

# Olivehurst Public Utility District



## Agenda Item Staff Report

Meeting Date: 05/21/2020

### Item description/summary:

**Consider awarding design contract of the South County Water and Sewer Infrastructure projects to RFP respondent(s).**

Last board meeting, the board approved the publishing of two RFPs, one for water infrastructure design and one for sewer infrastructure design. On May 12<sup>th</sup>, we received one proposal each for water and sewer design. However, the lone sewer design proposal included an alternative approach that would combine the two proposals (from water and sewer) into one. All firms that were listed in the two separate proposals have agreed to work under one proposal should OPUD choose to go this route. This comes with some significant cost savings. The two proposals separately would cost a total of right around \$4 million, while the combined approach lowers the cost to ~\$3,464,000. In addition to the cost savings, a single proposal streamlines the design into one set of bid/construction documents, reducing the likelihood of conflicts and change orders. I would therefore recommend we go with the combined proposal approach for this design.

### Fiscal Analysis:

The \$3,464,000 cost would be paid by part grant, part loan from the YWA.

### Employee Feedback

Positive

### Sample Motion:

Award the design contract of the South County Water and Sewer Infrastructure projects to Jacobs Engineering Group according to their combined proposal listed in their proposal appendix.

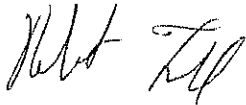
Prepared by:

Christopher Oliver, Public Works Engineer

## ATTACHMENT B: COVER SHEET

<b>Name of Person, Business or Organization:</b>	Jacobs Engineering Group, Inc.
<b>Federal Tax ID Number:</b>	95-4081636
<b>Contact Person – Name</b>	Robert Tull
<b>Contact Person – Address</b>	2485 Natomas Park Drive Sacramento, CA 95833
<b>Contact Person – Phone Number (s)</b>	916-920-0212
<b>Contact Person – e-mail address</b>	Robert.tull@jacobs.com

By signing this **Cover Sheet** I hereby attest: that I have read and understood all the terms listed in the RFP; have read and understood all terms listed in this proposal; that I am authorized to bind the listed entity into this agreement; and that should this proposal be accepted, I am authorized and able to secure the resources required to deliver against all terms listed within the RFP as published by OPUD, including any amendments or addenda thereto except as explicitly noted or revised in my submitted proposal.



\_\_\_\_\_  
Signature of Authorized Representative

Robert Tull

\_\_\_\_\_  
Printed Name of Authorized Representative

5/12/2020

\_\_\_\_\_  
Date

Proposal for

Engineering Services:

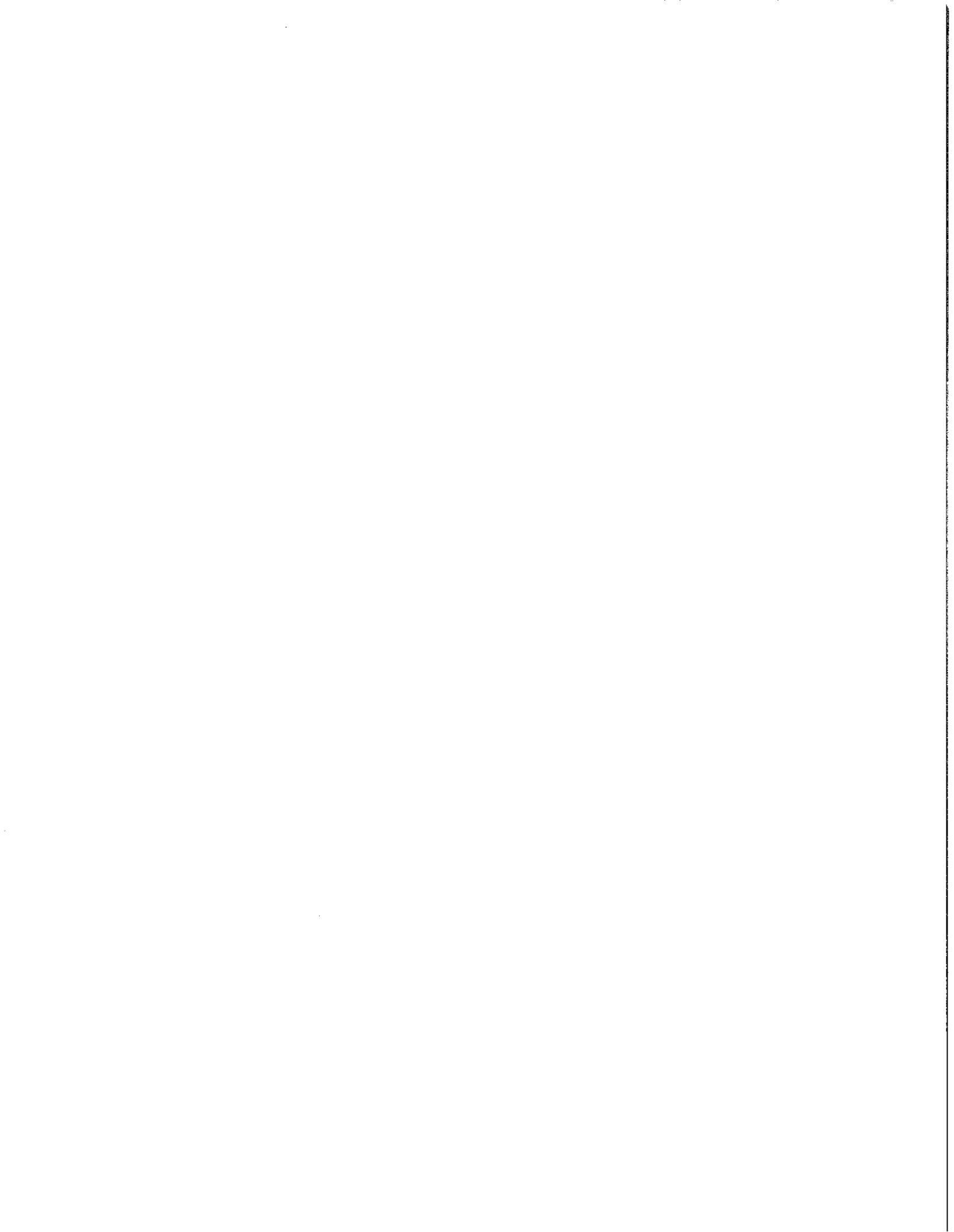
# Design for Sewer Infrastructure in South Yuba County

May 12, 2020



**Jacobs**

Challenging today.  
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May 12, 2020

Christopher Oliver and John Tillotson  
Olivehurst Public Utility District  
1970 9<sup>th</sup> Avenue  
Olivehurst, CA 95961

**Subject: Proposal for Design Engineering Services for South Yuba County Infrastructure (Project)**

Dear Mr. Oliver, Mr. Tillotson, and Selection Committee:

Olivehurst Public Utility District (OPUD) can facilitate growth adjacent to the new Hard Rock Casino by installing the water and wastewater infrastructure required to serve this area. As part of this effort, OPUD will need to work with the County and other local agencies to complete the required improvements quickly in order to maximize funding opportunities and facilitate new industrial and commercial enterprises that are anxious to locate to the South Yuba County area.

**Legal Name:** Jacobs Engineering Group, Inc.  
**Entity:** Publicly traded corporation  
**Federal Tax Id:** 95-4081636

CH2M HILL has worked with OPUD since 1974 and recently became part of Jacobs Engineering Group, Inc. (Jacobs) in 2017. The operation of CH2M HILL's water and wastewater group remains the same as it did before, but with Jacobs' added resources and capabilities. As we did as CH2M HILL, Jacobs today remains on the leading edge of the water and wastewater infrastructure practice by implementing the latest in business practices, approaches, and tools and will provide the level of service and quality OPUD has come to expect from our work. We have teamed with MHM Engineering (MHM) because of their surveying and pipeline design experience, expertise, familiarity, and proximity to OPUD. We are excited to have MHM exclusively on our wastewater infrastructure team having recently completed the *Technical Report Sanitary Sewer* together.

You have asked consultants to identify instances where possible cost efficiencies may be gained, quality improved, or OPUD may otherwise benefit from adopting our recommended approach instead of what is described in the RFP or by competitors. Our team has developed many strategies to cost effectively deliver projects, maximize quality, and provide the following unique benefits to OPUD:

1. **With Jacobs as Prime, we will have no learning curves.** Having successfully completed the *Technical Report Sanitary Sewer* and \$23 million wastewater treatment plant (WWTP) expansion for OPUD in 2007, Jacobs and MHM know your infrastructure and understand what needs to be done and by when. We know

# Jacobs

May 12, 2020

Subject: Proposal for Design Engineering Services for South Yuba County Infrastructure (Project)

how to expedite the design to meet the schedule and position OPUD for maximizing funding opportunities and informed decision-making.

2. **Our team has the resources, technical knowledge, and experience to meet your schedule.** OPUD desires the design of over \$50 million of water and wastewater infrastructure to be completed within 8- to 12-months. Our team has the depth of resources with the experience, knowledge, and expertise needed to meet this aggressive schedule.
3. **Tailored Approach 1: We can meet OPUD's WWTP improvement budget cost-effectively.** We recommend preparing a cost estimate during the preliminary design phase instead of the 60% submittal as indicated in the RFP. We recommend this to minimize design costs and make sure OPUD can move forward with the WWTP improvements necessary to support service area growth. Further details regarding this recommendation are outlined in our proposal.
4. **Tailored Approach 2: Our alternative water and wastewater infrastructure delivery approach delivers coordinated and consistent bid documents at reduced cost.** Jacobs, MHM, and Blackburn have also teamed exclusively with Domenichelli & Associates (D&A) and Affinity<sup>1</sup> to develop an alternative approach for delivering both the water and wastewater infrastructure. Delivery of both infrastructure projects by a single team will create significant cost efficiencies, savings to OPUD, and provide a higher quality than by two, independent, water and wastewater consultants. Integrating water and wastewater pipeline plan and profiles sheets together,<sup>2</sup> reassignment of sewer lift and pump stations design from Jacobs to D&A, selection of a single geotechnical engineer for both the water and wastewater infrastructure projects are more benefits that can be achieved by this alternative delivery approach. We have included a more thorough description in the Appendix.

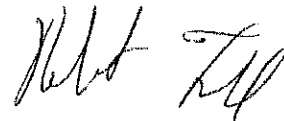
OPUD is focused on completing the South Yuba County infrastructure to meet future demand on an aggressive schedule. Let Jacobs be your trusted partner to capitalize on our successful, 45-year relationship and bring this project to fruition. By combining the experience of Jacobs with the lower costs of our subconsultants, OPUD obtains the benefits of both. We have reviewed your RFP and Addendum 1 distributed on May 5, 2020, respectively. Please don't hesitate to call me directly at 916-296-8802 or [Steve.DeCou@jacobs.com](mailto:Steve.DeCou@jacobs.com) to review and discuss our proposal.

Sincerely,

Jacobs Engineering Group, Inc.



Steve DeCou, PE  
Project Manager



Robert Tull, PE  
Vice President

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<sup>1</sup> As a subconsultant to D&A

<sup>2</sup> Compared to the contractor coordinating two sets of bid and contract documents



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## DESCRIPTION OF SERVICES, BACKGROUND, AND STAFF

### Project Understanding

With the recent opening of the new Hard Rock Hotel and Casino, Yuba County is anticipating new development. Yuba County's (the County) 2030 General Plan states,

*"The land use discussion in the General Plan update must also address the public facilities and infrastructure necessary to support not only the new residential growth proposed but the commercial, industrial and institutional land uses necessary over the long-term to balance the County's economy and allow specific key areas (such as the Highway 65 corridor) to develop appropriately and in a timely fashion."*

Olivehurst Public Utility District (OPUD) will provide water and wastewater services to this area and, working with the County and other local agencies, is attempting to meet the anticipated demand for services without causing delays for new industrial and commercial enterprises that are anxious to locate in the area.

As part of the South Yuba County *Technical Report Sanitary Sewer*, prepared by MHM and Jacobs, it was determined that OPUD rate payers could see significant savings (almost \$2 million) if the new sewer pipelines serving South Yuba County were oversized to accept peak wastewater flows in Old Olivehurst that occurred during wet weather (rainfall) events. Wet weather wastewater flows in this specific area have the potential to cause sewer system overflow (SSOs), and OPUD had previously made a commitment to the State Water Resources Control Board it would commence a first phase project to reduce SSO potential by 2020.

### Approach

Our team members will expedite the project and **save OPUD money through cost-effective development of preliminary design report, 60, 90 and 100 percent (final) submittals** by leveraging the experience and knowledge Jacobs and MHM have gained through our long-term relationship with you, our work on the *Sanitary Sewer Infrastructure Study*, and the WWTP expansion project.

**Exhibit 1** on the next page illustrates our proposed project schedule, tasks, and activities. As shown, Jacobs intends to meet the 8-month design schedule. The anticipated construction timeline is 15 to 18 months.

### ■ Key Project Goals

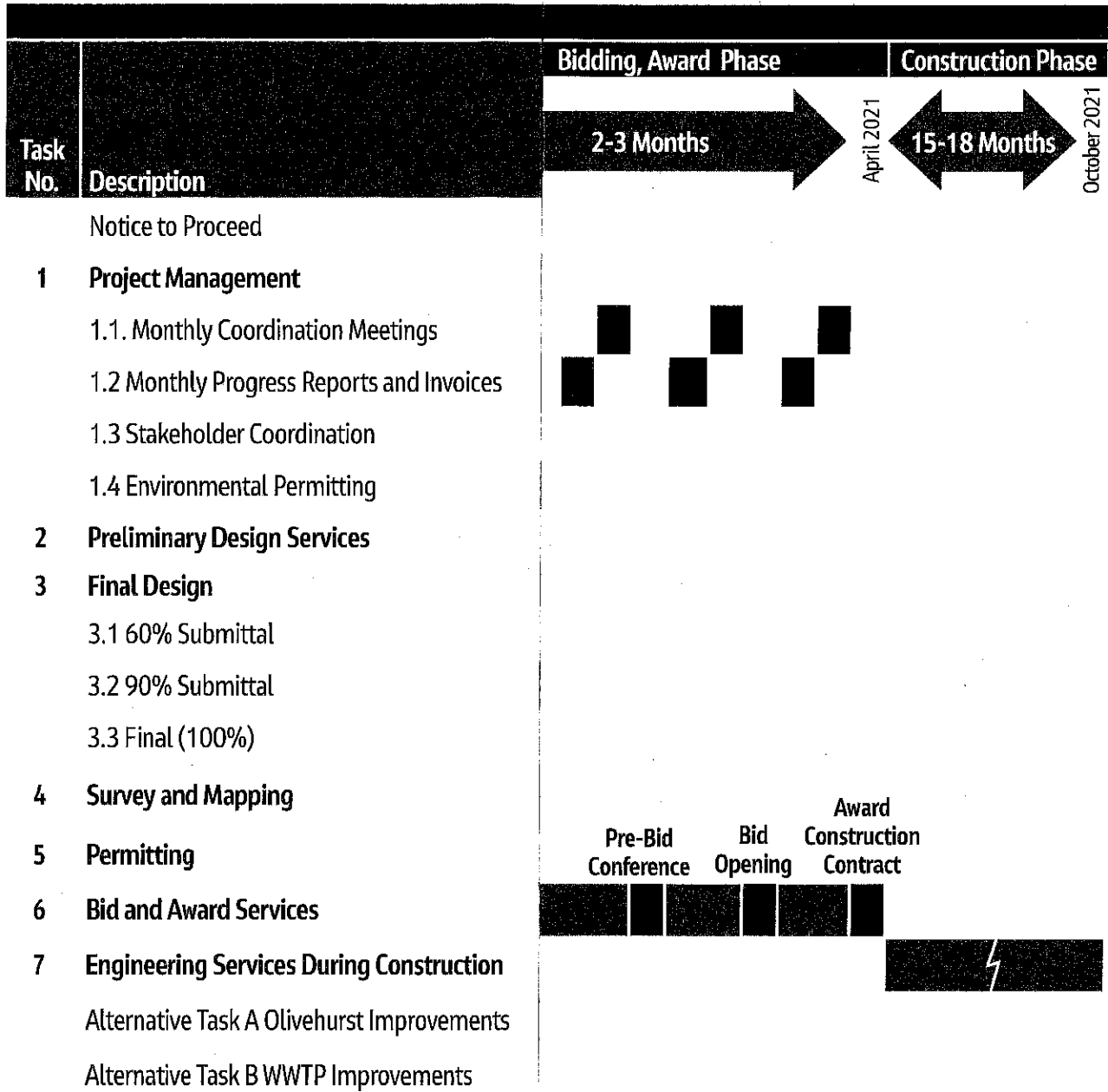
1. Provide infrastructure to accommodate growth in the South County area
2. Oversize specific sewer pipelines in Olivehurst to accommodate peak wet weather flows and reduce potential for sanitary sewer overflows (SSOs)



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Exhibit 1 | Proposed Project Schedule



Legend:



Jacobs



Milestone Meetings/Procurement

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Our identified key challenges and our recommended approaches and timelines, needing to be discussed and addressed with OPUD follow:

- **Define service area and customer base.** To meet your schedule, Jacobs will need project participants to be defined by May 22, 2020 (Notice to Proceed), specifically Wheatland and Beale Air Force Base's participation and level of contribution.
- **Project management (Task 1).** Our approach to project management is based on decades of successful projects and lessons learned. Our project management team will work closely with your staff, key stakeholders, and regulatory agencies as appropriate and throughout the course of the project. We will control scope, schedule, cost, and quality and will be the primary point of contact.
- **Meet your WWTP budget.** Jacobs will develop a cost estimate at the preliminary design phase (Task 2). This estimate will serve as the basis for development of OPUD's bid strategy and allow you to expedite the project and meet the 8-month schedule by eliminating the potential to have to rebid. We recommend preparing a cost estimate during the preliminary engineering phase and replacing the preliminary design phase cost estimate with the 60 percent cost estimate described in the RFP. Potential means of tailoring and trimming costs include:
  - (1) listing additive/deductive bid items in the Bid Schedule for work that could be phased or implemented in the future,
  - (2) postpone lining the equalization basin until it receives primary effluent in the future given that OPUD's secondary effluent is unlikely to degrade groundwater, and
  - (3) cost-effectively completing the project by leveraging the information, data, and tools Jacobs and MHM have already developed.
- **Integration of alternative tasks.** Alternative Task A (SSO Improvements) and B (WWTP Improvements) will be integrated with Task 1-7 workflow and submittals.
- **Quality assurance/quality control (QA/QC) and specification development (Task 3.4).** Jacobs will conduct and be responsible for all QA/QC on the project, and Jacobs's master specifications will be used for all components to promote consistency and enhance quality.

■ **Deliverables**

- 13 draft and final monthly coordination meeting agenda and minutes.
- 12 monthly progress reports with payment requests.

■ **Schedule Assumptions**

Duration is estimated to be 36 months as indicated in Exhibit 1:

- 8 to 12 months from Notice to Proceed for design
- 2 to 3 months bidding and award
- 15 to 18 months for construction



## Services

The services to be provided for the project are similar to those we provided on OPUD's last major WWTP improvement project and are described below.

- There are no instances where our proposed services do not meet the scope of work described in the RFP.
- The level of accuracy we propose for cost estimates differ from the level cited in the RFP of +/- 15%. Jacobs develops cost estimates to industry standards as noted below in our scope of work which include recommended levels of contingency and accuracy.
- Instances where possible cost efficiencies may be gained, quality improved, or OPUD may otherwise benefit from adopting an alternative over the generally-listed terms are either indicated by *italic green text* in the tasks below or listed at the end of this section in Supplemental or Owner Directed Services for consideration.

### Task 1 | Project Management

**Task 1.1 Coordinate, schedule, and conduct regular monthly coordination meetings with OPUD staff throughout the course of preliminary and detailed design phases.** Prepare draft and final meeting agenda and minutes for review and comment by OPUD staff. Develop and maintain log of all decisions made.

**Task 1.2 Prepare and submit monthly progress reports with payment requests.** Payment requests will include invoices that identify tasks/subtasks completed, budget, billed to date, estimated percent complete and amount remaining. Support documents will be included with each invoice. Progress reports will describe work accomplished, current activities, updated schedules for each task, and description of any changes that may impact design or construction costs or schedules.

**Task 1.3 Project Management.** Jacobs's will manage the design contract, scope, schedule, and budget for tasks and activities. Project management will also occur at the task level for each team member as shown on the attached breakdown of hours. In addition, the project and assistant project managers will coordinate with OPUD, subconsultants, agencies, and stakeholders throughout the duration of the project. This subtask includes project management activities from May 22, 2020 to March 31, 2021 and does NOT include the construction phase. Construction phase project management is separate and provided for in Task 7.1.

**Task 1.4 Coordinate with affected stakeholders including Yuba County, Yuba Water Agency, Reclamation District 784.** Jacobs proposes an allowance of \$40,000 be included in the proposed cost for stakeholder coordination and outreach given the level uncertainty associated with projecting all stakeholders, level of coordination, and associated level of effort. For example, to our knowledge all of the project participants have not yet been defined.

**Task 1.5. Environmental (CEQA) Requirements.** Jacobs proposes an allowance of \$40,000 be included in the proposed cost for environmental (CEQA) compliance as described in RFI No. 1.

## Task 2 | Preliminary Design Services

The following are descriptions of our preliminary design services which are the same as those described in the RFP except for leveraging past geotechnical report as noted by *italic green text* below.

### Task 2.1 Review Background Information and Geotechnical

**Investigative Field Work.** With our recent work on the *Technical Report Sanitary Sewer* and WWTP expansion our team is familiar with the project area.

All geotechnical work will be conducted by our subconsultant Blackburn Consulting and will be comprised of:

- Project Coordination, Review Permits, and Fieldwork Preparation
- Subsurface exploration limited to:
  - 50 exploratory borings, 10 to 20 feet deep along the proposed sewer pipeline. Borings will be located about 800 feet apart on the roadway shoulder.
  - Two to three exploratory borings 40 feet deep at each of the three SR 65/SR 70 sewer bore-and-jack crossings. One near the jacking pit and one near the receiving pit. An additional boring will be drilled in the roadway median at the jacking and receiving pits and crossing length.
  - One exploratory boring 40 feet deep at each of the eight pump/lift station locations.
  - One boring to a depth of 40 feet at the new WWTP clarifier location.
  - Two exploratory borings along the proposed WWTP on-site piping alignment.
  - Five test pits 5 to 8 feet deep within the flow equalization basin area.
- Laboratory Testing
- Evaluation and Analysis
- Geotechnical Report

Submittals developed by our subconsultants will be reviewed by Jacobs's QC team and revised accordingly prior to submitting to OPUD for review and comment.

*Geotechnical work for Alternative Task A WWTP Improvements has been limited through the use of past geotechnical work conducted in 2004 (Olivehurst Public Utility District Wastewater Treatment Expansion and Upgrade Project Schematic Design – Preliminary Geotechnical Exploration Report February 13, 2004).*

### ■ Deliverables

Electronic (pdf) copy of Draft Basis of Design Report (BDR) and Geotechnical Report submitted via email. Consultant will discuss and resolve OPUD's review comments, then update the BDR and Geotechnical Report and submit electronic (pdf) copies of Final BDR and Geotechnical Report.

### ■ Assumptions

Project participants and contributions to be defined by May 22, 2020 specifically, whether Wheatland and Beale Air Force Base will be contributors.

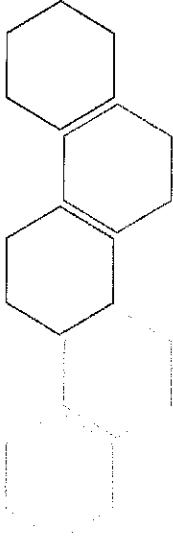
Preliminary design estimate will be developed to a Class 5 level as defined by AACE International.



**Task 2.2 Traffic Control Plans.** MHM will prepare construction traffic control plans. These plans will be developed during the preliminary design phase as described in the RFP and included in the Basis of Design report (BDR).


**Task 2.3 Basis of Design Report.** Jacobs Team shall prepare BDR representing approximately 10 percent level of design of the recommended improvements. Cost estimate will be developed to reflect Class 5 level as defined by

**Exhibit 2 | Contents of Basis of Design Report**



## Executive Summary

1. Introduction and Project Purpose
2. Design Criteria as well as
  - Determine method for increasing Influent Pump Station capacity (e.g., add pumps, replace with larger pumps, etc.)
  - Flow equalization return strategy and infrastructure requirements (e.g., gravity or pressure return and associated infrastructure)
3. Recommended Improvements and Construction Sequencing
4. Implementation Plan (preliminary lists of drawings and specifications, estimated cost, sequence of construction; final design, bidding construction, start-up, testing and closeout schedule and estimate of probable construction cost)
5. Preliminary Pipeline Plan, Profile and Detail Drawings



Association for the Advancement of Cost Engineering International with an anticipated level of accuracy of: - 20 to - 50% and +30 to +100%.





### Task 3 | Final Design

Prepare 60, 90 and 100 percent (Final) design submittals consisting of plans and specifications for bidding and construction management plan describing traffic control, sequence of work, coordination with affected agencies and environmental concerns.

**Task 3.1 60 Percent Submittal.** The 60 percent submittal is intended to show the major design concepts and features. Decisions made during the preliminary design phase will be further developed into the 60 percent submittal consisting of preliminary pipeline plan and profile drawings; preliminary traffic control, staging areas and right of way plans; and a more refined specifications table of contents and first cut at the major specification sections.

Submittals developed by our subconsultants will be reviewed by Jacobs QC team and revised accordingly prior to submitting to OPUD for review and comment.

A review meeting will be held with OPUD staff to review and discuss the 60 percent submittal and obtain comments. This review meeting is assumed to occur at your office.

**Task 3.2 90 Percent Submittal.** Prepare 90 percent submittal, which is the final (100 percent) review submittal before bidding. This submittal will include all Technical Specifications, Standard Details, and Drawings listed in Table 1 of the appendix and necessary for bidding the construction contract.

Bid documents will be developed by Jacobs and MHM and include applicable general, demolition, civil site, plan and profile drawings, structural, structural/mechanical, mechanical, instrumentation and control, and electrical technical specifications, standard details, traffic control and right of way plans, estimated construction schedule, and design drawings necessary for permitting, bidding, and construction.

The 90 percent submittal is intended to be a near final version of all construction drawings, standard details, and technical specifications that will be included in the bid documents. It will be reviewed by Jacobs's QC team and revised accordingly prior to submitting to OPUD for review and comment.

Construction cost estimate prepared for the BDR will be further developed to reflect a Class 1 level as defined by Association for the Advancement of Cost Engineering International with anticipated level of accuracy of -3 to -10% and +3 to +15%.

#### ■ Deliverables 60% Submittal

1 set of hard copy and electronic (in Adobe pdf) documents including half-size construction drawings (11-inch by 17-inch) and specifications table of contents and major specification sections (8-1/2-inch by 11-inch).

60 percent Submittal Review Meeting Agenda, Minutes and select team member attendance.

#### ■ Deliverables 90% Submittal

1 set of hardcopies and electronic (in Adobe pdf format) documents, including half-size construction drawings (11-inch by 17-inch), standard details (8-1/2-inch by 11-inch), construction cost estimate, and specifications (8-1/2-inch by 11-inch) will be delivered to OPUD for review and comment.

90 percent Submittal Review Meeting Agenda, Minutes and select team member attendance.

#### ■ Assumptions

Specifications shall be Jacobs master specifications Division 02-49 CSI MasterFormat 2004 format.



**Task 3.3. 100 percent (Final) Submittal.** Following receipt of OPUD’s review comments on the 90 percent submittal, address and incorporate changes, and prepare the 100 percent (Final) bid documents.

**Task 3.4 Quality Control Review, Coordination and Response.** Jacobs will implement and carry out a QC program developed and managed by Lisa Alliger, one of our local California managers of projects. The review process includes coordinating the participation of senior reviewers at appropriate points as noted above. Consultant will perform multidisciplinary internal QC review activities using a senior review team. QC review activities will be governed by the requirements of an overall Jacobs developed Project Quality Management Plan. All design documents will be reviewed by assigned QC reviewers, comments addressed, and changes incorporated, prior to submission to OPUD for review and comment. Deliverables will be reviewed from the perspective of sound engineering design, constructability, construction cost, and operability.

■ **Deliverables 100% (Final) Submittal**

1 set of hardcopies and electronic (in Adobe pdf format) documents, including half-size construction drawings (11-inch by 17-inch), standard details (8-1/2-inch by 11-inch), construction cost estimate and specifications (8-1/2-inch by 11-inch) will be delivered to OPUD for bidding and contract award.

One CD containing technical specifications, standard details, full-size and half-size drawings in Adobe Acrobat .pdf file format.

One CD containing the drawing deliverables in AutoCAD 2012 dwg format.

**Task 4 | Surveying and Mapping**

MHM will be conducting all surveying and mapping work consisting of the following:

MHM will use data derived from unmanned aircraft systems (UAS) technology and field ground surveys to provide site topography with 0.5-foot contours for the wastewater infrastructure improvements for sewer pipelines, Lift Stations 1-3, Pump Stations 1-3, and WWTP facilities and yard piping. Collected data will also be joined into a seamless three-dimensional reconstruction of the ground surface. topography will include the terrain as well as aboveground features such as rocks, bridges, canals, structures, and treetops. Post-processing of UAS data will also generate contours from the topographic surfaces as GIS shapefiles or ACAD dwg files.

*Like our approach to geotechnical work, surveying and mapping effort will be minimized using existing data and information, thereby minimizing OPUD effort and costs.*

■ **Deliverables**

- Aerial and Field Topographic Mapping
- Aerial Imagery
- Survey Control Data Sheet
- Digital Terrain Model (DTM)

■ **Assumptions**

0.5-foot contours as georeferenced .tiff files compatible w/Geographic Information Systems (GIS). Pipeline survey work mostly within ROW; no structures other than bridges, and culverts.

Positional accuracy of standard error of less than 0.10 ft on hard surfaces and less than 0.50 ft on soft surfaces.

Control surveys conducted utilizing most efficient combination of Global Positioning System (GPS) and conventional methods; method used controlled by accuracy specifications required by specifications.

Survey and mapping work meant supplement exiting information and data.



### Task 5 | Permitting

Jacobs will work with OPUD to obtain the necessary permits from appropriate agencies. Jacobs proposes an allocation of \$40,000 for this work given the level uncertainty associated with permitting and level of effort. For example, it is unknown at this time what information (e.g., antidegradation analysis) the Regional Water Quality Control Board would require for approval of the flow equalization basin and whether the basin will be concrete lined.

#### ■ Deliverables

Supporting documentation and technical input necessary for permit applications up to the allocated amount.

### Task 6 | Bid and Award Services

Jacobs team will provide the following for bidding and award assistance to OPUD:

- Attend and conduct, in conjunction with the OPUD staff, one pre-bid conference at the project site. Jacobs will record all questions and requests for additional technical information during pre-bid conference.
- Jacobs team will receive, log, and respond to potential bidders' technical questions and requests for additional information. Furnish technical interpretation of contract documents and prepare responses to questions in the form of up to two addenda to be distributed by OPUD to all plan holders.
- Jacobs will assist OPUD as requested in reviewing bids received to verify that the bid is complete and responsive. This includes attendance by the Jacobs team member at the bid opening. Jacobs will prepare a letter recommendation of award.

#### ■ Deliverables

Responses to potential bidder questions and requests for additional information, up to two (2) addenda and letter recommendation of award.

### Task 7 | Engineering Services During Construction

The Jacobs team will work with OPUD and the contractor and construction manager (CM) to provide engineering services during the construction phase of the Project. Our work will include the following:

- Assisting OPUD in field problem resolution and progress meeting attendance.
- Interpretation and response to contractor's requests for information (RFIs), if any and as directed by OPUD.
- Shop drawing, samples and submittal review to convey the design intent where needed and as directed by OPUD.
- Proposed change order development, review and recommendation as direct by the OPUD.
- Inspections and final walkthrough.
- Jacobs will obtain Contractor's redline markups and develop as-built drawings in AutoCAD as well as pdf format and submit to OPUD.

Specific limits and assumptions pertaining to these services are included in the following Proposed Cost section.



### Alternative Task A | Olivehurst Improvements

The improvements listed below are required for both SSO relief and accommodating new South County flows and will be integrated into Tasks 1 through 7 above. All construction cost estimates and billing for Alternative Task A shall be kept separate.

1. Increase capacity of existing pump station 1 (PS #1) from 1.75 to 4.5 mgd, increase of 2.75 mgd total.
2. Add pipeline between Eleventh and Fourteenth to increase capacity of existing pipeline downstream of PS #1.
3. Transfer flow away from existing 24-inch Donald Avenue pipeline to avoid replacing it with a larger diameter pipe. Two flow diversions are proposed to allow the existing pipeline to stay in service:
  - a. Take existing PS #2 flow and divert it to new pump station that is part of the Project. The leaky force main from PS #2 to Donald Avenue can be abandoned (and therefore not replaced), approximately 1.4 mgd diverted from Donald Avenue pipeline.
  - b. Place an overflow diversion manhole on existing 8-inch McGowan sewer collector (that flows from just west of the highway to the west to Donald), and when that pipeline is surcharged during peak flow events, up to 1 mgd will be diverted away from it. The diversion manhole and new SSO PS (1 mgd in size) will be located at the intersection of Mary and McGowan.
4. Note that the diverted flow from 3a and 3b add up to 2.4 mgd (1.4 + 1), which is a bit less than the new PS #1 increase in capacity of 2.75 mgd. This means that some surcharging of the Donald Avenue pipeline is still possible in the future. While not discussed in Appendix C of the *Technical Report Sanitary Sewer*, it may be possible to line the existing (and presumably abandoned) FM with HDPE and pump flow from Donald and McGowan to the new SSO PS at Mary & McGowan.
5. Install elevation sensors upstream and downstream of PS #1 to optimize pumping. If elevations upstream get too high, pumps will increase rate of flowrate, if downstream monitor shows elevations approaching overflow, then the pumps will decrease flowrate.

■ **Deliverables:**

Separate Alternative A construction cost estimates and invoices.  
 Remaining Alternative Task A deliverables included with Task 1-7 deliverables.

### Alternative Task B | WWTP Improvements

The improvements listed below are required for both SSO relief and accommodating new South County flows and will be integrated into Tasks 1 through 7 above. All construction cost estimates and billing for Alternative Task B shall be kept separate.

1. Increase capacity of Influent Pump Station.
2. Install new flow equalization basin and pump station.
3. Install new Secondary Clarifier No. 4 and RAS/WAS Pump Station.
4. Install miscellaneous site civil, electrical, yard piping and SCADA improvements.

■ **Deliverables**

Separate Alternative B construction cost estimates and invoices.  
 Remaining Alternative Task B deliverables included with Task 1-7 deliverables.

■ **Assumptions**

Leverage previous WWTP expansion drawings for the Project.



Jacobs evaluated both primary effluent and secondary effluent equalization basins and have recommended that a new secondary clarifier be added, and that secondary effluent be equalized as opposed to primary effluent at this time.

**Supplemental Owner Directed Services | Currently Not Included In Scope of Work or Fee Estimate**

Our team has identified the following potential supplemental services that are beyond the scope described in the RFP. As funding allows, OPUD may want to consider including some of these tasks in the Project.

1. **Bidder Question and Response Management.** Jacobs to log questions and requests for additional information from potential bidders during bid period.
2. **Conformed Construction Drawings.** Jacobs team will prepare final Conformed Documents for the Project by incorporating the Bid Addenda into the Bid Package. Jacobs will review, print, stamp and sign up to twelve full-size hardcopies of the Conformed Documents.



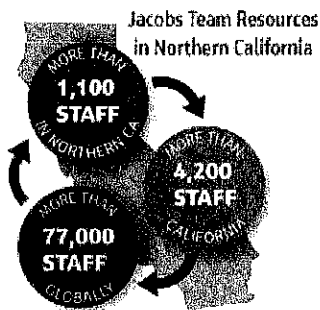
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CH2M Hill has worked with OPUD since 1974 and recently became part of Jacobs Engineering Group, Inc. (Jacobs) in 2017. Our operation of the water and wastewater group remains the same, but with Jacobs' added resources and capabilities.

Jacobs was founded in 1947 and has grown into one of the world's largest providers of comprehensive engineering, design, construction management and inspection services that partners with public clients like OPUD to tackle their infrastructure and natural resource challenges. While Jacobs works across 14 markets, **water and wastewater are our core practices and are central to our Northern California operation.**

**Jacobs**  
**2019 ENR Rankings**  
**#1** Top 500 in Design Firms  
 Sanitary & Storm Sewers  
 Sewer & Waste  
 Water Transmission Lines & Aqueducts  
**#3** Water Supply  
 Water Treatment  
 Desalination Plants



Throughout our 70-year history, Jacobs has supported many complex, large-scale water and wastewater design and construction related projects in California and the western United States such as the Bay-Delta Conservation Plan (now Delta Conveyance) and Site Reservoir Storage. Our support ranges from environmental analysis and permitting to engineering, design, construction, and commissioning.

The following are examples, including references, that substantiate Jacobs' experience in providing the type of service requested in your RFP.



**RELEVANCE**

- Project Manager Steve DeCou has completed over 30 assignments for OPUD and has a proven track record of delivering successful projects.
- Most key team members have worked with Steve on projects in the past including OPUD's last WWTP expansion so there will be no learning curve with the Jacobs team.

**DESCRIPTION** Over the last 45 years Project Manager Steve DeCou has been involved with all major wastewater treatment plant modifications for OPUD WWTP. Starting in 1975, he was the design engineer responsible for the secondary treatment processes, preparing the Operations and Maintenance Manual – including start-up and training of OPUD staff. In 2005, Steve lead the OPUD's second plant expansion to address California Toxics Rule. The project



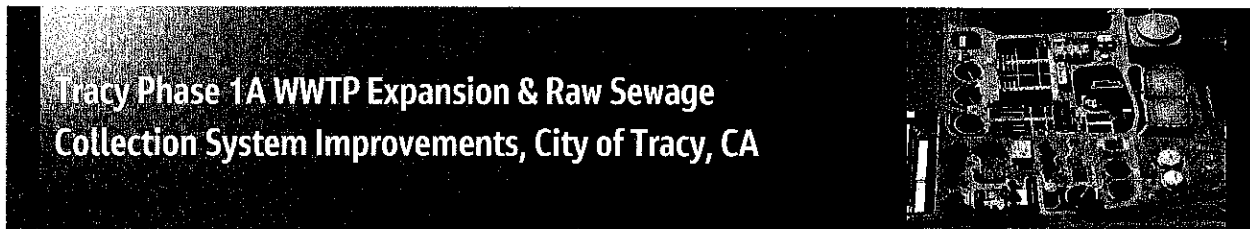
was originally estimated at \$23 million in the PDR, with 6 change orders the project finished within that \$23 million budget. Additionally, from original Notice to Proceed through start-up, including study, detailed design and construction, and the acquisition of a new NPDES permit, was only 18 months.

**South Yuba County Sanitary Sewer Infrastructure Study**

Steve, and other members of our proposed team (Sean Minard and Kevin Kennedy), continue to serve the OPUD today; most recently for the South Yuba County Sanitary Sewer Infrastructure Study where we worked with OPUD staff to identify the best alignment and most cost-effective means of conveying wastewater from South Yuba County to the OPUD WWTP. Jacobs was a subconsultant to MHM for this work, and we also evaluated options to reduce SSOs as part of the study. It has been estimated that combining SSO flow with South Yuba County Sewer pipelines will save OPUD ratepayers approximately \$2 million.

**TEAM** Steve DeCou, Mike Reiss, Kevin Kennedy, Sean Minard (MHM)

**REFERENCE** John Tillotson, General Manager, 530-743-0317, [jtillotson@opud.org](mailto:jtillotson@opud.org)



**RELEVANCE**

- Same project manager and mechanical, structural, and instrumentation and control lead as we propose for your Project that know how to work together and deliver successful projects.
- Tracy's pipeline and WWTP improvements are similar or identical to those required to accommodate South Yuba County growth and described in our Sanitary Sewer Infrastructure Study.

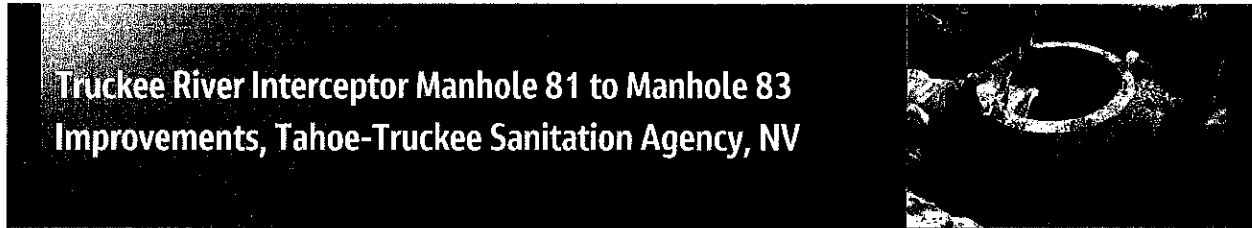
**DESCRIPTION** Since 1977, Jacobs has served as the wastewater consultant for the City of Tracy. Steve DeCou has been the engineering lead for most of the projects completed during that time.

The city partnered with Jacobs to plan and implement wastewater infrastructure and facilities, increase collection and treatment system capacity, and plan and design water reuse capabilities to the plant. We provided an integrated suite of treatment and collection system processes, hydraulic, and odor modeling to support pre-design, process layout, permitting activities, and verifying effluent discharge attainment. We performed full CEQA analyses on this and several other plant expansions done for the city. We also provided economic and financial advice and tools to identify revenue sources to fund plant expansions.

**TEAM** Steve DeCou, Mike Riess, Mark Randall, Jerry Nordal

**REFERENCE** Steve Bayley, previously Assistant Director of Utilities, 209-831-6356, [steve.bayley@cityoftracy.org](mailto:steve.bayley@cityoftracy.org)





**Truckee River Interceptor Manhole 81 to Manhole 83 Improvements, Tahoe-Truckee Sanitation Agency, NV**

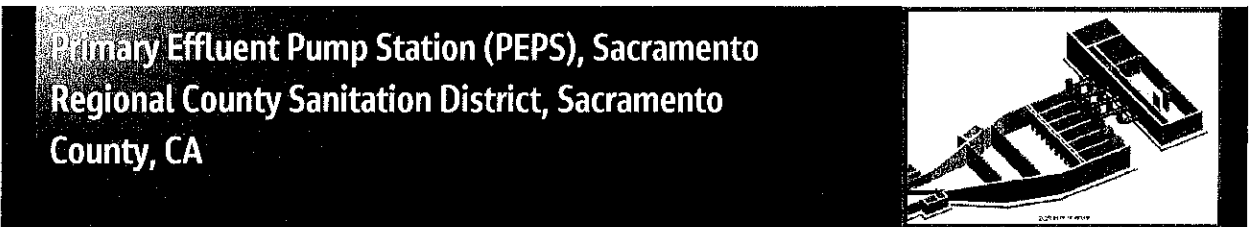
**RELEVANCE**

- Provided similar services required to complete your sewer infrastructure design project.
- Some of the same team members who know how to work together and deliver successful projects.
- Similar to OPUD, CH2M Hill/Jacobs has a long-term history of repeat business with T-TSA. Currently, working on Task Order No. 33 from a contract we initially signed back in mid-1995.

**DESCRIPTION** The Tahoe-Truckee Sanitation Agency (T-TSA) owns and operates the Truckee River Interceptor (TRI) which conveys wastewater from Tahoe City to the Water Reclamation Plant located in Martis Valley, east of Truckee, California. The purpose of the Truckee River Interceptor (TRI) Manhole 33 to 35 Rehabilitation project was to replace an existing 24-inch reinforced concrete (RCP) and ductile iron (DI) gravity sewer interceptor with an 1,801 lineal foot, 36-inch diameter RCP pipeline. The project included utility location and coordination, geotechnical investigations, surveying and mapping, development of alternatives, bypass pumping, constructability review and sequencing on construction, detailed alternative analysis (including comparison of potential pipeline materials) construction cost estimating and development of 60 percent, 90 percent and final (100%) design submittals, construction contractor bidding and award assistance and engineering services during construction. Most of the services associated with this project are identical or like those anticipated for your project. The project was completed on schedule and budget.

**TEAM** Mark Randall and Lisa Alliger

**REFERENCE** Jay Parker, PE, Engineering Department Manager, (530) 587-2525, [jparker@ttsa.net](mailto:jparker@ttsa.net)



**Primary Effluent Pump Station (PEPS), Sacramento Regional County Sanitation District, Sacramento County, CA**

**RELEVANCE**

- Provided the same services required to complete your sewer infrastructure project.
- Innovative solutions and tools developed for PEPS can be leveraged for the Project to overcome key challenges (e.g., 3D modeling will allow our team to visualize key challenges, solutions, design concepts and details).
- Accelerated, aggressive schedule to meet client bidding needs.

**DESCRIPTION** In 2010, the Central Valley Regional Water Quality Control Board imposed stringent new treatment requirements. In response, Regionl San launched the \$2B EchoWater program. The Primary Effluent Pump Station project (PEPS) was part of the EchoWater program and involved planning and designing of a new 720 MGD pumping plant, initially equipped for a total capacity of 480 MGD. In addition to six, 120 MGD vertical axial flow pumps, PEPS



includes extension of the existing primary effluent channel, facilities to divert up to 250 of primary effluent to emergency storage basins, biofilter, electrical building, and extensive site development.

Services provided by Jacobs included preliminary and final design, bidding and award support, engineering services during construction and construction management; which are the same services required for the Project. As part of this project, Jacobs developed innovative solutions for several design challenges and 3D modeling which allowed the client to visualize the design concepts during design coordination meetings.

Jacobs continues to support this project through construction on time and on budget. The PEPS design schedule was accelerated to meet the combined bid set delivery with the biological nutrient removal project (designed by another consultant team).

TEAM Mike Riess and Kevin Kennedy

REFERENCE William Yu, PE, Project Manager, (916) 875-9271, [yuw@sacsewer.com](mailto:yuw@sacsewer.com)

## Current, Pending or Past Litigation

The Jacobs organization has a talent force of more than 50,000, approximately \$13 billion in revenue, and over 300 global operating entities, with approximately 100 operating entities in the United States and Canada. Jacobs provides a full spectrum of services including scientific, technical, professional, construction, and program management for business, industrial, commercial, government, and infrastructure sectors. Our corporate profile and public filings can be found at <http://invest.jacobs.com/investors/default.aspx#corporate>. From time to time and in the ordinary course of its business, the Company is subject to various claims, disputes, terminations, arbitrations, and other legal proceedings. It is the Company's practice to defend itself in such actions, many of which are generally subject to insurance and none of which are expected to have a materially adverse effect on the Company's consolidated financial statements.

## Staffing

Choosing the right partner for the Project is important given its size and need to meet an aggressive schedule to maximize funding opportunities. The Jacobs team brings the right mix of experience, technical expertise, knowledge and commitment to provide the services you need and successfully deliver the Project. The Jacobs team is ready to build upon the Sanitary Sewer Infrastructure Study we developed with you and complete the design, bidding and construction phases needed to accommodate service area growth in South Yuba County.

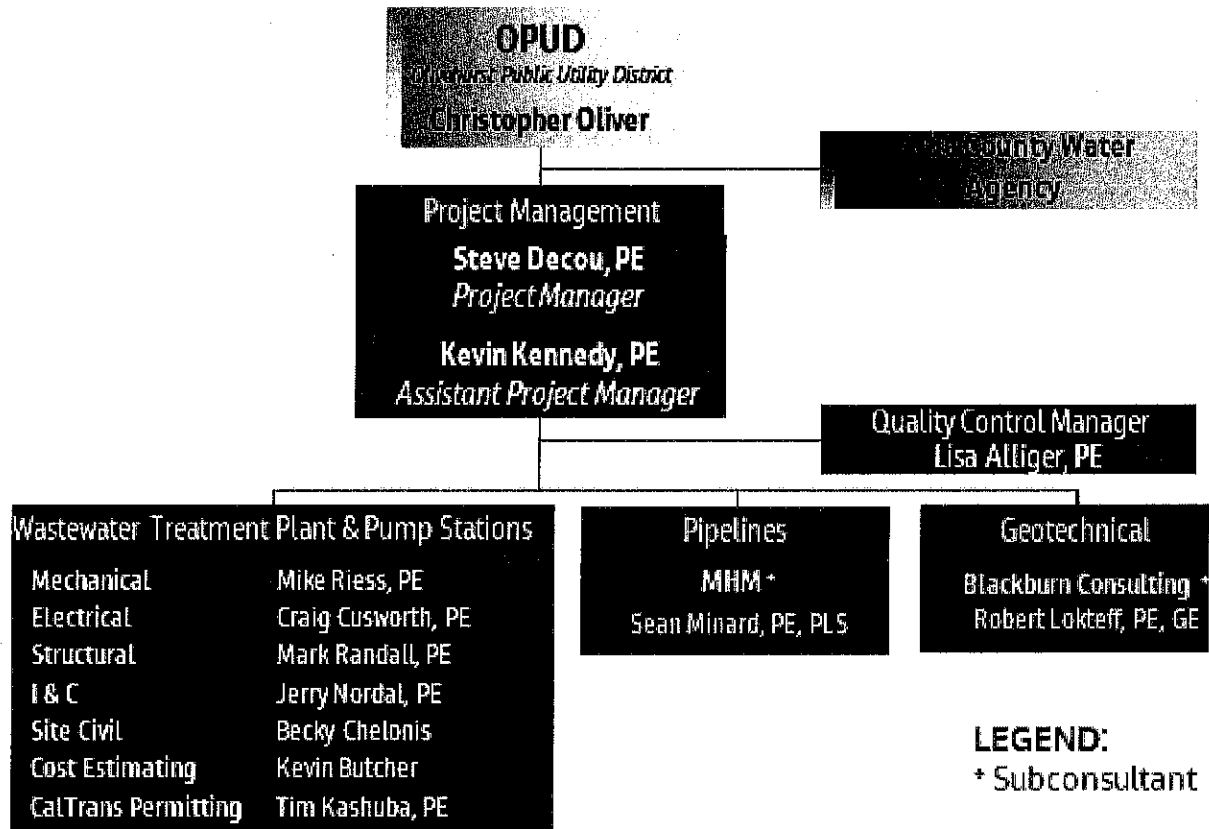
We have hand-selected a highly-qualified and proven team of professionals with significant Northern California wastewater infrastructure design experience. Many of our proposed team members have worked on your WWTP expansion or other OPUD projects in the past. Due to the magnitude and complexity of the Project, we have organized our team in a streamline fashion to facilitate communication, coordination, assign team members to roles and responsibilities they are familiar with and have been successful at in the past. As shown in the organization chart (**Exhibit 3**), our team will be led by Project Manager Steve DeCou who has recent and relevant experience leading Jacobs' portion of the South Yuba County Sanitary Sewer Infrastructure Study as well as other wastewater infrastructure design projects.



A high degree of communication and coordination will be required to successfully deliver the Project given its magnitude and limited schedule. To meet this need we propose Kevin Kennedy, as Assistant Project Manager, to help Steve deliver the Project and provide the ability for Steve to concentrate on OPUD and make sure that your staff has the information and understanding required to move the project forward and make informed decisions. Kevin will be responsible for subconsultant, WWTP improvement design and permitting coordination and will interact with Steve on a routine, almost daily, basis. This is a similar role Kevin had on the City of Roseville’s Pleasant Grove Wastewater Treatment Plant Expansion where, as project manager, he was responsible for simultaneously running tasks related to State Revolving Funding and environmental (CEQA), air quality and drainage permitting as well as overseeing the design of a \$50 million WWTP expansion and subconsultants.

Our proposed key staff and organization chart illustrating lines of communication and coordination with OPUD and within our team is shown in Exhibit 3 followed by bios briefly describing relevant wastewater infrastructure design experience of our key staff.

Exhibit 3 | Organization Chart





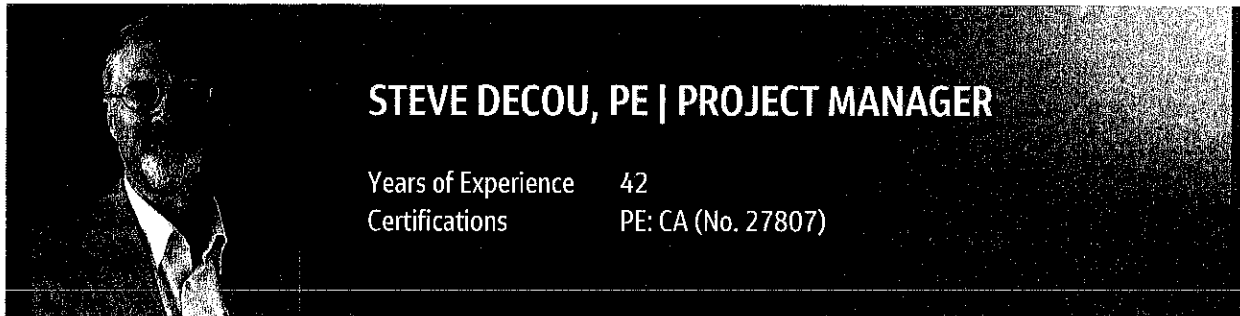
### Project Manager, Steve DeCou: Passion, Expertise, and Experience

Steve will lead the project and keep OPUD informed about project status, tasks, activities, and decisions needed to maintain your schedule.

- ✓ **Passionate about the project** and has a clear and deep understanding of what is required for success.
- ✓ **Extensive expertise in Northern California rural community wastewater collection and treatment** project planning, development, design, construction, start-up, and operation.
- ✓ **46 years of experience working with OPUD (more than 30 assignments), MHM, and our team** with positive outcomes.
- ✓ **Expertise supporting public involvement processes, regulatory compliance, and helping** develop win-win solutions from many projects over his career.

*"[Steve] provided services over and above other firms and project managers I have worked with on past projects...The team was able to identify and solve problems, research and provide information, and resolve difficult issues to arrive at a mutually satisfactory outcome for all stakeholders."*

– Cathy Sweeney, Associate Environmental Analyst, Sacramento County Dept. of Environmental Review and assessment (Arden Parallel Force Main Project)



#### UNIQUE QUALIFICATIONS

- More than 45 years of wastewater treatment plant experience, most recently as a senior consultant and program manager.
- In addition to treatment plant design, Steve has served as project manager on over \$400 million of very successfully completed wastewater interceptor, sewer pipeline, and pump station designs.
- Has served as assistant program manager for a large program (with over \$4 billion in construction and oversight of multiple engineering consultants) for Southern Nevada Water Authority. Additional Program Management experience with Sacramento Regional County Sanitation District Lower Northwest Interceptor Design Program.
- Trusted relationship with OPUD dating back to 1975.

#### RELEVANT EXPERIENCE

- Project Manager, Advanced Wastewater Treatment Plant Design & Upgrade, OPUD, Olivehurst, CA
- Project Manager, Beale AFB Wastewater Consolidation Project Technical Report, OPUD, Olivehurst, CA
- Project Manager, Dry Creek WWTP Raw Sewage Pump Station Design, City of Roseville, CA
- Master Planning Lead, Wastewater Treatment Plant Master Plan, City of Tracy, CA



**KEVIN KENNEDY, PE | ASSISTANT PROJECT MANAGER**

Years of Experience    24  
Certifications        PE: CA (No. 27807)

**UNIQUE QUALIFICATIONS**

- More than 24 years of wastewater treatment plant and pipeline design experience.
- Routinely manages and successfully delivers complex multifaceted projects with multiple tasks being initiated and run simultaneously.
- Conceptual through detailed design, bid and award, construction and start-up and commissioning experience.
- Adept at developing sequences of construction early, during preliminary design, to guarantee delivery of successful designs and implementable solutions.

**RELEVANT EXPERIENCE**

- Quality Control, South Yuba County Sanitary Sewer Technical Report and Appendix C. OPUD, Olivehurst, CA
- Project Manager, Rolling A Wastewater Treatment Facility Phase 4 Expansion Project, Farr West Engineering, Reno, NV
- Project Manager, City of Roseville Pleasant Grove Wastewater Treatment Plant Expansion, City of Roseville Utilities Department, Roseville, CA
- Project Manager, Tuolumne County Lift Station Improvements, Tuolumne Utilities District, Sonora, CA
- Project Manager, New 250 MGD Headworks Needs Assessment and Alternatives Analysis Reports, San Francisco Public Utilities Commission, San Francisco, CA



**LISA ALLIGER, PE | QUALITY CONTROL MANAGER**

Years of Experience    16  
Certifications        PE: CA (No. 45818); NV (No. 021109);  
UT (No. 7394603-2202); OH (No. 76053)

**UNIQUE QUALIFICATIONS**

- A 2-4 short bullets highlighting relevant skills, accomplishments, leadership positions, published articles, presentations, etc.
- Civil design experience includes irrigation canals, parking areas, and building pad locations.



#### RELEVANT EXPERIENCE

- QC/Civil Engineer, Truckee River Interceptor Manhole 81 to Manhole 83 Improvements, Tahoe-Truckee Sanitation Agency, Truckee, CA
- Quality Control Manger, David-Woodland Water Supply Project, Woodland-Davis Clean Water Authority, Woodland, CA
- Civil Engineer, Clear Creek Wastewater Treatment Plant Upgrade, City of Redding, CA



**MICHEAL RIESS, PE | MECHANICAL ENGINEERING**


Years of Experience	20
Certifications	PE: CA (No. 33737); NV (No. 019251)

#### UNIQUE QUALIFICATIONS

- Designs mechanical systems for water and wastewater treatment facilities.
- Specialized experience in pump design for wastewater influent and effluent and for raw water.
- Expertise in construction management support, inspection, testing, start-up, and repair of pumping facilities, piping systems, and treatment process equipment.

#### RELEVANT EXPERIENCE

- Mechanical Engineer, Advanced Wastewater Treatment Plant Design & Upgrade, OPUD, Olivehurst, CA
- Mechanical Engineer, South Bonnyview Bridge Water Main Support Improvements, City of Redding, CA
- Mechanical Engineer, Stillwater Business Park Sewer Project, City of Redding, CA
- Lead Mechanical Engineer, Clear Creek Wastewater Treatment Plant Expansion and Upgrade, City of Redding, CA



**CRAIG CUSWORTH, PE | ELECTRICAL ENGINEERING**

Years of Experience	13
Certifications	PE: CA (No. 19120); NV (No. 22425); TX (No. 132968)

#### UNIQUE QUALIFICATIONS

- Experience in I & C design, PLC and HMI programming, process mechanical design, radio telemetry design, and electrical design.



**RELEVANT EXPERIENCE**

- I&C Design Lead, Dry Creek Wastewater Treatment Plant Influent Pump Station Replacement, City of Roseville, Roseville, CA
- I&C Design Lead, Clear Creek Wastewater Treatment Plant Rehabilitation and Expansion Project – Bid Package 6, City of Redding, Redding, CA
- I&C Design Lead, SCADA Master Plan; Douglas County Sewer Improvements District, Douglas County, South Lake Tahoe, NV



**MARK RANDALL, PE | STRUCTURAL ENGINEERING**


Years of Experience	40
Certifications	PE: CA (No. 33463); NV (No. 8852); AZ (No. 26100)

**UNIQUE QUALIFICATIONS**

- More than 40 years of structural design experience.
- Experience encompasses structural design and senior review of structural elements of water and wastewater treatment, disposal, conveyance, and storage facilities.
- Expertise in structural design of fish screening and fish passage facilities associated with lake and river water intakes.
- Flood control structural design expertise.

**RELEVANT EXPERIENCE**

- Lead Structural Engineer, Wastewater Treatment Plant Expansion, OPUD, CA
- Structural Engineer and Sr. Reviewer, Wastewater Treatment Plant Improvements, City of Tracy, CA
- Structural Engineer, South Truckee Meadows Water Reclamation Facility Biosolids Handling Facilities, Washoe County Community Services Department Water Resources, Reno, NV
- Lead Structural Engineer, North Valley Wastewater Treatment Plant Facility Plan and Capacity Analysis, Douglas County, NV



**JERRY NORDAL, PE | INSTRUMENTATION & CONTROLS**


Years of Experience 34  
 Certifications PE: CA (No. E12566); NV (No. 8271); AK (No. AELE9215); TX (No. 131717)

**UNIQUE QUALIFICATIONS**

- 36 years of experience in design and specification of I&C systems and electrical power distribution systems for municipal facilities, particularly in Northern California; has led I&C for more than 25 wastewater projects.
- Expertise in planning, designing, and constructing process control, data acquisition, and monitoring for water and wastewater treatment plants, pump stations, reservoirs, and conveyance systems.

**RELEVANT EXPERIENCE**

- Lead I&C Designer and Control System Programmer during construction, Advanced Wastewater Treatment Plant Design & Upgrade, OPUD, Olivehurst, CA
- I&C and SCADA Design Engineer and Quality Reviewer; Agua Nueva Water Reclamation Facility; Pima County; Tucson, AZ
- I&C Design Lead; Reclaimed Water Booster Pump Stations; Sub-regional Water Reclamation System, Geysers Recharge Project; Utilities Department; City of Santa Rosa, CA
- I&C Design Lead; Sewage Pumping Station No. 8 Improvements Project; Incline Village General Improvement District; Incline Village, NV



**BECKY CHELONIS | SITE CIVIL ENGINEERING**

Years of Experience 24  
 Certifications PE: CA (No. C59851)

**UNIQUE QUALIFICATIONS**

- Specializes in site/civil design for water distribution systems and other infrastructure facilities.
- Calculates earthwork quantities for civil engineering projects.
- Experience includes access roads, yard piping, utilities, detention ponds, erosion control, traffic control and signs, context-sensitive design, site grading, and survey control.
- Experienced with several electronic 3D modeling software packages for efficient design and quantity estimates.





RELEVANT EXPERIENCE

- Lead Civil Engineer, Water Treatment Plant, OPUD, CA
- Lead Civil Engineer, Clear Creek Wastewater Treatment Plant, City of Redding, CA
- Lead Site/Civil Engineer, In-Line Booster Pumping Plant, City of West Sacramento, CA
- Lead Site/Civil Engineer, NE Surface Water Treatment Facility 4.5 mg Storage Tank and Improvements, City of Fresno, CA

**KEVIN BUTCHER | COST ESTIMATING**  
Years of Experience 20

UNIQUE QUALIFICATIONS

- Developed engineer's cost estimates for more than \$2 billion in construction for water and wastewater treatment and conveyance projects throughout the United States and the Middle East.
- Knowledge of and experience in changing construction market conditions enables accurate construction cost estimates.
- Provides accurate and workable cost estimates for large, complex, high-profile water infrastructure projects in California and throughout the Southwest.
- Extensive experience in the use of Success Estimator and Excel Estimating Systems.

RELEVANT EXPERIENCE

- Lead Cost Estimator, Wastewater Boiler Replacement Project, Johnson County Wastewater, KS
- Lead Cost Estimator, Douglas L. Smith WWTP Solids Processing Improvements Contract 19, Johnson County Wastewater, KS





## TIM KASHUBA, PE | CALTRANS PERMITTING

Years of Experience    38

Certifications        PE: CA (No. C39651), NV (No. 014004), UT (No. 7164893-2202)

### UNIQUE QUALIFICATIONS

- Extensive experience in local agency coordination on pipeline projects.
- Design experience in traffic control, grading and civil design.
- Working knowledge and experience of Caltrans encroachment standards and exceptions approval processes.

### RELEVANT EXPERIENCE

- Encroachment Engineer, Private California Public Utility, CA - Consultant for major Northern California utility, preparing, submitting, obtaining encroachment, grading and building permits for underground pipelines from Caltrans, Counties and Cities throughout California including Caltrans District 3, Yuba County and Marysville. Prepared grading, construction layout and traffic plans for pipeline open trench, jack and bore and HDD projects. Proactively coordinated early project development of pipeline, traffic control and construction staging plans with agencies regarding specific design, traffic, scheduling and restoration criteria. 11/2011 through 4/2020.

### Subconsultants



**ENGINEERS & SURVEYORS SINCE 1892**

MHM, Inc is an engineering and surveying firm with over 125 years of history in northern California. The company has maintained its main office in Marysville for over sixty years and is a certified California Small Business. MHM's staff is a group of highly qualified professionals, including civil engineers, geotechnical engineers, and land surveyors, as well as a support staff of experienced technicians. Its clients include public agencies, from federal and state agencies to local cities, counties, and special districts as well as many private clients. MHM takes pride in its long history of delivering quality engineering and surveying services to our clients in a timely manner. We realize that the success of a project requires not only technical expertise but also a common-sense approach that incorporates observing and understanding the constraints that can affect a project, such as environmental issues, budgets and costs, constructability, and permitting, as examples.

Having prepared improvement plans for sewer pipelines and sewer lift pump stations throughout Northern California, MHM fully understands Yuba County and OPUD requirements. MHM has been working within the project area since 1997 and understands the issues and constraints. They have completed numerous projects within the employment village and sports and entertainment area including water, sewer, and storm drainage pipelines. Additionally, they have completed a wide range of public works projects for clients such as Sutter Butte Flood Control Agency, West Sacramento Area Flood Control Agency, Sacramento Area Flood Control Agency levee improvement projects and the Yuba City Proposition 84 Waterline project designed for the Yuba City.



## Quality Assurance and Quality Control

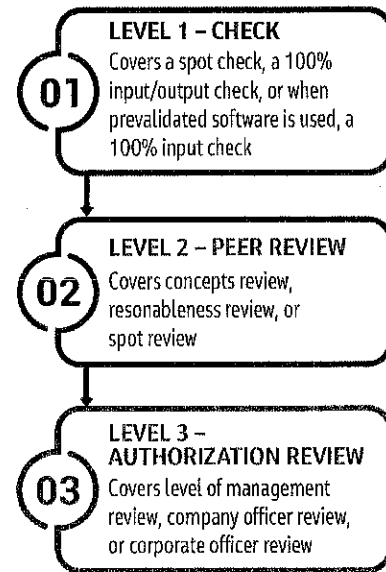
Jacobs believes the quality of our services is integral to our business success. Our actions must provide solutions that meet client needs and expectations while fulfilling OPUD and stakeholder expectations. Quality is not an end product, but rather is integrated into our work activities during every phase of each project.

Our approach to providing quality rests on our proven methodology, which has resulted in the consistent delivery of high-quality projects across the United States and worldwide.

Our Quality Assurance and Quality Control (QA/QC) Program involves planning and implementing activities to fulfill client requirements to deliver valuable products and services. We bring together a consistent and cohesive quality plan that integrates QA/QC procedures throughout the project life cycle. Quality is the responsibility of every one of our team members, but ultimately, our project manager is responsible for implementing and enforcing QA/QC Program, ensuring deliverables meet the high standards you expect and are thoroughly reviewed before submission to the OPUD for review and comment.

All deliverables, including those primarily prepared by our subconsultant MHM, will be reviewed by Jacobs internally through a formal QC process prior to being submitted to the OPUD for review and comment. The review process is documented to confirm the process is functioning as anticipated. As part of our company-wide quality management systems, we also schedule periodic internal project reviews, which require us to track and apply lessons learned to continuously improve quality and save time and money on future projects.

Exhibit 4 | Jacobs QA/QC Process

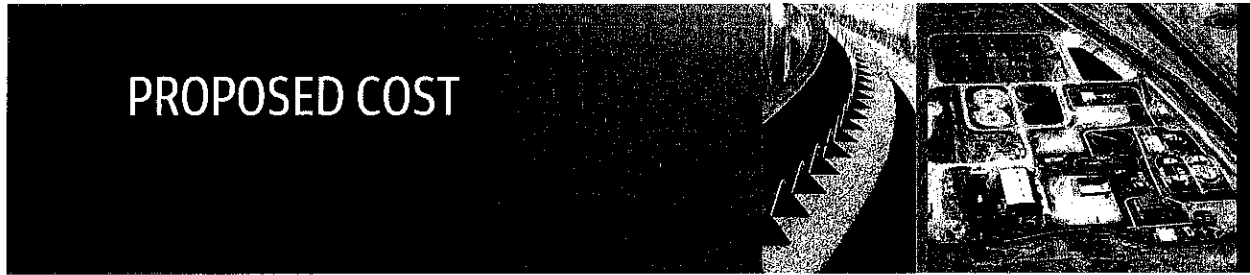


The fundamental tenets of our project-specific QA/QC process are: perform the work correctly the first time, and check deliverables with a 'second set of eyes'

**NO EXCEPTIONS**



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## Proposed Costs

We prepared a time and material fee estimate with, a not-to-exceed amount and rate schedule for the Project, consisting of **Table 1 and 2**, respectively in accordance with your RFP and Addendum No.1 requirements. **Table 1** shows costs broken out by the major tasks and activities described in the RFP. The fee estimate is based on our proposed team, approach, scope of work (included listed assumptions and deliverables) and schedule described in the previously section.

## Variable and Fixed Costs

We describe our costing strategy and provide information regarding fixed and variable costs. All costs to be invoiced for the Project will be variable costs, with no fixed costs anticipated.

We have included our hourly rates for the classifications anticipated for the work in both the fee estimate and rate schedule. Invoices will be prepared using these hourly rates and the actual hours of personnel working on the Project. Subconsultants will also prepare their own invoices and submit to Jacobs using this same approach for incorporation into the invoice to be submitted to OPUD for review, approval and payment.

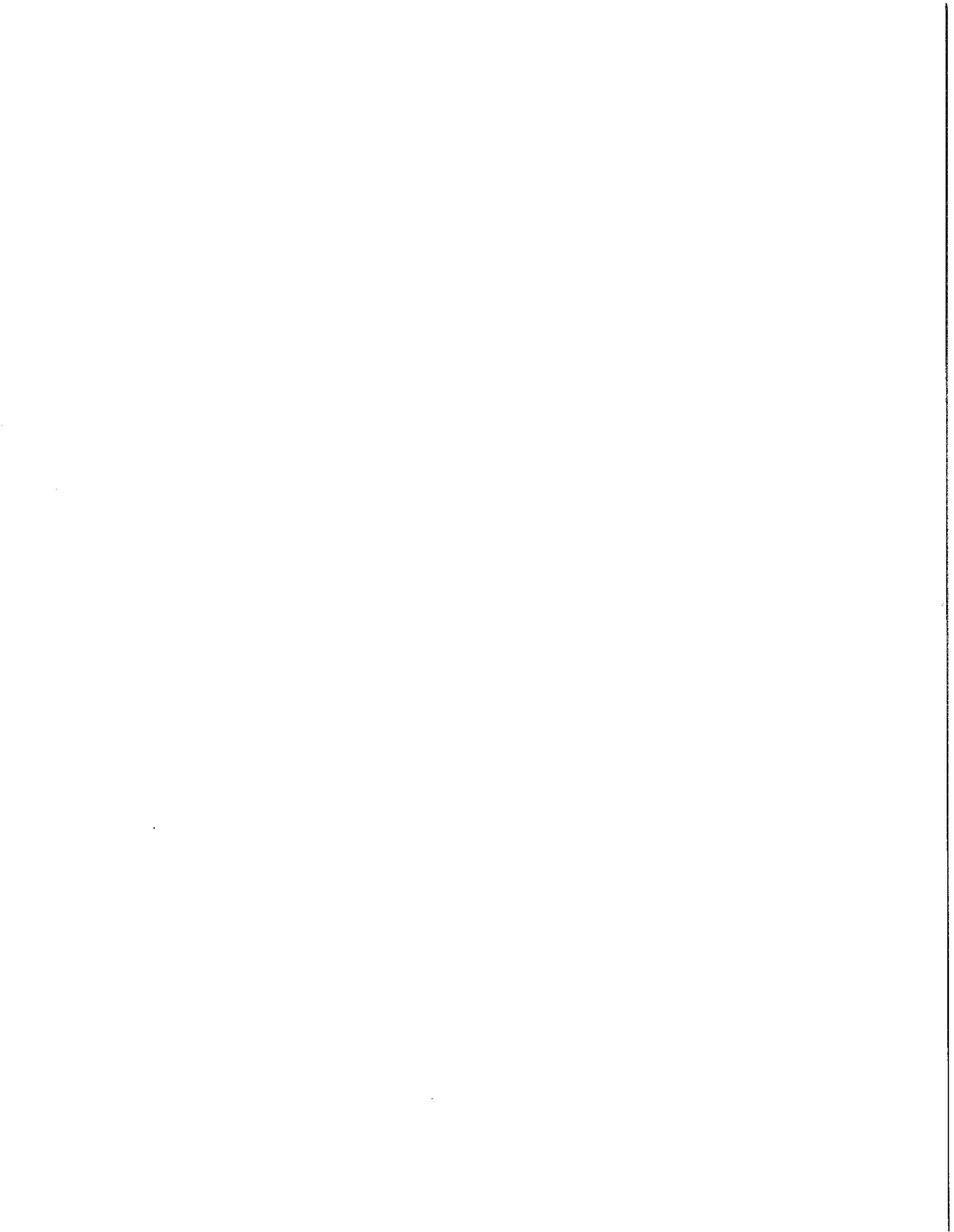
Actual expenses incurred during the course of the Project will be billed in accordance with generally accepted accounting practices and in accordance with the terms and conditions of our contract for services with OPUD.



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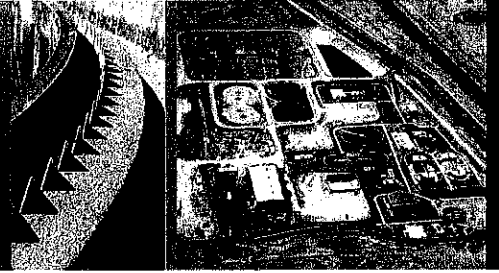
# APPENDIX







## APPENDIX: ALTERNATIVE DELIVERY APPROACH



### Combined Team Approach (Supplemental Project Delivery Option for OPUD Consideration)

As part of the Requests for Proposals for Water and Sewer Infrastructure, OPUD has asked for options to the approach defined in your RFPs that might save money or increase the quality of the delivered product. Jacobs has made the determination that we can meet both goals if the water and wastewater project elements are included in a single set of construction documents. In order to accomplish this, Jacobs has teamed with the Domenichelli and Associates (D&A) team who is submitting a separate proposal for Water Infrastructure Design. In the event that OPUD believes, as we do, that our combined teaming arrangement, with Jacobs as the prime consultant and D&A as an additional subconsultant has merit, we will enter into negotiations with OPUD using the Supplemental Project Deliver Approach defined below.

#### The full range of benefits to this supplemental approach are as follows:

- Assembling a team with Jacobs, MHM, D&A, Affinity, and Blackburn Consulting provides OPUD with the strength of Jacobs combined with the local knowledge of MHM and Affinity, plus the strong pump station design capabilities of D&A, all with a reduced engineering design cost. Potential cost savings reported at this end of this section are primarily associated with the combining of water and wastewater pipelines on a single, as opposed to two separate plan/profile drawing sets. Additional savings come from the assignment of wastewater pump station design to D&A (from Jacobs) and selection of a single geotechnical consultant. The inclusion of Jacobs (and our extensive depth of resources) as the prime consultant also increases the probability of making the very aggressive schedule that OPUD has requested, since we can help our team in the event that unexpected issues impact the schedule.
- Blackburn Consulting will contract directly with Jacobs for geotechnical services. As noted above, Blackburn also will see economies of scale for this supplemental approach.
- The team approach allows Jacobs to provide "guide specifications" to each designer, and the result is a seamless and consistent set of specifications for bidders. This will reduce the potential for construction claims and allow for the production of a quality set of construction documents for bidders. Concise bidding documents allow contractors to reduce contingencies, and result in both lower, and tighter, bid results
- Additionally, the construction documents will, with the team approach, have a single set of front-end specifications, not two. This will reduce administration costs for OPUD and reduce the potential for construction claims on the project.
- While Jacobs will assign some design elements of the project to our major subconsultants, we will provide Quality Control review for all design work; this will allow for a program with reduced costs, and high quality. We have done this on many programs in the past, and our Project Manager, Steve DeCou, was involved in a number of similar programs (over \$4 billion for the Southern Nevada Water Authority and their Water Improvement



Program and the close to \$500 million Lower Northwest Interceptor Program for Sacramento Regional County Sewer District).

- A team approach will allow for the assembly of bid schedules that can break out individual project elements in the event that smaller local contractors wish to propose on a project element, but those individual bid schedules can also include a deductive bid item in the event a larger contractor is selected for multiple bid schedules. Economies of scale usually are present for those larger contractors, and this approach can provide OPUD with the benefit of selected the lowest overall construction bids for the jointly assembled work.
- Start-up of the sewer and lift stations will require that water from the new South County water system be used to confirm operational testing of the system. One set of contract documents for this activity will help in allowing for a coordinated and claim-free start-up testing activity.
- Jacobs will provide an experienced Construction Manager to assist with on-site construction management activities requested in the RFP. MHM, D&A, and Affinity (along with Blackburn for some concrete testing) will provide inspectors for the bulk of the work at a significant cost savings to OPUD. Jacobs will send necessary engineers to visit the WWTP construction works at appropriate times during construction to review work completed by the contractor. By combining the experience of Jacobs with the lower costs of our subconsultants, OPUD obtains the benefits of both.

Based on discussions with Jim Carson (Affinity Engineering, who is teamed with D&A) we understand that property acquisition for the water well site may hold up commencement of design for that project element. We have therefore assumed that a separate bidding document for that item may be necessary as a result. Given the specialty nature of that work, a separate bidding document for the water well work is not anticipated to diminish the benefits noted for the teaming approach above. If work on the water well can be accelerated, we would include that work into the single bidding document set with a separate bid schedule to allow specialty contractors to bid on that project element only. Other bid schedules will be considered after discussing with OPUD staff as part of our services for the teaming approach.

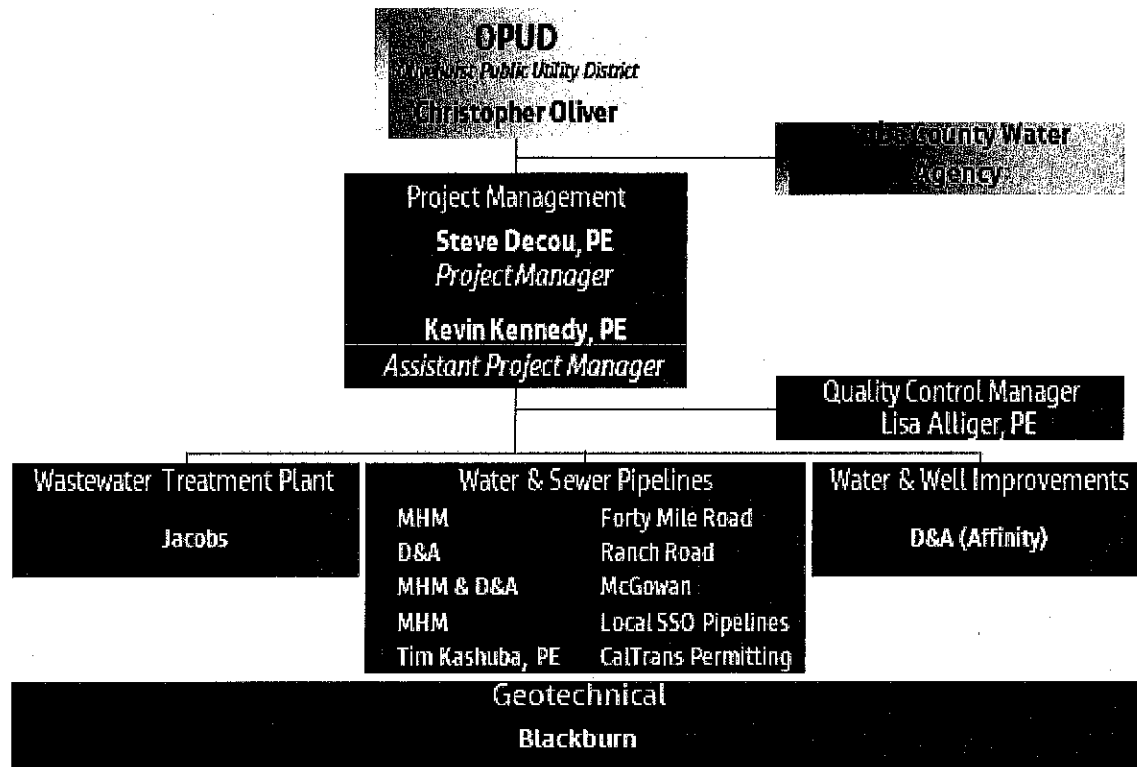
As discussed in the summary of benefits for the alternative delivery approach for teaming, Jacobs will assign responsibility for sewer pump and lift stations to D&A. This reassignment of wastewater pumping facilities, along with combining water and sewer pipelines on drawings that will be assigned to either MHM or D&A, are the principal changes in responsibility associated with the Combined Team, versus the individual Water and Sewer Infrastructure approaches. As team members in the preparation of the South Yuba Planning Area Water Study (Water Study), Affinity and D&A are familiar with the project area and infrastructure requirements.

Furthermore, through the Combined Teaming effort MHM Engineering will provide surveying and mapping services in addition to designing other portions of the water and wastewater pipelines. The effort will provide a highly skilled and efficient design team allowing OPUD's schedule to be met while reducing redundancy and providing a cost savings.

The assignment of all sewer pumping facilities to D&A will result in design cost savings to OPUD in the Combined Teaming effort. Jacobs, as prime consultant, is very comfortable with this proposed reallocation of work. D&A has extensive experience in sewer pumping station design, and a partial list of projects is shown below (the qualifications for other elements of the work can be found in either the Water or Sewer Infrastructure Design proposals by D&A or Jacobs, respectively). Jacobs will provide Quality Control oversight for all work by our subconsultants.



**Exhibit 5 | Alternative Delivery Approach Organization Chart**



**Subconsultants**



Domenichelli & Associates (D&A) is a water resources engineering firm with extensive experience working for public agencies owning and operating water and wastewater systems. D&A provides a wide range of services from design and construction management of municipal improvement facilities such as pipelines, pump stations and sewer lift stations, water storage and hydraulic structure designs, to the master planning of water, wastewater, and drainage systems for entire communities. For the past 18 years, most of the firm’s work has involved infrastructure replacement and rehabilitation including a significant amount of water and wastewater pipeline and wastewater pumping station design projects within northern California.

For nearly 20-years the D&A team has provided design services like OPUD’s South Yuba County Water and Wastewater Infrastructure Project. Their team understands the complexity of these projects and has a proven method to minimize costly surprises during construction. D&A’s most recent water and wastewater pipeline and pump station design experience includes:

- Lower Cross County Sewage Lift Station – Calaveras County Water District
- Yates Sewer Lift Station – El Dorado Irrigation District
- Rancho Del Oro Lift Station and Pipeline – Placer County
- Motherlode Force Main Phase IIA, IIB, IIC and IV – El Dorado Irrigation District
- Town Center Forcemain Phase 1 and 2 – El Dorado Irrigation District



- Antelope Pump Station Project – Sacramento Suburban Water District
- Moosehall Pump Station – El Dorado Irrigation District

### Proposed Cost, Comparison and Assumptions

We have prepared a time and material fee estimate with, a not-to-exceed amount for the Alternative Delivery Approach, consisting of **Table 4**. The fee estimate is based on our proposed team shown in **Exhibit 5**, schedule described in the previously section and following assumptions.

All assumptions for the separate Water and Sewer Infrastructure Design work by Jacobs and D&A will apply to the Alternative Delivery Approach and are not repeated here. If OPUD makes the determination that the combined team approach is preferred, we will incorporate those assumptions as part of our final assembly of scope and fee items for the engineering services agreement.

**Table 4** shows fee estimates for both the independent and alternative delivery approaches. As shown, the alternative approach can save OPUD approximately \$1.04 million.

**Table 4 | Independent and Alternative Delivery Approach Fee Comparison**

Infrastructure Project	Independent Approach	Alternative Delivery Approach
Wastewater	\$7,079,172	
Water	\$4,059,885	
Total	\$11,139,057	\$10,095,645
	<b>Potential Savings to OPUD</b>	<b>\$1,043,413</b>



**Jacobs**

Challenging today.  
Reinventing tomorrow.

Contact:

**Kevin Kennedy**

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Email: [Kevin.Kennedy1@jacobs.com](mailto:Kevin.Kennedy1@jacobs.com)









Tasks	Task Descriptions	Principal Project/Program Manager - Steve DeCou	Sr. Project Manager - Kevin Kennedy	Quality Manager - Lisa Alliger	Design Manager - Kasra Spanvi	Principal Technologist - Ryujiro Tsuchihashi	Project (Process/Mechanical) Engineer - Mike Riess	Project (Electrical) Engineer - Craig Cusworth	Engineer Specialist (Structural) - Mark Randall	Engineer Specialist (Structural) - Jeremy Kellogg	Project (Instrumentation & Controls) Engineer - Jerry Nordal	Sr. Project Automation Lead - Dave Cave	Project Automation Lead - Chris McCoy	Sr. Technologist (Caltrans Crossings) - Jim Kashuba	Sr. Specifications Processor - Cheryl Perrine	Cost Estimator - Kevin Butcher	Corrosion Engineer - Patterson Tuttle	Principal-In-Charge (Corrosion) - Rod Jackson	Site Civil - Becky Chelonia	Construction Manager	Technician 4	Clerical	JACOBS Total Hours	JACOBS Labor Subtotal	MEM - Subconsultant	Blackburn - Subconsultant	Subtotal Subconsultants (Labor & Expenses)	(10%) Markup on Subconsultants	ODC's and Travel	Communication and Computer Charges \$/hr	(%) Markup on Other Costs	Subtotal ODC's & Subs	Fee on JACOBS Labor	Total Costs																			
2020		\$329	\$282	\$307	\$258	\$307	\$231	\$231	\$258	\$258	\$231	\$186	\$143	\$282	\$141	\$166	\$143	\$329	\$143	\$282	\$166	\$110																															
2021		\$339	\$290	\$316	\$266	\$316	\$238	\$238	\$266	\$266	\$238	\$192	\$147	\$290	\$145	\$171	\$147	\$339	\$147	\$290	\$171	\$113																															
2022		\$349	\$299	\$325	\$274	\$325	\$245	\$245	\$274	\$274	\$245	\$198	\$151	\$299	\$149	\$176	\$151	\$349	\$151	\$299	\$176	\$116																															
A5	Permitting - \$10,000 Allowance																						0	\$ 10,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 10,000																		
A6	Bid and Award Services		3	2	4		6	4	2		4	8			3		2					4	42	\$ 9,147	\$ 1,930	\$ -	\$ 1,930	\$ 193	\$ 252	\$ -	\$ 2,375	\$ -	\$ -	\$ 11,522																			
A7	Engineering Services During Construction		32	44	10		24	6	8		8	18			4	6						24	16	\$ 51,686	\$ 1,242	\$ -	\$ 1,242	\$ 124	\$ 1,200	\$ -	\$ 2,566	\$ -	\$ -	\$ 54,252																			
	Subtotal	4	131	102	120	0	198	140	94	0	114	630	0	0	59	114	34	0	40	24	0	92	1,896	\$ 413,661	\$ 32,105	\$ -	\$ 32,105	\$ 3,210	\$ -	\$ 11,376	\$ -	\$ 46,691	\$ -	\$ -	\$ 460,352																		
<b>Alternative Task B - WWTP Improvements</b>																																																					
B1	Project Management																						0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -																		
B2	Preliminary Design Services	6	10	12	4		28	20	24		16	124			40	14		40				40	378	\$ 72,312	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 2,268	\$ -	\$ 2,268	\$ -	\$ -	\$ 74,580													
B3.1	Final Design - 60% Submittal		150	150	135		462	115	152		135	958			76	169	30		418			71	3,021	\$ 615,702	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 18,128	\$ -	\$ 18,128	\$ -	\$ -	\$ 633,830										
B3.2	Final Design - 90% Submittal																						0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -															
B3.3	Final (100%) Design Submittal																						0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -															
B4	Survey and Mapping			2																			2	\$ 614	\$ 9,363	\$ -	\$ 9,363	\$ 936	\$ 12	\$ -	\$ 10,312	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 10,926																
B5	Permitting - \$20,000 Allowance																						0	\$ 20,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 20,000															
B6	Bid and Award Services	4	15	7	3	0	7	5	3	0	7	17	0	2	7	0	1	0	4	0	0	7	88	\$ 20,175	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 527	\$ -	\$ 527	\$ -	\$ -	\$ 20,702									
B7	Engineering Services During Construction		230	32	49	0	168	55	67	0	62	126	0	0	15	39	6	0	96	0	0	116	1,061	\$ 240,537	\$ -	\$ -	\$ -	\$ -	\$ 7,500	\$ 6,368	\$ -	\$ 13,868	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 254,405															
	Subtotal	10	406	202	191	0	665	195	246	0	219	1,225	0	2	97	248	51	0	559	0	0	234	4,550	\$ 969,340	\$ 9,363	\$ -	\$ 9,363	\$ 936	\$ 7,500	\$ 27,302	\$ -	\$ 45,102	\$ -	\$ -	\$ -	\$ -	\$ 1,014,442																
	<b>Total</b>	147	1,087	698	451	0	1,341	726	433	0	714	3,638	0	110	245	574	171	0	805	3,024	0	3,689	17,852	\$ 3,870,655	\$ 1,979,107	\$ 766,249	\$ 2,745,356	\$ 274,536	\$ 41,513	\$ 107,112	\$ 0	\$ 3,168,517	\$ 0	\$ 0	\$ 7,079,172																		

Table 5 | Engineering Services Savings for Alternative Delivery Approach (Fee Estimate Table)

Tasks	Task Descriptions	Principal Project/Program Manager - Steve DeCou	Sr. Project Manager - Kevin Kennedy	Quality Manager - Lisa Alliger	Design Manager - Kasra Spanvi	Project (Process/Mechanical) Engineer - Mike Riess	Project (Electrical) Engineer - Craig Cusworth	Engineer Specialist (Structural) - Mark Randall	Project (Instrumentation & Controls) Engineer - Jerry Nordal	Sr. Project Automation Lead - Dave Cave	Sr. Technologist (Caltrans Crossings) - Tim Kashuba	Sr. Specifications Processor - Cheryl Perrine	Cost Estimator - Kevin Butcher	Corrosion Engineer - Patterson Tuttle	Site Civil - Becky Chelouis	Construction Manager	Clerical	JACOBS Total Hours	JACOBS Labor Subtotal	MFM - Subconsultant	Domenichelli & Associates	Blackburn - Subconsultant	Subtotal Subconsultants (Labor & Expense)	(10%) Markup on Subconsultants	ODC's and Travel	Communication and Computer Charges \$/hr	(%) Markup on Other Costs	Subtotal ODC's & Subs	Fee on JACOBS Labor	Total Costs	
	2020	\$329	\$282	\$307	\$258	\$231	\$231	\$258	\$231	\$186	\$282	\$141	\$166	\$143	\$143	\$282	\$110														
	2021	\$339	\$290	\$316	\$266	\$238	\$238	\$266	\$238	\$192	\$290	\$145	\$171	\$147	\$147	\$290	\$113														
	2022	\$349	\$299	\$325	\$274	\$245	\$245	\$274	\$245	\$198	\$299	\$149	\$176	\$151	\$151	\$299	\$116														
<b>Task 1</b>	<b>Project Management (May 22, 2020 - March 31, 2021)</b>																														
1.1	Monthly Coordination Meetings (up to 11, including Kickoff)	54	72														40	166	\$ 43,032	\$ 9,899		\$ 9,750	\$ 19,649	\$ 1,965	\$ 648	\$ 996	\$ -	\$ 23,258	\$ -	\$ 66,290	
1.2	Monthly Progress Reports and Invoices (10)	10	20														24	54	\$ 11,721	\$ 15,578		\$ 6,500	\$ 22,078	\$ 2,208		\$ 324	\$ -	\$ 24,610	\$ -	\$ 36,330	
1.3	Project Management (June 1, 2020 through March 31, 2021)	64	88														40	192	\$ 50,937	\$ 17,041		\$ 8,030	\$ 25,071	\$ 2,507	\$ 1,701	\$ 1,152	\$ -	\$ 30,431	\$ -	\$ 81,369	
1.4	Stakeholder Coordination (\$30,000 Allowance, combine w/Task 8.4)																0		\$ 30,000				\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 30,000	
1.5	Environmental Permitting (\$40,000 Allowance as described in Addendum #1)																0		\$ 40,000				\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 40,000	
	<b>Subtotal</b>	<b>128</b>	<b>180</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>104</b>	<b>412</b>	<b>\$ 175,690</b>	<b>\$ 42,518</b>	<b>\$ -</b>	<b>\$ 24,280</b>	<b>\$ 66,798</b>	<b>\$ 6,680</b>	<b>\$ 2,349</b>	<b>\$ 2,472</b>	<b>\$ -</b>	<b>\$ 78,299</b>	<b>\$ -</b>	<b>\$ 253,989</b>	
<b>Task 2</b>	<b>Preliminary Design Service</b>																														
2.1	Review Background Information and Geotechnical Report	4	4	66	4					8							8	94	\$ 26,106	\$ 3,500		\$ 332,936	\$ 336,436	\$ 33,644	\$ 515	\$ 564	\$ -	\$ 371,159	\$ -	\$ 397,265	
2.2	Traffic Control Plans & Encroachment Permitting (6 Highway 65 & 70 Crossing)	8	12	13							160							193	\$ 55,127	\$ 9,250			\$ 9,250	\$ 925	\$ 415	\$ 1,158	\$ -	\$ 11,748	\$ -	\$ 66,875	
2.3	Basis of Design Report																	0	\$ -	\$ 34,818			\$ 34,818	\$ 3,482		\$ -	\$ -	\$ 38,300	\$ -	\$ 38,300	
	<b>Subtotal</b>	<b>12</b>	<b>16</b>	<b>79</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>8</b>	<b>160</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>8</b>	<b>287</b>	<b>\$ 81,233</b>	<b>\$ 47,568</b>	<b>\$ -</b>	<b>\$ 332,936</b>	<b>\$ 380,504</b>	<b>\$ 38,050</b>	<b>\$ 930</b>	<b>\$ 1,722</b>	<b>\$ -</b>	<b>\$ 421,207</b>	<b>\$ -</b>	<b>\$ 502,440</b>	
<b>Task 3</b>	<b>Final Design</b>																														
3.1	60% Submittal																	0	\$ -	\$ 54,940	\$ 13,000		\$ 67,940	\$ 6,794	\$ 1,568	\$ -	\$ -	\$ 76,302	\$ -	\$ 76,302	
3.2	90% Submittal																	0	\$ -	\$ 385,026	\$ 159,020		\$ 544,046	\$ 54,405		\$ -	\$ -	\$ 598,451	\$ -	\$ 598,451	
3.3	100% (Final) Submittal																	0	\$ -	\$ 80,132	\$ 99,510		\$ 179,642	\$ 17,964		\$ -	\$ -	\$ 197,607	\$ -	\$ 197,607	
3.4	Quality Assurance / Quality Control			120														120	\$ 37,056	\$ -			\$ -	\$ -	\$ 720	\$ -	\$ 720	\$ -	\$ 37,776		
	<b>Subtotal</b>	<b>0</b>	<b>0</b>	<b>120</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>120</b>	<b>\$ 37,056</b>	<b>\$ 850,184</b>	<b>\$ 313,470</b>	<b>\$ 13,000</b>	<b>\$ 791,628</b>	<b>\$ 79,163</b>	<b>\$ 1,568</b>	<b>\$ 720</b>	<b>\$ -</b>	<b>\$ 873,079</b>	<b>\$ -</b>	<b>\$ 910,135</b>	
<b>Task 4</b>	<b>Survey and Mapping</b>																														
		12	24	20														56	\$ 16,856	\$ 119,623			\$ 119,623	\$ 11,962		\$ 336	\$ -	\$ 131,922	\$ -	\$ 148,778	
	<b>Subtotal</b>	<b>12</b>	<b>24</b>	<b>20</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>56</b>	<b>\$ 16,856</b>	<b>\$ 119,623</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 119,623</b>	<b>\$ 11,962</b>	<b>\$ -</b>	<b>\$ 336</b>	<b>\$ -</b>	<b>\$ 131,922</b>	<b>\$ -</b>	<b>\$ 148,778</b>	
<b>Task 5</b>	<b>Permitting (\$40,000 Allowance)</b>																														
																			0	\$ 40,000	\$ -			\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 40,000
	<b>Subtotal</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>\$ 40,000</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 40,000</b>	
<b>Task 6</b>	<b>Bid and Award Services</b>																														
6.1	Pre-Bid Conference	12	16															8	36	\$ 9,612	\$ 1,176	\$ 2,000		\$ 3,176	\$ 318	\$ 133	\$ 216	\$ -	\$ 3,842	\$ -	\$ 13,454
6.2	Bid Period Clarifications, Responses and Addenda (up to 2)	24	36	8														16	84	\$ 22,912	\$ 10,266	\$ 17,160		\$ 27,426	\$ 2,743		\$ 504	\$ -	\$ 30,673	\$ -	\$ 53,585
	<b>Subtotal</b>	<b>36</b>	<b>52</b>	<b>8</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>24</b>	<b>120</b>	<b>\$ 32,524</b>	<b>\$ 11,442</b>	<b>\$ 19,160</b>	<b>\$ -</b>	<b>\$ 30,602</b>	<b>\$ 3,060</b>	<b>\$ 133</b>	<b>\$ 720</b>	<b>\$ -</b>	<b>\$ 34,515</b>	<b>\$ -</b>	<b>\$ 67,039</b>	
<b>Task 7</b>	<b>Engineering Services During Construction</b>																														
7.1	Progress Meetings and Problem Resolution		20															20	\$ 5,900	\$ 12,031	\$ 20,640		\$ 32,671	\$ 3,267		\$ 120	\$ -	\$ 36,058	\$ -	\$ 41,958	
7.2	Response to RFIs		16	6														22	\$ 6,602	\$ 9,964	\$ 22,070		\$ 32,034	\$ 3,203		\$ 132	\$ -	\$ 35,369	\$ -	\$ 41,971	
7.3	Shop Drawing Review and Coordination		24	6														30	\$ 8,946	\$ 5,075	\$ 42,460		\$ 47,535	\$ 4,754		\$ 180	\$ -	\$ 52,469	\$ -	\$ 61,415	
7.4	Change Orders		14	6														20	\$ 6,046	\$ 10,083	\$ 45,480		\$ 55,563	\$ 5,556		\$ 120	\$ -	\$ 61,239	\$ -	\$ 67,285	
7.5	Inspections, Final Walkthrough and Construction Management		16	32													3,000	3000	\$ 6,048	\$ 1,251,040	\$ 1,507,278	\$ 477,541	\$ 395,615	\$ 2,380,434	\$ 238,043	\$ 18,920	\$ 36,288	\$ -	\$ 2,673,685	\$ -	\$ 3,924,725
7.6	As-Built Drawings in AutoCAD and pdf formats		2	8	6													16	\$ 5,004	\$ 25,071	\$ 26,820		\$ 51,891	\$ 5,189		\$ 96	\$ -	\$ 57,176	\$ -	\$ 62,180	
	Monthly Progress Reports and Invoices (18) (April 2021 - October 2022)		6	20														21	\$ 10,434				\$ -	\$ -	\$ 2,613	\$ 282	\$ -	\$ 2,895	\$ -	\$ 13,329	
	<b>Subtotal</b>	<b>24</b>	<b>134</b>	<b>24</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>3,000</b>	<b>3,021</b>	<b>\$ 1,293,972</b>	<b>\$ 1,569,502</b>	<b>\$ 635,011</b>	<b>\$ 395,615</b>	<b>\$ 2,600,128</b>	<b>\$ 260,013</b>	<b>\$ 21,533</b>	<b>\$ 37,218</b>	<b>\$ -</b>	<b>\$ 2,918,891</b>	<b>\$ -</b>	<b>\$ 4,212,863</b>	
<b>Alternative Task A - Olivehurst Improvements</b>																															



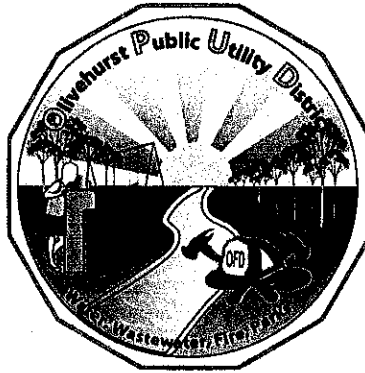
Tasks	Task Descriptions	Principal Project/Program Manager - Steve DeCou	Sr. Project Manager - Kevin Kennedy	Quality Manager - Lisa Alliger	Design Manager - Kasra Sparvi	Project (Process/Mechanical) Engineer - Mike Riess	Project (Electrical) Engineer - Craig Cusworth	Engineer Specialist (Structural) - Mark Randall	Project (Instrumentation & Controls) Engineer - Jerry Nordal	Sr. Project Automation Lead - Dave Cave	Sr. Technologist (Caltrans Crossings) - Jim Keshuba	Sr. Specifications Processor - Cheryl Perrine	Cost Estimator - Kevin Butcher	Corrosion Engineer - Patterson Tuttle	Site Civil - Becky Cheloni	Construction Manager	Clerical	JACOBS Total Hours	JACOBS Labor Subtotal	MHM - Subconsultant	Domenichelli & Associates	Blackburn - Subconsultant	Subtotal Subconsultants (Labor & Expenses)	(10%) Markup on Subconsultants	ODC's and Travel	Communication and Computer Charges \$6/hr	(%) Markup on Other Costs	Subtotal ODC's & Subs	Fee on JACOBS Labor	Total Costs		
2020		\$329	\$282	\$307	\$258	\$231	\$231	\$258	\$231	\$186	\$282	\$141	\$166	\$143	\$143	\$282	\$110															
2021		\$339	\$290	\$316	\$266	\$238	\$238	\$266	\$238	\$192	\$299	\$145	\$171	\$147	\$147	\$290	\$113															
2022		\$349	\$299	\$325	\$274	\$245	\$245	\$274	\$245	\$198	\$299	\$149	\$176	\$151	\$151	\$299	\$116															
A1	Project Management																	0	\$ -	\$ -	\$ 1,000		\$ 1,000	\$ 100	\$ -	\$ -	\$ 1,100	\$ -	\$ -	\$ 1,100		
A2	Preliminary Design Services			8														8	\$ 2,456	\$ -	\$ 20,834		\$ 20,834	\$ 2,083	\$ 48	\$ -	\$ 22,965	\$ -	\$ -	\$ 25,421		
A3.1	Final Design - 60% Submittal			16														16	\$ 4,912	\$ -	\$ 24,120		\$ 24,120	\$ 2,412	\$ 96	\$ -	\$ 26,628	\$ -	\$ -	\$ 31,540		
A3.2	Final Design - 90% Submittal			10														10	\$ 3,070	\$ -	\$ 153,653		\$ 153,653	\$ 15,365	\$ 60	\$ -	\$ 169,078	\$ -	\$ -	\$ 172,148		
A3.3	Final (100%) Design Submittal			8														8	\$ 2,492	\$ -	\$ 59,127		\$ 59,127	\$ 5,913	\$ 48	\$ -	\$ 65,088	\$ -	\$ -	\$ 67,580		
A4	Survey and Mapping			2														2	\$ 614	\$ 8,134			\$ 8,134	\$ 813	\$ 12	\$ -	\$ 8,959	\$ -	\$ -	\$ 9,573		
A5	Permitting - \$10,000 Allowance																	0	\$ -	\$ -			\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
A6	Bid and Award Services																	0	\$ -	\$ -			\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
A7	Engineering Services During Construction																	0	\$ -	\$ -			\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
	Subtotal	0	0	44	0	0	0	0	0	0	0	0	0	0	0	0	0	44	\$ 13,544	\$ 8,134	\$ 258,734	\$ -	\$ 266,868	\$ 26,687	\$ -	\$ 264	\$ -	\$ 293,819	\$ -	\$ -	\$ 307,363	
<b>Alternative Task B - WWTP Improvements</b>																																
B1	Project Management																	0	\$ -	\$ -			\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
B2	Preliminary Design Services	6	10	12	4	28	20	24	16	124			40	14	40	40	378	\$ 72,312	\$ -				\$ -	\$ -	\$ 2,268	\$ -	\$ 2,268	\$ -	\$ -	\$ 74,560		
B3.1	Final Design - 60% Submittal		150	150	135	462	115	152	135	958		76	169	30	418	71	3021	\$ 615,702	\$ -				\$ -	\$ -	\$ 18,128	\$ -	\$ 18,128	\$ -	\$ -	\$ 633,830		
B3.2	Final Design - 90% Submittal																	0	\$ -	\$ -			\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
B3.3	Final (100%) Design Submittal																	0	\$ -	\$ -			\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
B4	Survey and Mapping	4	8	2														14	\$ 4,186	\$ 9,363			\$ 9,363	\$ 936	\$ 84	\$ -	\$ 10,384	\$ -	\$ -	\$ 14,570		
B5	Permitting - \$20,000 Allowance																	0	\$ 20,000	\$ -			\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 20,000	
B6	Bid and Award Services	4	15	7	3	7	5	3	7	17	2	7	0	1	4	0	7	88	\$ 20,175	\$ -			\$ -	\$ -	\$ 527	\$ -	\$ 527	\$ -	\$ -	\$ 20,702		
B7	Engineering Services During Construction		230	32	49	168	55	67	62	126	0	15	39	6	96	0	116	1061	\$ 240,537	\$ -			\$ -	\$ -	\$ 7,500	\$ 6,368	\$ -	\$ 13,868	\$ -	\$ -	\$ 254,405	
	Subtotal	14	414	202	191	665	195	246	219	1,225	2	97	248	51	559	0	234	4,562	\$ 972,912	\$ 9,363	\$ -	\$ -	\$ 9,363	\$ 936	\$ 7,500	\$ 27,374	\$ -	\$ 45,174	\$ -	\$ -	\$ 1,018,086	
<b>Total (WASTEWATER INFRASTRUCTURE ONLY)</b>		226	820	497	195	665	195	246	219	1,233	162	97	248	51	559	3,000	3,391	11,804	\$2,663,787	\$2,658,335	\$1,226,375	\$765,831	\$4,265,515	\$426,551	\$34,013	\$70,826	\$0	\$4,796,906	\$0	\$7,460,692		
Task 8	Project Management (May 22, 2020 - March 31, 2021)																															
8.1	Monthly Coordination Meetings (up to 11, including Kickoff)																	0	\$ -	\$ -	\$ 25,965		\$ 25,965	\$ 2,597	\$ -	\$ -	\$ 28,562	\$ -	\$ -	\$ 28,562		
8.2	Monthly Progress Reports and Invoices (10)																	0	\$ -	\$ -	\$ 12,340		\$ 12,340	\$ 1,234	\$ -	\$ -	\$ 13,574	\$ -	\$ -	\$ 13,574		
8.3	Project Management (June 1, 2020 through March 31, 2021)																	0	\$ -	\$ -	\$ 56,360		\$ 56,360	\$ 5,636	\$ -	\$ -	\$ 61,996	\$ -	\$ -	\$ 61,996		
8.4	Stakeholder Coordination (\$30,000 Allowance; combine w/Task 1.4)																	0	\$ 30,000	\$ -			\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 30,000		
8.5	Environmental Permitting (\$40,000 Allowance as described in Addendum #1)																	0	\$ 40,000	\$ -			\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 40,000		
	Subtotal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	\$ 70,000	\$ -	\$ 94,665	\$ -	\$ 94,665	\$ 9,467	\$ -	\$ -	\$ 104,132	\$ -	\$ -	\$ 174,132		
Task 9	Preliminary Design Service																															
9.1	Review Background Information and Geotechnical Report			5	5													10	\$ 2,825	\$ 19,340			\$ 19,340	\$ 1,934	\$ 60	\$ -	\$ 21,334	\$ -	\$ -	\$ 24,159		
9.2	Traffic Control Plans & Encroachment Permitting (6 Highway 65 & 70 Crossing)	8	12	68														248	\$ 72,012	\$ 6,100			\$ 6,100	\$ 610	\$ 1,488	\$ -	\$ 8,198	\$ -	\$ -	\$ 80,210		
9.3	Basis of Design Report			25														25	\$ 6,450	\$ 161,069			\$ 161,069	\$ 16,107	\$ 150	\$ -	\$ 177,326	\$ -	\$ -	\$ 183,776		
	Subtotal	8	12	73	30	0	0	0	0	0	160	0	0	0	0	0	0	283	\$ 81,287	\$ -	\$ 186,509	\$ -	\$ 186,509	\$ 18,651	\$ -	\$ 1,698	\$ -	\$ 206,858	\$ -	\$ -	\$ 288,145	
Task 10	Final Design																															
10.1	60% Submittal			80														80	\$ 24,560	\$ 24,273	\$ 324,925	\$ 67,069	\$ 416,267	\$ 41,627	\$ 480	\$ -	\$ 458,373	\$ -	\$ -	\$ 482,933		
10.2	90% Submittal			40														40	\$ 12,280	\$ 50,482	\$ 305,140		\$ 355,622	\$ 35,562	\$ 240	\$ -	\$ 391,424	\$ -	\$ -	\$ 403,704		
10.3	100% (Final) Submittal			20														20	\$ 6,230	\$ 15,527	\$ 133,490		\$ 149,017	\$ 14,902	\$ 120	\$ -	\$ 164,039	\$ -	\$ -	\$ 170,269		
10.4	Quality Assurance / Quality Control																	0	\$ -	\$ -			\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	

DNI  
307,363

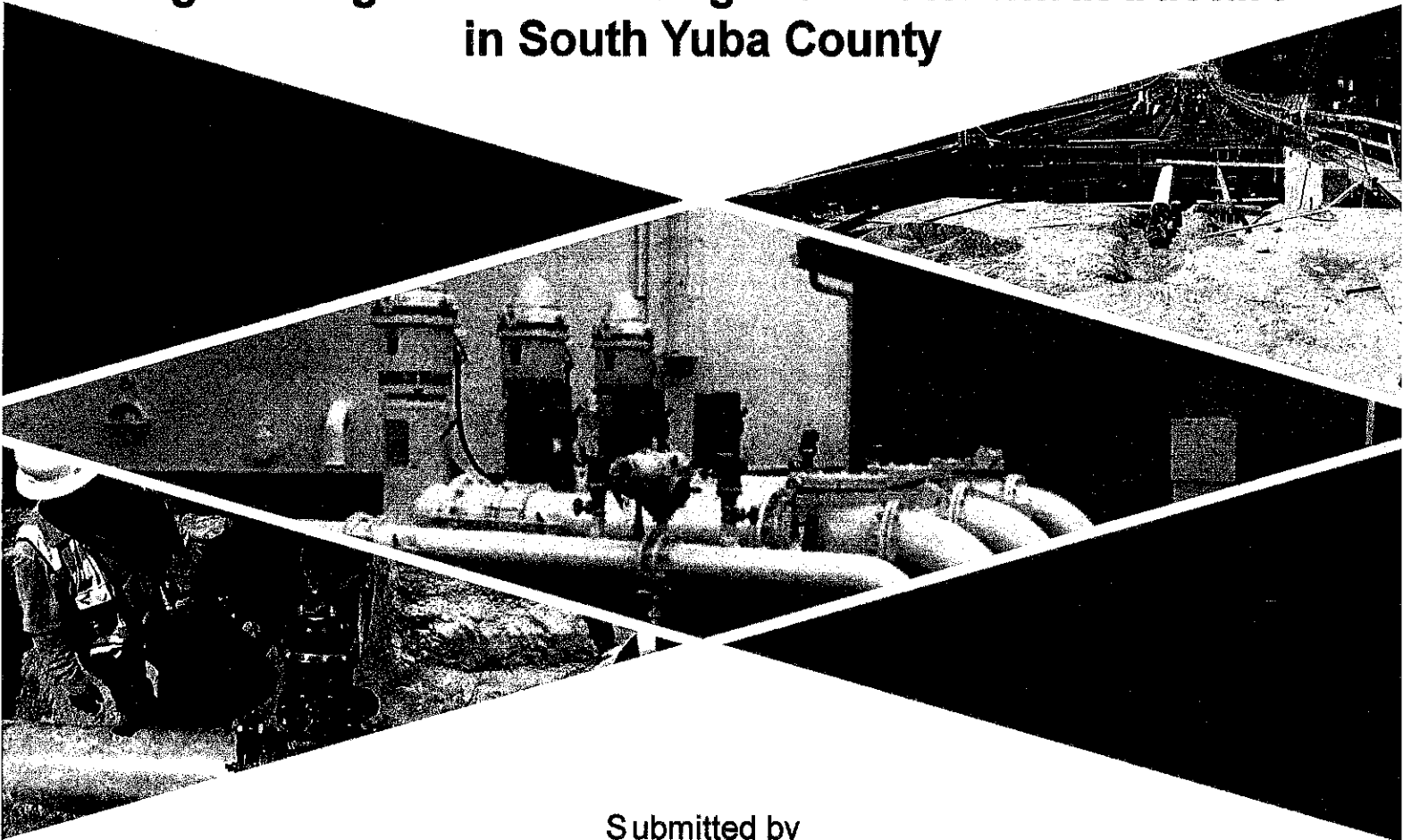


Tasks	Task Descriptions	Principal Project/Program Manager - Steve DeCou	Sr. Project Manager - Kevin Kennedy	Quality Manager - Lisa Alliger	Design Manager - Kasra Spanvi	Project (Process/Mechanical) Engineer - Mike Riess	Project (Electrical) Engineer - Craig Cusworth	Engineer Specialist (Structural) - Mark Randall	Project (Instrumentation & Controls) Engineer - Jerry Nordal	Sr. Project Automation Lead - Dave Cave	Sr. Technologist (Caltrans Crossings) - Tim Kashuba	Sr. Specifications Processor - Cheryl Perrine	Cost Estimator - Kevin Butcher	Corrosion Engineer - Patterson Tuttle	Site Civil - Becky Cheloni	Construction Manager	Clerical	JACOBS Total Hours	JACOBS Labor Subtotal	MHM - Subconsultant	Domenichelli & Associates	Blackburn - Subconsultant	Subtotal Subconsultants (Labor & Expenses)	(10%) Markup on Subconsultants	ODC's and Travel	Communication and Computer Charges \$6/hr	(%) Markup on Other Costs	Subtotal ODC's & Subs	Fee on JACOBS Labor	Total Costs	
2020		\$329	\$282	\$307	\$258	\$231	\$231	\$258	\$231	\$186	\$282	\$141	\$166	\$143	\$143	\$282	\$110														
2021		\$339	\$290	\$316	\$266	\$238	\$238	\$266	\$238	\$192	\$290	\$145	\$171	\$147	\$147	\$290	\$113														
2022		\$349	\$299	\$325	\$274	\$245	\$245	\$274	\$245	\$198	\$299	\$149	\$176	\$151	\$151	\$299	\$116														
	Subtotal	0	0	140	0	0	0	0	0	0	0	0	0	0	0	0	0	140	\$ 43,070	\$ 90,281	\$ 763,555	\$ 67,069	\$ 920,905	\$ 92,091	\$ -	\$ 840	\$ -	\$ 1,013,836	\$ -	\$ 1,056,906	
Task 11	Survey and Mapping	4	8	5														17	\$ 5,107	\$ 30,242	\$ 9,580		\$ 39,822	\$ 3,982		\$ 102	\$ -	\$ 43,906	\$ -	\$ 49,013	
	Subtotal	4	8	5	0	0	0	0	0	0	0	0	0	0	0	0	0	17	\$ 5,107	\$ 30,242	\$ 9,580	\$ -	\$ 39,822	\$ 3,982	\$ -	\$ 102	\$ -	\$ 43,906	\$ -	\$ 49,013	
Task 12	Permitting (\$40,000 Allowance)																	0	\$ 40,000	\$ -		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 40,000
	Subtotal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	\$ 40,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 40,000
Task 13	Bid and Award Services																														
13.1	Pre-Bid Conference	6	12															18	\$ 5,514	\$ 471	\$ 1,950		\$ 2,421	\$ 242		\$ 108	\$ -	\$ 2,771	\$ -	\$ 8,285	
13.2	Bid Period Clarifications, Responses and Addenda (up to 2)	8	12	6														26	\$ 8,088	\$ 1,817	\$ 58,229		\$ 60,046	\$ 6,005		\$ 156	\$ -	\$ 66,207	\$ -	\$ 74,295	
	Subtotal	14	24	6	0	0	0	0	0	0	0	0	0	0	0	0	0	44	\$ 13,602	\$ 2,288	\$ 60,179	\$ -	\$ 62,467	\$ 6,247	\$ -	\$ 264	\$ -	\$ 68,978	\$ -	\$ 82,580	
Task 14	Engineering Services During Construction																														
14.1	Progress Meetings and Problem Resolution			8														8	\$ 2,568	\$ -	\$ 32,240		\$ 32,240	\$ 3,224		\$ 48	\$ -	\$ 35,512	\$ -	\$ 38,080	
14.2	Response to RFIs			10	3													13	\$ 3,996	\$ -	\$ 17,000		\$ 17,000	\$ 1,700		\$ 78	\$ -	\$ 18,778	\$ -	\$ 22,774	
14.3	Shop Drawing Review and Coordination			10	6													16	\$ 4,802	\$ -	\$ 30,880		\$ 30,880	\$ 3,088		\$ 96	\$ -	\$ 34,064	\$ -	\$ 38,866	
14.4	Change Orders			3	6													9	\$ 2,582	\$ -	\$ 26,360		\$ 26,360	\$ 2,636		\$ 54	\$ -	\$ 29,050	\$ -	\$ 31,632	
14.5	Inspections, Final Walkthrough and Construction Management																	0	\$ -	\$ -	\$ 682,921	\$ 25,000	\$ 707,921	\$ 70,792		\$ -	\$ -	\$ 778,713	\$ -	\$ 778,713	
14.6	As-Built Drawings in AutoCAD and pdf formats				4													4	\$ 1,088	\$ -	\$ 30,000		\$ 30,000	\$ 3,000		\$ 24	\$ -	\$ 33,024	\$ -	\$ 34,112	
	Monthly Progress Reports and Invoices (18) (April 2021 - October 2022)																	0	\$ -	\$ -	\$ -		\$ -	\$ -		\$ -	\$ -	\$ -	\$ -	\$ -	
	Subtotal	0	0	31	19	0	0	0	0	0	0	0	0	0	0	0	0	50	\$ 15,036	\$ -	\$ 819,401	\$ 25,000	\$ 844,401	\$ 84,440	\$ -	\$ 300	\$ -	\$ 929,141	\$ -	\$ 944,177	
		26	44	235	49	0	0	0	0	160	0	0	0	0	0	0	0	334	\$268,102	\$122,812	\$1,933,889	\$92,069	\$2,148,770	\$214,877	\$0	\$3,204	\$0	\$2,366,851	\$0	\$2,634,952	
	<b>GRAND TOTAL (WATER &amp; WASTEWATER INFRASTRUCTURE)</b>	252	864	752	244	665	195	246	219	1,233	322	97	248	51	539	3,000	3,391	12,338	\$2,931,888	\$2,781,147	\$3,160,264	\$857,900	\$6,414,285	\$641,428	\$34,013	\$74,030	\$0	\$7,163,756	\$0	\$10,095,645	

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**Proposal for:  
Engineering Services: Design for Water Infrastructure  
in South Yuba County**



Submitted by  
**Domenichelli & Associates, Inc.**







**DOMENICHELLI AND ASSOCIATES, INC.**  
**CIVIL ENGINEERING**

May 12, 2020

Olivehurst Public Utility District  
ATTN: John Tillotson and Christopher Oliver  
1970 9<sup>th</sup> Avenue  
Olivehurst, CA 95961

**RE: Proposal for Design for Water Infrastructure in South Yuba County**

**Dear Selection Committee,**

**Domenichelli and Associates, Inc. (D&A)** is pleased to submit the attached Proposal for OPUD's Water Infrastructure in South Yuba County project. You will see from this proposal that the D&A team will be the right choice for the District to provide these design and construction support services.

Our point of contact will be myself, Joe Domenichelli, President at [JoeD@daengineering.net](mailto:JoeD@daengineering.net). A second point of contact will be Sara Rogers, Vice President at [SaraR@daengineering.net](mailto:SaraR@daengineering.net). Our address and phone numbers are:

**Corporate Office:**

5180 Golden Foothill Parkway, Suite 220  
El Dorado Hills, CA 95762  
**Phone:** (916) 933-1997

**Sacramento Office:**

3301 C Street #1000  
Sacramento, CA 95816  
**Cell:** (916) 716-4207 (Joe), or (916) 803-0012 (Sara)

Our team will be led by Sara Rogers, who has over 19-years of experience managing and/or designing large water pipeline and water supply projects throughout northern California. She will be supported by Joe Domenichelli who has over 35-years of design and construction experience in the water resources industry. Our D&A team also includes Tom Dugan, Daryl Heigher, and Adam Motiejunas, with extensive experience in pipeline design. In addition, Mr. Dugan specializes in Construction Management. His construction experience will be an asset during the design and construction phases of the project.

For this design effort, our main teaming partner is Affinity Engineering. Affinity will provide design services for the water plant facility. Affinity and D&A recently teamed to provide the District the Water Supply Study that is the basis for this RFP. Jim Carson has worked with OPUD and in the area for the past 15-years on multiple projects. His knowledge of the project through his past work with the District will be valuable to ensure the project's success.

We are also teaming with MHM for surveying, pipeline design, and inspection services, Frisch Engineering for electrical design, Blackburn Consulting for geotechnical services, and Armendariz Engineering for traffic control. All our sub-consultants are familiar with the project area and have extensive experience in their respective areas of expertise.

Additionally, as part of the Requests for Proposals for Water and Sewer Infrastructure, OPUD has asked for options to the approach defined in the RFPs that might save money or increase the quality of the delivered product. D&A has been working with Jacobs on an alternative approach which includes combining the water and wastewater project elements in a single set of construction documents. The District can find more information on this approach in the Jacobs proposal for Design for Sewer Infrastructure in South Yuba County.

D&A will perform all services defined in the RFP and adhere to the requirements of the RFP, and RFI #1





DOMENICHELLI AND ASSOCIATES, INC.  
CIVIL ENGINEERING

issued May 5, 2020. Thank you for the opportunity to provide a proposal for the District's South Yuba County Water Infrastructure Project. We look forward to developing a strong working relationship with the District. If you have any questions or require additional information, please do not hesitate to contact myself or Sara Rogers.

Sincerely,

A handwritten signature in black ink, appearing to read 'Joe Domenichelli', is written over a white background.

**Joe Domenichelli, P.E. – President**  
Domenichelli and Associates, Inc.



**OLIVEHURST PUBLIC UTILITY DISTRICT**  
 Proposal for Design for Water Infrastructure in South Yuba County

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Domenichelli and Associates, Inc. Schedule of Fees ..... 34

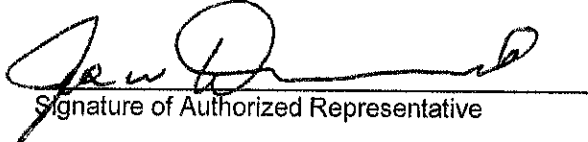
Appendix A – Subconsultant Scope and Fees including Rate Sheets



## ATTACHMENT B: COVER SHEET

Name of Person, Business or Organization:	Domenichelli and Associates, Inc.
Federal Tax ID Number:	76-0806846
Contact Person – Name	Joe Domenichelli
Contact Person – Address	5180 Golden Foothill Parkway, Ste 220 El Dorado Hills, CA 95762
Contact Person – Phone Number (s)	(916) 933-1997
Contact Person – e-mail address	JoeD@DAEngineering.net

By signing this **Cover Sheet** I hereby attest: that I have read and understood all the terms listed in the RFP; have read and understood all terms listed in this proposal; that I am authorized to bind the listed entity into this agreement; and that should this proposal be accepted, I am authorized and able to secure the resources required to deliver against all terms listed within the RFP as published by OPUD, including any amendments or addenda thereto except as explicitly noted or revised in my submitted proposal.

  
Signature of Authorized Representative

Joseph W. Domenichelli  
Printed Name of Authorized Representative

5-12-20  
Date





# OLIVEHURST PUBLIC UTILITY DISTRICT

## Proposal for Design for Water Infrastructure in South Yuba County

### SECTION 6.2: DESCRIPTION OF SERVICES, BACKGROUND AND STAFF

#### PROJECT OVERVIEW AND UNDERSTANDING

The opening of the Hard Rock Casino (casino) near Olivehurst has created the opportunity for new development in South Yuba County (County). The County has designated this area as the "South Yuba County Planning Area" (planning area) and is looking at ways to facilitate this growth in a timely, but controlled fashion, as stated in their 2030 General Plan.

To meet this anticipated growth, Olivehurst Public Utility District (District) has received funding to extend its water service area from its Olivehurst Water System to the planning area.

A Water Study was recently completed in January 2020 by our project team. This study describes a phased approach to reliably meet the planning area's daily water demands and fire flow demands. From discussions with County Planning and District staff, the areas of growth will be adjacent to the casino and along the Highway 65 corridor.

The rate and initial location of development areas are not certain. Because of this, the District is planning on completing the design of all water pipelines and most likely will initially only construct the pipelines in Forty Mile and Rancho Roads. The pipeline that is associated along the southern portion of the planning area is being designed, but most likely will not be constructed in the near future. Design and construction of these pipelines will require three state highway crossings (two across Highway 65 in Phase 1 and one Highway 65 crossing in Phase 3).

The District is in the process of finalizing the location for the new water plant facility that is proposed just south of the casino near Forty Mile Road. The new water supply facility will be located on a 1-acre site and include the following major components:

- Groundwater well (1,500-gpm)
- Above grade steel reservoir (1,000,000 gallons)

- Booster station with four booster pumps (5,000-gpm)
- Operational building to house the electrical and chemical feed equipment
- Backup electrical generator
- Manganese groundwater treatment (if required)

#### WATER INFRASTRUCTURE PROJECT COMPONENTS

The following project components are considered part of the water infrastructure project and are part of the basis for our scope and fee:

- Water Facility – Groundwater Well (Hydrogeology)
- Water Facility – Groundwater Pump
- Water Facility – 1 MG Steel Reservoir
- Water Facility – Booster Station
- Water Facility – Building (electrical, chlorine)
- Water Facility – Site Civil, Drainage, Yard Piping,
- Water Facility – Manganese Treatment (if required)
- Water Facility – Electrical
- Water Facility – Geotechnical (Building, Reservoir, Treatment)
- Water Facility – Structural (Building)
- Water Facility – Surveying
- Phase 1 Piping – 12,000 ft of 24" PVC in Forty Mile Road
- Phase 1 Piping – Three (3) Hwy 65 Crossing (Bore and Jack) – Note that Phase 3 crossing will be designed in Phase 1 and incorporated into the Phase 3 plans
- Phase 1 Piping – 6,700 ft of 24" PVC in Rosser Rd, Plute Rd, Shimer Rd, Bernice Ave, and Martel Dr.

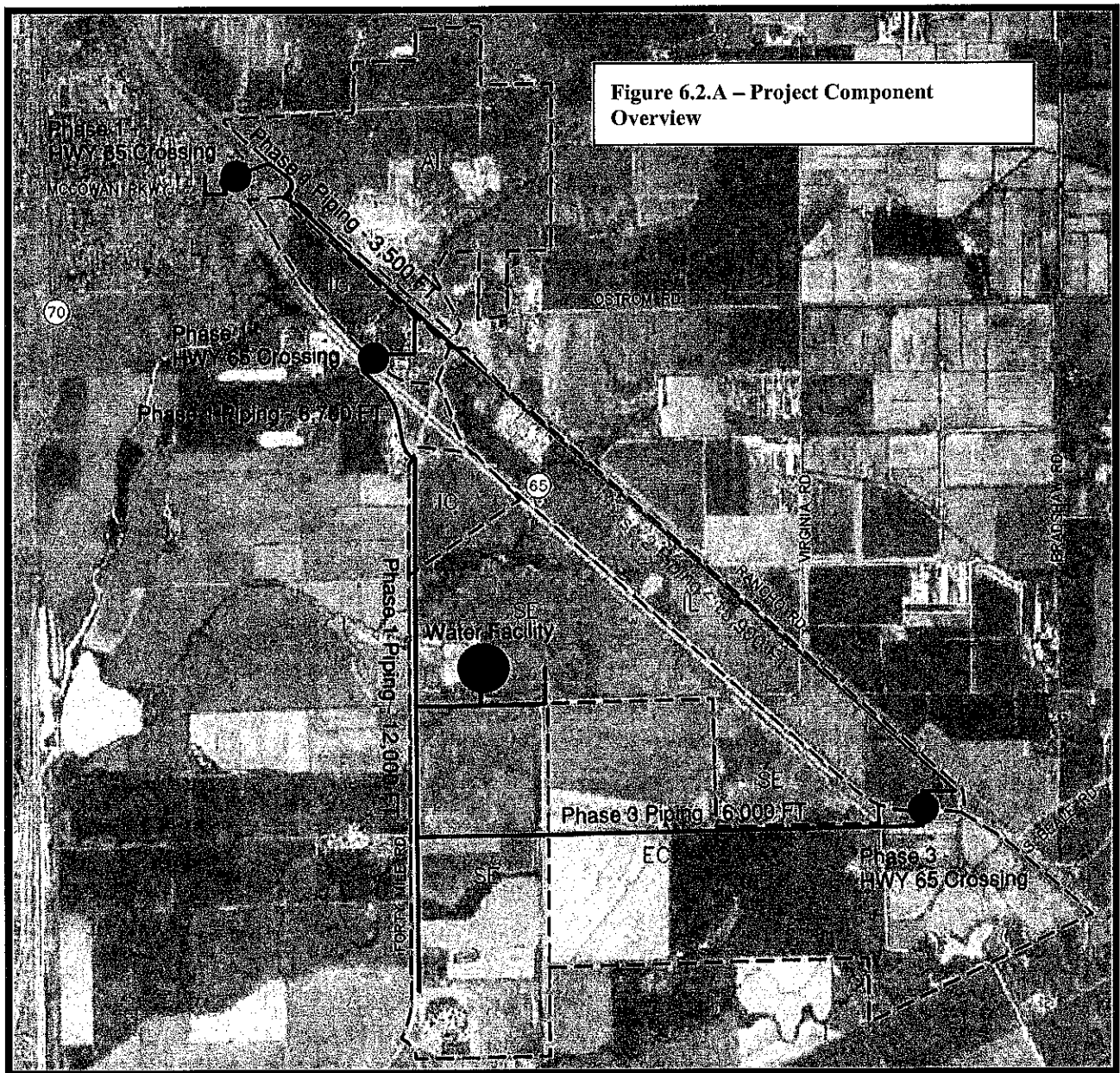


# OLIVEHURST PUBLIC UTILITY DISTRICT

## Proposal for Design for Water Infrastructure in South Yuba County

- Phase 1 Piping – 3,500 ft of 24” PVC in Rancho Road
- Phase 2 Piping – 15,900 ft of 24” PVC in Rancho Road
- Phase 3 Piping – 6,000 ft of 24” PVC in Morrison Road

The following figure provides an overview of the project components as defined above.





## OLIVEHURST PUBLIC UTILITY DISTRICT

### Proposal for Design for Water Infrastructure in South Yuba County

The District has engaged with an environmental consultant that will be completing all environmental (CEQA) requirements. Our team will be providing technical support to the environmental consultant and will include required mitigation measures in our technical specifications.

Our team understands the sensitivity and urgency in completing its designs within the short time frame that the District has provided. We have included in our team Jim Carson who has been working for the District and in the area for over 15-years and Sean Minard who has worked on the casino's water and wastewater facilities. Within the planning area, Sean has also provided surveying, developed water and wastewater plans for developments, and has a thorough understanding of the underground utilities and potential utility conflicts. Our familiarity with this project will prove to be a valuable asset in supporting this effort for your board and other stakeholders.

#### SCOPE OF SERVICES

The following provides a detailed discussion of our project approach and scope of work. The scope of services is broken down by tasks as defined in the RFP. Additional recommended (supplemental) tasks are also provided for reference. These supplemental tasks will be discussed, and scope refined with the District, prior to finalizing the contract scope and fee. These tasks are used as the basis for development of our fee estimate (provided at the end of this proposal).

##### Task 1 – Project Management

Domenichelli & Associates (D&A) will provide a proactive project management strategy that will involve close communication with the District, D&A's subconsultants, and coordination with other District design consultants. These efforts will be led by D&A's Project Manager (Sara

Rogers) who is well versed in managing large projects that have short design durations.

##### 1.1 Invoicing and Progress Reports

D&A will prepare monthly invoices that at a minimum will identify current billing, billing to-date and budget remaining, an outline of work completed and the percent complete, work to be completed during the next period, and project related issues or concerns. D&A will provide an updated design schedule that will track percent complete by tasks. Exceptions to the schedule if any will be noted and actions to get the project back on track will be presented.

##### 1.2 Kickoff Meeting

D&A will conduct a Project Kickoff Meeting with the District and key team members following the Notice-to-Proceed. D&A will prepare a meeting agenda and meeting minutes. This meeting will allow for introductions, establish lines of communications, review and refine the work scope and schedule, identify critical milestones, discuss initial steps to advance the design, and provide a platform to discuss design related informational needs. The minutes will also include an assigned action item list based on the meeting discussion.

##### 1.3 Progress and Coordination Meetings

D&A will conduct at a minimum monthly face-to-face progress meetings with the District and other key project consultants. Several of these monthly progress meetings will be directly related to the milestone meetings listed below. D&A will take the lead at preparing meeting agenda, meeting minutes, and any necessary supporting documentation.

D&A recognizes the quickness of the Project's design duration; therefore, D&A proposes to conduct weekly phone conferences with the District and others to discuss the Project's progress. A brief email summary of the meeting will follow that highlights the meeting's key





# OLIVEHURST PUBLIC UTILITY DISTRICT

## Proposal for Design for Water Infrastructure in South Yuba County

items and action items necessary to advance the project.

The following are key milestone meetings that will be coordinated with the monthly meetings. D&A will coordinate these meetings with the District and other Project stakeholders.

- Preliminary Design Review Meetings (2)
- 60% Design Review Meeting
- 90% Design Review Meeting
- 100% Design Workshop
- Stakeholder Meetings (3)

### Task 1 Deliverables:

- *Monthly invoicing billing summary (electronic pdf files)*
- *Kick-off Meeting Agenda and Minutes (electronic word and pdf files)*
- *Monthly meeting agenda and minutes; weekly progress memos via e-mail (electronic word and pdf files)*

### Task 2 – Preliminary Design

As team members in the preparation of the South Yuba Planning Area Water Study (Water Study), Affinity and D&A are familiar with all aspects of the study. Furthermore, D&A will utilize the surveying and mapping services of MHM Engineering who prepared the District’s South County Sewer Area – January 2020 Sanitary Sewer Technical Report (Sewer Study #1). We will use the Water Team’s knowledge to efficiently design the Water Plant Facility and Phases 1, 2, and 3 Water Transmission Mains. We will develop a comprehensive Basis of Design Report (BODR) that will summarize, in detail, important design parameters for the Water Plant Facility and Phases 1, 2, and 3 Water Transmission Mains.

#### 2.1 Gather and Review Information

D&A recognizes the Project’s magnitude, complexity, and importance to the District. As the District intends to design and construct the water facilities and pipelines simultaneously with the wastewater facilities and pipelines, defining a

well thought out and feasible (both financially and constructible) water system design is critical in helping the District meet their objectives. The BODR will be based on information gathered from the kick-off meeting, the existing water and wastewater planning reports, and the Project survey and geotechnical data.

**Coordination with Existing Utilities** – The gathering of information will include reviewing and incorporating requested utility information obtained through the “A”, “B”, “C” letter utility process onto the base maps from survey and mapping information obtained in Task 4.

Furthermore, we will perform investigative fieldwork to refine system design features such as stream and freeway crossings (2 all day visits).

#### 2.2 Prepare Basis of Design Report (BODR)

In conjunction with other critical tasks described below, D&A will initially prepare a Basis of Design Report (BODR) technical memorandum pertaining to the proposed Water Plant Facility (comprised of a new IMG Steel Reservoir, water supply well, and booster pumps) and three proposed pipeline reaches (Phases 1, 2, and 3). Recognizing the water transmission mains share common alignment corridors with the wastewater pipelines, and that water and wastewater pipelines require similar crossings of highways and water features, early emphasis will be placed on coordination with the wastewater designer and with streamlining this design, review, and approval process with the jurisdictional agencies associated with the various crossings.

The BODR will present the District with D&A’s findings and recommendations for proceeding. At a minimum, the BODR will include:

##### 2.2.1 Pipeline Phases

**Pipeline Design Criteria** – This will include discussion and recommendations on final pipe size, pipe materials and lining and coating, pipe placement depth and backfill based on geotechnical data obtained in Task 4, pipe joint



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and restraint types, connections to existing and new facilities, District standard details and project specific details.

Based on any new information learned from the District or other stakeholders, we would conduct additional system modeling to refine specific pipe sizing and source and storage facilities design parameters.

**Pipe Alignment** – Based on the surveying and mapping information from Task 4, we will present the preliminary water main alignments with respect to the coordinated wastewater pipe and also include standard details in a preliminary (30%) set of drawings. We will also discuss any easement and right-of-way constraints and identify new right-of-way that are considered necessary, along with potential staging and temporary construction easement needs for the new pipelines.

**Permitting and Environmental** – This will include discussion to identify all the anticipated permitting and environmental documentation necessary to construct the proposed water plant and water transmission mains. This will outline all the agencies with jurisdictional authority that will be influential in the design and construction, and who will require approval. As these are critical time sensitive items, discussion regarding their process and timing will be included. The following agencies have been identified at a minimum based on our Project understanding:

- Yuba County related to road restoration expectations.
- California Department of Transportation (Caltrans) related to Highway 70 and Highway 65 crossings.
- RD 784 regarding crossing of irrigation canals.

**Construction Means and Methods** – This will include discussion and recommendations on how best to develop the plans and specifications for bidding and ultimately for construction. Due to the Project's complexity, identifying economically feasible and efficient ways to construct the project will be important.

**Traffic Control Approach** – Due to anticipated alignments, traffic control will be discussed with the assumption that County traffic control plan templates may be acceptable for the County roads. The Caltrans crossings will require Caltrans approved traffic plans.

**Schedule and Cost Estimates** – This section will analyze how the project will be constructed including proposed sequence and phasing of water transmission mains with consideration to the separate wastewater projects. For this scope, we are assuming the water transmission mains would be constructed after any commonly shared alignment with the wastewater mains assuming the wastewater mains were constructed based on the three water phases. A cost estimate will be included based on the preliminary water main alignments and the phased water main approach.

### 2.2.2 Water Plant Facility

The preliminary design services for the water plant facility include the following items:

- Test Hole Design, drilling, and reporting.
- Production well design and coordination.
- Preliminary site layout and design criteria, and well recommendations and summary report.

Refer to Appendix A at the end of this proposal for Affinity's detailed scope of services regarding the test hole and production well, including assumptions regarding any cost to be paid by the District for the development of the production well.

#### Task 2 Deliverables:

- *Draft electronic (PDF) versions of the BODR.*

#### Task 3 – Final Design

Design documents will be prepared as separate construction contracts for each of the three phases identified in the Water Study. All three phases are to be completed within the desired 8-month design schedule and therefore will



## OLIVEHURST PUBLIC UTILITY DISTRICT

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proceed simultaneously through the following submittal steps from 60% to 100% design.

D&A will prepare Phase specific project specifications that will include the following:

- District provided “Front End” specifications. The front-end specifications will include Special Provisions and the Bid Form. In the event the District does not have front-end specifications, D&A would propose using the Engineering Joint Contracting Document Committee (EJCDC) Division 0 specification.
- Division 1 General Specifications utilizing the CSI format
- Division 2 Technical Specifications

The following final design subtasks describe our scope and the sequence of the final design process. Special Provisions will address the project specific item related, but not limited to, sequencing of work, working hours and limitations, traffic control, coordination and limitations imposed by affected agencies, environmental concerns and conditions of permits, and coordination with others.

### 3.1 Water Plant Facility

#### 3.1.1 60% Water Plant Design

The following tasks are considered the 60% design for the well site and associated facilities.

Once the basis of design has been finalized, the detailed design phase of the project will begin. The detailed design will include the drawings and specifications listed in the Affinity scope of services.

The 60% design level will include:

- Site Grading and Paving
- Site Piping
- Site Drainage
- Fencing Details
- Reservoir Details
- Pump Station Details
- Building Interior Layout

- Draft Facility Control Strategies

The Project Team will submit the 60% Water Plant design separately for District review.

#### Water Plant Facility Design Assumptions –

The following assumptions are included in our scope and fee for the design of the water facility:

- Electrical and Gas Services are available in Forty Mile Road and PG&E will provide these services to the Water Facility
- Telephone (internet) service is available in Forty Mile Road and utility will provide these services to the Water Facility
- The offsite water pipeline from the water facility to Forty Mile Road will not be greater than 1,000 feet
- The offsite storm drain system from the water facility to a drainage canal (with capacity to pump to waste) will not be greater than 1000 feet

#### 3.1.2 90% Water Plant Design

A meeting will be held with the District to go over their 60% design level comments. These comments will be incorporated into the 90% design level plans and specifications. The 90% design level documents will include:

- Final Conduit layout and schedule
- Final plans and specifications
- Final Facility Control Strategies

#### 3.1.3 100% Water Plant Design

A final meeting with the District will be held to finalize the Plans and Specifications and create a 100% (Bid Set) for the District to bid out the Water Plant Facilities. These plans will be stamped and marked as 100% Bid Set. All associated Technical Memorandum will be updated that will support the final design and control strategies reflected in the final basis of design report.



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Due to the Water Plant Facility being unique to the overall project, the project will be bid out separately from the pipeline's projects in Rancho Road and Forty Mile Road.

### 3.2 Water Transmission Mains (Phases 1, 2, and 3) and Three (3) State Route Crossings

#### 3.2.1 – 60% Pipeline Design

The 60% Design will include Plan views showing pipeline Plan (alignments) and Profile drawings, preliminary traffic control plans, potential staging area locations, preliminary right of way needs shown on the Plan and Profile sheets, and standard details. The specifications will include a list (table of contents) for the Technical Specifications and an Opinion of Probable construction cost within  $\pm 15\%$  and the supporting cost documentation. The plan sets will be split between the three phases of the project and will all be separate from the Water Plant Facility plan set.

#### 3.2.2 – 90% Pipeline Design

The 90% Design will incorporate District review comments from the 60% design and will be considered a biddable set of documents with all required plans and profile sheets, detail sheets, traffic control plans, right of way plans and a complete specification book for each of the three phases. Also included will be a 90% Opinion of Probable Construction Cost  $\pm 10\%$  with supporting cost documentation, and a construction schedule for each phase.

#### 3.3.3 – 100% Pipeline Design

The 100% Design will incorporate District review comments from the 90% design to have the three phases of design documents (plans and specifications) ready for bidding. Also included with the 100% design documents will be the final Opinion of Probable Construction Cost and the final Basis of Design Report updated from Task 2.

#### Task 3 Deliverables:

- *One hard copy and an electronic (PDF) version of each of the design documents for the 60%, 90% and 100% submittals.*

#### Task 4 – Surveying, Mapping, Geotechnical Services, and Traffic Control

##### Task 4.1 Surveying and Mapping – MHM Engineering

MHM will provide all surveying and base mapping for the project design as described in Appendix A. MHM will also provide right-of-way mapping from existing record data and County maps. In areas requiring additional easement or right-of-way, MHM will provide boundary descriptions and plat maps to the District for use in property acquisition.

##### Task 4.1 Deliverables:

- *Electronic version (AutoCAD & PDF) of base maps for all three project phases, plat maps and boundary descriptions for new right of way acquisition.*

##### Task 4.2 Geotechnical Investigation of the Water Plant Facility – Blackburn Consulting

Blackburn Consulting (BCI) will provide the geotechnical site investigation and testing, environmental site assessment for the Water Plant Facility and the water transmission mains (Phase 1, 2, and 3). They will also provide in-field construction material testing (i.e. soil and concrete) at the Water Plant Facility and asphalt concrete testing along the three-water transmission main alignments listed under the supplemental construction management and inspection services (described later in this proposal). A detailed scope of services, fees and assumptions are provided for Blackburn in Appendix A.

##### Task 4.2 Deliverables:

- *Draft and final Geotechnical Report and data will be provided in electronic PDF and hard copy format (3 hard copy).*



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*Additional hard copies can be made available upon request.*

#### **Task 4.3 Traffic Control Engineering – Almendariz Consulting**

Almendariz Consulting will provide Site-specific Traffic Control Plans (TCPs) for each of the three phases of the pipeline construction and the Caltrans Hwy 65 crossings, designed per the latest 2014 MUTCD Standards and local jurisdiction specifications drawn in AutoCAD, in color and printable in 11"x17" electronic PDF's for submittals. The TCPs will be included in the design plan sets with the D&A plans.

This scope assumes encroachment permit application support will be provided by D&A under Task 5 and all associated fees will be paid by the District.

#### **Task 4.3 Deliverables:**

- *Caltrans Traffic Control Plans – (PE Stamped included) – 14 plan sheets*
- *Traffic Control Plans – 11 plan sheets*

#### **Task 5 – Permitting**

On the assumption the Project will be completed under the CEQA Categorical Exemption, D&A will assist the District through the various anticipated permits identified below. D&A will assist the District in preparing permit applications by providing supporting design documentation and technical input, as necessary.

#### **5.1 Stormwater Pollution Prevention Plan (SWPPP)**

Due to the size of water project's footprint, it is D&A's experience that State will consider the phased water projects under a single project SWPPP. D&A's level of effort reflects preparing a single SWPPP that will cover all three water pipeline phases and the water plant facility. D&A has qualified SWPPP developers on staff who are knowledgeable of the State's requirements and capable of developing the SWPPP and helping the District manage and

implement the SWPPP through all phases. This approach will be more cost efficient and improve the District's ability to manage and enforce the SWPPP between phases. Should any of the construction phases be postponed, the SWPPP would be amended and closed out.

#### **5.2 State Water Resource Control Board – Division of Drinking Water (DDW) Waiver**

With the understanding that the water transmission mains and wastewater mains will likely share alignment corridors, D&A will coordinate with the sewer main designer to maintain separation where possible. When separation requirements cannot be met, D&A will prepare a DDW Waiver Request that will identify the locations where potable water separation requirements cannot be met, how the potable water main will be constructed (e.g. push-on restraint joint or mechanically restrained joint) and pipe material type. The engineer of record (EOR) will prepare a letter of recommendation specific to these locations and stating that their construction complies with DDW's variance requirements. D&A will prepare the DDW Waiver Package that will include the EOR's letter, all the supporting documentation, and a draft copy of the District's formal letter acknowledging their agreement to the Waiver Package. It will be the District's responsibility to submit the Waiver Package to DDW Division 21, Reese Crenshaw, 364 Knollcrest Drive, Suite 101 Redding CA 96002.

#### **5.3 California Department of Transportation (Caltrans)**

With three water transmission mains crossing Highway 65, D&A will coordinate with and develop the necessary plans and permitting applications to accomplish those crossing within the design schedule timeline. D&A has worked with Caltrans, District 3 and has a good understanding of their permitting process and what information they will require.



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### 5.4 Yuba County Encroachment Permit

With the exception of the work within Caltrans right-of-way, most of the pipe alignments are within County roads. Upon incorporating the District's 60% plan comments, D&A will assist the District in preparing the County Encroachment Permit application and working through the process of obtaining an encroachment permit and the County's conditions.

### 5.5 Environmental Support

D&A will provide support to the District for processing environmental documentation. We will provide technical data, design information and project descriptions to the District. D&A will not apply for environmental permits or prepare and process environmental documents.

#### Task 5 Deliverables:

- *Develop the SWPPP plan and assist the District in navigating the State SMARTs (copy of the SWPPP in hard copy and electronic version)*
- *Prepare the DDW Waiver Package for the District's submittal (electronic PDF and word format)*
- *Prepare Caltrans Encroachment Permit Application for three Highway Crossings and assist the District in obtaining the encroachment permits (electronic version)*
- *Prepare the County Encroachment Permit and assist the District to obtain the permit. (electronic pdf)*

#### Task 6 – Bid and Award Services

D&A will provide bid support services for each of the three pipeline phases and the water plant facilities that will include assisting the District to:

- Conduct a pre-bid meeting

- Prepare bid document addendum (assume 3 per phase) in response to bidder questions.
- Make necessary changes to the bid documents
- Evaluate and provide a recommendation for award based upon the bid results
- Prepare "Conformed for Construction Plans and Specifications" based on the issued addendum.

#### Task 6 Deliverables:

- *Electronic versions of Addenda to be distributed by the District. Electronic versions of conformed bid documents to be distributed by the District.*

#### Task 7 – Engineering Services During Construction

Per the RFP, during the construction phase of the project, the D&A team will provide typical engineering services during construction (ESDC) such as submittal reviews, RFI and change order reviews, occasional site visits to attend meetings and perform requested inspections, and prepare As-built plans for all three pipeline phases and the water plant facilities. D&A will also support the District during claim requests and change order preparation. Currently, we are assuming a 12-month duration for the Water Plant construction and similar 12-month duration for the Phase 1 and Phase 2 pipelines. Per discussions with our design team, although it is likely the Phase 3 pipeline work will not proceed within the foreseeable future, we have included typical engineering services during construction for this phase in our scope and fee estimate. However, we do not include full time CM and inspection for the Phase 3 construction in our supplemental services described below.

#### Task 7 Deliverables:

- *Electronic review forms for submittals, RFIs and Change Order reviews;*



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*Electronic Inspection reports by D&A team members; one hard copy and an electronic (AutoCAD & PDF) version of the As-Built Drawings for the plant facilities and each of three pipeline phases.*

#### **7.1 Supplemental Construction Management, Full Time Inspection and Geotechnical Testing**

Per the addendum to the RFP, the District indicated that the consultants should include inspection in our proposal. We have provided a separate task item and supplemental costs for complete construction management (CM), full time inspection and geotechnical material testing. These efforts are difficult to quantify before the construction contracts are defined. However, based on our preliminary assessment of the required construction sequencing, we have provided levels of effort and associated costs based on a 12-month construction period to complete the Water Plant facilities and for the Phase 1 and Phase 2 pipeline work. We anticipate the Water Plant will likely lag behind the pipeline work due to the schedule for the test well and production well development. However, the duration of the full time CM and inspection work will be similar for water facilities and pipelines. Consensus among our team has put the Phase 3 pipeline work further out in time and the full time CM and inspection has not been included in this supplemental task.

#### **7.1 Supplemental Construction Services**

##### **Deliverables:**

- *Monthly CM progress reports, weekly or bi-weekly construction meeting minutes, overall schedule and budget updates, written pay request reviews, daily inspection reports, files including all submittal review form, RFI forms and change order request reviews, material testing results and reports provided in daily logs and in final reports.*

- *All the above deliverable will be provided electronically (pdf format) and if desired by the District on a "cloud based" site with access provided to the construction team and District staff.*

#### **Overall Project Proposal Assumptions:**

- If a DDW Drinking Water Source Assessment and Protection (DWSAP) report is required, our team can prepare it for an additional \$8,000
- Our team proposes to gain the needed site-specific hydrogeologic data to design the production well with test hole exploration. Our team will subcontract with a licensed (C-57) drilling contractor for the drilling of a test hole. Based on our knowledge of other wells in the area, we have designed the target exploration depth of 540 feet for test hole.
- It is assumed that water quality samples will be delivered or sent to the District's State-Certified contract laboratory for analysis. This cost to be paid for by the District. Alternately, our team could provide the water quality analysis for an additional \$5,000.
- Electrical and Gas Services are available in Forty Mile Road and PG&E will provide these services to the Water Plant Facility.
- Telephone (internet) service is available in Forty Mile Road and the utility will provide these services to the Water Plant Facility.
- The offsite water pipeline from the water facility to Forty Mile Road will not be greater than 1,000 feet.
- The offsite storm drain system from the water facility to a drainage canal (with capacity to pump to waste) will not be greater than 1000 ft



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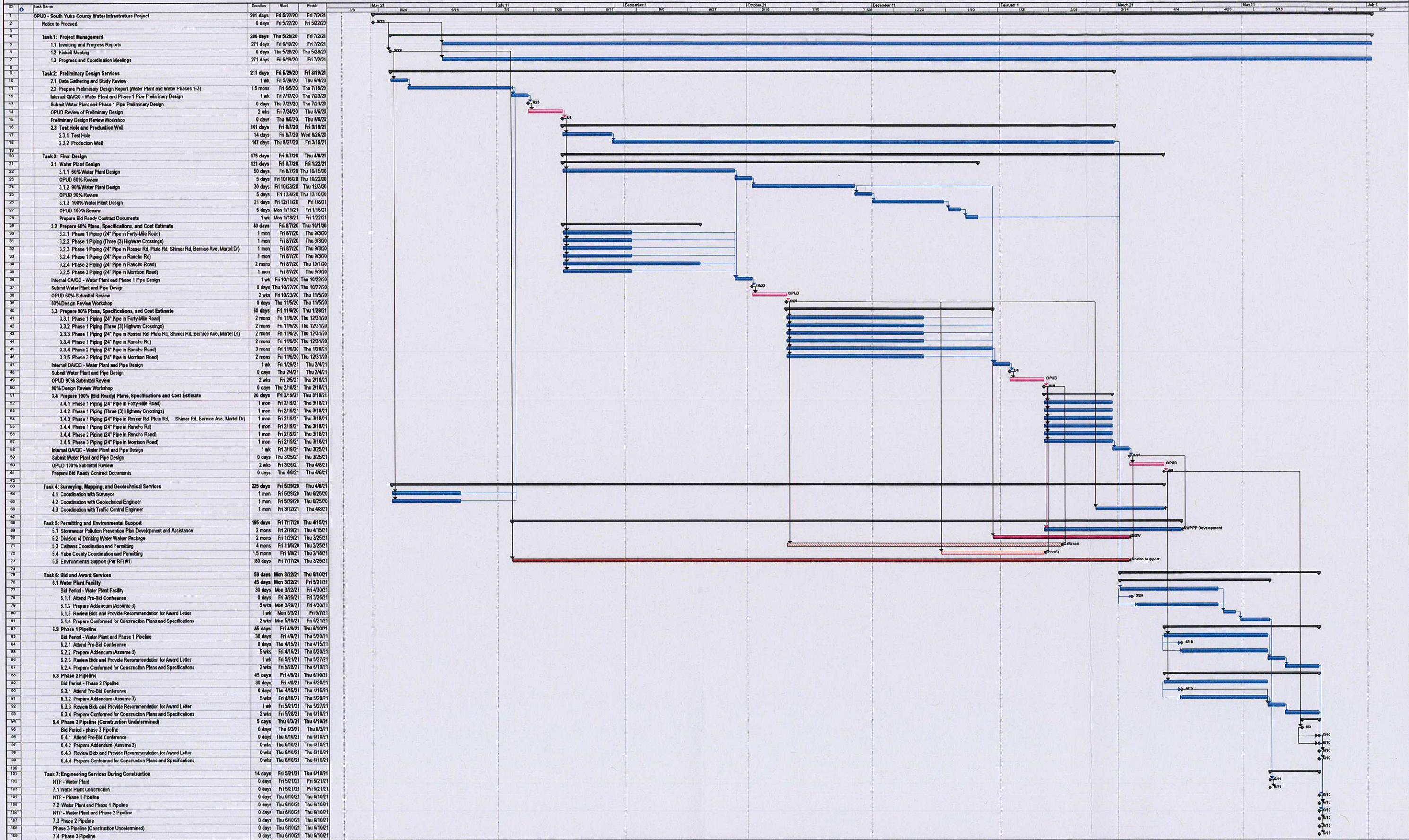
- The District will have easement rights and have necessary land acquisitions in place to allow field investigations to occur such as, but not limited to, pilot well boring, geotechnical investigation, and right-of-entry agreements.
- The District will have all environmental mitigation measures determined within 3 months from Project Notice to Proceed.
- Environmental mitigation and documentation will be completed by the District with technical support by the design team.
- A project wide CEQA Negative Declaration can be obtained for the project and condition provided to the design team before completion of the 90% designs.
- The District will be responsible for payment of costs for permit applications.
- Scope and level of effort for Services during Construction assumes pipeline construction for Phase 1 and Phase 2 water pipelines only.
- Scope and level of effort assumes a 12-month construction period for the Phase 1 and 2 pipeline work.

#### PROJECT SCHEDULE

The following schedule provides an outline of our anticipated task timelines. The schedule will be reviewed with the District during the kick-off meeting and adjustments will be made as needed.



Design Services for Water Infrastructure in South Yuba County  
May 12, 2020







**SECTION 6.2.1: BACKGROUND AND EXPERIENCE**

D&A is a California Corporation and water resources engineering firm with extensive experience working for public agencies owning and operating water and wastewater systems. D&A was **established in 2002** by President **Joseph Domenichelli**. Vice President, **Sara Rogers**, has been with the company since 2003. They have put in place a vision of growth and innovation and have assembled a team of highly specialized individuals that are the foundation of the firm's success. Our diverse team gives us the flexibility to provide superior client services at competitive rates. The majority of our work is derived from repeat clients, a direct result of how we cultivate relationships and maintain customer satisfaction.

D&A has provided a wide range of services from design and construction management of municipal improvement facilities such as pipelines, pump stations and sewer lift stations, water storage and hydraulic structure designs, to the master planning of water, wastewater, and drainage systems for entire communities. For the past 18 years, a majority of our firm's work has involved infrastructure replacement and rehabilitation including a significant amount of water pipeline design projects within northern California.

D&A has strong client relations and a proven track record of providing quality designs on time and on budget. Our staff takes exceptional pride in working closely with our clients, local agencies, and the local community to develop feasible designs that meet the Project's intent, constraints, and deadlines.

Our firm is comprised of six (6) registered engineers, three (3) engineers-in-training, one (1) staff engineer, a full-time drafter, and part time office staff. As previously mentioned, Joe Domenichelli and Sara Rogers have been with the firm since its founding. Most of our other professional staff and engineers-in-training have been with our company for over 5 years. Our limited turnover speaks to our ability to retain staff through competitive compensation and a stimulating work environment.

**Project Team**

For this project, our team includes Affinity Engineering (water plant facility design), MHM Engineering (surveying, pipeline design, inspection and material testing), Frisch Engineering (electrical design and inspection), Blackburn Consulting (Geotechnical Services), and Armendariz Engineering (traffic control Plans). Brief descriptions of each firm are provided below. Key staff member qualifications are included in Section 6.2.2 – Staffing, of this proposal.

**RESPRESENTATIVE CLIENTS**

D&A has provided water and wastewater main replacement and hydraulic facilities design services to many of our clients including the following:

- ❖ Sacramento Suburban Water District (SSWD)
- ❖ Sacramento County Water Agency (SCWA)
- ❖ City of Sacramento
- ❖ San Juan Water District (SJWD)
- ❖ El Dorado Irrigation District (EID)
- ❖ City of Placerville
- ❖ City of Folsom
- ❖ City of West Sacramento (CoWS)
- ❖ Carmichael Water District (CWD)
- ❖ Citrus Heights Water District (CHWD)
- ❖ Placer County Water Agency
- ❖ Sutter County Development Services



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#### Affinity Engineering | Water Facility Design

Affinity has been providing civil engineering services to water agencies for over 10 years. Additionally, Affinity has been working with the District in support of the water side of operations for over 10 years. Jim Carson has been working with the District since 2005. Affinity also recently assisted the District in preparing the Water Study for South Yuba County Planning Area, which is the basis for the RFP. Affinity has the expertise and ability to engineer and design the water supply system through construction.



#### MHM | Surveying and Pipeline Design

MHM, Inc is an engineering and surveying firm with over one hundred twenty-five years of history in northern California, established in 1892 and incorporated in 1975. The company has maintained its main office in Marysville, CA for over sixty years and is a certified California Small Business. MHM's staff is a group of highly qualified professionals, including Civil Engineers, Geotechnical Engineers, and Land Surveyors, as well as a support staff of experienced technicians. Our clients include public agencies, from federal and state agencies to local cities, counties, and special districts as well as many private clients. MHM takes pride in its long history of delivering quality engineering and surveying services to our clients in a timely manner. MHM has local knowledge of the area and experience through their recent completion of the South Yuba County Sanitary Sewer technical report.



#### Frisch Engineering Inc. | Electrical Engineering

Frisch Engineering is a highly respected electrical engineering firm with five engineers specializing in municipal facilities electrical and controls design. Frisch will be in charge of the electrical, controls and SCADA design as well as programming. Frisch engineers have all worked on SCADA control systems and have recently worked on five pump stations, two with automatic gate controls with D&A. For this Project, they will assign Thomas Frisch to lead the Project. Mr. Frisch is a licensed electrical engineer in CA, NV, NM, and AZ. He has worked in the water, wastewater, power and landfill industries since 1991 and has developed expertise in power, controls, instrumentation, and communications. He has become very familiar with common practices and processes used in these industries. His experience is diverse since he has worked as both a Contractor and Consultant in various capacities. As a Contractor, he brought contract drawings to completion by designing the final details, making submittals and managing production. As a Consultant, he has designed over 250 water and wastewater projects ranging from small pump stations to large scale treatment plants. Consequently, he has a high degree of product knowledge that enables him to minimize exposure to unproven materials or practices. He knows the challenges that Contractors face in taking plans to construction and knows when to assist on behalf of the Owner. His designs for electrical, instrumentation, and telemetry systems have been very successful with near-zero change orders due to design flaws. His designs include complex PLC motor controls for booster pump stations, lift stations and motor operated valves and SCADA telemetry between pump stations and tanks.



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#### Blackburn Consulting, Inc. | Geotechnical Consulting



Founded in 1998, Blackburn Consulting (BCI) provides materials testing, construction inspection services, and geotechnical/geo-environmental consulting. BCI is a certified small business with offices in West Sacramento, Auburn, and Fresno, California. We have a strong reputation for quality because we take the time to do things right. BCI is committed to public sector projects and specializes in pipelines, water/wastewater treatment plants, tanks, roadways, bridges, levees, and dams. BCI stays current with state and local agency requirements. This translates into efficient analysis, less review time, and practical solutions.



#### Almendariz Consulting | Traffic Control Plans

Almendariz Consulting, Inc. specializes in all areas of traffic control services throughout California. With over 15 years as an industry leader, servicing both public and private sectors, we are experts in local, state, and federal traffic control regulations. Our team has highly proficient engineers and drafters that have the knowledge and skills to interpret your construction documents to develop an appropriate and efficient traffic control plan. Almendariz Consulting, Inc. designs traffic control plans as well as performs traffic control services.

There are multiple factors that differentiate the Domenichelli and Associates (D&A) team from others including:

- 1 Response and timeliness** – D&A’s team includes local resources. Additionally, our staff has the ability to respond to the District’s requests and needs promptly, keeping the project on-time and within budget.
- 2 Similar Project Experience** – As discussed in the experience section of this proposal, D&A team members have extensive experience working on projects similar in nature to the South Yuba County Water Infrastructure Project from design through construction.
- 3 Principal Involvement** – Our philosophy is to have significant principal involvement on every project. No deliverable leaves the office without an extensive review by a principal member of our staff.
- 4 Competitive Rates** – As you will see in our cost proposal, the D&A team has competitive rates which allow us to provide highly skilled staff while keeping costs reasonable.

D&A team members are proficient in the use of the latest design software, including AutoCAD Civil 3D, water system modeling software such as H2ONet and InfoWater, and hydrologic and hydraulic programs including HEC-RAS, HEC-HMS, and XP-STORM. The D&A office includes the necessary support staff to complete and manage engineering services. We have the latest versions of the required software with state-of-the-art computer hardware for delivery of final products and presentation materials.

D&A’s firm has the necessary credentials to provide the services requested including professional engineering licenses in the State of California and Qualified SWPPP Developer and Practitioner certifications. Copies of licenses and certificates are available upon request.



## OLIVEHURST PUBLIC UTILITY DISTRICT

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#### **Quality Control/Quality Assurance Plan**

Our QA/QC plan and process begins and ends with the Project Manager. Our project manager is always a senior level firm principal that has personal responsibility for the final product. As a smaller firm, we have the flexibility to manage our workload in order to ensure that each project receives commitment from our principals who have a vested interest in the success of our company and therefore in the quality of each work product. Relative to design QA/QC, it is company policy that all design documents be reviewed by a principal member of our staff before submittal. We have not wavered from this policy since the company was formed in 2002.

The following are several ways that we incorporate quality control during the design.

**Conformance to Standards** – Quality control ensures that the work is done correctly the first time. D&A’s engineers are familiar with the District’s standards and will become familiar with District preferences. Our team is committed to ensuring that the standards are incorporated into all aspects of the project.

**Proactive Design and Review** – Quality is controlled by adequate planning, coordination, supervision, and technical direction; proper definition and a clear understanding of job requirements and procedures; and the use of appropriately skilled personnel. At D&A we believe in empowering our engineers to make decisions necessary to ensure the design process is efficient and effective. This includes encouraging open communication among team members and staff. We have created a standard of personal responsibility for product quality. As a smaller firm we can quickly identify and resolve issues as they arise before they become problems.

**Principal Involvement** – Our philosophy is to provide each project with a significant level of effort from a principal of the firm. This allows

for personal commitment to quality control and quality assurance by the principal owners. We have assigned Joe Domenichelli to the project to provide oversight and quality control.

**Lessons Learned** – At the end of each design and construction project D&A engineers conduct a “Lessons Learned” workshop internally (and with the client when possible). This workshop highlights areas for future improvement on design projects including plan and specification preparation. Improvements identified are then incorporated as appropriate into future design efforts.

#### **Construction Services Experience**

The D&A team also has extensive experience with construction management and inspection of these types of projects. While full time CM and inspection these services are not specifically requested by the District at this time, we understand that the District has limited staff available for full time management and inspection during construction. D&A staff has provided construction management and part-time/full-time inspection services.

Our services have ranged from typical engineering services during construction to management of the complete project. Currently, D&A will work closely with the District to determine if any additional services are necessary during construction.



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**PROJECT EXPERIENCE**

For nearly 20-years the D&A team has provided design services similar to the District South Yuba County Water Infrastructure Project. Our team understands the complexity of these projects and has a proven method to minimize costly surprises during construction.

The following projects demonstrate our firm's most recent design and construction management experience. The projects listed include design, permitting, and services during construction. References are provided for projects listed.

**Water Pipeline Design Experience**

**Sacramento Suburban Water District (SSWD)**

**On-call Pipeline Replacement Projects**

**Reference:** David Espinoza, P.E. – Senior Engineer – SSWD, 916-679-2886, [despinoza@sswd.org](mailto:despinoza@sswd.org)

Provided design services for over 300,000 feet of 8-inch, 12-inch and 16-inch ductile iron mainline replacement as part of the District's long-term distribution main relocation program. The District is relocating mainlines from the backyards into streets in an effort to make access easier as well as replace aging and leaking systems. In addition to mainline replacements, water meters are being added to each service as part of the District's on-going meter retrofit project. D&A also provided construction management services including full time inspection services. D&A was selected for SSWD's current on-call services contract with the District to provide design of main replacement projects.



**Sacramento County Water Agency (SCWA)**

**Arden Service Area Pipeline Replacement Project**

**Reference:** Helen R. Rocha, M.S., P.E., Associate Civil Engineer – Water Supply Department of Water Resources, (916) 876-7191 [RochaH@SacCounty.net](mailto:RochaH@SacCounty.net)



D&A has been contracted with Sacramento County Water Agency (SCWA) since 2016 for a multi-year, multi-phased water main and meter installation project that will bring the Agency into compliance with SB 2572 and to ensure the system is adequately sized to meet fire flow demands. The entire Project will install over 38 miles of 6- to 16-inch ductile iron and C900 PVC pipe within residential and major arterial roads (Watt Ave., Fair Oaks Blvd, and Howe Ave.) and over 3,000 residential and commercial water meters. This

project will abandon existing water mains located in backyard easements and install new water mains within the road right-of-way to allow better access.



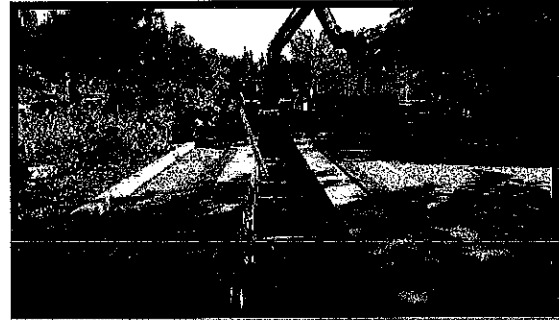
**OLIVEHURST PUBLIC UTILITY DISTRICT**  
 Proposal for Design for Water Infrastructure in South Yuba County

Placer County Water Agency  
 (PCWA)

Whitney Boulevard Main  
 Replacement Project

**Reference:** Kelly Shively,  
 P.E. –PCWA Project  
 Manager, (530) 823-4883,  
[kshively@pcwa.net](mailto:kshively@pcwa.net)

In 2017, D&A completed the design for approximately 4,100 linear-feet of 18-inch ductile iron pipeline along Whitney Boulevard in Rocklin, CA. The project was constructed by the end of 2018. The



design included mainline replacement of the corroding water main, reconnecting 76 residential and commercial metered services, cathodic protection system, multiple tie-ins to the existing water system, and full road overlay restoration. The project included coordination with the City of Rocklin to obtain an encroachment permit and assist in negotiations regarding pavement restoration requirements, and coordination with South Placer Municipal Utility District with regards to the sewer. D&A provided engineering services during construction and prepared record drawings.

**San Bernardino Valley  
 Municipal Water District**

**City Creek and Lytle  
 Creek Pipelines**

**Reference:** Andrew  
 Benjamin, P.E. – Project  
 Manager, NLine Energy,  
 530-420-6098,  
[abenjamin@nlineenergy.com](mailto:abenjamin@nlineenergy.com)

These two projects, operated by the San Bernardino Valley Municipal Water District, supply high pressure water from a 72-inch main supply line to in-conduit hydroelectric stations located at two separately owned and operated water treatment plants. The power generation stations reduce the water pressure to a level the water plants can use for water supply and generate power from the pressure reduction.

**San Bernardino Valley  
 Municipal Water District**

**Cactus Recharge Pipeline**

**Reference:** Andrew  
 Benjamin, P.E. – Project  
 Manager, NLine Energy,  
 530-420-6098,  
[abenjamin@nlineenergy.com](mailto:abenjamin@nlineenergy.com)

This project is currently under final design and will be operated by the San Bernardino Valley Municipal Water District. It will take excess raw water from a water treatment plant and direct it to a groundwater recharge basin after it is used to generate power at an in-conduit hydroelectric station designed by D&A. A pre-design study was conducted to determine the most efficient route for the pipeline, as well as determine an appropriate pipe size. Approximately 6,800 feet of 36-inch and greater pipe will be constructed within the City of Rialto, CA.





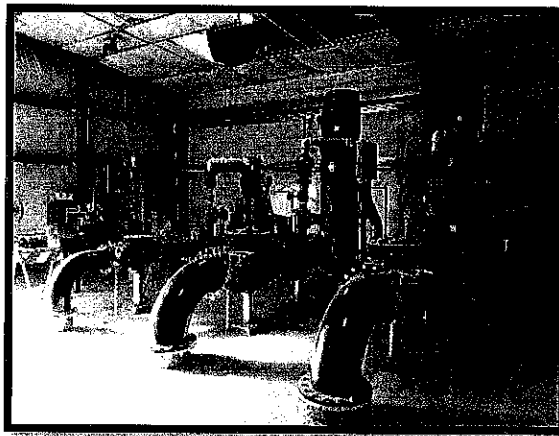
**Water Pump Station Design Experience**

**Sacramento Suburban Water District (SSWD)**

**Antelope Pump Station**

**Reference:** Doug Carter –  
 Production Superintendent –  
 SSWD – 916-679-2884,  
[dcarter@sswd.org](mailto:dcarter@sswd.org)

D&A provided design and full construction management services (including inspection) for a transfer pump station with a capacity of 10,000gpm to allow excess groundwater to be pumped back up the Cooperative Transmission Pipeline to the San Juan Water District during drought periods or other water supply emergencies. The pump station consists of a metal building, approx. 1,750 square feet in size, to house three vertical turbine pumps and related equipment including



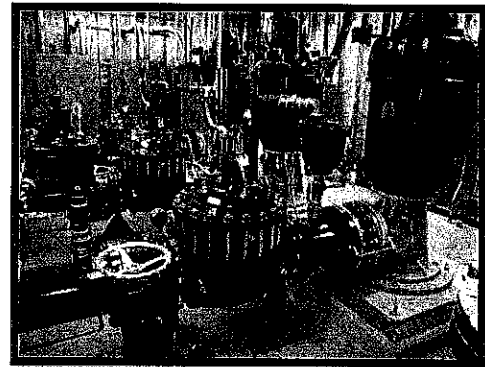
electrical facilities and instrumentation and controls. D&A also assisted SSWD in preparing a feasibility study and providing project description information for grant applications. A portion of the project was funded through Prop 84.

**El Dorado Irrigation District (EID)**

**Moosehall Pump Station**

**Reference:** Patrick Wilson,  
 P.E. Associate Civil Engineer –  
 EID, (530) 642-4079,  
[pwilson@eid.org](mailto:pwilson@eid.org)

The Moose Hall potable water pump station is a critical link in the EID water supply system. It transfers water from the Reservoir A treatment plant distribution system to the Reservoir 1 distribution system. It is the only link between the two systems when the normal water



supply to Reservoir 1 is shut down for winter maintenance. During construction, a plan had to be in place such that the District could start supplying water to the Reservoir 1 system within 8 hours if another supply system failed. D&A provided hydraulic system analysis, piping design, structure design, construction observation, and shop drawing review.



# OLIVEHURST PUBLIC UTILITY DISTRICT

## Proposal for Design for Water Infrastructure in South Yuba County

### East Ridge Water Tank and Pump Stations

The East Ridge development is a new 750 home community planned for construction in the El Dorado Hills area. To serve these homes, EID required the design and construction of a water tank, a transfer pump station and a booster station. The transfer pump station moves water from an existing EID storage tank to the new tank designed under this project. The booster pump station raises the pressure in a portion of the development that cannot be adequately served by the tank alone. Design tasks involved in this project were facility siting, site development, drainage facilities, equipment selection, surge analysis, surge mitigation, retaining walls, and hydraulic analysis.

### Rio Linda/Elverta Community Service District Well 16 Pump Station and Transmission Main

**Reference:** Tim Shaw – General Manager, RLECWD, 916-991-8891, [GM@rlecwd.com](mailto:GM@rlecwd.com)

D&A recently completed the design of the new Well 16 Pump Station and associated pipelines at RLECWD’s existing well site that will provide additional water supply to the surrounding community. This project is currently under construction. The Well 16 Pump Station design equips RLECWD existing well with a 1,500 gallon per minute pump with a system design pressure of approximately 80 psi at the well head. The facility design included a chemical/electrical building, pumps, piping, masonry fencing, site grading and drainage, a standby generator and fuel tank and a new SMUD service.

Mike Vasquez, PE, PLS  
District Engineer, EKI  
530-682-9597,  
[mvasquez@ekiconsult.com](mailto:mvasquez@ekiconsult.com)

### Rio Linda/Elverta Community Service District

### Well 15 Pump Station and Transmission Main

**Reference:** Pat Goyet – Operations Supervisor, RLECWD, 916-796-5949, [pgoyet@rlecwd.com](mailto:pgoyet@rlecwd.com)

As part of a larger project to bring the District into compliance with State Health Department requirements the project included design of a 2,500 GPM well, pump station and approximately 2,500 feet of 16-inch and 12-inch transmission main within Sacramento County right-of-way. The transmission main connected the new well site to the distribution system. D&A services included design, environmental permitting (including US Army Corps of Engineers permit for wetlands area), Sacramento County Encroachment permit, easement acquisition assistance, bidding, complete construction management and inspection services and engineering services during construction. The project was completed in 2014 on time without any contractor change orders.





## OLIVEHURST PUBLIC UTILITY DISTRICT

### Proposal for Design for Water Infrastructure in South Yuba County

#### **El Dorado Irrigation District Salmon Falls Booster Pump Station**

**Reference:** Patrick Wilson, P.E.  
Associate Civil Engineer – EID,  
(530) 642-4079,  
[pwilson@eid.org](mailto:pwilson@eid.org)

The Salmon Falls Booster Pump Station serves the upper elevations of a high-end development near El Dorado Hills, CA. Water is supplied to the station from the nearby Salmon Falls Tank owned by the El Dorado Irrigation District. The station has redundant booster pumps and a high flow pump for emergency water supply. The project was built on a steep grade that required the site to be benched and filled to a level grade. The project will also include electrical improvements to the existing tank site.

#### **Blue Lake Springs Mutual Water Company Blue Lake Springs Pump Station**

The Blue Lake Springs Project includes a pump station as well as several miles of piping upgrades to improve water system pressures and flows. The project is located in a mountainous area and required pumping heads of nearly 400 feet and flows of 400 gallons per minute. The purpose of the pump station is to provide water to an existing storage tank that distributes water into the system. The varied terrain requires the use of several pressure reducing stations to control supply pressures for the lower areas.

### Affinity Engineering Design Experience

#### **Olivehurst Public Utility District**

#### **South Yuba County Water Study**

**Reference:** John Tillotson, P.E. –  
General Manager, Olivehurst  
PUD, 530-743-0317,  
[jtillotson@opud.org](mailto:jtillotson@opud.org)

A water study was prepared by Affinity Engineering & Domenichelli and Associates and provided to Olivehurst Public Utility District in January 2020 that looked at expanding their water system to supply a new planned development in South Yuba County (planned area) that is adjacent to the Hard Rock Casino. Local regional water studies were reviewed to develop water demands based on types of use. These demands were then applied to the lands uses within the planned area from the County's 2030 General Plan. A water model was created using these demands to size and located transmission mains along with a new water supply facility. This water study is being used as a bases for the detailed design of the planned area's water infrastructure.

#### **Sacramento Suburban Water District**

#### **Well 39 Rutland**

**Reference:** Doug Carter –  
Production Superintendent –  
SSWD – 916-679-2884,  
[dcarter@sswd.org](mailto:dcarter@sswd.org)

Designed and provided services during construction for a 1,500 gpm groundwater well. The facility included a variable speed, 1,500-gpm well pump, control building, natural gas generator, pump to waste, site grading and paving, stubs for future treatment, PLC and SCADA integration with Tesco Controls. The project won the 2016 ASCE Energy Project of the year award for the ASCE Sacramento Section.



# OLIVEHURST PUBLIC UTILITY DISTRICT

Proposal for Design for Water Infrastructure in South Yuba County

## Rio Linda/Elverta Community Water District

### L Street Reservoir and Pump Station

**Reference:** Pat Goyet –  
Operations Supervisor,  
RLECWD, 916-796-5949,  
[pgoyet@rlecwd.com](mailto:pgoyet@rlecwd.com)

Designed and provided services during bidding and construction for a 1.2 MG welded steel reservoir and 6,000-gpm booster pump station. The facility included site grading and paving, landscaping, storm drain, variable speed booster pumps, altitude MOV valve, pump to waste system, PLC, and SCADA integration with Tesco Controls. The project won the 2014 ASCE Environmental Project of the year award from ASCE Sacramento Section.

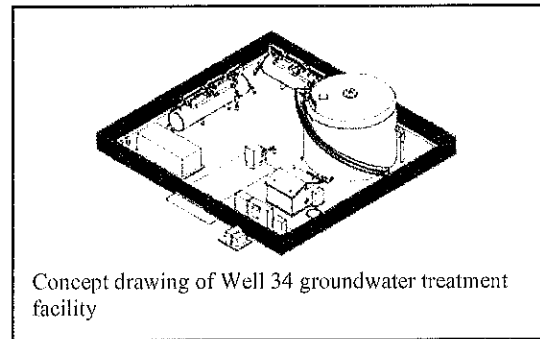


## Olivehurst Public Utility District

### Well 34 Groundwater Treatment

**Reference:** John Tillotson –  
General Manager, Olivehurst  
PUD, 530-743-0317,  
[jtillotson@opud.org](mailto:jtillotson@opud.org)

Affinity was tasked to assist the Olivehurst Public Utility District in looking at water supply alternatives that would increase the District's Plumas Lake Water System supply. Affinity recommended a new well that was not associated with its treatment plant. This independent supply would improve reliability in the event that the treatment plant had to be taken out of service.



Concept drawing of Well 34 groundwater treatment facility

Affinity then designed a new groundwater well in Olivehurst, CA to produce 3,500 gpm directly into the local water system. The well had manganese concentrations that required treatment. The available land was 100-ft by 100-ft. A design was developed to accommodate all the required equipment needed for this facility. The site was laid out to accommodate a well, two 8-ft diameter by 35-ft long horizontal pressure filters, 35-ft diameter by 25-ft tall backwash tank, chemical building, outdoor electrical panel and natural gas generator. The project included analyzing the feasibility of the project, drilling a monitoring well to locate the highest quality water, overseeing the drilling of the well, pump testing, developing full plans and specification for equipping of the well and construction support services. The well was equipped with

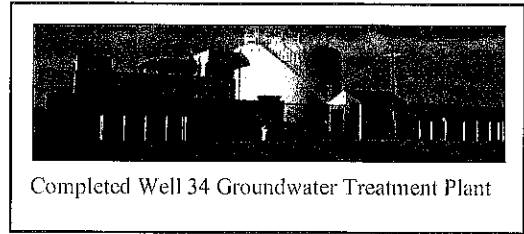


## OLIVEHURST PUBLIC UTILITY DISTRICT

Proposal for Design for Water Infrastructure in South Yuba County

a pumping capacity of 3,500 gpm, filtration for the removal of manganese, backwash recycling to eliminate waste discharges and a natural gas generator that is used to operate during utility power outages as well as load shedding in cooperation with PG&E.

The facility went online in 2012 and is now the primary source of supply for the District's Plumas Lake Water System. The pump station operates at approximately half of the cost of other treatment options that supply this water system.



### CONSTRUCTION MANAGEMENT AND INSPECTION EXPERIENCE

As mentioned earlier, D&A has experience providing complete construction management services. D&A's Recent construction management projects include:

- ❖ **Sacramento Suburban Water District (SSWD)** – Various mainline replacement and meter installation projects – included construction management and inspection services for multiple projects which have included over 300,000-feet of mainline installation (up to 16-inch) and trenchless water service line installations.
- ❖ **El Dorado Irrigation District (EID)** – On-call Construction Inspection Services – D&A was selected for a three-year contract with EID to provide on-call inspection services for various water and wastewater projects including hydroelectric facilities, pipelines, pump stations along with development related projects.
- ❖ **Citrus Heights Water District (CHWD)** – Corporation Yard Safety Improvements Project – Included construction management services for the construction of a materials storage building, wash down station, vector pit and parking improvements.
- ❖ **Sacramento Suburban Water District (SSWD)** – Antelope Pumpback Pump Station – Included construction management and inspection services for a 15,000 gpm pump station including climate controlled PLC/SCADA Control Room, a 2,000gpm booster pump that SSWD can utilize to increase pressure to a low-pressure zone, and a 48-inch magnetic flow meter.
- ❖ **Rio Linda/Elverta Community Water District (RLECWD)** – Well 15 Pump Station and Pipeline –included construction management and inspection services for a 2,800gpm well pump station and a 16-inch pipeline associated with the project.

### Current, Pending, or Past Litigation

Domenichelli and Associates, and all listed subconsultants, have no current, pending, or past litigation (within the last 10 years) to report.



# OLIVEHURST PUBLIC UTILITY DISTRICT

## Proposal for Design for Water Infrastructure in South Yuba County

### SECTION 6.2.2: STAFFING

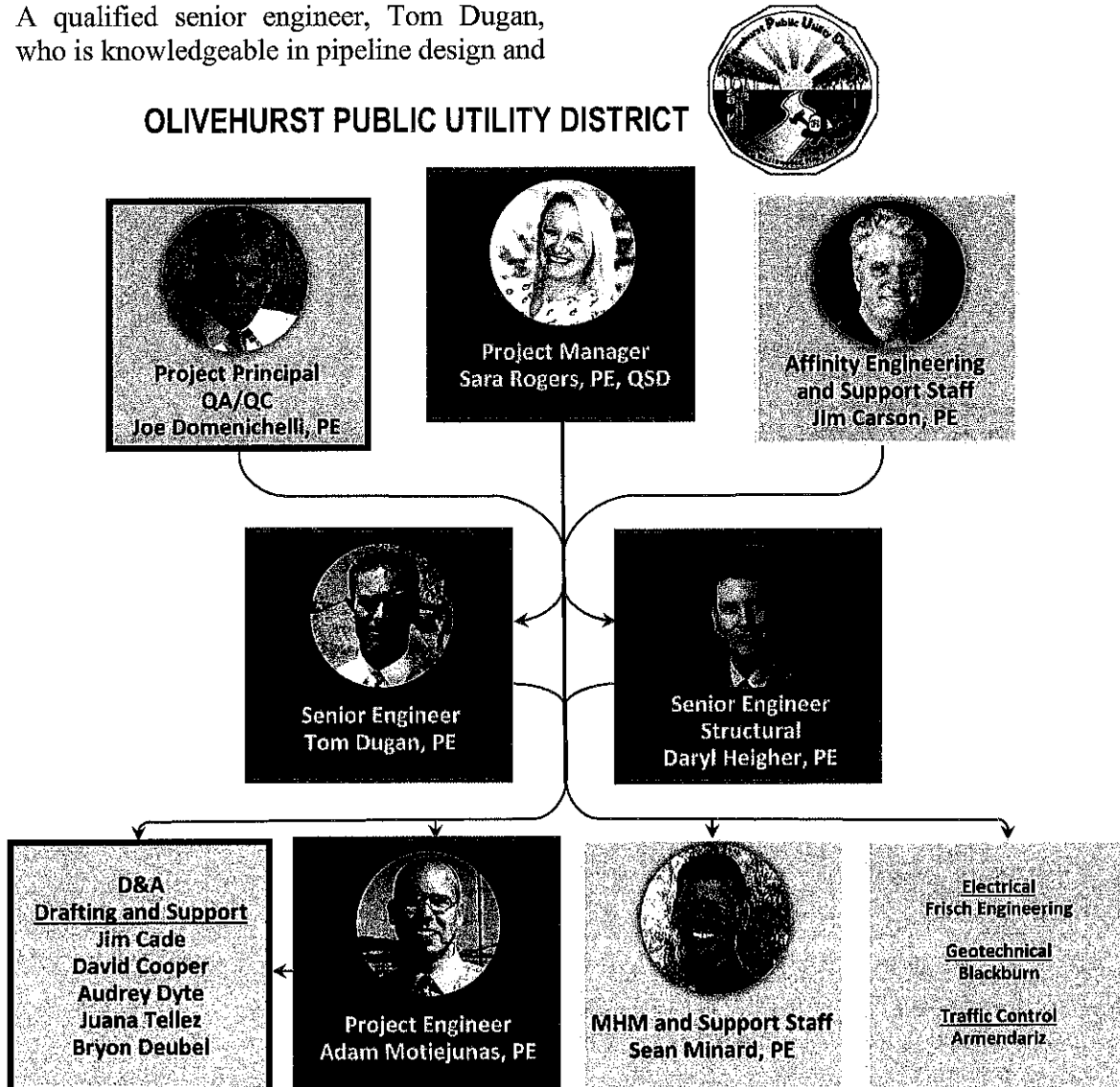
D&A's team brings the following benefits to the District's Engineering and Operations Team:

- A commitment to the District's success. Our team is headed by senior level and principal staff members from each of our team's company's. All team members have a personal interest in their company's and team's success.
- A successful project manager in Sara Rogers, with a proven record of leading large pipeline and water facility projects through design and construction.
- A qualified senior engineer, Tom Dugan, who is knowledgeable in pipeline design and

construction from his past work with multiple public agencies.

- Knowledge of the area and past work on the project through our teaming partners Jim Carson (Affinity Engineering) and Sean Minard (MHM).

The organizational chart below shows our proposed project team. The work location is provided in the following section along with a summary of their experience. Resumes and additional information on each of our team members are available upon request.





**Sara Rogers, PE, QSD**

**Project Manager**



Location – Sacramento and El Dorado Hills office (Approximately 50% of time in each)

- Over 19 years of water infrastructure replacement experience.
- Proven project manager on multiple pipeline design projects.
- Experience with large pipeline and well pump station design and construction
- Extensive regulatory and permitting experience including recent experience with Caltrans permitting process.
- Strong relationships with construction contractors to provide insight during the design process.

**Summary Qualifications:**

Licensed Civil Engineer CA, Qualified SWPPP Developer/Practitioner | **Education** – M.S. Civil Engineering, California Polytechnic State University, San Luis Obispo, B.S. BioResource and Agricultural Engineering, California Polytechnic State University, San Luis Obispo | **Years with D&A** – 17 total

Sara Rogers has over 19 years of experience, seventeen of which are with D&A where she serves as Vice President. She is a registered engineer with a Master of Science degree with an emphasis on water resources design. Ms. Rogers’ has extensive experience in pipeline design, hydrologic and hydraulic studies, pump station design, and hydraulic structure design (including pressure reducing stations). Her background also includes grant/loan writing, administration and reporting along with regulatory support such as discharge permitting and reporting. Ms. Rogers also has construction management experience that has resulted in low change orders on competitively bid projects. She understands the necessary components in plan and specification development to minimize change orders.

**Applicable experience has included** – Designs of water pipelines and meter retrofit projects, pressure reducing stations, storage tanks, hydroelectric stations, recycled water facility design, diversion structure and canal hydraulic analysis and design and water system masterplans and modeling, SWPPP Development, and regulatory compliance and permitting.

Recent applicable design and construction services include:

- ❖ Well 16 Pipeline and Pump Station – Project Manager for the design of a 1,500gpm well site including pipeline extension in Rio Linda.
- ❖ Banvard Pipeline Replacement Project – Project Manager for the design of a pipeline replacement within the existing casing crossing Highway 80 near Auburn. Project includes extensive coordination with Caltrans.
- ❖ Sac. County Water Agency – Project Manager for the multi-phased pipeline replacement project. Most recent phases included 16-inch pipeline along Fair Oaks Blvd and Watt Avenue.
- ❖ Sac. Suburban Water District – Project Manager, Design Engineer and Construction Manager for multiple water main projects over the last 15-years. Recent projects included obtaining a Caltrans Encroachment permit for pipeline installation along Highway 50.



**OLIVEHURST PUBLIC UTILITY DISTRICT**  
 Proposal for Design for Water Infrastructure in South Yuba County

**Joe Domenichelli, PE**

**Project Principal**

**Quality Assurance/Control**



Location – El Dorado Hills office

- Over 35 years providing quality control and/or design services in water resources.
- Strong contract negotiation skills and practical value engineering ability.
- Firm understanding of developing feasible designs that are constructible.
- Effective communication skills with all parties involved
- Knowledgeable of construction methods and sequencing process.

**Summary Qualifications:**

**Years of Experience** – 35 total | **Registration** – Professional Engineer CA | **Education** – B.S. Civil Engineering, California State University, Chico | **Years with D&A** – 18 total

Mr. Domenichelli’s responsibilities will include overall QA/QC and team management as well as design assistance and review. Mr. Domenichelli has more than 35 years of engineering experience primarily in the area of water resources engineering. He has provided a variety of services from master planning of water and wastewater systems for entire communities to the design and construction management of municipal improvements such as water pipelines, pump stations and storage tanks. His understanding of the District’s needs through past work will allow him to provide management necessary to complete design and construction management services on time and on budget.

**Applicable experience has included** – Designs of water pipelines up to 48- inch diameter, water booster stations, sewer lift stations, storage tanks, hydroelectric stations.

Recent applicable design experience has included:

❖ Sac. Suburban Water District – QA/QC on multiple water main projects. Provided review and design assistance for over 150,000 feet of pipelines throughout the District in some of the highest traffic volume streets in Sacramento County.

❖ San Bernardino Valley Water District – Project Management and QA/QC for large diameter water pipeline designs up to 30- inch in diameter associated with hydroelectric projects, water treatment plant deliveries and groundwater recharge projects. These projects have been constructed in busy City street, along flood control levee systems and in sensitive habitat areas requiring extensive permitting coordination and traffic control measures. Projects included: City Creek Pipeline, Lytle Creek Intertie and Cactus Pipeline

❖ El Dorado Irrigation District – Main Ditch Pipeline- Provided Project design, Project Management and currently QA/QC for this multi-year project to abandon long reaches of ditch no longer in use and to install a new 42-inch diameter welded steel pipeline to replace over two mile of the ditch. This project has required extensive environmental permitting coordination, county road encroachment permitting and public outreach to local residents in this rural setting.





**OLIVEHURST PUBLIC UTILITY DISTRICT**  
 Proposal for Design for Water Infrastructure in South Yuba County

**Tom Dugan, PE, QSD**  
**Senior Engineer**  
**Pipeline Design Lead**



Location – Sacramento and El Dorado Hills office (Approximately 50% of time in each)

- Over 19 years of design and construction management experience.
- Proven water/wastewater design and construction manager for multiple agencies.
- Strong understanding of pipeline construction and sequencing.
- Extensive regulatory experience including knowledge of DDW waiver requirements and state water quality standards.
- Field experience interacting with the utility owner, designer, and contractor during design and construction.

**Summary Qualifications:**

**Years of Experience** – 19 total | **Registration** – Professional Engineer CA, Qualified SWPPP Developer/Practitioner, NASSCO CIPP Certified, Water Treatment Operator D1 | **Education** – B.S. BioResource and Agricultural Engineering, California Polytechnic State University, San Luis Obispo | **Years with D&A** – 7 total

Tom Dugan is a California Registered Engineer with over 19 years of experience on potable and non-potable water infrastructure design and construction management projects. Mr. Dugan has been involved with several large and small diameter potable and non-potable water pipeline designs and has had the opportunity to serve as the construction manager on several of these projects. He holds certifications as a State certified SWPPP developer, State certified D1 Drinking Water Operator, and a certified cured-in-place pipe inspector through National Association of Sewer Service Companies (NASSCO). He is experienced in bid document and cost estimate development, value engineering, bid services, and engineering services during construction.

Mr. Dugan has extensive design and construction management experience. These experiences have provided him the opportunity to take lessons learned as both a designer and CM to improve his overall designs and recognize design omissions as a CM that could have become problem during construction. Having both design and CM experience, he has successfully designed and managed projects with the following local agencies:

- ❖ Freeport Regional Water Project – Assist. Pipeline Design Manager, Pipeline Construction Manager (Phases 1 and 3)
- ❖ City of Lodi – Construction Manager on Lodi’s Water Meter Project (Phase 1,2, 3)
- ❖ Carmichael Water District – Design Engineer on multiple water main replacement projects, and Construction Manager on the Rustic Woods Project
- ❖ Sac. Suburban Water District – Design Engineer on multiple water main projects, and Construction Manager on Arden Oak WMP Phase 1 and 2, and Antelope Pump Station.
- ❖ Citrus Heights Water District – Construction Manager of the District’s Corp Yard Construction



**OLIVEHURST PUBLIC UTILITY DISTRICT**  
 Proposal for Design for Water Infrastructure in South Yuba County

**Daryl Heigher, PE, QSD**  
**Senior Engineer**  
**Structural Lead**



Location – El Dorado Hills office

- Over 25 years of design and construction experience.
- Proven water/wastewater design for multiple agencies.
- Strong understanding of piping systems, hydraulic structures, pump stations, lift stations, tanks and other water control facilities.
- Field experience interacting with the utility owner, designers, and contractors during design and construction.

**Summary Qualifications:**

**Years of Experience** – 25 total | **Registration** – Professional Engineer CA | **Education** – B.S. Civil Engineering, California State University, Sacramento | **Years with D&A** – 8 total

Daryl Heigher is a California registered engineer with 25 years of experience. Mr. Heigher has been with Domenichelli and Associates since 2012. Mr. Heigher has extensive experience in gravity and pressure pipeline design, sewer lift station design, pump station design, hydraulic structure design, structural design, cost estimating, construction inspection, and shop drawing review. He has served as project engineer for the design of water and wastewater treatment plants, pipelines pump stations, and storage tanks.

**Applicable project experience has included** – Designs of WTP upgrades, lift stations, booster stations, pressure reducing stations, storage tanks, hydroelectric stations, and pipelines up to 72-inch diameter. Structural designs for over 20 buildings at WTPs, pump stations and hydroelectric stations, WTP intakes and filter hydraulic structures, sludge pond design and miscellaneous other structural water system components.

Recent applicable design experience has included:

- ❖ Well 16 Pump Station – Design Engineer for 1,500gpm well site in Rio Linda which included a masonry building and sound wall
- ❖ El Dorado Irrigation District – Design Engineer for the Moose Hall pump station, Outingdale WTP Tank Replacement, Salmon Falls Booster Station, East Ridge Tank and Pump Stations
- ❖ City Folsom – Senior Project Engineer on three City storage tank retrofit projects to include new pumping facilities, new interior mixing features, new structural roof support systems, catwalks and ladders and new pipe tie-in facilities.
- ❖ Sac. Suburban Water District – Design Engineer on the 15000gpm pumpback water pumping station. This pump station is designed to pump treated water from the SSWD system to the san Juan Water District system through the existing 48-inch to 72-inch Cooperative Transmission Pipeline as part of conjunctive use project to share groundwater from SSWD with SJWD during drought conditions and allow treated surface water to flow by gravity in the opposite direction in years of excess surface water. The design included a building to house all the pumps and controls of the pump station.



**OLIVEHURST PUBLIC UTILITY DISTRICT**  
 Proposal for Design for Water Infrastructure in South Yuba County

**Adam Motiejunas, PE**  
**Project Engineer**



Location – El Dorado Hills office

- Over 10 years of experience.
- Experience with design-assist projects working with SSWD, and West Valley Construction.

**Summary Qualifications:**

**Years of Experience** – 10 total | **Registration** – Professional Engineer CA | **Education** – B.S. Civil Engineering, California State University, Sacramento | **Years with D&A** – 6 total

Adam Motiejunas is a Registered Engineer who has been with D&A since 2013, serving D&A’s clients on a multitude of water and wastewater infrastructure projects. Mr. Motiejunas’ experience includes multiple water system designs and modeling projects with thousands of feet of pipe length ranging in diameter from 4 to 18 inches. Mr. Motiejunas’ work on past pipeline projects (including main replacements for SSWD, West Valley Construction, CWD, EID, City of Placerville, Blue Lakes Springs WD , Placer County Water Agency, and City of West Sacramento) has given him an opportunity to become versed in pipeline design, bid document development, shop drawing review, and cost estimating.

**Applicable project experience has included** – 25 miles of water pipeline design (more than 30 projects) up to 18-inch diameter, hydroelectric project, booster stations, and multiple site civil designs. Water modeling and masterplans. Projects have included:

❖ Placer County Water Agency – Design Engineer for Whitney Blvd. Pipeline in Rocklin, CA. The project included 4,100 linear-feet of 18-inch ductile iron pipeline along Whitney Boulevard in 2018. The design included mainline replacement of the corroding water main, reconnecting 76 residential and commercial metered services.

❖ City of San Jose Water Pipeline Replacement Projects – For over 10 years designing ductile iron water replacement projects within the City of San Jose from 8-inch to 12-inch diameter for an on-going replacement program. Designed more than 100,000 feet of pipelines for West Valley Construction who has contracted with the City over this time span. Much of the design has included trenchless construction through busy streets.

❖ Placer County Water Agency – 20-inch Banvard Pipeline – Provided design for a pipeline crossing Interstate 80 near Newcastle, CA. The pipe will replace a failing pipeline beneath the freeway in an existing 30-inch concrete casing. After leaving the casing the pipe traverses up a steep embankment in Caltrans right of way. Design efforts have included extensive coordination with Caltrans for an encroachment permit, difficult slope shoring design and traffic control planning to close a freeway lane.



**OLIVEHURST PUBLIC UTILITY DISTRICT**  
 Proposal for Design for Water Infrastructure in South Yuba County

**Jim Carson, PE**  
**Senior Engineer**



Location – Rancho Cordova

- Over 34 years of design and construction experience.

**Expertise Includes:**

- Water System Planning: Master Planning, modeling, hydraulic analysis, water system/zone demand analysis
- Asset management: Facility assessments, life asset planning, cost estimating
- Water Treatment
- Water Supply: deep well turbines, close coupled boosters, inline boosters, intake boosters, intra and interconnections
- Reservoirs: concrete, welded steel, and bolted steel
- Distribution: pipeline design and avoidance of utility conflicts
- Water Quality: Title 22 water quality, bacteriological and heterotrophic plate count sampling, flushing and disinfection planning and monitoring of distribution systems

**Summary Qualifications:**

**Years of Experience** – 34 total | **Registration** – Professional Engineer California and Arizona | **Education** – B.S. Civil Engineering, Colorado State University | Master of Business Administration, University of Phoenix

James Carson has more than 34 years of experience covering all aspects of water utility engineering, operation, and management. His career began as a staff engineer for a large investor-owned water company in the Los Angeles area, rising to the level of Vice President in charge of Water Quality. Currently, Mr. Carson is the President and Chief Executive Officer of Affinity Engineering, a position he has held since founding the company in 2009. In addition to his many accomplishments, Mr. Carson provided legal testimony that contributed to favorable settlement for the water company which helped mitigate the loss of wells associated with groundwater contamination in Sacramento County. He was also signatory to a groundwater basin management plan in Sacramento County that forged relationships between environmental, development and water utility stakeholders.

Throughout his career, he has had to manage employees, customers, budgets, schedules, regional water groups, and regulatory officials. His experience includes overseeing the operations, master plan preparation, design, contracting, project start-ups, and customer service for many water systems throughout California. These systems ranged in size from 25 to 150,000 water service connections. As a District Manager, he was responsible for the day-to-day operations and customer service functions for the cities and communities of Clearlake, Rancho Cordova and Bay Point. As a senior engineering, he was responsible for creating system master plans, facility assessments, developing innovative solutions to meet water supply and water quality requirements, and developed and presented engineering reports to governing bodies (water district boards, city councils). Mr. Carson designs provide value and quality to the client with an emphasis on efficiency, operability, and aesthetics.



# OLIVEHURST PUBLIC UTILITY DISTRICT

## Proposal for Design for Water Infrastructure in South Yuba County

**Sean Minard, PE, PLS**  
**Pipeline Design**  
**Survey Lead**

**M·H·M**

ENGINEERS & SURVEYORS SINCE 1892



Location – Marysville

- Over 28 years of design and construction experience.
- Local experience.

### Summary Qualifications:

**Years of Experience** – 28 total | **Registration** – Professional Engineer CA and Licensed Land Surveyor, CA | **Education** – B.S. Civil Engineering, California Polytechnic State University, San Luis Obispo

Mr. Minard currently serves as the President of MHM and has worked with the firm for over twenty-eight (28) years in overseeing a variety of engineering design and construction management projects for various cities, agencies, and districts. He has prepared engineering analysis, designs, and calculations both for private improvements and public works projects as well as construction plans, specifications, and cost estimates. He is fully versed in the use of numerous computer modeling programs for design, construction management, and analysis. He currently serves as District Engineer for the following public agencies:

- Reclamation District No. 784, Yuba County, California
- Reclamation District No. 900, Yolo County, California
- Marysville Levee District, Marysville, California
- Levee District No. 1, Sutter County, California
- Levee District No. 9, Sutter County, California
- Feather Water District, Sutter County, California
- Sutter Extension Water District, Sutter County, California

Recent pipeline design projects have included:

- ❖ City of Yuba City – Prop 84 Water Line Extension Project – MHM assisted the City of Yuba City in the design and construction of a new water main to serve Franklin School and several subdivisions along Franklin Road. The project involved extending the water main in City and County Roads and providing new services to the residents and facilities from the new City main to replace the contaminated existing private water and well connections. The design services provided by MHM included plans, specifications, estimate, and support during construction.

- ❖ City of Yuba City / Barry School Waterline Project - The project involved constructing a 3-inch service waterline approximately 1.22 miles long along Railroad Avenue and Barry Road beginning from the intersection of Railroad Avenue and Stewart Road. The 14-inch and 12-inch water mains along Railroad Avenue and Stewart Road, respectively, were extended from their current dead ends to the intersection where the 3-inch waterline would connect.



## OLIVEHURST PUBLIC UTILITY DISTRICT

### Proposal for Design for Water Infrastructure in South Yuba County

#### STAFFING PLAN

Our team's staffing flexibility allows us to quickly assign staff and mobilize to meet the District's schedule and budget expectations.

We have carefully planned our workload to ensure that the District's South Yuba County Water Infrastructure Project is adequately staffed. D&A has assigned project personnel based upon our understanding of the District's needs and expectations, the project type and scope, and our team member's qualifications. Our team can start immediately once a contract is issued. Our senior level staff members are available to contact at any time by cell phone and email if not immediately available at the office. Our goal is to always have engineering staff members available by phone when needed. If any team member is not available, we do our best to locate someone that can help as quickly as possible. Multiple references have been provided that can attest to our past performance and responsiveness. We encourage the selection committee to contact these references.

We have also augmented our staff by teaming with Affinity Engineering and MHM. Both firms will assist with design and construction services. Our team will adjust assignments as necessary to ensure that the project is adequately covered at all times.

Our previous water pipeline and supply facility design experience with multiple agencies demonstrates our ability to quickly respond to project issues in order to keep the project on schedule and within budget. While many of our services involve designs that have comfortable project timelines for completion, we have also provided assistance on specialty projects that have a shorter timeline and emergency services with accelerated schedules. Emergency and accelerated requests have required nighttime and weekend work, and our staff has the flexibility and expertise to meet these needs.

D&A has demonstrated on past projects that our staff can quickly provide services necessary to keep projects on track. This is essential during construction of these types of projects.

On all our projects, we work to closely monitor the budget while ensuring that the project is completed on time and to the highest technical standards.

Our company philosophy has always been to provide superior customer service at reasonable rates, and we continue to structure our company and workload with this in mind. You can be confident that the D&A team will continue to provide a responsive and high-quality team for the District's project.



**OLIVEHURST PUBLIC UTILITY DISTRICT**  
 Proposal for Design for Water Infrastructure in South Yuba County

**SECTION 6.3: PROPOSED COSTS**

The following provides our estimate of cost associated with the project. The costs are based on the scope of services included in this proposal. Appendix A (following the cost proposal) includes more detailed scope of services from each of our subconsultants along with their rates for the project. D&A's current rate sheet is also included below for reference.

Our rates (along with our sub-consultants) are good until the end of 2020. Rate adjustments for subsequent years will not exceed 3% each year.

**DOMENICHELLI AND ASSOCIATES, INC. SCHEDULE OF FEES**

The following rates are provided for 2020. Expenses including printing and postage will be billed at cost.

<b>Job Title</b>	<b>Rate (\$/hr)</b>
<b>Project Principal 1 – QA/QC</b>	<b>\$190.00</b>
<b>Project Principal 2</b>	<b>\$180.00</b>
<b>Project Manager 1</b>	<b>\$175.00</b>
<b>Project Manager 2</b>	<b>\$165.00</b>
<b>Senior Engineer 1</b>	<b>\$155.00</b>
<b>Senior Engineer 2</b>	<b>\$145.00</b>
<b>Project Engineer 1</b>	<b>\$135.00</b>
<b>Project Engineer 2</b>	<b>\$125.00</b>
<b>Staff Engineer 1</b>	<b>\$115.00</b>
<b>Staff Engineer 2</b>	<b>\$110.00</b>
<b>Senior CAD Drafter</b>	<b>\$105.00</b>
<b>CAD Drafter 1 / Intern</b>	<b>\$85.00</b>
<b>Construction Manager</b>	<b>\$155.00</b>
<b>Inspection</b>	<b>\$150.00</b>



Olivehurst Public Utility District
Engineering Service: Design for Water Infrastructure in South Yuba County (Water Plant and Pipeline Only)

Table with columns: Tasks, Labor (Water Plant Only), Outside Services, ODCs, Total. Rows include Task 1: Project Management, Task 2: Preliminary Design Services, Task 3: Final Design, Task 4: Surveying, Mapping, and Geotechnical Services, and Task 5: Permitting and Environmental Support.

Handwritten blue ink note: 1,896,918



Tasks	Labor												Outside Services					ODCs		Total	
								WATER PLANT ONLY			Total Hours	Total Labor Costs (1)	Affinity Engineering, Inc.	MHM Engineering, Inc.	Frisch Engineering, Inc.	Blackburn Consulting, Inc	Almendarez Consulting, Inc.	Subtotal	Sub Consultant Total Cost (2)	ODCs	Total Fee
	Joe Domenichelli	Sara Rogers	Tom Dugan	Daryl Heigher	Adam Motiejunas	Audrey Dyte	Jim Cade	Construction Manager	Inspector												
	PIC/QAQC	PM	PE	PE	PE	EIT	CAD	CM	Full Time Inspection		Water Plant Design	Surveying	Electrical	Geotechnical	Traffic Control						
<b>Task 6: Bid and Award Services</b>	\$190	\$165	\$155	\$155	\$125	\$110	\$105	\$155	\$150												
<b>6.1 Water Plant and Phase 1 Pipeline and Hwy Crossing</b>																					
6.1.1 Attend Pre-Bid Conference		2	2	2						6	\$950						\$0	\$0	\$950		
6.1.2 Prepare Addendum (Assume 3)	4		24	24	16					68	\$10,200	\$14,350	\$3,262	\$11,140			\$28,752	\$31,627	\$41,827		
6.1.3 Review Bids and Provide Recommendation for Award Letter	2	4	8	8						22	\$3,520						\$0	\$0	\$3,520		
6.1.4 Prepare Conformed for Construction Plans and Specifications	2		8	8		16	24			58	\$7,140		\$2,448				\$2,448	\$2,693	\$9,833		
<b>6.2 Phase 2 Pipeline</b>																					
6.2.1 Attend Pre-Bid Conference		2	2	2						6	\$950						\$0	\$0	\$950		
6.2.2 Prepare Addendum (Assume 3)	4		24	24	16					68	\$10,200						\$0	\$0	\$10,200		
6.2.3 Review Bids and Provide Recommendation for Award Letter	2	4	8	8						22	\$3,520						\$0	\$0	\$3,520		
6.2.4 Prepare Conformed for Construction Plans and Specifications	2		8	8		16	24			58	\$7,140						\$0	\$0	\$7,140		
<b>6.3 Phase 3 Pipeline</b>																					
6.3.1 Attend Pre-Bid Conference		2	2	2						6	\$950						\$0	\$0	\$950		
6.3.2 Prepare Addendum (Assume 3)	4		24	24	16					68	\$10,200						\$0	\$0	\$10,200		
6.3.3 Review Bids and Provide Recommendation for Award Letter	2	4	8	8						22	\$3,520						\$0	\$0	\$3,520		
6.3.4 Prepare Conformed for Construction Plans and Specifications	2		8	8		16	24			58	\$7,140						\$0	\$0	\$7,140		
Subtotal Task 6:	24	18	126	126	48	48	72	0	0	462	\$65,430	\$14,350	\$5,710	\$11,140	\$0	\$0	\$31,200	\$34,320	\$0	\$99,750	
<b>Task 7: Engineering Services During Construction</b>																					
<b>7.1 Water Plant and Phase 1 Pipeline and Hwy Crossing</b>																					
7.1.1 Submittal Review (Assume 50)	16		80	24						120	\$19,160	\$109,500	\$3,760	\$169,810			\$283,070	\$311,377	\$330,537		
7.1.2 RFI Responses			40							40	\$6,200			\$27,415			\$27,415	\$30,157	\$36,357		
7.1.3 Progress Meeting Attendance and Field Resolution	16	16	40	40	16					128	\$20,080		\$4,660				\$4,660	\$5,126	\$25,206		
7.1.4 Change Order Review and Support	8	24	24	24						80	\$12,920		\$2,521				\$2,521	\$2,773	\$15,693		
7.1.5 Inspection and Final Walkthrough		16	40	40						96	\$15,040		\$5,825				\$5,825	\$6,408	\$21,448		
7.1.6 Develop As-Built Plans	4		24		40		40			108	\$13,680		\$2,393				\$2,393	\$2,632	\$16,312		
<b>7.2 Phase 2 Pipeline</b>																					
7.2.1 Submittal Review (Assume 50)	16		80							96	\$15,440						\$0	\$0	\$15,440		
7.2.2 RFI Responses			40							40	\$6,200						\$0	\$0	\$6,200		
7.2.3 Progress Meeting Attendance and Field Resolution	16	16	40	40	16					88	\$13,880						\$0	\$0	\$13,880		
7.2.4 Change Order Review and Support	8	24	24	24						56	\$9,200						\$0	\$0	\$9,200		
7.2.5 Specialty Inspection and Final Walkthrough		16	40	40						56	\$8,840						\$0	\$0	\$8,840		
7.2.6 Develop As-Built Plans	4		24		40		40			108	\$13,680						\$0	\$0	\$13,680		
<b>7.3 Phase 3 Pipeline</b>																					
7.3.1 Submittal Review (Assume 50)	16		80							96	\$15,440						\$0	\$0	\$15,440		
7.3.2 RFI Responses			40							40	\$6,200						\$0	\$0	\$6,200		
7.3.3 Progress Meeting Attendance and Field Resolution	16	16	40	40	16					88	\$13,880						\$0	\$0	\$13,880		
7.3.4 Change Order Review and Support	8	24	24	24						56	\$9,200						\$0	\$0	\$9,200		
7.3.5 Specialty Inspection and Final Walkthrough		16	40	40						56	\$8,840						\$0	\$0	\$8,840		
7.3.6 Develop As-Built Plans	4		24		40		40			108	\$13,680						\$0	\$0	\$13,680		
Subtotal Task 7:	132	168	744	128	168	0	120			1460	\$221,560	\$109,500	\$19,159	\$169,810	\$27,415	\$0	\$325,884	\$358,473	\$0	\$580,033	
<b>BASE TOTAL</b>	410	618	1904	638	1276	1216	1316			7378	\$1,005,320	\$514,600	\$283,574	\$262,485	\$299,505	\$12,000	\$1,372,164	\$1,509,381	\$62,000	\$2,576,701	
<b>CM/ FULL TIME INSPECTION AND GETOECH TESTING</b>								770	1440		\$335,350		\$774,545				\$1,019,545	\$1,121,500	\$5,000	\$1,461,850	
<b>BASE TOTAL + CM AND INSPECTION &amp; GEOTECH TESTING</b>																				\$4,038,551	

1. The individual hourly rates include salary, overhead and profit.
2. Subconsultants will be billed at actual cost plus 10%.
3. Other direct costs (ODCs) such as reproduction, delivery, mileage (rates will be beginning of the calendar year for all ongoing contracts. Assumed to be 3% per year.
5. Scope and Cost Assumptions
  - 5.1 Project management assumes an 8 month design and bid period and a 12 month construction duration
  - 5.2 All construction related services reflect a 12 month construction duration for the construction of the Water Plant and Phase 1 and 2 water pipeline
  - 5.3 Assumes the District has and/or will acquire all necessary ROW and easements necessary to design and construct the project. Cost reflects minor modifications to existing easements.
  - 5.4 Level of effort and costs assume the contractor will be doing the construction staking. Our surveyor will provide QA of contractor's staking.
  - 5.5. The District will have all environmental mitigation measures determined within 3 months from Project Notice to Proceed.
  - 5.6 Scope and cost assume that there is adequate and readily available power for each of the facilities. See Frisch Engineering proposal for additional electrical design assumptions.
  - 5.7 Scope and fee assume that sites requiring offsite drainage have readily available discharge locations within 500-feet of the site.
  - 5.8 MHM Field Inspection - Pipelines - assume 12 months - 6 days a week - 8 hour days for total of 2,544 manhours. Assume 240 manhours of office support
  - 5.9 MHM Geotechnical Material Testing - Quality Assurance - Pipeline - Assume QA tests to be performed are compaction and moisture density curves. Assume field 1,152 manhours, 480 hours laboratory time, and 96 manhours of office





**OLIVEHURST PUBLIC UTILITY DISTRICT**  
Proposal for Design for Water Infrastructure in South Yuba County

**APPENDIX A – SUBCONSULTANT SCOPE AND FEES INCLUDING RATE SHEETS**

The following sub-consultants have provided more detailed scope of services and fees which are included here for reference. Rate sheets are also included where applicable.

- Affinity Engineering
- MHM, Inc.
- Almendariz Consulting, Inc.
- Blackburn Consulting, Inc.
- Frisch Engineering, Inc.





## **SCOPE OF WORK**

### **Water Facility**

#### **Task 1 Facility Project Management**

This task involves monitoring the progress of the design and construction of the water facility. Project manager responsibilities will include the following as they relate to the Water Facility:

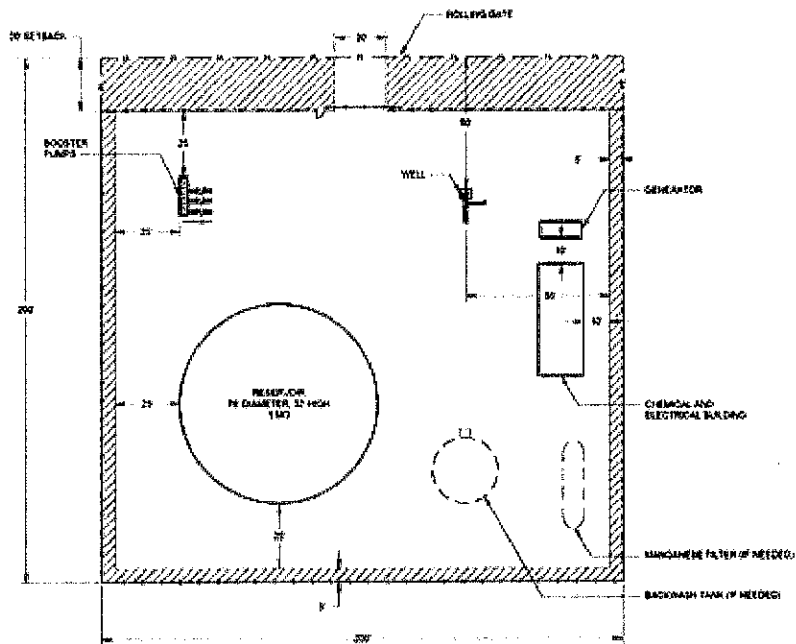
- Monitoring budget and schedule
- Schedule progress design meetings with the District
- Prepare agenda and minutes for design meetings
- Respond to District Questions
- Meeting with Stakeholders
- Coordinating sub-consultants
- Complete project close out by verifying that the District has everything they need to consider the project finished

#### **Task 2 Preliminary Site Layout**

##### **Task 2.1 Preliminary Site Layout and Utility Service Application**

The Project Team will go over with the District the planned facility location and verifying that the District has obtained all property requirements including easements needed for power, telephone, drainage, and discharge piping to Forty Mile Road. Once the property requirements have been verified, a boundary and topography will be completed for the plant facility and easements.

Based on the finalized property, a preliminary site layout will be developed that shows the location of the well, reservoir, booster station, operations building, and treatment (if required) that is similar to the one that was provided in the water study.



A new test well will be drilled at the location shown in the preliminary site layout.

Getting new electric service to a new property up to a year. It is important to get the application early to avoid project delays. Preliminary electrical loads will be developed and a draft Rule 16 service application will be submitted to PG&E as well as the preliminary site layout and single line diagram. PG&E will require a deposit to begin reviewing the electric and gas service applications.

#### Deliverables:

- Topographical and Boundary Survey for:
  - Well site property
  - Pipeline route
  - Storm Drain routes
- Preliminary Site Plan
- Preliminary Single Line Diagram
- Gas and Electric Service Applications

#### Assumptions

- Electrical and Gas Services are available in Forty Mile Road and PG&E will provide these services to the Water Facility
- Telephone (internet) service is available in Forty Mile Road and utility will provide these services to the Water Facility

- The offsite water pipeline from the water facility to Forty Mile Road will not be greater than 1,000 ft
- The offsite storm drain system from the water facility to a drainage canal (with capacity to pump to waste) will not be greater than 1000 ft

### **Task 3 Test Hole**

#### **Task 3.1– Project Coordination**

The groundwater portion of our team will provide project coordination with the District, environmental consultant, the State of California Water Board - Division of Drinking Water (DDW), the Yuba County Groundwater Sustainability Committee, and the selected drilling contractor. Our team will be available to attend bi-weekly meetings at the job site throughout the duration of the groundwater portion of the project, from test hole exploration to completion and testing of the production well. If a DDW Drinking Water Source Assessment and Protection (DWSAP) report is required, our team can prepare it for an additional \$8,000.

#### **Task 3.2 – Exploratory Test Hole Drilling**

Based upon the water quality data from the other nearby wells in this area (as documented in the January 30, 2020 Water Study for South Yuba County Planning Area), zone specific water quality does not seem warranted. Our team proposes to gain the needed site-specific hydrogeologic data to design the production well with test hole exploration. Our team will subcontract with a licensed (C-57) drilling contractor for the drilling of a test hole. Based on our knowledge of other wells in the area, we have designed the target exploration depth of 540 feet for test hole. The drilling contractor will obtain the necessary permit(s) to conduct the work, and all work will be conducted in conformance with all local and state regulations.

During test hole drilling, formation samples will be collected a minimum of every 10 feet and will be lithologically logged by an experienced geologist, under the direction of a Certified Hydrogeologist. Geophysical surveys of the borehole will include spontaneous potential, resistivity (single-point, 16-inch normal, and 64-inch normal), and natural gamma to delineate the aquifer units. Following geophysical surveys, our team will prepare a lithologic log of the borehole that describes the geologic formations encountered. The formation samples and the geophysical log from the test hole to estimate potential water production rates from the water producing zones and for the basis of design. Selected formation samples will be mechanically sieved to aid in the selection of the gravel envelope and to design of the well screen slot size. Following the assessment, the test hole shall be destroyed in accordance with all local and state regulations. The drilling cuttings (approximately seven cubic yards) and

the drilling fluid will be spread onsite to allow for drying so they can become part of the soil horizon.

Technical Memorandum 3.1 (TM2.1) will be provided to the District that includes the geophysical surveys and any other relative information associated with the drilling of the test hole.

Deliverables:

- TM3.1 - Test hole geophysical surveys

## **Task 4 – Production Well**

### **Task 4.1 Production Well Design**

Based on results from test hole exploration, Technical Memorandum 4.1 (TM4.1) will be prepared with an opinion of probable cost for the production well construction. TM1 will include calculations of inlet velocity, casing collapse calculations, gravel envelope and well screen slot size selection, and casing diameter to meet the District's project objectives for capacity, service life, and construction cost.

Based on the design report, plans and specifications will be develop for the District to soliciting competitive bids. The 95% plans and specification will be provided to the District for their review and comment. A meeting with the District will be held (if needed) to discuss their comments. The District comments will be incorporated in the 100% Bid Set. The 100% Plans and Specifications will be Stamped 100% Bid Set.

Meeting:

- Meeting with District staff to go over 95% Submittal comments

Deliverables:

- TM4.1 – Well Design Report
- 95% Plans and Specifications
- 100% (Bid Set) Plans & Specifications

### **Task 4.2 Bid Support Services**

Bid support services will be provided and include the following:

- Responding to responding to technical questions
- Evaluating bids and contractor qualifications
- Providing bid award recommendation

### **Task 4.3 Services during Construction (Production Well)**

Project management and construction observations will be available 24/7 for all critical path well drilling, construction, development, and testing portions of



the project. In addition to observing the well drilling, construction, and development, this task includes reviewing construction submittals and making any final “adjustments” to the well design based upon the production well’s borehole data. The construction support tasks that we will provide include the following services:

- Attending the on-site pre-construction meeting with the selected Contractor
- Reviewing equipment, site configuration, and materials
- Checking drilling fluid properties, formation samples, and borehole geophysical logs
- Providing design modifications, if necessary, for changed lithology in the production borehole
- Observing critical portions of the installation of well casing, gravel envelope, and seals
- Monitoring the well development progress and assessment of the progress
- Witnessing and recording data from well pumping tests to obtain the data required for the final well capacity selection
- Collecting water quality samples to be analyzed for public drinking water suitability. It is assumed that these samples will be delivered or sent to the District’s State-Certified contract laboratory for analysis. *This cost to be paid for by the District. Alternately, our team could provide the water quality analysis for an additional \$5,000.*
- Witnessing well performance and acceptance testing
- Providing a punch list of work items required for project closeout

#### **Task 4.4 Production Well Summary Report**

Following well construction and testing, a Technical Memorandum 4.2 (TM4.2) will include all pertinent well construction records. These records include:

- Summary of the construction work
- Daily field reports
- Inventory of the materials installed
- As-built well profiles
- Well pumping test plots
- Recommended well capacity and pump setting depth
- Geophysical surveys, field data,
- Laboratory water quality reports
- Assessment of the well acceptance testing.

After all work by the Contractor has been satisfactorily completed, a letter recommending for acceptance of the well will be provided to the District.

Deliverables:

- TM4.2 – Well Summary Report

## **Task 5 Facility Design**

### **Task 5.1 Basis of Design Report (30 Percent Submittal)**

Concurrently with the construction of the production well in Task 4, a draft basis of design Technical Memorandum 5.1 (TM5.1) will be developed which will include the elements of a 30% level of design including site layout, process and instrumentation diagrams, single line diagram, major equipment specifications, and updated drawing and specification list (see Exhibit B for the preliminary drawing list).

During this phase of the project a control strategy to control the facility will be developed. A meeting with the District will be held to discuss how this facility will be integrated in the District's Water Operations SCADA system.

A meeting will be scheduled to discuss District comments on the draft TM3. TM3 will then be finalized based on comments received along with a planning level opinion of probable construction cost.

#### ***Meetings:***

- Project kick-off
- Draft TM4.1 review

#### ***Deliverables:***

- Electronic Copy (PDF Format) – Draft and Final TM3
- 3 Hardcopies – Draft and Final TM5
- Electronic Copies (Adobe and AutoCAD Format) – Site Survey
- Draft and Final Geotechnical Investigation Report

Assumption:

- *PG&E deposits are paid directly by the District*

### **Task 5.2 Detailed Design**

Once the basis of design has been finalized, the detailed design phase of the project will begin. The detailed design will include the drawings and specifications listed in 5.1.

#### **Task 5.2a 60% Design**

The 60 percent design level will include:

- Site Grading and Paving
- Site Piping
- Site Drainage
- Arch Details
- Fencing Details
- Reservoir Details

- Building interior layout
- Draft Facility Control Strategies

The Project Team will submit the 60% design level for District review.

### **Task 5.2b 90% Design**

A meeting will be held with the District to go over their 60% design level comments. These comments will be incorporated into the 90% design level plans and specifications. The 90% design level documents will include:

- Final Conduit layout and schedule
- Final plans and specifications
- Final Facility Control Strategies

### **Task 5.2c 100% Design**

A final meeting with the District will be held to finalize the Plans and Specifications and create a 100% (Bid Set) for the District to bid out the Water Facilities. These plans will be stamped and marked as 100% Bid Set. Technical Memorandum 5.2 (TM5.2) will be prepared which updates the basis of design report (TM 5.1) to reflect the final design and control strategies.

Due to the Water Facility being unique to the overall project, the project will be bid out separately from the pipelines projects in Rancho Road and Forty Mile Road.

### **Meetings:**

- 60% Submittal Review with District
- 90% Submittal Review with District

### **Deliverables:**

- Plans and Specifications
  - Electronic Copy (PDF Format and provided on flash drive)
    - 60% Design Level
    - 90% Design Level
    - 100% Design Level (Bid Set)
  - Printed Copy – half size (11" x 17")
    - (2) 60% Design Level
    - (2) 90% Design Level
    - (2) 100% Design Level (Bid Set)
- TM5.2 – Final Basis of Design Report
- Electronic Copies (Adobe and AutoCAD Format) – Site Survey
- Draft and Final Geotechnical Investigation Report

#### Assumptions

- The new facility will not have SCADA. An autodialer will be included in the design to notify District Staff by telephone (if available) or Cellular of any alarm condition.
- Manganese Treatment will not be included in the design. Space allowances will be made if future manganese treatment is required.

### **Task 6 – Bidding Services**

During the Bidding period and at the direction of the District, the Project Team will perform the following:

- Attend the pre-bid conference and site visit
- Respond to bidder inquiries
- Provide clarifications to bidding documents
- Prepare addenda to bidding documents

Once the District has opened the bids and determined the apparent low bid.

After the District issues a Notice of Award and enters into a contract with the successful contractor, a conformed sets of drawings and specifications that include all addenda will be prepared and issued to the successful contractor. These plan and specifications will be stamped “Conformed Set”

#### **Meetings:**

- Pre-bid conference

#### **Deliverables:**

- Plans and Specifications
  - Electronic Copy (PDF Format and provided on flash drive)
    - Conformed Set
  - Printed Copy – half size (11” x 17”)
    - (2) Conformed Set

### **Task 7 – Services During Construction**

The services during construction will include office and field engineering and construction management/inspection tasks as follows:

#### Office/Field Engineering

- Respond to contractor requests for information (RFIs)
- Review and approve submittals
- Maintain submittal and RFI lists
- Write up change orders and submit to District for approval
- Site visits to address construction conflicts

- Provide technical support as required during Testing and Start-up
- Attend Board Meetings and other Stakeholder meetings to provide project updates as required

#### Construction Management/Inspection

- Schedule and conduct pre-construction meeting
- Schedule and conduct construction progress meetings
- Observe and document construction activities
- Provide inspection of critical construction events (compaction testing, tank coating, formwork, electrical conduit layout, etc.)
- Review and recommend progress payments
- Develop and maintain contractor punch lists
- Coordinate with District and contractor for project closeout and final walk through

The construction manager will coordinate with District staff with the startup of the new facility.

- Review and recommend progress payments
- Develop and maintain contractor punch lists
- Coordinate with District and contractor for project closeout and final walk through

The construction manager will coordinate with District staff with the startup of the new facility.

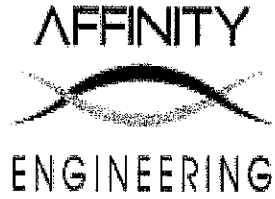
**Exhibit B**  
**Affinity - Preliminary Drawing List**

Sheet	Name	Disipline	Title
1			Cover Sheet
2	G1	General	Project Overview
3	G2	General	Drawing Index, General Information
4	G3	General	Abbreviations and Symbols
5	G4	General	Electrical Symbols
6	I1	Process	P&ID -Symbols and Abbreviations
7	I2	Process	P&ID - Well
8	I3	Process	P&ID - Reservoir
9	I4	Process	P&ID - Booster Pumps A&B
10	I5	Process	P&ID - Booster Pump C&D
11	I6	Process	P&ID - Altitude Valve
12	I7	Process	P&ID - Chlorine System, Miscellaneous Processes
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15	C3	Civil	Grading and Paving Site Plan
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17	C5	Civil	Piping and Storm Drain Details
18	C6	Civil	Perimeter Fencing and Landscaping Improvement Details
19	C7	Civil	Civil Details
20	C8	Civil	Civil Details
21	C9	Civil	Civil Details
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23	S2	Structural	Details
24	S3	Structural	Operation Building Foundation Plan and Roof Framing Plan
25	S4	Structural	Operation Building Roof Framing Plan and Section
26	S5	Structural	Foundation Detials and CMU Wall Details
27	S6	Structural	Roof Framing Details
28	S7	Structural	Pump Station Plan and Details
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52	E11	Electrical	Electrical Details 1
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Affinity Engineering  
Design Services

Task	Description	Senior Hydrogeologist		Senior Project Engineer		Project Engineer*		Senior Designer		CAD Operator		Project Assistant		Subcontractors and Other Direct Costs			Task Cost
		Hours	Cost	Hours	Cost	Hours	Cost	Hours	Cost	Hours	Cost	Hours	Cost	Cost	Markup	Cost	
1	Project Management		\$0	200	\$40,000		\$0		\$0		\$0		\$0	\$9,000	\$1,350	\$50,350	
2	Preliminary Site Layout	4	\$800	30	\$6,000		\$0		\$0		\$0	5	\$425	\$16,000	\$2,400	\$25,200	
3	Test Hole																
3.1	Formation Logging	8												\$7,000	\$1,050	\$8,050	
3.2	Project Coordination	40	\$8,000	20	\$4,000		\$0		\$0		\$0		\$0	\$22,000	\$3,300	\$27,700	
3.3	Test Hole Drilling	12	\$2,400		\$0		\$0		\$0		\$0		\$0				
4	Production Well																
4.1	Production Well Design	60	\$12,000	16	\$3,200		\$0		\$0	16	\$1,600	16	\$1,360	\$9,000	\$1,350	\$27,150	
4.2	Bid Support Services	8	\$1,600	8	\$1,600		\$0		\$0		\$0		\$0	\$1,000	\$150	\$4,350	
4.3	Well Construction Support	32	\$6,400		\$0		\$0		\$0		\$0		\$0	\$34,000	\$5,100	\$45,500	
4.4	Well Summary Report	20	\$4,000	10	\$2,000		\$0		\$0		\$0		\$0	\$6,000	\$900	\$12,900	
5	Facility Design																
5.1	30% Basis of Design Report	10	\$2,000	80	\$16,000		\$0	100	\$14,500	50	\$5,000	30	\$2,550		\$0	\$37,500	
5.2	Detailed Design															\$0	
5.2a	60% Design		\$0	200	\$40,000		\$0	300	\$43,500	100	\$10,000	80	\$6,800		\$0	\$100,300	
5.2b	90% Design		\$0	40	\$8,000		\$0	130	\$18,850	30	\$3,000		\$0		\$0	\$29,850	
5.2c	100% Design		\$0	20	\$4,000		\$0	20	\$2,900	30	\$3,000		\$0		\$0	\$9,900	
5.3	Bidding Services		\$0	50	\$10,000		\$0	30	\$4,350		\$0		\$0		\$0	\$14,350	
5.4	Services During Construction		\$0	300	\$60,000	200	\$35,000	100	\$14,500		\$0	40	\$3,400		\$0	\$109,500	
	Totals	194	\$37,200	774	\$194,800	200	\$35,000	680	\$98,600	226	\$22,600	171	\$14,535		\$14,250	\$514,600	





## Affinity Engineering Rate Sheet

2020 Rate Schedule	
Position	Rate (\$/hr)
Senior Project Engineer	200
Senior Hydrogeologist	200
Project Engineer	175
Senior Designer	110
CAD Operator	100
Clerical	85
Sub-consultants and Reimbursable Expenses are billed at cost plus 15%	
Mileage is charged at \$0.50/mile	

Affinity Engineering escalation % per year will not exceed 3% per year.



**SCOPE AND FEE ESTIMATE FOR  
ENGINEERING DESIGN SERVICES  
TASK ORDER 01**

**South County Water Extension Project**

*Pipelines and Well Site  
Improvement Project*

**Olivehurst Public Utility District  
Olivehurst, California**



**OPUD**  
**Olivehurst Public Utility District**  
*"Our mission is to provide high quality services to enhance  
our community's quality of life"*

May 9, 2020

**M·H·M**

ENGINEERS & SURVEYORS SINCE 1892

1204 Street, P.O. Box B  
Marysville, CA 95901

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## Introduction

Due to recent business operations in southern Yuba County, the demand of utility infrastructure has increased dramatically. OPUD as the provider of water and wastewater services, OPUD has completed preliminary studies to determine the most efficient routes and locations for both water and sewer infrastructure. With preliminary studies and cost estimates completed, OPUD wishes to move into the design portion of the Water project. MHM does not have any subconsultants of our work.

The D&A design team (Domenichelli) will consist of the following MHM for surveying, MHM and Domenichelli for pipeline design, Affinity for Water Well Design, Frisch Engineering for Electrical Engineering, Blackburn Consulting for Geotechnical Services, and D&A for Project Management, permitting support, and specification lead. Our scope of work does not include boundary surveys, right-of-way surveying, environmental, or permitting.

## Scope of Work

The work outlined in this scope has been divided into tasks as outlined below.

- ◆ Project Management
- ◆ Environmental and Permitting (not part of the scope) – Scope does include APE
- ◆ Preliminary Design Report (Basis of Design)
- ◆ Geotechnical Evaluations for Final Design (not part of the scope – By Blackburn directly for Domenichelli)
- ◆ Design Engineering for Final Design for Pipelines (90%, 100% and Final Designs, and Bid Support) – For Forty Mile Road Pipeline Only
- ◆ Pre-construction activities
- ◆ Engineering services during construction
- ◆ Construction Management, Inspections, and Control Surveying
- ◆ Construction Closeout

## 1. Project Management (MHM)

### 1.1. Project Management

MHM's project manager will manage the design contract scope, schedule, and budget for all MHM Team project activities outlined for Task Order 01. Project management will also occur at the task level for each team member as shown on the attached breakdown of hours. In addition, the project manager will coordinate with the Client, the subconsultant teams, agencies, and stakeholders throughout the duration of the project. This subtask includes project management activities from June 1, 2020 to July 31, 2022. This includes the construction phase.

MHM will attend weekly conference calls and bimonthly in-person meetings with OPUD's General Manager and Public Works Engineer and Domenichelli Team to provide an update of the design status and discuss program issues, and Task Order 01 activities will be added to the agenda.

**Deliverables:**

- ◆ Monthly QA tracking summaries (included in Progress Report)

**Assumptions:**

- ◆ Contract duration is from June 1, 2020 to July 31, 2022.
- ◆ Geotechnical, Environmental, and Permitting are not included in the scope of work.
- ◆ Right of Way acquisition teams are not included in the scope of work.

## **1.2. Invoicing and Progress Reports**

MHM will prepare separate monthly progress reports that document project activities and update the project schedule and budget status. Items that the progress report will include are:

- ◆ Financial status summary, including an earned value analysis by task
- ◆ Project schedule and deliverables
- ◆ Current activities list
- ◆ Issues list (design, schedule and QA/QC issues)
- ◆ QA/QC review status
- ◆ Decision log

MHM will provide design schedule updates to the Domenichelli Project Manager and OPUD Project Manager for the overall project schedule.

**Deliverables:**

- ◆ Monthly progress reports and schedule updates – the report will separately reference survey work, pipelines, lift stations, and pump stations

## **1.3. Progress Meetings**

MHM will attend progress meetings with Domenichelli Design Team and OPUD Design Team. These progress meetings will extend throughout the design contract. These progress meetings may include coordination with Yuba County, Wheatland, and Beale Air Force Base. The main purpose is coordination with OPUD Design Team and Domenichelli Project Manager.

**Deliverables:**

- ◆ Monthly progress

**Assumptions:**

- ◆ Assumed 11 progress meetings at 2 hours in Olivehurst.

## ~~**2. Environmental and Permitting (Not part of Scope)**~~

### ~~**2.1. Determination of Waters of the United States (Not part of scope)**~~

~~Marcus H. Bole & Associates will conduct a wetland delineation within the study area to identify jurisdictional waters of the United States. Marcus H. Bole & Associates will use the~~

~~site plans and profiles as provided by MHM Engineering as the extent of the project (study) area. All waters of the United States that meet the Clean Water Act criteria and are regulated by the Army Corps of Engineers (Corps) will be delineated within the study area. A report describing the methodology and results, including a map, will be developed. All wetland resources will be mapped and typed according to the Corps February 2016 mapping standards. A formal wetland delineation report per the 1987 Wetland Delineation Manual and Regional Supplement to the Corps Wetland Delineation Manual: Arid West Region (2008, version 2) will be submitted to the Client and MHM Engineering. The Delineation of Waters of the US and the Determination of the Ordinary High Water Mark (wetland report) will be considered draft until the Corps provides a jurisdictional determination. MHM will also assist Marcus H. Bole & Associates in providing a profile view of the OHWM within the study area.~~

**Deliverables:**

- ~~◆ Determination/Delineation Map~~
- ~~◆ Draft and Final Summary Study/Report~~

**2.2. Area of Potential Effects (APE)**

MHM will prepare an Area of Potential Effects (APE) to be used by the environmental consultant hired by OPUD to prepare the proper environmental documents. The APE will show the alignment and potential alignments of the sewer lines, the lift station locations, and pump station locations. These will be prepared on 1 inch = 40 feet plan view sheet. Domenichelli will prepare the APE for the WWTP work.

**Deliverables:**

- ◆ Area of Potential Effects sheets

**2.3. Biological Resource Evaluation (Not part of scope)**

~~Marcus H. Bole & Associates will conduct a biological resource evaluation per California Department of Fish and Wildlife (CDFW), California Native Plant Society (CNPS), and other regulatory agencies (United States Fish & Wildlife Service (USFWS), etc.) in order to establish a biological baseline condition assessment. During the field survey, Marcus H. Bole & Associates will make a determination regarding presence/absence of potentially occurring species based on habitats observed. Dominant plant and wildlife species observed on site will be documented. If any state or federally listed plant or wildlife species are identified the location will be mapped. For the purposes of this survey, special status species are those that fall into one of the following categories:~~

- ~~◆ Designated as rare, threatened, or endangered by the federal government (ESA, 50 CFR 17.12) for listed plants and various notices in the Federal Register, CEQA, and/or State ESA.~~
- ~~◆ Proposed for rare, threatened, or endangered status~~
- ~~◆ Protected under the Migratory Bird Treaty Act (MBTA)~~



**Deliverables:**

- ◆ ~~Biological Resource Map~~
- ◆ ~~Draft and Final Report~~

**~~2.4. Permit Facilitation (not part of scope)~~**

~~Marcus H. Bole & Associates will apply for a §404 nationwide permit from the Corps, a §401 water quality certification from the Central Valley Regional Water Control Board (RWQCB), and a §1602 Streambed Alteration Agreement from the California Department of Fish and Wildlife (CDFW), as required. Issuance of these permits requires a complete analysis of project-related impacts to waters of the United States, a Biological Resources Evaluation or letter report discussing the potential for special-status plant and wildlife species to occur on the site, a mitigation plan (if required), and CEQA documentation. Due to the footprint of all impacts being within an already disturbed area, it is not anticipated that the United States Army Corps of Engineers will require a National Historic Preservation Act §106-compliant archaeological resources report. However, due to recent changes in the Corps of Engineers, including the new directives of the Corp's Section 408 Division, it is recommended that an archaeological resources report be prepared. Based upon the request of the Corps of Engineers, additional endangered species evaluations may be required to satisfy Section 7 coordination with the USFWS.~~

**Deliverables:**

- ◆ ~~Corp 404 Nationwide Permit~~
- ◆ ~~Central Valley Regional Water Quality Control Board 401 Permit~~
- ◆ ~~California Department of Fish and Wildlife 1602~~

**Assumptions:**

- ◆ ~~Assumed to be outside of Central Valley Flood Protections jurisdiction. No CVFPB permit encroachment permit required for pipeline.~~

**~~2.5. Archeological Study (not part of scope)~~**

~~Marcus H. Bole & Associates will work with Jensen Archeological Services to prepare an Archeological Study in accordance with the California Environmental Quality Act (Public Resources Code 12000 et seq.), the Guidelines (14 Cal. Code 15000 et seq.) agency CEQA procedures, if applicable and relevant court decisions~~

**Deliverables:**

- ◆ ~~Archeological Study~~

**~~2.6. Tribal Cultural Resource (not part of scope)~~**

~~Marcus H. Bole & Associates will disclose and analyze whether the proposed project would cause a substantial adverse change to the tribal cultural resources. The CEQA document will consider feasible alternatives and/or mitigation measures to avoid or minimize an impact on~~

~~identified cultural resources. If the tribe request consultation, the consultation will include a meaningful and timely process of seeking, discussing, and considering carefully the views of others, in a manner that is cognizant of all parties' cultural values and, where feasible, seeking agreement. Consultation between government agencies and Native American tribes shall be conducted in a way that is mutually respectful of each party's sovereignty. Consultation shall also recognize the tribes' potential needs for confidentiality with respect to places that have traditional tribal cultural significance.~~

**Deliverables:**

- ~~◆ Tribal Cultural Resource Consultation (assume consultation with two tribes only)~~

### **~~2.7. CEQA Initial Study/Mitigated Negative Declaration~~**

~~Marcus H. Bole & Associates will prepare an environmental document in accordance with the California Environmental Quality Act (Public Resources Code 12000 et seq.), the Guidelines (14 Cal. Code 15000 et seq.) agency CEQA procedures, if applicable and relevant court decisions. The document type for the project is expected to be an Initial Study / Mitigated Negative Declaration (IS/MND). Data collected during the completion of the specialized studies and contacts with other agencies will be incorporated into an appropriate environmental document. Copies of the IS/MND will be subject to internal and administrative reviews by OPUD and RD 537, RD 785, RD827 prior to finalization and circulation. At the completion of the administrative review, MHBA will incorporate appropriate comments received from RD 537, RD 785, RD827 and OPUD, and other public agencies into the final environmental document and produce the document for circulation. MHBA will attend public meetings (as required) during the review of the environmental document and hearings for the adoption of the environmental document.~~

**Deliverables:**

- ~~◆ Initial Study~~
- ~~◆ Draft Mitigated Negative Declaration~~
- ~~◆ Final Mitigated Negative Declaration.~~

**Assumptions:**

- ~~◆ Assumed to be there would be two public hearings for the Mitigated Negative Declaration Process.~~

### **3. Preliminary Design Report (MHM Team)**

MHM will work with Domenichelli on a preliminary design report for design assumptions, criteria, and planning level engineers' estimate of probable cost. The preliminary design report will consider lift station, pump stations, pipelines, creek crossings, canal crossings, State Route 65/70 crossings, and other critical design features on the project. This work will also consider flows from Beale Air Force Based and Wheatland. This preliminary design report will be considered the Basis of Design for the pipelines, Lift Stations, Pump Stations, and WWTP Improvements.

MHM will perform preliminary record boundary research of the proposed pipeline alignments. MHM will use the County Base Map, record information, MHM survey database, and other information to develop a record boundary. Most of the work will occur within the County Right-of-Way except for the pump station and lift station locations. The main focus will be to verify the County ROW.

**Deliverables:**

- ◆ Review Meeting with OPUD, Domenichelli, Yuba County, Wheatland, and BAFB, and other partners. (Assume 4 meetings at 2 hours each and 4 conference calls at 1 hours each)
- ◆ Engineers' Estimate of Probable Cost for the Forty Mile Road Waterline
- ◆ Draft Preliminary Design Report (Draft Basis of Design) – Forty Mile Road Waterline
- ◆ Final Preliminary Design Report (Final Basis of Design) – Forty Mile Road Waterline
- ◆ Preliminary Record Boundary Information (does not include Preliminary Title Reports)
- ◆ Does not include preparation of Record of Surveys

## **4. Geotechnical Evaluations (BCI)**

### **4.1. Coordination, Document Review, Site Visit, Permit Acquisition, USA**

~~BCI will review available plans and reports currently within BCI's library and additional documentation provided by the design team, and geologic and seismic maps of the area, visit the project location to evaluate drill rig access and mark exploratory boring locations, and notify USA.~~

~~BCI will assist the design team in procuring the CVFPB encroachment permit, as necessary, and Yolo County environmental health department boring permit.~~

**Deliverables:**

- ~~◆ Yolo County Drilling Permit~~
- ~~◆ USA notification~~

### **4.2. Subsurface Exploration**

~~BCI will retain a drilling subcontractor to drill, log, and sample XX borings to a maximum depth of XX feet below the existing ground surface, spaced in the area of the proposed pump station. BCI will drill the explorations with a track or truck mounted equipment using hollow stem auger drilling methods. BCI will collect undisturbed soil samples within the explorations with Standard Penetration Test (SPT) or California Modified samplers to obtain blow count information and samples for laboratory tests. A BCI Engineer or Geologist will log the borings. After drilling, the drilling contractor will backfill the borings with cement grout in accordance with County permit requirements.~~

**Deliverables:**

- ~~◆ Borings Logs~~

**Assumptions:**

- ◆ ~~BCI assumed borings would be required to determine the proper backfill and stability of trench bank adjacent to existing drainage ditch.~~

**4.3. Laboratory Testing**

~~BCI will perform the following laboratory tests on representative soil samples throughout the limits of the project.~~

**Deliverables:**

- ◆ ~~Moisture content and dry density for soil consistency evaluation.~~
- ◆ ~~Plasticity Index for soil classification.~~
- ◆ ~~Compaction curves for cut to fill volume change estimates and backfill recommendation.~~
- ◆ ~~Resistivity, pH, sulfate content and chloride content for soil corrosivity analysis.~~

**4.4. Perform Engineering Analysis and Calculations**

~~BCI will perform engineering analysis for excavation stability, trench bottom stability, backfill placement and compaction, foundation recommendations, cut to fill volume change estimates, and follow up compaction recommendations.~~

**Deliverables:**

- ◆ ~~Engineering Calculations Report/results~~

**4.5. Prepare Geotechnical Report**

~~BCI will prepare and submit a Geotechnical Report for the project that contains the following:~~

- ◆ ~~Project description~~
- ◆ ~~Subsurface soil and ground water conditions~~
- ◆ ~~Laboratory test results~~
- ◆ ~~Soil corrosion potential~~
- ◆ ~~Construction considerations (trench excavatability and stability)~~
- ◆ ~~Foundation recommendations~~
- ◆ ~~Trench backfill recommendations~~
- ◆ ~~Vicinity Map~~
- ◆ ~~Site Plan with Boring Locations~~
- ◆ ~~Boring logs~~
- ◆ ~~Laboratory Test Results~~

~~BCI will submit a Draft Geotechnical Report for the OPUD, design team and RD 537, RD 785, RD827 review, and then submit a Final Geotechnical Report incorporating the review comments as necessary. BCI will work with MHM to prepare comment responses and obtain comment resolution.~~

**Deliverables:**

- ◆ ~~Draft Geotechnical Report~~

◆ Final Geotechnical Report

## 5. Design Engineering for Pipelines (MHM)

MHM will prepare finished construction drawings, specifications, special provisions (special requirements), and estimates of probable construction cost for the pipelines. Under this Task Order, the MHM Team will advance the design to a construction bid-ready package. The 90% and 100% PS&E will be reviewed by Domenichelli and OPUD, and other agencies (depending on funding source the other agency may include BAFB, Yuba County, and Wheatland). MHM is only preparing plans for the Forty Mile Road portion of the project. The final PS&E will be distributed for back checking and closing of comments. The preparation of PS&E will include plans, details, cross sections, general and technical specifications, quantity calculations, and final estimates of probable construction costs.

### 5.1. Topographic Surveying and Mapping for Pipelines

#### Field Operations

The consultant shall use data derived from Unmanned Aircraft System (UAS) technology and field ground surveys to provide site topography with .5-foot contours, and this data will also be joined into a seamless three-dimensional reconstruction of the ground surface. The topography will include the terrain as well as aboveground features such as rocks, bridges, canals, structures, and treetops. The limits of this work is mostly within the County Road ROW so there are no structures other than bridges, and culverts. This surface will be produced as georeferenced .tiff files which are compatible for use Geographic Information Systems (GIS) like any other elevation raster. Post-processing of UAS data will also generate contours from the topographic surfaces as GIS shapefiles or ACAD dwg files. The positional accuracy relative to project control, of the data collected shall be a standard error of less than 0.10 ft on hard surface topography and less than 0.50 ft on soft surface topography. All control surveys will be conducted utilizing the most efficient combination of Global Positioning System (GPS) technology and conventional survey methods. The method used to capture the point data will be controlled by the accuracy specifications required by the project specifications.

#### Survey Data Processing

Captured point data from initial control surveys will be immediately evaluated and post processed to conform to the project accuracy standards. The processed control data shall be adjusted and calibrated to the most current documentation of NAD83 and NAVD88 by the National Geodetic Survey. All point data captured for the topographic mapping will be post processed and exported in an ASCII format and imported into an electronic drawing file to initiate the development of the final base mapping.

#### Deliverables:

- ◆ Aerial and Field Topographic Mapping
- ◆ Aerial Imagery
- ◆ Survey Control Data Sheet
- ◆ Digital Terrain Model (DTM)

## **5.2. ROW and Surveys (Research, Boundary Surveys, Descriptions, and Plats) for Pipelines**

Once the alignment is determined, MHM will perform additional research on the County right-of-way. In the area for the water well that will be located outside of the public ROW, MHM will do a more detail survey including boundary information sufficient so acquisition plats and descriptions can be prepared. MHM has based the location of the Water Well Site just south of the Casino Trust Land. MHM has an extensive survey control network established in this area from working on the Sports and Entrainment Property, Amphitheater, Hard Rock Fire Mountain Casino, Magnolia Ranch, and the Employment Village Area. MHM also prepared the survey control network for the Olivehurst Area.

### **Deliverables:**

- ◆ Right-of-Way Map for the County Roadways.
- ◆ Plats and Descriptions for Morrison Road Phase 3 Water Alignment
- ◆ Plats and Descriptions for the Water Well Site.
- ◆ MHM will use record Boundary Survey information for Morrison Road Phase 3 Water Alignment. If a boundary survey is required, this will be considered extra work.

### **Comments/Assumptions:**

- ◆ This work does not include preparation of a Record of Survey. A record of survey will be extra work. The scope of work is based on used record information and the County base map. A boundary survey will be considered extra work and would potential require a Record of Survey.

## **5.3. Prepare 60-percent Design for Pipelines (MHM) - Forty Mile Road**

The 60% submittal will include a full set of drawings, specifications (general conditions through technical specifications), a bid schedule, and an updated cost estimate. 60% PS&E will be submitted following internal QC reviews.

### **4.1.1 Prepare 60% Plans for Pipelines**

The MHM team will complete 60% designs and associated drawings. Drawings will be prepared using AutoCAD software. These plans will include general layouts, contemporary topographic survey and mapping data, plan and profiles, cross-sections, details, and survey control.

### **Deliverables:**

- ◆ 60% Plans and Specifications. (Half-size drawings only)

### **Comments/Assumptions:**

- ◆ The pipelines covered are Forty Mile Road (13,350') only.

#### **4.1.2 Prepare 60% Specifications for Pipelines**

Technical specifications using Specintact will include specifications for all design features. MHM will prepare special provisions using MS Word. D&A will prepare the General specifications (front-end documents) and MHM will provide comments as needed using track changes.

**Deliverables:**

- ◆ 60% Special Provisions and Technical Specifications

**Comments/Assumptions:**

- ◆ The technical specification will be prepared using the latest addition of Specintact in the UFGS format.
- ◆ The General Specifications and Special Provisions shall be prepared by Domenichelli, MHM will provide information for the Special Provisions as needed. The comments will be provided using track changes in an MS Word document.

#### **4.1.3 Prepare 60% Cost Estimate for Pipelines**

MHM will prepare a detailed cost estimate. Quantity take-off calculations and cost estimates will be prepared in a Microsoft Excel spreadsheet for the 60% submittal. A draft bid schedule with updated quantities will be included. Cost estimates at the 60% level of design will include a contingency of 20 to 25%.

**Deliverables:**

- ◆ 60% Cost Estimate

**Comments/Assumptions:**

- ◆ OPUD will obtain all required ROW. MHM will assist on defining limits of needs.

#### **4.1.4 Prepare 60% Design Documentation Report**

MHM will prepare written documentation of engineering design. Documentation will consist of a binder containing a design decision log, analyses, design calculations, quantity take-offs and geometric calculations, utility information, quality control reviews, and meeting notes.

**Deliverables:**

- ◆ 60% Design Documentation Report

### **5.4. Prepare 90% PS&E for Pipelines (MHM) - Forty Mile Road**

#### **5.4.1. Prepare 90% Plans for Pipelines**

MHM will complete 90% design and associated drawings and specifications. Drawings will be prepared using AutoCAD software. These plans will include general layouts,

updated topographic survey and mapping data, plan and profiles, cross-sections, details, and survey control.

**Deliverables:**

- ◆ 90% Plans and Specifications. (Half-size drawings only)

**Comments/Assumptions:**

- ◆ The pipelines covered are Forty Mile Road (13,350') only.

**5.4.2. Prepare 90% Specifications for Pipelines**

Technical specifications will include specifications for all design features. General specifications (front-end documents), and Special Provisions will also be prepared.

**Deliverables:**

- ◆ 90% General Conditions, Special Provisions and Technical Specifications

**5.4.3. Prepare 90% Cost Estimate for Pipelines**

MHM will prepare a detailed cost estimate. Quantity take-off calculations and cost estimates will be prepared in a Microsoft Excel spreadsheet for the 90% submittal. A draft bid schedule with updated quantities will be included. Cost estimates at the 90% level of design will include a contingency of 15 to 20%.

**Deliverables:**

- ◆ 90% Cost Estimate

**5.5. 100%/Final PS&E for Pipelines (MHM) - Forty Mile Road**

**5.5.1. Final Plans and Specifications for Pipelines**

MHM will complete final designs and associated drawings and specifications. Final plans will generally incorporate any final comments received during back check of the 100% plans and specifications.

**Deliverables:**

- ◆ 100%/Final Plans and Specifications (half-size drawings only)

**Comments/Assumptions:**

- ◆ The pipelines covered are Forty Mile Road (13,350') only.

**5.5.2. 100%/Final Cost Estimate for Pipelines**

MHM will prepare a 100%/final cost estimate. Quantity take-off calculations and cost estimates will be prepared in a Microsoft Excel spreadsheet for the final design submittal. A final bid schedule with final quantities will be included. Cost estimates at the 100%/Final Design level of design will include a contingency of 10%.



**Deliverables:**

- ◆ 100%/Final Design Cost Estimate.

**Comments/Assumptions:**

- ◆ Any opinions of probable project costs or probable construction cost provided by MHM are made on the basis of information available to MHM and on the basis of MHM's experience and qualifications and represents its judgment as an experienced and qualified engineer. However, since MHM has no control over the cost of labor, materials, equipment, or services furnished by others, or over the contractor methods of determining prices, or over competitive bidding or marked conditions, MHM does not guarantee that proposals, bids, or actual project or construction cost will not vary from opinions of probable costs MHM prepares.

## **5.6. Bidding Support for Pipelines (MHM) - Forty Mile Road**

After the Final PS&E are submitted, MHM will assist OPUD and Domenichelli during the pre-construction phase of the project. MHM bidding and construction services for construction will consist of the following:

### **5.6.1. Bidding Support (Addenda and Clarifications)**

MHM will assist OPUD and Domenichelli with the bidding process for each phase of the project, including responding to technical questions submitted by potential bidders and providing clarifying addenda when appropriate.

**Deliverables:**

- ◆ Addendum to bid documents for each bid package.

**Comments/Assumptions:**

- ◆ MHM assumed that two Addendum will be required.

### **5.6.2. Pre-Bid Meetings (MHM)**

MHM will attend a pre-bid meeting as requested by OPUD. In addition, one meeting is assumed for coordination with OPUD.

**Deliverables:**

- ◆ Meeting notes.

**Comments/Assumptions:**

- ◆ One pre-bid meeting and one coordination meeting are assumed.

## **5.7. Conformed Plans and Specifications for Pipelines - Optional**

The MHM team will prepare conformed plans and specifications for OPUD. The conformed plans will incorporate all the addenda generated during the bid phase.

### **Deliverables:**

- ◆ One photo ready full size and one photo ready half size copy of the conformed plans
- ◆ One copy of the conformed specifications
- ◆ One PDF copy of the conformed plans and specifications (full sized 22x34 and half-sized 11x17 plans)

### **Comments/Assumptions:**

- ◆ Assumed Domenichelli will handle all reproduction.

## **6. Design Engineering for Water Well Site (MHM)**

MHM will not be providing any design engineer services. MHM will only provide topographic survey and ROW survey services for the Water Well Site.

### **6.1. Topographic Surveying and Mapping for Water Well Site.**

#### **Field Operations**

The consultant shall use data derived from Unmanned Aircraft System (UAS) technology and field ground surveys to provide site topography with 1-foot contours, and this data will also be joined into a seamless three-dimensional reconstruction of the ground surface. The topography will include the terrain as well as aboveground features such as rocks, structures, and treetops. The limits of this work is mostly within the river banks so there are no structures. This surface will be produced as georeferenced .tiff files which are compatible for use Geographic Information Systems (GIS) like any other elevation raster. Post-processing of UAS data will also generate contours from the topographic surfaces as GIS shapefiles or ACAD dwg files. The positional accuracy relative to project control, of the data collected shall be a standard error of less than 0.10 ft on hard surface topography and less than 0.50 ft on soft surface topography. All control surveys will be conducted utilizing the most efficient combination of Global Positioning System (GPS) technology and conventional survey methods. The method used to capture the point data will be controlled by the accuracy specifications required by the project specifications.

#### **Survey Data Processing**

Captured point data from initial control surveys will be immediately evaluated and post processed to conform to the project accuracy standards. The processed control data shall be adjusted and calibrated to the most current documentation of NAD83 and NAVD88 by the National Geodetic Survey. All point data captured for the topographic mapping will be post processed and exported in an ASCII format and imported into an electronic drawing file to initiate the development of the final base mapping.

**Deliverables:**

- ◆ Aerial and Field Topographic Mapping
- ◆ Aerial Imagery
- ◆ Survey Control Data Sheet
- ◆ Digital Terrain Model (DTM)

**Comments/Assumptions:**

- ◆ MHM has assumed the site is about one acre. The scope of service will be assumed to cover the water well site and access road to the site only. MHM also assumed it is a site directly south of the Casino. MHM has survey information in this area and moving the site to another location could result in additional effort and will be a change of scope.

## **6.2. ROW and Surveys (Research, Record Boundary, Descriptions, and Plats) for Water Well Site**

Once the alignment is determined, MHM will perform additional research on the County right-of-way and locations of the proposed Water Well Site. It was assumed it is located just south of the Casino Property. The water well site is located outside of the public ROW, MHM will do a more detailed boundary survey search of record information so acquisition plats and descriptions can be prepared. MHM has an extension survey control network established in this area from working on the Sports and Entrainment Property, Amphitheater, Hard Rock Fire Mountain Casino, Magnolia Ranch, and the Employment Village Area. MHM also prepared the survey control network for the Olivehurst Area.

**Deliverables:**

- ◆ Provide “show-me” stakes at the project site for Right-of-Way Team
- ◆ Plats and Descriptions for Water Well Site
- ◆ Record Boundary Survey information will be used for the Water Well Site plat and descriptions.

**Comments/Assumptions:**

- ◆ This work does not include preparation of a Record of Survey. A record of survey will be extra work. The scope of work is based on used record information and the County base map. A boundary survey will be considered extra work and would potentially require a Record of Survey.

## **~~6.3. Prepare 60-percent Design for Water Well Site~~**

~~The 60% submittal will include a full set of drawings, specifications (general conditions through technical specifications), a bid schedule, and an updated cost estimate. 60% PS&E will be submitted following internal QC reviews.~~

**6.3.1 Prepare 60% Plans**

~~The MHM team will complete 60% designs and associated drawings. Drawings will be prepared using AutoCAD software. These plans will include general layouts, contemporary topographic survey and mapping data, plan and profiles, cross sections, details, and survey control.~~

**Deliverables:**

- ~~◆ 60% Plans and Specifications. (Half-size drawings only)~~

**Comments/Assumptions:**

- ~~◆ The Water Well Site will be bid as part of the pipelines and pump stations. Only one set of construction documents required.~~

**6.3.2 Prepare 60% Specifications**

~~Technical specifications will include specifications for all design features. General specifications (front-end documents) and Special Provisions will also be prepared.~~

**Deliverables:**

- ~~◆ 60% General Conditions, Special Provisions and Technical Specifications~~

**Comments/Assumptions:**

- ~~◆ The Lift Stations will be bid as part of the pipelines and pump stations. Only one set of construction documents required.~~
- ~~◆ OPUD Standard Specification will be used as the basis for this project and will be provided to MHM in MS Word to MHM and Domenichelli.~~

**6.3.3 Prepare 60% Cost Estimate**

~~MHM will prepare a detailed cost estimate. Quantity take off calculations and cost estimates will be prepared in a Microsoft Excel spreadsheet for the 90% submittal. A draft bid schedule with updated quantities will be included. Cost estimates at the 90% level of design will include a contingency of 15 to 25%.~~

**Deliverables:**

- ~~◆ 60% Cost Estimate~~

**Comments/Assumptions:**

- ~~◆ MHM will work with OPUD to obtain easements for the pipeline. MHM will work with OPUD to obtain easements or "fee title" for project.~~

**6.3.4 Prepare 60% Design Documentation Report**

~~MHM will prepare written documentation of engineering design. Documentation will consist of a binder containing a design decision log, analyses, design calculations;~~

~~quantity take-offs and geometric calculations, utility information, quality control reviews, and meeting notes.~~

**Deliverables:**

- ~~◆ 60% Design Documentation Report~~

## **~~6.4. Prepare 90 % PS&E for Water Well Site~~**

### **~~6.4.1. Prepare 90% Plans~~**

~~MHM will complete 90% design and associated drawings and specifications. Drawings will be prepared using AutoCAD software. These plans will include general layouts, updated topographic survey and mapping data, plan and profiles, cross sections, details, and survey control.~~

**Deliverables:**

- ~~◆ 90% Plans and Specifications. (Half size drawings only)~~

**Comments/Assumptions:**

- ~~◆ The Lift Stations will be bid as part of the pipelines and pump stations. Only one set of construction documents required one.~~

### **~~6.4.2. Prepare 90% Specifications~~**

~~Technical specifications will include specifications for all design features. General specifications (front end documents), SWPPP, and Special Provisions will also be prepared.~~

**Deliverables:**

- ~~◆ 90% General Conditions, Special Provisions and Technical Specifications~~

### **~~6.4.3. Prepare 90% Cost Estimate~~**

~~MHM will prepare a detailed cost estimate. Quantity take-off calculations and cost estimates will be prepared in a Microsoft Excel spreadsheet for the 100% submittal. A draft bid schedule with updated quantities will be included. Cost estimates at the 100% level of design will include a contingency of 10 to 20%.~~

**Deliverables:**

- ~~◆ 90% Cost Estimate~~

## **~~6.5. 100%/Final PS&E for Water Well Site~~**

### **~~6.5.1. Final Plans and Specifications for Water Well Site~~**

~~MHM will complete final designs and associated drawings and specifications. Final plans will generally incorporate any final comments received during back check of the 100% plans and specifications.~~

#### **~~Deliverables:~~**

- ~~◆ Final Plans and Specifications (half size drawings only)~~

#### **~~Comments/Assumptions:~~**

- ~~◆ The Lift Stations will be bid as part of the pipelines and pump stations. Only one set of construction documents required one.~~

### **~~6.5.2. Final Cost Estimate for Water Well Site~~**

~~MHM will prepare a final cost estimate. Quantity take off calculations and cost estimates will be prepared in a Microsoft Excel spreadsheet for the final design submittal. A final bid schedule with final quantities will be included. Cost estimates at the Final Design level of design will include a contingency of 10%.~~

#### **~~Deliverables:~~**

- ~~◆ Final Design Cost Estimate.~~

#### **~~Comments/Assumptions:~~**

- ~~◆ Any opinions of probable project costs or probable construction cost provided by MHM are made on the basis of information available to MHM and on the basis of MHM's experience and qualifications and represents its judgment as an experienced and qualified engineer. However, since MHM has no control over the cost of labor, materials, equipment, or services furnished by others, or over the contractor methods of determining prices, or over competitive bidding or marked conditions, MHM does not guarantee that proposals, bids, or actual project or construction cost will not vary from opinions of probable costs MHM prepares.~~

## **~~6.6. Bidding Services for Water Well Site (MHM)~~**

~~After the Final PS&E are submitted, MHM will assist OPUD and Domenichelli during the pre-construction phase of the project. MHM bidding and construction services for construction will consist of the following:~~

### **~~6.6.1. Bidding Support (Addenda and Clarifications)~~**

~~MHM will assist OPUD and Domenichelli with the bidding process for each phase of the project, including responding to technical questions submitted by potential bidders and providing clarifying addenda when appropriate.~~

**Deliverables:**

- ◆ ~~Addendum to bid documents for each bid package.~~

**Comments/Assumptions:**

- ◆ ~~MHM assumed that one Addendum will be required because of the short bid schedule and time line.~~

**6.6.2. Pre-Bid Meetings (MHM)**

~~MHM will attend a pre-bid meeting as requested by OPUD. In addition, one meeting is assumed for coordination with OPUD.~~

**Deliverables:**

- ◆ ~~Meeting notes.~~

**Comments/Assumptions:**

- ◆ ~~One pre-bid meeting and one coordination meeting assumed~~

**6.7. Conformed Plans and Specifications for Water Well Site**

~~The MHM team will prepare conformed plans and specifications for OPUD. The conformed plans will incorporate all the addenda generated during the bid phase.~~

**Deliverables:**

- ◆ ~~One photo ready full size and one photo ready half size copy of the conformed plans~~
- ◆ ~~One copy of the conformed specifications~~
- ◆ ~~One PDF copy of the conformed plans and specifications (full sized 22x34 and half sized 11x17 plans)~~

**Comments/Assumptions:**

- ◆ ~~Assumed Domenichelli will handle all reproduction.~~

**7. Engineering During Construction for Pipelines (MHM)**

**7.1. Submittal and Request for Information Review for Pipelines**

The MHM team will work with the D&A Team including the Contractor and the Construction Manager (CM) to provide engineering services during the construction phase of the Project. MHM will only cover Forty Mile Road. Our work will include the following:

- ◆ Review and respond to contractor submittals (assumed 2 hours of review per submittal for a total of 6 submittals). The MHM team will assign a point of contact for the CM team to provide submittals to. The point of contact will compile all review comments received and provide one consolidated response to the CM team.
- ◆ Review and respond to contractor submitted requests for information (assumed 2 hours per RFI for a total of 8 RFIs). The MHM team point of contact will forward the RFIs to

the appropriate person for review, compile all appropriate responses, and provide one consolidated response to the CM team.

- ◆ Coordinate with the Contractor and the CM team.

**Assumptions:**

- ◆ We assumed that construction season is between April 1 and November 30. Some work may be limited by permitting requirements such as GGS. Once work starts, it is possible to perform work in December through March but weather is a major factor.

## **7.2. Additional Field Instructions and Coordination for Pipelines**

The MHM team will address questions generated by the Construction Management team and will review relevant field instructions to the Contractor. The amount of coordination required for this task, due to its uncertainty, will be based on a weekly man-hours effort for design team leads.

**Assumptions:**

- ◆ 2 hours per week will be required for the duration of construction

## **7.3. Change Order Support for Pipelines**

The MHM team will support the construction manager to prepare changes orders based on Field Instructions or RFI responses. The amount of coordination required for this task, due to its uncertainty, will be based on a two changes orders at 6 hours each plus 2 hours of QA required.

**Assumptions:**

- ◆ Assume a two of 14 manhours to address 2 changes orders.

## **7.4. Field Inspection**

The MHM design team will conduct design inspections on an as-needed basis to review construction activities. This work will be performed by the staff when already on site (e.g., for CM and Contractor meetings) when possible. Occasional inspections by others from the design team will also occur. Activities observed will include earthwork, pipeline installation, manhole installation, outfall structure, and other incidental work. This shall not be considered full time inspection.

**Assumptions:**

- ◆ Assumed a total of 6 visits for MHM team.



## 7.5. Meetings

The MHM team will attend weekly meetings with the Contractor and CM. The meetings will take place in Olivehurst, and the meetings will occur on the same day and no more than 2 hours apart.

### Assumptions:

- ◆ Assumed 2-hour meeting, including driving time, per week (8 meetings)

## 8. Construction Management, Inspection, and Surveys for Pipelines (MHM)

### 8.1. ~~Construction Management for Pipelines~~

~~The Construction Management Team will consist of MHM performing the Resident Engineer, Inspection, and Construction Management. The MHM Team will assist OPUD and Domenichelli throughout the Bidding process including attendance of the Pre-Bid Meeting and Site Visit. We have found attendance of the pre-bid meeting provides insight into how the Contractors may approach the project construction phasing. Also questions and responses are heard by the Construction Manager which may assist in future changes orders.~~

~~The scope of work also shall include attendance of special meetings for local, state, and federal agencies. Meetings may also be required with local utility companies and neighbors but none are assumed on this project. MHM has assumed that four construction status meetings will be required during this project. The goal would be to combine these meetings into the bi-weekly construction status meetings or to hold meeting directly prior or following the weekly meetings to reduce time and be more streamlined for all parties.~~

~~MHM will prepare a spreadsheet tracking all of the project costs, including the construction management costs. This spreadsheet will also be used to review monthly progress payments and to track overall costs. We understand change orders are almost unavoidable during the construction of a project because of the many unknowns encountered. The goal of the team is to provide the client the assurance that the change order is indeed appropriate and then to keep the costs under control. The MHM Team will review all change orders and provide a recommendation to the owner and the design engineer for review. Since most change orders tend to be based on true force account or theoretical force account work, MHM has developed a spreadsheet to check all force account work. The spreadsheet utilizes Caltrans equipment rental rates and mark-ups. Depending on the contract documents, MHM will adjust the markups and rental rates to match. We will then enter the contractor's data into our spreadsheet to verify all their numbers. MHM will provide construction management throughout the construction project. MHM has assumed that the construction will last for approximately 10 months and consist of nine (9) hour days over a six (6) day work week. MHM will prepare agenda, maintain minutes, and direct a bi-weekly construction status meeting. The construction status meeting shall be held at the construction site. The construction status meeting will include an overview and work~~

completed and the look-ahead to the remaining work. The construction status meetings will last about one hour followed by a site visit.

The scope of work will also include processing Contractors' submittals and maintaining a submittal register. The submittals will be routed to all parties for review and comment. MHM will insure that comments and review occur in a timely manner. Once all comments have been received, MHM will return the submittal to the contractor requesting additional information, approved, or no exception taken. The same process will be used for the request for information. Depending on the request, MHM will route the RFI to the proper member for review. The key goal of the Construction Manager is to ensure that all submittals and RFIs are addressed in a timely manner. The goal will be to prevent a delay in the construction schedule.

Quality Assurance Surveys are part of the scope of work. Our inspectors are capable of operating our GPS unit and will take verification shots throughout job to verify the work is being completed in accordance with the construction documents. The scope of work does not include any soundings but can provide this service, if needed.

The scope of work includes preparation of change orders. Regardless of the size, quality, and length of the project, construction change orders will be required. As a Construction Manager, our goal will be to minimize the amount of construction change orders but also to see a problem prior to the construction change order becoming costly. MHM will insure that all costs are justified and what the construction documents allow and not allow. MHM will route all documentation to OPUD. OPUD will review and evaluate all contract change orders and supporting documentation. Once OPUD have approved the contract change order, MHM will issue a field instruction to the Contractor.

MHM has developed a procedure to review the as-built redline drawings on a weekly basis. This constant review and need to keep an up-to-date as-built has led to fewer problems at the end of contractor is properly maintaining the as-built drawing redlines, the meetings may be reduced. We have assumed 12 meetings following the construction status meetings at 1.0 hour each.

**Assumptions:**

- ◆ Survey crew days are anticipated to be 8 hours, including drive time. Attendance of Bi-Weekly Construction Status Meetings (assume 4 meetings)
- ◆ Process Contractors' Submittals and Maintain Submittal Register (Assume a total of 20)
- ◆ Process Contractors' Request for Information (RFI) and Maintain RFI Register (Assume a total of 15)
- ◆ Review and Process Contractor Monthly Progress Payments (Assumes a total of 8)
- ◆ Preparation and Evaluation of Contractor Change Orders (assume 4 change orders)
- ◆ Process Field Instructions (Assume a total of 10)
- ◆ Review and Confirm As-Built Drawings during a bi-weekly Meeting (assume a total of 20 meetings at 1 hour each).
- ◆ Construction Status Meetings (Assume 32 Construction Status Meetings x 2 hours each)

## **8.2. Field Inspection for Pipelines (Does not include Water Well Site)**

The MHM Team will perform field inspection services throughout construction of the project. The duration of the project is a direct function of the man-hours required. MHM has assumed that the construction duration shall be approximately 12 months depending on the weather. MHM has developed a field inspection plan that minimizes man-hours and accomplishes the goal of assurance that all work is constructed in accordance with the construction documents. All of MHM field inspectors are also fully knowledgeable in field soils, aggregate, and concrete testing. MHM has a fully certified soils testing laboratory. On most jobs the inspector and the soils technician are separate personnel. This allows us to reduce the man-hours on the job. There could be some periods where a soils technician may be required, but since the job is linear, we feel using an inspector capable of soils testing will be enough for this project. MHM field inspectors are also capable of operating our network rover GPS for survey checks. This may allow on special occasions for the field inspector to perform additional QA surveys without requiring additional man-hours. We understand that the budget is tight and have fully explored methods to reduce man-hours without reducing the goal of certification that the work was constructed in accordance with contract documents.

The scope of work will include an onsite inspector on a daily basis for approximately 12 months or 288 working days. We discussed a shorter construction window but until the construction documents are completed and the full extent of the work is defined, it may increase construction cost to reduce the number of days. MHM will continue to work with OPUD to determine the proper amount of working days to reduce construction costs and construction management costs.

The scope of work includes Quality Assurance soils, aggregate, and laboratory work. Most of MHM onsite inspectors can perform all field soils and aggregate. We will coordinate to have those inspectors onsite when testing is required. MHM will perform all field testing. Blackburn Consulting located in West Sacramento will perform any concrete testing or special inspections.

MHM will maintain daily construction inspection reports and digital photos of the progress of the work. MHM will monitor any force account work and document all equipment and personnel at the site on a daily basis regardless of for force account or normal progress of work. Frisch Engineering will be a key member of the inspection team and will handle all of the electrical engineering inspection and motor control programming. The motor control programming is important to the operation of the pump station.

MHM will request a full critical path schedule from the contractor as part of the pre-construction meeting. The first review will be to determine if this schedule meets the requirements of the contract documents and the owner. The schedule should include normal weather delays. As part of the bi-weekly construction status meetings, we will require the contractor to provide a four-week detailed schedule. This schedule will be reviewed and discussed during the meeting. Any conflicts noted between this four-week schedule and the

full critical path schedule shall be noted, and the contractor shall be required to provide a detailed explanation of the delay.

**Assumptions:**

- ◆ Onsite Inspector/Resident Engineer (12 months x 6 days a week x 8 hour working days and 240 of office support)
- ◆ ~~Construction Manager (average of 20 hours per week for 12 months)~~
- ◆ Geotechnical Soils Testing (QA laboratory testing will be performed by MHM and some select tests by BCI) (Assume 1,152 manhours plus 480 manhours of laboratory time, and 96 manhours of office for field work)
- ◆ Daily Construction Field Inspection Reports
- ◆ Digital Log of Photo throughout construction Project
- ◆ Work does not include any inspection of Water Well Site

## **9. Construction Closeout for Pipelines (MHM)**

### **9.1. Construction Closeout for Pipelines**

MHM will schedule a walk-through with all interested parties near the end of the project once most of the major items have been completed. A punch list will then be prepared based on input from all of the parties into one comprehensive list. This list will serve as the formal punch list to the contractor. MHM will then monitor the completion of the punch list. Once the contractor believes they have completed all of the punch list items, MHM will schedule another walk-through to determine all of the items have been addressed. Once all of the punch list items have been addressed, MHM will prepare a notice of substantial completion for the owner. MHM will provide a project closeout package consisting of the following items:

**Deliverable:**

- ◆ Final Site Inspection
- ◆ Preparation and inspection of Punch List
- ◆ Recommendation of final release of payment
- ◆ All records, maps, plans maintained by the Consultant during construction.
- ◆ All approved shop drawings, submittals and manufacturer's literature maintained by the Consultant during the construction project.
- ◆ One complete set of annotated project progress photographs, bound chronologically.
- ◆ All field inspection reports and correspondence filed by category.
- ◆ One set of as-built drawings of as-built changes in neat red lines.

**Assumptions:**

- ◆ Assume 72 manhours of effort
- ◆ Does not include any services for the Water Well Site

## 9.2. As-Built Drawings for Pipelines

Based on change orders and field revisions to the construction drawings, the MHM team will compile record drawings of the constructed project improvements. Upon completion of the construction contract, MHM will compile a set of Record Documents conforming to the marked-up prints, drawings, specifications, and other data furnished to MHM by the Contractor. This set of Record Documents will show the reported location of the work and significant changes made during the construction process. Because these Record Documents are based on unverified information provided by other parties that will be assumed reliable, MHM cannot and does not warrant their accuracy. It is assumed that no changes will be made to title sheets, standard details, demolition/staging, traffic control plans, and the horizontal control plan.

**Deliverables:**

- ◆ Verification of Contractor As-Built Drawings and Specifications
- ◆ Does not include the water well site.

## Fee Estimate (MHM Team)

Attached please find the MHM Team's fee estimate for the scope of work described herein for Task Order 01. The rates used in the individual fee tables correspond to the 2020 through 2022 rates. Note also that this is for a budgetary estimate only and that actual rates will be used. See the attached fee estimate for details.

## Schedule (MHM Team)

The schedule assumes the following general schedule milestones when preparing this scope of work and fee estimate:

- ◆ Design Notice to Proceed – June 1, 2020
- ◆ Preliminary Design Report – July 15, 2020
- ◆ Environmental Clearance and Permitting (not part of scope)
- ◆ 60 Percent Design – September 30, 2020
- ◆ 90 Percent Design – December 15, 2020
- ◆ 100% Final Design – January 30, 2021
- ◆ Bid Project – February 1, 2021
- ◆ Open Bids – March 15, 2021
- ◆ Award Construction Contract – April 1, 2021
- ◆ Construction Notice to Proceed – April 15, 2021
- ◆ End Construction – June 30, 2022
- ◆ Project Close-out – July 31, 2022

**Attachment No. 1**  
**MHM Team - Surveying, Design, and Bid Support Services**  
**OPUD South County Water Extension Projects**  
**WATER IMPROVEMENTS COMBINED FEE SUMMARY**

No.	Task Description	MHM	Frisch	Total Costs
<b>SURVEYING AND ENGINEERING DESIGN SERVICES - OPUD SOUTH COUNTY WATER PROJECT</b>				
<b>1</b>	<b>Project Management and Coordination</b>			
1.1	Project Management (June 1, 2020 through July 31, 2022)	\$ 12,895	\$ —	\$ 12,895
1.2	Invoicing and Progress Reports	\$ 7,907	\$ —	\$ 7,907
1.3	Progress Meetings	\$ 9,899	\$ —	\$ 9,899
	Subtotal Project Management and Coordination	\$ 30,701	\$ —	\$ 30,701
<b>2</b>	<b>Environmental and Permitting</b>			
2.1	Wetland Determination	\$ —	\$ —	\$ —
2.2	Area of Potential Effect (APE)	\$ —	\$ —	\$ —
2.3	Biological Resource Evaluation	\$ —	\$ —	\$ —
2.4	Environmental Permit Facilitation	\$ —	\$ —	\$ —
2.5	Archeological Study	\$ —	\$ —	\$ —
2.6	Tribal Cultural Resources	\$ —	\$ —	\$ —
2.7	CEQA Initial Study/Mitigated Negative Declaration	\$ —	\$ —	\$ —
	Subtotal Environmental and Permitting	\$ —	\$ —	\$ —
<b>3</b>	<b>Preliminary Design</b>			
3.1	Design Team Coordination Meetings	\$ 5,400	\$ —	\$ 5,400
3.2	Engineers' Estimate of Probable Cost for Water Pipeline	\$ 2,531	\$ —	\$ 2,531
3.3	Draft Basis of Design Report	\$ 4,502	\$ —	\$ 4,502
3.4	Final Basis of Design Report	\$ 1,588	\$ —	\$ 1,588
3.5	Preliminary Record Boundary Information (does not include PTR)	\$ 11,970	\$ —	\$ 11,970
	Subtotal Preliminary Design	\$ 25,992	\$ —	\$ 25,992
<b>4</b>	<b>Geotechnical Evaluations</b>			
4.1	Coordination, Document Review, Site Visit, Permit Acquisitions, USA	\$ —	\$ —	\$ —
4.2	Subsurface Exploration	\$ —	\$ —	\$ —
4.3	Laboratory Testing	\$ —	\$ —	\$ —
4.4	Perform Engineering Analysis and Calculations	\$ —	\$ —	\$ —
4.5	Prepare Geotechnical Report	\$ —	\$ —	\$ —
	Subtotal Geotechnical Evaluations	\$ —	\$ —	\$ —
<b>5</b>	<b>Design Engineering for Forty Mile Road Pipelines (13,350')</b>			
5.1	Topographic Surveying and Mapping - Pipeline - Forty Mile Road	\$ 12,725	\$ —	\$ 12,725
5.2	ROW and Surveys (Research, Boundary Surveys, Descriptions, and Plats)	\$ 6,323	\$ —	\$ 6,323
5.3	60% PS&E and DDR - Pipeline - Forty Mile Road	\$ 28,755	\$ —	\$ 28,755
5.4	90% PS&E and DDR - Pipeline - Forty Mile Road	\$ 60,028	\$ —	\$ 60,028
5.5	100%/Final PS&E and DDR - Pipeline - Forty Mile Road	\$ 18,404	\$ —	\$ 18,404
5.6	Storm Water Pollution Prevention Plan (does not include Implementation)	\$ 1,643	\$ —	\$ 1,643
5.7	Bidding Support - Pipeline - Forty Mile Road	\$ 3,262	\$ —	\$ 3,262
5.8	Conformed Plans and Specifications - Pipeline - Forty Mile Road	\$ 2,448	\$ —	\$ 2,448
	Subtotal Design Engineering for Forty Mile Road Pipelines (13,350')	\$ 133,589	\$ —	\$ 133,589
<b>6</b>	<b>Design Engineering for Rancho Road Pipelines (5,850')</b>			
6.1	Topographic Surveying and Mapping - Rancho Road (Includes all of Rancho)	\$ 12,364	\$ —	\$ 12,364
6.2	ROW and Surveys (Research, Boundary Surveys, Descriptions, and Plats)	\$ 7,425	\$ —	\$ 7,425
6.3	30% PS&E and DDR - Water Pipeline - Rancho Road	\$ —	\$ —	\$ —
6.4	90% PS&E and DDR - Water Pipeline - Rancho Road	\$ —	\$ —	\$ —
6.5	100%/Final PS&E and DDR - Water Pipeline - Rancho Road	\$ —	\$ —	\$ —
6.6	Storm Water Pollution Prevention Plan (does not include Implementation)	\$ —	\$ —	\$ —
6.7	Bidding Support - Water Pipeline - Rancho Road	\$ —	\$ —	\$ —
6.8	Conformed Plans and Specifications - Rancho Road	\$ —	\$ —	\$ —
	Subtotal Design Engineering for Rancho Road Pipelines (5,850')	\$ 19,788	\$ —	\$ 19,788

**Attachment No. 1**  
**MHM Team - Surveying, Design, and Bid Support Services**  
**OPUD South County Water Extension Projects**  
**WATER IMPROVEMENTS COMBINED FEE SUMMARY**

No.	Task Description	MHM	Faiseh	Total Costs
<b>SURVEYING AND ENGINEERING DESIGN SERVICES - OPUD SOUTH COUNTY WATER PROJECT</b>				
<b>7</b>	<b>Design Engineering for Olive/McGowan Parkway Pipelines</b>			
7.1	Topographic Surveying and Mapping - Olive/McGowan Parkway	\$ 7,114	\$ —	\$ 7,114
7.2	ROW and Surveys (Research, Boundary Surveys, Descriptions, and Plats)	\$ 4,427	\$ —	\$ 4,427
7.3	30% PS&E and DDR - Water Pipeline - Olive/McGowan Parkway	\$ —	\$ —	\$ —
7.4	90% PS&E and DDR - Water Pipeline - Olive/McGowan Parkway	\$ —	\$ —	\$ —
7.5	100%/Final PS&E and DDR - Water Pipeline - Olive/McGowan Parkway	\$ —	\$ —	\$ —
7.6	Storm Water Pollution Prevention Plan (does not include implementation)	\$ —	\$ —	\$ —
7.7	Bidding Support - Water Pipeline - Olive/McGowan Parkway	\$ —	\$ —	\$ —
7.8	Conformed Plans and Specifications - Olive/McGowan Parkway	\$ —	\$ —	\$ —
	Subtotal Design Engineering for Olive/McGowan Parkway Pipelines	\$ 11,542	\$ —	\$ 11,542
<b>8</b>	<b>Design Engineering for Morrison Road Waterline (Phase 3) (11,450')</b>			
8.1	Topographic Surveying and Mapping - Morrison Road	\$ 9,305	\$ —	\$ 9,305
8.2	ROW and Surveys (Research, Boundary Surveys, Descriptions, and Plats)	\$ 9,663	\$ —	\$ 9,663
8.3	30% PS&E and DDR - Waterline Pipeline - Morrison Road	\$ —	\$ —	\$ —
8.4	90% PS&E and DDR - Waterline Pipeline - Morrison Road	\$ —	\$ —	\$ —
8.5	100%/Final PS&E and DDR - Waterline Pipeline - Morrison Road	\$ —	\$ —	\$ —
8.6	Storm Water Pollution Prevention Plan (does not include implementation)	\$ —	\$ —	\$ —
8.7	Bidding Support - Waterline Pipeline - Morrison Road	\$ —	\$ —	\$ —
8.8	Conformed Plans and Specifications - Morrison Road	\$ —	\$ —	\$ —
	Subtotal Design Engineering for Morrison Road Waterline (Phase 3) (11,450')	\$ 18,968	\$ —	\$ 18,968
<b>9</b>	<b>Design Engineering for Water Well Site</b>			
9.1	Topographic Surveying and Mapping - Water Well Site	\$ 5,156	\$ —	\$ 5,156
9.2	ROW and Surveys (Research, Boundary Surveys, Descriptions, and Plats)	\$ 9,959	\$ —	\$ 9,959
9.3	30% PS&E and DDR - Water Well Site	\$ —	\$ —	\$ —
9.4	90% PS&E and DDR - Water Well Site	\$ —	\$ —	\$ —
9.5	100%/Final PS&E and DDR - Water Well Site	\$ —	\$ —	\$ —
9.6	Bidding Support - Water Well Site	\$ —	\$ —	\$ —
9.7	Conformed Plans and Specifications - Water Well Site	\$ —	\$ —	\$ —
	Subtotal Design Engineering for Water Well Site	\$ 15,115	\$ —	\$ 15,115
<b>10</b>	<b>Engineering Services During Construction for Pipelines</b>			
10.1	Submittal and Request for Information Review for Pipelines	\$ 3,760	\$ —	\$ 3,760
10.2	Additional Field Instructions and Field Coordination for Pipelines	\$ 2,330	\$ —	\$ 2,330
10.3	Change Order Support	\$ 2,521	\$ —	\$ 2,521
10.4	Field Inspections (does not include full time inspection) for Pipelines	\$ 3,495	\$ —	\$ 3,495
10.5	On-Site Meetings and Coordination for Pipelines	\$ 4,660	\$ —	\$ 4,660
10.6	Record Drawings for Pipelines	\$ 2,393	\$ —	\$ 2,393
	Subtotal Engineering Services During Construction for Pipelines	\$ 19,158	\$ —	\$ 19,158
<b>11</b>	<b>Construction Management, Inspection, and Surveys for Pipelines</b>			
11.1	Construction Management - Pipelines	\$ —	\$ —	\$ —
11.2	Construction Status Meetings - Pipelines	\$ 19,822	\$ —	\$ 19,822
11.3	Field Inspections - Pipelines	\$ 434,493	\$ —	\$ 434,493
11.4	Geotechnical Material Testing - Quality Assurance - Pipelines	\$ 285,155	\$ —	\$ 285,155
11.5	Construction Control Monuments (Total of 5) - Pipelines	\$ 5,558	\$ —	\$ 5,558
11.6	Quality Assurance Surveys - Pipelines	\$ 13,067	\$ —	\$ 13,067
	Subtotal Construction Management, Inspection, and Surveys for Pipelines	\$ 758,096	\$ —	\$ 758,096
<b>12</b>	<b>Construction Closeout for Pipelines</b>			
12.1	Construction Closeout - Pipelines	\$ 12,604	\$ —	\$ 12,604
12.2	As-Built Drawings (verification of Contractor Drawings) - Pipelines	\$ 3,845	\$ —	\$ 3,845

**Attachment No. 1**  
**MHM Team - Surveying, Design, and Bid Support Services**  
**OPUD South County Water Extension Projects**  
**WATER IMPROVEMENTS COMBINED FEE SUMMARY**

No.	Task Description	MHM	Friesch	Total Costs
<b>SURVEYING AND ENGINEERING DESIGN SERVICES - OPUD SOUTH COUNTY WATER PROJECT</b>				
	Subtotal Construction Closeout for Pipelines	\$ 16,449	\$ —	\$ 16,449
	Subconsultants Markup (10%)	\$ 0	\$ 0	\$ 0
	<b>TOTAL EFFORT</b>	<b>\$1,049,396</b>	<b>\$0</b>	<b>\$1,049,396</b>



**Attachment No. 2**  
**MHM Incorporated - Surveying, Design, and Bid Support Services**  
**OPUD South County Water Extension Project**  
**WATER IMPROVEMENTS DETAILED FEE ESTIMATE**

No.	Task Description	Labor										Total Labor (\$)	Expenses	Total	
		E7	E6	E5	E4	T4	Inspect	Soils	Survey	Acct	Clerical				Total Hours
<b>SURVEYING AND ENGINEERING DESIGN SERVICES - OPUD SOUTH COUNTY WATER PROJECT</b>															
1	Project Management and Coordination	Rates											3.50%		
1.1	Project Management (June 1, 2020 through July 31, 2022)	235.25	199.50	163.75	153.75	133.00	138.00	158.00	266.00	117.50	97.25	60	\$ 12,459	\$ 436	\$ 12,895
1.2	Invoicing and Progress Reports	24			12						42	\$ 7,640	\$ 267	\$ 7,907	
1.3	Progress Meetings	22	22								44	\$ 9,565	\$ 335	\$ 9,899	
	Subtotal Project Management and Coordination	94	22	0	0	0	0	0	0	12	146	\$ 29,663	\$ 1,038	\$ 30,701	
2	<b>Environmental and Permitting</b>										0	\$	\$	\$	
2-1	Wetland Determination										0	\$	\$	\$	
2-2	Area of Potential Effect (APE)										0	\$	\$	\$	
2-3	Biological Resource Evaluation										0	\$	\$	\$	
2-4	Environmental Permit Facilitation										0	\$	\$	\$	
2-5	Archaeological Study										0	\$	\$	\$	
2-6	Tribal Cultural Resources										0	\$	\$	\$	
2-7	CEQA Initial Study/Mitigated Negative Declaration										0	\$	\$	\$	
	Subtotal Environmental and Permitting	0	0	0	0	0	0	0	0	0	0	\$	\$	\$	
3	<b>Preliminary Design</b>										24	\$ 5,217	\$ 183	\$ 5,400	
3.1	Design Team Coordination Meetings	12	12								24	\$ 5,217	\$ 183	\$ 5,400	
3.2	Engineers' Estimate of Probable Cost for Water Pipeline	4	6	2							12	\$ 2,446	\$ 86	\$ 2,531	
3.3	Draft Basis of Design Report	4	12		4						20	\$ 3,867	\$ 635	\$ 4,502	
3.4	Final Basis of Design Report	2	4		2						8	\$ 1,535	\$ 54	\$ 1,589	
3.5	Preliminary Record Boundary Information (does not include PTR)	2	8	24	12			14			60	\$ 11,566	\$ 405	\$ 11,970	
	Subtotal Preliminary Design	24	42	24	14	6	0	0	14	0	124	\$ 24,630	\$ 1,362	\$ 25,992	
4	<b>Geotechnical Evaluations</b>										0	\$	\$	\$	
4.1	Coordination, Document Review, Site Visit, Permit Acquisitions, USA										0	\$	\$	\$	
4.2	Subsurface Exploration										0	\$	\$	\$	
4.3	Laboratory Testing										0	\$	\$	\$	
4.4	Perform Engineering Analysis and Calculations										0	\$	\$	\$	
4.5	Prepare Geotechnical Report										0	\$	\$	\$	
	Subtotal Geotechnical Evaluations	0	0	0	0	0	0	0	0	0	0	\$	\$	\$	
5	<b>Design Engineering for Forty Mile Road Pipelines (13,350)</b>										54	\$ 11,135	\$ 1,590	\$ 12,725	
5.1	Topographic Surveying and Mapping - Pipeline - Forty Mile Road	4	8	12	6			24			54	\$ 11,135	\$ 1,590	\$ 12,725	
5.2	ROW and Surveys (Research, Boundary Surveys, Descriptions, and Plats)	6	10	4	4			8			32	\$ 6,110	\$ 214	\$ 6,323	
5.3	80% PS&E and DDR - Pipeline - Forty Mile Road	9	27	27	72	36					171	\$ 27,783	\$ 972	\$ 28,755	
5.4	90% PS&E and DDR - Pipeline - Forty Mile Road	27	63	63	117	81					351	\$ 57,988	\$ 2,030	\$ 60,028	
5.5	100%/Final PS&E and DDR - Pipeline - Forty Mile Road	9	18	18	36	27					108	\$ 17,782	\$ 622	\$ 18,404	
5.6	Storm Water Pollution Prevention Plan (does not include implementation)	2	2	6	6	2					10	\$ 1,588	\$ 56	\$ 1,643	
5.7	Bidding Support - Pipeline - Forty Mile Road	4	8	4							16	\$ 3,152	\$ 110	\$ 3,262	
5.8	Confirmed Plans and Specifications - Pipeline - Forty Mile Road	2		5	9						16	\$ 2,365	\$ 83	\$ 2,448	

**Attachment No. 2**  
**MHM Incorporated - Surveying, Design, and Bid Support Services**  
**OPUD South County Water Extension Project**  
**WATER IMPROVEMENTS DETAILED FEE ESTIMATE**

No.	Task Description	Labor										Total Labor (\$)	Expenses	Total					
		E7	E6	E5	E4	T4	Inspect	Soils	Survey	Acct	Clerical				Total Hours				
<b>SURVEYING AND ENGINEERING DESIGN SERVICES - OPUD SOUTH COUNTY WATER PROJECT</b>		Rates											3.50%						
	Subtotal Design Engineering for Forty Mile Road Pipelines (13,350')	49	130	126	256	165	0	0	32	0	0	0	0	0	0	758	\$ 127,912	\$ 5,877	\$ 133,589
6	Design Engineering for Rancho Road Pipelines (5,850')																		
6.1	Topographic Surveying and Mapping - Rancho Road (includes all of Rancho)		4	8	8	8			24							52	\$ 10,786	\$ 1,578	\$ 12,364
6.2	ROW and Surveys (Research, Boundary Surveys, Descriptions, and Plats)		6	10	4	4			12							36	\$ 7,174	\$ 251	\$ 7,425
6.3	30%-PS&E and DDR - Water Pipeline - Rancho Road															0	\$	\$	\$
6.4	90%-PS&E and DDR - Water Pipeline - Rancho Road															0	\$	\$	\$
6.5	100% Final PS&E and DDR - Water Pipeline - Rancho Road															0	\$	\$	\$
6.6	Storm Water Pollution Prevention Plan (does not include implementation)															0	\$	\$	\$
6.7	Bidding Support - Water Pipeline - Rancho Road															0	\$	\$	\$
6.8	Conformed Plans and Specifications - Rancho Road															0	\$	\$	\$
	Subtotal Design Engineering for Rancho Road Pipelines (5,850')	0	10	18	12	12	0	0	36	0	0	0	0	0	0	88	\$ 17,960	\$ 1,829	\$ 19,788
7	Design Engineering for Olive/McGowan Parkway Pipelines																		
7.1	Topographic Surveying and Mapping - Olive/McGowan Parkway		2	6	6	6			12							32	\$ 6,294	\$ 820	\$ 7,114
7.2	ROW and Surveys (Research, Boundary Surveys, Descriptions, and Plats)		4	8	2	2			6							22	\$ 4,278	\$ 150	\$ 4,427
7.3	30%-PS&E and DDR - Water Pipeline - Olive/McGowan Parkway															0	\$	\$	\$
7.4	90%-PS&E and DDR - Water Pipeline - Olive/McGowan Parkway															0	\$	\$	\$
7.5	100% Final PS&E and DDR - Water Pipeline - Olive/McGowan Parkway															0	\$	\$	\$
7.6	Storm Water Pollution Prevention Plan (does not include implementation)															0	\$	\$	\$
7.7	Bidding Support - Water Pipeline - Olive/McGowan Parkway															0	\$	\$	\$
7.8	Conformed Plans and Specifications - Olive/McGowan Parkway															0	\$	\$	\$
	Subtotal Design Engineering for Olive/McGowan Parkway Pipelines	0	6	14	8	8	0	0	18	0	0	0	0	0	0	54	\$ 10,572	\$ 970	\$ 11,542
8	Design Engineering for Morrison Road Waterline (Phase 3) (11,450')																		
8.1	Topographic Surveying and Mapping - Morrison Road		2	8	6	10			16							42	\$ 8,218	\$ 1,088	\$ 9,305
8.2	ROW and Surveys (Research, Boundary Surveys, Descriptions, and Plats)		4	16	16	2			12							50	\$ 9,336	\$ 327	\$ 9,663
8.3	30%-PS&E and DDR - Waterline Pipeline - Morrison Road															0	\$	\$	\$
8.4	90%-PS&E and DDR - Waterline Pipeline - Morrison Road															0	\$	\$	\$
8.5	100% Final PS&E and DDR - Waterline Pipeline - Morrison Road															0	\$	\$	\$
8.6	Storm Water Pollution Prevention Plan (does not include implementation)															0	\$	\$	\$
8.7	Bidding Support - Waterline Pipeline - Morrison Road															0	\$	\$	\$
8.8	Conformed Plans and Specifications - Morrison Road															0	\$	\$	\$
	Subtotal Design Engineering for Morrison Road Waterline (Phase 3) (11,450')	0	6	24	22	12	0	0	28	0	0	0	0	0	0	92	\$ 17,554	\$ 1,414	\$ 18,968
9	Design Engineering for Water Well Site																		
9.1	Topographic Surveying and Mapping - Water Well Site		2	4	4	6			8							24	\$ 4,595	\$ 561	\$ 5,155
9.2	ROW and Surveys (Research, Boundary Surveys, Descriptions, and Plats)		16	8	16	4			8							52	\$ 9,622	\$ 337	\$ 9,959
9.3	30%-PS&E and DDR - Water Well Site															0	\$	\$	\$
9.4	90%-PS&E and DDR - Water Well Site															0	\$	\$	\$
9.5	100% Final PS&E and DDR - Water Well Site															0	\$	\$	\$
9.6	Bidding Support - Water Well Site															0	\$	\$	\$

**Attachment No. 2**  
**MHM Incorporated - Surveying, Design, and Bid Support Services**  
**OPUD South County Water Extension Project**  
**WATER IMPROVEMENTS DETAILED FEE ESTIMATE**

No.	Task Description	Labor												Total Labor (\$)	Expenses	Total			
		E7	E6	E5	E4	T4	Inspect	Soils	Survey	Acet	Clerical	Total Hours	3.50%						
<b>SURVEYING AND ENGINEERING DESIGN SERVICES - OPUD SOUTH COUNTY WATER PROJECT</b>																			
9.7	Confirmed Plans and Specifications - Water-Well Site	0	18	12	20	10	0	0	16	0	0	159.00	266.00	117.50	97.25	0	\$	\$	
	Subtotal Design Engineering for Water Well Site															76	\$	\$ 14,217	
10	Engineering Services During Construction for Pipelines																		
10.1	Submittal and Request for Information Review for Pipelines	5		15												20	\$	\$ 3,633	
10.2	Additional Field Instructions and Field Coordination for Pipelines	4		8												12	\$	\$ 2,251	
10.3	Change Order Support	2		12												14	\$	\$ 2,436	
10.4	Field Inspections (does not include full time inspection) for Pipelines	6		12												18	\$	\$ 3,377	
10.5	On-Site Meetings and Coordination for Pipelines	8		16												24	\$	\$ 4,502	
10.6	Record Drawings for Pipelines	2		8		4										14	\$	\$ 2,313	
	Subtotal Engineering Services During Construction for Pipelines	27	0	71	0	4	0	0	0	0	0	0	0	0	0	102	\$	\$ 18,510	
11	Construction Management, Inspection, and Surveys for Pipelines																		
11.1	Construction Management - Pipelines																		
11.2	Construction Status Meetings - Pipelines	48		48												96	\$	\$ 19,152	
11.3	Field Inspections - Pipelines	48		96			2,304									2,544	\$	\$ 400,360	
11.4	Geotechnical Material Testing - Quality Assurance - Pipelines	24		48		480		1,152								1,728	\$	\$ 261,696	
11.5	Construction Control Monuments (Total of 5) - Pipelines			4					15							19	\$	\$ 4,645	
11.6	Quality Assurance Surveys - Pipelines			8					36							44	\$	\$ 10,886	
	Subtotal Construction Management, Inspection, and Surveys for Pipelines	120	0	204	0	480	2,304	1,152	51	0	120				4,431	\$	\$ 696,759		
12	Construction Closeout for Pipelines																		
12.1	Construction Closeout - Pipelines	8		32			32									72	\$	\$ 12,178	
12.2	As-Built Drawings (verification of Contractor Drawings) - Pipelines			4			16									24	\$	\$ 3,715	
	Subtotal Construction Closeout for Pipelines	8	0	36	0	4	48	0	0	0	0				96	\$	\$ 15,893		
<b>TOTAL EFFORT</b>		<b>322</b>	<b>234</b>	<b>529</b>	<b>332</b>	<b>701</b>	<b>2,352</b>	<b>1,152</b>	<b>195</b>	<b>12</b>	<b>138</b>				<b>5,967</b>	<b>\$</b>	<b>\$ 973,668</b>	<b>\$ 75,728</b>	<b>\$ 1,049,396</b>

**Attachment No. 2**  
**MHM Incorporated - Surveying, Design, and Bid Support Services**  
**OPUD South County Water Extension Project**  
**WATER IMPROVEMENTS DETAILED FEE ESTIMATE**

No.	Task Description	Labor							Total Labor (\$)	Expenses	Total	
		E7	E6	E5	E4	T4	Inspect	Salts				Survey
	Rates	235.25	190.50	163.75	153.75	133.00	158.00	266.00	117.50	97.25		3.50%

**SURVEYING AND ENGINEERING DESIGN SERVICES - OPUD SOUTH COUNTY WATER PROJECT**

Assumptions:

- 1.1 Project Management (June 1, 2020 through July 31, 2022)
- 1.2 Invoicing and Progress Reports
- 1.3 Progress Meetings
- 2.1 Wetland Determination
- 2.2 Area of Potential Effect (APE)
- 2.3 Biological Resource Evaluation
- 2.4 Environmental Permit Facilitation
- 2.5 Archaeological Study
- 2.6 Tribal Cultural Resources
- 2.7 CEQA Initial Study/Mitigated Negative Declaration
- 3.1 Design Team Coordination Meetings
- 3.2 Engineers' Estimate of Probable Cost for Water Pipeline
- 3.3 Draft Basis of Design Report
- 3.4 Final Basis of Design Report
- 3.5 Preliminary Record Boundary Information (does not include PTR)
- 4.1 Geodetic/Document Review, Site Visit, Permit Acquisitions, USA
- 4.2 Subsurface Exploration
- 4.3 Laboratory Testing
- 4.4 Perform Engineering Analysis and Calculations
- 4.5 Prepare Geotechnical Report
- 5.1 Topographic Surveying and Mapping - Pipeline - Forty Mile Road
- 5.2 ROW and Surveys (Research, Boundary Surveys, Descriptions, and Plats)
- 5.3 60% PS&E and DDR - Pipeline - Forty Mile Road
- 5.4 90% PS&E and DDR - Pipeline - Forty Mile Road
- 5.5 100% Final PS&E and DDR - Pipeline - Forty Mile Road
- 5.6 Storm Water Pollution Prevention Plan (does not include implementation)
- 5.7 Bidding Support - Pipeline - Forty Mile Road
- 5.8 Confirmed Plans and Specifications - Pipeline - Forty Mile Road
- 6.1 Topographic Surveying and Mapping - Rancho Road (includes all of Rancho)
- 6.2 ROW and Surveys (Research, Boundary Surveys, Descriptions, and Plats)
- 6.3 30% PS&E and DDR - Water Pipeline - Rancho Road
- 6.4 90% PS&E and DDR - Water Pipeline - Rancho Road
- 6.5 100% Final PS&E and DDR - Water Pipeline - Rancho Road
- 6.6 Storm Water Pollution Prevention Plan (does not include implementation)
- 6.7 Bidding Support - Water Pipeline - Rancho Road
- 6.8 Confirmed Plans and Specifications - Rancho Road
- 7.1 Topographic Surveying and Mapping - Olive/McGowan Parkway
- 7.2 ROW and Surveys (Research, Boundary Surveys, Descriptions, and Plats)
- 7.3 30% PS&E and DDR - Water Pipeline - Olive/McGowan Parkway
- 7.4 90% PS&E and DDR - Water Pipeline - Olive/McGowan Parkway
- 7.5 100% Final PS&E and DDR - Water Pipeline - Olive/McGowan Parkway
- 7.6 Storm Water Pollution Prevention Plan (does not include implementation)
- 7.7 Bidding Support - Water Pipeline - Olive/McGowan Parkway
- 7.8 Confirmed Plans and Specifications - Olive/McGowan Parkway
- 8.1 Topographic Surveying and Mapping - Morrison Road
- 8.2 ROW and Surveys (Research, Boundary Surveys, Descriptions, and Plats)
- 8.3 30% PS&E and DDR - Water Pipeline - Morrison Road
- 8.4 90% PS&E and DDR - Water Pipeline - Morrison Road
- 8.5 100% Final PS&E and DDR - Water Pipeline - Morrison Road
- 8.6 Storm Water Pollution Prevention Plan (does not include implementation)
- 8.7 Bidding Support - Water Pipeline - Morrison Road
- 8.8 Confirmed Plans and Specifications - Morrison Road
- 9.1 Topographic Surveying and Mapping - Water Well Site
- 9.2 ROW and Surveys (Research, Boundary Surveys, Descriptions, and Plats)
- 9.3 30% PS&E and DDR - Water Well Site

24 months x 2.0 hours (Sean) + 24 months x 2.0 hours office staff (does not include construction period)  
 24 months x 1.0 hours (Sean) + 24 months x 0.5 hours (bookkeeper) + 24 months x 0.25 hours (clerical) (does not include construction period)  
 11 progress meetings x 2.0 hours in Yuba County (does not include construction period) (include owner and key people)  
 net part of MHM scope of work  
 net part of MHM scope of work  
 net part of MHM scope of work  
 net part of MHM scope of work  
 net part of MHM scope of work  
 net part of MHM scope of work  
 assume 4 meetings x 2 hours each and 4 conference calls x 1.0 hour each (design team only)  
 assume 12 manhours  
 assume 20 manhours  
 assume 8 manhours  
 assume 60 manhours  
 net part of MHM scope of work  
 net part of MHM scope of work  
 net part of MHM scope of work  
 net part of MHM scope of work  
 net part of MHM scope of work  
 assume 24 Hours of 2 Man Survey Crew + Drone Aerial + 30 manhours for Mapping (DTM)  
 MHM has determined there would be a total of 18 drawing required  
 MHM has determined there would be a total of 18 drawing required  
 assume 10 manhours (partial D&A will cover the rest of pipelines)  
 assume 12 manhours per addenda. Total 2 addenda. Plus 4 hours for Pre-Bid  
 assume 16 manhours  
 assume 24 Hours of 2 Man Survey Crew + Drone Aerial + 28 manhours for Mapping (DTM)  
 assume 12 Hours of 2 Man Survey Crew + 24 manhours  
 net part of MHM scope of work  
 net part of MHM scope of work  
 net part of MHM scope of work  
 net part of MHM scope of work  
 assume 12 Hours of 2 Man Survey Crew + Drone Aerial + 20 manhours for Mapping (DTM)  
 assume 6 Hours of 2 Man Survey Crew + 16 manhours  
 net part of MHM scope of work  
 net part of MHM scope of work  
 net part of MHM scope of work  
 net part of MHM scope of work  
 assume 16 Hours of 2 Man Survey Crew + Drone Aerial + 24 manhours for Mapping (DTM)  
 assume 8 Hours of 2 Man Survey Crew + 24 manhours  
 net part of MHM scope of work  
 net part of MHM scope of work  
 net part of MHM scope of work  
 net part of MHM scope of work  
 net part of MHM scope of work  
 assume 8 Hours of 2 Man Survey Crew + Drone Aerial + 26 manhours for Mapping (DTM)  
 assume 8 Hours of 2 Man Survey Crew + 44 manhours  
 net part of MHM scope of work

**Attachment No. 2**  
**MHM Incorporated - Surveying, Design, and Bid Support Services**  
**OPUD South County Water Extension Project**  
**WATER IMPROVEMENTS DETAILED FEE ESTIMATE**

No.	Task Description	Labor										Total Labor (\$)	Total Hours	Expenses	Total		
		E7	E6	E5	E4	T4	Inspect	Soils	Survey	Acct	Clerical						
		235.25	199.50	163.75	153.75	133.00	158.00	158.00	266.00	117.50	97.25						
	<b>SURVEYING AND ENGINEERING DESIGN SERVICES - OPUD SOUTH COUNTY WATER PROJECT</b>	Rates															
9-4	90% PS&E and DDR - Water-Well Site	net part of MHM scope of work															
9-5	100% Final PS&E and DDR - Water-Well Site	net part of MHM scope of work															
9-6	Bidding Support - Water-Well Site	net part of MHM scope of work															
9-7	Geotagged Plans and Specifications - Water-Well Site	assume 6 submittals/resubmittals related to pipe crossing x 2.0 hours + 4 RFI x 2.0 hours															
10-1	Submittal and Request for Information Review for Pipelines	assume 4 field instruction related to pipe crossing x 3.0 hours															
10-2	Additional Field Instructions and Field Coordination for Pipelines	assume 2 Changes Orders x 6.0 hours															
10-3	Change Order Support	assume 6 site visits related to pipe crossing during construction															
10-4	Field Inspections (does not include full time inspection) for Pipelines	Construction meeting 8 meetings x 2.0 hours															
10-5	On-Site Meetings and Coordination for Pipelines	assume 14 manhours															
10-6	Record Drawings for Pipelines	net part of MHM scope of work															
44-4	Construction Management - Pipelines	assume 96 manhours (48 construction status meetings x 2.0 hours)															
11-2	Construction Status Meetings - Pipelines	assume 12 months - 6 days a week - 8 hour days for total of 2,304 manhours. Assume 240 manhours of office support															
11-3	Field Inspections - Pipelines	Assume 6 months - 6 days a week - 8 hours days for a total of 1,152 manhours, 480 hours laboratory time, and 96 manhours of office															
11-4	Geotechnical Material Testing - Quality Assurance - Pipelines	Assume 3 hours per monument survey time and 4.0 hours office time.															
11-5	Construction Control Monuments (Total of 5) - Pipelines	assume 8 hours office and 36 hours two man survey crew time (does not include construction staking)															
11-6	Quality Assurance Surveys - Pipelines	72 man-hours (support for Construction Manager)															
12-1	Construction Closeout - Pipelines	24 man-hours plus 2 hours QC															
12-2	As-Built Drawings (verification of Contractor Drawings) - Pipelines																

**Attachment No. 3**  
**MHM Incorporated - Surveying, Design, and Bid Support Services**  
**OPUD South County Water Extension Project**  
**WATER IMPROVEMENTS**  
**LABOR RATE SCHEDULE**

60% 2020, 25%  
2021, and 15%

Labor Classification	3.00%					Weighted
	2020 Labor Rates	2021 Labor Rates	2022 Labor Rates	2023 Labor Rates	2024 Labor Rates	
E7 - Principal-in-Charge	\$ 230.00	\$ 237.00	\$ 244.00	\$ 251.00	\$ 259.00	\$ 235.25
E6 - Project Manager	\$ 195.00	\$ 201.00	\$ 207.00	\$ 213.00	\$ 219.00	\$ 199.50
E5 - Project Engineer / Project Surveyor	\$ 160.00	\$ 165.00	\$ 170.00	\$ 175.00	\$ 180.00	\$ 163.75
E4 - Senior Engineer / Senior Surveyor	\$ 150.00	\$ 155.00	\$ 160.00	\$ 165.00	\$ 170.00	\$ 153.75
E3 - Associate Engineer/ Associate Surveyor	\$ 140.00	\$ 144.00	\$ 148.00	\$ 152.00	\$ 157.00	\$ 143.00
E2 - Assistant Engineer/ Assistant Surveyor	\$ 130.00	\$ 134.00	\$ 138.00	\$ 142.00	\$ 146.00	\$ 133.00
E1 - Junior Engineer/ Surveyor	\$ 120.00	\$ 124.00	\$ 128.00	\$ 132.00	\$ 136.00	\$ 123.00
T4 - Senior CADD Technician / Senior Technician	\$ 130.00	\$ 134.00	\$ 138.00	\$ 142.00	\$ 146.00	\$ 133.00
T3 - Staff CADD Technician/ Associate Technician	\$ 120.00	\$ 124.00	\$ 128.00	\$ 132.00	\$ 136.00	\$ 123.00
T2 - Assistant CADD Technician/ Asst. Technician	\$ 105.00	\$ 108.00	\$ 111.00	\$ 114.00	\$ 117.00	\$ 107.25
T1 - Junior Technician	\$ 95.00	\$ 98.00	\$ 101.00	\$ 104.00	\$ 107.00	\$ 97.25
E4 - Resident Engineer/Lead Inspector	\$ 190.00	\$ 196.00	\$ 202.00	\$ 208.00	\$ 214.00	\$ 199.60
T4 - Building/Construction Inspector	\$ 150.00	\$ 155.00	\$ 160.00	\$ 165.00	\$ 170.00	\$ 158.00
E4 - Resident Engineer/Lead Inspector - OT	\$ 220.00	\$ 227.00	\$ 234.00	\$ 241.00	\$ 248.00	\$ 225.25
T4 - Building/Construction Inspector - OT	\$ 205.00	\$ 211.00	\$ 217.00	\$ 224.00	\$ 231.00	\$ 209.50
Survey Crew - 1 Man (prevailing)	\$ 190.00	\$ 196.00	\$ 202.00	\$ 208.00	\$ 214.00	\$ 194.50
Survey Crew - 2 Man (prevailing)	\$ 260.00	\$ 268.00	\$ 276.00	\$ 284.00	\$ 293.00	\$ 266.00
Survey Crew - 3 Man (prevailing)	\$ 380.00	\$ 391.00	\$ 403.00	\$ 415.00	\$ 427.00	\$ 388.50
Survey Crew - 1 Man (prevailing) - OT	\$ 220.00	\$ 227.00	\$ 234.00	\$ 241.00	\$ 248.00	\$ 225.25
Survey Crew - 2 Man (prevailing) - OT	\$ 310.00	\$ 319.00	\$ 329.00	\$ 339.00	\$ 349.00	\$ 317.00
Survey Crew - 2 Man (non-prevailing)	\$ 250.00	\$ 258.00	\$ 266.00	\$ 274.00	\$ 282.00	\$ 256.00
Survey Crew - 3 Man (non-prevailing)	\$ 310.00	\$ 319.00	\$ 329.00	\$ 339.00	\$ 349.00	\$ 317.00
Accounting	\$ 115.00	\$ 118.00	\$ 122.00	\$ 126.00	\$ 130.00	\$ 117.50
Clerical	\$ 95.00	\$ 98.00	\$ 101.00	\$ 104.00	\$ 107.00	\$ 97.25

Construction work was assumed to be 60% 2021 and 40% 2022

Item	Unit
(Some EXAMPLES below, add others if needed.)	
Vehicle Equipped with Survey Equipment	\$12.50/hr
Vehicle Equipped with GPS Survey Equipment	\$25.00/hr
Boat Equipped with GPS and Sounding Equipment	\$14.50/hr
Vehicle Equipped with Nuclear Gage Equipment	\$7.50/hr
Aerial Drone Service Per Aerial Model	\$500 each
Computer & Peripherals	\$5.25/hr
Travel Expenses/Per Diem	T&M
Vehicle Mileage	IRS Standard Rate
Photocopies	\$0.50/ea
Plotting - 20 lb Bond	\$0.40/sq ft
Plotting - Mylar	\$6.00/sq ft
Mailings and Communication	T&M
Miscellaneous Supplies	T&M
Outside Equipment and Services	15% Markup

**Other Direct Costs (ODCs)**

Sh No.	Drawings
	<b>Water Pipelines</b>
1	Title Sheet and Location Map
2	Abbreviations, Symbols, and Notes
3	Utility Layout and Typical Sections
4	Plan and Profile Sheets (1"=40') - Forty Mile Road
5	Plan and Profile Sheets (1"=40') - Forty Mile Road
6	Plan and Profile Sheets (1"=40') - Forty Mile Road
7	Plan and Profile Sheets (1"=40') - Forty Mile Road
8	Plan and Profile Sheets (1"=40') - Forty Mile Road
9	Plan and Profile Sheets (1"=40') - Forty Mile Road
10	Plan and Profile Sheets (1"=40') - Forty Mile Road
11	Plan and Profile Sheets (1"=40') - Forty Mile Road
12	Plan and Profile Sheets (1"=40') - Forty Mile Road
13	Standard Civil Details
14	Standard Civil Details
15	Traffic Control Details
16	Traffic Control Details
17	Water Pollution Control Drawings
18	Water Pollution Control Drawings
19	Typical Cross Sections
20	Typical Cross Sections







## TRAFFIC CONTROL PLANS & SERVICES PROPOSAL

May 6, 2020

**Domenichelli & Associates**  
5180 Golden Foothill Pkwy, Suite 220  
El Dorado Hills, CA 95762  
ATTN: Tom Dugan

**RE: Olivehurst PUD Water Pipeline Project – Various Locations, Olivehurst**

ACI proposes our Traffic Control Services based on the design map and kmz file provided by Tom Dugan.

**Inclusions:**

- Site-specific **Traffic Control Plans** designed per latest 2014 MUTCD Standards and local jurisdiction specifications drawn in AutoCAD, in color and printable in 11"x17" electronic PDF's for submittals.

**Exclusions:**

- Permit application paperwork, permit fees, and any costs or fees associated with permits. Construction notifications, plan fees, inspection, inspection fees, portable changeable message boards (at additional cost), surveying, bond premiums, penalties, liquidated damages, printing costs and any fees not listed in inclusions to be provided by others or at additional cost.

**Estimated Price & Terms:**

- **Caltrans Traffic Control Plans** – (PE Stamped included) – 14 plan sheets at \$500 each = \$7,000\*
- **Traffic Control Plans** – 11 plan sheets at \$250 each = \$2,750\*

\* Traffic control plan sheets to be billed on a per sheet basis.

Payment Terms: Net 30 Days.

**Almendariz Consulting Inc. is signatory to the Laborers Union of Northern California.**

If you accept the proposed scope, please sign below and return.

Should you have any questions or concerns regarding this proposal please do not hesitate to contact me. Thank you for allowing ACI the opportunity to bid your project. I look forward to working with you.

Respectfully submitted,

Accepted

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**Daniel Cortez, Project Manager**  
Almendariz Consulting, Inc.  
dc@almendarizconsulting.com

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**Tom Dugan, Project Engineer**  
Domenichelli & Associates



West Sacramento Office:  
2491 Boatman Ave  
West Sacramento, CA 95691  
(916) 375-8706



Auburn (530) 887-1494  
Fresno (559) 438-8411

File No. 3843.P  
May 7, 2020

Mr. Joe Domenichelli  
Domenichelli & Associates  
5180 Golden Foothill Parkway, Suite 220  
El Dorado Hills, CA 95762

**Subject: GEOTECHNICAL ENGINEERING SCOPE OF SERVICES**  
**Yuba County Water Infrastructure Design**  
Yuba County, California

We propose the following scope of services to prepare a geotechnical report for the Yuba County Water Infrastructure project and provide geotechnical engineering support during design and construction. The major project components consist of about 9 miles of 24" diameter force main infrastructure piping, three SR 65 bore-and-jack crossings, five creek/canal crossings, and a new well site with a 1 MG storage tank, booster station, and on-site piping.

This scope and associated fee estimate do not include observation and testing during construction. However, it is critically important to the success of the project that Blackburn provide these services to confirm the assumptions made during design and that construction is completed in accordance with our recommendations. We therefore recommend that Blackburn provide these services during construction. We will provide a scope and fee for construction observation and testing services prior to construction when the plans and specifications are complete.

#### **Task 1: Project Coordination, Review, Permits, and Fieldwork Preparation**

Blackburn will perform the following prior to the subsurface exploration:

- Review the project with the design team.
- Review USDA soil survey data, published geologic maps, and California Department of Water Resources groundwater level data covering the project area.
- Review available geotechnical reports and/or boring logs for the wastewater treatment plant, SR 65 and SR 70 interchanges, and other information made available by the County or design team.
- Mark boring locations for Underground Services Alert.
- Obtain a Yuba County encroachment permit. We assume that the County will waive the permit fees.
- Assist the client to include our fieldwork on the project Caltrans encroachment permit obtained by others.

- Obtain the necessary Yuba County drilling permits.
- Retain a drilling subcontractor and schedule the subsurface exploration.
- Retain a traffic control subcontractor to provide traffic control services during the subsurface exploration.

### **Task 2: Subsurface Exploration**

Blackburn will complete the following:

- 50 exploratory borings 10 feet deep along the proposed sewer pipeline. The borings will be located about 800 feet apart on the roadway shoulder.
- 2 to 3 exploratory borings 40 feet deep at each of the three SR 65 bore-and-jack crossings. One near the jacking pit and one near the receiving pit. We will drill an additional boring in the roadway median depending on soil conditions encountered at the jacking and receiving pits and crossing length.
- 2 exploratory borings 40 feet deep at each of the five jack-and-bore water crossings. One near the proposed jacking pit and one near the receiving pit.
- 1 exploratory boring 50 feet deep at the 1 MG water tank site.
- 2 borings 10 to 25 feet deep at the new well site booster station, control building, and on-site piping locations.

Blackburn will retain a drilling contractor to drill the exploratory borings with a truck-mounted drill rig using hollow-stem or solid stem augers for the borings less than or equal to 20 feet deep and mud rotary drilling for borings 40 and 50 feet deep. The drilling contractor will collect soil samples at 2½ - to 5-foot intervals with Standard Penetration Test (SPT) or California Modified samplers under the direction of a Blackburn Engineer or Geologist. Blackburn will also collect bulk soil samples from the auger cuttings and test pit spoils. Blackburn's Engineer or Geologist will log the borings and test pits, direct the sampling operations, and deliver the samples to our laboratory for testing. The drilling contractor will backfill the borings with cement grout and patch the borings with concrete dyed black within the roadway. The drilling contractor will drum and remove cuttings from the site.

During drilling, we will provide traffic control in accordance with CA MUTCD Standards using signs and cones. We do not anticipate the need for flaggers. We do not expect that night work will be required. We assume the County and Caltrans will allow us to work in their rights-of-way for at least 8 hours each day.

### **Task 3: Laboratory Testing**

Blackburn will perform the following laboratory tests on representative soil samples:

- Moisture content and dry density for in-situ soil property evaluation.
- Plasticity index and sieve analysis for soil classification and pipeline design parameters.
- Direct Shear and Triaxial Compression (Unconsolidated, Undrained) to determine strength parameters for geotechnical analysis including excavation stability and lateral soil pressures for pipe jacking and below ground structures, and foundations for the new tank, booster station and control building foundations.

- Compaction curves for compaction recommendations, comparisons to existing densities and moisture content, and remolding parameters for strength tests.
- Soil corrosion (pH, resistivity, sulfates, chlorides).

#### **Task 4: Evaluation and Analysis**

Blackburn will evaluate information obtained from the subsurface exploration and laboratory tests and perform engineering analysis and calculations to provide design and construction recommendations for the recommendations outlined in Task 5.

#### **Task 5: Geotechnical Report**

Blackburn will prepare a Geotechnical Report for design of the project. The Geotechnical Report will contain the following:

- Project description
- Subsurface soil and groundwater conditions
- Site geology and seismicity
- Laboratory test results
- Soil corrosivity test results
- Seismic Design parameters
- Recommendations for:
  - Groundwater presence and control considerations.
  - Soil excavability, trench and jack-and-bore pit stability and OSHA soil type for shoring.
  - Pipe trench and bore-and-jack pit bottom stabilization (if necessary).
  - Jack and bore design/construction considerations.
  - Foundation recommendations for the new water tank, booster station, and control building including foundation type, minimum dimensions and depth, allowable bearing capacity and settlement estimates.
  - Lateral pressures for thrust block and below-ground structure design, jacking resistance and thrust block design.
  - Flexible pipe deflection and loading design parameters as needed.
  - Trench backfill including bedding and shading, re-use of site soil for backfill, import requirements (if needed), and relative compaction.
  - Bore-and-jack pit backfill and compaction.
- Risk management and limitations
- Vicinity map and site plan with proposed improvements and boring locations
- Site geology and fault maps
- Boring logs
- Laboratory test sheets

### **Task 6: Design Follow Up, Plan and Specification Review**

Blackburn will respond to questions from the design team, and review and comment on the plans and specifications.

### **Task 7: Geotechnical Engineering Support During Bid and Construction**

Blackburn will provide the following design services to support construction:

- Respond to bid questions related to geotechnical aspects of the project
- Respond to geotechnical-related requests for Information
- Perform up to 20 site visits to observe conditions and respond to questions

### **Task 8: Phase 1 Environmental Site Assessment (ESA)**

The purpose of the Phase 1 ESA is to assess whether potential sources or indications of hazardous materials conditions are present within or adjacent to the proposed project limits. We will complete the ESA in general accordance with ASTM E1527-13 "Standard Practice for Environmental Site Assessment: Phase I Environmental Site Assessment Process" requirements.

Blackburn will complete the following:

- A site reconnaissance to observe current land use and indications of potential contamination by hazardous materials on or adjacent to the parcel.
- An initial review of on-line regulatory databases such as the State Water Resources Control Board GeoTracker site and/or the Department of Toxic Substances Control (DTSC) EnviroStor site, to determine if known impacts and/or previous environmental work exist for the project area.
- A review of historical aerial photographic and topographic map coverage of the property and surrounding areas for indications of sources for potential contamination.
- A review of a commercial database including federal, state, and county records for indications of the use, misuse, or storage of hazardous and/or potentially hazardous materials on or near the site.
- An evaluation of the information from the above tasks and attempt to identify past and present operations conducted on or adjacent to the property and assess the potential for hazardous materials impacts to the site.
- An ISA Report documenting our findings, conclusions and recommendations including our sampling and analytical testing procedures and results.

We developed the above scope to assess hazardous material conditions that may influence the project improvements. This scope is not intended to fully characterize potential or known environmental conditions at the site. This scope and associated fee assume that others will provide all necessary access agreements.

## Tom Dugan

---

**From:** Joe Domenichelli  
**Sent:** Friday, May 8, 2020 12:39 PM  
**To:** Tom Dugan  
**Subject:** FW: Geotechnical Engineering Scope and Fee for Yuba County Water Infrastructure Design

**Joe Domenichelli**  
**Domenichelli & Associates**  
5180 Golden Foothill Parkway, Suite 220  
El Dorado Hills, CA 95762  
(916) 933-1997

**From:** Robert Lokteff <bobl@blackburnconsulting.com>  
**Sent:** Friday, May 8, 2020 11:58 AM  
**To:** Joe Domenichelli <JoeD@daengineering.net>  
**Subject:** RE: Geotechnical Engineering Scope and Fee for Yuba County Water Infrastructure Design

Hi Joe. Here are our additional costs to provide geotechnical support and testing costs for the stand-alone water infrastructure and well site:

- \$15,000/month of construction for meetings, field report review, and part-time earthwork observation ,
- \$25,000 for concrete and soil testing at the well site, and
- \$40,000 for AC testing along the infrastructure alignment

The above costs are in addition to the costs we already provided in scope and fee we sent you, and that MHM is doing compaction testing for the pipeline work.

Please let me know if you have any questions.

Thanks.

**Robert Lokteff, PE, GE**  
Principal Geotechnical Engineer

**Blackburn Consulting**  
P 916.375.8706 | M 916.849.2956 | [bobl@blackburnconsulting.com](mailto:bobl@blackburnconsulting.com)

**From:** Robert Lokteff  
**Sent:** Friday, May 8, 2020 7:29 AM  
**To:** Joe Domenichelli <[JoeD@daengineering.net](mailto:JoeD@daengineering.net)>  
**Subject:** RE: Geotechnical Engineering Scope and Fee for Yuba County Water Infrastructure Design

Hi Joe. Our drillers estimate was very similar to our estimate, so no changes to the fee estimate I sent yesterday. Here is our cleaned-up/formatted scope and fee. Please let me know if you have any questions.

Thanks.

West Sacramento Office:  
 2491 Boatman Ave  
 West Sacramento, CA 95691  
 (916) 375-8706



Auburn Office:  
 (530) 887-1494  
 Fresno Office:  
 (559) 438-8411

**FEE ITEMIZATION FOR GEOTECHNICAL REPORT**  
**Water Infrastructure in South Yuba County - Piping, New Well Site and Crossings**  
**Yuba County, California**

5/7/2020

File No. 3843.P

TASK	ITEM	QUANTITY	RATE	UNIT	MULT.	ITEM COST	TASK SUBTOTAL
<b>TASK 6: Follow-Up Design Questions and Review Plans and Specifications</b>							
	Sr. Project Manager	15	\$ 220	hour	1	\$3,300	
	Project Engineer/Geologist	25	\$ 160	hour	1	\$4,000	
							<u>\$7,300</u>
<b>TASK 7: Geotechnical Engineering Support During Bid and Construction (does not include testing and observation)</b>							
	Sr. Project Manager	15	\$ 280	hour	1	\$4,200	
	Field Services Manager	35	\$ 165	hour	1	\$5,775	
	Project Engineer/Geologist	100	\$ 160	hour	1	\$16,000	
	Mileage	1600	\$ 0.90	mile	1	\$1,440	
							<u>\$27,415</u>
						<b>Total Estimated Fee</b>	<u><u>\$278,505</u></u>
<b>TASK 8: Phase 1 Environmental Site Assessment</b>							
<b>Coordination, Site Review and Field Reconnaissance</b>							
	Sr. Principal	3	\$ 280	hour	1	\$ 840	
	Project Manager	6	\$ 195	hour	1	\$ 1,170	
	Project Engineer/Geologist	24	\$ 160	hour	1	\$ 3,840	
	Project Assistant	3	\$ 110	hour	1	\$ 330	
	Mileage	400	\$ 0.90	mile	1	\$ 360	
<b>Historical Research</b>	Project Engineer/Geologist	18	\$ 160	hour	1	\$ 2,880	
	Project Manager	3	\$ 195	hour	1	\$ 585	
	Records Search	3	\$ 350	each	1.2	\$ 1,260	
<b>Report Preparation</b>	Project Manager	12	\$ 195	hour	1	\$ 2,340	
	Project Engineer/Geologist	36	\$ 160	hour	1	\$ 5,760	
	Project Assistant	3	\$ 110	hour	1	\$ 330	
	CAD/GIS	9	\$ 145	hour	1	\$ 1,305	
							<b>Total Optional Task Fee Estimate:</b> <u>\$21,000</u>
							<b>Total Estimated Fee Including Optional Task:</b> <u><u>\$299,505</u></u>

**Notes:**  
 Blackburn Consulting suggests utilizing our post design services such as Testing during construction.  
 Blackburn Consulting suggests adding contingency of 5-10% (project dependent) to account for unforeseen circumstances.



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**FEE ITEMIZATION FOR GEOTECHNICAL REPORT**  
**Water Infrastructure in South Yuba County - Piping, New Well Site and Crossings**  
**Yuba County, California**

5/7/2020

File No. 3843.P

TASK	ITEM	QUANTITY	RATE	UNIT	MULT.	ITEM COST	TASK SUBTOTAL
<b><u>TASK 1: Project Coordination with Client and Subs, Existing Document Review, USA, Permits</u></b>							
	Senior Principal	2	\$ 280	hour	1	\$560	
	Sr. Project Manager	8	\$ 220	hour	1	\$1,760	
	Project Engineer/Geologist	68	\$ 160	hour	1	\$10,880	
	Contract Administration	2	\$ 150	hour	1	\$300	
	Project Assistant	2	\$ 110	hour	1	\$220	
	Boring Permits	8	\$ 500	lump	1.2	\$4,800	
	Mileage	500	\$ 0.90	mile	1	\$450	
							<u>\$18,970</u>
<b><u>TASK 2: Subsurface Exploration</u></b>							
	Sr. Project Manager	16	\$ 220	hour	1	\$3,520	
	Project Engineer/Geologist	200	\$ 160	hour	1	\$32,000	
	Drill Rig and Supplies	1	\$ 58,000	sum	1.2	\$69,600	
	Traffic Control	20	\$ 750	lump	1.2	\$18,000	
	Mileage	1600	\$ 0.90	mile	1	\$1,440	
							<u>\$124,560</u>
<b><u>TASK 3: Laboratory Testing</u></b>							
	Sr. Project Manager	8	\$ 220	hour	1	\$1,760	
	Project Engineer/Geologist	20	\$ 160	hour	1	\$3,200	
	Lab Manager	8	\$ 150	hour	1	\$1,200	
	Plasticity Index	40	\$ 273	test	1	\$10,920	
	#200 Sieve Wash	40	\$ 125	test	1	\$5,000	
	Moisture/Density	60	\$ 85	test	1	\$5,100	
	Triaxial Compression (UU)	30	\$ 195	test	1	\$5,850	
	Direct Shear	40	\$ 215	point	1	\$8,600	
	Modified Proctor	10	\$ 345	test	1	\$3,450	
	Soil Corrosion	30	\$ 170	test	1.2	\$6,120	
							<u>\$51,200</u>
<b><u>TASK 4: Analysis</u></b>							
	Senior Principal	8	\$ 280	hour	1	\$2,240	
	Sr. Project Manager	16	\$ 220	hour	1	\$3,520	
	Project Engineer/Geologist	75	\$ 160	hour	1	\$12,000	
	Sr Engineer/Geologist	10	\$ 175	hour	1	\$1,750	
							<u>\$19,510</u>
<b><u>TASK 5: Geotechnical Report Preparation</u></b>							
	Senior Principal	8	\$ 280	hour	1	\$2,240	
	Sr. Project Manager	20	\$ 220	hour	1	\$4,400	
	Sr Engineer/Geologist	20	\$ 175	hour	1	\$3,500	
	Project Engineer/Geologist	90	\$ 160	hour	1	\$14,400	
	CAD/GIS	30	\$ 145	hour	1	\$4,350	
	Project Assistant	6	\$ 110	hour	1	\$660	
							<u>\$29,550</u>



## **SCHEDULE**

We will complete the subsurface exploration within 3 months of a fully executed agreement. We will complete the Lab Testing and Geotechnical Report within 5 months of completing the subsurface exploration. Our schedule depends on sub-contractor availability and regulatory review and approval. It could change due to circumstances outside our control. We will make our best effort to maximize efficiency of the subsurface exploration and accelerate the schedule where possible.

We will complete the Phase 1 ESA within one month of a signed contract. This schedule assumes that any required rights-of-entry are in place when the work is authorized.

We appreciate the opportunity to help you with this important project. Please call if you have questions or require additional information.

Sincerely,

**BLACKBURN CONSULTING**

Robert B. Lokteff, PE, GE  
Senior Principal



# FRISCH ENGINEERING, INC.

Consulting Electrical Engineers and Programmers  
13405 Folsom Blvd., Unit 600  
Folsom, CA 95630

dba Frisch  
Electric  
Electrical Contractor  
C-10 Lic #1025671  
Phone (916) 353-1025

May 5, 2020

Mr. Joe Domenichelli  
Domenichelli & Associates  
1101 Investment Blvd., Suite 115  
El Dorado Hills, CA 95762

Location: Olivehurst PUD Water Well, Tank and Booster Pump Station.  
Subject: Electrical Engineering Design and Construction Services

Mr. Domenichelli,

Frisch Electrical Engineering Inc. is pleased to submit this proposal to perform the electric power and control system design and Construction services for this project. The following detail is provided in defining our proposed scope of work.

## Preliminary Design Services

The predesign will include technical discussion and probable cost estimate for each of the topics listed below. Predesign will be focused on electrical, instrumentation, SCADA and communications.

1. Preliminary Design
  - A. Site investigations to review sites for utility services, other items.
  - B. Describe power distribution systems.
  - C. Describe features of new PLC panel, main components used.
  - D. Determine types of motor controllers to be used
  - E. Communications for internet alarming.
  - F. Review similar pump station for operational requirements and equipment.

## Design Services

We will produce electrical drawings and specifications for a new Well/Tank/Booster Station. The station design will include all new electrical and controls and have the following features per station.

- Coordinate Utility Service
- Meter/main switchboard, feeders.
- Automatic transfer switch
- Natural Gas or Diesel Engine Generator
- Indoor electrical equipment and outdoor generator
- Well Pump (<300hp per pump) with Solid State Starter
- 4 pump booster pump station (<150hp per pump) with VFDs
- PLC Control system compatible with existing SCADA system

- Communications system (Cell modem)
- Power monitor
- Level transmitter for tank
- Pressure transmitter on suction and discharge
- Magnetic Flowmeter
- Floats for high and low level in tank.
- Building with Electrical room, chemical room, utility room, operator room, bathroom. Building will have HVAC per in each room except chemical room.
- Future potential for Manganese Treatment.

The following drawings and specifications will be included in the design.

## 2. Electrical and Instrumentation Design

- A. Site visit to observe and document current conditions
- B. Design Meetings at kickoff and progress deliverables
- C. Electrical Design Drawings
  1. Electrical and instrumentation symbols and abbreviations.
  2. Process and instrumentation diagrams (P&IDs)
  3. Single line diagram of power distribution with load calculations.
  4. Elevation layout drawing:
    - a. Utility Metering Switchboard or Panel
    - b. Transfer Switch
    - c. Motor Controls
    - d. Control Panel with backpan layout
    - e. Miscellaneous other panels
  5. Control panel wiring diagrams.
    - a. PLC Control Panel.
    - b. Motor Control Wiring Diagrams.
    - c. Miscellaneous control diagrams for valves, lights, heaters, etc.
  6. Plan drawings:
    - a. Site Electrical Plans
  7. Detail drawings:
    - a. Pad mounted electrical equipment.
    - b. Instrumentation (flowmeters, pressure transmitters, etc.)
    - c. Underground conduit
    - d. Conduit transition through grade
    - e. Underground pull box installation.

- f. Pump motor connection.
    - g. Ground system installation.
    - h. Site lighting.
    - i. Antenna with mounting pole.
    - j. Miscellaneous additional details
  - D. Electrical schedules:
    - 1. Conduit & wire
    - 2. Panelboard
    - 3. Instrumentation
  - E. Electrical specifications:
    - 1. General Electrical Materials
    - 2. Conduit and Boxes
    - 3. Low Voltage Wire
    - 4. Grounding
    - 5. Diesel or Natural Gas Generator
    - 6. Automatic Transfer Switch
    - 7. Pump Control Panel
    - 8. Solid State Soft Starter
    - 9. Communications System, (antenna, cable, radio, etc.)
    - 10. Factory and Field testing.
    - 11. Control Panel Components
    - 12. PLC and Operator Interface Hardware
    - 13. PLC an Operator Interface Applications Programming
    - 14. Instrumentation (flowmeters, pressure transmitters, etc)
    - 15. Other electrical components.
  - F. Electrical and Instrumentation construction cost estimate at each design deliverable.
  - G. Coordinate with utility for new power and gas service.
- 3. Bid services and addenda.

## **Construction Services**

We will perform the following services to the extent possible limited only by the budget of hours and costs. Please see spreadsheet for quoted budget quantities of the tasks as listed below. We have estimated the quantity of hours for each task based on experience with similar projects. Occasionally, project circumstances require more attention than anticipated. If the project requires more effort than allocated, additional budget may be required.

4. Construction Services
  - A. Project Management and Meetings during construction
  - B. Respond to RFIs
  - C. Assist with change orders
  - D. Review Contractor Submittals
    1. General Electrical materials
    2. Lighting, Heaters and Fans
    3. Pump motors
    4. Pump Control Panel
    5. Engine Generator
    6. Instrumentation
    7. Interconnection diagrams
    8. Testing Submittal
    9. O&M Submittal Review
  - E. Witness factory testing
  - F. Site visit(s) to oversee installation of electrical work.
    1. Underground conduit prior to cover.
    2. Equipment anchorage and conduit installation prior to pulling wire.
    3. Wire installation and termination.
  - G. Witness on-site electrical and instrumentation testing
    1. Electrical pre-energization tests.
    2. Electrical pre-operational tests
    3. Electrical Operational tests
    4. Commissioning
  - H. Perform on-site Construction Inspection and generate punch lists.
  - I. As Built drawing revisions and production.
5. Arc Flash Analysis
  - A. The arc flash analysis will be conducted for the distribution system as described above. We will complete the Arc Flash Hazard Analysis in accordance with the procedures stated in NFPA 70E and IEEE Std 1584.
  - B. Labels compliant with the NFPA 70E showing nominal voltage, PPE Category, and Arc-Flash Boundary will be provided for calculated fault locations based on

the specific site conditions. One Arc flash warning label will be provided for each 3 phase connection.

6. Operator Interface Programming
  - A. Coordination meetings
  - B. Program and Configure new Operator Interface Screens
  - C. Database configuration
  - D. Alarm Summary and configuration
  - E. Alarm notification system configuration
  - F. Communications networking
  - G. Factory Testing
  - H. On-site start-up and testing services
7. PLC Programming
  - A. We will coordinate with the Engineers and Owner to develop the station control strategy for the pump station and flow monitoring. We will document and program to that strategy.
  - B. Develop the database that is shared among the PLCs and OI System.
  - C. Perform PLC programming for the site PLCs to operate the station. The program will be modeled after the system description. The program will address pump operation, pressure control, alarm generation, alarm notification and flow monitoring.
  - D. Factory Testing
  - E. Start-up and testing services
8. Operator Training
  - A. Electronic O&M manual
  - B. Training for staff – one session

#### **Preliminary Drawing List**

<b>Drawing</b>	<b>Title</b>
E01	ELECTRICAL SYMBOLS AND ABBREVIATIONS
E02	INSTRUMENTATION SYMBOLS AND ABBREVIATIONS
E03	P&ID – TANK AND WELL
E04	P&ID – PUMP STATION
E05	P&ID – CHEMICAL SYSTEM
E06	SWITCHBOARD ONE-LINE AND ELEVATION
E07	MOTOR CONTROL ONE-LINE AND ELEVATION
E08	ELEMENTARY DIAGRAM
E09	ELEMENTARY DIAGRAM

E10	CONTROL PANEL ELEVATION AND BACKPAN LAYOUT
E11	CONTROL PANEL POWER DISTRIBUTION WIRING DIAGRAM
E12	EXAMPLE PLC I/O WIRING DIAGRAM
E13	BUILDING POWER AND CONTROL PLAN
E14	BUILDING LIGHTING AND RECEPTACLE PLAN
E15	ELECTRICAL SITE PLAN #1
E16	ELECTRICAL SITE PLAN #2
E17	ELECTRICAL DETAILS #1
E18	ELECTRICAL DETAILS #2
E19	ELECTRICAL DETAILS #3

### **Assumptions**

- Design completion on or before May 2021. Construction Completed by Feb 2023.
- We have assumed one design bid package, one project for construction. If the project is broken up into additional bid packages, additional charges may apply.
- Design reviews are comprehensive and that information furnished at each design stage (design drawings, standards, methods, equipment tags, conventions) will be reviewed, commented, and/or approved when presented. Revisions to previously presented, yet uncommented, design information may create additional cost in Engineering for rework.
- Our existing insurance coverage limits for general liability (\$2M/4M) and E&O liability at \$2M/4M) are sufficient.
- Drawings and specifications can be completed by using our standards and templates created in AutoCad and MS Word using CSI format.
- Alarm notification from Operator Interface via Internet. No local or remote SCADA.
- We will work with the local utilities to obtain service connection per the current Utility requirements. We will obtain and complete applications to the extent possible and forward them to the Owner for their review, completion, signature, and fee attachment. Additional information requested by the Utility or associated design adjustments will be provided under this scope. Fees charged by the utility for engineering, studies, or service are not included.
- We have not included separate security systems (other than RTU intrusion monitoring) or video surveillance or automated access control systems.
- The project construction budget includes an industry standard 10% minimum contingency such that changes can be designed and implemented as deemed necessary by the Engineer or Owner during construction. This quotation does not include cost for construction changes regardless of initiating source.
- This quotation does not include Arc-Flash analysis (unless specifically stated) as required by the NFPA 70 electrical code. That analysis and associated equipment labeling can be provided for an additional fee.
- Electronic files (ACAD) for the siteplan, mechanical and building plan will be provided to us for our use as background files. If electronic files need to be generated for the site plan,



additional charges may apply.

- Rate escalation of 5% per hour is scheduled for January 1, 2021 and each anniversary thereafter. Escalated rates will only apply to extra work performed after January 1, 2021.
- Hourly rates include overhead costs such as telephone, photocopies, computer costs, and insurance.
- Hourly rates do not include expenses such as mileage, rental equipment, airline tickets, rental vehicles, lodging, non-incidentual photocopying and materials.
  - Travel time will be billed at hourly rate, plus current Federal mileage rate.
  - Per diem charge will be added based on half or full day of field work.
  - Actual travel expenses (airfare, ground transportation lodging, etc.) are billed at cost plus 10% for overhead and handling.

### **Deliverables**

- Plans, specifications, and cost estimate, delivered PDF, at predesign, 90%, and 100% design stages.

### **Terms**

- Attached quote is based on project scope as described. We anticipate that we can perform the scope as described within our budget. If the project changes, or work scope increases or decreases, we will make every effort to inform the Client in advance of work for authorization.
- Client will be invoiced monthly based on project progress.
- Changes to project scope may result in increased or reduced costs.

**Electrical Engineering Costs**

**See attached Quotation**

Frisch Engineering is pleased to offer this quotation for your consideration. This quotation is for design services only. We will gladly quote services during construction such as submittal review, electrical inspection, and management after the design is complete. Please give me a call or email if you have any questions or require further information.

Sincerely,



Thomas P. Frisch, P.E.  
Electrical Engineer  
[tfrisch@frischengineering.com](mailto:tfrisch@frischengineering.com)

I agree to project scope, assumptions, deliverables and terms and authorize Frisch Engineering to proceed:

X \_\_\_\_\_  
Title: \_\_\_\_\_ Date: \_\_\_\_\_



# FRISCH ENGINEERING, INC.

Consulting Electrical Engineers and Programmers  
 13405 Folsom Blvd., Unit 600  
 Folsom, CA 95630

dba Frisch Electric

Electrical Contractor

C-10 Lic #1025671

Phone:

(916) 353-1025

## PROFESSIONAL ENGINEERING SERVICES COST ESTIMATE

JOB TITLE: OPUD Booster Pump Station and Tank  
 CLIENT: Domenichelli and Associates

DATE: 5/8/2020

### Design Services

#### Electrical Engineering Discipline

Task Description	Principal Engineer	Senior Engineer	Senior Designer	Junior Designer	Associate Designer	Total hours per task	cost per task
1 30% Pre-Design P&IDs, Description	13	13	23	40	10	99	\$15,785.00
2 90% Design Site Plans	32	64	72	128	32	328	\$52,520.00
2 100% Design Completion	10	12	18	32	8	80	\$12,780.00
3 Bid Services	16	12	0	40	0	68	\$11,140.00
Travel Expense and Per Diem							\$450.00
<b>Subtotal Hours</b>	<b>71</b>	<b>101</b>	<b>113</b>	<b>240</b>	<b>50</b>	<b>575</b>	
Hourly rate per discipline	\$195	\$185	\$165	\$145	\$125		<b>Subtotal Costs</b>
Total cost per discipline	\$13,845	\$18,685	\$18,645	\$34,800	\$6,250		\$92,675.00

### Construction Services

#### Electrical Engineering Discipline

Task Description	Principal Engineer	Senior Engineer	Senior Designer	Junior Designer	Associate Designer	Total hours per task	cost per task
4A Meetings and PM 16 each	64	16	64	0	0	144	\$26,000.00
4B Respond to RFIs 6 each	3	6	24	0	0	33	\$5,655.00
4C Change Order Documents 3 each	5	6	24	0	0	35	\$6,045.00
4D Submittal Reviews 12 each	6	15	60	0	0	81	\$13,845.00
4E Factory Testing 2 days	2	4	16	0	0	22	\$3,770.00
4F Site Visit 3 visits	3	6	24	0	0	33	\$5,655.00
4G Witness Testing 5 days	5	12	45	0	0	62	\$10,620.00
4H Inspection and Punchlist 2 revs	2	4	16	0	0	22	\$3,770.00
4I As Built Drawings lot	0	0	6	0	12	18	\$2,490.00
5 Arc Flash Analysis	8	0	56	0	16	80	\$12,800.00
Travel Expense and Per Diem							\$4,200.00
<b>Subtotal Hours</b>	<b>98</b>	<b>69</b>	<b>335</b>	<b>0</b>	<b>28</b>	<b>530</b>	
Hourly rate per discipline	\$195	\$185	\$165	\$145	\$125		<b>Subtotal Costs</b>
Total cost per discipline	\$19,110	\$12,765	\$55,275	\$0	\$3,500		\$94,850.00

### Programming Services

#### Electrical Engineering Discipline

Task Description	Principal Engineer	Senior Engineer	Senior Designer	Junior Designer	Associate Designer	Total hours per task	cost per task
6 Operator Interface Programming	16	36	40	120	0	212	\$33,780.00
7 PLC Programming	32	48	120	0	0	200	\$34,920.00
8 Operator Training	16	4	0	0	0	20	\$3,860.00
Travel Expense and Per Diem							\$2,400.00
<b>Subtotal Hours</b>	<b>64</b>	<b>88</b>	<b>160</b>	<b>120</b>	<b>0</b>	<b>432</b>	
Hourly rate per discipline	\$195	\$185	\$165	\$145	\$125		<b>Subtotal Costs</b>
Total cost per discipline	\$12,480	\$16,280	\$26,400	\$17,400	\$0		\$74,960.00

**Total Costs \$262,485.00**

Individual tasks cost are approximate and some cost shifting between tasks may be necessary



