



PROPOSAL

# **PROFESSIONAL DESIGN SERVICES FOR THE CONSOLIDATION OF THE BRACKEN BRAE AND FOREST SPRINGS MUTUAL WATER COMPANIES**

**SAN LORENZO VALLEY WATER DISTRICT**

FEBRUARY 24, 2022

725 Front Street, Suite 400 / Santa Cruz, CA 95060 / 831.600.1400

**DUDEK**



# 1. Cover Letter

February 24, 2022

Josh Wolff, P.E., Engineering Manager  
 District Engineer (Bracken Brae and Forest Springs Consolidation)  
 San Lorenzo Valley Water District  
 13060 Highway 9  
 Boulder Creek, CA 95006

**Subject: Professional Design Services to the San Lorenzo Valley Water District  
 Consolidation of the Bracken Brae and Forest Springs Mutual Water Companies**

Dear Mr. Wolff,

Dudek is pleased to provide the San Lorenzo Valley Water District (SLVWD, District) with our proposal for professional engineering design services for the Consolidation of the Bracken Brae and Forest Springs Mutual Water Companies (Project). We pride ourselves on becoming our clients' trusted engineering advisor delivering superior services beyond the nuts and bolts of design. Our wide range of capabilities and expertise lends itself to working with agencies such as SLVWD, who is challenged with upgrading and maintaining aging and fire damaged water infrastructure. The District's primary motivation is to do right by the San Lorenzo valley community, by improving the quality of service and water infrastructure the community needs at the lowest responsible cost.

Our approach to water infrastructure planning and design takes into consideration years of experience with all types of available materials, technologies, and construction methods as well as project implementation support such as Caltrans permitting, environmental permitting, funding, scheduling, and cost control. We leverage this expertise, along with industry leading risk-based prioritization tools, to identify the best solutions for the District's needs based on the specific application, available budget, and critical schedule deadlines. We emphasize consistent communication throughout the course of the project and regular check-ins to discuss design options, action items, and decisions that affect the project.

We are excited to partner with the SLVWD, as a specialty of our firm is the design of new and/or replacement water pipelines and associated infrastructure in challenging terrain.

## *Dudek at a Glance*

- 42 years in business
- California corporation; employee-owned
- Multidisciplinary engineering and environmental services
- 12 California offices, including Santa Cruz and Oakland offices
- 700+ employees
- Top 120 U.S. Environmental Firms (Engineering News-Record, 2021)
- Top California Design Firm, No. 52 (Engineering News-Record, 2021)
- Top 50 U.S. Trenchless Design Firm (Trenchless Technology, 2021)

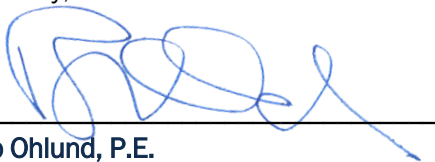
**Firm Qualifications.** For over 42 years, Dudek has served Southern California special districts and municipalities on a variety of planning, design, permitting, construction management, and regulatory issues. We view our role as partners with our clients, working to identify effective, financially prudent solutions to the project challenges they face. Dudek's professional staff represents a broad spectrum of engineering design and management disciplines relevant to your identified needs. In addition to a strong core group of proven civil, utility, and environmental engineers, our firm provides an impressive and diversified mix of experts. The depth of our in-house expertise and support staff allows us to offer a wide range of services on a moment's notice. Through our understanding of local and California regulations and depth of project experience, Dudek's professionals provide creative and successful solutions for projects by balancing regulatory mandates and technical requirements within financial and scheduling constraints. These capabilities result in lower overall project costs, on-schedule delivery of work products, and enhanced project control.

**Planning and Design Development.** Dudek is skilled in the preparation of project planning and schematic design. A successful project begins with gaining a thorough understanding of the issue and the SLVWD's definition of task order critical success factors (i.e. the barometer of performance to meeting the goals and expectations). For example, a critical success factor for a water reservoir repair project that Dudek designed for the City of Oceanside was to complete repairs to the first tank before the high demand summer season. This goal necessitated a fast-track project design schedule. Dudek best achieves an understanding of the project and client goals through face-to-face meetings, listening carefully to you, and visits to the project site(s) by key team members.

These early discussions will address critical topics such as budget and schedule constraints, constructability, environmental issues, standardization, and public acceptance. Our teams will be prepared to offer solutions with experience to back them up. During a project for Chino Basin Desalter Authority, Dudek designed a new 30-inch diameter steel pipeline using trenchless horizontal directional drilling methods crossing environmentally sensitive habitat under the Santa Ana River, which completed the water pipeline project.

Based on our understanding of the project requirements, we believe that SLVWD would gain the most benefit by selecting Dudek for this important project. We have the necessary expertise to achieve the District's objectives, while providing a practical approach to quickly respond to your needs, identify solutions, assemble the required resources, and prepare quality deliverables. Should you have any questions, or require any additional information, please do not hesitate to contact Greg Ripperger using the contact information provided above.

Sincerely,



**Bob Ohlund, P.E.**

Vice President / Principal in Charge



**Greg Ripperger, P.E.**

Project Manager

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**Project Manager and Single Point of Contact**

*Greg Ripperger, PE, Project Manager*

605 Third Street, Encinitas, CA 92024

760.479.4262 | 800.450.1818

[gripperber@dudek.com](mailto:gripperber@dudek.com)

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**Local Office Information**

725 Front Street, Suite 400

Santa Cruz, CA 95060

831.600.1400 | 800.450.1818

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**Person Authorized to Sign Contract**

*Bob Ohlund, P.E., Vice President*

27372 Calle Arroyo

San Juan Capistrano, CA 92675

760.479.4120 | 800.450.1818

[bohlund@dudek.com](mailto:bohlund@dudek.com)

[www.dudek.com](http://www.dudek.com)

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*Bob Ohlund is authorized to sign on behalf of Dudek.*

# Table of Contents

## SECTIONS

1.	Cover Letter .....	1
2.	Project Description and Approach .....	4
3.	Identification of Prime Consultant .....	13
4.	Identification of Sub-Consultants .....	15
5.	Project Organization and Experience of the Project Team.....	20
6.	Experience and Past Performance, Including Cost and Schedule Control .....	23
7.	Contractual Scope of Services .....	27
8.	Insurance .....	35
9.	Total Professional Fee and Schedule.....	39

## TABLES

Table 1.	Identification of Prime Consultant .....	13
Table 2.	Survey and Mapping.....	15
Table 3.	Geotechnical Engineering.....	16
Table 4.	Structural Engineering.....	17
Table 5.	Electrical Engineering.....	18
Table 6.	Traffic Control .....	19
Table 7.	Workload and Availability of Key Staff .....	22
Table 8.	Additional Recent Reservoir Experience.....	26
Table 9.	Project Drawing Sheets.....	33

## FIGURES

Figure 1.	Eckley Zone Improvements from 2021 WMP .....	5
Figure 2.	Eckley Zone Pipeline Improvements from 2021 WMP .....	6
Figure 3.	Potential Connections to Big Basin .....	8
Figure 4.	Potential Alternative Pipeline Alignment .....	10
Figure 5.	Project Organization Chart .....	20
Figure 6.	Proposed Project Schedule .....	37

## APPENDIX

A	Resumes
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## 2. Project Description and Approach

### Project Understanding

The District has recently embarked on a multi-year capital improvement program intended to fix years of deferred maintenance and fire damaged infrastructure, all while absorbing small water mutuals affected by the recent fires and lacking the resources for repairs. This project is one of the first projects in the multi-year program and will be followed up by absorbing Big Basin Water District in the coming years. The District has received \$3.2 million in grant funding to support this project and has budgeted a total of \$4.2 million in total for the project, including soft costs such as engineering, permitting, construction, and construction management. Critical success factors for the project include:

1. **Strict adherence to the project budget:** We understand that the budgeted amount is a firm limit and therefore cost control is paramount to project success. Recent Supply chain shortages and material costs have led to construction bids coming in higher than most engineering estimates. Cost control challenges can be mitigated by cost effective solutions to meet the project objectives. We have provided several suggestions in the proposal and would intend to continue the conversation during preliminary design. We will prepare detailed construction cost estimates as a part of the preliminary design report and provide regular updates with the District on the status of project costs and remaining budget during the course of the project. Dudek is committed to doing everything we can to deliver the project within the allocated budget
2. **Timely project delivery:** Time is of the essence for the District in completing this project as residents in the Bracken Brae and Forest Springs communities are relying on the District to provide higher quality and more reliable water service to their homes. Challenges to the project schedule include factors outside of the design team's control, such as Caltrans permitting. Scheduling decisions should consider critical path for both permitting efforts as well as the design schedule.
3. **Consideration of future connections and demands:** We understand the District plans to absorb Big Basin Water Company in the near future, therefore, the water infrastructure designed and constructed as part of this project must be sized to accommodate future connections and demands. Dudek will coordinate with the District closely to determine appropriate sizing and connection considerations for future system expansion.

### Project Background and Existing Conditions

SLVWD is absorbing two small water systems: Bracken Brae Mutual and Forest Springs Improvement and Maintenance Association. Their systems were damaged during the CZU fire and do not have the resources to repair their infrastructure, so SLVWD has applied for and received grant money to construct the infrastructure necessary to serve them.

#### Bracken Brae Water Mutual

Bracken Brae has 40 connections and consists of all single-family homes on a steep, heavily wooded hillside. The roads in the area are narrow, windy asphalt roads. The system's fire hydrants are 4-inch wharf heads and District staff believe that the pipelines in the system are 4-inch diameter or smaller. Storage for the system consists of

four small HDPE tanks (HWL 840) that are currently out of service and the system's surface water supply intake was also damaged in the fire. Bracken Brae is set up to also receive water from Big Basin Water Company when needed. The District is not in possession of any billing data for the system. It is assumed that since land usage is similar to Forest Springs, water usage per household is expected to be proportional. District staff have noted that Bracken Brae residents have had issues with low water pressures in the past due to their system configuration and would like increased water pressure to their system as part of the project.

## Forest Springs Water Mutual

Forest Springs is the larger of the two systems with 128 connections. The connections are also primarily single-family homes except for a few small businesses near Big Basin Way. The area was badly damaged by the CZU fire and many of the homes that were served by the system were destroyed. Water storage for the Forest Springs system consists of two rectangular concrete reservoirs (HWL 969), however, the condition of the reservoirs is a concern and they need to be replaced. The system is configured to receive water from Big Basin Water Company, which is valuable since the surface water supply intake was destroyed in the fire. A review of the 2018 - 2021 billing data shows the system had an average demand of 10.3 gpm with a monthly peak demand of 23.6 gpm before the fires. Since the fires, the demand has dropped to an average of 2.4 gpm and a maximum of 4.1 gpm.

## Big Basin Water Company

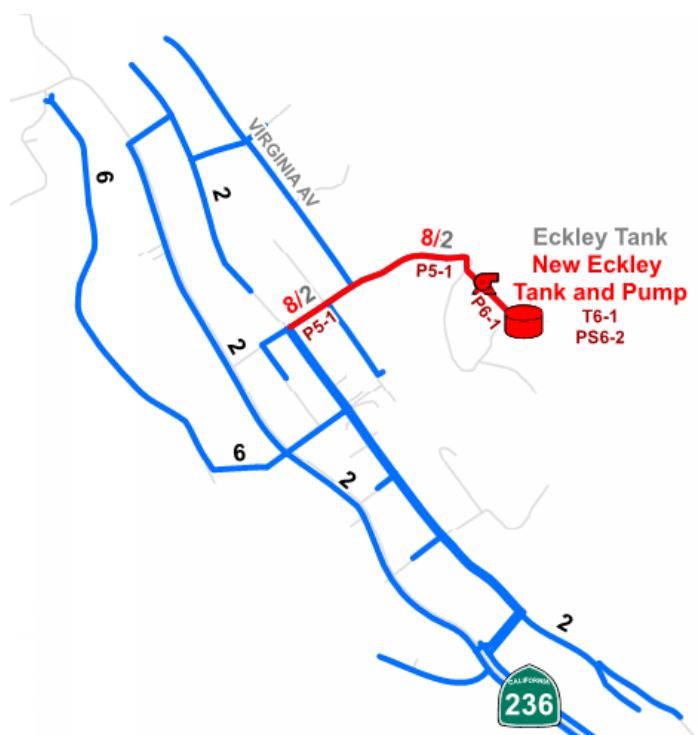
The Big Basin Water Company located north of the Forest Springs system is expected to be absorbed by SLVWD in the future, so it is critical to design the current improvements with a plan to connect SLVWD's system to Big Basin in the future without the need to upsize newly constructed water infrastructure.

## Eckley Zone

The District's Eckley zone is adjacent to Bracken Brae, the closest pressure zone to Bracken Brae and Forest Springs, and this zone will serve the new systems. The Eckley zone is served by a 5000 gallon reservoir (HWL 938) and a single-pump booster station (15 gpm). The zone is relatively small and consists of small diameter pipelines. Directly south of the Eckley zone is the larger Lyon zone which has two reservoirs: a 250,000 gallon Little Lyon reservoir (HWL 891) and a 3 MG reservoir (HWL 884).

Forest Springs current reservoir is 30 feet higher than Eckley, which equates to a 13 psi difference in zone pressure. Based on this pressure differential, it is feasible to combine the zones without pressure issues to customers. Since Bracken Brae has a lower reservoir and experiences low pressures, setting all 3 areas in a single pressure zone could allow the District to reduce the infrastructure necessary to serve all the systems.

Figure 1. Eckley Zone Improvements from 2021 WMP



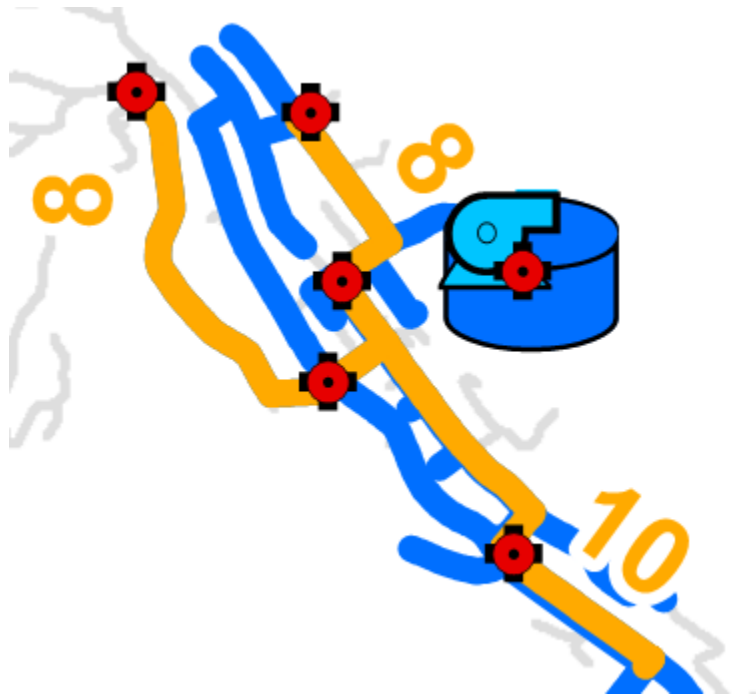


## Previous Studies

The District recently completed a Water Master Plan that includes a detailed Capital Improvement Program. The Water Master Plan includes several projects in the Eckley zone, shown above in **Figure 1**: a new 130,000 gallon reservoir, adding pumping capacity to the Eckley pump station, and a new 8-inch pipeline in Ridge Drive from Park Ave to the Eckley reservoir (shown as two separate projects). While not included in the final CIP, the WMP identified additional pipeline improvements in the Eckley zone, shown in **Figure 2**, that would be necessary to meet the fire flow requirements for each hydrant in the zone.

If the Eckley zone is combined with the new service areas, all of these projects could potentially be addressed as part of the consolidation. The new reservoir for the pressure zone could replace the existing Eckley reservoir, the existing booster station could be upgraded or replaced to supply the new reservoir, and the new pipelines necessary to connect SLVWD to the new systems could be designed to connect or replace several of the existing fire hydrants.

*Figure 2. Eckley Fire Flow Improvements shown in 2021 WMP*



## Project Approach

Success of the Consolidation of Bracken Brae and Forest Springs Mutual Water Company's project requires disciplined cost control, understanding of critical path for permitting and design, and consistent communication with the District throughout the project, especially during the preliminary design phase. Our approach outlines our strategy to achieving the District's goals and critical success factors for the project. The subsections below summarize our approach to each element of the project.

## Preliminary Design

The preliminary design phase is important for evaluating project alternatives and determining the best alternative and scope for the final design effort. Based on our project understanding, the preliminary design report will include the following evaluations and components:

- Determine pressure zone(s) of Bracken Brae and Forest Springs
- Consideration of consolidating Bracken Brae and Forest Springs within the Eckley pressure zone.
- Evaluate alternatives for locating the new tank at either the Eckley site or the Forest Springs site.
- Address fire flow requirements for Bracken Brae, Forest Springs, and Eckley
- Consideration for using the Lyon tank and a fire pump to provide fire flow to Eckley. Consideration of future Big Basin connection (sizing and connection location(s))
- Caltrans bridge crossing detail, permitting expectations and schedule

- Reservoir sizing, materials of construction, and location. Consideration of tank redundancy will also be analyzed.
- Booster Pump Station type and size, along with building/shelter considerations, electrical, and controls requirements.
- Pipeline sizing, material, and preliminary alignments. Typical details for pipe trench, pressure reducing valve (PRV), isolation valve, and fire hydrant will be provided.

The following subsections describe our approach to each component to be covered in the preliminary design report.

## DETERMINE PRESSURE ZONE / ADDRESS FIRE FLOW ISSUES

The District's project expectations as described in the RFP includes a new pipeline and booster station near Bracken Brae. As an alternative, we plan to analyze the possibility for consolidating Bracken Brae and Forest Springs within the Eckley pressure zone. In this scenario, the Eckley pump station can be used to pump water to the new reservoir instead of constructing a new pump station. The new pipeline to the Bracken Brae/Forest Springs site would then be in the Eckley zone and could be connected to the fire hydrants in the zone to increase fire flow capacity. This would include the new Eckley pipeline project proposed in the WMP, as well as addressing other fire flow deficiencies identified in the WMP. This approach could address additional infrastructure needs and deficiencies more economically than constructing the improvements separately. If the budget allows, it could also be beneficial to replace the pipeline between Eckley PS and the Lyon reservoir to improve capacity to the Eckley pump station.

## RESERVOIR LOCATION

Building upon the concept to consolidate Bracken Brae and Forest Springs within the Eckley pressure zone, our approach for Preliminary Design includes an evaluation on whether to construct a new tank at the Eckley site or the Forest Springs site. If the pad elevations of the homes in Forest Springs can be served at the elevation of the Eckley site, it would likely prove to be more cost effective to construct a new reservoir at the Eckley site. The added benefit of this alternative for the District is that this approach would address the need identified in the WMP to replace the Eckley reservoir.

## BIG BASIN EXPANSION CONSIDERATIONS

Since it is expected that SLVWD will absorb Big Basin in the near future, it is important to construct these improvements with the capacity to deliver water to Big Basin to ensure that recently constructed infrastructure does not have to be replaced and upsized. This would be incorporated by designing the new pipelines in a location that would allow them to be extended to Big Basin, either on the main road or cross country from the Forest Springs reservoir.

A review of the Big Basin infrastructure shows that Tank 4 is the closest facility to Forest Springs, however, the pipelines from this reservoir are small diameter and would not have the capacity to transmit the supply for all of Big Basin. The nearest large-diameter pipe in the system crosses Jefferson Creek Road, west of Big Basin Way. It would likely be necessary for the new pipeline to connect from Eckley zone to that pipeline to allow high-capacity transmission between the two systems. This pipeline would likely either go from Forest Springs to Tank 4 on Jefferson Creek Road or alternatively, in Big Basin Way from Forest Springs entrance to Jefferson Creek Road. Both options are shown below in **Figure 3**. Big Basin connection locations will be evaluated as part of the preliminary design report.

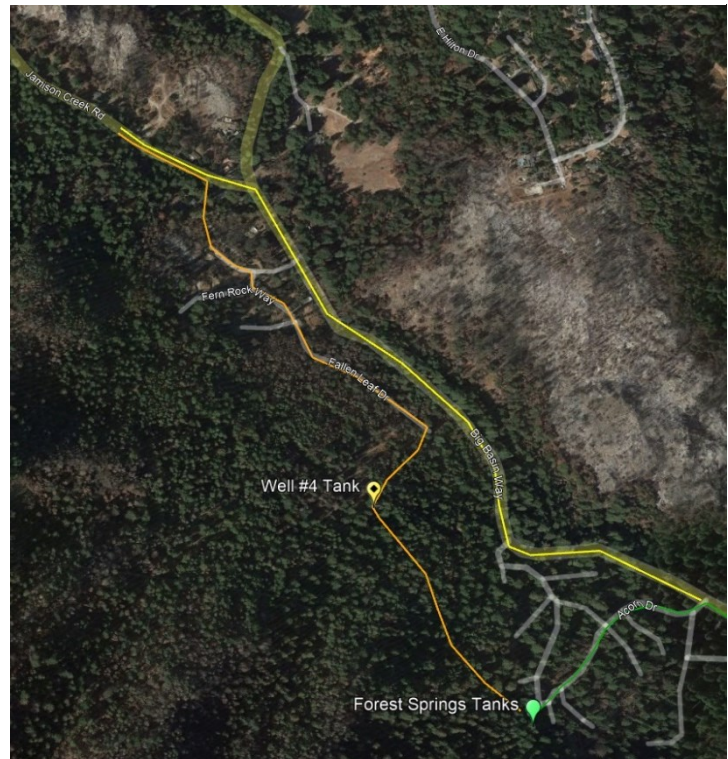


The absorption of Big Basin also provides the District with elevated storage. The Big Basin interconnection could (and should) be designed to allow emergency flow from the Big Basin system to SLVWD's Eckley zone. As part of the preliminary design analysis we would analyze another alternative: the potential of constructing fire pumps at the new Eckley pump station instead of building additional storage for fire protection. In this scenario, the District would be able to use the budget for the new reservoir to construct new pipelines connecting the Lyon reservoir to the Eckley pump station and emergency generators for the Eckley pumps. This would allow the District to utilize the reservoir capacity in Lyon to provide fire protection for the Eckley, Bracken Brae, and Forest Springs zones.

Pipeline improvements from Lyon will be necessary to serve water to Big Basin, so the District would be using their budget effectively for a critical need: pipeline capacity in the Lyon and Eckley zones to meet fire flow and transmit water. If the District connects to Big Basin, the Eckley pump station could be converted/expanded to transmit water to Big Basin. Once the project is complete, the District would be able to meet fire flow requirements to the entire zone and have the pipeline and pumping infrastructure to connect to Big Basin. Eliminating the new reservoir would provide the District with considerable cost savings for both design and construction.

We are also aware that the District has water quality challenges with reservoirs that serve the small zones due to the low demand and high volume of water necessary for fire storage, which leads to stagnation. Using a fire pump from the Lyon reservoir would mitigate the water quality issues from a new reservoir. Further analysis and discussions with the District would be necessary to evaluate this alternative during Preliminary Design, but it has the potential to provide meaningful advantages to the District with minimal downside.

*Figure 3. Potential Connections to Big Basin*



## CALTRANS PERMITTING

Based on the expected pipeline improvement alignment, there will need to be two Caltrans bridge crossings. Initial review of the bridges suggests that the best approach is to anchor the new pipeline to the side of the bridge. The District's previous experience with Caltrans leads us to believe this design would be acceptable. Obtaining permits from Caltrans can be time consuming and will be one of the key factors to consider for the project schedule. Our approach to obtaining Caltrans permits is to communicate early and often with the Caltrans permitting office to ensure our design meets their requirements. Our team has successfully obtained Caltrans encroachment permits and designed a host of pipeline improvements within Caltrans right-of-way and understand their requirements and expectations. We will prioritize design of the bridge crossings early in the design phase and submit as soon as possible to mitigate delays to the project schedule. We will continue to communicate with Caltrans throughout the application process to ensure they have everything they need to review and approve the permit.

## Final Design

Once the preliminary design report is complete, we will move into final design phase. We will work closely with the District to ensure the design meets the District's standards and expectations. The design process will include meetings with the District after each submittal to discuss and incorporate District comments into the design.

### RESERVOIR

Previous discussions with the District suggest the developments will be served with elevated storage at the site of either the existing Eckley site or Forest Springs reservoir. The new reservoir will need to provide 120,000 gallons of usable storage to meet fire flow requirements in the zone. Our approach will analyze the layout of the reservoir(s) during preliminary design including factors such as limited space at the Forest Springs site. If the Forest Springs site is the preferred location, it may be necessary to construct two 60,000 gallon reservoirs due to space limitations. This configuration would have the added benefit of providing the District with tank redundancy to continue to serve the zone if one of the reservoirs is taken out of service for cleaning, maintenance, and eventual replacement.

Steel tanks (bolted or welded) have traditionally been the most cost-effective tank design for water reservoirs of this size. Our approach will include a life cycle cost analysis to determine the most cost-effective tank design, as well as consider constructability and District preference. Preference will likely be given to the tank alternative with the lower capital cost considering the budget constraints of the project.

### PUMP STATION

Our experience in recent years has found that for smaller systems like Bracken Brae and Forest Springs, packaged booster pump stations are typically recommended and preferred by most agencies. Packaged systems have the benefits of lower cost and required downtime, single-supplier responsibility for troubleshooting, service, and replacement parts, as well as ease of design. The pump station is expected to consist of two pumps - one duty and one standby. These pumping systems are delivered on a skid with much of the plumbing, instrumentation, and controls connected for ease of installation. These systems are often supplied with an on-skid control panel that only requires power to operate and we often design an on-site Supervisory Control and Data Acquisition (SCADA) integration control panel with a programmable logic controller (PLC) adjacent to the skid to allow the District to have remote control of the system. The skid control panel is easily programable to accept the District's preferred communication language and can communicate both analog and digital inputs and outputs through a dedicated ethernet cable to the SCADA PLC.

The proposed pump station is anticipated to consist of new above-grade skid-mounted pump package installed within a concrete masonry block building with concrete foundation for shelter and protection. The building will be designed to prevent damage during a fire by using a metal or concrete roof and no combustible materials on the outside of the structure. We will coordinate with the District and PG&E to confirm the availability of power supply and locate electrical panels inside the building.

### PIPELINE

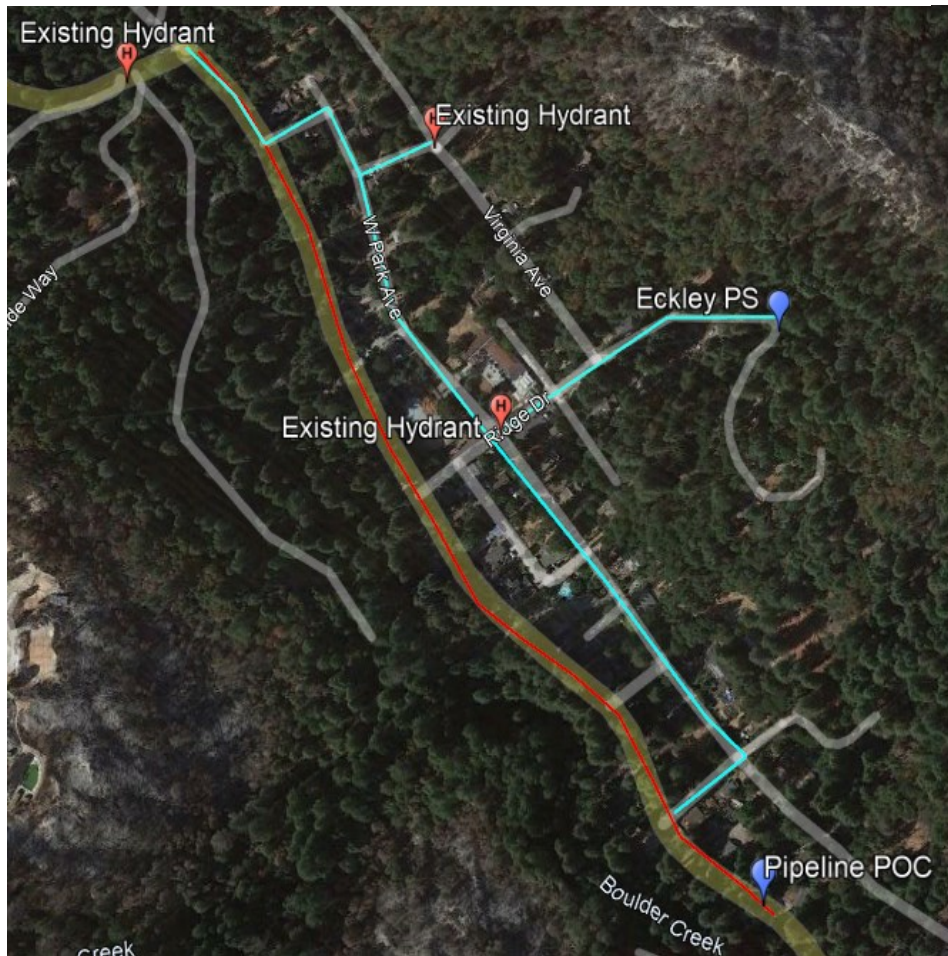
Our review of the demand information provided for Forest Springs suggests that 8-inch pipeline is suitable for all new pipelines. We understand the District's design preference is to use buried ductile iron pipe to protect against future fire damage, however, PVC pipe will also be considered as an option. A preliminary alignment was provided as part of the RFP; however, improvements may be adjusted based on the final locations of the new reservoir and



booster station. For example, a new pipeline along Big Basin Way from Bracken Brae was depicted in the RFP. However, if the Eckley zone is combined with the new systems, it would likely be preferred to construct the new pipeline in Park Avenue instead of Big Basin Way and connect to the existing fire hydrants to improve fire flow throughout the existing Eckley zone. The following figure shows the alignment shown in the RFP and a proposed alignment that would connect the existing hydrants to the Eckley PS.

Depending on the location of the new reservoir, it may only be necessary to construct new pipelines to the fire hydrants in the Bracken Brae and/or Forest Springs systems. Our approach will assess the extent and alignment alternatives of pipeline improvements in the preliminary design phase.

*Figure 4. Potential Alternative Pipeline Alignment*



## Project Management Approach

Dudek understands the importance of a well-managed project team to meet tight schedules and budgets and efficiently address unforeseen project changes. By clearly tracking and managing multiple tasks, we can save the SLVWD time and money.

Greg Ripperger, PE, Dudek's project manager and Russ Bergholz, PE, PMP, Dudek's principal in charge, are committed to providing



### **Project Workflow**

*Master deliverables list*

*Schedule tracking with  
Microsoft Project*

*Budget tracking with Vision  
and Excel*

responsive, efficient and high quality engineering services to the SLVWD. Mr. Bergholz will be responsible for overall quality assurance/quality control, and will provide contract management support. Mr. Ripperger will be the main point of contact, and responsible for managing the contract. Mr. Ripperger has full authority to commit the firm's resources. He will oversee the project to verify the Dudek team comply with technical, regulatory, scope, schedule and budget requirements using the following methods.

## COMMUNICATION

Mr. Ripperger will develop a management framework that defines clear lines of communication among consultant team members and SLVWD staff, which is key to the successful implementation of the project in support of multidisciplinary engineering tasks.



### **Communications**

*Kickoff meeting to establish milestones/develop strategy*  
*Evaluation of existing data*  
*Consistent reporting and direct access to PM*

## APPLIED KNOWLEDGE

The proposed management team has long-term project experience and superior technical knowledge of all issues related to civil engineering services. We are committed to applying the latest, most reliable, and most inventive approaches to solving complex engineering issues. We understand the potential challenges as they relate to the SLVWD's infrastructure, in the regulatory, physical, or local environment; develop effective solutions; and expeditiously prepare clear documents from planning through design, bidding, and construction with completion of accurate record drawings that clearly document the installed solution.

## AVAILABILITY AND COLLABORATION

Mr. Ripperger is fully available to manage this contract and will be available for meetings, as required, with SLVWD staff either in-person or via phone conference.

Dudek offers a number of tools and technologies for efficient, productive virtual collaboration with the SLVWD including web conferencing technology and the ability to "share screens" with SLVWD staff in order to facilitate discussions and minimize in-person meeting costs.



### **Collaboration Tools**

*SharePoint*  
*Client Web Portals*  
*Zoom Meetings*  
*Webinars*

## VIRTUAL COLLABORATION AND TECHNOLOGY

The Dudek team offers a number of tools to facilitate efficient, productive virtual collaboration with the SLVWD, including the following:

- File Sharing/Storage via ShareFile, allowing us to store, share, and exchange files with the SLVWD
- Document Co-authoring simultaneously through SharePoint, via setup of a client portal
- Client Web Portals, custom-built for access via dudek.com, and set up according to client and/ or project specifications
- Mobile Data Collection and Reporting, allowing in-field data capture and quantification solutions that bring results and analysis directly to the SLVWD
- Virtual Meetings using MS Teams, GoTo Meeting, or Zoom Meetings to schedule and conduct real-time online (video/audio/web) meetings with the SLVWD.



## Quality Assurance/Quality Control

### SENIOR TECHNICAL OVERSIGHT AND ADMINISTRATIVE MANAGEMENT

Dudek's project manager, Mr. Ripperger, will manage clear communication and cooperation with SLVWD staff. He will work with SLVWD staff to establish regular teleconferences and prepare agendas and notes to assist the team in verifying that any issues are clearly understood and that work proceeds in a unified manner. We use "check-in meetings" with our project teams to allocate resources properly and according to the SLVWD's schedule constraints.

### COST AND SCHEDULE CONTROL

Mr. Ripperger will employ a variety of computerized project management systems to oversee project costs and schedule. He will use project team meetings to maintain continuous communication and to closely monitor cost and schedule performance.

### DOCUMENT CONTROL

Quality assurance is a project management responsibility conducted in accordance with the Quality Control Plan. As project manager, Mr. Ripperger monitors quality assurance continuously, making sure proper quality control reviews are conducted and documented at appropriate stages of the project development. Team members habitually check in with peers or senior engineers for every key decision, creating a continuous quality control check that reduces the potential for rework. Our assigned Quality Control Lead, Mr. Russ Bergholz, will ensure all project deliverables are reviewed by an independent technical expert prior to submittal to the SLVWD and will collaborate with the design team on interdisciplinary reviews, checking of actual field conditions, project calculations and construction cost opinion reviews, permit requirements, and responses to SLVWD comments.

### CLEAR, CONTINUOUS COMMUNICATION

Mr. Ripperger will place a high priority on a continuous flow of information, data, instructions, and guidance. He will maintain regular communication with the SLVWD as follows:

- Serving as the single point of contact
- Regularly calling or emailing the SLVWD's key contact to discuss milestones, activities, and potential issues;
- Holding regular project management meetings with key project staff (including other consultants, as applicable) to coordinate work efforts, monitor task completion, and review budget conformance;
- Updating, as necessary, the project description, schedule, work progress reports, and inventories of available data so that all team members are aware of information that may affect their work products and schedules;
- Coordinating with SLVWD staff at strategic junctures; and
- Diligent documentation of issues, action items, and decisions.

### 3. Identification of Prime Consultant

**Table 1. Identification of Prime Consultant**

Prime Consultant Identification		
Legal name and address of the company and web address.	Dudek 605 Third Street, Encinitas, CA 92024   www.dudek.com	
Legal form of company.	California Corporation (C1210012)	
If company is wholly owned subsidiary.	N/A	
Name, title, address, telephone number and email address of person to contact concerning the Response Submittal.	Greg Ripperger, PE, Project Manager 605 Third Street, Encinitas, CA 92024 760.479.4262   gripperger@dudek.com	
Project team and the discipline/job title of each team member.	Russ Bergholz, PE, PMP Greg Ripperger, PE Amanda Combs, PE Brandon Lacap, PE Kasey Harvey, PE Courtney Carr, EIT Sindos Nuhaily	Principal in Charge and QA/QC Project Manager Lead Engineer   Pipelines & Reservoirs Lead Engineer   Booster Pump Stations Project Engineer   Caltrans Encroachment Permits Project Engineer Project Engineer
General overview of firm background and project qualifications:	Dudek is a California-based environmental and engineering consulting firm with offices nationwide staffed by more than 700 planners, scientists, civil engineers, contractors, and technical experts. We help our clients address challenges related to infrastructure, planning, and the environment to drive project progress and create lasting results.  With analyses based in science and ethics, Dudek offers solutions that encompass the project lifecycle and anticipate future needs. Our professionals find practical, cost-effective approaches to help you achieve your project-specific and overall goals. We work to build your trust, which allows us to offer constructive and durable project solutions.	
DIR Registration No.	1000007200	
Years in business	42	
Past bankruptcy filings	None	
Identify any contract or subcontract by the firm which has been terminated, in default, or had claims made against it that resulted in litigation or arbitration in the last five years	Please see following page	

Complex engineering challenges require creative, cost effective and durable solutions. We provide custom engineering from planning and design through construction and management for public and private projects dealing with water, wastewater, recycled water, and stormwater.

## **DUDEK LEGAL CLAIMS IN LAST FIVE YEARS INVOLVING PROFESSIONAL CONSULTING SERVICES**

### ***City of Carlsbad vs. Ledcor Construction Inc.***

On June 13, 2016, the City of Carlsbad filed a civil complaint in California Superior Court, County of San Diego, against Ledcor Construction Inc. Dudek was named as a co-defendant. The project architect, RRM Design Group, was also later named as a defendant. The suit was related to construction of the City's First Responder Training Center. Dudek served as construction manager for the City on the project. Dudek denied any liability in the matter. The matter has been resolved between the City and Dudek and was dismissed in August 2019.

### ***Terra Lago Community Association v. Indo Land Ventures, LLC, et al.***

Terra Lago Community Association sued Indio Land Ventures in 2015 for alleged construction defects arising out of the construction of a residential development complex located in Indio, California. Dudek was named as one of many cross-defendants for its role in preparing the lake-liner design; the other parties were involved in various construction aspects of the lake. Dudek did not participate in any supervision or other construction management activities. Plaintiff initially demanded \$25,275 to settle the claims against Dudek, and their claims ultimately resolved in full for \$10,000. The parties executed a settlement and release agreement in 2018 which the Court approved, and the case was dismissed in 2019.

## **DUDEK CONTRACT CANCELLATIONS IN LAST FIVE YEARS INVOLVING PROFESSIONAL CONSULTING SERVICES**

In 2019, the City of Santa Barbara terminated a contract with Dudek's Santa Barbara office for Design and Preliminary Environmental Review for the Santa Barbara Police Station Project. Subsequent to that termination, and after contracting with a different Dudek team, Dudek was able to complete work for this project to the City's satisfaction. Further, the City has continued to enter into new contracts with Dudek for projects.



## 4. Identification of Sub-Consultants

Complementing our in-house experts, we have strategically partnered with local and specialty sub-consultants who bring relevant technical experience to enhance the Dudek team. Dudek project teams are fully integrated, with Dudek staff and sub-consultant staff treated the same. Our sub-consultants are extensions of our own staff, and we have established long-term working relationships with a majority of them. Similarly, deliverables from our sub-consultants receive the same quality control scrutiny as our in-house deliverables.

**Table 2. Survey and Mapping**

Sub-Consultant Identification	
Legal name and address of the company	Gary Ifland & Associates, dba Ifland Survey, Inc.
Name, title, address, telephone number and email address of prime contact	Gary R. Ifland, PLS, President 4113 Scotts Valley Drive, #102, Scotts Valley, CA 95066 831.426.7941   gary@iflandsurvey.com
Number of staff and the discipline/job title of each	1 - Licensed Surveyor/Office & Field Support 1 - Field Chief/Crew Chief 5 - As-needed professional & technical staff
General overview of firm background and qualifications	Ifland Survey is a professional land surveying and mapping firm based in Santa Cruz, CA. Founded in 1995, the firm's professional and technical staff is skilled and equipped to provide complete surveying and mapping services to a range of clients and project types. The firm has a strong record of relevant experience and similar work in Santa Cruz County including recent work for the Pure Water Soquel project and St. Andrews Main Replacement project. Additionally, the firm has performed survey projects for SLV Water District, Central Water District and the Santa Cruz City Water Department.
DIR Registration No.	1000007882
Years in business	26
Past bankruptcy filings	None
Identify any contract or subcontract by the firm which has been terminated, in default, or had claims made against it that resulted in litigation or arbitration in the last five years	None
References	<ul style="list-style-type: none"> <li>County of Santa Cruz Public Works, Greg Jones, LS, 831-454-2783</li> <li>Soquel Creek Water District ,Taj DuFour, 831-475-8501</li> <li>San Lorenzo Valley Water District, Josh Wolff, 831- 818-0055</li> </ul>

**Table 3. Geotechnical Engineering**

Sub-Consultant Identification	
Legal name and address of the company	Pacific Crest Engineering, Inc. 444 Airport Boulevard, Suite 106, Watsonville, California 95076
Name, title, address, telephone number and email address of prime contact	Elizabeth M. Mitchell, Associate Geotechnical Engineer 444 Airport Boulevard, Suite 106, Watsonville, California 95076 831.722.9446 X 3627   elizabeth@pacengineering.net
Number of staff and the discipline/job title of each	California Registered Geotechnical Engineers – 3 California Registered Civil Engineers – 1 California Registered Chemical Engineers – 1 Staff Engineer/Geologist – 4 Senior Field and Laboratory Technicians – 6 Clerical/Support - 1
General overview of firm background and qualifications	Pacific Crest Engineering is a local firm providing full service geotechnical, materials testing, special inspection, and environmental engineering consulting services to the public and private sectors of the Monterey Bay area. They are a certified Small Business (#47199) with the State of California.  The firm is well experienced in local municipal and public works projects, including performing geotechnical engineering projects for County of Santa Cruz Public Works, Soquel Creek Water District, San Lorenzo Valley Water District, the City of Santa Cruz, the City of Watsonville, California American Water Company, and the University of California, among others.
DIR Registration No.	1000002215
Years in business	21
Past bankruptcy filings	None
Identify any contract or subcontract by the firm which has been terminated, in default, or had claims made against it that resulted in litigation or arbitration in the last five years	Judicial Council of California vs. Rossdruiscusenberry Architecture Inc. et al Case Number 19CV342207; Filed 2/5/2019 Superior Court of the State of California for the County of Santa Clara; Mediation Pending No other contracts or subcontracts are in default or have been terminated
References	<ul style="list-style-type: none"> <li>▪ Lompico Tank Replacements, San Lorenzo Valley Water District</li> <li>▪ Bonny Doon School Tank Replacement Project, Santa Cruz County</li> <li>▪ West Hilton Drive Pump Station, Santa Cruz County Sanitation District</li> <li>▪ Manana Lane Sewer Rehabilitation, City of Watsonville</li> <li>▪ Trembly Lane Lift Station, Santa Cruz County Sanitation District</li> <li>▪ Villa Del Monte Tank Project, Villa Del Monte Mutual Water Company</li> </ul>

**Table 4. Structural Engineering**

Sub-Consultant Identification	
Legal name and address of the company	Kelsey Structural APC, dba Kelsey Structural 8320 Lake Ashwood Avenue, San Diego, CA 92119
Name, title, address, telephone number and email address of prime contact	Guy Kelsey, PE, SE, Principal 8320 Lake Ashwood Ave., San Diego, CA 92119 619.920.1262   gkelsey@kelseystructural.com
Number of staff and the discipline/job title of each	3 – California Registered Structural Engineers 3 - CAD Drafters 1 - Engineering Assistant (CA EIT)
General overview of firm background and qualifications	Kelsey's goal is to provide efficient structural engineering design services that consistently exceed clients' expectations. Their mission is to ensure the success of our clientele by providing structural expertise and innovative solutions to meet project deadlines and goals. The principals have a passion for engineering and are dedicated to their work, no matter what the project may be, and have a breadth of knowledge and expertise in unique structure design ensuring successful water treatment and conveyance.
DIR Registration No.	PW-LR-1000540088
Years in business	7
Past bankruptcy filings	None
Identify any contract or subcontract by the firm which has been terminated, in default, or had claims made against it that resulted in litigation or arbitration in the last five years	None
References	<ul style="list-style-type: none"> <li>▪ Rainbow Municipal Water District Moosa Crest Waterline Pipeline Bridge, Rainbow, CA</li> <li>▪ Bluebird Booster Station Upgrade and Bluebird Road Water Improvements, Glendora, CA</li> <li>▪ LACSD North Bay Pump Station, Lake Arrowhead, CA</li> <li>▪ Vista Irrigation District AB Line and Meyer's Siphon, Vista, CA</li> <li>▪ EVMWD Los Piños 2A Pump Station Improvements, Lake Elsinore, CA</li> <li>▪ Coachella Valley Water District Reservoir 4711 No. 3 &amp; 4 Structural and Seismic Design, Coachella, CA</li> </ul>



**Table 5. Electrical Engineering**

Sub-Consultant Identification	
Legal name and address of the company	Getter Engineering, Inc., dba ProjectLine 2900 Bristol D-103, Costa Mesa CA 92626
Name, title, address, telephone number and email address of prime contact	Robert Getter, PE, ME, Principal Engineer 2900 Bristol D-103, Costa Mesa CA 92626 949.351.9718   rgetter@projectlineTS.com
Number of staff and the discipline/job title of each	Robert Getter, PE, EE, ME – electrical and controls, mechanical Kamran Kermani, PE, EE – electrical and controls
General overview of firm background and qualifications	ProjectLine Technical Services is a California corporation specializing in professional and technical engineering services for infrastructure projects. The firm's clients include national engineering companies and major infrastructure management agencies. Locally, their clients include Caltrans, Los Angeles Department of Water and Power (LADWP), Metropolitan Water District of Southern California (MWD) and Cities such as Los Angeles and Riverside, for whom they provide engineering services as both prime and subconsultant.
DIR Registration No.	1000051349
Years in business	20 years
Past bankruptcy filings	None
Identify any contract or subcontract by the firm which has been terminated, in default, or had claims made against it that resulted in litigation or arbitration in the last five years	None
References	<ul style="list-style-type: none"> <li>▪ Electrical and Controls Engineering, Sendero Booster Pump Station Design, Santa Margarita Water District</li> <li>▪ Greg Avenue Pump Station (GAPS) and Hydroelectric Plant (HEP), Metropolitan Water District</li> <li>▪ Hyperion Advanced Water Purification Facility (HAWPF) and MBR Pilot Plant, Los Angeles, CA, BOE</li> <li>▪ Thompson Pump Station Rehabilitation Project, City of LABOE</li> <li>▪ Colorado River Aqueduct (CRA) Transformer Replacements, Metropolitan Water District</li> </ul>

**Table 6. Traffic Control**

Sub-Consultant Identification	
Legal name and address of the company	Traffic Management, Inc. 4900 Airport Plaza Drive, Suite 300, Long Beach CA 90815
Name, title, address, telephone number and email address of prime contact	Hugo Acosta, Jr., Engineering Project Manager 4900 Airport Plaza Drive, Suite 300, Long Beach CA 90815 562.276.9440   hugo.acosta@trafficmanagement.com
Number of staff and the discipline/job title of each	1 - CA registered Civil and Traffic Engineer 1 - CA registered Engineering Associate
General overview of firm background and qualifications	<p>Traffic Management, Inc. (TMI) is the largest privately-owned minority business based in the United States. TMI is well equipped to provide best in class products and services that include traffic control services, engineering, equipment rentals, product sales, sign manufacturing/installation, and 24/7 emergency dispatch response.</p> <p>TMI utilizes a proprietary technology which is a shared, yet secure, cloud-based communication and project management system called "TM-Soft". This enables TMI clients to share real-time needs in terms of changing equipment, driving directions, traffic control, crews as well as crew contact information, documents, and location maps that show existing or new conditions overview of jobs, no matter how complex.</p> <p>TMI engineering staff has extensive experience in working with CalTrans and 100s of municipalities throughout the State.</p>
DIR Registration No.	1000005229
Years in business	27
Past bankruptcy filings	None
Identify any contract or subcontract by the firm which has been terminated, in default, or had claims made against it that resulted in litigation or arbitration in the last five years.	None
References (All Dudek Projects)	<ul style="list-style-type: none"> <li>▪ 54-Inch Central Intertie Pipeline Improvements</li> <li>▪ Adams Avenue W-267 Pipelines</li> <li>▪ Anaheim South Recycled Water Project</li> <li>▪ Chino Well Field Raw Water Pipeline</li> <li>▪ Contracted Valve Replacement Project FY</li> <li>▪ Crowther Sewer Pipeline Project MND</li> <li>▪ Dekay Avenue W-268 Water Pipelines</li> <li>▪ Design of Recharge Basin on Victoria Site</li> <li>▪ JRWSS Crown Valley Parkway Transmission Main</li> <li>▪ North Coast Interceptor at Nyes Place</li> <li>▪ Relocate Aufdenkamp Connection Transmission Main</li> <li>▪ Slater Pump Station Valve Replacement</li> <li>▪ Victoria Ave Water Recharge Facility</li> </ul>

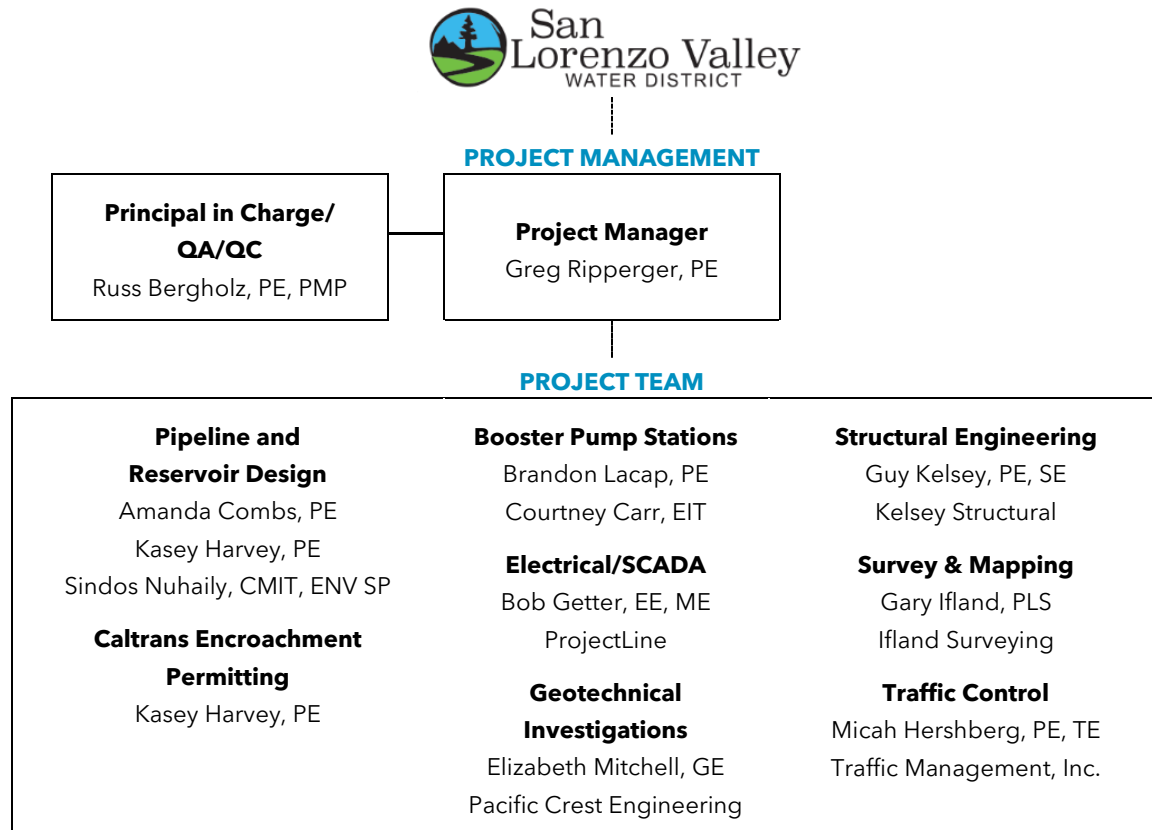
## 5. Project Organization and Experience of the Project Team

The Dudek team offers CCWD the experience, technical depth, staff resources, project management expertise, and knowledge needed to successfully execute this project on time, and within budget. Dudek project managers are empowered to make immediate decisions without excessive upper management oversight, providing our clients with a nimble project team. We care about our communities and take our role in improving its vital infrastructure and protecting its environmental resources seriously. As cliché as it may sound, we also define our success by our clients' happiness and success. It is such a core value at Dudek that we have made it our firm's stated purpose.

### 5.i Project Organization

Dudek will serve as the prime consultant providing overall management and engineering services. Mr. Greg Ripperger, PE, will serve as your dedicated project manager and the main point of contact for SLVWD. Mr. Russ Bergholz, PE, PMP, will support Greg on the project management team, serving as Principal-In-Charge and Quality Control Manager. Supporting the management team are task leads, Amanda Combs, PE, and Brandon Lacap, PE. The project team will be comprised of the following individuals, with staffing functions as indicated in **Figure 5**, Project Organization Chart. Key personnel resumes are located in **Appendix A**.

Figure 5. Project Organization Chart





## 5.ii Teaming Experience of Project Manager and Proposed Project Personnel

Greg Ripperger, PE, will serve as your dedicated project manager. Mr. Ripperger has 12 years' experience in water infrastructure planning and design. He worked for Civiltec Engineering for seven years prior to coming to Dudek. He has managed many similar water pipeline replacement projects, including the Oakglade Reservoir for the City of Monrovia, Lamanda Park booster station for California American Water, and Loma Linda Pipeline Replacement for City of Beverly Hills. Mr. Ripperger will oversee the development and execution of the projects, tracking budgets and schedules, and serving as the main point of contact for the District's project manager. He understands the importance of good communication, being solution-oriented, and efficient multi-tasking.

The subsequent Dudek team has successfully completed multiple projects together. Mr. Russ Bergholz, PE, PMP, will serve as the Principal in Charge for the project. He has 25 years' experience in infrastructure planning and design and leads the Dudek Water Infrastructure Group. He has served as the principal in charge and/or project manager for hundreds of pipeline/pump station projects and is our resident expert in trenchless techniques. Task leaders Amanda Combs, PE, (pipeline and reservoir planning and design) and Brandon Lacap, PE, (booster pump station planning and design) have worked with Mr. Bergholz for 10 and 6 years, respectively. Dudek is proud to offer SLVWD a team of industry leaders.

## 5.iii Project Management Approach (Abbreviated for page requirements)

The management team will communicate and keep the project on schedule and budget using the following:

**Project Meetings.** The management team will attend project meetings so that all parties can discuss and review the scope of the project and formalize key project assumptions. They offer an opportunity to confirm document format requirements, points of contact, status report details, and other logistical, technical, or procedural concerns, saving the SLVWD time and money.

**Dedicated Lines of Communication.** Dudek will distribute a key contact list to all team members, identifying the communication protocols and contact information for the team.

**Master Deliverables List.** Dudek will prepare a master deliverables list with key document development milestones, such as draft deliverables, review periods, and meeting dates with the SLVWD. Dudek will use emails to communicate shift and mid-shift status reports and any changes in drilling or construction activities by the contractor to SLVWD staff and efficient resolution of comments.

**Schedule and Budget Tracking.** The management team will use a schedule-tracking tool for important milestones and task orders.

## Quality Assurance and Quality Control

Russ Bergholz, PE, PMP, will provide QA/QC for the project using the following process:

- **Technical Reviews.** A third party will review all written work products focusing on the legal adequacy and technical accuracy of all deliverables, including multiple reviewers depending on the document's complexity.

- **Editorial Review.** After technical review, Dudek editors will conduct an editorial review of deliverables following the agreed-upon style guide and publications staff will format each document.
- **Document Production.** The production team will verify the quality of each formatted document before publication. Dudek's editorial team collaborates with publications and information technology staff to produce and publish the Web versions of project deliverables.

## 5.iv Workload and Availability

Table 7 below outlines our workload and availability for key Dudek staff members.

**Table 7. Workload and Availability of Key Staff**

Team Member Name	Role	Availability %	Workload %
Russ Bergholz, PE, PMP	Principal in Charge & QA/QC	35%	65%
Greg Ripperger, PE	Project Manager	50%	50%
Amanda Combs, PE	Pipeline and Reservoir Design Lead	40%	60%
Brandon Lacap, PE	Booster Pump Station Design Lead	40%	60%

## 5.v Why Choose Dudek?

The answer to this question relates directly to Dudek's **Client Value Philosophy**. Our project managers are empowered to solve problems and make decisions in a timely fashion to keep project momentum moving forward. With remarkably low employee turnover, our staff's long tenure means the team you meet at project start will see your projects through to completion. We offer the most value for clients by:

- Being the best integrated, multifaceted team in the industry, with high-quality work products and client-focused service
- Being engaged listeners to understand problems and think through the highest value-oriented approach
- Anticipating and planning for our clients' stakeholder needs
- Focusing on innovation to make smarter progress
- Being easy to work with because we are structured to support clients
- Understanding the stakes and the price of delays or failure.
- Financially, Dudek has been profitable every year since its founding, providing assurances of stability and continuity.

## 6. Experience and Past Performance, Including Cost and Schedule Control

### 6.i Engineer of Record Past Experience and Performance

#### 3.92 MG E RESERVOIR REPLACEMENT AND PUMP STATION VISTA, CALIFORNIA

**Owner, contact name and phone number:** Vista Irrigation District, Greg Keppler, Engineering Manager; 760.597.3100; gkeppler@vidwater.org

**Project budget and total dollar value of completed project:** Design Fee - \$842,856

**Budgeted project schedule and total time to completion:** Final design completed on schedule 10/2021

**Estimated construction costs and actual construction costs:** Ongoing, \$10M (est.)

**Engineer of Record:** Amanda Combs, PE

The Vista Irrigation District (VID or District) is replacing the existing 90-year old 1.5 MG E Reservoir with a new reservoir to address age and capacity issues. The District is also adding a pump station at the E Reservoir site to provide a redundant water supply to higher pressure zones in the event that supply from SDCWA is interrupted.

Dudek was contracted by the District to provide hydraulic analysis, preliminary and final design, and CEQA services for the new E Reservoir and pump station. To optimize the site and maximize storage, Dudek prepared (6) concept level site plan alternatives with various configurations of round prestressed concrete and rectangular cast-in-place concrete reservoir structures. Based on achievable volume and construction costs, the following (2) preferred alternatives were selected for preliminary design development:

- A single cast-in-place concrete hexagonal reservoir with 3.07-MG capacity
- Two prestressed concrete reservoirs with total capacity of 2.57-MG.

Following the development of preliminary design drawings and opinions of probable construction costs, the single hexagonal reservoir was selected for the project. Construction of the new reservoir will require demolition of the existing structure and subgrade remediation due to an existing cut/fill line beneath the pad area. Hydraulic modeling concluded that a pump station with a capacity of 3,000 gpm at 230 ft TDH is required to meet maximum day demand conditions. Dudek completed detailed design documents and the IS/MND for the proposed project, which has an estimated construction value of \$10M.



#### **Project Highlights**

- *Alternatives Assessment & Preliminary Design*
- *Final Design of Reservoir Replacement & Pump Station*
- *Bidding & Construction Support Services*



**2.2-MG PRESTRESSED CONCRETE FIRE MOUNTAIN RESERVOIR  
OCEANSIDE, CALIFORNIA**

**Owner, contact name and phone number:** City of Oceanside; Philip Tunnell, Project Manager; 760.435.5848, ptunnell@oceansideca.org

**Project budget and total dollar value of completed project:** Design Fee - \$189,000

**Budgeted project schedule and total time to completion:** Design completed on schedule October 2021

**Estimated construction costs and actual construction costs:** \$1M (est.)

**Engineer of Record:** Amanda Combs, PE

Dudek was contracted by the City for the planning, preliminary design, and final design of a 2.2 MG prestressed concrete reservoir and 1,150 gpm booster pump station as part of an expansion of the city's recycled water system to customers in the Lower La Salina Service Area. The new reservoir will be co-located with an existing city potable water reservoir. Features of the design include a potable water makeup vault and pipeline, a stormwater detention basin, and protection of adjacent sensitive habitat.

Dudek is providing Bid Phase and Construction Support services. Construction of the tank and facilities is estimated to take approximately 18 months.



***Project Highlights***

- *Siting Study, Hydraulic Analysis & Preliminary Design*
- *Final Design of New Reservoir & Pump Station*
- *3D Renderings*
- *Bidding & Construction Support Services*

## 6.ii Firm Past Experience and Performance

### 13.4 MG GOETZ ROAD TANK AND PIPELINE PRELIMINARY AND FINAL DESIGN PERRIS, CALIFORNIA

**Owner, contact name and phone number:** Eastern Municipal Water District; Greg Kowalski, Engineering Manager; 951.928.3777 X 4466; kowalskg@emwd.org

**Project budget and total dollar value of completed project:** Design Fee - \$639,779

**Budgeted project schedule and total time to completion:** Design completed on schedule July 2016

**Estimated Construction Completion:** June 2023

**Estimated construction costs and actual construction costs:** \$12.6M (est.)

Dudek prepared a comprehensive preliminary design report for a 13.4-million-gallon pre-stressed Type 1 concrete tank and 9,100 LF of 30-inch diameter welded steel pipe transmission main to serve the District's storage-deficient 1627 zone. In addition to developing preliminary design criteria and estimated construction costs and schedule, predesign services included:

- Hydraulic modeling using InfoWater for pipe sizing and alignment alternative evaluation using a matrix rating system
- Tank material life cycle cost analysis
- Site drainage management report
- 3D rendering of proposed tank site
- Environmental constraints analysis
- Geotechnical constraints analysis
- Preliminary grading, site, piping, and drainage plans

In 2015, Dudek was contracted to complete the final design of the project. The tank site selected by the District posed significant challenges for site grading and drainage given a natural drainage pattern carrying approximately 100 cfs through the site. Through extensive coordination with the City of Perris, City of Menifee, Riverside County Flood Control and Water Conservation District, and adjacent developer, Dudek developed on-site and off-site drainage solutions that met the goals and requirements of all parties involved. Other design features include an open top design inlet/outlet vault, an overflow vault with passive dechlorination, a mechanical reservoir mixing system, an electrical and disinfection building, and an automated chloramination dosing using an on-site sodium hypochlorite generation system, liquid ammonium sulfate, and continuous chlorine residual sampling.






#### KEY PROJECT FEATURES

- 9,100-LF welded steel transmission main
- Hydraulic modeling and alignment study
- Predesign level constraints analyses
- Planning and design of transmission main

An advantage the Dudek team proposed for this project brings to the SLVWD is that they have been focused on reservoir projects during a nearly 10-year period of collaboration. During that period, they prepared designs for four new reservoirs, three extensive prestressed concrete reservoir and site retrofits, and four steel tank retrofits. They also completed 24 assessments of existing reservoirs. Our team's reservoir experience covers circular and rectangular, prestressed and non-prestressed, covers of wood, concrete, or aluminum, buried or free-standing, welded steel or bolted steel, and earth-embanked and partitioned. **Table 8** provides a quick glance at some additional work; we'd like to show more fully constructed, but they just take so "dam" long to build!

**Table 8. Additional Recent Reservoir Experience**

Project / Contact / Dates / Value	Brief Overview	
<b>Padre Dam MWD</b> Blossom Valley Reservoir Final Design, including Rehabilitation and Replacement Alternatives Analysis and Feasibility Study  Michael Hindle, 619.258.4632 2021 \$145,605	Prior to final design, seven evaluation criteria, including construction and life cycle costs, operational flexibility, water quality, providing service during construction, and aesthetics, were used to score and rank alternatives using a decision matrix approach. Dudek is providing bid and construction support as well.	
<b>City of Oceanside</b> Design of 5.0-MG Morro Hills No. 1 Pre-stressed concrete and No. 2 5.0-MG Steel Reservoir Repairs and Booster Pump Station  Philip Tunnel, 760.435.5848 July 2019 \$263,000	Rehabilitation/repair of No. 1 Pre-stressed concrete and No. 2 Steel Reservoir reservoirs and design of new BPS. Final design documents and bidding/ construction support. Fully constructed.	
<b>City of Oceanside</b> Design of 3.0-MG Henie Hills and J.P. Steiger Reservoir Repairs Philip Tunnel, 760.435.5848 \$189,000 Design complete in June 2019 and currently out to bid	The second of four bid packages of the Phase 3 Reservoir Repairs project involve rehabilitation of the 3.0 MG Henie Hills and 3.0 MG J.P. Steiger pre-stressed concrete reservoirs. The Henie Hills reservoir will undergo an extensive seismic retrofit involving replacement of circumferential pre-stressing, seismic cables, and reinforcement of the roof to core wall connection.	

## Exceptions to Request for Proposal (RFP)

Dudek certifies that the firm has fully read the RFP and requests no exception(s) to any portion of the RFP.

# 7. Contractual Scope of Services

## Scope of Services

### Task 1 Project Management and Meetings

Dudek will provide overall project management, including schedule maintenance, meetings, progress meetings, status reporting, and quality control on deliverables. Considering our proximity to District offices, we will provide in-person or Zoom meetings as necessary. This task will specifically include the following.

#### 1.1 PROJECT ADMINISTRATION

Dudek will work internally and collectively with the District to maintain communication regarding project progress relative to budget. As part of this project's administration task Dudek will complete the following:

- Prepare progress reports that will be provided with each invoice and will include a status report by task, a description of the work performed, and cost status for each project phase
- Prepare monthly schedule updates for both design and construction as the design is developed
- Utilize Dudek's quality assurance and quality control (QA/QC) program for project deliverables

Dudek will implement our typical QA/QC program, a proven method for delivery of quality work products. Deliverables will receive independent senior technical reviews, and District review comments shall be incorporated into any deliverable prior to submission to the District.

The Dudek project manager will communicate regularly with the District, recognizing that routine project status updates are critical to efficient project delivery. We will utilize project management tools to proactively monitor project schedule and budget. Monthly progress reports accompany our invoices, summarizing work completed in the previous month, status of deliverables, work planned for the immediate future, and identification of any budget or scope issues.

#### 1.2 KICKOFF MEETING

Dudek will schedule and attend the kickoff meeting for the project. An agenda will be created that identifies key meeting topics, such as the projects critical success factors, schedule, billing, and coordination with the District and other project stakeholders. Dudek will provide a preliminary design schedule at this meeting which will be used as the base schedule to be updated at each project milestone. Although most of the relevant information for the project has been provided as part of this RFP, Dudek will request that any remaining information be provided electronically at this meeting.

#### 1.3 DESIGN PROGRESS MEETINGS

##### **PRELIMINARY DESIGN MEETING**

Dudek will schedule and attend a Preliminary Design meeting/workshop with the District. The meeting will discuss all aspects of the design, ensuring there is a clear understanding of the design objectives. Topics to be covered will be pressure zone configuration, open or closed zone discussions, reservoir design, pump station



design, and pipeline alignments. It is anticipated that the meeting will include key District staff including management, engineering, and operations.

### **1.3.1 Basis of Design Report Review Meeting**

After submittal of the PDR, Dudek will meet with the District to discuss the design approach, review comments provided for the PDR, and the design path moving forward.

### **1.3.2 60% Design Meetings**

Dudek will meet with the District after the 60% design package has been submitted for review. Comments provided by the District will be discussed during these meetings, along with major design decisions, project progress, schedule, and any budget issues.

### **1.3.3 100% Design Meeting**

Dudek will meet with the District after the 100% design package has been submitted for review. Once this plan submittal has been reviewed and comments have been addressed Dudek will provide a set of the original plans and specifications to the District for signatures. Once signed, the District will retain this copy for bidding purposes. Electronic copies of the final submittal, design calculations, pertinent communications with the District, and native CADD .dwg files will also be provided to the District for their records.

## **1.4 COORDINATION WITH THE DISTRICT'S CEQA CONSULTANT**

It is understood that the District will lead the environmental permitting effort for this project. Dudek will coordinate with the District through the permitting process. This effort is anticipated to be filing Notice of Exemptions, but could also include the following:

- Drafting and modifying the project description
- Defining limits of the construction work
- Providing an anticipated schedule of construction and defining schedule limitations within the bid documents

## **Task 2 Data Collection and Field Investigations**

Dudek will review the existing Water Master Plan, record drawings, maps, reports, and other documentation provided by the District. In addition, Dudek will verify the planning assumptions and parameters identified in the WMP and adopt or modify them as necessary based on additional data and information that Dudek obtains during the data collection phase of the project.

Dudek will conduct field investigations to obtain information required to complete the design. These investigations include the following:

### **2.1 UTILITY RESEARCH**

As part of the base construction drawing development, Dudek will submit requests to each identified utility company within the project limits to assure that we have current and accurate utility as-built information. A list of utilities with contact persons, numbers, addresses, e-mail addresses, and agency record-drawings numbers will be developed and cataloged in the Dudek project documents center and will be provided to the District upon request. Dudek utility research will incorporate both above- and below-ground utilities within the project area.

## **2.2 TOPOGRAPHICAL SURVEYING**

Dudek has teamed with Ifland Survey (Ifland) to provide a topographical survey of the pipeline alignment and the proposed Booster Pump Station and Tank site. Ifland is proposing to complete the following:

### **2.2.1 Ground Topographic Survey and Mapping**

We will perform field survey and mapping services for approximately 13,000 lf of roadway and utility improvements. The extent of survey required is within the right of way delineated on the attached exhibit in yellow highlight and includes portions of CA-236 (Big Basin Way), West Park Ave, Park St, 1st St, Ridge Dr, Oak Ave, Hazel Brake, Burnside Rd, Acorn Dr, and Brook Ln. The survey will include utilities by surface evidence and any underground utilities as pre-marked by the District together with surface topography, significant trees and roadway improvements. We will additionally locate and significant private improvements extending/encroaching into the right of way. Survey datum will be based on an assumed datum or other benchmark at the site as provided by the District. We will prepare a CAD file showing all feature line work and spot elevations. Deliverables will include PDF, AutoCAD C3D files, mapped at a scale of 1" = 10' or 20'.

### **2.2.2 Record Right-Of-Way Survey**

Search, obtain, and review record deeds and maps relative to the right-of-way lines within the survey limits as defined above. Perform a field search and survey to locate sufficient existing survey monuments to map the record right-of-way relative to found monuments and develop a CAD file with survey data including record right of way lines and their dimensioned courses, found monuments, etc. We will incorporate and reference this CAD data with the topo survey (item 1). No new corner stakes, monumentation, or Record of Survey, is included with this item.

## **2.3 GEOTECHNICAL REVIEW**

Dudek has teamed with Pacific Crest to conduct a Geotechnical Evaluation for this project. The purpose of the geotechnical investigation will be to investigate the surface and subsurface soil conditions and develop geotechnical design recommendations for the tank site and the booster pump station site.

We are proposing a design-phase work scope comprised of literature review, site reconnaissance, subsurface exploration, and laboratory testing to develop geotechnical recommendations to support preparation of final project plans and specifications. Our work will culminate in a design-level Geotechnical Investigation Report which will summarize our findings and present our conclusions and recommendations.

### **2.3.1 Boring Locations, Utility Notifications, Permits and Traffic Control**

- A draft site plan map depicting our planned boring locations will be prepared and submitted to the District for review prior to drilling our test borings.
- Pacific Crest Engineering, Inc. will field mark the proposed test boring locations in white paint and notify subscribing utility companies via Underground Service Alert (USA) a minimum of 72-hours (as required by law) prior to performing exploratory borings at the site. We will also retain a private utility locator service to scan our proposed boring locations.
- We will prepare and submit an encroachment permit application, along with an associated traffic control plan, to the County of Santa Cruz prior to our field investigation.
- We will prepare a Traffic Control Plan in accordance with Cal Trans MUTC 2003 for our field boring work within the Highway 236 ROW and public roadways. We will subcontract with an outside traffic control company to provide traffic control during our drilling activities.

- We will also submit an application to procure and obtain an encroachment permit from Cal-Trans for our drilling activities within the Highway 236 ROW. Please note that the permit process through CalTrans could take 6 to 8 weeks.

### **2.3.2 Subsurface Investigation**

Pacific Crest Engineering proposes to drill borings at accessible locations at each of the two proposed tank sites, the booster pump station, and selected locations along the proposed water main alignment. The number of borings will vary depending on site conditions and accessibility issues, however for preliminary planning purposes we are proposing the following drilling program:

- Forest Springs Tank Site (Reservoir Road); 2 to 4 borings
- Booster Pump Station, (State Highway 236); 1 to 2 borings
- Bracken Brae Water Main Interconnection; 2 borings
- Forest Springs Water Main Interconnection; 3 borings

Due to the steep topography at the proposed tank sites, our boring locations will be limited to areas that can be accessed with either a truck or a track-mounted drilling rig. The borings will be drilled at depths ranging from 10 to 20 feet below ground surface, or until bedrock is encountered, whichever is less. Disturbed and “undisturbed” soil and bedrock samples will be taken at selected depths within the test borings.

A log of soil, bedrock, and groundwater conditions will be maintained. Disturbed and/or undisturbed soil and bedrock samples will be taken at maximum 5-foot vertical intervals. The test borings will be backfilled with the soil cuttings at the completion of drilling.

Test borings will be backfilled by placing the drill spoils back in the hole and tamping the spoils with the drill auger. Within pavement areas the spoils will be placed to within 2 feet of the surface and then dry cement will be placed over the spoils.

- Laboratory Testing - Laboratory testing on representative disturbed and “undisturbed” soil and bedrock samples. Laboratory testing will include, as applicable, moisture content, unit weight, Atterberg Limits, grain size distribution, shear strength, and Cal-Trans corrosion analysis (maximum of 5 corrosion tests).
- Geotechnical Analysis and Report - Pacific Crest will perform a geotechnical engineering analysis of the data gathered in Task Nos. 1 through 4 and based on this analysis will provide our findings, conclusions and recommendations for the design and construction of the proposed project. Topics covered in our report will include:
  - A qualitative discussion of the seismic hazards associated with the site, including liquefaction, lateral spreading, dynamic compaction, landsliding, seismic shaking, and the proximity to mapped active and potentially active faults.
  - Site and subgrade preparation recommendations, including compaction recommendations, recommendations as to the suitability of the on-site earth materials for use as engineered fill, recommendations for imported fill material, recommendations for stable cut and fill slope gradients, and backfill requirements for utility trenches.
  - Foundation design and construction recommendations, including recommended foundation type(s), foundation embedment depths, and the allowable bearing pressures to use in foundation design.
  - Retaining wall recommendations, including the active, at-rest and passive lateral earth pressures to use in retaining wall design, and anticipated lateral seismic forces.
  - Recommendations for site drainage, including provisions to control both surface and subsurface drainage, as needed.

Pacific Crest Engineering Inc. will prepare and submit a geotechnical investigation report including a scaled drawing with boring locations, geotechnical data (boring logs, lab tests) and geotechnical design summary (conclusions and recommendations as summarized above). The report will be prepared and signed by a California Registered Geotechnical Engineer practicing in the local area.

## Task 3 Preliminary Design Report (PDR)

Using this information, Dudek will develop a PDR. The intent of the PDR is to convey sufficient design intent and layout to move from the preliminary design phase to the 60% design phase of the project. Based on our project understanding and approach, the preliminary design report will include the following evaluations and components:

- Determine pressure zone(s) of Bracken Brae and Forest Springs
- Consideration of consolidating Bracken Brae and Forest Springs within the Eckley pressure zone.
- Evaluate alternatives for locating the new tank at either the Eckley site or the Forest Springs site.
- Address fire flow requirements for Bracken Brae, Forest Springs, and Eckley
- Consideration for using the Lyon tank and a fire pump to provide fire flow to Eckley. Consideration of future Big Basin connection (sizing and connection location(s))
- Caltrans bridge crossing detail, permitting expectations and schedule
- Reservoir sizing, materials of construction, and location. Consideration of tank redundancy will also be analyzed.
- Booster Pump Station type and size, along with building/shelter considerations, electrical, and controls requirements.
- Pipeline sizing, material, and preliminary alignments. Typical details for pipe trench, pressure reducing valve (PRV), isolation valve, and fire hydrant will be provided.

### TASK 3.1 RESERVOIR DESIGN

We will evaluate the best location for the reservoir, storage capacity necessary, the number and size of the reservoir(s), reservoir management system, electrical requirements, piping/valving requirements, structural considerations for material types, tank construction type, site/geotechnical concerns, and seismic/wind considerations with respect to the proposed facilities.

### TASK 3.2 BOOSTER STATION DESIGN

We will evaluate the best location for the pump station and the pump capacity necessary. The analysis will include a study of the potential pumping options available to the District and preliminary pump station layouts, easement or land purchase requirements, pumps, emergency power generation, foundation and building construction types, site/geotechnical concerns, electrical requirements, and permitting requirements.

### TASK 3.3 PIPELINE ALIGNMENT

The report will determine the extents of pipeline improvements that are included with the project. This will include evaluation of piping improvements necessary in the Eckley zone, the Bracken Brae system, and the Forest Springs system. We will evaluate pipe sizing, pipe materials, valving requirements, points of connection, bridge crossings, and permitting requirements



### **TASK 3.4 SUBMITTAL OF DRAFT PDR**

Dudek will prepare, assemble, and submit the Draft PDR, as a 30% design submittal, to the District. The Draft PDR shall address issues included in the Scope of Work. The Draft PDR shall include as a minimum the following:

- The body of the report that addresses the Scope of Work
- Preferred configuration and location with preliminary plans
- Calculations, hydraulics and other pertinent information
- Documentation of utility contacts, permit requirements and other documentation as necessary

### **3.5 FINAL PDR**

Dudek will incorporate one iteration of District comments from the Draft PDR and submit a Final PDR as an electronic copy. The final PDR shall list the improvements both Dudek and the District have determined are desirable and within budget. These improvements shall form the basis of further design. Calculations and other supporting documents shall be submitted separately.

**Deliverable:** An electronic copy (searchable pdf) of the Draft PDR will be submitted for review. One electronic copy of the Final PDR will be provided.

## **Task 4 Final Design, Technical Specifications and Cost Estimate**

The design for the Reservoir, Booster Pump Station and pipeline construction are intended to be combined into a single set of project documents. The scope of work assumes there will be a single tank site, a new booster station, and approximately 9000 LF of pipeline replacement, as identified in the RFP. If changes are made during the preliminary design phase, scope adjustments can be made accordingly. Following review and approval of the Final PDR, Dudek will move into the design phase of the project. It is anticipated that the design be submitted for District review and comments at the 60%, and 100% design levels. Each design deliverable will include a set of project drawings, specifications, and an Engineer's Opinion of Probable Costs (Estimate).

### **4.1 PROJECT DRAWINGS**

Dudek will provide final design documents consistent with current District standards, as well as conforming to federal, state, and local ordinances, regulations, codes, and standards. We will provide the necessary design efforts, including civil, mechanical, electrical, and structural sheets for preparation of the contract documents (Table 9 below). The construction documents will be prepared on 24-inch by 36-inch sheets, with the District's standard title block. Pipelines will be shown in plan with a scale of 1-inch equals 40 feet. The plans will be complete, showing proposed improvements for the reservoir, pump station, and pipeline.

**Table 9. Anticipated Project Drawing Sheets**

Sheet	Description	Sheet	Description	Sheet	Description
G-1	Title Sheet and Location Map	M-1	Pump Station Plan	E-10	Pump Station Photometric Plans
G-2	General Notes 1	M-2	Pump Station Elevation	E-11	Lighting Fixture Schedules and Details
G-3	General Notes 2	M-3	Pump Design	E-12	Reservoir 1 Power and Control Plan
G-4	General Notes 3	M-4	Pump Station Details-1	E-13	Reservoir 2 Power and Control Plan
DM-1	Reservoir Demolition	M-5	Pump Station Details-2	E-14	Electrical Schematics
DM-2	Reservoir Demolition	M-6	Connections and Pipeline Details	E-15	Electrical Installation Details 1
C-1	Reservoir Site Plan	S-1	Structural General Notes	E-16	Electrical Installation Details 2
C-2	Reservoir Grading Plan	S-2	Structural General Notes	E-17	Conduit and Wire Schedule
C-3	Pump Station Site Plan	S-3	Special Inspections	E-18	Title 24 Forms 1
C-4	Pump Station Grading plan	S-4	Structural Typical Details	E-19	Title 24 Forms 2
C-5	Pipeline Plan and Profile 1	S-5	Structural Typical Details	I-1	Legend Sheet 1 - Instrumentation
C-6	Pipeline Plan and Profile 2	S-6	Booster Pump Station Plans and Sections	I-2	Legend Sheet 2 - Instrumentation
C-7	Pipeline Plan and Profile 3	S-7	Steel Storage Tank Foundation Plan and Section	I-3	SCADA/ Network Block Diagram
C-8	Pipeline Plan and Profile 4	S-8	Pipeline Crossing #1 Plan and Section	I-4	P&ID Pumping System 1
C-9	Pipeline Plan and Profile 5	S-9	Pipeline Crossing #2 Plan and Section	I-5	P&ID Pumping System 2
C-10	Pipeline Plan and Profile 6	S-10	Structural Details	I-6	P&ID Reservoir 1
C-11	Pipeline Plan and Profile 7	S-11	Structural Details	I-7	P&ID Reservoir 2
C-12	Pipeline Plan and Profile 8	E-1	Electrical General Notes & Abbreviations	I-8	Instrument List
C-13	Pipeline Plan and Profile 9	E-2	Electrical Legend	I-9	I/O List
C-14	Pipeline Plan and Profile 10	E-3	Electrical Sites Overview and Location Plan	I-10	Control & Monitoring PLC Interface Cabinet
C-15	Pipeline Plan and Profile 11	E-4	Single Line Diagrams	I-11	Instrument Installation Details
C-16	Reservoir Piping Plan	E-5	Load Schedules and MCC elevations		
C-17	Pipeline Details	E-6	Electrical Site Plan - Pump Station		
C-18	Pipeline Details	E-7	Pump Station Power and Control Plan		
C-19	Pipeline Details	E-8	Pump Station Sections and Details		
C-20	Pipeline Details	E-9	Pump Station Lighting Plan		

## 4.2 PROJECT SPECIFICATIONS

Specifications will be prepared in the District's standard format and will include technical specifications and special conditions. We assume the use of the District's standard front-end contracting documents with Dudek to provide the Bid Schedule and special conditions. Once updated, the complete project specifications will be submitted to the District for review and comments.

### **4.3 ENGINEERS ESTIMATE**

Dudek will provide an engineer's opinion of probable construction cost for the designed improvements with each design submittal.

Design submittals are projected to be provided at the 60%, 100% stages of design. Items on the cost opinion will correspond to the items listed in the Bid Proposal, the contingency of final cost opinion not exceeding 10%.

### **4.4 BID PACKAGE**

The District will prepare the final bid package from the 100% submittal. Dudek will provide copies of survey information, design calculations, and design support information as appropriate. The submittal is provided in PDF format; however, word and CAD files can be provided upon request.

## **Task 5 Bidding Services**

### **5.1 PRE-BID MEETING ATTENDANCE**

Dudek will attend the pre-bid meeting and record the minutes of the meeting as required. Dudek will evaluate bids received, compile the results in a formatted excel file, and provide a recommendation of award for the bid of the lowest qualified contractor.

### **5.2 REQUESTS FOR INFORMATION AND ADDENDUMS**

Dudek will assist the District in responding to questions that may arise during the bidding process and assist with drafting any bid addenda that may be required as a result. It is assumed that we will prepare and issue two formal addenda.

### **5.3 CONFORMED PLANS AND SPECIFICATIONS**

Dudek will prepare conformed plans and specifications for use during project construction. The conformed plans and specifications will incorporate changes made during the bidding period and will be noted as revisions to the final improvement plans.

## **Task 6 Engineering Services During Construction**

### **6.1 GENERAL**

Dudek will provide professional services for construction support. The level of effort for construction support may vary based on the final scope of work for construction and the construction contractor. We have provided a reasonable estimate for the expected level of support and will bill construction support on a Time and Materials basis.

### **6.2 PRE-CONSTRUCTION MEETING**

Dudek will attend a pre-construction conference scheduled by the District. Dudek will address construction concerns at the conference. Dudek will comment on the Contractor's proposed means of construction and preliminary schedule.

## 6.3 SUBMITTALS

### 6.3.1 Shop Drawings/Submittals

Dudek will review shop and work drawings submitted by the Contractor for compliance with the project specifications and plans. The review shall be prompt and normally shall not exceed two (2) weeks. Dudek will prepare a list of expected submittals and compare it to Contractor's list of submittals. Dudek shall determine the number of technical and non-technical submittals for this project and will be responsible to review all Contractor submittals and up to two resubmittals. Dudek will log and track all shop drawing submittals. Dudek will inform District Staff of any outstanding shop drawings. All correspondence shall be through the District.

## 6.4 RFI AND MEETINGS

### 6.4.1 RFI

Dudek will respond to requests for information and requests for clarification.

### 6.4.2 Meetings

Dudek will attend meetings to resolve construction issues, as requested by District staff. We have assumed six meetings for the project.

## 6.5 CHANGE ORDERS

Dudek will assist District with Change Orders. Assistance shall include preparation of change order drawings and specifications, providing opinions as to whether change orders are warranted, and assistance with cost estimates. We have budgeted for ten change orders.

## Proposed Project Schedule

We understand the District desires to expedite this project and have provided a schedule (**Figure 6** on page 37) to meet the goal of issuing the construction package by August 1, 2022. We have set aside the resources necessary and are confident that we can meet the District's goals. We have completed numerous projects on similar fast track schedules and are prepared to successfully meet the District's goal using the following established processes.

**Weekly Progress Meetings.** It is critical that everyone is on the same page throughout the design process to prevent delays or rework.

- We will establish weekly meetings where we will review our current progress and discuss future work to be completed.
- We will develop action item lists with deadlines to prevent project delays.
- We will review the action item list and pending questions at each meeting to resolve all critical items.
- We will present and discuss any design questions that have arisen from the District and show our progress for the District to review.

**Submittal Workshops.** In order to encourage team communication, we will schedule a submittal review workshop one week after a design submittal.



- During the workshop, we will discuss comments or questions from the District.
- The workshop will encourage the team to dialogue and allow us to fully understand the District's comments.
- We will prepare minutes from the meeting to ensure all comments were captured and addressed in the subsequent submittal.

**Consistent Communication.** A project of this complexity will require regular communication outside of scheduled meetings to maintain consistent progress.

- We will designate a single point of contact that will regularly communicate with the District via phone calls and email.
- We will present questions as they arise to give the District the time necessary to make informed decisions.
- We will work hard to ensure the District is consistently kept up to date with project progress and are fully equipped to make decisions as the project moves forward.

## **SCHEDULE NARRATIVE**

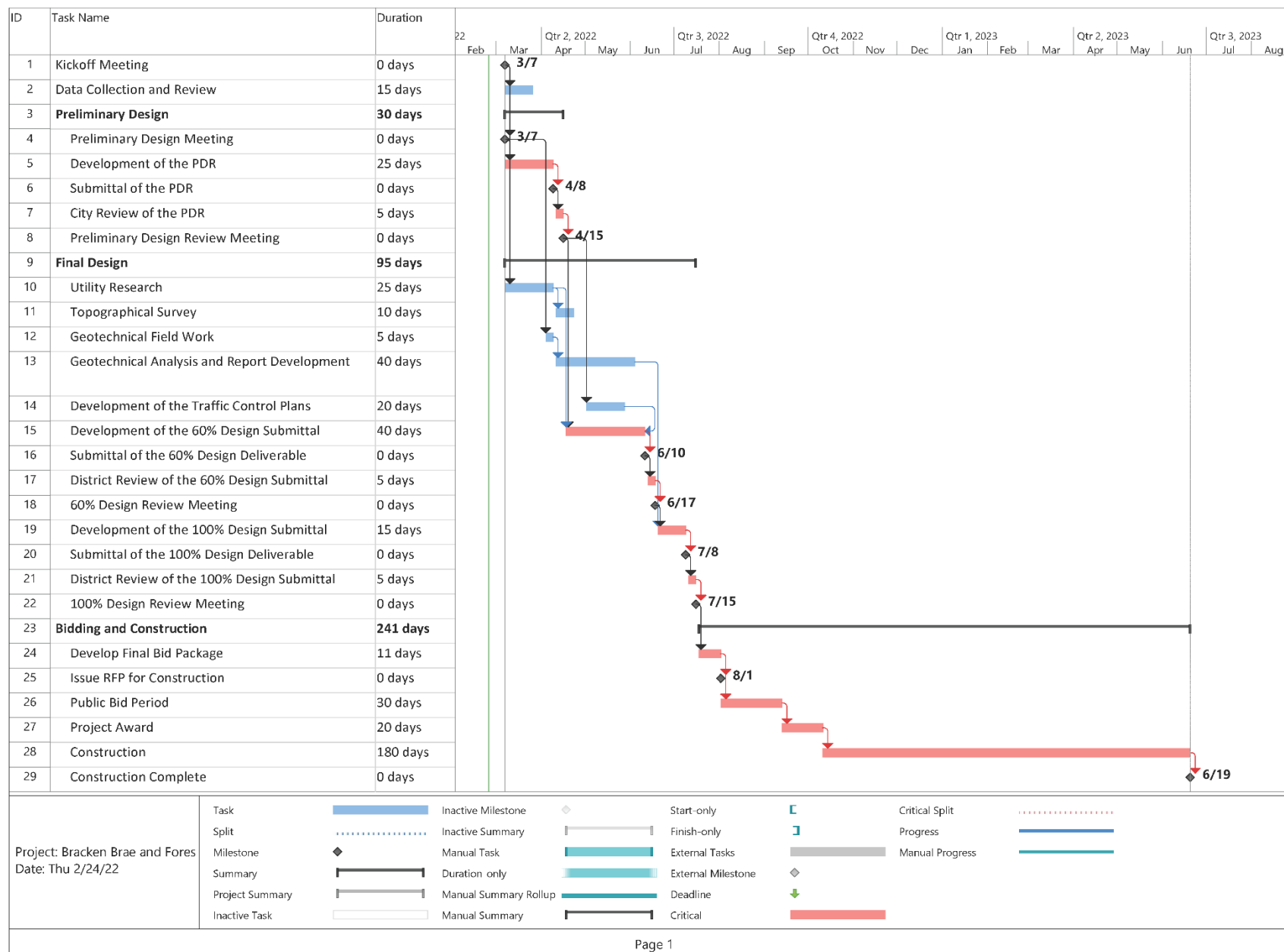
In order to expedite the schedule, we have scheduled the kickoff and preliminary design workshop concurrently. During these meetings, we will discuss all of the project goals and work to develop a framework for the preliminary design. It may be necessary to schedule a second preliminary design meeting midway through preliminary design to present the District with more information and address any unresolved questions.

We also propose to begin field investigation immediately upon receipt of NTP. This will require addressing several questions in the design workshop such as the pipeline alignment and the locations of the reservoir and booster station. The geotechnical investigation in particular is expected to take a significant amount of time due to the need for encroachment permits and report preparation time. It will be essential to get their work started early in the project.

As discussed above, we have scheduled submittal review meetings one week after submission. We anticipate providing the District with regular progress updates to allow comments throughout the design instead of only at submittals, limiting the District's workload on submittal packages. We believe that a quick workshop format is more conducive to good communication and expedited schedules than a comment log.

The expedited process allows us to provide a 100% design submittal in the middle of July and provides two weeks to develop the final bid package with the District. We have estimated advertisement, award, and construction durations to provide a potential construction completion date, though the construction period could fluctuate depending on what is determined during the preliminary design phase.

Figure 6. Proposed Project Schedule



## 8. Insurance

Dudek has carefully reviewed the District's requirements and upon award of the contract, agrees to provide all coverages and limits provided in the Request for Proposal.

## 9. Total Professional Fee and Schedules

Per the District's direction in the Request for Proposals, Dudek has submitted our Project Cost Proposal and Proposed Project Schedule as a separate PDF.



# Appendix A

Resumes

# Greg Ripperger, PE

## PROJECT MANAGER

Greg Ripperger is a project manager with 12 years' professional experience as a water engineer specializing in master planning, water system design, construction management, and hydraulic modeling. He has worked as a project manager for Civiltec Engineering and as a project engineer for the U.S. Army Corps of Engineers. Mr. Ripperger works with clients to quickly understand and solve their water/wastewater issues throughout a wide range of projects. He thrives in managing complex projects with unique solutions.

## Relevant Previous Experience

**Oakglade Reservoir, City of Monrovia, California.** Served as project manager. This project involved the design of a new 1.5-million-gallon reservoir. The design required demolition of the existing reservoir and deep excavation to match the floor of an existing nearby reservoir. The reservoir was on a steep hillside, so the limited size of the site required careful reservoir design as well as grading and shoring design for construction. The project also included the preparation, presentation, and approval of a California Environmental Quality Act (CEQA) report.

**Nixon Pump Station, Valley County Water District, City of Baldwin Park, California.** Served as project engineer. Design of a new booster station to increase District's pumping capacity and provide higher reliability. The pump station serves a large closed zone that had grown beyond the capacity of the existing pump station. The new pump station includes six 125 HP pumps that are equipped with variable frequency drives. The design included on-site piping, surge valves, and a backup generator. The project had to be designed to allow the existing pump station to stay in operation until the new pump station was completed to maintain pressure in the zone throughout construction.

**Lamanda Park Booster Pump Station, California American Water, City of Pasadena, California.** Served as project manager. Designed full replacement of electrical and controls system, replacement of one pump, and complete remodel of the pump station, including a new roof, seismic retrofitting, demolishing and backfill of a pump pit, a new floor, and a new discharge pipeline. The distribution system required that the pump station remain in operation throughout the construction project, so detailed phasing requirements were established for each component of the booster station to minimize downtime to overnight hours. This included phasing the electrical and pump installation, constructing temporary discharge piping, and phasing the installation of the new pipeline.

**Northwest and South Area Pipeline Improvements, City of Monrovia, California.** Served as project manager. Designed pipeline replacements for several streets, for a total of 4,400 linear feet of pipeline. The design included abandoning the pipeline and service connections to homes in the back alleys and constructing the new pipeline and services in the streets in the front of homes. This required working with individual homeowners to abandon their existing service and reconnect their service to the front of their house, ensuring all irrigation, pool connections, and house connections were restored. This project was designed and constructed in 2018.



### Education

Oklahoma State University  
BS, Civil Engineering,  
2008  
Cum Laude, Honors

### Certifications

Professional Engineer, CA  
No. 79499; AZ No. 67991  
Water Audit Validator,  
American Water Works  
Association

### Professional Affiliations

American Water  
Works Association  
Southern California Water  
Utilities Association

# Russ Bergholz, PE, PMP

## PRINCIPAL IN CHARGE AND QA/QC

Russ Bergholz is a principal engineer with 25 years' experience. Mr. Bergholz manages Dudek's Water Infrastructure Group and is responsible for the management and engineering of water-/recycled water-related system master plans and design projects. His experience includes the development of numerous water, recycled water, and sewer master plans; pipeline design projects (including trenchless technology); and infrastructure rehabilitation projects for many Southern California cities and special districts.

## Project Experience

**Water Distribution System, Black Canyon Development Trust, Ramona, California.** Served as lead design engineer for this project, located in Ramona. The project included design of a 300,000-gallon steel water storage reservoir, a custom designed pump station, and over 3,600 linear feet of distribution pipeline for a 44-home subdivision.

**Goetz Reservoir and Pipeline Preliminary Design, EMWD, Murrieta, California.** Served as pipeline design lead. Project included the preliminary assessment of alignments for the feeder pipeline to the proposed 13.4-MG Goetz Road tank. The preliminary assessment included hydraulic modeling of the water distribution system network in order to assess connection points, construction costs, environmental impacts, public impacts, and other related factors to identify the preferred alignment for the 5,000-foot-long, 30-inch diameter pipeline.

**Clearwell Emergency Highline, City of Poway, California.** Served as project manager. The City needed a means of bypassing the water filtration plant during emergency conditions. Dudek designed a pair of aboveground connection structures to allow the City to quickly connect the two structures with a 1,500-linear-foot HDPE pipeline. In addition, several buried pipelines were reconfigured on site to facilitate proper movement of potable water.

**Water Main Replacement Project, San Dieguito Water District, Encinitas, California.** Served as project manager. The project included preparation of plans and specifications for the replacement and realignment of over 4,000 linear feet of 10- to 12-inch pipelines for the San Dieguito Water District. These improvements will raise available fire flow in this part of the water system. Managed a similar project for the district the following year. The second project consisted of the preparation of a PS&E package for pipelines of similar length and size.

**Oak Cliff Water Pipeline Replacement, Rainbow Municipal Water District, Rainbow, California.** Served as project manager on this pipeline replacement project located in the Rainbow Municipal Water District. The project included over 2,000 feet of new 8-inch pipe, 500 feet of new 12-inch pipe, 800 feet of 18-inch pipe, a new PRV station, and substantial utility coordination within the existing Oak Cliff subdivision.



### Education

*University of California,  
Davis  
BS, Civil Engineering,  
1995*

### Licenses and Certifications

*Professional Civil  
Engineer  
CA No. 59395  
Project Management  
Institute PMP  
No. 1472209*

### Professional Affiliations

*American Public Works  
Association  
California Water  
Environment Association  
Water Environment  
Federation*

# Amanda Combs, PE

## PIPELINES AND RESERVOIRS LEAD ENGINEER

Amanda Combs is a project manager with 21 years' experience leading high-quality water and wastewater projects, from conceptual planning, preliminary design, and final design, to construction-phase

### Project Experience

**Upper and Lower System Recycled Water System Expansion, City of Oceanside, California.** Lead project engineer for planning of the City of Oceanside's recycled water system expansion from 100 acre-feet per year to over 4,500 acre-feet per year. Dudek refined demands in the proposed upper and lower systems and developed distribution system layouts that include **five reservoirs, seven pump stations and 35 miles of new pipelines**. As part of the project development, the team developed an operationally efficient distribution system that uses primarily storage reservoirs for sustaining pressure rather than pump stations and takes advantage of existing city-owned property for all but one facility, saving both cost and schedule.

**H1-B Reservoir, Joshua Basin Water District, Joshua Tree, California.** Quality control reviewer for the design of a 320,000 gallon welded steel potable water reservoir that will operate simultaneously with the H1-A Reservoir on site to meet demand requirements in Joshua Basin. The project is being completed under an as-needed engineering services contract with the Joshua Basin Water District .

**Design-Build Services for Gibbel Road Recycled Water Reservoir, Eastern Municipal Water District, Riverside County, California.** Project engineer for the planning and preparation of the design-build bid package for a new 4 MG welded steel tank and 4,000 feet of 30-inch inlet/outlet pipeline for the district's recycled water system.

### Other Pipelines and Reservoirs

- Mountain View Connector Pipeline Design, Padre Dam Municipal Water District
- Aufdenkamp Transmission Main, Santa Margarita Water District
- El Monte Transmission Main, City of San Diego
- 4S-I Reservoir Inlet Pipeline, Olivenhain Municipal Water District
- Blossom Valley Reservoir Rehabilitation/Replacement, Padre Dam Municipal Water District
- 13.5 MG Goetz Road Tank, Eastern Municipal Water District
- Morro Hills Nos. 1 and 2 Reservoir Repairs and Booster Pump Station, City of Oceanside
- Henie Hills and John Paul Steiger Reservoir Repairs, City of Oceanside
- Fire Mountain Recycled Water Reservoir and Pump Station, City of Oceanside
- E Reservoir Replacement and Pump Station, Vista Irrigation District
- Boulder Mountain Reservoir 3 Rehabilitation, City of Poway



### Education

Virginia Polytechnic Institute and State University  
MS, Environmental Engineering, 2001

Virginia Polytechnic Institute and State University  
BS, Civil/Environmental Engineering, 1998

### Certifications

Professional Civil Engineer, CA No. 67287



# Brandon Lacap, PE

## BOOSTER PUMP STATION LEAD ENGINEER

Brandon Lacap is a professional civil engineer with 10 years' experience in engineering design and managing water/wastewater infrastructure and capital improvements projects. Mr. Lacap is well versed in developing and establishing positive working relationships with clients. He has experience managing concurrent design projects, managing design budgets, designing and preparing plans and specifications for public and federal agencies, technical writing of preliminary design reports, and hydraulic modeling/surge analysis of water distribution systems. Mr. Lacap specializes in water pump station, sewer lift station, and mechanical piping design.

## Project Experience

**Blossom Valley Reservoir and BPS Rehabilitation/Replacement, Padre Dam Municipal Water District, Santee, California.** Served as senior engineer for a study of alternatives for rehabilitation or replacement of a 7.9-million-gallon (MG), concrete-lined hopper bottom reservoir that does not meet current seismic codes, is oversized for current and future zone demands, and has a Division of Safety of Dams-jurisdictional dam face because of its size.

**Plant 2 Reservoir and Booster Pump Station Condition Assessment, Indio Water Authority, Indio, California.** Served as senior engineer for the comprehensive condition assessment of four (4) of the Indio Water Authority Plant 2 water facilities. These facilities include two active groundwater extraction well stations, a 2-pump vertical turbine booster pump station, and a 1.0-MG, raw-water reservoir.

## Pump Station/Lift Stations

**P159 Camp Wilson Infrastructure Upgrades, Naval Facilities Engineering Command, San Diego, California.** Served as project engineer for design of a 750-gpm water booster pump station (20-horsepower horizontal frame mounted, centrifugal end suction pumps), approximately 3,000 feet of 8-inch-diameter PVC (C-900) force main, and 1-million-gallon pre-stressed concrete water storage tank.

## Other Pump Station Projects

- Lift Station Assessment and Prioritization, Elsinore Valley Municipal Water District
- Benson Avenue Temporary and Permanent Sewer Pump Stations and Force Main, City of Chino
- Moonlight Beach Sewer Pump Station Pump Replacement Evaluation, San Elijo Joint Powers Authority,
- P-991 Coastal Campus Utilities (Phase 2), Naval Facilities Engineering Command, San Diego
- 69th and Mohawk Pump Station Surge Analysis, City of San Diego
- Wilson Middle School Increment 2 Stormwater Pump Stations, San Diego Unified School District
- Cast Iron Pipe Replacement Project, Helix Water District



### Education

*San Diego  
State University  
BS, Civil Engineering,  
2009*

### Certifications

*Professional Civil  
Engineer (PE),  
CA No. 87211*

### Professional Affiliations

*WaterReuse Association*

# Kasey Harvey, PE

## PROJECT ENGINEER / CALTRANS ENCROACHMENT PERMITS

Kasey Harvey is an engineer with 7 years' experience as a civil and environmental engineer and as a consultant specializing in water and wastewater treatment and distribution, water resources, stormwater design and analysis, hydraulic modeling, and pipeline and pump station design. Ms. Harvey has experience with a variety of environmental engineering projects and her technical skills include AutoCAD Civil 3D, ArcGIS, HEC-RAS, Bentley SewerCAD, H2ONet, and Microstation.

## Project Experience

**State Route 78 Water Pipeline Replacement, Ramona Municipal Water District, Ramona, California.** Served as a project engineer aiding in the design of a new 8-inch welded steel pipeline and casing attached to a bridge to replace a washed out 6-inch asbestos cement pipe previously running under the bridge along State Route 78 in Ramona. Performed research, calculations, and design required for the delivery of final plan set, specifications, and cost estimate, and coordinated with the California Department of Transportation (Caltrans) to complete, submit, and obtain a Caltrans Encroachment Permit.

**Ramona Cast Iron Waterline Replacement Project, Ramona, California.** Serviced as a project engineer completing Caltrans permitting requirements for the replacement of existing cast iron water mains, valves, and associated appurtenances.

**Mount Woodson Reservoir Outlet Pipe Repair, Ramona, California.** Served as the lead project engineer for this project, which involved installing a pipe repair clamp on the 20-inch cement-mortar lined and coated outlet pipe of the Mt. Woodson Reservoir to repair a section of missing concrete liner. The area of repair was located beneath the berm of the reservoir, so design drawings and specifications included incorporation of sheeting/shoring for deep trenches. Prepared drawings, specifications, and cost estimate and aided during bidding of the project.

**Graeber Street Water Replacement, Western Municipal Water District, March Air Reserve Base (MARB), California.** Served as a project engineer for this project, which included design of approximately 6,800 linear feet of new 12-inch PVC water pipeline and appurtenances as a replacement for aging water facilities within Graeber Street in the cantonment area of MARB that were in poor condition and undersized for fire flow. The project also included two jack and bore installations beneath existing storm drain channels and 13 mainline connections that were designed to limit water service outages to critical military facilities without installation of temporary high line during construction. The project involved a high level of coordination with MARB to incorporate their design, construction, and permitting requirements in the Contact Documents and to ensure the project did not interfere with or impede the base's missions and operations. Specific duties included preliminary design research, site visits, and services during construction.



### Education

*University of Virginia  
BS, Civil and  
Environmental  
Engineering, 2013*

### Certifications

*Professional Engineer  
(PE), CA  
Engineer-in-Training  
(EIT), VA*



# IFLAND SURVEY

Surveying - Mapping - GPS

## Gary R. Ifland

*President*

<b>Contact Info:</b>	<i>Address:</i> 4113 Scotts Valley Drive, #102 Scotts Valley, CA 95066 <i>Tel:</i> (831) 426-7941 <i>Email:</i> gary@iflandsurvey.com
<b>Licenses:</b>	LS #7367 (Licensed Land Surveyor – California - 1997) CA Real Estate License # 01494114 (2006)
<b>Education:</b>	Cabrillo College – General Education studies '82-'84 Biola University, Business Administration studies '84-'86
<b>Other Certifications:</b>	GPS Data Processing & RTK Surveys (Trimble Navigation) sUAS Remote Pilot (FAA)
<b>Professional Associations:</b>	California Land Surveyors Association (CLSA) American Society of Civil Engineers (ASCE)

Mr. Ifland is the principal responsible for the management and coordination of all survey work for Ifland Survey. In addition to his broad range of surveying experience, he has been involved in the design of many land development and roadway projects for both public and private sector clients. His 30+ years of extensive surveying experience on both large and small projects, include boundary and topographic surveys, right of way surveys, geodetic control surveys, GPS surveys, Laser Scan surveys, sUAS (drone) surveys and construction surveys. Over the years, Mr. Ifland has performed, directed and/or coordinated surveying services for more than 2500 projects. A very brief sample of his project experience is listed below:

**Control Networks & Monumentation Preservation, Santa Cruz, CA** - Project management of GPS surveying and mapping services for aerial control and first order monuments at over 75 locations for the City of Santa Cruz. Performed survey and mapping of various monumentation preservation projects for the County of Santa Cruz including portions of the Soquel Augmentation Rancho, Mount Hermon Road and Soquel Drive.

**Subdivision Work, Santa Cruz County, CA** - Skypark Development, 191 Lots, Scotts Valley, CA - Bay Breeze Development, 114 Lots, Watsonville, CA – Ranchview Terrace, Santa Cruz, CA - Survey coordination and management of initial boundary, aerial and topographic surveys. Construction Surveys, Monumentation and Final Tract Mapping. Prepared and filed more Tract and Parcel Maps in Santa Cruz County than any other currently active surveyor.

**Utility Mapping Projects, Santa Cruz, Monterey & Bay Areas, CA** – Survey and Mapping for various utility mapping projects including Pure Water Soquel Pipeline (Soquel Creek Water District / Black & Veatch), Crystal Springs Reservoir (Cruz Bros/URS/City of San Francisco), Harry Trace Water Treatment Plant (SFPUC), Brackney Landslide Pipeline (City of Santa Cruz / Mott McDonald). We have additionally performed many other water projects for Soquel Creek Water District, San Lorenzo Valley Water District, Cal Water and City of Santa Cruz.



# IFLAND SURVEY

Surveying - Mapping - GPS

## Vernon C. Little

*Licensed Land Surveyor, CFedS*

### Contact Info:

**Address:** 4113 Scotts Valley Drive, #102  
Scotts Valley, CA 95066  
**Tel:** (831) 426-7941  
**Email:** vern@iflandsurvey.com

### Survey Licenses:

Professional Land Surveyor, 2009, California #8701  
Professional Land Surveyor, 1999, Nevada #13930  
Professional Land Surveyor, 2001, Utah #4892453-2201  
Professional Land Surveyor, 2006, Idaho #12088 (retired)  
Registered Land Surveyor, 2006, Arizona #44953  
Professional Land Surveyor, 2011, Wyoming #13343 (inactive)  
Certified Federal Surveyor, 2008, Certificate #1147

### Education:

CA State University, Fresno – BS – Land Survey Engineering ('94)

### Professional memberships

California Land Surveyors Association  
Nevada Association of Land Surveyors (Past President)

### Prior Employment History:

VTN Nevada, Las Vegas, NV (Principal / project surveyor) 2002–2014  
VTN Nevada, Las Vegas, NV (Sr. survey technician) 1996–2002  
Concept Engineering, Inc., Issaquah, WA: (survey tech) 1995  
VTN Nevada, Las Vegas, NV: (survey tech) 1994/1995

Mr. Little is an accomplished surveyor (currently licensed in 4 states and a certified federal surveyor) who has spent the majority of his survey career working with civil engineering firms. He has extensive survey office experience preparing and reviewing ALTA surveys, boundary surveys, record of surveys, parcel maps, final maps, performing right-of-way analysis, writing legal descriptions, BLM retracement surveys, preparing topographic maps, and mapping services. Below is a brief sample of Vern's most recent relevant surveying project experience:

**Topographic Survey Projects** – Project management, research, analysis, CAD and field work for the following recent topographic survey projects:

- Park Way / Allerton Street, Santa Cruz, CA (November 2017) - City of Santa Cruz Public Works, Jeremy Van Horn - Boundary and topographic survey for the storm water design purposes for headwall and storm channel along Park Way and Allerton Street.
- Amerigas, Princeton, CA (August 2018) - Eadie Consultants, Charlie Eadie - Boundary, topographic survey, and UAV orthomosaic photo for site planning purposes.





## **Guy Kelsey, PE, SE**

### **Principal Structural Engineer**

Mr. Kelsey has over 13 years of experience in structural engineering, designing both new and retrofit projects for various types of structures including infrastructure, military, commercial, and water/wastewater facilities. Mr. Kelsey has performed extensive seismic analysis, evaluation and condition assessments for existing buildings, infrastructure, military and water/wastewater structures throughout California. He has a passion for creative engineering design while providing efficient, cost-effective solutions for his clients.

### Education/Professional Registration

BS, Structural Engineering, 2008, UCSD  
MS, Structural Engineering, 2012, UCSD  
Civil Engineer in California, 2011, No. 77675  
Structural Engineer in California, 2014, No. 6099

## **Relevant Project Experience**

**Rainbow Municipal Water District Moosa Crest Waterline Pipeline Bridge, Rainbow, CA** - Mr. Kelsey provided the emergency design of the new Moosa Crest Pipeline Bridge Crossing for Rainbow Municipal Water District (RMWD) to replace an existing pipeline crossing that was destroyed during heavy rains. The pipeline crosses over a river with foundations that were scoured out during heavy flooding. The new pipeline and foundations required a quick solution and design as the existing pipe had to be taken out of service and diverted following its collapse. Design included new concrete bridge abutments, bridge anchorage, and preliminary design of the steel bridge crossing.

**City of San Diego North City Conveyance System, San Diego, CA** - Mr. Kelsey provided the structural design for the City of San Diego NCCS project which included a new pipeline bridge and dechlorination structure. The 48" diameter pipeline utility bridge spanned 100' over an existing railway under the existing Miramar Road concrete bridge. The pipeline bridge included a new steel framed support structure anchored to the existing bridge abutments and columns. Considerations for gravity, seismic and thermal expansion loads were required during design. Slip connections were utilized for longitudinal expansion and the pipe was designed to free span over 30' between bridge columns.

**Bluebird Booster Station Upgrade and Bluebird Road Water Improvements, Glendora, CA** - Mr. Kelsey provided the structural design for a booster station, equipment upgrades and modifications of two existing steel reservoirs at the Bluebird site for the City of Glendora. The project consisted of a new 1,500 sqft CMU building with a hip shaped steel framed roof that included sky lights for pump removal and a 1-ton monorail crane beam at the underside of the steel roof framing. Foundation designs were performed for a new emergency generator, transformer and switchboard, and vertical surge tank. Structural design was also provided for the strengthening around new penetrations at two existing steel tanks per AWWA D100 and AWWA D103.

**EVMWD Los Piños 2A Pump Station Improvements, Lake Elsinore, CA** - Mr. Kelsey provided the structural design for a replacement pump station for Elsinore Valley Municipal Water District. Design consisted of a new slab-on-grade foundation with steel canopy structure and pump/piping supports for relocated piping and electrical equipment. The pump station is located on a large slope and tightly constrained site which required coordination with multiple disciplines to determine the most efficient slab and canopy configurations to minimize construction costs and allow for safe operation, access and maintenance of the pump station.

**Encinitas Estates Pump Station, Encinitas, CA** - Mr. Kelsey provided the structural design for the Leucadia Wastewater District (LWD) Encinitas Estates Pump Station project in Encinitas, CA. The project consisted of a new precast below grade pump station and various site structures. Structural design included a new CMU freestanding site wall, emergency generator foundation, and multiple electrical equipment foundations. The electrical MCC equipment foundation required a steel canopy for weather protection and consisted of metal deck over HSS tube steel beams supported by HSS columns and was connected to both the slab foundation and top of the CMU site wall due to limited space and site constraints. Mr. Kelsey also provided the design criteria and design/submittal review of the precast pump station structure.

**Vista Irrigation District AB Line and Meyer's Siphon, Vista, CA** - Mr. Kelsey provided the structural design for a new siphon transition structure for Vista Irrigation District in Vista, CA. The structure consisted of a below-grade reinforced concrete vault approximately 8'-0" wide x 20'-0" long x 10' deep. The vault had two interior levels with upper and lower cells to accommodate the inlet at an existing open flume and elevation drop to the outlet siphon pipe. The structure was designed to withstand thrust forces and considered the differential soil lateral pressures due to its location on a slope.





## Matt Stone, PE, SE

### Project Manager

Mr. Stone is a currently licensed California SE with over twelve years of project management and structural design work encompassing commercial, infrastructure, water/wastewater and military projects. He has performed many complex structural and seismic designs for new and existing buildings utilizing the latest design standards and philosophies. His work

has included the preparation of structural drawings, specifications, and calculation packages, project coordination and management, technical report writing, cost estimating and construction support services. He specializes in the assessment, design and retrofit of water and wastewater treatment, storage and conveyance facilities.

### Education/Professional Registration

BS, Structural Engineering, 2008, UCSD

MS, Structural Engineering, 2009, UCSD

Civil Engineer in California, 2011, No. 78488

Structural Engineer in California, 2014, No. 6183

## Relevant Project Experience

**LACSD North Bay Pump Station, Lake Arrowhead, CA** - Mr. Stone provided the structural design and detailing for the new North Bay Pump Station for the Lake Arrowhead Community Services District in Lake Arrowhead, CA. Design included a new, two-level, below grade concrete pump station and retrofit of an existing CMU electrical room. The new pump station is located in one of the highest seismic regions in California and is also just a few hundred feet from the lake shore which required design considerations for groundwater and extreme seismic ground motions. Waterstops and stringent reinforcement spacing requirements were used to help ensure a watertight and crack-free structure to increase the longevity of the pump station.

**Overland Trail Lift Station Rehabilitation, Fallbrook, CA** - Mr. Stone provided the structural design and retrofit for the Overland Trail Lift Station Rehabilitation Project for Fallbrook Public Utilities District. Structural design services included retrofit of an existing below-grade lift station which consisted of widening the existing drywell in order to allow for larger pumps and new piping penetrations to accommodate increased flow through the station. Construction sequencing was critical to minimize system downtime and bypassing while also limiting damage to the existing portions of the lift station to remain as well as the adjacent clarifier structure. Concrete retrofit and repair details were provided and tailored to the project to allow for quick material cure times to help minimize the duration of system bypassing.

**City of Gonzales Industrial Water Reclamation Facility, Gonzales, CA** – Mr. Stone is currently providing the structural design of a new Industrial Water Reclamation Facility for the City of Gonzales as a subconsultant to Dudek. Structural design is being provided for multiple treatment facilities including an 1,800 sqft. concrete-masonry unit Operations Building, below grade reinforced concrete Wet Well and Pump Station, Headworks facility, Grit Chamber, Blower Building and miscellaneous site structures and equipment foundations. Extremely poor soil conditions at the site coupled with high groundwater and flood plain required all structures to be supported on mat foundations capable of spanning voids beneath the structures and resisting large differential settlements that may occur due to liquefaction during seismic events.

**Coachella Valley Water District Reservoir 4711 No. 3 & 4 Structural and Seismic Design, Coachella, CA** – Mr. Stone served as Lead Structural Engineer for the structural and seismic design of the new 4711 No. 3 & 4 Reservoirs for Coachella Valley Water District's (CVWD). Structural design included AWWA D100 welded steel tank concrete ringwall foundation, anchor bolts and chairs, minimum freeboard recommendations, minimum shell thicknesses and minimum framing sizes. The reservoirs are located in an area of extreme seismicity which required a large concrete ringwall foundation to resist uplift of the reservoir shell during seismic events coupled with a 10' freeboard per the latest requirements of the CBC and AWWA D100 codes.

**City of Poway Clearwell Bypass, Poway CA** – Mr. Stone provided the structural design of a new pump station, pipe gallery retrofits and AWWA D103 bolted steel tank review for the City of Poway's Clearwell Bypass project. Recent failures of the existing clearwell have prompted replacement of the aging concrete storage basin, requiring temporary bypass of all treatment plant water while the new clearwells are constructed. To implement this bypass, Kelsey Structural has provided a new slab-on-grade pump station design and retrofits to an existing pipe gallery structure to facilitate bypass pumping and new piping to the temporary steel storage tanks. Structural design has included reinforced concrete slab-on-grade with deepened perimeter footings to accommodate the site slope, concrete pedestal pipe supports, and retrofit concrete wall construction requiring demo and replacement of an existing below-grade vault wall.



## **Elizabeth M. Mitchell, GE**

### **GEOTECHNICAL ENGINEER**



For the past 32 years, Ms. Mitchell has provided management, development, and design for a wide range of Monterey Bay geotechnical engineering projects including various industrial facilities, public works, infrastructure, commercial buildings, schools and universities, water tanks and pipelines, forensic studies, light bridges, landslide repairs, and single and multi-family developments. Elizabeth's project experience has included design and development of geotechnical investigation studies, with emphasis in the areas of complex karst conditions, coastal engineering, slope stability, liquefaction analysis, settlement analysis, identification and mitigation of structural pavement distress, expansive soil conditions, and design of deep and shallow foundation systems. Many of these projects have required interaction with local and state regulatory agencies, including DSA, Caltrans, USACE, and the California Coastal Commission.

Elizabeth is well experienced in locally based development projects, including performing geotechnical engineering services for County of Santa Cruz Public Works, Soquel Creek Water District, San Lorenzo Valley Water District, the City of Santa Cruz, the City of Watsonville, California American Water Company, and the University of California, among others. Her experience in the Santa Cruz County area comprises hundreds of projects that include geotechnical studies for academic buildings, multi-story structures, infrastructure improvements, water tanks, wastewater facilities, tanks, pipelines, bridges and below ground structures.

Elizabeth also provides technical direction and field engineering during earthwork phases for moderate to large-scale projects and other geotechnically challenging sites. This includes exercising project management skills to resolve disputes while maintaining good client relations and the appropriate standard of care. Her project management responsibilities include supervision and peer review for department engineering and field staff.

### **RELEVANT EXPERIENCE**

In her role as Associate Geotechnical Engineer, Elizabeth demonstrates extensive experience in the practice of geotechnical engineering and manages complex design level and construction phase projects that include the following:

Lompico Tank Replacements, San Lorenzo Valley Water District  
Mile Lane Pump Station, City of Watsonville  
Bonny Doon School Tank Replacement Project, Santa Cruz County  
Villa Del Monte Tank Project, Villa Del Monte Mutual Water Company  
Hatton Canyon Sewer Main Replacement Study, Carmel  
Advanced Water Purification Treatment Facility, Marina  
Springfield Water System Improvements, Moss Landing  
Gonzales Industrial Wastewater Recycling Facility, Gonzales  
Monterey Peninsula Regional Desalination Plant, Marina  
New 600,000 Gallon Water Tank, Pajaro-Sunny Mesa CSD

### **EDUCATION**

- *MS, Civil Engineering, San Jose State University*
- *BS, Industrial Engineering, California Polytechnic State University, San Luis Obispo*

### **YEARS OF EXPERIENCE**

- *32 Total*
- *17 at Pacific Crest Engineering*

### **LICENSES/REGISTRATIONS**

- *California Geotechnical Engineer, GE 2718*
- *California Civil Engineer, C58578*

### **CERTIFICATIONS**

- *ICC Soils Special Inspector 8029279-EC*
- *Qualified SWPPP Developer and Practitioner (QSD/QSP) No. 20502*
- *Water Treatment Operator, T2*
- *Water Distribution Operator, D2*

### **AREAS OF EXPERTISE**

- *Schools, Hospitals, and Universities*
- *Public works, pipelines, water works projects*
- *Bridges, Structures, and Roadway Construction*
- *Coastal Engineering*
- *Special Geotechnical Solutions*
- *Special Inspection – Soil, Asphalt & Concrete*
- *Forensic Engineering*

### **PROFESSIONAL ORGANIZATIONS**

- *American Society of Civil Engineers*
- *California Geotechnical Engineers Association*
- *American Public Works Association*
- *American Water Works Association*

**REGISTRATION / CERTIFICATION**

- Professional Engineer / Mechanical / CA No.M30752, issued 1998, expires 9/30/22
- Professional Engineer / Electrical / CA No. E21884, issued 2017, expires 6/30/23

**EDUCATION**

- 1991 / MS / Environmental Engineering / Northeastern University
- 1984 / BS / Mechanical Engineering / University of Kansas

**EXPERIENCE**

Over 30 years' experience

17 years' experience with ProjectLine

Mr. Getter offers over 30 years of experience performing electrical and I&C design and construction-phase engineering tasks on water infrastructure projects. Experience includes stormwater, wastewater, and water pumping and treatment facilities, and a variety of other infrastructure. Experience includes conventional and advanced treatment facilities, including facilities treating wastewater for indirect potable reuse, water conveyance facilities, and large rotating equipment. Experience includes design of over \$500 million construction value for infrastructure facilities.

**Relevant Project Experience**

**Electrical and Controls Engineer, Sendero Booster Pump Station Design, Santa Margarita Water District.** Assisted with ProjectLine electrical and control systems designs for adding three 100 HP vertical turbine pumps to an existing recycled water booster pump station as subconsultant to Dudek. Motors were provided with soft starters, and the existing switchboard was retrofitted with a portable generator connection and manual transfer switch for backup power. The facility includes an air compressor and surge tanks for control of hydraulic transients. I&C design included connection the existing SCADA system in accordance with District standards.

**Greg Avenue Pump Station (GAPS) and Hydroelectric Plant (HEP), Metropolitan Water District (MWD).**

Assisted with pump specifications and design reviews for replacement of two existing 55 cfs, 900 rpm, 3000 HP, VFD-driven horizontal split case (HSC) pumps. Existing pumps reached end of useful life and were replaced in-kind. Pumps, motors and VFDs were specified to meet selected API 610 specifications for added robustness (e.g. materials, bearings, vibration, tolerances, etc.). Assisted MWD in finding vendors able to comply with specifications, issuing the RFQ, and evaluating vendor proposals. One old pump had capability to generate power in reverse-flow mode, however, new pump reverse mode was determined not to be cost-effective.

**Project Engineer, Hyperion Advanced Water Purification Facility (HAWPF) and MBR Pilot Plant, Los Angeles, CA, BOE.** As subconsultant to Carollo, assisted with preparation of concept designs for influent and waste-return piping, and product water reservoir and pumping station for 5 mgd MBR facility at Hyperion Treatment Plant. Concept designs were used in progressive design-build specification and procurement process. Also assisted with concept designs for electrical connections to existing site electrical system, and power feeders to new facilities. Also assisted with P&IDs and electrical design for a 1 mgd MBR Pilot Plant, including 3 MBR trains and 2 RO trains, with related pumping, chemical feed, and process control systems.

**Electrical and Controls Engineer, Colorado River Aqueduct (CRA) Transformer Replacements, Metropolitan Water District.** Assisted with controls concept design for replacement of all pump plant transformers at 5 CRA pumping plants as subconsultant to HDR. All 5 pumping plants are similar and include 2 banks of single-phase transformers to power pumps at 6.9 kV. Each of 2 banks includes 3 transformers, with a 7th transformer that can be configured as a spare to backup any of the 6 transformers. All transformers except at the Intake Plant are 230 kv/6.9 kV, and the Intake Plant is 69 kV/6.9 kV. Transformers are mostly original, with the first bank at each plant built in 1939, and the second bank for each added with 1950s expansion. Four of the 5 plants have water/oil shell and tube heat exchangers for cooling transformer oil, and one plant has air-cooled oil coolers with oil flow by natural convection. Replacement transformers include upgraded instruments, SEL relay panels, and upgraded transformer annunciator panels in control rooms for improved monitoring and long-term reliability. Transformers were originally installed in the late 1930s and early 1950s, and are at the end of their service life. Transformers are being procured based on an RFQ/RFP process, with prequalification of bidders.

**REGISTRATION / CERTIFICATION**

- Professional Engineer / Electrical / CA, E-19908

**EDUCATION**

- 2003 / MS / Electrical Engineering / Tehran Polytechnic University – Amirkabir (Iran)
- 2000 / BS / Electrical Engineering / Semnan University (Iran)

**EXPERIENCE**

Offers 20 years' experience

Mr. Kermani offers 20 years of experience performing electrical and I&C design and construction-phase engineering tasks on water-related infrastructure projects. Experience includes water pumping and treatment facilities, and a variety of electrical power infrastructure. Experience includes simultaneously managing multiple capital improvement projects in different phases from planning through design and construction-phases. Highlights of qualifications and experience include:

- Electrical modeling and studies, using ETAP and SKM Powertools, including Arc-Flash model development, Load Flow, Short Circuit, and electrical coordination studies.
- Electrical systems automation and control design, including experience using RTAC, SEL-3355, SEL-787, and SEL protection relays.
- Designs including low and medium voltage MCC, backup generators, substation automation.
- Instrumentation designs for water pumping and treatment applications.

**Relevant Project Experience**

**Electrical and Controls Engineer, Sendero Booster Pump Station Design, Santa Margarita Water District.** Led ProjectLine electrical and control systems designs for adding three 100 HP vertical turbine pumps to an existing recycled water booster pump station as subconsultant to Dudek. Motors were provided with soft starters, and the existing switchboard was retrofitted with a portable generator connection and manual transfer switch for backup power. The facility includes an air compressor and surge tanks for control of hydraulic transients. I&C design included connection the existing SCADA system in accordance with District standards.

**Thompson Pump Station Rehabilitation Project, City of LA.** Provided electrical and instrumentation design for the rehabilitation of City of Los Angeles Bureau of Sanitation's Thompson Pump Station. The Thompson upgrade project included replacement of two 25 HP submersible, constant speed pumps, motors and MCCs. The Thompson upgrade also included replacement of SCADA systems with the City's latest standard Honeywell ControlEdge PLC and ethernet private line link to Venice Pump Station.

**SEL Project Engineer, City of Industry.** Provided electrical and instrumentation designs for SEL clients including CAI Energy, LADWP, and Kingbird Solar. Designs included single line drawings, wiring and connection diagrams, panel drawings and system architecture. Programmed and configured Real Time Automation Controller SEL-3530 and SEL-3505. Designed and configured HMI pages using OSI, Citect and Wonderware Intouch. Performed various protection studies using SKM Powertools. Conducted FAT and commissioning.

**Electrical and Controls Engineer, Colorado River Aqueduct (CRA) Transformer Replacements, Metropolitan Water District.** Assisted with controls concept design for replacement of all pump plant transformers at 5 CRA pumping plants as subconsultant to HDR. All 5 pumping plants are similar and include 2 banks of single-phase transformers to power pumps at 6.9 kV. Each of 2 banks includes 3 transformers, with a 7th transformer that can be configured as a spare to backup any of the 6 transformers. All transformers except at the Intake Plant are 230 kv/6.9 kV, and the Intake Plant is 69 kv/6.9 kV. Transformers are mostly original, with the first bank at each plant built in 1939, and the second bank for each added with 1950s expansion. Four of the 5 plants have water/oil shell and tube heat exchangers for cooling transformer oil, and one plant has air-cooled oil coolers with oil flow by natural convection. Replacement transformers include upgraded instruments, SEL relay panels, and upgraded transformer annunciator panels in control rooms for improved monitoring and long-term reliability. Transformers were originally installed in the late 1930s and early 1950s, and are at the end of their service life. Transformers are being procured based on an RFQ/RFP process, with prequalification of bidders.

**EDUCATION:**

- Bachelor of Science  
Civil Engineering  
Carnegie Mellon University
- Master of Engineering  
Civil Engineering  
Texas A&M University

**REGISTRATION:**

- Professional Civil Engineer  
State of California, C 64477  
State of Michigan, No. 53361
- Professional Traffic Engineer  
State of California, TR 2551

**MEMBERSHIP:**

- Institute of Transportation  
Engineers – Member

**EXPERIENCE SUMMARY:**

Mr. Hershberg has over 21 years of professional traffic engineering design and transportation planning experience working on both public and private sector projects in Southern California. Mr. Hershberg has prepared numerous engineering plans with an emphasis on traffic control design, traffic signal design, geometric design and street lighting design. Mr. Hershberg has also prepared numerous transportation planning documents with an emphasis on traffic impact analyses, parking analyses and trip generation assessments.

**PROFESSIONAL EXPERIENCE:**

- Traffic Management, Inc. – Signal Hill, CA  
**Engineering Department Manager**  
**July 2013 to Present**  
Oversee the operation of the Engineering Department. Manage the project schedule and help facilitate the completion of traffic plans. Provide internal review, quality control and quality assurance of traffic plans. Provide stamp and signature on traffic plans as the Engineer of Record.
- Abratique & Associates, Inc. – Los Angeles, CA  
**Office Manager/Project Manager**  
**May 2009 to June 2013**  
Manage the completion of traffic signal, geometric, and traffic control design plans. Manage the completion of traffic impact analyses, parking analyses and trip generation assessments. Representative design projects include LAUSD sites such as Gratts Primary Center, South Region High School #2, South Region Middle School #6, and South Region Middle School #3 while representative planning projects include Thatcher Yard.
- Linscott, Law & Greenspan, Engineers – Pasadena, CA  
**Senior Transportation Engineer**  
**October 2000 to March 2009**  
Manage the completion of traffic design-related engineering projects for clients such as USC, The J. Paul Getty Trust, Stephen S. Wise Temple, Fairplex and the City of Glendale.





# DUDEK

800.450.1818 | [HELLO@DUDEK.COM](mailto:HELLO@DUDEK.COM)

[DUDEK.COM](http://DUDEK.COM)





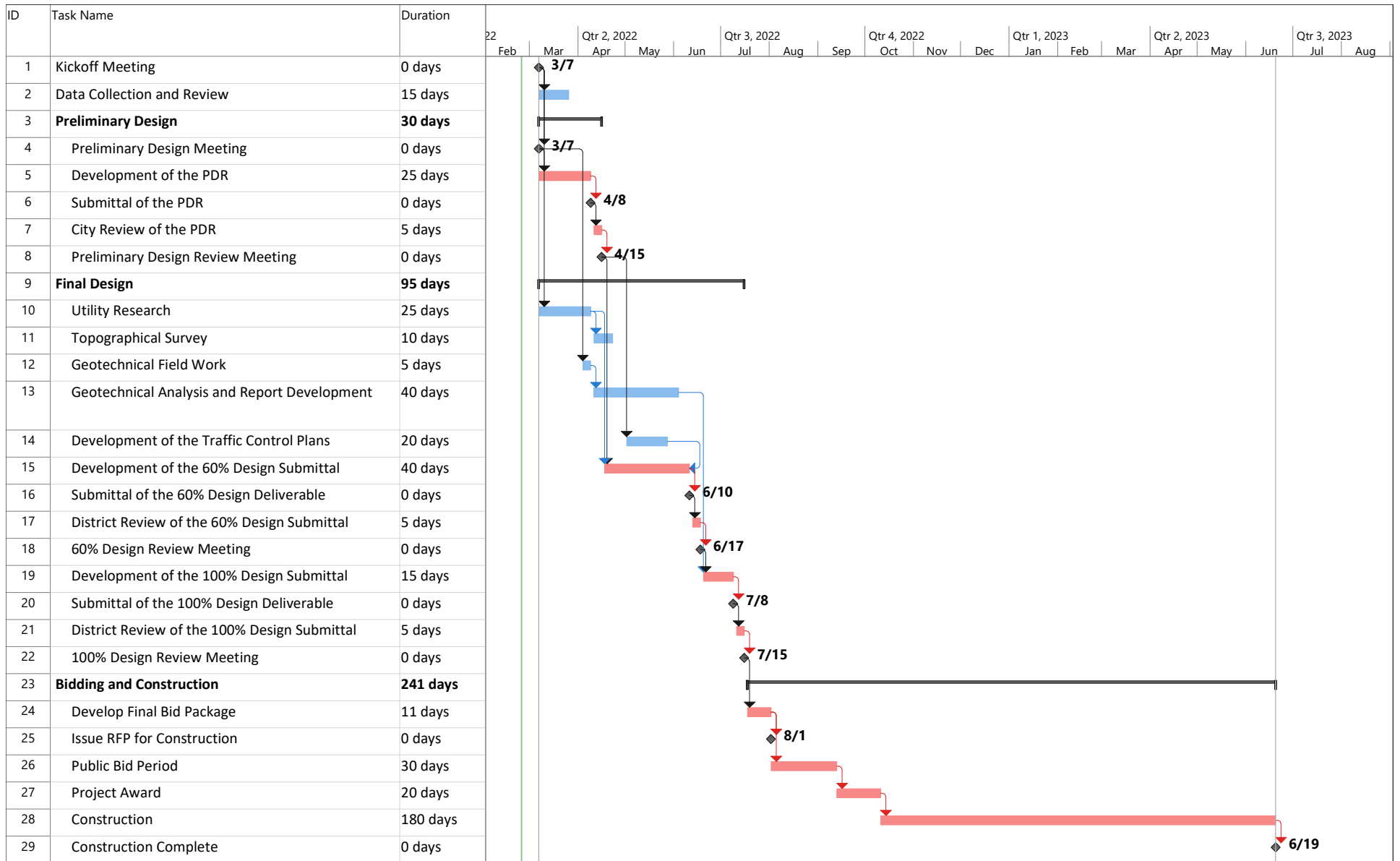
San Lorenzo Valley Water District

Bracken Brae and Forest Springs

DUDEK FEE PROPOSAL

February 24, 2022

									Subconsultant Fees						
Project Team Role:		Principal Manager	Project Manager	Project Engineer	Project Engineer	Senior Designer	TOTAL DUDEK HOURS	DUDEK LABOR COSTS	Geotechnical Engineer	Structural Engineer	Surveying	Electrical Engineer	Traffic Control	OTHER DIRECT COSTS	TOTAL FEE
Team Member:		R Bergholz	G Ripperger	K. Harvey	C. Carr	S. Nuhaily			Pacific Crest	Kelsey Structural	Ifland	Projectline	TMI		
Billable Rate :		\$285	\$245	\$220	\$200	\$190			Fee	Fee	Fee	Fee	Fee		
Task 1	Project Management and Meetings														
1.1	Kickoff Meeting	2	6				8	\$ 2,040				\$3,762			\$ 5,802
1.2	Project Administration	60					60	\$ 17,100							\$ 17,100
1.3	Schedule Updates		16				16	\$ 3,920							\$ 3,920
1.4	QA/QC Program Implementation	40					40	\$ 11,400							\$ 11,400
1.5	Progress Meeting and Reports	24	40				64	\$ 16,640		\$4,136		\$13,477			\$ 34,253
	Subtotal Task 1	126	62				188	\$ 51,100	\$ -	\$ 4,136	\$ -	\$ 17,239	\$ -	\$ -	\$ 72,475
Task 2	Data Collection and Field Investigation														
2.1	Data Collection and Review		2	8	8		18	\$ 3,850							\$ 3,850
2.2	Utility Research		4		24	40	68	\$ 13,380							\$ 13,380
2.3	Topographical Survey		2	2		4	8	\$ 1,690			\$79,200				\$ 80,890
2.4	Geotechnical Investigation		4				4	\$ 980	\$74,712						\$ 75,692
	Subtotal Task 2		12	10	32	44	98	\$ 19,900	\$ 74,712	\$ -	\$ 79,200	\$ -	\$ -	\$ -	\$ 173,812
Task 3	Preliminary Design Report														
3.1	Draft Report	8	40	24	24	40	136	\$ 29,760		\$5,192		\$27,808			\$ 62,760
3.2	Final Report	4	20	12	12	20	68	\$ 14,880				\$12,329			\$ 27,209
	Subtotal Task 3	12	60	36	36	60	204	\$ 44,640	\$ -	\$ 5,192	\$ -	\$ 40,137	\$ -	\$ -	\$ 89,969
Task 4	Final Design														
4.1	Development of the 60% Design Plans	4	40	80	80	300	504	\$ 101,540		\$25,608		\$77,647	\$9,680		\$ 214,475
4.2	Development of the 60% Design Specifications	4	24	40	40		108	\$ 23,820				\$2,719			\$ 26,539
4.3	Development of the 60% Design Cost Estimate	2	6	16	16		40	\$ 8,760							\$ 8,760
4.4	Development of the 100% Design Plans	4	16	40	40	180	280	\$ 56,060		\$8,536		\$38,069			\$ 102,665
4.5	Development of the 100% Design Specifications	4	8	16	16		44	\$ 9,820				\$5,991			\$ 15,811
4.6	Development of the 100% Design Cost Estimate	2	6	12	12		32	\$ 7,080				\$1,360			\$ 8,440
	Subtotal Task 4	20	100	204	204	480	1008	\$ 207,080	\$ -	\$ 34,144	\$ -	\$ 125,785	\$ 9,680	\$ -	\$ 376,689
Task 5	Engineering Support During Bid Phase														
5.1	Pre-Bid Meeting Attendance	2	2				4	\$ 1,060							\$ 11,070
5.2	RFI Responses		16		8		24	\$ 5,520				\$453			\$ 13,981
5.3	Development of Addendums		16		8		24	\$ 5,520				\$913			\$ 8,435
5.4	Development of Conformed Documents	2	8		8	32	50	\$ 10,210							\$ 12,432
	Subtotal Task 5	4	42		24	32	102	\$ 22,310	\$ -	\$ -	\$ -	\$ 1,366	\$ -	\$ -	\$ 50,791
Task 6	Enginnering Services During Construction														
6.1	Meetings	2	2				4	\$ 1,060				\$5,179			\$ 6,239
6.2	RFI Responses	4	8		16		28	\$ 6,300		\$2,838		\$7,330			\$ 16,468
6.3	Submittals	4	8		16		28	\$ 6,300		\$2,838		\$9,636			\$ 18,774
6.4	Change Orders	2	8		16	16	42	\$ 8,770				\$2,446			\$ 11,216
	Subtotal Task 6	12	26		48	16	102	\$ 22,430	\$ -	\$ 5,676	\$ -	\$ 24,592	\$ -	\$ -	\$ 52,698
	Total Non-Optional Hours and Fee	174	302	250	344	632	1702	\$ 367,460	\$ 74,712	\$ 49,148	\$ 79,200	\$ 209,119	\$ 9,680	\$ -	\$ 816,434
	Percent of Hours:	10%	18%	15%	20%	37%	100%								



Project: Bracken Brae and Fores Date: Thu 2/24/22	Task		Inactive Milestone		Start-only		Critical Split	
	Split		Inactive Summary		Finish-only		Progress	
	Milestone		Manual Task		External Tasks		Manual Progress	
	Summary		Duration-only		External Milestone			
	Project Summary		Manual Summary Rollup		Deadline			
	Inactive Task		Manual Summary		Critical			