

EXHIBIT A

Scope of Work

The project will be conducted according to the following tasks:

Task 1: Administration and Management

The Sierra Valley Groundwater Management District will conduct administration and management tasks for this project in coordination with and in support of efforts by other applicable and affiliated Forum groups.

Deliverables for Task 1 monthly project status reports and invoices. The budget for Task 1 is \$30,000, and will cover this effort throughout the duration of the project.

Task 2: Stakeholder Outreach

An early task in this project will be to reach out to ranchers and property owners in the project area to describe the project and its benefits to agriculture and groundwater resources. This will be done through direct communication with the property owners and will build on existing relationships established through previous work. In addition, with the goal of building additional stakeholder support, the project will be publicized using the SVGMD and County website and a presentation at the SVGMD Board meeting. The proposed project has been previously discussed at Board meetings and is described in the GSP and other publicly available technical reports developed for SVGMD.

Following up on initial outreach, in coordination with the FCWCD and the Forum, the SVGMD will host a meeting with ranchers to establish willingness to participate in a synergistic recharge/irrigation efficiency project. This more focused outreach will be to ranchers in the vicinity of the proposed recharge areas, focusing on the Little Last Chance Creek Recharge Area. The initial meeting will involve sharing information on the proposed recharge sites, as well as discussing design feasibility and the proposed approach to both recharge and irrigation efficiency implementation projects. During the meeting, the SVGMD will describe the mutual economic benefits to both ranchers and Plumas County, as well as seek feedback on components to consider prior to implementation. Ranchers interested in participation will be contacted for a follow-up meeting about project participation in ranch assessments.

After the first year of project implementation, a follow-up workshop for participating ranchers will be held by the SVGMD to share preliminary results and progress of the project, as well as collect feedback and consider next steps for implementation.

At the end of the project period, a final workshop will be held to present results to stakeholders, discuss overall benefits, and discuss possible future projects across the Sierra Valley.

Deliverables for Task 2 will include reports drafted and made publicly available on the County Website after each meeting, for a total of three reports, to summarize the status of the project. The reports will incorporate feedback and suggestions from ranchers and the general public on project implementation. Additionally, a final memo will be drafted at the end of the project to describe the effectiveness of outreach efforts in enhancing the project goals and implementation.

This final memo will also include copies of all farm assessments conducted across the project region.

The budget for Task 2 is \$50,000 and will span the full period of project implementation.

Task 3: Farm Assessments

Funds will be provided to the UC Cooperative Extension to conduct farm audits for farmers that express interest in participation in this project during the original stakeholder outreach meetings described in Task 2. Each farm audit will entail monitoring and will provide a detailed report for the corresponding farm on ways to improve irrigation efficiency in the future.

Deliverables for Task 3 will be a compilation of all farm audits that will be included in Task 2. The budget for Task 3 is \$60,000.

Task 4: Preliminary Design and Permitting of Managed Aquifer Recharge (MAR) Project

During the first stage of Task 4, the MAR component of this project will require landownership discussions and both access and utilization agreements for stream gages, water conveyance routes, infiltration sites, monitoring well sites, water rights assessment, and legal descriptions. Two stream gages will be installed and will require routine maintenance and operational review throughout the project period. Identifying potential infiltration facilities will require updated hydrogeologic characterizations via numerical flow models, area-specific geophysics, phase I borings to confirm lithologies at prospective locations, and refinement of the numerical flow models to complete a mounding assessment and to assess the efficacy of the proposed work. The next phase of site assessment will require geotechnical investigations, including upper soil profiles for proposed sites, phase 2 borings to the water table to characterize unsaturated zone soils at planned infiltration sites, and small basin flooded infiltration test measurements at planned bottom depths of infiltration basins, galleries or dry wells. Once geotechnical investigations are complete, the Precipitation Runoff Modelling System (PRMS) model will be updated based on preliminary stream gauge data, and 1-yr, 10-yr and 100-yr runoff event flows will be determined. Preliminary design of the MAR infiltration system will be developed sufficient to advance water rights application and CEQA for the project implementation.

The water rights applications will comprise the final phase of Task 4. Initially the SVGMD will pursue a diversion permit through the State Water Board's Streamlined Processing for Standard Groundwater Recharge Rights. This type of permit allows for diversion of streamflow to recharge points between December 1st and March 31st, when flows in the waterbody reach or exceed thresholds that trigger flood controls actions, and when streamflow is above the 90th percentile. Diversions with this permit are limited to 20% of total streamflow, and therefore are not expected to adversely impact fish and wildlife. The SVGMD has completed step one of the streamlined permitting process by confirming eligibility of the project. The next step involves completing an application that describes the project's source, place of use, purpose, point(s) of diversion and quantity of water to be diverted. Upon acceptance of the application (decisions are expected within 30 days of submission), the permit must be environmental reviewed under CEQA and the State Water Board must determine whether both unappropriated water is available for the project and whether the permit is in the public interest. This process involves a short processing period, thereby allowing the SVGMD to begin the diversion and recharge process as soon as possible.

Once Streamlined Recharge Rights are acquired, the SVGMD will proceed to apply for a 180-Day Temporary Diversion Permit. This process will involve similar steps of environmental review relative to the Standard Streamlined Permit application. The SVGMD will seek input from the Division of Water Rights for consultation on the application prior to submission.

Deliverables for Task 4 will be a report of both MAR design and permitting progress for water diversions and recharge as well as results of numerical model scenarios. The budget for Task 4 is \$380,000.

STATUS OF PROJECT PLANNING

As described below, permits will be obtained, if needed, as part of the recharge project development **Task 4**

- a. NEPA / CEQA complete – CEQA/NEPA has not been completed. It is expected that a CEQA Notice of Exemption (NOE) will be filed. NEPA is not expected to be needed.
- b. Estimated date of completion - Notice of Exemption (NOE) expected within 6 months of project initiation.
- c. NMFS ESA consultation - This project is not expected to have adverse effects on wildlife but the need for consultations with NMFS will be determined and conducted as needed
- d. USFWS ESA consultation - This project is not expected to have adverse effects on wildlife but the need for consultations with USFWS will be determined and conducted as needed
- e. RWQCB/CDFG Permits - A Streamlined or Temporary water right permits to divert water from Little Last Chance Creek for groundwater recharge will be obtained from the State Water Board. In addition, SVGMD will serve as the CEQA lead agency and will work with Sierra County and the State Water Board as needed to issue the CEQA Notice of Exemption (NOE) needed for the temporary water rights permit.
- f. RWQCB/COE 401/404 Fill/Removal Permit Obtained - The need for permits associated with construction (i.e., 401/404 permit) will be determined during project design.
- g. SHPO Concurrence Received - SHPO concurrence has not been obtained but the need for this will be determined during project development.
- h. Project Designs Completed - Project design will be completed as part of Tasks 5 and 6
- i. FEMA/National Flood Insurance Program (NFIP) Compliance - FEMA compliance is not expected to be needed.
- j. Local/Regional Permits and Regulatory Compliance - The need for local/regional permits and regulatory compliance will be determined during project development. Permits from the Plumas County Environmental Health Department may be required.

Task 5: Construction of MAR Facilities at Little Last Chance Creek

Facilities required for the MAR Project will be constructed, including diversion works, conveyance systems, and infiltrations facilities. Part of this construction will require diversion gaging and water table and vadose zone monitoring at infiltration facilities. Subtasks for Task 5 include completion of the engineering design, securing necessary construction permits, bidding the project to select a contractor, construction with inspection services, and start-up testing and documentation of constructed facilities.

Deliverables for Task 5 include a memo detailing all costs and progress incurred during construction and will include initial monitoring data at infiltration facilities. The budget for Task 5 is \$470,000.

Task 6: MAR Performance and Monitoring

Monitoring of MAR performance will be conducted across two-years, until the end of the grant period. Performance evaluation will include bi-weekly monitoring during the diversion period, likely spanning approximately 4 months from December 1st through March 31st. Monitoring will also include regular quarterly reporting. Task 6 will also require standard minor basin and infrastructure maintenance each year. Groundwater level monitoring will be conducted separately as part of the GSP Monitoring Program.

Monitoring will be optimized to assess the effect of recharge on groundwater retention and storage in the aquifer, as well as the effect of irrigation efficiency on improving upland vegetation management. For the recharge component of this project, initial monitoring will be required during construction of recharge facilities, and will include diversion gaging, as well as water table and vadose zone monitoring at infiltration facilities. Monitoring during implementation of the recharge project will occur at stream gauges both upstream and downstream of the proposed diversion points throughout the study period, and enhanced monitoring will be conducted on a bi-weekly basis during the permitted diversion interval from December 1st through March 31st. Groundwater table elevations will be measured at 2-3 groundwater monitoring sites and all monitoring results for the recharge component of this project will be reported on a quarterly basis.

Deliverables for Task 6 will include a summary of the regular (bi-weekly) monitoring reports. The budget for Task 6 is \$60,000.

Task 7: Irrigation Efficiency Demonstration, LEPA & LESA Conversions

As the first step in the irrigation efficiency component of this project, Task 7 will involve the conversion of conventional MESA systems to LEPA systems and LESA equipment with the flexibility of including multiple options, as described below.

First, collaboration with willing ranchers and 2 volunteer farmers on 2 center pivot fields and 1 additional baseline fields to convert 1 conventional MESA systems to LEPA systems, which release a reduced volume of water closer to crop level in an effort to reduce water loss from evaporation and wind drift and reduce overall energy and pumping required for irrigation. LEPA implementation will require the installation of 5 flow meters at pivot heads and 5 soil moisture systems, to evaluate both pivot water use and soil moisture before and after system conversion.

In addition to the LEPA demonstration, this project will also convert 2 additional center pivots from the MESA systems to LESA equipment, in order to assess the efficiency of LESA in improving agricultural irrigation relative to one baseline field. LESA applies water more uniformly than LEPA (Peters et al., 2016)¹, and may have different benefits or drawbacks that will be assessed for the northeast region of the Sierra Valley. LESA demonstration will require 1 to 2 volunteer farms, and installation of 2 LESA systems, 3 flow meters and 3 soil moisture systems.

Monitoring will involve flow meter monitoring at pivot heads, and monitoring of soil moisture before and after system conversion using soil moisture systems. Combined, flow meters will provide information on water use during the study interval, and soil moisture monitoring will allow for comparison of moisture content and retention using LEPA and LESA systems relative to conventional MESA systems.

Deliverables for Task 7 will include a compilation of monitoring data, before and after LEPA and LESA conversions, for the annual irrigation report detailed in Task 2. The budget for Task 7 is \$170,000, based on the cost for 1 LEPA conversions and 1 LESA conversion.

¹ Peters, T., Neibling, H., Stroh, R., Molaei, B., and Mehanna, H., 2016, Low Energy Precision Application (LEPA) and Low Elevation Spray Application (LESA) Trials in the Pacific Northwest, p. 3.
<http://irrigation.wsu.edu/Content/Fact-Sheets/LEPA-LESA.pdf>