



**BOARD OF DIRECTORS
SAN LORENZO VALLEY WATER DISTRICT
AGENDA
July 18, 2019**

MISSION STATEMENT: Our Mission is to provide our customers and future generations with reliable, safe and high quality water at an equitable price; to create and maintain outstanding service and community relations; to manage and protect the environmental health of the aquifers and watersheds; and to ensure the fiscal vitality of the San Lorenzo Valley Water District.

Notice is hereby given that a meeting of the Board of Directors of the San Lorenzo Valley Water District will be held on **Thursday, July 18, 2019 at 5:30 p.m.**, SLVWD, 13057 Highway 9, Boulder Creek, CA 95006.

In compliance with the requirements of Title II of the American Disabilities Act of 1990, the San Lorenzo Valley Water District requests that any person in need of any type of special equipment, assistance or accommodation(s) in order to communicate at the District's Public Meeting can contact the District Secretary's Office at (831) 430-4636 a minimum of 72 hours prior to the scheduled meeting.

Agenda documents, including materials related to an item on this agenda submitted to the Board of Directors after distribution of the agenda packet, are available for public inspection and may be reviewed at the office of the District Secretary, 13060 Highway 9, Boulder Creek, CA 95006 during normal business hours. Such documents are also available on the District website at www.slvwd.com subject to staff's ability to post the documents before the meeting.

1. Convene Meeting/Roll Call

2. Additions and Deletions to Closed Session Agenda:

Additions to the Agenda, if any, may only be made in accordance with California Government Code Section 54954.2 (Ralph M. Brown Act) which includes, but is not limited to, additions for which the need to take action is declared to have arisen after the agenda was posted, as determined by a two-thirds vote of the Board of Directors (or if less than two-thirds of the members are present, a unanimous vote of those members present).

3. Oral Communications Regarding Items in Closed Session:

This portion of the agenda is reserved for Oral Communications by the public for items which are on the Closed Session portion of the Agenda. Any person may address the Board of Directors at this time, on Closed Session items. Normally, presentations must not exceed three (3) minutes in length, and individuals may only speak once during Oral Communications. No actions may be taken by the Board of Directors on any Oral Communications presented; however, the Board of Directors may request that the matter be placed on a future agenda. Please state your name and town/city of residence at the beginning of your statement for the record.

4. Adjournment to Closed Session

At any time during the regular session, the Board may adjourn to Closed Session in compliance with, and as authorized by, California Government Code Section 54956.9 and Brown Act, Government Code Section 54950. Members of the public will be given the opportunity to address any scheduled item prior to adjourning to closed session.

- a. CONFERENCE WITH REAL PROPERTY NEGOTIATORS
Property: APN 078-233-05, located along Scenic Way in Ben Lomond
Agency negotiator: Rick Rogers, District Manager
Negotiating party: Nick Naccari
Under negotiation: Price and terms of payment
- b. PUBLIC EMPLOYEE MID-YEAR PERFORMANCE EVALUATION
Government Code Section 54957
Title: District Manager

Closed Session Note:

The Brown Act prohibits the disclosure of confidential information acquired in a closed session by any person present and offers various remedies to address willful breaches of confidentiality. These include injunctive relief, disciplinary action against an employee, and referral of a member of the legislative body to the grand jury. It is incumbent upon all those attending lawful closed sessions to protect the confidentiality of those discussions. Only the legislative body acting as a body may agree to divulge confidential closed session information; regarding attorney/client privileged communications, the entire body is the holder of the privilege and only a majority vote of the entire body can authorize the waive of the privilege.

5. Convene to Open Session at 6:00 p.m.

6. Report of Actions Taken in Closed Session

7. Roll Call (Open Session):

8. Additions and Deletions to Open Session Agenda:

Additions to the Agenda, if any, may only be made in accordance with California Government Code Section 54954.2 (Ralph M. Brown Act) which includes, but is not limited to, additions for which the need to take action is declared to have arisen after the agenda was posted, as determined by a two-thirds vote of the Board of Directors (or if less than two-thirds of the members are present, a unanimous vote of those members present).

9. Oral Communications:

This portion of the agenda is reserved for Oral Communications by the public for items which are not on the agenda. Please understand that California law (The Brown Act) limits what the Board can do regarding issues raised during Oral Communication. No action or discussion may occur on issues outside of those already listed on today's agenda.

Any person may address the Board of Directors at this time, on any subject that lies within the jurisdiction of the District. Normally, communication must not exceed five (5) minutes in length, and individuals may only speak once during Oral Communications.

Any Director may request that a matter raised during Oral Communication be placed on a future agenda.

10. Unfinished Business:

Members of the public will be given the opportunity to address each scheduled item prior to Board deliberations. The Chairperson of the Board may establish a time limit for members of the public to address the Board on agenda.

- a. EDUCATION GRANTS - FINAL REPORTS
Discuss and possible action by the Board regarding acceptance of the Education Grants final reports.
- b. HYDROGEOLOGIST CONSULTING FIRM AWARD OF CONTRACT
Discussion and possible action by the Board regarding the award of contract for the Hydrogeologist Consulting Firm.
- c. 2019 WATER MASTER PLAN AWARD
Discussion and possible action by the Board regarding the award of contract for the 2019 Water Master Plan.
- d. WELL REHABILITATION OF QUAIL 5A AND OLYMPIA 3 AWARD
Discussion and possible action by the Board regarding the award of contract for the Well Rehab of Quail 5A and Olympia 3 wells.
- e. ISSUANCE OF NEW DEBT BY THE DISTRICT-REQUEST TO SCHEDULE BOARD MEETING
Discussion and possible action by the Board to schedule a Board meeting during the week of July 22, 2019.

11. New Business:

Members of the public will be given the opportunity to address each scheduled item prior to Board deliberations. The Chairperson of the Board may establish a time limit for members of the public to address the Board on agenda items.

- a. SURPLUS TRUCKS
Discussion and possible action by the Board regarding the possibility of putting District trucks up for surplus.
- b. SANTA CRUZ LOCAL AGENCY FORMATION COMMISSION BOARD ALTERNATE ELECTION
Discussion and possible action by the Board regarding the LAFCO Election for the open alternate position.

- c. CALIFORNIA SPECIAL DISTRICTS ASSOCIATION 2019 BOARD ELECTION
Discussion and possible action by the Board regarding CSDA 2019 Board Election.

12. Consent Agenda:

The Consent Agenda contains items which are considered to be routine in nature and will be adopted by one (1) motion without discussion. Any item on the consent agenda will be moved to the regular agenda upon request from individual Directors or a member of the public.

- a. MINUTES FROM BOARD OF DIRECTORS MEETING JUNE 6, 2019
Consideration and possible action by the Board to approve minutes from the BoD meeting on June 6, 2019.
- b. MINUTES FROM SPECIAL BOARD OF DIRECTORS MEETING JUNE 20, 2019
Consideration and possible action by the Board to approve minutes from the Special BoD meeting on June 21, 2019.
- c. MINUTES FROM BOARD OF DIRECTORS MEETING JUNE 20, 2019
Consideration and possible action by the Board to approve minutes from the BoD meeting on June 20, 2019.

13. District Reports:

No action will be taken and discussion may be limited at the President's discretion. The District encourages that questions be submitted in writing (bod@slvwd.com) on items listed in the District Reports. Questions submitted, if any, will be posted in the next available District Reports, along with a reply.

- DEPARTMENT STATUS REPORTS
Receipt and consideration by the Board of Department Status Reports regarding ongoing projects and other activities.
 - o Engineering
 - o Environmental
 - o Finance & Business
 - o Legal
 - o Operations
- COMMITTEE REPORTS
 - o Future Committee Agenda Items
 - o Committee Meeting Notes/Minutes
 - Budget & Finance Meeting - 6.4.19
 - Engineering Meeting - 6.6.19

14. Written Communication:

- o Letter from M. Shargel - Budget
- o Email from J. Thayer - Water Conservation
- o Email from L. Watson - Budget

- o Letter from B. McPherson - Fish Monitoring

15. Informational Material:

- o California Draft Program Environmental Impact Report
- o PG&E Planned Shut-offs - San Francisco Chronicle

16. Adjournment

Certification of Posting

I hereby certify that on July 12, 2019 I posted a copy of the foregoing agenda in the outside display case at the District Office, 13060 Highway 9, Boulder Creek, California, said time being at least 72 hours in advance of the meeting of the Board of Directors of the San Lorenzo Valley Water District (Government Code Section 54954.2).

Executed at Boulder Creek, California on July 12, 2019.

Holly B. Hossack
District Secretary

MEMO

To: Board of Directors

From: District Manager

Prepared by: Environmental Programs Manager

SUBJECT: FINAL REPORT FOR THREE 2018 CLASSIC WATERSHED EDUCATION
GRANT & ONE DATA/RESTORATION WATERSHED GRANT

DATE: July 18, 2019

RECOMMENDATION

It is recommended that the Board of Directors review this memo and accept the Final Report for following 2018 Classic Watershed Education Grant: EXPLORING THE SAN LORENZO RIVER, FIFTH GRADERS TO SCIENCE CAMP, SAN LORENZO OUTDOOR PRESURE FOR EDUCATION (SLOPE) and Data/Restoration Watershed Grant: HOW MUCH SOIL WATER DO INVASIVE SPECIES USE?

BACKGROUND

On May 21, 2018 the board awarded a Classic Watershed Education Grant in the amount of \$2,500 to Ami Davis, Development Manager at the Santa Cruz Museum of Natural History for a program called Exploring the San Lorenzo River.

In June 2019 the District received the final report (attached). This grant successfully expanded environmental literacy in the San Lorenzo Valley community. A total of 107 participants toured the San Lorenzo Valley River ecosystem. Tour topics included history, geology, ecology of the SLV watershed, fungus, flora, and fauna, faults, floods and fossils, and indigenous people.

On May 21, 2018 the board awarded a Classic Watershed Education Grant in the amount of \$2,500 to Tammy Schultz, Club President at the Boulder Creek Elementary Parents Club for a program called Fifth Graders to Science Camp.

In June 2019 the District received the final report (attached). This grant successfully helped students meet the state science framework standards and also gave a unique opportunity for our students to better understand the San Lorenzo River watershed. A total of 5 full scholarships and 3 partial scholarships for a total of 8 in need students.

On May 21, 2018 the board awarded a Classic Watershed Education Grant in the amount of \$3,000 to Rachel Hager, science teacher at the San Lorenzo Valley Middle School for a program called San Lorenzo Outdoor Preserve for Education (SLOPE).

In June 2019 the District received the final report (attached). As a result of this grant money, SLOPE has been participating in educating elementary students at SLVE and middle school students at SLVMS about their local watershed, water pollution and prevention, and conservation. This grant money funded the creation of watershed education lesson plans with an added focus of watershed restoration.

On May 21, 2018 the board awarded a Data/Restoration Watershed Grant in the amount of \$5,000 to Rachel Hager, science teacher at the San Lorenzo Valley Middle School for developing and implementing a monitoring and data collection program to evaluate how much soil water do invasive species use?

In June 2019 the District received the final report (attached). The goal of this project was to get San Lorenzo Valley students, teachers and parents to become involved with a scientific monitoring and data collection program evaluating invasive species eradication and success at Olympia Watershed Property and its impact on soil quality. See attached report for results.

It is recommended that your Board receive and accept these final reports.

FISCAL IMPACT:

Final 10% of contract to be paid following board acceptance. - Exploring the San Lorenzo River Tours \$250, Fifth Graders to Science Camp \$250, SLOPE \$300 and Hager's research \$500 for a total of \$1300

STRATEGIC PLAN:

Strategic Element 2.4 Watershed Stewardship - Environmental Education Program

Carly Blanchard
San Lorenzo Valley Water District
13060 Highway 9
Boulder Creek, CA 95006

June 26, 2019

Dear Ms. Blanchard,

We are writing to acknowledge the San Lorenzo Valley Water District for your generous support of the 2019 Exploring the San Lorenzo River Series, a joint project by the Santa Cruz Museum of Natural History (the Museum) and the Coastal Watershed Council (CWC). We are happy to share the accomplishments of this educational tour series aimed at engaging the public around the San Lorenzo River ecosystem and raising awareness of its integral role in the health of our community.

From February to June, the Exploring the San Lorenzo River Series provided bi-weekly tours along the San Lorenzo River for adults and youth to learn about what lives in the watershed. Each tour was led by a local birder, wildlife specialist or other expert, sharing their knowledge about local species and their life cycles, habitats and behaviors. Tours integrated hands-on exploration with short lectures, allowing participants time to learn and study native birds, fish and insects. Participants were prompted to consider the ecosystem within the greater urban landscape, learning about human impacts to the watershed and the best practices individuals can implement to protect habitats.

In order to work with our partners at the Coastal Watershed Council (CWC), we changed the format of this series to occur bi-monthly, with one walk in the upper river and one in the lower river (through Santa Cruz) per month, running February - June. The Museum was able to lead four tours (one upper-river and one lower-river walk was cancelled due to rain), provided honorarium for an additional walk coordinated by CWC, and facilitated one BioBlitz event with the support of the District. These events engaged a total of 65 children and adults (an average of 13 participants per walk), demonstrating higher participation at San Lorenzo Valley locations than other walks overall. For the entire program series (including the CWC-led walks along the lower San Lorenzo River), we saw a total of 107 participants, with an average attendance of 11 people per walk. Although attendance is lower than previous years, each walk was "sold out" prior to the day of the walk--we believe that the weather was a strong deterrent.

This program attracted participants from all over Santa Cruz County and even some families visiting from outside the county. Consistent with the objectives of the San Lorenzo Valley Water District, the Museum held its share of walks exclusively along the upper region of the river, within the service map of the District. These walks included:

- **“Majestic Giants” @ Fall Creek.** “What is the difference between old-growth and secondary-growth? How does the history, geology, and ecology of the San Lorenzo watershed influence us and the redwoods? Led by Spencer Klinefelter, Education Assistant at the Santa Cruz Museum of Natural History, we will discuss these topics as we meander along Fall Creek.”
- **Fungus, Flora, and Fauna @ Loch Lomond.** As winter shifts to spring, nature stirs! Explore a beautiful and unique part of the San Lorenzo watershed, and see the late fungus and early flowers that welcome the first migratory birds to our area. This tour will be led by local naturalist Christian Schwartz and will take place at Loch Lomond.
- **Faults, Floods, and Fossils @ Henry Cowell.** Explore the geologic history of the San Lorenzo Valley, how to identify the different kinds of rocks, river processes, faults, floods, and fossils. We are looking forward to this repeat of Frank Perry’s popular walk, described here.
- **Indigenous People in the San Lorenzo Valley @ Henry Cowell.** Learn about the first people to live in the Santa Cruz Mountains. How did they interact with the abundant natural resources? What evidence do we have to learn about their lifestyles? Where are they now? Guided by Lisa Robinson and Mark Hylcema

Some anecdotes from our upper-river walks exemplify the positive engagement participants had during the series. We hope that such stories help form an impression of the type of informal yet meaningful learning that happened during the walks. For example, during the tour led by local naturalist Christian Schwarz at Loch Lomond, the group explored many topics from the flora along the path to fauna including a dead fish on the shore that Christian dissected and interpreted for onlooking guests who were surprised to find the fish and thrilled to learn about its natural history and life cycle in our watershed. Another participant replied that their favorite part of the trip was “Getting a sense of human’s relationship with the river starting during the ice age through the mission period of California.”

The Museum made a special effort to reach out to the San Lorenzo Valley community by hosting its share of walks along the upper portion of the San Lorenzo River, placing an ad in the local paper, the *Press Banner*, advertising on Nextdoor Upper Big Basin, and promoting the event to the Museum’s roughly 500 SLV constituents. Several 2019 SLV attendees reported that they had heard about the series through these channels.

The BioBlitz event took place at the mid-way point of the series on the morning of Earth Day. A BioBlitz is a citizen science event where members of the public observe, record and identify species within an ecosystem. It paints a quick portrait of biodiversity and species distribution and provides potential data for land managers and researchers. During the two-hour Earth Day BioBlitz event, 7 community scientists (including 5 middle school students) utilized identification skills and knowledge from previous tours to submit a total of 98 observations in the riparian area along the San Lorenzo Park benchlands. BioBlitz participants identified 46 species of flora and fauna and were excited to connect with experts online, including 16 identifiers. During this event,

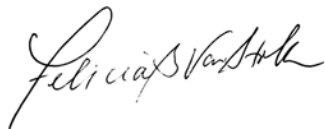
photographed observations were submitted to the California Academy of Sciences' popular data collection program, iNaturalist. Through this BioBlitz, Exploring the San Lorenzo River participants have already taken action as environmental stewards; their data has been contributed to conservation projects, including groups monitoring native biodiversity along the river.

Each walk participant was offered "Action Cards" with messages about things they can do to improve the health of their watershed such as "Go Reusable" and "Check for Leaks; Maintain your sewer lateral or septic tank". We had these magnetic cards left-over from last year, and to avoid potentially wasteful duplication, we opted instead to invest in durable tools that promote outdoor exploration. With those funds we purchased binoculars to loan to walk participants to deepen their connection and experience in nature.

We would not have been able to bring the "Exploring the San Lorenzo River" program series to San Lorenzo Valley without Water District support, and we are glad that participants were exposed to a diverse range of habitats along this important watershed. Providing free educational experiences in nature with series like this continues to be an important service and resource for our community, creating equitable access to our resources. After a walk led by archaeologist Mark Hylcema, and historian Lisa Robinson at Henry Cowell, a survey respondent said: "These types of programs matter! Learning lights up our lives and your programming is so generous! Thank you for making them available and thank for offering them at no cost. We are a low-income family and the only reason why we were able to attend is because we only had to pay for the gas (from an hour away), the parking and so the \$6 we spent on ice cream was literally the cherry on top. We love living in such a beautiful part of the world, are lifelong learners, naturalists and participate in related events so being able to attend and celebrate this natural beauty is such a gift! We loved seeing all the families connecting with nature and being in love with this gift of the park system. One of the last things Mark said to our group was an invitation to go explore the river and park on our own. He said something like, 'It's yours after all.' I thought about that later and really took that in."

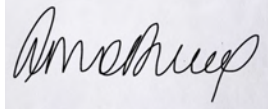
Thank you for taking the time to review our report and for supporting the work of the Santa Cruz Museum of Natural History over the past year. Please let us know if you have any questions. We look forward to working together in the future to provide more educational and inspirational opportunities for the community to connect with the San Lorenzo River.

Sincerely,



Felicia Van Stolk, Education Director
Santa Cruz Museum of Natural History

Proposal for the 2018 San Lorenzo Valley Water District Classic Watershed Education Grant

1. Name of Individual(s)/Organization Submitting Proposal:

Ami Davis, Development Manager
Santa Cruz Museum of Natural History

2. Name, Address, Telephone Number(s) and Email Address of Contact Person:

Ami Davis, Development Manager
Santa Cruz Museum of Natural History
1305 East Cliff Drive, Santa Cruz, CA 95062
831.420.6115 x14, development@santacruzmuseum.org

3. Title of Project: Exploring the San Lorenzo River**4. Amount of Funds Requested:** \$2,500 + \$500 public outreach component (\$3,000 total)**5. Briefly describe and summarize your project.**

The Santa Cruz Museum of Natural History (the Museum) will continue a series of free educational walks and a culminating BioBlitz event along the upper and lower San Lorenzo River to educate the community and inspire stewardship about this important wildlife habitat, with a special outreach effort to San Lorenzo Valley residents. The Museum will work alongside the Coastal Watershed Council (CWC) to coordinate these expert-led walks, including several along the upper portion of the river, bringing together two successful programs: The Museum's "Birding Along the San Lorenzo River Walk Series" and CWC's "Ecosystem Expeditions." The San Lorenzo Valley Water District Classic Watershed Education Grant would support the Museum's expenses for this joint program.

6. Briefly describe why this project is needed and/or what specific problems your project will address.

The reputation of the San Lorenzo River has suffered with incidences of crime and a history of unhealthy water. In combination with this negative reputation, the lack of positive uses for the river is discouraging to those who may be curious. Many people are also unaware that the entire San Lorenzo Valley watershed is a crucial source of water for our community; some still think that all of their water comes from nearby reservoirs. The Museum and CWC see an opportunity to improve this dynamic and expand knowledge about the critical role played by the San Lorenzo watershed with our Exploring the San Lorenzo River series of programs, and hope that by raising awareness of our source of water, we may inspire the community to take a bigger role in protecting it.

The Exploring the San Lorenzo River series will provide unique educational experiences inspired by best practices in outdoor education, including hands-on exploration, participant-led learning, and opportunities to apply knowledge. The series is intended for all ages, and is particularly suitable for multigenerational family audiences. Walks held within the San Lorenzo Valley Water District service area in particular will build positive memories that connect participants to nature, and foster a sense of responsibility for the health and quality of native fish and wildlife habitats. Participants will learn from expert birders and wildlife specialists to identify species, and learn about their life cycles, habitats and behavior. They will also learn

about the impacts of humans on the watershed. Topics may include salmonid life cycles and habitats in the upper and lower river, the importance of sandhills to groundwater, home gardening and small-scale agriculture along the river, riparian plants and restoration, and various wildlife identification and spotting (birds, mushrooms, amphibians). One survey respondent told us that as a result of the 2018 “Sandhills and the San Lorenzo” tour, they “will no longer clear wood debris in streams. Now I know they provide habitat! I also know the new standard is ‘slow it sink it store it.’ Before I thought we wanted run off to clean the streams and rivers.” The Museum and CWC will support this immersive, impactful outdoor learning experience with activities and games that help participants retain knowledge and appreciate their role in this diverse urban river ecosystem.

The Museum will also provide “Action Cards” for participants as a program take-away. These cards will explain what participants can do in their everyday lives to be citizen scientists and stewards of their watershed, such as cleaning up after pets, conserving water, and participating in other stewardship projects that directly impact the riverine ecosystem.

As in 2018, the Museum will make a special effort to reach out to the San Lorenzo Valley (SLV) community by hosting its share of walks along the upper portion of the San Lorenzo River, placing an ad in the local paper, *The Press Banner*, advertising on Nextdoor Upper Big Basin, and promoting the event to the Museum’s roughly 500 SLV constituents. Several 2018 SLV attendees reported that they had heard about the series through these channels. All attendees will leave each tour with clarity on what actions they can take to preserve and protect the San Lorenzo River habitat.

By providing this program series free of charge, we offer an inclusive way for people from all economic levels and academic backgrounds to practice citizen science, and become empowered to contribute to the scientific study of and appreciation for the San Lorenzo River.

7. Identify the overall goal(s) and primary objective(s) of your project/program. Objectives are the “real world” things you will do as a means of achieving your goals.

Goals:

1. Reconnect a healthy San Lorenzo watershed to a vibrant community.
2. Educate the public, especially San Lorenzo Valley residents, about the river and raise awareness of the river’s integral role in the health of our community and the ecosystems it supports.
3. Reframe the river as a space for community gathering and recreation, and inspire regional pride in this ecosystem and community resource.
4. Inspire and equip participants to take action and engage with efforts to support the health of the San Lorenzo River ecosystem.

Objectives:

- Provide participants with opportunities to connect with experts and to explore and discover the riverine ecosystem.
- Host 10 total bird, fish and wildlife tours and one culminating BioBlitz along the San Lorenzo River from February to April 2019, bringing approximately 250 people to visit the river and learn about local wildlife in this habitat. 5 of these walks will occur in the San Lorenzo Valley Water District service area.
- Provide “Action Cards” for participants as a program take-away to promote ongoing stewardship projects that directly impact the river ecosystem.

8. Describe how you will demonstrate achievement of the stated goal(s) and proposed objective(s).

1. Participation in each walk will be at maximum capacity (at least 200 participants total).
2. As a result of the program, survey responses will demonstrate an increase in environmental concern, the value of a free citizen science program to participants' lives, and an increase in knowledge about the watershed.
3. There will be an increase in the number of observations conducted during the 2019 BioBlitz compared to the 2018 pilot program.

9. Describe your qualifications to complete the grant proposal.

The Museum works toward its mission *connecting people to nature and inspiring stewardship of the natural world*. The Museum is a leader in environmental education in the community. With diverse Museum and field-based programs, we serve more than 30,000 children and adults each year. The programs are supported by a dedicated base of trained volunteer docents that allow us to keep programs low priced and accessible.

The Museum education staff has extensive experience in watershed education, curriculum development, restoration, fieldwork, volunteer coordination, program development, and program evaluation. We are consistently working to upgrade our programs and make them relevant to diverse audiences throughout Santa Cruz County.

10. Identify the key participants and leadership of your proposed project.

The Museum's education team is led by Education Manager Felicia Van Stolk. Felicia has been developing, leading and training others in environmental education programs since 2010. She is a Santa Cruz native with extensive experience in marine science education, and was responsible for programming at the Marine Science Institute. Felicia has a Bachelors in Marine Biology (with a minor in Conservation Biology) from UCLA and has facilitated watershed education programs for children and the general public.

The CWC, a supporting partner, was formed in 1995 in response to the declining health of watersheds connected to the Monterey Bay. CWC's mission is to preserve and protect coastal watersheds through stewardship, education and monitoring. Over the past 21 years, CWC has educated thousands of students and trained thousands of volunteers to protect the natural resources along California's Central Coast. CWC's technical experts follow state and federal protocols to generate scientifically valid data that inform key decision-makers. CWC's history has positioned it as a well-respected leader in watershed protection.

11. Briefly describe exactly what you are going to do and how you are going to accomplish your proposed project.

Program planning will take place in January 2019 and will include coordinating and scheduling guest speakers, applying for permits, developing promotional materials, and designing curriculum for youth engagement and the BioBlitz. The Museum will develop curricula for the walks as well as take-away "Action Cards" for participants. The Museum and CWC will organize ten weekly walks, five focused on birdwatching and five focused on fish and wildlife, along the San Lorenzo River to occur February through April 2019, including recruiting experts, obtaining permits, and coordinating marketing efforts. Five of these walks will occur in the San Lorenzo Valley Water District service area.

12. Identify specific timelines & milestones for project completion and the final project report.

Task	Completed by
Expert recruitment	January 2019
Obtain necessary permits	January 2019
Launch marketing campaign	January 2019
Conduct programs	February-April 2019
BioBlitz Event	Earth Day 2019
Final project report	June 2019

13. Describe your proposed project monitoring program.

We use an online system, Altru, to track RSVPs and attendance. We send Survey Monkey surveys to participants after each walk to track and analyze program impact. We use the iNaturalist citizen scientist database to record observations made during the BioBlitz program.

14. Briefly describe how your proposed project relates to and supports the Education Program Mission Statement.

The San Lorenzo River is an integral part of our community's history, public health and local economy and is the primary source of drinking water for nearly 100,000 people. It is home to threatened steelhead trout and endangered Coho salmon and local and migratory bird species. Yet our community has a mixed relationship with the San Lorenzo River and its riverfront parks with specific concerns of public safety and accessibility of the river for positive uses. In order to better make informed decisions and to take daily actions that support the mutual health of humans and wildlife, we must build a positive association with this habitat. The purpose of Exploring the San Lorenzo is to raise awareness about this critical ecosystem. The river walks and Action Cards will empower participants with concrete steps to improve the watershed's health and help them associate the river with natural beauty and vitality.

15. Identify any other source(s) of funding for your proposed project.

We will apply to other sources, such as the County of Santa Cruz Fish and Wildlife Advisory Commission, to cover additional staffing costs of the program. The Museum will also use funds raised from its donors and business sponsors. CWC will identify separate funding from a source other than the San Lorenzo Valley Water District or County of Santa Cruz Fish and Wildlife Advisory Commission for their project components.

16. Optional public outreach component:

The Museum will design ads that promote the series and present an educational anecdote about the watershed. We will utilize marketing funds to purchase ads in *The Press Banner* to reach out to San Lorenzo Valley residents, and the Good Times (one of our media partners). We will create a press release to distribute to our other media outlets, and announce the series on Nextdoor for SLV residents. Finally, the Action Cards will be a collectable keepsake to provide ongoing inspiration for participants to act as stewards of the San Lorenzo River. The San Lorenzo Valley Water District would be prominently recognized on all print and web literature about the series, as well as the Action Cards.

Update from the Boulder Creek Elementary Parents Club “Fifth Graders to Science Camp” project funding. The BCE Parents Club was able to raise approximately \$8700, including \$2250 from the SLV Water District grant, towards the cost of the Camp Campbell Outdoor Science School (CCOSS) in Boulder Creek, in the spring of 2019. This fundraising brought down the price of camp from \$300 per child to \$250 per child with five full-scholarships and three partial scholarships given to children in need. 74 5th graders attended the program. Attendance at camp not only helps our staff and students meet the state science framework standards, but also gives a unique opportunity for our students to better understand the San Lorenzo River watershed. This matches the mission of the SLVWD Education Grant Program, which is to provide funding for educational projects that enhance the understanding of the San Lorenzo River watershed. Thank you for your support of our Valley children’s education and this once-in-a-lifetime opportunity to change young peoples’ perspectives and understanding of our watershed and environment.

San Lorenzo Outdoor Preserve for Education Final Project Report

As a result of this grant money, SLOPE has been participating in educating elementary students at SLVE and middle school students at SLVMS about their local watershed, water pollution and prevention, and conservation. This grant monies funded the creation of watershed education lesson plans with an added focus of watershed restoration. The lesson plans also required teaching materials, and funds were used to purchase educational materials that can be used indefinitely, such as the mini watershed models and the Enviroscape watershed restoration model. Filming the water pollution monitoring process occurred at several points along the San Lorenzo River watershed (Castle Rock State Park, the Junction Park, Highland Park, Henry Cowell and Santa Cruz) for educational purposes. We did not purchase video equipment since more money was needed for lesson plan materials. The publicity team contributed their cameras. Students not only participated in watershed education lessons through their Science classes, but a group of students studied water quality along the San Lorenzo river after school the months of January and February. A website was created to post watershed education lessons and to have an online reservation system for the SLOPE outdoor classroom. Students made video PSAs regarding pollution prevention. Students who did the water quality testing also did several publicity events. One event was an interview on KSCO radio station. The other event was "A Drone's Eye View of the San Lorenzo River Watershed" at SLVMS. Science teachers at SLVE and SLVMS participated in watershed education lessons and chose from lessons made available on the website, <https://sites.google.com/view/slopeeducation> and www.sanlorenzooutdoorpreserveforeducation.com. We are excited about the long-term possibilities of the SLOPE outdoor classroom and the watershed curriculum available for indefinite use for SLVE and SLVMS Science teachers. Another exciting byproduct was the forming of a Green Team at SLVMS, which is a group of students and teachers committed to Environmental Awareness. The Green Team participated in activities planned by this grant as well.

Income:

1st Installment of grant	\$2700
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Expenses:

Watershed models for lessons	\$1341.80
Trays for topographic models	\$ 19.99
Website domain registration 3 years	\$ 79
Teachers Stipends and wages	\$1050.10
Publicity	\$ 500
(2990.89)	
Total	\$2990.89

Sincerely,
Rachel Hager
SLVMS Teacher

SLVUSD Data Collection Final Report

As a result of this grant money, members of the San Lorenzo Valley Unified School District, students, teachers and parents implemented a monitoring and data collection program to evaluate invasive species eradication and success at Olympia Watershed Property and its impact on soil quality.

Soils were monitored and tested for pH and nutrients and permeability in areas where French broom has been removed, areas where French broom is active, and areas with no broom. The first step involved meeting with UCSC scientists and SLVWD Olympia experts to gain an understanding of the sites. Sites 1 and 2 are clearly marked on the Soil Study Sites maps. We reviewed existing maps of French broom populations. See Invasive Species Mapping 2009-2011. Tracts were identified as Sites 1 and 2, with each having a No Broom, Broom Removed, and Active Broom study site. Approximately 52 students at SLV Nature Academy, many parents VMS Science educator Rachel Hager conducted soil studies. Results were qualitative, yet informative. Soil samples were also reviewed by a professional lab and those results are attached to this report. See Soil Report Site 1 and Site 2 for Reference. We complied with US Fish and Wildlife to minimally disturb the textured sands of the Zayante series. This group started a website about Olympia Watershed.

Citizen Scientist and consultant Peter Wildberger and Rachel Hager established a long-term plant monitoring program using handheld GPS devices (most cell phones are capable of this) to collect data, stored on a spreadsheet that is easily posted to mapping software for public access. We monitored and documented key plant species such as French broom, other non-native invasives, and also many native stands. Videos of identifying native and non-native plants was done using video cameras and a drone video camera. We used ODK collect to a google sheet. The public could take photos and insert the latitude and longitude into the spreadsheet to further monitor plants. The link to the spreadsheet is [here](#). A simpler form may be used for the general public Citizen Scientists. See Olympia Survey for SLVWD for the most current data updated to the spreadsheet. This type of monitoring could be done for tracking large stands of Broom. The mapping technique was selected to better show the density of French Broom. Each dot represents twenty French Broom plants, compared to the 2009-2011 map that showed entire regions. We also wanted to highlight the existence of key native species. The map of non-natives is not comprehensive.

To accomplish the the San Lorenzo Valley Water District's Olympia Watershed Property, we recommend continuing to support an Integrated Vegetation Management Plan to manage the vast stands of French Broom.

FINANCIAL REPORT

Income:

SLVWD Grant funds	\$ 4500
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Expenses:

Materials	\$ 1375.82 (172.62 was returned due do mistake in order)
Flinn items	\$ 1353.08
Hager fees	\$ 387.19
Wildberger fees	\$ 600
Sotelo fees	\$ 600
A and L Laboratories	\$ 204
Trays for testing	\$ 39.45
Microphones for videos	\$ 285.87
Bag for testing and models	\$ 66.12

Total	\$ 4511.53
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For Further Requests or Questions, you may contact:

Rachel Hager

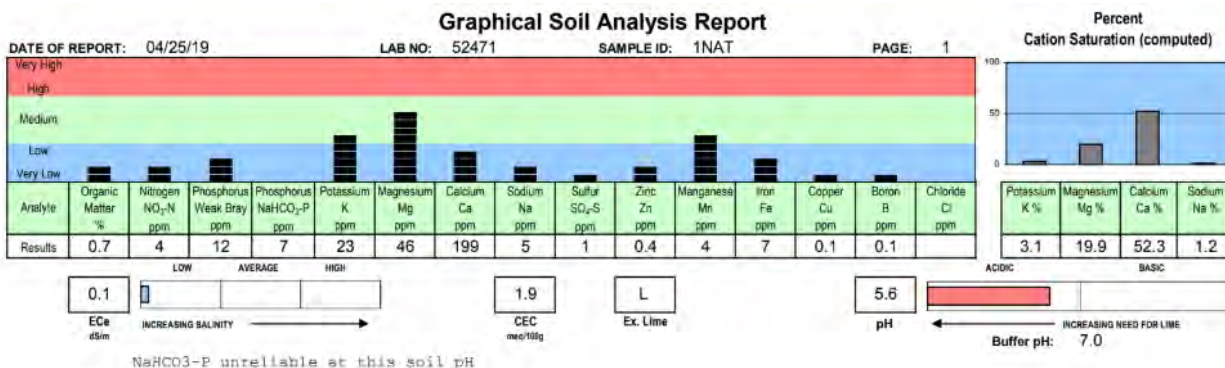
rhager@slvusd.org

SLVMS

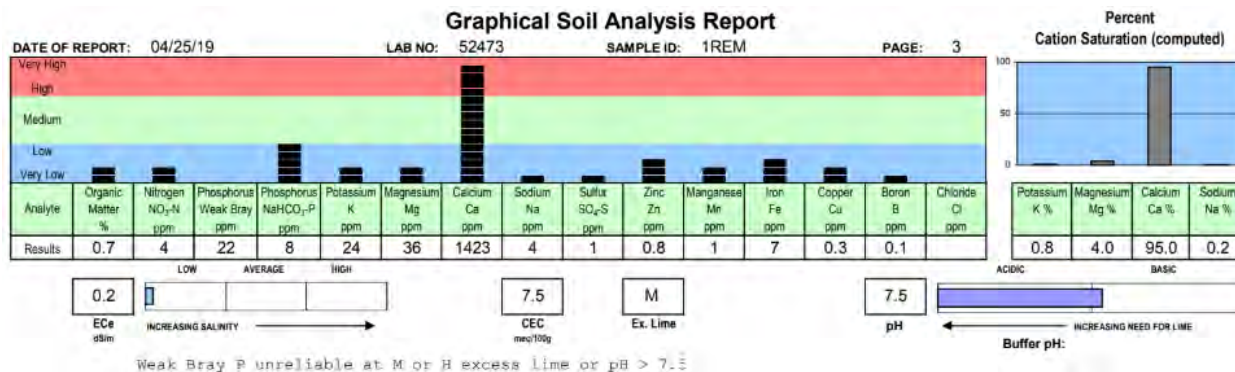
7179 Hacienda Way

Felton, CA 95018

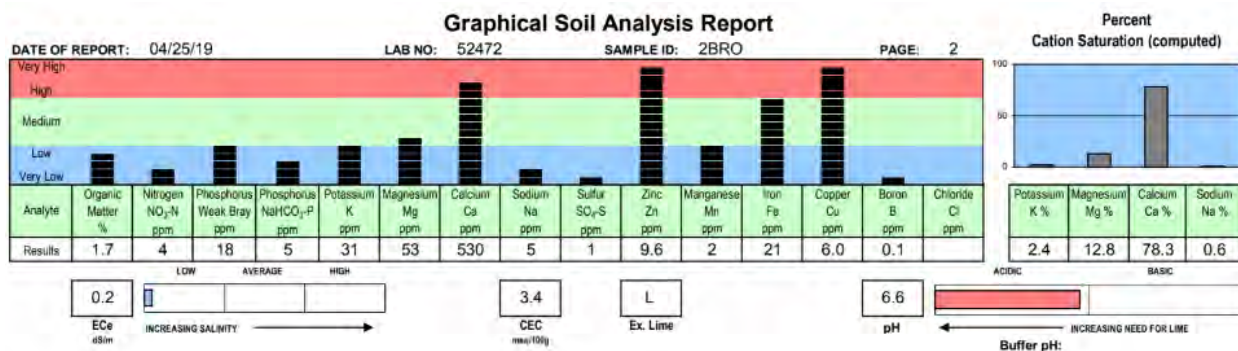
SOIL REPORT FOR SITE 1



Site 1 Soil where No Broom Ever Present

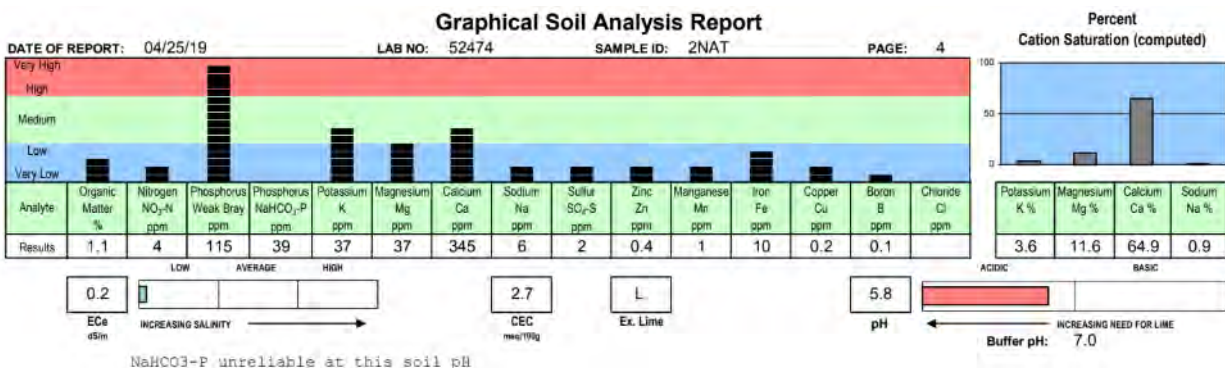


Site 1 Soil where Broom was Removed

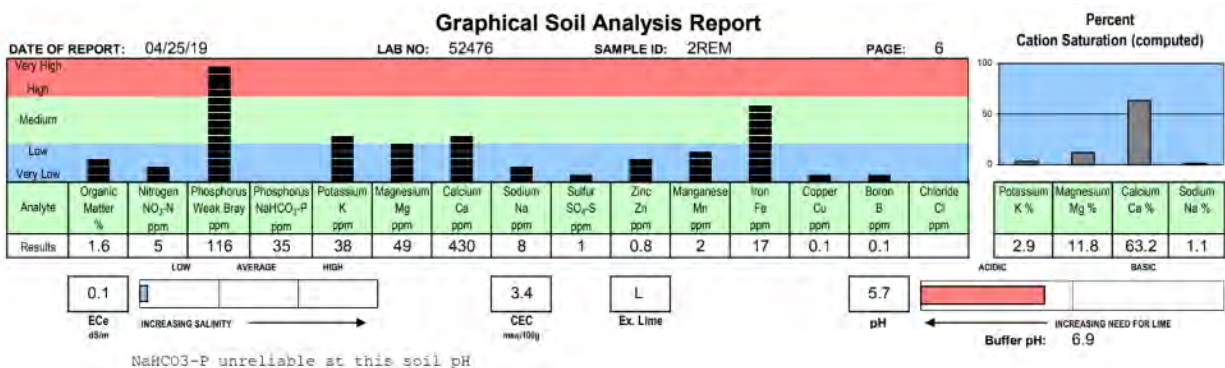


Site 1 Soil Underneath Broom

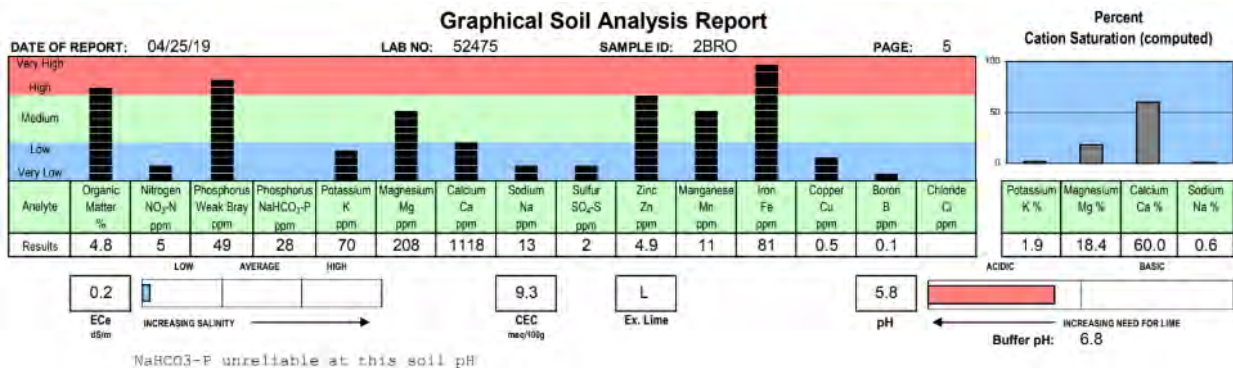
SOIL REPORT FOR SITE 2



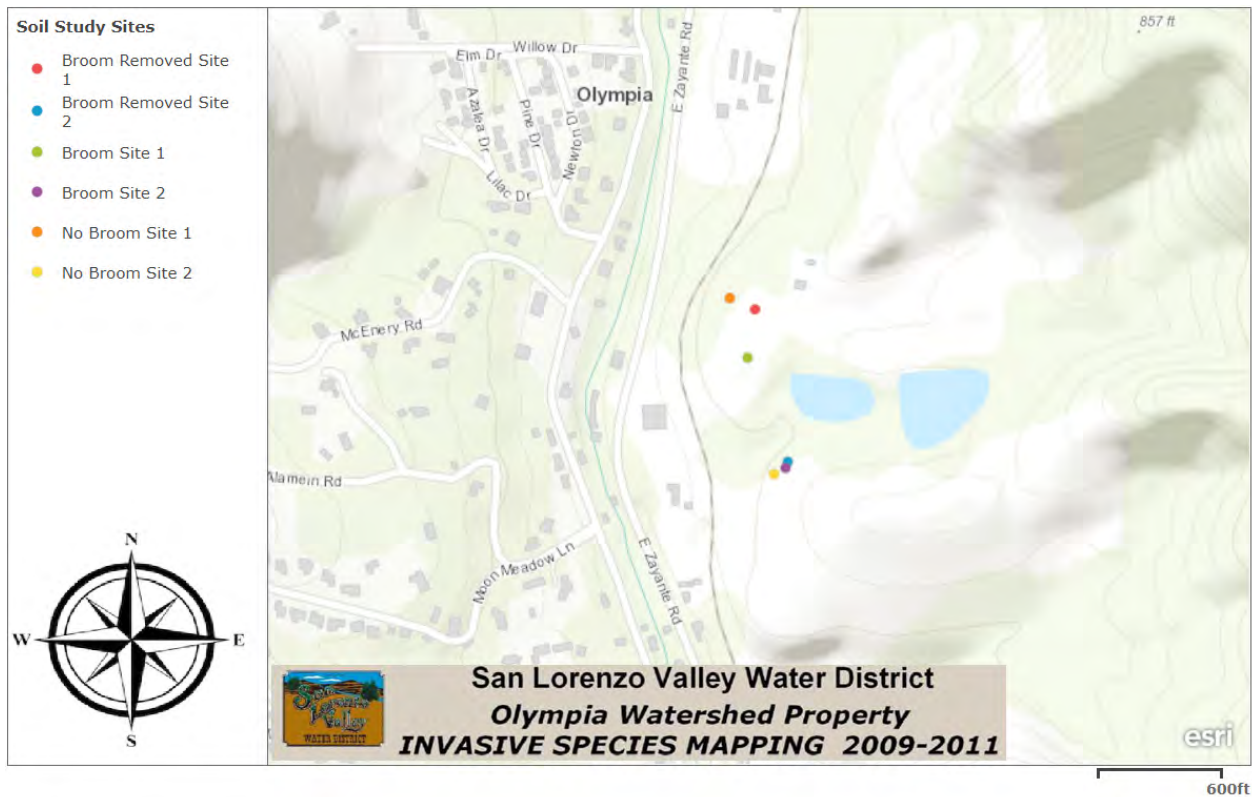
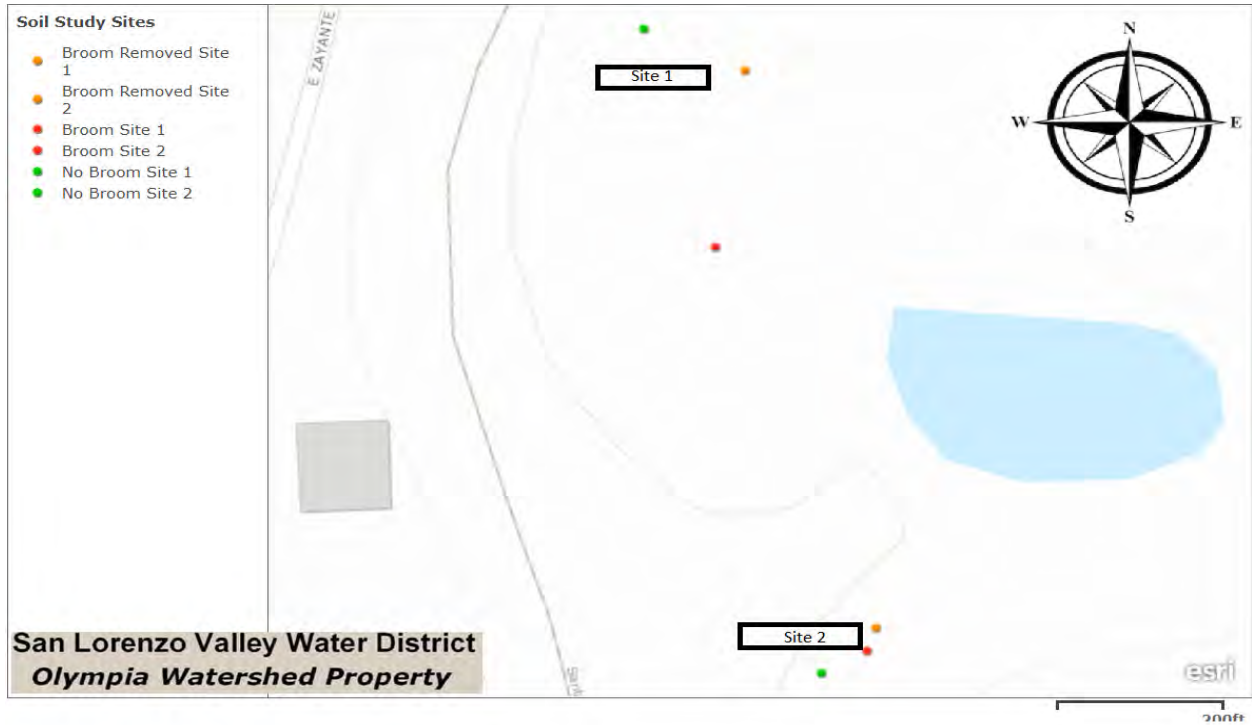
Site 2 Soil where No Broom Ever Present

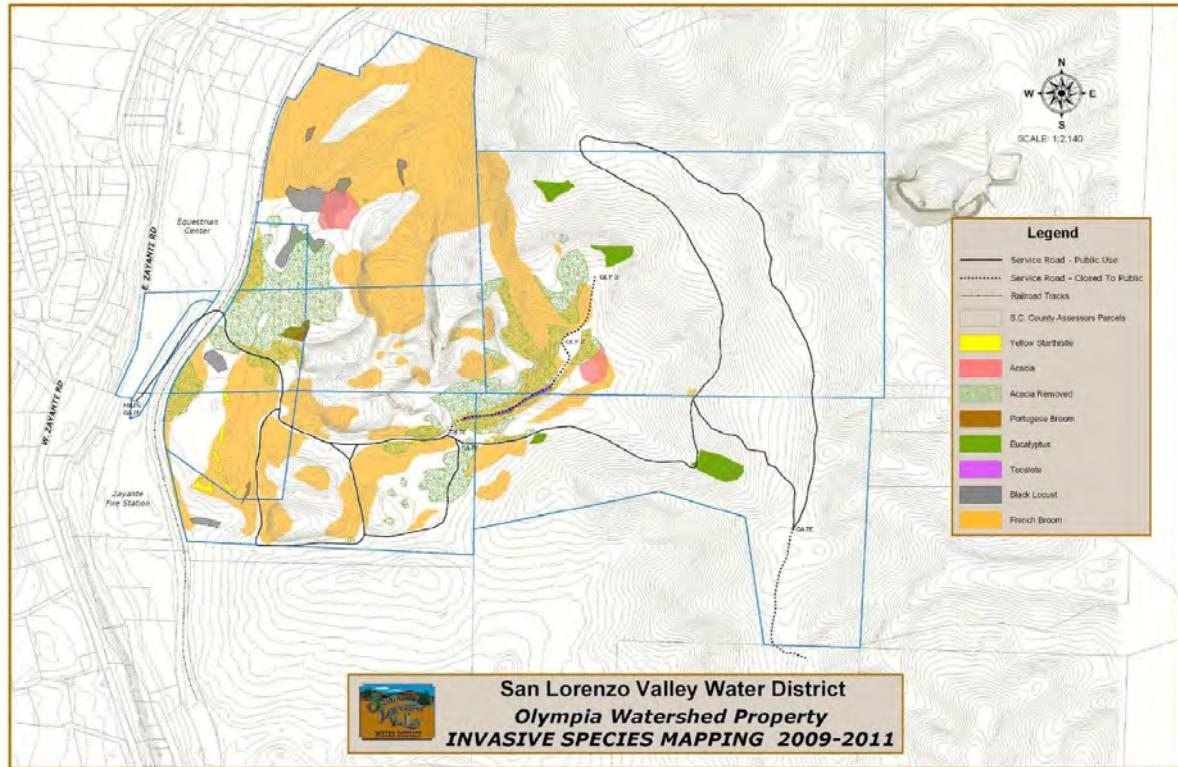


Site 2 Soil where Broom was Removed

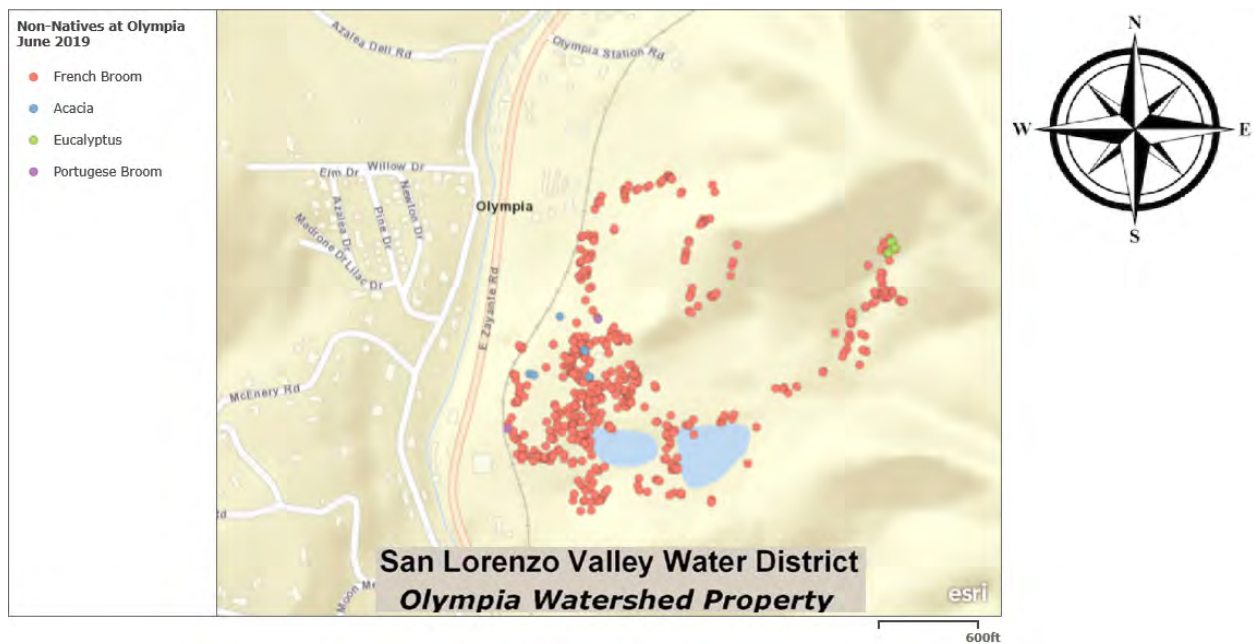
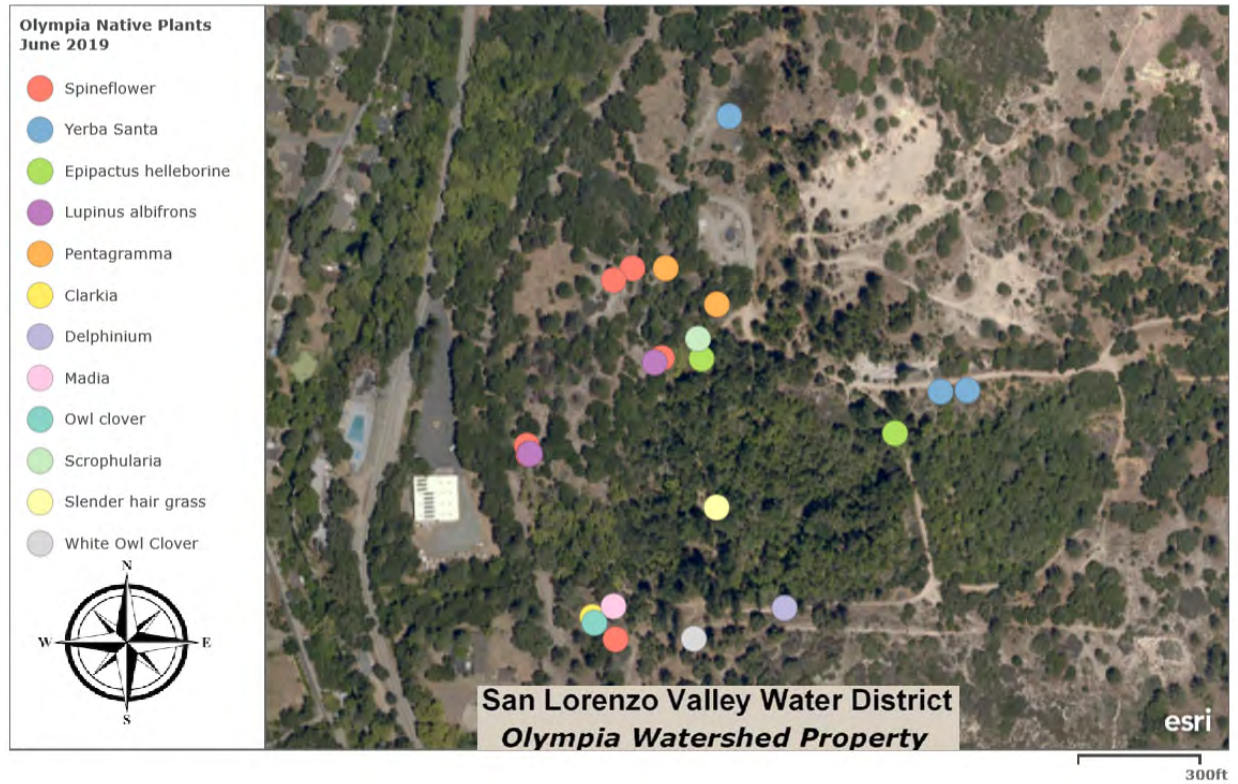


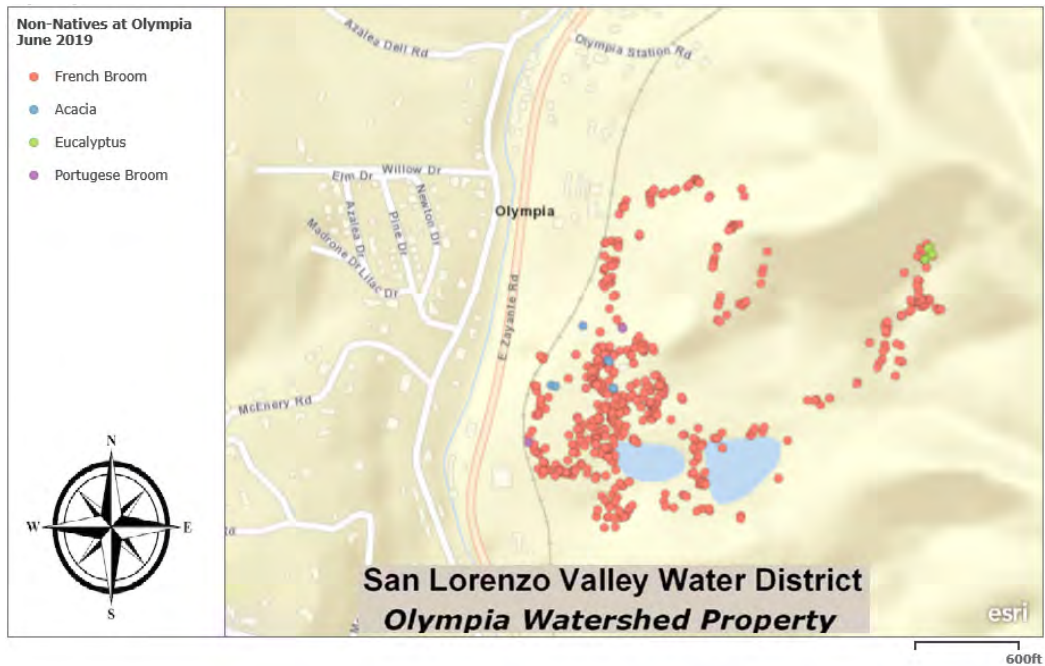
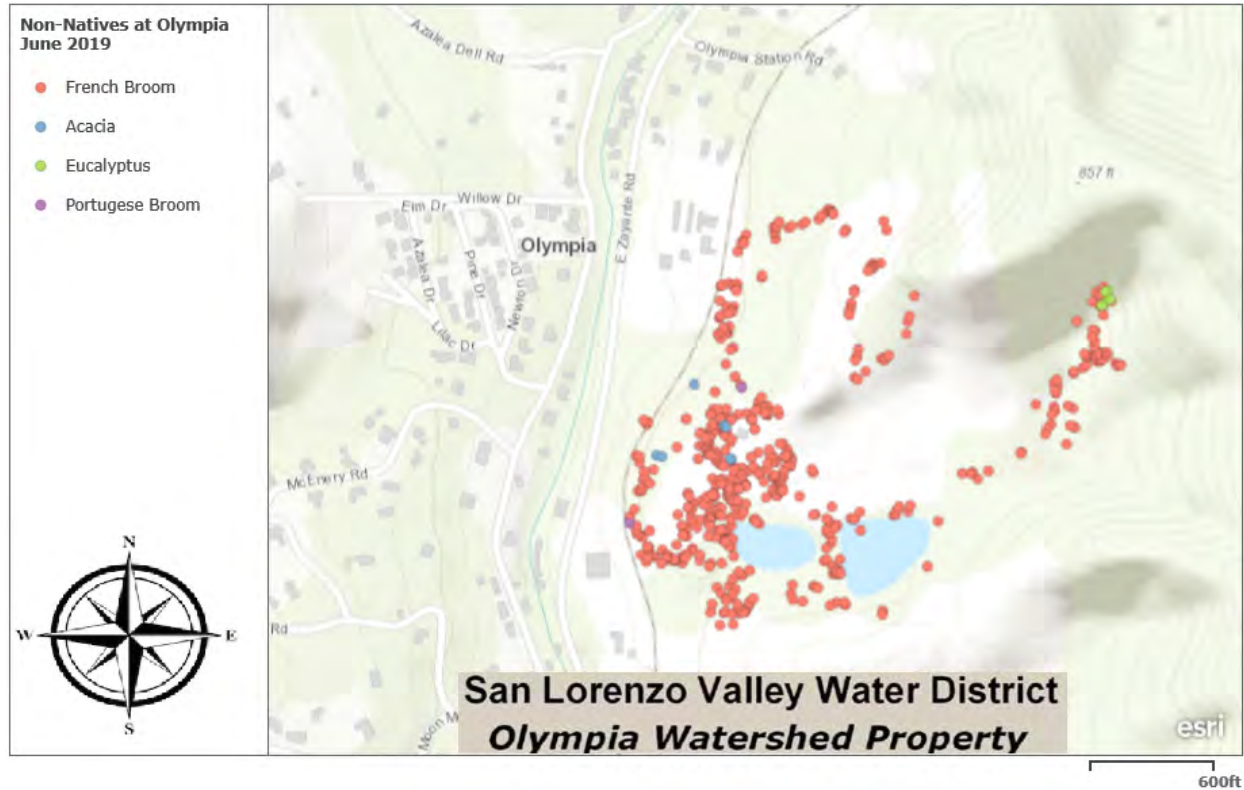
Site 2 Soil Underneath Broom

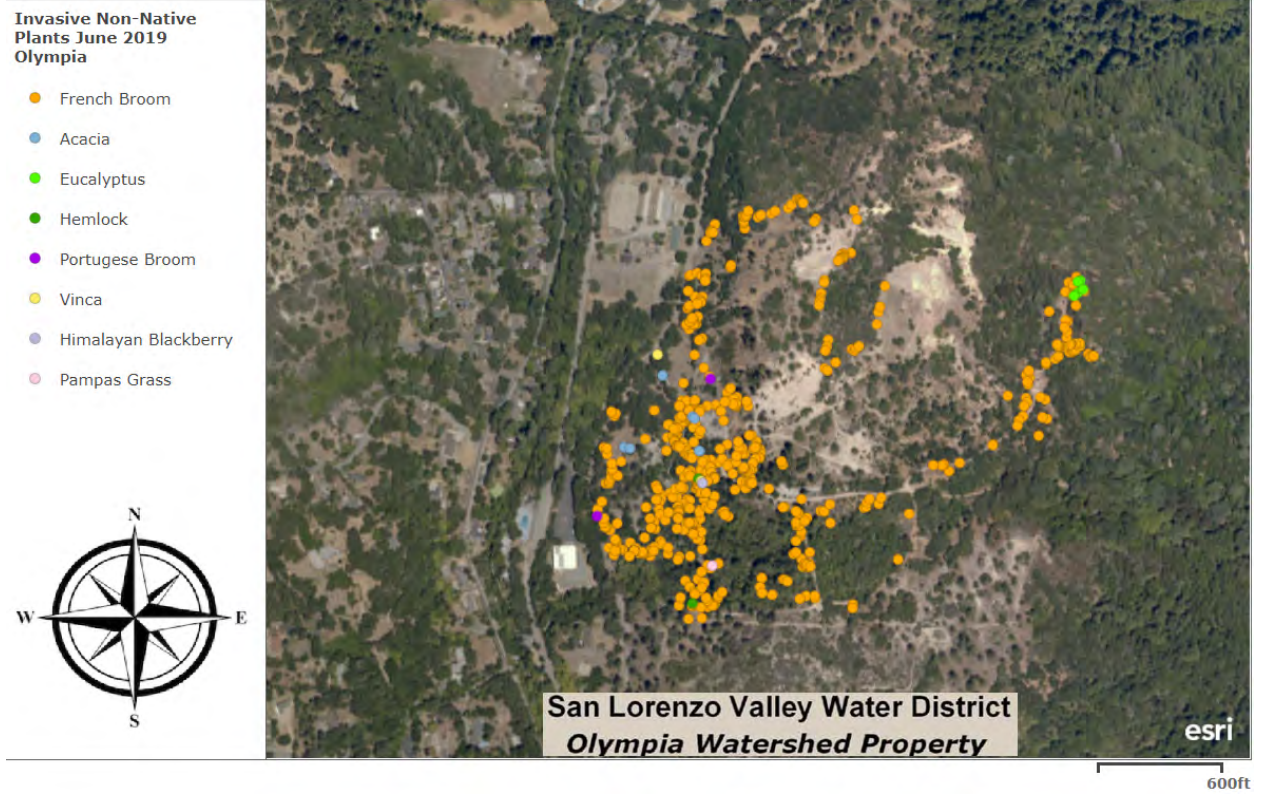


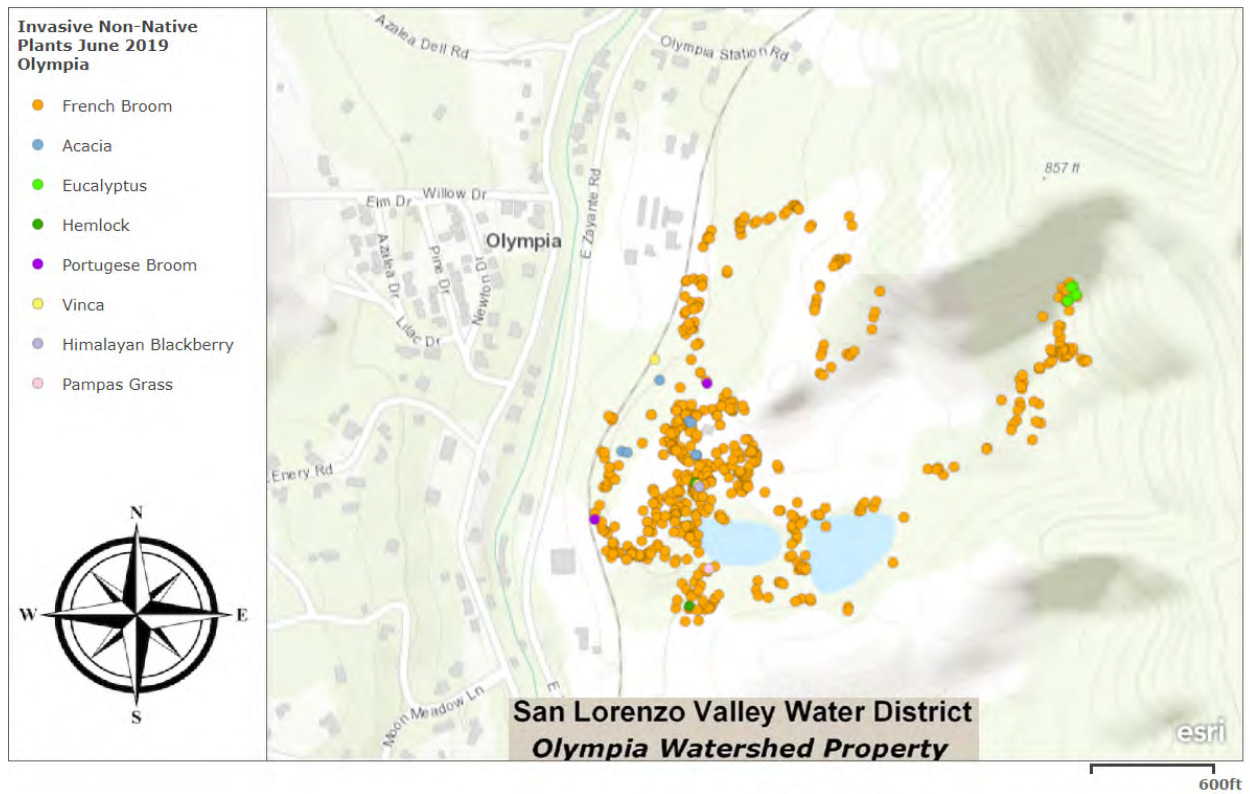
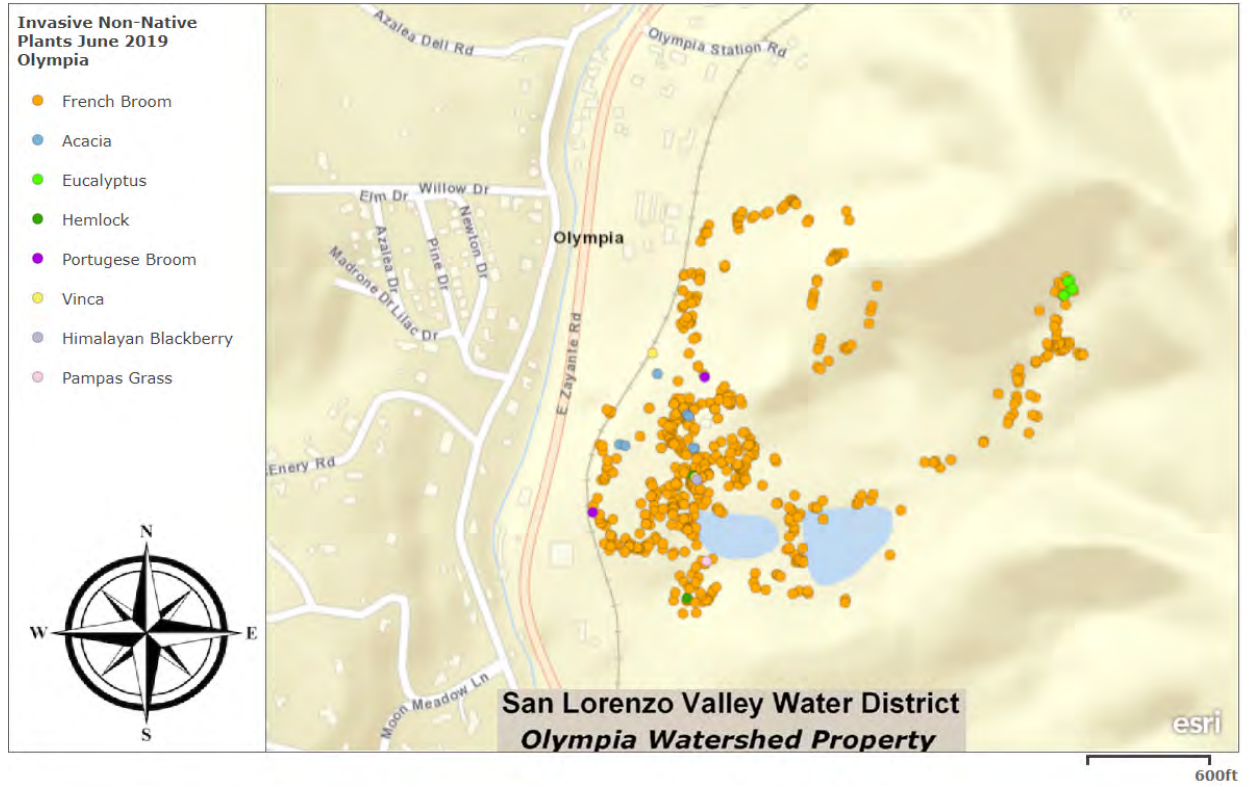


The contour map above shows areas of invasive plants, by species, and areas where invasive acacia have been removed on the Olympia Watershed property.









OlympiaSurvey-end	OlympiaSurvey-username	OlympiaSurvey-survey-plant	OlympiaSurvey-survey-note	OlympiaSurvey-survey-current-location	OlympiaSurvey-survey-image	OlympiaSurvey-survey-current-location-altitude	OlympiaSurvey-survey-current-location-accuracy	OlympiaSurvey-meta-instanceid
5.18.19	Peter	French.broom		37.0889781,-122.05491902	https://drive.google.com/open?id=1qjgDF5G-8B8583GAAu473YQ-VXAE8e	96	4.288 uid=5930811-5a9f-4754-a48c-c848e688080e	
5.18.19	Peter	French.broom		37.0888768,-122.0548971	https://drive.google.com/open?id=1tX_u_wQ4U8sE-cE-cWY-08R9FD0Q	96	4.288 uid=148972a-09c1-4800-b2c7-07c683454c	
5.18.19	Peter	French.broom		37.0889211,-122.05488232	https://drive.google.com/open?id=1b0xwHs472GhYBcAqRgQpncWd4c1Gt	78	1.1792 uid=4675476-8d7f-8c5e-bc76-3f4dc1bdc839	
5.18.19	Peter	French.broom		37.0889099,-122.05487302	https://drive.google.com/open?id=1GdqwYKUsUjBxHfP8aMRdMHG-U	95	5.36 uid=353426b-232b-4ea9-9802-69925724645d	
5.18.19	Peter	French.broom		37.0889167,-122.05440717	https://drive.google.com/open?id=1RmG5J8agJ2v71BmH5QF8Q6Q8G6QdM7Ym	97	3.216 uid=433332a-4e68-47e9-8bba-d9f62247a1d0	
5.18.19	Peter	French.broom		37.0889162,-122.05447478	https://drive.google.com/open?id=1MCAACRpaTC-wQpKF3u32b-1U1U5Y4dF1	93	4.288 uid=1215447-ea7f-4381-ea8d-684e6d4d75	
5.18.19	Peter	French.broom		37.0889160,-122.05413279	https://drive.google.com/open?id=1gK5K1r_vPxVtw_m3u3u3jPsd807c0E	105	4.288 uid=48cb445-14b5-4c33-371-6d4f78d92523	
5.18.19	Peter	French.broom		37.0889212,-122.05414994	https://drive.google.com/open?id=18rbncUBP8B2G8JbGj8uWpWp7a2m	100	4.288 uid=6e03c145-668c-4596-8b9f-7866110d2260	
5.18.19	Rachel	French.broom		37.0889821,-122.0548749	https://drive.google.com/open?id=1H1AJAaXVTEA7Dm4747a_13K9C2aWz6	96	4.5099994 uid=c6b2b5-50a4-471d-8b9c-34a2b99042	
5.18.19	Rachel	French.broom		37.0887686,-122.0545969	https://drive.google.com/open?id=1tX_u_wQ4U8sE-cE-cWY-08R9FD0Q	92	4.5099994 uid=b4b3b3c-a7b0-4a11-5a71-cb7f6031504c	
5.18.19	Rachel	French.broom		37.0890192,-122.05459319	https://drive.google.com/open?id=1H1OwdeQeQd_FvbuuWJAL_Ht6G3Jd472	101	4.5099994 uid=b4b626b-15f8-4333-9979-1434b4d4c0	
19/05/19 16.32	Peter	Clarkia p		37.0888567,-122.05439611	https://drive.google.com/open?id=1rnfJa77QhN53_UyuuMfWG41zA7a7Qb6	92	4.5099994 uid=b41e0ed4-bc0c-4a9b-8a9b-bab6b6d4f462	
19/05/19 16.40	Peter	White owl clover		37.0861426,-122.05564021	https://drive.google.com/open?id=1L6mT47aTP4a7a9uNw3u3XVd2_Xd6aq	92	4.288 uid=41e692f-60cc-4a9b-8a9b-bab6b6d4f462	
19/05/19 16.29	Peter	Media		37.0862326,-122.05446478	https://drive.google.com/open?id=1GmT47aTP4a7a9uNw3u3XVd2_Xd6aq	118	4.288 uid=8b4b4c-409b-4b0b-b3b3-4b0b83b3b3b3	
19/05/19 16.33	Peter	Owl clover		37.0661252,-122.05662337	https://drive.google.com/open?id=1KhT9d1H4faw2v8P_c12xyRm9T7BaxUd0	92	4.288 uid=1fda1bc-7790-4200-86d6-47f66d633b3b	
19/05/19 16.36	Peter	Spineflower		37.0660162,-122.05644676	https://drive.google.com/open?id=1DGZMqYv77_1aHfP8b1Yvay8SAuG_7Ba	87	4.288 uid=58b45e77-4e52-4e3d-4272-c4959f07d5d5	
19/05/19 16.37	Peter	Narrow leaves, bilateral		37.0660101,-122.05641695	https://drive.google.com/open?id=1HdZpMh2RiK433u3YBDeC_Ya7b9tW	92	4.288 uid=30740c3-0530-4157-4286-4dd9c172c969	
19/05/19 16.46	Peter	French.broom	Plus female turkey	37.0662326,-122.05479678	https://drive.google.com/open?id=1U8uqg_gC795-R5a8T7y9p34QwN8tW	96	4.288 uid=1902b6a-6991-4e1c-425b-6b9d79f15a2b	
19/05/19 16.47	Peter	Hemlock		37.0661058,-122.05491487		84	4.288 uid=544a0bfe-11d8-4663-3478-c72461a2c69	
19/05/19 16.48	Peter	French.broom		37.0663602,-122.0548514	https://drive.google.com/open?id=16ZKipGvLYQn4ZLVEBB8nSanTMMNn	111	4.288 uid=ad43299b-6c11-4e14-86d0-3f58d0b64c45	
19/05/19 16.49	Peter	French.broom		37.0663216,-122.05485839		92	5.36 uid=543139b-4a52-4a6f-8623-074ca0b70b42	
19/05/19 16.50	Peter	French.broom	15 ft tall	37.0663268,-122.05482498	https://drive.google.com/open?id=1aK1Gc4vGdQVYVWuK0u3AHM7Ba1u	92	4.288 uid=233203b-60c2-42d5-4d6f-20c9b2087ba8	
19/05/19 16.50	Peter	French.broom		37.0663117,-122.05489976	https://drive.google.com/open?id=1fa3W207B9b5EW5n1HEH-c0d89u_sU	91	6.36 uid=7edffac-63df-43b4-8004-0e16e9484da6	
19/05/19 16.52	Peter	French.broom		37.0663571,-122.05484834		98	4.288 uid=ae03bed8-e5a3-43f1-8f06-b795484a8fc9	
19/05/19 16.53	Peter	French.broom		37.0664291,-122.05432604		104	4.288 uid=2930b1-33f7-474f-1a82c-bec3ca70b2b	
19/05/19 16.56	Peter	French.broom		37.0664541,-122.05442753		112	3.216 uid=a48b3cb-b025-47f6-ba3b-25c6b9b3b3b3	
19/05/19 16.58	Peter	French.broom		37.0665047,-122.05436712	https://drive.google.com/open?id=1ChHcN81f5aag86awYdmOT56vYv1bU	105	4.288 uid=58b61b72-497b-4e52-8666-28c10e73243	
19/05/19 17.00	Peter	French.broom		37.066328,-122.05451066		60	4.288 uid=6850c16-82b3-4f23-8dd6-bcd83adea91f	
19/05/19 17.01	Peter	French.broom		37.0663347,-122.05482842		66	4.288 uid=543139b-4a52-4a6f-8623-074ca0b70b42	
19/05/19 17.02	Peter	French.broom		37.0663602,-122.0548514		92	4.288 uid=543139b-4a52-4a6f-8623-074ca0b70b42	
19/05/19 17.03	Peter	French.broom	Along east side of road	37.0664336,-122.05482978		93	4.288 uid=1d84015-b0d5-4147-8503-ae1eb4c0ca8a	
19/05/19 17.03	Peter	French.broom		37.0668139,-122.05450576		96	4.288 uid=afaf718e-d668-4efe-897f-8a93ab6ea762	
19/05/19 17.04	Peter	French.broom		37.06681915,-122.05460685		92	4.288 uid=8ec37d1-10a6-4bc8-8d85-73a4d99f81d1	
19/05/19 17.06	Peter	Slender fair grass		37.0668598,-122.05460752	https://drive.google.com/open?id=1L1P1g43DgpfHfntWh_VJ_PuXyq	92	4.288 uid=871b3c6-6c7b-4e1d-8d4d-30ab3b3b3b3b	
19/05/19 17.07	Peter	Pampas Grass		37.06685007,-122.05482737	https://drive.google.com/open?id=1Orl8idP8PmYvXv_Y1u8m_8m5d78a	96	4.288 uid=1646005-0005-46e8-48e8-85587870c3e2	
19/05/19 17.10	Peter	French.broom		37.06687803,-122.05443001		100	4.288 uid=28d818c-4d97-42d2-8283-193c2b022ef	
19/05/19 17.13	Peter	French.broom	Only along east side of road	37.06706394,-122.05488982		104	4.288 uid=79b9fd51-e179-492b-9894-d62153d07526	
19/05/19 17.13	Peter	French.broom		37.0671185,-122.05472567		94	4.288 uid=59f1c6-807f-4081-9671-422c0c7e5b91	
19/05/19 17.14	Peter	French.broom		37.0673741,-122.05470786	https://drive.google.com/open?id=1aK1Gc4vGdQVYVWuK0u3AHM7Ba1u	96	3.216 uid=afaf718e-d668-4efe-897f-8a93ab6ea762	
19/05/19 17.16	Peter	French.broom		37.06746271,-122.05472432		88	6.432 uid=2033326-72b8-4947-4c4c-68c0b8c28a22	
19/05/19 17.16	Peter	French.broom		37.06757296,-122.05472677		94	4.288 uid=0697020-4527-4a96-9183-2b6a405b309	
19/05/19 17.17	Peter	French.broom		37.0677106,-122.05466396		105	4.288 uid=2007a3-2638-4d2f-b3d1-1c247f9a5931	
19/05/19 17.17	Peter	French.broom		37.0678164,-122.05474571		80	4.288 uid=4454b4b-27b1-441b-83d4-4e4d032315	
19/05/19 17.18	Peter	French.broom		37.0679108,-122.05472286		96	4.288 uid=3bc47f7e-c770-4a65-87d6-4e68d6a21640	
19/05/19 17.19	Peter	Vinca		37.0679521,-122.05470778	https://drive.google.com/open?id=1vYVnWcNP8599Me67_JobQicK13mDjU	95	4.288 uid=9dbd1aae-4bc3-4b75-437a-13b0ef25d189	
19/05/19 17.20	Peter	French.broom	Also Hemlock	37.0679716,-122.05471258		92	4.288 uid=3bc47f7e-c770-4a65-87d6-4e68d6a21640	
19/05/19 17.21	Peter	French.broom		37.0681487,-122.05445048		90	4.288 uid=14b0b6a-bab6-4c3f-8f74-bec718f6695	
19/05/19 17.23	Peter	French.broom		37.0682267,-122.05445055		92	3.216 uid=1706b0e8-b6d1-42d0-8600-84b65272194	
19/05/19 17.26	Peter	French.broom		37.0682246,-122.0546503		86	4.288 uid=5680a8d6-ddbb-4d69-baa3-b8c0b2515b05	
19/05/19 17.26	Peter	French.broom		37.06819098,-122.0541051		90	4.288 uid=c2a6-4225-113d-4cad-a023-12a6487326f7	
19/05/19 17.27	Peter	French.broom		37.0682391,-122.05456473		73	4.288 uid=4776c2b-8a9d-4acc-8c3d-832d6-8f0c0b31d6	
19/05/19 17.31	Peter	Vinca		37.0689911,-122.05541829	https://drive.google.com/open?id=1LnIRVYcYgGpCvGAED0BzV9HdE4md	77	4.288 uid=51212a2-ae0f-431b-b0be-25420e825543	
19/05/19 17.24	Peter	Pentagramma		37.06823451,-122.05460552	https://drive.google.com/open?id=1AdAxuOL7KqgTVVn5zF_QwH085P4K	98	4.288 uid=ac43f36-114d-432a-dddf-69134c34bc8c	
20/05/19 12.04	Peter	French.broom		37.06898294,-122.05502394		93	4.288 uid=10186c4-6c2a-4245-980f-bd9f8f8c9933	
20/05/19 12.08	Peter	French.broom		37.06858982,-122.05522873		89	4.288 uid=1c1464d-7a6d-465a-9a3b-7223b6945674	
20/05/19 12.10	Peter	French.broom		37.06851099,-122.05526236		74	4.288 uid=67b0b2c-cf90-4b01-9e04-0281483bcbcc	
20/05/19 12.10	Peter	French.broom		37.06859999,-122.05510648		117	4.288 uid=9e7f6c0e-68d5-4c0c-af66-14f038a0d18d	
20/05/19 12.11	Peter	French.broom		37.06859374,-122.05509795		92	4.288 uid=99a0a671-afcc-4b0f-bd86-c2bc293b0e4f	
20/05/19 12.11	Peter	French.broom		37.06859992,-122.05509132		96	4.288 uid=9a5b0b3-bd86-4b0f-bd86-c2bc293b0e4f	
20/05/19 12.12	Peter	French.broom		37.06860804,-122.05505971		94	6.36 uid=90c332d-43c2-4c87-4e12-312073c094e	
20/05/19 12.13	Peter	French.broom		37.06868933,-122.05508051		98	5.36 uid=8ade43da-16c5-44e8-ab0c-99b2b627ddab	
20/05/19 12.13	Peter	French.broom		37.06871197,-122.05503328		96	5.36 uid=486819b0-d127-4c96-8a67-fac410f46036	
20/05/19 12.16	Peter	French.broom		37.06872045,-122.05499318	https://drive.google.com/open?id=1VYVnWcNP8599Me67_JobQicK13mDjU	95	4.288 uid=1902b6a-6991-4e1c-425b-6b9d79f15a2b	
20/05/19 12.16	Peter	French.broom		37.0684313,-122.05500381		102	5.36 uid=19f408a-4456-486a-8903-623a6d24565c	
20/05/19 12.20	Peter	Pentagramma		37.0687433,-122.05503047		103	4.288 uid=5f72873a-bbfc-437f-9e88-6689a7893819	
20/05/19 12.21	Peter	French.broom		37.06868013,-122.05485426		96	4.432 uid=3364179f-cd41-4268-a8e4-079a4c1f8a2c	
20/05/19 12.21	Peter	French.broom		37.06873807,-122.0548786		94	5.36 uid=87b3833-55c1-49ac-b093-13a088b259a8	
20/05/19 12.22	Peter	French.broom		37.06875915,-122.05489161	https://drive.google.com/open?id=1cH88-qZ1YVYVnWcNP8599Me67_JobQicK13mDjU	96	5.36 uid=7d0f7db-3a13-40a1-bd74-8000b0e7519	
20/05/19 12.23	Peter	French.broom		37.06877495,-122.05486497		88	5.36 uid=d773809-b507-40a8-82ae-b04c-7075a096	
20/05/19 12.23	Peter	acacia		37.06878469,-122.05484934	https://drive.google.com/open?id=1YmVnmK1ChRRKUD9b_MEn3P203PV	95	5.36 uid=af2a26a3-0951-4644-bc3c-6c8b18d104df	
20/05/19 12.24	Peter	French.broom		37.06878985,-122.05482339		96	5.36 uid=ac3a0b0f-62b8-43ac-978a-70d0b9a107d4	
20/05/19 12.25	Peter	French.broom		37.0687782,-122.05481638		97	4.288 uid=1774746-0957-4b07-a0a2-6c7c11a2b3b6	
20/05/19 12.26	Peter	acacia		37.06871198,-122.05481841		96	4.288 uid=5947842e-3c71-45aa-b87d-5fead1137d3b	
20/05/19 12.26	Peter	French.broom		37.06873684,-122.05481632		145	5.36 uid=deced77c-df9f-41d5-9b07-0eebfcd8f95fc	
20/05/19 12.27	Peter	French.broom		37.06869693,-122.05480123		95	5.36 uid=c680a9b-01a8-4d7e-a0e6-290c89328f8f	
20/05/19 12.28	Peter	French.broom		37.06864445,-122.0548351		93	5.36 uid=94c5-30b0-30b0-40b1-8f16-42a0b0a1d8d	
20/05/19 12.33	Peter	French.broom		37.06859992,-122.05474083		100	4.288 uid=1eb8911-8843-4d36-b5ae-548753236e84	
20/05/19 12.33	Peter	French.broom		37.06837348,-122.05494538		93	4.288 uid=18d99f0f-eb86-493d-	

20/09/19 12:40	Kai	acacia	Sprouts, others nearby	37.0683392,-122.05472637		77	6 uid:3e181415-8731-4705-b162-61908911bb
20/09/19 13:09	Peter	French.broom		37.06731621,-122.05480243		78	4288 uid:517c3ee-02b4-43a1-ac73-d3c3e4a917c
20/09/19 12:44	Kai	acacia		37.06834307,-122.05474197		86	4 uid:81c2-168f-8c4-4932-a8b1-4d9f0d3614a7
20/09/19 13:10	Peter	French.broom		37.0673069,-122.0547117		81	5.36 uid:3bc05877-ac91-4aaa-a91-8708307c462
20/09/19 13:02	Kai	French.broom		37.06779489,-122.05521009		85	6 uid:05da125a-740f-420a-b419-odd8f9d26998
20/09/19 13:11	Peter	French.broom		37.06772653,-122.05486909		82	4288 uid:cfcc0f0e0a-5a64-4042-008a-e47c6b7396e
20/09/19 13:02	Kai	French.broom		37.06773447,-122.0550717		80	6 uid:8a9f-2c2f-4b0c-4a4e-ba7a-5a6f5e190a07
20/09/19 13:13	Peter	French.broom		37.06754624,-122.05473456		98	5.36 uid:71c8466e-478d-41af-8b76-0716427378b07
20/09/19 13:04	Kai	French.broom		37.06765329,-122.05500314		66	6 uid:7c086c05-fca5-42f1-9a69-92f2b23f580
20/09/19 13:05	Kai	French.broom		37.06759247,-122.05503233		92	4 uid:142a0e02-4d9f-4d3a-bc73-a0b05107836
20/09/19 13:06	Peter	French.broom		37.06759641,-122.05480486		99	6 uid:8f1c7c35-8c48-4f10-ba13-1994d30e14a7
20/09/19 13:07	Kai	French.broom		37.06769003,-122.05473765	https://drive.google.com/open?id=1gCQ3xKaYcQdYMyKnyfP3lmoztHq8u	77	4288 uid:8accda8b-99a0-4823-b9c7-b145143b67b
20/09/19 13:14	Peter	French.broom		37.06759667,-122.05486905	https://drive.google.com/open?id=1EaKwZMNQGsWYQO8ZzyvYt5eJau7p	99	6 uid:1628cac1-7335-4638-933a-e47f3c85e9f
20/09/19 13:09	Kai	French.broom		37.06762324,-122.05479417		88	4288 uid:566f139f-6536-44d1-b701-37a1237533a
20/09/19 13:15	Peter	French.broom		37.06743293,-122.05490918		67	6 uid:4d271d0b-8571-41a9-8285-8a67b13a0b
20/09/19 13:16	Kai	French.broom		37.0676771,-122.05474468		94	4288 uid:c31311b-af75-4b5c-8caf-d6a718d295d
20/09/19 13:10	Peter	French.broom		37.06740273,-122.0548431		90	6 uid:88b28d32-d2b0-48f7-bb69-0f5b1c7332a
20/09/19 13:17	Peter	French.broom	Thick stand to West of road	37.06759022,-122.05477008		92	4288 uid:2a029b1-9fba-4d3a-ba73-59a4e6daab4
20/09/19 13:11	Kai	French.broom		37.06740543,-122.05485796		96	6 uid:51c3c362-99a0-48f2-a8b1-4d9f0d3614a7
20/09/19 13:18	Peter	French.broom		37.06763066,-122.05478542		82	3.216 uid:6fdd08304-48b2-477f-ad0b-4123728fcd9
20/09/19 13:20	Peter	French.broom	Thick stand	37.0679398,-122.05478317		80	4288 uid:2d8702b9-2a8b-4e8d-43aa-df0b4d6e9a8
20/09/19 13:20	Peter	French.broom		37.06793477,-122.05477005		78	4288 uid:3dc4f4e3-fcfa-48b7-d8a3-9e6891d08008
20/09/19 13:21	Peter	French.broom		37.06795514,-122.05476001		76	4288 uid:a18f111-ba0d-4d0b-ba05-9f2a0d0ca6d
20/09/19 13:22	Peter	Hemlock		37.06797638,-122.05475144		93	6.36 uid:fcd5f25a-b03b-4956-8ec9-e68c3a3c72f1
20/09/19 13:37	Kai	French.broom		37.06749024,-122.05426755	https://drive.google.com/open?id=1JlIdaXkHsENCo-JKkLh65GQw_UUh	76	6 uid:4d3eb06f-78bd-4554-818f-2691aeb1b3a7
20/09/19 13:39	Kai	French.broom		37.06754497,-122.05436888		94	4 uid:0db9d402-819a-4d3a-ba73-59a4e6daab4
20/09/19 13:41	Peter	French.broom		37.06753002,-122.05433307		100	6 uid:9f8687f2-3c08-414a-ba33-1433a0e10a17
20/09/19 13:23	Peter	Scrophularia		37.06800993,-122.05476726	https://drive.google.com/open?id=17QdTRRRBAPAJAUCbQc0_BpCzcZMNQJG	104	4288 uid:a820189-45e1-43f1-bb19-3e22b6664b0
20/09/19 13:23	Peter	French.broom		37.06801,-122.05475559		113	3.216 uid:933643dc-f2b0-4d77-a21-3e22ab4ad2d
20/09/19 13:24	Peter	French.broom		37.0680621,-122.05472822		96	5.36 uid:c8eb2eac-d88f-44af-a174-b03fa2984e4
20/09/19 13:25	Peter	French.broom		37.06812317,-122.05471488		95	3.216 uid:8a3c5a0b-dc17-41a2-8f73-1a33a1a1051b
20/09/19 13:26	Peter	French.broom	Also Hemlock	37.06804614,-122.05461813		110	4288 uid:7f66f7a9-07db-4a33-afca-d4f8d0e2233a
20/09/19 13:27	Peter	French.broom	Extends further east about 30 feet	37.06820096,-122.05468536		81	4288 uid:330a5874-a0b-4e51-9d94-fbbd56d2d46
20/09/19 13:30	Peter	Himalayan blackberry		37.06792323,-122.05466838		125	4288 uid:af0d0234-ec1-493b-98a5-3e19f7f19c3
20/09/19 14:09	Peter	French.broom		37.06809891,-122.05500719	https://drive.google.com/open?id=1duxw3u3n0d3_cJn5eRhmHwK5Rc0B1	113	6 uid:51c3c362-99a0-48f2-a8b1-4d9f0d3614a7
20/09/19 14:04	Kai	French.broom		37.0684056,-122.05299923		110	6 uid:08a45a5-dc62-4b66-b535-62b2654a4b04
20/09/19 14:06	Kai	French.broom		37.06882736,-122.05295541		92	6 uid:3a005d03-d354-42a6-a82d-70aa9602b93
20/09/19 13:35	Peter	French.broom	Also Epipactus helleborine	37.06787489,-122.05472332	https://drive.google.com/open?id=1WQWGTgm_OtXGdHfscw8RfNPL7raXx	76	5.36 uid:5379a589-c6a0-411e-99d8-b97472b9a90
20/09/19 13:36	Peter	French.broom		37.06797076,-122.05470488		60	4288 uid:a89806c-43c2-44c2-a6d1-8a4b68235044
20/09/19 14:07	Peter	French.broom		37.0680144,-122.05290905		129	6 uid:0c18f3-320f-470c-4f51-f0b613702a0b
20/09/19 13:38	Peter	French.broom		37.0676213,-122.05462514		92	4288 uid:c89f22-dbf-4f63-ad0c-c0200a568103
20/09/19 14:10	Kai	French.broom		37.06723613,-122.05308944		100	6 uid:3244343b-a0e5-4f5c-ab7b-8789c1473d3
20/09/19 13:39	Peter	French.broom		37.06759985,-122.05432114		93	4288 uid:40d2c31-08e8-4f0b-ab0f-52e089130d
20/09/19 14:11	Kai	French.broom		37.067274,-122.05307902		104	4 uid:9d4d918-d8bc-4a0e-ba0c-e4f4a0b0b4a
20/09/19 14:45	Kai	French.broom		37.06759852,-122.05311538		110	4 uid:5baa740b-d0eb-4f6b-91db-1e1c747ba0b
20/09/19 13:49	Peter	French.broom		37.06799073,-122.0548781		93	5.36 uid:3dc4f4e3-fcfa-48b7-d8a3-9e6891d08008
20/09/19 14:02	Kai	French.broom		37.06717107,-122.05316405	https://drive.google.com/open?id=1kxtd_Nl18cyQd9k6g0XxwP9jkaWg	113	6 uid:5ba33a31-dc1f-4af0-8d36-8a0d0905c77b
20/09/19 14:04	Peter	French.broom		37.06842491,-122.05306213		104	4288 uid:1eab9b0b-4307-4f0c-b051-fc1922104a9
20/09/19 14:06	Kai	French.broom	Along both sides of road	37.06845666,-122.05306011		97	4288 uid:b0b87d63-1871-40b9-a584-266432b264d
20/09/19 14:08	Peter	French.broom		37.0683434,-122.05305544		93	4288 uid:dc3e2f6b-c53a-45e8-88cc-14f0ba07233a
20/09/19 14:08	Peter	French.broom		37.06844072,-122.05301908		96	4288 uid:26f02d2-9834-b016-a731-ba488f0817b
20/09/19 14:09	Peter	French.broom		37.06837741,-122.05301219		95	5.36 uid:3366114c-b0b0-4d0e-b04b-8f0a03201646
20/09/19 14:46	Peter	French.broom		37.06741161,-122.05316248		94	4288 uid:32c0f1c1-4314-45d7-94aa-6e4497b095
20/09/19 14:47	Peter	Epipactus helleborine		37.06738078,-122.05312367	https://drive.google.com/open?id=1EQNZR6LU28pUWbLHqz-d0D0w8WASb	99	5.36 uid:c194a4ed-249c-4f4f-8ec0-08662584617
20/09/19 14:48	Peter	French.broom		37.0673734,-122.05315311		99	4288 uid:74f4813-d04c-4a29-a59d-e4d63c3e288a
20/09/19 12:08	RMHager	French.broom		37.06863299,-122.05090975	https://drive.google.com/open?id=1SU04Xy1b3cAod1Muef3pmMXXz428Jg	81	6.432 uid:af050454-4b2c-40a2-ba82-c8a2c3f32ca0
20/09/19 12:10	RMHager	French.broom		37.06867924,-122.05094736	https://drive.google.com/open?id=1Atuag-mZS3JLQJ_G0KmsR8agQa2C	84	4288 uid:9a3c5a0b-dc17-41a2-8f73-1a33a1a1051b
20/09/19 14:30	RMHager	French.broom	Extends at least 40 ft	37.0673745,-122.05310811		86	5.36 uid:74c4cd-af0e-4120-af1b-53a7f3c36a05
20/09/19 12:12	RMHager	French.broom		37.06847396,-122.05514617	https://drive.google.com/open?id=1NAGQxpl-2Ox5k_MEnMopGic4RqQDTD0b	80	6.36 uid:8914ed8b-4a0b-4a46-866b-01a3a7bdc009
20/09/19 12:13	RMHager	French.broom		37.06845191,-122.05513778	https://drive.google.com/open?id=1Sgflwtp7TbJGvPjMjAaYVnU8U6Vg	83	5.36 uid:3e0a0f2a-01aa-4aa6-bcc1-4d830f28f6f
20/09/19 14:58	RMHager	French.broom		37.06807108,-122.05309937		87	4288 uid:a18f111-ba0d-4d0b-ba05-9f2a0d0ca6d
20/09/19 12:14	RMHager	French.broom		37.06840052,-122.05511369	https://drive.google.com/open?id=1DRKwFhpRGUeUmyLXUk5GmXYZt4-zb	87	5.36 uid:99d808b-3c34-4006-891e-fc8647f6d6c
20/09/19 12:16	RMHager	French.broom		37.06840012,-122.05509471	https://drive.google.com/open?id=1M9C8f68Kup6f6JtYVYv5SCJQ68	86	4288 uid:64340a3b-1dcf-4529-d193-c1-4d00f6c737f
20/09/19 14:56	Peter	French.broom		37.06810511,-122.05387525		116	4288 uid:bc9f9a79-33a8-4a51-86d6-0b0e9c90226
20/09/19 12:17	RMHager	French.broom		37.06844677,-122.0550711	https://drive.google.com/open?id=1-x05gAuJdRfWv8a5Y7JQJbBf6hGnS	87	7.504 uid:5a8c305b-6e2e-40a6-9186-42d7c60d10f7
20/09/19 14:07	Peter	French.broom		37.0681791,-122.05387063		112	6.432 uid:9c40f77b-038b-4d0b-b04a-11561a90b0a
20/09/19 12:23	RMHager	French.broom		37.06839277,-122.05509987	https://drive.google.com/open?id=1Sry4Zp5J3l8V_Q52an_ZJfz2w0Bkz-FuI	87	4288 uid:26b0b65d-a9ac-4f0c-ba33-2adcc37b0d3
20/09/19 12:24	RMHager	French.broom		37.0677679,-122.05539999	https://drive.google.com/open?id=1wd-7_May7pUxGf3EqJCvYlthm4c-3F8	89	6.432 uid:4e938f7-0e82-4147-ab95-2ddacab0b36
20/09/19 12:26	RMHager	French.broom		37.06771612,-122.05536043	https://drive.google.com/open?id=1aa5AS1Zd0m8H2b0aUk9K3m4c-2P8	86	6.432 uid:1f12c93d-0e68-4a8d-a74b-299abec01408
20/09/19 12:27	RMHager	French.broom		37.0677333,-122.05539399	https://drive.google.com/open?id=18ANdJTK4k6fEynKqf6E-8mz3x5d-4	94	4288 uid:104d77b-038b-4d0b-b04a-11561a90b0a
20/09/19 12:27	RMHager	French.broom		37.06757908,-122.05539514	https://drive.google.com/open?id=1KLUHUBx9jme47ZDx0V7H6x4P3a8z	88	4288 uid:26b0b65d-a9ac-4f0c-ba33-2adcc37b0d3
20/09/19 12:28	RMHager	French.broom		37.0671929,-122.05537834	https://drive.google.com/open?id=1DqJ3uIu8u9A0G7S8U8CHUdM0d3	93	6.432 uid:70e10e2e-99a3-4a49-90a0-080c6d65303b
20/09/19 12:39	RMHager	French.broom		37.06823076,-122.05485341	https://drive.google.com/open?id=1PUJC_FhMhNl0m8H2b0aUk9K3m4c-2P8	96	5.36 uid:27f0b03-0fba-4771-9e2a-ba0e987a0e
20/09/19 12:41	RMHager	French.broom		37.06824784,-122.05486607	https://drive.google.com/open?id=1s4AMZmON8Hl0w8U6Vg1TzP7H7b0dew	94	4288 uid:5a8c305b-6e2e-40a6-9186-42d7c60d10f7
20/09/19 12:43	RMHager	French.broom		37.06804216,-122.05480078	https://drive.google.com/open?id=1P5z79A0S2zPmSv5GAZMMN-EgUvQW	70	4288 uid:6424023c-80bc-4f0f-914b-4f0acab0f04
20/09/19 12:54	RMHager	French.broom		37.06807597,-122.05491851	https://drive.google.com/open?id=1ICBLUASGin_FWl0cFyKqk8raGnG	79	4288 uid:620c0f6b-7a02-4a2b-8ec7-67b39f7e6fd
20/09/19 13:03	Peter	Lupinus albus		37.06784947,-122.05512223	https://drive.google.com/open?id=1ZG58OklgrdLQuXf-mM6aW7zozP7S8	82	3.216 uid:77c0e776-2c0b-4f0a-b057-f012b0a94f
20/09/19 12:45	RMHager	French.broom		37.06784338,-122.05513229		84	5.36 uid:3302432-4994-4205-b0d0-04f0b6c4d
20/09/19 12:46	RMHager	French.broom		37.06801447,-122.05488768	https://drive.google.com/open?id=1IEoCPBshYadJXqB7LNh0mOvONZ3AAaf	78	5.36 uid:399327f7-a8f4-45ce-a612-d0b82d7f01b
20/09/19 12:45	RMHager	French.broom		37.0678934,-122.05503656	https://drive.google.com/open?id=1YXTeapxtMcA8L-f787XKfndcK9vRf	73	4288 uid:f0c028-2e03-44c1-baed-74b1f98021
20/09/19 13:07	RMHager	French.broom		37.06842353,-122.05428637			

01/06/19 11:46	Kai	Spineflower		37.06729943,-122.05618551	62	6 uid=uc397e45e-8bb0-4857-4307-02168be48171
01/06/19 11:51	Kai	French.broom		37.0669261,-122.05612976	61	6 uid=uc34c207b-641a-4f29-b816-4236a04700ca
01/06/19 11:55	Kai	French.broom		37.06714741,-122.05586192	99	6 uid=uc7c9eb3c-3d81-4d4c-8f46-4339f17a4d
01/06/19 11:56	Kai	French.broom		37.06707882,-122.05577589	99	4 uid=uc405c24b-3a32-4501-9016-bbb9b1478230
01/06/19 11:57	Kai	French.broom		37.06702922,-122.05553372	104	6 uid=uc7d77476-0bc2-4061-9a75-0a86c36c46d
01/06/19 12:01	Kai	French.broom		37.06702628,-122.05543477	105	6 uid=uc2fee94a-d07b-4d0c-678b-5c646e46f5
01/06/19 12:02	Kai	French.broom		37.06706044,-122.05525453	99	6 uid=uc41e076b-5a8b-433f-a1-b7-325967172dc
01/06/19 12:05	Kai	French.broom		37.06706057,-122.05524841	97	6 uid=uc740c2670-453b-4cfe-8ca5-7700a34d7f92
01/06/19 12:06	Kai	French.broom	East 30 feet	37.06656959,-122.05506624	92	6 uid=uc0b61975-eebb-4515-875f-81e6b2ba5df2
01/06/19 12:13	Kai	French.broom		37.06732944,-122.05543954	129	6 uid=uc59606b-452b-4ea7-8a87-29803a4b1c87
01/06/19 12:14	Kai	French.broom		37.06747412,-122.05529164	97	6 uid=uc7e1da-1715-4660-45a5-41646a3609
01/06/19 12:16	Kai	French.broom	Continues South	37.06752779,-122.05510586	129	6 uid=uc3e4ff7a5-1764-433c-bf1d-8ea00001c97
01/06/19 11:33	Peter	French.broom	A few plants	37.06838375,-122.05629035	102	6 uid=ucd2ce08f-8a5a-4a97-af89-d8b0e823677
01/06/19 11:36	Peter	French.broom	A few plants plus portugese broom also?	37.06820243,-122.05601245	129	6 uid=uc09931b-2e1e-4261-828a-271133a4c087
01/06/19 11:38	Peter	French.broom	On fence line	37.06803777,-122.05614125	92	6 uid=uc248819b-1215-4518-bc0b-4339f17a4d
01/06/19 11:45	Peter	portugese broom	Amongst french broom	37.0674942,-122.05640333	103	6 uid=uc0e086f7-4787-4588-4a2f-671f8c6c6fa
01/06/19 11:47	Peter	Spineflower		37.06724138,-122.05617222	101	6 uid=uc41ee19ab-3e7b-4251-8444-81dd6d611134
01/06/19 11:48	Peter	Lupinus albusfrons		37.06724489,-122.05618997	104	6 uid=uc386dc0fd-474c-4d6c-4baa-14a8b46c0b43
01/06/19 11:51	Peter	French.broom		37.06768227,-122.05621777	102	6 uid=uc58f705a-ba9f-4d75-8345-298f19a480
01/06/19 15:09	RMHager	French.broom		37.06837055,-122.05585859	90	6 uid=uc3c36b9b-69d1-48f1-b3db-43d53a0f6c3a
04/06/19 15:10	RMHager	French.broom		37.06836377,-122.05374961	94	6 uid=uc8f10f0c1-35e3-4c22-ae94-e2106893714
04/06/19 15:11	RMHager	French.broom	Seedlings	37.06834121,-122.05373989	98	6 uid=uc0e6260b-3359-4b5d-80d2-4072382ab1c6
04/06/19 15:12	RMHager	French.broom		37.06834248,-122.05374125	94	6 uid=uc900725-0f0c-4d6c-9a5a-e869b76162
04/06/19 15:13	RMHager	French.broom		37.06826231,-122.05375117	92	6 uid=uc8f10f0c1-35e3-4c22-ae94-e2106893714
04/06/19 15:14	RMHager	French.broom		37.06824747,-122.05375568	91	6 uid=uc347aba-bb39-4174-99d5-03282ae14952
04/06/19 15:15	RMHager	French.broom		37.06825274,-122.05376444	91	6 uid=uc1171f4b-0893-46ac-81a1-6c3292b0f882
04/06/19 15:16	RMHager	French.broom		37.06825269,-122.05376265	94	6 uid=uc347aba-bb39-4174-99d5-03282ae14952
04/06/19 15:17	RMHager	French.broom		37.06818012,-122.05369004	92	6 uid=uc1171f4b-0893-46ac-81a1-6c3292b0f882
04/06/19 15:17	RMHager	French.broom		37.06809613,-122.05391651	94	6 uid=uc2580b6-5db4-433a-9202-3c48744d82a
04/06/19 15:18	RMHager	French.broom		37.06808309,-122.05396792	98	6 uid=uc2ecae70-4215-4a8e-46d3-878727f7e7a9
04/06/19 15:19	RMHager	French.broom		37.06814949,-122.05400356	98	6 uid=uc1874b5-29d4-4b3c-4538-4339f17a4d
04/06/19 15:20	RMHager	French.broom		37.06810552,-122.05403025	94	6 uid=uc2413c32a-1084-4d6e-4076-33091973779
04/06/19 15:21	RMHager	French.broom		37.06812051,-122.0540267	97	6 uid=uc2ba4266-99fb-43ac-8bba-7327c8f9eece
04/06/19 15:21	RMHager	French.broom		37.06812988,-122.0540193	94	6 uid=uc73b0a3ae-873c-4d08-8828-794308f0e63
04/06/19 15:22	RMHager	French.broom		37.06830312,-122.05400068	104	6 uid=uc3b0a1e-1720-4c27-613c-bac93baf1b27
04/06/19 15:23	RMHager	French.broom		37.06832448,-122.05403969	104	6 uid=uc899946c-4b04-4787-4588-4a2f-671f8c6c6fa
04/06/19 15:24	RMHager	French.broom		37.06837598,-122.05404225	101	6 uid=uc9f80b63-760d-4ae1-ad9f-cb2b68e9c6f4
04/06/19 15:24	RMHager	French.broom		37.06838272,-122.05403938	91	6 uid=uc791065-5339-433c-bcde-ec0c1f0c377
04/06/19 15:26	RMHager	French.broom		37.06846474,-122.05380707	105	6 uid=uc143b06-2ac7-4069-b36e-2685867705
04/06/19 15:26	RMHager	French.broom		37.06835378,-122.05391133	99	6 uid=uc1171f4b-0893-46ac-81a1-6c3292b0f882
04/06/19 15:26	RMHager	French.broom		37.06834402,-122.05382875	96	6 uid=uc347aba-bb39-4174-99d5-03282ae14952
04/06/19 15:27	RMHager	French.broom		37.0681968,-122.05413883	97	6 uid=uc73b0a3ae-873c-4d08-8828-794308f0e63
04/06/19 15:29	RMHager	French.broom		37.06793996,-122.05397143	94	6 uid=uc73b0a3ae-873c-4d08-8828-794308f0e63
04/06/19 15:30	RMHager	French.broom		37.06791796,-122.05390421	93	6 uid=uc1171f4b-0893-46ac-81a1-6c3292b0f882
04/06/19 15:31	RMHager	French.broom		37.06792137,-122.05387835	92	6 uid=uc1171f4b-0893-46ac-81a1-6c3292b0f882
04/06/19 15:32	RMHager	French.broom		37.06785009,-122.05365051	110	6 uid=uc4acda56-5206-4e24-bb31-1794068347f
04/06/19 15:38	RMHager	French.broom		37.069097,-122.04971096	126	6 uid=uc1ac0f70c-4b0a-429f-8017-200790907b
04/06/19 15:41	RMHager	French.broom		37.06923776,-122.04835609	129	6 uid=uc347aba-bb39-4174-99d5-03282ae14952
04/06/19 15:42	RMHager	French.broom		37.06932971,-122.04841787	126	6 uid=uc4e0298a-267d-40f6-9d6a-eb9ba299669
04/06/19 15:43	RMHager	French.broom		37.06932978,-122.04837289	115	6 uid=uc1ac0f70c-4b0a-429f-8017-200790907b
04/06/19 15:43	RMHager	French.broom		37.06947171,-122.04840977	117	6 uid=uc0935873-0d5a-4cbe-9a7a-63c292b0f882
04/06/19 15:44	RMHager	French.broom		37.06947032,-122.04840924	117	6 uid=uc1ac0f70c-4b0a-429f-8017-200790907b
04/06/19 15:45	RMHager	French.broom		37.06848953,-122.04909384	102	6 uid=uc354394d-6482-4dad-8bc8-275440446242
04/06/19 15:46	RMHager	French.broom		37.06857878,-122.04849211	123	6 uid=uc0e6260b-3359-4b5d-80d2-4072382ab1c6
04/06/19 15:47	RMHager	French.broom		37.06957745,-122.04899161	134	6 uid=uc347aba-bb39-4174-99d5-03282ae14952
04/06/19 15:48	RMHager	French.broom		37.06962295,-122.04871403	134	6 uid=uc1ac0f70c-4b0a-429f-8017-200790907b
04/06/19 15:49	RMHager	French.broom		37.06962284,-122.0486579	128	6 uid=uc758a5e70-086a-4211-9b99-919412c6ab9
04/06/19 15:49	RMHager	French.broom		37.06964197,-122.04864544	134	6 uid=uc1ac0f70c-4b0a-429f-8017-200790907b
04/06/19 15:50	RMHager	French.broom		37.06965954,-122.04869986	129	6 uid=uc1ac0f70c-4b0a-429f-8017-200790907b
04/06/19 15:51	RMHager	French.broom		37.06965956,-122.04840739	134	6 uid=uc1ac0f70c-4b0a-429f-8017-200790907b
04/06/19 15:52	RMHager	French.broom		37.06956296,-122.04837212	124	6 uid=uc33b8a73-3e99-4af3-9e29-7fe6d47cf1a4
04/06/19 15:13	RMHager	French.broom		37.06957841,-122.04832421	112	6 uid=uc1ac0f70c-4b0a-429f-8017-200790907b
04/06/19 15:14	RMHager	French.broom		37.06957404,-122.04831827	143	6 uid=uc1ac0f70c-4b0a-429f-8017-200790907b
04/06/19 15:16	RMHager	French.broom		37.06970224,-122.0485416	129	6 uid=uc598513a-7a0b-46d6-9d6a-eb9ba299669
04/06/19 15:17	RMHager	French.broom		37.06973968,-122.04854698	140	6 uid=uc8f10f0c1-35e3-4c22-ae94-e2106893714
04/06/19 15:18	RMHager	French.broom		37.06973678,-122.04846221	139	6 uid=uc4e0298a-267d-40f6-9d6a-eb9ba299669
04/06/19 15:19	RMHager	French.broom		37.06973616,-122.04858584	98	6 uid=uc347aba-bb39-4174-99d5-03282ae14952
04/06/19 15:20	RMHager	French.broom		37.06973747,-122.04858664	96	6 uid=uc1ac0f70c-4b0a-429f-8017-200790907b
04/06/19 15:20	RMHager	French.broom		37.06972077,-122.04871152	141	6 uid=uc12072f9-ef1e-4e0b-9d76-ae01728ea83
04/06/19 15:21	RMHager	French.broom		37.06968743,-122.04881339	124	6 uid=uc347aba-bb39-4174-99d5-03282ae14952
04/06/19 15:22	RMHager	French.broom		37.06968678,-122.04859913	117	6 uid=uc1ac0f70c-4b0a-429f-8017-200790907b
04/06/19 15:22	RMHager	French.broom		37.06968228,-122.04859356	125	6 uid=uc1ac0f70c-4b0a-429f-8017-200790907b
04/06/19 15:22	RMHager	French.broom		37.06969737,-122.04889711	117	6 uid=uc1770a10b-a0de-41f6-e081-82d4c8cc23
04/06/19 15:23	RMHager	French.broom		37.06972299,-122.04891286	112	6 uid=uc4d9f1956-73b1-40a9-9d0b-af0b0c0cd9a8
04/06/19 15:23	RMHager	French.broom		37.06981697,-122.04879328	96	6 uid=uc1770a10b-a0de-41f6-e081-82d4c8cc23
04/06/19 15:24	RMHager	French.broom		37.06989442,-122.04874948	96	6 uid=uc1ac0f70c-4b0a-429f-8017-200790907b
04/06/19 15:25	RMHager	French.broom		37.07002363,-122.04874121	96	6 uid=uc1ac0f70c-4b0a-429f-8017-200790907b
04/06/19 15:25	RMHager	French.broom		37.07003783,-122.04877735	116	6 uid=uc1ac0f70c-4b0a-429f-8017-200790907b
04/06/19 15:27	RMHager	French.broom		37.07163284,-122.04864044	204	6 uid=uc1ac0f70c-4b0a-429f-8017-200790907b
04/06/19 15:28	RMHager	French.broom		37.07411335,-122.04847437	117	6 uid=uc1ac0f70c-4b0a-429f-8017-200790907b
04/06/19 15:29	RMHager	eucalyptus		37.0739648,-122.04857244	143	6 uid=uc1ac0f70c-4b0a-429f-8017-200790907b
04/06/19 15:30	RMHager	French.broom		37.07406617,-122.04877771	128	6 uid=uc1ac0f70c-4b0a-429f-8017-200790907b
04/06/19 15:31	RMHager	French.broom		37.07509978,-122.04859988	104	6 uid=uc1ac0f70c-4b0a-429f-8017-200790907b
04/06/19 15:32	RMHager	French.broom		37.07505778,-122.04877218	98	6 uid=uc1ac0f70c-4b0a-429f-8017-200790907b
04/06/19 15:33	RMHager	French.broom		37.07404646,-122.04865065	121	6 uid=uc1ac0f70c-4b0a-429f-8017-200790907b
04/06/19 15:35	RMHager	eucalyptus		37.0755393,-122.04853419	138	6 uid=uc1ac0f70c-4b0a-429f-8017-200790907b
04/06/19 15:36	RMHager	eucalyptus		37.07553616,-122.04857437	149	6 uid=uc1ac0f70c-4b0a-429f-8017-200790907b
04/06/19 15:38	RMHager	eucalyptus	2 other trees right here	37.07442951,-122.04848896	144	6 uid=uc1ac0f70c-4b0a-429f-8017-200790907b
04/06/19 15:40	RMHager	French.broom		37.073448,-122.04846622	129	6 uid=uc1ac0f70c-4b0a-429f-8017-200790907b
04/06/19 15:41	RMHager	eucalyptus	2 trees	37.0735489,-122.04863613	133	6 uid=uc1ac0f70c-4b0a-429f-8017-200790907b
04/06/19 15:42	RMHager	French.broom		37.0735543,-122.04862616	129	6 uid=uc1ac0f70c-4b0a-429f-8017-200790907b
04/06/19 15:42	RMHager	French.broom		37.07355874,-122.04864263	128	6 uid=uc1ac0f70c-4b0a-429f-8017-200790907b
04/06/19 15:43	RMHager	French.broom		37.07356179,-122.04865963	129	6 uid=uc1ac0f70c-4b0a-429f-8017-200790907b
04/06/19 15:44	RMHager	French.broom		37.0723086,-122.0486058	155	6 uid=uc1ac0f70c-4b0a-429f-8017-200790907b
04/06/19 15:00	RMHager	French.broom		37.06929429,-122.04838485	131	6 uid=uc1ac0f70c-4b0a-429f-8017-200790907b
04/06/19 15:01	RMHager	French.broom		37.06923766,-122.04839889	124	6 uid=uc1ac0f70c-4b0a-429f-8017-200790907b
04/06/19 15:24	RMHager	French.broom		37.06994518,-122.04879404	126	6 uid=uc1ac0f70c-4b0a-429f-8017-200790907b
02/06/19 15:36	Peter					
05/06/19 9:17	Peter	eucalyptus	Test	37.04999315,-122.04969989	45	6 uid=uc104b3320-c78f-4904-8a75-10389338731
05/06/19 12:44	joah	portuguese broom		37.0627878,-122.05241296	71	6 uid=uc1ac0f70c-4b0a-429f-8017-200790907b
07/06/19 15:38	RMHager	French.broom		37.06271622,-122		

07/06/19 14:01	RMHager	franch.broom		37.06899324,-122.05429888	https://drive.google.com/open?id=1eQaRvaxd0Lh8fEsfsmvMw_TJtF4wt_	102	4.288 uid:7249de74-d50a-4e0f-b6fd-e2e544ff3353	
07/06/19 14:02	RMHager	franch.broom		37.06915387,-122.05423205	https://drive.google.com/open?id=1B6m7u_1b9dyLb9dgkxomjwG2q4	85	4.288 uid:3283930-7e12-427a-43d7-d87be1a8126	
07/06/19 14:03	RMHager	franch.broom		37.06901373,-122.05417524		91	6.432 uid:c2bba6bc-b8e1-4d16-4e2b-6447f0b8c317	
07/06/19 14:05	RMHager	franch.broom		37.06895146,-122.0541362	https://drive.google.com/open?id=1qBy0lIKR0mnyCYBmYxqD9kx0e9BQ	106	6.36 uid:758a0ab-bc2c-4e95-e440-587587142e29	
07/06/19 14:06	RMHager	franch.broom		37.06894654,-122.05418836	https://drive.google.com/open?id=1po0671fPZ_Z0L5lq4-c9v3agte_BUY	104	6.36 uid:5e4411b1-e552-4501-9d9f-11ba9e95f454	
07/06/19 14:06	RMHager	franch.broom					uid:c2d7f1a1-2725-4334-9c0b-4b99a7a8f34d	
07/06/19 14:06	RMHager	franch.broom		37.06897871,-122.05423232	https://drive.google.com/open?id=1b9buaLup8xwCYA8K9S8Rm1c0dE	99	6.36 uid:5951b8b1-3e2f-4103-8119-133a77d87e4	
07/06/19 14:09	RMHager	franch.broom		37.06800094,-122.05469252	https://drive.google.com/open?id=1UYPu0wMDq3Zs4Bm_WVwX1ZmK1M34m	87	6.36 uid:b9eb825a-8bdc-47e5-8cdc-df6c06bbb80	
07/06/19 14:10	RMHager	franch.broom		37.06870053,-122.05474105	https://drive.google.com/open?id=1EX4ieEgAN_6l0XMeuV196QAOwE_vc	88	4.288 uid:b9c3f6d1-c87c-4a89-b8e6-7fbb7ba3e974	
07/06/19 14:10	RMHager	franch.broom		37.06958786,-122.05481675	https://drive.google.com/open?id=1P5qPvY5y5y14V4TatKxvka9w47_1d	85	6.36 uid:531710e5-052c-4d5a-83c3-d2b8b0e04546	
07/06/19 14:16	RMHager	franch.broom		37.06991751,-122.05480953	https://drive.google.com/open?id=1x1L5vEtv_VoQ796yU7a_7V95CO3kxMlQ	94	4.288 uid:c247652-ba8d-481e-4b84-624d70b87079	
07/06/19 14:17	RMHager	franch.broom		37.06999214,-122.05478365		87	4.288 uid:53acae528-e107-4929-4e27-5a7e86820e20	
07/06/19 14:17	RMHager	franch.broom		37.07002265,-122.05479473	https://drive.google.com/open?id=1ZedfY0Q_VQ-PQZ6917L108Lw2_Z4	95	7.504 uid:20a751a1-d848-48ed-4907-fad3d03b0dbf	
07/06/19 14:18	RMHager	franch.broom		37.07001707,-122.05480707	https://drive.google.com/open?id=1F14Qf1mV30u4K7g2y9v8eufwYwY9S	92	4.288 uid:4653b0d5-ea9b-e172-42c3-473025b02d1b	
07/06/19 14:18	RMHager	franch.broom		37.07004706,-122.05478353		87	6.36 uid:57111531-4a8f-403a-4d26-c6c0f1331448	
07/06/19 14:19	RMHager	franch.broom		37.07005515,-122.05476481		84	4.288 uid:2205666d-7ed7-4795-ea12-44563a330aab	
07/06/19 14:20	RMHager	franch.broom		37.07004594,-122.05483903		84	4.288 uid:3380f4a-4236-49f7-b1ef-443a2131bd8a	
07/06/19 14:21	RMHager	franch.broom		37.0699866,-122.0548317	https://drive.google.com/open?id=1tK1YxvfwJA1ARXQ8G4qoWpUa_	96	6.36 uid:1b9ab65-0bdc-4836-8ecd-6c2a4139b20a	
07/06/19 14:22	RMHager	franch.broom		37.06998665,-122.05494869		96	3.216 uid:32b6c1c-d50e-4d8b-a9b9-879a761f864	
07/06/19 14:23	RMHager	franch.broom		37.0700066,-122.05489099	https://drive.google.com/open?id=1V8NxmMe1lpPtwmK4W5VT77dMv1_C	89	4.288 uid:891ca143-880d-46e5-821d-ea7e3bc42996	
07/06/19 14:23	RMHager	franch.broom		37.07006855,-122.05485589		89	4.288 uid:cce1ec13-c2f2-4ac9-91ef-61e7330b7f0f	
07/06/19 14:24	RMHager	franch.broom		37.07018337,-122.05482823		89	4.288 uid:4a95f1b-ba7d-4011-b65f-046e8ac8dc0c	
07/06/19 14:25	RMHager	franch.broom		37.07021676,-122.05490321		7.504	uid:9332a0d0-66a1-427f-ba9b-b2a2534d6d59	
07/06/19 14:25	RMHager	franch.broom		37.07022561,-122.05489963		92	4.288 uid:c579e795-75c1-41cc-8d90-dfbc9c2c6b4b	
07/06/19 14:26	RMHager	franch.broom		37.07034382,-122.05480874		88	7.504 uid:acdbd1a93-ebab-43f6-b1ab-d964eb3a196	
07/06/19 14:26	RMHager	franch.broom		37.07041774,-122.05481911		92	4.288 uid:8f105b6-7cdd-48be-8c4d-4c6f8e830cc	
07/06/19 14:26	RMHager	franch.broom		37.07061413,-122.05490236		96	6.36 uid:ccf04631-f032-4a9d-b0a9-b2792240a678	
07/06/19 14:27	RMHager	franch.broom		37.07062652,-122.05488052		103	4.288 uid:598c9949-baad-453a-e730-f6833686b3cc	
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07/06/19 14:28	RMHager	franch.broom		37.07061542,-122.05469757		89	4.288 uid:1e222939-e9cc-4096-91de-b067230248a1	
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07/06/19 15:20	RMHager	black locust		37.07126053,-122.05401384		94	6.432 uid:32a07511-5b9f-488a-4147-87d0b0577886	
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MEMO

To: Board of Directors

From: District Manager

Prepared by: Environmental Manager

Subject: Request for Qualifications for As-Needed Services for Hydrogeology Consulting Services

Date: July 18, 2019

RECOMMENDATION:

Staff recommends the Board consider the recommendation by the Environmental Committee and authorize the District Manager to enter into contract with EKI for As Needed Hydrogeological Consulting Services.

BACKGROUND:

In fall of 2018, the long time hydro-geologist who had been providing as-needed services for over 30 years resigned. Currently the District needs professional services to provide guidance for the following efforts:

- o Representation of SLVWD's interests at the Santa Margarita Groundwater Agency during the development of the groundwater sustainability plan to comply with the Sustainable Groundwater Management Act;
- o Identification of potential management areas for the Groundwater Sustainability Plan;
- o Development of specific projects necessary to maintain or achieve water supply sustainability;
- o Identify new sources of supply, including well locations.
- o Review and develop recommendations regarding Conjunctive Use Planning Effort and other options to sustainably manage water supply;
- o Preparation and attendance of meetings with the District Board of Directors;

- o Development of hydrologic assessments and project related impacts to water availability, and recommendations to the District to sustainably manage the District's water resources;
- o Third-party review of water resources-related documents and data;
- o Evaluation and reporting related to specific issues that may be encountered over the term of this contract; and
- o Client communication

Following board approval in April, the District solicited a Request for Qualifications for As Needed Hydrogeological Consulting Services. The District received 3 proposals in total including EKI, Stetson Engineering, & Ludorff and Scalmanini. All proposals were reviewed and evaluated by the Environmental Committee.

Stetson and EKI ranked very closely with EKI narrowly leading the scores. There was considerable discussion about the pros and cons of both firms.

During the discussion staff mistakenly stated that Stetson may be in contract with the City. Following the meeting staff learned that Stetson is not in contract with any agency in Santa Cruz County.

Additionally the committee requested that staff call the references for both Stetson and EKI. The reference for EKI stated that the firm was an excellent firm from both a technical and a management perspective. They hit all their milestones on time and even came in under budget. Stakeholder meetings were well received and the firm was able to communicate complex hydrogeological information successfully. Staff also attempted to call the references provided in the Stetson Engineering Proposal, and none of the five references were currently a working telephone number provided.

The Environmental Committee voted unanimously to recommend EKI to the board to award the contract.

FISCAL IMPACT: TBD

As-needed professional services: Time and Materials

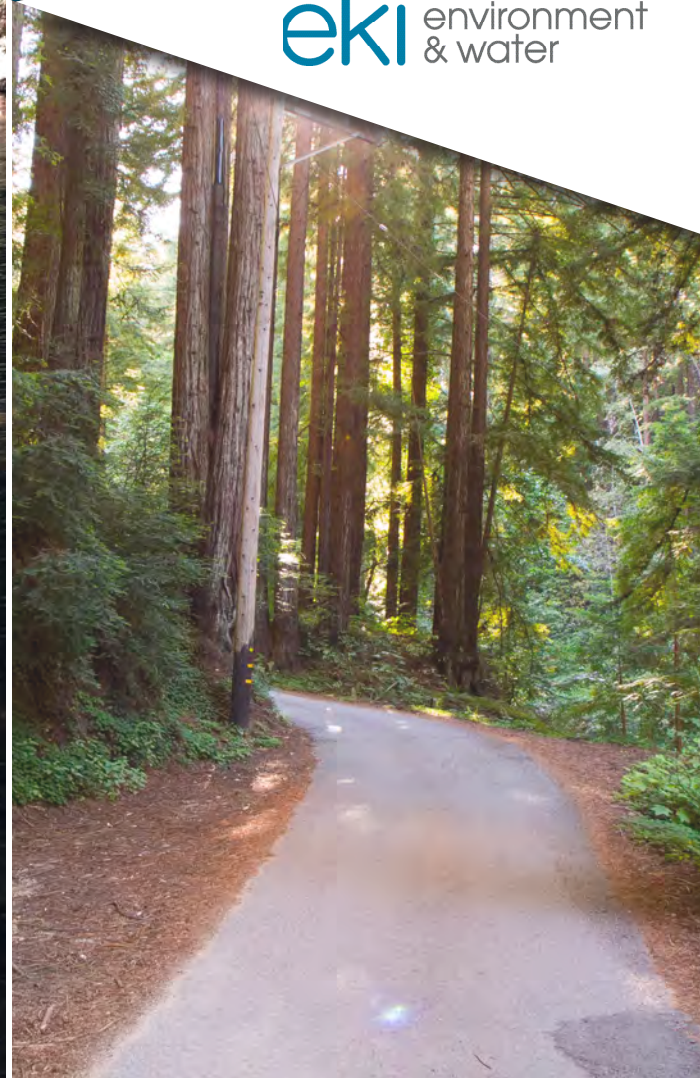
EKI B9-079 | 24 June 2019

SAN LORENZO VALLEY WATER DISTRICT

STATEMENT OF QUALIFICATIONS FOR

As-Needed Hydrogeological Consulting Services

eki environment
& water



Corporate Office
577 Airport Boulevard, Suite 500
Burlingame, CA 94010
(650) 292-9100
ekiconsult.com

24 June 2019

San Lorenzo Valley Water District
13060 Highway 9
Boulder Creek, CA 95006
Attn: Holly Hossack, District Secretary
hhossack@slvwd.com

Subject: Statement of Qualifications for As-Needed Hydrogeological Consulting Services

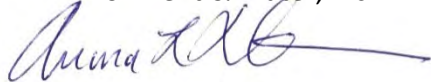
Dear Ms. Hossack:

EKI Environment & Water, Inc. (EKI) has assembled a highly experienced team to provide the San Lorenzo Valley Water District (SLVWD or District) with technical consulting services related to, among other things: (1) MODFLOW expertise, including MODFLOW experience specifically in the Santa Margarita Groundwater Basin (Basin), (2) Sustainable Groundwater management Act (SGMA) experience, and (3) experience helping water agencies effectively manage water supplies in complex geologic environments. The EKI Team is uniquely qualified to support SLVWD due to our:

- Proven leadership;
- Strong technical qualifications, including in-depth knowledge of the MODFLOW model review of the Basin and local SGMA implementation processes;
- Track record of successful technical and stakeholder outreach efforts in the Basin, in coordination with District staff;
- Effective communication skills; and
- Commitment to representing the District in SGMA and other related Basin processes.

EKI is very excited for the potential opportunity to develop a long-term working relationship with the SLVWD. Accordingly, we have discounted our rate schedule to make our SOQ as competitive as possible. Please do not hesitate to contact us with any questions regarding this proposal.

Very truly yours,
EKI Environment & Water, Inc.



Anona L. Dutton, P.G., C.Hg.
Vice President / Principal-In-Charge
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Tel: (650) 292-9100 / Fax: (650) 552-9012



John L. Fio
Project Manager
2827 Spafford Street
Davis, CA 95618
jfio@ekiconsult.com
Tel: (530) 341-2848 / Fax: (650) 552-9012

Formerly known as Erler & Kalinowski, Inc.

1. FIRM BACKGROUND

EKI Environment & Water, Inc. (EKI) is an employee-owned company that has provided comprehensive engineering, environmental, and water resources services to public and private sector clients throughout California and the United States since its founding in 1989. EKI's staff consists of more than 70 engineers, geologists, hydrogeologists, environmental scientists, computer-aided designers, and GIS and database specialists in our multiple offices throughout California (see Figure 1) and the United States. Our company has sustained steady, organic growth that is anchored by our senior staff, many of whom have worked at EKI for more than 15 years.



Figure 1. EKI's northern California office locations.

Over the past 30 years, EKI has established a strong reputation for effective project management and client satisfaction. EKI has never filed bankruptcy, had a contract or subcontract terminated in default, or had claims made against us that resulted in litigation or arbitration.

EKI is uniquely qualified to provide hydrogeological consulting services to the San Lorenzo Valley Water District (SLVWD or District). The EKI team has decades of experience using MODFLOW for local, basin-scale and regional modeling efforts. We also have broad expertise in Sustainable Groundwater Management Act (SGMA) implementation throughout California, including recent, highly relevant experience in the Santa Margarita Basin (Basin) conducting: (1) a groundwater model review and recommended improvements to support Groundwater Sustainability Plan (GSP) development and SGMA compliance, and (2) supporting the Santa Margarita Groundwater Agency (SMGWA) with public education workshops as part of SGMA outreach efforts.

2. PROJECT UNDERSTANDING AND APPROACH

The SLVWD is facing important challenges, including: (1) how to most effectively participate in the SMGWA's GSP development process; (2) how to maintain SLVWD surface water diversion rights and protect groundwater uses by public and private entities; and, (3) stewardship of interconnected surface water, groundwater, and terrestrial and aquatic ecosystems. As described below, EKI will support the District to effectively meet these challenges by designating a highly-qualified Project Manager (PM) who will work directly with the SLVWD Board of Directors and staff in the capacity of strategic technical advisor. When necessary to address specific issues, the PM will be supported by a strong bench of expert hydrogeologists, engineers, and scientists from within and outside EKI. By leveraging selected work efforts and taking advantage of efficiencies provided by technology, EKI will be able to perform the work in a cost-effective manner. Key aspects of EKI's approach to supporting SLVWD are summarized below.

Represent and Support SLVWD through GSP Development Process: SLVWD is a member of the SMGWA, which was formed in June 2017 by a Joint Exercise of Powers Authority (JPA). SLVWD holds two of 11 Board seats and will play an active role during GSP development. EKI's objective will be to represent SLVWD's interests throughout the GSP process, including providing

technical review of GSP sections and underlying models, etc. For example, SLVWD has conducted numerous studies to better understand the Basin and it is imperative that these studies and data be properly incorporated into the GSP process. We will also advocate for the GSP Implementation Plan to be cost-effective, while meeting the regulations and providing value. As described in the Case Study to the right, EKI has significant experience in this kind of role, and is currently performing strategic technical support for SGMA compliance for the Cuyama Valley Basin Water District in the Cuyama Valley Basin, for the Cordua Irrigation District in the North Yuba Subbasin, and for the Marina Coast Water District in the Salinas Valley Basin as part of Basin scale GSP processes. EKI has proven to be very effective in this role based on our experience developing 10 GSPs in some of the most technically and jurisdictionally complex basins throughout California

Identify Potential Management Areas: Based on the significant spatial complexities in the Basin's hydrogeology, groundwater use, and jurisdictional boundaries, Management Areas will most likely be employed in the GSP. The SLVWD Service Area boundaries are potential Management Areas to consider. For example, SLVWD undertook efforts decades ago to protect recharge areas surrounding their Olympia and Quail Hollow well fields, including significant investment into land purchases. EKI will work with SLVWD to identify and delineate potential Management Areas, and advocate for the inclusion of these Management Areas within the GSP.

Identify Projects to Support Sustainability: Several SLVWD projects already exist in different stages of planning that may support and benefit groundwater sustainability (e.g., SLVWD's stream flow gaging stations, improvements to SLVWD's distribution system, water rights claims, habitat monitoring, and in-lieu recharge project plans). To the extent applicable, EKI will advocate for the inclusion of these projects in the GSP, and for the development of a framework wherein SLVWD will get the "credit" for the benefits provided by these projects.

CASE STUDY:

STRATEGIC TECHNICAL SUPPORT FOR THE CUYAMA VALLEY BASIN WATER DISTRICT

EKI is providing strategic technical support to Cuyama Valley Basin Water District (CVBWD) in its response to SGMA in the Cuyama Valley Basin, one of the most critically-overdrafted basins in the State. The District only holds 5 of 11 seats on the Cuyama Basin GSA, even though CVBWD landowners represent 95% of the groundwater use within the Basin and stand to experience significant reductions in water supply and agricultural production in the SGMA process.

EKI is providing technical and strategic support to the CVBWD as part of the GSP development process through peer review of the GSP and model development work by the GSA's consultant.

EKI has provided an opinion on the validity of key GSP assumptions and findings related to the hydrogeologic conceptual model, sustainability criteria, and the numerical model being developed by the GSP consultants. EKI outlined steps for improving the model to support basin-wide GSP development and to provide for uncertainty analysis and adaptive management. We also identified an Alternative GSP Implementation Plan that is thoroughly compliant with the regulations and more reasonably implemented within the financial means of Basin landowners.

Identify New Supply Sources: The EKI Team has experience with well siting within the Basin. Additionally, our experience includes completion of feasibility studies and the development and permitting of groundwater and recycled water projects, as well as technical support for surface water and groundwater substitution water transfers. For example, EKI supported the City of East Palo Alto with its water supply strategy, including providing technical services related to their successful pursuit of the first-ever transfer of Individual Supply Guarantee on the Hetch-Hetchy system and supporting them to develop their local groundwater supplies through production well and treatment system design. We also have broad experience in water supply portfolio development, including water conservation, recycled water and non-potable reuse, and stormwater capture and reuse.

Sustainable Groundwater Management Considerations: Sustainable management criteria (SMCs) must be relevant to processes that are directly influenced by groundwater management actions (e.g., pumping or mitigation). The EKI Team will identify potential SMCs for key Sustainability Indicators (e.g., recommended baseflows and/or minimum groundwater levels) to help promote sustainability within SLVWD's Service Areas. EKI will advocate for inclusion of these SMCs in the GSP, as well as review the SMCs for adjacent Management Areas to ensure that they will not have a negative impact on SLVWD's ability to maintain sustainability.

Client Communication: EKI will support SLVWD staff and the Board of Directors through attendance at Board meetings and other routine communications. EKI excels at written and verbal communication, and at developing and presenting technical presentations that are understandable to diverse audiences. Additionally, EKI has significant experience participating in, presenting at, and informing Board of Directors through in-person meetings and teleconferences.

3. EXPERIENCE

MODFLOW

EKI has developed, reviewed, and employed primarily MODFLOW models in over 30 projects throughout California (Figure 2). In addition to MODFLOW, our subsurface modeling experience includes finite element models (IWFM and FEMFLOW3D), and analytical modeling tools such as WINFLOW. Our modeling approach benefits from integration with GIS for spatial analyses and subsurface characterization with programs such as TPROGS. Groundwater solute transport, geochemical, and temperature modeling applications have employed SEAWAT, SUTRA, MTD3D, SUTRA, MODPATH, PHAST, STANMOD, PHREEQC and VSTD codes. Unsaturated-zone modeling applications have included the use of soil moisture budget modeling and VSTD, IDC, SUTRA and HYDRUS. An example project is presented below:



Figure 2. Groundwater modeling work efforts.

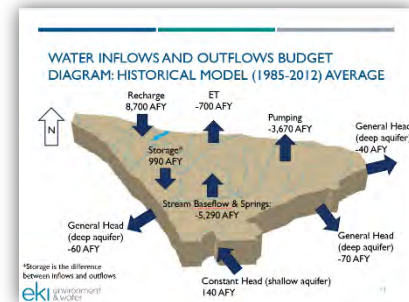
Santa Margarita Groundwater Model Assessment and Review

Team Members: John Fio, Christina Lucero, Anona Dutton,
Martin Feeney

Date of Services: May 2018 to February 2019

Project Location: Santa Margarita Groundwater Basin,
Santa Cruz County

- ✓ **Basin Experience**
- ✓ **SGMA Implementation to Support GSP Development**
- ✓ **Groundwater Modeling/MODFLOW Experience**
- ✓ **Multi-Agency Communication**



As a foundational effort for its local SGMA implementation, the SMGWA sought confirmation as to whether the existing MODFLOW groundwater flow model developed for the Santa Margarita Groundwater Basin would comply with the SGMA regulations. The EKI Team assessed the Santa Margarita Groundwater Model in the context of SGMA's standards and objectives and provided the SMGWA with detailed recommendations as to how the model could be modified and improved to support GSP development and SGMA implementation in the Basin. Our work included coordination and input from local experts and agency consultants, and the review findings were presented to the SMGWA technical committee and interested Board members. These recommendations are being implemented as part of GSP development for the Basin.

Water Agencies

The EKI Team has past successes working with water supply and water management agencies within California, including BAWSCA, Daly City, City of Lathrop, California Water Service Company, Arvin-Edison Water Storage District, Irvine Ranch Water District, Sacramento County and many more. An example project is presented below:

Westside Basin Groundwater Management

Team Members: John Fio, Christina Lucero

Date of Services: 1998 to present

Project Location: Westside Groundwater Basin, San
Francisco and San Mateo Counties

- ✓ **Groundwater Modeling/MODFLOW Experience**
- ✓ **Multi-Agency Communication**
- ✓ **Sustainable Groundwater Management Considerations**
- ✓ **Conjunctive Use Planning**



Groundwater pumped from the Westside Basin provides a substantial portion of the normal and dry year water supply for municipal and private water suppliers and users in San Francisco and San Mateo counties (e.g., the Cities of San Bruno, Daly City and South San Francisco). In recent years, basin management efforts have expanded to include a large-scale aquifer storage and recovery (ASR) project developed by the San Francisco Public Utilities Commission (SFPUC)

that supports regional reliability. As demands for water increase, coordinated groundwater and surface water management is critical to maintaining a reliable water supply for all beneficial uses and users in the basin. Since 1998, EKI staff have contributed significantly to the increased technical understanding and improved management of the Westside Basin.

In 2002, EKI staff developed the initial Westside Basin Groundwater Model, followed by updates in 2007, 2009, 2014, and 2017. Through adaptive management, these updates incorporated new data and led to insights that improved model performance and reliability, and basin characterization and management. In recent efforts (2018 and 2019) EKI is using the model to simulate ASR project operations and develop project accounting methods.

A critical aspect of our work was developing consensus between the various basin stakeholders and their technical representatives. This included facilitating the exchange of data between multiple parties, coordinating and responding to model reviews, and listening and integrating the input during the update process.

Water Supply Management in Complex Environments

The EKI Team combines ingenuity, collaboration and responsiveness to deliver integrated water supply management solutions in complex environments. Our team excels at stakeholder engagement, at navigating the political constraints of GSP development and GSA administration in large, multi-agency basins, and enjoys the challenging technical aspects of water supply management in complex geologic environments. Our work efforts have focused on managing SGMA compliance, maintaining quality and reliability of surface water supplies, and quantifying the benefits of groundwater banking and conjunctive use efforts. The projects below and in the SGMA section highlight the applicability and relevance of our experience.

Public Outreach to Support GSP Development in the Santa Margarita Groundwater Basin

Team Members: John Fio

Date of Services: December 2018 to February 2019

Project Location: Santa Margarita Groundwater Basin, Santa Cruz County

- ✓ **Basin Experience**
- ✓ **SGMA Implementation to Support GSP Development**
- ✓ **Multi-Agency Communication**



EKI participated in SMGWA's February public community workshop 2 "Water Budgets: How Do We Balance All Needs?" by preparing two presentations which: (1) detailed SGMA's requirements for presenting the Hydrogeological Conceptual Model, and (2) identified main components of the Santa Margarita Basin's water budget and their representation within the Santa Margarita Groundwater Model. Additionally, EKI designed an interactive game to engage and inform the public on water budget components and accounting.

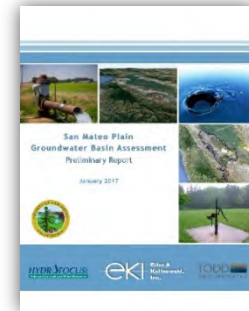
San Mateo Plain Subbasin Groundwater Assessment Study

Team Members: Anona Dutton, John Fio, Christina Lucero

Date of Services: 2016 to present

Project Location: San Mateo Plain Subbasin

- ✓ **Basin Experience**
- ✓ **SGMA Implementation to Support GSP Development**
- ✓ **Groundwater Modeling/MODFLOW Experience**
- ✓ **Multi-Agency Communication**



EKI lead a multi-disciplinary a team to develop the first-ever comprehensive groundwater basin assessment for the San Mateo Plain Groundwater Subbasin. This effort established a foundational understanding of the basin and is assisting the basin with future management and compliance with CASGEM.

Initial efforts included rigorous technical modeling and analysis, including compilation of disparate data sources into a single basin database, development of a hydrogeologic conceptual model, construction of a regional numerical groundwater model, a detailed assessment of potential threats to groundwater, and the development of a comprehensive basin water balance.

The Project Team also conducted an analysis of Bay Mud conductivity, developed modeling scenarios, and evaluated and outlined available basin management strategies, including both institutional and physical management options. EKI is now supporting the Basin in achieving CASGEM compliance, including identifying and conducting initial water level measurements across a potential monitoring well network.

The project was structured around strong public outreach and engagement and has included multiple stakeholder workshops led by EKI. Identification of data gaps, prioritization of modeling scenarios, and other key technical components of this project were informed through active, frequent engagement with basin stakeholders. Our successful public engagement process was profiled in an [article](#) by Stanford's Water in the West.

SGMA Experience

EKI has extensive experience with SGMA implementation, supported by decades of work conducting water supply portfolio analysis and development, groundwater modeling, and hydrogeologic investigations for numerous public and private entities.

As shown in Figure 3, EKI is working with entities throughout California to develop strategic responses to comply with SGMA, and on other groundwater characterization and resource issues including: supporting successful basin boundary modification requests; assisting in the formation and administration of GSAs; conducting extensive public engagement; preparing successful applications for Proposition 1 funding; performing groundwater modeling; assessing groundwater sustainable yield and overdraft issues as part of basin adjudications; preparing groundwater conditions evaluations and evaluations of projects and management actions; developing and analyzing the technical information required for GSPs; and developing GSPs at both the basin and sub-basin scale.

Our experience in a variety of roles, and during all SGMA implementation phases, provides EKI with a valuable perspective on what our clients must accomplish to successfully comply with SGMA. We have established a reputation for our solution-oriented approach to projects, supported by ongoing client communication and an established credibility with regulatory agencies such as the California Department of Water Resources (DWR) and State Water Resources Control Board (SWRCB). An example project is presented below:

SGMA Support in the White Wolf Subbasin

Team Members: Anona Dutton, Christina Lucero

Date of Services: 2015 to present

Project Location: White Wolf Groundwater Subbasin, Kern County

- ✓ **SGMA Implementation to Support GSP Development**
- ✓ **Groundwater Modeling Experience**
- ✓ **Multi-Agency Communication**
- ✓ **Sustainable Groundwater Management Considerations**

EKI is supporting Arvin-Edison Water Storage District (AEWSD), Tejon-Castac Water District (TCWD), Kern County, and Wheeler-Ridge Maricopa Water Storage District (WRMWSD) with their strategic response to SGMA in the White Wolf Subbasin (WWB). Work to date has included the development and filing of a successful basin boundary modification (BBM) request to subdivide the Kern County Subbasin into two subbasins – the Kern County Subbasin and the WWB. DWR stated that EKI's work supported "the best boundary modification request they had ever seen".

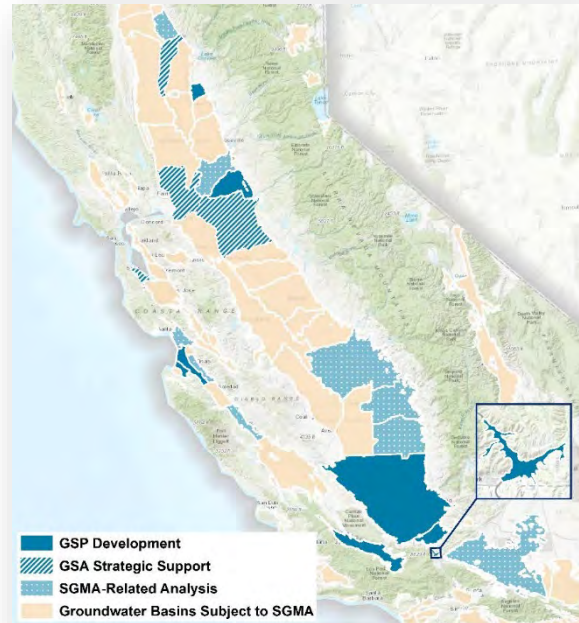


Figure 3. Groundwater basins in which EKI is supporting SGMA related work efforts.



EKI also successfully petitioned DWR to remove the “critically overdrafted” status from the newly-formed WWB, which is now a medium priority basin. In a parallel effort, EKI is supporting the Districts on an ongoing basis with SGMA compliance in the WWB, including supporting GSA formation and administration, successfully securing Proposition 1 funding, and developing a coordinated GSP.

EKI recommended use of DWR’s newly developed C2VSim-Fine Grid model to support WWB water budgeting efforts and to coordinate cross-boundary flow estimates with the neighboring Kern County Subbasin. EKI also developed a companion analytical water budget spreadsheet model which accounts for all surface water and groundwater flow throughout the WWB. Using these water budget results, we are currently working to verify C2VSim’s water budget for the WWB to support basin sustainable yield estimates and other GSP-related analysis.

In support of sustainable groundwater management, EKI assisted the GSAs in identifying a dedicated monitoring network to achieve CASGEM compliance and support SGMA implementation. We have also conducted extensive analysis of water level and water quality trends, subsidence, Groundwater Dependent Ecosystems (GDEs) and imported water reliability to support development of sustainability criteria that will ensure sustainable management of the WWB.

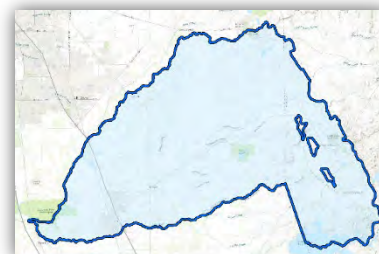
Cosumnes Basin Work Group – SGMA Support in the Cosumnes Subbasin

Project Team Members: Anona Dutton, John Fio, Christina Lucero

Date of Services: 2017 to present

Client Contact: Tom Gohring, General Manager, Water Forum
(916) 808-1998

- ✓ **Basin Experience**
- ✓ **SGMA Implementation to Support GSP Development**
- ✓ **Groundwater Modeling/MODFLOW Experience**
- ✓ **Multi-Agency Communication**



The Cosumnes Work Group consists of Sacramento County, Galt Irrigation District, Clay Water District, City of Galt, Sloughhouse Resource Conservation District, Omoichumne-Hartnell Water District, and the Amador County Groundwater Authority. In our role as strategic technical advisor, EKI is assisting the Work Group in developing and implementing a comprehensive strategy for the Multi-GSA Cosumnes Basin Workgroup for SGMA compliance, including development of a Proposition 1 application and preparation of a coordinated GSP.

EKI is initiating work to develop a Basin-wide hydrogeologic conceptual model and analysis of undesirable results, including compiling and reviewing water level and water quality data, understanding issues related to surface water / groundwater interactions along the Cosumnes River, and identifying key data gaps (e.g., lack of water quality data). We are also developing a numerical groundwater model of the Basin and leading data gathering efforts to support GSP and model development.

Specific Project Experience

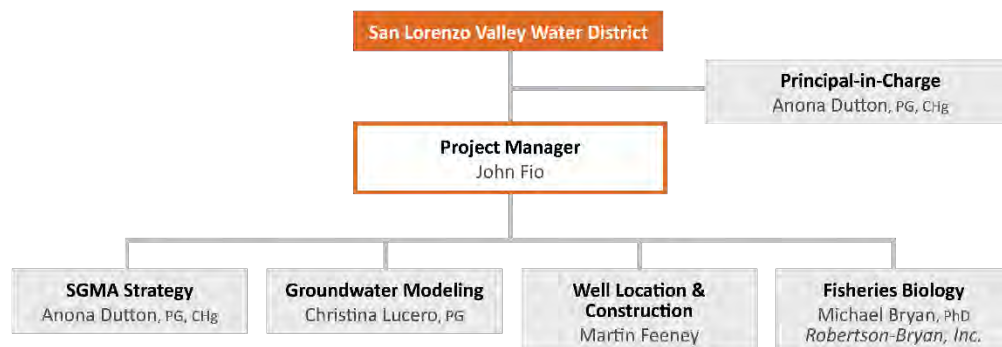
Additional examples of the EKI Team’s experience with groundwater model development, implementation, and review; ongoing SGMA compliance; and groundwater management efforts are listed below.

Client / Location	Project Description	Hydrogeologic Conceptual Model	Water Budget/ Safe Yield	Groundwater Modeling	Water Quality Assessment	Securing Grant Funding	Data Collection & Analysis	Public/ Stakeholder Engagement
Marina Coast Water District / Monterey Subbasin	SGMA GSP Development and Water Supply Strategy (groundwater augmentation, IPR/DPR, assess basin impacts from pumping)	•	•		•	•	•	•
City of Lathrop / Eastern San Joaquin Subbasin	SGMA support and Integrated Water System Master Planning, including IPR/DPR options; Basin boundary modification	•	•	•	•	•	•	•
Cuyama Basin Water District/ Cuyama Valley Subbasin	Technical and Strategic SGMA Support	•	•	•	•	•		•
California Water Service Company / Statewide	SGMA strategy for districts in groundwater basins statewide		•				•	
Reclamation District 2106 / Llano Seco Ranch / West Butte Subbasin	Comprehensive Groundwater Services (ASR evaluation, safe yield assessment, SGMA support)	•	•	•			•	
Cordua Irrigation District / North Yuba Subbasin	Comprehensive Groundwater Services (SGMA support and groundwater transfer)	•	•	•			•	•
Tejon-Castac Water District (TCWD) / Castac Basin	Comprehensive Groundwater Services (ASR evaluation, basin safe yield assessment, SGMA support – GSA formation)	•	•	•	•		•	•
TCWD; Wheeler Ridge-Maricopa Water Storage District; Arvin-Edison Water Storage District / White Wolf Subbasin	SGMA Support (GSA formation, Basin Boundary Modification, Comprehensive SGMA Strategy)	•	•		•	•	•	•
Arvin-Edison Water Storage District / Kern Subbasin	Technical and Strategic SGMA Support (GSP development)	•	•		•	•	•	•
Olcese Water District / Kern Subbasin	Technical and Strategic SGMA Support (GSP development)	•	•		•	•	•	

4. STAFF EXPERIENCE

EKI's appointed **Project Manager, John Fio**, will be the sole liaison between SLVWD and the EKI Team. Mr. Fio has over 30 years of hydrologic experience, including groundwater-flow modeling, chemical fate and transport modeling and geochemical modeling, supporting SGMA compliance and developing GSPs, designing water management plans, and establishing water quality monitoring programs. John is very familiar with the Basin due to his prior work efforts on the Santa Margarita Groundwater Model assessment and participation in the public outreach Water Education Series.

John will be supported by a team of experts selected based on their technical experience, familiarity with SGMA, and experience with local hydrogeologic conditions. Key EKI Team members are listed in the chart below, and include:



Anona Dutton, PG, CHg will lead SGMA strategy efforts. Ms. Dutton has over 17 years of professional experience managing water resources projects, is deeply involved in implementation of SGMA throughout the State and is a recognized expert in her field. Her clients include the cities of Lathrop and East Palo Alto as well as GSAs and water districts throughout the State. A detailed list of Ms. Dutton's similar projects including her experience working with capital improvement water projects is provided in her resume in Appendix A.

Christina Lucero, PG will lead groundwater modeling efforts. Ms. Lucero has 10 years of professional experience, and has successfully developed and implemented numerous groundwater models, including the Santa Margarita Groundwater Model assessment. Ms. Lucero created a flow and transport model and helped oversee monitoring well installation for the City of Lathrop and performed groundwater modeling to support the development of a new production well in East Palo Alto. A detailed list of Ms. Lucero's similar projects is provided in her resume in Appendix A.

Martin Feeney, PG, CEG, CHg will be a subconsultant who substantial understanding of the complex hydrogeologic conditions based on decades of experience in the Basin. Martin will support well location selection and well construction efforts. Mr. Feeney has more than 35 years of groundwater consulting experience, significant experience in drilling and well construction technology, and has recent experience designing and constructing wells for the SLVWD. More information is provided below under Section 5.

Michael Bryan, PhD of RBI will be a subconsultant that will lead fisheries biology efforts. Dr. Bryan has 33 years of combined consulting and research experience focused on water quality, fisheries biology (including steelhead and salmon), and aquatic toxicology including CEQA/NEPA documents, Endangered Species Act consultations, water quality and aquatic ecology studies, and regulatory permitting. More information is provided below under Section 5.

EKI has additional water resources and engineering technical expertise fully capable of supporting SLVWD's other on-call technical work including in water supply portfolio analysis and development, hydraulic modeling, water and wastewater planning, utility program management, and hydrogeologic investigations. EKI's engineering services include program

management, planning and engineering, design, and construction management for utilities including potable water, wastewater, recycled water, and storm water utilities.

5. SUBCONSULTANT EXPERIENCE

EKI will be supported by Subconsultants: (1) Martin Feeney, hydrogeologist, and (2) Robertson-Bryan, Inc. (RBI), a multi-disciplinary consulting firm with expertise in aquatic and terrestrial biological resources. Mr. Feeney provides invaluable local geologic and hydrogeologic experience having provided continuous well siting, design, construction management, and well rehabilitation services to SLVWD for the past 20 years. RBI has extensive water and power resource planning, water quality, aquatic and terrestrial biological resources, and regulatory compliance expertise.

Martin Feeney, Consulting Hydrogeologist

Martin Feeney has provided hydrogeologic consulting services to SLVWD since 1999 and currently continues to provide these services. Mr. Feeney has predominately provided well siting, design, construction management and well rehabilitation services. He has also assisted the SLVWD in several basin-wide regional groundwater analyses. A selected list of Mr. Feeney's SLVWD projects include:

- 2000 – Design and Replacement of Quail Hollow Well 5 (Well 5A)
- 2001 – Design and Replacement of Quail Hollow Well 4 (Well 4A)
- 2004 – Quail Hollow Aquifer System Large Scale Aquifer Test (with Nick Johnson)
- 2005 – Rehabilitation of Manana Woods Well
- 2012 – Design and Replacement of Pasatiempo Well No. 5 (Well 5A)
- 2015 – Assessment of Pasatiempo Well No. 6
- 2017 – Rehabilitation of Pasatiempo Well No. 7
- 2018 – Replacement of Pasatiempo Well No. 6 (Well No. 8)
- 2019 – Assessment of Olympia and Quail Hollow Wellfields
- 2019 – Rehabilitation of Olympia No. 3 and Quail Hollow No. 5A

Degree of involvement: <25%

Point of Contact: Martin Feeney, PG, CEG, CHg

P.O. Box 23240, Ventura, CA 93002

831-915-1115

mfeeney@ix.netcom.com

Robertson-Bryan, Inc.

Robertson-Bryan, Inc. (RBI) is a multi-disciplinary consulting firm with expertise in aquatic and terrestrial biological resources, and regulatory compliance. Well-established relationships with resource agencies, water and irrigation districts, municipalities, and other public and private organizations throughout the state are a testament to the firm's ability to develop effective solutions that satisfy competing interests. Recent relevant experience includes:

- Yuba County Water Agency South Canal Diversion: In 2018, RBI led the development of project design, prepared CEQA documentation, and obtained the environmental permits for a fast-track project involving excavation of approximately 450 linear feet of the south

channel of the lower Yuba River adjacent to the YWA's South Canal Diversion facility to enhance water supply and fish passage.

- **Temperature Study – Sacramento Regional Wastewater Treatment Plant Discharge To The Sacramento River At Freeport:** RBI was the lead technical consultant responsible for development and implementation of a comprehensive study consisting of eight study elements to assess the potential thermal effects of the Sacramento Regional Wastewater Treatment Plant's (SRWTP) effluent discharge on aquatic life and habitat, including designated critical habitat for delta smelt, Chinook salmon, steelhead, and green sturgeon, in the lower Sacramento River.

Degree of involvement: <25%

Point of Contact: Michael Bryan, Ph.D.

9888 Kent Street, Elk Grove, CA 95624

(916) 714-1802

bryan@robertson-bryan.com

6. CLIENT REFERENCES

San Mateo Plain Subbasin Groundwater Assessment Study

Client: San Mateo County

Reference: Charles Ice, San Mateo County Environmental Health, (650) 399-6911

Team Members: John Fio, Anona Dutton, Christina Lucero

SGMA Foundational Work Efforts in the Santa Margarita Groundwater Basin

Client: SMGWA

Reference: John Ricker, County of Santa Cruz, (831) 454-2750

Team Members: John Fio, Anona Dutton, Christina Lucero, Martin Feeney

Westside Basin Groundwater Management

Client: City of Daly City

Reference: Patrick Sweetland, City of Daly City, (650) 991-8201

Team Members: John Fio, Christina Lucero

New 1500 Well Construction, New Well Design and Construction, & Well Siting Studies

Client: SVWD

Reference: David McNair, SVWD,
(831) 234-6339

Team Members: Martin Feeney

7. FEE SCHEDULE

Hourly rates by personnel classification are provided below. EKI understands that cost is an important issue for SLVWD. In recognition of that fact, we have discounted our rates. We are also committed to limiting costs associated with travel and expenses. Rates for indirect charges and other direct costs will be provided upon request.

EKI Environment & Water, Inc.	
Personnel Classification	Hourly Rate
Officer & Chief Engineer-Scientist	220
Principal Engineer-Scientist	212
Supervising I, Engineer-Scientist	205
Supervising II, Engineer-Scientist	200
Senior I, Engineer-Scientist	193
Senior II, Engineer-Scientist	185
Associate I, Engineer-Scientist	175
Associate II, Engineer-Scientist	165
Engineer-Scientist, Grade 1	155
Engineer-Scientist, Grade 2	145
Engineer-Scientist, Grade 3	135
Engineer-Scientist, Grade 4	125
Engineer-Scientist, Grade 5	115
Engineer-Scientist, Grade 6	105
Technician	100
Senior GIS Analyst	133
CADD Operator / GIS Analyst	118
Senior Administrative Assistant	125
Administrative Assistant	95
Secretary	80

Martin B. Feeney, PG, CEG, CHg	
Personnel Classification	Hourly Rate
Principal Hydrogeologist	195
Principal Hydrogeologist (field)	160
Project Hydrogeologist	175
Word Processor	70
Illustrator/GIS	80

Robertson-Bryan, Inc.			
Personnel Classification	Hourly Rate	Personnel Classification	Hourly Rate
Managing Partner	294	Project Engineer/Scientist II	197
Partner	285	Project Engineer/Scientist, I	179
Principal Engineer/Scientist	276	Staff Engineer/Scientist II	167
Resource Director	249	Staff Engineer/Scientist I	152
Associate	239	Technical Analyst	146
Sr. Engineer/Scientist II	233	Graphics/GIS	134
Sr. Engineer/Scientist I	224	Laboratory Compliance Specialist	130
Project Engineer/Scientist III	207	Administrative Assistant	96

Appendix A

Resumes

Anona L. Dutton, C.Hg.

Vice President / Principal-in-Charge

Director of Water Resources Practice

Ms. Dutton has over seventeen years of professional experience managing water resources projects. She has managed multi-million dollar efforts to secure reliable water supplies for water agencies and developers, including leading the technical efforts to minimize the water footprint of new and existing development, assessing groundwater and surface water supply yields, securing water transfer options, and evaluating the feasibility of developing new water supply sources such as recycled water, desalination water, and other non-potable sources.

Her work to support public sector clients has included Water Supply Assessments, Water System Master Plans, Urban Water Management Plans, and Water Conservation Plans. Ms. Dutton is also deeply involved in implementation of the Sustainable Groundwater Management Act (SGMA) throughout the State, including provision of strategic and technical support for Groundwater Sustainability Agency formation, basin boundary adjustments, Groundwater Sustainability Plan development, and securing grant funding.

Relevant Experience

LITIGATION SUPPORT

- **Adjudication Support in the Las Posas Valley, Ventura County.** Ms. Dutton has been retained as a technical expert for the comprehensive basin adjudication effort in the Las Posas Valley Groundwater Basin, located in Ventura County. The Las Posas Valley Groundwater Basin contains both urban and agricultural water users, as well as both groundwater and imported surface water use. Ms. Dutton is leading efforts in support of demonstrating our client's prescriptive rights to groundwater pumping within the available sustainable yield. EKI has detailed a history of documented overdraft conditions in the Basin and compared various estimates of reported sustainable yield. We have begun calculating return flow benefits as a result of our client's in-lieu use of surface water. Additionally, EKI is



Education

- M.S., Hydrogeology, Stanford University, 2000
- B.S., Environmental Sciences, Stanford University, 1998

Registrations/Certifications

- Professional Geologist in California (#7683)
- Certified Hydrogeologist in California (#841)
- LEED Green Associate
- Water Use Efficiency Practitioner – Grade 1

Anona L. Dutton, C.Hg.

participating with a technical committee who has been tasked with establishing a water balance for the Basin. Initial water balance tasks include preliminary comparisons of both analytical- and numerical model-calculated water budgets.

SUSTAINABLE GROUNDWATER MANAGEMENT ACT IMPLEMENTATION

- SGMA Compliance in the Cosumnes Subbasin.** Ms. Dutton was retained to provide strategic technical support to the Cosumnes Subbasin Working Group in its response to SGMA in the Cosumnes Subbasin, including supporting coordination among the seven GSAs, developing a technical understanding of basin conditions that will inform elements of the GSP, and securing Proposition 1 and Technical Support Services (TSS) grant funding. The Proposition 1 grant that Ms. Dutton authored received a 19/19 score and was recommended for full funding. Ms. Dutton is now leading GSP development efforts in the Cosumnes Subbasin, with particular focus on issues related to groundwater/surface water interaction along the Cosumnes River corridor, cross-boundary flow issues with the neighboring groundwater basins, sustainable yield assessment, and identifying opportunities to conduct managed aquifer recharge.
- SGMA Compliance in the White Wolf Subbasin.** Ms. Dutton is providing strategic technical support to the White Wolf GSA in its response to SGMA in the newly created White Wolf Subbasin in Kern County, California. EKI supported the four GSA member agencies in a successful request to the Department of Water Resources (DWR) to disavow the southern portion of the Kern County Subbasin into the White Wolf Subbasin based on technical analysis that demonstrated that the White Wolf Fault was a significant barrier to flow. DWR told TCWD that it was the best boundary revision request they had ever received. EKI is now supporting the White Wolf GSA with GSP preparation, including supporting stakeholder engagement efforts, groundwater modeling, CASGEM compliance, and securing Proposition 1 grant funding.
- SGMA Compliance Support for Arvin-Edison Water Storage District.** Ms. Dutton provides technical support to Arvin-Edison Water Storage District (AEWSD) in groundwater and water quality-related litigation matters. She also provides strategic technical support to AEWSD in its response to SGMA in the White Wolf Subbasin and in the Kern County Subbasin, including with GSA formation and GSP preparation. As part of this effort, she is overseeing stakeholder engagement efforts, the development of a hydrogeologic conceptual model (HCM) of the 130,000-acre District; the development of a 20-year water budget that includes natural and imported water sources, groundwater pumping, the operation of local and regional water banks, and various water demands; an assessment of groundwater conditions; and, the development of sustainability criteria and projects and management actions. She is also acting as an extension of staff, attending meetings and providing peer review support for various technical documents and models being prepared by DWR, the United States Bureau of Reclamation (USBR), the Kern Groundwater Authority, and others. She is also supporting the

Anona L. Dutton, C.Hg.

District's efforts to maintain water quality standards on the Friant-Kern Canal (FKC), including conducting in-depth investigations of groundwater quality trends over time, drafting policy papers and comment letters, and inventorying projects that impact water quality in the FKC.

- **SGMA Compliance Support for Wheeler Ridge-Maricopa Water Storage District.** Ms. Dutton is providing strategic technical support to Wheeler-Ridge Maricopa Water Storage District (WRMWSO) in its response to SGMA in the White Wolf Subbasin and in the Kern County Subbasin, including with GSA formation and GSP preparation. As part of this effort, she is overseeing stakeholder engagement efforts, the development of a HCM of the 110,000-acre District an assessment of groundwater conditions; and, the development of sustainability criteria and projects and management actions. She is also acting as an extension of staff, attending meetings and providing peer review support for various technical documents and models being prepared by DWR, the Kern Groundwater Authority, and others.
- **SGMA Compliance Support for Tejon-Castac Water District.** Ms. Dutton is providing strategic technical support to Tejon-Castac Water District (TCWD) in its response to SGMA in the Castac Lake Valley Basin, the White Wolf Subbasin, and in the Kern County Subbasin, including with GSA formation and administration and GSP preparation. Work has included stakeholder engagement, collection and interpretation of pumping test and remotely-sensed land use data, quantitative evaluation of wetland water demands, integration of multiple data sets into a conceptual model of aquifer structure and properties, and development of a quantitative groundwater basin model for predicting site-specific hydrologic processes. Ms. Dutton is also supporting permitting for TCWD's recycled water/groundwater augmentation project.
- **SGMA Compliance Support for Olcese Water District.** Ms. Dutton is providing strategic technical support to Olcese Water District (OWD) in its response to SGMA in the Kern County Subbasin, including with GSP preparation. As part of this effort, she is overseeing the development of a HCM of the District and developing a 20-year water budget that includes natural and imported water sources, groundwater pumping, and various water demands. She is also acting as an extension of staff, attending meetings and providing peer review support for various technical documents and models being prepared by DWR, the Kern Groundwater Authority, and others. She is also supporting OWD in its pursuit of a basin boundary modification, including developing the technical argument and leading meetings with DWR.
- **SGMA Compliance Support for Cuyama Basin Water District.** Ms. Dutton is providing strategic technical support to Cuyama Basin Water District (CBWD) in its response to SGMA in the Cuyama Basin, one of the most critically-overdrafted basins in the State, including developing a technical understanding of basin conditions that will inform elements of the GSP, supporting its application for Proposition 1 grant funding, and supporting the GSP development process through peer review of efforts by the USGS and other consultants.
- **SGMA-Related Groundwater Assessment in the San Mateo Plain Subbasin.** Ms. Dutton led the development of the first-ever comprehensive groundwater basin assessment for the San

Anona L. Dutton, C.Hg.

Mateo Plain Groundwater Subbasin (see [project website](#)). This effort includes developing a HCM and water balance for the subbasin, evaluating threats to water quality and sustainability, developing a numerical groundwater model for the basin and region, and evaluating various physical and institutional basin management options, including identifying potential locations to augment groundwater supplies with recycled water using ASR wells. This work is being done coincident with a strong public outreach process, which has included multiple stakeholder workshops led by Ms. Dutton. The work being conducted by EKI has been [profiled by Stanford's Water in the West](#).

- **Strategic SGMA Support for CalWater.** Ms. Dutton is providing strategic technical support to California Water Service Company in its response to SGMA in multiple basins throughout California. Her work includes developing a technical understanding of basin conditions that will inform elements of the GSP and the overall SGMA compliance strategy. She is also acting as an extension of staff, attending meetings and providing peer review support for various technical documents and models being prepared by DWR, local GSAs, and others. She is also involved with the development of policy papers that inform company-wide decisions making with respect to SGMA implementation in matters related to cost-share, conjunctive use, and water transfers.
- **Strategic SGMA Support for the City of Lathrop.** Ms. Dutton is providing strategic technical support to the City of Lathrop in its response to SGMA in the Eastern San Joaquin and Tracy Subbasins, including provision of support for GSA development and successfully supporting their basin boundary revision request which extricated them from a critically overdrafted groundwater basin. She is also managing the City's Integrated Water Resources Master Plan project, which includes an assessment of groundwater and surface water reliability.
- **Strategic SGMA Support for Cordua Irrigation District.** Ms. Dutton managed the development of a basin safe yield analysis and other technical information needed to support the execution of a groundwater substitution transfer by Cordua Irrigation District in the North Yuba Subbasin. Work included collection and interpretation of multiple data sets and development a conceptual model of aquifer structure, properties, and condition; re-creation and application of a quantitative model for predicting year-over-year water level responses to pumping and potential third party impacts; and presentations and negotiations with other interested parties. She is currently supporting the District with SGMA implementation, including public outreach and GSP development.

GROUNDWATER RESOURCE DEVELOPMENT AND MANAGEMENT

- **Water Strategy for City of East Palo Alto.** Ms. Dutton is managing the development and implementation of a comprehensive water strategy to address the water shortage crisis within the City of East Palo Alto, which is a Disadvantaged Community (DAC). She supported the City in negotiating a water transfer agreement for the first-ever transfer of Individual Supply Guarantee (ISG) within the San Francisco Regional Water System. She also managed

Anona L. Dutton, C.Hg.

the successful installation and testing of a groundwater test well, including hydrogeologic investigation, water quality sampling, aquifer testing, and test well design and construction. She is assisting the City in the reactivation and permitting of its existing Gloria Way Well and overseeing the design of the groundwater treatment system for that well. Ms. Dutton worked closely with the City to secure \$3.0 million of Proposition 84 grant funding to support the City's groundwater development efforts; *the project description that EKI prepared on behalf of the City was the top-ranked project in the Bay Area IRWM region.*

- **Marina Coast Water District IPR/DPR Feasibility Assessment.** Ms. Dutton conducted a technical assessment of the feasibility for Marina Coast Water District to develop an indirect or direct potable reuse (IPR/DPR) project in Monterey Subbasin of the Salinas Valley Basin. As part of this assessment, she developed a hydrogeologic conceptual model of the local groundwater system, and conceived of and priced out options to augment potable water supplies with Salinas River storm flows and/or highly-treated municipal wastewater. Options included percolation of the source water or injection of the source water with aquifer storage and recovery (ASR) wells. EKI has now been retained to provide SGMA support MCWD, including a successful Proposition 1 funding request and GSP development.
- **Aquifer Storage and Recovery Potential Assessment.** Ms. Dutton has completed an assessment of the aquifer storage and recovery potential at a 20,000- acre property in Butte County California. As part of this task she developed a conceptual model of basin hydrogeology and evaluated the potential to store surface water in an underlying aquifer for later extraction and sale. She also oversaw the development of a groundwater model that was used to project the long-term viability of the local groundwater resources under various climatic and land use scenarios. Ms. Dutton is now providing strategic technical support to Reclamation District 2106 (which includes her client's property) in its response to SGMA.
- **Solano County Water Agency (SCWA) Water Conservation Study.** Ms. Dutton oversaw EKI's performance of a two-phase study for the SCWA, evaluating the effectiveness of SCWA's single-family residential water conservation programs and demonstrating measurable water savings. EKI analyzed a 6 million-record dataset of account-level water use from four cities' water billing systems to quantify the real impact of water conservation programs on water use and evaluate drought response on an account-level basis. EKI also used geospatial statistical and multi-criteria analysis techniques within ArcGIS to evaluate geographic trends in program participation and to identify opportunities for future water conservation potential. Based on these analyses, EKI developed recommendations for future program design and customer outreach and targeting. The studies also analyzed income-effect on water conservation participation, objectively identifying the demographics of Solano County households with significant remaining water conservation potential. The pilot study focused on the City of Vallejo and was expanded for the for the second phase to include additional cities and capture over 80% of the single-family residential accounts in Solano County.

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- BAWSCA Long-Term Reliable Water Supply Strategy.** Ms. Dutton managed the development of the initial phases of the Bay Area Water Supply and Conservation Agency's (BAWSCA) multi-year, multi-million-dollar Long-Term Reliable Water Supply Strategy (Strategy), which established the framework to develop millions of gallons per day of normal and drought year water to meet the projected needs of the BAWSCA region through 2035. The Strategy was the first study to document the normal and dry year needs of the BAWSCA region, and to identify specific local and regional projects that could be developed to meet that need. Ms. Dutton led the effort to coordinate the development of the Strategy with the 26 BAWSCA member agencies, including overseeing the technical evaluation of 65 potential water supply projects, including the development of key project information (e.g., yield, cost, environmental impacts, and feasibility) for these groundwater, recycled water, and water transfer projects. Ms. Dutton was also responsible for leading BAWSCA's effort to secure a dry-year water transfer. In that role, Ms. Dutton led the effort between BAWSCA and the East Bay Municipal Utilities District (EBMUD) to develop a Pilot Water Transfer Plan that assesses the cost, operational and institutional issues, and agreements necessary to affect a one-year pilot water transfer between BAWSCA and EBMUD. Ms. Dutton also represented BAWSCA in discussions with the Santa Clara Valley Water District (SCVWD), and multiple water sellers to identify potential opportunities to secure drought-year water supply for the BAWSCA agencies.
- Ms. Dutton has prepared numerous water resources and planning studies, including UWMPs for the Cities of Tracy, Lathrop, Menlo Park, San Bruno, Burlingame, East Palo Alto, and Redwood City, and for Valley of the Moon Water District, Westborough Water District and Estero Municipal Water District. She has prepared water system and water supply master plans for multiple private developments, and for the cities of Brisbane, Burlingame and Lathrop and for Purissima Hills Water District. She has prepared / is preparing comprehensive water conservation plans for Irvine Ranch Water District, West Basin Municipal Water District, and Central Basin Water District.
- Ms. Dutton has performed assessment of water supply alternatives for proposed new large-scale, master-planned communities located throughout California. Ms. Dutton has prepared projections of the water demand of these developments, estimated historic water use at the project sites, and evaluated the potential water supply, transport, and treatment options, including quantifying the volume of water available from each water source, its reliability during design drought scenarios, and the political and technical constraints associated with development of each water source. Source water reliability evaluations have been conducted for groundwater and the State Water Project, Central Valley Project, Stanislaus River, Russian River, Semitropic and the Hetch-Hetchy systems. For example, as part of a WSA analysis Ms. Dutton performed an assessment of water demand and water supply alternatives for the Tejon Mountain Village, a large-scale development located in Southern California. Ms. Dutton evaluated the potential to locally develop groundwater as a water supply source for the

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Project, as well as assisted in the evaluation of surface water conveyance options. As part of the groundwater basin safe yield analysis that Ms. Dutton performed, she installed several deep groundwater wells and conducted aquifer pump tests. The resultant water level and aquifer property data were used, along with local streamflow, historic groundwater use, and precipitation data to develop a water balance, groundwater model, and safe yield estimate for the basin.

Selected Presentations

Dutton, Anona, *Technical and Strategic Considerations for Demonstrating Sustainability*. Law Seminars International – Sustainable Groundwater Planning in California. February 2018, Los Angeles, CA.

Dutton, Anona, *Surface Water Groundwater Interaction – How SGMA Changed the Rules*. Law Seminars International – Sustainable Groundwater Planning. July 2017, Sacramento, CA.

Dutton, Anona, *Implementation of SGMA in California*. ASCE Annual Conference. June 2017, Philadelphia, PN.

Dutton, Anona, *Strategic Considerations for Groundwater Sustainability Plan Development and Implementation*. January 2017, Los Angeles, CA.

Dutton, Anona, *Practical Implications of Sustainable Groundwater Management Act (SGMA) for Local Agencies and Land Use Planner*. November 2016, San Francisco, CA.

Dutton, Anona, *Regulating California's Thirst for Groundwater*. Association of Women in Water, Energy and Environment, September 2016, San Francisco, CA.

Dutton, Anona, *Practical Approaches to Groundwater Sustainability Plan development*. Law Seminars International Groundwater Regulation in California. June 2016, Sacramento, CA.

Dutton, Anona, *SGMA and What it Means for Sustainable Groundwater Management*. California Association of County Governments. December 2015, Sacramento CA.

Dutton, Anona, *SGMA and the New Basin Boundary Revision Regulations*. Law Seminars International Groundwater Regulation in California. October, 2015, Los Angeles, CA.

John L. Fio

Principal Hydrogeologist

John Fio has more than 30 years of hydrologic problem-solving experience. Mr. Fio employs models to quantify groundwater-flow, chemical transport, and groundwater surface-water interactions. He has developed and applied models for site, water district, and basin-wide investigations to calculate extraction effects on groundwater levels, groundwater storage, stream flow, and lake levels. His practical experience includes work with MODFLOW, MODPATH, ZONEBUDGET, GWM, FEMFLOW3D, IWFM, SUTRA, TPROGS, MT3D, GWT, and PHREEQC. During his career he has successfully established multiple groundwater level and water quality monitoring programs; conducted and analyzed aquifer tests; developed water management plans; evaluated groundwater quality effects of wastewater and recycled water disposal to land; and, determined water sources using chemical and age-dating techniques. Mr. Fio's professional experience includes ten years of research and project leadership with the U.S. Geological Survey, and more than 20 years of experience in private consulting. His work is published in 16 peer-reviewed journal articles and government reports.



Education

- M.S., Civil Engineering, University of California, Davis, 1987
- B.S., Soil and Water Science, University of California, Davis, 1984

Relevant Experience

- **Groundwater Model Review to Support SGMA Implementation in the Santa Margarita Basin.** The Santa Margarita Groundwater Agency plans to utilize the Santa Margarita Groundwater Model to support development of their Groundwater Sustainability Plan ("GSP"). They hired Mr. Fio to answer the following questions: (i) are model results reliable enough to support on-going groundwater management planning efforts in the basin; (ii) does the model meet DWR standards to support GSP development; and, (iii) what model upgrades, if any, are needed to support on-going work and GSP development. The effort included working with local experts, assimilation of numerous data and reports to confirm the model adequately represents the hydrogeologic conceptual model, completing a model post-audit to quantify model

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performance, and conducting a thorough and intensive assessment of model sensitivity and uncertainty. A key product was a work plan of recommended model refinements to better support GSP development and the defensibility of model results.

- Model Review, Update, and Implementation for Estimating Future Response to Project Pumping in the Monterey Peninsula Area.** In the Monterey area, a contentious water supply project was proposed that would employ subsurface ocean water intake system using slant wells near the coast. Mr. Fio was asked to review the model and update it using new information to better represent the conceptual hydrogeologic groundwater-flow system. He then evaluated the model's ability to match historical water levels and a recent pumping test. Mr. Fio employed the model to calculate water level changes, areal extent of ocean water captured, and the extent of seawater intrusion due to future slant well pumping. He quantified model uncertainty by exploring its sensitivity to assumptions and specified parameter values.
- California Energy Commission Groundwater-Flow and Well Hydraulic Models.** Mr. Fio has assisted Energy Commission Staff in ten power plant permitting reviews (CPV Sentinel, Beacon Solar Power, Carrizo Energy Solar Farm, Blythe Solar Project, Palen Solar Plant, Solar Millennium Ridgecrest, Abengoa Mojave, Hydrogen Energy California Power Plant, Calico Solar Project, and Imperial Valley Solar), and one compliance project (High Desert Power). In all these projects, water for construction and operation – most notably water for power plant cooling – was a critical need and required thorough and defensible conclusions. In most of these projects, Mr. Fio was relied upon to review, critique, and implement the various groundwater-flow and well hydraulic models that simulated water budget and groundwater level changes in response to the proposed pumping and power plant water use. As part of his efforts, he reviewed model construction, assumptions, parameters, calibration, sensitivities, results, and validity. When appropriate, Mr. Fio recommended changes to the model approach and data inputs and employed the models to complete reliable analyses. He also quantified the uncertainty in the results and recommended mitigation measures in the project Conditions of Certification that could address the uncertainty. His written reports were integrated into Staff Assessments. Mr. Fio participated in public meetings and when necessary testified at evidentiary hearings. Mr. Fio also provided technical analyses and support to the Desert Renewable Energy Conservation Plan (DRECP) EIR/EIS development process where he described the affected environment and estimated potential groundwater and habitat impacts for an area that includes 107 identified basins located in the Mojave and Sonoran Desert regions of California.
- Groundwater Flow and VOC Transport in Shallow Aquifers, Menlo Park Area.** Mr. Fio developed a groundwater-flow model of the San Francisquito Groundwater Sub-basin using geohydrologic data for Menlo Park and its surrounding areas. The model quantified the hydraulic relationships in aquifers beneath South San Francisco Bay. Results showed that pumping in both the Menlo Park area and western Alameda County can affect groundwater-

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flow and constituent movement in shallow aquifers on either side of San Francisco Bay. He then utilized local geohydrological, geochemical, and stable isotope data to develop a focused, site-specific groundwater-flow model of a local contamination site; the regional model results were translated directly into the site-specific model. He employed the site-specific model to simulate contaminant transport by linking the flow model results to a modular three-dimensional transport model (MT3D) that simulates advection, dispersion, and chemical reactions during constituent transport. The integrated models simulated the potential for off-site constituent migration under a variety of possible alternative future land use and hydrologic conditions. As part of this modeling effort, multiple post audits that compare projected and observed conditions during the period 2003-2015 showed the model is reliable. The California EPA Department of Toxic Substances Control (DTSC) provides regulatory oversight, and was presented as part of the Enviro Expert series and a recording can be viewed at: <https://www.youtube.com/watch?v=F1IW4NPXWyU>

- **Groundwater Model Review to Support SGMA in the Cuyama Basin.** Mr. Fio conducted peer review of various pre-existing studies and groundwater models that have been developed for the Cuyama Basin with a focus on identifying model uncertainty and its influence on model-calculated water budget and water level trends. He then developed an evaluation of the groundwater system in the Cuyama basin and identified recommended modifications to the available model. Those findings were integrated into plans to develop the updated model to support Groundwater Sustainability Planning efforts in the Cuyama Basin.
- **Westside Groundwater Basin Groundwater Flow Modeling, San Francisco and San Mateo counties.** Since 1998, as a consultant to Daly City, Mr. Fio has provided key technical analyses and consensus building efforts toward improved management of the Westside Groundwater Basin located in San Francisco and San Mateo Counties. The basin is a source of drinking water for the City of San Francisco, City of Daly City, Town of Colma, City of South San Francisco, and City of San Bruno. John was a key contributor toward development of the basin management plan and oversaw development and technical acceptance of the groundwater-flow model utilized to quantify basin hydrogeology. The effort to achieve model consensus required extensive coordination and effective communication with multiple basin stakeholders and their technical representatives. The model has since been employed to design and analyze proposed groundwater development projects in the City of San Francisco and an in-lieu conjunctive use project in San Mateo County to increase drinking water supply reliability for the greater San Francisco Bay area.
- **Groundwater Flow Model Analyzing the Hydraulic Continuity of San Francisco Bay Area Aquifers.** As part of the first comprehensive groundwater basin assessment of the San Mateo Plain Subbasin, Mr. Fio developed a regional groundwater-flow model to quantify conditions beneath San Francisco Bay and cross-boundary flows between adjacent basins located in San Francisco, San Mateo, Santa Clara and Alameda counties. The calibrated model was utilized to estimate expected yields and likely hydraulic effects from aquifer pumping on existing

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groundwater users in the region and assist future basin management and compliance with SGMA. The model calculates groundwater level and storage changes during the period 1991-2015, and model sensitivity analyses identified data gaps and model uncertainty to direct the prioritization of future data collection and aquifer testing activities. Data sets were also developed under Mr. Fio's guidance to represent projected changes in groundwater recharge because of climate change effects on rainfall, temperature, and run-off.

- **Santa Ynez River Basin and River Model Technical Committee.** While employed by Hydrologic Consultants, Inc., John Fio was part of a technical team that quantified interactions between flow and salinity in the river and groundwater systems. The team developed interacting models that described reservoir operations, surface-water and groundwater systems to account for pumping, changes in reservoir salinity, streambed leakage, water-use by vegetation, dissolution of soil salts, and salt movement within the subsurface. Mr. Fio's responsibilities included: updating and implementing a reservoir operations and water quality model of Cachuma Reservoir; developing streamflow-salinity relations for different geographic regions of the basin using stream gauging, stream salinity, and geologic data; and, updating groundwater models simulating the riparian aquifer system, the valley-plain aquifer system, and the entire basin. The model was used to simulate salt-loading from the dissolution and precipitation of salts in the unsaturated zone above the water table.
- **Water Characterization Study, Menlo Park, CA.** Using the regional San Mateo Plain Groundwater Flow Model that he developed, Mr. Fio estimated the long-term sustainable yield expected from an existing site production to evaluate its potential as a future municipal water supply. Specifically, Mr. Fio examined the model-calculated effects of increased site well extractions well for potential undesirable results as defined by the Sustainable Groundwater Management Act.
- **Geochemical Model Analysis to Determine Water Reuse Options for New Development, Cloverdale, CA.** The Riverdale Ranch planned on utilizing treated wastewater for irrigation on park and median areas. Mr. Fio assessed the potential influence of this water use on the volume and quantity of water table recharge beneath the project, recharge quality changes, and connections with underlying groundwater and the Russian River. He employed a water budget accounting model to simulate monthly groundwater recharge, and the geochemical model PHREEQC to simulate chemical reactions and resulting constituent loads in the monthly recharge. The analysis showed annual groundwater recharge and constituent loads beneath the site would increase, but the constituent loads to the Russian River would increase by less than 0.1%.
- **Cal Water South San Francisco District Water Supply and Facilities Master Plan.** The California Water Service Company provides water to various San Mateo County communities located along the Peninsula of South San Francisco Bay. As a subcontractor to CDM, John Fio conducted groundwater and water-supply reliability studies for several California Water

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Service Company districts (the South San Francisco, Mid-Peninsula, and Bear Gulch Districts) which are all located in San Mateo County and include the cities of South San Francisco, San Mateo, San Carlos, Redwood City, Atherton, and Menlo Park. Mr. Fio utilized soil moisture accounting methods, groundwater-flow models, water level data, and geologic information to quantify water balances and project future groundwater level and storage volume trends with respect to current and projected land and water use conditions (increased demand, emergency back-up water supply, conjunctive use, and recycled water). He completed detailed assessments of existing well water quality with respect to current and anticipated future state and federal drinking water standards, including temporal trends in increasing constituent concentration levels such as nitrates, iron, manganese, organic contaminants and salts. He retrieved soil and groundwater quality information from county and state databases and integrated the information with aquifer productivity, water quality, and land use data to identify favorable locations for new wells.

- **Numerical modeling of proposed injection wells, Ironhouse Sanitary District.** Mr. Fio developed the conceptualized understanding of subsurface hydrogeologic and water quality conditions, and then employed MODFLOW to construct a numerical model to quantitatively represent groundwater hydraulics beneath the Ironhouse Sanitary District wastewater treatment facility and its surrounding area, MODPATH to simulate groundwater-flow paths and conduct time-of-travel calculations, and PHREEQC to assess chemical reactions that may occur from mixing recycled water and native groundwater and the likelihood for chemical clogging of the well screen and surrounding aquifer. A variety of scenarios were run to assess injection well hydraulic and water quality effects, and the results helped the client determine feasibility of proposed recycled water injection.
- **Groundwater recharge and drinking water supply quality, South Westside Basin, San Mateo County, CA:** The Westside Basin groundwater model is an important consensus building tool and an overarching platform for directing data collection and estimating water budgets for water supply and management efforts. We initially developed the model in 2002, and since then have performed several updates. The most recent update was completed in 2017, and part of the update verification effort employed particle tracking (MODPATH) was employed to simulate groundwater-flow paths and recharge source areas to municipal supply wells. Additionally, stable water isotopes (oxygen-18 and deuterium), nitrogen isotopes, and high-precision age dating (tritium and helium-3) results for well-water samples were utilized to verify flow paths and quantify the relationships between land use and dissolved constituents in groundwater. The ionic and isotopic composition of supply well-water samples indicated they produce composite water types that represent groundwater from multiple aquifer depths. The simulated water-table capture zones represent the recharge areas to pumping municipal supply wells, and results indicated that the highest nitrate concentrations in well water are measured in samples from wells that capture water in the shallow aquifer that originates beneath areas potentially influenced by historical feed lots; whereas, substantially

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lower nitrate concentrations are measured in wells that capture primarily intermediate and deep aquifer groundwater.

- Model Options for SGMA Support in the Cosumnes Subbasin.** Mr. Fio contributed to the Groundwater Sustainability Plan (GSP) portion of the Proposition 1 grant application focusing on groundwater modeling development to support basin-wide evaluation of water budgets and management actions necessary to support GSP development. He is currently assessing existing models' development activities in adjacent basins to identify the most reliable, defensible, and effective modeling approach and input data sets to further the SGMA goals for the Cosumnes Subbasin.
- Dublin San Ramon Sanitary District's East bay Municipal Utility District Recycled Water Authority Salt Migration Study Review.** John Fio was hired to complete a technical review of an existing Salt Migration Study and to assist answering key technical questions and concerns. Fio helped complete a focused review of unsaturated zone, geochemical, and hydrogeological modeling; evaluated model selection, methodology and assumptions; assessed linkages between models and model results; and identified problematic assumptions. He reviewed the modeling assumptions affecting the study results and determined that the geochemical modeling and sensitivity testing was needed to address uncertainties in chemical reactions, salt transport, and extraction well capture. As part of the review his team provided recommendations for testing model assumptions, assessing model accuracy, and improving the overall general quality of the study.
- Delineation of Contributing Sources to Drainflows in Panoche Water District.** John Fio worked with Panoche Water District personnel to gather and process extensive water delivery, crop, drain-flow and drain-water quality data. These data were incorporated into a Geographic Information System and database. Mr. Fio helped delineate subareas based on depth to groundwater and presence of drainage systems and develop a groundwater-flow model to identify upslope areas contributing to downslope drainflow.
- Evaluation of Fate and Transport of Selenium and Salts in Soils and Groundwater in the Laboratory and in Agricultural Fields.** The U.S. Geological Survey San Joaquin Valley Studies Section conducted laboratory and field-scale investigations to assess the fate and transport of selenium and salts in soils and groundwater. The information was used to develop recommendations for management of irrigation water and agricultural drainage in the western San Joaquin Valley. Hydrologic data and groundwater flow modeling were used to quantify the movement of salts and selenium to subsurface drains. Mr. Fio's responsibilities included designing and conducting laboratory analyses; groundwater flow and solute transport modeling; and interpreting results and writing reports.
- Groundwater Model Evaluation Used to Determine Pumping Effects within the North Platte River Basin.** John Fio employed an existing numerical groundwater-flow model and operation research techniques to examine potential increased pumping effects within the basin. He

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provided written and oral testimony on hydrogeologic conditions and incorporated the information with water use estimates from other experts into several groundwater models to compute monthly changes in subsurface flows. Technical experts incorporated his results into a surface-water operations model and determined development impacts on downstream water users. Mr. Fio provided his deposition on two occasions; the case was settled before trial.

- **Newhall Groundwater Banking Assessment.** Mr. Fio led the development of a groundwater-flow model to assess the feasibility of using groundwater recharge ponds and feasible recovery volumes for a proposed eastern San Joaquin Valley groundwater banking project. The groundwater-flow model was required to hydraulically integrate possible groundwater storage changes beneath the facility, changes in water inflow and outflow to the nearby river, and local and regional recharge and pumping activities. Model development included a combination of regional and site-specific data compilation and assessment. The calibrated model was applied to assess several water-management scenarios.
- **Northeastern Nevada and Western Utah: Heat Flow and Geochemical Analysis of Groundwater and Springs.** Southern Nevada Water Authority planned to utilize northern Nevada groundwater from deep fractured-rock aquifers as a source of supplemental supply. Mr. Fio helped evaluate hydrogeologic and geochemical processes affecting groundwater and spring flow and quality in northeastern Nevada and western Utah. To assess possible effects of varying groundwater temperature on spring flow, he conducted heat transport and density-dependent groundwater flow simulations to evaluate the relative sensitivity of discharge to temperature variations and fluid pressure changes. Spring chemistry data was employed to investigate the source water feeding select springs and support the modeling results.

Presentations and Publications

SGMA

Fio JL and Sweetland P, 2017, Technical Consensus and Multi-Party Sustainability Planning, Westside Groundwater Basin, Groundwater Resources Association of California SGMA Conference - Tools for Developing Groundwater Sustainability Plans, May 3-4 2017, Modesto California.

Hydrogeology of the San Francisco Bay Area

Metzger LF and Fio JL, 1997, Ground-water development and the effects on ground-water levels and water quality in the Town of Atherton, San Mateo County, California. U.S. Geological Survey Water-Resources Investigations Report 97-4033, 31p.

Fio JL and Leighton DA, 1995, Geohydrologic framework, Historical Development of the ground-water system, and general hydrologic and water-quality conditions in 1990, south San Francisco Bay and Peninsula area, California, U.S. Geologic Survey Open-File Report 94-357, 46 p.

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Leighton DA, Fio JL, Metzger LF, 1995, Database of well and areal data, South San Francisco Bay and Peninsula area, California. U.S. Geological Survey Water-Resources Investigation Report 94-4151, 47 p.

Numerical Modeling – Groundwater flow and contaminant transport

Fio JL, 1997, Geohydrologic effects on drainwater quality. Journal of Irrigation and Drainage Engineering, ASCE 123(3).

Fio JL and Leighton DA, 1994, Effects of ground-water chemistry and flow on quality of drainflow in the western San Joaquin Valley, California. U.S. Geological Survey Open-File Report 94-72, 28 p.

Fio JL, 1994 Calculation of a water budget and delineation of contributing sources to drain flows in the western San Joaquin Valley, California. U.S. Geological Survey Open-File Report 94-45, 28 p.

Barlow PM, Wagner BJ, Belitz K, Fio JL, 1993, Effects of Management alternatives on the shallow, saline ground water in the western San Joaquin Valley, California, U.S. Geological Survey Water Fact Sheet Open-File Report 93-665.

Fio JL and Deverel SJ, 1991, Ground-water flow and solute movement to drain laterals, western San Joaquin Valley, California. 2: Quantitative hydrologic assessment. Water Resources Research 27(9): 2247-2257.

Fio JL, Fujii R, Deverel SJ, 1991, Evaluation of selenium mobility in soil using sorption experiments and a numerical model, western San Joaquin Valley, California. U.S. Geological Survey Open-File Report 90-135.

Fio JL and Deverel SJ, 1990, Interaction of shallow ground water and subsurface drains: implications for selenium transport and distribution in the western San Joaquin Valley, California. Groundwater 28(5): 788-789.

Fio JL and Deverel SJ, 1989, Ground-water flow to subsurface drains in the western San Joaquin Valley, California. U.S. Geological Survey Second National Symposium on Water Quality, Orlando, Florida, November 12-17, 1989, abstracts and technical sessions, U.S. Geological Survey Open-File Report 89-409, p. 25.

Fio JL and Deverel SJ, 1988, Ground-water flow to subsurface agricultural drains in the western San Joaquin Valley, California. Transactions of the American Geophysical Union 69 (44).

Geochemistry and Salt Migration

Deverel SJ, Fio JL, Dubrovsky NM, 1994, Distribution and mobility of selenium in groundwater in the western San Joaquin Valley of California in Benson S and Frankenburger W (eds.) "Selenium in the Environment." Marcel Decker: New York.

Fio JL, Fujii R, Deverel SJ, 1991, Selenium mobility and distribution in irrigated and nonirrigated alluvial soils. Soil Science Society of America Journal 55: 1313-1320.

Deverel SJ and Fio JL, 1991, Ground-water flow and solute movement to drain laterals, western San Joaquin Valley, California. 1: Geochemical Assessment. Water Resources Research 27(9): 2233-2246.

Fio JL and Fujii R, 1990, Selenium speciation methods and application to soil saturation extracts from San Joaquin Valley, California. Soil Science Society of America Journal 54: 363-369.

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Fujii R and Fio JL, 1988, Partitioning and speciation of soluble and adsorbed selenium in soils. Agronomy Abstracts, Amer. Soc. Agron. Annual meetings, Anaheim, California, p. 196-97.

Monitoring

Leighton DA and Fio JL, 1995, Evaluation of a monitoring program for assessing the effects of management practices on the quantity and quality of drainwater from the Panoche Water District, Western San Joaquin Valley, California. U.S. Geological Survey Open-File Report 95-731, 25 p.

Puckett LK, Alemi MM, Fan AM, Fio JL, Hansen D, Wallender W, Wernette F, 1992, Long-term monitoring plan, San Joaquin Valley Drainage Implementation Program.

Christina E. Lucero, P.G. Hydrogeologist

Ms. Lucero has 10 years of hydrogeologic consulting experience. Her skills include numerical groundwater model development, construction and application; geologic research; spatial analyses of geohydrologic and water quality data using Geographic Information Systems (GIS); and oversight of monitoring well construction and associated water level monitoring and well-water sampling activities. Her SGMA-related work has focused on the development of basin setting information and groundwater flow model development and analysis.



Relevant Experience

SUSTAINABLE GROUNDWATER MANAGEMENT ACT (SGMA) IMPLEMENTATION

- **San Mateo Plain Groundwater Subbasin Assessment.** Ms. Lucero helped refine and calibrate a regional MODFLOW groundwater-flow model to calculate groundwater level and storage changes during the period 1991-2015 for applications to support groundwater management efforts in SanMateo County. She then analyzed various scenarios representing potential future water management within the Basin. The objective is to establish a groundwater model to assist the Basin with future management and compliance with SGMA.
- **Groundwater Model Review to Support SGMA in the Santa Margarita Basin.** Ms. Lucero aided in reviewing the pre-existing Basin groundwater model to help determine its applicability for use under SGMA. She determined the model's aquifer properties sensitivity to both historical water levels and stream baseflows.
- **Castac Lake Groundwater Basin GSA Groundwater Sustainability Plan (GSP) Development.** Ms. Lucero is currently aiding in GSP development for the Castac Basin GSA. She has helped develop a Stakeholder Communication and Engagement Plan and aided in Castac Basin GSA website development. She is currently working on updating the Data Management System (DMS) and will use the information contained within the DMS to articulate the Basin Setting within the GSP. Finally, she has been

Education

- B.S., Geology, University of California, Davis, 2010

Registrations/Certifications

- Professional Geologist, CA (#9262)

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working on updating the analytical model for the Basin to quantify groundwater storage and calculate basin sustainable yield.

- **White Wolf Subbasin GSA GSP Development.** Ms. Lucero is currently aiding in Proposition 1 Grant Management and GSP development for the White Wolf GSA. She has drafted the Plan Area and Basin Setting portions of the GSP, which included developing two cross-sections across the Basin, defining current groundwater conditions, detailing the current and proposed future land use and its implications for sustainable groundwater management, and identifying preliminary data gaps. She is currently aiding the GSA in Proposition 1 Grant invoicing, preparing for the first stakeholder workshop in which Basin Setting information will be presented to the public, working to fill identified data gaps, and inventorying and establishing a monitoring network to be used during GSP implementation.
- **Cosumnes Subbasin GSP Development.** Ms. Lucero is currently aiding in GSP development for the Cosumnes Subbasin by developing four cross-sections located through the middle of- and along the boundaries of the Subbasin to aid with numerical model grid mesh and layering refinements.
- **Adjudication Support in the Las Posas Valley Groundwater Basin.** Ms. Lucero is currently aiding the EKI technical expert team with an ongoing adjudication effort in which we will calculate return flow benefits to prove prescriptive rights for our client. She has inventoried historical documents to detail a history of documented overdraft conditions in the Basin and has reviewed existing documentation on groundwater flow model- and analytical model-calculated water budgets. Additionally, she is actively engaged with the technical committee who has been tasked with establishing a water balance for the Basin.

GROUNDWATER MODELING

- **Westside Basin Numerical Groundwater Flow Model Update.** Beginning in 2010, Ms. Lucero helped update the Westside Basin numerical groundwater flow model utilized to quantify basin hydrogeology. She provides Geographic Information System (GIS) support for the model and incorporates newly available data to update and extend the model. The model has historically been employed to design and analyze proposed groundwater development projects in the City of San Francisco and an in-lieu conjunctive use project in San Mateo County to increase drinking water supply reliability for the greater San Francisco Bay area. Additionally, in 2015, Ms. Lucero conducted particle tracking to estimate recharge areas for monitoring and supply wells.
- **Model Review, Update and Implementation for Estimating Future Response to Project Pumping.** Ms. Lucero conducted a model review, update, and implementation for estimating future response to project pumping. She updated and employed an existing MODFLOW groundwater-flow model to calculate the cone of depression caused by proposed coastal slant wells for a proposed desalination project. Additionally, she used MODPATH to

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determine the areal extent of ocean water that would be captured, and identify areas where seawater intrusion would be affected due to future project pumping. The modeling analysis was used in preparation of the Draft EIR/EIS for determining potential project impacts on groundwater resources.

- **City of Lathrop Wastewater Treatment Facility Groundwater Monitoring.** As part of the City of Lathrop's wastewater treatment plant operations consolidation, Ms. Lucero helped oversee monitoring well installation, hydropunch sampling, soil sampling, and monitoring well water quality sampling. Using the monitoring well and hydropunch data, she established an area of groundwater containing elevated TDS concentrations beneath a field which historically received recycled water application. She created a hypothetical flow and transport model beneath the wastewater treatment plant and land application field to model future flow and attenuation of the groundwater containing elevated TDS concentrations. Results from the modeling were used to establish a Salinity Mitigation Plan.
- **Groundwater Modeling to Support a New Production Well, East Palo Alto, CA.** Ms. Lucero employed a MODFLOW groundwater-flow model to determine the area of drawdown caused by proposed pumping from a new production well in East Palo Alto. Using the results of the groundwater modeling, other impacts to groundwater related issues such as drawdown caused in nearby production wells, subsidence, salt water intrusion, and cumulative effects from other pumping production wells were also examined.
- **Groundwater Modeling to Estimate Pumping Rates, Menlo Park, CA.** Using borehole logs in the Menlo Park area, Ms. Lucero approximated conductance using lithologic characteristics. She then employed a hypothetical groundwater flow model using MODFLOW to simulate pumping scenarios from various aquifer layers. Using the range in estimated transmissivities, she determined viable pumping well extraction rates by model layer.
- **Ironhouse Sanitary District.** The District operates a wastewater treatment facility on a hydrogeologically complex site adjacent to the San Joaquin River. Mrs. Lucero helped develop a hypothetical groundwater flow model for injecting tertiary treated wastewater at two locations beneath Ironhouse's mainland facility. A variety of scenarios were run to assess injection well feasibility. Using MODFLOW and MODPATH, Mrs. Lucero examined each scenario's water levels and subsequent groundwater flow paths and travel times. Modeling results helped the client determine preliminary feasibility of recycled water injection.

ENVIRONMENTAL

- **Dutch Slough Groundwater Characterization for Wetland Restoration.** She helped establish a groundwater monitoring network in Delta agricultural fields proposed for conversion to natural wetland. This included oversight of monitoring well installation, water level measurement collection, and groundwater quality sampling. In order to establish baseline conditions for water leaving the agricultural fields, Ms. Lucero lead an additional water

Christina E. Lucero, P.G.

quality sampling effort in various ditches and creeks adjacent to the fields. She interpreted the data, compared to applicable contaminant levels, and summarized all findings in quarterly monitoring reports. This baseline data is being used in determining potential significant impacts to groundwater flow and surface water quality in the Dutch Slough Restoration EIR.

- **City of Lone Wastewater Treatment Facility Water Quality Analysis.** Ms. Lucero helped complete a water quality analysis to determine potential wastewater treatment pond seepage to a nearby Creek and domestic wells. Ms. Lucero oversaw the installation of a new monitoring well located adjacent to a storage pond. Additionally, she collected water quality and stable water isotope samples from monitoring wells, wastewater treatment ponds, domestic wells, Sutter Creek, and the main reservoir water source for the City of Lone. She performed mixing calculations in order to determine the relative percent groundwater and pond water found in Sutter Creek and domestic wells based on stable isotope concentrations. Finally, she helped create a MODFLOW model of the area which was calibrated to a stock pond pumping test. Model setup included measuring the geometry of the stock pond for model integration and collecting background water levels in monitoring wells prior to the pump test.
- **California Energy Commission.** Ms. Lucero completed water quality data mining, compilation, and analyses to assess spatial and temporal correlations as part of the Hydrogen Energy California Power Plant project. She also employed ArcGIS to construct hydrogeologic maps. Mrs. Lucero is contributed to the groundwater and water supply analyses on the Desert Renewable Energy Conservation Plan (DRECP). Her activities include summarizing permitted energy projects and groundwater basin descriptions for determining potentially affected groundwater environments and impacts to groundwater resources under various project alternatives.
- **Groundwater Quality Monitoring Program.** Ms. Lucero helped implement a groundwater quality monitoring program of domestic wells in the Central Coast. She conducted and oversaw groundwater sampling of specialty constituents including isotopes and age dating. Then she compiled groundwater nitrate concentration distribution and aided in drafting the groundwater characterization report.
- **Sacramento-San Joaquin Delta Subsidence Evaluation.** Ms. Lucero evaluated subsidence in relation to land use and lithology and estimate hydraulic gradients in the Sacramento-San Joaquin Delta, CA.

Publications

Deverel SJ, Leighton DA, **Lucero C**, Ingram T, 2017, Simulation of Subsidence Mitigation Effects on Island Drain Flow, Seepage, and Organic Carbon Loads on Subsided Islands Sacramento-San Joaquin Delta. San Francisco Estuary and Watershed Science 15(4). jmie_sfews_36873.

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Deverel SJ, **Lucero CE**, and Bachand S, 2015, Evolution of Arability and Land Use, *Sacramento-San Joaquin Delta, California*. *San Francisco Estuary and Watershed Science* 13(2). jmie_sfews_27914. <http://escholarship.org/uc/item/5nv2698k>.

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Michael D. Bryan, Ph.D. Partner/Principal Scientist

Years of Experience:

33

Education:

Ph.D., Environmental
Toxicology and Fisheries
Biology, Iowa State University,
1993

Professional Affiliations:

- American Fisheries Society
- Society of Environmental
Toxicology and Chemistry,
Northern California Chapter
Member

Expertise:

- NPDES Report of Waste
Discharge and Permit
Negotiations
- Wastewater Studies
- Toxicity Reduction Evaluation
(TRE)/Toxicity Identification
Evaluation (TIE)
- CEQA/NEPA Documentation
- Effluent and Receiving Water
Quality Monitoring and
Assessment
- Mixing Zone and Dilution
Studies
- Metals Water-Effect Ratio
Studies
- Fisheries Biology/Aquatic
Ecology
- Endangered Species Act
Consultations
- Evaluations of Fish Passage at
Barriers and Screens

Dr. Michael Bryan has 33 years of combined consulting and research experience focused on water quality, fisheries biology, and aquatic toxicology. Dr. Bryan's fisheries and water quality experience extends to managing and serving as principal scientist for California Environmental Quality Act (CEQA) /National Environmental Policy Act (NEPA) documents, Endangered Species Act consultations, water quality and aquatic ecology studies, and regulatory permitting—particularly municipal wastewater NPDES permitting. Dr. Bryan's research background provides a strong foundation for conducting specialized water quality and fisheries studies, including experimental design, study implementation, data analysis, and project documentation.

Dr. Bryan applies his extensive knowledge of fisheries and water quality in his management and technical oversight of CEQA/NEPA assessments for water supply and conveyance, flood control, and wastewater treatment and disposal projects. Dr. Bryan has developed a deep understanding of CVP/SWP operations, and the fish resources and water quality of the American River, Sacramento River, and Sacramento-San Joaquin Delta system. In the wastewater arena, Dr. Bryan assists municipal wastewater dischargers with developing reports of waste discharge, permit renewal, and special studies. In addition, Dr. Bryan is a leader in the development of site-specific water quality standards as a means of effectively resolving regulatory issues.

REPRESENTATIVE PROJECT EXPERIENCE

NPDES Permitting / Wastewater Discharger Studies

NPDES Permit Renewal

Provides technical and strategic services to negotiate waste discharge requirements in NPDES permits for wastewater treatment plants (WWTPs) issued by state regional water quality control boards (RWQCB). This includes conducting detailed reviews and preparing detailed comments on tentative NPDES permits to establish a record for administrative appeals, as well as face-to-face negotiations with RWQCB staff and other resources agencies, including California Department of Fish and Wildlife, National Marine Fisheries Service, and Department of Public Health staff, over permit terms. Also prepares discharger presentations and provides public testimony at NPDES permit adoption hearings. These services have been provided for:

- El Dorado Irrigation District – Deer Creek and El Dorado Hills WWTPs (1996–present)
- Sacramento Regional County Sanitation District (1997–present)
- City of Roseville – Dry Creek and Pleasant Grove Creek WWTPs (1998–present)
- City of Placerville – Hangtown Creek Water Reclamation Facility (1999–present)
- City of Brentwood WWTP (2003–present)
- Mountain House Community Services District – Mountain House WWTP (2006–present)
- City of Stockton Regional Wastewater Control Facility (2008–present)
- Placer County – Sewer Maintenance District 1, Sewer Maintenance District 3, Sheridan, and Applegate WWTPs (1998–2011)

- City of Ione (2010–2012)
- Nevada County – Lake Wildwood, Lake of the Pines, and Cascade Shores WWTPs (2003–2009)
- Colusa Industrial Properties (2007–2008)
- City of Santa Rosa (2005–2007)
- Los Angeles County Sanitation Districts – Los Coyotes Water Reclamation Plant and Long Beach Water Reclamation Plant (2002–2005)
- City of Lincoln/Del Webb – Lincoln Wastewater Treatment and Reclamation Facility (2000–2005)
- City of Vacaville – Easterly WWTP (1999–2011)
- Ironhouse Sanitary District WWTP (2006–2013)

Thermal Plan Exceptions

Principal-in-charge and technical lead to conduct special studies in support of obtaining Clean Water Act section 316(a) exceptions to California Thermal Plan temperature objectives applied in NPDES permits and facilitate the exceptions' approval by the Central Valley Regional Water Quality Board (RWQCB) and fish resource agencies – California Department of Fish and Wildlife, National Marine Fisheries Services, and U.S. Fish and Wildlife Service. Has developed or is currently developing exceptions as follows:

- California Department of General Services (DGS). Completed study evaluating the temperature-related effects the Central Heating and Cooling Plant discharges to the Sacramento River on migrating fish. Based on this study, its findings, and concurrency on findings by the fish resource agencies, the RWQCB issued a Thermal Plan Exception to DGS, resulting in a cost-effective solution to DGS's temperature compliance issue.
- City of Brentwood Wastewater Treatment Plant. Completed study in 2010 evaluating the temperature regime of Marsh Creek under the influence of the discharge and whether the regime could continue to support the indigenous aquatic life, as part of developing information to support Thermal Plan exceptions. Developed alternative temperature limitations to protect the Marsh Creek aquatic life and also resolve the temperature compliance issue. Completed a second study in 2018 re-evaluating the temperature regime in Marsh Creek based on data collected since 2010, to support renewal of the Thermal Plan exceptions and alternate limitations in the wastewater treatment plant NPDES permit.
- Sacramento Regional County Sanitation District. Completed extensive field studies in 2012 that directly assessed the effects of the Sacramento Regional Wastewater Treatment Plant (SRWTP) discharge on the movement of lower Sacramento River fishes past the SRWTP outfall. Worked closely with staff from the fishery agencies (CDFW, NMFS, USFWS) and Central Valley Regional Water Board to design the 2012 field study and interpret findings. Developed reports addressing how changes in near-field and far-field temperatures of the river affect fish and other aquatic life in support of renewing Thermal Plan exceptions for this discharge. Currently updating reports in support of maintaining Thermal Plan exceptions upon NPDES permit renewal in 2021.
- Mountain House Wastewater Treatment Plant. Completed studies evaluating the effects of the Mountain House Wastewater Treatment Plant discharge on Old River within the Sacramento-San Joaquin Delta. The study involved interpreting modeling of the near-field and far-field temperature regime to assess the effect of the discharge on the temperature regime and the aquatic life residing in this portion of the Delta in support of obtaining a new Thermal Plan exception for this discharge.

Sacramento Regional Wastewater Treatment Plant Temperature Study

Principal-in-charge responsible for development and implementation of a comprehensive study consisting of eight study elements to assess the potential thermal effects of the Sacramento Regional Wastewater Treatment Plant's (SRWTP) effluent discharge on aquatic life and habitat, including designated critical habitat for delta smelt, Chinook salmon, steelhead, and green sturgeon, in the lower Sacramento River. The study was developed in coordination with a working group consisting of USFWS, NMFS, California Department of Fish and Game, and Central Valley Regional Water Quality Control Board staff and examined the potential for the SRWTP discharge to have direct or indirect thermal effects on ESA-listed delta smelt and anadromous fishes. Provided oversight of consultation with the USFWS to obtain a letter of not likely to adversely affect delta smelt or its critical habitat, with NMFS to obtain a biological opinion and incidental take statement for ESA-listed anadromous fishes, and

facilitation of obtaining a U.S. Army Corps of Engineers Section 10 Rivers and Harbors Act permit. Also responsible for overseeing study design and development, coordination with USFWS and NMFS staff regarding seasonal migrations of delta smelt and anadromous salmonids, and overseeing the analysis and reporting of the potential direct and indirect thermal effects of the SRWTP discharge on aquatic biota, including delta smelt, Chinook salmon, steelhead, and green sturgeon, of the lower Sacramento River. Prepared synthesis of findings from the eight study elements into a single report to develop conclusions regarding near-field and far-field effects of thermal discharge.

Antidegradation Analyses

Principal-in-charge for conducting antidegradation analyses for municipal wastewater dischargers consistent with state and federal policies and guidance, in support of new or expanded discharge capacity. Antidegradation analyses completed include:

Surface Water

- City of Brentwood Wastewater Treatment Plant – expansion
- Ironhouse Sanitary District Wastewater Treatment Plant – new discharge
- Placer County Sewer Maintenance District 1 Wastewater Treatment Plant – upgrade and expansion
- City of Galt Wastewater Treatment Plant – new summer discharge and expansion
- El Dorado Hills Wastewater Treatment Plant – upgrade and expansion

Groundwater

- Ironhouse Sanitary District Master Reclamation Permit
- City of Roseville Aquifer Storage and Recovery

Toxicity Reduction Evaluations (TREs)

Principal-in-charge for TREs performed for municipal wastewater dischargers, including the preparation of TRE work plans and action plans required by NPDES permits, interpretation of toxicity test results, and negotiations with regional water quality control board staffs to conclude the TRE. Dischargers for which TREs have been or are being performed include:

- City of Stockton Regional Wastewater Control Facility, *Selenastrum capricornutum* and *Ceriodaphnia dubia*
- Town of Windsor Wastewater Treatment, Reclamation and Disposal Facility, *Selenastrum capricornutum* and *Ceriodaphnia dubia*
- City of Davis Water Pollution Control Plant, *Selenastrum capricornutum*
- City of Woodland Wastewater Treatment Plant, *Selenastrum capricornutum* and *Ceriodaphnia dubia*
- City of Brentwood Wastewater Treatment Plant, *Ceriodaphnia dubia*
- City of Lodi Water Pollution Control Facility, *Ceriodaphnia dubia*
- City of Atwater Regional Wastewater Treatment Facility, *Selenastrum capricornutum*
- City of Turlock Regional Water Quality Control Facility, *Ceriodaphnia dubia*
- El Dorado Irrigation District Deer Creek Wastewater Treatment Plant, *Ceriodaphnia dubia*
- Lehigh Southwest Cement Company Permanente Quarry, *Ceriodaphnia dubia*

Water-Effect Ratio Studies

Principal-in-charge for conducting water-effect ratio (WER) studies for municipal wastewater dischargers consistent with U.S. EPA and state guidance. Studies include:

- Hangtown Creek Water Reclamation Facility – Zinc WER
- Deer Creek Wastewater Treatment Plant – Copper WER and Zinc WER
- El Dorado Hills Wastewater Treatment Plant – Copper WER
- Town of Windsor Wastewater Treatment, Reclamation, and Disposal Facility – Copper WER
- Placer County Sewer Maintenance District 1 – Aluminum WER
- City of Colfax Wastewater Treatment Plant – Copper WER
- City of Galt Wastewater Treatment Plant – Copper WER and Zinc WER

- City of Atwater Regional Wastewater Treatment Facility – Zinc WER

Receiving Water Temperature Studies

Principal-in-charge on studies conducted to evaluate seasonal temperature regimes and compliance with receiving water limitations stipulated in NPDES permits. Provided oversight in study plan development, managed field staff, and managed preparation of study reports for studies on the following receiving waters.

- Deer Creek – El Dorado County, CA for El Dorado Irrigation District
- Hangtown Creek – Placerville, CA for City of Placerville
- Old Alamo Creek, New Alamo Creek, and Ulatis Creek – Solano County, CA for City of Vacaville
- Marsh Creek – Contra Costa County, CA for City of Brentwood
- Sacramento River – for Sacramento Regional County Sanitation District and California Department of General Services
- Dry Creek and Pleasant Grove Creek – Placer County, CA for City of Roseville
- Atwater Drain – Atwater, CA for City of Atwater
- Dredger Cut, Highline Canal, and White Slough – San Joaquin County, CA for City of Lodi

Effluent and Receiving Water Quality Assessments

Principal-in-charge on effluent and receiving water quality assessments for the following dischargers:

- Hangtown Creek Water Reclamation Facility – City of Placerville
- El Dorado Hills Wastewater Treatment Plant – El Dorado Irrigation District
- Deer Creek Wastewater Treatment Plant – El Dorado Irrigation District
- Sewer Maintenance District 1 Wastewater Treatment Plant – Placer County
- Sewer Maintenance District 3 Wastewater Treatment Plant – Placer County
- Sheridan Wastewater Treatment Plant – Placer County
- City of Stockton Regional Wastewater Control Facility
- Easterly Wastewater Treatment Plant – City of Vacaville

Assessments documented effluent and receiving water concentrations of over 180 constituents, including all California Toxics Rule/National Toxics Rule constituents, to determine whether contaminant-specific waste discharge requirements are warranted in the dischargers' NPDES permits.

Stockton Nitrate Study

Served as Principal-in-charge of study for the City of Stockton's Regional Wastewater Control Facility (RWCF) to determine whether the discharge of nitrate plus nitrite to the San Joaquin River at concentrations greater than the drinking water maximum contaminant level (MCL) would be consistent with California's mixing zone policies. Provided oversight of the study design and workplan to guide data collection, analyses, and reporting. Study consisted of a comprehensive literature review of impacts to the San Joaquin River, Delta, and drinking water exports from nutrients levels and stoichiometry, phytoplankton quantity/composition, and *Microcystis aeruginosa*. Modeled Delta hydrology to determine the proportion of water at drinking water intake locations constituted by RWCF effluent, monitored submerged/emergent vegetation, benthic macroinvertebrate community, water quality parameters (including nutrients), and algae community composition and biomass upstream and downstream of the RWCF outfall over a one-year period. Used field data to assess the impact of the RWCF discharge (specifically nitrate load) on the phytoplankton, benthic macroinvertebrate community, and submerged/emergent vegetation within the study reach. Presented assessment to Central Valley Regional Water Quality Control Board in support of NPDES permit renewal.

Vineyard Surface Water Treatment Plant - Sacramento County Water Agency

As principal-in-charge, assisted RMC Water and Environment for the permitting of a temporary surface water discharge of test water resulting from the startup of a large (80 mgd) water treatment plant in southern Sacramento County. RBI prepared a technical report characterizing projected effluent quality of the testing and startup discharges, and assessment of potential effects to the small ephemeral stream channel (Gerber Creek), the

receiving water for temporary discharges lasting approximately 6 months with discharge rates varying up to 15 mgd. RBI assisted with preparation of permit application requirements for consistency with the Central Valley Regional Water Quality Control Board's "limited threat general NPDES permit," which was an adopted streamlined permit procedure at the time of the project. The permit strategy involved development of a request, with supporting justification, of a temporary exception for the discharge to exceed applicable state water quality objectives for trihalomethane compounds. RBI also prepared the assessments of potential impacts to hydrology, water quality, and fisheries and aquatic resources for an amended CEQA Initial Study and Mitigated Negative Declaration that was prepared for the project.

Port of Stockton Stormwater Administrative Order on Consent and NPDES Permit Negotiation and Monitoring Review

Developed and negotiated stormwater toxicity monitoring requirements in the U.S. EPA's Administrative Order to achieve reasonable and scientifically defensible requirements. Led RBI's contribution to negotiations during renewal of the Port's 2011 MS4 NPDES Permit. Directed technical assessment of Port's water quality monitoring data that RBI used as the basis for negotiating an amendment to the 2011 NPDES permit that substantially reduced the stormwater monitoring burden of the Port. Provided lead oversight, technical review, and interpretation of water quality and bioassay laboratory reports from stormwater monitoring events in support of maintaining compliance with the Administrative Order and NPDES Permit. Directed toxicity identification evaluations (TIEs), when needed.

Seasonal Coliform Bacteria Limitations

Negotiated alternative winter coliform bacteria limitations to be included in NPDES permits, which involved extensive technical analyses, technical report preparation, and negotiations with Central Valley Regional Water Quality Control Board policy and permitting staff and Department of Health Services (now Department of Public Health) technical staff. Dischargers assisted include: El Dorado Irrigation District's Deer Creek Wastewater Treatment Plant and Placer County's Sewer Maintenance District 1 Wastewater Treatment Plant.

Ecological, Water Quality, and Hydrologic Evaluation of Deer Creek

Project manager and technical lead on a study documenting the ecological, water quality, and hydrologic conditions of Deer Creek upstream and downstream of the Deer Creek Wastewater Treatment Plant discharge. Conducted reconnaissance survey, developed experimental approach, and supervised/participated in field data collection. Documented fish and benthic macroinvertebrate taxa. Prepared final project report, which served, in part, as the basis for NPDES permit renewal.

Receiving Water Dissolved Oxygen Studies

As principal-in-charge and project manager, evaluated the effects of municipal wastewater treatment plant effluent discharges on downstream dissolved oxygen profiles using U.S. EPA's STREAMDO IV model. Studies conducted on Deer Creek for El Dorado Irrigation District, and Old Alamo, New Alamo, and Ulati creeks for the City of Vacaville.

Basin Plan Amendments / Use Attainability Analyses

Site-Specific Objectives - pH, Turbidity, and Temperature

Principal-in-charge and lead water quality/aquatic ecology specialist for development of site-specific amendments to the Central Valley Regional Water Quality Control Board (RWQCB) Water Quality Control Plan (Basin Plan) for Deer Creek pH, turbidity, and temperature. Developed supporting technical studies/information, drafted RWQCB Staff Report/Functional Equivalent Document, and prepared responses to peer review and public comments.

Region-Wide Basin Plan Objectives - pH and Turbidity

Provided technical and strategic services to the Central Valley Regional Water Quality Control Board, on behalf of Central Valley dischargers, to develop and adopt region-wide amendments to the Central Valley Region Water Quality Control Plan (Basin Plan) for pH and turbidity. Work tiered from the development of site-specific objectives for pH and turbidity for Deer Creek.

Aquatic Life Use Attainability Analysis - Old Alamo Creek

Examined the suitability of Old Alamo Creek to support anadromous salmonids by examining the available instream and riparian habitat, flow regime, thermal regime, water quality, and existing fish and benthic macroinvertebrate communities and participated in preparation of the Use Attainability Analysis (UAA) report. The UAA supported de-designating the cold freshwater habitat and cold migration beneficial uses assigned to Old Alamo Creek.

Municipal and Domestic Supply (MUN) Use Attainability Analysis - New Alamo Creek and Ulatis Creek

Principal-in-charge for the preparation of a Use Attainability Analysis (UAA) of the MUN use of New Alamo and Ulatis creeks, located in Solano County, consistent with U.S. EPA guidance. The project consisted of assembling hydrologic and water quality characteristics of the watersheds and documenting the extent of MUN use historically occurred or could be attained in the creeks. The UAA supported development of site-specific objectives for trihalomethane compounds for the protection of human health.

Site-Specific Objectives - Chloroform, Dibromochloromethane, and Dichlorobromomethane

Principal-in-charge and co-author of technical report for the development of site-specific objectives (SSOs) for three trihalomethane (THM) compounds for New Alamo and Ulatis creeks, Solano County. SSOs were developed to be protective of human health-related uses and resolve the THM criteria compliance issues resulting from the City of Vacaville's Easterly Wastewater Treatment Plant discharge. Also participated in the review and drafting of key sections of the Regional Water Quality Control Board's (RWQCB) Staff Report supporting a Basin Plan amendment for the SSOs, and meetings with RWQCB and U.S. Environmental Protection Agency Region 9 staff overseeing the SSO development and approval.

Municipal and Domestic Supply (MUN) Use Attainability Analysis - Atwater Drain

Principal-in-charge for the preparation of a Use Attainability Analysis report for Atwater Drain, located in Merced County, to evaluate the suitability of its MUN designation. Required the evaluation of watershed land use, hydrology, and water quality information, as well as the documentation of past and current diversions from the drain.

Municipal and Domestic Supply (MUN) De-Designation - Twelve Constructed/Modified Water Bodies in Sacramento River Basin

Principal-in-charge for the preparation of the environmental review section and CEQA checklist for the Basin Plan Amendment Staff Report prepared by the Central Valley Regional Water Quality Control Board to de-designate the MUN beneficial use from twelve constructed and/or modified water bodies in the Sacramento River Basin that receive treated municipal wastewater from the cities of Biggs, Colusa, Live Oak or Willows. The environmental review evaluated the impact to water quality and other beneficial uses of the receiving waters and environment that would occur from implementation of the Basin Plan amendment relative to existing conditions and the cumulative condition.

Central Valley Salt and Nitrate Management Plan Substitute Environmental Documentation

Principal-in-charge for the preparation of the environmental impact analysis of the effects of the CV-SALTS proposed Central Valley Salt and Nitrate Management Plan (SNMP). The SNMP includes several policies and recommended permitting strategies to be developed by the Central Valley Regional Water Quality Control Board into amendments to the Water Quality Control Plans for the Sacramento River and San Joaquin River Basins and Tulare Lake Basin. The amendments would address modifications to permitting discharges of salts to surface water and groundwater, and discharges of nitrate to groundwater within the Central Valley. The environmental review consisted of a detailed evaluation of the direct and indirect impacts, and cumulative environmental impacts to all CEQA Appendix G Environmental Checklist resources, including water quality, air quality, hydrology, biological resources, and public services and housing.

Other Water Quality Studies

Freshwater Mussels Study

Principal-in-charge for a multi-agency collaborative study developed for the Central Valley Clean Water Association (CVCWA) to evaluate the presence or absence of freshwater mussels in Central Valley POTW receiving waters. In 2013, the U.S. Environmental Protection Agency (USEPA) promulgated new ammonia criteria for freshwater ecosystems, which incorporated new toxicity data developed for unionid freshwater mussels, non-pulmonary snails, and other freshwater organisms not available at the time the previous 1999 ammonia criteria were developed. This resulted in the 2013 EPA recommended ammonia criteria being notably more stringent than the 1999 criteria, thereby resulting in compliance issue for some POTWs. This study, which is being implemented in several phases, was undertaken in response to a California Water Code Section 13267 information request issued by the Central Valley Regional Water Quality Control Board to collect information to aid the Board in implementing the 2013 ammonia criteria in NPDES permits for POTWs, based on the presence or absence of freshwater mussels in their receiving waters.

South Fork American River Watershed Assessment

Principal-in-charge responsible for compilation and evaluation of available water quality data collected in the South Fork American River watershed. Project used a geographic information systems approach to prioritize sub-basins within the watershed for future water quality monitoring and restoration.

Sediment Total Maximum Daily Load (TMDL)

Project manager and technical lead for providing fisheries and water quality expertise to assist the Imperial Irrigation District with participating in the development of a silt TMDL for the Alamo River, the main tributary to the Salton Sea, Imperial Valley, CA. Using available scientific literature, characterized the effects of suspended sediments on freshwater aquatic life. Reviewed and provided comments on the Draft Problem Statement prepared by the Colorado River Basin Regional Water Quality Control Board.

Effluent Discharge Impact Assessment

Project manager and technical lead on evaluation of potential impacts to human health and aquatic life from discharging tertiary-treated municipal wastewater treatment plant effluent into Folsom Reservoir or Lake Natoma as part of dry year water conservation measures under the Sacramento Area Water Forum Proposal. Met with California Department of Health Services (now Department of Public Health) staff to discuss the proposed action and its potential effects on human health associated with downstream municipal purveyor diversions.

Folsom Dam Temperature Control Device (TCD) Assessment

Project manager and technical lead for assessing the potential impacts of operating a TCD at the urban water supply intakes at Folsom Dam. Identified seasonal impacts to Lower American River water temperatures and fish resources, and the quality of raw and finished urban water supplies diverted from Folsom Dam and the Lower American River.

Sediment Contaminant Monitoring

Project manager and technical lead for a North American-wide sediment contaminant monitoring survey designed to define the range of polydimethylsiloxanes in surface sediments of marine and freshwater systems receiving large municipal wastewater discharges. Supervised preparation of site-specific sampling plans, developed an experimental approach for the overall project, prepared a comprehensive quality assurance project plan, and contributed to preparation of project reports. Study served as the basis for subsequent bioassays and ecological risk assessments.

Ecological Risk Assessment

Directed the aquatic assessment of component of a probabilistic ecological risk assessment that quantified the potential risk posed to wildlife and aquatic populations from opening and operating a gold mine in northern Washington.

Stormwater Quality Monitoring

Project manager and technical lead for the Laguna West stormwater runoff water quality mitigation-monitoring project, Sacramento County. Developed the experimental design and field operating procedures, statistically analyzed laboratory bioassay and contaminant data, directed activities for field personnel, and wrote project progress and final reports.

Fisheries Biology

Biological Assessment - New Mountain House Wastewater Treatment Plant Outfall in Old River

Prepared a Biological Assessment addressing the potential effects on Endangered Species Act-listed anadromous fish species that could result from placing a new diffuser outfall into the Old River, and operating the outfall to discharge up to 5.4 mgd of treated municipal effluent at buildout. Developed conservation measures to be implemented as part of the project to avoid/minimize effects on listed fishes. Worked closely with National Marine Fisheries Service in preparing the associated Biological Opinion.

Biological Assessment - Ironhouse Sanitary District Wastewater Treatment Plant Outfall in the Sacramento River

Prepared a Biological Assessment addressing the potential effects on Endangered Species Act-listed anadromous fish species that could result from placing a new diffuser outfall into the San Joaquin River, and operating the outfall to discharge up to 8.6 mgd of treated municipal effluent at buildout. Developed conservation measures to be implemented as part of the project to avoid/minimize effects on listed fishes. Worked closely with National Marine Fisheries Service in preparing the associated Biological Opinion.

Biological Assessment - City of Chico Wastewater Treatment Plant Expansion

Prepared a Biological Assessment for project to address potential project construction and operational effects on ESA listed fish species and their habitats that could result from placing a new diffuser outfall in the Sacramento River and operating the outfall to discharge up to 12 mgd of treated municipal effluent. Developed conservation measures to be implemented as part of the project to avoid/minimize effects on listed fishes.

Cosumnes River Flow Augmentation Project

Lead fisheries consultant on project that provides up to 5,000 acre-feet of American River water annually routed through the Folsom South Canal to pre-wet the lower Cosumnes River channel to provide earlier and more prolonged hydraulic continuity throughout the lower river during the fall-run chinook salmon spawning season. Assessed potential fish resource impacts of implementing the project on the fish resources of the lower American River, Cosumnes River, and Mokelumne River.

Aquatic Biological Resources Assessment of Hangtown Creek

Principal-in-charge for study design and implementation of fish sampling (electrofishing), benthic macroinvertebrate sampling, habitat assessment, and temperature monitoring. Benthic macroinvertebrate sampling was conducted using the California Department of Fish and Game California Stream Bioassessment Procedure. Study focused on evaluating the thermal effects of the Hangtown Creek Wastewater Treatment Plant's discharge on the aquatic ecology of Hangtown Creek.

Putah Creek Flow Restoration Project

Served as principal-in-charge of the Putah Creek fisheries assessment to determine how the project, developed to address debris buildup below the Putah Creek Diversion Dam through dam and channel modifications, could incorporate elements to achieve a secondary objective of protecting, maintaining, and possibly enhancing Putah Creek's aquatic habitats and fish resources.

Lower Yuba River CALFED Project

Co-Principal-in-charge and technical lead for developing a local-level Implementation Plan for Lower Yuba River anadromous fish habitat restoration. Project involved working with the Lower Yuba River Fisheries Technical Working Group, which has representatives from all state and federal fishery agencies, to perform a comprehensive

review of available fishery, ecological, and hydrologic information and to develop a conceptual model for the Yuba River aquatic ecosystem. This model is a framework to guide the refinement, evaluation, and prioritization of restoration actions proposed by CALFED Bay-Delta Program's Ecosystem Restoration Program Plan, U.S. Fish and Wildlife's Anadromous Fish Restoration Program, California Department of Fish and Game's 1991 Plan, and other fish management plans already developed for the river. The conceptual model identifies testable hypotheses related to key ecosystem processes, habitat conditions, stressors, and fish population trends and behavior, including habitat use. Based on this work, restoration actions, pilot projects, and studies are prioritized for near-term and long-term implementation in a manner consistent with long-term ecosystem and watershed management goals.

Lower American River Operations Working Group Participant

Provided technical assistance to staff from U.S. Bureau of Reclamation, California Department of Fish and Game, U.S. Fish and Wildlife Service, and National Marine Fisheries Services in evaluating alternative Folsom Dam shutter operational scenarios for the summer/fall period to maximize thermal benefits to Lower American River fall-run chinook salmon and steelhead, and to balance benefits to these two species.

CDFG/YCWA Interim Settlement Agreement

Initiated and led the development of a California Department of Fish and Game-Yuba County Water Agency (YCWA) Interim Settlement Agreement and Interim Study Plan for the Lower Yuba River. Facilitated negotiations between CDFG and YCWA, which were conducted to reach agreement on several issues, including minimum instream flow, water temperature, and flow fluctuation requirements associated with operation of the Yuba River Development Project. This process ultimately culminated in the Lower Yuba River Accord. The Accord resolved a nearly 20-year legal and political fight over water rights and fisheries flows. The Accord received the State's highest environmental award.

Lower American River Salmon Mortality Model Development

Project manager and technical lead for refinement of the U.S. Bureau of Reclamation's Lower American River early life stage fall-run chinook salmon mortality model. Compiled historic data defining temporal distributions of immigration and temporal and spatial distributions of spawning. Worked with Reclamation computer programmers to make code changes that resulted in an improved model that reflected the best available biological data for the river's fall-run chinook salmon population.

Lower Sacramento River and Delta Tributaries Technical Team Appointee

Appointed to the Lower Sacramento River and Delta Tributaries Technical Team, as part of the Anadromous Fish Restoration Program of the Central Valley Project Improvement Act. Developed technical reports outlining the key factors currently limiting chinook salmon and steelhead populations in the Lower American and Yuba rivers. Worked cooperatively with California Department of Fish and Game and U.S. Fish and Wildlife Service biologists on the project.

Central Valley Project Restoration Technical Liaison

Served as a technical liaison between the Northern California Power Agency, a contributor to the Central Valley Project (CVP) Restoration Fund, and the state and federal fish resource agencies charged with applying these funds to restore Central Valley anadromous fish populations. Developed a strategic process for establishing a shared understanding among these and other stakeholders regarding CVP restoration goals, objectives, and criteria for prioritizing expenditures from the CVP Restoration Fund to achieve basin-wide, fish population-restoration goals.

Bay/Delta Fisheries Report

Prepared a technical report for the Northern California Power Agency that identified the major factors that have contributed to recent declines in San Francisco Bay/Sacramento-San Joaquin Delta fishery resources. The factors contributing to recent declines of anadromous and resident fish populations were ranked according to their relative importance or contribution to observed population declines.

Sacramento Splittail Distribution and Relative Abundance Study

Project manager and technical lead for a large interagency (Department of Water Resources, California Department of Fish and Game, U.S. Bureau of Reclamation, U.S. Fish and Wildlife Service, U.C. Davis, State Water Contractors, and Interagency Ecological Program) gill net survey that documented the distribution and relative abundance of Sacramento splittail in the Sacramento and San Joaquin rivers and Delta. Developed the experimental design and field operating procedures for the project, and supervised field personnel. Performed all statistical analyses of catch data, and prepared the project report.

CEQA/NEPA and Permitting

City of Stockton Regional Wastewater Control Facility EIR

Principal-in-charge for preparation of the City of Stockton Regional Wastewater Control Facility Modifications Project EIR, which evaluated effects of modifications to the treatment plant processes on effluent discharge and Delta receiving water quality, and potential construction impacts. Collaborated with the City and subconsultant, Ascent Environmental, to develop a Mitigation Monitoring and Reporting Program (MMRP) consistent with the San Joaquin County Multi-Species Habitat Conservation and Open Space Plan. Also, lead author of the fisheries assessment portion of the EIR. Provided support to City staff at the Scoping Meeting and City Council meeting at which the EIR was certified and the MMRP adopted.

Yuba County Water Agency South Canal Diversion

Principal-in-charge of CEQA, environmental permitting, and fish screen alternatives evaluation stakeholder process services provided to the Yuba Water Agency related to its South Canal Diversion located on the lower Yuba River. Led the development of project design, preparation of CEQA documentation, and securing environmental permits for a fast-track facilities repair project involving excavation of approximately 450 linear feet of the south channel of the lower Yuba River adjacent to the YWA's South Canal Diversion facility to enhance water supply and fish passage in 2018. Managed completion of the Initial Study/Mitigated Negative Declaration and securing Clean Water Act Section 401 certification from the Central Valley Regional Water Quality Control Board, Streambed Alteration Agreement from California Department of Fish and Wildlife, and Clean Water Act Section 404 authorization from the U.S. Army Corps of Engineers (and associated Biological Opinion from National Marine Fisheries Service). Coordinated all aspects of environmental compliance and permitting with YWA management, its legal counsel, and resources agencies to facilitate completion of the project.

Currently leading a stakeholder process designed to select the preferred alternative for an improved fish screen at YWA's South Canal Diversion. Led several workshops with stakeholders, including National Marine Fisheries Service, California Department of Fish and Wildlife, YWA management staff and consulting engineers, and YWA member units that receive South Canal water, to develop consensus for the selected fish screen alternative. The process has involved the review and evaluation of 14 alternative fish screen facilities. Managed development of alternatives evaluation criteria and a scoring matrix to facilitate identifying the preferred alternative, which will then undergo CEQA review and permitting.

Reinitiation of Consultation on the Coordinated Long-Term Operation of the Central Valley Project and State Water Project EIS

Co-author of the Water Quality section and supporting technical appendices for the 2019 EIS evaluating four alternatives for long-term operation of the Central Valley Project and State Water Project. Evaluation included interpreting CALSIM and DSM2 modeling output to determine effects of water operations on Delta and San Francisco Bay water quality constituents of concern, including electrical conductivity, chloride, bromide, mercury, selenium, nutrients, and organic carbon. Also evaluated potential effects of program elements, including additional tidal habitat restoration areas and an expanded aquatic weed pesticide application program.

Bay Delta Conservation Plan/California WaterFix EIR/EIS

Principal-in-charge for development and preparation of the water quality chapter for the Bay Delta Conservation Plan (BDCP)/California Waterfix EIR/EIS. Provided strategic input regarding assessment of the plan's effects on water quality in the Sacramento-San Joaquin Delta and primary tributaries. Developed thresholds of significance

for assessing water quality effects and participated in development of the water quality assessment framework, which integrated use of CALSIM II, DSM2, and other models used to assess water quality impacts resulting from the implementation of the nine BDCP alternatives and three WaterFix alternatives. Directed assessments of multiple constituent-specific assessments, including bromide, chloride, electrical conductivity, and Microcystis blooms. Worked with multiple local, state, and federal agencies to resolve issues and participated in stakeholder and public outreach efforts. Provided support to the California Department of Water Resources for the water rights petition hearings before the State Water Resources Control Board, including preparation of testimony and participation as an expert witness for water quality at the hearing.

EchoWater Project EIR

Served as principal-in-charge for the preparation of the water quality and aquatic biological resources sections of the EchoWater Project EIR prepared for the Sacramento Regional County Sanitation District. The water quality impact analysis evaluated the effects of the proposed upgrades to the Sacramento Regional Wastewater Treatment Plant on the water quality of the Sacramento River and Sacramento-San Joaquin Delta, and associated beneficial uses. The aquatic biological resources impact analysis evaluated the effects of the proposed project on the aquatic biological resources of the Sacramento River and Delta, with particular emphasis on effects of the changes in contaminant concentrations and temperature in these water bodies.

Tahoe Regional Planning Agency Shoreline Plan EIS

Principal-in-charge for preparation of the fish and aquatic biological resources section of an EIS that evaluated the potential environmental impacts on fisheries habitat and aquatic biological resources that could result from implementation of each of the four Lake Tahoe Shoreline Plan alternatives. The assessment specifically evaluated the effects of the implementation of the Shoreline Plan alternatives on prime fish habitat, disturbance during spawning, substrate removal, obstructions to fish migration, native riparian vegetation removal, introduction of invasive aquatic weeds related to boating activity, and disruption of littoral drift processes.

Tertiary Filtration, Ultraviolet Disinfection, and Biosolids Dewatering Project CEQA Initial Study/Mitigated Negative Declaration - City of Galt

As principal-in-charge, assisted the City of Galt (under contract to West Yost Associates) with environmental compliance documentation, NPDES permit acquisition, and environmental permitting for the proposed Phase 1 upgrade of selected unit processes at the wastewater treatment plant. Phase I of the project provides upgraded facilities (i.e., add tertiary treatment and ultra-violet disinfection) and will initiate a new discharge in the summer (previously permitted as a seasonal (winter) discharge). Phase II of the project involves further upgrades of the treatment facilities (improved nitrogen removal) and expansion in capacity from 3.0 million gallons per day (mgd) to 4.5 mgd. RBI prepared the CEQA Initial Study/Mitigated Negative Declaration (IS/MND) for the Phase 1 upgrades and necessary construction-related permits.

Ironhouse Sanitary District Wastewater Treatment Plant Expansion and Upgrade - CEQA and Permitting

As principal-in-charge, assisted the Ironhouse Sanitary District (ISD) with environmental compliance, NPDES permit acquisition, and environmental permitting for the proposed expansion and upgrade of the ISD municipal wastewater treatment plant that serves the communities of Oakley, Bethel Island, and outlying communities. RBI prepared the water quality and the fishery and aquatic resources chapters of the environmental impact report, which was prepared by Jones & Stokes. RBI developed thresholds of significance for interpreting the effects of anticipated receiving water quality changes on aquatic resources. Addressed Endangered Species Act issues related to listed fish species.

RBI was instrumental in securing authorization of a new NPDES permit for ISD's proposed surface discharge outfall in the San Joaquin River at Jersey Island. RBI led the consulting team to negotiate and secure the NPDES permit through the Central Valley RWQCB and prepared the key elements of the Report of Waste Discharge. In addition, RBI assisted ISD in securing environmental permits to authorize the dredging and dredge-material disposal necessary to construct and install a new surface discharge outfall pipe and diffuser in the San Joaquin River. RBI

prepared the sampling and analysis plan for sediment and dredge material characterization, and secured authorization under the Central Valley RWQCB's general waiver of waste discharge requirements for dredge material disposal to land. RBI provided monitoring and ongoing permit implementation services to ISD for the construction project.

Ironhouse Sanitary District Highway 4 Pipeline Project CEQA Compliance

As principal-in-charge, worked with the ISD in implementing a strategic phased approach to CEQA compliance for ISD's proposed construction of a new sanitary sewer gravity trunk, and forcemain conveyance pipelines and recycled water pipeline within its service area. Phase 1 involved the upfront identification of potential project development constraints, regulatory requirements, and identification of the appropriate CEQA documentation and process. Phase 2 of the project involved preparation of an Initial Study/Mitigated Negative Declaration to meet CEQA requirements and support future regulatory permitting. Additionally, RBI managed technical subconsultants for the conduct of botanical rare plant surveys, and air quality, noise and cultural resource assessments.

Placer County Sewer Maintenance District 1 Wastewater Treatment Plant Upgrade and Expansion - CEQA Initial Study/Mitigated Negative Declaration

Principal-in-charge of the hydrology and water quality section of the Initial Study/Mitigated Negative Declaration for the Sewer Maintenance District 1 Wastewater Treatment Plant Upgrade and Expansion project, and assisted with the biological resources section of the document by preparing the impact assessment for fisheries and aquatic resources. RBI assessed potential construction-related impacts and direct and cumulative long-term operations-related impacts of treatment plant upgrades and the increased effluent discharge rate to Rock Creek and Dry Creek, and water bodies further downstream. RBI assessed the potential water quality impacts on a constituent-by-constituent basis, incorporating key information from the antidegradation analysis and other technical reports that RBI had prepared for Placer County under separate contracts for work on the plant's NPDES permitting compliance.

Sacramento Regional Wastewater Treatment Plant 2020 Master Plan EIR

Lead consultant for preparing water quality and fishery and aquatic habitat chapters of the EIR. Responsible for coordinating all hydrologic and water quality modeling, and the use of modeled output for impact assessment purposes. Contributed to development of alternatives to be evaluated and thresholds of significance for the water quality and fisheries/aquatic habitat resources. Also assisted in conducting stakeholder and technical workshops associated with development of the 2020 Master Plan.

Lake of the Pines Wastewater Treatment Plant Upgrade EIR

Lead consultant for preparing the water quality/hydrology and fishery and aquatic resources chapters of the EIR, which was prepared by EDAW for Nevada County. Contributed to development of alternatives to be evaluated and developed thresholds of significance for the water quality/hydrology and fisheries chapters. Also assisted in conducting stakeholder and technical workshops associated with development of the facilities Master Plan.

City of Chico Wastewater Treatment Plant Expansion EIR

Lead consultant for preparing the fishery and aquatic resources chapter of the EIR, which was prepared by Jones & Stokes. Contributed to development of alternatives to be evaluated and developed thresholds of significance for the chapter. Also assisted in refinement of water quality assessments used to make determinations regarding potential impacts to aquatic resources in the Sacramento River.

Del Webb Tehama Project

Lead consultant for preparing the fishery and aquatic resources chapter of the EIR, which was prepared by Impact Sciences. Conducted site surveys and habitat characterizations. Consulted with National Marine Fisheries Service to obtain a concurrence letter of not likely to adversely affect steelhead using adjacent water bodies.

Hangtown Creek Wastewater Treatment Plant Upgrades IS/MND

Principal-in-charge for preparing an Initial Study/Mitigated Negative Declaration in support of planned upgrades to the Hangtown Creek Wastewater Treatment Plant. This environmental document was prepared to meet CEQA

requirements and to support application for a State Revolving Fund loan to fund, in part, the planned improvements.

Lower Cascade Canal Modernization Project EIR

Lead technical consultant for preparing the aquatic biological resources chapter of the EIR. Responsible for conducting detailed fisheries habitat and hydraulic assessments on the Lower Cascade Canal and presenting information to stakeholders. Contributed to the development of alternatives to be evaluated and thresholds of significance for determining impacts.

City of Lincoln Wastewater Treatment and Reclamation Facility EIR

Provided technical review and oversight for the fisheries and aquatic biological resources chapter of EIR. Assisted project team with addressing potential impacts and preparing supplements and addendums to EIR. Consulted with National Marine Fisheries Service on anadromous fish issues, including Endangered Species Act issues, related to new wastewater discharges to Auburn Ravine.

Deer Creek Wastewater Treatment Plant Expansion EIR

Lead author for water quality and fisheries chapters of the EIR, prepared for the El Dorado Irrigation District, which involved compiling and assessing effluent and receiving water quality data and evaluating acute and chronic bioassay testing results.

Eastern Sacramento County Replacement Water Supply Project EIR

Lead consultant for preparing the water quality and fishery and aquatic resources chapters of the EIR, which was prepared by EDAW for Sacramento County. Contributed to development of alternatives to be evaluated and developed thresholds of significance for the water quality and fisheries chapters. Performed detailed analysis of effects on American River and tributary water quality and compliance with water quality standards that would result from inputting remediated groundwater into the system. Also assessed effects on fish resources in the American, Cosumnes, and Mokelumne rivers of using up to 5,000 acre-feet of remediated water, annually, to pre-wet the Cosumnes River channel to provide earlier and more prolonged hydraulic continuity throughout the lower river during the fall-run chinook salmon spawning season.

Suction Dredging Permitting Program Supplemental EIR, California Department of Fish and Game

Principal-in-charge of water quality and toxicology impacts assessment for the Initial Study and supplemental EIR, which was prepared by Horizon Environmental. The EIR addresses the potential project-level environmental impacts of statewide suction dredging activity regulations. The focus of the analysis was on effects of dredging-related discharge of mercury in streams that have remnant contamination from historic gold mining activity.

El Dorado Irrigation District Water Supply Master Plan EIR

Lead technical consultant for preparing the hydrology, water quality, and aquatic biological resources chapters of the programmatic EIR. Responsible for evaluating Master Plan demands and District operations to meet projected demands to determine how such operations could impact these resources. Provided strategic guidance for integrating other District facilities into the assessment to produce a more real-world assessment.

EDWPA Supplemental Water Rights Project EIR

Directed the development of the water quality chapter for the El Dorado County Water and Power Authority (EDWPA) Supplemental Water Rights Project EIR. The proposed project is to establish permitted water rights allowing diversion of 40,000 AFA water from the American River basin to meet planned future water demands in the EID and GDPUD service areas and other areas located within El Dorado County that are outside of these service areas. The assessment addressed effects of the proposed project on American River watershed, Sacramento River, and Delta water quality.

Sacramento Area Water Forum Proposal EIR

Prepared the fisheries and surface water quality chapters of the EIR and regularly presented technical information on effects of reservoir operations and water management on fish resources and water quality to the Water Forum,

a coalition of 46 stakeholders representing agriculture, business, public agencies, and environmental groups collectively developing a strategic water-planning platform for the greater Sacramento area. Served as liaison between hydrologic/water temperature/salmon mortality modelers, Fischer-Delta (water quality) modelers, and other technical staff and CEQA consultants/City-County management staff responsible for preparing the EIR. Contributed to preparation of a Habitat Management Program (HMP) for the Lower American River, designed to preserve the wildlife, fisheries, recreational, and aesthetic values of the Lower American River, as well as mitigate for any potential impacts of the Water Forum Proposal.

Natoma Pipeline Replacement and Folsom Water Treatment Plant Expansion Project EIR/EA

Managed preparation of fisheries sections of the EIR/EA. The project involved analyzing the construction and operational impacts associated with pipeline replacement and water treatment plant expansion, as well as a 7,000 AFA increment of additional water planned to be diverted from Folsom Reservoir. Worked closely with modelers to develop hydrologic simulations to depict hydrologic effects of the project. Assessed output from the hydrologic, temperature, and salmon mortality models to identify project-specific and cumulative impacts to reservoir, river, and Delta fish resources. The project required compliance with federal and state regulations, including the Endangered Species Act and Clean Water Act.

Narrows II Powerhouse Intake Extension Mitigated Negative Declaration/Initial Study

Technical lead for assessing the potential effects on the fish resources of Englebright Reservoir and the Lower Yuba River from drawing water into the Narrows II Powerhouse from a lower elevation within Englebright Reservoir as a result of extending the current intake structure. Prepared a technical report on findings, with an emphasis on temperature-related effects on Lower Yuba River anadromous fish resources.

Placer County Water Agency and Northridge Water District Groundwater Stabilization Project EIR

Managed preparation of fisheries chapter of the EIR. Analyzed the hydrologic effects of the project as they would affect Folsom Reservoir seasonal storage levels, lower American and Sacramento River flows, and Delta inflow/outflow, and water temperatures, and the potential for such changes to impact fish resources in these water bodies. Worked closely with modelers to develop hydrologic simulations to depict hydrologic effects of the project.

Long-Term Reoperation of Folsom Dam and Reservoir EIR

Fisheries lead to determine the feasibility of indefinitely extending Sacramento Area Flood Control Agency's Folsom Dam and Reservoir Reoperation Agreement with the U.S. Bureau of Reclamation. Worked closely with modelers to develop hydrologic simulations to depict hydrologic effects of the project. Output from hydrologic, temperature, and salmon mortality models was assessed to identify project-specific and cumulative impacts to reservoir, river, and Delta fish resources. Additional activities included meeting with National Marine Fisheries Service, U.S. Fish and Wildlife Service, and California Department of Fish and Game to determine the need for consultation under the federal and state endangered species acts and determination of potential impacts to fishery resources throughout the Central Valley Project resulting from integrated reservoir operations.

CVP Water Supply Contracts EIS/EIR

Lead author for the fisheries and water quality chapters of the joint programmatic EIS/EIR prepared for the Central Valley Project (CVP) Water Supply Contracts under Section 206 of Public Law 101-514. Evaluated hydrologic, river and reservoir water temperature, and salmon mortality model output to determine potential impacts to CVP reservoir, lower American and Sacramento rivers, and Delta fish resources that could result from diverting a portion of the water from Folsom Reservoir. Worked closely with project engineers to design the hydrologic modeling studies and determine output needed to conduct the necessary environmental assessments. Also participated in development and evaluation of project alternatives capable of fulfilling project purposes, with an emphasis on water supply, affected hydrology, and environmental constraints.

Hamilton City Pumping Plant Fish Screen Improvement Project EIR/EIS

Developed technical approach to assessing the effects of the proposed project and its alternatives on fisheries and aquatic habitats. Lead author for all fisheries sections of the EIR/EIS. Fisheries and aquatic habitat chapter received U.S. EPA's highest review score. Key issues included analyses of alternative means of simultaneously

protecting fish (including the endangered winter-run chinook salmon) while re-establishing reliability in Glenn-Colusa Irrigation District's diversions from the Sacramento River. This project involved many state and federal agencies, including California Department of Fish and Game, U.S. Bureau of Reclamation, U.S. Fish and Wildlife Service, National Marine Fisheries Service, U.S. Army Corps of Engineers, California Department of Water Resources, and the State Reclamation Board.

Interim Reoperation of Folsom Dam and Reservoir EIR/EA

Evaluated the potential impacts of interim reoperation on the fish resources of Folsom, Trinity, and Shasta reservoirs; the Lower American, and Sacramento rivers; and the Sacramento-San Joaquin Delta, with an emphasis on anadromous salmonids. Assessments were based on output from U.S. Bureau of Reclamation's hydrologic, temperature, and salmon mortality models. Also performed an evaluation to determine the optimal shutter configuration at Folsom Dam to maximize beneficial use of Folsom Reservoir's coldwater pool for downstream temperature control. Assessed effects of seasonal temperature regimes that would occur under various shutter configurations on Lower American River steelhead and fall-run chinook salmon.

MARTIN B. FEENEY, P.G., C.E.G., C.Hg.

Resume

Consulting Hydrogeologist

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EDUCATION: M.A., Environmental Planning (Groundwater), California State University, 1987
Graduate Program, Water Science, University of California, Davis, 1981-1982
Secondary Teaching Credential, University of California, Santa Barbara, 1979
B.S., Earth Science (Geology), University of California, Santa Cruz, 1976

QUALIFICATIONS: Professional Geologist, California, No. 4634
Certified Engineering Geologist, California, No. 1454
Certified Hydrogeologist, California, No. 145
Certified Groundwater Professional, NGWA, 1994

EXPERIENCE: Mr. Feeney has more than 26 years experience in groundwater consulting. After employment as a well-site geologist in the oil industry and again as an engineering geologist, Mr. Feeney was a founding Principal of Staal, Gardner and Dunne, Inc. (later became Fugro West, Inc.) and managed this firm's Monterey County office for 9 years. Mr. Feeney later was a member of the firm, Balance Hydrologics, Inc. Mr. Feeney is currently a private consultant. Mr. Feeney's experience in groundwater supply issues includes well siting and design, preparation of project specifications and contractor supervision, well maintenance and repair, water treatment, groundwater modeling (both flow and solute-transport), perennial yield analysis, artificial recharge (surface and injection), water quality assessments, regulatory compliance and groundwater modeling.

Mr. Feeney has significant experience in drilling and well construction technology. During his career Mr. Feeney has designed and managed the construction of over 40 municipal wells with diameters up to 24-inches and discharge rates of up to 6,000 gpm at locations around the world.

Selected representative project experience includes:

**WATER SUPPLY
PROJECTS:**

Seaside Basin Injection/Recovery Study, Monterey County, MPWMD

This evaluation considered the development of a conjunctive use program to direct surplus runoff of the Carmel River into semi-consolidated aquifers in the Seaside area. The scope included the evaluation of groundwater injection wells to affect seasonal groundwater storage. Work included designing injection tests, overseeing modifications to the wells to allow effective testing, evaluating the tests to quantify aquifer properties and likely environmental effects, and simulating likely pressures and geochemical responses.

Coastal Water Project, Monterey County, California American Water Company

Mr. Feeney currently is retained by Cal-Am as special technical advisor to RBF Engineers, Inc. to assist with hydrogeologic issues associated with the Coastal Water Project. This project includes the development of approximately 8,000 acre-feet per year of desalinated supply and 2000 acre-feet per year of aquifer storage and recovery (ASR) supply. Mr. Feeney provides assistance in feedwater development methods and ASR well engineering.

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Point of Diversion Study, Monterey County, California-American Water Co.

The feasibility of diverting subsurface flow from the Carmel River rather than direct diversion from the reservoirs was evaluated. The change would allow existing treatment facilities and pipelines to be utilized while providing important fisheries and riparian habitat benefits as well as reduced treatment costs. The scope included re-evaluating the geometry of the uppermost Carmel River alluvial aquifer, adapting the existing groundwater model to incorporate the proposed changes in point diversion, and assisting the local water district in modifying its operational models and in-stream flow simulations.

San Tomas Injection Well Project, Santa Clara Valley Water District. To offset the loss of surface recharge capacity, the District installed an injection well. Work included performed aquifer testing, numerical aquifer parameter estimation, and groundwater flow and geochemical interaction modeling. Developed specifications and supervised construction and testing of injection well. Conducted long-term injection testing and assessed well performance, which included detailed plugging analysis and assessment of project expansion possibilities.

North Monterey County Hydrogeologic Study - Monterey County

The northern portion of Monterey County is a mixed area of uplifted granitic bedrock, alluvial deposits, eolian sands, and tidal estuaries. The hydrogeologic setting is complex and hydraulically linked to the adjacent areas of the Pajaro and Salinas Groundwater Basins. The area supports a mix of agricultural and residential land uses developed entirely on groundwater. The study included the assessment of the water supply conditions including current water balance and water quality issues. The study concluded that overdraft in the area was severe and the water quality issues of seawater degradation and nitrate contamination were wide-spread and increasing. The work was supported by the development of a GIS coverages for the area and the integration of these coverages into the MCWRA's GIS system.

Arroyo Seco Cone Area Investigation, Monterey County

The investigation quantified the interaction between the surface flows of the Arroyo Seco cone area and the underlying groundwater system. Under consideration was the development of spreading basins to allow the use of Arroyo Seco surface water flows for artificial groundwater recharge. The project included: hydrogeologic exploratory drilling/well construction; construction and testing of a pilot recharge basin; and observation of a recharge cycle through one winter season. The investigation concluded that while percolation rates were very high, the proposed project could not cost effectively increase the volume of recharge over natural recharge rates due to the limited availability of groundwater storage and the short seasonal duration of flow of the Arroyo Seco. Project included the utilization of GIS technology for integration of geologic and hydrogeologic data sets.

Desalination Project, Marina Coast Water District. Marina Coast Water District built the first operating desalination facility in mainline California. Work included design and supervision of construction of the project's seawater intake and brine disposal wells. Additional work included performance of aquifer and injection testing and analysis, detailed groundwater flow and transport modeling as part of feasibility analysis, and assessment of injection well plugging phenomena.

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Consulting Hydrogeologist

Sand City Desalination Plant Saline Intake and Brine Disposal Monterey Peninsula Water Management District —, Monterey County

In order to satisfy increased water demands, the MPWMD has proposed the construction of a 3.0 MGD seawater desalination facility that will extract water from coastal dune sands through the use of Ranney collectors. The feasibility of this approach was investigated and the conclusion reached that three Ranney collectors at the site would be capable of producing the required design flow. Also investigated was the use of Ranney collectors to inject brine into the shallow subsurface offshore. The project included drilling, well construction, aquifer testing and solute/flow modeling. It successfully demonstrated that Ranney collectors would be suitable for use and that brine injection was feasible.

Seaside Basin Hydrogeologic Update, Monterey Peninsula Water Management District. Provided analysis of basin conditions; including hydrogeologic setting, water levels, water quality, seawater intrusion, basin production, and basin management options.

Pilarcitos Creek Study -San Mateo County

Anticipating the listing of certain species of fish that migrate up coastal streams, the Coastsides Water District, in conjunction with San Francisco Water Department, contracted for a study of the feasibility of modifying the method of diversion from Pilarcitos Creek. The study included the review of reservoir operations, analysis of distribution system, evaluation and modeling of the District's wellfield, and the assessment of fisheries conditions in specific reaches of the creek. The report concluded that it was feasible to shift diversions to the wellfield from the reservoir and that this would result in the re-establishment of up to 2 miles of additional fisheries habitat. However, the overall benefit of the proposed modification was not clear as the modification would have no effect on the more-critical impacted fisheries habitat downstream of the District's property.

EXPERT/3rd PARTY REVIEW PROJECTS

Salinas Valley Hydrogeologic Conference "White Paper".

Mr. Feeney was a one of eight participants in a 'blue-ribbon' committee convened by the MCWRA to address the hydrogeologic issues facing the Salinas Valley. As part of two day conference, the committee evaluated available data regarding seawater intrusion, the overall water balance and water quality issues. The committee reached general consensus and prepared a report recommending a solution to the water supply shortfall.

Soquel Creek Water District IGSM Development -- Technical Advisory

Committee (TAC) Member. Mr. Feeney was retained by Soquel Creek Water District to participate in a TAC reviewing the development of the IGSM model by a consultant for the District. This recently completed model, shares its southern boundary with the Pajaro IGSM model. Water level and water quality conditions within the northern portion of PVWMA area are linked between the two models.

MARTIN B. FEENEY, P.G., C.E.G., C.Hg.

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Consulting Hydrogeologist

Pajaro Valley Water Management Agency – Groundwater Model Development Project – TAC Chairperson

The USGS was contracted to convert the Pajaro Valley Water Management Agency's (PVWMA) existing groundwater model from the IGSM code to MODFLOW2000 code. Mr. Feeney was retained by PVWMA to chair and as a participant in the advisory TAC that supervised the conversion of the model. This task entailed review and acceptance of a revised hydrostratigraphic model of the Pajaro Basin, review and acceptance of the water balance and recharge assumptions. The conversion project is on-going and a working, calibrated model has been completed.

Seaside Groundwater Basin Watermaster – Groundwater Model Development Project – TAC Chairperson

As part of the court decree, the Seaside Groundwater Basin Watermaster (Watermaster) was tasked with developing a groundwater model of the basin for management purposes. Mr. Feeney was retained to chair a panel of modeling experts to evaluate the existing groundwater models of the basin and the need for a new model. This review focused on the need and desired uses for a model, identification of data gaps that may limit model utility and validity, the suitability of flow versus solute transport models, and generalized approaches to the modeling effort. The results of the review resulted in the selection and modification of an existing model to meet the Courts requirement.

National Water Resources Institute – TAC Panel Member–

Los Osos Sewer and Reclaimed Reuse Water Project

Mr. Feeney was asked to serve as the groundwater expert on the National Water Resources Institute (NWRI) panel reviewing the proposed Los Osos Sewer and Reclaimed Reuse Water Project. This expert review is required by Department of Public Health. The proposed plan would establish a local wastewater plant and then use the waste water for irrigation supply thereby potentially offsetting seawater intrusion. The review focused on the feasibility of the plan and the potential impacts and benefits of implementation.

National Water Resources Institute – TAC Panel Member–

Monterey Regional Water Pollution Control Agency –Reclaimed Water Recharge Project in the Seaside Basin.

Mr. Feeney was again asked to serve as the groundwater expert on a NWRI panel reviewing the Monterey Regional Water Pollution Control Agency's proposed Reclaimed Water Recharge Project in the Seaside Basin. This project proposes to take highly-treated wastewater and use it for recharge in the Seaside Basin – either through percolation or direct injection. The review focused on the feasibility of the plan and the potential impacts and benefits of implementation. The panel is on-going.

PROFESSIONAL AFFILIATIONS:

Groundwater Resources Association
Association of Groundwater Scientists and Engineers
American Institute of Hydrology
Monterey Bay Geologic Society



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MEMO

To: Board of Directors
From: District Manager
Prepared by: Engineering Manger
Subject: Discussion and Possible Action Related to the 2019 Water Master Plan
Date: July 18, 2019

Recommendation:

It is recommended that the Board of Directors find Akel Engineering to be the top ranked firm and award the consultant contract for the 2019 Water Master Plan to Akel Engineering.

Background

On May 1, 2019 the San Lorenzo Valley Water District (District) advertised a request for proposals (RFP) for consulting services related to the 2019 Water Master Plan. At 3:00 pm on May 31, 2019 two bids were received - one from WSC Inc. and one from Akel Engineering.

At 2:00 pm on June 6, 2019 the Engineering Committee met to review and rank the proposals. The proposals were evaluated using the criteria set forth in the RFP. After some discussion, the Committee felt that the WSC proposal was the most detailed proposal. At the meeting the Engineering Committee Chairman requested that staff open the two fee envelopes and read out loud the two fees. WSC's fee was \$189,600. Akel fee was \$83,883. The Committee was concerned about the large discrepancy in the two fees and requested that staff complete a thorough evaluation of the proposals and report back to the Committee with their findings.

During the week on June 24th, staff coordinated a review that included:

- A company interview/presentation which included the firm's background, experience of staff, water master plans completed, project approach and special issues;
- Reference checks;

- A review of the fee estimates.

After the reviews were completed, staff could not identify a substantial difference between the two firms and determined that each were capable of delivering a high quality water master plan.

The deciding factor on which firm should be selected shifted to the only remaining criteria - price. Akel Engineering has submitted a price for the master plan which is less than half that of its competitor. Based on this price difference, staff recommends award of the 2019 Water Master Plan to Akel Engineering.

Cover Letter

May 31, 2019

San Lorenzo Valley Water District
13060 Highway 9
Boulder Creek, CA 95006

Attn: Darren Langfield, Engineering Manager

Subject: **Proposal for 2019 Water Master Plan**

Dear Darren,

We understand that San Lorenzo Valley is requesting proposals from qualified firms to prepare the District's **2019 Water Master Plan**. Akel Engineering Group, Inc. (Akel) has the experience and qualifications to meet and exceed the expectations expressed in your Request for Proposals. Our team offers the following benefits:

- **Effective and Reliable Project Manager:** Our proposed project manager, Tony Akel, offers the value of a **seasoned effective and reliable project manager in hydraulic modeling, supply and drought planning, and infrastructure master planning**. Tony has a proven record of accomplishments in establishing effective working relationships with client staff and successfully producing concise and quality products.
- **Specialty Firm and Expert Team:** Our firm specializes in the development of GIS asset inventories and models, model calibrations, hydraulic and water quality analysis, risk analysis and condition assessment, and preparation of water master plans. We have 55 years of specialty experience in hydraulic modeling and infrastructure master planning servicing clients throughout the State of California.
- **Quick Response and Quality Deliverables:** Our extensive professional experience, and our approach to project management and attention to details, allow us to **work efficiently, respond quickly, and communicate effectively with quality deliverables**.

We have reviewed the RFP and acknowledge our understanding of the project and required scope of services, and comply with the terms of the RFP. Our team is committed and eager to working with you and your staff on this opportunity. We thank you for your consideration and look forward to hearing from you during the selection phase.

Respectfully Submitted,
AKEL ENGINEERING GROUP, INC.



Tony Akel, P.E.
President

7433 North First Street, Suite 103
Fresno, CA 93720
Office: (559) 436-0600, ext. 12
Mobile: (559) 593-5937
Email: takel@akeleng.com

Executive Summary

Proposal Organization

This proposal follows the directions and guidance in the RFP, and includes 7 sections as follows:

1. **Executive Summary:** Summarizes the content of the firm's proposal in a concise format.
2. **Firm Background:** This section includes an overview about our firm and a summary of our provided services.
3. **Project Organization and Experience of the Project Team:** This section provides an introduction to our key staff members and an organizational structure of our team on the project. We include the experiences of the Project Manager and the proposed personnel.
4. **Project Understanding and Approach:** This section demonstrates the understanding of the project and methodology that will be used in the approach.
5. **Past Projects:** This section lists our firm's past relevant projects in detail.
6. **Proposed Total Professional Fee and Fee Schedules Submitted Under Separate Sealed Cover:** This section directs you to the proposed fee schedule located in a separate sealed envelope.
7. **Exceptions to this RFP**

Firm Qualifications

Akel Engineering Group, Inc. (Akel) was formed in 2006 as a specialty engineering firm providing consulting services in water resources infrastructure modeling and master planning, and services clients throughout the state of California. Akel has developed a proven efficiency gained through many years of successful project management and implementation.

Our capabilities rely heavily our project approach and management abilities. Similar projects addressing water and sewer regulatory documents are provided in the Project Experience section. As this is a regulatory document, we expect a similar effort as the 2015 Urban Water Management Plan, which Akel Engineering Group successfully completed and submitted to the State of California for review.

Our Project Manager and Principal Engineer, Tony Akel, has built a **reputation for delivering accurate high-quality infrastructure studies** that meet client's specific needs and standards, and available resources.

Project Approach

We follow a proven project management technique specific to hydraulic modeling and master planning, developed based on over 25 years of specialty experience. This technique emphasizes **effective communication and quick response** to address expected and unplanned challenges throughout the duration of the project.

Our mission on this project is to provide the District with **high quality product** that meet the project requirements, **efficiently**, while promoting a **flexible teamwork approach**.

Fresno, CA 93720

The firm's infrastructure design related services include utility design, preliminary utility planning, utility relocations, and peer review services for documents by other design firms. Additionally, we have developed effective and lasting partnerships with several national firms to provide our clients with quick response on various project specific expertise.



I. Experience with Water Master Planning services for water agencies.

Water Systems Hydraulic Modeling and Master Planning Recent Experience (within the past 6 years)		Project Elements															
		Land Use Characteristics/Inventory	Demand Coefficients Analysis/Projections	Hydraulic Model Development/Calibration	Hydraulic Modeling and Analysis	Storage Analysis	Transmission Analysis	Fire Flow Analysis	Emergency Supply Planning	Water Supply Capacity	Water Quality Analysis	Recommend Infrastructure Improvements	Construction Phasing and Triggers	Develop Capital Improvement Program	AB 1600 Cost Sharing Analysis	Hydraulic Model Training	Risk and Condition Assessment
Client	Project																
City of Fresno, CA	2016 GIS-Based Hydraulic Model Development and Evaluations 2017 Renewal and Replacement Plan Development	*	*	*	*	*	*	*	*	*	*	*	*	*	*		*
Coachella Valley Water District, CA	2015 GIS-Based Hydraulic Model Development and Evaluations 2016 Chromium 6 Well Treatment Analysis	*	*	*	*	*	*	*	*	*	*	*	*	*	*		
City of Madera, CA	2014 Water System Master Plan and related studies 2017-2018 Condition Assessment and Asset Management Plan	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
City of Clovis, CA	2017 Water System Master Plan			*	*	*	*	*	*	*	*	*	*	*	*	*	*
City of Santa Cruz, CA	2014 Hydraulic Model Development and Desal Plant Evaluation	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
City of Hanford, CA	2017 Water System Master Plan	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
City of Morgan Hill, CA	2017 Water System Master Plan and related studies	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
City of Gilroy, CA	2018 Water System Master Plan	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
City of Pittsburg, CA	2015 Water System Master Plan	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Soquel Creek Water District, CA	2014 Model Update and Desal Plant Evaluation 2015 Water Quality Analysis	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Newhall County Water District, CA	2016 Newhall Water System Master Plan Updates	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Marina Coast Water District	2018 Master Plans and Capacity Fees for Sewer, Water and Recycled Water	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Town of Hillsborough, CA	2013 Model Development, Calibration, and Evaluation	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*

II. Experience developing cost estimates for water projects

Our firm has assisted City's in the planning-level project cost estimates for water main replacements, tanks, and pump stations

III. Experience in water systems planning, water pipeline design, and water system modeling

Our firm has extensive knowledge in the preparation of water system planning and modeling. As a specialty firm, we have completed water system master plans and hydraulic models throughout the State of California. Our firm has combined for over 50 years of specialized master planning and modeling experience.

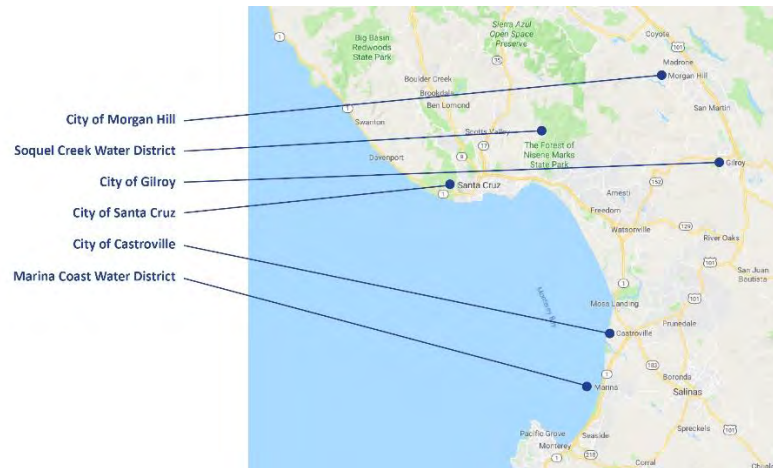
As part of our modeling and master planning experience, we have developed pre-design studies and performed design review for large diameter water mains, pump stations, tanks, and pressure reducing stations. This work may include pipeline connectivity guidance, or specifying valves. Additionally, our firm principal, Tony Akel, has experience in design of large diameter transmission mains and the general design of water distribution mains.

IV. Similar projects with other government agencies

Our firm has completed numerous master plans throughout the State of California.

V. Firm's local experience

Our firm has worked with Soquel Creek Water Agency, the City of Santa Cruz, Marina Coast Water District, Half Moon Bay, Castroville Community Services District, the City of Morgan Hill, and the City of Gilroy.



VI. Procedures and/or policies associated with or related to work quality and cost control

Our approach to QA/QA involves inventorying the typical data involved in a master plan and providing clear tables and figures to aid staff in the review of the model. This includes documentation of physical mapping data versus GIS electronic mapping, as well as interviews with field operations staff to confirm the operational objectives of the system and to document any anecdotal information that may not be available in electronic form.

VII. Management and organizational capabilities

We follow a proven project management technique specific to master planning and developed based on over 25 years of specialty experience. The technique emphasizes effective communication and quick response to address expected and unplanned challenges throughout the duration of the project.

➤ Quality of Deliverables

Tony Akel has built a reputation for delivering high-quality infrastructure studies that meet client's specific needs and standards, and available resources. First, he served as an employee of national firms, and since 2006 as a principal with Akel Engineering Group, Inc. We have also effectively retained national and local firms, as subconsultants, to assist in preliminary design, wastewater treatment plant decommissioning studies, wastewater treatment plant evaluations, flow monitoring, potholing, CCTV of sewer systems, surveying, and other specialties associated with the master planning efforts.

Deliverables will vary based on the type, nature, and scope of the specific project. Typical deliverables may include:

- Project Schedule
- Project base map in AutoCAD and GIS format
- Preliminary and Final Hydraulic Model Studies
- Preliminary Design Report
- Legal descriptions, plats, and easement documents (preliminary title reports, etc.)
- Plans for decommissioning of existing facilities to be abandoned

- Theory of Operation Document.

➤ **Monthly Progress Reports**

We have been praised by our clients on our **monthly progress reports** that detail:

- Project expenditures in the previous period, by task
- Budget Expended versus Budget Remaining, by task.
- Items requiring decision
- Upcoming milestones (submittals, workshops, meetings, etc.)

Project Organization and Experience of the Project Team

- I. Describe proposed project organization, including identification and responsibilities of key personnel, including sub-consultants.



- II. Describe the experience of the Project Manager and the experience that the proposed personnel have working on past projects as a team.

Tony Akel has over 30 years of Master Planning and hydraulic modeling experience, including time spent at large engineering firms, prior to starting his own company. Tony has completed over 300 master plans and many more models in his time as a specialist.

The Akel Team has continued that trend, with Brad Kooiman having over 11 years of specialized master plan and modeling experience, and Kevin Tuttle having over 10 years. This team is experienced modeling, master planning, condition and risk assessments, and isolated planning studies in support of infrastructure design.

III. Describe project management approach to the work effort, locations where work will be done, responsibilities for coordination with the District, and lines of communication necessary to maintain project on schedule.

The San Lorenzo Valley Water District can expect a strong Line of Communication, from our proposed Project Manager and Principal-in-Charge, Tony Akel. Tony will serve as the primary contact for correspondence between District Staff and Akel Engineering Group, Inc. Additional technical staff will be allocated, as needed, to provide quick support to address District needs. *Our goal is to provide high quality products while promoting a flexible teamwork approach to ensure timely responses to City requests.*

➤ **Direct Communication and Teamwork Approach with City staff**

- Plan, coordinate, and manage the Project in order to achieve Project goals within the approved budget and schedule
- Prepare and maintain Project schedule on a regular basis
- Effectively communicate project status via e-mail, written correspondence, phone, and meetings
- Work closely with San Bruno's engineering and public works staff
- Develop Project alternatives and resolution to issues in a timely manner
- Provide direct supervision over work product of staff and subconsultants
- Provide quality control/quality assurance

➤ **Project Workshops and Meetings**

Frequent Teleconference, Web Conferences, Technical memorandums, meetings, and project workshops, are elements of communication to confirm project directions at every milestone, and to receive City staff approval. Documentation of workshops and meetings include: Listing attendees, Brief description of discussions items, Key decisions, Action items log, maintained throughout the project, and dates to complete, and Next milestone/meeting/workshop and tentative dates

Project Team Descriptions

The following section contains brief summaries of our proposed project team which includes our Principal/Project Manager, and our key staff. One-page resumes are included in the Appendix.



Tony Akel, PE, Principal Role: Key Personnel and Project Manager.

Total Years of Experience: 31. Years with Akel: 13.

Tony Akel has over 30 years of professional experience and has effectively served as project manager, project engineer, and lead technical advisor on over 300 water, sewer, or storm system, and recycled water master plans through California. Tony is very effective at managing, developing, and coordinating comprehensive, accurate and defensible water system master plans. These plans include existing system inventories, GIS and mapping, water demand evaluations and forecasting, water supply capacity evaluations, hydraulic model developments and capacity evaluations, condition and risk assessments, rehabilitation and replacement plans, and capital improvement programs. Tony has a proven record of accomplishments in establishing effective working relationships with client staff, subconsultants, and stakeholders and successfully producing concise and quality products that meet the project objectives, based on team consensus.



Kevin Tuttle, PE, Senior Engineer Role: Project Engineer.

Total Years of Experience: 10. Years with Akel: 10.

Kevin Tuttle has over 10 years of specialized experienced, as a hydraulic modeling and risk and condition assessment task manager on a variety of water and sewer system master plans, including the Water/Sewer/Storm Drainage System Master Plans for the City of Morgan Hill, Water System Master Plan for the City of Pittsburg and the Sewer System Master Plans for the City of Madera. Kevin is NASSCO PACP (Pipeline Assessment Certification Program) certified and has completed several criticality and condition assessment projects using Innovyze's InfoMaster software. He is experienced in risk and condition assessment, hydraulic model calibration, resolving GIS data discrepancies, analyzing water system hydraulic performance, and developing hydraulic improvements, and is experienced in a variety of Innovyze's hydraulic and criticality modeling software. Kevin also has extensive experience with water demand evaluations and projections.



Brad Kooiman, PE, Senior Engineer Role: Project QA/QC.

Total Years of Experience: 11. Years with Akel: 11.

Brad Kooiman has over 11 years of specialized experience, as a hydraulic modeling task manager on a variety of water system evaluations and master plans, including ongoing water system master plan for Newhall County Water District, ongoing planning studies for Coachella Valley Water District, and performing hydraulic and water quality analysis for integrating a new 80 mgd water treatment facility for the City of Fresno. He is trained and experienced in using a number of modeling software, including Innovyze's InfoWater, InfoSewer, and InfoMaster. He is experienced in hydraulic model calibration, resolving GIS data discrepancies, analyzing water system hydraulic performance, developing hydraulic improvements and corresponding capital cost estimates.



Scott Orcutt, PE, **Associate Engineer Role: Associate Engineer.**

Total Years of Experience: 5. Years with Akel: 5.

Scott Orcutt will serve as a staff assistant engineer for this project. He has over 5 years of specialized experience, as a hydraulic modeling task assistant on a variety of water evaluations. He is trained and experienced in using a number of hydraulic modeling software, including Innovyze's InfoWater and InfoSWMM. He is experienced in hydraulic model calibration, resolving GIS data discrepancies, and analyzing wastewater system hydraulic performance. Mr. Orcutt also has experience in developing Capital Improvement Program's to conform to AB 1600, and has developed construction triggers to identify timing of improvements.



Parker Klemin, **GIS Analyst Role: GIS Analyst and Mapping Support.**

Total Years of Experience: 7, Years with Akel: 7.

Parker Klemin has over 7 years of specialized GIS experience in performing g analysis and analysis support tasks for a variety of hydraulic model development projects. Experience includes digitizing water and sewer systems using exported CAD data and As-Built files for use in updating hydraulic models. He has geocoded water billing records and digitized planning areas for use in updating the demands or loads in hydraulic models. Mr. Klemin has developed GIS Plat Sheets for water, sewer, and storm drainage systems and is also skilled in generating miscellaneous master planning exhibits.



Steven Hash, **GIS Analyst Role: GIS Analyst and Mapping Support.**

Total Years of Experience: 2. Years with Akel: 2.

Steven Hash has over 2 years of specialized GIS experience in performing analysis and analysis support tasks for a variety of hydraulic model development projects. Experience includes digitizing water and sewer systems using exported CAD data and As-Built files for use in updating hydraulic models. He has digitized planning areas for use in updating the demands or loads in hydraulic models. Mr. Hash has developed GIS Plat Sheets for water, sewer, storm drainage, and irrigation systems, is skilled in generating miscellaneous master planning exhibits, and also has extensive knowledge in creating multi-figure packets using data driven pages.

Project Understanding and Approach

Project Approach

APPROACH	SCOPE OF WORK
Task 1: Project Management	
Our firm provides monthly project status updates, including a schedule and key decisions made throughout the project.	Project Administration Consultant shall create a Project Administration Plan to direct, coordinate, and monitor the activities of the project with respect to budget, schedule, and contractual obligations. Coordination and Meetings Anticipated meetings include: • Project Kick-off meeting with District Staff • Monthly conference calls and/or meetings between the Consultant and District personnel to review project progress, discuss project challenges and findings, and review early study results • Hydraulic model review meeting • Draft Water Master Plan review meeting Quality Assurance and Quality Control Review Consultant shall conduct internal Quality Assurance and Quality Control meetings and follow-up with technical experts as necessary during the course of the project. Comply with Grant Requirements Consultant will facilitate one (1) community workshop located within or near the original DAC designated area on which the grant is based to present the 2019 Water Master Plan. Consultant will coordinate with District to be sure appropriate advertising for the meeting has been provided by the District for both the original and new DAC areas. All public members are welcome to attend the meeting.
Task 2: Data Gathering and Water System Evaluation Criteria	
Part of our initial kick-off meeting will include a matrix of items that are required for the completion of the master plan. This will include SCADA, pump records, as well as GIS information and other items. We will also summarize design and performance criteria and submit for review.	Data Request The selected consultant shall request via a Request for Information (RFI) all data needs from the District necessary for the Water Master Plan and hydraulic model creation. Establish Design and Evaluation Criteria Consultant shall submit criteria to be used in the evaluation of the distribution system and the design of proposed improvements for review and approval. The criteria will be based on the latest governing

	regulatory requirements, general engineering practice, and San Lorenzo Valley Water District development standards.
Task 3: Water System Supply and Demand Forecast	
Our team will develop water demands based on historical billing records, and nexus the demands to their physical locations, as well as to the corresponding production records. This will identify gaps in data, potential leakage, and water demand factors.	Calculate Existing Water Demands Consultant shall determine current system-wide water use based on water production records. Monthly water production records will be provided for Consultant's review and summary. Consultant shall identify the maximum water use for the period of available record and shall develop seasonal water use trends. Consultant shall calculate water usage for average day, maximum day, and peak hour demand conditions. System-wide production for these conditions will be used to adjust customer water demands before they are allocated to the hydraulic model. Consultant shall calculate individual user water demands from water billing data. Water use for individual water users will be calculated for average and maximum day. Consultant shall develop diurnal demand patterns using hourly water production and tank level data that are representative of the maximum day water use patterns for the District. Water System Demand Forecast Consultant shall create future demand projections in five-year increments through year 2040 using current land use, land planning information for the cities and counties within the District's service area and information on proposed developments within the District's service area. Consultant shall integrate temperature and precipitation forecasts into future demand projections. Water System Storage and Supply Consultant shall evaluate the District's storage and supply capacities and compare them to operational and regulatory requirements under existing and future water demand scenarios. Consultant shall identify storage and supply deficiencies and evaluate alternatives to increase District's storage and supply needs to meet future water demand.
Task 4: Hydraulic Model	
Our team is very experienced in hydraulic model development, and will utilize the latest information available to accurately reflect the existing conditions and to plan for future growth.	Develop Hydraulic Model Consultant shall create a hydraulic network model for the District's potable water system using a District provided GIS database. Assign Water Demands Consultant shall assign existing and future spatially allocated average day demand sets using the results from Task 3. Consultant shall also assign peaking factors in the model, including monthly, daily, and hourly peaking factors and diurnal demand patterns.

	Model Calibration Consultant shall prepare a hydrant flow testing plan showing recommended number and locations of proposed hydrants for approval by District. District staff will perform hydrant testing with Consultant oversight and recording of data. District will provide SCADA data during hydrant testing. Consultant shall calibrate the model using hydrant test results and communicate any abnormalities or questionable data to the District. This plan and data collected should be included as an appendix in the final report. Consultant shall use hydrant flow data to calibrate the model under steady state conditions. Consultant shall utilize SCADA data to perform extended period model calibration.
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Task 5: Distribution System Evaluation

Our firm is very experienced in using Innovyze's InfoWater software to evaluate water distribution systems. We will clearly document results of the evaluation on graphics for staff review.	Evaluate Distribution System Capacities Consultant shall run the model under current and future demand sets and evaluate the distribution system capacity and ability to meet the system evaluation criteria established in Task 2. All deficiencies discovered in the distribution systems will be identified. In addition, the Consultant shall run the model under three (3) different existing and future water supply source scenarios and evaluate the distribution system capacity and ability to meet the system evaluation criteria established in Task 2. All deficiencies discovered in the distribution systems will be identified. Consultant shall identify system improvements to allow the system to meet the evaluation criteria, review these with District staff, and make one round of adjustments to reflect input from District staff. As part of this task, a separate technical memorandum should be developed for the DAC area on which the grant is based. This TM must be included as an appendix in the final report. Evaluate Capacity and Determine Sizing for Lyon Pipeline Consultant shall run the model under current and future demand sets and evaluate the correct sizing for the Lyon Pipeline, as described in the USDA Loan Preliminary Engineering Report.
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Task 6: System Condition Assessment

Our team will evaluate the existing assets, and using industry standards, will develop estimates of remaining useful life. This will also include a risk score for each asset based on it's overall criticality to the system.	Evaluate Rehabilitation and Replacement Needs Consultant shall inventory system assets, including water system pipes, storage tanks, pumps, wells, and pressure reducing valves. Consultant shall prepare a set of estimated useful life values for different asset classes and estimate remaining useful life based on installation dates. Consultant shall prepare projected rehabilitation and replacement needs and costs based on remaining useful life values.
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Task 7: Energy Reliability/Efficiency Analysis	
Our team will use Innovyze’s InfoWater to assess the overall power needs for the system based on pumping efficiencies and the system characteristics.	Identify Critical Power Needs
	Consultant shall review existing system energy usage and make recommendations for CIP projects to provide reliable power to critical facilities in event of an extended power outage.
	Evaluate Potential Energy Savings
	Consultant shall review existing system energy usage and make recommendations for CIP projects to improve energy efficiency.
Task 8: Water System Capital Improvement Plan	
Our team will develop an itemized list of improvements, and include the in a capital improvement plan list. Additionally, improvements will be grouped into logical projects, and submitted in project sheets once the CIP has been approved by staff.	20-year Prioritized Capital Improvement Plan
	Consultant shall group identified improvements into projects with planning level cost estimates for each project. Consultant shall develop a 20-year Capital Improvement Plan (CIP) for the water system. The improvement projects will be prioritized in order of importance and suggested dates for construction will be assigned.
Task 9: Water Master Plan Report	
A final master plan will be assembled and submitted to staff for review.	Draft Water Master Plan
	Upon completion of Tasks 1-8, Consultant shall submit 8 printed copies and 1 digital copy in PDF format of a draft Water Master Plan report to the District for review and comment.
	Final Water Master Plan
	Upon District approval of the draft materials, Consultant shall produce final report and submit 12 printed copies and 1 digital copy in PDF format. Consultant shall also provide a final electronic copy of the hydraulic model, exported GIS files from the model for each feature type, and electronic copies of all tables and figures.

Proposed Project Schedule



San Lorenzo Valley Water District 2019 Water Master Plan Project Schedule

Task	Task Description	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20
Task 1	Project Management														
Task 2	Data Gathering and Water System Evaluation Criteria														
Task 3	Water System Supply and Demand Forecast														
Task 4	Hydraulic Model														
Task 5	Distribution System Evaluation														
Task 6	System Condition Assessment														
Task 7	Energy Reliability/Efficiency Analysis														
Task 8	Water System Capital Improvement Plan														
Task 9	Water Master Plan Report														



Past Projects

The following section includes a summary of our firm's past experience. Descriptions of projects include: contact name, phone number, project team members, and project cost and description.

Past Project 1

2010 and 2015 Water System Master Plan

Project Description:

The objective of these master plans was to evaluate the City of Pittsburg's water distribution system, identify and recommend improvements necessary to service the current and future City water demands, and develop a capital improvement program (CIP) for implementing the improvements. These master plans are based on specific development requirements, and included detailed cost responsibilities for water infrastructure.

Project Highlights:

- Update water system planning and design criteria.
- Project future demands through the Urban Growth Boundary based on planned developments (Residential Dwelling Units and Non-Residential acreages).
- Develop and calibrate a hydraulic model to EPS using Innovyze's Infowater and based on the most current GIS data.
- Evaluate the capacity of the water facilities to service existing users.
- Perform storage analysis and fire flow analysis for each pressure zone.
- Recommend improvements necessary to mitigate existing deficiencies and to service future growth.
- Develop a Capital Improvement Program with a short-term, intermediate-term and long-term phasing.
- Perform cost sharing analysis for each recommended project between existing users and future developments.
- Recommend storage site placement criteria.
- Prepare master plan report.

CITY OF PITTSBURG

CONTRACT COST: \$300,000

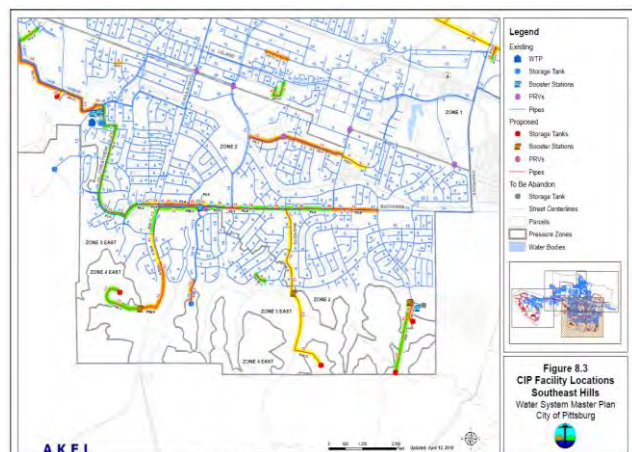
PROJECT DURATION: 2010 – 2015

AKEL TEAM ON THE PROJECT:

Tony Akel (PE), Brad Kooiman (PE),
Kevin Tuttle (PE), Scott Orcutt (EIT),
Parker Klemin (GIS)

CLIENT REFERENCE:

Fritz McKinley, Public Works Director
City of Pittsburg
65 Civic Center Avenue
Pittsburg, CA 94565
(925) 252-4928
FMckinley@ci.pittsburg.ca.us



Past Project 2

2010 Model Development and Bay Street Reservoir Replacement 2012 Regional Desalination Plant Hydraulic Analysis

Project Description:

The objective of these plans was to develop a calibrated hydraulic model, evaluate the in impact of the Bay Street Reservoir replacement, determine the hydraulic impact of a proposed regional desalination plant including transferring water via new interties to Soquel Creek Water District. Also included in these plans is merging the City of Santa Cruz and Soquel Creek Water Districts water models to evaluate the transfer of water between each water system

Project Highlights:

- Model Development: Developed and calibrated a hydraulic model to EPS using Innovyze's Infowater and based on the most current GIS data.
- Storage Replacement Phase 1 sensitivity analysis recommended a size that was appropriate for the short-term service, yet provided reasonable emergency storage coverage for its intended service life.
- Storage Replacement Phase 2 sensitivity analysis recommended a size that was appropriate for the long-range needs of the system and final tank pad elevation.
- Desal Project: Consolidated the City's hydraulic model with the Soquel Creek Water District hydraulic model, and recalibrated both systems.
- Desal Project: Performed sensitivity analysis to optimize the use of the existing system while conveying various production amounts form the proposed desal plant.
- Desal Project: Developed transmission main alternatives from a proposed desalination plant on the west side of the system to mitigate low pressures in the east and potential transfer of water via new interties with Soquel Creek Water District.
- Desal Project: Evaluated various alignments through the City of Santa Cruz and Soquel Creek Water District to deliver desalinated water and prepared a cost benefit analysis for each water agency.
- Identified impacts of adding the new source of water on water age and quality in the existing storage tanks and recommended operation improvements to mitigate high water age.

City of Santa Cruz

CONTRACT COST: \$210,000

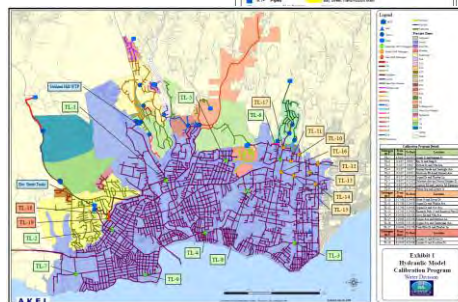
PROJECT DURATION: 2010 – 2016

AKEL TEAM ON THE PROJECT:

Tony Akel (PE), Brad Kooiman (PE),
Kevin Tuttle (PE), Scott Orcutt (EIT),
Parker Klemm (GIS)

CLIENT REFERENCE:

Doug Valby, P.E., Associate Civil
Engineer
City of Santa Cruz
212 Locust Street, Suite C
Santa Cruz, CA 95060
(831) 420-5212
dvalby@cityofsantacruz.com



Past Project 3

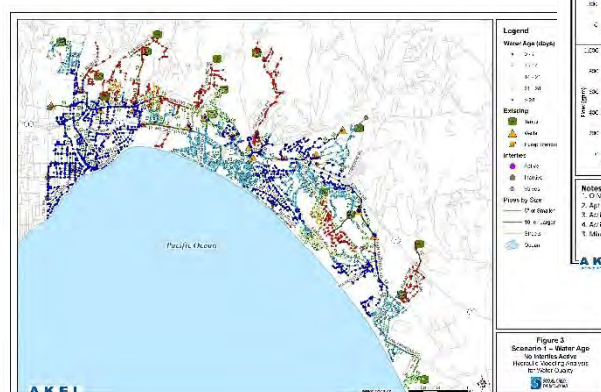
2012 Regional Desalination Plant Hydraulic Analysis 2016 Hydraulic Modeling Analysis for Water Quality

Project Description:

The objective of these plans was to update and calibrate the Soquel Creek Water District Hydraulic Model, merge the City of Santa Cruz hydraulic model with Soquel Creeks Water Model to evaluate the impact of the new City of Santa Cruz interties to the water distribution system and recommend capacity improvements required to transfer water the eastside of the water system. Water quality scenarios were also performed to determine the water age impact these new interties would have and recommend operational changes to mitigate any high water age issues.

Project Highlights:

- Consolidated the City of Santa Cruz's hydraulic model with the Soquel Creek Water District hydraulic model, and recalibrated both systems.
- Updated water system planning and design criteria.
- Performed a hydraulic analysis to determine the amount of water that could be transferred to Soquel Creek Water District from the City of Santa Cruz via 3 new potential interties.
- Evaluated various transmission main alignments through the City of Santa Cruz and Soquel Creek Water District to deliver desalinated water and prepared a cost benefit analysis for each water agency.
- Performed a water age analysis to determine the impact of the new interties and also recommend operation improvements to mitigate areas with high water age concerns.



Soquel Creek Water District

CONTRACT COST: \$55,000

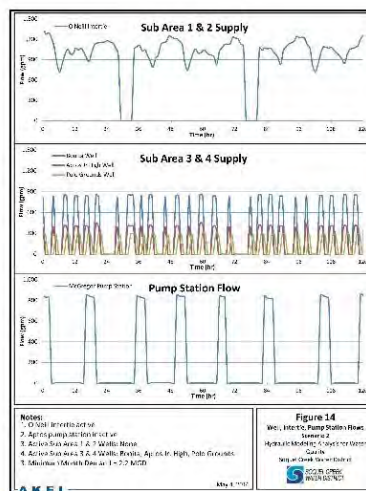
PROJECT DURATION: 2010 – 2016

AKEL TEAM ON THE PROJECT:

Tony Akel (PE), Brad Kooiman (PE), Kevin Tuttle (PE), Scott Orcutt (EIT), Parker Klemin (GIS)

CLIENT REFERENCE:

Taj A. Dufour, P.E., Engineering Manager/Chief Engineer
Soquel Creek Water District
5180 Soquel Dr.
Soquel, CA 95073
(831)475-8500
tajd@soquelcreekwater.org



Proposed Total Professional Fee and Fee Schedules

The proposed fee schedule is included and attached in the separate sealed envelope labeled,
'FEE ESTIMATE – 2019 WMP'

Exceptions to this RFP

Akel Engineering Group, Inc. has **no proposed exceptions, alterations or amendments** to the Scope of Services or other requirements stated in this RFP, including the Consultant Services Agreement.

Appendix

The Appendix includes our Project Team's One-Page resumes.

Tony Akel, P.E.



Contact

7433 N. First Street, Suite 103
Fresno, California 93720
Phone: 559-436-0060
Fax: 559-436-0622
www.akeleng.com

Education

MS Civil Engineering, California State University,
Fresno, 1985
BS Civil Engineering, California State University,
Fresno, 1983

Registration

Professional Civil Engineer:
California License No. C-41682
Washington License No. 46708

Professional Affiliations

American Public Works Association (APWA)

San Joaquin Chapter Secretary 2017-2019
San Joaquin Chapter Director 2016-2017

American Society of Civil Engineers (ASCE)

National Leader Training Committee 2015-2021
California Infrastructure Report Card Co-Chair 2018-2019
National Infrastructure Policy Committee 2015-2018
National Engineers Week Committee 2011-2019
Region 9 (California) Governor 2007-2010
San Francisco Section President 2004
Fresno Branch President 2000, 2001

American Water Works Association (AWWA)

Association of California Water Agencies (ACWA)

Rotary International (RI)

North Fresno

Toastmasters International (TI)

Fresno TLC President 2000
District 33 Area F4 Past Governor 2001

Employment History

2006-Present - Akel Engineering Group, Inc.
1997-2006 - Carollo Engineers
1992-1997 - Montgomery Watson (MWH Americas)
1987-1992 - Boyle Engineering Corporation (AECOM)
1985-1987 - Dimmick Corporation

Experience Summary

Tony Akel has over 30 years of professional experience in providing planning and design services related to the water, sewer, storm, recycled water, and irrigation delivery infrastructure.

Tony is especially effective in developing and maintaining clear project communications that provide quick response to challenges as they surface and result in successful project completions. Prior to starting his own business, he served as the Infrastructure Master Planning Group Manager for a major engineering firm.

Tony has effectively served as project manager, project engineer, and lead technical advisor on over 300 master plans. He is adept in the design of large utility pipelines and has prepared plans, specifications, and engineering estimates for 21,000 linear feet of 90-inch gravity sewer pipes, 10,000 linear feet of 42-inch double barrel force mains, and 22,000 linear feet of up to 30-inch water mains.

A solid computer background includes a proven efficient and analytical use of a variety of computer programs for engineering design applications and mapping, to include: water/wastewater systems analysis, Geographic Information System (GIS), database conversion and management, project scheduling, cost estimating, and other engineering applications.

He has substantial knowledge of state-of-the-art water distribution and wastewater collection hydraulic computer models and has provided on-line technical support on water/wastewater hydraulic computer modeling techniques throughout the continental United States.

Brad Kooiman, P.E



Contact

7433 N First Street, Suite 103
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www.akeleng.com

Education

Bachelor of Science in Civil Engineering
California State University, Fresno 2010

Registration

California License No. C-82658

Employment History

2007 - Akel Engineering Group, Inc.

Professional Affiliations

American Society of Civil Engineers (ASCE)

Experience Summary

Water Distribution

- Current analysis lead for the City of Fresno, California (Population 510,000) hydraulic modeling and consulting services. Part of a team which developed and calibrated an extended period simulation hydraulic model which includes 240 existing wells and 1,800 miles of pipelines. On-going hydraulic modeling support including water quality and optimization analysis of the regional transmission main analysis for a new 80 MGD water treatment facility, including on-going operation concerns.
- Current task manager in Coachella Valley Water District, California (population 260,000). Updated hydraulic model with new developments and analyzed the impacts of these developments using Innovyze InfoWater. Current hydraulic model contains approximately 2,000 miles of pipe, 66 pressure zones, 135 MG of storage, and 100 supply wells.
- Project analysis lead in **Newhall County Water District**, California (population 30,000) hydraulic model and master plan update. The hydraulic model was updated using as-builts provided by the District and converted from a steady-state simulation to an extended period simulation model. The system was then

analyzed for deficiencies and a Master Plan CIP was developed for each build-out year.

- Task manager in developing the **City of Santa Cruz**, California (population 62,000) hydraulic model. Part of a team that sized a new water tank based on current and anticipated water demands. Challenges were resolving discrepancies with the City's GIS and calibrating the system in Innovyze Infowater. Project consisted of updating a 2,000 pipe model into a 12,000 pipe model and calibration. Water system includes 21 pressure zones, 14 tanks, 18 PRVs, 11 booster stations, and two water sources. Used model for developing operational strategies during daily and emergency use.
- Hydraulic modeling task manager in **Palmdale Water District**, California (population 125,000) Initial Distribution System Evaluation (IDSE) for meeting the requirements of IDSE Stage 2 DDBP Rule, using complex modeling analysis for a system with multiple water sources. Resolved convergence in a 20,000-pipe model extracted from GIS to Innovyze Infowater and used for developing improvements and operational strategies. System with 20 storage tanks (50 MG), 14 booster stations, 10 pressure zones, PRVs, surface and groundwater supply sources. Performed a 7-week water age analysis.
- Task manager for **Morgan Hill**, California (population 40,000) 2014 Water Master Plan Update and hydraulic modeling analysis. Tasks include updating and calibrating the hydraulic model, analyzing the impact of the new General Plan, and recommending improvements for the existing system and future expansion.
- Task manager for **Gilroy**, California (population 51,000) 2014 Water Master Plan Update and hydraulic modeling analysis. Tasks include updating and calibrating the hydraulic model, analyzing the impact of the new General Plan, and recommending improvements for the existing system and future expansion.
- Task manager in **City of Pittsburg**, California 2010 Master Plan (population 60,000). Updated and calibrated the hydraulic model. Part of a team that redeveloped the hydraulic model for the City. The hydraulic model was created using Innovyze H₂OMap Water, to include elevations, demands, and then calibrated to the City's field data provided. Overall, the model includes 5 Pressures Zones, 211 Miles of Pipe, and 4 PRV's. Data Analysis includes demands by pressure zone and by developer, as well as a storage analysis for the City-Wide developments by Pressure Zone.

Kevin Tuttle, P.E.



Contact

7433 N First Street, Suite 103
Fresno, California 93720
Phone: 559-436-0600
Fax: 559-436-0622
www.akeleng.com

Education

Civil Engineering Undergraduate, California State University, Fresno 2011

Employment History

2008–Present. Akel Engineering Group, Inc.

Professional Affiliations

American Society of Civil Engineers (ASCE)

Professional Certifications

Professional Engineer (CA) C-85524
NASSCO PACP U-816-07004890

Experience Summary

Integrated Master Planning

- Senior Engineer for the Water, Sewer, and Storm Drainage Master Plans and Urban Water Management Plan of the **City of Morgan Hill**, California (population 42,000). Leads a team that developed land use planning assumptions and customized demand and flow factors for hydraulic modeling of each of the three systems. A long-term capital improvement plan was developed for each system.
- Senior Engineer for the Water, Sewer, Storm Drainage, and Recycled Water Master Plans and Urban Water Management Plan of the **City of Gilroy**, California (population 54,000). Leads a team that developed land use planning assumptions and customized demand and flow factors for hydraulic modeling of each of the three systems. A long-term capital improvement plan was developed for each system.
- Senior Engineer for the Water, Sewer, and Recycled Water Master Plans of the **Marina Coast Water**

District, California (population 35,000). Leads a team that developed land use planning assumptions and customized demand and flow factors for hydraulic modeling of each of the three systems. A long-term capital improvement plan was developed for each system.

- Project Task Lead for the Water, Sewer, and Storm Drainage Master Plans of the **City of Hanford**, California (population 55,000). Leads a team that developed land use planning assumptions and customized demand and flow factors for hydraulic modeling of each of the three systems. A long-term capital improvement plan was developed for each system.
- Project Task Lead for the Water, Sewer, and Storm Drainage Master Plans and Recycled Water Feasibility Study of the **City of Madera**, California (population 61,000). Leads a team that developed land use planning assumptions and customized demand and flow factors for hydraulic modeling of each of the three systems. Also performed a recycled water feasibility study intended to document the potential for a new system offsetting potable water use. A long-term capital improvement plan was developed for each system.

Wastewater Collection

- Senior Engineer for the Sanitation System Collection Master Plan of **Coachella Valley Water District**, California (population 260,000). Leads a team that developed land use planning assumptions and customized flow factors for an “all pipe” hydraulic model. The model is used for the intermediate and long-term planning of the sanitation collection system, and the implementation of a large-scale manifolded force main decommissioning project.
- Project Analysis Lead for the Sanitary Sewer Model of **Coachella Valley Water District**, California (population 260,000). Part of a team that develops and analyzes project scenarios with the use of H₂OMap SWMM, which facilitates in the development of viable statistics in which the Water District is capable of evaluating their sewer system. This project consists of maintaining a 4,000+ pipe model, with 3 WRP’s, and over 20 Lift Stations. User modeling has been developed to calculate different emergency scenarios as well as design flow diversion scenarios.

Scott Orcutt, E.I.T



Contact

7433 N First Street, Suite 103
Fresno, California 93720
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www.akeleng.com

Education

Civil Engineering Undergraduate, California State University, Fresno 2014

Engineer-in-Training, State of California, No. EIT 152604

Employment History

2013–Present. Akel Engineering Group, Inc.

Professional Affiliations

American Society of Civil Engineers (ASCE)

Experience Summary

Wastewater Collection

- Task Assistant in the **Marina Coast Water District** (population 34,300) Sewer System Master Plan. Responsibilities included updating the existing hydraulic model, developing existing flow factors, projecting future system flows, evaluating existing sewer system and recommending improvements to mitigate existing deficiencies and serve future growth, and assisting in report preparation.
- Task Assistant in the **City of Shasta Lake** (population 9,400) Wastewater Master Plan. Responsibilities included reviewing sewer system survey data, developing a sewer system hydraulic model using Innovyze InfoSewer, performing extended period simulation model calibration, and identifying improvements to mitigate existing deficiencies and service future growth.
- Task Assistant in the **City of Hanford** (population 54,600) Sewer System Master Plan. Responsibilities include updating the city sewer flows to match the wastewater treatment plant and reviewing as-builts and survey information for the purpose of updating the hydraulic model. The updated

model is used to evaluate capacity availability for the accommodation of new development.

- Task Assistant in the **City of South San Francisco (E. of 101)** Sewer System Master Plan. This plan was prepared for the City's East of 101 service area and responsibilities include updating the City's sewer system hydraulic model, as-builts and lift station operational information, developing future system sewer flows, and identifying improvements to service future growth.
- Current Task Assistant in the **City of South San Francisco (W. of 101)** (population 65,500) Sewer System Master Plan. Responsibilities include the preparation of a flow monitoring program, development of existing and future sewer system flows, updating the hydraulic model based on new construction and City-wide survey. Additional tasks include identifying improvements to mitigate existing deficiencies and service and future growth.
- Current Task Assistant in the **City of South Soledad** (population 26,000) Sewer System Master Plan. Responsibilities include the preparation of a manhole survey program and flow monitoring program, developing sewer system hydraulic model based on GIS using Innovyze Infosewer, estimating existing and future sewer system flows, updating the hydraulic model based on new construction and City-wide survey. Additional tasks include identifying improvements to mitigate existing deficiencies and service and future growth.
- Task Assistant in the **City of Morgan Hill** (population 45,000) Sewer System Master Plan. Responsibilities included updating the existing hydraulic model, developing existing flow factors, projecting future system flows, evaluating existing sewer system and recommending improvements to mitigate existing deficiencies and serve future growth, and assist in report preparation.
- Task Assistant in the **County of Kern** Sewer System Master Plan. Responsibilities included developing and updating the hydraulic model. The existing system was updated based on recent construction provided by County staff. Future improvements were recommended based on recent planning studies, and capacity availability was analyzed to determine the development triggers for new improvements.

Parker Klemin



Contact

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Education

BA Geography
California State University, Fresno 2011

GIS Certificate of Completion
California State University, Fresno 2010

Employment History

2011-Present – Akel Engineering Group, Inc.
2011 – California State University, Fresno

Experience Summary

Wastewater Collection

- **Moss Landing, CA** – Complete digitization and database development of the sanitation system from As-Built drawings, for use in a pipeline Risk Assessment and GIS based hydraulic model. Created GIS report figures and large exhibits documenting the existing system, pipeline risk assessment, as well as the recommended improvements.
- **Marina Coast Water district, CA** – Created over a dozen figures for the Sewer Master Plan. Reviewed and converted CAD system drawings into Arcgis for import into a GIS based hydraulic model. Created figures and performed spatial analyses to aid in the development of the hydraulic model.
- **City of Shasta Lake, CA** – Created over two dozen figures and large exhibits for the 2016 Master Plan; including, regional location and planning area, system capacity and flow performance, existing collection facilities, flow monitoring program meter locations, future system improvements, and infiltration and structural defects for Condition Assessment. Comparison details between the existing GIS and the

hydraulic model. Created a GIS Topology to ensure data integrity.

- **City of Soledad, CA** – Created figures for the Sanitary Sewer Master Plan; including, existing and future land use, and existing collection system with meter locations for a flow monitoring program.
- **City of Hanford, CA** – Generated figures for the 2017 Master Plan; including, existing system, proposed system improvements, modeled trunks, existing deficiencies, existing and future land use, and regional location maps.
- **City of Santa Barbara, CA** – Updated and generated exhibits for the existing collection system, sewer basins, high inflow and infiltration, flow monitoring program, existing deficiencies, septic areas, 2030 and 2050 flow projections, pipe rehabilitation and replacement, and special studies.
- **City of Morgan Hill, CA** – Generated numerous figures for the 2018 Master Plan, including existing sanitary sewer system, system improvements, flow monitoring, sewer basins, existing and future land use, as well as figures for special studies. Joined sewer demands to parcel data to generate a new point file for hydraulic analysis.
- **City of South San Francisco, CA** – Created figures and large exhibits for the East of Highway 101 Sewer System Master Plan; to include, the regional location, existing collection facilities, collection basins, existing deficiencies during wet and dry weather, and capital improvement program figures.
- Created figures and large exhibits for the ongoing City-Wide Sewer System Master Plan; to include, regional location, existing and future land use, existing collection facilities with meter locations for a flow monitoring program. Performed spatial analyses to aid in the development of the hydraulic model.
- **City of Visalia, CA** - Generated exhibits for the hydraulic analysis of the sanitary sewer system and of the proposed improvements.

Steven Hash



Contact

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Education

BA Geography
California State University, Fresno 2016

GIS Certificate of Completion
California State University, Fresno 2015

Employment History

2016–Present. Akel Engineering Group, Inc.

Experience Summary

Wastewater Collection

- **City of Madera, CA** – Detailed mapping was created to document the system, create an Infrastructure Risk and Condition Assessment figure, and Create dynamic Data Driven map pack for CCTV review.
- **City of Morgan Hill, CA** – Generated numerous figures for the existing Sewer System Condition Risk Assessment along with CCTV review, and figure packs denoting rehabilitation costs for pipes.
- **City of South San Francisco, CA** – Generated numerous figures for the existing Sewer System and for the sewer system manhole survey project.

Water Distribution

- **Coachella Valley Water District, CA** – Generated detailed figures of existing system infrastructure and proposed system improvements. Created exhibits of water system pressure loggers, existing water system supply, and proposed water system supply improvements. Created detailed figures of system pressures, velocities, and head losses, as experienced in various different fire flow scenarios.
- **City of Fresno, CA** – Extensive and thorough review of the existing water system to create map packets showcasing the most optimal set up location for the Neutral Output Discharge Elimination System (NO-

DES) vehicle throughout the city. For each setup location, a dynamic table was generated to show the total length of each flushing sequence.

- **City of Madera, CA** – Extensive review of As-Built drawings, CAD data, field inspections, and other data sources to create a complete and more accurate GIS, for use in an Infrastructure Risk and Condition Assessment. Detailed mapping was created to document the system as well as areas needing verification.
- **City of Morgan Hill, CA** – Generated numerous figures for the water supply assessment along with new annexation areas that are to become part of the city.
- **Santa Clarita Valley Water Agency, CA** – Digitized existing pipes based on thorough review of As-Built. Generated figures to showcase the newly digitized existing pipes.

Irrigation

- **Coachella Valley Water District, CA** – Complete digitization and database development of over 435 miles of pipeline and 1,629 pipe stand and pipe vent structures, from As-Built drawings and AutoCAD plot sheets. Data integrity was verified and aligned to orthographic aerial imagery and GPS data. The database was structured for use a GIS based hydraulic model. Reviewed drawings spanning 68 years in order to establish the most accurate and up to date system. Communicated with the District to locate missing drawings and aid in identifying over 67 miles of abandoned pipeline and 55 miles of new or replacement pipeline. System wide adjustment of system elevations to determine pipe invert elevations for use in the hydraulic model.

SAN LORENZO VALLEY WATER DISTRICT

May 31, 2019



PROPOSAL TO PROVIDE CONSULTING SERVICES FOR THE 2019 WATER MASTER PLAN



MR. DARREN LANGFIELD

Engineering Manager
San Lorenzo Valley Water District
13060 Highway 9
Boulder Creek, CA 95006

PROPOSAL FOR THE

2019 Water Master Plan

WATER SYSTEMS CONSULTING, INC.

111 North Market Street
San Jose, CA 95113

Business Phone and E-Fax:
(408) 785-6419

DEAR MR. LANGFIELD,

Water Systems Consulting, Inc. (WSC) is pleased to present this proposal to provide consulting services to the San Lorenzo Valley Water District (District) for the 2019 Water Master Plan. This procurement provides an exciting opportunity for the District to develop its first hydraulic model and system-wide master plan which will have long-term benefits for the reliability and resiliency of its water system and water supply.

WSC has worked with the District since 2013 and we have continued to provide responsive, thoughtful engineering and project management services since. Our proposed Project Manager, Kirsten Plonka, has worked out of the District office for the past two years and has built strong relationships with staff, and a thorough understanding of the District's unique conditions and constraints.

Ms. Plonka is an experienced master planner who will be able to draw upon her knowledge of the District to minimize the unnecessary impacts on District staff and deliver a well thought out and useful Water Master Plan to guide the development of vital water system improvement projects. Based on our understanding of the District and its needs, our approach is tailored around five key opportunities:

- **Justifiable and prioritized master plan will support future decision-making and rates.** WSC will develop a Water Master Plan that provides the "why" necessary to justifying capital improvement projects and rate setting. Projects in the recently annexed areas must be balanced with projects that benefit the remainder of the District. Careful prioritization based on defensible metrics will give District staff a clear path for which projects to start first.
- **Prioritized review of U.S. Department of Agriculture (USDA) program projects will assure the District of building optimally sized pipelines.** Before a project goes to design, it is important to verify accurate pipe sizing for both existing and future needs to have confidence that a pipe is the right size to meet multiple operational scenarios. WSC will prioritize the sizing of the Lyon pipeline, and the District's four other USDA-funded pipelines, to fit the District's program timelines.
- **Analyzing future water supply and storage scenarios will identify ways to improve operational efficiency.** The District has potential for supply changes with the upcoming Santa Margarita Groundwater Sustainability Plan and a planned Conjunctive Use project. In addition, multiple tanks are currently under construction and the up-sizing and possible relocation of Swim Tank will increase storage. Documenting how these scenarios will affect the District's infrastructure and conveyance needs is an important step to increase operational efficiency.
- **Strategic up-sizing of small pipelines will meet fire flow requirements.** Fire protection is critical in the Santa Cruz Mountains. The District has many 2-to 6-inch lines that likely do not provide adequate fire flow. WSC understands that some of these pipelines are in sensitive environmental habitat and should be relocated to existing right-of-way for ease of future maintenance. A strategic replacement program for these pipelines is critical for meeting current and future fire flow requirements.
- **Capturing legacy information in the hydraulic model and master plan will preserve operational knowledge when staff members retire.** WSC understands the importance long-term employees play in the operations of a District's water system. The District is faced with the prospect of retirement of some key employees, and it is not alone. Industry organizations recognize this industry-wide trend and are promoting

MR. DARREN LANGFIELD

Engineering Manager
San Lorenzo Valley Water District
13060 Highway 9
Boulder Creek, CA 95006

PROPOSAL FOR THE

2019 Water Master Plan

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CONSULTING, INC.**

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effective transition processes. WSC will make knowledge capture a priority in this master planning process. We will very quickly download available information, incorporate it into the hydraulic model and work with staff to discuss what is accurate or inaccurate in District records. We will do all we can to capture their knowledge and transfer it into our work products and the datasets that we prepare for the District.

WSC takes no exceptions with the RFP and is in substantial agreement with the terms and conditions contained in the Consultant Services Agreement. WSC is currently under contract with the District and we are confident we can efficiently come to a mutual agreement on the provided terms. WSC is committed to working with the District consistent with our ongoing commitments and long-term partnership.

If you have any questions on any aspect of this proposal, please feel free to contact WSC's proposed Project Manager, Ms. Kirsten Plonka, at (858) 397-2617, ext. 304 (kplonka@wsc-inc.com) or WSC's proposed Principal in Charge, Mr. Dylan Wade, at (805) 457-8833, ext. 111 (dwade@wsc-inc.com). Thank you again for your consideration, and we look forward to your response.


.....
KIRSTEN PLONKA, PE
PROJECT MANAGER


.....
DYLAN WADE, PE
PRINCIPAL IN CHARGE

WSC IS YOUR PREMIER WATER MASTER PLAN CONSULTING FIRM

WSC is a full service civil and environmental engineering consulting firm that specializes in innovative water master planning solutions, relationship building, and bringing value to our clients.

WSC serves clients throughout California and Oregon from nine offices, including our local office in San Jose. Our expert staff includes more than 50 skilled engineers, planners, hydrogeologists, operators, construction managers, and strategic communications professionals.

Our professional areas of expertise include water system master planning, hydraulic modeling, capital improvement planning, asset management, workshop facilitation, system optimization, and more. This expertise allows WSC to approach the District's 2019 Water Master Plan project from a holistic perspective that will result in a clear and defensible plan to address predicted needs for its water distribution system and water supply system.

WSC's proposed Project Manager, Kirsten Plonka has experience working out of the District's office which means we will be efficient with your time while maximizing the benefit of the master plan. She is supported by WSC's Principal in Charge, Dylan Wade, and quality control/quality assurance (QA/QC) engineer, Jeroen Olthof. Dylan has worked alongside Kirsten to provide responsive service to the District for the past two years, and Jeroen is a nationally recognized hydraulic modeling and asset management expert.

Through our work with the District, WSC understands the nuances of its GIS and water distribution systems, and the local environment and politics. Together, Kirsten and her team will work collaboratively with District staff to deliver a Water Master Plan that accurately describes a defensible plan to guide the development of system improvement projects.



GET TO KNOW US:

- WSC has worked on **16** Master Plans and more than **40** UWMPs in the past decade.
- WSC has an expert staff of **more than 50** skilled employees.
- WSC has **supported the District since 2013** in a variety of capacities.
- We have **nine offices** serving clients throughout the West Coast.
- WSC has been recognized as a **Best Place to Work** three consecutive years by Inc. Magazine.
- **Expect WSC:** Personalized Service. Sustainable Solutions. Exceptional Value.

FIRM'S EXPERIENCE



WSC has worked with the District since 2013, including developing the 2015 Urban Water Management Plan Update, and we have provided staff extension services to the District for the past two years. WSC's proposed Project Manager, Kirsten Plonka, has spent considerable time working out of the District's office and coordinating closely with District staff.

Through this experience, Kirsten and her team have valuable insight into the unique conditions and constraints that the District faces. WSC's experienced master planning team will leverage that local knowledge in the development of the 2019 Water Master Plan.

Our team includes hydraulic modeling experts who have built, calibrated, and updated hydraulic models during master planning efforts to identify hydraulic deficiencies. The hydraulic model is a useful tool that will help the District in its system planning and will guide the identification and development of system improvement projects.

WSC IS A TRUSTED PARTNER

WSC has worked closely with the District to support its staff, respond to emergency repairs, and acquire funding. We are committed to continuing to help the District improve the reliability of its water system and water supply.

WSC HAS A PLAN TO ADDRESS SYSTEM DEFICIENCIES

WSC will help find appropriate solutions at the right cost. To achieve this, WSC will model the water system and evaluate aging infrastructure to identify potential vulnerable areas throughout the system.

WSC'S KNOWLEDGE ABOUT THE DISTRICT'S SYSTEM REDUCES IMPACT ON DISTRICT STAFF

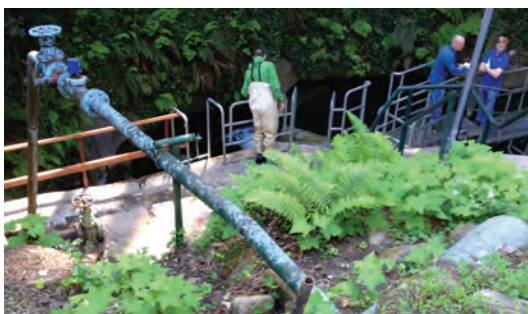
WSC's team is staffed with a project manager and engineers who are familiar with the District's system, staff, water supply, and constraints. This knowledge will maximize the benefit of the master plan while being efficient with District staff's time.

WSC USES RIGOROUS QA/QC PROCEDURES TO DELIVER HIGH-QUALITY WORK PRODUCTS

Quality must be planned in, not inspected in. WSC uses a combination of working technical sessions, and technical, formatting, and readability reviews throughout the process. Reviews include high-level working sessions focused on overall strategy and identification of innovative approaches, and detailed reviews of calculations, drawings, and technical writing to avoid errors.

WSC'S SYSTEMATIC APPROACH TO PROJECT MANAGEMENT DRIVES SUCCESS

WSC uses an integrated project management and accounting system, Ajera, to manage project progress and budget in real time. We use earned value management to identify discrepancies between planned and actual progress, allowing corrective measures to be implemented early to prevent cost overruns and schedule delays.



"WSC expertly prepared our Master Plans. I have been extremely impressed with their high level of competency and ability to work effectively and interactively with staff. WSC's assessment and modeling of our systems has been exemplary. I really enjoy working with staff at WSC, I know I will always get a prompt, insightful, and trustworthy response."

Ms. Teresa McClish, Community Development Director, City of Arroyo Grande

WE ARE WATER MASTER PLANNING EXPERTS

WSC brings considerable experience developing and completing Water Master Plans for local water utilities and will leverage that experience by efficiently integrating past work into future projects. Our approaches typically revolve around four primary objectives: creating a plan to reflect the unique aspects of the client and their long-term goals; optimize the use of water, energy, human, and financial resources; communicate the benefits of the plan to both internal and external customers; and deliver on expectations that are clearly understood and endorsed by all stakeholders.

RECENT WATER MASTER PLANS

Client	Status	Supply & Demand Forecast	Hydraulic Model	Capacity Evaluation	Condition Assessment	Energy Analysis	Capital Improvement Plan
Oak Lodge Water Services District	Ongoing	X	X	X		X	X
California American Water Monterey District	Draft Submitted	X	X	X	X	X	X
City of Victorville	Draft Submitted	X	X	X	X	X	X
City of Pismo Beach	Final Draft Submitted	X	X	X	X	X	X
Big Bear City Community Services District	Completed	X	X	X	X		X
Casitas Municipal Water District	Completed	X	X	X	X		X
City of Paso Robles	Completed	X	X	X			X
City of Arroyo Grande	Completed	X	X	X		X	X
City of Santa Maria	Completed	X	X	X	X		X

FIRM'S LOCAL EXPERIENCE

URBAN WATER MANAGEMENT PLAN & AS-NEEDED ENGINEERING SERVICES

SAN LORENZO VALLEY WATER DISTRICT, BOULDER CREEK, CA



WSC began working with the District in 2013 on the Fall Creek Fish Ladder Restoration Project and later developed its 2015 UWMP Update. That project gave our staff insight into your unique water supply and demand needs.

About two years ago, WSC began providing the District with as-needed engineering services which includes planning, design, and funding support. WSC supports the District in identifying funding sources, meeting requirements, and completing application packages to acquire funding from the USDA for a variety of projects, including a USDA funded pipeline project. Our familiarity with the District's staff and standards from these collaborative efforts enables us to efficiently deliver a wide range of projects. Some of the projects our team has supported the District on are:

- Bear Creek Estates Wastewater Treatment Facility Rehabilitation Project Management
- Bear Creek Road Water Pipeline
- Highway 9 Viaduct Water Pipeline
- Trout Farm Inn Fire Service
- Lompico Pressure Reducing Valves Replacement Project
- Lyon Tank Road Landslide Repair Project Project Management
- Fall Creek Fish Ladder Restoration and Debris Removal Projects
- 2015 Urban Water Management Plan

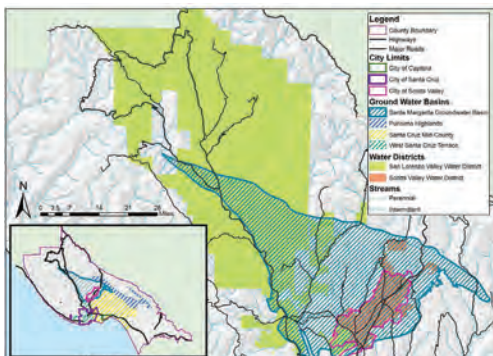
Key Staff:

Kirsten Plonka, Dylan Wade,
Spencer Waterman



GROUNDWATER SUSTAINABILITY PLAN

SANTA MARGARITA GROUNDWATER AGENCY, SANTA CRUZ COUNTY, CA



WSC is on the team developing the Santa Margarita Groundwater Basin (SMGB) Groundwater Sustainability Plan. WSC's role on the team is to work with stakeholders to identify projects and management actions to achieve sustainability for the SMGB. WSC is providing groundwater modeling, cost-benefit analysis, stakeholder outreach, and project and management services for the Santa Margarita Groundwater Agency. The District is a member agency of the Agency and, through our role on the GSP, we will be able to bring unique insight to the water supply portion of the Water Master Plan.

Key Staff: Kirsten Plonka, Spencer Waterman

MEET THE WSC TEAM



WSC's team is functionally organized to take advantage of the strengths of our expert staff within a streamlined structure to provide a high level of responsiveness and quality.

WSC's proposed Project Manager, Kirsten Plonka, has experience directly working with your staff and will serve as the primary point of contact for this project. Kirsten has more than 15 years of experience in water system planning and her extensive experience in the public sector allows her to approach this project from an owner's perspective.

She will be supported by a highly qualified team which includes WSC Vice President and Principal in Charge, Dylan Wade, who has served in a similar role on multiple projects for the District. WSC's proposed QA/QC engineer, Jeroen Olthof, is a nationally recognized expert in hydraulic modeling and master planning whose expertise includes the optimization of capital improvements and operational changes.

Together, they will lead WSC's comprehensive team that includes the key staff listed in the organizational chart below. WSC confirms the availability and commitment of the key staff assigned to this project.



PRINCIPAL IN CHARGE

Dylan Wade, PE, CCM



PROJECT MANAGER

Kirsten Plonka, PE



QA/QC

Jeroen Olthof, PE, MS, MBA



DEPTH OF RESOURCES

Cost Estimating

Joshua Reynolds, PE, MS

Hydraulic Modeling

Heather Freed, PE, MS

Supply and Demand

Spencer Waterman

Energy Analysis

Lianne Westberg, PE, MS, CEM

Communications Specialist

Holly Tichenor

MEET THE WSC TEAM



KIRSTEN PLONKA, PE

PROJECT MANAGER | Ms. Plonka brings more than 15 years of experience in the planning, design, and management of water, wastewater and recycled water systems. She specializes in master planning, including Capital Improvement Plans and budgeting, in addition to project management, hydraulic modeling, feasibility studies, and infrastructure and water resource planning studies.

EDUCATION

BS, Civil Engineering, California Polytechnic State University, San Luis Obispo

REGISTRATIONS/CERTIFICATES

PE - Civil, CA #70746

PROJECT EXPERIENCE:

- **On Call As-Needed Services, San Lorenzo Valley Water District, Boulder Creek, CA. Project Manager.** Works in the District office weekly to lead projects. Work includes writing RFP's, helping with consultant selections, reviewing plans and specs, facilitating environmental compliance, and providing construction management services, among other duties.
- **USDA Funding Support, San Lorenzo Valley Water District, Boulder Creek, CA. Program Manager.** Successfully secured \$9 million in low-interest loans for the District. Determined eligible projects, wrote a Preliminary Engineering Report (PER), created detailed project descriptions, developed cost estimates, coordinated environmental requirements for NEPA and CEQA, and completed the application package for the USDA Loan Program.
- **Comprehensive Planning Study, California American Water, Monterey District, CA. Project Engineer.** Developed a hydraulic model of more than 600 miles of pipeline and 50 pressure zones and developed a prioritized CIP.
- **Water Master Plan Update, Oak Lodge Water Services District, Oak Grove, OR. Project Engineer.** The update includes development of an asset database to capture and track condition data for individual assets within the water system. The final update will include a CIP.
- **Water Master Plan Update, Big Bear City Community Services District, Big Bear City, CA. Project Manager.** Developed a comprehensive CIP that will be used to set annual budgets, establish rates and fees, prioritize improvements, and prepare for future customer needs.



DYLAN WADE, PE, CCM

PRINCIPAL IN CHARGE | Mr. Wade is a professional engineer with more than 20 years of experience leading water infrastructure projects. His extensive experience as a public utility manager enables him to solve problems from an owner's perspective, and he is familiar with local conditions through his prior work with the District.

EDUCATION

BS, Civil and Environmental Engineering, Brigham Young University, Provo, UT

REGISTRATION/CERTIFICATES

PE - Civil, CA #64044

PROJECT EXPERIENCE:

- **As-Needed Engineering Services, San Lorenzo Valley Water District, Boulder Creek, CA. Principal in Charge.** Provided support for WSC's project manager on multiple water infrastructure projects.
- **USDA Funding Support, San Lorenzo Valley Water District, Boulder Creek, CA. QA/QC.** Supported the development of the PER and application package that successfully secured \$9 million in USDA low-interest loans for the District.
- **Fall Creek Fish Ladder Project, San Lorenzo Valley Water District, Boulder Creek, CA. Project Manager.** Designed the intake pump system for the Fall Creek Intake Facility.



JEROEN OLT Hof, PE, MS, MBA

QA/QC | Mr. Olthof brings 25 years of experience in planning, design, and management of water systems. He specializes in master planning, hydraulic modeling, and condition assessments. His experience includes database development and integration of GIS with hydraulic models, customer databases, and asset databases.

PROJECT EXPERIENCE:

- **Comprehensive Planning Study, California American Water, Monterey District, CA. Project Manager.** Developed, calibrated and used a hydraulic model to support the condition and capacity evaluation as part of the master planning process.
- **Water Master Plan Update, Oak Lodge Water Services District, Oak Grove, OR. QA/QC.** Supported the development of a new model from the District's GIS database, hydrant testing, and calibration of the completed model prior to using the model to identify and evaluate system improvements.
- **Water Master Plan and Capital Improvement Plan, Casitas Municipal Water District, Ojai, CA. QA/QC.** Supported the development, calibration and use of the hydraulic model to support the condition and capacity evaluation as part of a new Water Master Plan.

EDUCATION

MBA, University of Southern California
MS, Civil Engineering, University of Washington
BS, Civil Engineering, University of Colorado Boulder

REGISTRATIONS/CERTIFICATES

PE - Civil, CA #58597



HEATHER FREED, PE, MS

HYDRAULIC MODELING | Ms. Freed is a professional engineer with experience in water and wastewater treatment and distribution systems. She has experience evaluating various hydraulic measures including headloss through pipes, hydraulic jumps, and groundwater pumping.

PROJECT EXPERIENCE:

- **Water Master Plan Update, Oak Lodge Water Services District, Oak Grove, OR. Staff Engineer.** Preparing a Master Plan Update which will consider future water service commitments and build-out, including both area-specific water quality needs and system operations and maintenance priorities.
- **Ojai System Condition-Based Assessment and Water Master Plan, Casitas Municipal Water District, Ojai, CA. Staff Engineer.** Tasks include developing opinions of probable cost for recommended projects and developing, calibrating, and utilizing a hydraulic model of the system in conjunction with GIS datasets to improve system operations and CIP development.
- **2017 Water Master Plan Update, Big Bear City Community Services District, Big Bear City, CA. Staff Engineer.** Preparing a detailed analysis of the District's infrastructure to prepare a Master Plan which includes a comprehensive CIP.

EDUCATION

MS, Civil and Environmental Engineering, Cal Poly, San Luis Obispo
BS, Environmental Engineering, Cal Poly, San Luis Obispo

REGISTRATION/CERTIFICATES

PE - Civil, CA #89406



JOSHUA REYNOLDS, PE, MS

COST ESTIMATING | Mr. Reynolds has 18 years of experience in water master planning, pipeline design, hydraulic analysis, and pump station design and analysis. His experience allows him to identify and analyze initial project concepts, and see the project through to completion.

PROJECT EXPERIENCE:

- **Water Master Plan Update, City of Pismo Beach, Pismo Beach, CA. Project Manager.** Developed condition based-replacement plans for infrastructure and an updated CIP list to prepare for budget planning.
- **Water Master Plan Update, City of Paso Robles, CA. Project Manager.** Conducted a condition and capacity evaluation of the existing infrastructure and developed a CIP based on the results.
- **Water District Master Plan Update, Victorville Water District, Victorville, CA. QA/QC.** Work includes updates to existing hydraulic model, identifying system improvements, a CIP, and developing a Rehabilitation and Replacement Plan.

EDUCATION

MS, Civil and Environmental Engineering, California Polytechnic University, San Luis Obispo, CA
BS, Civil Engineering, California Polytechnic University, San Luis Obispo, CA

REGISTRATION/CERTIFICATES

PE - Civil, CA # 65400



SPENCER WATERMAN

SUPPLY AND DEMAND | Mr. Waterman is a planner with experience developing water master plans, grant funding applications, water use efficiency and conservation services, and state water law compliance documents including Urban Water Management Plans.

PROJECT EXPERIENCE:

- **2015 UWMP, San Lorenzo Valley Water District, Boulder Creek, CA. Program Manager.** Collaborated with District staff to prepare and complete the 2015 UWMP.
- **Comprehensive Planning Study, California American Water, Monterey County, CA. Staff Planner.** Developed customer and demand projections; assessed adequacy of supplies, treatment, and distribution system facilities; and evaluated alternatives for developing additional supplies.
- **Water Master Plan, Casitas Municipal Water District, Ojai, CA. Staff Planner.** Conducted a supply and demand analysis which included data gathering and updating GIS shapefiles.

EDUCATION

BS, City & Regional Planning, California Polytechnic State University, San Luis Obispo

REGISTRATION/CERTIFICATES

AWWA, California-Nevada Section, Water Use Efficiency Practitioner Grade 1, Certificate #1714

LIANNE WESTBERG,
PE, CEM, MS

ENERGY ANALYSIS | Ms. Westberg is a mechanical engineer and Certified Energy Manager with more than 11 years experience including program and project management, water systems planning, life-cycle cost analysis and funding support, energy efficiency analysis and optimization, and renewable energy planning.

PROJECT EXPERIENCE:

- **Water System Master Plan, City of Arroyo Grande, Arroyo Grande, CA. Staff Engineer.** Work included a condition assessment of the water distribution system, an energy usage evaluation, and a prioritized risk-based CIP.
- **Utility Master Plan Update, City of Santa Maria, Santa Maria, CA. Project Engineer.** Conducted a supply capacity and storage analysis and prepared a 5-year and 10-year CIP.
- **System Energy Plan, Heritage Ranch Community Services District, Heritage Ranch, CA. Project Engineer.** Assessed energy efficiency, optimization, and funding alternatives for the water system.

EDUCATION

MS, Civil and Environmental Engineering, Stanford University

BS, Mechanical Engineering, California Polytechnic State University, San Luis Obispo

REGISTRATION/CERTIFICATES

PE, Mechanical, CA #35941

Certified Energy Manager, #21981



HOLLY TICHENOR

COMMUNICATIONS SUPPORT | Ms. Tichenor is WSC's Strategic Communications Director and has more than 22 years of strategic planning and communications experience in the water industry. She focuses on the value of effective water communications and is an advocate, creator, and supporter of branding and messaging that advance programs, projects, organizations, and initiatives.

PROJECT EXPERIENCE:

- **Chino Basin Program, Inland Empire Utilities Agency, Ontario, CA. Project Manager of Strategic Communications.** Leading strategic communications support over the next two years for this unprecedented regional water treatment, storage and recharge program.
- **On-Call Strategic Communications, San Elijo Joint Powers Authority, Cardiff by the Sea, CA. Project Manager.** Providing on-call communications and outreach support to SEJPA, a progressive wastewater and recycled water provider that serves multiple coastal communities.
- **City of San Luis Obispo, Utilities Department Strategic Plan, San Luis Obispo, CA. Strategic Planning Facilitator.** Led a strategic planning workshop with Department managers and guided development of a working framework to achieve performance goals and measure results.

EDUCATION

BA, Journalism, University of Texas at Austin



PROJECT UNDERSTANDING AND APPROACH

PROJECT UNDERSTANDING

The San Lorenzo Valley Water District (District) provides water to a service area that includes multiple communities including the unincorporated communities of Felton, Boulder Creek, Brookdale, Ben Lomond, Manana Woods, and a portion of Scotts Valley. The District has recently updated their GIS system and has been proactive about moving forward with their Capital Improvement Plan (CIP). Other factors supporting a Master Plan include:

- The District recently acquired neighboring water agencies, which has created new CIP considerations. A well thought out master plan can help tell the story to the District's diverse customer base about why and when investments are made.
- New Design and Construction standards currently under consideration may change the assumptions that were made in previous CIPs.
- Like that of all water agencies, the District's infrastructure has continued to age, and the District needs to plan for future investments to rehabilitate and replace infrastructure as it reaches the end of its useful life.
- The District has obtained approximately \$75,000 to help fund the Water Master Plan as part of the Prop. 1 Integrated Regional Water Management program, which requires the Master Plan to be completed by the end of summer 2020.

This set of challenges requires an updated Master Plan to provide a complete evaluation of the water system based on current conditions and produce a comprehensive list of improvements needed to maintain a safe and reliable water system into the future.

KEY OPPORTUNITIES

Through our partnership and previous work with the District, we have identified several key opportunities that we believe will maximize the value of the Master Plan towards furthering the District's business objectives.

Prioritize Projects to Meet Community Needs and Expectations

As the District recently annexed neighboring agencies such as the Lompico County Water District, there are competing priorities for which CIP projects are completed first. Projects in Lompico must be balanced with projects that benefit the remainder of the District. Careful prioritization will give District staff a clear path for which projects to start first. The Water Master Plan will provide the "why" necessary in justifying capital improvement projects and rate setting.

Accurate Sizing of Key Pipelines for USDA projects

Lyon pipeline is a key asset for the District to move water throughout the North/South system. Verification of accurate pipe sizing for both existing and future needs before it goes to design is vital for the District to have confidence that pipe is neither too large or too small to meet multiple operational scenarios. WSC will prioritize the sizing of this and the District's four other USDA funded pipelines to ensure they are right-sized for the District's needs by November 2019 so that the District can begin design with confidence.

Analyze Future Water Supply and Storage Scenarios

The District has the potential for supply changes with the upcoming Santa Margarita Groundwater Sustainability Plan and a planned Conjunctive Use project. In addition, multiple tanks currently under construction and the upsizing and possible relocation of Swim Tank will increase storage. Documenting how these scenarios will affect the District's infrastructure and conveyance needs is an important step to operational efficiency.

Upsizing Small Pipelines to Meet Fire Flow Requirements

Fire protection is critical in the rugged terrain and limited access found in the Santa Cruz Mountains. The District has many 2-to 6-inch lines that likely do not provide adequate fire flow. WSC understands that some pipelines in sensitive environmental habitat need to be relocated to existing right-of-way. A strategic replacement program for these pipelines is critical for the future.

Capture Legacy Information

WSC understands the importance long term employees play in the operations of a District's water system. The District is faced with the looming prospect of retirement of one or more of these key employees in the near future. AWWA and ASCE recognize this industry-wide trend and have held well-attended discussions at conferences in an attempt to promote an effective transition process. WSC will make this the first step in this master planning process. We will very quickly download available information, incorporate it into the hydraulic model, and sit down with staff to discuss what is accurate or inaccurate in District records. We will do all we can to capture their knowledge and transfer it into our work products and the datasets that we prepare for the District.

WSC has been a significant partner to the District by guiding the development of much of the data needed for the 2019 Water Master Plan. Our approach, outlined below, will incorporate that knowledge and District-specific expertise to streamline a comprehensive planning document and a dynamic hydraulic modeling tool.

TASK 1 – PROJECT MANAGEMENT

KEY STAFF – KIRSTEN PLONKA, JEROEN OLT Hof, DYLAN WADE: DURATION – 12 MONTHS

Work Products: Project Administration Plan (updated monthly), decision logs, meeting agendas and minutes.

Required Input from District: Monthly check-in calls with District Project Manager, scheduling for meetings.

Summary of Work: Following the Notice to Proceed, WSC will prepare a Project Administration Plan (PAP) template including a project schedule, a work breakdown structure with budgets for each task and subtask, a data request register, and a decision log. A draft version will be submitted prior to the project kickoff meeting, where any comments on the template will be discussed and resolved. The kickoff meeting will be used to establish key success factors. The PAP will be updated monthly and provided to the District Project Manager ahead of a monthly check-in meeting. QA/QC reviews will be conducted by experienced WSC staff on all work products throughout the duration of the project.

Unique Approach: WSC has developed several unique approaches that have been proven to be successful in achieving client key success factors within the contractual budget and schedule:

- **Monthly Meetings With Documentation Avoid Miscommunications.** WSC has developed a monthly report template that effectively serves as the PAP. The two-page report summarizes all outstanding action items (including data requests), spending and estimates to complete each task and subtask, a summary of work completed in the previous month and of work to come in the next month, and an agenda of discussion items. A draft report is provided ahead of each monthly meeting to serve as an agenda, and any updates or key decisions are documented immediately afterwards in a final report. A living decision log, and updated schedule will be attached to the PAP report. Kirsten Plonka used this approach to successfully manage the Big Bear Community Services District Water Master Plan, and the project was completed under the original budget.
- **Continuous Quality Control Engages the Right Reviews at the Right Times.** WSC's QA/QC lead, Jeroen Olthof, is an experienced water master planner who will oversee a combination of working technical sessions, modeling checks, technical editing, formatting, and readability reviews to engage different levels of review throughout the process. Reviews include high-level working sessions focused on overall strategy and identification of innovative approaches, and detailed reviews are conducted on calculations, drawings, cost estimating, and technical writing to avoid errors.
- **Strategic Communication with Public including Disadvantaged Community (DAC) Areas.** WSC's Strategic Communication Director, Holly Tichenor, is an industry leader in public communication for California water agencies, including the Central Coast Blue and Chino Basin projects. She will work with the team to plan and create an engaging public presentation to meet the DAC grant funding requirements as well as inform the community about the Water Master Plan. WSC helped the District to revise the grant language, so we know what's expected by IRWM and want to continue to be a partner in fulfilling those requirements.

TASK 2 – DATA GATHERING

KEY STAFF – KIRSTEN PLONKA, HEATHER FREED: DURATION – 2 MONTHS

Work Products: Data request log, kickoff meeting agenda and minutes, and design and evaluation criteria.

Required Input from District: Assistance in gathering and providing data.

Summary of Work: In parallel with the development of the PAP template, as described in Task 1, WSC will prepare a preliminary data request for review and discussion at a kickoff meeting with District staff. Interviews with District employees will be conducted to identify operational status, settings, and any known deficiencies in the system.

Unique Approach:

- **Focused Data Gathering:** WSC has already worked with the District's GIS staff to identify the data required to create an accurate

hydraulic model. This early review of the GIS mapping indicates that there may need to be some assumptions made as to pipe age and material. WSC is familiar with the District's system and can help to identify critical data that needs to be field verified and assumptions that will not affect the final results. This will be efficient with District staff time during data collection. WSC is aware that the GIS data will need connectivity updates and has allowed time and budget to resolve these issues.

- **Establish Evaluation Criteria:** Since the District does not have a previous master plan with established design and evaluation criteria, WSC can use its knowledge of the District to provide a recommendation tailored to the District's needs that meets all regulatory requirements and generally accepted engineering practice while incorporating the District's new design and construction standards.
- **Capture Staff Knowledge:** Nobody knows your system like you do. District managers and operators have the best knowledge of the current condition of the various water system facilities and specific problem areas that should be prioritized to minimize service interruptions and costly repairs. Some of this knowledge may not be well documented, so it is critical to actively engage key operators in the master planning process through workshops, interviews, and review of draft recommendations. Leveraging their experience and knowledge of the water system will contribute to the development of a valuable and realistic CIP. WSC has an established relationship with District staff making this a seamless part of the water master plan process.



WSC will actively engage key staff in the master planning process through workshops, interviews, and review of draft recommendations. Leveraging their experience and knowledge of the water system will ensure the development of a valuable and realistic CIP.

TASK 3 – WATER SYSTEM SUPPLY AND DEMAND FORECAST

KEY STAFF – KIRSTEN PLONKA, SPENCER WATERMAN: DURATION – 2 MONTHS

Work Products: Existing water system demands, future water system demand forecast, and supply and storage system evaluation.

Required Input from District: Review of recommendations and discussion.

Summary of Work: Using the information gathered in Task 2, WSC will characterize system-wide water production rates from the flow meters and tank levels at District facilities. Individual water meter billing data will be used to characterize existing water demands and seasonal trends. Data will be analyzed to develop system-wide average day, maximum day, and peak hour demand values and diurnal curves will be developed.

Expected growth shall be allocated across the District service area in 5-year increments through 2040, incorporating land use data, planning data, and climate data such as temperature and precipitation. Recommendations for future non-revenue water will be made based on findings from current District production, the ongoing Santa Margarita Groundwater Sustainability Plan (currently in development), and demand data.

System storage and supply capacities shall be evaluated against the existing and future demand scenarios. WSC will consider the future potential supply capacity provided through the District's stream diversions, groundwater wells, and spring because they depend on their conjunctive use within the constraints of the annual and long-term climatic cycle. Future storage and supply capacity deficiencies will be identified and will include recommended improvements to meet demands.

Unique Approach:

- **Leverage work completed for the 2015 UWMP.** As part of WSC's effort to develop the District's UWMP, WSC partnered with District staff to determine the most accurate data for each system to summarize consumption moving forward. This work involved reconciling unavailable or incorrect data during billing software transitions including Datastream and Springbrook. With this knowledge of the data available, WSC can efficiently update the 2015 UWMP supply and demand tool with 2015-2019 data, saving valuable time and effort. This effort will also set up streamlined updates in 2021 for the 2020 UWMP.
- **GIS-Based Demand Calculations to Improve Confidence.** WSC will use GIS and Access database tools to spatially allocate water meter billing data to associated properties within the District service area to calculate the demand scenarios. Our granular approach provides a higher confidence in results because demand scenarios are tied to real consumption data. Once the data is structured, future updates to the calculated demand scenarios can easily be made using new billing data.
- **Account for known non-revenue water.** The District has been proactive in addressing multiple sources of non-revenue water (water loss). Projects such as the Probation and Swim Tank replacements, as well as the Glen Arbor Bridge Pipeline

replacement project, will impact near term water loss. WSC will adjust demand projections based on the expected completion of these and other planned near-term projects.

- **Incorporate climatic cycles into supply and demand scenarios.** As summarized in the UWMP, the District's demand and available supply vary based on climatic cycles. The District conjunctively uses surface water during wet periods and groundwater during drier periods to optimize and sustain each source. WSC will build on its knowledge of the District's demand and supply portfolio variability under historical and projected climate conditions to develop reasonable modeling scenarios. Analysis of supply and demand forecasts can account for climatic cycles by incorporating temperature and precipitation models. Localized constructed analogs (LOCA) of global climate models (GCM) contain forecasted precipitation and temperature for varying areas of the District, which are scaled to 3.7-mile grids. These are two of the biggest influences on water use that can be projected based on historical correlations applied to forecasted data. Neighboring agencies have performed similar analyses in their water resources planning, such as the Soquel Creek Water District's 2015 UWMP prepared by WSC, the City of Santa Cruz's 2015 UWMP, and the Santa Cruz Mid-County Groundwater Agency.

TASK 4 – HYDRAULIC MODEL

KEY STAFF – KIRSTEN PLONKA, HEATHER FREED: DURATION – 2 MONTHS

Work Products: Fire-Flow Testing Plan, Calibrated Hydraulic Model, and Model Calibration Report.

Required Input from District: Review of Fire-Flow Testing Plan, field verification of hydrant locations, and assistance in operating hydrants during model verification.

Summary of Work: WSC will create a hydraulic model based on the District-provided data described in Task 2, using Innovyze's InfoWater software program. Demand scenarios will be created for average and maximum day, and minimum and peak hour, using diurnal curves, peaking factors, and water meter billing information.

A Fire Flow Testing Plan will be developed identifying locations for fire flow and pump tests that will target critical areas of the District. Upon staff approval, field testing will occur and the collected results will be compared to the model results. Pump curves and pipeline friction factor assumptions will be adjusted in the model with a calibration target of model results within 10 percent of observed values. SCADA data will be used to calibrate the Extended Period Simulation. If any areas are encountered where calibration cannot be achieved through reasonable adjustments to the model, WSC will provide lists of possible partially-closed valves or other potential causes for field crews to investigate further. A model calibration technical memorandum will be prepared, and calibration results will be presented during a model review workshop.

Unique Approach: WSC will conduct an initial calibration of the model using SCADA data. Results will be used to help identify hydrant locations for field testing, and a draft hydrant testing plan will be developed incorporating WSC's knowledge of the District. WSC will then meet with field staff to discuss and confirm the timing and locations of all tests to be performed and methodology used. Optimizing the field testing plan with operations input will allow WSC to calibrate the model while avoiding significant burdens on field staff time.

TASK 5 – DISTRIBUTION SYSTEM EVALUATION

KEY STAFF – KIRSTEN PLONKA, HEATHER FREED: DURATION – 1 MONTH

Work Products: Workshop to define alternative water supply source scenarios, and distribution system evaluation findings.

Required Input from District: Review of recommendations and discussion.

Summary of Work: The hydraulic model will be used to evaluate the capacity of the system to meet peak hour demand during maximum day, and maximum day plus fire flows, and any deficiencies will be identified. Current and future demand sets will be applied as well as three different water supply source scenarios, to be defined during a workshop with District staff.

System improvement recommendations will be developed using model results and District input. Lyon pipeline sizing will be prioritized to meet the District's timeline to fulfill USDA loan requirements. A separate technical memorandum will be developed for the DAC area to fulfill grant requirements.

Unique Approach: WSC understands that the District currently maximizes their surface water allocations and therefore runs the system differently throughout the year. New supply and storage projects may impact how the system is most efficiently operated in the future. WSC will run multiple scenarios to capture these potential changes and identify any necessary changes to the CIP if implemented. In addition, WSC will set up the hydraulic model so the District can run "what if" scenarios as supply and storage alternatives are developed in the future.

TASK 6 – SYSTEM CONDITION ASSESSMENT

KEY STAFF – KIRSTEN PLONKA, HEATHER FREED: DURATION – 2 MONTHS

Work Products: Long-term replacement needs projection for pipes, storage tanks, pumps, wells, and pressure reducing valves.

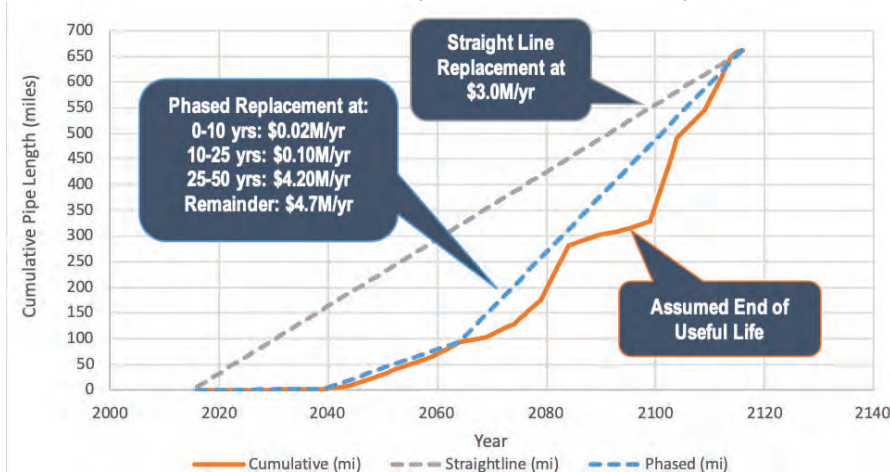
Required Input from District: Review of recommendations and discussion.

Summary of Work: A GIS-based asset database will be developed to track system assets such as water system pipes, storage tanks, pumps, wells, and pressure reducing valves. Remaining useful life for District assets will be evaluated and projected rehabilitation and replacement needs will be provided along with cost estimates.

Unique Approach: WSC understands the importance of establishing a routine replacement program for aging assets so that they can be replaced proactively to avoid accumulating a backlog of replacement needs that could lead to service interruptions and/or sudden and significant financial impacts to customers. To help the District establish an appropriate rate of replacement, WSC recommends an analysis of the distribution system facilities age and expected useful life to quantify the replacement liability facing the District. An example of this analysis shown below uses the District's input on the expected useful life of pipe material in your service area and evaluates how many feet of pipe will need to be replaced on an average annual basis over the next 50+ years to maintain the distribution system in safe and reliable operating condition.

TASK 7 – ENERGY RELIABILITY/EFFICIENCY ANALYSIS

KEY STAFF – KIRSTEN PLONKA, HEATHER FREED, LIANNE WESTBERG: DURATION – 2 MONTHS



WSC will prepare a long-term replacement needs projection for the District's pipelines based on pipe age and material to help establish defensible long-term rehabilitation rates to maintain the system in its current condition. A similar approach could be used to develop replacement rates for tanks, pumps, wells, and pressure reducing valves. We will seek input from District staff on which projects should be prioritized to develop a realistic and flexible R&R Plan.

Work Products: Recommendations for energy related CIP projects.

Required Input from District: Review of recommendations and discussion.

Summary of Work: WSC will perform a review of power supplies for existing facilities within the distribution system and make recommendations for CIP projects to provide reliable power in the event of an extended power outage. The hydraulic model will be used to evaluate potential energy savings by way of alternative CIP projects or potential operational changes.

Unique Approach:

- **Provide Power Supply Alternatives.** Given the local energy climate in California, power outages are likely in the event of an emergency. Providing water during these outages is often a necessity. WSC will use its geographical knowledge of the District and its varied terrain to evaluate which critical facilities should be provided with permanent or temporary power supplies and the most cost-efficient way to provide this critical service.
- **Evaluate Potential Energy Savings.** Given the redwood canopy that stretches over much of the District, simple power alternatives like solar are generally not feasible. WSC proposes a more detailed analysis of operational efficiencies including equipment alternatives, optimized pumping controls, or site alternatives for future facilities to decrease energy use. WSC's familiarity with the District and established partnership with staff will enable us to make solid, realistic recommendations and identify which improvements may be eligible for grant funding.

TASK 8 – WATER SYSTEM CIP

KEY STAFF – KIRSTEN PLONKA, HEATHER FREED: DURATION – 2 MONTHS

Work Products: 20-year CIP for water system.

Required Input from District: Review of recommendations and discussion.

Summary of Work: WSC will identify all projects anticipated to be required within the next 20 years, and will prepare planning level cost estimates for each, and recommended construction dates. Projects will include existing capacity and level of service

deficiencies, abandonments, repairs or replacements at end of useful service life, and future capacity deficiencies caused by growth.

Unique Approach: To provide built-in flexibility in the implementation of the 20-year CIP, WSC proposes to prepare the CIP based on the assumptions used in the Water Master Plan, but also prioritize projects based on need and benefit to the system. WSC will also consider staffing limitations for project management and inspection when planning work out over the next 20 years.

TASK 9 – WATER SYSTEM MASTER PLAN

KEY STAFF – KIRSTEN PLONKA, HEATHER FREED: DURATION – 3 MONTHS

Work Products: Draft and Final Master Plans, condition assessment database, hydraulic model, and GIS shapefiles.

Required Input from District: Review of draft and final reports.

Summary of Work: A draft Water Master Plan shall be prepared summarizing the results of Tasks 2 through 8, and submitted for review. Comments will be compiled into a table, with preliminary responses provided. WSC will lead a review meeting to discuss and resolve comments. Resolution of comments will be addressed, and a Final Water Master Plan will be prepared, along with final versions of the condition assessment database. As mentioned in Task 1, WSC will attend up to three (3) meetings to present, discuss, and answer questions on the Water Master Plan, including a community workshop specifically aimed to inform the DAC areas of the District.

Unique Approach: WSC prides ourselves on easy to read reports that allow readers to quickly comprehend the key information. Information is conveyed in easy to read charts, figures, and tables to the maximum extent possible. Each graphic must be sufficiently clear to stand alone without excessive explanation, allowing the Master Plan to serve as an ongoing public outreach tool for communicating District activities.

TASK 10 – OPTIONAL TASK - RIP AND RUN SHEETS

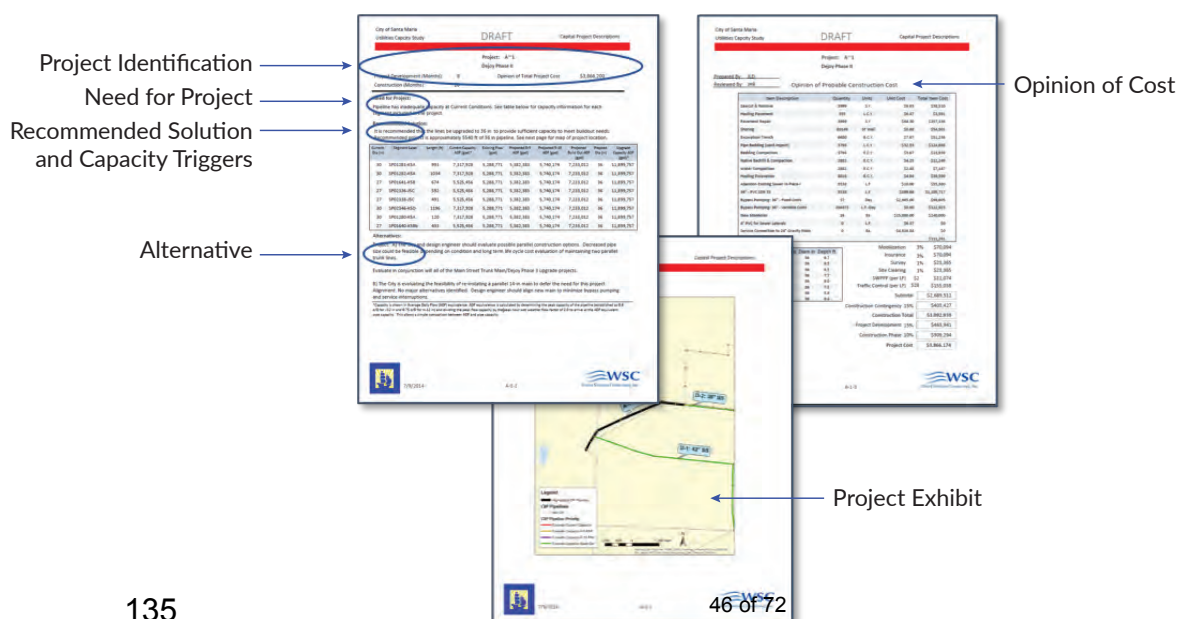
KEY STAFF – KIRSTEN PLONKA, HEATHER FREED: DURATION – 2 MONTHS

Work Products: Rip and Run Project Sheets for first 20 projects identified in CIP.

Required Input from District: Review of project sheets.

Summary of Work: WSC can create individual “Rip and Run” project sheets for each project identified in the CIP. These project sheets will include essential information on each of the proposed projects. WSC has used these sheets in several recent CIPs and management, engineering, and operations staff have expressed their appreciation for this ready and useful reference. The figure below provides an example of how WSC recommends the project sheets of the CIP be presented.

Unique Approach: WSC has developed a database-driven approach to cost-effectively support the preparation of these resources. Each “Rip and Run” sheet includes a description of the project, an estimated capital cost, and a map showing the project location. Because the cost estimates are prepared directly within the database, there is minimal need for re-entry of information or potential transcription errors. The project description sheets are included in the appendix of the master plan and can be used to initiate pre-design for selected improvements.



WSC's database driven approach allows efficient production of "Rip and Run" sheets for each CIP project that clearly and concisely present important project information. They will include capacity triggers for relevant projects to enable the District to adaptively manage the CIP and construct facilities as they are needed, rather than on a set timeline.

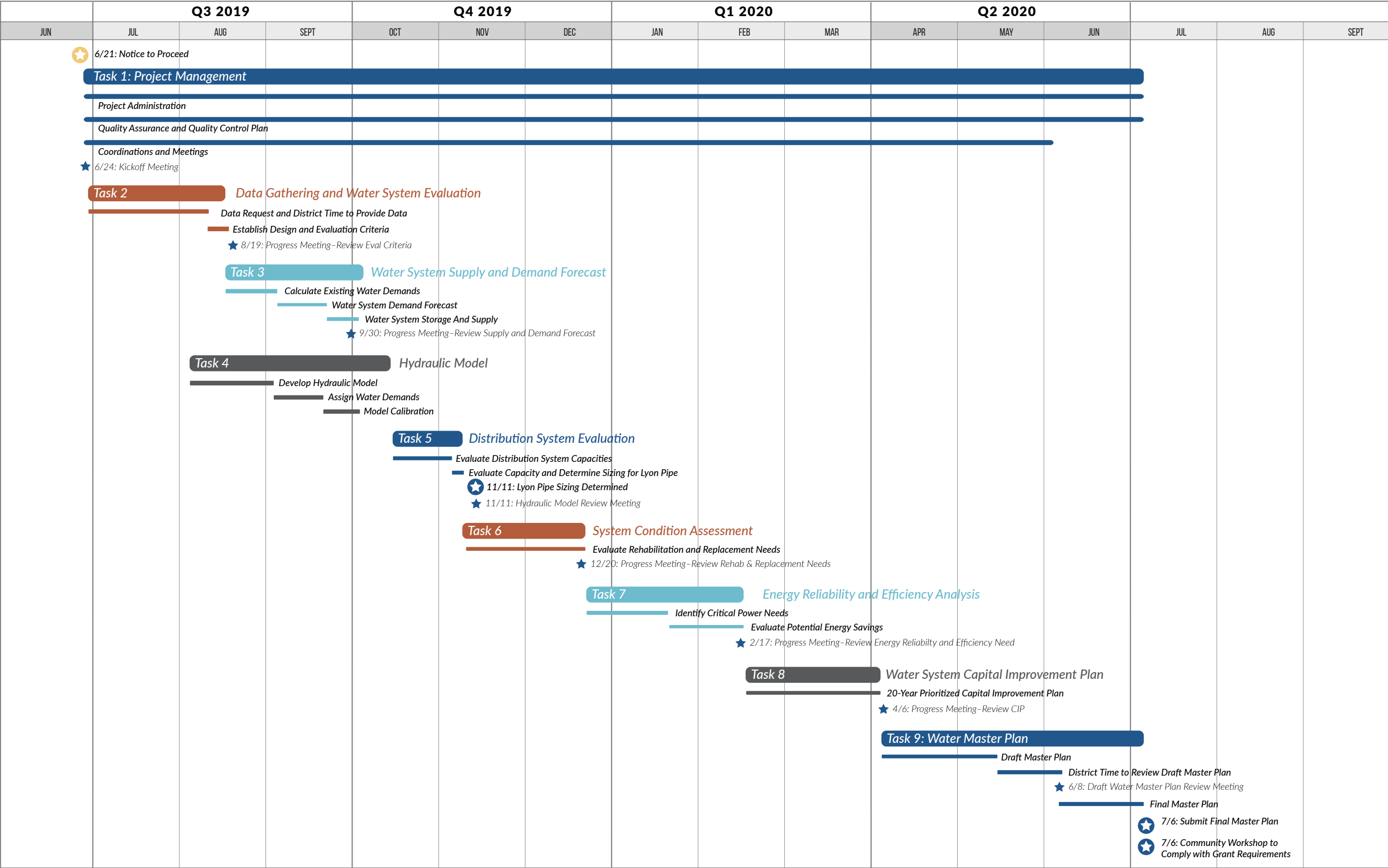
PROJECT UNDERSTANDING & SCOPE OF WORK

WSC's approach the to District's scope of work is summarized below. Our approach to each task will provide unique benefits that will help the District confidently and efficiently plan for the future reliability of its water system infrastructure.

	TASK 1.0	TASK 2.0	TASK 3.0	TASK 4.0	TASK 5.0	TASK 6.0	TASK 7.0	TASK 8.0	TASK 9.0
	PROJECT MANAGEMENT	DATA GATHERING AND WATER SYSTEM EVALUATION	WATER SYSTEM SUPPLY AND DEMAND FORECAST	HYDRAULIC MODEL	DISTRIBUTION SYSTEM EVALUATION	SYSTEM CONDITION ASSESSMENT	ENERGY RELIABILITY AND EFFICIENCY ANALYSIS	WATER SYSTEM CAPITAL IMPROVEMENT PLAN	WATER MASTER PLAN REPORT
WORK EFFORT	• Provide project administration and coordination • Facilitate a kickoff meeting and monthly review meetings • Perform QA/QC • Facilitate a community workshop to comply with grant requirements	• Request and review relevant files • Conduct interviews with District employees • Develop draft evaluation criteria • Develop final criteria from incorporating District input	• Develop spatially allocated existing demand set • Project future demands • Compare supply and production to projected demands • Evaluate current and future storage needs • Recommend supply and storage improvements to meet demands	• Develop hydraulic model from GIS data • Assign spatially allocated demands to model • Plan and coordinate hydrant testing with the District • Steady state calibration • Extended period simulation calibration • Hydraulic model review meeting	• Determine system deficiencies • Identify future improvement projects • Evaluate pipe diameter for Lyon Pipe	• Evaluate pipeline remaining useful life and prioritization needs • Recommend annual budgets for asset rehabilitation and replacement	• Identify critical facilities and recommend locations for emergency power • Evaluate historic energy usage • Recommend operational changes and/or capital improvements to reduce energy consumption	• Prioritize all recommended projects into a 20-year CIP • Develop cost estimates • Determine trigger points for future project implementation	• Prepare Draft Water Master Plan report documenting findings • Address District comments • Prepare Final Water Master Plan • Present Master Plan to Board of Directors and at a Community Workshop
DELIVERABLES	• Meeting agendas and handouts • Meeting summaries • Monthly progress reports	• Data Request Log and updates as needed • Draft and final evaluation criteria	• Demand loading and projection map • Draft list of supply and storage improvements	• Hydraulic model development and calibration TM	• Recommended pipe size for Lyon Pipe and supporting documentation • Preliminary project list	• System asset database including remaining useful life • Phased implementation plan for annual budgets	• List of power supply alternatives • Recommended operational changes to reduce energy	• Draft 20-year CIP • Final 20-year CIP incorporating District's input	• Draft and Final Water Master Plan Report • Electronic project files

BENEFITS	WSC is working on multiple projects for the District and has demonstrated streamlined and effective communication with staff. 	 WSC's strong relationship and experience working with the District means we are up to speed on the distribution system and regional preferences, and can hit the ground running.	WSC will utilize the data and tool set developed for the District's 2015 UWMP to develop consistent supply and demand projections in the WMP. 	 WSC's PM Kirsten understand the nuances of the distribution system through work helping the District develop the GIS System that she will leverage to build an accurate hydraulic model.	WSC's work with the District preparing the USDA Preliminary Engineering Report means we understand many of the District's upcoming projects and the need to determine adequate  sizing for multiple operational scenarios.	WSC will develop multiple asset replacement scenarios  that can be used by the District in setting annual budgets and future rate studies.	 WSC will perform a detailed analysis of operational efficiencies including alternative equipment, optimized pumping controls, and site alternatives for future facilities to decrease energy use.	WSC will build flexibility into the CIP by including capacity trigger points as well as recommended timing for project implementation. 	 WSC will create an easy to read report with key information conveyed in charts, figures, and tables to the maximum extent possible.
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PROJECT SCHEDULE



COMPREHENSIVE PLANNING STUDY

CALIFORNIA AMERICAN WATER, MONTEREY COUNTY, CA

WSC developed a Comprehensive Planning Study, which included recommendations for a CIP, customer and demand projections, and an evaluation of alternatives for additional supplies. WSC performed an assessment of the distribution system piping, pumping, and storage capacity to meet current and projected demands, and to ensure it is providing adequate levels of service and reliability.

WSC built and calibrated a hydraulic model with over 600 miles of pipelines and 50 pressure zones to evaluate system capacity and operations. The CIP is based on providing adequate capacity, meeting projected demands and growth, and meeting planning criteria and regulatory requirements. Tasks include identifying system hydraulic deficiencies based on pressures, velocities, headloss, and fire flow guidelines.

Additional work involved developing a prioritized list of operational changes that could defer, or eliminate, the need for capital improvements. The project required taking into account a desalination plant operating for part of the year as another source of water, multiple small pressure zones with considerable elevation changes, and numerous small “pockets” within the larger water system.

WSC stayed on budget while adapting to changing project conditions and providing necessary information to support CAW's rate-setting process with the California Public Utilities Commission.



OWNER'S REFERENCE:

Ms. Candace Coleman, PE
Senior Project Engineer
(916) 568-4216

PROJECT COSTS:

\$556,320

PROJECT TEAM:

Jeroen Olthof (Project Manager), Kirsten Plonka (Project Engineer),
Spencer Waterman (Supply and Demand), Heather Freed (Staff Engineer)

CALIFORNIA AMERICAN WATER MONTEREY COUNTY DISTRICT				
Description	% of Con.	Amount	Cost / LF	Cost
Detailed Design	6.0%			\$22,200
Project Administration	1.0%			\$3,700
Preliminary Engineering	2.0%			\$7,400
Permitting	2.0%			\$7,400
Bidding	0.5%			\$1,800
Construction Administration	1.0%			\$3,700
Construction Inspection	8.0%			\$29,600
Technical Support During Construction	1.0%			\$3,700
Total Implementation Costs:				\$79,500
Total Project Cost:				\$449,500

Images:
Extent of project defined in 2013

Supporting Documentation:
Condition Based Assessment of Buried Infrastructure

Related Projects:
There are no other projects directly related to this project.

Customer Impact:

Page B-2 California American Water
Monterey District System



WATER MASTER PLAN AND CONDITION ASSESSMENT

BIG BEAR CITY COMMUNITY SERVICES DISTRICT, BIG BEAR, CA

WSC developed the District's 2017 Water Master Plan Update. WSC conducted site visits and captured operator knowledge to document and address the maintenance and replacement needs of the current water system. WSC prepared a detailed analysis of the District's infrastructure and conveyance system, considering age and expected useful life. By the completion of the master plan, a comprehensive CIP was developed that will be used to set annual budgets, establish rates and fees, prioritize improvements, and proactively prepare for the future needs of customers.

WSC performed condition assessments on the District's wells, reservoirs, and booster pump stations; and developed a flexible evaluation toolset that will provide a defensible Rehabilitation and Replacement Plan for their water system facilities. WSC recommended an approach for rehabilitation and replacement of aging infrastructure and provided capital project budget recommendations and detailed project cost opinions.

WSC completed the project under budget while maintaining consistent communication with the District throughout the project. WSC was flexible on scope to meet the District's needs, which included expanding their CIP from 10 years to 20 years to meet annual spending goals and recommending a portion of the scope which could be repeated on future projects to save the District money.

OWNER'S REFERENCE:

Mr. Jerry Griffith, PE
Water Department Superintendent
(909) 584-4008

PROJECT COSTS:

\$183,584

PROJECT TEAM:

Kirsten Plonka (Project Manager), Jeroen Olthof (QA/QC), Dylan Wade (Technical Advisor), Heather Freed (Project Engineer), Spencer Waterman (Supply and Demand)

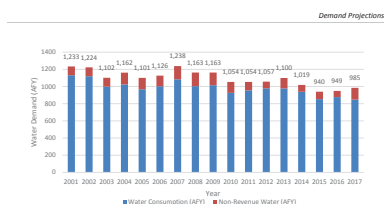


Figure 4-1. Historic Consumption, Non-Revenue Water, and Total Demand

In order to evaluate BCCSD's water distribution system, the location and quantities of water demands must be known and modeled. Spatially allocated demands were established based on historical annual water-customer consumption and production data from BCCSD records and the 2015 UWMP, as well as GIS parcel data. Figure 4-3 includes a map of spatially allocated customer demand, with the dots sized by water-demand volume. For more information on how demands were spatially allocated throughout the distribution system, see Appendix A: Evaluation Criteria and Demand Allocation Technical Memorandum.

The service area experiences an influx of part-time population and vacationers enjoying the summer and winter recreational facilities within and adjacent to the service area. Due to the recreational nature of the Big Bear City economy, occupancy within the service area fluctuates seasonally, typically peaking in the summer and falling to the lowest level during the fall and spring between the summer and winter tourist seasons. Big Bear City has the potential to experience large demand changes if full-time occupancy increases, but it is expected that current full-time occupancy will remain steady in the future. Table 4-1 includes the monthly peaking factors compared to the average annual demand developed from seasonal demand data from 2012-2017. Figure 4-2 displays the average seasonal demand fluctuation compared to the average monthly demand in 2017.

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Peaking Factor to Annual Average Demand	0.81	0.73	0.70	0.86	1.15	1.43	1.38	1.30	1.18	0.95	0.71	0.77

Big Bear City Community Services District 2018 Water Master Plan Update
Hydrant Model Development

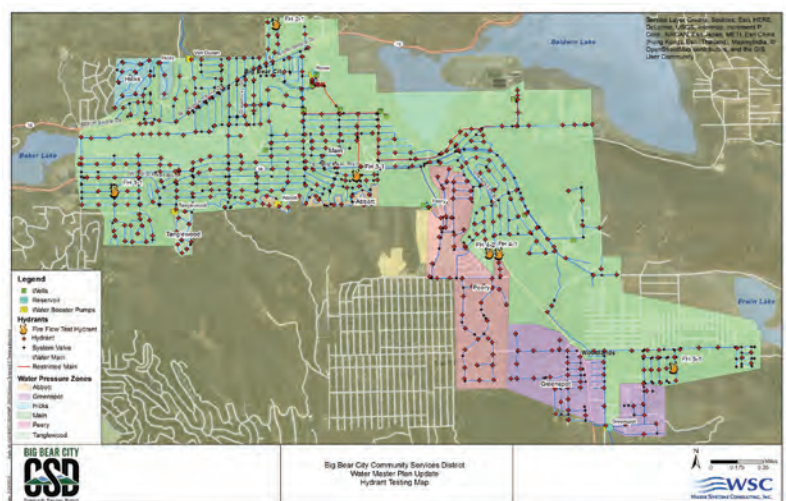


Figure 2. Location of Hydrant Flow Tests

WATER MASTER PLAN AND CONDITION BASED ASSESSMENT

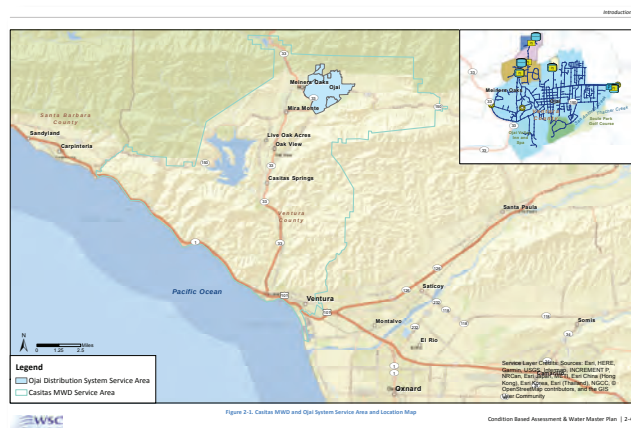
CASITAS MUNICIPAL WATER DISTRICT, OJAI, CA

WSC developed a Condition Based Assessment, Hydraulic Model and Water Master Plan for the recently acquired Ojai system. Through this work, WSC gained an understanding of the District's potable water supply and distribution transmission system which delivers water to approximately 3,000 residential, commercial, and agricultural customers.

WSC developed documents which included recommendations for a CIP, customer and demand projections, and an evaluation of alternatives for additional supplies. WSC performed an assessment of the distribution system piping, pumping, and storage capacity to meet current and projected demands, and to ensure it is providing adequate levels of service and reliability.

WSC built and calibrated a hydraulic model with approximately 60 miles of pipelines and multiple pressure zones to evaluate system capacity and operations. The CIP is based on providing adequate capacity, meeting projected demands and growth, and meeting planning criteria and regulatory requirements.

The project required assisting the District developing a new GIS to fill the gaps in the considerable amount of data missing. Potential issues highlighted at the time by WSC engineers included disconnected pipes and yet-to-be found under performing equipment. WSC addressed all these issues within the District's GIS system before it pushed forward with building a comprehensive Hydraulic Model in order to ensure the model was as accurate as possible.



OWNER'S REFERENCE:

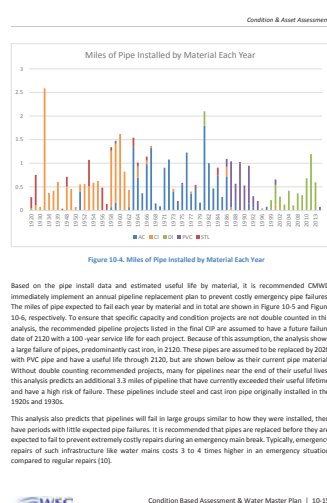
Ms. Lindsay Cao, PE,
Project Manager
(805) 649-2251, ext. 144

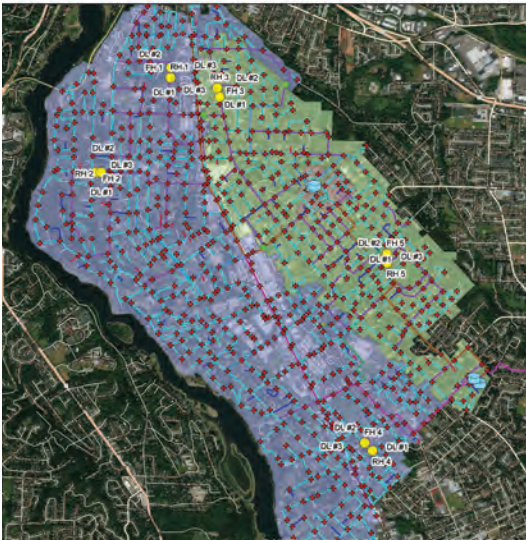
PROJECT COSTS:

\$220,968

PROJECT TEAM:

Kirsten Plonka (Project Manager), Joshua Reynolds (Principal in Charge), Jeroen Olthof (Hydraulic Modeling Lead), Spencer Waterman (Planning), Heather Freed (Project Engineer)





WATER MASTER PLAN UPDATE

OAK LODGE WATER SERVICES DISTRICT, OAK GROVE, OR

WSC is developing a Water Master Plan Update to address the District's aging infrastructure needs and help District managers plan for future investments to rehabilitate and replace infrastructure as it reaches the end of its useful life. WSC is revising the District's CIP with updated cost estimates to aid with prioritizing improvements. The CIP is designed to provide flexibility for growth while clearly defining improvements and the cost to provide the desired level of service over the next two decades. The update includes developing an accurate hydraulic model of the distribution system. WSC is conducting a seismic risk assessment on the existing water system and preparing a seismic mitigation plan encompassing a 50-year planning horizon.

OTHER INFORMATION:

- **Client Reference:** Mr. Jason Rice, PE, District Engineer, (503) 353-4202
- **Contract Value:** \$225,784
- **Key Staff:** Josh Reynolds (Principal in Charge), Kirsten Plonka (Project Engineer), Jeroen Olthof (Hydraulic Modeling Lead), Heather Freed (Hydraulic Modeling), Spencer Waterman (Supply and Demand)



WATER MASTER PLAN AND UWMP

CITY OF PISMO BEACH, CA

The City turned to WSC to prepare both their Water Master Plan Update and their 2015 UWMP Update. Because future water usage and demand projections are needed for both reports, the City saved money by preparing the reports concurrently. The update includes creating a hydraulic model consistent with the current GIS mapping to improve confidence in system changes and expected fire flows. WSC evaluated the condition of aging infrastructure, including booster pump stations, pipelines, storage tanks, and wells that were incorporated into the CIP. The final Master Plan will provide a prioritized project list and detailed cost estimates to replace aging and inadequate infrastructure.

WSC performed an evaluation of the City's drinking water wells, which included an evaluation of plant efficiency, energy intensity trends, energy savings potential, condition of motor, pump, and electrical system, evaluation of draw down and production rates, and included estimates of improvement costs. These results were also incorporated into the City's CIP.

OTHER INFORMATION:

- **Client Reference:** Mr. Benjamin Fine, PE, Public Works Director, (805) 773-7037
- **Contract Value:** \$194,790
- **Key Staff:** Joshua Reynolds (Project Manager), Kirsten Plonka (Project Engineer), Spencer Waterman (Staff Planner), Heather Freed (Staff Engineer)

APPENDIX A. RESUMES

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Kirsten L. Plonka, PE

Education

BS, Civil Engineering, California Polytechnic State University, San Luis Obispo

MS, Management, Colorado State University, Global Campus (in-process)

MS, Organizational Leadership, Colorado State University, Global Campus (in-process)

Professional Registrations

Professional Engineer – Civil, California, No. C70746

Professional Affiliations / Certifications

American Society of Engineers

American Public Works Association

Engineers Without Borders (former Southern California State Representative)

Potable Reuse Advisory Committee, San Diego County Water Authority

Advanced Water & Wastewater Modeling Certified by Innovzye & Bently

Publications

"Health Effects Study on Potable Water Reuse", A&WMA

Industry Recognition

2013 Outstanding Water Project of the Year from Region 9 ASCE, Award of merit for San Diego Section ASCE for Pala Mesa Tank

Professional Experience

Ms. Plonka brings more than 15 years of experience in the planning, design, and management of water, wastewater and recycled water systems. She specializes in master planning, including Capital Improvement Plans and budgeting, in addition to project management, hydraulic modeling, feasibility studies, as well as infrastructure and water resource planning studies. She is well versed in funding alternatives, regulatory compliance, and public policy development. Her experience includes database development and integration of geographic information systems (GIS) with hydraulic models, recycled water customer databases, and asset databases. She also has experience managing public engineering departments. Her extensive experience in the public sector allows her to approach projects from an owner's perspective and plan and design projects that are implementable and user-friendly.

Professional Project Experience

On Call As-Needed Services, San Lorenzo Valley Municipal Water District, Boulder Creek, CA. Extension-of-Staff Project Manager. Providing as-needed engineering services to the District. Work in the District office weekly to lead multiple projects. As the Owner's Project Manager, writes RFP's, helps with consultant selections, reviews plans and specs, facilitates environmental compliance, provides construction management services, administers contracts, develops schedules and budgets, coordinates with operations, facilitates public meetings such as community workshops and gives regular updates to the General Manager as well as presentations to the Board of Directors. In this role, Ms. Plonka has managed the following projects: Bear Creek Estates Wastewater Treatment Facility Rehabilitation, Bear Creek Road Water Pipeline, Highway 9 Viaduct Water Pipeline, Trout Farm Inn Fire Service, Lompico Pressure Reducing Valves Replacement Project, Lyon Tank Road Landslide Repair Project, Fall Creek Fish Ladder Restoration Project.

San Lorenzo Valley Water District, USDA Funding Support, Boulder Creek, CA. Program Manager. Successfully secured \$9M in low interest loans for the District. Determined eligible projects, wrote Preliminary Engineering Report (PER), created detailed project descriptions, developed cost estimates, coordinated environmental requirements for NEPA and CEQA, and completed application package for USDA Loan Program. Worked extensively with the United States Department of Agriculture (USDA) to meet all local and national requirements. Gave public presentations and reports to Board of Directors. Completed work significantly under budget and transitioned to program management/project manager for the five projects in the USDA package. These projects include: Swim Tank, Lyon Water Pipeline, Sequoia Water Pipeline, Hihn Road Water Pipeline, and California Drive Water Pipeline.

California American Water, Comprehensive Planning Study, Monterey District, CA. Project Engineer. Developing a Comprehensive Planning Study (CPS) for California American Water's Monterey District which includes developing recommendations for a CIP, and includes customer and demand projections, an assessment of adequacy of supplies, treatment, and distribution system facilities, and an evaluation of alternatives for developing additional supplies. Updating and calibrating the WaterGEMS hydraulic model. Performing an assessment of the distribution system piping, pumping, and storage capacity to meet current and projected demands, and to ensure it is providing adequate levels of service and reliability. The CIP is based on providing adequate capacity, meeting projected demands and growth, and meeting planning criteria and regulatory requirements.

Water Master Plan Update, Oak Lodge Water Services District, Oak Grove, OR. Project Engineer. Preparing a Master Plan Update which will consider future water service commitments and build-out, including both area-specific water quality needs and system operations and maintenance priorities. The project includes constructing a new model from the District's GIS database, hydrant testing, and calibration of the completed model prior to using the model to identify and evaluate system improvements. Supply, demand, and storage data will be analyzed, projections developed, and recommendations made to address system deficiencies. The update includes development of an asset database to capture and track condition data for individual assets within the water system. The final update will include a capital improvement program.

Big Bear City Community Services District, 2017 Water Master Plan Update, Big Bear City, CA. Project Manager. Conducted site visits and leveraged operator knowledge to document and address the maintenance and replacement needs of the current water system. Prepared detailed analysis of the District's infrastructure and conveyance system, as well as considered age and useful life. By the completion of the master plan, a comprehensive CIP will be developed that will be used to set annual budgets, establish rates and fees, prioritize improvements, and proactively prepare for the future needs of customers.

Casitas Municipal Water District, Water Master Plan and Capital Improvement Plan, Ojai, CA. Project Manager. Conducting a condition-based assessment and developing a Water Master Plan for the new owner of the Ojai water system. Tasks include developing opinions of probable cost for recommended projects, and evaluating production and consumption data to develop projections and recommend improvements necessary to maintain a safe and reliable level of service. Developing, calibrating, and utilizing hydraulic model of the system in conjunction with GIS datasets to improve system operations and CIP development. Evaluating the capacity of the existing water system and identifying improvements to meet demands, including fire flow, of the current and future population.

Lake Arrowhead Community Services District, Water and Sewer Master Plan Updates, Lake Arrowhead, CA. Project Engineer. Prepared comprehensive water and sewer master plans. Project included hydraulic modeling of the water and sewer systems using H2OMap and H2OMap Sewer, geographical information system update of the entire system, and development of a capital improvement program.

Eastern Municipal Water District, Water and Sewer Master Plan Updates, Perris, CA. Staff Engineer. Responsible for conversion of existing H2OMAP hydraulic model to InfoWater software, field testing and calibration of hydraulic model, evaluation of pipeline capacity to deliver current and future demands and Capital Improvement Program prioritization.

Golden State Water Company, Water and Sewer Master Plan Updates, Multiple Locations, CA. Staff Engineer. Responsible for coordinating with stakeholders, preparing and conducting a hydrant flow testing plan for model calibration purposes, updating and calibrating the hydraulic model in H2OMap, identifying system deficiencies, creating Capital Improvement Programs, and writing of comprehensive master plan.

Otay Water District, As-Needed Hydraulic Modeling Services, Spring Valley, CA. Project Engineer. Provide as-needed services for computerized hydraulic models to manage the District's potable water distribution, recycled water distribution, and wastewater collection pipe networks. Modeling services will optimize current operations, evaluate potential improvement projects, and allow for planning of future developments.

Dylan Wade, PE, CCM

Education

BS, Civil and Environmental Engineering,
Brigham Young University,
Provo, UT

AA, Liberal Arts,
West Valley Community College,
Cupertino, CA

Professional Registrations

Professional Engineer - Civil,
California, No. C64044

Certified Construction Manager –
No. 5761

Professional Experience

Mr. Wade is a professional engineer with more than 20 years of experience leading water infrastructure projects. His extensive experience as a public utility employee enables him to solve problems from an owner's perspective, and he is familiar with local conditions through his prior work with the District. He has served as Resident Engineer/Owner Representative on many large, high profile and multi-jurisdictional water resources projects including design and construction of intake facilities, water treatment plants, and major public works programs. These projects have been tremendous successes and some have won national recognition. He has been responsible for managing numerous projects from initial planning to finished product.

Representative Projects

As-Needed Engineering Services, San Lorenzo Valley Municipal Water District, Boulder Creek, CA. Principal in Charge. Provided support for WSC's project manager on multiple water infrastructure projects. For the district has included: the Bear Creek Estates Wastewater Treatment Facility Rehabilitation; the Bear Creek Road Water Pipeline; the Highway 9 Viaduct Water Pipeline; the Trout Farm Inn Fire Service; the Lompico Pressure Reducing Valves Replacement Project; the Lyon Tank Road Landslide Repair Project; and the Fall Creek Fish Ladder Restoration Project.

USDA Funding Support, San Lorenzo Valley Water District, Boulder Creek, CA. QA/QC. Supported the development of the PER and application package that successfully secured \$9 million in USDA low-interest loans for the District. The work was completed significantly under budget and transitioned to program management for WSC for five projects in the USDA package. The projects included: The Swim Tank and the Lyon, Sequoia, Hihn Road, and California Drive water pipelines.

Cayucos Sustainable Water Project, Cayucos Sanitary District, Cayucos, CA. Program Manager. Provided Program Management services, which include: schedule management; stakeholder outreach coordination; meeting coordination and facilitation; action item/data request/project decision tracking; and sub consultant management, to assist the Cayucos Sanitary District (District) in evaluating and identifying alternatives for the development of a Water Resource Recovery Facility (WRRF) to treat sewage from its collection system and to provide a beneficial use for the treated wastewater. Additionally, completed the Phase 1 initial tasks for the Cayucos Sustainable Water Project. These initial tasks include: project chartering, beneficial use analysis, wastewater characterization, siting analysis, funding and financial strategy, and wastewater collection system evaluation. Currently serving as the Project Manager through the design and contractor procurement process.

Chevron Tank Farm Service Extension Feasibility Study-Phase 1, San Miguelito Mutual Water Company. Project Manager. Assessed the capacity of the San Miguelito Mutual Water Company's (SMMWC) water and wastewater systems under current and future conditions, including the inclusion of a proposed development at the Chevron Tank Farm. Developed water and wastewater base maps in GIS and conducting an analysis of demand, supply, capacity and storage for SMMWC's existing and projected infrastructure. Developed demand and loading estimates for the current SMMWC service area at build-out. Analyzed the projected water demand and wastewater loading from the proposed development and compared against existing SMMWC demand/loading factors and the capacity of the SMMWC's water and wastewater systems. Prepared a summary Technical Memorandum that describes the existing systems, proposed growth and recommendations completing future phases of the project.

System Energy Plan, Heritage Ranch Community Services District, Heritage Ranch, CA. QA/QC. Developing a System Energy Plan (SEP) for the Heritage Ranch CSD, which includes an assessment of energy efficiency and optimization opportunities in the water and wastewater systems and an assessment of solar PV generation opportunities in the District. Project targets high energy use facilities and will identify cost-effective energy improvement projects. Solar PV assessment includes an evaluation of permitting, grid interconnection requirements, power delivery mechanisms, funding, and overall project economics. Working with PG&E to perform subsidized pump efficiency testing.

Development of Conceptual Alternatives for the Treatment and Disposal of Wastewater, Cayucos Sanitary District. Project Manager. Performed initial data review of the wastewater treatment and disposal studies completed by the Cayucos Sanitation District (District and the City of Morro Bay. Hosted an Alternative Development Workshop with the District General Manager and members of the Board of the Directors to establish criteria for and to develop a preliminary list of conceptual alternatives. Evaluated and developed descriptions for four conceptual wastewater treatment and disposal alternatives that included potential facility locations, collections configurations, level of treatment considerations, O/M and capital cost estimates, disposal options, and key considerations for the future decision making process.

Thousand Oaks Interconnection Projects, California American Water, Thousand Oaks, CA. Technical Advisor. Provided QA/QC review of 60% design plans and specifications for two interconnection projects in the City of Thousand Oaks. The Borchard Road project included the design for more than 300-LF of 8-inch mainline to connect CAW's system to an existing Calleguas Municipal Water District turnout connection. The Gainsborough Road project connected CAW's system to the City of Thousand Oaks' water system. WSC designed 220-LF of 8-inch pipeline and two buried vaults, one for a two-way mag meter and the other for a pressure regulating valve.

San Clemente Dam Removal and Carmel River Reroute Project, California American Water, Monterey, CA. Construction Manager/Project Manager. Project included the re-routing and reconstruction of the Carmel River and removing the San Clemente Dam. This project is the largest dam removal project ever completed in California and required close coordination with Department of Water Resources Division of safety of dams. Project was implemented as a public-private partnership between California American Water, the California Coastal Conservancy, and the National Marine Fisheries Service using the design/build delivery method.

Wastewater Collection System Infrastructure Renewal Strategy, City of San Luis Obispo. QA/QC. Develop a Wastewater Collection System Infrastructure Renewal Strategy that includes; creation of a hydraulic model for the wastewater collection system, evaluation of pipeline capacity to deliver current and future loading, assessment of pipeline condition, and the development of an asset management plan to guide future capital improvement projects. Utilize spatially allocated sewer loads, based on water demands, and an all-pipes model to implement a prioritized manhole data collection strategy that enables the City to focus its surveying efforts to the capacity impacted portions of the collection system. Intersect current wastewater loading with underlying parcel and land use data to develop area based loading factors for use in quantify loading for areas of future growth and densification. Develop a decision algorithm incorporating capacity and condition data to identify highest risk assets and prioritize replacement to limit the City's risk exposure.



Jeroen Olthof, MS, MBA, PE

Education

MBA, USC

MS, Civil Engineering, University of Washington

BS, Civil Engineering, University of Colorado Boulder

Professional Registrations

Professional Engineer - Civil, California, No. C58597

Professional Engineer - Civil, Oregon, No. C94671

Articles

San Diego's Recipe for Overflow Reduction, Public Works, June, 2004.

Capacity Assurance Sets Stage for CMOM Success, Waterscapes, Vol. 13, No. 2, May, 2002

Presentations

Management of Sewers in Environmentally Sensitive Areas, ASCE Pipelines Conference, San Diego, CA 2004

Lessons Learned in San Diego's Collection System Assessment Program, Water Environment Federation (WEF) Collection Systems Conference, Austin, TX, June, 2003

Automated Decision Tools for Sewer Collection System Assessment, California Water Environment Association Conference (CWEA), Ontario, CA, 2003

Improved Collection System Management Using GIS, Water Environment Federation Technology and Exposition Conference (WEFTEC), Chicago, IL, October, 2002

An Incremental Approach to GIS and Floodplain Mapping, Floodplain Management Association Conference, Sacramento, CA, September, 2000

A Hydrogen Sulfide Screening Tool Within GIS, WEFTEC.

Professional Experience

Mr. Olthof brings 25 years of experience in planning, design, and management of water and wastewater infrastructure. He specializes in comprehensive master planning, feasibility studies, hydraulic modeling of pipe networks, and infrastructure condition assessments. His experience includes database development and integration of geographic information systems (GIS) with hydraulic models, recycled water customer databases, and asset databases. He has developed and maintained custom databases to track recycled water customers and generate reports for regulatory agencies and other stakeholders. He has also developed condition assessment programs and decision algorithms to support capital improvement planning and maintenance optimization.

Representative Projects

Comprehensive Planning Study, Californai American Water, Monterey District, CA. Project Manager. Developed, calibrated and used a hydraulic model to support the condition and capacity evaluation as part of a new Water Master Plan. Tasks included developing recommendations for a CIP, customer and demand projects, and an evaluation of alternatives for additional supplies. Assessed the distribution piping, pumping, and storage capacity to meet current and projected demands, and to ensure it is providing adequate levels of service and reliability. Built and calibrated a hydraulic model with over 600 miles of pipelines and 50 pressure zones to evaluate system capacity and operations. The CIP is based on providing adequate capacity, meeting projected demands and growth, and meeting planning criteria and regulatory requirements. Tasks include identifying system hydraulic deficiencies based on pressures, velocities, headloss, and fire flow guidelines.

Water Master Plan Update, Oak Lodge Water Services District, Oak Grove, OR. Hydraulic Modeling Lead. Preparing a Master Plan Update considers future water service commitments and build-out, including area-specific water quality needs and system operations and maintenance priorities. The project includes constructing a new model from the GIS database, hydrant testing, and calibration of the completed model prior to using it to identify and evaluate system improvements. Supply, demand, and storage data will be analyzed, projections developed, and recommendations made to address system deficiencies. The update includes development of an asset database to capture and track condition data for individual assets within the water system. The final update will include a CIP.

Water Master Plan and Capital Improvement Plan, Casitas Municipal Water District, Ojai, CA. Hydraulic Analysis Lead. Conducting a condition-based assessment and developing a Water Master Plan for the new owner of the Ojai water system. Tasks include developing opinions of probable cost for recommended projects, and evaluating production and consumption data to develop projections and recommend improvements necessary to maintain a safe and reliable level of service. Developing, calibrating, and utilizing hydraulic model of the system in conjunction with GIS datasets to improve system operations and CIP development. Evaluating the capacity of the existing water system and identifying improvements to meet demands, including fire flow, of the current and future population.

2018 Water Master Plan, City of Victorville, Victorville, CA. Hydraulic Analysis Lead. Preparing a master plan that will address both hydraulic capacity deficiencies and rehabilitation and replacement needs driven by aging infrastructure. The project includes hydraulic modeling using InfoWater to evaluate capacity limitations, planning-level estimates of required capital spending each year based on system inventory and expected remaining useful life values, and a comprehensive 10-year Capital Improvement Plan.

Waster Master Plan and Condition Assessment, Big Bear City Community Services District Big Bear, CA. QA/QC. Provided oversight for the 2017 Water Master Plan Update and comprehensive CIP. Performed condition assessments on wells, reservoirs, and booster pump stations; and developed a flexible evaluation toolset that will provide a defensible Rehabilitation and Replacement Plan for their water system facilities. Recommended an approach for rehabilitation and replacement of aging infrastructure and provided capital project budget recommendations and detailed project cost opinions. The project was completed under budget while maintaining consistent communication with the District throughout the project. Expanded the CIP from 10 years to 20 years to meet annual spending goals and recommending a portion of the scope which could be repeated to save costs.

California American Water, Ambler Park Water System Master Plan, Monterey, CA. Project Manager. Provided a facilities plan for the Ambler Park water system, which includes three wells, one water treatment plant, eight pressure zones, 10 miles of water pipeline in sizes ranging from 2 inches to 8 inches in diameter, seven remote water storage tanks, one hydro-pneumatic tank, five pumping stations, and three pressure regulating valves (PRVs). A hydraulic model of the system was developed using EPANET.

Water System Master Plan Update, City of Healdsburg, Healdsburg, CA. Task Manager. Updated the City's water system master plan (population 11,000) to include new sources of water, new distribution facilities, and growth. Items addressed in the master plan update include: current and projected water use and water use characteristics; adequacy of the City's three well field sources, particularly considering the present seasonal restrictions due to surface water influence; treatment required to meet current and foreseeable water quality regulations; adequacy of the existing storage capacity within the distribution system; adequacy of the primary transmission mains within the distribution system; adequacy of the booster and pressure-reducing valve stations that control the transfer of water between the city's many pressure zones; and evaluation and modeling of the distribution system.

Water System Master Plan, City of Reedley, Reedley, CA. Project Engineer. Prepared a master plan for the City's water system (population 25,000), which included: (1) determining projected water supply and demand requirements; (2) developing potable water planning criteria for modeling and evaluation of the infrastructure; (3) evaluating water supply alternatives (new groundwater wells and new regional surface water supply); (4) updating the existing hydraulic model (H2OMap Water) to include demand projections; (5) identifying deficiencies in pumping capacity, storage capacity, or pipeline sizing; (6) developing a capital improvement program, which included estimated operations and maintenance (O&M) costs, estimated construction cost, and staffing needs for the recommended projects; (7) determining preferred locations and how much additional storage capacity is needed to meet the current and future water demands; and (8) participating in public presentations.

Ebbetts Pass Water Master Plan, Calaveras County Water District, San Andreas, CA. Project Engineer. Developed a water facility master plan for the Ebbetts Pass water service area, which consists of 15 pressure zones with numerous subzones, 17 water storage tanks, 10 pumping stations, over 40 miles of transmission mains, and over 100 pressure reducing stations. The master plan addresses existing and projected future demands, future water supply sources, existing and known future regulatory requirements, limitations to the current treatment process and capacity, and alternative treatment processes. The project also involved hydraulic modeling of the system was performed using H2OMap, 20-year life-cycle cost analysis, and preparation of a financial plan to fund the construction of a phased capital improvements program and to replace facilities due to age or new regulations.



Heather Freed, PE, MS

Education

MS, Civil and Environmental
Engineering, Cal Poly, San Luis
Obispo

BS, Environmental Engineering,
Cal Poly, San Luis Obispo

Professional Registrations

PE – Civil, CA, No. 89406

Professional Experience

Ms. Freed is a Professional Engineer with experience in the hydraulic modeling and mater planning of water and wastewater treatment and distribution systems. She has experience developing Urban Water Management Plans, evaluating various hydraulic measures including headloss through pipes, hydraulic jumps, and groundwater pumping. Her knowledge also includes groundwater contamination, water chemistry and water quality measurements, physio-chemical and biological water and wastewater treatment, and climate change and energy intensity analysis.

Representative Projects

2018 Comprehensive Planning Study and Condition Based Assessment, California American Water, Monterey District, Monterey County, CA. Engineering Support. Updating the California American Water Monterey County water distribution system Comprehensive Planning Study. Building calibrating a hydraulic model with over 600 miles of pipelines and 50 pressure zones to evaluate system capacity and operations. Evaluating system condition based on asset data and site inspection reports. Developing a comprehensive CIP list for future rate studies.

Water Master Plan Update, Oak Lodge Water Services District, Oak Grove, OR. Staff Engineer. Preparing a Master Plan Update which will consider future water service commitments and build-out, including both area-specific water quality needs and system operations and maintenance priorities. The project includes constructing a new model from the District's GIS database, hydrant testing, and calibration of the completed model prior to using the model to identify and evaluate system improvements. Supply, demand, and storage data will be analyzed, projections developed, and recommendations made to address system deficiencies. The update includes development of an asset database to capture and track condition data for individual assets within the water system. The final update will include a capital improvement program.

2017 Water Master Plan Update, Big Bear City Community Services District, Big Bear City, CA. Staff Engineer. Preparing a detailed analysis of the District's infrastructure that will result in a Master Plan which includes a comprehensive Capital Improvement Program. WSC is performing infrastructure condition assessments, developing a defensible Rehabilitation and Replacement Plan, and identifying high-priority projects.

Ojai System Condition Based Assessment and Water Master Plan, Casitas Municipal Water District, Ojai, CA. Staff Engineer. Conducting a condition-based assessment and developing a Water Master Plan for the new owner of the Ojai water system. Tasks include developing opinions of probable cost for recommended projects, and evaluating production and consumption data to develop projections and recommend improvements necessary to maintain a safe and reliable level of service. Developing, calibrating, and utilizing hydraulic model of the system in conjunction with GIS datasets to improve system operations and CIP development. Evaluating the capacity of the existing water system and identifying improvements to meet demands, including fire flow, of the current and future population.

2015 Water Master Plan Update, City of Pismo Beach, Pismo Beach, CA. Staff Engineer. Creating and calibrating an all-pipes, spatially allocated demand hydraulic model of the City's water distribution system using Bentley's WaterGEMS software. Utilizing the hydraulic model to evaluate capacity limitations for current and future buildout scenarios and opportunities to optimize operations. Developing condition based-replacement plans for aging infrastructure and an updated CIP project list to prepare the City for budget planning.



Joshua H. Reynolds, MS, PE

Education

MS, Civil and Environmental
Engineering, California
Polytechnic University, San Luis
Obispo, CA

BS, Civil Engineering, California
Polytechnic University, San Luis
Obispo, CA

Professional Registrations

Professional Engineer - Civil,
California, No. C65400

Professional Affiliations

American Society of Civil
Engineers, Member

Professional Experience

Mr. Reynolds has 18 years of experience in water master planning, pipeline design, hydraulic analysis, and pump station design and analysis. His experience allows him to identify and analyze initial project concepts, and see the project through to completion.

Representative Projects

Water Master Plan, City of Pismo Beach, City of Pismo Beach, CA. Project Engineer.

Developed and calibrated a water model for the city's water distribution system. The water system is comprised of 7 pressure zones and over 277,000 LF of pipeline. The model was used to prepare a comprehensive master plan, with detailed recommendations for zone consolidation, water storage, water supply, and distribution system capital improvements, and a CIP to serve current and 20-year build-out needs.

Water Master Plan, City of Paso Robles, Paso Robles, CA. Project Manager.

Update included a survey of capacity limitations to anticipate expected growth along the outskirts of the existing infrastructure. Analysis of the aging pipeline detailed needs for replacement or rehabilitation of the distribution system to avoid failure in the future. A Capital Improvement Plan was created and needs identified in the system analysis for the City to act upon.

Water District Master Plan Update, Victorville Water District, Victorville, CA.

QA/QC. Preparing an update to the District's drinking water production and distribution system master plan. Work includes minor updates to existing water InfoWater hydraulic model, identifying and evaluating system improvements, performing a water quality evaluation, developing a capacity-driven Capital Improvement Plan, and developing a Rehabilitation and Replacement Plan. Work also includes preparing a recycled water master plan for the SCLA area located within the District's boundary and a SCADA master plan.

Water System Master Plan, City of Arroyo Grande, Arroyo Grande, CA. Project

Manager. Developing a master plan for the City's drinking water production and distribution system. Work includes development of an updated hydraulic model using WaterGEMS software, and application of GIS datasets to conduct a risk-based condition assessment of the water distribution system to recommend prioritized improvements.

Utility Master Plan Update, City of Santa Maria, Santa Maria, CA. Project Manager.

Preparing a Master Plan Update to assess the capacity of the City's water and wastewater collection system, and developing a prioritized, risk-based capital improvement plan for the utilities. The plan update includes development of a new water model in InfoWater and a sewer collection system model in SewerGEMS. The models were loading using actual spatially allocated water consumption data.

North Apple Valley Water System Improvement Plan, Apple Valley Ranchos Water Company, Town of Apple Valley, CA. QA/QC Engineer.

Evaluated the capability and reliability of AVRWC's Bell Mountain and Stoddard Pressure Zones in north Apple Valley, which currently have low customer demands and high fire flow requirements. Spatially allocated existing demands, performed hydraulic analysis of the existing system using AVRWC's hydraulic model in InfoWater, evaluated multiple system level alternatives for each pressure zone, including changing the HGL; and developed a CIP to improve the existing system. Recommended revised pressure zone boundaries and performed a preliminary parcel screening to identify potential tank and booster stations sites needed to serve the study area as demands increase.

Water Master Plan, City of Guadalupe, City of Guadalupe, CA. Project Engineer. Prepared a comprehensive water master plan for the City of Guadalupe, including water modeling of the distribution system. The plan included detailed recommendations for water storage and distribution system capital improvements, and a capital improvements program to serve current and 20-year build-out needs.

Comprehensive Planning Study, Descanso Community Water District. Project Manager. Performed a comprehensive analysis of the Descanso Community Water District's water system. Investigated and evaluated integrated treatment systems for the removal of iron, manganese and radon at the District's two production wells. Reviewed demand projections, supply availability, water quality data, and production records to develop a 20 year CIP plan for the District.

Water and Wastewater Master Plans, San Miguel Community Services District, San Miguel, CA. Project Engineer. Created a sewage collection system spreadsheet model of the San Miguel Community Services District collection system. Used the spreadsheet to make recommendations for improvements to the existing sewage collection system. Prepared a comprehensive water master plan for the community of San Miguel, including water modeling of the distribution system. The plan included detailed recommendations for water storage and distribution system capital improvements, and a capital improvements program to serve current and 20-year build-out needs.

City of San Luis Obispo, Capacity and Connection Fee Study, San Luis Obispo, CA. Project Manager. Performed a pump station life cycle energy cost and savings analysis to update their 2013 water and sewer impact fees development data. Evaluate the energy cost associated to the City lift stations and catchment cost savings from reduced sewer inflow and infiltration reduction. Developed unit hydrographs for 10 year 24-hour storm event to model program and infrastructure renewal strategy.

City of Paso Robles, Preliminary Design of Sewer Extensions to the Airport Area, Paso Robles, CA. Project Manager. Project includes expanding service in the airport area in a cost effectiveness while reducing both construction and maintenance risks and associated costs. Recommended project include new gravity and force main sewers, updates to existing lift station and an addition of a new lift station. Analyzed d/D and flow loads of sewer to determine size, depth and slope of sewer mains for different alternatives. Prepared Technical Memo to illustrate potential projects and alignments, upgrades to existing lift stations, cost estimates of each alternative and recommendations of viable alternative. Prepared preliminary sewer main alignment and profile along with site layout of lift stations.

CSA 10A Water Tanks, County of San Luis Obispo, Cayucos, CA. Project Manager. Providing comprehensive design services for a new 210,000 gallon water storage tank and the connection to the existing water system, and the demolition and replacement of the existing 210,000 gallon water storage tank. The water system's hydraulic model is being used to evaluate water age for each project phase to determine if additional system storage will impact water quality. Conducted a water quality impact evaluation to guide the mitigation of increases in DBP formation.

Wilshire Country Club Golf Course, Irrigation Water Alternatives Analysis, Los Angeles, CA. Project Manager. Evaluated several alternative sources for irrigation water including development of on-site irrigation wells with wellhead treatment systems, on-site satellite wastewater treatment to produce reclaimed water, and connection to the City of Los Angeles recycled water system. The proposed wells and reverse osmosis treatment system were found to be the lowest cost alternative and the country club is proceeding with drilling on-site wells to evaluate water quality and production capacity prior to initiating the treatment, storage, and distribution system design phase.



Spencer J. Waterman

Education

BS, City & Regional Planning,
California Polytechnic State
University, San Luis Obispo

Certifications

American Water Works
Association, California-Nevada
Section, Water Use Efficiency
Practitioner Grade 1, Certificate
1714

Professional Affiliations

American Water Works
Association, Member

Professional Experience

Mr. Waterman is a planner with an emphasis on water resources planning and water use efficiency. His experience includes development of water master plans, wastewater master plans, recycled water master plans, grant funding applications, water use efficiency and conservation services, and state water law compliance documents including Urban Water Management Plans, AB 1420 Self-Certification Statement materials, and California Urban Water Conservation Council Best Management Practices reports. His planning related experience includes urban redevelopment plans, specific plans, general plans, the CEQA process, ordinance writing, and building permit review.

Representative Projects

2015 UWMP, San Lorenzo Valley Water District, Boulder Creek, CA. Program Manager. Collaborated with District staff to prepare and complete the 2015 UWMP assessing water supply and demand needs. Updated water supply and demand projections through 2045 based on changes since the 2010 UWMP including shifting demand patterns and new supplemental supply opportunities. New requirements were addressed, such as distribution system losses reporting as part of demand and digital submittal

Soquel Creek Water District, 2015 Urban Water Management Plan, Soquel, CA . Project Manager. Updated water supply and demand projections through 2045 based on changes since the 2010 UWMP including shifting demand patterns and new supplemental supply opportunities. New requirements were addressed, such as distribution system losses reporting as part of demand and digital submittal. Voluntary analysis of energy intensity in water deliveries and climate change impacts were completed.

Comprehensive Planning Study, California American Water, Monterey County, CA. Staff Planner. Developed customer and demand projections; assessed adequacy of supplies, treatment, and distribution system facilities; and evaluated alternatives for developing additional supplies. Additional work involved developing a prioritized list of operational changes that could defer, or eliminate, the need for capital improvements. The project required taking into account a desalination plant operating for part of the year as another source of water, multiple small pressure zones with considerable elevation changes.

Water Master Plan, Casitas Municipal Water District, Ojai, CA. Staff Planner. Conducted a supply and demand analysis which included data gathering and updating GIS shapefiles. Project included customer and demand projections, and an evaluation of alternatives for additional supplies. WSC performed an assessment of the distribution system piping, pumping, and storage capacity to meet current and projected demands, and to ensure it is providing adequate levels of service and reliability.

Water Master Plan, City of Victorville, Victorville, CA. Staff Planner. Preparing a master plan to address hydraulic capacity deficiencies and rehabilitation and replacement needs driven by aging infrastructure. The project includes hydraulic modeling using InfoWater to evaluate capacity limitations, estimates of required capital spending each year based on system inventory and expected remaining useful life values, and a 10-year CIP.

Water Master Plan Update, City of Paso Robles, Paso Robles, CA. Staff Planner. Contributing author for the 2014 Water Master Plan Update. Used GIS to spatially allocate demands for current and future timeframes through buildout for incorporation into a hydraulic model. Developed land use demand factors based on current development and projected land use of each parcel and development at buildout.

City of Santa Maria, Utilities Master Plan Update, Santa Maria, CA. Staff Planner. Contributing author for the 2012 Utilities Master Plan Update. Developed spatially allocated demands for current and future demands through buildout using GIS for incorporation into a hydraulic model. Developed land use demand factors based on current development and projected land use and zoning of each parcel at buildout.

City of Victorville, On-Call Water Modeling, Victorville, CA. Staff Planner. Providing staff support services for hydraulic water modeling and development planning. GIS and data management to support GIS based InfoWater modeling to help the City make informed decisions regarding potential changes to the system. GIS support for preparing Feasibility Studies and Water Supply Assessments as needed to support the City's review and conditioning of proposed development projects.

City of Arroyo Grande, On-Call Engineering Services. Staff Planner. Provided as-needed research and analysis support for engineering services for the City of Arroyo Grande. Research, development of materials, and coordination with other agencies regarding water supply and demand data to inform water resources management actions. Developed monthly Water Status Updates presented by City Staff to the City Council.

Northern Cities Management Area Technical Group, Engineering Services, San Luis Obispo County, CA. Staff Planner. Provided as-needed research and analysis support for engineering services for the five participating agencies. Research, development of materials, and coordination with Northern Cities agencies and funding agencies for SLO County IRWM funding applications. Research and analysis of water supply and demand data to inform water resources management actions.

County of San Luis Obispo, Energy and Water Manager, San Luis Obispo, CA. Staff Planner. Developing, administering, and coordinating energy and water management programs for County owned and leased facilities. Activities include data management, utility billing analysis, coordination with water utilities, review of water savings audits and projects, and monthly drought response reporting.

Santa Barbara County Water Agency, Long Term Supplemental Water Supply Alternatives Report. Staff Planner. Identified and evaluated potential supplemental surface water supply alternatives for the Agency. Investigated potential opportunities to increase surface water storage through expansion of existing dams or construction of new reservoirs. Utilized GIS software to develop reservoir inundation mapping and estimate capacities of various potential reservoir expansion alternatives. Developed planning level cost estimates for proposed supplemental water supply alternatives.

Apple Valley Ranchos Water Company, North Apple Valley Water System Improvement Plan, Town of Apple Valley, CA. Staff Planner. Evaluated the capability and reliability of the water distribution system to meet current and projected demands and fire flow requirements. Developed spatially allocated existing and projected demands and performed a preliminary parcel screening to identify potential tank and booster stations sites needed to serve the study area as demands increase. Developed land use demand factors based on current demands in the service area, compared industrial land use demand factors for several other water utilities in California, and applied them to the projected land use of each parcel at buildout to generate spatially allocated demands at buildout.

Park Water Company, Compton East Reservoir Study, Compton, CA. Staff Planner. Analysis of conceptual alternatives for the addition of a storage reservoir and booster station. Utilization of GIS to screen vacant parcels to identify potential reservoir sites for evaluation based on various screening criteria including: amenability of local planning and permitting jurisdictions, minimum site size, and distance from existing infrastructure.

Lianne S. Westberg, PE, MS, CEM

Education

MS, Civil and Environmental
Engineering, Stanford University

BS, Mechanical Engineering,
California Polytechnic State
University, San Luis Obispo

Professional Registrations

Professional Engineer-
Mechanical, California, No.
M35941

Certified Energy Manager,
21981

Presentations

One Water One Energy.
California WaterReuse Annual
Conference, Monterey,
California. March 2018.

*Striking a Balance to Create a
Community Asset.* California
WaterReuse Annual Conference,
Monterey, California. March
2018.

*Doing More with Less: Integrated
Strategies for Energy and Water
Management at Distributed
Facilities.* AWWA Annual
Conference and Exposition,
Anaheim, California. June 2015.

*How "green" is your water?
Forecasting greenhouse gas
emissions from a large California
water utility.* AWWA Sustainable
Water Management Conference,
Portland, Oregon. March 2012.

Professional Experience

Ms. Westberg is a mechanical engineer and Certified Energy Manager, with more than 11 years of experience working in both the water industry and electric industry. Her experience includes program and project management, water, wastewater and recycled water planning and design, life-cycle cost analysis and funding support, energy efficiency analysis and optimization, and renewable energy planning. Her most recent experience has been focused on the water-energy nexus, integrating energy and climate considerations into water, wastewater, and recycled water planning.

Representative Projects

Water System Master Plan, City of Arroyo Grande, Arroyo Grande, CA. Staff Engineer. Assisted with developing a Master Plan for the City's drinking water production and distribution system. Work included a condition assessment of the water distribution system, a condition assessment of the City's groundwater wells, an evaluation of energy usage of pumping facilities and energy efficiency opportunities, and a prioritized risk-based CIP. Performed engineering cost estimating for recommended capital projects.

Utility Master Plan Update, City of Santa Maria, Santa Maria, CA. Project Engineer. Preparing a Master Plan Update to assess the capacity of the City's water and wastewater collection system, and developing a prioritized, risk-based Capital Improvement Plan for the utilities. The plan update includes development of a new water model in InfoWater and a sewer collection system model in SewerGEMS. Performing supply capacity and storage analysis and lift station capacity analysis. Assisting with preparation of CIP to meet 5-year, 10-year, and Buildout needs.

System Energy Plan, Heritage Ranch Community Services District, Heritage Ranch, CA. Project Manager. Developed a System Energy Plan (SEP) for the Heritage Ranch CSD, which includes an assessment of energy efficiency and optimization opportunities in the water and wastewater systems and an assessment of solar PV generation opportunities in the District. Project targeted high energy use facilities and identified cost-effective energy improvement projects. Solar PV assessment included an evaluation of permitting, grid interconnection requirements, power delivery mechanisms, funding, and overall project economics. Worked with PG&E to perform subsidized pump efficiency testing.

2015 Urban Water Management Plan, Soquel Creek Water District, Soquel, CA . Project Engineer. Developing voluntary analysis of energy intensity in water deliveries and climate change impacts to support 2015 UWMP.

County of San Luis Obispo, Energy and Water Manager, 2014 - Present, San Luis Obispo, CA. Project Manager. Developing, administering, and coordinating energy and water management programs for County owned and leased facilities. Activities include data management, utility billing analysis, coordination with electric, gas and water utilities, review of energy and water savings audits and projects, and oversight of PG&E's Sustainable Solutions Turnkey (SST) program.

City of Pismo Beach, Well Condition Assessment, Pismo Beach, CA. Project Manager. Performed an evaluation of the City's two drinking water production wells, Well #5 and Well #23. The project included an evaluation of specific capacity, well performance, plant efficiency, energy intensity trends, energy savings potential, condition of motor, pump, and electrical system, and improvement costs. WSC coordinated with PG&E to obtain baseline data and subsidized pump testing.

California American Water, Energy Use Study for the Sacramento and Monterey County Districts, Sacramento and Monterey, CA. Project Engineer. Performed an analysis of operational optimization and energy efficiency opportunities to reduce energy usage, as well as an assessment of renewable generation potential from solar PV and in-conduit hydropower. Analyzed control strategy for the Arden service area in Sacramento to improve controls to allow a reduction in system operating pressure, identified energy efficiency opportunities for the highest energy consuming wells and booster stations in Monterey, and identified cost-effective solar PV projects in Sacramento and Monterey.

City of Big Bear Lake Department of Water and Power, Request for Proposal for Design-Build Division Well Solar Project, Big Bear Lake, CA. Project Manager. Developed Request for Proposal (RFP) for a design-build solar PV project to offset energy usage of four (4) water production wells.

County of San Luis Obispo, Energy Watch – Facility Inventory and Database Project, San Luis Obispo, CA. Project Manager. Developed an interim data management system that will allow the County to assemble the comprehensive facility inventory. Phase 1 of the project focused on coordination with energy utilities and County departments on data sources, data collection and validation for a specified set of pilot facilities, and development of an interim data management system, an MS Access database. Phase 2 of the project is focused on expanding the number of facilities in the database, including facilities not currently tracked in Utility Manager, creating custom uploads that integrate with Energy Star Portfolio Manager, and training for County staff.

North Apple Valley Water System Improvement Plan, Apple Valley Ranchos Water Company, Town of Apple Valley, CA. Project Engineer. Project involved evaluation of the capability and reliability of AVRWC's Bell Mountain and Stoddard Pressure Zones in north Apple Valley, which currently have low customer demands and high fire flow requirements. Assisted with development of Capital Improvement Plan to improve the existing system and prepared engineering cost opinions.

California American Water Company, Sacramento, Monterey County, Ventura County and Los Angeles County Districts 2010 Urban Water Management Plans, Various Cities, CA. Staff Engineer. Developed the demand management measures analysis for the UWMPs, to fulfill the requirements of the Urban Water Management Planning Act. Prepared an optional energy evaluation and evaluated climate change mitigation and adaptation strategies.

City of Pismo Beach, Five Cities Lift Station Replacement, Pismo Beach, CA. Project Engineer. Preparing design plans and specifications for the upgrade to the City's Five Cities Lift Station and forcemain. Project includes lift station alternatives analysis, pump selection, design of new submersible duplex lift station with a design flow of 625 gpm, and design of new 2,200-LF forcemain. Coordinating with PG&E to obtain energy efficiency incentives. Managing geotechnical, environmental and surveying work. Applied for and obtained \$1.9M in low-interest loans from the State Water Resources Control Board Clean Water SRF Program to fund project construction, which included \$700,000 in loan forgiveness from the Green Reserve Program.

City of San Luis Obispo, Recycled Water System Assessment, San Luis Obispo, CA. Project Engineer. Assisted with assessment of the recycled water pump station including evaluation of steady-state hydraulics, pump station controls, header and valve configuration and energy use. Worked with PG&E to leverage energy efficiency incentive programs. Developed design documents to modify system controls, reconfigure pump control valves, and add bladder-style hydropneumatic tanks to improve stability and operational efficiency.



Holly Tichenor

Education

BA, Journalism, University of Texas at Austin

Professional Affiliations

Oregon Association of Clean Water Services – Chair of Education and Outreach Committee; Taskforce Leader for ACWA Website Rebuild

PNCWA – Government Affairs Committee

California Water Environment Association

California WaterReuse

Water Environment Federation of Texas, WEAT – former Government Affairs; Chair of Membership

Georgia Association of Water Professionals, GAWP – Chair of Membership Committee; Member of Education Committee

Training

Communications Training, Say What You Mean - Interpersonal and Stakeholder Communications

Persuasive and Theme Modular Communications (trainer)

Client Relations / Communications Program (developer and trainer)

Duarte Visual Story, Power and Structure of Story that Leads to Change and Alignment

Duarte Slide:ology, Transforming Presentations

Miller Heiman, Strategic Selling and Conceptual Selling

Dag Knudsen Presentation Development and Delivery

PSMJ, Project Management Bootcamp

Professional Experience

Ms. Tichenor, WSC Vice President and Strategic Communications Director, brings 22 years of strategic planning and communications experience in the water and wastewater. She focuses on the value of effective water communications and is an advocate, creator, and supporter of branding and messaging that advance clean water programs, projects, agencies / organizations, and initiatives. She is a Strategic Communications Project Manager on some of the West Coast's most innovative recycled water and advanced water treatment programs, and has guided long-standing regional clean water agencies in rebranding initiatives. Her communications expertise includes training technical staff in relational and resonant visual communications. She has assessed stakeholder and community interests and tailored communications and brands to reach very unique and diverse communities across the Western U.S. Ms. Tichenor has been actively involved in industry-leading professional organizations, is a frequent presenter on water communications best practices, and is an Association of Clean Water Agencies Board Member and Chair of Education Committee.

Representative Projects

Chino Basin Program, Inland Empire Utilities Agency, Ontario, CA. Project Manager of Strategic Communications. Leading strategic communications support over the next two years for this unprecedented regional water treatment, storage and recharge program. The program is receiving state-wide attention for its innovative water exchange from arid Southern CA to Northern for Delta and salmon habitat protection. The \$385 million program includes a network of regional infrastructure improvements and requires complex stakeholder agreements. WSC work includes assessment and review of technical details and coordination with multiple internal departments, meeting facilitation, stakeholder strategy and communications, workshop material and presentation development, and website development underway now. Media outreach includes national magazines and newspapers. WSC led the brand development for the program, including establishing key messaging and brand guidelines that reach a broad and diverse stakeholder and community base.

On-Call Strategic Communications, San Elijo Joint Powers Authority, Cardiff by the Sea, CA. Project Manager. Providing on-call communications and outreach support to San Elijo Joint Powers Authority (SEJPA), a progressive wastewater and recycled water provider that serves multiple coastal communities. With a vision for renewed outreach, education, and an improved brand message and design, SEJPA began working with WSC to support a brand refresh, website and new brand guidelines. Additional tasks include an update of messaging and design of annual reports, content and design for construction and facility signage, and press releases announcing partnerships and milestones, policy presentations, recycled water outreach, as well as physical facility signs incorporating the new brand.

Utilities Department Strategic Plan, City of San Luis Obispo, San Luis Obispo, CA. Strategic Planning Facilitator. The City of San Luis Obispo's Utilities Department is currently updating the its Strategic Plan to achieve future goals, supporting its mission for stewardship and service to the community. The effort includes assessing the needs of the nine sections within the Department, including water, wastewater, water resources, and business operations, to define future needs, goals and initiatives for the future. Support has included: staff interviews, research and assessment of other leading Strategic Plans by recognized Utilities of the Future, communications and a strategic planning workshop with the Department's managers. As a result of the efforts, the Department will have a clear vision, and working framework to achieve performance goals and measure results.

Replenish Big Bear, Big Bear Area Regional Wastewater Agency, Big Bear Lake, CA, Communications & Outreach Lead. Leading communications and outreach efforts for four agencies within the Big Bear Valley to implement and gain funding for a regional One Water solution. Facilitated stakeholder interviews, assessed audiences and impacted communities, and led the messaging, branding and development of an infographic, including targeted pieces for funding acquisition at the federal level. The Replenish Big Bear brand has received wide community acceptance. WSC was lead developer of the program website, as well as all supporting outreach material.

Central Coast Blue, Multiple Agencies, Pismo Beach, CA. Communications Project Manager. Led a rebranding effort and communications strategy for a \$30 million program that included the participation of five separate agencies. Identified key messages that resonated with stakeholders, community members, and regulatory agencies to build support for the project. The phased workplan included: community and stakeholder research, website update and messaging, content development, design, and implementation; renaming the program; developing and implementing a new logo and brand package; development of City Council presentations; messaging support for press releases; and educational posters, brochures and more for advanced water treatment demonstration facility and grand opening event.

North Pleasant Valley Desalter Rebranding and Outreach, City of Camarillo, CA. Project Manager. Facilitating the design of a new project brand and outreach communications strategy for the North Pleasant Valley Desalter to raise community awareness and support. The project includes a full rebrand including new project name and logo, targeted messaging, a custom website, and strategic community and stakeholder outreach efforts in advance of construction of a new desalter facility. WSC supported efforts to obtain grant funding and raise awareness of the project through targeted educational materials for groups including the U.S. Bureau of Reclamation.

California Water and Environment Association, One Water Workshop at CWEA's 2017 Conference. Palm Springs, CA. Facilitator. Led and organized a panel discussion followed by an interactive table discussion to expand understanding of One Water as part of the 2017 annual conference program. Provided direction on the event, coordinated content of supporting material, facilitated the workshop, and provided hands-on training for participants.

Lake Oswego-Tigard Water Partnership Technical Writer / Outreach Support. Worked with multiple stakeholders toward the end of the approval efforts, especially in development of West Linn Council presentations and briefing documents to support decision making on the land use approval for the Lake Oswego – Tigard Water Treatment Plant Expansion located in West Linn. Developed the content and graphics for a 25+ page technical benefits highlight book and accompanying presentation material for policy makers.

Texas Legislative Water Outreach Workshop. Lead Developer. Led the creation of an annual legislative workshop for Texas representatives and staff. The workshop supported education on critical statewide water related issues, including reuse, funding, and water quality. Organized presentations by local and national experts to address critical topics. Created outreach, invites, brand, and interest in the event. The full-day workshop that drew more than 100 attendees in the first year.

Chambers Creek Regional Wastewater Treatment Plant Public Outreach Brief. Technical Writer / Outreach Coach. Conducted research, developed content, and brainstormed conceptual graphics for a 40-page brief summarizing the benefits of a notable wastewater treatment plant upgrade. Four chapters of concise copy and visuals summarize how the project balances environmental, economic, and regulatory goals to benefit the community for decades.



CONTACT

111 North Market Street
San Jose, CA 95113
Business Phone and E-Fax:
(408) 785-6419

ONLINE

Expectwsc.com





**San Lorenzo Valley Water District
2019 Water Master Plan
Fee Estimate**

Task		Task Description		Hours					Costs				
				Principal	Senior Engineer	Engineering Associate	Engineering Assistant	GIS Analyst	Secretarial	Total Hours	Labor Costs	Subconsultant	Other
Task 1	Project Management	20	14	8			4	46	\$7,920				\$7,920
Task 2	Data Gathering and Water System Evaluation Criteria		6	4	4	1		15	\$2,263				\$2,263
Task 3	Water System Supply and Demand Forecast	4	24	36	24	4		92	\$13,912				\$13,912
Task 4	Hydraulic Model		16	30	24	4		74	\$10,786				\$10,786
Task 5	Distribution System Evaluation	2	8	16	10	4		40	\$5,916				\$5,916
Task 6	System Condition Assessment	4	24	36	24	8		96	\$14,340				\$14,340
Task 7	Energy Reliability/Efficiency Analysis	2	12	24	20	2		60	\$8,842				\$8,842
Task 8	Water System Capital Improvement Plan	2	8	12	20	4		46	\$6,468				\$6,468
Task 9	Water Master Plan Report	6	30	24	16	8	6	90	\$13,436				\$13,436
Totals		40	142	190	142	35	10	559	\$83,883	\$0	\$0	\$0	\$83,883

FEE ESTIMATE - 2019 WATER MASTER PLAN

San Lorenzo Valley Water District
2019 Water Master Plan
Cost Proposal
5/30/2019



Task No. Task Description		WSC														ALL FIRMS				
		Principal In Charge	QA/QC	Cost Estimating	Project Manager	Energy Reliability and Efficiency Analysis	Communications Specialist	Capital Improvement Plan	Supply and Demand	Hydraulic Modeling	Project Administration	WSC Labor Hours	WSC Labor Fee	Expenses	WSC Fee	Total Fee				
		Dylan Wade	Jeroen Olthof	Joshua Reynolds	Kirsten Plonka	Lianne Westberg	Holly Tichenor	Justin Sutton	Spencer Waterman	Heather Freed	Kay Merrill									
Billing rates, \$/hr		\$265	\$265	\$265	\$245	\$225	\$210	\$185	\$185	\$155	\$125									
1 Project Management																				
1.1	Project Administration	2			24					12	15	53	\$	10,145	\$	400	\$	10,545	\$	10,545
1.2	Coordination and Meetings				36				12	42		90	\$	17,550	\$	700	\$	18,250	\$	18,250
1.3	Monthly Progress Reports				12					12		24	\$	4,800	\$	200	\$	5,000	\$	5,000
1.4	Project Schedule				8							8	\$	1,960	\$	100	\$	2,060	\$	2,060
1.5	Quality Assurance and Quality Control Review	4	8	4								16	\$	4,240	\$	200	\$	4,440	\$	4,440
SUBTOTAL		6	8	4	80	0	0	0	12	66	15	191	\$	38,695	\$	1,600	\$	40,295	\$	40,295
2 Data Gathering and Water System Evaluation																				
2.1	Data Request				8					24		32	\$	5,680	\$	200	\$	5,880	\$	5,880
2.2	Establish Design and Evaluation Criteria				4				8	8		20	\$	3,700	\$	100	\$	3,800	\$	3,800
SUBTOTAL		0	0	0	12	0	0	0	8	32	0	52	\$	9,380	\$	300	\$	9,680	\$	9,680
3 Water System Supply and Demand Forecast																				
3.1	Calculate Existing Water Demands				2				20			22	\$	4,190	\$	200	\$	4,390	\$	4,390
3.2	Water System Demand Forecast				2				20			22	\$	4,190	\$	200	\$	4,390	\$	4,390
3.3	Water System Storage and Supply				6					40		46	\$	7,670	\$	300	\$	7,970	\$	7,970
SUBTOTAL		0	0	0	10	0	0	0	40	40	0	90	\$	16,050	\$	700	\$	16,750	\$	16,750
4 Hydraulic Model																				
4.1	Develop Hydraulic Model				12					48		60	\$	10,380	\$	400	\$	10,780	\$	10,780
4.2	Assign Water Demands				1					4		5	\$	865	\$	-	\$	865	\$	865
4.3	Model Calibration				32					80		112	\$	20,240	\$	800	\$	21,040	\$	21,040
SUBTOTAL		0	0	0	45	0	0	0	0	132	0	177	\$	31,485	\$	1,200	\$	32,685	\$	32,685
5 Distribution System Evaluation																				
5.1	Evaluate Distribution System Capacities				20					80		100	\$	17,300	\$	700	\$	18,000	\$	18,000
5.2	Evaluate Capacity and Determine Sizing for Lyon Pipeline				4					8		12	\$	2,220	\$	100	\$	2,320	\$	2,320
SUBTOTAL		0	0	0	24	0	0	0	0	88	0	112	\$	19,520	\$	800	\$	20,320	\$	20,320
6 System Condition Assessment																				
6.1	Evaluate Rehabilitation and Replacement Needs				32					40		72	\$	14,040	\$	600	\$	14,640	\$	14,640
SUBTOTAL		0	0	0	32	0	0	0	0	40	0	72	\$	14,040	\$	600	\$	14,640	\$	14,640
7 Energy Reliability and Efficiency Analysis																				
7.1	Identify Critical Power Needs				8	8				12		28	\$	5,620	\$	200	\$	5,820	\$	5,820
7.2	Evaluate Potential Energy Savings				12	12				12		36	\$	7,500	\$	300	\$	7,800	\$	7,800
SUBTOTAL		0	0	0	20	20	0	0	0	24	0	64	\$	13,120	\$	500	\$	13,620	\$	13,620
8 Water System Capital Improvement Plan																				
8.1	20-Year Prioritized Capital Improvement Plan			8	8			16		16		48	\$	9,520	\$	400	\$	9,920	\$	9,920
SUBTOTAL		0	0	8	8	0	0	16	0	16	0	48	\$	9,520	\$	400	\$	9,920	\$	9,920
9 Water Master Plan Report																				
9.1	Draft Water Master Plan				24			8		54		86	\$	15,730	\$	600	\$	16,330	\$	16,330
9.2	Final Water Master Plan				16					24		40	\$	7,640	\$	300	\$	7,940	\$	7,940
9.3	Community Workshop and Presentations				24					8		32	\$	7,120	\$	300	\$	7,420	\$	7,420
SUBTOTAL		0	0	0	64	0	0	0	8	86	0	158	\$	30,490	\$	1,200	\$	31,690	\$	31,690
COLUMN TOTALS		6	8	12	295	20	0	16	68	524	15	964	\$	182,300	\$	7,300	\$	189,600	\$	189,600

+ 33

+ 7

+ 2 1/2

+ 22

+ 14

+ 0

+ 4

+ 3 1/2

+ 18

OT 1	Rip and Run Sheets															
OT 1.1	Prepare Rip and Run Sheets for 20 Projects				8					48		56	\$ 9,400	\$ 400	\$ 9,800	\$ 9,800
	Rip and Run Sheets TOTAL	0	0	0	8	0	0	0	0	48	0	56	\$ 9,400	\$ 400	\$ 9,800	\$ 9,800
	OPTIONAL TASKS TOTAL	0	0	0	8	0	0	0	0	48	0	56	\$ 9,400	\$ 400	\$ 9,800	\$ 9,800

MEMO

To: Board of Directors
From: District Manager
Prepared by: Engineering Manager
Subject: Award of Bid – Quail Well 5A and Olympia Well 3 Rehabilitation Project
Date: July 18, 2019

Recommendation:

It is recommended that the Board of Directors review this memo and adopt the attached resolution awarding the Quail Well 5A and the Olympia Well 3 Rehabilitation Project to Maggiora Brothers Drilling Inc., of Watsonville, CA in the amount of \$105,800.

Background

Both the Quail Well and the Olympia Well have been in production for nearly 20 years. Over the last few years the District has registered a steady decline in the production of the wells. Earlier this year a study was commissioned to investigate the cause of the decline. It was determined that a buildup on the well screens is restricting the flow of water into the well casings. Rehabilitation of the wells should restore the well production.

In response to formal bidding, the District received four bids for the Quail Well 5A and the Olympia Well 3 Rehabilitation Project as follows;

Maggiora Brothers Drilling, Inc.	\$105,800
Zim Industries, Inc.	\$147,900
Nor-Cal Pump & Well Drilling, Inc.	\$149,896
Lane Christensen Company	\$204,218

Staff have reviewed the bids. The low bidder has submitted all the required documents, including a bid bond, and is properly licensed to perform the well rehabilitation work. The Well Rehabilitation Project is a high priority project and staff is recommending the Board of Directors adopt the attached resolution awarding the Quail Well 5A and the Olympia Well 3 Rehabilitation Project to Maggiora Brothers Drilling Inc., of Watsonville, CA in the amount of \$105,800.

**SAN LORENZO VALLEY WATER DISTRICT
RESOLUTION NO. 1 (19-20)**

**AWARD OF CONSTRUCTION CONTRACT FOR QUAIL WELL 5A AND
OLYMPIA WELL 3 REHABILITATION PROJECT**

WHEREAS, the San Lorenzo Valley Water District has commissioned a report to investigate a reduction in the production of the Quail 5A and the Olympia Well 3; and

WHEREAS, the report found that both wells are in need of rehabilitation; and

WHEREAS, in response to a Notice Inviting Bids, the District received 4 bids for rehabilitation of the Quail Well 5A and the Olympia Well 3 with Maggiora Brothers Drilling, Inc. being the lowest.

NOW, THEREFORE BE IT RESOLVED, that the Board of Directors ("Board") of the San Lorenzo Valley Water District do hereby award the construction contract for the rehabilitation of the Quail Well 5A and the Olympia Well 3 to Maggiora Brothers Drilling, Inc. for a total of \$105,800.

PASSED AND ADOPTED by the Board of Directors of the San Lorenzo Valley Water District, County of Santa Cruz, State of California, on the 18th day of July, 2019 by the following vote of the members thereof:

AYES:

NOES:

ABSTAIN:

ABSENT:

Holly B. Hossack
Secretary of the Board
San Lorenzo Valley Water District



NOSSAMAN LLP

Memorandum

TO: Board of Directors,
San Lorenzo Valley Water District

FROM: Gina R. Nicholls, District Counsel

DATE: July 18, 2019

RE: Request to Schedule a Board Meeting to Discuss and Potentially
Authorize New Debt Issuance to Provide Financing for Capital Projects
502665-0001

RECOMMENDATION:

Staff recommends scheduling a meeting of the Board of Directors to take place on July 22, 23, or 24 for the purpose of reviewing and authorizing the District's proposed issuance of new debt, in the form of certificates of participation.

Proposed Motion: Schedule a meeting of the District's Board of Directors to take place on July **[22, 23 or 24]**, 2019, starting at 6:30pm at the District's Operations Building, located at 13057 Hwy 9 in Boulder Creek.

Alternatively, the Board could wait until August 1 to consider the proposed debt issuance; however, this alternative is not recommended for the reasons set forth below.

BACKGROUND:

At the Board meeting conducted on June 6, 2019, the Board voted to direct staff to move forward with pursuing a single debt issuance in the total principal amount of approximately \$10 million to provide financing for capital projects. Nossaman has been tasked with preparing necessary legal documents to effectuate the transaction. A proposed resolution of the Board to authorize the transaction and other key documents are ready for review.

If the Board authorizes the proposed debt issuance early next week, Nossaman believes that the transaction can be closed by the end of July. Moving quickly to authorize and close the transaction maximizes the likelihood that the District will be able to take advantage of currently favorable market conditions and interest rates. Additionally, closing the transaction by the end of July is desirable for logistics reasons.

This item has been placed on the agenda for discussion in order maximize Board member participation and public transparency.

FISCAL IMPACT:

TBD

MEMO

To: Board of Directors
From: District Manager
Subject: Declaration of Surplus Vehicles
Date: July 18, 2019

Recommendation:

It is recommended that the Board of Directors adopt the attached resolution declaring the following equipment as surplus and direct staff to dispose of by advertised sale or auction.

- Truck #226 Ford F-250 Maintenance Truck (Lompico)
- Truck #340 Ford Ranger Mid-Size

Background

The Districts 2018-19 Fiscal Budget provided for the replacement of vehicles that have reached their life expectancy. The vehicles have been purchased and placed in service. The vehicles replaced have reached their life expectancy and no longer have a use at the District.

Vehicle # 226 (2003 Ford F250) was acquired with the consolidation of Lompico and has approximately 163,000 miles on the odometer.

Vehicle 340 (2008 Ford Ranger) was assigned to Customer Service as a meter reading vehicle and has 152,000 miles on the odometer.

Both vehicles have reached their life expectancy and no longer have a use at the District. It is recommended that the Board of Directors adopt the attached Resolution declaring vehicles as surplus and authorize the District manager dispose by auction, or advertise sale.

Summary

It is recommended that the Board of Directors adopt the attached resolution declaring subject equipment as surplus, and direct staff to dispose of by advertised sale or auction.

SAN LORENZO VALLEY WATER DISTRICT

RESOLUTION NO. 3 (19-20)

SUBJECT: **RESOLUTION DECLARING SURPLUS VEHICLES AND PROVIDING FOR ITS DISPOSAL**

WHEREAS, pursuant to California Water Code §31041 the San Lorenzo Valley Water District ("District") is empowered to dispose of District property;

WHEREAS, the District's Director of Operations has reviewed various items of District vehicles and equipment and determined that they are of no further use to the District and that they should be disposed of; and

WHEREAS, the District's Director of Operations has reviewed and is recommending that it is in the best interests of the District to dispose of the following 2 items by auction or advertised sale using a competitive bidding process:

- Truck #226 Ford F-250 Maintenance Truck (Lompico)
- Truck #340 Ford Ranger Mid-Size

NOW, THEREFORE, BE IT RESOLVED by the Board of Directors of the San Lorenzo Valley Water District that the items of District property listed above are hereby declared to be surplus equipment, and the Board hereby directs the District Manager to proceed with disposing of the surplus property by auction or advertised sale using a competitive bidding process. Any items for which no bid is received may be sold for scrap. Any remaining items which are unsaleable may be otherwise disposed of as directed by the District Manager.

BE IT FURTHER RESOLVED that the Board hereby directs the District Manager, within 30 days after the sale or disposal of each item, to report to the Board in open session the sale price and the identity of the purchaser of each item sold or the recipient of any unsaleable item.

* * * * *

PASSED AND ADOPTED by the Board of Directors of the San Lorenzo Valley Water District, County of Santa Cruz, State of California, on the 9th day of November 2017, by the following vote of the members thereof:

AYES:
NOES:
ABSTAIN:
ABSENT:

Holly B. Hossack, District Secretary
San Lorenzo Valley Water District

MEMO

TO: Board of Directors

FROM: District Manager

SUBJECT: 2019 Election for Alternate Representative to LAFCO

DATE: July 18, 2019

RECOMMENDATION:

It is recommended that the Board of Directors review this memo and the attached documentation and by motion of the Board, authorize the President to execute a ballot on behalf of the District for one of the 3 candidates for the LAFCO alternate member representative.

BACKGROUND:

On June 12, 2019, the District received notification from the Santa Cruz Local Agency Formation Commission (LAFCO) regarding an election for the alternate member representative. The election will be conducted by mail ballot.

The 3 candidates for the regular member representative are:

Edward Banks, Pajaro Valley Public Cemetery District;
Carla C. Christensen, Soquel Creek Water District; and
Edward Harmon, Scotts Valley Fire Protection District

LAFCO's alternate member position is currently vacant because Rachel Lather was selected as the special district regular member in May 2019. This election is being conducted to fill the alternate member seat.

The ballot is due no later than **4:00 p.m. July 26, 2019.**



Santa Cruz Local Agency
Formation Commission
701 Ocean Street, Room 318-D
Santa Cruz, California 95060
Phone: (831) 454-2055

June 10, 2019

RECEIVED

JUN 12 2019

SAN LORENZO VALLEY
WATER DISTRICT

Email: info@santacruzlafco.org
Website: www.santacruzlafco.org

Chair
San Lorenzo Valley Water District
13060 Central Ave.
Boulder Creek CA 95006

SUBJECT: ELECTION FOR THE SPECIAL DISTRICT ALTERNATE MEMBER SEAT ON LAFCO

Dear Board Chairperson:

The purpose of this letter is to solicit your district's vote for the alternate member seat on LAFCO. The independent special districts in Santa Cruz County get three positions on the LAFCO board. The regular member seats are currently held by Jim Anderson (Felton Fire Protection District) with his term ending in May 2021, and Rachel Lather (Soquel Creek Water District) with her term ending in May 2023. The alternate member seat is currently vacant and its term ends in May 2021. LAFCO staff is now conducting an election to fill the alternate member seat on LAFCO.

Candidates

LAFCO received three nominations prior to the June 7th deadline. Background information from each candidate is enclosed for your review. The three candidates running for LAFCO's special district alternate member seat are:

- Edward K. Banks (Pajaro Valley Public Cemetery District);
- Carla C. Christensen (Soquel Creek Water District); and
- Edward Harmon (Scotts Valley Fire Protection District)

Election Process

The election will be conducted by mail. Each district gets one vote, which shall be executed on the enclosed ballot by either the presiding officer of the district board, or by his or her designee. **The deadline to return the executed ballot to the LAFCO office will be no later than 4:00 p.m. on July 26, 2019.** Ballots can be mailed, hand-delivered, or emailed to the LAFCO office. If emailed, please follow-up by mailing the ballot with an original signature. LAFCO staff will open and tally the ballots at 4:00 p.m. in the LAFCO office. Anyone who wishes to observe the tally should come to the LAFCO office at that time.

The Independent Special District Selection Committee rules of procedure are posted on the Policies and Rules page of LAFCO's website. Please contact Debra Means or me at the LAFCO office if you have any questions about the voting process.

Sincerely,

A handwritten signature in black ink, appearing to read 'Joe A. Serrano'.

Joe A. Serrano
Executive Officer

Attachments: Candidates' Information
Ballot and Certification of Person Voting
Return Envelope

LOCAL AGENCY FORMATION COMMISSION OF SANTA CRUZ COUNTY



RECEIVED

JUN 7 2019

CALL FOR:
SPECIAL DISTRICT ALTERNATE MEMBER
NOMINATION PERIOD CLOSING JUNE 7, 2019

Santa Cruz LAFCO

INSTRUCTIONS:

If you are interested in serving as a special district alternate member on LAFCO, please complete and sign the following application and either mail, hand deliver, or email form to:

Mailing address:

LAFCO
701 Ocean Street, Room 318-D Santa Cruz CA 95060

Email:

Debra Means, Commission Clerk
debra@santacruzlafco.org

Applications must be received in the LAFCO office no later than **5:00 p.m. on Friday, June 7, 2019.**

Thank you for your interest in the Local Agency Formation Commission.

NOMINEE INFORMATION:

Name: EDWARD K. BANKS

Mailing Address: 775 MCKENZIE AVE. WATSONVILLE, CA 95076

Phone(s): Home: 831-722-4226 Cell: 831-419-2851 Business: 831-724-1085

Email Address: EDBANKS@KRBKINSURANCE.COM

District Board on which you currently serve on: PAJARO VALLEY PUBLIC CEMETERY DIST.

Previous Board, Commission, or Committee served:

Organization: SANTA CRUZ COUNTY
GRAND JURY

Term: 1985-86

Organization: SANTA CRUZ COUNTY
PLANNING COMMISSION - ALTERNATE
SANTA CRUZ CO. HAZARDOUS

Term: MID 1980'S

Organization: MATERIALS ADVISORY COMM.

Term: 4-2005 TO 4-2009

STATEMENT OF INTEREST:

You may attach separate documents, including a brief resumé, to present additional qualifications or provide a Statement of Interest in serving on LAFCO.

CERTIFICATION:

I certify that the information provided is true and correct, and I authorize the verification of the information in the application.

EDWARD K. BANKS

Printed Name of Board Member Interested in Serving on LAFCO

Signature

Ed Banks

Date

6-7-2019

Edward K. Banks

Ed Banks, a native Californian, was born in San Francisco and grew up in La Selva Beach. He attended Aptos Elementary School and is a 1966 graduate of Watsonville High School. He received his A.A. degree from Cabrillo College in 1968 and Bachelor of Arts degree from Sonoma State University in 1970. His military commitment commenced as a Naval Reservist in November of 1970, being stationed at Flag Administrative Unit, Naval Air Station Barbers Point, Hawaii. His active duty assignment concluded in August of 1972, and ultimate honorable discharge in August of 1975.

Ed has been in the insurance profession since 1972, beginning with commercial underwriting assignments at the Hartford Insurance Company, San Francisco, and Fireman's Fund Insurance Company, San Jose. In 1977, he moved back to Watsonville to join the firm of Martin & Friend Insurance Agency. In April of 1996, he merged the agency with Kane-Hall-Palmtag Insurance to form KBK Insurance Agency.

Ed's community service has included serving on the following organizations' boards of directors: Insurance Brokers and Agents of the West, Independent Insurance Agents & Brokers of Watsonville (past president), Watsonville National Little League, Watsonville YMCA, Pajaro Valley Chamber of Commerce, Rotary Club of Watsonville (past President 1993-94), Monterey Bay Bank and Watsonville Firefighters' Association. He was a reserve lieutenant for the Watsonville Fire Department from 1981 to 2006. During his 25-year career with the fire department, he successfully completed courses of study in Fire Command Operations and Fire Cause Determination at the National Fire Academy, Emmitsburg, Maryland. He also served on the Santa Cruz County Grand Jury in 1985-86 as well as the Santa Cruz County Hazardous Materials Advisory Commission 2007-2009. In 2010, Ed attended the National Emergency Training Center, Emmitsburg, Maryland, receiving certificates of completion in Community Emergency Response Team Operations and Program Management.

Ed has volunteered as a Community Emergency Response Team (CERT) instructor for the City of Watsonville CERT program.

He is past president of the board of directors of the Cabrillo College Foundation. Ed also currently serves as a trustee of the Pajaro Valley Cemetery District as well as Area VII Trustee for Cabrillo Community College.

An avid San Francisco Giants' fan has taken "road trips" with his sons and Father-in-law. Ed also likes gardening, travel and an occasional round of golf with friends.

Eb01112019

LOCAL AGENCY FORMATION COMMISSION OF SANTA CRUZ COUNTY RECEIVED



CALL FOR:

SPECIAL DISTRICT ALTERNATE MEMBER
NOMINATION PERIOD CLOSES JUNE 7, 2019

JUN 6 2019

Santa Cruz LAFCO

INSTRUCTIONS:

If you are interested in serving as a special district alternate member on LAFCO, please complete and sign the following application and either mail, hand deliver, or email form to:

Mailing address:

LAFCO
701 Ocean Street, Room 318-D Santa Cruz CA 95060

Email:

Debra Means, Commission Clerk
debra@santacruzlafco.org

Applications must be received in the LAFCO office no later than **5:00 p.m. on Friday, June 7, 2019.**

Thank you for your interest in the Local Agency Formation Commission.

NOMINEE INFORMATION:

Name: CARLA C. CHRISTENSEN

Mailing Address: 101 SAXON AVE. CAPITOLA, CA 95010

Phone(s): Home: (831) 479-4759 Cell: (831) 818-9396 Business: (831) 475-8501

Email Address: CCCHRISTE@SCL.COM & CARLAC@SOQUELCREEKWATER.org

District Board on which you currently serve on: SOQUEL CREEK WATER DISTRICT

Previous Board, Commission, or Committee served:

Organization: _____ Term: _____

Organization: _____ Term: _____

Organization: _____ Term: _____

STATEMENT OF INTEREST:

You may attach separate documents, including a brief resumé, to present additional qualifications or provide a Statement of Interest in serving on LAFCO.

CERTIFICATION:

I certify that the information provided is true and correct, and I authorize the verification of the information in the application.

CARLA C. CHRISTENSEN

Printed Name of Board Member Interested in Serving on LAFCO

Carla C. Christensen
Signature

June 6, 2019
Date



Board of Directors
Dr. Thomas R. LaHue, President
Dr. Bruce Daniels, Vice-President
Dr. Bruce Jaffe
Carla Christensen
Rachel Lather

Ron Duncan, General Manager

June 5, 2019

Sent Vial Email: debra@santacruzlafco.org

Debra Means, Commission Clerk
Santa Cruz Local Agency Formation Commission (LAFCO)
701 Ocean Street, Room 318-D
Santa Cruz, CA 95060

RE: Special District Alternate Member Nomination

Dear Ms. Means,

I am interested in serving as an alternate on the Santa Cruz Local Agency Formation Commission (LAFCO) because I have had a long-standing interest in land use policy during my long career in environmental science. I was publicly elected and have been serving on the Soquel Creek Water District's Board of Directors since December 2014. My service to our community as a Soquel Creek Water District Board member has only deepened this interest.

My background discipline in environmental science gives me a rigorous framework to analyze land use questions, which I believe may serve our county well.

I would like you to consider my candidacy based on what I can contribute, as well as what knowledge I will derive on land use decisions by local agencies in Santa Cruz County. Thank you for your consideration.

Sincerely,

Carla C. Christensen, Director

Soquel Creek Water District

Cc: Ron Duncan, General Manager, Soquel Creek Water District

LOCAL AGENCY FORMATION COMMISSION OF SANTA CRUZ COUNTY



RECEIVED

CALL FOR:
SPECIAL DISTRICT ALTERNATE MEMBER
NOMINATION PERIOD CLOSING JUNE 7, 2019

MAY 29 2019

INSTRUCTIONS:

Santa Cruz LAFCO

If you are interested in serving as a special district alternate member on LAFCO, please complete and sign the following application and either mail, hand deliver, or email form to:

Mailing address:

LAFCO
701 Ocean Street, Room 318-D Santa Cruz CA 95060

Email:

Debra Means, Commission Clerk
debra@santacruzlafco.org

Applications must be received in the LAFCO office no later than **5:00 p.m. on Friday, June 7, 2019.**

Thank you for your interest in the Local Agency Formation Commission.

NOMINEE INFORMATION:

Name: Edward Harmon

Mailing Address: 3012 Granite Creek Road, Scotts Valley, Ca 95066

Phone(s): Home: _____ Cell: 650 575 6442 Business: 650 604 1648

Email Address: eharmon@scottsvalleyfire.com

District Board on which you currently serve on: Scotts Valley Fire

Previous Board, Commission, or Committee served:

Organization: Scotts Valley Art Wine Festival Term: continuing (last 4 yrs)

Organization: Tuscan Hills HOA Board President Term: 2 yrs

Organization: Scotts Valley School Board Term: 4 yrs
Measure A Bond Oversight Committee

STATEMENT OF INTEREST:

You may attach separate documents, including a brief resumé, to present additional qualifications or provide a Statement of Interest in serving on LAFCO.

CERTIFICATION:

I certify that the information provided is true and correct, and I authorize the verification of the information in the application.

Edward Harmon

Printed Name of Board Member Interested in Serving on LAFCO

Edward Harmon
Signature

May 21, 2019
Date

Interest Statement and Bio for Edward Harmon

LAFCO is of interest to me because of its wide ranging responsibilities related to governmental boundaries and regional planning. The opportunity to participate in and contribute to the economic wellbeing of the community through visionary and strategic decision making that considers all stakeholders interest attracted me to offer up my services as an alternate member of the Santa Cruz LAFCO Commission

I am currently employed as the Missions Manager for NASA SOFIA program at Ames Research Center. My responsibilities include managing airborne observatory operations for 80 science flights a year, coordinating worldwide deployments of the observatory, and managing the Science and Mission Operations contractors.

Prior to joining NASA in 2005, I was the Verification and Validation Manager for Lockheed Martin Space Operations, and Integration and Test Engineer at Electromagnetic Systems Laboratory in Sunnyvale.

I am a native of California who grew up in Sacramento and has spent majority of his career in Silicon Valley. I have a B.S. in Information Technology and my inquisitive mind is always on a lookout for new challenges and projects. My wife and I live in Scotts Valley, where I serve on the Board of Directors for the Scotts Valley Fire Protection District. In the last few years I have volunteered as a public member at-large for Scotts Valley General Plan Advisory Committee and Scotts Valley School District Measure A Oversight Committee, kids, I spend my free time on tennis, golf, knife making and traveling.

2019 BALLOT
for the
SPECIAL DISTRICT
ALTERNATE MEMBER SEAT
on LAFCO
Term Ends May 2021

Please check the box to the left of the person you are voting for.
Vote for ONE nominee only.

- | | | |
|--------------------------|----------------------|--|
| ☐ | Edward K. Banks | Pajaro Valley Public Cemetery District |
| ☐ | Carla C. Christensen | Soquel Creek Water District |
| ☐ | Edward Harmon | Scotts Valley Fire Protection District |

- After voting, please hand deliver or mail the ballot back to LAFCO in the enclosed envelope. Emailed ballots are accepted, but they must be followed up by mailing the ballot with an original signature.
- Ballots will be counted at 4:00 p.m. on Friday, July 26, 2019.
- Any ballots received after that time will not be counted.

District Voting: San Lorenzo Valley Water District

Signature of Board Chair or his/her designated representative

Printed Name

Date

M E M O

TO: Board of Directors

FROM: District Manager

SUBJECT: CALIFORNIA SPECIAL DISTRICT ASSOCIATION 2019
BOARD OF DIRECTORS ELECTIONS

DATE: JULY 18, 2019

RECOMMENDATION:

It is recommended that the Board of Directors review and consider the nominees for CSDA Board of Directors Seat B in the Coastal Network - Term 2020-2022.

BACKGROUND:

Each of CSDA's 6 networks has 3 seats on the CSDA Board. Each of the candidates is either a board member or management-level employee of a member district located in the network. As a *Regular Member in good standing* we are entitled to 1 vote.

The District received notice of an upcoming election for an open seat on the CSDA Board of Directors Seat B in the Coastal Network. Candidate information is provided for 2 nominees. The SLVWD Board of Directors may choose to vote for 1 of the candidates.

The Deadline to submit our vote is **5:00 p.m. on Friday, August 9, 2019.**



**California Special
Districts Association**
Districts Stronger Together

2019 CSDA BOARD CANDIDATE INFORMATION SHEET

The following information **MUST** accompany your nomination form and Resolution/minute order:

Name: Jeff Hodge, SDA

District/Company: Santa Ynez Community Services District

Title: General Manager

Elected/Appointed/Staff: Staff

Length of Service with District: 5.5 years

- 1. Do you have current involvement with CSDA (such as committees, events, workshops, conferences, Governance Academy, etc.):**

I am currently the CSDA Vice-President and have been the Vice-Chair of the CSDA Legislative Committee for three years and was the CSDA Secretary for 2018. I am currently on the Santa Barbara Chapter of CSDA Board and was past president.

- 2. Have you ever been associated with any other state-wide associations (CSAC, ACWA, League, etc.):**

Association of California Water Agencies (ACWA), California Association of Sanitation Agencies (CASA).

- 3. List local government involvement (such as LAFCo, Association of Governments, etc.):**

None

- 4. List civic organization involvement:**

None

****Candidate Statement – Although it is not required, each candidate is requested to submit a candidate statement of no more than 300 words in length. Any statements received in the CSDA office after April 17, 2019 will not be included with the ballot.**

Jeff is currently the General Manager of the Santa Ynez Community Services District and is the current CSDA Vice-President.

Jeff has been the Vice-Chair of the CSDA Legislative Committee for three years and was the CSDA Secretary for 2018.

Jeff received his Special District Administrator (SDA) certification in August 2018.

Jeff has a Bachelor of Arts degree in Political Science and a Master's degree in Business Administration.

He has over 20 years' experience managing Special Districts in Colorado, Arizona and California. He has managed special districts that provided Fire, Police, Water, Sewer, Trash, Cemetery, Roads, Street Lights, Parks and Recreation, and Drainage.

Jeff has a California Grade IV Wastewater Plant Operator certification.

He was appointed to an airport advisory board in Colorado and Arizona and is a two-time past president of different local Rotary Clubs and past President of the Santa Ynez Chamber.

He has experience in writing, introducing and shepherding legislation for Special Districts, permitting and constructing new water and wastewater facilities and upgrading existing facilities.

Jeff is married to Christine and has two daughters and two grandchildren.

Jeff enjoys flying, sailing, kayaking and exploring all the great things California and the world has to offer.

Jeff Hodge



California Special
Districts Association
Districts Stronger Together

2019 CSDA BOARD CANDIDATE INFORMATION SHEET

The following information **MUST** accompany your nomination form and Resolution/minute order:

Name: John R. (Jack) Curtis

District/Company: Ojai Valley Sanitary District

Title: Director

Elected/Appointed/Staff: Elected

Length of Service with District: 21 yrs. as staff & 13 yrs. as Director

1. Do you have current involvement with CSDA (such as committees, events, workshops, conferences, Governance Academy, etc.):

N/A

2. Have you ever been associated with any other state-wide associations (CSAC, ACWA, League, etc.):

CASA, CSDA Lions Clubs of America, Toastmaster, Wounded Warriors of America, Boy Scouts of America

3. List local government involvement (such as LAFCo, Association of Governments, etc.):

Assoc. of Water Agencies (Founded Director), Ventura County Special Districts Assoc. (Founding Director), LAFCO 9 years & current, Ventura River Water District (40 yrs), Ojai Valley Sanitary District

4. List civic organization involvement:

Ojai Valley Retired Mens Club, Nordhoff High School Booster Club, County Planning Program, Ventura County 2000 Planning Program

****Candidate Statement** – Although it is not required, each candidate is requested to submit a candidate statement of no more than 300 words in length. Any statements received in the CSDA office after April 17, 2019 will not be included with the ballot.

JOHN R. (JACK) CURTIS

OJAI, CALIFORNIA 93023
(john.curtis@ojaisan.org)

I was elected to the Ojai Valley Sanitary District (OVSD) Board of Directors in December 2014; I previously served on this Board from 2002-2010. During my time on the OVSD Board I have served as Chair, Vice Chair, Board Secretary and Assistant Secretary, as well as serving on numerous board committees. Currently I also serve on the Ventura River Water District (VRWD) Board of Directors; I have served on the VRWD Board since 1978.

I have an extensive background in the construction industry, including participating in the construction of portions of the Ojai Valley Sanitary District's collection system in 1963-65. I and my family moved to the Ojai Valley in April 1962. I have been active in the community for many years; serving on numerous local boards and organizations. Currently I serve on the Ventura County Local Agency Formation Commission. .

I am one of the founding Directors of the Ventura County Special Districts' Association (VCSDA) and the Association of Water Agencies (AWA) representing County Water Districts. I served nine years as a Director on the California Special Districts Association Board of Directors.



**BOARD OF DIRECTORS
SAN LORENZO VALLEY WATER DISTRICT
MINUTES
JUNE 6, 2019**

Thursday, June 6, 2019 at 6:30 p.m., SLVWD, 13057 Highway 9, Boulder Creek, CA 95006.

1. Convene Meeting 6:30 p.m.

Roll Call: Directors Farris, Fultz, Henry and Swan were present. Dir. Smallman was absent.

Staff: S. Hill-Director of Finance & Business Services, D. Langfield-Engineering Manager, J. Furtado-Director of Operations, R. Rogers-District Manager, H. Hossack- Dist. Secretary

2. Additions and Deletions to Agenda: None

3. Oral Communications:

M. Lee-Ben Lomond, noted that there are 2 Board members on the Santa Margarita Groundwater Agency, they should make sure that SMGWA decisions should follow SLVWD policy.

E. Frech-Lompico, said that he would like the SMGWA Board Members report what happened at the SMGWA meetings to the SLVWD Board.

4. Unfinished Business:

a. WEBSITE REDESIGN, DEVELOPMENT AND MAINTENANCE SERVICES

R. Rogers introduced this item. He said the District has been planning to update the website for some time.

S. Hill said there are 2 presenters and introduced them.

Jordan Cairns CIVIC Plus gave a presentation.

Maria Lara Streamline gave a presentation.

Discussion by Board and staff regarding costs.

V. Champlin said that he does want Streamline, it's just an app not a tool. CIVIC Plus is better. Drupal is a giant tool box. Both were good but CIVIC Plus has more options.

L. Henry how important is it that Streamline can keep us updated on changes to the laws.

S. Hill said she will ask Civic PLUS if they can keep us updated on the laws.

V. Champlin said Streamline emphasizes that because they highlight their strength.

M. Lee said CIVIC Plus is more effective and robust.

V. Champlin how many set your browser on another language is automatic.

M. Lee questioned if we can afford the more expensive service.

S. Hill says she takes V. Champlin's opinion seriously. She likes Streamline's simplicity. Civic PLUS seems to have the option for extra layers.

R. Rogers CIVIC had a better presentation. Doesn't want all staff posting to the website. More everyday features on Civic.

Discussion by staff and public regarding access to posting on the website.

R. Rogers said that the most important aspect is outreach.

B. Fultz asked if staff has a recommendation.

S. Hill said that she changed her mind with the presentations.

R. Rogers said that he is leaning toward Civic.

B. Fultz questioned if staff has questioned possible negotiations regarding costs.

S. Hill said we could try.

L. Farris noted that when the discussion started there were 2 things everyone agreed on 1) ease of use, 2) horsepower for future applications. Civic has both.

B. Fultz said that he is comparing Ruby on Rails vs. Drupal. Drupal wins.

He questioned whether Civic conforms to CA requirements.

R. Rogers questioned updating of websites. In 3 to 5 years will be looking to update the website again.

B. Fultz said the he uses a lot of products; he's been paying the same price for 6 years now.

S. Swan said Virgil is right. Civic gave a better presentation. He said he thinks they can help guide a better design.

S. Hill thought the opposite.

V. Champlin said no one has mentioned the hosting that is being provided. Civic definitely wins that.

B. Fultz federal compliance is coming.

R. Rogers said it sounds like we have a consensus. We need to direct staff to move ahead.

B. Fultz said he would like staff to check on a couple of things.

S. Hill stated CA compliance would be contingent on the motion.

Discussion by Board, staff and public regarding ADA compliance.

M. Lee questioned why does the decision have to be made tonight?

S. Hill said we can make a motion contingent on a couple of questions.

B. Fultz made a motion that SLVWD move forward with engaging Civic PLUS for our new website development subject to their confirmation that will conform to California requirements.

S. Swan seconded the motion.

All present voted in favor of the motion. Motion passed.

b. WATERSHED EDUCATION & DATA RESTORATION WATERSHED GRANTS - FINAL REPORTS

R. Rogers introduced the item due to absence of Environmental Manager.

M. Lee questioned how much is the grant for and he thought this had been discontinued.

L. Henry responded that this was a grant that was given in 2018 and this is the final 10% due at the final report.

R. Rogers said that the grant was for \$5,000 and the final due is the \$563.
S. Swan made a motion to accept both of the final reports.
B. Fultz seconded.
All present voted in favor of the motion. Motion passed.

c. GRAND JURY RESPONSE

G. Nicholls introduced the item. Grand Jury updated letter has been before the Board before. The deadline is Monday for the response so she would like the Board to approve the letter as is or with edits tonight.

L. Henry asked for comments.

S. Swan made a motion to approve the letter response as written and authorize staff to submit it to the Grand Jury.

L. Farris seconded the motion.

All present voted in favor of the motion. Motion passed.

5. New Business:

a. BOARD MEETING SCHEDULE

R. Rogers introduced the revised Board schedule of regular meetings.

B. Fultz said the schedule appears to be what was discussed last meeting.

B. Fultz made a motion to adopt the Board meeting schedule as presented in the agenda.

S. Swan seconded the motion.

All present voted in favor of the motion. Motion passed.

b. SPECIAL DISTRICTS RISK MANAGEMENT AGENCY 2019 BOARD ELECTIONS

R. Rogers introduced this item. The Board is instructed to choose 3 of the 5 candidates.

L. Henry said one of the candidates, James Hamlin, didn't seem to take his application seriously.

Discussion by the Board.

M. Lee would like the Board to look at J. Claypool.

B. Fultz made a motion to vote for Mr. Swan, Mr. O'Rourke and Ms. Seifert-Raffelson.

L. Farris seconded.

All present voted in favor of the motion. Motion passed.

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6. Consent Agenda: none

7. District Reports:

• DEPARTMENT STATUS REPORTS

Receipt and consideration by the Board of Department Status Reports regarding ongoing projects and other activities.

o Engineering

o Environmental

o Finance

▪ Status Report

- Quarterly Financial Report
 - Bill List
 - o Legal
 - o Operations
 - J. Furtado said that there was a leak since January that Operations was unable to find because it didn't surface. Customer Service Representative found the leak. It was a 26 gpm leak, 6 million gallons were lost.
 - B. Fultz calculated that it was 2% of our annual water.
 - S. Swan said the employee should receive acknowledgement.
 - D. Langfield updated Swim Tank project.
 - R. Rogers continued the Swim Tank update.
 - B. Fultz questioned how much less this will cost.
 - R. Rogers said he thinks it will be about \$750,000 savings.
 - J. Furtado there is 500 pipeline associated with this project that will need to be installed.
 - R. Rogers said the pipeline is part of the CIP. There are still a few items to check off before this project can start. Geotech will have to determine stability, appraisal, etc.
 - D. Langfield said we will need to determine that the site is large enough.
 - B. Fultz said he would like to start seeing projects on facebook and website.
 - L. Henry said this is another win win for the District.
 - R. Rogers said there will be more information to come.
 - E. Frech asked when is the District going to move on the PRVs?
 - D. Langfield explained the process.
 - E. Frech would like a heads up before they start.
 - Furtado and Langfield responded.
 - R. Rogers we are planning to have construction updates on the new website.
 - M. Lee questioned the Swim Tank alternate site, location and owner disclosure.
 - R. Rogers asked Gina to respond.
 - G. Nicholls said the information is not confidential.
 - R. Rogers said we are moving ahead regarding property owned by Nick Nacarri.
 - L. Henry questioned when the District will announce that everyone has signed the settlement agreement.
 - G. Nicholls the case is over; all we have to do is file the Notice of Dismissal. All parties have sent settlement checks.
- COMMITTEE REPORTS
 - o Future Committee Agenda Items
 - o Committee Meeting Notes/Minutes
 - B & F Committee Minutes 4.9.19
 - Environmental Committee Minutes 4.11.19
 - LADOC Workshop 4.17.19

- Admin Committee Minutes 5.1.19
- B & F Committee Minutes 5.7.19
B. Fu spoke about the 6.4.19 B & F Committee meeting.
L. Farris spoke about the 6.6.19 took 2 actions. Not recommend BCE go back out to proposal. Considered the water master plan and recommend WSC.
M. Lee questioned if the contract with WSC been amended.
R. Rogers said that we are phasing out “as needed” contract.
D. Loewen spoke about 5.28.19 LADOC meeting.

8. Written Communication:

- o Email from J. Parks 5.29.19 - Environmental
- o Email from E. Fresco 5.29.19 - Budget
- o Email from P. Gelblum 5.29.19 - Water Conservation
- o Letter from Soquel Creek Water District 5.29.19 - Fish Monitoring
- o Written Communication from 5.29.19 Agenda Packet-25 Items

9. Informational Material:

- o Water District Board Approves Restoration Project-Press Banner 5.17.19
- o Questions from Operations Presentation
- o Conflict Arises with Water District-SC Sentinel 5.31.19
- o Informational Material from 5.29.19 Agenda Packet-2 Items

10. Adjournment 8:49 p.m.



**SPECIAL
BOARD OF DIRECTORS
SAN LORENZO VALLEY WATER DISTRICT
MINUTES
June 6, 2019**

Thursday, June 6, 2019 at 5:30 p.m., SLVWD, 13057 Highway 9, Boulder Creek, CA 95006.

MINUTES

1. Convene Meeting 5:40 p.m.

Roll Call: Dir. Farris, Dir Fultz, Pres. Henry, Dir. Swan were present. Dir. Smallman was absent.

Staff: S. Hill-Director of Finance & Business Services, D. Langfield-Engineering Manager, J. Furtado-Director of Operations, R. Rogers-District Manager, H. Hossack-District Secretary

2. Additions and Deletions to Agenda: None

3. Unfinished Business: None

4. New Business:

a. FINANCING TERMS AND CONDITIONS

S. Hill introduced this item. She explained the reason for rushing this item to the Board. She requests that by motion of the Board the District will pursue more favorable interest rates for Capital Improvement Projects. She also explained the USDA loan and the fact that we will not back out of the USDA loan until we are able to close on the MCM loan.

Chris from MCM said that the capital markets are \$3.5 trillion in US bonds, US Treasury bonds, securities, stocks all in the global capital markets. USDA is supposed to be a last resort. Rates are still dropping

B. Fultz asked if this is to be done by resolution.

S. Hill the resolution will come later. MCM needs a motion by to Board to proceed.

B. Fultz questioned how much of the work that was done for the USDA loan would not have been required for this process.

S. Hill a lot of the engineering and permitting would still need to be done and was actually expedited by USDA. With a federal program NEPA is required and if we change sites for the Swim Tank we will have to go through the permitting process again. With MCM we do not have to go through NEPA.

Chris said that he had spoken to USDA and they said that with the Swim Tank you would have to go back for reapproval. It would still have the same rate but there could be a timeline issue.

S. Hill 30 years is a good term. If we find better financing down the road we can change.

L. Farris questioned page 6 you have Option A principal and interest payments at \$19 million, Option B has \$16.3 million, is the savings of 2.7 million?

Chris said yes, it's a significant impact. That's the difference between a 30 year and 40-year term. Plus, the difference between 3% and 4%.

L. Farris said the total amount financed is \$10.5 million and you suggest we drop out the unfunded pension liability and add more capital.

S. Hill said that is correct. So we are looking at approximately \$10 million.

B. Holloway-Boulder Creek, questioned if S. Hill prefers semi-annual or annual.
S. Hill said she has no preference.
Chris said you would have interest and principal payments semi-annually.
Amortize a little more by adding more payments.
B. Holloway said that he is trying to understand about the \$13,000 annual debt service.
S. Hill explained that it is rolled into the interest.
Discussion by staff and public regarding interest payments.
M. Lee-Ben Lomond, what is the bi-annual payment at 3%?
S. Hill said it varies.
D. Loewen-Lompico, as a comparison what was the USDA loan payment?
S. Hill said that is Option A. About \$540,000 for 10 years longer.
M. Lee, the interest rate is what and it can change over the term of the loan?
Chris said no, the fixed rate is set for 30 years.
B. Fultz made a motion to direct staff to continue with the financing processing for Option B of the attached terms and conditions for private placement for \$10.5 million.
S. Swan seconded the motion.
All present voted in favor of the motion. Motion passed.

5. Adjournment 6:03 p.m.



**BOARD OF DIRECTORS
SAN LORENZO VALLEY WATER DISTRICT
MINUTES
June 20, 2019**

Thursday, June 20, 2019 at 6:30 p.m., SLVWD, 13057 Highway 9, Boulder Creek, CA 95006 and teleconferencing from Vorsfelder Strase 9, 38471 Brechtorf, Germany.

1. Convene Meeting 6:30 p.m.

Roll Call: Dir. Farris, Dir. Swan, Pres. Henry were present. Dir. Fultz will be teleconferencing in from Germany (6:44 p.m.). Dir. Smallman was absent.
Staff: R. Rogers-Dist. Manager, S. Hill-Dist. of Finance & Business Services, J. Michelsen-Environmental Manager, D. Langfield-Engineering Mgr., G. Nicholls-Dist. Counsel, H. Hossack-Dist. Secretary

2. Additions and Deletions to Agenda:

R. Rogers would like to move item 5a to the first item of business.

3. Oral Communications:

L. Henry explained the process and requested that each speaker address the Board and not to talk among themselves.

L. Ford-Felton, said that he had a very useful meeting with Director Farris and it seems to him that the Board is missing an important opportunity to be prepared for fire management and also earthquake damage recovery. Cutting the environmental programs are going to compromise the ability manage this issues. Instead of cutting budgets, you should focus on new, creative ways to generate new revenue.

J. Mosher-Felton, he was sad to see that the water at the Redwood Mtn. Faire came from Santa Cruz City Water.

J. Gomez-Lompico, said that she attended a meeting regarding PG&E. She noted how wonderful it is to have local utilities with interest in the community versus PG&E. PG&E has no environmental stewardship, no conservation and they are only concerned about their bottom line, profits and bonuses. They are killing their customers and gouging us to do it.

C. Finnie-Boulder Creek, said that environmental stewardship is more that banning glyphosate. Our watershed is a resource that provides us with the clean water that we all value. Once lost it is not easy to recover and the same goes for our aquifer.

E. Fresco-Felton, said she agrees with everyone that has spoken and asked if anyone has ideas about how to get more revenue, what can we do? Can we charge more for water to those that use more?

D. Loewen-Lompico, said she is reading a book from the 1960's that has a section about the San Lorenzo Valley with a list of water projects and the environmental protection. #1 was fixing all of the leaks in the system.

V. Campbell-Felton, she works at Soquel Creek Water Dist. and the Water Conservation Coalition, communicating to all of county agencies. Started to serve the whole community and county sharing media costs to benefit all of the county water

districts with similar issues. SLVWD has been a member for many years and paid into the program based on the number of water connections.

5. New Business:

a. BOULDER CREEK BUSINESS ASSOCIATION REQUEST TO
PLACE A BENCH ON DISTRICT PROPERTY

R. Rogers introduced this item.

T. O'Kelly, K. Edwards from the Boulder Creek Business Association introduced the BCBA project for placing benches in downtown Boulder Creek. Fundraising is the only source of income for the BCBA. They are starting with one bench as a pilot project. They need a space that is on private property, because of the CalTrans right of way and permitting requirements, to place the pilot project bench. They are looking at several sites downtown, including the site in front of the SLVWD Ops Bldg. K. Edwards added that a cleaner has been hired to maintain the downtown, once a month. The trash cans have been sited and they can't change the location of trash cans.

L. Farris clarified that we are talking about a bench and flowers pots, but not a trash can.

T. O'Kelly said she is just talking about the bench.

S. Swan asked if the BCBA is able to meet the conditions set by the Dist. Manger.

T. O'Kelly it is a BCBA Board decision; they were not aware of the conditions until tonight.

E. Fresco to clarify, if the District says yes, you might still choose another location.

T. O'Kelly said that is correct, it is a BCBA Board decision.

B. Springer said when the park was put in Felton there was a lot of concern that it would attract homeless. That park has proved to be an asset to the community.

C. Baughman sounds like you thought this through this process very well. He thinks the District should give it a try.

V. Campbell will a recycle bin be included with the trash can?

T. O'Kelly said yes, trash and recycling will be available.

R. Rogers said most important things outlined as bullet points in the memo are liability and trash cans.

4. Unfinished Business:

a. PUBLIC MEMBER COMMITTEE APPOINTMENTS

R. Rogers introduced this item.

S. Architzel introduced himself as an auditor at UCSC with a strong financial background.

L. Henry welcomed Mr. Architzel.

L. Farris made a motion to add Steve Architzel to the Budget & Finance Committee.

J. Mosher said that he was pleased to see his application in the Board packet, he thinks S. Architzel will be a positive addition to the Committee.

C. Baughman said he has an impressive resume and will be a wonderful addition to the Committee.

B. Fultz said he has an impressive resume and he looks forward to having his expertise on the Committee.

L. Henry said that she is very impressed.

S. Swan seconded the motion.

All present voted in favor of the motion. The motion passed.

R. Rogers added that the District will not actively advertise the other unfilled committee openings but will continue to post in Lompico and keep the applications on the website.

D. Loewen said she would prefer that the District advertise on Next Door and Facebook. She doesn't believe that the letter was very effective.

b. FISCAL YEAR 2019/20 BUDGET

R. Rogers introduced this item and then turned it over to the Director of Finance.

S. Hill presented the Budget. She would like to go over the highlights. The overall budget is \$19.8 million, \$8.8 million of that is in Capital Projects. We are trying to lock in a loan with very low rates for CIP with more flexibility. Operating expenses remain relatively flat to the prior year budget. Operating revenues are considered similar with water usage and the slated rate increase.

L. Farris questioned the Environmental Dept.

J. Michelsen said that there won't be any progress on water conservation, environmental education or land management.

S. Swan said the he loves the budget.

L. Henry water conservation will still happen.

B. Fultz thanked Stephanie for a great job on the Budget. When can we start spending \$8 million on capital projects.

S. Hill said that the loan will be 30-45 day process.

L. Ford said he can't find in the budget where is the water system upgrade to make the District more resilient in a major wildfire.

R. Rogers said the budget does provide for water pipes to move water from one end of the valley to the other. The Probation Tank and Swim Tank are projects in the works in the budget. We are also working on the Water Master Plan, where we look at the entire system to find where we are deficient. The budget has 8 additional generators for water during the planned electric shut offs by PG&E. This budget is aggressive for the replacement of infrastructure.

L. Ford questioned how many years will it take to prepare for a major fire?

R. Rogers said we will probably never be completely prepared. It's an ongoing project. The Master Plan will tell us what we need but the cost will scare the us, we need to just keep moving on the projects.

L. Farris said what is this Board going to do about fire planning? Why have prior Boards ignored this issue? The discussion has been started on the Environmental Committee.

E. Fresco questioned if there will be a rate increase this year.

L. Henry responded that there was a 5 year plan for rate increases every year and this is the 3rd year.

E. Fresco said that the environmental portion of the budget is 4 - 5% of the of all of the expenses and that has been cut.

L. Henry we have so much to do on the pipes, pumps and tanks.

J. Mosher noted that in the issue of environmental programming how important water conservation is. For the PG&E shut offs, water conservation is going to be critical. Why would the Environmental program be cut?

J. Gomez said environmental compliance is required for all of the CIP projects. The Board has to find a way to manage the Olympia Watershed.

C. Baughman is happy to see that it is possible to have a very aggressive Capital Program. What is your long term reserve plan?

D. Loewen said she is concerned about fire service. There are fine groups that can provide conservation education but can't replace tanks.

C. Finnie said that she is concerned that environmental water quality, and making our properties less vulnerable to fire need to be funded also, or the cost in the future could be much higher.

A. Zilber (sp?) said that environmental stewardship is not just the absence of the application of glyphosate, it means paying attention to the environment that you are running your water system in. Things like monitoring fish habitat, restoration practices, stream monitoring are important. Reconsider cutting staff for those purposes.

B. Springer a budget is a statement of values. The values of this Valley have always been for strong environmental stewardship. There are only 2 public agencies that govern this area and this District is one of them. She is seeing a token savings going into reserves, and the cost of doing that is making a statement. The statement it is making is that protecting our environment is no longer important here. Think about protecting this area and maintaining our values in memory of Fred McPherson.

V. Campbell very disappointed in elimination of the Water Conservation Specialist position. Environmental education from the water district is important for the bigger picture of how our water system works.

B. Fultz said the water we are taking out of the watershed is about 25% more than we are providing to customers. The quick and sustainable way to stop the wasted water is to stop the leaks.

G. Nicholls noted that Dir. Fultz is in Germany.

L. Farris said he is not an environmentalist but he can appreciate everything the environmentalists have come to say this evening and he asks the public to come to the Environmental Committee meetings and help set priorities. He said if we can agree on the top Environmental issues that are not being funded, he will take them to the Board and ask for funding.

S. Swan made a motion to approve Resolution No.33 adopting the Fiscal Year 2019/2020 Budget in its present form.

L. Farris seconded.

All present voted in favor of the motion. The motion passed.

5. New Business:

- b. BEAR CREEK ESTATES WASTEWATER TREATMENT FACILITY ALTERNATIVES ANALYSIS - REQUEST FOR PROPOSALS
R. Rogers introduced this item and turned it over to the Engineering Manager.

D. Langfield said that the Engineering Committee recommended that the proposal be rejected and that additional evaluation be conducted of the firms that we solicited. The RFP was sent to 15 firms; he said he contacted the 15 firms and 4 of the firms said they do this type of work. The other 11 firms said they don't have the technical expertise. One of the 4 firms is WSC but because they wrote the RFP for the District, they were unable to submit a proposal. Two of the firms are very large and weren't interested in such a small project. Which left the one firm we received a proposal from.

L. Henry questioned what happens if we reject this proposal.

D. Langfield said there are other firms that might be interested and submit a proposal

R. Rogers said now that we have an engineer on staff we can follow though. The one firm that did submit has been working on the project and one of the customers of BCEWW felt that the one that submitted hasn't been able to get the plant into compliance.

L. Henry questioned the scope of the project.

D. Langfield said that the State Board has tasked the District with 50% nitrogen reduction in the discharge.

R. Rogers said we think when we reject this proposal, we go out to bid and Darren will work with individual consultants to solicit proposals.

L. Henry questioned if the Board needs to vote to reject this bid.

D. Langfield said that he would like to send the revised RFP out to 5 or 6 firms that are targeted for this kind of work. Hoping to get proposals from 3 or 4 of them.

L. Farris commented on the process. Are you casting a broader net?

D. Langfield not casting a broader net, but targeting firms with compatible credentials.

L. Farris said that the other reason that we're recommending rejection is that there was a critical specification error on the proposal.

D. Langfield said it was an error in what was actually achieved, not a substantial mistake.

Discussion by Board and staff regarding the RFP.

D. Langfield asked for a point of clarification. If we reject this bid and we go out and no proposals. Do we still retain the ability to select a firm and negotiate with that firm? Or by rejecting this proposal have we lost that ability?

G. Nicholls there will always be a path forward if you want to go back to these folks. This is a services contract and not a construction contract so the requirements are less formal. You can include them in the re-solicitation or if you do not receive any new proposals, you can ask them to submit again.

C. Finnie questioned if this is the State Water Board that you are dealing with on this matter.

R. Rogers said that is correct.

B. Fultz said we have to get our neighbors in Bear Creek Estates into a new system as soon as possible. He thanked D. Langfield for his efforts.

S. Swan made a motion that the Board reject the proposal from IEC and direct staff to look elsewhere.

L. Henry seconded the motion.

All present voted in favor of the motion. The motion passed.

6. Consent Agenda:

a. MINUTES FROM SPECIAL BOARD OF DIRECTORS MEETING
MAY 29, 2019

L. Henry requested that we pull the minutes from the Consent Agenda.

G. Nicholls clarified that there was not a report out but President Henry did make the comments listed.

L. Farris made a motion to approve the Special Meeting minutes from the May 29th BoD meeting with the clarification that there was no report out from Closed Session, just comments by the president.

S. Swan seconded the motion.

All present voted in favor of the motion. The motion passed.

7. District Reports:

- DEPARTMENT STATUS REPORTS

Receipt and consideration by the Board of Department Status Reports regarding ongoing projects and other activities.

- o Engineering
- o Environmental
- o Finance & Business
- o Legal
- o Operations

G. Nicholls updated the Board that she received confirmation today that the proceeds in the Holloway/Vierra matter have been dispersed and therefore the District will be filing a dismissal of the cross complaint.

B. Fultz signed off 8:25

- COMMITTEE REPORTS

- o Future Committee Agenda Items
- o Committee Meeting Notes/Minutes
 - LADOC Regular Quarterly Meeting - 5.28.1

L. Farris summarized the Environmental meeting 6.13.19

8. Written Communication: None

9. Informational Material:

- o SDRMA 2017-18 Annual Report

10. Adjournment 8:34 p.m.

MEMO

To: District Manager
From: Engineering Manager
Subject: July 2019 Engineering Department Monthly Report
Date (Date of Board Meeting)

Recommendation:

It is recommended that the Board of Directors review and file the Engineering Department Monthly Report for July 2019.

Projects in Construction:

Probation Tank Replacement: Work on the construction of the Probation Tank is continuing. During this reporting period the contractor is continuing work on the retaining walls and the tank foundation. Project completion is anticipated in October 2019.

Lompico PRV Replacement: Six PRV stations are being replaced in Lompico. The Contract has been signed and a Notice to Proceed letter has been sent to the Contractor. Material submittals for the project have been reviewed and materials have been ordered. The Contractor is currently working on a project schedule for the District.

Projects in Design:

Lompico Tanks Replacement: Staff have commented on the 60% plans and design continues. The tentative completion date for the bid documents is September 2019 with bidding of the project slated for this Fall and construction starting Spring 2020.

San Lorenzo Way Bridge: Santa Cruz Department of Public Works (DPW) is working on plans to replace the San Lorenzo Way Bridge. District staff are working in concert with Santa Cruz DPW staff to provide water details. This effort will ensure that water facilities constructed with the bridge are built to District standards.

Swim Tank: District staff are working to obtain information about the alternate site. Survey work indicates that the site is large enough for the new tank and staff is now working to obtain preliminary soil data for the proposed 100,000-gallon tank.

Glen Arbor Bridge Water Main Leak: Staff are working with County staff to determine the best design firm to complete the design of the new manhole(s) in the bridge deck. Once we have plans, we will bid the construction work associated with the installation of the access manhole(s) and repair the water main.

RFP/RFQ:

Bear Creek Wastewater Facilities: At the June 28th Board meeting, the Board directed staff to circulate a new RFP for the Bear Creek Estates Wastewater Treatment Facility Alternatives Analysis. Staff is working on the revised RFP.

2019 Water Master Plan: A staff report is included in this week's Board packet regarding the selection of a consulting firm for the 2019 Water Master Plan.

M E M O

TO: Board of Directors
FROM: District Manager
PREPARED BY: Environmental Programs Manager
SUBJECT: Environmental Department Status Report
DATE: July 18, 2019

RECOMMENDATION:

It is recommended that the Board of Directors review and file the Environmental Department status report.

SUSTAINABLE WATER SUPPLY PLANNING

The District is working on a multi-tier effort to optimize operations, sustainably manage water supply and diversify the District's water supply portfolio to ensure a resilient water supply as we adapt to a changing climate through the following efforts:

- Water Conservation
- Improving System Efficiencies through Conjunctive Use (Using surface water when available to rest and recharge groundwater sources)
- Capital Improvement (increasing pipeline sizes, reducing leaks, and increasing storage tank capacities)
- Permit Intertie Pipelines to optimize operations and sustainably manage water supply.
- Sustainable Groundwater Management (SMGWA.ORG)
- Climate Adaptation and Mitigation (Climate Vulnerability Assessment)
- Exploring New Groundwater Supplies

CONJUNCTIVE USE GRANT

- Fish assessment underway.
- Public engagement Workshop to be announced following Fish Assessment Report Completion.

STREAMFLOW, TEMPERATURE AND RELATED OBSERVATIONS FOR THE SAN LORENZO VALLEY WATER DISTRICT'S SURFACE SOURCES OF COMMUNITY WATER SUPPLY *WATER YEAR 2014 TO 2017* ***Planning for water year 2019:***

The District has been conducting Stream gaging associated with the District's surface water diversions since WY 2014 to quantify how the District's water supply diversions impact habitat in the San Lorenzo River and associated tributaries. Staff is working to

reduce former scope and is planning to bring new proposal to full board in August for approval.

SANTA MARGARITA SUSTAINABLE GROUNDWATER MANAGEMENT AGENCY (SMGWA.ORG)

Montgomery and Associates has been selected to be the Technical Consultant. The roll of the Technical Consultant will be the following:

- Correct the deficiencies identified in the hydrologic model.
- Assist with the technical writing of the Sustainable Groundwater Management Plan.

The next SGMWA Meeting is scheduled for Thursday, July 25th at 7:00 PM at Scott's Valley Water District. For more information <http://smgwa.org/>

ENVIRONMENTAL COMPLIANCE - CAPITAL IMPROVEMENT PROGRAM

SANDHILLS HABITAT CONSERVATION PLAN FOR THE SAN LORENZO VALLEY WATER DISTRICT CAPITAL IMPROVEMENT PLAN

District is preparing a Habitat Conservation Plan to mitigate the impacts to listed species in sandhills habitat which result from the District's Capital Improvement Projects. The HCP will cover the District's capital improvement projects, operations and maintenance activities, and watershed management actions, that impact species protected by the Endangered Species Act (ESA) and sensitive habitat of the Santa Cruz sandhills. The District Sandhills HCP (DSHCP) will provide the basis for the United States Fish and Wildlife Service (USFWS), which administers the ESA for terrestrial species, to issue the District an Incidental Take Permit (ITP) to cover all of the capital improvement projects, operations and maintenance activities, and watershed management actions that affect the covered species. This approach will greatly reduce the timeline and cost for project permitting compared to preparing individual HCPs for each project or site. Timeline to Submit HCP for agency review is December 2019. Cost for development of HCP: \$129,000

CIP PROJECT PERMITTING

Staff is working to secure permits for the following Projects:

Fall Creek Fish Ladder Project Cost: \$ 1,160,000

Lyon Treatment Plant Access Road Slide (FEMA funded)

Lompico Tank Replacement Program

Lewis Tank Replacement Project

Swim Tank Relocation

WATERSHED MANAGEMENT/ STEWARDSHIP

ZAYANTE CREEK STREAM WOOD HABITAT ENHANCEMENT PROJECT

The San Lorenzo Valley Water District owns about 0.5 mile of Zayante Creek upstream of the Mountain Charlie Gulch confluence. This stream reach will serve as extremely

valuable spawning and rearing habitat for both steelhead and Coho salmon. With the District's ownership, this reach is not impacted by residential development, which is prevalent in lower Zayante Creek, and is down stream of multiple obstructions that limit steelhead access into upper Zayante Creek.

The project focuses on habitat enhancement measures on publicly held properties, owned by the City and the SLVWD, with the objective of developing cost-effective restoration actions that attempt to restore historic functions that created and maintained the physical habitat necessary to support key life stages for these listed species. The design process to date has included technical review, site visits, and collaboration with the City, SLVWD, the City's consulting forester, County of Santa Cruz, Santa Cruz County Resource Conservation District, National Marine Fisheries Service, and California Department of Fish and Wildlife.

Timeline:

- 1. June 2019: Acquire Permits from State and Federal agencies, under the direction of the RCD.*
- 2. August - October 2019: Large wood installation construction.*

FIRE MANAGEMENT PLANNING ON DISTRICT WATERSHED LANDS

Staff is working to prepare a Fire Management Plan which will improve mapping, road access for fire personnel and improve communications with Fire Prevention Agencies. Staff is also working to create a post-fire plan to ensure the most efficient recovery of District's water resources following a fire event.

Staff is scheduled to meet with fire agencies in June to discuss plan and give tour of properties.

Staff is working with consultant to reduce fuel loads and to mark roads and gates.

PUBLIC OUTREACH

Public Outreach Programs will be reduced due to budget cuts. Specific reductions will be determined following adoption of FY 19/20 Budget.

- The District Facebook page and website are updated regularly (5-7 times per week).
- Article by District Manager was published in Press Banner regarding Budget Adoption in July.
- Staff will begin preparing short summaries of Committee meetings to be posted on Facebook.
- Staff and board members are attend Felton's farmer market, the Last Tuesday of the month to answer questions, supply water conservation materials, and update customers on District news.
- Staff to attended outreach events throughout District to supply information, answer questions, and improve outreach.

UPCOMING EVENTS

Fire Safe Council presents: Understanding Fire Insurance in High Risk Areas. 4 workshops will be held July 23 - 24 through out Santa Cruz County. Sign up: <http://www.rcdsantacruz.org/event/9-rcd-meetings/2019/07/25/647-insurance-capitola?fbclid=IwAR1g6E9R5ZaFdogu-oJ6SjEddeH5mxyJo8zlidDZFxCrzkbraShpuTIKTo>

NETWORKING & COLLABORATIONS

SANTA MARGARITA GROUNDWATER AGENCY- <http://smgwa.org/>

Under the Sustainable Groundwater Management Act of 2014, over-drafted groundwater basins need to be sustainably managed by a Groundwater Sustainability Agency (GSA) through the development of a Groundwater Sustainability Plan (GSP). The GSP must be completed by 2022, and the basin must reach sustainability by 2040.

Under development is the Santa Margarita Groundwater Agency (SMGA), a three-member agency comprised of the Scotts Valley Water District, San Lorenzo Valley Water District and the County of Santa Cruz, which will oversee the groundwater management activities of the Santa Margarita Basin Area in Santa Cruz County, California. The Board of Directors of the SMGA includes two Board members from each of the water districts, one from the County, one from the City of Scotts Valley, one from the City of Santa Cruz, one from the Mount Hermon Association Community Water System and two private well owner representatives. Once a Joint Powers Agreement (JPA) is completed in early 2017, the SMGA will apply to the state Department of Water Resources to become the GSA for the Basin.

SANTA CRUZ INTEGRATED GROUNDWATER MANAGEMENT - <http://www.santacruzirwmp.org/>

The Santa Cruz Integrated Regional Water Management (IRWM) program provides a framework for local stakeholders to manage this region's water and water-related resources. The Santa Cruz IRWM Plan was developed in response to California's IRWM planning initiative to promote an informed, locally-driven, and consensus-based approach to water resources management.

The IRWM Plan includes strategies for developing and implementing policies and projects to ensure sustainable water use, reliable water supply, better water quality, improved flood protection and storm water management, and environmental stewardship. [Find out more.](#)

FIRE SAFE COUNCIL OF SANTA CRUZ COUNTY <https://www.firesafesantacruz.org/>
Staff represents SLVWD and sits on the Board of the Fire Safe Santa Cruz County FSSCC and participates as one of the Directors on the Community Outreach Committee.

The purpose of the Fire Safe Santa Cruz County (FSSCC) is to help residents and landowners prepare for and respond to the effects of wildfire in Santa Cruz County in an effort to maintain the quality of life, property and the environment. FSSCC will assist in coordinating the fire preparedness actions of local residents, landowners/managers, utilities, fire districts, CALFIRE and local fire safe councils. FSSCC will identify and seek funding for the highest fire safety priorities, coordinate work activities, assist neighborhoods in securing equipment and labor, and best position fire-safe entities working in the County for funding opportunities and applications.

FSSCC is organized and operated exclusively for charitable and educational purposes within the meaning of Section 501(c)(3) of the Internal Revenue Code.

FSSCC is currently seeking applications from community members in need of funding to reduce fire hazards in their neighborhoods. Contact Fire Safe SCC for applications.

COMPLETION REPORTS 2019

Public Engagement:

Completed the three-part Educational Series “Understanding Our Water” for Santa Margarita Groundwater Management Agency.

January 12: Land Use and Water: How much does growth matter?

February 9: Water Budgets: How do we balance all needs?

March 9: Managing Groundwater: How can we prepare for an uncertain future?

Environmental Permitting USDA Loan Projects:

Swim Tank \$ 678,000 Hihn Road Pipeline \$ 90,000 Lyon Pipeline \$ 450,000 Worth Lane Pipe \$ 120,000 Sequoia Road Pipe \$ 120,000 Bennett Booster \$ 390,000 Hillside Drive Pipe \$ 240,000 Riverview Drive Pipe \$ 240,000 Two Bar Road Pipe \$ 450,000 Orman Road Pipe \$ 300,000 California Drive Pipe \$ 240,000

California Environmental Quality Act Permitting: (CEQA)

Lyon Pipeline

Sequoia Pipeline

Blue Tank

California Drive Pipeline

Hillside Drive Pipeline

Climate Adaptation:

Climate Registry Green House Gas Inventory of 2017

M E M O

TO: Board of Directors

FROM: District Manager

PREPARED BY: Director of Finance & Business Services

SUBJECT: FINANCE & BUSINESS SERVICES STATUS REPORT

DATE: July 18, 2019

RECOMMENDATION:

It is recommended that the Board of Directors review and file the Finance & Business Services Department Status Report.

BACKGROUND:

BUDGET

The FY1920 Budget was approved at the last Board meeting and has been posted to the website.

AUDIT/YEAR END

Accounting staff are in the process of closing out the fiscal year. It is not uncommon for prior year invoices to continue to roll in thru August. Year-end inventory audit went smoothly. The next two months will have a lot of focus on year-end activities. Additionally, there is the SMGWA year end to also prepare. The auditors will be out in early October for their final fieldwork.

CUSTOMER SERVICE SUPPORT

- Customer Service stats and information
- Monthly Consumption by Customer Class
- Weekly Call Log

REVENUE STABILIZATION RATE ANALYSIS

This packet contains the current consumption as compared to the prior 3 year averages for the revenue rate stabilization. As of May 2019 consumption, the cumulative consumption is 1% above the baseline. There are no triggers identified per the revenue stabilization rate policy.

FINANCIAL SUMMARY

Please see the Monthly Financial report for further detail.

In summary, revenue is tracking to budget, May and June tend to have an uptick in consumption. Thus far customers have not made significant reductions in consumption with the shift of consumption charges. While May consumption did start to go up, the late rainfall will have impact on the June consumption numbers.

Expenses are tracking better than budget. Approximately \$120K of this was due to timing of new hires and will be real savings for the year, but embedded going forward. Year end is in June, which tends to have higher expenses that come in.

	April		Full Year	
	Current Month	YTD	Budget	% of Budget
Operating Revenue	\$ 830,837	\$ 8,839,324	\$ 10,022,000	88%
Operating Expenses	\$ 688,331	\$ 6,593,867	\$ 7,961,656	83%
Operating Income	\$ 142,506	\$ 2,245,458	\$ 2,060,344	109%

CUSTOMER SERVICE DEPT SUMMARY

	*	*	*		*	*					*				*	*		
Monthly Stats:	Jun-19	May-19	Apr-19	Mar-19	Feb-19	Jan-19	Dec-18	Nov-18	Oct-18	Sep-18	Aug-18	Jul-18	Jun-18	May-18	Apr-18	Mar-18	Feb-18	Jan-18
Cut In/Outs	97	105	83	60	38	58	34	63	66	59	77	86	59	68	58	30	42	61
Final Bills	51	61	60	37	35	56	32	64	74	64	115	40	66	71	42	34	58	57
Tags	95	256	95	238	124	210	157	191	158	206	275	176	121	232	72	312	198	194
Turn-offs	21	30	35	19	34	38	25	26	42	32	36	22	23	25	29	24	32	26

Online / Going Green [1]

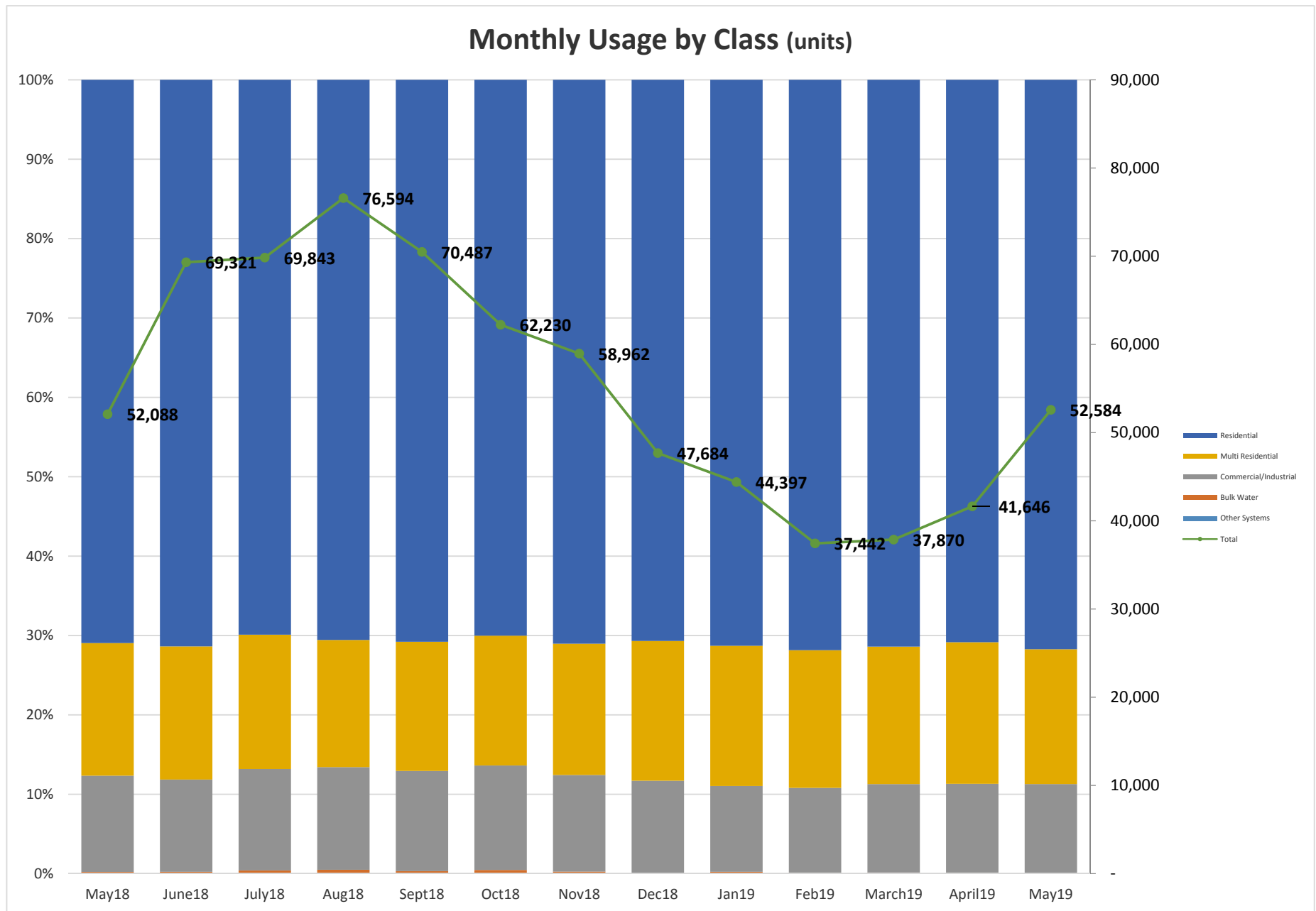
As of 7/9/2019

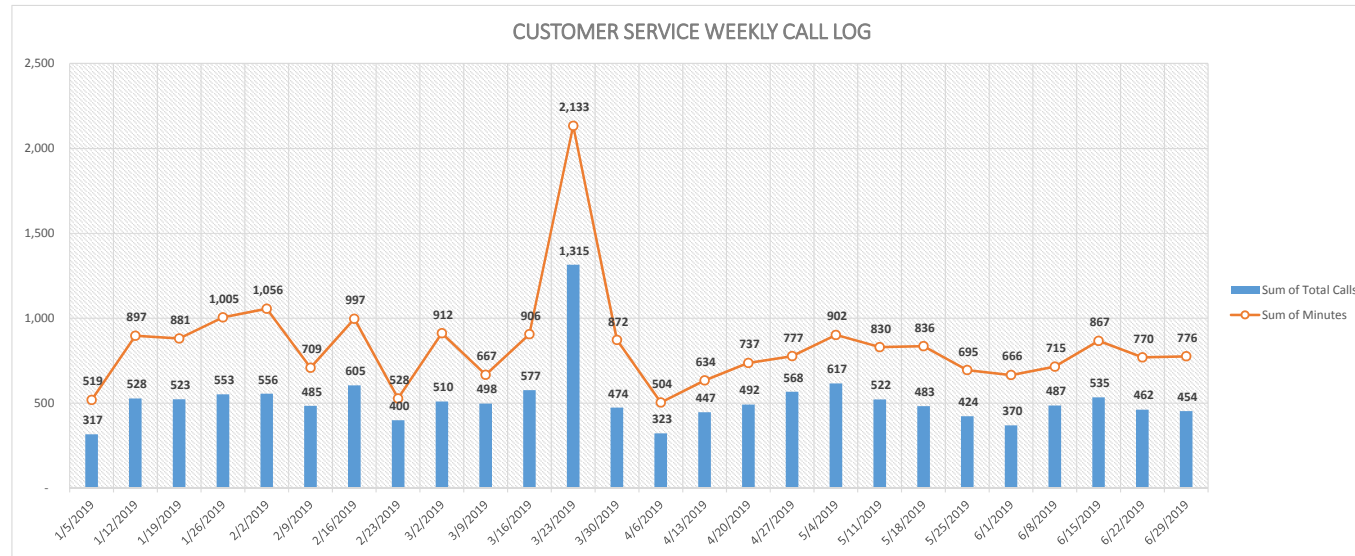
Online Sign-ups	4,334	4,293	4,240	4,184	4,120	4,078	4,033	3,980	3,938	3,883	3,839	3,779	3,726	3,680	3,636	3,599	3,543	3,499
E-Bills	1,624	1,590	1,522	1,413	1,378	1,356	1,326	1,302	1,284	1,260	1,238	1,210	1,193	1,174	1,157	1,145	1,120	1,092
Auto Pay**	2,518	2,551	2,725	2,706	2,659	2,716	2,673	2,638	2,603	2,553	2,509	2,492	2,463	2,445	2,427	2,386	2,350	2,316

* Due to timing, had abnormal tag periods

** Due to change in processor, customers have to re-enter their payment information, once they do that the number should go back to normal

[1] Please note these numbers are slightly higher than actuals being utilized. When a person closes their account, they typically leave their online account active for a while for their own personal records. We currently do not have an easy way to break down to only active customers.





Week Ending	Incoming Calls		Outgoing Calls		Total Calls	
	# Calls	Minutes	# Calls	Minutes	# Calls	Minutes
1/5/2019	240	449	77	70	317	519
1/12/2019	319	679	209	217	528	897
1/19/2019	317	704	206	176	523	881
1/26/2019	314	765	239	240	553	1,005
2/2/2019	318	869	238	186	556	1,056
2/9/2019	304	566	181	143	485	709
2/16/2019	360	763	245	233	605	997
2/23/2019	224	414	176	114	400	528
3/2/2019	323	737	187	176	510	912
3/9/2019	281	540	217	126	498	667
3/16/2019	352	653	225	254	577	906
3/23/2019	836	1,644	479	489	1,315	2,133
3/30/2019	329	688	145	184	474	872
4/6/2019	227	416	96	88	323	504
4/13/2019	262	483	185	151	447	634
4/20/2019	318	567	174	170	492	737
4/27/2019	332	608	236	169	568	777
5/4/2019	406	730	211	171	617	902
5/11/2019	351	729	171	101	522	830
5/18/2019	321	662	162	174	483	836
5/25/2019	279	586	145	110	424	695
6/1/2019	264	577	106	89	370	666
6/8/2019	300	505	187	211	487	715
6/15/2019	354	667	181	199	535	867
6/22/2019	266	485	196	285	462	770
6/29/2019	259	505	195	272	454	776

Weekly Notes	
Tags, Main Breaks: 10926 Sequoia Ave. (closed 2 days)	
Turn offs, Main Breaks: Quail 4A Well, 8945 Redwood Dr., 8255 Oak Ave., 9695 Live Oak Ave., Road Work; 1090 Pine Drive	
Tags, Main Breaks; 1160 Lakeside Dr., Water Line Replacement.	
Turn offs, Main Breaks; 10641 Visitar St., 225 Band Rd.	
Tags, (closed 1 day), Main Breaks; 13515 West Park Ave., 334 More Dr., 5765 Hillside Dr., 11844 Sunset Ct., 9545 Central Ave.	
Turn off, Main Breaks: 167 Russell Ave., 1501 Caledonia Ave., Road Work: 10497-10495 Vera Ave.	
Tags, Main Breaks: 325 Capelli Dr., 1200 Dundee Ave., 8035 Fernwood, West of 949 Brookside Way, Country Club Dr. & Jackson Ave., 10405 Lake Blvd.	
Turn off, Main Breaks: 555 Cook Wy., 8297 Hermosa Ave., 11866 Van Allen Rd.	
Tags, Main Breaks: 581 La Cuesta Dr., 288 Douglas Ave., 135 Glen Lomond Ln., Drainage from storm.	
Turn off, Main Breaks: 221 Lake St.	
Tags, Main Breaks: 340 Manzanita Ave., 136 Daffodil Hill, 206 Crecent & River, 10707 West Dr., 111 Royal Oak Ct., 260 Scenic Way, 403 Meadow Dr., 396 Meadow Dr.	
Turn offs, Main Breaks: 15000 Two Bar Rd., 13800 Bear Creek Rd., 405 Hoot Owl Way, 575 Ralston Ridge, 630 Manzanita Ave., Pine St., 10982 Sequoia Ave.	
Tags, Main Breaks: 213 Spreading Oak Dr., 190 Mesa Dr., 635 Sunset Rd.,	
Turn off, Main Breaks: 10580 CA-9/Blake Hammond Manor	
Main Breaks: 822 River Dr., 981 Madrona Dr., 12120 Coleman Ave., 230 Apple Knoll, 10235 California Dr., 135 Madrone Way	
Tags, Main Breaks: , Riverside & Annies Wy., 10825 Lake Blvd., 635 Sunset Rd., 206 Madrona, 135 Madrona, Spreading Oak Dr., corner of Janita Rd. & Appleknoll., 135 Madrone Way, 635 Sunset Rd., Love Creek Rd., Sinic Way & Hillcrest.	
Turn off, Main Breaks: Mt Herman & Graham Hill, 170 Brier Dr. 225 Brier Dr., Shiloh Ct., Russle, 345 Woodland Dr.	
Tags, Main Breaks: 211 Camino Sinuoso, 135 Scenic Way.	
Turn off, Main Breaks: 12855 Iwrin Wy, 160 Shady Ln., 514 Primavera Rd., Hill Crest Dr., Lost Acres Dr.	
Tags, Main Breaks: Band Rd. 16 Haven Ln, 160 river st.,	
Turn off, Main Breaks: 185 Arden Ave., Lovecreek Rd & Sunnyside Ave. 1513 Jackson Ave.	
Tags, Main Breaks:, 160 Ono Way, Hwy 9 & Western,	
Turn off, Main Breaks:, 15845 Kings Creek Rd, 751 Buckeye Dr., 660 Stewart St., 460 Riverview Dr., 14266 Bear Creek Rd., 14215 Bear Creek Rd., 13140 Irwin Way.	
Tags, Main Breaks:, 11181 Hwy 9 & Larkspur Dr., 13401 Big Basin Way, Hwy 9 & Marshall Creek, Hwy 236 , Alameda Ave., 8074 Fernwood, 520 Hill Crest, 525 Hill Crest, Scenic Way, Highland Dr., Sylvan Ave., Highland Dr.,	
Turn off, Main Breaks:, 11550 Alta Via Rd. 7171 Hihn Rd., 350 Redwood Dr., 10585 Vera Ave.,	
Tags, Main Breaks:, 251 Sunbeam, Bear Creek Rd, 1500 Two Bar Rd.,	

REVENUE STABILIZATION RATE ANALYSIS FY1819

In accordance with the District's Revenue Stabilization Rates Policy & Procedures, the District Manager shall provide the Board of Directors with the average units of water sales (by month) for the rolling previous three years, which will serve as the baseline against which current annual sales to date will be compared. If the District Manager determines that budget-year water sales (in units) to date, and corresponding revenue, is more than 10% below expected year-to-date levels (based on monthly averages over the previous three years), the District Manager shall notify, at a public meeting, the Board of Directors of this determination at or before the next regularly scheduled Board meeting. For more information, please refer to the District's full Policy & Procedures.

MONTHLY CONSUMPTION IN UNITS BY FISCAL YEAR (BASELINE)

	July	August	September	October	November	December	January	February	March	April	May	June	TOTAL
FY1516	66,779	64,961	69,609	60,022	49,837	41,773	44,025	37,290	42,433	43,153	48,328	68,129	636,340
FY1617	74,199	73,414	71,825	59,518	41,777	45,698	45,401	37,667	41,173	42,898	52,932	68,388	654,889
FY1718	81,254	78,331	76,259	65,658	58,601	42,693	48,947	40,431	42,401	41,263	52,088	69,321	697,247
3 YR AVERAGE (BASELINE)	74,077	72,235	72,564	61,733	50,072	43,388	46,124	38,463	42,002	42,438	51,116	68,613	662,826

ACTUAL FY1819 CONSUMPTION

FY1819	69,843	76,594	70,487	62,230	58,962	47,684	44,397	37,442	37,870	41,646	52,584		599,739
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CUMULATIVE ANALYSIS

% Above or Below Average	-6%	6%	-3%	1%	18%	10%	-4%	-3%	-10%	-2%	3%		
Cumulative %	-6%	0%	-1%	-1%	2%	3%	2%	2%	1%	1%	1%		

NOTES:

Consumption is cumulatively slightly above the prior three year average baseline. As of May 2019 consumption, the cumulative consumption is 1% above the baseline. There are no triggers identified per the revenue stabilization rate policy.

OPERATING ANALYSIS - MAY 2019

REVENUE BY CATEGORY

DESCRIPTION

WATER USAGE
BASIC CHARGES
METERS, PENALTIES & OTHER
SEWER CHARGES
TOTAL OPERATING REVENUE

COMPARING AGAINST PRIOR YEAR					COMPARING AGAINST BUDGET		
ACTUALS	% OF TOTAL	PRIOR YEAR	\$ Diff.	% Diff.	Act. % of Budget	ANNUAL BUDGET	% of Annual
\$ 559,418	67.3%	\$ 519,795	\$ 39,623	8%	8%	\$ 6,846,000	68%
253,686	30.5%	236,911	16,775	7%	8%	2,986,000	30%
7,720	0.9%	7,215	505	7%	9%	90,000	1%
10,013	1.2%	8,350	1,663	20%	10%	100,000	1%
\$ 830,837	100.0%	\$ 772,271	\$ 58,566	8%	8%	\$ 10,022,000	100%

REVENUE COMMENTS

Water Usage: May 19 had 3% higher consumption than the prior May
Sewer Charges: New rates went into effect Dec 18.

EXPENSES BY CATEGORY

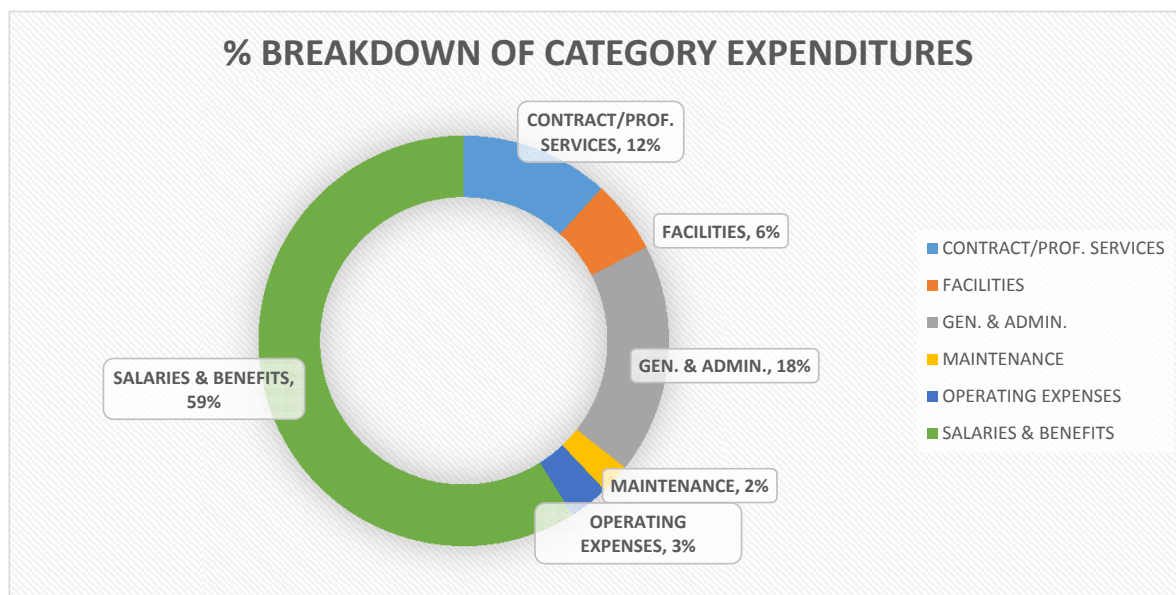
DESCRIPTION

SALARIES & BENEFITS
CONTRACT/PROF. SERVICES
OPERATING EXPENSES
MAINTENANCE
FACILITIES
GEN. & ADMIN.
TOTAL OPERATING EXPENSES

COMPARING AGAINST PRIOR YEAR					COMPARING AGAINST BUDGET		
ACTUALS	% OF TOTAL	PRIOR YEAR	\$ Diff.	% Diff.	Act. % of Budget	ANNUAL BUDGET	% of Annual
\$ 405,426	58.9%	\$ 390,804	\$ 14,622	4%	8%	\$ 5,048,246	63%
80,386	11.7%	91,882	(11,495)	-13%	6%	1,316,360	17%
21,674	3.1%	26,666	(4,992)	-19%	5%	420,500	5%
16,167	2.3%	20,024	(3,857)	-19%	9%	184,350	2%
39,707	5.8%	47,058	(7,351)	-16%	7%	571,800	7%
124,971	18.2%	30,439	94,531	311%	30%	420,400	5%
\$ 688,331	100%	\$ 606,873	\$ 81,458	13%	9%	\$ 7,961,656	100%

EXPENSE COMMENTS

Legal Bills: May had two months of legal bills hit, totaling \$37K versus prior year had only \$4K due to timing
Prof. Serv: May 19 had a \$111K payment to insurance for FY1920 that will be accounted for as a prepaid during our year end close process.



OPERATING ANALYSIS - YTD FY1819 (JULY-MAY)

REVENUE BY CATEGORY

DESCRIPTION

WATER USAGE
BASIC CHARGES
METERS, PENALTIES & OTHER
SEWER CHARGES
TOTAL OPERATING REVENUE

COMPARING AGAINST PRIOR YEAR					COMPARING AGAINST BUDGET		
ACTUALS	% OF TOTAL	PRIOR YEAR	\$ Diff.	% Diff.	Act. % of Budget	ANNUAL BUDGET	% of Annual
\$ 5,932,999	67.1%	\$ 4,837,044	\$ 1,095,956	23%	87%	\$ 6,846,000	68%
2,731,973	30.9%	2,852,801	(120,829)	-4%	91%	2,986,000	30%
72,545	0.8%	82,055	(9,510)	-12%	81%	90,000	1%
101,807	1.2%	91,794	10,014	11%	102%	100,000	1%
\$ 8,839,324	100.0%	\$ 7,863,694	\$ 975,630	12%	88%	\$ 10,022,000	100%

REVENUE COMMENTS

YTD revenues are higher due to the rate increase that went into effect Nov 2018. The change in rate structure is still seen in the Basic Charge shift.

EXPENSES BY CATEGORY

DESCRIPTION

SALARIES & BENEFITS
CONTRACT/PROF. SERVICES
OPERATING EXPENSES
MAINTENANCE
FACILITIES
GEN. & ADMIN.
TOTAL OPERATING EXPENSES

COMPARING AGAINST PRIOR YEAR					COMPARING AGAINST BUDGET		
ACTUALS	% OF TOTAL	PRIOR YEAR	\$ Diff.	% Diff.	Act. % of Budget	ANNUAL BUDGET	% of Annual
\$ 4,256,701	64.6%	\$ 3,979,965	\$ 276,737	7%	84%	\$ 5,048,246	63%
967,237	14.7%	1,132,514	(165,278)	-15%	73%	1,316,360	17%
335,127	5.1%	298,856	36,271	12%	80%	420,500	5%
139,406	2.1%	143,522	(4,116)	-3%	76%	184,350	2%
466,684	7.1%	475,434	(8,750)	-2%	82%	571,800	7%
428,712	6.5%	340,571	88,141	26%	102%	420,400	5%
\$ 6,593,867	100%	\$ 6,370,862	\$ 223,005	4%	83%	\$ 7,961,656	100%

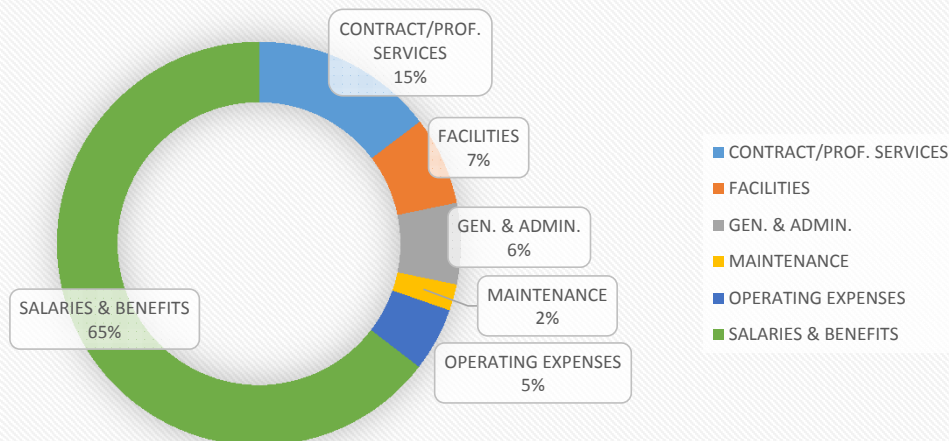
EXPENSE COMMENTS

For the most part, expenses are tracking similar to the prior year, outside of budgeted increases. \$50K of payroll was related to employee final paychecks.

April 2019 did not have a legal bill posted due to timing, \$37K all hit in May. As of May YTD, legal is \$140K lower than prior year. Please note in June 2019 there was a litigation settlement, which will cause the current year to have a significant jump in June.

\$111K in prepaid insurance for FY1920 will be accounted for in the year end process

% BREAKDOWN OF CATEGORY EXPENDITURES



OPERATING ANALYSIS - YTD TREND FY1819

REVENUE BY CATEGORY

DESCRIPTION	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	JANUARY	FEBRUARY	MARCH	APRIL	MAY	YTD	BUDGET	% OF BUD.
WATER USAGE	359,119	777,219	706,435	645,508	636,311	515,103	474,097	400,867	403,805	455,118	559,418	5,932,999	6,846,000	87%
BASIC CHARGES	237,313	237,200	236,928	245,212	253,599	253,817	253,337	253,706	253,430	253,744	253,686	2,731,973	2,986,000	91%
METERS, PENALTIES & OTHER	5,250	9,855	6,665	6,135	7,570	2,970	9,315	6,810	6,775	3,480	7,720	72,545	90,000	81%
SEWER CHARGES	8,344	8,345	8,344	8,344	8,344	10,016	10,018	10,013	10,013	10,013	10,013	101,807	100,000	102%
TOTAL OPERATING REVENUE	610,027	1,032,619	958,372	905,199	905,824	781,906	746,768	671,396	674,023	722,354	830,837	8,839,324	10,022,000	88%

EXPENSES BY CATEGORY

DESCRIPTION	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	JANUARY	FEBRUARY	MARCH	APRIL	MAY	YTD	BUDGET	% OF BUD.
SALARY & BENEFITS	514,027	510,140	321,543	327,440	334,286	335,127	486,163	341,758	346,647	334,143	405,426	4,256,701	5,048,246	84%
CONTRACT/PROF. SERVICES	5,572	48,144	81,763	220,894	70,907	85,897	53,160	52,406	85,588	182,519	80,386	967,237	1,316,360	73%
OPERATING EXPENSES	11,986	33,476	41,893	32,378	32,244	41,966	48,946	20,032	17,479	33,051	21,674	335,127	420,500	80%
MAINTENANCE	3,079	10,102	18,770	11,277	10,919	14,728	19,160	10,786	12,297	12,121	16,167	139,406	184,350	76%
FACILITIES	11,383	31,020	61,400	58,815	51,252	55,790	42,726	40,639	36,244	37,707	39,707	466,684	571,800	82%
GEN. & ADMIN.	101,568	16,460	31,246	25,456	21,413	21,938	18,171	29,839	20,460	17,191	124,971	428,712	420,400	102%
TOTAL OPERATING EXPENSES	647,615	649,343	556,615	676,260	521,021	555,446	668,327	495,460	518,714	616,733	688,331	6,593,867	7,961,656	83%
OPERATING INCOME (LOSS)	(37,589)	383,276	401,756	228,939	384,802	226,460	78,440	175,936	155,309	105,622	142,506	2,245,458	2,060,344	109%

COMMENTS

REVENUE/EXPENSES:

Current year to date revenue and expenses are tracking as expected overall. Please refer to the current month analysis for any further detail on revenue or expenses.

GENERAL/PROCESS:

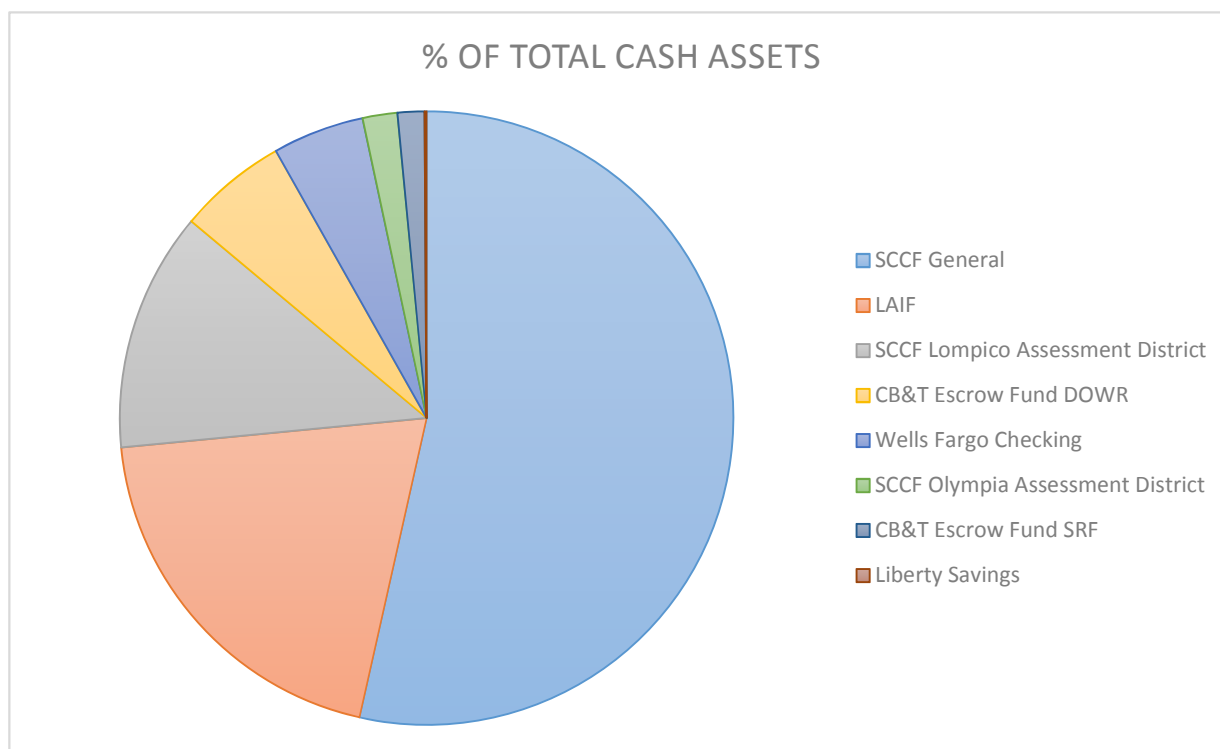
There are annual/one-time expenses paid upfront that could cause individual months to appear skewed or accrual based accounting that will impact June/July more so. An example of this would be some insurances are paid in July, this causes July expenses to appear higher than other months. The District operates on an annual budget and performs accrual based accounting procedures for a hard year end close, this is typical for governmental accounting.

Data is continuously being reviewed, so it is not un-common for a prior report balance to change slightly throughout the year as accounts are reconciled.

CASH BALANCES AS OF

5/31/2019

		Ave Interest Rate
OPERATING ACCOUNTS		
Wells Fargo Checking	\$ 207,720	0.35%
Liberty Savings	\$ 4,516	0.15%
LAIF	\$ 858,538	2.45%
SCCF General	\$ 2,302,448	2.26%
OPERATING BALANCE	\$ 3,373,222	
RESTRICTED ACCOUNTS		
SCCF Lompico Assessment District	\$ 542,978	2.26% <i>For AD Projects</i>
SCCF Olympia Assessment District	\$ 78,615	2.26% <i>For Debt Repayment</i>
SCCF Probation Tank Loan Proceeds	\$ 1,835,703	2.26% <i>Loan Proceeds</i>
CB&T Escrow Fund SRF	\$ 61,006	0.09% <i>For Debt Repayment</i>
CB&T Escrow Fund DOWR	\$ 246,637	0.09% <i>For Debt Repayment</i>
RESTRICTED BALANCE	\$ 2,764,939	



G/L Balances

Criteria: As Of = 5/31/2019; Fund = 76644, 76530

G/L Account	Title	Beginning Balance	Year-To-Date Debits	Year-To-Date Credits	End Balance
Fund 76530 -- SLV- WTR, EFF 6/2/16					
Sub-Fund 76530001 -- SLV- WTR, EFF 6/2/16					
000	NOT APPLICABLE	0.00	728.02	(81,133.80)	(80,405.78)
101	EQUITY IN POOLED CASH	81,836.54	81,114.78	(709.00)	162,242.32
240	STALE DATED WARRANTS LIABILITY	(1,363.90)	0.00	0.00	(1,363.90)
344	FUND BALANCE	(80,472.64)	0.00	0.00	(80,472.64)
Total Sub-Fund 76530001		0.00	81,842.80	(81,842.80)	0.00
Sub-Fund 76530200 -- SLV-LOMPICO WTR-ASSESSMENTS					
000	NOT APPLICABLE	0.00	122,789.60	(297,260.06)	(174,470.46)
101	EQUITY IN POOLED CASH	368,507.70	297,260.06	(122,789.60)	542,978.16
344	FUND BALANCE	(368,507.70)	0.00	0.00	(368,507.70)
Total Sub-Fund 76530200		0.00	420,049.66	(420,049.66)	0.00
Total Fund 76530		0.00	501,892.46	(501,892.46)	0.00
Fund 76644 -- SAN LORENZO VALLEY WATER TRUST					
Sub-Fund 76644001 -- SAN LORENZO VALLEY WATER TRUST					
000	NOT APPLICABLE	0.00	858,023.38	(1,057,424.85)	(199,401.47)
101	EQUITY IN POOLED CASH	1,940,804.04	1,057,342.24	(857,940.77)	2,140,205.51
201	VOUCHERS PAYABLE (VENDOR)	0.00	850,000.00	(850,000.00)	0.00
344	FUND BALANCE	(1,940,804.04)	0.00	0.00	(1,940,804.04)
Total Sub-Fund 76644001		0.00	2,765,365.62	(2,765,365.62)	0.00
Sub-Fund 76644100 -- SAN LORENZO VLY WTR-OLYMPIA MU					
000	NOT APPLICABLE	0.00	49,718.62	(50,124.25)	(405.63)
101	EQUITY IN POOLED CASH	78,209.75	50,124.25	(49,718.62)	78,615.38
344	FUND BALANCE	(78,209.75)	0.00	0.00	(78,209.75)
Total Sub-Fund 76644100		0.00	99,842.87	(99,842.87)	0.00
Sub-Fund 76644200 -- SLV WATER-SUBFD FOR LOAN CASH					
000	NOT APPLICABLE	0.00	184,258.00	(2,019,960.77)	(1,835,702.77)
101	EQUITY IN POOLED CASH	0.00	2,019,960.77	(184,258.00)	1,835,702.77
Total Sub-Fund 76644200		0.00	2,204,218.77	(2,204,218.77)	0.00
Total Fund 76644		0.00	5,069,427.26	(5,069,427.26)	0.00

Local Agency Investment Fund
P.O. Box 942809
Sacramento, CA 94209-0001
(916) 653-3001

www.treasurer.ca.gov/pmia-laif/laif.asp
June 10, 2019

SAN LORENZO VALLEY WATER DISTRICT

DISTRICT MANAGER
13060 HIGHWAY 9
BOULDER CREEK, CA 95006

[PMIA Average Monthly Yields](#)

// [Tran Type Definitions](#)

May 2019 Statement

Account Summary

Total Deposit:	0.00	Beginning Balance:	858,537.77
Total Withdrawal:	0.00	Ending Balance:	858,537.77

Accounts Payable

Outstanding Invoices

User: KendraNegro
Printed: 7/9/2019 - 10:14 AM
Date Type: JE Date
Date Range: 06/12/2019 to 07/09/2019



13060 Highway 9
Boulder Creek, CA 95006-9119
(831) 338-2153 phone
(831) 338-7986 fax

Vendor

Account Number	JE Date	Invoice Date	Invoice No	Journal Entry	Amount	Description
00034 - DAVE BASLER						
01-100-5147	7/5/2019	7/1/2019	JULY2019_34	00031-01-2020	75.00	RETIREE MEDICAL_JULY 2019
Total for Vendor 00034 - DAVE BASLER:					75.00	
00047 - SOIL CONTROL LAB						
01-800-5202	6/27/2019	6/25/2019	9060103	00242-12-2019	510.00	WATER ANALYSIS_3 LOCATIONS
Task Label:		Type:	PO Number:	0000101098		
01-800-5202	6/28/2019	6/25/2019	9060663	00263-12-2019	145.00	WATER ANALYSIS_5 LOCATIONS
Task Label:		Type:	PO Number:	0000101098		
Total for Vendor 00047 - SOIL CONTROL LAB:					655.00	
00054 - PACIFIC GAS AND ELECTRIC (ACH)						
01-100-5500	7/5/2019	7/1/2019	719_3658024062A	00030-01-2020	1,407.95	UTILITIES_ADMIN
01-400-5500	7/5/2019	7/1/2019	719_3658024062B	00030-01-2020	16,450.75	UTILITIES_OPS
01-800-5500	7/5/2019	7/1/2019	719_3658024062C	00030-01-2020	53,619.19	UTILITIES_WTP
02-600-5500	7/5/2019	7/1/2019	719_3658024062E	00030-01-2020	431.82	UTILITIES_BCE WASTEWATER
Total for Vendor 00054 - PACIFIC GAS AND ELECTRIC (ACH):					71,909.71	
00058 - IHWY						
01-100-5200	7/8/2019	7/1/2019	05232	00032-01-2020	25.00	BUSINESS HOSTING_JULY2019
Task Label:		Type:	PO Number:	0000101125		
Total for Vendor 00058 - IHWY:					25.00	
00099 - JOEL BUSA						
01-100-5147	7/5/2019	7/1/2019	JULY2019_99	00031-01-2020	125.00	RETIREE MEDICAL_JULY 2019
Total for Vendor 00099 - JOEL BUSA:					125.00	
00124 - BRUCE BARTON PUMP, INC						

Vendor

Account Number	JE Date	Invoice Date	Invoice No	Journal Entry	Amount	Description
00124 - BRUCE BARTON PUMP, INC						
01-800-5300	6/28/2019	6/27/2019	0100904-IN	00263-12-2019	5,001.47	HIGH SERVICE PUMP (KIRBY PLANT)
Task Label:		Type:	PO Number:	0000101252		
Total for Vendor 00124 - BRUCE BARTON PUMP, INC:					5,001.47	
00148 - SOQUEL CREEK WATER DIST						
01-500-5620	6/24/2019	6/20/2019	INV00054	00206-12-2019	632.69	SAVE WATER VIDEO PRODUCTION_ENV
Total for Vendor 00148 - SOQUEL CREEK WATER DIST:					632.69	
00208 - LEONARD KUHNLEIN						
01-100-5147	7/5/2019	7/1/2019	JULY2019_208	00031-01-2020	125.00	RETIREE MEDICAL_JULY 2019
Total for Vendor 00208 - LEONARD KUHNLEIN:					125.00	
00212 - CO. OF SANTA CRUZ HEALTH SERVICES AGENCY						
01-500-5200	6/28/2019	6/25/2019	062519_212	00263-12-2019	4,125.00	STEELHEAD & STREAM HABITAT MONITORING
Total for Vendor 00212 - CO. OF SANTA CRUZ HEALTH SERVICES AGENCY:					4,125.00	
00290 - CONTRACTOR COMPLIANCE & MONIT						
01-000-1565	6/28/2019	6/25/2019	11527	00263-12-2019	500.00	PROFESSIONAL SERVICES_WO#823_JUNE 2019
Total for Vendor 00290 - CONTRACTOR COMPLIANCE & MONIT:					500.00	
00367 - INFOSEND, INC						
01-200-5200	6/24/2019	5/31/2019	154697A	00206-12-2019	1,724.68	MAILING FEES_MAY 2019
01-200-5650	6/24/2019	5/31/2019	154697B	00206-12-2019	2,576.84	POSTAGE FEES_MAY 2019
Total for Vendor 00367 - INFOSEND, INC:					4,301.52	
00369 - CAROLE TRIANTAFILLOS						
01-100-5147	7/5/2019	7/1/2019	JULY2019_369	00031-01-2020	125.00	RETIREE MEDICAL_JULY 2019
Total for Vendor 00369 - CAROLE TRIANTAFILLOS:					125.00	
00415 - CA BANK & TRUST/GOV SVC DEPT_1030276759						
01-000-1130	7/5/2019	7/1/2019	JULY2019_415	00031-01-2020	15,581.43	1976 SAFE DRINKING WATER BOND
Total for Vendor 00415 - CA BANK & TRUST/GOV SVC DEPT_1030276759:					15,581.43	
00609 - BALANCE HYDROLOGICS, INC						

Vendor

Account Number	JE Date	Invoice Date	Invoice No	Journal Entry	Amount	Description
00609 - BALANCE HYDROLOGICS, INC						
01-500-5200	6/28/2019	6/28/2019	218018-0619R	00263-12-2019	2,600.00	DATA WORK UP FOR WY18 REPORT_ENVIRON
Task Label: EXP-1516001A		Type: E	PO Number:			
01-500-5200	6/28/2019	6/28/2019	218018-POD1	00263-12-2019	5,940.00	FALL CREEK DATA ANALYSIS_ENVIRON
Task Label: EXP-1718001A		Type: E	PO Number:			
Total for Vendor 00609 - BALANCE HYDROLOGICS, INC:					8,540.00	
00662 - JAMES A. MUELLER						
01-100-5147	7/5/2019	7/1/2019	JULY2019_662	00031-01-2020	50.00	RETIREE MEDICAL_JULY2019
Total for Vendor 00662 - JAMES A. MUELLER:					50.00	
00784 - CORE & MAIN LP						
01-000-1310	6/21/2019	6/13/2019	K649111	00188-12-2019	543.87	PIPE GALV SCHED 40 2" (21')
Task Label:		Type:	PO Number: 0000101242			
Total for Vendor 00784 - CORE & MAIN LP:					543.87	
00788 - COMCAST						
01-800-5510	7/8/2019	6/26/2019	62619_0987198	00032-01-2020	153.38	INTERNET_195 KIRBY STREET_07/01-07/31/19
Total for Vendor 00788 - COMCAST:					153.38	
00944 - PDNC, INC.						
01-100-5200	7/8/2019	7/1/2019	3721	00032-01-2020	562.68	MONTHLY SERVER SUPPORT_JULY 2019
Task Label:		Type:	PO Number: 0000101112			
Total for Vendor 00944 - PDNC, INC.:					562.68	
10113 - BANK MIDWEST						
01-000-7100	7/5/2019	7/5/2019	JULY2019_10113	00031-01-2020	773.84	SOLAR LOAN_INTEREST JULY 2019
01-000-2405	7/5/2019	7/5/2019	JULY2019_101131	00031-01-2020	2,476.06	SOLAR LOAN_PRINCIPAL JULY 2019
Total for Vendor 10113 - BANK MIDWEST:					3,249.90	
10246 - OVISS LABS INCORPORATED						
01-800-5200	7/8/2019	7/1/2019	R-33849A	00032-01-2020	64.46	NEW VIDEO SECURITY SYSTEM (KIRBY WTP)/TECH SUPPORT_07/01-08/01
Task Label:		Type:	PO Number: 0000101192			
01-800-5200	7/8/2019	7/1/2019	R-33849B	00032-01-2020	64.46	NEW VIDEO SECURITY SYSTEM (FALL CREEK)/TECH SUPPORT_07/01-08/01
Task Label:		Type:	PO Number: 0000101193			
01-800-5200	7/8/2019	7/1/2019	R33849C	00032-01-2020	64.45	NEW VIDEO SECURITY SYSTEM (LYON WTP)/TECH SUPPORT_07/01-08/01
Task Label:		Type:	PO Number: 0000101191			

Vendor

Account Number	JE Date	Invoice Date	Invoice No	Journal Entry	Amount	Description
Total for Vendor 10246 - OVISS LABS INCORPORATED:					193.37	
Report Total:					116,475.02	

Accounts Payable

Checks by Date - Detail by Check Number

User: KendraNegro
Printed: 7/9/2019 10:14 AM



13060 Highway 9
Boulder Creek, CA 95006-9119
(831) 338-2153 phone
(831) 338-7986 fax

Check No	Vendor No Invoice No	Vendor Name Description	Check Date Reference	Void Checks	Check Amount
ACH	00054	PACIFIC GAS AND ELECTRIC	07/08/2019		
	619_3658024062A	UTILITIES_ADMIN			29.35
	619_3658024062B	UTILITIES_OPS			790.45
	619_3658024062C	UTILITIES_WTP			5,855.67
	619_3658024062D	UTILITIES_BCE WASTEWATER			24.78
Total for this ACH Check for Vendor 00054:				0.00	6,700.25
ACH	00178	CALPERS	06/19/2019		
	JULY 2019.1	HEALTH INSURANCE_ADMIN			2,367.94
	JULY 2019.2	HEALTH INSURANCE_FINANCE			13,756.51
	JULY 2019.3	HEALTH INSURANCE_ENGINEERING			768.25
	JULY 2019.4	HEALTH INSURANCE_OPS			17,450.26
	JULY 2019.5	HEALTH INSURANCE_ENVIRON			1,997.45
	JULY 2019.6	HEALTH INSURANCE_RETIREES EMP MEDI			900.00
	JULY 2019.7	HEALTH INSURANCE_WTP			10,107.82
	JULY 2019.8	HEALTH INSURANCE_ADMIN FEE			122.70
	JULY 2019.9	HEALTH INSURANCE			1,856.53
Total for this ACH Check for Vendor 00178:				0.00	49,327.46
17403	00565	DETLEF ADAM	06/12/2019		
	060419_565	UNIFORM REIMBURSEMENT_#164			305.12
Total for Check Number 17403:				0.00	305.12
17404	00609	BALANCE HYDROLOGICS, INC	06/12/2019		
	218018-0519	STREAM MONITORING PROGRAM_YEAR :			2,276.77
Total for Check Number 17404:				0.00	2,276.77
17405	00788	COMCAST	06/12/2019		
	060119_1236033	INTERNET_215 BLACKSTONE DRIVE			174.81
Total for Check Number 17405:				0.00	174.81
17406	00788	COMCAST	06/12/2019		
	060119_1368455	INTERNET_345 QUAIL TERRACE			113.38
Total for Check Number 17406:				0.00	113.38
17407	00788	COMCAST	06/12/2019		
	060319_0956185	INTERNET_545 FALL CREEK DRIVE			173.46
Total for Check Number 17407:				0.00	173.46
17408	00788	COMCAST	06/12/2019		
	060519_1236165	INTERNET_280 BLUE RIDGE DRIVE			174.81
Total for Check Number 17408:				0.00	174.81

Check No	Vendor No Invoice No	Vendor Name Description	Check Date Reference	Void Checks	Check Amount
17409	00265 2662	COMMUNITY TELEVISION MEETING COVERAGE FOR 04/04 & 04/18	06/12/2019		616.00
		Total for Check Number 17409:		0.00	616.00
17410	00450 L0453255	EUROFINS WATER ANALYSIS_OLY WELL 2&3	06/12/2019		40.00
		Total for Check Number 17410:		0.00	40.00
17411	10193 1511386A 1511386B	EXTENSIS SOFTWARE SUPPORT/ANNUAL MAINTEN/ SOFTWARE SUPPORT/ANNUAL MAINTEN/	06/12/2019		676.25 946.75
		Total for Check Number 17411:		0.00	1,623.00
17412	00080 1584147 1586985	GRANITE CONSTRUCTION CO PAVING_OPS PAVING_HOT MIX_OPS	06/12/2019		362.78 315.75
		Total for Check Number 17412:		0.00	678.53
17413	00615 6823014	HOME DEPOT CREDIT SERVICES REPLACEMENT SAWSALL_WO#92	06/12/2019		390.22
		Total for Check Number 17413:		0.00	390.22
17414	10249 060619_10249	BRAD MACDONALD SAFETY BOOTS_#223	06/12/2019		190.29
		Total for Check Number 17414:		0.00	190.29
17415	10139 S1115287.001A S1115287.001B S1115289.001 S1115331.001	NATIONAL METER & AUTOMATION METER 5/8" X 3/4" BADGER MODEL 25 COI METER 1" BADGER MODEL 55 COMPLETE BADGER METER_ACTIVATION BRACKETS CREDIT FOR RETURN OF 4" BRONZE PLAT	06/12/2019		7,292.10 728.67 69.39 -757.34
		Total for Check Number 17415:		0.00	7,332.82
17416	00027 97346	NORTH BAY FORD WATER QUALITY TRUCK_VE-236	06/12/2019		46,000.00
		Total for Check Number 17416:		0.00	46,000.00
17417	10158 496013A 496013B	NOSSAMAN, LLP FEES FOR PROFESSIONAL SERVICES_04/30 FEES FOR PROFESSIONAL SERVICES_04/30	06/12/2019		18,315.00 1,261.36
		Total for Check Number 17417:		0.00	19,576.36
17418	10246 R-33205A R-33205B	OVISS LABS INCORPORATED NEW VIDEO SECURITY SYSTEM (FALL CR NEW VIDEO SECURITY SYSTEM (KIRBY W	06/12/2019		64.31 64.31
		Total for Check Number 17418:		0.00	128.62
17419	00569 3103163107	PITNEY BOWES GLOBAL FIN.LLC MAIL MACHINE LEASE_03/30/19-06/29/19	06/12/2019		461.01
		Total for Check Number 17419:		0.00	461.01
17420	00719	POWERPLAN	06/12/2019		

Check No	Vendor No Invoice No	Vendor Name Description	Check Date Reference	Void Checks	Check Amount
	1833010	DRIVE REPAIR_VE-320			2,767.90
			Total for Check Number 17420:	0.00	2,767.90
17421	00125	SCARBOROUGH LUMBER	06/12/2019		
	334898	BLUE TANK PROJECTS_WO#521			40.32
	334915	VEHICLE CLEAN UP FOR SWAP_VE-280			12.59
	334923	TRIMMER STRING_WTP			6.79
	335137	GENERAL CAR WASH SUPPLIES_WTP			15.09
	335410	VE-236_OUTFITTING			42.89
	396468	BLUE TANK PARTS_WO#521			9.29
	396497	CHARLIE BOOSTER			65.31
	396523	BLUE TANK PROJECTS_WO#521			53.68
	396596	NEW TRUCK TIE DOWNS_VE-236			18.54
	583557	MISC SUPPLIES_OPS			26.64
	584276	STIHL CAP REPLACEMENT_OPS			5.39
	584301	CHAIR GLIDERS_OPS			2.90
	584622	MISC TAPE_OPS			10.78
			Total for Check Number 17421:	0.00	310.21
17422	00746	SCOTTS VALLEY BANNER	06/12/2019		
	62044	HIRING NOTICE_RUN DATE 05/24/19			260.00
			Total for Check Number 17422:	0.00	260.00
17423	00168	SCOTTS VALLEY SPRINKLER	06/12/2019		
	153577	QUAIL 5_PLUMBING FITTING			10.02
			Total for Check Number 17423:	0.00	10.02
17424	00183	SDRMA	06/12/2019		
	66213A	WORKERS COMP PROGRAM_ADMIN			2,333.53
	66213B	WORKERS COMP PROGRAM_FINANCE			2,417.79
	66213C	WORKERS COMP PROGRAM_ENG			2,408.83
	66213D	WORKERS COMP PROGRAM_OPS			24,939.94
	66213E	WORKERS COMP PROGRAM_ENVIRON			2,142.58
	66213F	WORKERS COMP PROGRAM_WTP			27,220.57
			Total for Check Number 17424:	0.00	61,463.24
17425	00183	SDRMA	06/12/2019		
	66660	PROPERTY/LIABILITY PACKAGE FY1920			110,755.92
			Total for Check Number 17425:	0.00	110,755.92
17426	00047	SOIL CONTROL LAB	06/12/2019		
	9050234	WATER ANALYSIS_5 LOCATIONS			145.00
	9050458	WATER ANALYSIS_5 LOCATIONS			145.00
	9050459	WATER ANALYSIS_OLY 2 WELL			29.00
	9050460	WATER ANALYSIS_3 LOCATIONS			117.00
	9050673	WATER ANALYSIS_5 LOCATIONS			145.00
	9050715	WATER ANALYSIS_BLUE TANK			15.00
	9050863	WATER ANALYSIS_WTP			145.00
			Total for Check Number 17426:	0.00	741.00
17427	10255	SAM SPILMAN	06/12/2019		
	22519_10255	UNIFORM REIMURSEMENT_#227			67.49
			Total for Check Number 17427:	0.00	67.49

Check No	Vendor No Invoice No	Vendor Name Description	Check Date Reference	Void Checks	Check Amount
17428	00156 9466	STERLING WATER TECHNOLOGIES PLANT CHEMICALS	06/12/2019		3,806.17
		Total for Check Number 17428:		0.00	3,806.17
17429	10218 16909	SYSTEMS INTEGRATED SYSTEM WIDE SCADA UPGRADE_COMPLI	06/12/2019		18,924.00
		Total for Check Number 17429:		0.00	18,924.00
17430	00727 108798690	ULINE SHIPPING SUPPLIES GLOVES_OPS	06/12/2019		100.72
		Total for Check Number 17430:		0.00	100.72
17431	00721 114-8531170 114-8556352	UNITED SITE SVCS.,INC PROBATION TANK_WO#823 QUAIL 5_TOILET SERVICE	06/12/2019		196.70 204.35
		Total for Check Number 17431:		0.00	401.05
17432	00398 8425421	WATSONVILLE METAL CO.,INC DUMPSTER SERVICE_06/04/2019	06/12/2019		600.00
		Total for Check Number 17432:		0.00	600.00
17433	00599 59481571A 59481571B 59481571C 59481571D	WEX BANK GAS_ADMIN GAS_FINANCE GAS_OPS GAS_WTP	06/12/2019		165.84 959.87 3,889.27 2,163.20
		Total for Check Number 17433:		0.00	7,178.18
17434	00055 619_9607360489A 619_9607360489B 619_9607360489C 619_9607360489D	AT&T PHONE_ADMIN PHONE_FINANCE PHONE_WTP PHONE_BCEWW	06/13/2019		232.83 4,037.98 1,870.72 410.67
		Total for Check Number 17434:		0.00	6,552.20
17435	00076 781838 782429	ERNIE'S AUTO CENTER BUMPER LIGHTS_VE-228 OUTFITTING_VE-236	06/13/2019		13.45 43.92
		Total for Check Number 17435:		0.00	57.37
17436	10151 556782	OSCAR RODAS MAINTENANCE_MAY2019	06/13/2019		250.00
		Total for Check Number 17436:		0.00	250.00
17437	00555 53541845	STORDOK, INC. SHREDDING SERVICE_06/05/19	06/13/2019		45.00
		Total for Check Number 17437:		0.00	45.00
17438	10217 53119_7268A 53119_7268B 53119_7268C	UMPQUA BANK INDEED_JOB POSTING STAPLES_OFFICE SUPPLIES APPRIVER_TECH SUPPORT	06/13/2019		65.34 147.44 244.91

Check No	Vendor No Invoice No	Vendor Name Description	Check Date Reference	Void Checks	Check Amount
	53119_7268D	LINKEDLN_TRAINING			29.99
	53119_7268E	BACK NINE GRILL_MEETING			20.22
	53119_7268F	MAILCHIMP_ADVERTISING			50.00
	53119_7268G	ACOUSTICAL SOLUTIONS_WALL PANELS			579.68
	53119_7268H	CARHART_UNIFORMS_#223			105.95
	53119_7268I	STAPLES_WALL CLOCK			40.45
	53119_7268J	GO DADDY_LICENSE RENEWAL			159.98
	53119_7268K	STAPLES_LASER POINTER			64.29
	53119_7268L	PAYPAL_EBAY_TOOLS			46.28
			Total for Check Number 17438:	0.00	1,554.53
17439	10219 88615587REISSUE	SUNBELT RENTALS, INC. KIRBY_GUSHEE SINK HOLE_WO#1293	06/14/2019		697.12
			Total for Check Number 17439:	0.00	697.12
17440	00545 090727	AFLAC 2019 MONTHLY INS. PREMIUMS_JUNE 2019	06/19/2019		221.77
			Total for Check Number 17440:	0.00	221.77
17441	00589 060619_7752	ALLARD'S SEPTIC SERVICE SEPTIC SERVICES_06/06/2019	06/19/2019		300.00
			Total for Check Number 17441:	0.00	300.00
17442	10023 3074329	AT & T CAPITAL SERVICES, INC MONTHLY PHONE LEASE_AVAYA	06/19/2019		396.07
			Total for Check Number 17442:	0.00	396.07
17443	00309 1734067407A 1734067407B 1734067407C	AT&T IP SERVICES IP SERVICES_ADMIN IP SERVICES_OPS IP SERVICES_WTP	06/19/2019		249.37 249.38 249.37
			Total for Check Number 17443:	0.00	748.12
17444	00309 7312988403	AT&T IP SERVICES PHONE SYSTEM FOR KIRBY PLANT_JUNE	06/19/2019		271.31
			Total for Check Number 17444:	0.00	271.31
17445	00687 6519_137458730	AT&T U-VERSE UVERSE_13057 HWY 9	06/19/2019		80.00
			Total for Check Number 17445:	0.00	80.00
17446	00687 6619_132166881	AT&T U-VERSE U-VERSE_MANANA WOODS	06/19/2019		90.00
			Total for Check Number 17446:	0.00	90.00
17447	00687 6719_132182018	AT&T U-VERSE U-VERSE_345 QUAIL TERRACE	06/19/2019		80.00
			Total for Check Number 17447:	0.00	80.00
17448	00213 114919 115021	CHESTNUT IDENTITY APPAREL, INC UNIFORMS FOR #223_OPS DISTRICT SUPPLY_WTP	06/19/2019		54.35 169.34

Check No	Vendor No Invoice No	Vendor Name Description	Check Date Reference	Void Checks	Check Amount
			Total for Check Number 17448:	0.00	223.69
17449	10207	CITI CARDS_COSTCO	06/19/2019		
	51819_10207A	COSTCO_EMPLOYEE RECOGNITION LUNC			55.18
	51819_10207B	MAYA MEXICAN_EMPLOYEE RECOGNITIC			340.00
			Total for Check Number 17449:	0.00	395.18
17450	00009	CITY OF SANTA CRUZ FINANCE DEPT	06/19/2019		
	036333	FISH MONITORING_ENVIRON			25,000.00
			Total for Check Number 17450:	0.00	25,000.00
17451	00788	COMCAST	06/19/2019		
	6419_0302438	INTERNET_1075 WHISPERING PINES DRIV			193.38
			Total for Check Number 17451:	0.00	193.38
17452	00788	COMCAST	06/19/2019		
	6619_1236017	INTERNET_295 EAST ROAD			174.81
			Total for Check Number 17452:	0.00	174.81
17453	00788	COMCAST	06/19/2019		
	6619_1318955	INTERNET_1150 REBECCA DRIVE			143.38
			Total for Check Number 17453:	0.00	143.38
17454	00788	COMCAST	06/19/2019		
	6719_1236124	INTERNET_15819 FOREST HILL DRIVE			174.81
			Total for Check Number 17454:	0.00	174.81
17455	00788	COMCAST	06/19/2019		
	6819_1236058	INTERNET_17277 HWY 9			174.81
			Total for Check Number 17455:	0.00	174.81
17456	00788	COMCAST	06/19/2019		
	6819_1323583	INTERNET_365 MADRONE DR			264.01
			Total for Check Number 17456:	0.00	264.01
17457	00788	COMCAST	06/19/2019		
	6819_1323641	INTERNET_365 MADRONE DR OFC			264.01
			Total for Check Number 17457:	0.00	264.01
17458	00788	COMCAST	06/19/2019		
	6919_1318922	INTERNET_3652 GRAHAM HILL RD			143.38
			Total for Check Number 17458:	0.00	143.38
17459	00290	CONTRACTOR COMPLIANCE & MONI	06/19/2019		
	11417	LABOR COMPLIANCE MONITORING_WO#			708.35
	11490	LABOR COMPLIANCE SERVICES_WO#823			500.00
			Total for Check Number 17459:	0.00	1,208.35
17460	00118	FARMER BROTHERS COFFEE	06/19/2019		
	69145811	COFFEE SUPPLIES_OPS			151.27

Check No	Vendor No Invoice No	Vendor Name Description	Check Date Reference	Void Checks	Check Amount
			Total for Check Number 17460:	0.00	151.27
17461	10103 061319_10103	OCTAVIO FERNANDEZ EMPLOYEE REIMBURSEMENT_UNIFORM	06/19/2019		303.04
			Total for Check Number 17461:	0.00	303.04
17462	10103 REISSUE_10103	OCTAVIO FERNANDEZ EMPLOYEE REIMB_STAINLESS STEEL FAS	06/19/2019		22.95
			Total for Check Number 17462:	0.00	22.95
17463	10005 147977	ICMA RETIREMENT C/O M & T RETIRI RETIREMENT WITHHOLDING_PP ENDING	06/19/2019		3,457.20
			Total for Check Number 17463:	0.00	3,457.20
17464	00058 05192	IHWY BUSINESS HOSTING_JUNE 2019	06/19/2019		25.00
			Total for Check Number 17464:	0.00	25.00
17465	00336 5-2019	LAND TRUST OF SANTA CRUZ COUN OLYMPIA PATROLLING_MAY 2019	06/19/2019		61.20
			Total for Check Number 17465:	0.00	61.20
17466	10245 1207600479	LOGMEIN USA, INC, AUDIO SERVICE_04/30/19-05/30/19	06/19/2019		53.46
			Total for Check Number 17466:	0.00	53.46
17467	10211 61419_10211	MICHAEL E LOIK EDUCATION GRANT PROGRAM 2018_FINA	06/19/2019		500.00
			Total for Check Number 17467:	0.00	500.00
17468	00027 061219_27	NORTH BAY FORD MAINTENANCE TRUCK_VE-238	06/19/2019		46,153.38
			Total for Check Number 17468:	0.00	46,153.38
17469	10246 14023 14096	OVISS LABS INCORPORATED NEW VIDEO SECURITY SYSTEM (LYON W NEW VIDEO SECURITY SYSTEM (LYON W	06/19/2019		2,725.64 64.31
			Total for Check Number 17469:	0.00	2,789.95
17470	00695 3292019_695	PAUL JENSEN PROFESSIONAL LAND S LOMPICO SURVEY FOR PRV	06/19/2019		2,385.00
			Total for Check Number 17470:	0.00	2,385.00
17471	10257 2019SLVWD	SAN MATEO RESOURCE CONSERVATI 2019 SANTA CRUZ MOUNTAINS STEWARD	06/19/2019		5,000.00
			Total for Check Number 17471:	0.00	5,000.00
17472	00125 335364 335560 335701	SCARBOROUGH LUMBER HEX BIT SET_OPS VEHICLE SUPPLIES_WATER QUALITY TRENCHING SHOVEL_OPS	06/19/2019		43.36 52.28 31.06

Check No	Vendor No Invoice No	Vendor Name Description	Check Date Reference	Void Checks	Check Amount
	584693	HOSE/NOZZLE/BRUSH_WTP			27.25
	584740	TRASH BAGS_OPS			18.33
	584767	AUTOMOTIVE FUSES_VE-275_OPS			6.79
	K72652	MISC SCREWS_KIRBY PLANT_WTP			21.49
Total for Check Number 17472:				0.00	200.56
17473	10233 31244	SCHAAF & WHEELER, CONSULTING C LOMPICO TANKS_PROJECT MANAGEMEN	06/19/2019		997.50
Total for Check Number 17473:				0.00	997.50
17474	00183 PD1718007284	SDRMA INSURANCE CLAIM_08/10/2017	06/19/2019		500.00
Total for Check Number 17474:				0.00	500.00
17475	UB*00632	KHALILI SHAYESTEH Refund Check Refund Check	06/19/2019		132.77 285.31
Total for Check Number 17475:				0.00	418.08
17476	00751 61419_751	SLVE BOBCAT CLUB EDUCATION GRANT PROGRAM 2018_FINA	06/19/2019		63.00
Total for Check Number 17476:				0.00	63.00
17477	10180 990369	STEVEN BECK SAFETY LIGHTS_VE-236	06/19/2019		912.00
Total for Check Number 17477:				0.00	912.00
17478	00266 2019_9380943	TERMINIX PROCESSING CENTER ANNUAL SERVICE_08/01/19-08/31/20	06/19/2019		330.00
Total for Check Number 17478:				0.00	330.00
17479	00679 400650755	WATERTRAX WATER QUALITY REPORTING_07/01/19-06/	06/19/2019		9,338.95
Total for Check Number 17479:				0.00	9,338.95
17480	00209 66290644	ZEE MEDICAL, INC FIRST AID SUPPLIES_OPS	06/19/2019		1,218.08
Total for Check Number 17480:				0.00	1,218.08
17481	10236 664460A 664460B	ZIP'S TRUCK EQUIPMENT, INC NEW WATER QUALITY TRUCK BEACONS/I NEW METER READINGTRUCK BEACONS/I	06/19/2019		833.79 833.80
Total for Check Number 17481:				0.00	1,667.59
17482	00057 JUNE2019_57	AFSCME COUNCIL 57 UNION DUES_JUNE 2019	06/20/2019		998.66
Total for Check Number 17482:				0.00	998.66
17483	10223 MAY2019_10223	BANNER BANK_ESCROW NO 1474 PROBATION TANK_PROGRESS PYMT_WO#	06/20/2019		7,867.22

Check No	Vendor No Invoice No	Vendor Name Description	Check Date Reference	Void Checks	Check Amount
			Total for Check Number 17483:	0.00	7,867.22
17484	00313	MET LIFE	06/20/2019		
	JULY2019.01	DENTAL INS_ADMIN			192.14
	JULY2019.02	DISABILITY INS_ADMIN			84.83
	JULY2019.03	LIFE INS_ADMIN			33.30
	JULY2019.04	DENTAL INS_FINANCE			1,425.60
	JULY2019.05	DISABILITY INS_FINANCE			287.43
	JULY2019.06	LIFE INS_FINANCE			138.19
	JULY2019.07	DENTAL INS_ENG			258.32
	JULY2019.08	DISABILITY INS_ENG			96.24
	JULY2019.09	LIFE INS_ENG			33.30
	JULY2019.10	DENTAL INS_OPS			1,778.27
	JULY2019.11	DISABILITY INS_OPS			310.11
	JULY2019.12	LIFE INS_OPS			176.49
	JULY2019.13	DENTAL INS_ENVIRON			195.75
	JULY2019.14	DISABILITY INS_ENVIRON			46.45
	JULY2019.15	LIFE INS_ENVIRON			16.65
	JULY2019.16	DENTAL INS_WTP			1,439.72
	JULY2019.17	DISABILITY INS_WTP			348.49
	JULY2019.18	LIFE INS_WTP			156.51
			Total for Check Number 17484:	0.00	7,017.79
17485	10227	RSH CONSTRUCTION SERVICES	06/20/2019		
	MAY2019_10227	PROBATION TANK_MAY PROGRESS PYMT			149,475.78
			Total for Check Number 17485:	0.00	149,475.78
17486	00164	FIRST ALARM	06/20/2019		
	477195A	ALARM SERVICES_13057 HIGHWAY 9_07/0			588.84
	477195B	ALARM SERVICES_101 QUAIL HOLLOW_0			95.55
	477195C	ALARM SERVICES_365 MADRONE DRIVE_			168.51
	479541A	ALARM SERVICES_195 KIRBY ST_07/01/19-			339.12
	479541B	ALARM SERVICES_600 SAN LORENZO AVI			172.20
	479541C	ALARM SERVICES_15900 BEAR CREEK RD			343.59
			Total for Check Number 17486:	0.00	1,707.81
17487	00362	ACCELA, INC #774375	06/26/2019		
	ACC46250A	TRANSACTION FEES_MAY 2019			1,454.50
	ACC46250B	ONLINE BILL FEES_MAY 2019			185.00
			Total for Check Number 17487:	0.00	1,639.50
17488	00729	ALPHA ANALYTICAL LABS	06/26/2019		
	9054204	LAB FEES-ANALYTICAL SERVICES			430.00
			Total for Check Number 17488:	0.00	430.00
17489	00162	ANTHEM BLUE CROSS	06/26/2019		
	83004519	RETIRED EMPLOYEE MEDICAL_07/01/19-0			355.77
			Total for Check Number 17489:	0.00	355.77
17490	00767	ANTHEM BLUE CROSS	06/26/2019		
	0979098971	MEDICARE RX_07/01/19-08/01/19			116.90
			Total for Check Number 17490:	0.00	116.90
17491	10254	AQUA VIDEO ENGINEERING	06/26/2019		

Check No	Vendor No Invoice No	Vendor Name Description	Check Date Reference	Void Checks	Check Amount
	30620	LEWIS TANK REPAIRS			3,150.00
			Total for Check Number 17491:	0.00	3,150.00
17492	00686 619_834287386	AT&T LONG DISTANCE LONG DISTANCE_ADMIN	06/26/2019		182.20
			Total for Check Number 17492:	0.00	182.20
17493	00342 951068 951088	BRASS KEY LOCKSMITH REPAIR LOCKS_OPS DISTRICT LOCKS_OPS	06/26/2019		123.11 132.21
			Total for Check Number 17493:	0.00	255.32
17494	00009 036313	CITY OF SANTA CRUZ FINANCE DEPT WATER SMART GARDENING_ANNUAL WE	06/26/2019		586.03
			Total for Check Number 17494:	0.00	586.03
17495	00788 61119_1171123	COMCAST INTERNET_23 SUMMIT AVE	06/26/2019		153.38
			Total for Check Number 17495:	0.00	153.38
17496	00788 61519_1236074	COMCAST INTERNET_200 ANNIES WAY	06/26/2019		174.81
			Total for Check Number 17496:	0.00	174.81
17497	00788 61619_1018662	COMCAST INTERNET_264 ORCHARD ROAD	06/26/2019		148.38
			Total for Check Number 17497:	0.00	148.38
17498	00784 K649314A K649314B K649314C K649314D K649314E K649314F K649314G K649314H K649314I K649314J K674930A K674930B K674930C K674930D K674930E K674930F K674930G K674930H K674930I K674930J K674930K K674930L K674930M K674930N K674930O K674930P	CORE & MAIN LP CPLG COPR-PIPE MALE 3/4" MTR VLV PIPE-MTR ANG 3/4X5/8" NIPPLE BRASS 1" X 0" GATE VALVE 3/4" GATE VALVE 2" CHECK VALVE METER SPUD 3/4" 16 X 125 X1 -TIGERTOOTH SUPERGRIT DIA SVC VALVE PIPE-PIPE STRT 3/4" CHECK VALVE 3/4" NIPPLE BRASS 3/4" X 0" NIPPLE GALV 3/4" X 6" ELL 90 GALV 2" ELL 90 GALV 3/4" NIPPLE GALV 2" X 6" NIPPLE GALV 1" X 2" NIPPLE GALV 3/4" X 0" NIPPLE GALV 3/4" X 2" TEE GALV 2" NIPPLE GALV 2" X 2-1/2" CAP GALV 3/4" UNION GALV 2" TEE GALV 1" NIPPLE GALV 2" X 4" BUSHING GALV 1" X 3/4" ELL 45 GALV 2" NIPPLE GALV 3/4" X 5"	06/26/2019		213.79 237.14 4.69 77.56 351.53 615.01 698.47 797.20 39.92 3.21 23.61 303.29 18.40 98.10 19.91 16.00 13.35 187.17 36.17 17.27 209.63 45.32 58.60 30.52 93.98 19.62

Check No	Vendor No Invoice No	Vendor Name Description	Check Date Reference	Void Checks	Check Amount
	K687960A	FLANGE METER GASKETS 2" / NO BOLT			23.02
	K687960B	FULL CIRCLE 2.35-2.63 12.50"			317.32
	K687960C	FULL CIRCLE 3.96-4.25 7.50"			75.13
	K687960D	MTR VLV PIPE-MTR STRT 3/4X5/8"			491.75
	K735671	NIPPLE BRASS 3/4" X 0"			3.21
			Total for Check Number 17498:	0.00	5,139.89
17499	00273	CORELOGIC, INC.	06/26/2019		
	30424756	REALQUEST SERVICES_05/01/19-05/31/19			206.00
			Total for Check Number 17499:	0.00	206.00
17500	00037	CO. OF SANTA CRUZ DEPT OF PUBLIC	06/26/2019		
	35894A	ASPHALT/BRICK			7.50
	35894B	WOODWASTE			7.50
	35894C	PASO BLDG REMOVAL_WO#814			23.00
	35894D	BLUE TANK TRASH_WO#521			19.00
			Total for Check Number 17500:	0.00	57.00
17501	01039	ERA - A WATERS COMPANY	06/26/2019		
	904302	ANNUAL PERFORMANCE TESTING			479.95
			Total for Check Number 17501:	0.00	479.95
17502	00343	ERNIE'S SERVICE CENTER	06/26/2019		
	77234	TRUCK SERVICE_VE-280			824.86
			Total for Check Number 17502:	0.00	824.86
17503	00450	EUROFINS	06/26/2019		
	L0455200	WATER ANALYSIS_PASO 5A & 7			90.00
	L0455462	WATER ANALYSIS_2 LOCATIONS			400.00
	L0455463	WATER ANALYSIS_5 LOCATIONS			1,000.00
			Total for Check Number 17503:	0.00	1,490.00
17504	00750	FEDAK & BROWN, LLP	06/26/2019		
	053119_750	PROFESSIONAL SERVICES_MAY 2019			475.00
			Total for Check Number 17504:	0.00	475.00
17505	00204	FEDERAL EXPRESS CORP	06/26/2019		
	658262308	RETURN FREIGHT CHARGE_OPS			342.02
			Total for Check Number 17505:	0.00	342.02
17506	00164	FIRST ALARM	06/26/2019		
	480209	OPS ALARM SERVICE LABOR			165.00
			Total for Check Number 17506:	0.00	165.00
17507	00329	GRAINGER	06/26/2019		
	9190589748	TRUCKS HARDWARE_WTP			120.29
	9194543113	HAND WIPES_WTP			202.44
			Total for Check Number 17507:	0.00	322.73
17508	00080	GRANITE CONSTRUCTION CO	06/26/2019		
	1595720	HOT MIX_PAVING_OPS			284.97
	1599997	HOT MIX/PAVING_OPS			248.23

Check No	Vendor No Invoice No	Vendor Name Description	Check Date Reference	Void Checks	Check Amount
			Total for Check Number 17508:	0.00	533.20
17509	00016 4135678	GREENWASTE RECOVERY, INC TRASH/RECYCLE/YARDWASTE SERVICES_	06/26/2019		413.08
			Total for Check Number 17509:	0.00	413.08
17510	00550 11489951 11494889 11499386	HACH COMPANY WTP SUPPLIES DESICCANT CARTRIDGE_WTP POCKET COLORIMETER & DPD	06/26/2019		2,451.23 138.36 528.24
			Total for Check Number 17510:	0.00	3,117.83
17511	00020 04090-19063	HARO, KASUNICH & ASSOCIATES LOWER SLIDE STABILIZATION_WO#549	06/26/2019		1,862.10
			Total for Check Number 17511:	0.00	1,862.10
17512	00247 S104226601.001	INDEPENDENT ELECTRIC SUPPLY PASO 8 PROJECT_MTR CKT PROTECTOR_V	06/26/2019		940.31
			Total for Check Number 17512:	0.00	940.31
17513	00608 347504	LLOYD'S TIRE SERVICE, INC TIRES_OIL_VE-249	06/26/2019		961.20
			Total for Check Number 17513:	0.00	961.20
17514	10258 525552	MCCROMETER INC LAB SUPPLIES_WTP	06/26/2019		46.39
			Total for Check Number 17514:	0.00	46.39
17515	00296 0519019 0519020 0519021	MESITI-MILLER ENGINEERING, INC CONSTRUCTION ADMIN_WO#823 GEOTECHNICAL ENG SERVICES_WO#823 CONSTRUCTION SUPPORT_WO#823	06/26/2019		10,391.36 5,887.92 2,926.00
			Total for Check Number 17515:	0.00	19,205.28
17516	10251 2616.1 2660	MORIARTY'S ROOFING, INC. FELTON ACRES ROOF FELTON ACRES ROOF_REPAIRED DAMAG	06/26/2019		7,910.00 2,824.17
			Total for Check Number 17516:	0.00	10,734.17
17517	00027 062119_27	NORTH BAY FORD 2019 FORD RANGER. FEILD CSR VEHICLE	06/26/2019		34,000.00
			Total for Check Number 17517:	0.00	34,000.00
17518	00775 903493679	NORTHERN SAFETY CO., INC. CASE OF KNEE PADS_OPS	06/26/2019		117.12
			Total for Check Number 17518:	0.00	117.12
17519	00695 5312019_695	PAUL JENSEN PROFESSIONAL LAND S SURVEY WORK_PROBATION_WO#823	06/26/2019		3,110.00
			Total for Check Number 17519:	0.00	3,110.00

Check No	Vendor No Invoice No	Vendor Name Description	Check Date Reference	Void Checks	Check Amount
17520	00944	PDNC, INC.	06/26/2019		
	3553	SERVER MAINTENANCE_ADMIN			320.32
	3607	MONTHLY SERVER SUPPORT_JUNE2019			562.68
Total for Check Number 17520:				0.00	883.00
17521	10205	RED WING BUSINESS ADVANTAGE AC	06/26/2019		
	20190610033845	BOOTS #175			495.41
Total for Check Number 17521:				0.00	495.41
17522	00142	SAN LORENZO LUMBER	06/26/2019		
	61-0139955	FELTON ACRES GATE_OPS			9.67
	61-0139956	DIGGING BAR/BROOM_OPS			84.34
Total for Check Number 17522:				0.00	94.01
17523	00125	SCARBOROUGH LUMBER	06/26/2019		
	335780	SHOVEL_OPS			25.89
	336165	TICK REPELLENT_WD-40_WTP			29.10
	584815	SHOP-VAC FILTERS_OPS			9.70
	584830	RODENT CLEAN UP_OPS			58.61
	584921	TRIMMER STRING_OPS			43.14
Total for Check Number 17523:				0.00	166.44
17524	00746	SCOTTS VALLEY BANNER	06/26/2019		
	62420	HIRING NOTICE_RUN DATE 06/07/19			260.00
Total for Check Number 17524:				0.00	260.00
17525	00047	SOIL CONTROL LAB	06/26/2019		
	9060102	WATER ANALYSIS_5 LOCATIONS			145.00
	9060361	WATER ANALYSIS_5 LOCATIONS			145.00
Total for Check Number 17525:				0.00	290.00
17526	10184	THATCHER COMPANY, INC	06/26/2019		
	264726	CHLORINE_WTP			3,219.08
	264791	CHLORINE BARREL CREDIT_WTP			-760.00
Total for Check Number 17526:				0.00	2,459.08
17527	00768	USA BLUEBOOK	06/26/2019		
	917803	BEAR CREEK WASTE WATER RISER LEVEL			555.68
Total for Check Number 17527:				0.00	555.68
17528	00011	VERIZON WIRELESS	06/26/2019		
	9832106222A	CELL CHARGES_ADMIN			71.58
	9832106222B	CELL CHARGES_FINANCE			113.24
	9832106222C	CELL CHARGES_ENG			-28.42
	9832106222D	CELL CHARGES_OPS			320.84
	9832106222E	CELL CHARGES_WTP			351.39
Total for Check Number 17528:				0.00	828.63
17529	00011	VERIZON WIRELESS	06/26/2019		
	9832106223A	TABLET_CELL CHARGES_ADMIN			53.90
	9832106223B	TABLET_CELL CHARGES_OPS			235.66
	9832106223C	TABLET_CELL CHARGES_ENVIRON			80.50
	9832106223D	TABLET_CELL CHARGES_WTP			117.13

Check No	Vendor No Invoice No	Vendor Name Description	Check Date Reference	Void Checks	Check Amount
			Total for Check Number 17529:	0.00	487.19
17530	00399	VISION SERVICE PLAN - (CA)	06/26/2019		
	807054056A	VISION INSURANCE_ADMIN			28.44
	807054056B	VISION INSURANCE_FINANCE			133.04
	807054056C	VISION INSURANCE_ENGIN			38.58
	807054056D	VISION INSURANCE_OPS			333.74
	807054056E	VISION INSURANCE_ENVIRON			27.44
	807054056F	VISION INSURANCE_WTP			197.78
			Total for Check Number 17530:	0.00	759.02
17531	10072	WATER SYSTEMS CONSULTING, INC	06/26/2019		
	3877A	SERVICES FROM 05/01/19-05/31/19			1,290.00
	3877B	SERVICES FROM 05/01/19-05/31/19_WO#842			392.48
	3877C	SERVICES FROM 05/01/19-05/31/19_WO#136			960.00
	3878	SERVICES FROM 05/01/19-05/31/19_WO#950			2,610.00
	3891	PRV DESIGN_SERVICES FROM 05/01/19-05/			395.00
			Total for Check Number 17531:	0.00	5,647.48
17532	10152	WESTAMERICA BANK	06/26/2019		
	JUNE19_10152A	TRUCK LOAN_INTEREST			196.99
	JUNE19_10152B	TRUCK LOAN_PRINCIPAL			1,903.69
			Total for Check Number 17532:	0.00	2,100.68
17533	00055	AT&T	06/28/2019		
	619_8313355273A	TELEPHONE_FELTON ACRES_JUNE2019			65.90
	619_8313355273B	TELEPHONE_FELTON ACRES_JULY2019			98.86
			Total for Check Number 17533:	0.00	164.76
17534	01077	JOSEPH B BEASLEY	06/28/2019		
	061519_1077	D-3 REIMBURSEMENT			100.00
	61519_1077	OT MEAL REIMBURSEMENT			14.88
	62619_1077	UNIFORM REIMBURSEMENT			74.78
			Total for Check Number 17534:	0.00	189.66
17535	00342	BRASS KEY LOCKSMITH	06/28/2019		
	951149	HR CABINET KEYS_ADMIN			5.86
	951150	HR CABINET KEYS_ADMIN			5.86
			Total for Check Number 17535:	0.00	11.72
17536	00566	C S S C	06/28/2019		
	190600059101A	ANSWERING SERVICE_JUNE USAGE			133.81
	190600059101B	ANSWERING SERVICE_JULY 1-21ST			117.49
			Total for Check Number 17536:	0.00	251.30
17537	00363	CINCINNATI LIFE INSURANCE CO	06/28/2019		
	JUNE2019_363	201 LIFE INSURANCE_JUNE2019			28.00
			Total for Check Number 17537:	0.00	28.00
17538	01050	COLONIAL LIFE	06/28/2019		
	0613251	2019 INSURANCE PREMIUMS_06/13/19 & 06/28/19			559.04
			Total for Check Number 17538:	0.00	559.04

Check No	Vendor No Invoice No	Vendor Name Description	Check Date Reference	Void Checks	Check Amount
17539	00788 61919_1028380	COMCAST INTERNET_7400 HWY 9	06/28/2019		153.38
Total for Check Number 17539:				0.00	153.38
17540	10232 3_10232	COMMUNITY FOUNDATION SANTA C OLYMPIA WELLFIELD ENDOWMENT FUNI	06/28/2019		96,380.00
Total for Check Number 17540:				0.00	96,380.00
17541	00703 267418 267419 267420 267421 267422 267423	DATAFLOW BUSINESS SYSTEMS, INC CONTRACT SERVICES_SAVIN 917 SPF_OPS CONTRACT SERVICES_OKIDATA_WTP CONTRACT SERVICES_KYOCERA FS-C262 CONTRACT SERVICES_HP 602DN_FIN CONTRACT SERVICES_HP 5200_FIN CONTRACT SERVICES_CANON 2525_FIN	06/28/2019		57.34 144.74 119.18 68.34 43.01 16.09
Total for Check Number 17541:				0.00	448.70
17542	00076 782954 784180 CR782954	ERNIE'S AUTO CENTER A/C RECHARGE_WTP FLOOR MATS FOR WATER QUALITY TRUC CORE DEPOSIT_WTP	06/28/2019		59.04 154.64 -10.00
Total for Check Number 17542:				0.00	203.68
17543	10103 062619_10103	OCTAVIO FERNANDEZ UNIFORM REIMBURSEMENT	06/28/2019		40.59
Total for Check Number 17543:				0.00	40.59
17544	UB*00633	KY HAMILTON Refund Check	06/28/2019		28.70
Total for Check Number 17544:				0.00	28.70
17545	00573 063019_573 63019_573	STEPHANIE HILL MILEAGE_BANK DEPOSIT_BOARD MTG MILEAGE_BANK DEPOSIT	06/28/2019		59.59 22.04
Total for Check Number 17545:				0.00	81.63
17546	00785 201819-CS-13	REGIONAL WATER MANAGEMENT 2018_2019_REGIONAL WATER MGMT COOI	06/28/2019		10,000.00
Total for Check Number 17546:				0.00	10,000.00
17547	00711 S1837550.005A S1837550.005B S1837550.005C	ROBERTS & BRUNE CO. CHECK VALVE METER SPUD 1" CORP PIPE-PIPE IP 1" METER FLANGE BRONZE 2"	06/28/2019		238.44 269.86 439.45
Total for Check Number 17547:				0.00	947.75
17548	00102 061919_102	ANDY ROBUSTELLI OVERTIME MEAL REIMBURSEMENT	06/28/2019		12.50
Total for Check Number 17548:				0.00	12.50
17549	01056 62319_1056	BEAU SIFTON UNIFORM REIMBURSEMENT	06/28/2019		194.57

Check No	Vendor No Invoice No	Vendor Name Description	Check Date Reference	Void Checks	Check Amount
			Total for Check Number 17549:	0.00	194.57
17550	10231 6308292	TIAA COMMERCIAL FINANCE, INC. 5 YR LEASE NEW COPIER	06/28/2019		253.45
			Total for Check Number 17550:	0.00	253.45
17551	00721 114-8682293A 114-8682293B 114-8682293C 114-8682293D	UNITED SITE SVCS.,INC SANITARY SERVICES_06/18/19-06/30/19 SANITARY SERVICES_06/18/19-06/30/19 SANITARY SERVICES_07/01/19-07/15/19 SANITARY SERVICES_07/01/19-07/15/19	06/28/2019		45.65 45.66 52.70 52.69
			Total for Check Number 17551:	0.00	196.70
17552	00729 9063397 9064030	ALPHA ANALYTICAL LABS LAB FEES-ANALYTICAL SERVICES LAB FEES-ANALYTICAL SERVICES	07/05/2019		1,032.00 110.00
			Total for Check Number 17552:	0.00	1,142.00
17553	00309 2863488407A 2863488407B 2863488407C	AT&T IP SERVICES IP SERVICES_ADMIN IP SERVICES_OPS IP SERVICES_WTP	07/05/2019		392.28 392.28 392.28
			Total for Check Number 17553:	0.00	1,176.84
17554	00423 3838	BAY AREA BARRICADE TRAFFIC SIGN PADDLES_OPS	07/05/2019		337.93
			Total for Check Number 17554:	0.00	337.93
17555	00216 128400	BOULDER CREEK AUTO PARTS BATTERY_VE-747	07/05/2019		193.81
			Total for Check Number 17555:	0.00	193.81
17556	10115 061319_19 061419_10115	BOULDER CREEK HEATING & AIR CO ADMIN BLDG_A/C REPAIR OPERATIONS A/C UNIT REPAIR	07/05/2019		1,148.78 140.78
			Total for Check Number 17556:	0.00	1,289.56
17557	UB*00636	JULIE CARPENTER Refund Check	07/05/2019		0.09
			Total for Check Number 17557:	0.00	0.09
17558	00265 2675	COMMUNITY TELEVISION MEETING COVERAGE_MAY 2ND & 16TH	07/05/2019		577.50
			Total for Check Number 17558:	0.00	577.50
17559	00319 66348	ECOLOGY ACTION OF SANTA CRUZ WATER COALITION TIME AND MATERIAL:	07/05/2019		1,252.29
			Total for Check Number 17559:	0.00	1,252.29
17560	00147 8111311	EMERSON PROCESS MANAGEMENT SCADA-RTU PROGRAMMING SOFTWARE I	07/05/2019		10,936.10

Check No	Vendor No Invoice No	Vendor Name Description	Check Date Reference	Void Checks	Check Amount
			Total for Check Number 17560:	0.00	10,936.10
17561	00343	ERNIE'S SERVICE CENTER	07/05/2019		
	77610	VEHICLE SERVICE_VE-260_WTP			371.34
	77818	BATTERY_VE-181			154.55
			Total for Check Number 17561:	0.00	525.89
17562	00450	EUROFINS	07/05/2019		
	L0457524	WATER ANALYSIS_PASO 7_PASO 5A			90.00
	L0459012	WATER ANALYSIS_PASO 5A & 7			90.00
			Total for Check Number 17562:	0.00	180.00
17563	00118	FARMER BROTHERS COFFEE	07/05/2019		
	69212124	COFFEE SUPPLIES_OPS			165.47
			Total for Check Number 17563:	0.00	165.47
17564	UB*00634	ANGELA GRAHAM	07/05/2019		
		Refund Check			0.07
		Refund Check			0.02
			Total for Check Number 17564:	0.00	0.09
17565	00080	GRANITE CONSTRUCTION CO	07/05/2019		
	1600033	HOT MIX PAVING_QUAIL BINS			197.52
	1601126	HOT MIX PAVING			274.12
	1602743	HOT MIX PAVING_OPS			271.41
			Total for Check Number 17565:	0.00	743.05
17566	00550	HACH COMPANY	07/05/2019		
	11494864	REPLACEMENT PH PROBES			1,408.15
	11512416	TURBIDIMETER CLEANING MODULE			898.72
			Total for Check Number 17566:	0.00	2,306.87
17567	10005	ICMA RETIREMENT C/O M & T RETIRI	07/05/2019		
	154960	RETIREMENT WITHHOLDING_PP ENDING			41,537.20
			Total for Check Number 17567:	0.00	41,537.20
17568	UB*00638	VALERIE MORENO	07/05/2019		
		Refund Check			9.64
		Refund Check			13.46
			Total for Check Number 17568:	0.00	23.10
17569	UB*00637	SHERYL PAQUETTE	07/05/2019		
		Refund Check			405.31
		Refund Check			774.69
			Total for Check Number 17569:	0.00	1,180.00
17570	00001	ROYAL WHOLESALE ELECTRIC	07/05/2019		
	7719-646055	PASO 8 PROJECT_WO#814			2,674.14
	7719-647101	PASO WELL 8_WO#814			69.39
			Total for Check Number 17570:	0.00	2,743.53
17571	00125	SCARBOROUGH LUMBER	07/05/2019		

Check No	Vendor No Invoice No	Vendor Name Description	Check Date Reference	Void Checks	Check Amount
	336132	TIE DOWNS_PLIERS_WTP			70.06
	336192	FELTON ACRES BLDG_OPS			163.21
	336466	SAW MIX_TEFロン TAPE_OPS			64.76
	336481	MEASURE TAPE_WTP			30.30
	336500	TRASH BAGS_OPS			11.89
	336533	SAFETY FLASHERS_OPS			23.24
	336538	SAFETY EQUIPMENT_OPS			99.11
	336539	KIRBY PLANT_MAINTENANCE TREE TRIM			110.64
	336575	SAFETY EQUIPMENT_WTP			36.88
	336595	CHAIN SAW SAFETY EQUIPMENT_OPS			202.78
	585055	EXTENDED REACH TOOL_OPS			3.87
	585192	BOLTS FOR MOUNTING LIGHTS_VE-238			8.16
	585208	SAWZALL BALDES_WTP			23.10
Total for Check Number 17571:				0.00	848.00
17572	10180 990372	STEVEN BECK LIGHT INSTALL_VE-240	07/05/2019		912.00
Total for Check Number 17572:				0.00	912.00
17573	00642 STMT III	STEVEN M.BUTLER,R.P.F. FIRE BREAK MTG_05/14, 6/03 & 06/17	07/05/2019		495.77
Total for Check Number 17573:				0.00	495.77
17574	UB*00635	TAYLOR PROPERTY MANAGEMENT Refund Check	07/05/2019		138.54
Total for Check Number 17574:				0.00	138.54
Report Total (174 checks):				0.00	912,601.38

EFT TRANSACTIONS

JUNE 2019



13060 Highway 9
Boulder Creek, CA 95006-9119
(831) 338-2153 phone
(831) 338-7986 fax

Date	Check No	Vendor	Description	Amount
6/3/2019	EFT	BLUEFIN	BANK FEES	\$ 7,158.69
6/4/2019	EFT	MERCHANT TRANSACT	BANK FEES	\$ 209.29
6/11/2019	EFT	WELLS FARGO	BANK FEES	\$ 926.80
6/17/2019	EFT	CIVIC PAY	BANK FEES	\$ 532.71
6/5/2019	EFT	PAYCHEX	ADMIN & DELIVERY FEES	\$ 230.30
6/5/2019	EFT	PAYCHEX	PAYROLL	\$ 109,361.30
6/14/2019	EFT	PAYCHEX	PAYCHEX INVOICE	\$ 418.47
6/19/2019	EFT	PAYCHEX	ADMIN & DELIVERY FEES	\$ 254.75
6/19/2019	EFT	PAYCHEX	PAYROLL	\$ 111,870.70
6/26/2019	EFT	PAYCHEX	PAYCHEX INVOICE	\$ 64.18
6/26/2019	EFT	CALPERS	RETIREMENT BENEFITS	\$ 37,312.28
TOTAL EFT TRANSACTIONS				\$ 268,339.47

0084 A87P-7177 San Lorenzo Valley Water District

CASH REQUIREMENTS**CASH REQUIRED FOR NEGOTIABLE CHECKS &/OR ELECTRONIC FUNDS TRANSFERS (EFT) FOR CHECK DATE 06/05/19: \$119,284.23****TRANSACTION SUMMARY**

SUMMARY BY TRANSACTION TYPE -	TOTAL ELECTRONIC FUNDS TRANSFER (EFT)	109,361.30
	TOTAL NEGOTIABLE CHECKS	9,922.93
	CASH REQUIRED FOR NEGOTIABLE CHECKS &/OR EFT	119,284.23
	TOTAL REMAINING DEDUCTIONS / WITHHOLDINGS / LIABILITIES	15,194.49
	CASH REQUIRED FOR CHECK DATE 06/05/19	134,478.72

TRANSACTION DETAIL**ELECTRONIC FUNDS TRANSFER** - Your financial institution will initiate transfer to Paychex **at or after 12:01 A.M.** on transaction date.

<u>TRANS. DATE</u>	<u>BANK NAME</u>	<u>ACCOUNT NUMBER</u>	<u>PRODUCT</u>	<u>DESCRIPTION</u>		BANK DRAFT AMOUNTS & OTHER TOTALS
06/04/19	WELLS FARGO BANK, NA	xxxxxx1358	Direct Deposit	Net Pay Allocations	71,926.15	71,926.15
06/04/19	WELLS FARGO BANK, NA	xxxxxx1358	Taxpay®	Employee Withholdings		
				Social Security	7,618.79	
				Medicare	1,781.80	
				Fed Income Tax	12,458.49	
				CA Income Tax	4,946.61	
				CA Disability	1,228.85	
				Total Withholdings	28,034.54	
				Employer Liabilities		
				Social Security	7,618.78	
				Medicare	1,781.83	
				Total Liabilities	9,400.61	37,435.15
				EFT FOR 06/04/19		109,361.30
				TOTAL EFT		109,361.30

NEGOTIABLE CHECKS - Check amounts will be debited when payees cash checks. Funds must be available on check date.

<u>TRANS. DATE</u>	<u>BANK NAME</u>	<u>ACCOUNT NUMBER</u>	<u>PRODUCT</u>	<u>DESCRIPTION</u>		<u>TOTAL</u>
06/05/19	WELLS FARGO BANK, NA	xxxxxx1358	Payroll	Check Amounts	9,922.93	
				TOTAL NEGOTIABLE CHECKS		9,922.93

REMAINING DEDUCTIONS / WITHHOLDINGS / LIABILITIES - Paychex does not remit these funds. You must ensure accurate and timely payment of applicable items.

<u>TRANS. DATE</u>	<u>BANK NAME</u>	<u>ACCOUNT NUMBER</u>	<u>PRODUCT</u>	<u>DESCRIPTION</u>		<u>TOTAL</u>
06/05/19	Refer to your records for account	Information	Payroll	Employee Deductions		
				Aflc/Col Post	55.34	
				Aflc/Col Pre	335.08	

0084 A87P-7177 San Lorenzo Valley Water District

CASH REQUIREMENTS

CASH REQUIRED FOR NEGOTIABLE CHECKS &/OR ELECTRONIC FUNDS TRANSFERS (EFT) FOR CHECK DATE 06/05/19: \$119,284.23

REMAINING DEDUCTIONS / WITHHOLDINGS / LIABILITIES (cont.) - Paychex does not remit these funds. You must ensure accurate and timely payment of applicable items.

<u>TRANS. DATE</u>	<u>BANK NAME</u>	<u>ACCOUNT NUMBER</u>	<u>PRODUCT</u>	<u>DESCRIPTION</u>	<u>TOTAL</u>
06/05/19	Refer to your records for account Information		Payroll	Employee Deductions (cont.)	
				Calper 457	1,025.00
				DPer	7,948.78
				Health	928.22
				ICMA	3,457.20
				Life Ins	14.00
				PXDCA EE PRE	576.92
				PXUME EE PRE	354.62
				Union dues	499.33
				Total Deductions	15,194.49
TOTAL REMAINING DEDUCTIONS / WITHHOLDINGS / LIABILITIES					15,194.49

PAYCHEX WILL MAKE THESE TAX DEPOSIT(S) ON YOUR BEHALF - This information serves as a record of payment.

<u>DUE DATE</u>	<u>PRODUCT</u>	<u>DESCRIPTION</u>	
06/12/19	Taxpay®	FED IT PMT Group	31,259.69
06/12/19	Taxpay®	CA IT PMT Group	6,175.46

0084 A87P-7177 San Lorenzo Valley Water District

CASH REQUIREMENTS**CASH REQUIRED FOR NEGOTIABLE CHECKS &/OR ELECTRONIC FUNDS TRANSFERS (EFT) FOR CHECK DATE 06/19/19: \$122,576.79****TRANSACTION SUMMARY**

SUMMARY BY TRANSACTION TYPE -	TOTAL ELECTRONIC FUNDS TRANSFER (EFT)	111,870.70
	TOTAL NEGOTIABLE CHECKS	10,706.09
	CASH REQUIRED FOR NEGOTIABLE CHECKS &/OR EFT	122,576.79
	TOTAL REMAINING DEDUCTIONS / WITHHOLDINGS / LIABILITIES	15,229.45
	CASH REQUIRED FOR CHECK DATE 06/19/19	137,806.24

TRANSACTION DETAIL**ELECTRONIC FUNDS TRANSFER** - Your financial institution will initiate transfer to Paychex **at or after 12:01 A.M.** on transaction date.

<u>TRANS. DATE</u>	<u>BANK NAME</u>	<u>ACCOUNT NUMBER</u>	<u>PRODUCT</u>	<u>DESCRIPTION</u>		BANK DRAFT AMOUNTS & OTHER TOTALS
06/18/19	WELLS FARGO BANK, NA	xxxxxx1358	Direct Deposit	Net Pay Allocations	73,305.24	73,305.24
06/18/19	WELLS FARGO BANK, NA	xxxxxx1358	Taxpay®	Employee Withholdings		
				Social Security	7,831.88	
				Medicare	1,831.65	
				Fed Income Tax	12,843.48	
				CA Income Tax	5,131.70	
				CA Disability	1,263.20	
				Total Withholdings	28,901.91	
				Employer Liabilities		
				Social Security	7,831.88	
				Medicare	1,831.67	
				Total Liabilities	9,663.55	38,565.46
				EFT FOR 06/18/19		111,870.70
				TOTAL EFT		111,870.70

NEGOTIABLE CHECKS - Check amounts will be debited when payees cash checks. Funds must be available on check date.

<u>TRANS. DATE</u>	<u>BANK NAME</u>	<u>ACCOUNT NUMBER</u>	<u>PRODUCT</u>	<u>DESCRIPTION</u>		<u>TOTAL</u>
06/19/19	WELLS FARGO BANK, NA	xxxxxx1358	Payroll	Check Amounts	10,706.09	
				TOTAL NEGOTIABLE CHECKS		10,706.09

REMAINING DEDUCTIONS / WITHHOLDINGS / LIABILITIES - Paychex does not remit these funds. You must ensure accurate and timely payment of applicable items.

<u>TRANS. DATE</u>	<u>BANK NAME</u>	<u>ACCOUNT NUMBER</u>	<u>PRODUCT</u>	<u>DESCRIPTION</u>		<u>TOTAL</u>
06/19/19	Refer to your records for account	Information	Payroll	Employee Deductions		
				Aflc/Col Post	55.34	
				Aflc/Col Pre	335.08	

0084 A87P-7177 San Lorenzo Valley Water District

CASH REQUIREMENTS**CASH REQUIRED FOR NEGOTIABLE CHECKS &/OR ELECTRONIC FUNDS TRANSFERS (EFT) FOR CHECK DATE 06/19/19: \$122,576.79****REMAINING DEDUCTIONS / WITHHOLDINGS / LIABILITIES (cont.)** - Paychex does not remit these funds. You must ensure accurate and timely payment of applicable items.

<u>TRANS. DATE</u>	<u>BANK NAME</u>	<u>ACCOUNT NUMBER</u>	<u>PRODUCT</u>	<u>DESCRIPTION</u>	<u>TOTAL</u>
06/19/19	Refer to your records for account Information		Payroll	Employee Deductions (cont.)	
				Calper 457	1,025.00
				DPer	7,983.74
				Health	928.22
				ICMA	3,457.20
				Life Ins	14.00
				PXDCA EE PRE	576.92
				PXUME EE PRE	354.62
				Union dues	499.33
				Total Deductions	15,229.45
TOTAL REMAINING DEDUCTIONS / WITHHOLDINGS / LIABILITIES					15,229.45

PAYCHEX WILL MAKE THESE TAX DEPOSIT(S) ON YOUR BEHALF - This information serves as a record of payment.

<u>DUE DATE</u>	<u>PRODUCT</u>	<u>DESCRIPTION</u>	
06/26/19	Taxpay®	FED IT PMT Group	32,170.56
06/26/19	Taxpay®	CA IT PMT Group	6,394.90



NOSSAMAN LLP

Memorandum

TO: Board of Directors,
San Lorenzo Valley Water District

FROM: Gina R. Nicholls, District Counsel

DATE: June 12, 2019

RE: Legal Department Status Report
502665-0001

I have been asked by the San Lorenzo Valley Water District (“District”) to provide information about the District’s legal expenditures in a format that is suitable for public disclosure.¹ Since the last legal department status report dated June 14, 2019, the most significant broad categories of expenses arise from providing legal advice and support in the following areas, listed in descending order of their approximate significance in terms of cost to the District:²

- Financing (new debt issuance)
- Board meetings
- Personnel and employment
- Contracts
- Other

During the past month, the most significant litigation matter involving the District was resolved, and pending and anticipated litigation (1 remaining case against the District) has become far less important in terms of the District’s exposure to legal expenses and liabilities.

¹ Legal work performed for the District is confidential and privileged. Accordingly, the information provided herein is written in broad and general terms to avoid waiver and any disclosures that might compromise the District’s interests in pending or future legal matters.

² List includes general and special counsel work by Nossaman and other law firms, if any, representing the District. The List excludes any work performed by counsel appointed and paid by the District’s insurance providers (i.e., counsel not paid by the District).

The most significant areas of effort over the next month are likely to include the following:

- Financing (new debt issuance)
- Board meetings
- District policies & procedures
- Contracts

MEMO

TO: District Manager

FROM: Director of Operations

SUBJECT: OPERATIONS DEPARTMENT STATUS REPORT
JUNE 2019

DATE: JULY 18, 2019

RECOMMENDATION:

It is recommended that the District Manager review and file the Operations Department Project Status Report for the month of June 2019.

BACKGROUND:

PROBATION TANK REPLACEMENT

The contractor is in full construction on the replacement of the Probation tank. The contractor completed grading, digging and compacting of the tank site. The retaining walls are in construction and expected to be done in July. Construction is expected to continue until October 2019.

The Old 100,000 gallon redwood tank at the probation site was in very poor condition and was leaking towards the end of its life at an estimated 35-40 gallons per minute. Temporary poly tanks were installed by District staff in the summer of 2018. The system is running on minimal storage through construction. The residents of this area have been cautioned to conserve water during this time.

PASO WELL #8

The new Paso Well #8 construction continues. The District has been working with the concrete contractor on construction of the Well head pad and chlorination building. The Well drilling contractor welded on the Well flange spool for the concrete contractor to be able to complete the Well pad. Expected completion of the Well is late August.

Paso Well #8 is a replacement to Paso Well #6 that began splitting in its casing in 2015, which was allowing sand to overcome the pump and motor. Many attempts to fix and seal the casing on the Well were unsuccessful leading to full replacement of the Well.

FELTON WATER SYSTEM WATER METER REPLACEMENT

Domestic water meters are being replaced as existing meters have reached their life expectancy. Meters are being changed to the new Beacon “Eye on Water” system that will allow customers to monitor their water usage over the internet.

LOMPICO PRV’S

District staff replaced three main line valves that did not function. The replacement of these valves is crucial to this project for isolation of the PRV stations during construction.

The District is in contract to have the Lompico PRV’s replaced as part of the assessment. Having functioning PRV’s is important to a system like this with a large span of elevations. Pressures have to be reduced as the water gets lower in elevation from the tanks as they gain pressure the lower the elevation gets. With non-functioning PRV’s the pressure gets very high in the lower elevations and causes failure of main lines and service lines.

DISTRICT VEHICLES

The operations department took possession of the two new replacement utility body vehicles in the month of June. One of these vehicles is a replacement for District truck #226, a Ford F250 with 162,000 miles and no utility body or lift gate. The second truck is a new truck for the addition of a treatment operator to the crew.

MAINTENANCE ISSUES

System Wide

- 8995 Redwood St. did final install of temporary water line.
- Removed, repaired and reinstalled high service pump at Kirby water treatment plant.
- 6 inch main break 7171 Hihn Rd. Ben Lomond.
- 4 inch main break Highway 9 and Kings Creek Rd. Boulder Creek.
- Removed dead end water line Alta Via Rd. Boulder Creek.
- Full Service line replacement 11111 Vera Ave. Lompico.
- Restored service to an old service at 10065 Highway 9 Ben Lomond.
- Meter relocation 232 Caledonium Ave. Ben Lomond.
- District fiscal yearend inventory count complete.
- Fixed approximately 16 other various leaks throughout the District.

James Furtado

Director of Operations

SAN LORENZO VALLEY WATER DISTRICT

PRODUCTION COMPARRISON

Source	June-19	May-19	June-13	Difference This Year To 2013
North System				
Surface Water Sources				
Foreman Creek	21,052,220	20,706,672	16,483,000	
Peavine Creek + Hydro	775,923	5,037,060	2,974,000	
Clear Creek	5,878,714	6,141,161	0	
Sweetwater Creek	3,919,143	4,094,107	0	
Sub-Total (Streams)	31,626,000	35,979,000	19,457,000	62.54%
Wells (North)				
Olympia No. 2	1,289,000	-	8,416,000	
Olympia No. 3	329,000	-	13,697,000	
Quail Well No. 4-A	690,000	63,000	0	
Quail Well No. 5-A	240,200	5,700	798,700	
Sub Total North Wells	2,548,200	68,700	22,911,700	-88.88%
South System Wells				
Pasatiempo 5A	-	5,975,200	N/A	
Pasatiempo 6	-	-	10,420,000	
Pasatiempo 7	1,508,000	2,382,000	3,249,000	
Sub Total Pasatiempo Wells	1,508,000	8,357,200	13,669,000	-88.97%
North South All Sources Combined	35,682,200	44,404,900	56,037,700	-36.32%
Felton System - Surface Water				
Fall Creek	4,606,162	3,990,780	10,380,000	
Bennett Spring	2,083,180	3,494,656	5,898,000	
Bull 1 & 2	1,274,592	1,587,256	1,989,900	
Total Felton System Sources	7,963,934	9,072,692	18,267,900	-56.40%
Manana Woods System				
Well 1	-	-	0	
Total Manana Woods Sources	-	-	0	
Sub - Total Production				
North / Felton / Manana	43,646,134	53,477,592	74,305,600	-41.26%
Surface	39,589,934	45,051,692	37,724,900	4.94%
Wells	4,056,200	8,425,900	36,580,700	-88.91%
Total Surface Water Percentage	90.71	84.24	50.77	78.66%
Total Wells Percentage	9.29	15.76	49.23	-81.12%

**SAN LORENZO VALLEY WATER DISTRICT
PRODUCTION BY SYSTEM
+/- INTERTIES
May 2019**

North System All Sources	<u>35,682,200</u>
Interties IN +	<u>20</u>
Interties OUT -	<u>2,761,758</u>
TOTAL NORTH SYSTEM	<u>32,920,462</u>
Felton Water system All Sources	<u>7,963,934</u>
Interties IN +	<u>0</u>
Interties OUT -	<u>0</u>
TOTAL FELTON SYSTEM	<u>7,963,934</u>
Manana Woods System	
Manana Woods Well 1	<u>0</u>
Interties IN +	<u>0</u>
TOTAL MANANA WOODS	<u>0</u>

**SAN LORENZO VALLEY WATER DISTRICT
INTERTIE USAGE
May 2019**

INTERTIE 2

SLVWD to SVWD 0

SVWD to SLVWD 0

INTERTIE 3

SLV SOUTH to SLV NORTH 20

SLV NORTH to SLV SOUTH 362,503

INTERTIE 4

SLVWD to MHWD 0

MHWD to SLVWD 0

INTERTIE 6

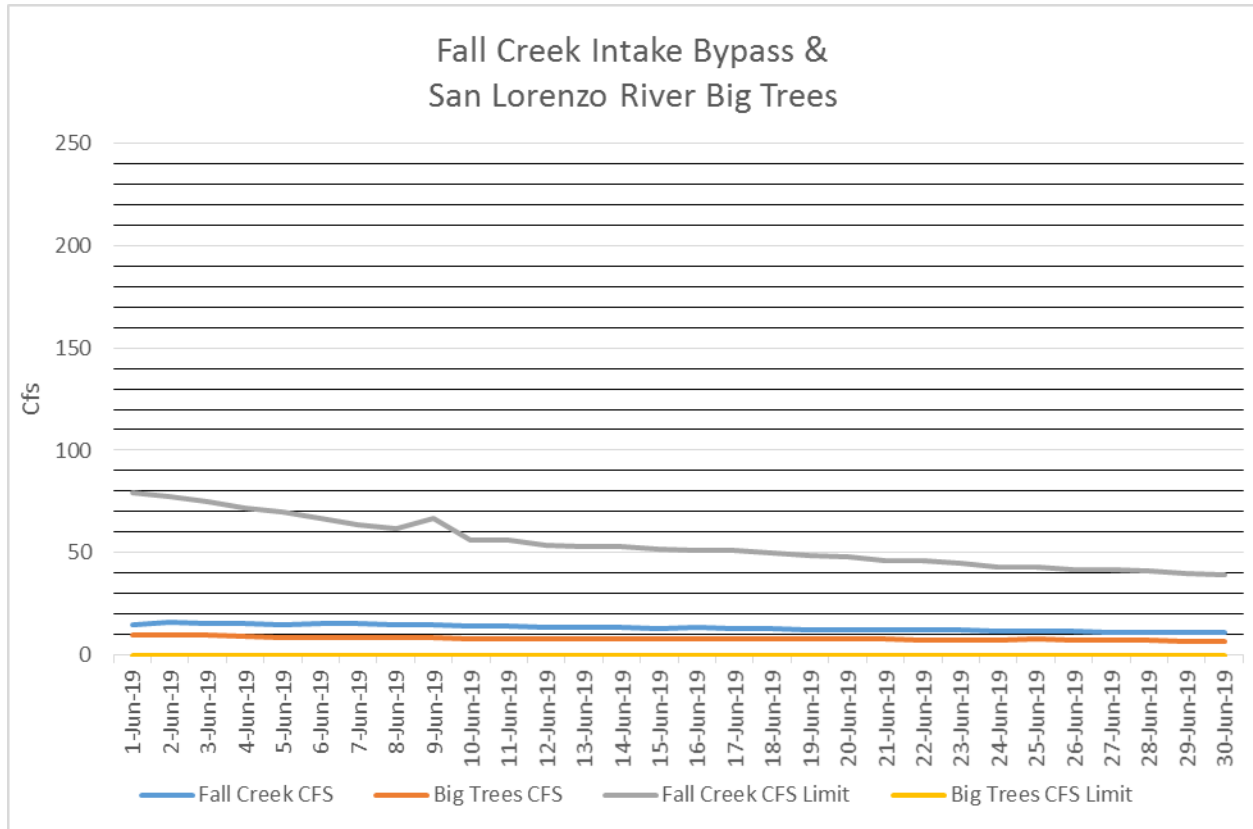
SLV NORTH to SLV FELTON -

SLV FELTON to SLV NORTH -

LOMPICO INTERTIE

SLV NORTH to LOMPICO 2,399,255

Fall Creek Intake June 2019



Normal Rainfall Fall Creek Intake Bypass Requirements

April 1 through October 31 1.0 cubic feet per second

November 1 through March 31 1.5 cubic feet per second

Dry Conditions Fall Creek Intake Bypass Requirements

April 1 through October 31 0.5 cubic feet per second

November 1 through March 31 0.75 cubic feet per second

Number of Days in month 0.5 cfs or below, ZERO days

San Lorenzo River USGS Big Trees Flow Requirements

September 11 cubic feet per second

October 26 cubic feet per second

November 1 through May 31 21 cubic feet per second

June - August No Requirements

Fall Creek Intake June 2019

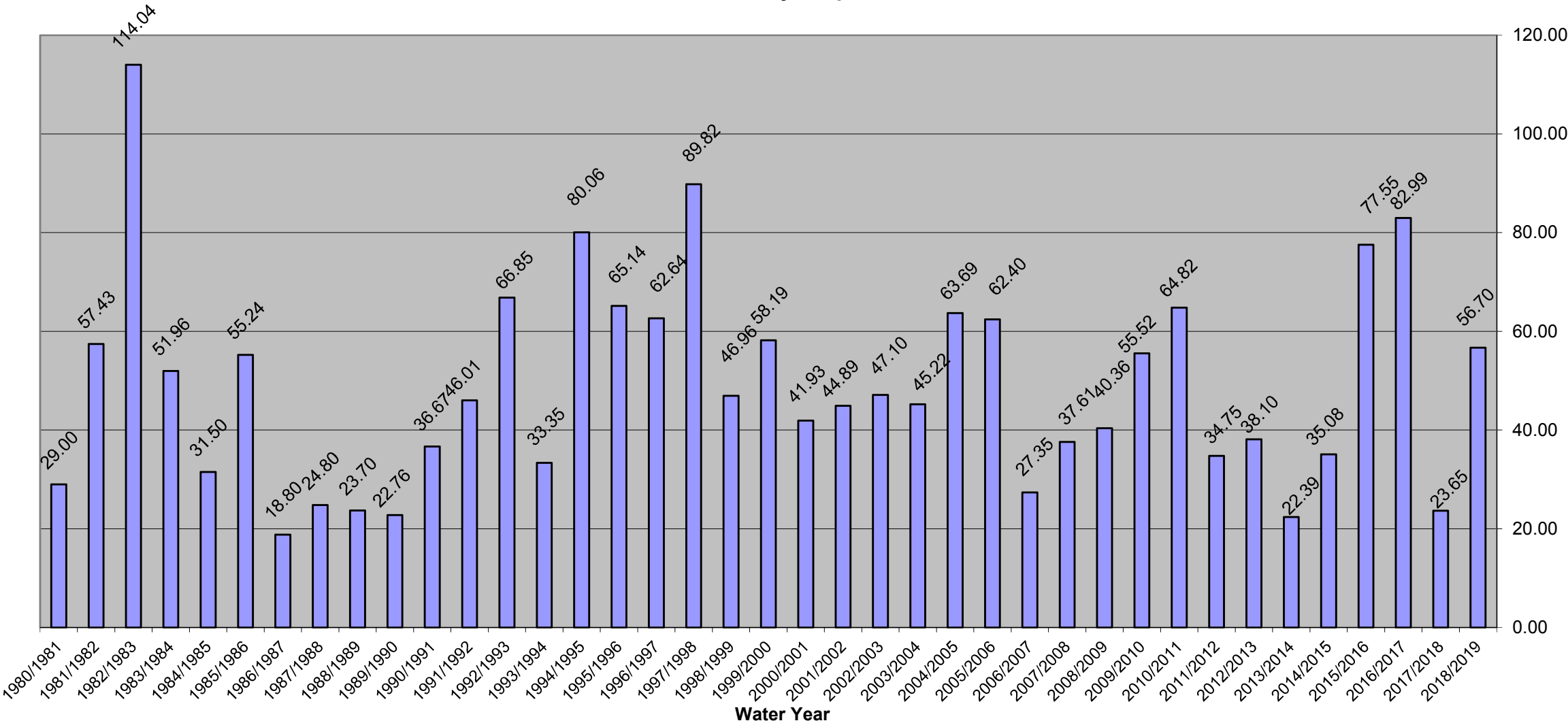
For the protection of fish and wildlife, during the period: (a) April 1 through October 31 bypass a minimum of 0.5 cfs; (b) November 1 through March 31 bypass a minimum of 1.5 cfs past the Fall Creek point of diversion. The natural streamflow shall be bypassed whenever it is less than 1.5 cfs; provided, however, that during a dry year, the bypass requirement shall be reduced from 1.5 to 0.75 cfs. A dry year is defined on a monthly basis of cumulative runoff beginning October 1 of each season in the San Lorenzo River at the USGS gage at Big Trees. These runoff figures are based on approximately 50 percent of normal runoff as the dividing level between normal and dry year runoff and are as follows:

- November 1 for the month of October 500 af
- December 1 for October-November, inclusive 1,500 af
- January 1 for October-December, inclusive 5,000 af
- February 1 for October-January, inclusive 12,500 af
- March 1 for October-February, inclusive 26,500 af

Fall Creek Weir Measurement											
Agenda: 7.18.19											
	Month:	June		Year:	2019	Big Trees > 26,500 Acre-ft Oct-Feb Normal Year			Big Trees <26,500 Acre-ft Oct-Feb Dry Year		
								X			
Date	Time	Initials	Pump #	Fall Cr. GPM into Kirby plant	Weir Board Height (inches)	Fall Creek Bypass (CFS)	Big Trees Bypass (CFS)	Rainfall (Felton gauge)	Met Fall Cr, Bypass Requirement: Normal Year April 1 - Oct 31 1.0 cfs; Nov 1 - March 31 1.5 cfs Dry Year April 1 - Oct 31 0.5 cfs Nov. 1 - March 31 0.75 cfs (yes/no)	Met Big Trees Requirement Nov-May 20cfs Sept 10 cfs Oct 25 cfs (yes/no)	Notes
1	1300	JG	2	98	25	9.73	79.4	0	Yes	Yes	
2	1130	JG	2	71	25	9.69	77.3	0	Yes	Yes	
3	0830	KS	2	85	25	9.60	75.2	0	Yes	Yes	
4	0740	KS	2	101	25	9.12	72.0	0	Yes	Yes	
5	1230	JG	2	116	25	8.90	69.9	0	Yes	Yes	
6	0800	JG	1	93	25	8.87	66.8	0	Yes	Yes	
7	0815	JG	1	70	25	8.78	63.8	0	Yes	Yes	
8	0820	JT	1	103	25	8.64	61.9	0	Yes	Yes	
9	0745	JT	1	118	25	8.49	66.8	0	Yes	Yes	
10	1400	JG	1	201	25	8.09	56.3	0	Yes	Yes	
11	0800	JG	1	168	25	8.19	56.3	0	Yes	Yes	
12	1010	SS	1	233	25	7.95	53.7	0	Yes	Yes	
13	0815	JG	1	193	25	7.98	52.8	0	Yes	Yes	
14	0815	JG	1	99	25	8.17	52.8	0	Yes	Yes	
15	0720	KS	1	142	25	8.03	51.9	0	Yes	Yes	
16	0700	KS	1	170	25	7.86	51.1	0	Yes	Yes	
17	0800	JG	1	167	25	7.85	51.1	0	Yes	Yes	
18	0800	JG	1	157	25	7.78	50.2	0	Yes	Yes	
19	1100	JG	1	131	25	7.78	48.6	0	Yes	Yes	
20	0900	JG	1	130	25	7.71	47.8	0	Yes	Yes	
21	0830	KS	1	123	25	7.98	46.2	0	Yes	Yes	
22	0920	HO	1	121	25	7.60	46.2	0	Yes	Yes	
23	0920	HO	1	145	25	7.50	44.6	0	Yes	Yes	
24	0900	KS	1	170	25	7.29	43.1	0	Yes	Yes	
25	0800	SS	1	173	25	7.95	43.1	0	Yes	Yes	
26	0930	KS	1	120	25	7.29	41.6	0	Yes	Yes	
27	0800	JG	1	152	25	7.17	41.6	0	Yes	Yes	
28	0845	SS	1	141	25	7.13	40.9	0	Yes	Yes	

29	1100	SS	1	136	25	7.02	40.1	0	Yes	Yes	Agenda: 7.18.19 Item: 13.5
30	1100	JG	1	132	25	6.99	39.4	0	Yes	Yes	
31											

San Lorenzo Valley Water District
Annual Rainfall History Graph



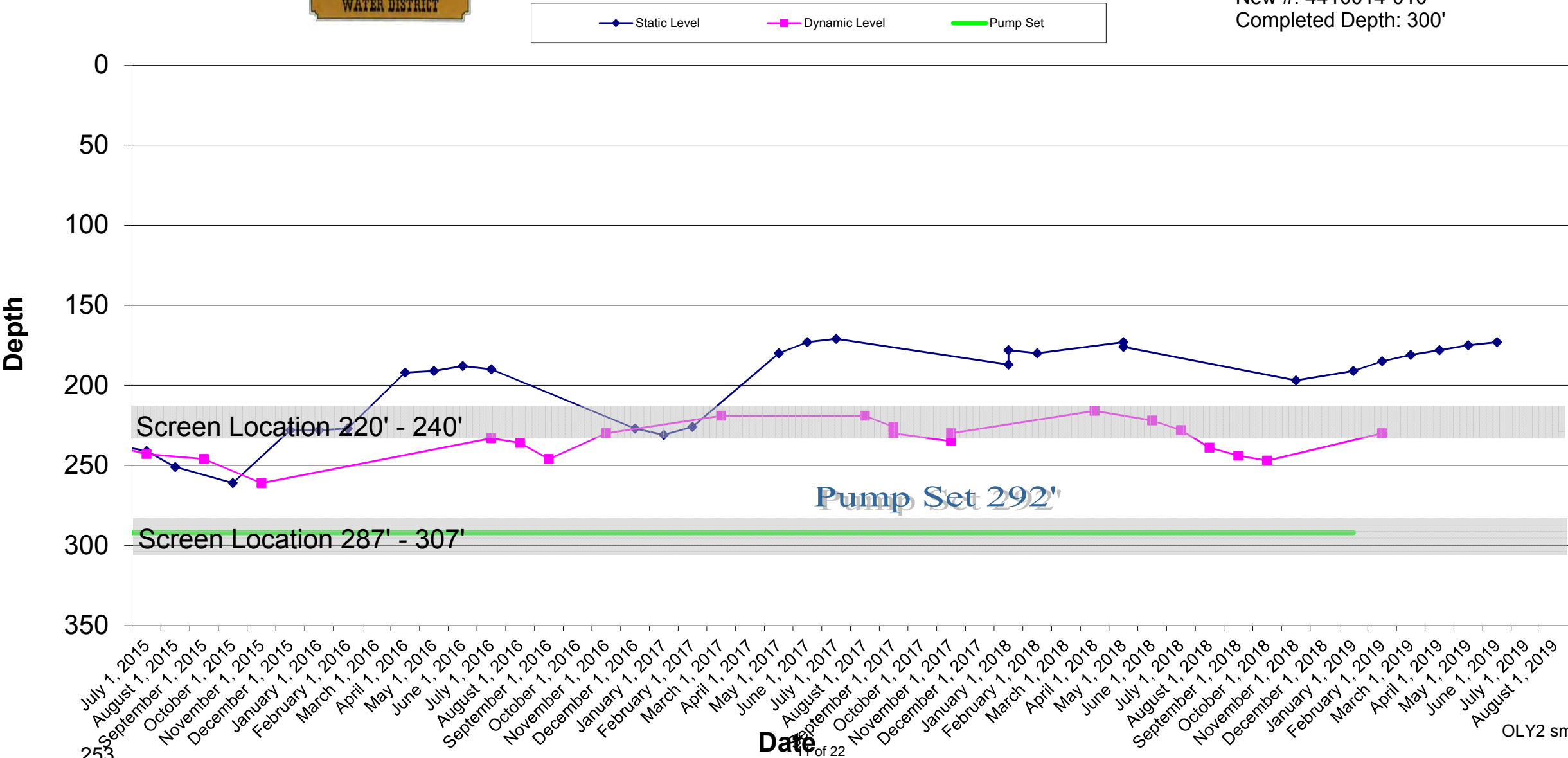


SAN LORENZO VALLEY WATER DISTRICT

Well Drawdown Report

Olympia 2

Location: 7701 E. Zayante Rd.
Elevation: 525'
Installed: April 28, 1980
State Well #:10S/O2W-11P01
New #: 4410014-010
Completed Depth: 300'



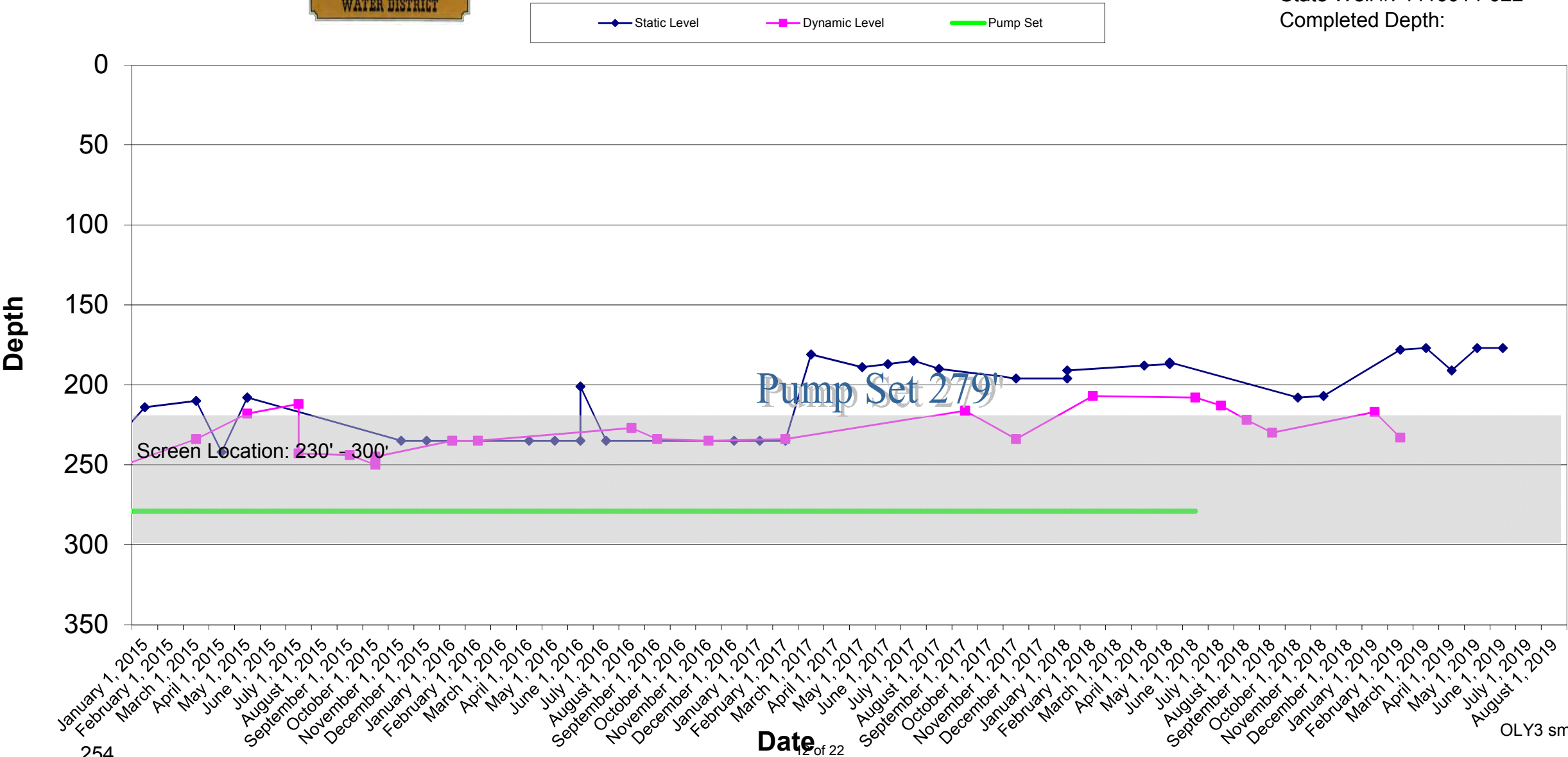


SAN LORENZO VALLEY WATER DISTRICT

Well Drawdown Report

Olympia 3

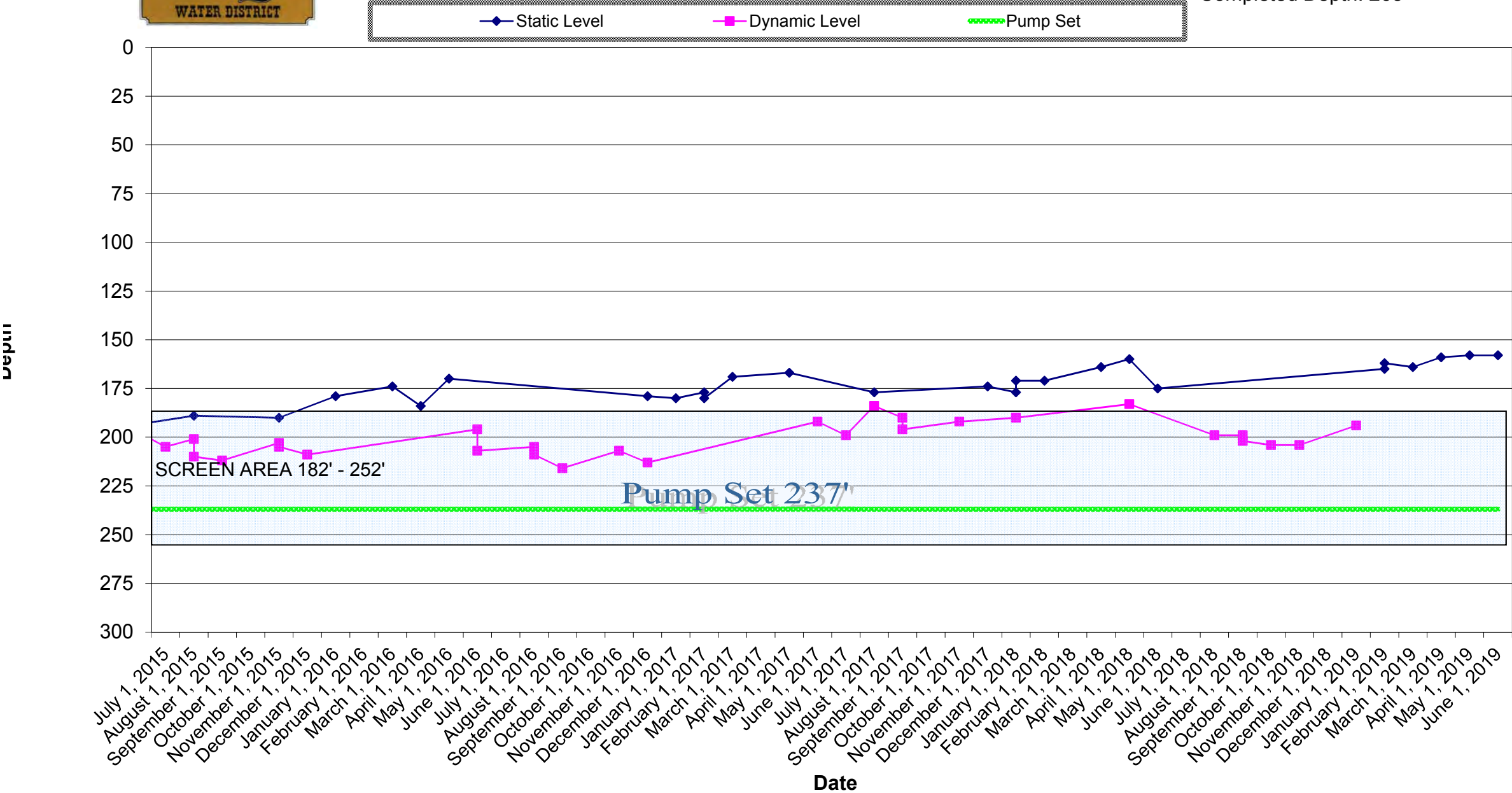
Location: 7701 E. Zayante Rd
Elevation: 538' Mean Sea Level
Installed: 8-15-90
State Well #: 4410014-022
Completed Depth:

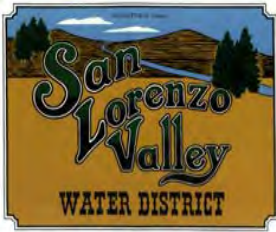




SAN LORENZO VALLEY WATER DISTRICT
Well Drawdown Report
Quail Well 4-A

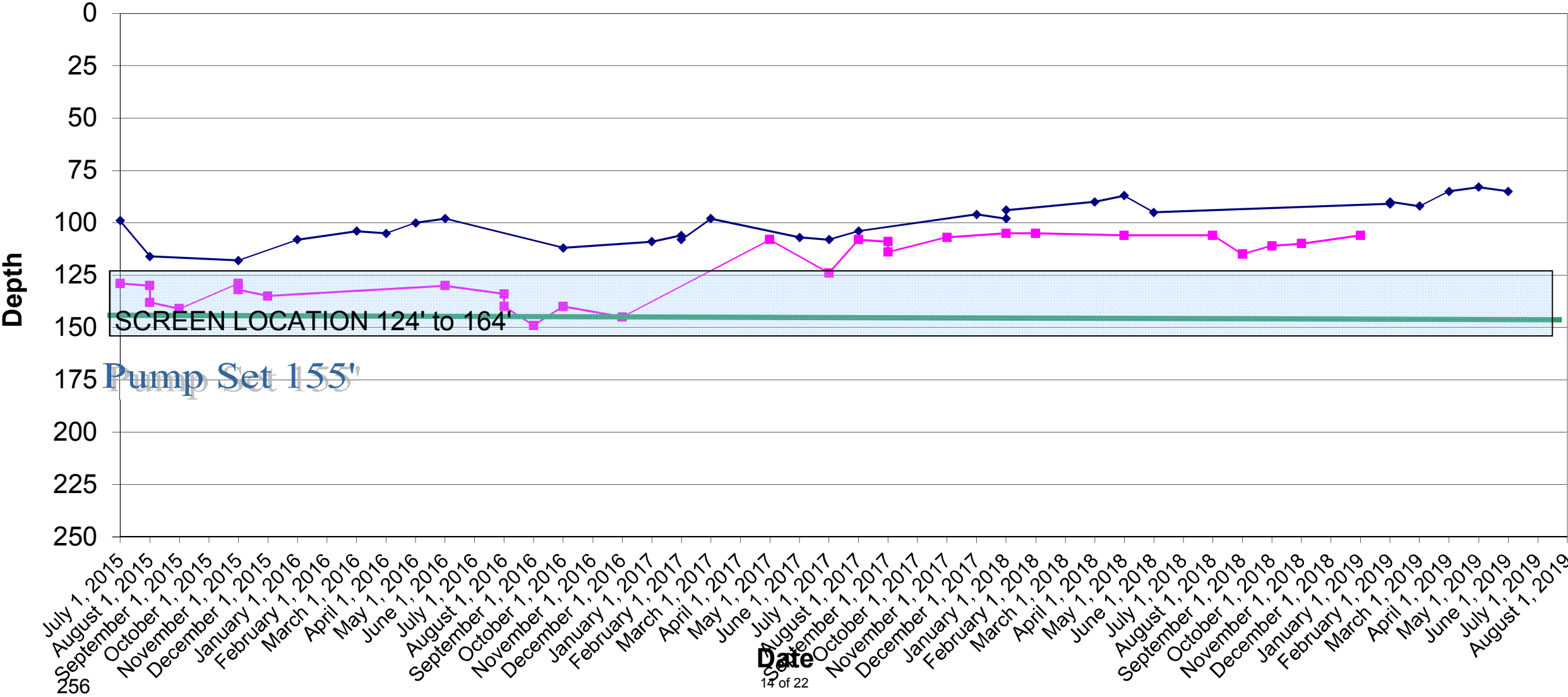
Location: Cumora Ln. Ben Lomond
Elevation: 596.54 ft @ Pad
Installed: 6-07-2001
State Well #: 4410014-026
Completed Depth: 265





SAN LORENZO VALLEY WATER DISTRICT
Well Drawdown Report
Quail Well 5-A

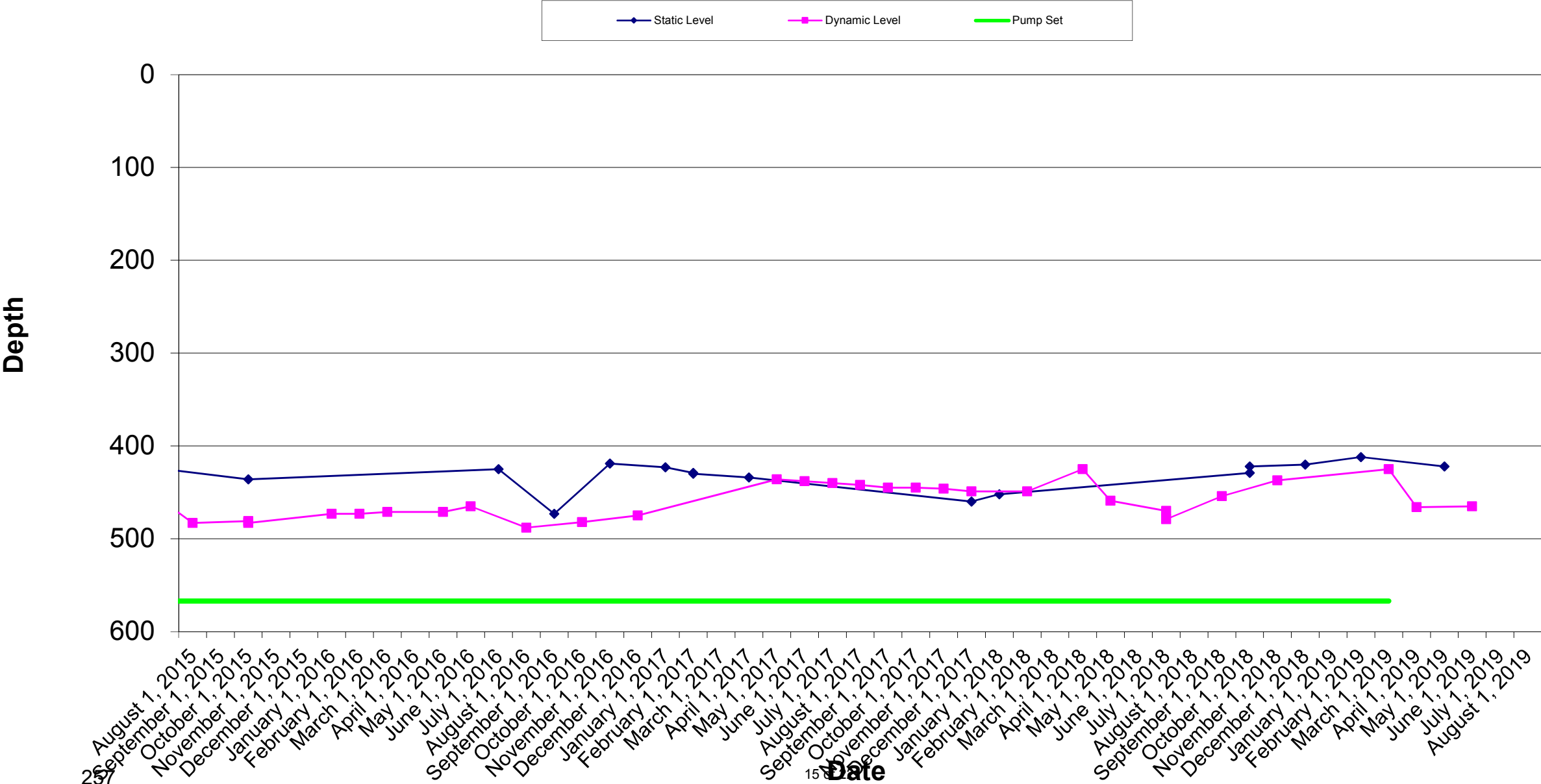
Location: 1161 Quail Hollow Rd.
Ben Lomond
Elevation: 517.65 ft. @ Pad
Installed: March 2000
State Well #: 4410014-025
Completed Depth: 174'





SAN LORENZO VALLEY WATER DISTRICT
Well Drawdown Report
Pasatiempo 5-A

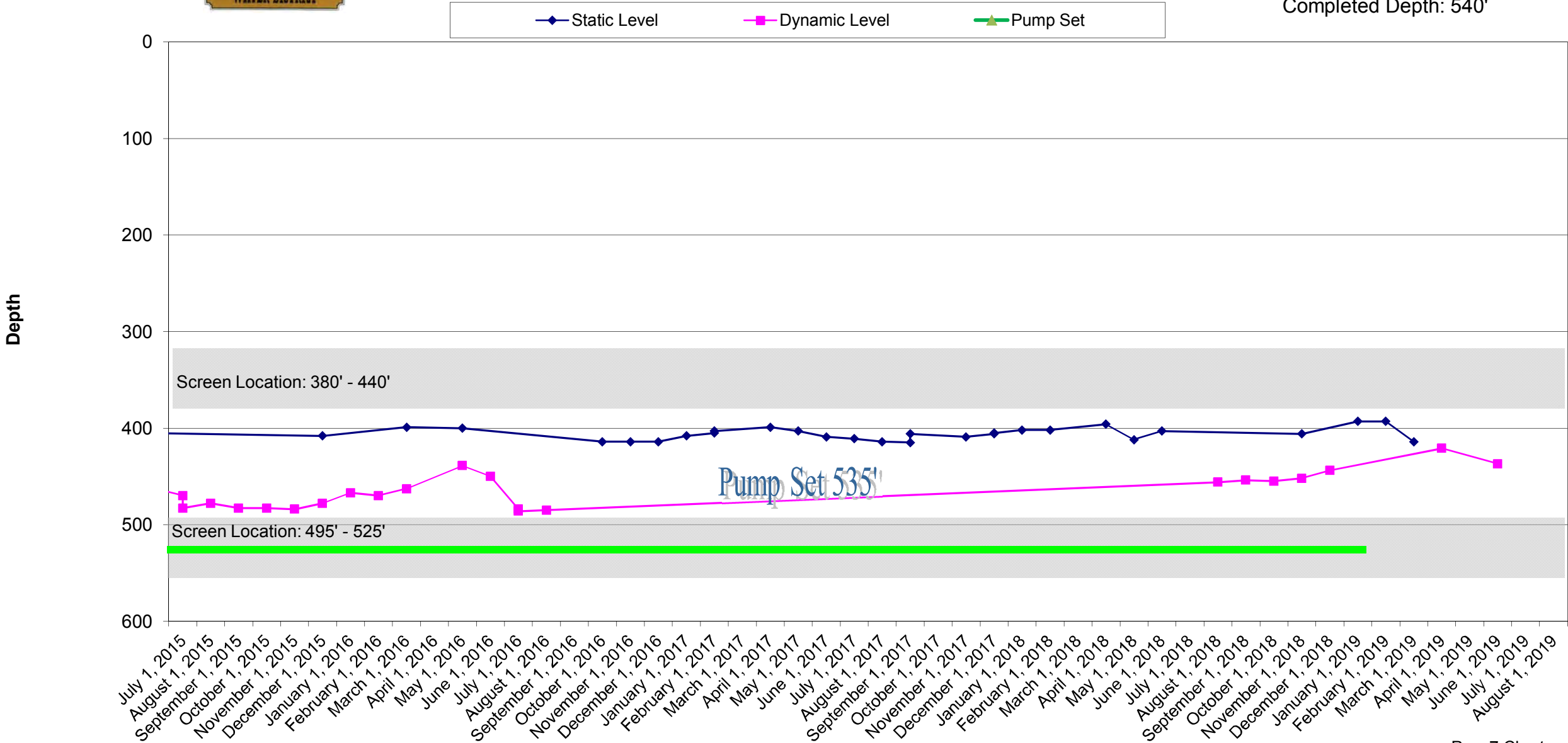
Location: So. Of 3650 Graham Hill Rd
Elevation: 752'
Installed 1-1-14
State Well #:4410014-014
Completed Depth: 710'





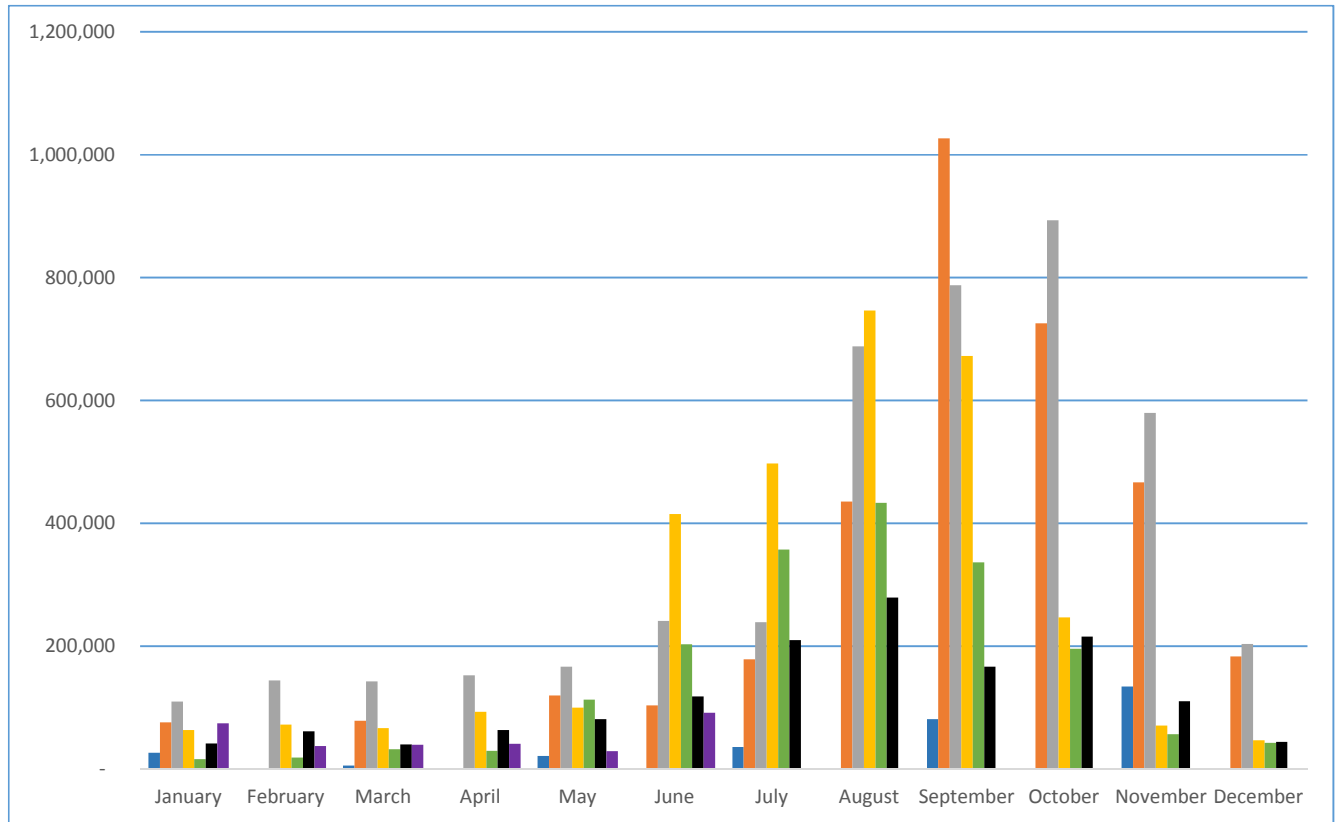
SAN LORENZO VALLEY WATER DISTRICT
Well Drawdown Report
Pasatiempo 7

Location: South of Probation
Center
Elevation: 734' MSL
Installed: July 21, 1990
State Well #: 4410014-024
Completed Depth: 540'



SAN LORENZO VALLEY WATER DISTRICT
BULK WATER SALES
GALLONS
June 2019

Agenda: 7.18.19
Item: 13.5



Month	2013	2014	2015	2016	2017	2018	2019
January	26,928	76,296	109,965	63,850	16,456	41,888	74,800
February			144,364	72,556	18,700	61,366	37,400
March	5,984	78,540	142,868	66,572	32,164	40,392	39,644
April			152,592	93,500	29,920	63,580	41,140
May	21,692	119,680	166,804	100,232	112,948	81,532	29,172
June		103,972	240,983	415,140	203,179	118,184	92,004
July	35,904	178,772	239,360	497,420	357,544	210,188	
August		435,336	688,160	746,504	433,092	279,004	
September	81,352	1,026,256	787,644	672,183	336,570	166,804	
October		725,560	893,112	246,840	195,976	215,424	
November	134,640	466,752	579,700	71,060	56,848	110,704	
December		183,260	203,456	47,124	42,636	44,132	
Totals	306,500	3,394,424	4,349,008	3,092,981	1,836,033	1,433,198	314,160

SAN LORENZO VALLEY WATER DISTRICT
MONTHLY LEAK REPORT
JUNE 2019

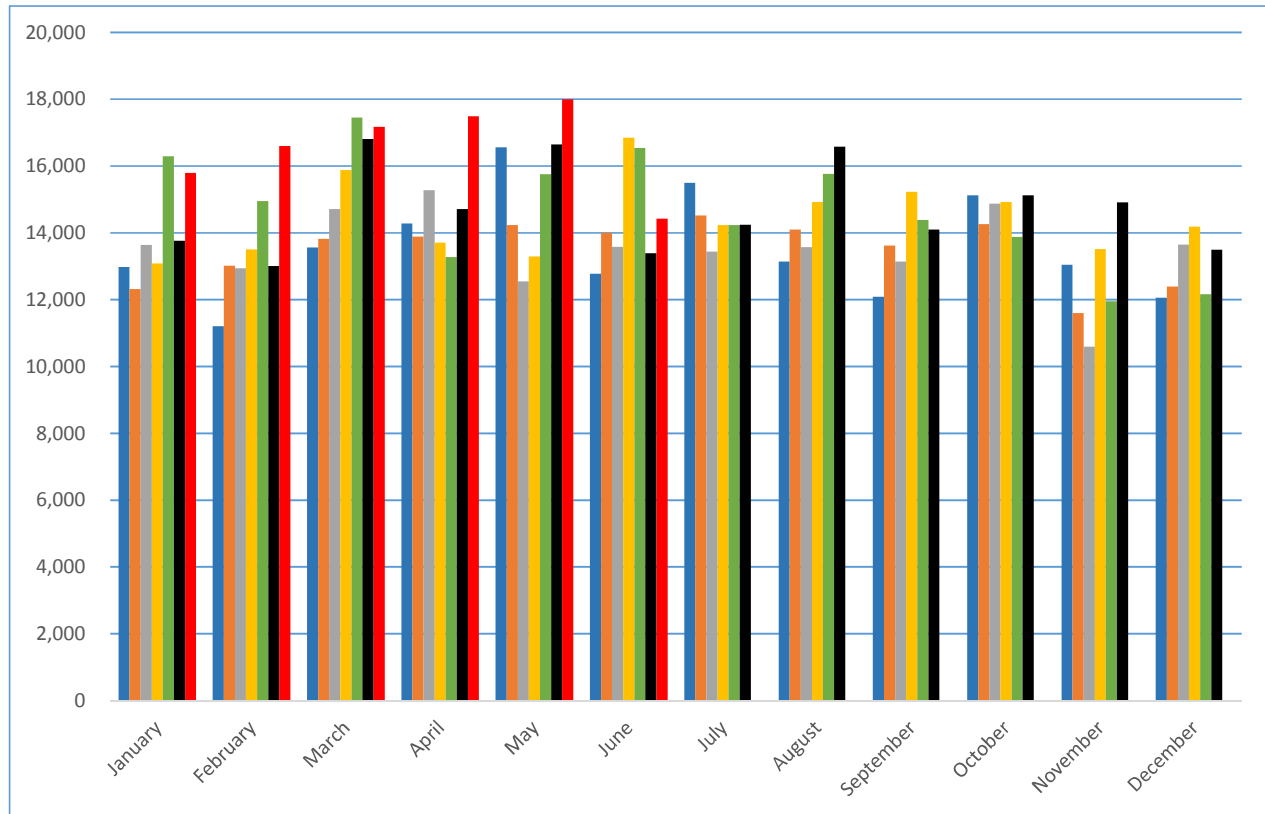
Agenda: 7.18.19
Item: 13.5

Leak Type	Location - NORTH SYSTEM	Town	Gallons Lost
400 MAIN LEAKING	HWY 9 & MARSHALL CREEK	BEN LOMOND	720
400 MAIN LEAKING	520 HILL CREST	BEN LOMOND	1440
400 MAIN LEAKING	7171 HIHN RD.	BEN LOMOND	26,400
400 MAIN LEAKING	SCENIC WAY	BEN LOMOND	500
400 MAIN LEAKING	1500 TWO BAR RD.	BEN LOMOND	8,640
411 TANK OVERFLOWING	HIGHLAND DR.	BEN LOMOND	-
400 MAIN LEAKING	8074 FERNWOOD	BEN LOMOND	4,320
400 MAIN LEAKING	15845 KINGS CREEK RD	BOULDER CREEK	1,440
400 MAIN LEAKING	14215 BEAR CREEK RD	BOULDER CREEK	57,600
400 MAIN LEAKING	660 STEWART ST	BOULDER CREEK	5,160
400 MAIN LEAKING	13401 BIG BASIN WAY	BOULDER CREEK	2,880
400 MAIN LEAKING	BETWEEN RIVER DR. DIRT PART WE TINK 840	BOULDER CREEK	1,080
412 TANK LEAKING	NINA TANKS	BOULDER CREEK	3,000
400 MAIN LEAKING	955 CREEK DR	BOULDER CREEK	4,320
400 MAIN LEAKING	GARRAHAN PARK	BOULDER CREEK	14,400
400 MAIN LEAKING	251 SUNBEAM	BOULDER CREEK	4,500
400 MAIN LEAKING	11181 HWY 9 & LARKSPUR DR.	BROOKDALE	4,800
400 MAIN LEAKING	ALAMEDA AVE	BROOKDALE	12,000
Total North			153,200
FELTON SYSTEM			
400 MAIN LEAKING	751 BUCKEYE DR	FELTON	100
400 MAIN LEAKING	10585 VERA AVE	FELTON	12,000
Total Felton			12,100
LOMPICO			
Total Lompico			-
SCOTTS VALLEY			
Total Scotts Valley			-
Total All Systems			165,300

				Water Quality Complaint List						
Date Received	Type Of Complaint							Address	Conclusion	System
	Taste/ Odor	Color	Turbidity/ Particles	Worms/ Other Visible Organisms	Pressure (High/Low)	Illness (Waterborne)	Other (Specify)			
6/13/2019	X						Customer complained of strong chlorine odor	109 Maywood Dr	Upon investigation by SLVWD staff, water quality results appeared normal and within range at customers front hose spigot. Free chlorine was 0.9 mg/L and no off odors were observed in a field odor sample. Customer's home is located near a dead end. SLVWD crews flushed the dead end main. Customer called back on 6/24/19 reporting that her water still tastes stongly like chlorine after flushing. On 6/24/19, free chlorine at customers front hose spigot was 0.8 mg/L and a sample was collected for Threshold Odor Number analysis at a contract lab. SLVWD is currently awaiting lab results from the TON sample.	SLVWD- North
6/26/2019	X						Customer complained of water tasting funny.	218 Capelli Dr	Upon field investigation with SLVWD staff, water quality results were normal and within range at customers front hose spigot. Free chlorine was 0.6 mg/L and no odor was detected in a field sample. Customer explained they had a whole house filter that had not been serviced in over a year. Customer will follow up with water filter servicing.	SLVWD-Felton

SAN LORENZO VALLEY WATER DISTRICT
VEHICLE MILEAGE
June 2019

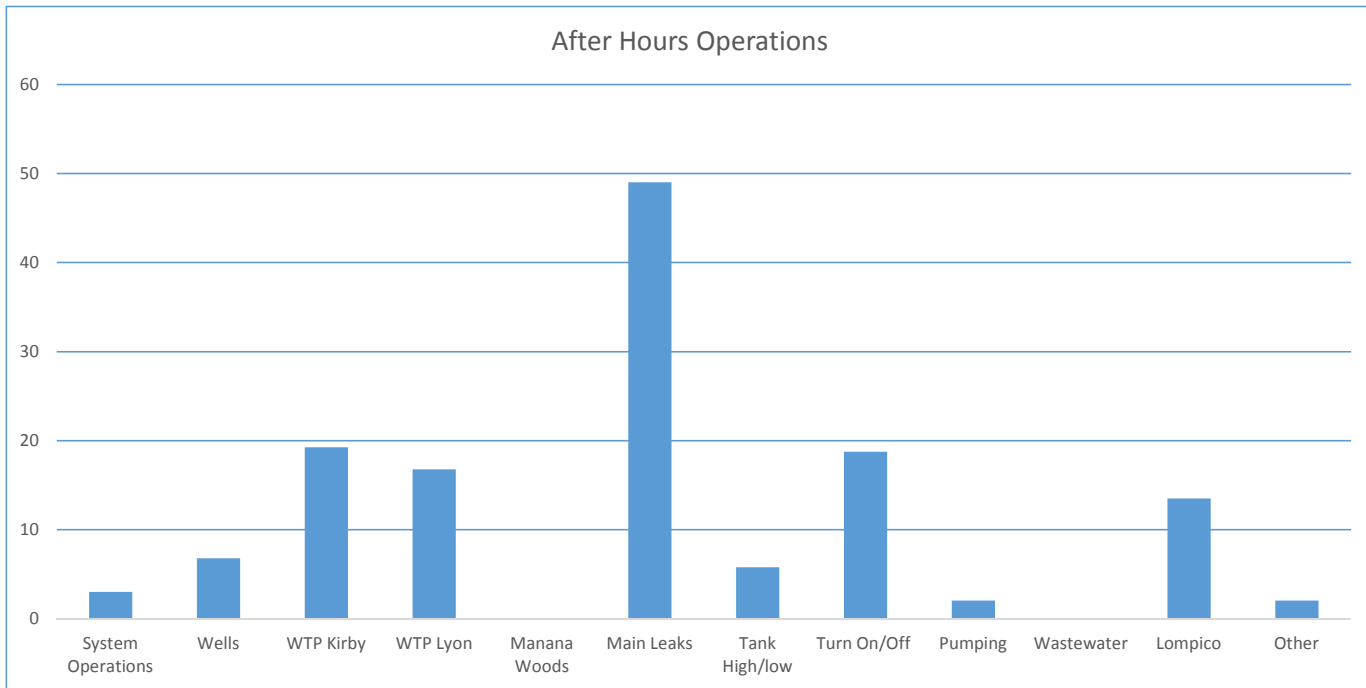
Agenda: 7.18.19
 Item: 13.5



Month	2013	2014	2015	2016	2017	2018	2019
January	12,976	12,317	13,633	13,082	16,286	13,763	15,790
February	11,201	13,015	12,934	13,505	14,945	13,003	16,599
March	13,558	13,817	14,714	15,882	17,451	16,809	17,167
April	14,283	13,883	15,279	13,704	13,270	14,711	17,488
May	16,560	14,228	12,550	13,290	15,757	16,646	17,998
June	12,780	14,000	13,582	16,841	16,534	13,390	14,420
July	15,497	14,519	13,441	14,228	14,229	14,242	
August	13,136	14,096	13,569	14,923	15,761	16,576	
September	12,087	13,622	13,137	15,229	14,388	14,094	
October	15,120	14,261	14,868	14,924	13,880	15,126	
November	13,046	11,594	10,591	13,510	11,952	14,908	
December	12,060	12,394	13,648	14,187	12,158	13,492	
Totals	162,304	161,746	161,946	173,305	176,611	176,760	99,462

SAN LORENZO VALLEY WATER DISTRICT
OPERATIONS DEPARTMENT
June 2019

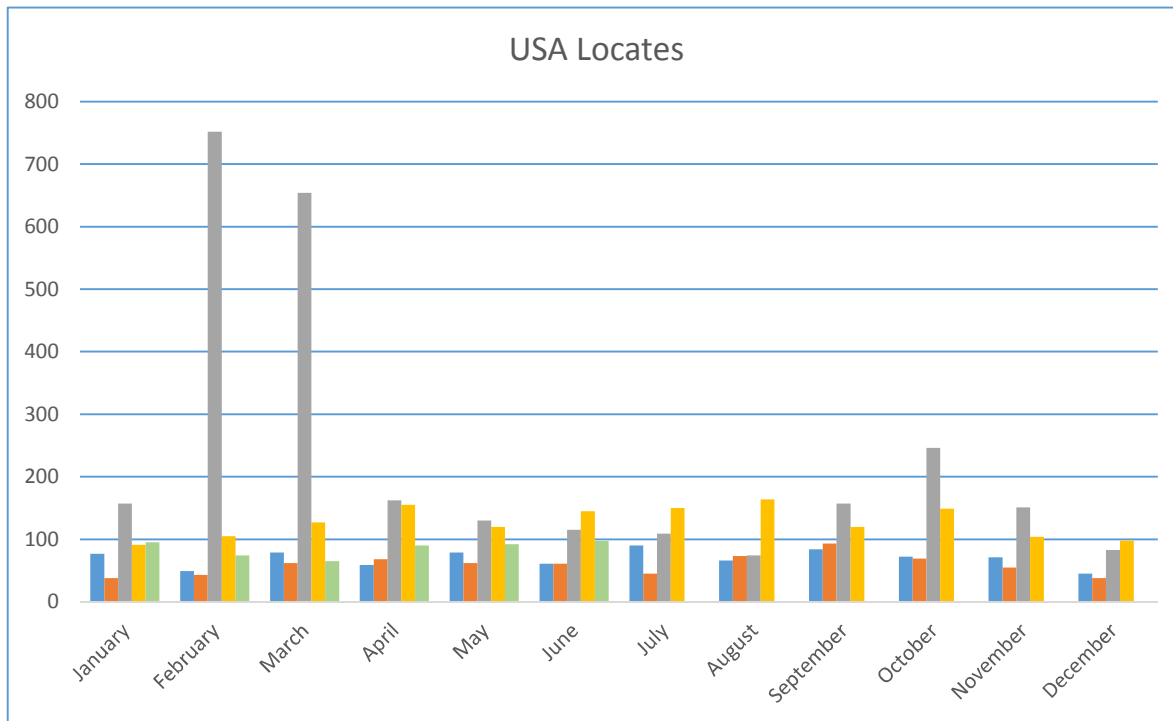
Agenda: 7.18.19
Item: 13.5



Description	Hours		2015	2016	2017	2018	2019
System Operations	3	January	N/A	145.00	280.75	90.50	96.50
Wells	6.75	February	N/A	86.50	192.25	72.00	180.00
WTP Kirby	19.25	March	N/A	153.75	105.75	80.25	106.25
WTP Lyon	16.75	April	82.50	72.00	128.75	156.75	76.25
Manana Woods	0	May	104.75	49.25	132.75	105.5	82.5
Main Leaks	49	June	172.50	83.25	112.75	89.00	136.75
Tank High/low	5.75	July	124.25	80.25	162.00	145.25	
Turn On/Off	18.75	August	111.75	81.25	141.25	134.5	
Pumping	2	September	230.25	175.00	201.25	155.25	
Wastewater	0	October	128.25	78.50	104.00	111.5	
Lompico	13.5	November	114.25	96.25	122.50	197.5	
Other	2	December	186.25	130.75	134.00	220.25	
Total	136.75		1254.75	1231.75	1818.00	1558.25	678.25

SAN LORENZO VALLEY WATER DISTRICT
OPERATIONS DEPARTMENT
June 2019

Agenda: 7.18.19
 Item: 13.5



<u>Month</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>	<u>2018</u>	<u>2019</u>
January	77	38	157	91	95
February	49	43	752	105	74
March	79	62	654	127	65
April	59	68	162	155	90
May	79	62	130	120	92
June	61	61	115	145	97
July	90	45	109	150	
August	66	73	74	164	
September	84	93	157	120	
October	72	69	246	149	
November	71	55	151	104	
December	45	38	83	98	
Total to Date	832	707	2,790	1528	513





MINUTES OF BUDGET & FINANCE COMMITTEE MEETING

Responsible for the review of District finances including: rates, fees, charges and other sources of revenue; budget and reserves; audit; investments; insurance; and other financial matters.

Tuesday, June 4, 2019 at 9:00 a.m. at the Operations Building, 13057 Highway 9, Boulder Creek, California.

MINUTES

1. Convene Meeting 9:00 A.M.
Roll Call: Fultz, Henry, Sanders were all present
Staff: R. Rogers, S. Hill, H. Hossack
2. Oral Communications:
L. Sanders said that the documents provided for the budget discussion fail to meet the requirements of the Doctrine of Completed Staff Work. (see attached)
3. Old Business:
 - A. FY2019/20 BUDGET REVIEW
S. Hill introduced this item. At the request of the chair she provided detail of the 2017/18 actuals. This is everything that is not head count. She began with Dept. 100-Admin. Dept.
Discussion by the Committee and staff regarding legal costs, engineering costs, PR costs and other consultants.
D. Loewen questioned NBS charges.
S. Hill said that the majority of the NBS charges were for the rate study. NBS is an ongoing charge for the Assessment Dist. of approx. \$7500/year.
B. Holloway described some of the legal services and other consultants. He also said that the information on the screen wasn't shared with the public.
Discussion by the Committee and staff regarding 2017/18 actuals, Dept. 100 continued.
B. Holloway questioned if SDRMA costs include Workers' Comp.
S. Hill said it does not include Workers' Comp. Workers' Comp is in salaries and benefits. It is a direct employee expense.
Discussion by the Committee and staff regarding contract professional services including Paychex.
V. Champlin questioned Badger Meter charges.
Discussion by the Committee and staff regarding charges for departments.
S. Hill continued with operating expenses, maintenance, facilities, etc.
Discussion by Committee and staff.
B. Holloway said if the District went back to bi-monthly billing there would be less banking fees.
S. Hill continued with Department 300 & 400.
L. Sanders said that another spreadsheet that would be interesting but not required is the accountability for signature authority for each one of these items.

Discussion by Committee and staff questioning specific items on actuals and inventory.

B. Holloway is confused by the stream flow monitoring. He thinks it's a strategic expense for water rights.

Discussion by the Committee, public and staff regarding water rights.

S. Hill continued with budget actuals and discussion with Committee and staff.

V. Champlin questioned how much is saved with time of use through PG&E.

R. Rogers and S. Hill responded.

S. Hill continued with report.

Discussion by Committee and staff regarding wastewater system.

V. Champlin noted that the Bill List is data, this is information.

D. Loewen this report is essential for this committee.

Discussion by the Committee, staff and public.

B. Holloway said that a long list is not the whole story. He also explained the Balance Hydrology charges.

Discussion by the Committee and staff regarding the format for communicating the numbers to the public.

B. RESERVE FUND POLICY

S. Hill introduced this item. She provided examples of reserve fund policies.

Discussion by Committee and staff regarding different reserve funds.

B. Holloway disagreed with S. Hill regarding unfunded liability.

Discussion by the Committee, staff and public regarding unfunded liability.

D. Loewen said she doesn't want a reserve for the unfunded liability but to budget for it.

S. Hill explained that if it's deferred maintenance or capital it's already sitting in operating.

Discussion by Committee, public and staff regarding deferred maintenance.

B. Holloway said they are talking about either capital or emergency reserves. Maintenance should be in the budget every year. As far as reserves, you need State matching funds.

B. Fultz said that makes a lot of sense but it's a whole different aspect than we have talked about.

S. Hill said she considered a rate stabilization reserve. She continued operating reserve and compensated absence reserve.

Discussion by Committee, staff and public regarding compensated absences reserves.

S. Hill continued with different reserves. She explained development reserves.

B. Fultz questioned unfunded liability

C. UPCOMING LOANS - UPDATE

S. Hill reported on loans.

Discussion by Committee, staff and public regarding the USDA loan vs. other loans.

D. Loewen asked about lower rate for assessment district.

V. Champlin said to stop talking and get this on the agenda.

Discussion continued with Committee, staff and public.

4. New Business:

A. UNFUNDED LIABILITIES

S. Hill explained the unfunded pension liability and OPEB liability. Fund the trust fund so that the interest being made will cover that year's liability.

B. Fultz said he thinks they have an understanding of the pension and OPEB.

S. Hill said there is nothing in the budget for this coming year.

B. PIPELINE REPLACEMENT WORKFORCE

R. Rogers said that the plan is to develop a detailed plan and cost estimate of materials, labor, etc.

Discussion by Committee, staff and public.

B. Holloway said the District will have to do 2 miles of pipe per year.

Discussion by Committee, staff and public.

5. Informational Material: None.

6. Adjournment 11:03 a.m.



MINUTES OF ENGINEERING COMMITTEE MEETING

Covering Design, Construction, Capital Improvement,
Master Plan and other Engineering, Operational and
Planning Related Matters

Thursday, June 6, 2019 at 2:00 pm at 13057 Highway 9, Boulder Creek, CA.

MINUTES

1. Convene Meeting 2:00 p.m.
 - A. APPOINT THE COMMITTEE CHAIR

S. Swan nominated L. Farris for chair of the Committee by email.
M. Smolley seconded the nomination.
All present voted in favor of L. Farris for chair.

Roll Call: L. Farris, J. Busa, M. Smolley were present. S. Swan was absent.
Staff: D. Langfield-Engineering Manager, R. Rogers-Dist. Manager, H. Hossack-Dist. Secretary.
L. Henry was also present but not on the Committee and will not be participating in any discussion.
2. Oral Communications

C. Baughman questioned if there was anything that was distributed to the Committee but not to the public. D. Langfield gave a copy of the information he shared with the Committee to the public.

T. Norton said it would be nice to have more copies for such an important meeting.

C. Baughman said he thought the minutes should reflect that Lois Henry, Board President, is present but not a member of the Committee. He believes this is discouraged but not prohibited.

T. Norton said she doesn't agree that it's discouraged.

R. Rogers said that the Board Policy Manual does discourage a 3rd Board member from attending Committee meetings.
3. New Business:
 - B. BEAR CREEK ESTATES WASTEWATER TREATMENT FACILITY
ALTERNATIVE ANALYSIS - REQUEST FOR PROPOSAL

D. Langfield introduced this item. Noted that only one proposal was received. He said he asked the consultant engineer to evaluate the proposal. The engineer's notes are on the back of the proposal.

S. Wilbur asked for a copy of the consulting engineer's evaluation. He noted that the only proposal was from a company that has been doing work on the system and it's not been successful.

R. Rogers explained that they were brought in when there was a violation and we wanted to try to do something with what we had. They weren't tasked with designing a new system.

S. Wilbur said he found an error in the calculations in the proposal on page 4.

D. Langfield said he thinks that they are trying to explain that 50% reduction in nitrogen was not achieved.

Discussion by Committee, staff and public

L. Farris questioned D. Langfield, what is your confidence factor regarding this proposal?

D. Langfield explained his thoughts. He has some concerns about the INI impact on the “bugs” we’re trying to grow.

Discussion by Committee and staff.

T. Norton asked if you can go back to request why others didn’t respond to the RFP.

L. Farris questioned if there is a better way to quantify the nitrogen.

Discussion by Committee, staff and public regarding testing.

M. Smolley made a motion that the Committee recommend rejection of this single proposal to the Board and to go back out for with a second RFP.

L. Farris seconded.

D. Langfield asked for clarification regarding the rejection of the proposal.

Discussion regarding rejection.

All present voted in favor of the motion. Motion passed.

C. 2019 MASTER WATER PLAN - REQUEST FOR PROPOSAL

D. Langfield introduced and described the item. He suggested that the Committee choose the 1st and 2nd ranked proposals.

Committee and staff discussed the proposals.

T. Norton questioned cost estimates.

L. Farris explained that the cost is not supposed to be the deciding factor and the cost estimates will be opened later.

C. Baughman questioned research on costs for proposals by Dir. Fultz.

R. Rogers explained the process.

D. Loewen pointed out the years of experience of the project managers from each firm.

L. Farris made a motion to accept the proposal from WSC and recommend it to the Board.

M. Smolley seconded.

R. Rogers said that the cost should come into play. Both are qualified and we should now check the costs.

Discussion by the Committee and staff recommendation and costs.

All present voted in favor of the motion. Motion passed.

D. Langfield opened the proposals. He clarified that the RFP was written that the staff will negotiate with the chosen firm. WSC scope \$189,600 Akel \$83,883

Discussion by Committee, staff and public.

L. Farris said the Committee and staff need to do extra work now. Testimonials should be checked and quantify staff time needed in the process.

Discussion by Committee, staff and public. It was decided that staff will interview both firms and with that information bring a recommendation back to the Committee at the July meeting.

4. Old Business:

L. Farris said that the meeting is running long and he would like bring back the items that are not critical today.

R. Rogers said that the Committee needs to talk about the Lompico Tanks.

D. LOMPICO TANKS

R. Rogers proposed that the Committee consider and discuss the reorganization of the Assessment District.

Discussion by Committee, staff and public

T. Norton thanked Rick for changes. Very little has been done regarding the Assessment District.

D. Loewen said she wants to focus on Lompico as a zone of SLVWD.

R. Rogers legal has not reviewed this memo.

R. Shaw concerned that the construction will cause the need for road construction.

R. Rogers said that his experience with the County is that they will maintain the County roads but no other roads. It will be the District's responsibility to repair private roads.

C. Baughman questioned what is the pressure at the bottom of the hill from Madrone.

R. Rogers said we're not adding elevation, we're adding volume.

Discussion by the Committee, staff and public regarding surplus property in Lompico.

S. Wilbur questioned how many connections are there in Lompico.

R. Rogers said 498 or 499.

L. Farris questioned what Rick would like from the Committee.

R. Rogers said he would like this memo referred to the Board.

S. Smolley recommended that the memo be forwarded to the to the full Board for their review.

5. Future Meeting recommendations:

Discussion by the Committee to schedule a July 2019 Engineering Committee meeting.

A. USDA PROJECTS UPDATE

B. LOMPICO PRVs UPDATE

C. PROBATION TANK UPDATE

E. GLEN ARBOR BRIDGE UPDATE

F. LOMPICO ASSESSMENT PROJECTS UPDATE

6. Adjournment 4:02 p.m.

RECEIVED

JUN 17 2019

SAN LORENZO VALLEY
WATER DISTRICT

Dear President Henry and members of my District Water Board,

Please allow me to begin by expressing my gratitude for the hours of service you continue to give to our water district. I know each of you could be spending time on less tedious matters for which you could receive enormously greater compensation and gratitude. Even if we should disagree on matters of judgment, I remain appreciative of the time you devote to the betterment of everyone in our valley, including my family and me.

I am following up my letter of May 16, as I understand the budget issues of concern are still undecided. Further, your more recent agenda document for the June 20 meeting (accessed online, p 97) indicates that environmental and community engagement efforts may still be on the chopping block.

The office that four of you ran for, and that all five of you now hold, is **not** to oversee the delivery of water, it is to direct an important institution within our community. While the most immediate responsibility of SLVWD is delivery of water, that is far from the only one. One needs only to read the district's mission statement to understand that:

"Our mission is to provide our customers and all future generations with reliable, safe and high quality water at an equitable price; to create and maintain outstanding customer service; to manage and protect the environmental health of the aquifers and watersheds; and, to ensure the fiscal vitality of the San Lorenzo Valley Water District."

That statement describes an agency that is an integral component of the community it serves, which is exactly how I see it. You cannot "cherry pick" the portions of that job with which you are most comfortable, and defund the others, without doing damage to the district and the quality of life in the valley. The considered elimination of environmental and community engagement programs that have small price tags is penny-wise and pound-foolish. Years from now, you or your successors will have to allocate tens or hundreds of thousands of my money to restore the environmental degradation and community alienation you seem willing to allow—in order to save just a few thousand now. Yes, environmental stewardship costs money. Communication and education for the community cost money. Not much, as it turns out, especially relative to the other items on your budget. But those small investments are as important to maintaining the livability of SLV as the security that clean water will flow when we open our taps.

I have heard frustration from one director at the monetary cost of environmental stewardship. Water delivery is vastly more expensive, yet no less a part of the district's mission. More importantly, the district owns a lot of land in this valley, including the land adjacent to mine. If SLVWD ignores its role in taking care of

that land, and the life on it, it becomes a bad neighbor. Some of that land contains rare and sensitive habitat. I have also heard that SLVWD should not be saddled with responsibility for the environmental quality of the land it owns. Have you considered the implications of that attitude? That land was acquired specifically so the district could "manage and protect the environmental health of [its] aquifers and watersheds." If the district retreats from doing that, it fails its mission. If the district finds that responsibility too burdensome, and hands it to another organization or agency, then we have the prospect of outsiders determining the management of the environment and vast swaths of land in our valley. Do we really want people from Sacramento or Washington DC making those decisions for us? If we think outsiders should manage that aspect of the district mission, then why not the whole thing? A little over a decade ago we in Felton voted overwhelmingly for "local water and local control." The job of providing those things is yours, all of it.

That extends to engagement with the community as well. The district had a small program to educate young people about watersheds and aquifers, until you defunded it earlier this year. During the campaign, one of the newly elected board members told me he wanted to work on bringing along the next generation of leaders. In abolishing the grant program, you've done the exact opposite. Do you think the schools can fill that void? On their tortured budgets can barely teach English and math. Yes, that action saved half a penny on each dollar I pay to the district on my water bill. But that is half a penny I would gladly invest in wise leadership a generation from now. Indeed, that is the purpose of the thousands of dollars I pay in property tax each year that go to education. Another half cent toward a better job of providing "local water and local control" into the future is an investment I'll make gladly.

- Please restore full funding for steelhead monitoring to this year's budget, as NMFS and DFW have urged you to do.
- Please restore funding to maintain the Olympia sand hills habitat to this year's budget.
- Please maintain funding for the San Lorenzo River Cleanup in this year's budget.
- Please restore funding for the full array of community engagement and communication to this year's budget.
- Please develop a multiyear budget that includes fully amortized capital, maintenance and repair costs to provide the infrastructure we need.

I understand that the district's revenues come from selling water, and that as we reduce water use to restore and sustain our aquifer, there are fiscal implications for the water district. I think those are both inconvenient and inevitable. While you may not need to spend money on billboards to encourage water

conservation in a wet year such as this, investment in fixing leaky pipes and communication about longer-term conservation through lower consumption fixtures in new construction and remodeling projects remains valuable. We don't know when the next extreme drought will begin; we just know that it will.

At some point you will need to grapple with a modification of the district's revenue model. The new model will need to place greater value on the availability of water when needed, which is what our water infrastructure provides. Pegging district revenue to greater use of water creates a perverse fiscal incentive that will have to be eliminated soon. Revision of the revenue model will be immensely unpopular I am sure, but also necessary. There will be some of us in the community who understand this and will have your back.

We voted for good and plentiful water and maintenance of our environmental values at a fair cost. I still want you to save my money everywhere you can. Please stay on the look-out for unnecessary expenses like bloated consultation fees and unproductive legal costs. You've misjudged community values, I think, in considering cuts to environmental stewardship and community engagement. I believe you can make the appropriate corrections in your budget meeting on June 20. I hope you will.

Thank you taking the time to read my comments, and for acting upon them.

Sincerely Yours,

Rev. Marc Shargel
Felton, CA

Holly Hossack

From: julie thayer <jathayer@ucsc.edu>
Sent: Monday, June 17, 2019 12:57 PM
To: Holly Hossack
Subject: Water Conservation Program important - please do not compromise it nor risk fire safety of us residents

RECEIVED

JUN 17 2019

SAN LORENZO VALLEY
WATER DISTRICT

Dear Holly Hossack and Board of Directors,

As a resident along the San Lorenzo River, water consumer, and an ecologist, I previously wrote to request that monitoring of endangered and threatened salmonid species continue in our watershed, the results of which help to focus management, restoration, and enforcement efforts to protect and enhance stream resources, while continuing crucial collaborations with CDFW and NMFS.

It has now come to my attention that there are further, even more serious ramifications if the current Board decides to gut the Water Conservation Program that contains a wide range of environmental projects and protections. This would be a very short-sighted and misguided attempt to "cut costs" and indeed would result in increased costs to us all in the long-term, monetary and otherwise.

SLV Water District staff states that **if the water conservation program is cut then the planning process for fire protection will be suspended indefinitely**. This demonstrates how crucial and intertwined the environmental programs are. The Water Conservation program that the current Board majority feels is "discretionary" is part of the wider attempt to cut costs. However, as with fish monitoring, removing the Water Conservation Program would have far broader ramifications and will impact us all. This program is not "discretionary", nor will the imagined cost savings manifest themselves.

Fire danger in our region is real and imminent! Last year, 3 fires burned within 5 miles of my home. Extreme weather events and fire danger will just increase in the face of climate change. While I am concerned about property and other damage, most important is my family's safety and not losing any lives. Please do not compromise our fire safety, nor the ecosystem services of our riparian zone, of which the benefits extend far beyond just fish.

Sincerely,
Julie Thayer

Holly Hossack

From: Lea Watson <lea4wat@gmail.com>
Sent: Thursday, June 20, 2019 12:42 PM
To: Board of Directors
Subject: 2019-2020 Budget

Dear SLV Water Board of Directors,
I understand that at tonight's board meeting you will be discussing adoption of the proposed 2019-2020 fiscal budget, and that despite overwhelming public outcry, you may be willing to cut the District's Environmental Department by nearly 50%, including half of the department staffing. I believe that to do this would be dangerous, shortsighted, selfish, in a word...unconscionable.

In the words of Robert Kennedy Jr. : "The environment is the infrastructure of our communities. it's our obligation to create communities for our children that provide them with opportunities for dignity and good health. When we destroy nature, we diminish ourselves and impoverish our children. We ignore that at our own peril."

What will this valley become If fire rages through here, If the river dies? If the next generation has to live with this, and knows that when we had the chance to mitigate these risks, we did nothing? I urge you to take full responsibility for that part of the mission you agreed to when you were elected (and that in fact was a major part of your platform): to manage and protect the environmental health of the aquifers and watersheds. I do not believe that this, and another part of your mission, to ensure the fiscal vitality of the District, are mutually exclusive.

I urge you not to pass the proposed budget; but to think out of the box, work with your Ecology, Environmentalist, and fiscal colleagues to rethink the budget and come up with a solution that does not threaten the heart and soul and future of this valley.

Please know that I appreciate the time and energy that you spend in service on this Board.

And thank you for serious consideration of my comments.

Sincerely,
Lea Watson

--

Lea Watson
5590 Lincoln Way
Felton, CA 95018



County of Santa Cruz

BOARD OF SUPERVISORS

701 OCEAN STREET, SUITE 500, SANTA CRUZ, CA 95060-4069
(831) 454-2200 • FAX: (831) 454-3262 TDD/TTY - Call 711

JOHN LEOPOLD
FIRST DISTRICT

ZACH FRIEND
SECOND DISTRICT

RYAN COONERTY
THIRD DISTRICT

GREG CAPUT
FOURTH DISTRICT

BRUCE MCPHERSON
FIFTH DISTRICT

June 19, 2019

Board of Directors
San Lorenzo Valley Water District
13060 Highway 9
Boulder Creek, CA 95006

RECEIVED

JUN 20 2019

**SAN LORENZO VALLEY
WATER DISTRICT**

Dear Chair Henry and Board of Directors:

I am writing to thank you for your recent support of two projects designed to protect our local fisheries, the Stream Habitat and Juvenile Steelhead Monitoring Program and the Upper Zayante Creek Stream Wood Enhancement Project.

As you know, the Steelhead Monitoring Program brings to bear vital methods for tracking conditions for juvenile steelhead in an effort to improve habitat and inform future decision-making in support of this species, which since 2006 has been listed as "threatened" by the federal Endangered Species Act. The program represents an important collaboration across many jurisdictions to boost the livelihood of a once-thriving species in our county.

The grant-funded Upper Zayante Creek Stream Wood Enhancement Project, first authorized in 2014 by the San Lorenzo Valley Water District Board to take place on District property, is an exciting endeavor to install woody habitat on Zayante Creek. This effort is designed to provide improved life cycles for steelhead and Coho salmon while also reducing the sediment load downstream, both of which have environmental benefits.

On a recent morning, I had the good fortune to join the Resource Conservation District and County Water Resources Division in touring a site along Zayante Creek proposed for installation of the habitat enhancement structures. I was reminded what a treasure

we have in the San Lorenzo River watershed, and I thank you for your efforts to be good stewards of this critical natural resource on behalf of our residents and wildlife.

Sincerely,

A handwritten signature in black ink, appearing to read "Bruce McPherson". The signature is fluid and cursive, with the first name "Bruce" and last name "McPherson" clearly distinguishable.

BRUCE MCPHERSON, Supervisor
Fifth District

P.O. Box 944246
SACRAMENTO, CA 94244-2460
(916) 653-8007
(916) 653-0989 FAX
Website: www.bof.fire.ca.gov

RECEIVED

JUN 28 2019

SAN LORENZO VALLEY
WATER DISTRICT



June 24, 2019

Re: Notice of Availability of Draft Program Environmental Impact Report
Regarding a Proposed Statewide Vegetation Treatment Program
To Interested Parties:

NOTICE IS HEREBY GIVEN that the Board of Forestry and Fire Protection (Board) as lead agency pursuant to the California Environmental Quality Act (CEQA) has prepared a Draft Program Environmental Impact Report (PEIR) for the proposed California Vegetation Treatment Program (CalVTP). This PEIR is prepared to provide the public, responsible and trustee agencies, and other interested parties with information about the potential environmental effects of the proposed CalVTP. This PEIR was prepared in compliance with CEQA and the CEQA Guidelines (California Code of Regulations, title 14 [CEQA Guidelines], section 15000, et seq). The Board invites public comments on the adequacy and completeness of the environmental analysis in the document.

IMPORTANT NOTICE: The Board will only respond to comments exclusively pertaining to the CalVTP filed under State Clearinghouse number 2019012052.

PROGRAM LOCATION: The State Responsibility Area (SRA) is the land in California where the state has the financial responsibility for the prevention and suppression of wildfires. (Pub. Resources Code, §§ 4102, 4125.) The SRA landscape consists of approximately 31 million acres across California that include lands covered wholly or in part by forests or are principally used for range or forage purposes. (Pub. Resources Code, § 4126.) Approximately 20.3 million acres within the 31 million-acre State Responsibility Area were identified that may be appropriate for vegetation treatments. This area will be referred to as the "treatable landscape" in the Draft PEIR. CAL FIRE's Fire and Resource Assessment Program (FRAP) modeled the areas where each of the three proposed treatment types could be implemented within the treatable landscape. Multiple treatment types can be implemented where modeled treatment areas for treatment types overlap. Qualifying treatments under the CalVTP would occur within the 20.3 million acres of treatable landscape. Proposed treatment types and treatment activities are described below.

PROGRAM DESCRIPTION:

This CalVTP PEIR addresses the following:

- Expansion of CAL FIRE's vegetation treatment activities to reach a total treatment acreage target of approximately 250,000 acres per year to contribute to the achievement of the 500,000 annual non-federal acres expressed in Executive Order (EO) B-52-18, signed by former Governor Edmund G. Brown Jr. in May 2018.

- A project-specific implementation approach for streamlining CEQA review of later site-specific, vegetation treatment projects consistent with the CalVTP and this PEIR, in accordance with procedures described in CEQA Guidelines Section 15168. The streamlined CEQA review approach would document the extent to which an individual proposed treatment project's environmental effects are covered by the PEIR and which feasible mitigation measures from the CalVTP PEIR would be incorporated into the approval of the individual project. More specifically, this project-specific review would include evaluation under section 15168 of whether later activities and impacts of site-specific vegetation treatment projects are within the scope of the CalVTP and the PEIR. A "within the scope" finding for later activities would facilitate an increase in the pace and scale of project approvals in a manner that includes environmental protections in compliance with CEQA. Where later proposed vegetation treatment projects do not qualify for a "within the scope" finding, additional CEQA documentation would be prepared.

The proposed CalVTP comprises the following three treatment types:

- ▶ **Wildland-Urban Interface Fuel Reduction:** Located in WUI-designated areas, fuel reduction would generally consist of strategic removal of vegetation to prevent or slow the spread of non-wind driven wildfire between structures and wildlands, and vice versa.
- ▶ **Fuel Breaks:** In strategic locations, fuel breaks create zones of vegetation removal and ongoing maintenance, often in a linear layout, that support fire suppression by providing responders with a staging area or access to a remote landscape for fire control actions. While fuel breaks can passively interrupt the path of a fire or halt or slow its progress, this is not the primary goal of constructing fuel breaks.
- ▶ **Ecological Restoration:** Generally outside of the WUI in areas that have departed from the natural fire regime as a result of fire exclusion, ecological restoration would focus on restoring ecosystem processes, conditions, and resiliency by moderating uncharacteristic wildland fuel conditions to reflect historic vegetative composition, structure, and habitat values.

These treatment types would be implemented using various treatment "activities" that may be applied singularly or in combination. The treatment activities that would be applied under the proposed CalVTP are:

- ▶ **Prescribed Burning:** Includes pile burning (prescribed burning of piles of vegetative material to reduce fuel and/or remove biomass following treatment) and broadcast burning (prescribed burning to reduce fuels over a larger area or restore fire resiliency in target fire-adapted plant communities; would be conducted under specific conditions related to fuels, weather, and other variables).
- ▶ **Mechanical Treatment:** Use of motorized equipment to cut, uproot, crush/compact, or chop existing vegetation

- ▶ **Manual Treatment:** Use of hand tools and hand-operated power tools to cut, clear, or prune herbaceous or woody species
- ▶ **Prescribed Herbivory:** Use of domestic livestock to reduce a target plant population thereby reducing fire fuels or competition of desired plant species
- ▶ **Herbicides:** Chemical application designed to inhibit growth of target plant species

ENVIRONMENTAL EFFECTS:

As described in the Draft PEIR, implementation of the proposed CalVTP would result in potentially significant impacts to the following resource areas: aesthetics; air quality; archeological, historical, and tribal cultural resources; greenhouse gas emissions; public services, utilities and service systems; transportation.

To the best of the Board's knowledge, none of the areas that are potentially subject to vegetation treatment under the CalVTP include hazardous waste facilities, land designated as hazardous waste property, or hazardous waste disposal sites reflected in the list required by Government Code section 65962.5.

DOCUMENT AVAILABILITY: The CalVTP Draft PEIR is available for download from the Board's website: <https://bof.fire.ca.gov/projects-and-programs/calvtp/>

Electronic copies of the CalVTP PEIR, as well as any documents incorporated by reference therein, can be reviewed at the locations listed below. To arrange to view documents at Board offices during business hours, call (916) 862-0120. CDs or printed copies are available at cost upon request by phoning (916) 862-0120 or emailing CalVTP@bof.ca.gov.

Online: <https://bof.fire.ca.gov/projects-and-programs/calvtp/>

Board Office: 1416 9th Street, Room 1506-12, Sacramento, CA 95814

Library	Branch	Street	City	State	Zip
Alameda	Fremont	2400 Stevenson Blvd	Fremont	CA	94538
Alpine	Markleeville	270 Laramie St	Markleeville	CA	96120
Amador	Jackson	530 Sutter Street	Jackson	CA	95642
Butte	Chico	1108 Sherman Ave	Chico	CA	95926
Calaveras	San Andreas	1299 Gold Hunter Rd	San Andreas	CA	95249
Colusa	Colusa	738 Market Street	Colusa	CA	95932
Contra Costa	Pleasant Hill	1750 Oak Park Blvd	Pleasant Hill	CA	94523
Del Norte	Crescent City	190 Price Mall	Crescent City	CA	95531
El Dorado	Placerville	345 Fair Lane	Placerville	CA	95667
Fresno	Fresno	2420 Mariposa Street	Fresno	CA	93721
Glenn	Willows	201 North Lassen St.	Willows	CA	95988
Humboldt	Eureka	1313 3rd Street	Eureka	CA	95501
Imperial	El Centro	1125 West Main Street	El Centro	CA	92243
Inyo	Independence	168 North Edwards St.	Independence	CA	93526

Library	Branch	Street	City	State	Zip
Kern	Bakersfield	701 Truxtun Ave	Bakersfield	CA	93301
Kings	Hanford	401 N. Douty Street	Hanford	CA	93230
Lake	Lakeport	1425 N. High Street	Lakeport	CA	95453
Lassen	Susanville	1618 Main Street	Susanville	CA	96130
Los Angeles	Castaic	27971 Sloan Canyon Rd	Castaic	CA	91384
Madera	Madera	121 N. G Street	Madera	CA	93637
Marin	San Rafael	3501 Civic Center Dr, Rm 427	San Rafael	CA	94903
Mariposa	Mariposa	4978 10th Street	Mariposa	CA	95338
Mendocino	Ukiah	105 N. Main St.	Ukiah	CA	95482
Merced	Merced	2100 O Street	Merced	CA	95340
Modoc	Alturas	212 West Third St.	Alturas	CA	96101
Mono	Mammoth Lakes	400 Sierra Park Rd	Mammoth Lakes	CA	93546
Monterey	Seaside	550 Harcourt Ave	Seaside	CA	93955
Napa	Napa	580 Coombs Street	Napa	CA	94559
Nevada	Nevada City	980 Helling Way	Nevada City	CA	95959
Orange	Orange	407 E. Chapman Ave	Orange	CA	92866
Placer	Auburn	350 Nevada Street	Auburn	CA	95603
Plumas	Quincy	445 Jackson Street	Quincy	CA	95971
Riverside	Riverside	3581 Mission Inn Ave	Riverside	CA	92501
Sacramento	Sacramento	828 I Street	Sacramento	CA	95814
San Benito	Hollister	470 5th Ave	Hollister	CA	95023
San Bernardino	San Bernardino	555 West 6th Street	San Bernardino	CA	92410
San Diego	Ramona	1275 Main Street	Ramona	CA	92065
San Joaquin	Stockton	605 N. El Dorado St.	Stockton	CA	95202
San Luis Obispo	San Luis Obispo	995 Palm St.	San Luis Obispo	CA	93403
San Mateo	Half Moon Bay	620 Correas Street	Half Moon Bay	CA	94019
Santa Barbara	Santa Barbara	40 E. Anapamu St.	Santa Barbara	CA	93101
Santa Clara	Milpitas	160 N. Main St.	Milpitas	CA	95035
Santa Cruz	Santa Cruz	230 Gault St.	Santa Cruz	CA	95062
Shasta	Anderson	3200 West Center St.	Anderson	CA	96007
Sierra	Downieville	318 Commercial St.	Downieville	CA	95936
Siskiyou	Yreka	719 Fourth St.	Yreka	CA	96097
Solano	Fairfield	1150 Kentucky St.	Fairfield	CA	94533
Sonoma	Santa Rosa	211 E St.	Santa Rosa	CA	95404
Stanislaus	Modesto	1500 I Street	Modesto	CA	95354
Tehama	Red Bluff	645 Madison St.	Red Bluff	CA	96080
Trinity	Weaverville	351 Main St.	Weaverville	CA	96093
Tulare	Visalia	200 West Oak Ave	Visalia	CA	93291

Library	Branch	Street	City	State	Zip
Tuolumne	Sonora	480 Greenley Rd	Sonora	CA	95370
Ventura	Ventura	651 E. Main St.	Ventura	CA	93001
Yolo	Davis	315 E. 14th St.	Davis	CA	95616
Yuba	Yuba City	750 Forbes Ave	Yuba City	CA	95991

PUBLIC REVIEW PERIOD: The CalVTP Draft PEIR is available for a 45-day public review and comment period, which begins June 24, 2019 and ends on August 9, 2019. Please send comments at the earliest possible date, but postmarked no later than August 9, 2019, in order for your comments to be considered.

Written comments are preferred via email and may be submitted to CalVTP@bof.ca.gov. Comments may also be mailed to the following address:

Board of Forestry and Fire Protection
Attn: CalVTP
PO Box 944246
Sacramento, CA 94244-2460

All comments received, including names and addresses, will become part of the official public record. A Final PEIR will be prepared which will include responses to comments received during this public review period that raise significant environmental issues.

The Board will hold a webinar to provide information on the CalVTP and a summary of the Draft PEIR on July 11, 2019 at 10:30am. Comments on the Draft PEIR will not be received at this informational meeting. Participants may access the webinar by registering online at <https://attendee.gotowebinar.com/register/611618035943889676>.

PG&E's planned power shutdowns could choke off vital water supplies

[Kurtis Alexander](#) July 9, 2019 Updated: July 9, 2019 11:52 a.m.

PG&E's plan to prevent wildfires with widespread power shut-offs means no lights, no refrigeration and no internet in many parts of California.

It could also mean limited use of toilets and taps, an inconvenience that water and sewer districts across the state are scrambling to address before a blackout comes and nature calls.

Utilities, including several in the Bay Area, simply don't have the backup power to replace the electricity that Pacific Gas and Electric Co. normally provides for water delivery and sewage treatment. The agencies are trying to make their operations more energy efficient and adding alternative power sources in case the cord is cut, but it may not be enough.

Already agencies are warning customers of possible water shortages and sewer backups. A loss of water, or drop in water pressure, could also be problematic for firefighters needing to douse any blazes.

"This is a big challenge," said Dave Eggerton, executive director of the Association of California Water Agencies, a trade group representing hundreds of utilities. "It's operationally challenging, it's very expensive, and some of our member agencies are incurring explosive costs."

PG&E began shutting off power to rural areas last year on warm, windy days to reduce the risk of an electrical line sparking a wildfire. Company lines have been blamed for igniting numerous blazes in recent years, including the deadly Camp Fire in Paradise in November.

This year, PG&E announced that it would be expanding the precautionary shut-offs to include the company's entire Northern California service area. The power provider warned that outages could last two days or more.

While many of the state's utilities have backup power to draw water from key supplies, say a reservoir or a well, and to run their sewage treatment facilities, the alternative power sources are not typically designed to last multiple days.

Additionally, some districts don't have enough backup electricity to power the pumps that move water and sewage to where it needs to go. Many deal with sprawling service areas with hundreds of miles of pipeline.

"It's going to be an ordeal," said Rick Rogers, manager of the San Lorenzo Valley Water District in the Santa Cruz Mountains, where most of his 30 pump stations that help get water to more than 23,000 people don't have backup power.

The district has a handful of portable generators, which are used to run the occasional pump that loses power during a winter storm. But with a widespread outage, like what's expected during PG&E shutdowns, the district would have to prioritize which pump stations get power, first trying to get water to the elderly and people with "critical needs."

The district's board of directors recently approved the purchase of eight new generators, some of which may cost more than \$100,000. However, the money won't be available until next year. Making matters worse, PG&E deems the district's service area, which includes the wooded communities of Boulder Creek and Scotts Valley, to be at high risk of a shut-off this year.

"We're sending out flyers, putting ads in papers, requesting people not to use water during outages," Rogers said.

The East Bay Municipal Utility District, which serves 1.4 million people, has begun a similar conservation campaign. Residents in the fire-prone Berkeley and Oakland hills get much of their water from local tanks, which are filled by pumps, not all of which have backup power.

"We want to make sure we have water in those tanks not only for our customers but for firefighters in those areas," said Andrea Pook, spokeswoman for the district.

EBMUD is asking people to use less water during a power shut-off while trying to get more generators in place to maintain adequate water supplies. The agency's board has signed off on an agreement to rent 29 generators for four months this year at a cost of \$409,000.

In the Sierra foothills, the El Dorado Irrigation District east of Sacramento has already spent \$800,000 on additional generators. Not only will the backup power help keep water flowing to the 129,000 people in the district's service area but, just as important, it will keep sewage moving.

The district's sewage system relies on a series of lift stations to push waste across mountains and valleys to one of five treatment plants. The stations require power to operate.

"Water may stop (running) during an outage, but folks still use their toilet," said Jesse Saich, spokesman for the agency. "So that stuff is still going to be coming down the hill, so to speak."

To be ready for possible sewage backups, Saich said the district would be operating its full fleet of pump trucks to manually remove waste during a power shutdown if need be.

PG&E has so far initiated three limited shutdowns because of wildfire danger. But when and if there are future blackouts is uncertain. The company's decision to turn off the power hinges on several variables, including the weather forecast, humidity and forest conditions.

The power company has said it's more likely to cut supplies in areas with the greatest fire risk, though any place could lose electricity because transmission lines targeted for shut-offs may pass through not only hazard spots but other places.

Company spokeswoman Andrea Menniti said in an email that PG&E was working to identify and minimize impacts to "customers who provide critical services," which include water suppliers. But there are no guarantees.

The latest power shutdown was during hot weather last month, and utilities affected by the outage said they learned a lot about what can go wrong.

In Oroville (Butte County), which went dark June 8, managers of the community's private water company said they were able to keep water flowing during the brief and geographically limited blackout. But the outage exposed limitations of the supplier's batteries used for computers that control water delivery and generators used to run air conditioning in rooms with valuable electronics.

Preparing for a water outage

Store at least one gallon of water per person and pet per day.

Stock up on hand sanitizer to reduce the need to wash.

During an outage, limit the use of appliances that require water and dishes that need cleaning.

Try to stay cool to reduce your water needs.

Keep in mind emergency supplies should you need them, like hot-water heaters. Treat appropriately before drinking.

“It was a good exercise that helped us identify a couple small areas that we need to shore up,” said Mike Mares, a vice president of Cal Water, which manages water supplies in more than a dozen Northern California communities.

The Cobb Area Water District, a small utility in the hills of Lake County, didn’t have such a positive experience when PG&E shut off its power last fall. Water officials rushed out to rent generators for three days, costing the district more than \$10,000.

“We paid huge delivery fees, due to it being a Sunday, (plus) fuel and overtime to the employees of the district,” General Manager Ben Murphy said.

A month later, PG&E warned the Lake County district of another possible power shutdown, and again the district rented generators. This time the outage never materialized, but the agency was still out \$6,000.

“These (shutdowns) are extremely hard,” Murphy said. “They are shutting the power off during wildfire season, I get it. But to shut off the power to the one thing that fights the fire — water — I really don’t get that.”