

Olivehurst Public Utility District



Agenda Item Staff Report

Meeting Date: 03/20/25

Item description/summary:

Consider Approval for Engineering Services for Plumas Lake Water System Hydraulic Model.

Olivehurst Public Utility District (OPUD) is currently seeking to conduct a water hydraulic model in order to stay ahead of the curb of development in Plumas Lake. The intent is to use it to help determine and design additional transmission main along with determining water facility that's needed in the south.

Fiscal Analysis:

The Engineering Services equate to \$50,000. The funding source would be the admin portion of OPUDs Capacity fees.

Employee Feedback

n/a

Sample Motion:

Move forward for Engineering Services for Plumas Lake Water System Hydraulic Model

EXHIBIT A – ENGINEERING SERVICES BREAKDOWN



TASK ORDER 2025-004

This Task Order is entered into on this day, February 20, 2025, by Olivehurst Public Utility District (District) and Affinity Engineering Inc. (Affinity).

For reference, this Task Order is assigned the name: Task Order 2025-004.

1. Subject
Plumas Lake Water System Hydraulic Modeling
2. Reference
This Task Order, when signed by the District, serves as authorization for Affinity to provide the services described herein to the District in accordance with the Master Service Agreement (MSA) entered into by both parties on October 1, 2009. The services provided under this Task Order shall be in accordance with the Terms and Conditions set forth in the MSA except as modified by Special Conditions listed in this Task Order.
3. Special Conditions
The services and rates provided shall be per the Consultant's scope of work as requested by John Tillotson. All services provided will be charged per Affinity billing schedule in Attachment B.
4. Project Information
This project is to create a new hydraulic model for the Plumas Lake Water System and update the System's Water Supply Planning TM that evaluates the water system's available equivalent dwelling units (EDUs).
5. Sub-consultants
JLR Environmental Consulting. See JLR subconsultant attached proposal dated February 11, 2025.

TASK ORDER 2025-004

6. Scope of Services

Affinity will provide engineering services to operational and project management services per the Scope of Services described in Attachment A.

7. Schedule

Affinity will start once OPUD approves this Task Order. Per JLR, the Scope of Services may be completed within 12 weeks after the District provides a notice to proceed.

8. Compensation

Services under this Task Order shall be provided as:

- Time and Materials, Not to Exceed (Total Estimated Fee shall not be exceeded without the prior written consent of the District)
- Lump Sum (Total Estimated Fee shall be the Lump Sum amount)

The Total Estimated Fee is \$50,000 as detailed in Attachment A – Scope of Work.


9. Signatures

IN WITNESS WHEREOF, the parties hereby execute this Task Order upon the terms and conditions stated in the above reference MSA.

Olivehurst Public Utility District

Affinity Engineering Inc.

Signature: _____

Signature: 

Print Name: _____

Print Name: James D. Carson

Title: _____

Title: President

Date: _____

Date: March 12, 2025

TASK ORDER 2025-004

Attachment A

Scope of Services

Task 1: Project Management and Meetings

- 1.1 Project Management – This task includes overall project management and coordination with Affinity Engineering Inc. and District staff. This also includes providing project/schedule updates and monthly invoices.
- 1.2 Meetings – An initial meeting will be held at the District office to go over the project and discuss item such as: 1) project team introductions and communications protocols, 2) project schedule, 3) project scope review, 4) best ways to get water system information, 5) any anticipated issues or concerns, and 6) next steps and immediate action items. Progress meetings will be scheduled as needed to update the District on project progress. We anticipate a total of 3 meetings during the project.

Task 1 Deliverables

- Monthly invoices and associated progress reports
- Meeting minutes for all progress meetings in electronic format

Task 2 – Hydraulic Modeling

- 2.1 WaterCAD System Modeling – Affinity will subcontract with JLR Consulting to create a WaterCAD hydraulically model for the Plumas Lake Water System using the Open Spatial Maps. The model will include current developments and current tentative mapped Developments.

It is assumed that the District will provide water system maps and GIS facility output from Open Spatial to be utilized for the model along with supply information from the District's sources of supply.

Affinity's TM dated November 18, 2021 will provide initial base unit demands and source supply information that will be used as a basis for water demand for JLR. Affinity will perform fire hydrant tests to assist JLR in the calibration of the model.

JLR will run the model under the following demand scenarios:

- Max Day Demands
 - Max Day Demand with all units operating
 - Max Day with largest unit out of service
 - Max Day with fire flow northern part of the System
 - Max Day with fire flow southern part of the System
- Peak Hour
 - Peak Hour Demand with all units operating
 - Peak Hour with largest unit out of service
 - Peak Hour with fire flow northern part of the System

TASK ORDER 2025-004

- Peak Hour with fire Flow southern part of the System

The results of each model run will be provided in a technical memorandum. Based on the available budget, JLR will provide additional models runs at the request of the District.

Task 2 Deliverables:

- Draft and final hydraulic Model Technical Memorandum (PDF Versions)

Estimated Fee

The total estimated fee \$50,000 is based on a time and materials, not to exceed without prior approval from the OPUD. Reimbursable expenses and subconsultants will be billed at a cost-plus 15 percent. A detail of the estimated cost is as follows:

Affinity Engineering - Detailed Cost Estimate

Project: Plumas Lake System Hydraulic Modeling

Task	Description	Senior Engineer (Hours)	Affinity Cost	Other Direct Costs		Task Cost
				JLR	Markup	
1	Project Management					
	Project Management	5	\$1,000	\$1,200	\$180	\$2,380
	Meetings	10	\$2,000	\$4,950	\$743	\$7,693
2	Hydraulic Modeling					
	2. 1 Demand Data Gathering	8	\$1,600	6,050	908	\$8,558
	2.2 Modeling and TM	8	\$1,600	\$25,800	\$3,870	\$31,270
	Subtotals	31	\$6,200	\$38,000	\$5,700	\$49,900
	Hourly Rate \$/hr.		\$200			

TASK ORDER 2025-004

Appendix B Rate Schedules

All services will be billed per the following rate schedules:

Affinity Engineering 2025 Rate Schedule	
Position	Rate (\$/hr.)
Senior Project Engineer	200
Sub-consultant fees and Reimbursable Expenses are billed at cost plus 15%	
Mileage cost is based on \$0.50/mile	



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March 5, 2025

James D. Carson
Affinity Engineering Inc.
3205 Fitzgerald Rd,
Rancho Cordova, Ca 95742

RE: South Area Water System Hydraulic Modeling Proposal

Dear Mr. Carson,

The following provides JLR's scope and fee proposal for the development of a hydraulic model (model) for the South area / Plumas Lake water system. Project Manager Sara Rogers, P.E. of JLR will develop the system model and has over 25 years of experience in planning and design of water systems. Providing support to Sara, Adam Motiejunas, P.E. of JLR has over 20 years of experience in water system designs. Affinity Engineering Inc. will oversee the efforts and provide demand and pumping system data that will be used in the model. The model will be used as a planning tool to help define improvements Olivehurst Public Utility District (OPUD) will need to provide to maintain a reliable supply and pressure to the entire water system as it grows.

This proposal sets forth the Project Understanding, Scope of Service, Fee Estimate and Schedule and in the following sections.

Project Understanding

New developments are occurring in the water system and a hydraulic model of the water system would provide the following:

1. Infrastructure for new Developments:

The model would enable the District to evaluate the currently supplied EDU's, and the currently available EDU's. The model will determine the effects that a new development would have on the water system. It would also identify the required improvements that a developer would be required to construct to receive water service from the District.

2. Locating Future Water Supply Facility

As the system grows, new water supply facilities will be required. The model will assist in determining the best locations for future water supply facilities.



Scope of Services

Task 1: Project Management and Meetings

1.1 Project Management – This task includes overall project management and coordination with Affinity Engineering Inc. and District staff. This also includes providing project/schedule updates and monthly invoices.

1.2 Meetings – An initial meeting will be held at the District office to go over the project and discuss item such as: 1) project team introductions and communications protocols, 2) project schedule, 3) project scope review, 4) best ways to get water system information, 6) any anticipated issues or concerns, and 4) next steps and immediate action items. Following the meeting will be a project site tour for JLR staff and District or other team members choosing to attend. Progress meetings will be scheduled as needed to update the District on project progress. We anticipate a total of 3 meetings during the project.

Task 1 Deliverables:

- *Monthly invoices and associated progress reports*
- *Meeting minutes for all progress meetings in electronic format*

Task 2 – Hydraulic Modeling

2.1 WaterCAD System Modeling – JLR will utilize WaterCAD to hydraulically model the existing South Area Water System (Plumas Lake area). An all new WaterCAD model will be developed based on shapefiles provided through OPUD's Open Spatial GIS system. New developments that were recently constructed and identified by OPUD will be added to the model. This will require coordinating with OPUD to obtain development information and plans. The model will be used to determine the current number of system EDU's being supplied and estimate the remaining EDU availability.

It is assumed that the District will provide water system maps and GIS facility output from Open Spatial to be utilized for the model along with supply information at the well sites. JLR will run the model under the following demand scenarios:

- Max Day Demands
 - Max Day Demand with all units operating
 - Max Day with largest unit out of service
 - Max Day with fire flow northern part of the System
 - Max Day with fire flow southern part of the System
- Peak Hour
 - Peak Hour Demand with all units operating
 - Peak Hour with largest unit out of service
 - Peak Hour with fire flow northern part of the System
 - Peak Hour with fire flow southern part of the System

The results of each of the model run will be provided in a brief technical memorandum. Based on the available budget, JLR will provide additional models runs at the request of the District.



Task 2 Deliverables:

- Draft and final Hydraulic Model Technical Memorandum (PDF versions).

Fee Estimate

The total estimated fee to perform the South Area Water System Hydraulic Modeling is \$38,000 and is based on a time and material not to exceed without prior approval from Affinity Engineering Inc and OPUD. Reimbursable expenses and sub-consultants are not anticipated from JLR Environmental. A breakdown of the project costs is included below.

The detailed project is based on the following detailed cost estimate:

Task	Description	Sara Rogers PM	Adam Motiejunas PE	Total Cost
	Hourly Rate	200	175	
1	Project Management			
	1.1 Project Management	6	0	\$1,200
	1.2 Meetings	16	10	\$4,950
2	Hydraulic Modeling			
	2.1 Demand Data Gathering	4	30	\$6,050
	2.2 Modeling and TM	24	120	\$25,800
Totals		50	160	\$38,000

Schedule

JLR believes the Scope of Services may be completed within 12 weeks after the District provides a notice to proceed.

Anticipated Future Growth and Water Model Updates

Once the scope of this proposal is complete, JLR and Affinity recognize that the fast-paced development within OPUD will continue. New developments such as Sawyers Landing and the Bear River development will require modeling updates to determine their impact on the water system. Additionally, as the north and south water service areas continue to grow towards each other, water modeling to explore connecting the two systems forming a backbone will be necessary. Affinity and JLR will continue to monitor developments and discussions with OPUD and provide additional modeling estimates when appropriate.

Sincerely,

Jeremy Rogers – President
JLR Environmental Consulting