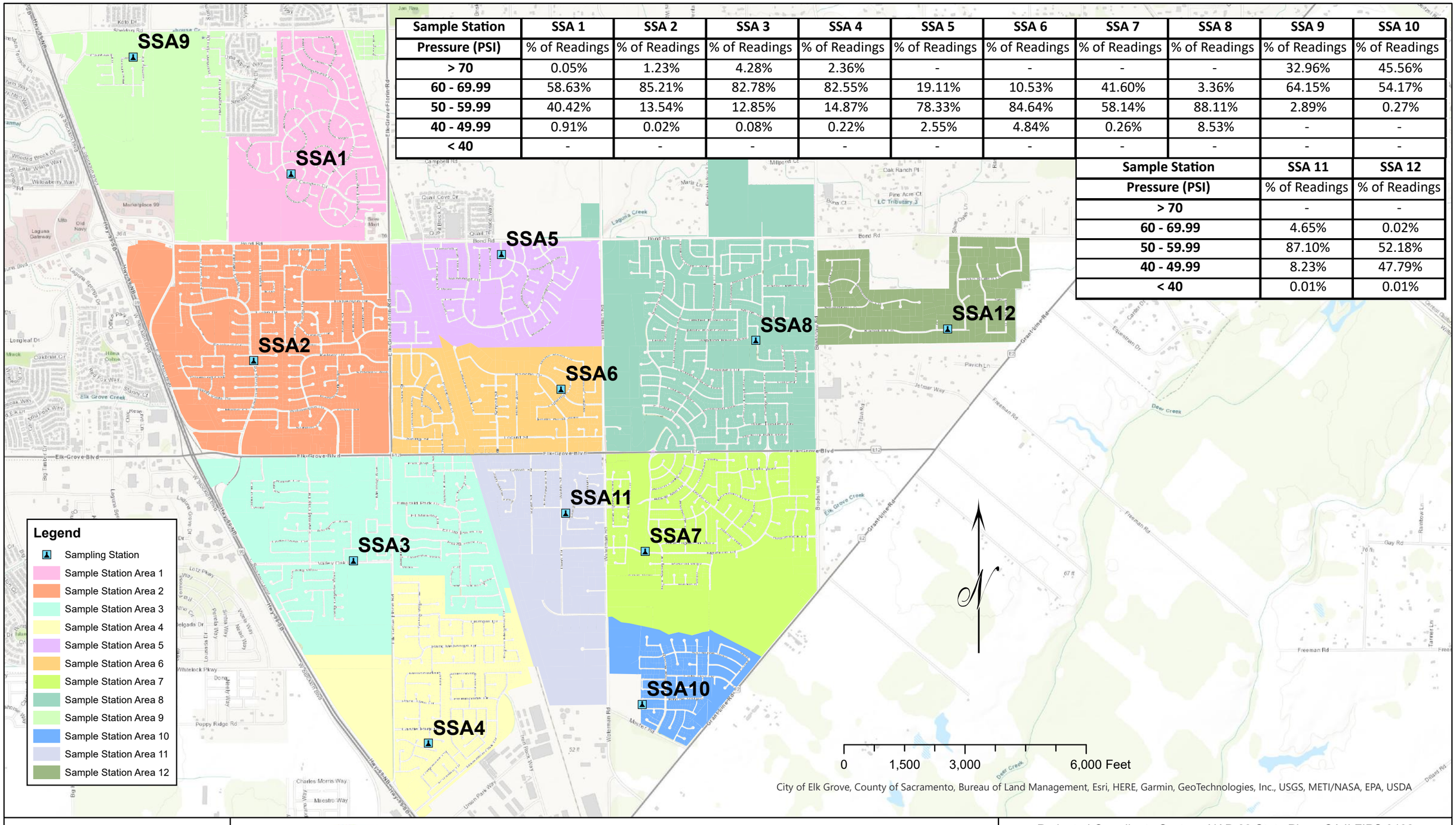
0 2,500 5,000 Feet

N W E S

Elk Grove Water District
Main & Service Line Leaks
Created by: Richard Ko
Date: September 9, 2022

Sample Station	SSA 1	SSA 2	SSA 3	SSA 4	SSA 5	SSA 6	SSA 7	SSA 8	SSA 9	SSA 10
Pressure (PSI)	% of Readings	% of Readings	% of Readings	% of Readings	% of Readings	% of Readings	% of Readings	% of Readings	% of Readings	% of Readings
> 70	0.05%	1.23%	4.28%	2.36%	-	-	-	-	32.96%	45.56%
60 - 69.99	58.63%	85.21%	82.78%	82.55%	19.11%	10.53%	41.60%	3.36%	64.15%	54.17%
50 - 59.99	40.42%	13.54%	12.85%	14.87%	78.33%	84.64%	58.14%	88.11%	2.89%	0.27%
40 - 49.99	0.91%	0.02%	0.08%	0.22%	2.55%	4.84%	0.26%	8.53%	-	-
< 40	-	-	-	-	-	-	-	-	-	-

Sample Station	SSA 11	SSA 12
Pressure (PSI)	% of Readings	% of Readings
> 70	-	-
60 - 69.99	4.65%	0.02%
50 - 59.99	87.10%	52.18%
40 - 49.99	8.23%	47.79%
< 40	0.01%	0.01%



Sample Stations: 12

August 2022

Elk Grove Water District

Sample Station Areas

Projected Coordinate System: NAD 83 State Plane CA II FIPS 0402

Source: EGWD GIS Database

Modified by: Richard Ko

September 8, 2022