Update on The Regional Groundwater Facilities Project - Phase I

Zone 7 Board Meeting June 18, 2025

44



Supporting Strategic Goals and Initiatives



Initiatives

	Develop a diversified water supply plan
# 5	and implement supported projects and
	programs



Implement the PFAs Management Strategy

#11 Manage the Groundwater Sustainability Agency and implement the Groundwater Sustainability Plan



Topics of Discussion

- Project Objectives
- Scope of Work
- Project Workflow
- Exploratory Drilling
- Yield Testing and Water Quality Analyses
- Upcoming Tasks
- Q&A





Project Objectives

Ζ	lone 7	Т	he City of Pleasanton
•	To implement PFAS management strategy	•	To recover 3,500 acre-feet of Groundwater Production Quota
•	To enhance water supply reliability	•	To improve water supply reliability
•	To become more resilient to multiyear droughts	•	To reduce wholesale water purchase costs
•	To gain operational flexibility and redundancy	•	To reduce operational complexity
•	To achieve cost savings through economies of scale	•	To achieve cost savings through economies of scale
•	To minimize impact on the local community and environment	•	To meet future drinking water regulations

4



Scope of Work

- Drill exploratory bore holes and construct three test wells at:
 - 1. Del Prado Park
 - 2. Pleasanton Tennis & Community Park
 - 3. Hansen Park
- Conduct Yield and Water Quality Testing at all sites
- Run Model Scenarios to analyze sustainability and PFAS mobilization
- Basis of Design
- Feasibility Study



Project Workflow





Exploratory Drilling







Community Outreach

- City of Pleasanton leading the outreach effort Zone 7 supporting
- Public meetings
- Stakeholder Workshops
 - Public Outreach Event at Tennis Park
 - City Water Open House (3/1/25)
- Website Collaboration
- Information Poster at Drilling Site







Mobilization





Exploratory Drilling







Well Design







Borehole Preparation





Well Construction





Well Development





Well Completion & Site Restoration









Yield Testing and Water Quality Analyses

June 18, 2025



Site Investigation Update

- Purpose of Site Investigations
 - Characterize Site Specific Lithology
 - Characterize Zonal and Composite Water Quality
 - Estimate Yield of Future Production Wells
 - Collect Information Necessary to Design Production Wells
- Site Investigation Methods
 - Test Hole Drilling and Geophysical Surveys
 - Collection and Analysis of Zone-Specific and Composite Water Quality Samples
 - Pump Testing
 - Dynamic and Static Spinner Surveys



Del Prado Test Well

- Test Hole Drilling Depth: 800-feet
- Potential production zones selected based on review of drill cutting and geophysical surveys
- 8-inch Diameter Casing
- Screened Intervals:





• Seal Depth: 156-feet

June 2025



Del Prado Test Well Zonal Water Quality

- Water samples were collected from screened intervals to characterize zonal water quality.
- Identification of zones with poor water quality will aid in production well design (i.e., isolation of poorquality zones)
- Water produced from the well meets all Title 22 Drinking Water Quality Standards with exception of Mn at 0.06 mg/l.

Analyte	Specific Conductance	Arsenic	Hexavalent Chromium	Manganese	PFOS/PFOA
Units	µmhos/cm	mg/L	ug/L	mg/L	ng/L
MCL	900/1,600 ¹	0.010	10	0.050	4
170-190'	<upper limit<="" td=""><td><mcl< td=""><td><mcl< td=""><td>0.06</td><td>ND</td></mcl<></td></mcl<></td></upper>	<mcl< td=""><td><mcl< td=""><td>0.06</td><td>ND</td></mcl<></td></mcl<>	<mcl< td=""><td>0.06</td><td>ND</td></mcl<>	0.06	ND
240-260'	<upper limit<="" td=""><td><mcl< td=""><td><mcl< td=""><td><mcl< td=""><td>ND</td></mcl<></td></mcl<></td></mcl<></td></upper>	<mcl< td=""><td><mcl< td=""><td><mcl< td=""><td>ND</td></mcl<></td></mcl<></td></mcl<>	<mcl< td=""><td><mcl< td=""><td>ND</td></mcl<></td></mcl<>	<mcl< td=""><td>ND</td></mcl<>	ND
300-320'	<upper limit<="" td=""><td><mcl< td=""><td><mcl< td=""><td><mcl< td=""><td>ND</td></mcl<></td></mcl<></td></mcl<></td></upper>	<mcl< td=""><td><mcl< td=""><td><mcl< td=""><td>ND</td></mcl<></td></mcl<></td></mcl<>	<mcl< td=""><td><mcl< td=""><td>ND</td></mcl<></td></mcl<>	<mcl< td=""><td>ND</td></mcl<>	ND
370-380'	<upper limit<="" td=""><td><mcl< td=""><td><mcl< td=""><td>0.08</td><td>ND</td></mcl<></td></mcl<></td></upper>	<mcl< td=""><td><mcl< td=""><td>0.08</td><td>ND</td></mcl<></td></mcl<>	<mcl< td=""><td>0.08</td><td>ND</td></mcl<>	0.08	ND
440-460'	<upper limit<="" td=""><td><mcl< td=""><td><mcl< td=""><td>0.07</td><td>ND</td></mcl<></td></mcl<></td></upper>	<mcl< td=""><td><mcl< td=""><td>0.07</td><td>ND</td></mcl<></td></mcl<>	<mcl< td=""><td>0.07</td><td>ND</td></mcl<>	0.07	ND
490-500'	<upper limit<="" td=""><td><mcl< td=""><td><mcl< td=""><td>0.10</td><td>ND</td></mcl<></td></mcl<></td></upper>	<mcl< td=""><td><mcl< td=""><td>0.10</td><td>ND</td></mcl<></td></mcl<>	<mcl< td=""><td>0.10</td><td>ND</td></mcl<>	0.10	ND
510-520'	<upper limit<="" td=""><td><mcl< td=""><td><mcl< td=""><td><mcl< td=""><td>ND</td></mcl<></td></mcl<></td></mcl<></td></upper>	<mcl< td=""><td><mcl< td=""><td><mcl< td=""><td>ND</td></mcl<></td></mcl<></td></mcl<>	<mcl< td=""><td><mcl< td=""><td>ND</td></mcl<></td></mcl<>	<mcl< td=""><td>ND</td></mcl<>	ND
570-580'	<upper limit<="" td=""><td><mcl< td=""><td><mcl< td=""><td>0.11</td><td>ND</td></mcl<></td></mcl<></td></upper>	<mcl< td=""><td><mcl< td=""><td>0.11</td><td>ND</td></mcl<></td></mcl<>	<mcl< td=""><td>0.11</td><td>ND</td></mcl<>	0.11	ND
Composite	965	0.003	3.25	0.06	ND

¹ Recommended/Upper Limit ND – Not detected



Del Prado Test Well – Pump Testing

- Pump test results, along with knowledge of local groundwater conditions used to estimate production of a future production well.
- Estimated yield of future production well is between 1,300 and 1,900 gallons per minute (1.87 -2.73 million gallons per day)
- Variation in estimated yield is due to seasonal water level fluctuations and well/pump efficiency ranges



¹ Gallons pumped for every foot of drawdown.

Del Prado Test Well – Flow Profile

Flow profiling characterizes:

- Amount of flow contributed from each screen zone
- What percentage of the total flow from the well is being produced from a zone
- Flow contribution diminishes with depth

Screen Interval	Production (gpm)	% of Flow
170-190'	99	36.5%
240-260'	71	26.1%
300-320'	45	16.7%
370-380'	14	5.2%
440-460'	26	9.6%
490-500'	9	3.2%
510-520'	5	1.9%
570-580'	2	0.4%



Tennis Park Test Well

- Test Hole Drilling Depth: 820-feet
- 8-inch Diameter Casing
- Screened Intervals:



• Seal Depth: 185-feet





Tennis Park Test Well Zonal Water Quality

- Water samples were collected from screened intervals to characterize zonal water quality.
- Identification of zones with poor water quality will aid in production well design (i.e., isolation of poorquality zones).
- Water produced from the well meets all Title 22
 Drinking Water Quality
 Standards.

Analyte	Specific Conductance	Arsenic	Hexavalent Chromium	Manganese	PFOS/PFOA
Units	µmhos/cm	mg/L	ug/L	mg/L	ng/L
MCL	900/1,600 ¹	0.010	10	0.050	4
195-215'	<upper limit<="" td=""><td><mcl< td=""><td><mcl< td=""><td><mcl< td=""><td>ND</td></mcl<></td></mcl<></td></mcl<></td></upper>	<mcl< td=""><td><mcl< td=""><td><mcl< td=""><td>ND</td></mcl<></td></mcl<></td></mcl<>	<mcl< td=""><td><mcl< td=""><td>ND</td></mcl<></td></mcl<>	<mcl< td=""><td>ND</td></mcl<>	ND
220-240'	<upper limit<="" td=""><td><mcl< td=""><td><mcl< td=""><td><mcl< td=""><td>ND</td></mcl<></td></mcl<></td></mcl<></td></upper>	<mcl< td=""><td><mcl< td=""><td><mcl< td=""><td>ND</td></mcl<></td></mcl<></td></mcl<>	<mcl< td=""><td><mcl< td=""><td>ND</td></mcl<></td></mcl<>	<mcl< td=""><td>ND</td></mcl<>	ND
300-320'	<upper limit<="" td=""><td><mcl< td=""><td><mcl< td=""><td><mcl< td=""><td>ND</td></mcl<></td></mcl<></td></mcl<></td></upper>	<mcl< td=""><td><mcl< td=""><td><mcl< td=""><td>ND</td></mcl<></td></mcl<></td></mcl<>	<mcl< td=""><td><mcl< td=""><td>ND</td></mcl<></td></mcl<>	<mcl< td=""><td>ND</td></mcl<>	ND
380-420'	<upper limit<="" td=""><td><mcl< td=""><td><mcl< td=""><td>0.057</td><td>ND</td></mcl<></td></mcl<></td></upper>	<mcl< td=""><td><mcl< td=""><td>0.057</td><td>ND</td></mcl<></td></mcl<>	<mcl< td=""><td>0.057</td><td>ND</td></mcl<>	0.057	ND
470-520'	<upper limit<="" td=""><td><mcl< td=""><td><mcl< td=""><td>0.065</td><td>ND</td></mcl<></td></mcl<></td></upper>	<mcl< td=""><td><mcl< td=""><td>0.065</td><td>ND</td></mcl<></td></mcl<>	<mcl< td=""><td>0.065</td><td>ND</td></mcl<>	0.065	ND
560-600'	<upper limit<="" td=""><td><mcl< td=""><td><mcl< td=""><td>0.17</td><td>ND</td></mcl<></td></mcl<></td></upper>	<mcl< td=""><td><mcl< td=""><td>0.17</td><td>ND</td></mcl<></td></mcl<>	<mcl< td=""><td>0.17</td><td>ND</td></mcl<>	0.17	ND
700-730'	<upper limit<="" td=""><td><mcl< td=""><td><mcl< td=""><td>0.082</td><td>ND</td></mcl<></td></mcl<></td></upper>	<mcl< td=""><td><mcl< td=""><td>0.082</td><td>ND</td></mcl<></td></mcl<>	<mcl< td=""><td>0.082</td><td>ND</td></mcl<>	0.082	ND
740-760'	<upper limit<="" td=""><td><mcl< td=""><td><mcl< td=""><td>0.094</td><td>ND</td></mcl<></td></mcl<></td></upper>	<mcl< td=""><td><mcl< td=""><td>0.094</td><td>ND</td></mcl<></td></mcl<>	<mcl< td=""><td>0.094</td><td>ND</td></mcl<>	0.094	ND
Composite	864	0.0011	4.8	0.032	ND

¹ Recommended/Upper Limit

ND - Not detected



Tennis Park Test Well – Pump Testing

- Estimated yield is between 3,400 and 5,100 gallons per minute (4.89 – 7.33 million gallons per day)
- Variation in calculated and estimated yield is due to seasonal water level fluctuations and well/pump efficiency



Tennis Park Test Well – Flow Profile

Flow profiling characterizes:

- Amount of flow contributed from each screen zone
- What percentage of the total flow from the well is being produced from each zone
- Diminished zonal yield with depth

Screen Interval	Production (gpm)	% of Flow
195-240'	164	27.6%
300-320'	161	27.2%
380-420'	97	16.4%
470-520'	106	17.9%
560-600'	19	3.2%
700-730'	31	5.2%
740-760'	15	2.6%



Hansen Park Test Well

- Test Hole Drilling Depth: 800-feet
- 100-foot Conductor installed due to unstable shallow formation
- 8-inch Diameter Casing
- Screened Intervals:



• Seal Depth: 265-feet





Hansen Park Test Well Quality

Analyte	Specific Conductance	Arsenic	Hexavalent Chromium	Manganese	PFOS/PFOA	PFHxS
Units	µmhos/cm	mg/L	ug/L	mg/L	ng/L	ng/L
MCL	900/1,600 ¹	0.010	10	0.050	4	10
298 - 318	<upper limit<="" td=""><td><mcl< td=""><td><mcl< td=""><td>0.063</td><td>ND</td><td>ND</td></mcl<></td></mcl<></td></upper>	<mcl< td=""><td><mcl< td=""><td>0.063</td><td>ND</td><td>ND</td></mcl<></td></mcl<>	<mcl< td=""><td>0.063</td><td>ND</td><td>ND</td></mcl<>	0.063	ND	ND
458 - 518	<upper limit<="" td=""><td><mcl< td=""><td><mcl< td=""><td><mcl< td=""><td>ND</td><td>2.7</td></mcl<></td></mcl<></td></mcl<></td></upper>	<mcl< td=""><td><mcl< td=""><td><mcl< td=""><td>ND</td><td>2.7</td></mcl<></td></mcl<></td></mcl<>	<mcl< td=""><td><mcl< td=""><td>ND</td><td>2.7</td></mcl<></td></mcl<>	<mcl< td=""><td>ND</td><td>2.7</td></mcl<>	ND	2.7
518 - 578	<upper limit<="" td=""><td><mcl< td=""><td><mcl< td=""><td>0.091</td><td>ND</td><td>ND</td></mcl<></td></mcl<></td></upper>	<mcl< td=""><td><mcl< td=""><td>0.091</td><td>ND</td><td>ND</td></mcl<></td></mcl<>	<mcl< td=""><td>0.091</td><td>ND</td><td>ND</td></mcl<>	0.091	ND	ND
608 - 628	<upper limit<="" td=""><td><mcl< td=""><td><mcl< td=""><td>0.15</td><td>ND</td><td>ND</td></mcl<></td></mcl<></td></upper>	<mcl< td=""><td><mcl< td=""><td>0.15</td><td>ND</td><td>ND</td></mcl<></td></mcl<>	<mcl< td=""><td>0.15</td><td>ND</td><td>ND</td></mcl<>	0.15	ND	ND
656 - 676	<upper limit<="" td=""><td><mcl< td=""><td><mcl< td=""><td>0.2</td><td>ND</td><td>ND</td></mcl<></td></mcl<></td></upper>	<mcl< td=""><td><mcl< td=""><td>0.2</td><td>ND</td><td>ND</td></mcl<></td></mcl<>	<mcl< td=""><td>0.2</td><td>ND</td><td>ND</td></mcl<>	0.2	ND	ND
736 - 756	<upper limit<="" td=""><td><mcl< td=""><td><mcl< td=""><td>0.24</td><td>ND</td><td>2.5</td></mcl<></td></mcl<></td></upper>	<mcl< td=""><td><mcl< td=""><td>0.24</td><td>ND</td><td>2.5</td></mcl<></td></mcl<>	<mcl< td=""><td>0.24</td><td>ND</td><td>2.5</td></mcl<>	0.24	ND	2.5
Composite	906	0.00092	4	0.035	ND	2.5

¹ Recommended/Upper Limit

ND – Not detected



Hansen Park Test Well – Pump Testing

- Estimated yield is between 3,400 and 4,200 gallons per minute (4.89 – 6.04 million gallons per day)
- Variation in estimated yield is due to seasonal water level fluctuations and well/pump efficiency



¹ Gallons pumped for every foot of drawdown.

Project Status – Next Steps

- Site Investigations, Well Construction, and Testing
 - Temperature profiling to be conducted in each well
- Modeling
 - Zone 7 will utilize its groundwater model to evaluate sustainability of groundwater basin with various configurations of new wells/pumping capacities (including PFAS concentrations impacts)
- Exploratory Test Drilling Findings Report
- Basis of Design Report (BODR)
 - Team will prepare a BODR based on site investigation and testing findings that details out facility configurations, capacities, and costs
- Feasibility Study Report



Summary of Findings and Next Steps





Summary of Findings

Well	Potential Pumping Rate (million gallons/day)	Potential Pumping Rate (Acre-feet/year)	Potential Average Pumping Rate** (Acre-feet/year)	PFOS/PFOA
Del Prado	1.87 - 2.73	2,100 - 3,100	2,600	ND
Tennis Park	4.84 - 7.33	5,400 – 8,200	6,800	ND
Hansen	4.89 - 6.04	5,500- 6,800	6,150	ND*

*PFHxS: Composite: 2.5 ppt; MCL (now rescinded) = 10 ppt (parts per trillion); Response Level = 20 ppt ** This rate would be the designed pumping rate; the actual rate and groundwater production will be less than the designed rate due to maintenance and outages

Potential Pipeline Routes



Next Steps



- 1. Analyze the feasibility of developing wells in terms of groundwater sustainability and PFAS mobilization
- 2. Determine the optimum selection of wells to achieve the project objectives for the City of Pleasanton and Zone 7
- 3. Assess infrastructure needs, schedule and total costs
- 4. Formulate each party's proportional cost share based on potential yields
- 5. Evaluate cost savings from economies of scale (by each party)
- 6. Provide necessary information and recommendations to the Zone 7 Board and the City Council to decide whether to jointly develop a regional project



