

Attachment 4
Work Summary

North Cal-Neva Resource Conservation and Development Council, Inc.

WORK SUMMARY

PROJECT A: Ash Valley Ranch Irrigation Infrastructure Efficiency

Category (a): Direct Project Administration

Task 1: Administration

Project and Contractor Management will be provided by the Pit Resource Conservation District. Pit RCD employs a Business Manager who handles their day-to-day activities and also serves as bookkeeper. All other work is furnished by independent contractors, including a Watershed Coordinator and a Project Director who manages terrestrial projects.

Deliverables: Day to day project management. Preparation of invoices and other deliverables as required.

Task 2: Reporting

Preparation of project progress reports.

Deliverables: Submission of quarterly, annual and final reports

Category (b): Land Purchase/Easement

Not applicable

Category (c): Planning/Design/Engineering/Environmental Documentation

Task 3: Assessment and Evaluation

The project has been assessed with respect to its technical feasibility. Specifically with respect to system knowledge, all work will be accomplished by locally based independent contractors and volunteers who have already been identified and have aided in the restoration of over 12,000 acres in Lassen County alone over the past decade. Knowledge of the region, the resources, and the affected community are well documented. There are no data gaps for project development.

With respect to technical data, a Conservation and Stewardship Plan has been developed for the Ash Valley Ranch, which includes several studies analyzing potential environmental and cultural impacts of implementing the proposed project. Environmental studies include a synopsis of potential project impacts on federal and state listed wildlife and plant species, U.S. Forest Service and California wildlife species of special concern, and plant species on the California Native Plant Society Inventory of Rare and Endangered Plants of California. The Genesis Society has conducted 3 Class III Archaeological Survey covering the project area. The project is exempt from CEQA. Because the project location is so well known, there are no doubts that the project will achieve its goals as designed

Project status

The project is not subject to permitting beyond an electrical permit that will be issued by Lassen County which can typically be acquired within a day or two, and is on a single landowner's property. Cost share will be provided by project partners throughout the life of the project. The project is ready to proceed upon grant award.

Deliverables: none

Task 4: Final Design

A project construction plan **has been completed**, including quantities and estimated costs.

Deliverables: Completion of project plans and specifications at the final level.

Task 5: Environmental Documentation

No extraordinary restrictions have been placed on this project. The project requires no permits beyond an electrical permit that will be issued by Lassen County (that can typically be acquired within a day or two) nor additional environmental documentation, and therefore, **the project is ready to proceed**. A Conservation and Stewardship Plan has been developed for the Ash Valley Ranch which includes several studies analyzing potential environmental and cultural impacts of implementing the proposed project (see Task 3: Assessment and Evaluation).

California Environmental Quality Act (CEQA): The Pit Resource Conservation District staff and its Board of Directors have reviewed the proposed project environmental analysis and determined that it is exempt from the California Environmental Quality Act under Section 15304 of the Guidelines, which exempts minor alterations in the condition of land, water, and/or vegetation which do not involve removal of healthy, mature, scenic trees except for forestry or agricultural purposes. The Pit RCD filed a Notice of Exemption with the Lassen County Clerk.

National Environmental Policy Act (NEPA): Project is not subject to NEPA.

Deliverables: none

Category (d): Construction/Implementation

Task 6: Construction Contracting

The diesel pump replacement and pipeline installation work will be solicited through two separate bid requests. It is possible that a single contractor could be awarded both contracts. Contactor solicitation will commence upon grant execution. Contracts will be let for the new pumps and their installation and for the pipeline construction. Our priorities for pipeline installation, taking in to account the project bids will be: 1) diesel pump replacements; 2) the north/south mainline; 3) the east west mainline; 4) extensions to the mainline. Bids are prepared and ready for advertisement.

Deliverables: Advertisement for bids; evaluation of bids; award contract

Task 7: Construction:

Subtask 7.1 Electrical line extensions

The first phase of the project is electrical line extension. 8,280 feet of primary electrical line will be extended to the two pump locations in a buried trench. The work will be done by the local electric utility company, Surprise Valley Electric. They have provided a quote for the work and the price is included in our budget. Work will be conducted as soon as possible after award of contract with the landowner digging and filling in the trenches.

Subtask 7.2 Replacement of diesel motors

Diesel motors will be replaced with one 40 HP and one 80 HP three-phase induction motor. Each pump unit installation will include a variable frequency drive panel that will convert incoming fixed frequency single-phase power into a variable frequency and voltage for controlling the speed of the three-phase induction motor. Pumps will be installed in late October or early November of 2014 after the end of the irrigation season.

Subtask 7.3 Pipeline installation

Pipeline design calls for 17,050 feet of 20" PVC pipe; 3,400 feet of 15" PVC pipe and 2,400 feet of 12" pipe and associated valves and fittings. Pipeline will be installed in a buried trench during months outside of the irrigation season.

Deliverables: Documentation of project completion including photo monitoring and completed installation GIS files.

Task 8: Monitoring

The pre and post water pumping/flow monitoring will occur during the irrigation season before the project is started and in the following seasons after the work is completed.

Deliverables: Monitoring reports.

Table A-2 – Project Performance Monitoring		
Project: Restoring Hydrologic Function in South Ash Valley		
Proposed Physical Benefits	Measurement tools and methods	Targets
1. Amount of water saved.	The amount of water pumped is being monitored for the 2014 growing season based on pump production and hours of operation. The amount of water pumped will be monitored using the same method following installation of new pumps and pipeline.	1,000 acre feet annually
2. Amount of energy saved.	Pre-project diesel use will be compared to post project energy use as supplied by energy bills from electric service provider. Energy use will be converted to MMBtu.	800 MMBtu annually for a 75% reduction
3. Greenhouse gas (GHG) emissions avoided	Pre-project diesel use will be compared to post project energy use as supplied by energy bills from electric service provider. CO2 emissions for the amount of diesel used in years pre-project has been used to calculate CO2 emissions before installation of electric pumps. Energy use by electric pumps will be determined from energy bills provided from the electric service provider. CO2 emissions associated with power generation will then be calculated.	114,000 lbs of CO2 per year for a reduction of 63%
4. Annual cost savings	Cost savings will be determined using the market value of off road diesel and energy bills from the electric service provider.	\$9,000 per year. This number will fluctuate with diesel and electric prices.

PROJECT B: Restoring Hydrological Function to South Ash Valley

Category (a): Direct Project Administration

Task 1: Administration and Project Management

Project and Contractor Management will be provided by a Project Director who will be responsible for the overall project management that will be necessary to implement treatments and to conduct monitoring effort necessary to quantify the beneficial impacts of western juniper (*Juniperus occidentalis*) removal on restoration of hydrologic function and native rangeland plant communities. The Pit Resource Conservation Business Manager will be responsible for bookkeeping and processing invoices.

Deliverables: Day-to-day project management; preparation of invoices and other deliverables as required.

Task 2: Reporting

Preparation of project progress reports.

Deliverables: Submission of quarterly, annual and final reports

Category (b): Land Purchase/Easement

Not applicable

Category (c): Planning/Design/Engineering/Environmental Documentation

Task 3: Assessment and Evaluation

The project has been assessed with respect to its technical feasibility. All work will be accomplished by locally based independent contractors and volunteers who have already been identified and have aided in the restoration of over 12,000 acres in Lassen County alone over the past decade. Knowledge of the region, the resources, and the affected community are well documented. There are no data gaps for project development.

No extraordinary restrictions have been placed on this project. A Conservation and Stewardship Plan has been developed for the Ash Valley Ranch which includes several studies analyzing potential environmental and cultural impacts of implementing the proposed project. Environmental studies include a synopsis of no potential project impacts on federal and state listed wildlife and plant species, U.S. Forest Service and California wildlife species of special concern, or plant species on the California Native Plant Society Inventory of Rare and Endangered Plants of California. The Genesis Society has conducted two Class III Archaeological Surveys that cover the project area.

Project status

CEQA (Exemption) and NEPA Environmental documentation have been completed and project is ready to proceed immediately. Within 90 days of grant agreement execution (project start date) the landscape-scale treatment prescriptions will be identified in the field. Treatment work will begin within 6 months after the project start date and will be completed by month 18, allowing for winter weather shutdown periods.

Deliverables: none

Task 4: Final Design

Project layout will be completed within two months of the award.

Deliverables: Completion of project plans and specifications at the final level.

Task 5: Environmental Documentation

No extraordinary restrictions have been placed on this project. The project requires no permits nor additional environmental documentation, and therefore, ***the project is ready to proceed***. A Conservation and Stewardship Plan has been developed for the Ash Valley Ranch which includes several studies analyzing potential environmental and cultural impacts of implementing the proposed project (see Task 3: Assessment and Evaluation).

California Environmental Quality Act (CEQA): A CEQA Notice of Exemption has been prepared and adopted by the Pit Resource Conservation District and filed with the Lassen County Clerk.

National Environmental Policy Act (NEPA):

The BLM Alturas Field Office has conducted the necessary National Environmental Policy Act (NEPA) compliance for treatments proposed within this plan on BLM lands and cooperative agreements have been developed to allow the Pit Resource Conservation District to implement restoration treatments on BLM and private lands within the treatment area. **Deliverables:** NEPA documentation for project within 30 days of award CEQA documentation has been provided.

Category (d): Construction/Implementation

Task 6: Construction Contracting

Contractual/Treatment Contractor: Restoration Treatments will be implemented through a contracted Licensed Timber Operator. A contract will be awarded through a competitive bidding process.

Deliverables: Advertisement for bids; evaluation of bids; award contract

Task 7: Construction:

Subtask 7.1 Juniper Removal

Treatment work will be done by private contractors who will be selected through a competitive bidding process. Juniper will be removed through prescriptions that use rubber tired and track mounted shears to cut the juniper. The material will be chipped and hauled to HL Power, one of our principle partners, to be used as a renewable energy source.

Subtask 7.2 Fencing

The Bureau of Land Management requires that the treated area be fenced off to protect it from adverse impacts due to cattle grazing for two years post treatment. Fencing will be constructed to exclude cattle from the treatment area at the end of thinning treatments.

Deliverables: Documentation of project completion including photo monitoring and completed installation GIS files.

Task 8: Monitoring

Conducting monitoring effort necessary to quantify the beneficial impacts of western juniper (*Juniperus occidentalis*) removal on restoration of hydrologic function and native rangeland plant communities. Monitoring will include: maintenance and monitoring of existing lysimeters and soil moisture probes; installation and monitoring of additional passive capillary lysimeters and soil moisture monitoring equipment; and vegetation monitoring. Monitoring will be completed in areas with juniper removal treatment and in control areas. These data will provide critical data with respect to effects of juniper removal on water budgets

Project status: Work will begin as soon as possible after notification of project funding (as early as October 2014). The first monitoring deliverable (pre-project) will be due six months following project initiation. Subsequent monitoring results will be delivered to the Project Director at six-month intervals throughout the duration of the project.

Deliverables: Monitoring reports.

Table A-2 – Project Performance Monitoring		
Project: Restoring Hydrologic Function in South Ash Valley		
Proposed Physical Benefits	Measurement tools and methods	Targets
1. Increased precipitation available for groundwater recharge and forage production	Deep water drainage will be measured using passive capillary lysimeters (Decagon Devices G2 and G3 Drain Gauge). Lysimeters will be installed within the treatment area and in a similar untreated area. No studies to date have measured rates of ground water recharge following juniper removal. These data will provide critical information on the amount of water available to drain beneath the root zone and recharge the aquifer, further quantifying the effects of juniper removal on water budgets. If pre-project data on spring flow of springs present within the project area and a similar untreated area are available their flow rate will be measured a minimum of three times during the growing season following juniper removal. Volumetric water content of the soil will be measured at 6, 12, and 24 inches using soil-moisture sensors (Decagon Devices 5TM).	Greater amounts of deep water drainage in treated area as compared to a similar control area as seen in preliminary studies. Greater soil moisture at depths of 12 and 24 inches in the treated area than in a similar control area. Soil moisture levels at 12 and 24 inches will remain higher later into the growing season than in untreated areas with juniper roots extending below these depths.
2. Restoration of historic drought-resilient native plant communities to the landscape to support agriculture and wildlife	Changes in herbaceous plant species richness, density and cover will be monitored using data collected from 1 meter squared (1m ²) quadrats placed along 100-meter transects located in both treated and untreated areas. The data recorded from each quadrat will include a complete list of species to determine the richness of each site (species/m ²), plant count for determination of density (native species/m ²) and an ocular estimation of cover to determine the percent cover for each species rooted within the square-meter quadrat, as well as percent cover estimates for bare ground, rocks, vegetative litter, and animal disturbance. Changes in the density of trees and woody perennial plant species will be monitored using a 9x100m belt transect established along the same transect used for the quadrats. Each individual tree or woody species having >50% of its rooted base within the belt transect will be counted.	Elimination of western juniper. Increased density and percent cover of native grasses, forbs, and shrubs on treated sites. Improved vigor and increased density of perennial shrubs used for browse.
3. Increased forage production	Livestock and wildlife enclosure cages will established at each lysimeter monitoring location to measure vegetative productivity. Vegetation will be harvested, dried, and weighed.	500 lbs per acre more forage produced on treated acres compared to untreated acres by the June 2016 monitoring period
4. Kilowatt hours of energy produced from harvested biomass	Contractors will chip the harvested juniper and chips will be delivered to HL power where they will be dried and weighed. Based on previous projects we can assume that the project will produce approximately 14 bone dry tons of wood chips per acre. Each bone dry ton of chips yields approximately 1,000 kilowatts of energy.	Assuming that 1,000 acres will be treated the project will result in 14,000,000 kilowatts of renewable energy produced.
5. Acres of land with reduced wildfire hazard	The project area boundaries will be recorded with a handheld Global Positioning System (GPS) system and total acres will be determined.	1,000 acres

PROJECT C: South Fork Irrigation District Infrastructure Upgrade

Category (a): Direct Project Administration

Task 1: Administration and Project Management

Grant contract administration – This will involve monthly invoicing and billing and completed required reporting.

Deliverables: Day-to-day project management; preparation of invoices and other deliverables as required.

Task 2: Reporting

Preparation of project progress reports.

Deliverables: Submission of quarterly, annual and final reports

Category (b): Land Purchase/Easement

Not applicable

Category (c): Planning/Design/Engineering/Environmental Documentation

Task 1: Research and selection of construction materials. This will involve the product identification, specifications, cost, suppliers and transportation of all needed materials.

Task 2: Plan and design pipe removal. This will involve the identification of equipment and crew needed, techniques, safety precautions and the disposal and recycling of old pipe

Task 3: Plan and design ditch liner and pipe installation. This will involve the identification of equipment crew needed, steps in the installation process, and techniques.

Task 4: Complete environmental documents and public review. The deliverable for this task is the final document.

Deliverables: Final CEQA documentation and any applicable permits in completed.

Project Status: The CEQA and NEPA process is underway and it is unlikely that significant compliance issues will arise. This conclusion is based on previous resource surveys in the vicinity of the proposed project areas, which have not had any extraordinary restrictions and from close contact with the USFS. It is estimated that the projects will be shovel ready by April 1st 2015.

Category (d): Construction/Implementation

Task 1: Contract/Agreement Administration. This will involve the oversight of work activities, tracking of time and expenditures, completing progress reports, and complete final report.

Deliverables: The deliverables of this task will be two progress reports and a final report.

Task 2: Complete diversion ditch upgrade. This will involve the removal of the existing pipeline and the installation of the ditch liner to replace the existing pipeline.

Deliverable: The deliverable will be the completed work assignment.

Task 3: Complete flume pipe upgrade. This will involve the removal of the old flume pipe and install a new plastic pipe. The deliverable will be the completed work assignment.

Deliverable: The deliverable will be the completed work assignment.

Deliverables: Documentation of project completion.

Table A-2 – Project Performance Monitoring

Project: _South Fork Irrigation District Infrastructure Upgrade

Proposed Physical Benefits	Measurement tools and methods	Targets
Prevent loss of water from infrastructure measured in acre feet per year	Staff stream gauge and automatic recording flow meter along with scheduled inspection of the ditch	No loss of water from leaking pipes or ditch overflow - 0 acre feet per year of lost water
Maintain existing wetland areas with a more efficient water delivery system	Ocular reconnaissance of key field areas, mapping of any wetland areas being lost.	No loss of wetland acres
Maintain existing shallow pond areas with a more efficient water delivery system.	Ocular reconnaissance of key pond areas in July of each year, Identify pond areas that are dry.	No loss of selected ponds.

