



Request for Proposals for a Smart Water Grid Contractor



May 3, 2021

Blue Lake Rancheria Smart Water Grid Invitation to Bid, Integration Contractor

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Contact Information

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Project Information

- A. Notice to Bidders: Qualified bidders are invited to submit bids for Project as described in this Document.
- B. Project Identification: Blue Lake Rancheria Smart Water Grid (SWG), Construction Contractor - SCADA Integration
- C. Project Location: Blue Lake Rancheria, Blue Lake, CA 95525
- D. Project Owner: Blue Lake Rancheria, 428 Chartin Road, Blue Lake, CA 95525
- E. BLR Contact: Mike Smith; msmith@bluelakecasino.com
- F. Project Description: The project is the construction of a community smart water grid system.
- G. Contract: Bids will be received for the following work:
 - a) The Work for this Project includes installing a new Smart Water Grid (SWG) system, as shown or specified in the SWG Plans, Contract Documents, and Specifications. The Work shall include, but is not limited to, providing all labor, materials, equipment, and supervision required to:
 - 1. supply, program, calibrate, test and integrate the following:
 - i. primary disinfection system equipment at the ARRA Well Pump House
 - ii. secondary disinfection system equipment, including:
 - 1. Chlorine Analyzer, at Booster Pump House,
 - 2. Chlorine Residual Analyzer, at Casino/Hotel, inside building at point of pipe entry
 - iii. smart meters and pressure transducers (PT) *above ground in each respective building (the underground, precast concrete vaults, as shown on the plans, will no longer be installed for this project, as the smart meters will now be installed above ground)*
 - 1. add pressure transducer to Tribal Government Building (*new addition, PT not shown on plans for this location*)
 - 2. add pressure transducer to HC Store (*new addition, PT not shown on plans for this location*)
 - iv. SCADA system instrumentation and appurtenances
 - v. HMI equipment at:
 - 1. Facilities Director's Office (*plans show Hotel/Casino, however the Facilities Director's Office has moved to the Construction Warehouse on north side of Hotel/Casino*)
 - 2. ARRA Well Pump House, (*new addition and not shown on plans*)
 - 3. Booster Pump House, and (*new addition and not shown on plans*)
 - vi. process and measurement/monitoring instrumentation and controls,
 - vii. PLCs (*make and model to be determined by Integrator*), and associated instruments & appurtenances
 - viii. Motors
 - ix. VFD'S
 - x. *please provide a quote for the following (as an adder to the bid):*



1. supply a Smart Flow Meter and Pressure Transducer at the new Tribal Justice Center
2. supply, install, program, calibrate, test, and integrate the following:
 - i. PLC programming software (*make and model to be determined by Integrator*)
 - ii. PLC communication to SCADA system
 - iii. SCADA system software (*make and model to be determined by Integrator*)
 - iv. writing control strategy for PLC'S
 - v. wireless network (control/communication/telemetry/data storage system)
 - vi. smart meter SCADA broadband WiFi communication signal (*new addition and not shown on plans*)
 - vii. provide startup assistance
 - viii. provide support, documentation, user training, and
 - ix. performing other miscellaneous work items associated with the installation of the new smart water grid as shown on the SWG Plans and described in the Specifications, pertaining to the SCADA system, except for piping and electrical power supply.

NOTE: Bids must include all necessary labor, materials, equipment, supervision, sales tax, and all other applicable taxes and fees.

- H. Inquiries. Any questions related to this Request for Proposals (RFP) shall be directed via e-mail to the person whose name appears above.
- I. Evaluation. Award shall be made to the bidder whose proposal is determined to be the most advantageous to BLR. BLR will evaluate proposals based on an overall best value determination. Evaluation will be based on, but not limited to, the following:
- a. Experience (preference given to firms with experience in constructing smart water distribution systems)
 - b. Scope of Services/Project Approach
 - c. Project Timeline
 - d. Budget
 - e. References
- J. Discussions with Bidders and Request for Revisions. BLR reserves the right to conduct personal discussions/interviews with bidder(s) prior to selection. BLR will not be liable for any costs incurred by bidder associated with proposal preparation or with discussions/interviews. Discussions will be conducted for the purposes of clarification to assure full understanding of, and responsiveness to, the RFP requirements. Bidders shall be accorded fair and equal treatment with respect to any discussions and revisions of proposals, and such revisions may be permitted after submission and prior to award, for the purpose of obtaining best and final offers. In conducting discussions there will be no disclosure of information derived from proposal submitted by competing bidders. The purpose of discussions shall be too:
- a. Determine in greater detail bidder's qualifications.
 - b. Explore with the bidder the scope and nature of the project, the bidder's proposed method of performance, and the relative utility of alternate approaches.



- c. Determine that the bidder will make available the necessary personnel and facilities to perform within the required time.
 - K. Award of Contract. BLR expressly reserves the right, when determining whether to award a contract to a bidder, to:
 - a. Waive any immaterial defect or informality.
 - b. Reject any and all submittals, or portions thereof.
 - c. Reissue a Request for Proposals.
 - L. Preliminary Project Schedule
 - a. The Preliminary project schedule is as follows:
 - i. RFP issued: May 3, 2021
 - ii. Bids Due: June 3, 2021, 3 p.m.
 - 1. Address for hard copy: attn: Mike Smith, Blue Lake Rancheria, 428 Chartin Road, Blue Lake, CA 95525.
 - 2. Electronic copies can be sent to Mike Smith, msmith@bluelakecasino.com
 - 3. Proposals may be submitted electronically or hard copy form until the bid time and date.
 - iii. Bidders must provide a firm fixed price bid.
 - iv. Bids will be opened by the BLR Tribal Committee, on June 4, 2021, at 4:00 PM.
 - v. Award Contract: June 11, 2021.
 - vi. Work completed:
 - 1. July 11, 2021 – Purchase equipment and delivery to site (for items to be installed by others, i.e. plumbing, electrical)
 - 2. September 30, 2021 – Installation and testing, conditional on equipment installation by others (mechanical, electrical, plumbing, civil, and water tank)
 - M. Bidder's Qualifications
 - a. Bidders must be properly licensed under the laws governing their respective trades and be able to obtain insurance and bonds required for the Work. Insurance in a form acceptable to Owner will be required of the successful bidder.
 - b. Contractors shall submit a Qualifications Statement as a part of their bid. The statement shall include Qualifications/Certifications/Contractors License and shall demonstrate at least three (3) successful projects of similar size with reference name and contact information. The Contractor shall furnish evidence of successful experience by including project owner, project name, location, scope, any problems encountered and how they were resolved, original project bid, final project cost, and any claims presented and how they were resolved. The address and telephone number of the owner's representative with knowledge of the project shall also be provided.
 - N. Selection Criteria (25 points), 5 points each:
 - a. The Bidder's Work Plan and Budget.
 - b. The Bidder's general Experience, Qualifications, and ability to perform Timely Execution of the project work as evidenced by previous, similar projects.



- c. The Bidder's Professional Credentials in SCADA integration, including the qualifications, expertise, and experience of individuals assigned to the project.
- d. The Bidder's References.
- e. The Bidder's Bonding/Insurance Capacity.
- O. Instruction to Bidders
 - a. Contract documents to be provided by Blue Lake Rancheria upon award to the successful bidder.
- P. Terms and Conditions
 - a. The following terms and conditions apply to all proposals: BLR reserves the right to reject any and all proposals submitted; to select one or more responding parties; to void this RFP and the review process and/or terminate negotiations at any time; to select separate responding parties for various components of the scope of services; and to select a final party/parties from among the proposals received in response to this RFP. Additionally, any and all RFP project elements, requirements and schedules are subject to change and modification. BLR also reserves the unqualified right to modify, suspend, or terminate at its sole discretion any and all aspects of this RFP process, to obtain further information from any and all responding parties, and to waive any defects as to form or content of the RFP or any responses by any party.

This RFP does not commit BLR to award a contract, defray any costs incurred in the preparation of a response to this RFP, or contract for any services. All submitted responses to this RFP become the property of BLR as public records. All proposals may be subject to public review, on request, unless exempted as discussed elsewhere in this RFP. By accepting this RFP and/or submitting a proposal in response thereto, each responding party agrees for itself, its successors and assigns, to hold BLR and its agents, directors, consultants, attorneys, officers, and employees harmless from and against any and all claims and demands of whatever nature or type, which any such responding company, its representatives, agents, contractors, successors or assigns may have against any of them as a result of issuing this RFP, revising this RFP, conducting the selection process and subsequent negotiations, making a final recommendation, selecting a responding party/parties or negotiating or executing an agreement incorporating the commitments of the selected responding party. By submitting responses, each responding party acknowledges having read this RFP in its entirety and agrees to all terms and conditions set out in this RFP.



Attachments: Additional Information

BLR is home to the Blue Lake Rancheria Tribe in the traditional territory of the Wiyot people. Rancheria’s were established to serve as sanctuary, replacement territories for homeless and displaced Native Americans. The tribe currently has 51 members from the Wiyot, Yurok, Tolowa, and Cherokee tribes. The tribe is a federally recognized, sovereign government that was first established in 1908, unlawfully terminated in 1958, and reinstated after years of litigation in 1983. BLR resides on approximately 110 acres next to the City of Blue Lake in Humboldt County, California. The economic center of BLR consists of the Casino, Event Center, TGB, and the Play Station 777 a combination grocery store, diner, and gas station. The rest of the Rancheria is residential housing and open fields.

BLR uses on-site wells for irrigation and non-potable water (except for the ARRA Well, which is used for irrigation and potable water for the new Tribal Justice Center), and we buy our potable water from the City of Blue Lake. The City of Blue Lake distributes water treated by the Humboldt Bay Municipal Water District. HBMWD withdraws water from four Ranney wells below the Mad River within the same groundwater basin as the BLR wells. HBMWD extracts and pumps their water approximately 3 miles north-west of BLR at the John R. Winzler Operation and Control Center. The water is then treated at the Lloyd L. Hecathorn Turbidity Reduction Facility and the potable water then travels through approximately 4 miles of pipeline before reaching BLR. The high seismic risk of the area makes this long water pipeline vulnerable to failure, especially where the pipeline crosses over the Mad River on an old and unmaintained railroad bridge. This vulnerability to failure is a major impetus for the development of an independent BLR SWG.

Distribution System

BLR’s potable water and fire distribution system for the Casino and TGB was installed in 2002. The BLR distribution system contains over 2,000 feet of mains, which are summarized by pipe diameter below:

Table 2-1 BLR water distribution system pipe lengths by diameter. Pipe Diameter	Length (feet)
1-inch	30
2-inch	10
3-inch	470
4-inch	1,180
6-inch	780
8-inch	600

Wells

There are two existing wells, the ARRA Well and Well 2. The ARRA Well has a higher capacity, is newer, and has more infrastructure in place, and will be used in the SWG. The ARRA Well is a 62-foot deep well with a 300 gallon per minute (gpm) capacity that was installed in 2011 with funds from the



Bureau of Reclamation, American Recovery and Reinvestment Act (ARRA). It has a remote well electrical building that houses the electrical panel, transformer and pressure tank, and a main building (Booster Pump House) that houses a 3-phase electric service drop and a water chlorination system. Joint utility trenching, including electrical and water lines, takes the water from the well and electrical building, to the main treatment building (Booster Pump House), then to the new Tribal Justice Center, and then to the TGB ARRA tie-in. At the TGB, the water lines meet with valves, which connect the ARRA well water to the existing distribution system.

Water Demand

A key SWG design goal is to be able to provide water for BLR in the case of an emergency that disrupts potable water delivery to BLR. Two emergency demand scenarios have been developed with BLR serving as an active disaster relief center.

1. **3-Day Emergency:** This scenario assumes approximately 5,000 people will be on site. Under this scenario, BLR would only be providing drinking water, which is estimated at 1 gallon of water per day per person. This scenario requires 5,000 gallons per day.
2. **2-Week Emergency:** This scenario assumes approximately 3,000 people will be on site. Emergency shelter planning generally recommends a daily minimum of 5 gallons of water for drinking water, sanitation, and hygiene per person. For 3,000 people, this requirement amounts to 15,000 gallons per day.

Water Treatment

Federally recognized tribes work with the US Environmental Protection Agency (USEPA) to implement the Safe Drinking Water Act (SDWA) on tribal lands. BLR, a federally recognized tribe, will need to maintain and operate their system in compliance with the National Primary Drinking Water Regulations (NPDWR) set by the USEPA. Under the NPDWR, BLR will be responsible for “monitoring their systems, reporting compliance, and providing public notice.”

Water quality tests were taken in 2015 and 2019. The results indicated no presence of *E. Coli*. The only detected NPDWR violation for the ARRA well water has been total coliforms (TC) in 2015. The USEPA regulates coliforms because it is an indicator for human or animal waste in the water and if consumed, problems such as “diarrhea, cramps, nausea, headaches, or other symptoms” may arise. The ARRA well water must comply with the revised total coliform rule (RTCR) and follow the RTCR guide for small public water systems. The RTCR requirements are (USEPA 2015):

1. **Monitoring:** Comply with monthly tests for TC to verify no coliforms are found in more than five percent of samples. If there is a positive result for TC, the test needs to be repeated three times within 24 hours of positive test. In addition, the water must also be tested for *E. coli*.
2. **Contaminant Levels:** Meet the maximum contaminant level goal (MCLG) of zero for *E. coli* and TC.



3. **Assessment and Corrective Action:** To enhance public health protection an assessment will identify the presence of contaminants and problems with sampling practices. There are two levels of assessment: Level 1 or Level 2. A Level 2 is a more in-depth investigation and is mandatory after an *E. coli* violation and after a second Level 1 assessment is triggered. These assessments must be submitted to the drinking water primary agency within 30 days of violation.
4. **Reporting and Recordkeeping:** Table C- in the appendix lists the required items water systems need to report and Table C lists the records water systems need to keep.
5. **Violations and Public Notification:** Some violations to the RTCR will require a public notification.

Lab results also indicated that the ARRA Well does not contain (and, is therefore, not classified as) Groundwater Under Direct Influence (GUDI) of surface waters. Thus, to use groundwater as a source for potable water, the CWS will need to comply only with the Ground Water Rule (GWR), where chlorination would be sufficient to treat coliforms.

The GWR describes treatment technologies and best management practices (BMP) to reduce or eliminate microbial risks. Chlorination is the common BMP for disinfection and hypochlorite is a safer technique than chlorine gas; thus, many smaller systems prefer hypochlorite. To regulate disinfection byproducts, the CWS will comply with the Stage 1 Disinfectants and Disinfection Byproducts Rule (DBPR). The Stage 1 DBPR states that the disinfectant, chlorine, will have a maximum residual disinfection level (MRDL) of 4.0 mg/L as Cl₂ and will follow the same monthly monitoring as TC. In addition, the surface water treatment rule (SWTR) established that the residual disinfectant concentration entering the distribution system cannot be less than 0.2 mg/L for more than four hours.

Groundwater Treatment Processes

The CWS must treat water on site to meet emergency demands or in case of a line break from HBMWD. Centralized (as opposed to point of use) treatment is most appropriate for BLR because BLR would like to be able to use water on site for both emergency and non-emergency situations with a readily available treatment plant.

BLR's source of raw water is the same as HBMWD, the Mad River groundwater basin. The SWG is designed to follow similar treatment techniques as HBMWD to account for the increase of turbidity during the winter season. HBMWD pumps water from four Ranney collector wells which intake groundwater between 60 and 90 feet below ground level. In the dry season, this water is disinfected with chlorine and stored in a 2-million gallon (MG) baffled tank ready for consumption. Treatment increases during the wet season due to higher turbidity levels, note turbidity itself is not harmful but it could interfere with the disinfection process. The winter treatment train consists of adding the coagulant aluminum sulfate (alum), mono-media filtration, and finally disinfection via chlorination.



Operation and Maintenance

Each component of the treatment train requires monitoring and maintenance to ensure drinking water standards are being met. For the filtration process, turbidity is a good indicator of filter performance and must be regularly monitored. The filters must be cleaned regularly to minimize the cost of having to replace them frequently. For the disinfection process, chlorine residuals must be monitored daily. The hypochlorite solution requires careful handling and must be stored safely in a cool and airtight place. Similar to the filters, regular cleaning and backwashing is necessary.

Operators must be trained and certified to ensure that safety procedures are met. According to the *Tribal Drinking Water Operators Certification Program*, the operator at BLR must have a Level 1 certification that requires a high school diploma/GED, ten hours of approved training, a year of operating experience, and a minimum 70% score on the Level 1 exam.

Smart Water Grid

In any smart grid, “smart” indicates that the network has sensor capabilities to electronically monitor and record a variety of network characteristics and transmit them to a central location where managers can interpret or automate responses to the collected information. This form of data acquisition and response has become common in electrical networks and is emerging now for use in water distribution networks known as smart water grids (SWG). A SWG requires several additional components compared to a conventional distribution system including field sensors, data transmission, data storage, and analytic systems. There are five main features of a SWG:

1. Measurement and Sensing - Composed of the sensors that collect data such as flow (volume, pressure, temperature), quality (effluent, chemicals and contaminants, chlorine, pH), acoustics (leak detection) and supply (reservoir water level).
2. Communication Channels - Two-way radios, cellular networks, etc. that comprise the data communication infrastructure. This communication could also be conducted through hardwired data transmission lines.
3. Basic Data Management - Data storage and hosting with basic accessibility.
4. Real-time Data Analytics and Modeling - The software platform where remote management and assessment is conducted. The center for predictive modeling and data-driven decision support for leakage, supply, price, etc. Commonly facilitated by the use of a supervisory control and data acquisition (SCADA) system which is a computer controlled process that helps monitor, analyze and respond to the sensing information.
5. Automation and Controls – This includes all automated physical network infrastructure. Pumps and valves in the SWG operates remotely to manage the pressure, flow, quality, etc. of the system.

Large-scale system management software exists to interface SCADA and AMI systems. These include the Flexnet communication network by Sensus and the IBM Intelligent Water system on the IBM



SmartCloud. In general, the scale of the systems this software was designed for are larger than BLR. The BLR SWG design will utilize SCADA with existing or purchased components including: supervisory computers, remote terminal units, programmable logic controllers, communication infrastructure, and human machine interface.

BLR SWG Application and Capabilities

SWG field sensors can measure parameters including flow, pressure, water quality, consumption and energy usage throughout the distribution network. This data is useful during emergency conditions as well as general operations.

Emergency

BLR has risk from hazards such as drought, flooding, earthquakes, and fire (among others). The SWG would allow system failures arising from such events to be addressed in real-time by identifying system problems and their locations. If the CWS is compromised during an emergency, BLR managers will be notified instantly and can manage losses by utilizing smart valves to isolate the failure, preventing stored water from leaking out of the system. Real-time estimates of supply and demand and water usage data would allow management to project the duration of adequate supply, and adapt according to the anticipated crisis duration by shedding extraneous water uses.

General

For general operation, the information provided by the SWG would ensure proper functionality and efficiency of the system. The SWG allows managers to efficiently address repairs or even prevent them before the need arises. The system could identify potential leaks and system pressure issues providing the opportunity for failure prevention or expedited response time. The collected system data can be used to detect and manage leaks, contamination, or high or low-pressure areas. Well contamination and the extent of its distribution could also be detected to prevent the distribution of non-potable water. Cost savings are expected through leak prevention, efficient management of watering schedules, assessment and adjustment of water intensive activities, prevention of illegal connections and many more non-revenue water savings.